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Report

Confidential		Title/Author(s)		Sign.	
A. Bjørseth R. Steel B. Dahl N. Telnæs H. Nes (Væ) Arkiv (2) Partners		OIL - SOURCE ROCK CORRELATIONS IN WELL 7120/2-1 U-464 Nils Telnæs		86-4958-BA 27 MAI 1986 REGISTRERT OLJEDIREKTORATET	
Summary/Conclusion/Recommendation					
Key words				Subject category	
Oil-source rock correlations, biomarkers, stable isotopes, pyrolysis				Geochemistry	
Division/Section/Dept. Geology		Field/Block/Well 7120/2-1		Pages 79	
Approved sign. [Signature]		Project no. K0412		Report [X] Note [] Date 09-05-86	

Channel: 8 Title: C1-C10
 Analysis: PVT OILS Sample Name: 7120/2-1
 Sample 2 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKIZ	Identity
1SC	4.283	4.270	300.0	1045	2149	0.016	PROPANE
2C	4.603	4.589	354.1	943	2061	0.015	ISO-BUTANE
3RSC	4.875	4.860	400.0	4559	10553	0.079	N-BUTANE
4C	5.869	5.861	465.0	6565	17851	0.133	ISO-PENTANE
5RSC	6.405	6.400	500.0	11372	32880	0.246	N-PENTANE
6C	7.421	7.418	525.6	385	1217	0.009	2,2-DM BUTANE
7C	8.501	8.500	552.8	1718	4167	0.031	2,3-DM BUTANE
8C	8.517	8.516	553.2	1423	5642	0.042	CYCLOPENTANE
9C	8.728	8.727	558.5	8654	31872	0.238	2-M PENTANE
10C	9.421	9.421	575.9	5359	21177	0.158	3-M PENTANE
11RSC	10.379	10.380	600.0	17045	69046	0.516	N HEXANE
12C	11.957	11.963	618.9	389	1610	0.012	2,2-DM PENTANE
13RC	12.133	12.140	621.0	9918	46062	0.344	M-CYCLO PENTANE
14C	12.400	12.408	624.2	884	4131	0.031	2,4-DM PENTANE
15C	13.909	13.926	642.2	4610	22289	0.167	BENZENE
16C	14.381	14.401	647.9	246	1200	0.009	3,3-DM PENTANE
17RC	14.699	14.720	651.7	13349	68763	0.514	CYCLO HEXANE
18C	15.499	15.518	661.2	6844	32925	0.246	2-M HEXANE
19C	15.637	15.656	662.9	1834	9971	0.075	2,3-DM PENTANE
20C	15.883	15.901	665.8	1821	9715	0.073	1,1 DM CY-PENTAN
21RC	16.293	16.310	670.7	7771	39736	0.297	3-M HEXANE
22C	16.875	16.889	677.7	2993	15711	0.117	C 1,3-DM CYCLOPENTANE
23C	17.141	17.155	680.9	2754	13812	0.103	T1,3-DM CYCLOPENTANE
24C	17.205	17.219	681.6	811	4017	0.030	3-ETYL PENTANE
25C	17.408	17.421	684.1	3984	22246	0.166	T1,2-DM CYCLOPENTANE
26I	17.643	17.655	686.9	33426	202591		ISO-OCTANE
27RSC	18.741	18.750	700.0	20299	109249	0.817	N HEPTANE
28C	20.800	20.820	717.6	25911	159750	1.195	M CYCLO HEXANE
29C	21.038	21.109	720.0	2561	15806	0.118	2,2-DM HEXANE
30C	22.011	22.037	727.9	1085	5651	0.042	ETYL CYCLOPENTANE
31C	22.171	22.198	729.3	1198	6571	0.049	2,5-DM HEXANE
32C	22.389	22.418	731.2	1460	7999	0.060	2,4-DM HEXANE
33C	23.008	23.040	736.4	2110	11437	0.086	1T,2C,4-IM CYCLOPENT
34C	23.157	23.190	737.7	433	2553	0.019	3,3-DM HEXANE
35C	23.835	23.871	743.5	1849	10479	0.078	1,12,13-IM CYPENTANE
36RC	24.629	24.670	750.3	17537	106390	0.796	TOLUENE
37C	25.477	25.514	757.5	1403	11479	0.086	2,3-DM HEXANE
38C	26.229	26.262	764.0	9255	51854	0.388	2-M HEPTANE
39C	26.384	26.416	765.3	2791	13303	0.099	4M-HEPTANE
40C	26.861	26.891	769.4	308	1512	0.011	3,4-DM HEXANE
41C	27.144	27.172	771.8	6143	34486	0.258	3-M HEPTANE
42C	27.283	27.310	773.0	7441	53122	0.397	C1,3-DM CYHEXANE
43C	27.501	27.528	774.8	3912	20097	0.150	T1,4-DM-CYHEXANE
44C	28.133	28.157	780.2	1357	7938	0.059	1,1-DM-CYHEXANE
45C	28.579	28.600	784.0	389	2046	0.015	2,2,4-IM HEXANE
46C	28.840	28.860	786.3	361	1899	0.014	C1,3-M,ET PENTANE
47C	28.995	29.014	787.6	801	4760	0.036	1-ET,2-M CYPENTANE

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKIZ	Identity
48C	29.245	29.263	789.7	220	1268	0.009	T1,2-DM CYHEXANE
49C	29.605	29.621	792.8	4045	24403	0.182	C-1,4-DM CYHEXANE
50RSC	30.448	30.460	800.0	19151	130800	0.978	N-OCTANE
51C	31.389	31.403	807.5	241	1400	0.010	T1,3-DM CYHEXANE
52C	32.104	32.120	813.3	202	1121	0.008	USP.C-9
53C	32.368	32.384	815.4	180	963	0.007	C1,2-DM CYHEXANE
54C	32.808	32.825	818.9	383	2774	0.021	2,2-DM HEPTANE
55C	33.333	33.352	823.1	1642	12824	0.096	2,4-DM HEPTANE
56RC	34.040	34.060	828.8	7350	48153	0.360	ET CYHEXANE
57C	34.157	34.177	829.7	3715	21201	0.159	USPES. C-9
58C	34.712	34.729	834.2	4609	27135	0.203	2,5-DM HEPTANE
59C	34.968	34.984	836.2	3024	18158	0.136	3,5-DM HEPTANE
60C	35.053	35.069	836.9	540	3610	0.027	USPES. C-9
61	35.208	35.223	838.2	207	1356	0.010	
62C	35.475	35.488	840.3	304	1799	0.013	3,3,-DM HEPTANE
63	35.528	35.541	840.7	227	1773	0.013	
64C	36.224	36.234	846.3	3178	18628	0.139	ETYL BENZENE
65	36.293	36.303	846.9	788	4726	0.035	
66C	36.603	36.611	849.4	2441	15296	0.114	NAFTEN 9
67RC	37.395	37.400	855.7	12563	92282	0.690	M XYLENE
68C	37.507	37.513	856.6	6321	33935	0.254	P XYLENE
69C	37.875	37.883	859.6	331	3034	0.023	PARAF. 9
70C	38.077	38.087	861.2	953	7410	0.055	2,3-DM HEPTANE
71C	38.531	38.544	864.8	3027	17643	0.132	4-M OCTANE
72C	38.663	38.683	865.9	4322	24262	0.181	2-M OCTANE
73C	39.101	39.118	869.4	216	1190	0.009	3-ET HEPTANE
74C	39.317	39.336	871.1	617	3254	0.024	PARAF. 9
75RC	39.520	39.540	872.8	5263	36244	0.271	3-M OCTANE
76	39.605	39.626	873.4	354	1346	0.010	
77RC	40.168	40.190	878.0	6680	42949	0.321	O XYLENE
78C	40.253	40.275	878.6	591	3778	0.028	USPES. C9
79C	40.896	40.916	883.8	1028	6035	0.045	N-BUTYL CYHEXANE
80C	41.045	41.064	885.0	3654	20918	0.156	USPES. C9
81C	41.317	41.335	887.2	2414	14692	0.110	1-ME,4-ET CYHEXANE
82C	42.480	42.494	896.5	395	2644	0.020	USPES. C9
83RSC	42.917	42.930	900.0	18811	125454	0.938	N NONANE
84	43.237	43.249	902.6	2109	15095	0.113	
85	43.555	43.565	905.1	606	4508	0.034	
86	43.984	43.993	908.6	1076	5458	0.041	
87	44.389	44.397	911.8	1794	12534	0.094	
88	44.592	44.599	913.4	1277	7904	0.059	
89	44.901	44.907	915.9	915	4501	0.034	

Stable isotopes:

The results of the $\delta^{13}\text{C}$ analysis are plotted in a Galimov plot in Fig. 11, and are listed below.

Oil	Saturates	Aromatics	NSO-compounds
-30.46	-31.00	-30.29	-29.62

ANALYSIS OF THE EXTRACT FROM 641 M

This is an extract from a Sidewall Core with predominantly sandstone.

Extraction and group type separation:

The extraction yield was 15000 ppm, and it contained 0.2 % asphaltenes. The result of the group type separation is given below.

Saturates	Aromatics	NSO-compounds
59.5 %	24.0 %	16.5 %

Stable isotopes:

The results of the $\delta^{13}\text{C}$ analysis are plotted in a Galimov plot in Fig. 17, and the values are listed below:

Extract	Saturates	Aromatics	NSO-compounds
-30.09	-30.60	-29.51	-30.31

SOURCE ROCK EXTRACTS

In addition to the intervals extracted as a part of the source rock evaluation, two samples have been extracted from a cored, black shale at 2047.2 m and 2048 m.

The results of extraction and group type separation of these two samples are given in Table 3.

Depth	EOM(ppm)	Asphaltenes(%)	Sat(%)	Aro(%)	NSO(%)
2047.2	102	40.0	40.2	14.2	45.7
2048	120	42.9	30.4	17.0	52.5

Table 3: Results of extraction and group type separation of core extracts.

Depth	% 20S Steranes	% $\alpha\beta\beta$ Steranes	Ts/Tm	$\beta\alpha/\alpha\beta$ Hopanes
641	45.4	48.0	0.85	7.8
805-10	15.5	37.2		
886	12.0	45.8	0.86	
955	8.1	22.2	1.84	
1193	33.9	44.0	0.53	5.5
1242	46.4	50.9	1.44	7.8
1390	46.0	55.0	2.00	9.1
1684	47.7	64.7	4.06	0.3
1824.5	47.1	49.6	1.26	5.6
1967	54.7	65.1	5.27	9.4
1977.9	57.4	63.4	7.80	10.5
2009	57.4	63.9	9.30	12.1
2029	54.9			
2051	53.1	65.0	8.90	11.1

Table 4: Biomarker ratios

ISOTOPIC CORRELATIONS

The $\delta^{13}\text{C}$ values for the oil and the extract from 641 m is plotted in Galimov plots in Figs. 11 and 17 and the values are very similar.

In addition, several of the extracts were analysed and the results are summarised in Table 5.

Depth(m)	$\delta^{13}\text{C}$ Hex. sol.	$\delta^{13}\text{C}$ Asphaltenes
641.0	-30.09	
959.0	-30.34	-26.74
1242.0	-30.02	-26.89
1648.0	-30.61	-26.50
2047.2	-29.64	-26.56
OIL	-30.46	

Table 5: Isotopic composition of extracts

In Table 6 is summarised the isotope analysis of the pyrolysates.

Depth(m)	$\delta^{13}\text{C}$ Pyrolysate
886.0	n.d
959.0	-30.22
1583.0	-26.00
1824.5	n.d.
2048.0	n.d.
2417.0	-21.35

n.d.: no determination

Table 6: Isotopic composition of pyrolysates.



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Pau , le

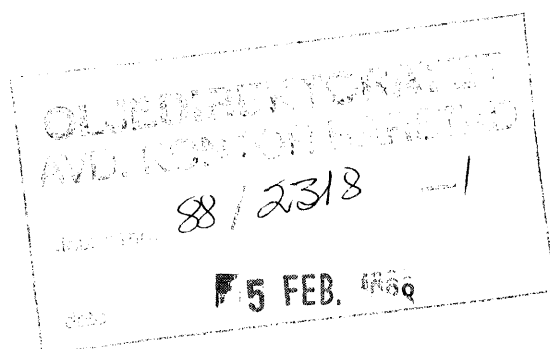
July 1987

7120/2-1 WELL

NORWAY

*Laboratory study of the Carboniferous
to lower Permian section*

EP/S/EXP/Lab. Pau n° 87/103RP



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3 - DEPOSITIONAL ENVIRONMENT

A total of twenty-two samples were studied by optical microscopy, in order to observe the lithological characteristics

These samples were distributed within the different facies as follows :

SAMPLE DEPTH (m)	CORE NUMBER	FACIES
1960.70	1	CHERTS
1960.90	1	CHERTS
1961.10	1	CHERTS
1961.70	1	CHERTS
1962.90	1	CHERTS
1963.25	1	CHERTS
1963.75	1	CHERTS
1963.90	1	CHERTS
1971.40	1	CHERTS
1974.50	2	LIMESTONE-DOLOMITE
1985.0	2	LIMESTONE/DOLOMITE
1986.0	2	LIMESTONE/DOLOMITE
1988.0	2	CHERTS
1989.90	3	CHERTS
1995.55	3	CLAYSTONE
2000.15	3	CLAYSTONE
2009.65	4	LIMESTONE
2012.75	4	LIMESTONE/DOLOMITE
2024.40	5	CHERT
2027.70	5	SANDSTONE
2064.70	7	CLAYSTONE
2129.60	11	DOLOMITE

ANNEX 1

Thin section description

- 1960.70 m : Wackestone, bioturbated highly recrystallized with a dolomitic matrix. Allochems include Echinoderm, Lamellibranch and spicule fragments.
Diagenesis : matrix has been dolomitized, allochems and bioturbations are for the most part silicified ; however traces of vuggy porosity still remain.
- 1960.90 m : Two facies wackestone as above and mudstone. Allochem content and diagenesis similar to 1960.70 m, except for mudstone which contains pellet material : porosity within stylolitic laminae.
- 1961.10 m : Mudstone facies with dolomitic recrystallization as above.
- 1961.70 m : Wackestones as at 1960.70 m.
- 1962.90 m : Wackestone as above but very intense silicification of matrix and allochems.

- 1963.25 m : Wackestone as above.
- 1963.75 m : Wackestone as above but contain larger grain size allochem material than previous wackestones.
- 1963.90 m : Wackestone containing spicules, Echinoderms and pellets. Matrix and some spicules dolomitic. Matrix dolomite partly silicified. Allochems have also been silicified (mostly micro-crystalline quartz).
- 1971.40 m : Boundstone/wackestone. Wackestone as at 1963.90 m. Boundstone is composed of tabulated coral. Certain needle shape crystals replaced by dolomite were observed within the wackestone which may have originally be gypsum crystals.
- 1974.50 m : Two mudstone lithologies differentiated by their organic matter content which is more abundant in the lower unit. Allochems are Echinoderm and spicule fragments. They contain also scarce silt size material composed of quartz and feldspars. The matrix is dolomitic and the geodes are filled by diagenetic quartz.
- 1985.0 m : Wackestone containing similar allochems than the wackestone at 1974.50 m. However the matrix is highly silicified as are the spicule fragments.

- 1986.0 m : Wackestone containing abundant silicified spicules, and less abundant Echinoderms, Radiolarians and algal fragments. Diagenesis : matrix and allochems dolomitic and little silicification.
- 1988.0 m : Bioturbated wackestone. Allochems as above. Diagenesis : silicified bioturbations and some spicules ; dolomitic in remaining areas.
- 1989.9 m : Wackestone/stromatolite. Some clay material present in both facies. Dolomitic and siliceous cement. Fissures filled with quartz cement.
- 1995.95 m : Bioturbated wackestone ; Allochems : pellets and spicules. Dolomitic matrix and allochems.
- 2000.15 m : Packstone, algal and bryozoan debris, also abundant pellets and pyrite crystals. Scarce spicules debris. Dolomitic cement.
- 2009.65 m : Bioturbated packstone. Same constituents as above. Dolomitic cement, but traces of siliceous cement within allochems ; also present residual diagenetic clay.

- 2012.75 m : Two packstone facies. One dolomitic as above and the other silicified. The constituents of the silicified packstone are : Crinoids, spicules, Echinoderms and organic matter. Siliceous cementation shows a chaledony rim with quartz filling the remaining pore space. Some vuggy porosity still remains.
- 2024.4 m : Packstone, dominant constituents : Lamellibranch debris and Echinoderm fragments, accessory elements spicules and pellets, also present silty size quartz and feldspar and mica grains. Diagenesis : mainly dolomitic cement, also observed siliceous cement in fissures and allochems.
- 2027.70 m : Sandstone, fine grained, well sorted, clay content 5 %. Grains are composed of quartz (≈ 90 %) feldspars (≈ 10 %) and minor quantities of micas, rock fragments and organic matter. Cements : quartz overgrowths, clays, dolomite and ferroan dolomite.
- 2064.70 m : Packstone bioturbated. It is composed of Lamellibranch, Echinoderm, Coral and Bryozoan debris. Traces of phosphate, quartz and pyrite have also been identified. Cements are dolomite in matrix and allochems and ferroan dolomite in bioturbations.
- 2129.60 m : Packstone composed of Lamellibranch, Echinoderm, Bryozoan and spicule fragments. Cements : mostly dolomitic matrix, although some siliceous cement have also been observed. Allochems are cemented by dolomite, ferroan dolomite and occasionally by quartz.

ANNEX 2

Fluid inclusion data on barite from core 3 (2003.30 m)

Well 7120/2-1

Primary aqueous inclusions

HOMOGENIZATION TEMPERATURE TH (°C)	MELTING TEMPERATURE TF (°C)
87.5	- 18.6
99.3	
99.5	
114.5	- 17.3
120	- 17
121.1	
135.5	
155.8	
173.6	- 17.8
173.7	- 16.8
214.3	- 17.5
> 200	- 17.4
> 200	- 21.1
> 200	- 16.1
> 200	- 20.9
> 200	- 17

Secondary aqueous inclusions

TH (°C)	TF (°C)
87.3	- 9.7
99.9	
106.7	- 9.8
114.3	
116.1	- 10.2
116.5	

ANNEX 3

Lithological and mineralogical description of the four core samples studied for organic geochemistry

Well 7120/2-1

SNEA(P) REFE- RENCE	CORE N° (SAMPLE N°)	DEPTH (m)	LITHOLOGICAL DESCRIPTION	TOC (%) (*)	MINERALOGICAL COMPOSITION (%)							CLAY MINERALOGY					
					QUARTZ	FELDSPARS		CARBONATES			UNDOSED (**)	KAOLI- NITE (***)	ILLITE (***)	I-S (***)	CHLO- RITE (***)	ILLITE	
						ORTHO- CLASE	PLAGIO- CLASE	CALCITIC DOLOMITE	DOLOMITE	SIDERITE						002/001	CRISTAL- LINITY
A27488	6 (24)	2048	Grey to black, silty shale	0.86	23		4			1	72	35	20	10	35	0.57	1.00
A27489	7 (25)	2064.5	Grey to black, silty shale	0.67	21		5				74		75	25		0.54	0.84
A27490	12 (29)	2134.5	Grey to black, silty shale, with polished slickensides	0.32	19	traces		2			79		65	35		0.49	0.82
A27491	12 (30)	2137.5	Grey to black, silty shale, with polished slickensides	0.34	23	traces			4		73		70	30		0.43	0.74

(*) TOC = Total Organic Carbon Content

(**) Undosed elements are globally representative of the clay content

(***) Percentage estimated from XRD peak heights

ANNEX 4

Optical study of the organic matter in reflectance-fluorescence

Well 7120/2-1

Three core samples have been analysed by means of reflectance-fluorescence.

1 - NATURE OF THE ORGANIC MATTER

Core 6 - 2048 m

The organic matter is frequently made up of small particles of coal ; abundant inertinites (> 95 % of reflectant fragments), frequent orange sporinites and uncertain vitrinites. Rare fluorescent bitumens, a few yellow Tasmanaceae and some Botryococcus algae are also observed. The fluorescent groundmass is pale green and the global fluorescent index is low : 0.5.

Core 7 - 2064.50 m

It exhibits a similar organic matter, poorer in coaly particles, but slightly richer in Botryococcus algae (about 25 colonies).

Core 12 - 2134.5/2137.5 m

This composite sample contains a very scarce organic matter made up of inertinites, one Botryococcus alga and a very pale groundmass.

ANNEX 5

Organic carbon - Rock Eval inventory

Well 7120/2-1

SAMPLES	TOC	S1	S2	S3	HI	OI	PI	T.Max
2048 m	0.86	.13	.63	2.66	73	309	.17	443
2064.50 m	0.67	.14	.37	.18	55	26	.28	(443)
2134.50 m	0.32	.05	.25	.43	78	134		?
2137.50 m	0.34	.10	.13	.67	38	197		?

With :

TOC : Total Organic Carbon (% weight of rock)
S1 : Hydrocarbons present in the rock (mg HC/g rock)
S2 : Hydrocarbons produced by pyrolysis (mg HC/g rock)
S3 : CO2 produced by pyrolysis (mg CO2/g rock)
PI : Production Index = $S1/(S1+S2)$
HI : Hydrogen Index (mg HC/g TOC)
OI : Oxygen Index (mg CO2/g TOC)
TMax : Temperature recorded at the maximum of pyrolysis (°C)

Remark :

The very high oxygen index (309 mg CO2/g of TOC) of sample 2048 m can be related to a small siderite content. This carbonate is known to be easily decomposed during thermal analysis, producing additional CO2.

ANNEX 6

TROMSØ AREA

Composition, chromatographical and isotopical data of oil from well 7120/2-1 (DST4)

	WELL	7120/2-1
	TEST DEPTH (m) RESERVOIR GOR (m ³ /m ³)	DST4 1943-2030 -
	API Spec. Grav. Sulfur (%)	49 0.784 0.030
	DISTILLATE RES + ASPH SATURATED HC AROMATIC HC S/A	61.9 0 31.2 6.8 4.55
Thermovaporization (TV) C5 - C18 fraction	X1 = n - C6/MCP X2 = n - C7/DMCP Y1 = n - C7/TOL Z1 = n - C10/DMN n-alk.% TV	1.76 6.37 0.57 28.92 28
C12+ saturates	n - alk.% SAT. Pr/n - C17 = A Ph/n - C18 = B Pr/Ph A/B	19 0.61 0.32 2.40 1.90
C12+ aromatics	MPI 1 MPI 2 MPI 3	0.74 - 1.09
Carbon 13 isotopical ratio of the total product (HT) or of the topping residue (RD). Given in ‰ PDB.	d13 C HT/PDB d13 C RD/PDB	- 28.0 -
Deuterium isotopical ratio of the total product. Given in ‰ SMOW.	dD HT/SMOW	- 126

Abbreviations and units of annex 6

Spec. Grav.	: Specific Gravity (g/cm³)	
RES + ASPH	: Resins + Asphaltenes	
S/A	: (Saturated HC/Aromatic HC) Ratio	
MCP	: Methylcyclopentane	
DMCP	: Dimethylcyclopentane	
TOL	: Toluene	
DMN	: Dimethylnonane (isoprenoid)	
Pr	: Pristane	} isoprenoids
Ph	: Phytane	
MPI 1	: Methylphenanthuene Index 1 = 1.5 (2MP+3MP)/(P+1MP+9MP)	
MPI 2	: Methylphenanthuene Index 2	
MPI 3	: Methylphenanthuene Index 3 = (2MP+3MP)/(1MP+9MP)	
with : P = Phenanthrene, MP = Methylphenanthrene		

ANNEX 7

GC/MS of steranes and terpanes (main ratios) of DST4 oil

Well 7120/2-1

27 bb S / 27 aa R ..	N / A
27 aa S / 27 aa R --	N / A
27 S dia / 27 aa R	N / A
22 4-Me st / 27 aa R	N / A
X 20 S C27	N / A
X bb C27	N / A
29 bb S / 29 aa R...	0.84
29 aa S / 29 aa R...	0.64
27 S dia / 29 aa R...	1.68
22 4-Me st / 29 aa R	0.08
X 20 S C29	41.41
X bb C29	34.29
21 st / 22 st	1.37
22 4-Me st / 22 st--	0.07
C29 H / C30 H	0.95
Tm / Ts	2.06
23/3 / 24/4	0.89
X 22 S C31	55.11
X 22 S C32	58.24
ba / ab	14.01
23/3 / 21 st	0.83
TT / ST	1.35

C29 DHop / C29 Hop	v. low.
C28 BNHop / C29 Hop	v. low.
C29/5 / C29 Hop	0.15
18 ah Olean/C30 Hop	v. low.
Gammacerane/C30 Hop	0.07
30/3(R&S) / C29 Hop	v. low.
30/3(R&S) / 23/3	v. low.
2.35Hex/C35Hop(R&S)	N / A
C35H(R&S)/C33H(R&S)	N / A
29+30Hop/C35 H(R&S)	N / A

X/29ab 0.10

SNEA(P) ORGANIC GEOCHEMISTRY
Computerized GC / MS Analytical Report on Steranes and Terpanes

SIMPLIFIED MOLECULAR PARAMETERS EXPLANATION CHART

C 29 STERANES RATIOS	
29 bb S / 29 aa R	5 ALPHA(H), 14 BETA(H), 17 BETA(H)-20S-24 ethylCHOLESTANE / 5 ALPHA(H), 14 ALPHA(H), 17 ALPHA(H)-20R-24 ethylCHOLESTANE +
29 aa S / 29 aa R	5 ALPHA(H), 14 ALPHA(H), 17 ALPHA(H)-20S-24 ethylCHOLESTANE / 5 ALPHA(H), 14 ALPHA(H), 17 ALPHA(H)-20R-24 ethylCHOLESTANE +
27 S dia / 29 aa R	C 27 (20 S) Rearranged Sterane (Diasterane) / 5 ALPHA(H), 14 ALPHA(H), 17 ALPHA(H)-20R-24 ethylCHOLESTANE +
22 4 Me / 29 aa R	5 ALPHA(H), 14 BETA(H)-methyl-4 ALPHA PREGNANE / 5 ALPHA(H), 14 ALPHA(H), 17 ALPHA(H)-20R-24 ethylCHOLESTANE +
X 20 S	X [14 ALPHA(H), 17 ALPHA(H)-20S + 14 BETA(H), 17 BETA(H)-20S] / 14 ALPHA(H), 17 ALPHA(H) (20S+R) + 14 BETA(H), 17 BETA(H) (20S+R) +
C 29	-24 ethylCHOLESTANE
X bb	X [14 BETA(H), 17 BETA(H) (20S + 20R)-24 ethylCHOLESTANE] / 14 ALPHA(H), 17 ALPHA(H) (20S+R) + 14 BETA(H), 17 BETA(H) (20S+R) +
C 29	-24 ethylCHOLESTANE

SHORT-CHAIN STERANES RATIOS	
21 st / 22 st	5 ALPHA(H), 14 BETA(H), 17 BETA(H) PREGNANE / 5 ALPHA(H), 14 BETA(H), 17 BETA(H)-methyl 20 PREGNANE
22 4 Me / 22 st	5 ALPHA(H), 14 BETA(H), 17 BETA(H)-methyl-4 ALPHA PREGNANE / 5 ALPHA(H), 14 BETA(H), 17 BETA(H)-methyl 20 PREGNANE +

TERPANES RATIOS	
C 29 H / C 30 H	17 ALPHA(H), 21 BETA(H) NORHOPANE (C 29) / 17 ALPHA(H), 21 BETA(H) HOPANE (C 30)
Tm / Ts	18 ALPHA(H)-22, 29, 30 TRISNORNEOHOPANE (C 27, "maturable") / 17 ALPHA(H)-22, 29, 30 TRISNORHOPANE (C 27, "stable")
23/3 / 24/4	Tricyclic Terpene (C23) / Tetracyclic Terpene (C24)
X 22 S C 31	X 17 ALPHA(H), 21 BETA(H)-22S-30 HOMOHOPANE / 17 ALPHA(H), 21 BETA(H)-(22R+22S)-30 HOMOHOPANE +
X 22 S C 32	X 17 ALPHA(H), 21 BETA(H)-22S-30, 31 BISHOMOHOPANE / 17 ALPHA(H), 21 BETA(H)-(22R+22S)-30, 31 BISHOMOHOPANE +
ba / ab	17 BETA(H), 21 ALPHA(H) MORETANE (C 30) /
C 30	17 ALPHA(H), 21 BETA(H) HOPANE (C 30)

TERPANES / STERANES RATIOS	
23/3 / 21st	Tricyclic Terpene (C 23) / 5 ALPHA(H), 14 BETA(H), 17 BETA(H) PREGNANE
TT / ST	Integration of m/z 191 between Ts and C35(22R) HOPANE / Integration of m/z 217 between 27S dia and C29aaR STERANE

(+) Value increasing with maturity. (-) Value decreasing with maturity.
Some parameters are source-dependant



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Report

U-464

Confidential ☒	Title/Author(s)		Sign
A. Bjørseth R. Steel E. Nysæther N. Telnæs T. Bockelie H. Nes (Væ) Statoil Mobil Esso Tenneco	SOURCE ROCK POTENTIAL OF WELL 7120/2-1 by BA 86-6418-1 31 JAN. 1986 Project leader: Nils Telnæs Tove Bockelie Coworkers: Gabrielle Soutter Lotte Aakvaag		REGISTRERT OLJEDIREKTORATET
Summary/Conclusion/Recommendation			
Key words Organic geochemistry, maturity			
Division/Section Dept. Geology F-Bergen		Field/Block Well 7120/2-1	Subject category Organic geochemistry
Approved sign. 2/1/86 [Signature]		Project no. KU 269	Pages 80 Appendix Report ☒ Note ☐
		Licence no. 109	Date 21.01.86

LITHOLOGICAL DESCRIPTION

DEPTH	SAMPLE	LITHOLOGY
641	SWC	Sandstone, olive grey, brown grey, trace carbonate, noncalcareous
805-10	DC	Coal, black, pred arg grdg v carb
820	SWC	Sandstone, brown black, arg, carb, non calc
886	SWC	Claystone, brown black, Coal
955	SWC	Claystone, olive black, Siltstone
959	SWC	Claystone, olive black, sl micromic
1059	SWC	Sandstone, medium grey, sl calc cmt, glau
1193	SWC	Siltstone, olive grey, Sandstone, arg tr micromic, tr carb
1219	SWC	Siltstone, olive grey, v arg, tr carb, non calc
1242	SWC	Sandstone, olive grey, Siltstone, arg mtx, sl carb, sl micromic
1390	SWC	Sandstone, olive grey-light olive grey, sl calc cmt, v arg, tr carb, tr micromic
1583	SWC	Claystone, olive black, slty-v slty micromic, carb, non calc
1605	SWC	Claystone, olive black, slty, micromic, tr carb, non calc
1648	SWC	Sandstone, medium grey-light olive grey, calc cmt, kaolin mtx, tr micromic, tr carb, tr glau
1650-65	DC	Sandstone, medium grey-medium dark grey, dol-silic cmt, Coal
1670	SWC	Claystone/Sandstone, olive black, micromic, tr carb, non calc
1684.5	SWC	Sandstone, medium grey-light olive grey sl calc cmt, kaolin mtx, tr micromic
1824.5	SWC	Claystone/Siltstone, olive black, slty-v slty, micromic, tr carb, non calc
1967	CC	Limestone, pale-dark yellow-brown, silic
1977.9	CC	Same as above
2009.17	CC	Limestone, medium dark grey-brown
2019	CC	Same as above
2029	CC	Sandstone, light brown grey, pred silic tr calc cmt, glau
2051	CC	Dolomite, dark yellow-brown
2058	CC	Same as above
2067.9	CC	Same as above
2145	CC	Dolomite, light brown grey-pale yellow brown, Sandstone
2162	CC	Sandstone, brown grey-olive grey-light olive grey, Dolomite, glau, tr micropyr
2173	CC	Sandstone, light olive grey-light brown grey, sil and dol cmt, glau, tr pyr
2195	CC	Sandstone, loc pbly
2214	CC	Sandstone, loc pbly-conglomeratic
2417	CC	Claystone/Shale, black, v carb-coaly
2638	CC	Claystone, black-brown black, Coal occ slty, Siltstone, micromic, non calc

2640.7	CC	Same as above
2643.7	CC	Same as above

DEPTH	SAMPLE TYPE	TOC %	EOM mg	EOM ppm	ASPHALT %	SATURATES %	AROMATICS	NSO %	EOM/TOC	SAT/EOM	
1	641.00	SWC	1.62	92.00	15000	0.2	59.5	24.0	16.5	0.92	0.59
2	805.10	DC	7.44	26.50	16000	51.4	13.0	34.0	53.0	0.21	0.06
3	820.00	SWC	2.24	1.40	200	57.0				0.00	
4	886.00	SWC	3.93	10.75	2100	44.8	14.0	28.0	58.0	0.05	0.07
5	955.00	SWC	2.81	3.70	500	19.0				0.01	
6	959.00	SWC	3.65	2.90	400	21.0				0.01	
7	1193.00	SWC	0.94	7.50	2600	5.0	58.6	27.5	13.8	0.27	0.55
8	1219.00	SWC	1.91	4.00	600	15.0	66.6	21.2	12.1	0.03	0.56
9	1242.00	SWC	1.72	11.10	1800	7.0	62.9	22.2	14.8	0.10	0.58
10	1375.00	SWC	1.11	12.20	1600	4.0	70.0	20.0	10.0	0.14	0.67
11	1530.45	DC	2.35	0.80	1000	12.5				0.04	
12	1583.00	SWC	2.22	1.30	400	46.0				0.01	
13	1605.00	SWC	1.40	1.00	200	50.0				0.01	
14	1617.00	SWC	1.66	1.90	600	16.0					
15	1648.00	SWC	0.71	15.60	3300	0.6	65.0	20.0	15.0	0.46	0.64
16	1650.65	DC	0.80	4.40	2000	18.0	72.0	11.0	14.0	0.25	0.59
17	1670.00	SWC	1.80	1.60	300	37.5				0.01	
18	1684.50	SWC	0.69	20.50	3700	1.5	72.0	20.0	8.0	0.53	0.70
19	1824.50	SWC	1.39	3.40	500	20.5	58.3	25.0	16.7	0.03	0.46
20	1967.00	CC	0.61	268.20	12600	1.2	70.6	23.5	5.9	2.06	0.69
21	1977.00	CC	0.36	127.80	4600	0.4	61.9	23.8	14.3	1.27	0.61
22	2009.17	CC	1.74	85.40	2800	0.8	71.4	21.4	7.1	0.16	0.70
23	2019.00	CC	0.31	118.70	4000	0.7	63.2	22.4	11.8	1.29	0.62
24	2029.00	CC	0.37	110.60	5300	1.6	71.4	21.4	7.1	1.43	0.70
25	2051.00	CC	0.51	193.50	6700	0.5	63.0	22.2	14.8	1.31	0.62
26	2058.00	CC	0.27	8.20	3100	0.4	55.6	16.7	27.8	1.14	0.55
27	2067.90	CC	0.29	23.70	800	4.2	61.3	25.8	12.0	0.27	0.58
28	2145.00	CC	0.54	36.20	1200	1.0	72.6	18.7	8.7	0.22	0.71
29	2162.80	CC	0.47	31.60	1000	0.6	73.5	19.7	6.8	0.21	0.73
30	2173.00	CC	0.36	45.60	1500	1.1	69.5	24.7	5.8	0.41	0.06
31	2195.00	CC	0.21	40.80	1400	1.2	70.0	23.1	6.9	0.66	0.69
32	2214.00	CC	0.79	47.20	1600	3.6	67.6	23.5	8.9	0.20	0.65
33	2417.00	DC	1.56	8.10	4500	22.2	50.0	19.0	31.0	0.28	0.38
34	2638.00	CC	2.98	1.20	50					0.00	
35	2640.70	CC	2.39	0.80	30					0.00	
36	2643.70	CC	1.32	1.10	440					0.03	

	DEPTH	PR/n-C17	PR/PH
1	641.00	1.12	1.91
2	805.10	9.47	2.54
3	820.00	1.59	2.25
4	886.00	6.72	3.70
5	955.00	0.36	1.37
6	959.00	0.38	0.59
7	1193.00	0.69	1.71
8	1219.00	0.72	1.62
9	1242.00	1.08	1.64
10	1375.00	1.15	1.55
11	1530.45	0.79	1.93
12	1583.00	0.55	
13	1605.00	0.42	2.50
14	1617.00		
15	1648.00	1.21	1.63
16	1650.65	1.12	2.22
17	1670.00	0.54	2.93
18	1684.50	1.05	1.52
19	1824.50	0.60	1.92
20	1967.00	0.91	1.48
21	1977.00	1.09	1.57
22	2009.17	1.10	1.41
23	2019.00	1.05	1.41
24	2029.00	1.06	1.59
25	2051.00	1.05	1.36
26	2058.00	1.04	1.53
27	2067.90	1.06	1.35
28	2145.00	1.06	1.38
29	2162.80	1.08	1.40
30	2173.00	1.09	1.45
31	2195.00	1.02	1.61
32	2214.00	0.94	1.59
33	2417.00		
34	2638.00		
35	2640.70		
36	2643.70		

The samples between 1967 meters and 2051 meters show a high abundance of tricyclic triterpanes extending into the general region of the pentacyclic triterpanes.

Depth	% 20S Steranes	% $\alpha\beta\beta$ Steranes	Ts/Tm	$\beta\alpha/\alpha\beta$ Hopanes
641	45.4	48.0	0.85	7.8
805-10	15.5	37.2		
886	12.0	45.8	0.86	
955	8.1	22.2	1.84	
1193	33.9	44.0	0.53	5.5
1242	46.4	50.9	1.44	7.8
1390	46.0	55.0	2.00	9.1
1684	47.7	64.7	4.06	0.3
1824.5	47.1	49.6	1.26	5.6
1967	54.7	65.1	5.27	9.4
1977.9	57.4	63.4	7.80	10.5
2009	57.4	63.9	9.30	12.1
2029	54.9			
2051	53.1	65.0	8.90	11.1

Table 4: Biomarker ratios

PYROLYSIS GAS-CHROMATOGRAPHY

The pyrograms are shown in the appendix, and the relative amounts of gaseous and liquid hydrocarbons produced are given in table 5.

Depth	% CH ₄	% C ₂ -C ₆	% C ₆ +
805-10	6	11	83
820	3	8	89
886	7	14	79
955	2	10	88
959	2	14	84
1193	8	10	82
1390	4	14	82
1605	6	13	81
1648	7	28	65
1650-65	23	7	70
1824.5	6	27	67
1967	5	7	88
2058	7	8	85
2417	5	15	80

Table 5: Relative amount of gaseous and liquid hydrocarbons formed by programmed pyrolysis from 300° to 550° C.

The samples from 955 meters, 959 meters and 2417 meters have excellent oil potential. The remaining samples are either oil/gas prone or gas prone. Some of the samples have a very low content of organic matter and consequently, the signal to noise ratio is poor. The sample at 2417 meters showing a high abundance of oil prone liptinitic material is according to the biostratigraphists, caved material

VITRINITE REFLECTIVITY MEASUREMENTS
7120/2-1

0	DEPTH IN M	1 MEAN R _o %	2 NO. READ- INGS	3 TYPE OF SEDIMENT
1	-520.0	0.45	6	SH.
2	-575.0	0.56	5	SH.
3	-805.0	0.35	20	COAL
4	-808.0	0.43	21	SH.
5	-820.0	0.40	21	SH.SILTST.
6	-955.0	0.43	20	SH.
7	-959.0	0.42	21	SH.
8	-1085.0	0.46	20	SILT.SH.
9	-1242.0	0.50	22	SILTST.
10	-1481.9	0.55	10	SILT.SH.
11	-1583.0	0.62	21	SILT.SH.
12	-1670.0	0.61	22	SILT.SH.
13	-1774.4	0.67	15	SH.
14	-1844.1	0.66	16	SILT.SH
15	-2227.0	0.86	21	SST.
16	-2638.0	2.39	20	GREYWACKE
17	-2643.7	2.77	20	SILTST.
18	-2830.0	2.76	21	SH./COAL
19	-2930.0	2.92	20	SST./SILT.SH.

KEROGEN CONTENT IN %, WELL 7120/2-1

0 DEPTH IN M	1 PALYNOS	2 OPAQUE WOOD	3 STRUCT. WOOD	4 DENSE WOOD	5 THIN WOOD	6 DEGRADED WOOD	7 AMORPHOUS MATERIAL
1 520.00	44.00	20.00	32.00	4.00	0.00	0.00	
2 575.00	44.44	16.67	22.22	16.67	0.00	0.00	TRACE
3 808.00	40.54	18.92	40.54	0.00	0.00	0.00	TRACE
4 820.00	34.29	14.29	45.71	5.71	0.00	0.00	ABUNDANT
5 896.00	51.72	37.93	3.45	6.90	0.00	0.00	ABUNDANT
6 955.00	42.86	8.57	45.71	2.86	0.00	0.00	ABUNDANT
7 959.00	53.85	0.00	26.92	0.00	19.23	0.00	ABUNDANT
8 1085.00	38.23	37.57	18.47	5.73	0.00	0.00	TRACE
9 1242.00	19.05	65.99	12.24	2.72	0.00	0.00	TRACE
10 1481.90	35.48	30.65	24.20	9.67	0.00	0.00	
11 1583.00	41.80	20.49	31.15	6.56	0.00	0.00	
12 1670.00	26.35	25.75	39.52	8.38	0.00	0.00	TRACE
13 1774.40	44.08	25.00	23.68	7.24	0.00	0.00	TRACE
14 1844.10	42.05	19.49	31.79	6.67	0.00	0.00	TRACE
15 2035.00	19.25	37.66	36.40	6.69	0.00	0.00	TRACE
16 2075.75	0.00	0.00	0.00	0.00	0.00	100.00	TRACE
17 2129.42	0.00	25.00	50.00	0.00	0.00	25.00	
18 2130.40	0.00	0.00	0.00	0.00	0.00	100.00	
19 2133.90	0.00	10.53	26.32	0.00	7.89	55.26	
20 2134.67	0.00	3.45	24.14	0.00	27.58	44.83	
21 2135.86	0.00	3.70	29.63	0.00	7.41	59.26	TRACE
22 2137.45	0.00	3.13	31.25	0.00	12.50	53.12	TRACE
23 2137.68	0.00	7.69	53.85	0.00	7.69	30.77	
24 2139.40	0.00	0.00	23.33	0.00	20.00	56.67	

EXPERIMENTAL

Sample preparation:

SWC and core samples were rinsed to remove contaminants. Samples from the 1-2 mm fraction were handpicked from drill cuttings.

Extractable organic matter (EOM):

The samples were soxhlet extracted for 24 hours with 93:7 DCM/Methanol. Activated copper was added to the flask during extraction to remove elemental sulphur.

Desphalting:

The EOM was heated overnight in hexane (60 ul/mg) and the hexane insoluble fraction reported as asphaltenes.

Group Type separation:

The hexane soluble part of the EOM was separated into saturate, aromatic and polar fractions using MPLC with a cyano/amino modified silica as precolumn and a silica main column. The fractions were quantified using a Pye LCM2 moving wire detector.

Gas chromatographic analysis:

The saturate fractions were analysed on a HP 5880 gas chromatograph using a 30 meter DB-1 (J&W) fused silica column with helium as carrier gas. The temperature program was 80°C initial temperature for 2 min. followed by 6°C/min. to 300°C and held for 15 min.. The aromatic fractions were analysed on a HP 5880 gas chromatograph using a 25 meter 5% crosslinked methyl-phenyl silicone fused silica column (HP). The temperature program was an initial hold at 2 min. at 80°C followed by programming at 4°C/min. to 300°C and held for 15 min.

Gas chromatography-mass spectrometry (GCMS):

Selected saturated alkane fractions were analysed in the voltage selected ion recording (VSIR) mode using a VG 7070E mass spectrometer coupled to a HP 5790 gas chromatograph.

Pyrolysis gas chromatography:

The pre extracted samples were pyrolysed in an oven programmed from 300 to 550°C. The first part of the column was cooled in liquid nitrogen during the pyrolysis and then programmed from 35°C to 300°C at 4°C/min.

Vitrinite reflectance:

Samples were washed on a sieve with warm water to remove drilling mud. After drying, they were mounted in Bakelite resin blocks. The samples were then ground on a diamond lap

and subsequently polished with two grades of Corundum paper. The grinding and polishing was carried out using isopropyl alcohol as a lubricant. The samples were finally polished using three grades of alumina, 5/20, 3/50 and Gamma. Reflectance measurements were carried out on a Leitz M.P.V. microphotometer under oil immersion, R.I. 1.516 at a wavelength of 546 nm.

Visual kerogen analysis:

Samples for visual kerogen analysis were selected from Rock-Eval screening analyses. The samples were crushed and demineralised with HCl and HF and mounted on slides for subsequent microscopic study.

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December 1986

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GEOCHEMICAL INVESTIGATION OF A CRUDE OIL
SAMPLE FROM WELL 7120/2-1, NORWAY

by

J.M.A. Buiskool Toxopeus

Sponsor: Shell Risavika EP

Code: 77410300



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KONINKLIJKE/SHELL EXPLORATIE EN PRODUKTIE LABORATORIUM

RIJSWIJK, THE NETHERLANDS

(Shell Research B.V.)

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Table 1 Geochemical data of crude oil

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	2	Gas chromatogram of saturated hydrocarbons
	3	C ₇ distributions
	4	Field ionisation mass spectra
	5	C ₁₅ - and C ₃₀ -ring distributions
	6	Sterane and triterpane fragmentograms

GEOCHEMICAL INVESTIGATION OF A CRUDE OIL
SAMPLE FROM WELL 7120/2-1, NORWAY

1. INTRODUCTION

A geochemical investigation has been carried out on a crude oil sample from well 7120/2-1 (stocktank oil), Norway. The results are shown in Table 1 and in Figures 1-6.

TABLE 1 - GEOCHEMICAL DATA OF OILS

Sample	Norway 7120/2-1 OMC 4211
API	36.8
specific gravity	0.8409
%w. boil. <120°C	6.8
% sulphur	0.1
ppm V as metals	0
ppm Ni as metals	0
pristane/phytane	1.6
pristane/nC17	0.9
phytane/nC18	0.7
C ₇ -distribution	
C ₇ -alkane	
nC7	54
monobranched	38
polybranched	8
C ₇ -alk/naphthene	
nC7	25
naphthenes	53
branched alkanes	22
C ₇ -alk/naphth/arom	
nC7	38
naphthenes	43
aromatics	20
C ₁₅ distribution	
1-ring	
2-ring	
3-ring	
C ₃₀ distribution	
3-ring	
4-ring	
5-ring	
C ₂₉ VR/E	
% asphaltenes	0.1
% saturates	77
% aromatics	22
% heterocompounds	1
δ ¹³ C ^o /oo (whole oil)	-30.7
" (saturates)	-30.7
" (aromatics)	-30.2

* Determined by thin layer chromatography
N.D. = not detectable

RKER.86.359

NORSK HYDRO A/S

GEOCHEMICAL REPORT

ON

WELL 7120/2-1

As Compiled by:-

EXPLORATION LOGGING NORGE A/S

UNIT 505

TROMS-1

21 NOV. 1985

**REGISTRERT
OLJEDIREKTORATET**



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EXPLORATION LOGGING NORGE A/S

OCTOBER 1985



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INTRODUCTION

Geochemical evaluation was performed on samples from the well 7120/2-1 at the wellsite. The instrument used was the Girde1 Oil Shows Analyzer (described under Analytical Equipment). In total, 1119 samples were analysed. Of these 855 were cuttings samples, 196 were core samples and 68 were sidewall core samples. The cuttings samples analysed were 5m composites down to 1750m, then alternating 2m and 3m composites from 1752 to T.D at 3477m.

Samples were taken from cores at varying intervals to avoid destruction of sound core material. Initially approximately 2m and 3m samples were taken, but later as the drill rate slowed, sampling frequency was increased to 1m. Cores were cut in the intervals 1962 to 2002, 2010 to 2035, 2047 to 2077, 2126 to 2243 and 2637 to 2645m.

SAMPLE PREPARATION

Samples were washed through a 2.36mm sieve and collected in a 180 micron mesh sieve. Each sample was then inspected for contamination and any contaminants (e.g. lost circulation material, metal shavings) were removed. The samples were then air dried at room temperature to prevent the loss of any light hydrocarbons that may have been present. Samples were analysed without crushing so that any light, volatile hydrocarbons were not released.

Core samples were chips crushed with a pestle and mortar, sieved through a 2.36mm mesh sieve and collected in a 180 micron mesh sieve. Chips were taken from the central, unflushed portions of the core where possible and were not washed but analysed directly unless contaminated with mud.

A small sample was removed from selected sidewall cores and allowed to dry in air at room temperature prior to analysis.



Many samples in the interval 1937 to 2192m were solvent washed either to remove free hydrocarbons or to eliminate suspected heavy hydrocarbons which were interfering with Tmax results. This is more fully discussed under 'Maturity, Interval 1870 to 2500m'. All solvent washed samples are tabulated in Appendix A.

* Clementz, D., 1979 "Effects of Oil and Bitumen Saturation on Source Rock Pyrolysis", A.A.P.G. Bull, Volume 62(12).



DESCRIPTION OF ANALYTICAL EQUIPMENT

Principle of operation

Small quantities of sample (approx. 100 mg.) are analysed by programmed pyrolysis in an inert Helium atmosphere. Any evolved hydrocarbons are detected by a Flame Ionisation Detector. The output from this sensor provides the peak data for the S0, S1 and S2 indices. In addition, the temperature, Tmax, for maximum generation of cracked hydrocarbons is measured by a probe monitoring oven temperature.

On completion of the pyrolysis cycle the sample is transferred to a second oven. The sample material is heated in air and any carbonaceous material remaining is converted to carbon dioxide, this is detected by a thermal conductivity detector, the output of which is the S4 peak. The Oil Shows Analyser thus derives the Total Organic Carbon content from the sum of the pyrolysed carbon and the residual carbon.

The Oil Shows Analyser used the following analytical cycle:-

Pyrolysis.

Carrier gas	: Helium
Initial Isotherm	: 90 deg.C
Isothermal Hold	: 2 minutes
Second Isotherm	: 300 deg.C
Isothermal Hold	: 2 minutes
Temperature Ramp	: 30 deg/min
Final Temperature	: 600 deg.C



Oxidation.

Oxidation Gas : Air (after removal of CO₂)

Oven Temperature : 600 deg.C

Oxidation Time : 5 minutes



Organic Matter Type

It is important to determine the type of organic matter in a sample for two reasons. Firstly, the different types of organic matter have different hydrocarbon generating potentials, due to variations in chemical structure of the organic matter. Secondly as the different types of organic matter are deposited in characteristic environments, some information can be obtained as to the conditions of deposition.

Three types of organic matter are described:

Type 1

Pure Type 1 kerogens are rare, they usually consist of structured algal material. The typical environments of deposition are lakes, lagoons and closed basins. They are strongly oil prone.

Type II

This kerogen usually contains sapropelic organic matter. It is derived from algal or other planktonic remnants and some plant material such as pollen and plant waxes. A marine transgression over a broad shelf is a typical environment of deposition.

Type II kerogens are oil and gas prone.

Type III

Usually consist of humic, coaly material derived from higher plants. Deltaic conditions well supplied with terrestrial organic matter are favourable environments for Type III material. Type III organic matter is gas prone.

Two parameters are used to identify the type of kerogen and the expected nature of any hydrocarbons:

- 1) Hydrogen Index
- 2) Pyrolyzable Carbon

Hydrogen Index

The Hydrogen Index reflects the hydrogen content of the kerogen. Samples with hydrogen indices of 0 to 200 contain predominantly gas prone kerogen. Those with values in the range 200 to 500 are both oil and gas prone. Kerogen material producing readings of above 500 contains oil prone kerogen. The HI values can be plotted against Tmax to classify kerogen type. With increasing maturity, the HI values will decrease and the Tmax values will increase, therefore, the HI/Tmax plot can be used to estimate the maturity of a sample.

Pyrolyzable Carbon (PC)

The Pyrolyzable Carbon of the sample represents the maximum quantity of hydrocarbons capable of being generated from the sample given sufficient maturity.

$$PC = k (S_0 + S_1 + S_2) \text{ where } k = 0.083$$

PC values can be correlated with the type of organic matter. PC values represent approximately 75% of TOC in Type I kerogens, 40 to 50% in Type II, and 15% in Type III. With increasing maturity these values will change as hydrocarbons are liberated.

Free Hydrocarbons S0 and S1

S0 represents the quantity of gas liberated from the sample. S1 represents the hydrocarbons that are liberated from the sample at relatively low temperatures (300 deg.C). These are present in the sample as a result of in situ generation from organic material, or as a result of migration into the sampled rock from another source area.

Total Production Index (TPI) $(S0+S1)/(S0+S1+S2)$

The Production Index, also known as the Transformation Ratio, is a measure of the total hydrocarbons in a sample that exist as Free Hydrocarbons. TPI values increase with maturity as hydrocarbons are generated from the source material. Any localized increase in TPI values may indicate an accumulation of migrated hydrocarbons or contamination.

Where organically lean samples are analysed this can lead to anomalously high ratios being calculated. Thus very low TOC values may lead to falsely high hydrogen indices and low S2 values may lead to high TPI values.



APPENDIX A



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSE HYDRO
WELL : 7120/2-1Printed at : 18:42
: 11 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
480.00	.48	.28	434	58	0.00	.10	.26
485.00	.45	.29	430	64	0.00	.06	.17
490.00	.52	.31	429	60	0.00	.07	.18
495.00	.49	.41	427	84	0.00	.12	.23
500.00	.46	.37	426	80	0.00	.10	.21
505.00	.48	.32	427	67	0.00	.06	.16
510.00	.44	.35	426	80	0.00	.12	.26
515.00	.47	.36	428	77	0.00	.09	.20
520.00	.77	.46	429	60	0.00	.06	.12
525.00	.46	.33	431	72	0.00	.05	.13
530.00	.47	.33	431	70	0.00	.04	.11
535.00	.66	.40	430	61	0.00	.05	.11
540.00	.45	.23	427	51	0.00	.02	.08
545.00	.50	.35	428	70	0.00	.03	.08
550.00	.47	.29	432	62	0.00	.05	.15
555.00	.47	.33	430	70	0.00	.05	.13
560.00	.47	.36	435	77	0.00	.12	.25
565.00	.54	.32	428	59	0.00	.05	.14
570.00	.53	.36	427	68	0.00	.07	.16
575.00	.60	.44	427	73	0.00	.19	.30
580.00	.51	.29	430	57	0.00	.02	.06
585.00	.44	.29	434	66	0.00	.09	.24
590.00	.42	.23	433	55	0.00	.03	.12
595.00	.21	.10	0	48	0.00	.03	.23
600.00	.17	.06	0	35	0.00	.02	.25
605.00	.27	.26	448	96	0.00	.04	.13
610.00	.33	.33	436	100	0.00	.04	.11
615.00	.14	.08	0	57	0.00	.04	.33
620.00	.19	.07	0	37	0.00	.15	.68
625.00	.25	.12	0	48	0.00	.20	.63
630.00	.25	.05	0	20	0.00	.14	.74
635.00	.23	.16	0	70	0.00	.21	.57
640.00	.21	.18	0	86	0.00	.12	.40
645.00	.16	.17	0	106	0.00	.06	.26
650.00	.18	.17	0	94	0.00	.05	.23
655.00	.21	.18	0	86	0.00	.09	.33
660.00	.11	.08	0	73	0.00	.02	.20
665.00	.29	.22	434	76	0.00	.19	.46
670.00	.19	.21	441	111	0.00	.04	.16
675.00	.25	.24	441	96	0.00	.06	.20
680.00	.20	.19	0	95	0.00	.05	.21
685.00	.17	.16	0	94	0.00	.03	.16
690.00	.13	.17	0	131	0.00	.03	.15
695.00	.13	.10	0	77	0.00	.03	.23
700.00	.12	.13	0	108	0.00	.04	.24
705.00	.13	.13	0	100	0.00	.02	.13
710.00	.12	.15	0	125	0.00	.04	.21
715.00	.12	.11	0	92	0.00	.06	.35
720.00	.09	.13	0	144	0.00	.03	.19
725.00	.20	.17	0	85	0.00	.19	.53



EXPLORATION ® LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 18:50
: 11 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
730.00	1.03	.83	438	81	0.00	.08	.09
735.00	1.26	1.24	436	98	0.00	.07	.05
740.00	.69	.63	438	91	0.00	.06	.09
745.00	.49	.45	443	92	0.00	.09	.17
750.00	.24	.23	446	96	0.00	.04	.15
755.00	.33	.36	448	109	0.00	.04	.10
760.00	.27	.28	440	104	0.00	.03	.10
765.00	.75	.79	436	105	0.00	.07	.08
770.00	.20	.22	446	110	0.00	.03	.12
775.00	.82	.71	439	87	0.00	.09	.11
780.00	.68	.65	440	96	0.00	.07	.10
785.00	1.18	1.16	437	98	0.00	.07	.06
790.00	1.20	1.40	436	117	0.00	.11	.07
795.00	1.09	.96	438	88	0.00	.06	.06
800.00	.67	.73	437	109	0.00	.05	.06
805.00	7.44	15.99	419	215	0.00	.31	.02
810.00	1.95	3.03	427	155	0.00	.17	.05
815.00	1.14	1.18	436	104	0.00	.10	.08
820.00	.76	1.01	438	133	0.00	.07	.06
825.00	.63	.88	438	140	0.00	.08	.08
830.00	.63	1.03	436	163	0.00	.14	.12
835.00	.88	1.08	435	123	0.00	.14	.11
840.00	.40	.46	436	115	0.00	.09	.16
845.00	1.17	1.63	434	139	0.00	.18	.10
850.00	.93	1.32	436	142	0.00	.14	.10
855.00	.86	1.11	436	129	0.00	.11	.09
860.00	.69	.77	436	112	0.00	.06	.07
865.00	.43	.40	434	93	0.00	.08	.17
870.00	.35	.37	436	106	0.00	.07	.16
875.00	.39	.45	438	115	0.00	.06	.12
880.00	.28	.23	441	82	0.00	.06	.21
885.00	.41	.39	440	95	0.00	.05	.11
890.00	1.46	1.62	437	111	0.00	.09	.05
895.00	4.94	13.93	438	282	0.00	.36	.03
900.00	2.84	6.43	434	226	0.00	.22	.03
905.00	3.23	3.40	435	105	0.00	.14	.04
910.00	.62	.94	435	152	0.00	.05	.05
915.00	.62	.61	436	98	0.00	.05	.08
920.00	.70	.47	434	67	0.00	.07	.13
925.00	2.14	1.35	436	63	0.00	.09	.06
930.00	1.69	2.12	432	125	0.00	.30	.12
935.00	1.64	2.94	438	179	0.00	.04	.01
940.00	.57	.74	440	130	0.00	.14	.16
945.00	.50	.27	432	54	0.00	.11	.29
950.00	.36	.09	435	25	0.00	.04	.31
955.00	1.64	6.46	443	394	0.00	.10	.02
960.00	2.53	14.28	441	564	0.00	.28	.02
965.00	.47	1.12	441	238	0.00	.19	.15
970.00	.84	1.53	436	182	0.00	.16	.09
975.00	.64	.56	430	88	0.00	.20	.26



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSE HYDRO
WELL : 7120/2-1Printed at : 18:55
: 11 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
980.00	1.96	2.16	429	110	0.00	.89	.29
985.00	.79	.92	430	116	0.00	.29	.24
990.00	1.13	1.80	431	159	0.00	.57	.24
995.00	.59	.64	434	108	0.00	.22	.26
1000.00	.45	.46	426	102	0.00	.71	.61
1005.00	.54	.59	433	109	0.00	.42	.42
1010.00	1.02	.52	428	51	0.00	.63	.55
1015.00	.53	.04	436	8	0.00	.11	.73
1020.00	.89	.26	436	29	0.00	.06	.19
1025.00	.82	.54	435	66	0.00	.10	.16
1030.00	.66	.06	431	9	0.00	.05	.45
1035.00	.52	.30	427	58	0.00	.55	.65
1040.00	.54	.33	431	61	0.00	.29	.47
1045.00	.55	.34	431	62	0.00	.48	.59
1050.00	1.23	.42	434	34	0.00	.32	.43
1055.00	2.25	6.76	430	300	0.00	.32	.05
1060.00	5.12	16.53	426	323	.02	1.10	.06
1065.00	1.44	1.50	430	104	0.00	.22	.13
1070.00	.71	.48	431	68	0.00	.15	.24
1075.00	.52	.36	432	69	0.00	.06	.14
1080.00	.77	.76	431	99	0.00	.09	.11
1085.00	1.14	1.21	429	106	0.00	.11	.08
1090.00	.78	.80	433	103	0.00	.10	.11
1095.00	.76	.66	434	87	0.00	.10	.13
1100.00	.48	.45	432	94	0.00	.08	.15
1105.00	.85	1.14	435	134	0.00	.12	.10
1110.00	.97	1.39	436	143	0.00	.20	.13
1115.00	.38	.44	435	116	0.00	.09	.17
1120.00	.57	.85	437	149	0.00	.18	.17
1125.00	.58	.71	434	122	0.00	.17	.19
1130.00	.68	.86	434	126	0.00	.17	.17
1135.00	.57	.63	434	111	0.00	.17	.21
1140.00	.75	1.00	434	133	0.00	.21	.17
1145.00	.70	.73	434	104	0.00	.20	.22
1150.00	.66	.74	433	112	0.00	.11	.13
1155.00	.90	.78	435	87	0.00	.10	.11
1160.00	.44	.53	433	120	0.00	.16	.23
1165.00	.41	.47	435	115	0.00	.25	.35
1170.00	.54	.54	435	100	0.00	.18	.25
1175.00	.78	.93	435	119	0.00	.18	.16
1180.00	.70	.72	437	103	0.00	.15	.17
1185.00	.94	1.13	436	120	0.00	.17	.13
1190.00	1.01	1.25	435	124	0.00	.21	.14
1195.00	1.13	1.26	436	112	0.00	.30	.19
1200.00	.82	.75	435	91	0.00	.26	.26
1205.00	.96	.97	436	101	0.00	.25	.20
1210.00	.97	.87	437	90	0.00	.16	.16
1215.00	1.07	1.20	437	112	0.00	.27	.18
1220.00	1.06	1.25	438	118	0.00	.33	.21
1225.00	.91	.95	437	104	.01	.38	.29



EXPLORATION® LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 19:06
: 11 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
1230.00	.79	.81	436	103	0.00	.42	.34
1235.00	.71	.91	437	128	.01	.41	.32
1240.00	.94	.86	437	91	0.00	.24	.22
1245.00	1.04	1.09	435	105	.01	.74	.41
1250.00	.86	1.04	435	121	0.00	.79	.43
1255.00	.88	.80	434	91	0.00	.45	.36
1260.00	.75	.83	434	111	0.00	.40	.33
1265.00	.80	.86	436	107	0.00	.33	.28
1270.00	.75	.65	436	87	0.00	.27	.29
1275.00	.83	.72	435	87	0.00	.23	.24
1280.00	.69	.65	435	94	0.00	.22	.25
1285.00	.83	.67	435	81	0.00	.27	.29
1290.00	.91	.74	436	81	0.00	.16	.18
1295.00	.77	.67	437	87	0.00	.22	.25
1300.00	.82	.64	436	78	0.00	.16	.20
1305.00	.65	.54	434	83	0.00	.25	.32
1310.00	.74	.66	436	89	0.00	.29	.31
1315.00	.76	.83	435	109	0.00	.30	.27
1320.00	.65	.68	435	105	0.00	.32	.32
1325.00	.82	.81	436	99	.01	.25	.24
1330.00	.89	.92	437	103	0.00	.26	.22
1335.00	.79	.77	436	97	.01	.33	.31
1340.00	.82	.82	438	100	0.00	.37	.31
1345.00	.77	.77	436	100	.01	.29	.28
1350.00	.75	.79	437	105	0.00	.25	.24
1355.00	.64	.59	436	92	0.00	.44	.43
1360.00	.75	.72	434	96	.01	.42	.37
1365.00	.81	.80	436	99	.01	.34	.30
1370.00	.66	.57	436	86	0.00	.35	.38
1375.00	.70	.58	435	83	0.00	.28	.33
1380.00	.66	.59	437	89	0.00	.19	.24
1385.00	.68	.68	438	100	0.00	.22	.24
1390.00	.64	.73	437	114	.01	.46	.39
1395.00	.56	.77	433	138	.02	.93	.55
1400.00	.66	.77	435	117	.01	.61	.45
1405.00	.75	.65	435	87	.01	.25	.29
1410.00	.63	.58	433	92	0.00	.56	.49
1415.00	.49	.36	430	73	0.00	.51	.59
1420.00	.52	.32	426	62	0.00	.50	.61
1425.00	.61	.49	433	80	.01	.56	.54
1430.00	.80	.81	437	101	0.00	.51	.39
1435.00	1.11	1.06	436	95	0.00	.53	.33
1440.00	1.01	1.00	437	99	0.00	.51	.34
1445.00	.74	.72	436	97	0.00	.36	.33
1450.00	.62	.48	437	77	0.00	.26	.35
1455.00	.72	.59	436	82	0.00	.25	.30
1460.00	.32	.25	438	78	0.00	.11	.31
1465.00	.38	.30	437	79	0.00	.11	.27
1470.00	.67	.54	437	81	0.00	.16	.23
1475.00	.93	.85	437	91	.01	.39	.32



EXLOG LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 13:54
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
1480.00	1.05	1.05	437	100	0.00	.39	.27
1485.00	1.14	.96	438	84	0.00	.30	.24
1490.00	1.04	.81	439	78	.01	.28	.26
1495.00	.96	.76	437	79	0.00	.31	.29
1500.00	1.03	.87	438	84	.01	.30	.26
1505.00	.94	.73	438	78	0.00	.27	.27
1510.00	1.18	.98	435	83	0.00	.30	.23
1515.00	.77	.56	439	73	0.00	.22	.28
1520.00	.96	.67	440	70	0.00	.15	.18
1525.00	.67	.53	438	79	0.00	.13	.20
1530.00	.47	.33	438	70	0.00	.11	.25
1535.00	.40	.29	437	73	0.00	.14	.33
1540.00	2.35	4.28	426	182	0.00	.51	.11
1545.00	1.47	1.63	430	111	0.00	.39	.19
1550.00	.81	.69	440	85	0.00	.19	.22
1555.00	.74	.54	441	73	0.00	.16	.23
1560.00	.93	.77	437	83	0.00	.21	.21
1565.00	.86	.74	438	86	.01	.31	.30
1570.00	.98	.88	438	90	0.00	.35	.28
1575.00	.97	.96	437	99	0.00	.47	.33
1580.00	.70	.47	441	67	0.00	.14	.23
1585.00	1.16	.68	441	59	0.00	.16	.19
1590.00	.79	.50	440	63	0.00	.14	.22
1595.00	1.36	1.25	440	92	.02	.38	.24
1600.00	1.04	.92	439	88	0.00	.35	.28
1605.00	1.10	.93	439	85	0.00	.35	.27
1610.00	1.19	1.09	441	92	.01	.48	.31
1615.00	1.18	1.10	439	93	.01	.37	.26
1620.00	1.25	1.24	440	99	.04	.54	.32
1625.00	1.04	1.00	441	96	.02	.50	.34
1630.00	1.13	1.20	440	106	.04	.50	.31
1635.00	1.07	.81	438	76	.01	.38	.32
1640.00	1.13	.85	439	75	.02	.35	.30
1645.00	1.15	1.25	440	109	.05	.92	.44
1650.00	1.04	1.12	440	108	.05	1.02	.49
1655.00	.46	.39	436	85	.02	1.13	.75
1660.00	.67	.76	437	113	.04	1.30	.64
1665.00	.80	.63	438	79	.02	.88	.59
1670.00	1.17	1.03	442	88	.03	.48	.33
1675.00	1.07	.90	441	84	.01	.29	.25
1680.00	1.05	.89	440	85	.01	.25	.23
1685.00	1.26	.99	441	79	.02	.49	.34
1690.00	.41	.77	442	188	0.00	.26	.25
1695.00	1.54	1.06	438	69	.04	.29	.24
1700.00	1.08	.91	438	84	.06	.29	.28
1705.00	1.03	.86	439	83	.06	.19	.23
1710.00	1.15	.82	442	71	.01	.24	.23
1715.00	.91	.90	444	99	0.00	.27	.23
1720.00	.83	.72	442	87	0.00	.21	.23
1725.00	1.06	.84	440	79	.02	.31	.28



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 13:59
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
1730.00	1.14	1.02	440	89	.02	.41	.30
1735.00	1.10	.74	440	67	0.00	.20	.21
1740.00	.98	.71	440	72	.01	.21	.24
1745.00	1.14	1.02	440	89	.01	.46	.32
1750.00	1.43	1.15	442	80	.03	.67	.38
1752.00	1.29	1.00	441	78	.01	.45	.32
1755.00	1.18	.83	440	70	.02	.36	.31
1757.00	1.30	.93	441	72	.01	.33	.27
1760.00	1.40	1.01	442	72	0.00	.37	.27
1762.00	1.46	1.07	442	73	.02	.33	.25
1765.00	1.02	1.03	443	101	0.00	.25	.20
1767.00	.92	.94	444	102	0.00	.25	.21
1770.00	.87	.92	443	106	0.00	.21	.19
1772.00	1.05	.82	442	78	0.00	.16	.16
1775.00	.93	.99	444	106	.01	.22	.19
1777.00	.82	.80	444	98	0.00	.22	.22
1780.00	.64	.54	446	84	0.00	.22	.29
1782.00	.75	.75	443	100	0.00	.34	.31
1785.00	.83	.75	445	90	0.00	.29	.28
1787.00	.64	.70	445	109	0.00	.21	.23
1790.00	.77	.68	446	88	0.00	.20	.23
1792.00	.80	.75	443	94	0.00	.21	.22
1795.00	.97	1.12	445	115	0.00	.23	.17
1797.00	1.01	1.05	444	104	0.00	.26	.20
1800.00	.96	1.03	445	107	0.00	.22	.18
1802.00	1.01	1.13	446	112	.01	.24	.18
1805.00	1.02	1.30	445	127	.01	.28	.18
1807.00	.99	1.19	443	120	0.00	.25	.17
1810.00	.91	1.05	444	115	.03	.22	.19
1812.00	1.00	1.43	441	143	.01	.36	.21
1815.00	.83	.82	445	99	.01	.19	.20
1817.00	.85	.91	445	107	.01	.24	.22
1820.00	1.01	1.29	443	128	.01	.28	.18
1822.00	1.01	1.35	444	134	.01	.35	.21
1825.00	1.13	2.88	449	255	.01	.39	.12
1827.00	.99	1.48	444	149	.01	.30	.17
1830.00	1.08	1.76	444	163	.01	.34	.17
1832.00	1.00	1.49	445	149	.02	.30	.18
1835.00	.85	1.08	445	127	0.00	.22	.17
1837.00	.91	1.34	443	147	.02	.31	.20
1840.00	.89	1.24	444	139	.01	.24	.17
1842.00	.87	1.17	446	134	0.00	.21	.15
1845.00	1.11	1.44	444	130	.01	.38	.21
1847.00	1.09	1.36	444	125	0.00	.31	.19
1850.00	.97	1.27	445	131	.01	.22	.15
1852.00	.97	1.25	445	129	.01	.22	.16
1855.00	.86	1.03	445	120	0.00	.14	.12
1857.00	.82	.99	445	121	0.00	.13	.12
1860.00	.77	.94	445	122	0.00	.12	.11
1862.00	.75	.89	444	119	0.00	.12	.12



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSE HYDRO
WELL : 7120/2-1Printed at : 14:10
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
1870.00	.79	.82	447	104	0.00	.17	.17
1872.00	.88	.78	446	89	0.00	.14	.15
1875.00	.77	.69	446	90	0.00	.14	.17
1877.00	.76	.84	445	111	0.00	.20	.19
1880.00	.68	.75	446	110	0.00	.15	.17
1882.00	.78	.72	448	92	0.00	.13	.15
1885.00	.84	.83	446	99	0.00	.20	.19
1887.00	.94	.87	447	93	0.00	.19	.18
1890.00	.87	.76	447	87	0.00	.18	.19
1892.00	.91	.74	446	81	0.00	.18	.20
1895.00	.90	.68	446	76	0.00	.15	.18
1897.00	.92	.73	447	79	0.00	.16	.18
1900.00	.96	.89	447	93	0.00	.16	.15
1902.00	.83	.83	448	100	0.00	.17	.17
1905.00	.72	.90	447	125	0.00	.17	.16
1907.00	.88	.82	446	93	0.00	.16	.16
1910.00	.95	.87	446	92	0.00	.18	.17
1912.00	.96	.86	447	90	0.00	.17	.17
1915.00	.95	.79	443	83	0.00	.20	.20
1917.00	.85	.73	445	86	0.00	.17	.19
1920.00	1.00	.97	447	97	0.00	.20	.17
1922.00	.90	.95	447	106	0.00	.19	.17
1925.00	.95	.98	447	103	0.00	.18	.16
1927.00	.97	1.00	447	103	0.00	.22	.18
1930.00	1.00	1.14	446	114	0.00	.24	.17
1932.00	.91	1.09	446	120	0.00	.25	.19
1935.00	1.08	1.49	446	138	0.00	.50	.25
1937.00	.99	1.12	443	113	.02	.96	.47
1940.00	.89	1.12	0	126	.01	1.23	.53
1942.00	1.01	1.04	447	103	0.00	.45	.30
1945.00	.97	.93	446	96	0.00	.44	.32
1947.00	.47	.40	0	85	.02	1.48	.79
1950.00	.35	.29	0	83	.10	2.34	.89
1952.00	.40	.44	0	110	.10	2.36	.85
1955.00	.28	.40	0	143	.09	2.17	.85
1957.00	.38	.38	0	100	.04	2.09	.85
1960.00	.41	.39	0	95	.11	2.25	.86
2005.00	.57	.96	438	168	.01	1.26	.57
2007.00	.64	1.06	447	166	.05	.25	.22
2010.00	.51	.72	450	141	.02	.23	.26
2012.00	.52	.82	446	158	.02	.24	.24
2037.00	.41	.27	457	66	0.00	.16	.37
2040.00	.73	.70	457	96	0.00	.25	.26
2042.00	.27	.35	442	130	0.00	.26	.43
2045.00	.35	.48	435	137	0.00	.75	.61
2047.00	.24	.41	421	171	0.00	.71	.63
2080.00	.32	.20	443	63	0.00	.11	.35
2082.00	.34	.51	0	150	0.00	1.08	.68
2085.00	.14	.20	0	143	.01	.70	.78
2087.00	.20	.23	0	115	0.00	.64	.74

EXPLORATION[®] LOGGING GEOCHEMICAL DATA PRINTFOR : NORSE HYDRO
WELL : 7120/2-1Printed at : 14:16
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
2090.00	.20	.21	0	105	.01	.96	.82
2092.00	.24	.35	0	146	0.00	1.02	.74
2095.00	.17	.28	0	165	0.00	.74	.73
2097.00	.19	.21	0	111	.03	1.04	.84
2100.00	.17	.16	0	94	.04	.68	.82
2102.00	.51	.62	445	122	.01	.22	.27
2105.00	.80	1.90	440	238	.08	.72	.30
2107.00	.73	1.35	446	185	.07	.33	.23
2110.00	.51	.72	450	141	.02	.23	.26
2112.00	.82	.82	446	100	.02	.24	.24
2115.00	.53	.64	444	121	.01	.24	.28
2117.00	.46	.50	447	109	0.00	.34	.40
2120.00	.36	.48	445	133	0.00	.36	.43
2122.00	.24	.29	442	121	0.00	.24	.45
2125.00	.20	.28	446	140	0.00	.21	.43
2245.00	.41	.57	449	139	.02	.12	.20
2247.00	.30	.43	450	143	0.00	.07	.14
2250.00	.16	.22	456	138	0.00	.05	.19
2252.00	.08	.18	0	225	0.00	.03	.14
2255.00	.06	.12	0	200	0.00	.02	.14
2257.00	.08	.18	0	225	0.00	.01	.05
2260.00	.12	.27	457	225	0.00	.02	.07
2262.00	.10	.11	0	110	0.00	.01	.08
2265.00	.08	.16	0	200	0.00	.06	.27
2267.00	.05	.20	0	400	0.00	.02	.09
2270.00	.03	.08	0	267	0.00	.01	.11
2272.00	.04	.18	0	450	0.00	.01	.05
2275.00	.06	.19	0	317	0.00	.01	.05
2277.00	.06	.20	0	333	0.00	.03	.13
2280.00	.04	.10	0	250	0.00	.01	.09
2282.00	.03	.11	0	367	0.00	.03	.21
2285.00	.06	.19	0	317	0.00	.02	.10
2287.00	.05	.08	0	160	0.00	.01	.11
2290.00	.05	.07	0	140	0.00	.02	.22
2292.00	.04	.07	0	175	0.00	.01	.13
2295.00	.07	.11	0	157	0.00	.01	.08
2297.00	.04	.08	0	200	0.00	.03	.27
2300.00	.08	.14	0	175	0.00	.01	.07
2302.00	.03	.08	0	267	0.00	.01	.11
2305.00	.04	.09	0	225	0.00	.02	.18
2307.00	.03	.10	0	333	0.00	.02	.17
2310.00	.04	.11	0	275	0.00	.02	.15
2312.00	.03	.04	0	133	0.00	.01	.20
2315.00	.04	.07	0	175	0.00	.01	.13
2317.00	.05	.06	0	120	0.00	.01	.14
2320.00	.05	.10	0	200	0.00	.01	.09
2322.00	.03	.08	0	267	0.00	.03	.27
2325.00	.04	.07	0	175	0.00	.04	.36
2327.00	.03	.08	0	267	0.00	.03	.27
2330.00	.04	.08	0	200	0.00	.02	.20

EXPLORATION[®] LOGGING GEOCHEMICAL DATA PRINTFOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 14:23
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
2332.00	.08	.10	0	125	0.00	.04	.29
2335.00	.06	.06	0	100	0.00	.02	.25
2337.00	.04	.10	0	250	0.00	.03	.23
2340.00	.03	.09	0	300	0.00	.04	.31
2342.00	.04	.06	0	150	0.00	.04	.40
2345.00	.07	.01	0	14	0.00	.02	.67
2347.00	.03	.04	0	133	0.00	.03	.43
2350.00	.02	.07	0	350	.01	.03	.36
2352.00	.03	.08	0	267	0.00	.03	.27
2355.00	.06	.09	0	150	0.00	.03	.25
2357.00	.18	.37	449	206	0.00	.20	.35
2360.00	.39	.60	450	154	0.00	.19	.24
2362.00	.56	.79	451	141	0.00	.14	.15
2365.00	.38	.56	453	147	0.00	.10	.15
2367.00	.18	.29	451	161	0.00	.06	.17
2370.00	.10	.14	0	140	0.00	.05	.26
2372.00	.06	.12	0	200	0.00	.03	.20
2375.00	.04	.08	0	200	0.00	.02	.20
2377.00	.05	.10	0	200	0.00	.03	.23
2380.00	.03	.07	0	233	0.00	.02	.22
2382.00	.05	.10	0	200	0.00	.02	.17
2385.00	.08	.05	0	63	0.00	.02	.29
2387.00	.04	.08	0	200	0.00	.02	.20
2390.00	.02	.03	0	150	0.00	.02	.40
2392.00	.02	.06	0	300	0.00	.03	.33
2395.00	.03	.03	0	100	0.00	.02	.40
2397.00	.02	.06	0	300	0.00	.02	.25
2400.00	.03	.07	0	233	0.00	.01	.13
2402.00	.05	.07	0	140	0.00	.02	.22
2405.00	.13	.05	0	38	0.00	.04	.44
2407.00	.14	.08	0	57	0.00	.03	.27
2410.00	.33	.11	0	33	0.00	.04	.27
2412.00	.59	.30	0	51	0.00	.07	.19
2415.00	1.53	1.83	460	120	0.00	.22	.11
2417.00	1.56	2.68	458	172	0.00	.31	.10
2420.00	2.33	6.80	458	292	0.00	.60	.08
2422.00	2.26	5.41	458	239	0.00	.61	.10
2425.00	1.04	2.05	454	197	0.00	.32	.14
2427.00	.64	.98	458	153	0.00	.13	.12
2430.00	.69	1.04	458	151	0.00	.14	.12
2432.00	.39	.45	457	115	0.00	.08	.15
2435.00	.51	.58	454	114	0.00	.08	.12
2437.00	.85	.86	454	101	0.00	.25	.23
2440.00	.52	.50	448	96	.01	.15	.24
2442.00	.46	.56	447	122	0.00	.09	.14
2445.00	.54	.60	448	111	0.00	.10	.14
2447.00	.68	.80	451	118	0.00	.11	.12
2450.00	.52	.31	447	60	0.00	.09	.23
2452.00	.51	.24	453	47	0.00	.07	.23
2455.00	.36	.28	454	78	0.00	.06	.18
2457.00	.31	.29	451	94	0.00	.07	.19

EXPLORATION[®] LOGGING GEOCHEMICAL DATA PRINTFOR : NORISK HYDRO
WELL : 7120/2-1Printed at : 14:27
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
2460.00	.09	.10	0	111	0.00	.02	.17
2462.00	.23	.36	456	157	0.00	.05	.12
2465.00	.09	.15	0	167	0.00	.02	.12
2467.00	.12	.15	0	125	0.00	.02	.12
2470.00	.09	.13	0	144	0.00	.02	.13
2472.00	.05	.08	0	160	0.00	.01	.11
2475.00	.05	.09	0	180	0.00	.03	.25
2477.00	.05	.13	0	260	0.00	.03	.19
2480.00	.04	.11	0	275	0.00	.03	.21
2482.00	.02	.09	0	450	0.00	.02	.18
2485.00	.07	.15	0	214	0.00	.02	.12
2487.00	.10	.11	0	110	0.00	.03	.21
2490.00	.15	.17	0	113	0.00	.04	.19
2492.00	.03	.08	0	267	0.00	.02	.20
2495.00	.06	.12	0	200	0.00	.02	.14
2497.00	.03	.06	0	200	0.00	.01	.14
2500.00	.04	.07	0	175	0.00	.01	.13



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 18:02
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
2502.00	.21	.54	459	257	0.00	.21	.28
2505.00	.10	.36	455	360	0.00	.15	.29
2507.00	.11	.18	0	164	0.00	.06	.25
2510.00	.02	.03	0	150	0.00	.01	.25
2512.00	.04	.10	0	250	0.00	.03	.23
2515.00	.03	.09	0	300	.01	.04	.36
2517.00	.05	.06	0	120	0.00	.03	.33
2520.00	.04	.07	0	175	0.00	.03	.30
2522.00	.04	.03	0	75	0.00	.01	.25
2525.00	.04	.05	0	125	0.00	.02	.29
2527.00	.03	.01	0	33	0.00	0.00	0.00
2530.00	.31	.41	447	132	0.00	.16	.28
2532.00	.04	.05	0	125	0.00	.04	.44
2535.00	.02	.04	0	200	0.00	.01	.20
2537.00	.04	.06	0	150	0.00	.01	.14
2540.00	.07	.04	0	57	0.00	0.00	0.00
2542.00	.01	.02	0	200	0.00	0.00	0.00
2545.00	.01	.03	0	300	0.00	.01	.25
2550.00	.20	.04	0	20	0.00	0.00	0.00
2552.00	0.00	.03	0	0	0.00	0.00	0.00
2555.00	.01	.04	0	400	0.00	0.00	0.00
2557.00	0.00	.02	0	0	0.00	0.00	0.00
2560.00	.01	.06	0	600	0.00	0.00	0.00
2562.00	0.00	.01	0	0	0.00	0.00	0.00
2565.00	.01	.02	0	200	0.00	0.00	0.00
2567.00	.01	.02	0	200	0.00	0.00	0.00
2570.00	0.00	.03	0	0	0.00	0.00	0.00
2572.00	.01	.02	0	200	0.00	0.00	0.00
2575.00	.01	.04	0	400	0.00	.02	.33
2580.00	.05	.01	0	20	0.00	.01	.50
2582.00	.01	.04	0	400	0.00	.01	.20
2585.00	.01	.03	0	300	0.00	0.00	0.00
2587.00	0.00	.02	0	0	0.00	0.00	0.00
2590.00	.01	.03	0	300	0.00	.01	.25
2592.00	0.00	.05	0	0	0.00	0.00	0.00
2595.00	.01	.02	0	200	0.00	0.00	0.00
2597.00	.02	.04	0	200	0.00	0.00	0.00
2600.00	.01	.03	0	300	0.00	0.00	0.00
2602.00	.01	.03	0	300	0.00	0.00	0.00
2605.00	.01	.05	0	500	0.00	0.00	0.00
2607.00	.02	.09	0	450	0.00	.01	.10
2610.00	.01	.04	0	400	0.00	0.00	0.00
2612.00	0.00	.05	0	0	0.00	.01	.17
2615.00	.02	.05	0	250	0.00	.02	.29
2617.00	.01	.06	0	600	0.00	.01	.14
2620.00	0.00	.06	0	0	0.00	.01	.14
2622.00	.03	.06	0	200	0.00	.02	.25
2625.00	.05	.07	0	140	0.00	.02	.22
2627.00	.09	.05	0	56	0.00	.02	.29



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 18:06
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
2630.00	.65	.15	0	23	0.00	.09	.38
2632.00	.66	.18	0	27	0.00	.06	.25
2635.00	1.21	.12	0	10	0.00	.06	.33
2637.00	.95	.10	0	11	0.00	.03	.23
2637.10	5.41	.27	579	5	0.00	.26	.49
2647.00	1.25	.77	448	62	0.00	.29	.27
2650.00	2.66	.58	414	22	0.00	.22	.27
2652.00	3.79	.51	546	13	.01	.31	.39
2655.00	.50	.14	0	28	0.00	.09	.39
2657.00	1.13	.14	0	12	0.00	.06	.30
2660.00	.47	.16	0	34	0.00	.06	.27
2662.00	1.72	.34	459	20	.01	.21	.39
2665.00	.68	.19	0	28	0.00	.14	.42
2667.00	.60	.18	0	30	0.00	.05	.22
2670.00	1.76	.12	0	7	0.00	.02	.14
2672.00	.76	.09	0	12	0.00	.02	.18
2675.00	.16	.09	0	56	0.00	.01	.10
2677.00	.18	.07	0	39	0.00	.03	.30
2680.00	.18	.09	0	50	0.00	.01	.10
2682.00	.37	.07	0	19	0.00	.04	.36
2685.00	.10	.04	0	40	0.00	.02	.33
2687.00	.72	.08	0	11	0.00	.01	.11
2690.00	.25	.06	0	24	0.00	.01	.14
2692.00	.34	.07	0	21	0.00	.01	.13
2695.00	.03	.12	0	400	0.00	0.00	0.00
2697.00	.12	.12	0	100	0.00	.05	.29
2700.00	.16	.04	0	25	0.00	.01	.20
2702.00	.91	.12	0	13	0.00	.05	.29
2705.00	.17	.04	0	24	0.00	.01	.20
2707.00	.08	.01	0	13	0.00	0.00	0.00
2710.00	.10	.03	0	30	0.00	.04	.57
2712.00	.17	.09	0	53	.01	.04	.36
2715.00	.65	.13	0	20	.02	.08	.43
2717.00	.59	.12	0	20	0.00	.07	.37
2720.00	.12	.03	0	25	0.00	0.00	0.00
2722.00	.27	.06	0	22	0.00	.04	.40
2725.00	.13	.02	0	15	0.00	0.00	0.00
2727.00	.47	.04	0	9	0.00	.01	.20
2730.00	.38	.03	0	8	0.00	.01	.25
2732.00	.10	.03	0	30	0.00	0.00	0.00
2735.00	.09	.05	0	56	0.00	0.00	0.00
2737.00	.04	.05	0	125	0.00	.01	.17
2740.00	.13	.05	0	38	0.00	.02	.29
2742.00	.03	.15	0	500	0.00	.02	.12
2745.00	.07	.08	0	114	0.00	.02	.20
2747.00	.01	.06	0	600	0.00	0.00	0.00
2750.00	.03	.05	0	167	0.00	.01	.17
2752.00	.03	.05	0	167	0.00	.02	.29
2755.00	0.00	.05	0	0	0.00	.01	.17
2757.00	.04	.04	0	100	0.00	.01	.20



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 18:10
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
2760.00	.05	.03	0	60	0.00	0.00	0.00
2762.00	0.00	.04	0	0	0.00	.01	.20
2765.00	.03	.08	0	267	0.00	.05	.38
2767.00	.07	.04	0	57	0.00	.03	.43
2770.00	0.00	.04	0	0	0.00	.02	.33
2772.00	.05	.08	0	160	0.00	.09	.53
2775.00	0.00	.04	0	0	0.00	0.00	0.00
2777.00	0.00	.05	0	0	0.00	0.00	0.00
2780.00	.03	.05	0	167	0.00	.01	.17
2782.00	.01	.01	0	100	0.00	0.00	0.00
2785.00	0.00	.03	0	0	0.00	0.00	0.00
2787.00	.02	.03	0	150	0.00	.02	.40
2790.00	.01	.05	0	500	0.00	.01	.17
2792.00	.06	.05	0	83	0.00	.07	.58
2795.00	.01	.04	0	400	0.00	.04	.50
2797.00	.01	.02	0	200	0.00	0.00	0.00
2800.00	.01	.05	0	500	0.00	.01	.17
2802.00	.01	.03	0	300	0.00	.01	.25
2805.00	.01	.02	0	200	0.00	.01	.33
2807.00	.01	.03	0	300	0.00	.01	.25
2810.00	0.00	.03	0	0	0.00	.01	.25
2812.00	.02	.02	0	100	0.00	.02	.50
2815.00	0.00	.01	0	0	0.00	.01	.50
2817.00	.08	.13	0	163	0.00	.09	.41
2820.00	.05	.11	0	220	0.00	.03	.21
2822.00	.12	.04	0	33	0.00	.07	.64
2825.00	.37	.02	0	5	0.00	.01	.33
2827.00	.19	.14	0	74	0.00	.04	.22
2830.00	.33	.03	0	9	0.00	.02	.40
2832.00	.14	.01	0	7	0.00	0.00	0.00
2835.00	.28	.02	0	7	0.00	.01	.33
2837.00	0.00	0.00	0	0	0.00	0.00	0.00
2840.00	.03	.01	0	33	0.00	0.00	0.00
2842.00	.02	0.00	0	0	0.00	0.00	0.00
2845.00	.01	.01	0	100	0.00	.01	.50
2847.00	.15	0.00	0	0	0.00	0.00	0.00
2850.00	.02	.03	0	150	0.00	.06	.67
2852.00	.01	.04	0	400	0.00	.05	.56
2855.00	.01	.03	0	300	0.00	.06	.67
2857.00	.02	0.00	0	0	0.00	.01	1.00
2860.00	.03	.05	0	167	0.00	.03	.38
2862.00	.01	.07	0	700	0.00	0.00	0.00
2865.00	.02	0.00	0	0	0.00	.07	1.00
2867.00	.08	.09	0	113	0.00	.01	.10
2870.00	.07	.02	0	29	0.00	.01	.33
2872.00	0.00	0.00	0	0	0.00	0.00	0.00
2875.00	.02	.04	0	200	0.00	.02	.33
2877.00	.04	.05	0	125	0.00	.02	.29
2880.00	0.00	.03	0	0	0.00	.01	.25
2882.00	.03	.17	0	567	0.00	.18	.51



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1

Printed at : 18:13
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
2885.00	.02	.01	0	50	0.00	0.00	0.00
2887.00	.26	.07	0	27	0.00	0.00	0.00
2890.00	.05	.05	0	100	0.00	.03	.38
2892.00	.01	.06	0	600	0.00	.06	.50
2895.00	.07	0.00	0	0	0.00	0.00	0.00
2897.00	.01	.02	0	200	0.00	0.00	0.00
2900.00	.04	.01	0	25	0.00	0.00	0.00
2902.00	0.00	.02	0	0	0.00	0.00	0.00
2905.00	.01	.05	0	500	0.00	0.00	0.00
2907.00	.08	.04	0	50	0.00	0.00	0.00
2910.00	0.00	.02	0	0	0.00	0.00	0.00
2912.00	0.00	.02	0	0	0.00	0.00	0.00
2915.00	.17	.01	0	6	0.00	0.00	0.00
2917.00	.03	.02	0	67	0.00	.01	.33
2920.00	.01	.02	0	200	0.00	0.00	0.00
2922.00	.02	.01	0	50	0.00	0.00	0.00
2925.00	.03	.04	0	133	0.00	0.00	0.00
2927.00	.04	.01	0	25	0.00	.01	.50
2930.00	1.49	.09	0	6	0.00	.03	.25
2932.00	.12	.01	0	8	0.00	0.00	0.00
2935.00	.01	0.00	0	0	0.00	0.00	0.00
2937.00	.04	.39	547	975	0.00	.03	.07
2940.00	.03	.02	0	67	0.00	.01	.33
2942.00	.05	.02	0	40	0.00	0.00	0.00
2945.00	.03	.05	0	167	0.00	.08	.62
2947.00	.06	.04	0	67	0.00	0.00	0.00
2950.00	.01	.02	0	200	0.00	0.00	0.00
2952.00	.01	0.00	0	0	0.00	0.00	0.00
2955.00	0.00	.01	0	0	0.00	0.00	0.00
2957.00	.02	.02	0	100	0.00	0.00	0.00
2960.00	.04	.02	0	50	0.00	.01	.33
2962.00	.01	.02	0	200	0.00	0.00	0.00
2965.00	.02	.03	0	150	0.00	0.00	0.00
2967.00	.02	.02	0	100	0.00	.01	.33
2970.00	.03	.02	0	67	0.00	.01	.33
2972.00	.02	.02	0	100	0.00	0.00	0.00
2975.00	.03	.04	0	133	0.00	.01	.20
2977.00	0.00	.02	0	0	0.00	.02	.50
2980.00	.08	.12	0	150	0.00	.33	.73
2982.00	.10	.02	0	20	0.00	.03	.60
2985.00	.07	.04	0	57	0.00	.03	.43
2987.00	.08	.03	0	38	0.00	.01	.25
2990.00	.03	.02	0	67	0.00	.01	.33
2992.00	.03	.02	0	67	0.00	0.00	0.00
2995.00	.08	.02	0	25	0.00	.01	.33
2997.00	0.00	.01	0	0	0.00	0.00	0.00
3000.00	.06	.03	0	50	0.00	.01	.25
3002.00	.07	.03	0	43	0.00	.01	.25
3005.00	.02	.05	0	250	0.00	.01	.17
3007.00	.03	.04	0	133	0.00	.01	.20



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 18:17
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
3010.00	.02	.04	0	200	0.00	.01	.20
3012.00	.04	.05	0	125	0.00	.05	.50
3015.00	.04	.05	0	125	0.00	.03	.38
3017.00	.03	.10	0	333	0.00	.05	.33
3020.00	.02	.05	0	250	0.00	.02	.29
3022.00	.04	.07	0	175	0.00	.03	.30
3025.00	.03	.07	0	233	0.00	.05	.42
3027.00	.02	.08	0	400	0.00	.04	.33
3030.00	.02	.05	0	250	0.00	.02	.29
3032.00	.05	.08	0	160	0.00	.07	.47
3035.00	.02	.03	0	150	0.00	.02	.40
3037.00	.06	.10	0	167	0.00	.09	.47
3040.00	.02	.06	0	300	0.00	.03	.33
3042.00	.01	.02	0	200	0.00	.01	.33
3045.00	.04	.07	0	175	0.00	.08	.53
3047.00	.05	.04	0	80	0.00	.01	.20
3050.00	.02	.05	0	250	0.00	.01	.17
3052.00	.02	.06	0	300	0.00	0.00	0.00
3055.00	.02	.06	0	300	0.00	0.00	0.00
3057.00	.02	.05	0	250	0.00	0.00	0.00
3060.00	.02	.08	0	400	0.00	.03	.27
3062.00	.01	.08	0	800	0.00	.01	.11
3065.00	.02	.10	0	500	0.00	.02	.17
3067.00	.02	.13	0	650	0.00	.03	.19
3070.00	.04	.11	0	275	0.00	.01	.08
3072.00	.02	.08	0	400	0.00	.01	.11
3075.00	.02	.09	0	450	0.00	.01	.10
3077.00	.01	.08	0	800	0.00	0.00	0.00
3080.00	0.00	.05	0	0	0.00	0.00	0.00
3082.00	.01	.09	0	900	0.00	.01	.10
3085.00	.01	.05	0	500	0.00	.01	.17
3087.00	.01	.04	0	400	0.00	0.00	0.00
3090.00	.04	.11	0	275	0.00	.05	.31
3092.00	.04	.08	0	200	0.00	.04	.33
3095.00	.02	0.00	0	0	0.00	.01	1.00
3097.00	.02	.04	0	200	0.00	.02	.33
3100.00	.02	.05	0	250	0.00	.03	.38
3102.00	.01	.03	0	300	0.00	.01	.25
3105.00	.06	.01	0	17	0.00	.02	.67
3107.00	.03	.08	0	267	0.00	.08	.50
3110.00	.07	.06	0	86	0.00	.07	.54
3112.00	.01	0.00	0	0	0.00	.01	1.00
3115.00	.09	.04	0	44	0.00	.03	.43
3117.00	.03	.04	0	133	0.00	.03	.43
3120.00	.02	.06	0	300	0.00	.03	.33
3122.00	.05	.08	0	160	0.00	.06	.43
3125.00	.02	.05	0	250	0.00	.01	.17
3127.00	.03	.10	0	333	0.00	.07	.41
3130.00	.03	.07	0	233	0.00	.01	.13
3132.00	.22	.08	0	36	0.00	.04	.33



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSE HYDRO
WELL : 7120/2-1Printed at : 18:20
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
3135.00	.09	.03	0	33	0.00	.03	.50
3137.00	.07	.02	0	29	0.00	0.00	0.00
3140.00	.04	.03	0	75	0.00	.01	.25
3142.00	.01	.01	0	100	0.00	0.00	0.00
3145.00	.14	.03	0	21	0.00	.01	.25
3147.00	.10	.04	0	40	0.00	.01	.20
3150.00	.03	.04	0	133	0.00	.01	.20
3152.00	0.00	.01	0	0	0.00	0.00	0.00
3155.00	.11	.04	0	36	0.00	.01	.20
3157.00	.02	.05	0	250	0.00	.01	.17
3160.00	.01	.04	0	400	0.00	0.00	0.00
3162.00	.01	.05	0	500	0.00	0.00	0.00
3165.00	0.00	0.00	0	0	0.00	.01	1.00
3167.00	.01	.06	0	600	.01	.04	.45
3170.00	.02	.05	0	250	0.00	.05	.50
3172.00	.01	.06	0	600	0.00	0.00	0.00
3175.00	0.00	.06	0	0	0.00	.02	.25
3177.00	.01	.07	0	700	0.00	.04	.36
3180.00	0.00	.05	0	0	0.00	0.00	0.00
3182.00	.15	.08	0	53	0.00	.02	.20
3185.00	.02	.09	0	450	0.00	.02	.18
3187.00	.12	.15	0	125	0.00	.08	.35
3190.00	.36	.71	0	197	0.00	2.16	.75
3192.00	.04	.05	0	125	0.00	.01	.17
3195.00	.06	.04	0	67	0.00	.03	.43
3197.00	.09	.08	0	89	0.00	0.00	0.00
3200.00	.02	.11	0	550	0.00	0.00	0.00
3202.00	.02	.12	0	600	0.00	.02	.14
3205.00	.01	.11	0	1100	0.00	0.00	0.00
3207.00	.03	.08	0	267	0.00	0.00	0.00
3210.00	.02	.06	0	300	0.00	.01	.14
3212.00	.01	.07	0	700	0.00	0.00	0.00
3215.00	.03	.07	0	233	0.00	.01	.13
3217.00	.12	.09	0	75	0.00	.01	.10
3220.00	.23	.09	0	39	0.00	.02	.18
3222.00	.02	.09	0	450	0.00	.02	.18
3225.00	.30	.09	0	30	0.00	.02	.18
3227.00	.07	.12	0	171	0.00	.02	.14
3230.00	.04	.12	0	300	0.00	.05	.29
3232.00	.05	.15	0	300	0.00	.09	.38
3235.00	.04	.17	0	425	0.00	.03	.15
3237.00	.01	.20	573	2000	0.00	.03	.13
3240.00	.06	.25	581	417	.01	.06	.22
3242.00	.02	.10	0	500	0.00	.02	.17
3245.00	.03	.11	0	367	0.00	.02	.15
3247.00	.03	.16	0	533	0.00	.03	.16
3250.00	.04	.17	0	425	0.00	.02	.11
3252.00	.02	.17	0	850	0.00	.02	.11
3255.00	.02	.12	0	600	0.00	.01	.08
3257.00	.12	.27	584	225	0.00	.05	.16



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 18:23
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
3260.00	.04	.28	580	700	0.00	.08	.22
3262.00	.05	.29	576	580	0.00	.09	.24
3265.00	.09	.22	558	244	0.00	.04	.15
3267.00	.14	.25	585	179	0.00	.05	.17
3270.00	.16	.27	569	169	0.00	.04	.13
3272.00	.12	.20	552	167	0.00	.01	.05
3275.00	.11	.24	586	218	0.00	.03	.11
3277.00	.08	.30	577	375	0.00	.05	.14
3280.00	.02	.20	577	1000	0.00	.02	.09
3282.00	.02	.19	0	950	0.00	.02	.10
3285.00	.02	.20	576	1000	0.00	.02	.09
3287.00	.02	.24	570	1200	0.00	.03	.11
3290.00	.03	.35	572	1167	0.00	.04	.10
3292.00	.03	.27	546	900	0.00	.02	.07
3295.00	.02	.19	0	950	0.00	.03	.14
3297.00	.09	.34	515	378	0.00	.08	.19
3300.00	.05	.24	542	480	0.00	.03	.11
3302.00	.03	.19	0	633	0.00	.19	.50
3305.00	.02	.17	0	850	0.00	.12	.41
3307.00	.02	.12	0	600	0.00	.02	.14
3310.00	.03	.15	0	500	0.00	.04	.21
3312.00	.01	.18	0	1800	0.00	0.00	0.00
3315.00	.04	.18	0	450	0.00	.01	.05
3317.00	.01	.17	0	1700	0.00	0.00	0.00
3320.00	.02	.25	576	1250	0.00	.04	.14
3322.00	.05	.16	0	320	0.00	.02	.11
3325.00	.02	.13	0	650	0.00	.02	.13
3327.00	.27	.35	0	130	0.00	1.54	.81
3330.00	.23	.38	0	165	0.00	.97	.72
3332.00	.08	.18	0	225	0.00	.21	.54
3335.00	.04	.22	583	550	0.00	.09	.29
3337.00	.13	.48	495	369	0.00	.18	.27
3340.00	.02	.15	0	750	0.00	.03	.17
3342.00	.01	.16	0	1600	0.00	.03	.16
3345.00	.01	.17	0	1700	0.00	.01	.06
3347.00	.01	.12	0	1200	0.00	.02	.14
3350.00	0.00	.12	0	0	0.00	.01	.08
3352.00	0.00	.06	0	0	0.00	.01	.14
3355.00	0.00	.08	0	0	0.00	.02	.20
3357.00	0.00	.08	0	0	0.00	.01	.11
3360.00	.01	.08	0	800	0.00	0.00	0.00
3362.00	0.00	.10	0	0	0.00	0.00	0.00
3365.00	0.00	.13	0	0	0.00	0.00	0.00
3367.00	.01	.15	0	1500	0.00	.01	.06
3370.00	0.00	.11	0	0	0.00	.02	.15
3372.00	.01	.16	0	1600	0.00	.01	.06
3375.00	0.00	.11	0	0	0.00	.01	.08
3377.00	.01	.14	0	1400	0.00	.01	.07
3380.00	.02	.11	0	550	0.00	0.00	0.00
3382.00	.01	.17	0	1700	0.00	0.00	0.00



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 18:27
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
3385.00	.02	.15	0	750	0.00	.03	.17
3387.00	.01	.15	0	1500	0.00	.02	.12
3390.00	.01	.10	0	1000	0.00	.05	.33
3392.00	.01	.08	0	800	0.00	.01	.11
3395.00	.01	.06	0	600	0.00	.01	.14
3397.00	.01	.12	0	1200	0.00	.01	.08
3400.00	.02	.11	0	550	0.00	.01	.08
3402.00	.03	.04	0	133	0.00	.01	.20
3405.00	.04	.10	0	250	0.00	.04	.29
3407.00	.02	.07	0	350	0.00	.06	.46
3410.00	0.00	.05	0	0	0.00	.02	.29
3412.00	.02	.06	0	300	0.00	.13	.68
3415.00	.01	.02	0	200	0.00	0.00	0.00
3417.00	.01	.03	0	300	0.00	.02	.40
3420.00	0.00	.04	0	0	0.00	0.00	0.00
3422.00	.01	.07	0	700	0.00	.01	.13
3425.00	0.00	.03	0	0	0.00	0.00	0.00
3427.00	0.00	.04	0	0	0.00	0.00	0.00
3430.00	0.00	.04	0	0	0.00	.01	.20
3432.00	0.00	.04	0	0	0.00	0.00	0.00
3435.00	0.00	.07	0	0	0.00	.01	.13
3437.00	.02	.04	0	200	0.00	0.00	0.00
3440.00	.02	.02	0	100	0.00	0.00	0.00
3442.00	.01	.03	0	300	0.00	.01	.25
3445.00	.04	.11	0	275	0.00	.09	.45
3447.00	.03	.06	0	200	0.00	.17	.74
3450.00	.08	.07	0	88	0.00	.02	.22
3452.00	0.00	.10	0	0	0.00	.01	.09
3455.00	.02	.11	0	550	0.00	0.00	0.00
3457.00	.01	.12	0	1200	0.00	.01	.08
3460.00	.03	.06	0	200	0.00	.04	.40
3462.00	.01	.12	0	1200	0.00	.01	.08
3465.00	.02	.03	0	150	0.00	.01	.25
3467.00	.01	.16	0	1600	0.00	.02	.11
3470.00	.06	.14	0	233	.01	.38	.74
3472.00	.01	.05	0	500	0.00	.01	.17
3475.00	.03	0.00	0	0	0.00	0.00	0.00
3477.00	.02	.10	0	500	0.00	.01	.09



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1

Printed at : 17:00
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Solvent Extracted Samples							
1650.00	1.27	1.24	439	98	0.00	.41	.25
1655.00	.38	.34	437	89	0.00	.18	.35
1660.00	.63	.49	437	78	0.00	.19	.28
1940.00	.17	.53	447	312	0.00	.13	.20
1947.00	.46	.13	444	28	0.00	.05	.28
1950.00	.31	.06	0	19	0.00	.03	.33
1952.00	.20	.08	0	40	0.00	.02	.20
1955.00	.13	.09	0	69	0.00	.03	.25
1957.00	.16	.07	0	44	0.00	.03	.30
1960.00	.13	.06	0	46	0.00	.03	.33
2005.00	.48	.46	441	96	0.00	.11	.19
2082.00	.25	.21	446	84	0.00	.11	.34
2092.00	.23	.33	434	143	.01	.80	.71
2097.00	.18	.08	0	44	0.00	.08	.50
2170.20	.29	.22	0	76	0.00	.14	.39
2208.00	.13	.20	434	154	0.00	.10	.33
2238.00	.52	1.22	463	235	0.00	.17	.12



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSK HYDRO
WELL : 7120/2-1

Printed at : 18:31
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Solvent Extracted Samples							
2623.00	1.90	.15	0	8	.07	.18	.63
2668.00	2.39	.17	518	7	.15	.45	.78
2699.00	3.10	.19	517	6	.15	.68	.81
3190.00	.09	.07	0	78	0.00	.05	.42
3327.00	.08	.09	0	113	0.00	.05	.36
3330.00	.14	.04	0	29	0.00	.02	.33

EXPLORATION[®] LOGGING GEOCHEMICAL DATA PRINTFOR : NORSK HYDRO
WELL : 7120/2-1Printed at : 15:12
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Sidewall Core Samples							
641.00	1.62	2.44	409	151	.37	12.78	.84
820.00	2.24	4.18	439	187	0.00	.25	.06
851.00	3.42	12.98	431	380	0.00	.67	.05
886.00	3.93	8.87	431	226	.02	.40	.05
888.00	3.59	8.37	439	233	.01	.34	.04
923.00	1.88	3.08	436	164	0.00	.23	.07
932.00	.63	1.28	465	203	0.00	.06	.04
955.00	2.81	15.07	438	536	.06	.38	.03
959.00	3.65	28.49	439	781	.12	.56	.02
1050.50	.30	.53	509	177	0.00	.13	.20
1056.00	.43	.56	502	130	0.00	.12	.18
1060.00	.51	.23	416	45	0.00	.10	.30
1065.00	1.08	1.10	428	102	0.00	.16	.13
1085.00	1.26	1.29	431	102	0.00	.19	.13
1104.00	1.16	1.93	429	166	0.00	.43	.18
1193.00	.94	1.43	0	152	.04	2.02	.59
1219.00	1.91	1.99	431	104	.01	.63	.24
1242.00	1.72	1.66	0	97	.03	1.36	.46
1282.00	1.10	.96	433	87	0.00	.28	.23
1326.00	1.03	.98	432	95	.01	.34	.26
1375.00	1.11	.85	433	77	0.00	.29	.25
1390.00	.31	.42	0	135	.02	1.21	.75
1406.00	.84	.78	428	93	0.00	.28	.26
1481.90	1.40	1.03	436	74	0.00	.35	.25
1501.00	.55	.37	436	67	0.00	.17	.31
1540.40	.13	.15	0	115	.01	.21	.59
1583.00	2.22	2.78	441	125	.05	.88	.25
1605.00	1.40	1.86	439	133	.04	.62	.26
1617.00	1.66	1.79	434	108	.04	.83	.33
1630.00	.67	.85	0	127	.07	3.05	.79
1639.00	.34	.36	0	106	.08	2.07	.86
1648.00	.71	.86	0	121	.14	2.75	.77
1652.90	.71	.63	439	89	.02	.39	.39
1670.00	1.80	1.78	438	99	.06	.50	.24
1684.50	.69	.62	0	90	.29	4.60	.89
1696.00	1.62	1.42	435	88	.03	.46	.26
1774.40	1.35	1.41	437	104	.04	.38	.23
1824.50	1.39	1.96	437	141	.02	.51	.21
1825.50	1.48	2.07	439	140	.02	.42	.18
1844.10	1.80	1.99	438	111	.06	.37	.18
Solvent Extracted Sidewall Core Samples							
641.00	.09	.30	0	333	0.00	.19	.39
1193.00	.55	.39	435	71	0.00	.18	.32
1242.00	1.46	1.33	436	91	0.00	.54	.29
1390.00	.14	.15	431	107	0.00	.18	.55
1630.00	.21	.21	439	100	0.00	.23	.52
1639.00	.18	.55	0	306	.02	.59	.53
1648.00	.41	.40	438	98	.01	.26	.40
1684.50	.39	.42	438	108	0.00	.25	.37



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSE HYDRO
WELL : 7120/2-1Printed at : 18:36
: 12 Oct 1985

PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Sidewall Core Samples							
1874.00	.83	1.53	446	184	.01	.20	.12
1934.00	1.15	1.54	447	134	.09	1.11	.44
1936.50	.67	2.74	445	409	0.00	.08	.03
2010.00	.02	.03	0	150	0.00	.01	.25
2080.00	.52	.46	449	88	.30	2.80	.87
2080.50	.55	.17	0	31	.07	.71	.82
2089.50	.65	.21	0	32	.17	1.14	.86
2100.50	.35	.06	0	17	0.00	.03	.33
2112.00	.33	.07	0	21	0.00	.08	.53
2116.00	.41	.84	401	205	0.00	.61	.42
2118.00	.44	.88	428	200	.01	.26	.23
2122.00	.27	.15	0	56	.04	.32	.71
2135.00	.44	.24	0	55	.10	.70	.77
2246.00	.12	.69	0	575	0.00	.24	.26
2255.00	.08	.24	0	300	0.00	.16	.40
2270.00	.21	.39	0	186	.07	1.93	.84
2285.00	.11	.25	0	227	.01	.69	.74
2294.00	.04	.37	460	925	.01	.13	.27
2320.00	.12	.22	0	183	.01	.76	.78
2337.10	5.41	.27	579	5	0.00	.26	.49
2345.00	.04	.22	0	550	0.00	.29	.57
2371.00	.09	.40	0	444	0.00	.44	.52
2422.40	.72	.70	0	97	0.00	.36	.34
2429.00	.07	.50	0	714	0.00	.13	.21
2442.00	.10	.46	0	460	0.00	.21	.31
2446.00	6.15	.62	567	10	.01	.21	.26
2458.00	.10	.20	0	200	0.00	.06	.23
2472.00	.08	.25	0	313	0.00	.15	.37
Solvent Extracted Sidewall Core Samples							
1934.00	.83	.95	447	114	.03	.18	.18
1936.00	.30	.49	445	163	0.00	.09	.16
2080.00	.17	.32	449	188	0.00	.08	.20
2089.50	.11	.10	0	91	0.00	.04	.29
2118.00	.37	.49	428	132	0.00	.12	.20
2135.00	.09	.16	0	178	0.00	.04	.20
2246.00	.13	.21	0	162	0.00	.10	.32
2255.00	.10	.12	0	120	0.00	.06	.33
2270.00	.06	.15	0	250	0.00	.08	.35
2320.00	.15	.37	0	247	0.00	.17	.31
2422.00	.03	.10	0	333	0.00	.06	.38

EXPLORATION[®] LOGGING GEOCHEMICAL DATA PRINTFOR : NORSE HYDRO
WELL : 7120/2-1Printed at : 15:28
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Core Samples							
1962.00	.24	.08	0	33	.10	.96	.93
1965.00	.31	.19	0	61	.63	2.88	.95
1967.00	.61	.39	0	64	1.08	5.02	.94
1970.00	.17	.05	0	29	.15	1.01	.96
1972.40	.32	.27	0	84	.64	3.61	.94
1975.00	.09	.06	0	67	.07	.76	.93
1977.00	.36	.33	0	92	.69	4.02	.93
1980.00	.40	.29	0	73	.41	3.06	.92
1982.00	.23	.09	0	39	.21	1.41	.95
1985.00	.39	.25	0	64	.35	3.44	.94
1987.00	.20	.15	0	75	.13	1.67	.92
1988.50	.75	1.23	447	164	.07	.22	.19
1990.00	.30	.15	0	50	.31	1.95	.94
1992.00	.42	.21	0	50	.73	3.17	.95
1995.00	.19	.07	0	37	.23	1.21	.95
1997.00	.44	.11	0	25	.55	2.09	.96
2000.00	.07	.15	0	214	.87	3.07	.96
2000.02	.09	.22	0	244	.02	.09	.33
2002.00	.34	.09	0	26	.39	2.54	.97
2007.00	.23	.06	0	26	.20	1.44	.96
2010.00	1.74	.43	0	25	1.47	5.25	.94
2013.50	.87	.13	0	15	.59	2.03	.95
2015.06	.40	.25	0	63	.65	2.87	.93
2017.00	.82	.35	0	43	1.86	7.21	.96
2020.00	.31	.12	0	39	.42	2.31	.96
2022.00	.45	.28	0	62	.78	3.25	.94
2025.04	.10	.50	0	500	0.00	.06	.11
2027.00	.44	1.02	0	232	1.04	4.30	.84
2030.00	.37	.87	0	235	.95	4.21	.86
2032.00	.85	.49	0	58	.44	2.39	.85
2035.00	1.32	1.31	452	99	.05	.59	.33
2047.10	.61	.79	443	130	0.00	.15	.16
2047.90	.48	1.13	450	235	0.00	.17	.13
2048.70	.16	.12	0	75	0.00	.24	.67
2049.10	.07	.15	0	214	0.00	.03	.17
2049.80	.19	.10	0	53	.06	.87	.90
2050.60	.90	.64	0	71	.93	6.17	.92
2051.00	.51	.73	0	143	.45	3.29	.84
2051.40	.59	.33	0	56	.69	3.95	.93
2052.00	.59	.36	0	61	.69	4.12	.93
2053.30	.34	.20	0	59	.18	2.16	.92
2054.00	.46	.41	0	89	.11	3.56	.90
2054.60	.23	.08	0	35	0.00	.47	.85
2055.80	.10	.19	0	190	0.00	.05	.21
2056.00	.24	.70	427	292	0.00	.20	.22
2057.00	.16	.21	0	131	0.00	.10	.32
2057.10	2.76	4.85	0	176	.19	3.05	.40
2058.00	.27	.52	0	193	.06	1.73	.77
2059.00	.23	.36	0	157	0.00	1.28	.78
2059.50	.25	.60	0	240	.01	1.43	.71



EXPLORATION LOGGING GEOCHEMICAL DATA PRINT

FOR : NORSE HYDRO
WELL : 7120/2-1Printed at : 15:53
: 12 Oct 1985

PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Core Samples							
2060.00	.05	.21	0	420	0.00	.04	.16
2062.00	.56	.55	458	98	0.00	.25	.31
2063.00	.39	.53	455	136	0.00	.21	.28
2064.00	.36	.45	458	125	0.00	.18	.29
2064.30	.46	.46	454	100	0.00	.21	.31
2065.00	.14	.14	0	100	0.00	.02	.13
2066.00	.17	.15	0	88	0.00	.72	.83
2066.10	.28	.17	0	61	.08	1.73	.91
2067.00	.30	1.15	0	383	.01	1.71	.60
2067.80	.29	.14	0	48	.03	1.31	.91
2068.00	.38	.18	0	47	.21	2.05	.93
2068.70	.17	.16	0	94	.02	.84	.84
2069.00	.09	.07	0	78	0.00	.16	.70
2070.00	.16	.06	0	38	.05	.63	.92
2071.00	.34	.24	0	71	.06	1.87	.89
2072.00	.45	.22	0	49	.05	1.42	.87
2073.00	.41	.21	0	51	.10	1.37	.88
2074.00	.05	.23	0	460	0.00	.06	.21
2075.00	.19	.07	0	37	0.00	.35	.83
2076.00	.17	.09	0	53	0.00	.28	.76
2077.00	.10	0.00	0	0	0.00	.02	1.00
2126.00	.18	.10	0	56	.02	.55	.85
2127.20	.07	.06	0	86	0.00	.10	.63
2127.70	.24	.60	0	250	0.00	.03	.05
2128.50	.16	.12	0	75	.01	.42	.78
2129.00	.22	.14	0	64	0.00	.22	.61
2131.10	.11	.59	0	536	0.00	.11	.16
2131.60	.11	.21	0	191	0.00	.45	.68
2131.70	.18	.16	0	89	0.00	.05	.24
2134.00	.23	.32	0	139	.01	.08	.22
2134.80	.09	.11	0	122	0.00	.10	.48
2135.70	.85	.96	458	113	.01	.21	.19
2136.10	.13	.04	0	31	0.00	.11	.73
2137.50	.23	.53	0	230	0.00	.09	.15
2139.40	.15	.27	0	180	0.00	.07	.21
2142.00	.35	.19	0	54	.04	.56	.76
2142.70	.11	.27	0	245	0.00	.13	.33
2143.50	.30	1.26	0	420	.01	.56	.31
2145.00	.54	.35	0	65	.61	2.18	.89
2146.50	.38	.24	0	63	.40	1.93	.91
2147.20	.23	.13	0	57	.27	1.00	.91
2148.50	.10	.28	0	280	0.00	.08	.22
2150.30	.25	.25	0	100	.13	1.26	.85
2151.00	.08	.16	0	200	0.00	.01	.06
2151.25	.26	.17	0	65	.17	1.25	.89
2152.00	.19	.20	0	105	0.00	.08	.29
2154.80	4.87	2.39	458	49	.05	.75	.25
2155.73	.21	.13	0	62	.10	.54	.83
2156.70	.10	.07	0	70	0.00	.01	.13
2158.00	.23	.13	0	57	.06	.37	.77



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PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Core Samples							
2159.50	.08	.02	0	25	0.00	0.00	0.00
2160.50	.21	.12	0	57	.01	.29	.71
2161.40	.27	.07	0	26	0.00	.05	.42
2162.80	.47	.20	0	43	.52	2.04	.93
2163.70	.52	.20	0	38	.33	1.26	.89
2164.50	.13	.14	0	108	0.00	.05	.26
2165.60	.29	.12	0	41	.09	.42	.81
2166.50	.24	.07	0	29	.01	.17	.72
2167.50	.26	.12	0	46	0.00	.16	.57
2168.60	.29	.11	0	38	.02	.26	.72
2169.50	.33	.11	0	33	.01	.23	.69
2170.20	.52	.32	441	62	.14	.80	.75
2171.00	.44	.54	0	123	.53	2.24	.84
2172.00	.22	.35	0	159	.41	1.71	.86
2173.00	.36	.29	0	81	.83	2.10	.91
2174.00	.28	.30	0	107	.54	1.53	.87
2175.00	.20	.34	0	170	.21	1.05	.79
2176.00	.53	.47	0	89	.80	3.12	.89
2177.00	.36	.52	0	144	.42	2.35	.84
2178.00	.12	.17	0	142	0.00	.01	.06
2179.00	.40	.26	0	65	.19	1.05	.83
2180.00	.15	.38	459	253	0.00	.56	.60
2181.00	.35	.65	0	186	.01	.09	.13
2182.00	.13	.11	0	85	0.00	.01	.08
2183.00	.13	.12	0	92	0.00	.06	.33
2184.00	.35	.35	0	100	.01	.43	.56
2185.00	.34	.26	0	76	.05	.80	.77
2186.00	.23	.26	453	113	.02	.59	.70
2187.00	.20	0.00	0	0	0.00	.07	1.00
2188.00	.19	.08	0	42	.02	.06	.50
2189.06	.16	.05	0	31	0.00	0.00	0.00
2190.00	.12	.06	0	50	0.00	.03	.33
2191.00	.13	.10	0	77	0.00	.22	.69
2191.22	1.07	.53	477	50	.03	.23	.33
2192.00	.16	.42	0	263	.02	.84	.67
2193.00	.09	.12	0	133	0.00	.57	.83
2194.00	.15	.24	460	160	0.00	.59	.71
2195.00	.21	.68	0	324	.03	1.14	.63
2197.05	.07	.13	0	186	0.00	.26	.67
2198.30	.12	.07	0	58	0.00	.01	.13
2199.00	.38	.44	0	116	.16	1.50	.79
2200.00	.21	.08	0	38	0.00	.03	.27
2201.00	.13	.20	0	154	0.00	.04	.17
2201.45	.30	.26	0	87	.02	.06	.24
2202.00	.14	.06	0	43	0.00	.03	.33
2203.00	.19	.27	0	142	.06	.73	.75
2204.00	.14	.41	0	293	.01	.70	.63
2205.00	.17	.08	0	47	0.00	.03	.27
2206.05	.49	.59	469	120	.01	.39	.40



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DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Core Samples							
2207.00	.43	.72	0	167	.24	1.74	.73
2208.00	.28	.27	0	96	.02	.46	.64
2209.00	.34	.27	0	79	.01	.36	.58
2209.80	.26	.18	0	69	.01	.26	.60
2211.00	1.05	1.32	0	126	.64	3.57	.76
2212.00	.24	.83	0	346	.01	.06	.08
2213.00	.12	.25	0	208	.03	.07	.29
2214.00	.79	1.47	0	186	.16	2.10	.61
2215.00	.27	.65	0	241	.03	1.22	.66
2216.00	.17	.43	0	253	.06	.51	.57
2217.00	.12	.29	447	242	.05	.85	.76
2218.00	.25	.39	0	156	.09	1.02	.74
2219.00	.14	.46	0	329	.02	.04	.12
2220.00	.20	.14	0	70	0.00	.01	.07
2221.00	.18	.30	0	167	.04	.03	.19
2222.00	.12	.16	0	133	.01	.02	.16
2223.00	.12	.25	0	208	0.00	.02	.07
2224.00	.16	.19	0	119	0.00	.01	.05
2225.60	.13	.30	0	231	0.00	.01	.03
2226.00	.36	.74	467	206	.01	.09	.12
2227.00	.44	.71	464	161	0.00	.11	.13
2228.00	.18	.26	0	144	0.00	.02	.07
2229.00	.20	.75	0	375	.01	.03	.05
2230.00	.13	.29	0	223	.07	.04	.28
2231.00	.14	.04	0	29	0.00	0.00	0.00
2232.00	.20	.53	0	265	.03	.05	.13
2233.00	.45	.79	472	176	.06	.10	.17
2234.02	.14	.17	0	121	0.00	.03	.15
2235.00	.13	.58	0	446	0.00	.01	.02
2236.00	.25	.39	475	156	0.00	.05	.11
2237.00	.24	1.07	0	446	0.00	.05	.04
2238.00	.62	1.58	469	255	.06	.16	.12
2239.00	.13	.16	0	123	.02	.03	.24
2240.00	.11	.23	0	209	0.00	.01	.04
2241.00	.11	.72	0	655	0.00	.01	.01
2242.00	.07	.26	0	371	.01	.02	.10
2243.00	.04	.19	0	475	.01	.01	.10



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PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Core Samples							
2637.42	1.06	.42	539	40	0.00	.02	.05
2638.60	2.98	.60	538	20	0.00	.04	.06
2639.24	1.64	.79	535	48	.01	.12	.14
2639.84	2.35	.42	502	18	.01	.04	.11
2640.44	2.39	.39	544	16	0.00	.04	.09
2641.24	3.19	.50	540	16	0.00	.02	.04
2643.30	1.32	.38	547	29	0.00	.01	.03
2645.00	1.53	.42	529	27	.01	.02	.07
2645.40	.47	.33	516	70	0.00	.04	.11



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PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Solvent Extracted Core Samples							
1965.00	.10	.03	0	30	0.00	.02	.40
1967.00	.37	.07	0	19	0.00	.03	.30
1970.00	.04	.02	0	50	0.00	.01	.33
1972.40	.08	.03	0	38	0.00	.02	.40
1977.00	.04	.04	0	100	0.00	.01	.20
1980.00	.03	.05	0	167	0.00	.03	.38
1982.00	.08	.03	0	38	0.00	.01	.25
1985.00	.05	.03	0	60	0.00	.03	.50
1987.00	.06	.04	0	67	0.00	.02	.33
1990.00	.11	.02	0	18	0.00	.01	.33
1992.00	.07	.02	0	29	0.00	.03	.60
1995.00	.06	.01	0	17	0.00	.02	.67
1997.00	.03	0.00	0	0	0.00	.01	1.00
2000.00	.13	.01	0	8	0.00	.01	.50
2002.00	.05	.02	0	40	0.00	.01	.33
2007.00	.09	.02	0	22	0.00	.02	.50
2010.00	.19	.04	0	21	0.00	.05	.56
2013.50	.06	.02	0	33	0.00	.02	.50
2015.06	.31	.10	0	32	0.00	.03	.23
2017.00	.07	.06	0	86	0.00	.02	.25
2020.00	.03	.05	0	167	0.00	.03	.38
2022.00	.07	.09	0	129	0.00	.03	.25
2027.00	.01	.07	0	700	0.00	.02	.22
2030.00	.02	.13	0	650	0.00	.02	.13
2032.00	.05	.08	0	160	0.00	.04	.33
2050.60	.05	.46	0	920	0.00	.10	.18
2051.00	.21	.49	0	233	0.00	.12	.20
2051.40	.15	.19	0	127	0.00	.05	.21
2052.00	.14	.14	0	100	0.00	.04	.22
2053.30	.19	.10	0	53	0.00	.06	.38
2054.00	.20	.11	0	55	0.00	.07	.39
2058.00	.05	.05	0	100	0.00	.05	.50
2059.00	.12	.17	0	142	0.00	.12	.41
2059.50	.14	.22	0	157	0.00	.14	.39
2066.10	.07	.03	0	43	0.00	.04	.57
2067.00	.03	.03	0	100	0.00	.04	.57
2067.80	.13	.13	0	100	0.00	.06	.32
2068.00	.04	.04	0	100	0.00	.01	.20
2071.00	.08	.09	0	113	0.00	.01	.10
2072.00	.11	.09	0	82	0.00	.20	.69
2073.00	.40	.17	0	42	0.00	.11	.39
2137.50	.38	.38	442	100	0.00	.13	.25
2139.40	.18	.10	451	56	.01	.11	.55
2142.70	.07	.01	0	14	0.00	.03	.75
2143.50	.17	.33	428	194	0.00	.13	.28
2145.00	.14	.08	0	57	0.00	.07	.47
2146.50	.13	.08	0	62	0.00	.10	.56
2147.20	.12	.13	0	108	0.00	.10	.43



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PYROLYSIS & TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Solvent Extracted Core Samples							
2151.25	.07	.08	0	114	0.00	.10	.56
2152.00	.13	.03	0	23	0.00	.05	.63
2162.80	.09	.03	0	33	0.00	.04	.57
2171.00	.05	.06	0	120	0.00	.05	.45
2172.00	.02	.06	0	300	0.00	.03	.33
2173.00	.09	.05	0	56	0.00	.04	.44
2174.00	.05	.05	0	100	0.00	.05	.50
2175.00	.06	.06	0	100	0.00	.03	.33
2176.00	.04	.06	0	150	0.00	.05	.45
2177.00	.11	.06	0	55	0.00	.04	.40
2179.00	.09	.04	0	44	0.00	.06	.60
2192.00	.05	.06	0	120	0.00	.06	.50



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PYROLYSIS AND TOC ANALYSIS BY OIL SHOWS ANALYZER.

DEPTH m	SOURCE BED EVALUATION				FREE HYDROCARBS		
	TOC %wt	S2 mg/g	TMAX degC	S2/TOC HI	S0 mg/g	S1 mg/g	TPI mg/g
Solvent Extracted Core Samples							
2638.60	2.97	.33	562	11	.11	.44	.63
2639.24	1.65	.28	530	17	.06	.24	.52
2639.84	2.78	.32	511	12	.02	.34	.53
2640.44	2.14	.28	510	13	.03	.35	.58
2641.24	1.06	.21	537	20	.07	.11	.46
2643.30	1.35	.33	519	24	.08	.23	.48
2645.00	1.54	.32	536	21	.14	.27	.56
2645.40	.47	.27	543	57	.03	.17	.43

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THE ROBERTSON GROUP plc

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ORGANIC GEOCHEMISTRY OF RESIDUAL OILS IN SEALED CORES FROM THE 7120/2-1 LOPPA HIGH, BARENTS SEA WELL

by

A G COLLINS

BA90-2065-1

3 DES. 1990

REGISTRERT

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APPENDICES

- 1 Abbreviations used in analytical data sheets
- 2 Analytical procedures and techniques
- 3 Porosity and permeability methods
- 4 Detailed gasoline data

1 SUMMARY

A suite of sealed cores (seal peels) and a produced crude oil from the Norsk Hydro 7120/2-1 Loppa High, Barents Sea well have been analysed. All cores were obtained from the dolomite/sandstone reservoir interval between 1971.00m and 2214.30m (logger's depths) and the oil, DST-4, from a tested zone at the top of the reservoir.

Geochemical analysis was directed towards an assessment of the amount and composition of the oil in the cores in order to evaluate the degree of saturation, producibility and continuity in the reservoir. The investigation included an estimation of the number of phases of hydrocarbon generation and emplacement in the reservoir. The analytical techniques employed have included porosity/permeability determination, reflectance microscopy, solvent and thermal extraction, liquid and gas chromatography and light hydrocarbon acid extraction.

2 INTRODUCTION

This report presents the results of the geochemical analysis of core material from the reservoir interval 1971.00m to 2214.30m (logger's depths) in the Norsk Hydro 7120/2-1 Barents Sea well. Tested oil from the well was also analysed for comparison.

2.2 SAMPLES

The samples made available by Norsk Hydro comprised a suite of whole cores, sealed at the well site (seal peels). The cores were identified by driller's depth but have throughout the report been referred to by logger's depth. In most tables and figures, both depths are given, but where only one depth is specified, this will be logger's depth. The sealed cores were plugged and the plug split into two parts; one part being used for porosity and permeability measurements and the other resealed for hydrocarbon studies. The bulk core samples were resealed after plugging. The oil sample comprised 8 ml of crude, bottled and labelled DST-4.

2.3 SCHEME OF ANALYSIS

The core pieces were analysed according to the following sequence:

- a) Cores plugged, split and part re-sealed.
- b) Plugs analysed for porosity/permeability.
- c) Trims from b) rough crushed, split and half mounted in resin for reflectance microscopy.
- d) Remaining splits from c) solvent extracted and mounted in resin for reflectance microscopy.

- e) Sealed cores from a) split and part stored in water for gasoline analysis and thermal extraction (C_1 - C_{30}).
- f) Remaining splits from e) described, then quantitatively solvent extracted. Extracted rock analysed for light hydrocarbons by acid solution method and by thermal extraction (C_1 - C_{30}).
- g) Solvent extract from f) analysed by column and Iatroscan chromatography, and by gas chromatography.

The total number of analyses are as follows:

Core Analysis	No. of Samples
Sample plugging/preparation	18
Porosity/permeability	18
Whole rock microscopy	8
Extracted whole rock microscopy	8
Gasoline (C_4 - C_9) analysis	18
Thermal extraction GC	18
Post-solvent extraction thermal extraction GC	18
Solvent extraction	18
Extract fractionation (by column)	8
Extract fractionation (by Iatroscan)	18
Whole extract GC	18
C_{15+} alkane GC	18
Acid extraction light hydrocarbons	18
Oil Analysis	
Topping of volatiles	1
Whole oil GC	1
Gasoline (C_4 - C_9) analysis	1
Asphaltene content	1
Nickel, vanadium, sulphur	1
Column chromatography	1
Iatroscan chromatography	1
C_{15+} alkane GC	1
C_{15+} aromatic GC	1
C_1 - C_{70} GC	1

2.4 TIMETABLE AND PERSONNEL

The study was conceived during discussions between Patrick Barnard of The Robertson Group and Jan Augustson and Nils Telnaes of Norsk Hydro in September, 1989. The project was further discussed at a meeting in North Wales between Robertson Group personnel and our contact from Norsk Hydro throughout the study, Dr. Jan Augustson, on 28th November, 1989. Samples were received at The Robertson Group's Aberdeen office on 16th January, 1990, and were forwarded to North Wales on 19th January. Preliminary data were sent to Norsk Hydro on 6th March and 12th April, and a data report, containing most of the analytical results, sent on 27th April. The oil was received in North Wales on 2nd May, 1990. Dr. Augustson visited North Wales for further discussion on 9th May.

Robertson Group personnel involved in the study were:

Patrick Barnard	-	Project co-ordination
Alan Collins	-	Report preparation, reflectance microscopy
Alan Rowley	-	Chemical analysis
Donald Kirk (Aberdeen)	-	Conventional core analysis

COMPANY: NORSK HYDRO

WELL: N 7120/2-1

LOCATION: BARENTS SEA

Depth (m)			Sample Wt (g)	Lithology	Microscopic Characteristics		Bitumen Reflectance (%)
Driller's	Logger's				Pre-extraction	Post-extraction	
1973.20	1971.00		70	Dol/1st, lt ol-gy, finely crystalline with local vuggy porosity. Faint black /brown flecks of ?bitumen, rare	Clean mineral, no organic matter seen	Same	*
1988.77	1986.87		264	Dol/1st, lt ol-gy, very finely crystalline. Fine fractures with pyrite and black/brown flecks of ?bitumen	As above, occ. pyrite	Same	*
2018.70	2017.00		129	Dol, lt ol-gy, very hard, finely crystalline with local vuggy porosity. No visible bitumen	As above but occ. light brown stain in vugs but no solid bitumen with reflectance	Same	*
2024.00	2022.30		110	Dol/1st, lt ol-gy, sucrosic, vuggy porosity. No visible bitumen	As above, frequent patchy, light brown ?oil-stain	Same	*
2027.80	2026.10		99	Sst, lt ol-gy, non-calcareous. No visible bitumen	-	-	-

Table 1A Core Description and Optical (Microscopic) Properties

COMPANY: NORSK HYDRO

WELL: N 7120/2-1

LOCATION: BARENTS SEA

Depth (m)			Sample Wt (g)	Lithology	Microscopic Characteristics		Bitumen Reflectance (%)
Driller's	Logger's				Pre-extraction	Post-extraction	
2053.02	2052.02		134	Dol, med gy, very hard, little visible porosity, no visible bitumen. Subordinate amount of Sst, ol-gy, hard, porous	-	-	-
2058.75	2057.75		104	Sst, lt gy/gn-gy, mic	-	-	-
2068.00	2067.00		149	Dol, lt brn-gy, vuggy porosity. Stylolite contains solid bitumen and minerals	Bitumen low grey, poorly reflectant surfaces or brown, translucent. Assoc. with pyrite and large, crystalline masses of native sulphur	Same, but bitumen more granular, rarely taking polish	?0.6% Ro
2145.35	2144.55		136	Lst/dol, lt gy with green patches. Low visible porosity and no visible bitumen	-	-	-
2149.35	2148.55		109	Sst, lt ol-gy, slightly calc., visibly porous	-	-	-

Table 1B Core Description and Optical (Microscopic) Properties

COMPANY: NORSK HYDRO

WELL: N 7120/2-1

LOCATION: BARENTS SEA

Depth (m)			Sample Wt (g)	Lithology	Microscopic Characteristics		Bitumen Reflectance (%)
Driller's	Logger's				Pre-extraction	Post-extraction	
2163.50	2162.10		142	Dol, med gy, vuggy porosity, no visible bitumen. Subordinate amount of Sst, med gy	-	-	-
2170.90	2169.80		123	Sst, lt ol-gy, slightly calc, no visible bitumen	-	-	-
2188.05	2186.95		144	Sst, med gy, hard, well cemented	-	-	-
2191.50	2190.40		123	Sst, gy-gy	-	-	-
2196.83	2196.03		139	Sst, med-lt gy, micaceous	-	-	-
2207.10	2205.90		137	Sst, lt brn-gy, no visible bitumen	Porosity largely occluded by clay and crystalline overgrowths. Faint brown smears of ?soft bitumen along grain boundaries	Same	*

Table 1C Core Description and Optical (Microscopic) Properties

COMPANY: NORSK HYDRO

WELL: N 7120/2-1

LOCATION: BARENTS SEA

Depth (m)			Sample Wt (g)	Lithology	Microscopic Characteristics		Bitumen Reflectance (%)
Driller's	Logger's				Pre-extraction	Post-extraction	
2209.80	2208.60		150	Sst, lt ol-gy, minor visible bitumen	Porosity only partly occluded by carbonate cement. Smear of brown, oily residue in pores, occ. giving polished surface	Same, but few measurable surfaces for bitumen reflectance	0.82% Ro
2215.50	2214.30		132	Sst, lt ol-gy with minor visible bitumen, black, solid, bright lustrous	Good visible porosity, with bitumen in pores moderately frequent. Numerous fragments for bitumen reflectance measurement	Same, bitumen seen to coat grains. Occ bitumen fragments seen i.e. hard, brittle	0.89% Ro (27 fragments measured), range 0.65 to 1.16%

Table 1D Core Description and Optical (Microscopic) Properties

TABLE 2
Porosity/Permeability Data

Well : 7120/2-1
 Company : Norsk Hydro
 Report : C1/325
 Report Interval :

C O R E A N A L Y S I S D A T A

Sample Number	Depth Metres	Horizontal Permeability mD		Vertical Permeability mD		Helium Porosity %	Porosity by Fluid Summation %	Residual Saturation %		Grain Density gm/cc	Lithology & Comments
		Ka	Kl	Ka	Kl			Oil	Water		

CORE 2

1	1973.20	<.01				8.4				2.85	(1") DOL, xln, w.ind, sl pyr, sl vugs (up to 2x1mm)
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CORE 3

2	1988.77	CHIP				1.8				2.71	(chip) ?SLT, sl arg, w.ind, ?sl silica cmt, mod DOL cmt.
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CORE 4

3	2018.70	FRAC				9.5				2.69	LST, xln, w.ind, sl DOL, frags.
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CORE 5

4	2024.00	FRAC				5.5				2.86	DOL, xln, w.ind, sl pyr, sl calc, sl boimld vugs (up to 3x2mm), frac.
5	2027.80	.38				10.6				2.66	SST, f, sl arg, w.ind,

Well : 7120/2-1
 Company : Norsk Hydro
 Report : C1/325
 Report Interval :

CORE ANALYSIS DATA

Sample Number	Depth Metres	Horizontal Permeability mD		Vertical Permeability mD		Helium Porosity %	Porosity by Fluid Summation %	Residual Saturation %		Grain Density gm/cc	Lithology & Comments
		Ka	Kl	Ka	Kl			Oil	Water		

sl mic.

CORE 7

6	2053.02	<.01				3.8				2.80	DOL, xln, sl arg, w. ind, sl CALT cmtd frac, biomld vugs (up to 6x3mm).
7	2058.75	<.01				6.7				2.70	SST, vf, sl arg, w. ind, sl DOL, sl mic, lams.
8	2068.00	DAM				5.7				2.85	DOL, xln, sl arg, w. ind, sl biomld vugs (up to 2x2mm), dam.

CORE 13

9	2145.35	.03				7.2				2.81	SST, vf, w.ind, DOL cmt, sl chloritic clay, sl mic.
10	2149.35	.28				10.0				2.72	SST, med, sl arg, w. ind, calc cmt, sl

Well :7120/2-1
 Company :Norsk Hydro
 Report :C1/325
 Report Interval :

CORE ANALYSIS DATA

Sample Number	Depth Metres	Horizontal Permeability mD		Vertical Permeability mD		Helium Porosity %	Porosity by Fluid Summation %	Residual Saturation %		Grain Density gm/cc	Lithology & Comments
		Ka	Kl	Ka	Kl			Oil	Water		

?chloritic clay.

CORE 14

11	2163.50	FRAC				7.0				2.81	DOL, xln, w.ind, CALT cmtd frac, vugs (up to 2x2mm), frac.
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CORE 15

12	2170.90	.36				7.4				2.67	SST, med-crs, sl arg, w.ind, sl CALT cmt, sl pyr, cmn large QTZ granules, (up to 13x9mm).
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13	2188.05	<.01				2.8				2.77	SST, med-crs, w.ind, cmn DOL cmt.
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CORE 16

14	2191.50	.62				15.1				2.65	SST, f, mod arg, w. ind, sl ?chloritic clay.
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15	2196.83	.04				7.0				2.77	SST, med, sl arg, w.
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Well :7120/2-1
Company :Norsk Hydro
Report :C1/325
Report Interval :

CORE ANALYSIS DATA

Sample Number	Depth Metres	Horizontal Permeability mD		Vertical Permeability mD		Helium Porosity %	Porosity by Fluid Summation %	Residual Saturation %		Grain Density gm/cc	Lithology & Comments
		Ka	Kl	Ka	Kl			Oil	Water		

ind, DOL cmt.

CORE 17

16	2207.10	.02				6.2				2.73	SST, f-med, sl arg, sl DOL cmt, lam.
17	2209.80	FRAC				9.3				2.72	SST, f, sl arg, w.ind, DOL cmt, frac.
18	2215.50	.98				9.9				2.65	SST, med, sl arg, w. ind, sl carb, sl CALT, sl ?chloritic clay, occ v.crs QTZ grns, lams.

COMPANY: NORSK HYDRO

WELL: N 7120/2-1

LOCATION: BARENTS SEA

Depth (m)		Total Gasolines (ppb)	Gasoline Ratios									
Driller's	Logger's		$\frac{i}{n}\text{-C}_4$	$\frac{i}{n}\text{-C}_5$	$\frac{n\text{-C}_7}{mch}$	mch tol	Late Mature Index	Aromat Index	Heptane Index	Iso-Heptane Index	Kerogen Type Index	Xylenes/Octane
1973.20	1971.00	1220	0.43	1.11	1.31	2.01	0.52	0.38	29.88	1.80	14.42	0.59
1988.77	1986.87	195000	0.37	0.96	0.81	8.35	0.02	0.15	25.50	1.33	16.19	3.18
2018.70	2017.00	1445	0.49	1.08	1.11	6.20	0.10	0.15	29.23	1.82	13.87	0.34
2024.00	2022.30	1640	0.49	1.18	0.97	2.19	0.37	0.47	27.47	1.56	15.00	0.91
2027.80	2026.10	875	0.41	1.12	1.65	2.09	0.54	0.29	37.36	2.67	12.47	0.58
2053.02	2052.02	380	0.37	1.10	0.56	1.08	0.91	1.67	16.41	0.40	31.33	5.35
2058.75	2057.75	600	0.48	1.13	0.34	1.98	0.59	1.48	11.94	1.28	6.22	1.20
2068.00	2067.00	835	0.55	1.27	0.76	3.15	0.42	0.42	24.11	1.51	13.29	1.47
2145.35	2144.55	600	0.46	1.20	0.23	1.12	1.88	3.81	6.30	1.02	2.26	5.40
2149.35	2148.55	115	0.45	1.15	0.41	2.52	0.95	0.96	14.28	0.72	14.37	3.47
2163.50	2162.10	4725	0.41	1.00	0.76	62.58	0.03	0.02	23.45	1.34	14.51	0.35
2170.90	2169.80	195	0.45	1.15	0.72	2.21	0.65	0.63	19.75	1.13	13.97	2.34
2188.05	2186.95	220	0.63	1.49	0.45	1.29	1.28	1.72	18.53	0.96	15.08	3.41
2191.50	2190.40	1145	0.03	1.05	0.34	7.16	0.14	0.41	14.14	1.20	8.46	0.49
2196.83	2196.03	970	0.35	1.02	0.87	1.83	1.03	0.63	22.16	1.18	15.41	1.71
2207.10	2205.90	690	0.35	0.91	0.82	3.18	0.25	0.38	26.77	1.19	19.14	3.65
2209.80	2208.60	184	0.40	1.25	0.99	1.40	0.93	0.72	16.64	0.35	36.30	2.31
2215.50	2214.30	945	0.13	0.51	0.77	2.63	0.60	0.49	22.81	1.29	14.58	2.26
Oil, DST-4		29795 ppm	0.22	0.79	0.67	1.44	0.20	1.03	24.71	1.22	16.96	2.06

Table 3 Gasoline Data

Gasoline Ratios - Definition of Indices

Late Mature Index - Benzene/Methyl Cyclohexane

Aromaticity Index - Toluene/n-Heptane

Heptane Index - n-Heptane/all C₇ compounds (%)

Isoheptane Index - Methyl hexanes (non-cyclic)/dimethyl cyclopentanes

Kerogen Type Index - Heptane Index -4/Isoheptane Index

GENERAL DATA			CHEMICAL ANALYSIS DATA											
SAMPLE CODE	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION					
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC		ALK. %HC
1971.0 (1973.0)	Core	DOL, lt ol-gy+ mnr BIT	-						3415	2795			82	88
1986.87(1988.77)	Core	DOL, lt ol-gy+ mnr BIT	-						870	815			94	81
2017.0 (2018.70)	Core	DOL, lt ol-gy+ mnr BIT	-						3515	3330			95	81
2022.30 (2024.0)	Core	DOL, lt ol-gy+ mnr BIT	-						1480	1405			95	82
2026.1 (2027.8)	Core	SST, lt ol-gy	-						4945	4730			96	80
2052.02(2053.02)	Core	DOL, med gy+ 10% SST, ol-gy	-						900	850			94	80
2057.75(2058.75)	Core	SST, lt gn-gy, mic	-						2230	2085			94	80
2067.0 (2068.0)	Core	DOL, lt brn-gy+ mnr BIT	-						530	430			81	79
2144.55(2145.35)	Core	LST, lt gy	-						95	85			89	82
2148.55(2149.35)	Core	SST, lt ol-gy, calc	-						2005	1880			94	82
2162.10(2163.50)	Core	DOL, med gy+ 20% SST, med gy	-						2785	2605			94	82
2169.80(2170.90)	Core	SST, lt ol-gy, calc	-						2740	2465			90	81
2186.95(2188.05)	Core	SST, med gy	-						10	*			*	*
2190.40(2191.50)	Core	SST, gn-gy	-						2175	2040			94	79
2196.03(2196.83)	Core	SST, med-lt gy, mic	-						1125	1080			96	80
2205.90(2207.10)	Core	SST, lt brn-gy	-						605	550			90	78
2208.60(2209.80)	Core	SST, lt ol-gy+ mnr BIT	-						625	590			95	80
2214.30(2215.50)	Core	SST, lt ol-gy+ mnr BIT	-						1115	995			89	78

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 4.

COMPANY: NORSK HYDRO

WELL: N 7120/2-1

LOCATION: BARENTS SEA

TOP CORE DEPTH (m)		COLUMN CHROMATOGRAPHY DATA					IATROSCAN DATA			
Driller's	Logger's	Alkanes %	Aromatics %	Polars %	Recovery %	<u>Alkanes</u> Aromatics	Alkanes %	Aromatics %	Polars %	<u>Alkanes</u> Aromatics
1973.20	1971.00	65.6	2.4	17.5	85.5	27.3	72	10	18	7.2
2018.70	2017.00	66.9	9.0	10.0	85.9	7.4	77	18	5	4.3
2027.80	2026.10	73.2	10.3	9.1	92.6	7.1	77	19	4	4.1
2058.75	2057.75	67.3	8.7	9.9	85.9	7.7	77	19	4	4.1
2149.35	2148.55	72.6	11.3	11.1	95.0	6.4	77	17	6	4.5
2163.50	2162.10	71.8	10.0	15.1	96.9	7.2	77	17	6	4.5
2170.90	2169.80	71.2	10.3	13.7	95.2	6.9	73	17	10	4.3
2191.50	2190.40	68.3	11.1	14.3	93.7	6.2	74	20	6	3.7
Oil, DST-4		71.9	14.5	7.1	93.5	5.0	78	17	5	4.6

Table 5 Column Chromatography and Iatroscan Fractionation Data

SAMPLE DATA						
SAMPLE CODE		1971.0 (1973.0)	1986.87(1988.77)	2017.0 (2018.70)	2022.30 (2024.0)	2026.1 (2027.8)
SAMPLE TYPE	Oil	Core	Core	Core	Core	Core

COMPONENTS	QUANTIFIED NORMAL AND ISOPRENOID ALKANE ABUNDANCES (%)					
n-C10						
n-C11						
n-C12						
n-C13						
n-C14	6.38	5.67	4.61	4.22	5.67	6.84
n-C15	7.72	7.58	5.99	5.71	6.73	7.89
n-C16	7.68	7.40	6.67	6.04	6.54	7.45
n-C17	8.12	7.21	6.67	6.30	6.65	7.57
n-C18	7.21	6.69	6.99	6.59	6.49	6.60
n-C19	7.08	7.24	7.48	7.34	7.04	8.38
n-C20	6.54	6.78	7.11	7.26	6.58	6.61
n-C21	6.04	5.53	5.86	6.16	5.87	5.43
n-C22	5.14	5.19	5.57	5.34	5.21	4.65
n-C23	4.32	4.44	4.93	4.54	4.64	4.15
n-C24	3.66	3.74	4.27	4.02	4.20	3.64
n-C25	3.88	4.34	4.45	5.10	4.59	3.80
n-C26	2.75	2.95	3.39	3.40	3.00	2.32
n-C27	2.48	2.57	2.65	2.58	2.94	2.35
n-C28	2.07	1.94	2.16	2.24	2.68	2.11
n-C29	1.89	1.84	1.73	1.78	2.02	1.80
n-C30	1.48	1.30	1.34	1.33	1.68	1.38
n-C31	1.18	1.16	1.14	1.33	1.49	1.19
n-C32	.87	.67	.76	1.01	.96	.85
n-C33	.69	.88	.77	.99	.58	.76
n-C34	.72	.77	.88	.94	1.10	.59
n-C35	.62	.62	.68	.80	.73	.59
n-C36						
i-C15 (Farnesane)						
i-C16						
i-C18 (Norpristane)						
i-C19 (Pristane)	7.03	7.95	8.22	8.60	7.41	7.86
i-C20 (Phytane)	4.44	5.56	5.71	6.40	5.23	5.20

GENERAL DATA						
Total Abundance(%)	100	100	100	100	100	100
TOC (% of Rock)						
Extract (ppm)		3415	870	3515	1480	4945
Hydrocarbons (ppm)		2795	815	3330	1405	4730
Hydrocarbon(mg/gTOC)						
Alks(% Hydrocarbons)		88	81	81	82	80
Rock-Eval HI						
Rock-Eval PI						

RATIOS						
CPI-1	1.11	1.22	1.08	1.15	1.08	1.16
CPI-2	1.13	1.22	1.10	1.17	1.14	1.17
CPI-3	1.03	1.05	.95	.91	1.04	1.06
Bias	1.89	1.78	1.68	1.59	1.54	1.92
i-C19 / n-C17	.87	1.10	1.23	1.37	1.11	1.04
i-C20 / n-C18	.62	.83	.82	.97	.81	.79
i-C19 / i-C20	1.58	1.43	1.44	1.34	1.42	1.51

LEGEND						
i - isoprenoid n - normal	For definition of Ratios CPI-1,-2,-3 and Bias - see following page					

ALKANE GAS CHROMATOGRAPHY DATA
TABLE : 6A

SAMPLE DATA						
SAMPLE CODE	2052.02(2053.02)	2057.75(2058.75)	2067.0 (2068.0)	2144.55(2145.35)	2148.55(2149.35)	2162.10(2163.50)
SAMPLE TYPE	Core	Core	Core	Core	Core	Core

COMPONENTS	QUANTIFIED NORMAL AND ISOPRENOID ALKANE ABUNDANCES (%)					
n-C10						
n-C11						
n-C12						
n-C13						
n-C14	4.89	6.38	2.92	.43	2.93	3.02
n-C15	6.69	7.88	5.52	2.85	5.82	5.76
n-C16	6.95	7.71	6.59	4.99	6.70	6.52
n-C17	7.60	7.96	7.77	7.22	7.49	8.50
n-C18	7.18	6.75	7.33	6.97	7.32	7.05
n-C19	7.48	7.44	9.42	8.27	8.92	7.66
n-C20	7.12	6.82	7.10	8.21	7.15	7.48
n-C21	6.26	5.57	6.28	6.76	5.54	5.91
n-C22	5.01	5.01	5.90	5.96	5.19	5.60
n-C23	4.45	4.26	4.74	4.92	4.39	4.96
n-C24	3.73	3.61	3.76	3.95	3.92	3.94
n-C25	4.19	3.86	4.15	4.56	4.43	3.15
n-C26	2.48	2.88	2.44	2.91	3.43	2.76
n-C27	2.44	2.16	2.47	2.86	2.61	2.59
n-C28	2.15	1.96	2.29	2.73	2.33	2.77
n-C29	1.83	1.60	1.71	2.25	2.00	2.06
n-C30	1.42	1.21	1.31	1.96	1.45	1.49
n-C31	1.20	1.19	1.07	1.98	1.28	1.36
n-C32	.80	.67	.82	1.59	.85	
n-C33	.95	.73	.91	1.65	.87	.99
n-C34	.77	.66	.59	1.45	.82	.80
n-C35	.41	.49	.80	1.17	.58	
n-C36						
i-C15 (Farnesane)						
i-C16						
i-C18 (Norpristane)						
i-C19 (Pristane)	8.17	7.89	8.33	8.39	8.16	9.60
i-C20 (Phytane)	5.87	5.33	5.82	5.98	5.83	6.05

GENERAL DATA						
Total Abundance(%)	100	100	100	100	100	100
TOC (% of Rock)						
Extract (ppm)	900	2230	530	95	2005	2785
Hydrocarbons (ppm)	850	2085	430	85	1880	2605
Hydrocarbon(mg/gTOC)						
Alks(% Hydrocarbons)	80	80	79	82	82	82
Rock-Eval HI						
Rock-Eval PI						

RATIOS						
CPI-1	1.20	1.11	1.18	1.13	1.10	1.11
CPI-2	1.20	1.11	1.16	1.14	1.10	1.07
CPI-3	1.05	.89	1.04	1.01	.91	.94
Bias	1.86	1.96	1.96	1.54	1.75	1.87
i-C19 / n-C17	1.08	.99	1.07	1.16	1.09	1.13
i-C20 / n-C18	.82	.79	.79	.86	.80	.86
i-C19 / i-C20	1.39	1.48	1.43	1.40	1.40	1.59

LEGEND						
i - isoprenoid	n - normal	For definition of Ratios CPI-1,-2,-3 and Bias - see following page				

ALKANE GAS CHROMATOGRAPHY DATA

TABLE : 6B

COMPANY: NORSK HYDRO

WELL: N7120/2-1

LOCATION: BARENTS SEA

SAMPLE DATA						
SAMPLE CODE	2169.80(2170.90)	2186.95(2188.05)	2190.40(2191.50)	2196.03(2196.83)	2205.90(2207.10)	2208.60(2209.80)
SAMPLE TYPE	Core	Core	Core	Core	Core	Core

COMPONENTS	QUANTIFIED NORMAL AND ISOPRENOID ALKANE ABUNDANCES (%)					
n-C10						
n-C11						
n-C12						
n-C13						
n-C14	3.08		3.67	6.00	1.55	4.70
n-C15	5.81	.49	6.79	7.49	4.49	7.16
n-C16	6.88	2.61	7.13	6.89	6.39	7.18
n-C17	8.05	7.24	7.55	7.68	7.93	8.05
n-C18	7.56	10.03	7.73	6.79	7.82	7.13
n-C19	9.38	11.07	8.28	7.25	8.42	7.20
n-C20	7.75	8.64	7.89	7.16	7.73	7.00
n-C21	6.33	6.71	6.05	5.30	6.42	5.74
n-C22	5.44	5.20	5.91	4.89	5.72	5.04
n-C23	4.54	3.73	4.45	4.34	4.75	4.32
n-C24	3.79	3.23	3.90	3.50	3.88	3.55
n-C25	4.30	2.62	4.00	3.96	4.50	4.00
n-C26	2.08	2.71	2.46	2.44	2.73	2.49
n-C27	2.41	2.32	2.37	2.26	2.58	2.38
n-C28	2.01	3.62	2.30	2.25	2.36	2.08
n-C29	1.55	3.44	1.70	1.72	1.75	1.61
n-C30	1.08	2.39	1.21	1.20	1.35	1.29
n-C31	.94	3.17	1.11	.96	1.22	1.15
n-C32	.74	1.24	.80	.90	.85	.87
n-C33	.57	2.36	.79	.74	.96	.88
n-C34	.59	2.62	.66	1.25	.88	.87
n-C35	.38	3.88	.55	.60	.64	.71
n-C36						
i-C15 (Farnesane)						
i-C16						
i-C18 (Norpristane)						
i-C19 (Pristane)	8.67	4.00	7.11	8.70	8.80	8.81
i-C20 (Phytane)	6.08	6.68	5.60	5.75	6.30	5.81

GENERAL DATA						
Total Abundance(%)	100	100	100	100	100	100
TOC (% of Rock)						
Extract (ppm)	2740	10	2175	1125	605	625
Hydrocarbons (ppm)	2465	*	2040	1080	550	590
Hydrocarbon(mg/gTOC)						
Alks(% Hydrocarbons)	81	*	79	80	78	80
Rock-Eval HI						
Rock-Eval PI						

RATIOS						
CPI-1	1.26	1.08	1.14	1.07	1.17	1.15
CPI-2	1.29	1.06	1.14	1.13	1.18	1.16
CPI-3	1.18	.73	1.00	.96	1.01	1.04
Bias	2.14	1.67	2.01	1.89	1.87	1.92
i-C19 / n-C17	1.08	.55	.94	1.13	1.11	1.09
i-C20 / n-C18	.80	.67	.72	.85	.81	.81
i-C19 / i-C20	1.43	.60	1.27	1.51	1.40	1.52

LEGEND						
i	- isoprenoid	n	- normal	For definition of Ratios CPI-1,-2,-3 and Bias - see following page		

ALKANE GAS CHROMATOGRAPHY DATA

TABLE : 6C

COMPANY: NORSK HYDRO

WELL: N7120/2-1

LOCATION: BARENTS SEA

SAMPLE DATA						
SAMPLE CODE	2214.30(2215.50)					
SAMPLE TYPE	Core					

COMPONENTS	QUANTIFIED NORMAL AND ISOPRENOID ALKANE ABUNDANCES (%)					
n-C10						
n-C11						
n-C12						
n-C13						
n-C14	2.61					
n-C15	5.10					
n-C16	6.53					
n-C17	7.66					
n-C18	8.01					
n-C19	8.32					
n-C20	7.72					
n-C21	6.57					
n-C22	5.51					
n-C23	4.98					
n-C24	3.88					
n-C25	4.36					
n-C26	2.88					
n-C27	2.76					
n-C28	2.33					
n-C29	1.89					
n-C30	1.30					
n-C31	1.30					
n-C32	.83					
n-C33	.98					
n-C34	.66					
n-C35	.59					
n-C36						
i-C15 (Farnesane)						
i-C16						
i-C18 (Norpristane)						
i-C19 (Pristane)	7.38					
i-C20 (Phytane)	5.87					

GENERAL DATA						
Total Abundance(%)	100					
TOC (% of Rock)						
Extract (ppm)	1115					
Hydrocarbons (ppm)	995					
Hydrocarbon(mg/gTOC)						
Alks(% Hydrocarbons)	78					
Rock-Eval HI						
Rock-Eval PI						

RATIOS						
CPI-1	1.21					
CPI-2	1.20					
CPI-3	1.06					
Bias	1.83					
i-C19 / n-C17	.96					
i-C20 / n-C18	.73					
i-C19 / i-C20	1.26					

LEGEND						
i - isoprenoid	n - normal	For definition of Ratios CPI-1,-2,-3 and Bias - see following page				

ALKANE GAS CHROMATOGRAPHY DATA
TABLE : 6D

Alkane Gas Chromatography Data - Definition of Ratios

$$\text{CPI 1 (Bray and Evans)} = \frac{1}{2} \times \left[\frac{C_{25}+C_{27}+C_{29}+C_{31}+C_{33}}{C_{24}+C_{26}+C_{28}+C_{30}+C_{32}} + \frac{C_{25}+C_{27}+C_{29}+C_{31}+C_{33}}{C_{26}+C_{28}+C_{30}+C_{32}+C_{34}} \right]$$

$$\text{CPI 2 (Radke and Statoil)} = \frac{1}{2} \times \left[\frac{C_{25}+C_{27}+C_{29}+C_{31}}{C_{24}+C_{26}+C_{28}+C_{30}} + \frac{C_{25}+C_{27}+C_{29}+C_{31}}{C_{26}+C_{28}+C_{30}+C_{32}} \right]$$

$$\text{CPI 3 (Statoil and Philippi)} = \frac{2 \times C_{27}}{C_{26}+C_{28}}$$

$$\text{Bias} = \frac{C_{16} + C_{17} + C_{18} + C_{19} + C_{20} + C_{21} + C_{22}}{C_{23}+C_{24}+C_{25}+C_{26}+C_{27}+C_{28}+C_{29}+C_{30}+C_{31}+C_{32}+C_{33}}$$

COMPANY: NORSK HYDRO

WELL: N 7120/2-1

LOCATION: BARENTS SEA

Sample (m)	C ₆₊	n-C ₁	n-C ₂	Ethene	n-C ₃	Propene	i-C ₄	n-C ₄	DMP	i-C ₅	n-C ₅	Total
1971.00												
(1973.20)	16.0	593.2	94.9	1.8	52.9	2.4	11.7	22.8	-	8.5	7.0	811.2
1986.87												
(1988.77)	9.6	412.9	82.4	11.5	42.7	7.1	6.8	15.0	2.4	0.7	0.7	591.8
2017.00												
(2018.70)	6.2	199.4	32.7	11.2	14.2	7.1	1.8	5.5	-	3.0	0.7	281.8
2022.30												
(2024.00)	17.6	789.5	106.9	6.1	50.8	0.6	13.8	22.0	-	7.4	7.2	1021.9
2026.10												
(2027.80)	1.7	65.8	13.6	6.6	5.4	4.4	0.4	2.1	0.3	0.7	0.9	101.9
2052.02												
(2053.02)	10.8	1137.1	103.0	6.9	39.6	2.0	9.2	16.1	0.6	6.3	12.6	1344.2
2057.75												
(2058.75)	12.0	734.7	89.4	15.4	41.5	8.5	7.9	17.4	0.7	8.6	11.3	947.4
2067.00												
(2068.00)	6.1	1097.3	110.1	5.2	31.7	1.5	8.0	9.9	0.2	3.9	2.7	1276.6
2144.55												
(2145.35)	10.5	961.0	106.7	4.4	37.6	3.0	10.1	14.4	-	9.6	5.6	1162.9
2148.55												
(2149.35)	2.6	391.1	37.5	5.4	12.8	2.2	2.5	4.3	-	-	2.1	460.5
2162.10												
(2163.50)	4.8	783.5	72.1	3.3	20.9	1.1	4.6	6.7	-	4.0	2.0	903.0
2169.80												
(2170.90)	4.5	388.2	64.9	23.1	19.9	13.6	1.8	5.9	1.6	1.9	1.9	527.3
2186.95												
(2188.05)	7.0	1199.0	106.8	3.3	34.1	1.6	9.3	11.1	0.6	9.0	6.6	1388.4
2190.40												
(2191.50)	1.5	276.3	57.1	23.6	19.1	13.8	1.4	5.9	0.9	1.3	2.9	403.8
2196.40												
(2196.83)	4.1	440.7	62.7	19.0	21.4	10.6	2.6	6.5	0.6	2.1	2.3	572.6
2205.90												
(2207.10)	4.8	427.9	41.7	3.5	14.0	1.8	3.6	5.2	-	2.4	1.4	506.3
2208.60												
(2209.80)	4.0	601.0	58.3	8.1	16.6	3.4	4.2	5.7	0.3	2.3	-	703.9
2214.30												
(2215.50)	0.5	61.3	11.3	4.4	4.2	2.7	0.5	1.4	-	1.2	0.6	88.1

Table 7 Acid Extraction Light Hydrocarbon Analysis

Values in ppm of apparatus headspace gas. Samples of solvent-extracted rock.
 Depths are top of core: Logger's (Driller's)
 DMP = di-methyl propane

COMPANY: NORSK HYDRO

WELL: N 7120/2-1

LOCATION: BARENTS SEA

Appearance:	:	Brown, mobile liquid
*API gravity	:	36.8°
*Density	:	0.8409 gcm ⁻³
*Viscosity	:	22.3 cP (10.2°C)
		8.30 cP (20.1°C)
		3.83 cP (39.8°C)
*Wax appearance point (WAP)	:	19 ± 1°C
Sulphur	:	760 ppm
Nickel	:	<1 ppm
Vanadium	:	<1 ppm
Gasoline content C ₄ -C ₉	:	29795 ppm
Topping loss	:	1.2%
Asphaltenes precipitated	:	<1.0%

*Norsk Hydro data

Table 8 Oil Data, DST-4.

COMPANY: NORSK HYDRO

WELL: N7120/2-1

LOCATION: BARENTS SEA

Depth (m)		Present Hydrocarbon Distribution (%)				Present Total Hydrocarbon	Early (Occluded) Hydrocarbon Distribution (%)				Early Total Hydrocarbon
Driller's	Logger's	C ₁ -C ₃	C ₄ -C ₉	C ₁₀ -C ₁₄	C ₁₅ +	(ppm of rock)	C ₁ -C ₃	C ₄ -C ₉	C ₁₀ -C ₁₄	C ₁₅ +	(ppm of rock)
1973.20	1971.00	*	<1	4	95	2800	26	2	<1	71	30
1988.77	1986.87	*	18	7	75	1000	22	1	<1	77	25
2018.70	2017.00	*	<1	5	94	3400	7	<1	6	86	35
2024.00	2022.30	*	<1	5	94	1400	23	1	2	73	40
2027.80	2026.10	*	<1	4	95	4700	4	<1	<1	95	20
2053.02	2052.02	*	<1	3	96	900	36	2	6	56	35
2058.75	2057.75	*	<1	4	95	2100	22	2	1	75	40
2068.00	2067.00	*	<1	3	96	450	67	1	5	27	20
2145.35	2144.55	*	<1	4	95	100	50	2	4	44	20
2149.35	2148.55	*	<1	3	96	1900	44	1	5	50	10
2163.50	2162.10	*	1	1	98	2600	15	<1	1	84	60
2170.90	2169.80	*	<1	0	90	2500	32	2	3	63	15
2188.05	2186.95	*	*	*	*	<100	82	3	3	12	15
2191.50	2190.40	*	*	*	*	2000	64	2	2	33	5
2196.83	2196.03	*	<1	5	94	1100	21	<1	<1	77	25
2207.10	2205.90	*	*	*	*	600	32	<1	<1	66	15
2209.80	2208.60	*	<1	10	90	600	40	<1	1	58	15
2215.50	2214.30	*	<1	10	90	1000	40	5	5	50	5
Oil	DST-4	*	3	10	87	-	-	-	-	-	-

TABLE 9: Distribution of Light, Medium and Heavy Hydrocarbons in Cores

COMPANY: NORSK HYDRO

WELL: N 7120/2-1

LOCATION: BARENTS SEA

Depth (m) (Logger's)	Porosity %	Total Extract (ppm)	Extracted Hydrocarbon (ppm)	Acid Extracted Light HC's (ppm)	Gasoline Total (ppb)	Alkane GC Bias	Alkane % HC
1971.00	8.4	3415	2795	811	1220	1.78	88
1986.87	1.8	870	815	592	195000	1.68	81
2017.00	9.5	3515	3330	282	1445	1.59	81
2022.30	5.5	1480	1405	1022	1640	1.54	82
2026.10	10.6	4945	4730	102	875	1.92	80
2052.02	3.8	900	850	1344	380	1.86	80
2057.75	6.7	2230	2085	947	600	1.96	80
2067.00	5.7	530	430	1277	835	1.96	79
2144.55	7.2	95	85	1163	600	1.54	82
2148.55	10.0	2005	1880	461	115	1.75	82
2162.10	7.0	2785	2605	903	4725	1.87	82
2169.80	7.4	2740	2465	527	195	2.14	81
2186.95	2.8	10	2	1388	220	1.67	
2190.40	15.1	2175	2040	404	1145	2.01	79
2196.03	7.0	1125	1080	573	970	1.89	80
2205.90	6.2	605	550	506	690	1.87	78
2208.60	9.3	625	590	704	184	1.92	80
2214.30	9.9	1115	995	88	945	1.83	78

Table 10 Cross-Plots of Chemical and Physical Properties - Tabulated Data

Trilab 2000 Analysis 4.8G
 SAMPLE B085 N.HYDRO N7120/2-1 0A1119 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
148.8		4.444	7.384	4.755	3.774	IC 4
167.1		9.697	17.303	11.143	8.842	NC 4
233.1		4.790	9.603	18.361	14.570	IC5
267.0		5.265	11.054	16.536	13.122	NC 5
319.2		.168	.407	.439	.349	22DMB
365.1		.494	1.056	1.117	.887	CP
371.4		.317	.712	.650	.515	23DMB
381.6		2.722	5.942	4.231	3.357	2MP
407.4		1.524	3.497	2.448	1.942	3MP
444.0		4.195	9.853	17.992	14.277	N-HEX
496.8		1.788	4.793	3.298	2.617	MCP/22DMP
512.1		.240	.692	.469	.372	240MP
554.4		1.064	2.885	2.435	1.932	BEN
571.2		.067	.276	.113	.090	330MP
576.6		1.785	5.014	3.139	2.491	C-HEX
612.0		1.728	5.452	3.162	2.509	2MH
616.5		.286	.806	.427	.339	11DMCP
635.7		1.582	4.709	2.665	2.115	3MH
648.9		.485	1.730	.917	.727	C13DMCP
657.0		.395	1.244	.659	.523	T13DMCP
665.1		.721	2.245	1.244	.987	T12DMCP3EP
677.1		.012	.050	.032	.025	224TMP
712.5		3.806	11.948	6.213	4.930	N-HEP
766.8		2.757	9.303	4.726	3.750	MCH/C12DMC
810.3		.114	.406	.198	.157	ECP
893.1		1.405	4.919	2.351	1.866	TOL
1095.0		2.538	10.276	6.084	4.827	N-OCT
1255.8		.252	1.334	.869	.690	EB
1333.8		.591	2.618	1.901	1.508	M-XYL
1338.0		.214	.615	.443	.351	P-XYL
1435.5		.333	1.681	1.277	1.014	O-XYL
1558.5		1.527	7.886	5.725	4.543	N-NON

 1220 ppb

Depth (driller's) : 1973.20m
 Depth (logger's) : 1971.00m

Trilab 2000 Analysis 4.86
 SAMPLE B078 N.HYDRO N7120/2-1 0A1120 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
141.9		15.976	26.152	16.842	.106	IC 4
160.2		43.663	73.032	47.033	.295	NC 4
225.9		38.919	74.896	143.202	.899	IC5
259.5		49.275	99.789	149.284	.937	NC 5
312.0	.8718	1.452	3.313	14.720	92.432	22DMB
357.9		3.415	7.311	7.735	.049	CP
364.5		3.279	7.384	6.734	.042	23DMB
374.4		30.341	67.405	47.992	.301	2MP
400.5		18.335	40.903	28.632	.180	3MP
437.4		51.629	114.832	209.683	1.317	N-HEX
490.5		25.331	63.575	43.740	.275	MCP/22DMP
505.5		2.444	6.442	4.368	.027	24DMP
548.4		.832	2.108	1.779	.011	BEN
564.9		.638	1.645	.675	.004	33DMP
570.3		26.782	71.670	44.865	.282	C-HEX
605.7		19.251	60.121	34.870	.219	2MH
610.2		4.736	13.054	6.918	.043	11DMCP
629.4		19.826	55.652	31.499	.198	3MH
642.6		7.714	22.383	11.863	.074	C13DMCP
650.4		6.922	20.722	10.983	.069	T13DMCP
658.8		11.851	36.812	20.394	.128	T12DMCP3EP
665.7		.065	.191	.122	.001	224TMP
706.2		43.383	141.370	73.512	.462	N-HEP
760.2		53.566	178.010	90.429	.568	MCH/C12DMC
803.1		1.914	6.523	3.183	.020	ECP
885.9		6.472	22.619	10.812	.068	TOL
1048.8		7.075	29.082	17.217	.108	N-OCT
1284.9		2.387	11.483	7.487	.047	EB
1324.8		9.257	42.302	30.712	.193	M-XYL
1330.5		2.817	7.871	5.667	.036	P-XYL
1426.5		4.549	23.919	18.178	.114	O-XYL
1549.2		23.310	108.560	78.814	.495	N-NON

 195000 ppb

Depth (driller's) : 1988.77m

Depth (logger's) : 1986.87m

Trilab 2000 Analysis 4.86
 SAMPLE B079 N.HYDRO N7120/2-1 0A1121 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
148.5		1.158	1.678	1.081	1.071	IC 4
167.1		2.254	3.449	2.221	2.202	NC 4
232.8		1.379	2.594	4.959	4.915	IC5
266.4		1.583	3.058	4.575	4.534	NC 5
318.9		.086	.200	.217	.215	22DMB
365.7		.059	.250	.265	.262	CP
371.1		.186	.426	.388	.385	23DMB
381.0		1.936	4.120	2.933	2.907	2MP
407.1		1.078	2.412	1.688	1.673	3MP
443.7		2.861	6.613	12.075	11.969	N-HEX
496.8		.957	2.429	1.671	1.656	MCP/22DMP
512.1		.223	.593	.402	.398	24DMP
554.4		.289	.721	.609	.603	BEN
571.2		.064	.176	.072	.072	33DMP
576.6		.896	2.403	1.505	1.491	C-HEX
611.7		1.798	5.663	3.285	3.256	2MH
616.5		.303	.817	.433	.429	11DMCP
635.4		1.810	5.291	2.995	2.968	3MH
648.6		.501	1.487	.788	.781	C13DMCP
656.7		.465	1.377	.730	.723	T13DMCP
665.1		.893	2.713	1.503	1.489	T12DMCP3EP
672.0		.013	.025	.016	.015	224TMP
712.2		4.197	13.215	6.872	6.811	N-HEP
765.9		3.704	12.232	6.214	6.159	MCH/C12DMC
809.1		.144	.446	.218	.216	ECP
891.6		.592	2.098	1.003	.994	TOL
1092.6		5.333	21.976	13.010	12.894	N-OCT
1290.6		.217	1.294	.844	.836	EB
1331.1		.673	3.006	2.182	2.163	M-XYL
1336.5		.235	.781	.562	.557	P-XYL
1431.9		.515	2.185	1.660	1.646	O-XYL
1554.9		6.671	32.946	23.919	23.707	N-NON

 1445 ppb

Depth (driller's) : 2018.70m
 Depth (logger's) : 2017.00m

Trilab 2000 Analysis 4.86
 SAMPLE 8080 N.HYDRO N7120/2-1 90A1122 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
148.8		3.863	5.908	3.805	3.132	IC 4
167.1		7.179	12.123	7.807	6.426	NC 4
233.1		3.677	7.590	14.512	11.944	IC5
267.0		4.009	8.198	12.264	10.094	NC 5
319.5		.141	.284	.306	.252	22DMB
365.4		.391	.806	.853	.702	CP
372.0		.294	.653	.596	.490	23DMB
381.9		2.213	5.073	3.612	2.973	2MP
408.0		1.354	3.368	2.358	1.941	3MP
446.4		3.125	7.906	14.436	11.882	N-HEX
512.1		1.240	4.095	2.817	2.319	MCP/22DMP
531.9		.161	.512	.347	.286	24DMP
580.2		.863	2.495	2.106	1.733	BEN
600.0		.044	.143	.059	.048	33DMP
607.8		1.428	4.717	2.953	2.430	C-HEX
652.2		1.210	4.522	2.623	2.159	2MH
657.9		.233	.733	.388	.320	11DMCP
679.2		1.381	4.111	2.327	1.915	3MH
693.0		.476	1.491	.790	.650	C13DMCP
701.1		.411	1.213	.643	.529	T13DMCP
709.2		.804	2.424	1.343	1.105	T12DMCP3EP
715.5		.027	.098	.062	.051	224TMP
753.3		3.614	10.481	5.450	4.486	N-HEP
804.3		3.503	11.067	5.622	4.627	MCH/C12DMC
844.5		.109	.518	.253	.208	ECP
928.2		1.607	5.374	2.569	2.114	TOL
1119.3		3.045	11.957	7.078	5.826	N-OCT
1320.9		.615	3.012	1.964	1.616	EB
1350.0		.901	4.241	3.079	2.534	M-XYL
1355.7		.258	.993	.715	.589	P-XYL
1448.4		.640	3.475	2.641	2.174	O-XYL
1567.5		4.435	20.827	15.121	12.445	N-NON

 1640 ppb

Depth (driller's) : 2024.00m
 Depth (logger's) : 2022.30m

Trilab 2000 Analysis 4.86
 SAMPLE B081 N.HYDRO N7120/2-1 90A1123 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
148.5		.975	1.402	.903	1.384	IC 4
166.8		2.247	3.372	2.171	3.329	NC 4
232.8		.856	1.576	3.013	4.619	IC5
266.4		.957	1.797	2.689	4.123	NC 5
318.6		.043	.101	.109	.168	22DMB
363.9		.089	.190	.201	.309	CP
370.5		.044	.104	.094	.145	23DMB
380.4		.341	.706	.503	.771	2MP
406.5		.207	.450	.315	.483	3MP
443.4		.531	1.192	2.177	3.339	N-HEX
496.8		.275	.695	.478	.733	MCP/22DMP
511.5		.041	.111	.075	.115	24DMP
554.7		.266	.720	.608	.932	BEN
571.2		.014	.034	.014	.021	33DMP
576.9		.288	.740	.463	.710	C-HEX
612.3		.414	1.268	.736	1.128	2MH
616.8		.037	.092	.049	.075	11DMCP
636.0		.386	1.108	.627	.961	3MH
650.1		.074	.283	.150	.230	C13DMCP
657.0		.057	.168	.089	.136	T13DMCP
665.7		.131	.401	.222	.340	T12DMCP3EP
677.4		.021	.086	.055	.084	224TMP
712.8		1.132	3.612	1.878	2.880	N-HEP
766.8		.672	2.236	1.136	1.741	MCH/C12DMC
810.6		.036	.110	.054	.082	ECP
892.8		.338	1.137	.543	.833	TOL
1093.8		4.001	16.704	9.889	15.162	N-OCT
1254.6		.895	4.720	3.077	4.718	EB
1332.6		.822	3.567	2.590	3.971	M-XYL
1337.7		.216	.635	.457	.701	P-XYL
1434.0		.846	3.531	2.683	4.115	O-XYL
1557.3		7.398	37.427	27.172	41.662	N-NON

 875 ppb

Depth (driller's) : 2027.80m
 Depth (logger's) : 2026.10m

Trilab 2000 Analysis 4.86
 SAMPLE 8082 N.HYDRO N7120/12-1 0A1124 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
149.1		.508	.757	.487	2.847	IC 4
167.4		1.098	2.038	1.313	7.669	NC 4
233.4		.444	.955	1.827	10.673	IC5
267.3		.507	1.113	1.664	9.724	NC 5
319.5		.020	.051	.055	.322	22DMB
365.7		.046	.098	.104	.605	CP
372.0		.030	.065	.060	.349	23DMB
381.9		.192	.462	.329	1.921	2MP
408.0		.134	.332	.232	1.358	3MP
444.6		.321	.798	1.458	8.516	N-HEX
498.3		.166	.454	.312	1.824	MCP/22DMP
513.0		.014	.035	.024	.138	24DMP
555.9		.255	.695	.586	3.426	BEN
572.1		.009	.042	.017	.101	33DMP
578.1		.209	.642	.402	2.348	C-HEX
613.2		.089	.287	.166	.973	2MH
617.7		.025	.048	.026	.150	11DMCP
636.9		.089	.269	.152	.890	3MH
649.8		.110	.557	.295	1.723	C13DMCP
658.8		.060	.438	.232	1.356	T13DMCP
666.6		.097	.456	.253	1.475	T12DMCP3EP
677.4		.076	.328	.209	1.220	224TMP
713.4		.209	.691	.359	2.100	N-HEP
767.4		.321	1.274	.647	3.783	MCH/C12DMC
810.3		.014	.039	.019	.111	ECP
893.7		.353	1.256	.600	3.507	TOL
1095.0		.203	.847	.501	2.929	N-OCT
1255.2		.033	.150	.098	.572	EB
1332.9		.348	1.546	1.123	6.559	M-XYL
1338.0		.188	.707	.509	2.976	P-XYL
1434.0		.281	1.380	1.049	6.129	O-XYL
1556.7		.557	2.765	2.007	11.727	N-NON

 380 ppb

Depth (driller's) : 2053.02m
 Depth (logger's) : 2052.02m

Trilab 2000 Analysis 4.86
 SAMPLE 8083 N.HYDRO N7120/2-1 0A1125 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
158.1		76.438	401.433	258.523	4.811	IC 4
175.8		176.503	839.957	540.933	10.066	NC 4
240.3		89.844	348.708	666.729	12.407	IC5
273.3		103.136	392.979	587.896	10.940	NC 5
325.5		5.473	16.569	17.894	.333	22DMB
370.5		12.064	45.190	47.811	.890	CP
377.1		7.429	28.463	25.958	.483	23DMB
386.7		50.120	184.526	131.382	2.445	ZMP
412.5		32.953	118.087	82.661	1.538	3MP
448.8		86.234	284.192	518.935	9.657	N-HEX
502.2		53.179	166.087	114.268	2.126	MCP/22DMP
517.2		3.797	13.518	9.165	.171	24DMP
559.8		26.123	90.494	76.377	1.421	BEN
576.0		1.861	5.811	2.382	.044	33DMP
582.0		56.539	186.059	116.473	2.167	C-HEX
617.1		25.535	93.380	54.160	1.008	2MH
621.9		6.240	18.319	9.709	.181	11DMCP
640.8		24.758	80.793	45.729	.851	3MH
654.0		9.882	33.836	17.933	.334	C13DMCP
662.1		8.512	28.312	15.005	.279	T13DMCP
670.5		17.589	64.293	35.618	.663	T12DMCP3EP
681.6		4.327	18.307	11.643	.217	224TMP
717.6		54.843	188.391	97.963	1.823	N-HEP
771.6		70.279	254.705	129.390	2.408	MCH/C12DMC
814.8		4.057	14.535	7.093	.132	ECP
897.9		38.575	136.482	65.239	1.214	TOL
1099.2		81.986	352.063	208.421	3.878	N-OCT
1259.7		27.546	161.503	105.300	1.959	EB
1337.1		32.826	158.960	115.405	2.148	M-XYL
1342.2		11.560	35.284	25.405	.473	P-XYL
1437.9		28.798	144.718	109.986	2.047	O-XYL
1561.2		326.960	1546.079	1122.453	20.887	N-NON

 600 ppb

Depth (driller's) : 2058.75m
 Depth (logger's) : 2057.75m

Trilab 2000 Analysis 4.86
 SAMPLE 8084 N.HYDRO N7120/2-1 0A1126 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
149.1		3.399	5.588	3.599	4.539	IC 4
167.4		5.959	10.238	6.593	8.316	NC 4
233.4		3.168	6.199	11.853	14.949	ICS
267.3		3.091	6.261	9.367	11.814	NC 5
319.8		.145	.349	.377	.476	22DMB
365.4		.196	.440	.466	.588	CP
372.0		.219	.522	.476	.601	23DMB
381.9		1.572	3.493	2.487	3.137	2MP
408.3		.998	2.211	1.548	1.952	3MP
444.6		2.324	5.538	10.113	12.754	N-HEX
498.0		.932	2.684	1.846	2.329	MCP/22DMP
513.3		.142	.387	.262	.331	24DMP
555.9		.703	1.845	1.557	1.964	BEN
572.4		.050	.130	.053	.067	33DMP
578.1		1.000	2.858	1.789	2.256	C-HEX
613.5		.805	2.602	1.509	1.903	2MH
618.0		.163	.405	.215	.271	11DMCP
636.9		.766	2.313	1.309	1.651	3MH
650.4		.283	.938	.497	.627	C13DMCP
658.2		.224	.681	.361	.455	T13DMCP
666.9		.439	1.424	.789	.995	T12DMCP3EP
678.3		.073	.332	.211	.266	224TMP
713.7		1.672	5.421	2.819	3.555	N-HEP
768.0		2.129	7.301	3.709	4.678	MCH/C12DMC
811.2		.100	.344	.168	.212	ECP
894.0		.675	2.460	1.176	1.483	TOL
1095.6		1.261	5.587	3.307	4.171	N-OCT
1256.4		.155	1.012	.660	.832	EB
1333.5		.655	2.894	2.101	2.650	M-XYL
1338.3		.308	1.109	.798	1.007	P-XYL
1434.6		.510	2.596	1.973	2.488	O-XYL
1557.3		1.417	7.298	5.298	6.682	N-NON

 835 ppb

Depth (driller's) : 2068.00m
 Depth (logger's) : 2067.00m

Trilab 2000 Analysis 4.86
 SAMPLE B091 N.HYDRO N7120/2-1 0A1127 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
148.5		2.147	3.467	2.233	3.908	IC 4
166.8		4.693	7.516	4.840	8.470	NC 4
232.5		1.954	3.946	7.544	13.202	IC5
266.4		2.046	4.218	6.310	11.043	NC 5
319.2		.090	.223	.241	.421	22DMB
364.8		.184	.560	.592	1.037	CP
371.1		.144	.438	.400	.699	23DMB
381.0		.845	2.792	1.988	3.478	2MP
407.7		.597	1.700	1.190	2.083	3MP
444.0		1.325	3.741	6.832	11.956	N-HEX
497.1		.665	1.712	1.178	2.062	MCP/22DMP
517.5		.057	.288	.195	.341	24DMP
554.4		1.140	3.069	2.590	4.533	BEN
571.2		.037	.119	.049	.085	33DMP
576.6		.698	2.089	1.308	2.289	C-HEX
611.7		.391	1.371	.795	1.391	2MH
616.2		.097	.300	.159	.278	11DMCP
635.4		.394	1.367	.774	1.354	3MH
648.3		.209	1.026	.544	.951	C13DMCP
656.1		.155	.541	.287	.502	T13DMCP
664.8		.237	.994	.551	.963	T12DMCP3EP
675.9		.124	.508	.323	.565	224TMP
711.6		.811	2.646	1.376	2.408	N-HEP
765.6		1.082	3.884	1.973	3.453	MCH/C12DMC
809.1		.054	.152	.074	.130	ECP
891.9		.654	2.576	1.231	2.155	TOL
1093.5		.544	2.290	1.356	2.373	N-OCT
1254.6		.056	.286	.186	.326	EB
1332.0		.877	3.901	2.832	4.957	M-XYL
1337.1		.579	2.171	1.563	2.735	P-XYL
1433.4		.810	3.836	2.915	5.102	O-XYL
1556.4		.754	3.740	2.715	4.752	N-NON

 600 ppb

Depth (driller's) : 2145.35m
 Depth (logger's) : 2144.55m

Trilab 2000 Analysis 4.86
 SAMPLE B086 N.HYDRO N7120/2-1 0A1128 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area).

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
149.1		.373	.637	.410	3.903	IC 4
167.7		.845	1.430	.921	8.764	NC 4
233.7		.322	.659	1.260	11.988	IC5
267.6		.364	.731	1.093	10.400	NC 5
320.4		.023	.052	.056	.531	22DMB
366.0		.035	.111	.118	1.121	CP
372.3		.032	.099	.090	.857	23DMB
382.5		.131	.341	.243	2.310	2MP
408.3		.109	.336	.235	2.239	3MP
444.9		.198	.475	.867	8.252	N-HEX
498.0		.109	.409	.281	2.678	MCP/22DMP
518.7		.036	.175	.119	1.132	240MP
555.6		.215	.590	.498	4.735	BEN
571.8		.014	.051	.021	.199	330MP
578.1		.107	.320	.200	1.906	C-HEX
613.2		.070	.280	.162	1.546	2MH
617.7		.037	.112	.060	.567	11DMCP
635.7		.047	.168	.095	.903	3MH
650.1		.055	.186	.099	.940	C13DMCP
659.7		.014	.044	.023	.220	T13DMCP
666.9		.074	.322	.178	1.696	T12DMCP3EP
676.5		.026	.053	.034	.321	224TMP
714.3		.116	.414	.215	2.049	N-HEP
768.3		.293	1.026	.521	4.960	MCH/C12DMC
810.6		.014	.030	.015	.138	ECP
894.6		.120	.432	.207	1.965	TOL
1096.2		.107	.450	.266	2.533	N-OCT
1256.7		.053	.332	.216	2.059	EB
1334.1		.096	.424	.308	2.932	M-XYL
1340.1		.054	.235	.169	1.610	P-XYL
1435.5		.102	.587	.446	4.248	O-XYL
1557.9		.282	1.490	1.082	10.295	N-NON

 115 ppb

Depth (driller's) : 2149.35m
 Depth (logger's) : 2148.55m

Trilab 2000 Analysis 4.86
 SAMPLE B087 N.HYDRO N7120/2-1 0A 1129 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
148.8		1.779	2.936	1.891	.395	IC 4
167.4		4.234	7.114	4.582	.957	NC 4
233.4		11.176	22.221	42.487	8.873	IC5
267.3		13.918	28.326	42.376	8.850	NC 5
319.8		.731	2.146	2.318	.484	22DMB
365.4		.579	1.293	1.368	.286	CP
371.7		1.670	4.019	3.666	.766	23DMB
381.9		14.415	32.993	23.491	4.906	2MP
408.0		8.803	20.390	14.273	2.981	3MP
444.3		21.783	50.051	91.394	19.087	N-HEX
497.4		9.057	24.036	16.537	3.454	MCP/22DMP
512.4		1.394	3.716	2.520	.526	24DMP
555.0		.577	1.627	1.373	.287	BEN
571.8		.378	1.051	.431	.090	33DMP
577.2		9.240	25.129	15.731	3.285	C-HEX
612.6		9.672	30.331	17.592	3.674	2MH
617.4		2.384	6.452	3.420	.714	11DMCP
636.6		9.531	27.880	15.780	3.296	3MH
649.8		3.654	10.992	5.826	1.217	C13DMCP
657.6		3.235	9.983	5.291	1.105	T13DMCP
666.3		6.177	18.705	10.363	2.164	T12DMCP3EP
674.7		.016	.092	.059	.012	224TMP
713.7		19.533	61.806	32.139	6.712	N-HEP
768.0		24.663	83.175	42.253	8.824	MCH/C12DMC
811.2		.876	2.952	1.441	.301	ECP
894.6		.373	1.410	.674	.141	TOL
1096.5		12.564	52.268	30.943	6.462	N-OCT
1257.3		1.583	9.551	6.227	1.301	EB
1334.4		1.672	7.635	5.543	1.158	M-XYL
1339.5		.549	2.105	1.516	.317	P-XYL
1435.2		1.018	5.111	3.884	.811	O-XYL
1558.5		8.891	43.310	31.443	6.567	N-NON

 4725 ppb

Depth (driller's) : 2163.50m
 Depth (logger's) : 2162.10m

Trilab 2000 Analysis 4.86
 SAMPLE B088 N.HYDRO N7120/2-1 0A1130 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
148.8		1.003	1.798	1.158	6.082	IC 4
167.4		2.139	4.004	2.579	13.547	NC 4
233.7		.877	1.858	3.552	18.659	IC5
267.6		.961	2.067	3.092	16.240	NC 5
320.1		.050	.110	.119	.623	22DMB
365.1		.082	.262	.277	1.454	CP
372.0		.067	.243	.222	1.164	23DMB
381.9		.362	.862	.614	3.223	2MP
408.0		.247	.678	.475	2.494	3MP
444.3		.556	1.316	2.403	12.624	N-HEX
497.1		.258	.696	.479	2.516	MCP/22DMP
512.4		.026	.080	.054	.286	24DMP
554.7		.174	.554	.467	2.454	BEN
570.6		.025	.104	.043	.224	33DMP
576.9		.275	.861	.539	2.831	C-HEX
612.3		.145	.455	.264	1.386	2MH
617.4		.033	.089	.047	.247	11DMCP
636.0		.174	.696	.394	2.070	3MH
648.9		.086	.386	.205	1.075	C13DMCP
657.0		.052	.200	.106	.558	T13DMCP
665.4		.094	.406	.225	1.181	T12DMCP3EP
676.2		.046	.171	.109	.571	224TMP
712.8		.275	.999	.520	2.729	N-HEP
767.1		.375	1.416	.719	3.777	MCH/C12DMC
810.3		.029	.106	.052	.272	ECP
893.1		.184	.682	.326	1.711	TOL
1094.7		.178	.849	.503	14.362	N-OCT
1256.1		.048	.194	.127	3.615	EB
1332.6		.133	.590	.428	12.235	M-XYL
1338.3		.070	.271	.195	5.579	P-XYL
1433.7		.125	.724	.551	15.731	O-XYL
1556.1		.410	2.337	1.697	48.477	N-NON

 195 ppb

Depth (driller's) : 2170.90m
 Depth (logger's) : 2169.80m

Trilab 2000 Analysis 4.86
 SAMPLE 8089 N.HYDRO N7120/2-1 0A1131 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
148.5		1.056	1.711	1.102	6.647	IC 4
166.8		1.583	2.733	1.760	10.616	NC 4
233.1		.806	1.721	3.290	19.844	IC5
267.0		.739	1.475	2.206	13.305	NC 5
319.8		.064	.188	.203	1.224	22DMB
364.8		.049	.128	.135	.814	CP
371.4		.059	.135	.123	.741	23DMB
381.3		.279	.622	.443	2.670	2MP
407.4		.186	.477	.334	2.015	3MP
444.0		.401	.952	1.739	10.489	N-HEX
497.1		.170	.441	.303	1.830	MCP/22DMP
508.8		.008	.017	.011	.068	24DMP
554.7		.560	1.501	1.267	7.641	BEN
571.5		.017	.056	.023	.138	33DMP
577.2		.242	.656	.410	2.475	C-HEX
612.3		.121	.427	.248	1.495	2MH
616.8		.029	.053	.028	.170	11DMCP
636.0		.113	.331	.187	1.128	3MH
648.0		.086	.407	.216	1.300	C13DMCP
657.6		.035	.111	.059	.355	T13DMCP
666.0		.067	.268	.149	.897	T12DMCP3EP
677.1		.039	.144	.091	.551	224TMP
713.1		.248	.857	.446	2.688	N-HEP
767.4		.453	1.949	.990	5.970	MCH/C12DMC
810.6		.027	.100	.049	.296	ECP
893.7		.421	1.607	.768	4.632	TOL
1095.3		.180	.711	.421	15.929	N-OCT
1256.7		.024	.191	.124	4.705	EB
1333.2		.191	.849	.617	23.355	M-XYL
1338.9		.112	.429	.309	11.699	P-XYL
1433.7		.128	.670	.509	19.278	O-XYL
1556.7		.183	.911	.661	25.034	N-NON

 220 ppb

Depth (driller's) : 2188.05m
 Depth (logger's) : 2186.95m

Trilab 2000 Analysis 4.86
 SAMPLE B090 N.HYDRO N7120/2-1 0A1132 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
150.0		.062	.057	.037	.034	IC 4
167.7		1.041	1.576	1.015	.930	NC 4
235.8		.490	.756	1.445	1.324	IC5
264.0		.265	.917	1.372	1.258	NC 5
321.6		.052	.166	.180	.165	22DMB
366.0		.064	.176	.186	.170	CP
372.0		.050	.141	.128	.118	23DMB
382.5		.348	1.053	.750	.687	2MP
408.6		.244	.719	.503	.461	3MP
444.9		.543	1.474	2.691	2.466	N-HEX
497.7		.311	.957	.659	.604	MCP/22DMP
513.0		.079	.250	.169	.155	24DMP
555.6		.244	.734	.619	.568	BEN
572.4		.052	.160	.065	.060	33DMP
577.8		.397	1.146	.717	.657	C-HEX
613.2		.556	1.888	1.095	1.004	2MH
618.0		.205	.608	.322	.295	11DMCP
636.9		.679	2.257	1.277	1.171	3MH
649.8		.246	.865	.458	.420	C13DMCP
658.2		.182	.565	.300	.275	T13DMCP
666.6		.493	1.627	.901	.826	T12DMCP3EP
674.7		.018	.019	.012	.011	224TMP
714.0		.899	2.981	1.550	1.420	N-HEP
768.3		2.560	8.908	4.525	4.147	MCH/C12DMC
811.8		.128	.607	.296	.272	ECP
894.9		.384	1.321	.632	.579	TOL
1096.8		3.618	15.852	9.384	8.600	N-OCT
1258.2		1.667	10.222	6.665	6.107	EB
1335.9		.262	1.120	.813	.745	M-XYL
1340.4		.176	.706	.508	.466	P-XYL
1436.1		.880	4.264	3.241	2.970	O-XYL
1560.9		17.739	91.745	66.607	61.037	N-NON

 1145 ppb

Depth (driller's) : 2191.50m
 Depth (logger's) : 2190.40m

Trilab 2000 Analysis 4.86
 SAMPLE 8092 N.HYDRO N712072-1 0A1133 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
153.6		1.418	2.562	1.650	1.657	IC 4
166.5		2.225	7.277	4.686	4.707	NC 4
240.0		1.868	9.486	18.137	18.217	IC5
273.3		2.213	11.861	17.744	17.822	NC 5
325.8		.163	.635	.685	.688	22DMB
370.5		.212	.771	.816	.820	CP
376.5		.174	.566	.516	.519	23DMB
386.7		1.086	4.266	3.037	3.051	2MP
412.2		.819	2.902	2.031	2.040	3MP
448.8		2.050	6.516	11.898	11.950	N-HEX
501.9		1.055	3.652	2.513	2.524	MCP/22DMP
516.9		.175	.645	.438	.439	24DMP
559.5		.925	3.802	3.209	3.223	BEN
576.3		.114	.425	.174	.175	33DMP
582.0		1.083	3.955	2.476	2.486	C-HEX
616.8		.633	2.137	1.239	1.245	2MH
621.6		.126	.323	.171	.172	11DMCP
640.8		.743	2.980	1.686	1.694	3MH
653.7		.291	1.125	.596	.599	C13DMCP
661.5		.214	.949	.503	.505	T13DMCP
670.5		.453	2.189	1.213	1.218	T12DMCP3EP
681.0		.362	1.984	1.262	1.268	224TMP
717.0		1.325	5.216	2.712	2.724	N-HEP
771.3		1.593	6.160	3.129	3.143	MCH/C12DMC
814.5		.141	.770	.376	.377	ECP
897.3		.881	3.580	1.711	1.719	TOL
1098.9		.824	3.665	2.170	2.179	N-OCT
1259.7		.189	1.120	.730	.733	EB
1337.4		.457	2.143	1.556	1.563	M-XYL
1342.5		.221	.761	.548	.550	P-XYL
1438.5		.414	2.104	1.599	1.606	O-XYL
1561.2		2.216	11.502	8.351	8.387	N-NON

 970 ppb

Depth (driller's) : 2196.83m
 Depth (logger's) : 2196.03m

Trilab 2000 Analysis 4.86
 SAMPLE 8093 N.HYDRO N7120/2-1 0A1134 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
150.0		.565	1.041	.671	.936	IC 4
168.6		1.523	2.956	1.904	2.658	NC 4
234.9		.786	2.064	3.946	5.511	IC5
268.8		1.263	2.893	4.328	6.044	NC 5
321.3		.100	.265	.286	.400	22DMB
360.0		.134	.474	.502	.701	CP
373.5		.111	.287	.262	.366	23DMB
383.4		.895	2.174	1.548	2.161	2MP
409.5		.565	1.475	1.033	1.442	3MP
445.8		1.854	4.519	8.252	11.523	N-HEX
498.9		.596	1.580	1.087	1.518	MCP/22DMP
514.2		.076	.211	.143	.200	24DMP
556.5		.441	1.185	1.000	1.397	BEN
573.3		.034	.093	.038	.053	33DMP
579.0		.681	1.994	1.248	1.743	C-HEX
614.1		.710	2.160	1.253	1.749	2MH
618.6		.140	.377	.200	.279	11DMCP
638.1		.708	2.189	1.239	1.730	3MH
651.3		.317	1.283	.680	.950	C13DMCP
659.1		.243	.764	.405	.565	T13DMCP
667.8		.424	1.460	.809	1.130	T12DMCP3EP
678.6		.103	.382	.243	.339	224TMP
714.9		1.960	6.226	3.237	4.521	N-HEP
769.5		2.268	7.739	3.932	5.491	MCH/C12DMC
813.0		.095	.323	.157	.220	ECP
895.5		.685	2.589	1.238	1.728	TOL
1097.4		1.897	7.574	4.484	6.262	N-OCT
1258.2		.198	1.053	.687	.959	EB
1335.6		2.810	12.520	9.850	12.694	M-XYL
1340.7		.880	2.813	2.025	2.828	P-XYL
1437.0		1.520	6.880	5.229	7.302	O-XYL
1559.4		2.908	14.399	10.454	14.599	N-NON

 690 ppb

Depth (driller's) : 2207.10m
 Depth (logger's) : 2205.90m

Trilab 2000 Analysis 4.8G
 SAMPLE B094 N.HYDRO H7120/2-1 0A1135 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
130.5		.653	1.068	.688	4.177	IC 4
148.8		1.504	2.666	1.717	10.427	NC 4
214.8		.648	1.358	2.597	15.775	IC5
248.7		.708	1.388	2.076	12.611	NC 5
295.8		.287	.727	.785	4.771	22DMB
347.1		.084	.326	.345	2.093	CP
353.1		.072	.194	.177	1.072	23DMB
363.3		.277	.710	.506	3.072	2MP
389.4		.172	.434	.304	1.847	3MP
425.7		.407	.997	1.820	11.056	N-HEX
478.8		.201	.656	.451	2.741	MCP/22DMP
499.2		.099	.303	.205	1.248	24DMP
536.7		.248	.707	.597	3.626	BEN
552.9		.014	.030	.012	.075	33DMP
558.9		.236	.642	.402	2.441	C-HEX
594.0		.120	.401	.233	1.413	2MH
599.4		.065	.193	.102	.622	11DMCP
617.7		.124	.493	.279	1.695	3MH
628.2		.152	1.003	.532	3.229	C13DMCP
639.0		.059	.233	.124	.750	T13DMCP
647.4		.093	.392	.217	1.320	T12DMCP3EP
659.4		.064	.350	.222	1.350	224TMP
694.8		.262	1.220	.634	3.852	N-HEP
749.1		.349	1.264	.642	3.900	MCH/C12DMC
791.7		.070	.693	.338	2.055	ECP
825.1		.263	.958	.458	2.782	TOL
1076.7		.186	.901	.533	19.544	N-OCT
1235.1		.046	.099	.064	2.362	SB
1314.0		.177	.863	.626	22.962	M-XYL
1318.8		.083	.254	.183	6.693	P-XYL
1415.1		.120	.557	.423	15.524	O-XYL
1537.5		.247	1.237	.898	32.915	N-NON

 184 ppb

Depth (driller's) : 2209.80m
 Depth (logger's) : 2208.60m

Trilab 2000 Analysis 4.8G
 SAMPLE B095 N.HYDRO N7120/2-1 0A1136 (.30R)
 Method : GASOLINE

Table No. 7 C4-C9 GASD (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
153.3		1.039	3.089	1.989	2.873	IC 4
170.7		7.496	24.500	15.778	22.790	NC 4
237.0		1.418	3.487	6.667	9.629	IC5
270.6		2.297	8.726	13.054	18.854	NC 5
317.7		.445	1.584	1.711	2.472	22DMB
361.5		.722	2.826	2.990	4.319	CP
375.3		.119	.316	.288	.416	23DMB
384.6		.758	3.183	2.266	3.273	2MP
410.7		.635	2.173	1.521	2.197	3MP
447.3		1.408	4.767	8.704	12.572	N-HEX
500.7		.398	1.285	.884	1.277	MCP/22DMP
515.7		.069	.191	.129	.187	24DMP
558.3		.431	1.833	1.547	2.234	BEN
575.1		.082	.248	.102	.147	33DMP
581.1		.497	1.572	.984	1.421	C-HEX
616.2		.509	1.805	1.047	1.512	2MH
621.0		.096	.296	.157	.227	11DMCP
640.2		.541	1.894	1.072	1.548	3MH
653.4		.166	.725	.384	.555	C13DMCP
661.5		.120	.380	.202	.291	T13DMCP
671.1		.376	1.623	.899	1.299	T12DMCP3EP
681.0		.423	1.776	1.130	1.632	224TMP
717.3		1.017	3.833	1.993	2.879	N-HEP
771.9		1.153	5.073	2.577	3.722	MCH/C12DMC
815.1		.090	.365	.178	.257	ECP
898.5		.483	2.050	.980	1.415	TOL
1100.7		.931	3.909	2.314	13.048	N-OCT
1261.8		.190	1.059	.691	3.895	EB
1339.2		.666	2.893	2.100	11.842	M-XYL
1344.3		.334	1.377	.991	5.590	P-XYL
1440.6		.571	2.804	2.131	12.017	O-XYL
1563.0		2.588	13.094	9.507	53.609	N-NON

 945 ppb

Depth (driller's) : 2215.50m
 Depth (logger's) : 2214.30m

Trilab 2000 Analysis 4.86
 SAMPLE B096 N.HYDRO N7120/2-1 90E 1
 Method : GASOLINE

Table No. 7 C4-C9 GASO (Area)

RETN TIME	REL RET	PEAK HT	PEAK AREA	PEAK CONC	%CONC	PEAK NAME
150.9		.175	.269	.173	.116	IC 4
169.5		.793	1.288	.830	.557	NC 4
236.4		1.096	2.305	4.408	2.959	IC5
270.6		2.008	3.749	5.609	3.765	NC 5
323.1		.088	.380	.411	.276	22DMB
369.0		.380	.915	.968	.650	CP
375.3		.223	.697	.635	.427	23DMB
385.5		1.761	3.893	2.772	1.861	2MP
411.6		1.190	2.814	1.970	1.322	3MP
448.2		3.551	8.193	14.960	10.042	N-HEX
501.6		2.401	5.784	3.979	2.671	MCP/22DMP
516.9		.182	.494	.335	.225	24DMP
559.5		1.052	2.767	2.336	1.568	BEN
576.6		.059	.161	.066	.044	33DMP
582.0		3.000	8.451	5.291	3.551	C-HEX
617.7		1.783	5.497	3.188	2.140	2MH
622.5		.433	1.309	.694	.466	11DMCP
641.7		1.823	5.465	3.093	2.076	3MH
654.9		.780	2.480	1.314	.882	C13DMCP
663.0		.682	2.118	1.123	.753	T13DMCP
671.4		1.162	3.639	2.016	1.353	T12DMCP3EP
678.3		.023	.063	.040	.027	224TMP
718.3		4.919	15.181	7.894	5.299	N-HEP
773.4		6.761	23.127	11.749	7.886	MCH/C12DMC
817.2		.277	.986	.481	.323	ECP
900.3		4.786	17.063	8.156	5.475	TOL
1102.8		5.225	21.657	12.821	8.606	N-OCT
1263.6		.629	3.560	2.321	1.558	EB
1341.3		4.354	20.077	14.576	9.784	M-XYL
1346.1		1.435	5.240	3.773	2.533	P-XYL
1442.4		2.200	10.573	8.035	5.394	O-XYL
1564.8		6.245	31.622	22.958	15.411	N-NON

 29795 ppm

0-464

3

OLJEDIREKTORATET
AVD. KONTOR HARSTAD
Journal nr.: 89 / 7996 - 1
dato 18 MAI 1989

Prepared for

HYDRO

C₁₅₊ EXTRACTION DATA FOR
CORES AND OIL FROM 7120/2-1 (HYDRO)

BA- 89- 849-1
- 6 JUNI 1989
REGISTER
OLJEDIREKTORATET

April 1989



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WELL 7120/2-1

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TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 1975	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt.% of Rock)
GEOCHEM SAMPLE NUMBER				

WELL: 7120/2-1

1975-001	1960.95m	A100% DOLOMITE - fine grained, crystalline, hard, light olive grey	5Y6/1	
1975-002	1964.00m	A100% DOLOMITE - as 1975-001A, light olive grey.	5Y6/1	
1975-003	1967.00m	A100% SILTSTONE - fine to medium grained, blocky, mod soft - mod hard, non calcareous, medium yellowish grey to pale yellowish brown.	5Y7/1 - 10YR6/2	
1975-004	1971.00m	A100% DOLOMITE - fine grained, crystalline, hard, light grey to light olive grey.	N7 5Y6/1	-
1975-005	1973.00m	A100% DOLOMITE - as 1975-004A, light grey to light olive grey.	N7 5Y6/1	-
1975-006	1975.00m	A100% DOLOMITE - as 1975-004A, light grey to light olive grey.	N7 5Y6/1	-
1975-007	1978.00m	A100% DOLOMITE - fine grained, crystalline, hard, light olive grey to pale yellowish brown.	5Y6/1 10YR6/2	-
1975-008	1980.00m	A100% DOLOMITE - as 1975-007A, light olive grey to pale yellowish brown.	5Y6/1 10YR6/2	-
1975-009	1983.00m	A100% DOLOMITE - as 1975-007A, light olive grey to pale yellowish brown.	5Y6/1 10YR6/2	-
1975-010	1984.00m	A100% DOLOMITE - as 1975-007A, light olive grey to pale yellowish brown.	5Y6/1 10YR6/2	-
1975-011	1986.00m	A100% DOLOMITE - fine grained, crystalline, hard, occasional dark carbonaceous coating, light olive grey to light grey.	5Y6/1 N7	-
1975-012	1990.00m	A100% DOLOMITE - fine grained, crystalline, hard, layered, occasionally pyritic, light olive grey to light grey.	5Y6/1 N7	-
1975-013	1992.70m	A100% DOLOMITE - as 1975-012A, light olive grey to light grey.	5Y6/1 N7	-
1975-014	1995.35m	A100% DOLOMITE - fine grained, crystalline, blocky, grading to dolomitic limestone, light olive grey to medium grey.	5Y6/1 N5	-

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera, fossiliferous
Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 1975				
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt.% of Rock)
1975-015	1999.00m	A100% DOLOMITE - as 1975-014A, light olive grey to medium grey.	5Y6/1 - N5	
1975-016	2006.65m	A100% DOLOMITE - as 1975-014A, light olive grey to medium grey.	5Y6/1 - N5	
1975-017	2014.35m	A100% DOLOMITE - as 1975-014A, light olive grey to medium grey.	5Y6/1 - N5	
1975-018	2017.00m	A100% DOLOMITE - fine grained, crystalline, slightly silty, blocky, grading to dolomitic limestone, pale yellowish brown to light olive grey.	10YR6/2-5Y6/1	
1975-019	2020.35m	A100% DOLOMITE - as 1975-018A, pale yellowish brown to light olive grey	10YR6/2-5Y6/1	
1975-020	2026.00m	A100% SANDSTONE - med to coarse grained, blocky, mod hard - mod soft, mod calc, dull yellow F, instant streaming milky cut, yellowish grey	5Y8/1	
1975-021	2030.00m	A100% SANDSTONE - med grained, blocky, silty, mod hard - mod soft, non calc, sl micaceous, yellow F, instant blooming milky cut, pinkish grey to yellowish grey.	5YR8/1 - 5Y7/2	
1975-022	2033.00m	A100% SANDSTONE - as 1975-021A, dull yellow F, rapid blooming milky cut, pinkish grey to yellowish grey.	5YR8/1 - 5Y7/2	
1975-023	2040.00m	A100% SHALY MUDSTONE - fine grained, sub-fissile, mod hard, occasionally very slightly calcareous, medium dark grey.	N4	
1975-024	2050.00m	A100% DOLOMITE - fine grained, crystalline, blocky, hard, light olive grey.	5Y6/1	
1975-025	2059.00m	A100% SANDSTONE - medium grained, silty, blocky, mod hard, mod micaceous, non-calc, dull yellow F, slow blooming milky cut, light olive grey to pinkish grey.	5Y6/1 - 5YR8/1	
1975-026	2067.00m	A100% DOLOMITE - fine grained, blocky, crystalline, hard, light olive grey to medium grey.	5Y6/1 - N5	

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera, fossiliferous
Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 1975				
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt.% of Rock)
1975-027	2070.00m	A100% DOLOMITE - fine grained, blocky, crystalline, hard, pale yellowish brown to light olive grey.	10YR6/2- 5Y6/1	
1975-028	2074.00m	A100% DOLOMITE - fine grained, blocky, crystalline, hard, grading to dolomitic limestone, occasional calcite inclusions, white to very light grey.	N9 N8	-
1975-029	2104.65m	A100% DOLOMITE - fine grained, crystalline, blocky, hard, grading to dolomitic limestone, light olive grey.	5Y6/1	
1975-030	2129.65m	A100% DOLOMITE - fine grained, crystalline, blocky, hard, olive grey to medium grey.	5Y4/1 N5	-
1975-031	2141.00m	A100% SANDSTONE - medium grained, silty, blocky, mod hard, slightly calcareous, dull yellow F, very slow blooming milky cut, light olive grey to light grey.	5Y6/1 N7	-
1975-032	2145.65m	A100% DOLOMITE - fine grained, crystalline, blocky, hard, grading to dolomitic limestone, light olive grey to light grey.	5Y6/1 N7	-
1975-033	2148.00m	A100% SANDSTONE - medium grained, silty, blocky, hard, occasionally very slightly calcareous, dull yellow F, no cut, medium light grey to light olive grey.	N6 5Y6/1	-
1975-034	2150.00m	A100% SANDSTONE - coarse grained, blocky, well sorted, hard, slightly calc - mod calcareous, pale yellow F, very slow blooming milky cut, light grey to pinkish grey.	N7 5YR8/1	-
1975-035	2153.00m	A100% SANDSTONE - medium grained, blocky, hard, crystalline, mod dolomitic, yellow F, very slow blooming milky cut, light olive grey to medium grey.	5Y6/1 N5	-

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera, fossiliferous
Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 1975				
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt.% of Rock)
1975-036	2157.00m	A100% SANDSTONE - coarse to very coarse grained, blocky, hard, mod crystalline, slightly calc, yellow F, very slow blooming milky cut, light olive grey to light grey.	5Y6/1 - N7	
1975-037	2163.00m	A100% SANDSTONE - coarse to very coarse grained, blocky, hard, moderately dolomitic, sl calc, dull yellow F, rapid blooming milky cut, medium grey to medium light grey.	N5 - N6	
1975-038	2171.65m	A100% SANDSTONE - coarse to very coarse grained, blocky, hard, moderately dolomitic, pale yellow F, rapid blooming milky cut, pinkish grey to light grey.	5YR8/1 - N7	
1975-039	2177.00m	A100% CONGLOMERATE - rounded pebbles of up to 20mm in a med - coarse grnd matrix, yellow F, rapid blooming milky cut, light olive grey.	5Y6/1	
1975-040	2187.00m	A100% SANDSTONE - coarse grained, blocky, hard, mod crystalline, mod dolomitic, v sl calc, bright yellow F, slow streaming milky cut, light grey.	N7	
1975-041	2191.65m	A100% SANDSTONE - medium to coarse grained, blocky, mod hard, slightly calcareous, occasional yellow F, very slow streaming milky cut, light olive grey.	5Y6/1	
1975-042	2195.00m	A100% CONGLOMERATE - rounded pebbles up to 21mm in a med - coarse grained matrix, mod hard, non calc, occ yellow F, rapid blooming milky cut, light grey to light olive grey.	N7 - 5Y6/1	
1975-043	2202.00m	A100% SANDSTONE - medium grained, blocky, hard, mod crystalline, mod dolomitic, dull yellow F, no cut, light olive grey to medium grey.	5Y6/1 - N5	
1975-044	2210.65m	A100% DOLOMITIC SANDSTONE - medium grnd, blocky, crystalline, hard, very sl calc, dull yellow F, instant streaming milky cut, pale yellowish brown to dark yellowish brown.	10YR6/2- 10YR4/2	

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera, fossiliferous
Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 1975				
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt.% of Rock)
1975-045	2214.00m	A100% SANDSTONE - coarse to very coarse grained, blocky, mod hard, non calc, instant streaming milky cut, light olive grey to greenish grey.	5Y6/1 - 5GY6/1	
1975-046	2219.35m	A100% SANDSTONE - medium grained, occ coarse, blocky, mod hard, slightly - mod calcareous, slow blooming milky cut, olive grey.	5Y4/1	
1975-047	2229.65m	A100% SANDSTONE - as 1975-046A, olive grey.	5Y4/1	
1975-048	2237.35m	A100% CONGLOMERATE - rounded to sub rounded pebbles of up to 9mm in a med-coarse grained crystalline cement, greenish grey to medium grey.	5GY6/1 - N5	
1975-049	2241.65m	A100% CONGLOMERATE - rounded to sub rounded pebbles in a fine - coarse grained matrix, mod crystalline, hard, non calcareous, greyish red.	5R4/2	
1975-050	2641.35m	A100% CONGLOMERATE - subrounded pebbles of up to 17mm in a fine grained matrix, mod hard, non calcareous, greenish grey to moderate orange pink.	5GY6/1 - 10R7/4	
1975-051	STD-1	A100% SANDSTONE - medium to coarse grained, blocky, mod hard - mod soft, non-calc, gold F, instant streaming milky cut, pale yellowish brown.	10YR6/2	
1975-052	STD-2	A100% SANDSTONE - medium to coarse grained, blocky, mod hard - mod soft, non calc, instant streaming milky cut, pale yellowish brown.	10YR6/2	
1975-053	STD-3	A100% SILTSTONE - medium grained, blocky, mod hard - mod soft, non calc, carbonaceous speckles, slow blooming milky cut, pale yellowish brown.	10YR6/2	
1975-054	STD-4	A100% SILTSTONE - medium grained, blocky, mod hard - mod soft, non calc, v sl micaceous, dull gold F, slow streaming milky cut, pale yellowish brown to light olive grey	10YR6/2- 5Y6/1	

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera, fossiliferous
Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 1975				
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt.% of Rock)
1975-055	STD-5	A100% SILTSTONE - as 1975-054A, gold F, instant streaming milky cut, pale yellowish brown to light olive grey	10YR6/2- 5Y6/1	
1975-056	STD-6	A100% SILTSTONE - medium grained, blocky, mod hard - mod soft, non calc, slightly micaceous, dull gold F, rapid streaming milky cut, light olive grey to pale yellowish brown.	5Y6/1 - 10YR6/2	
1975-057	STD-7	A100% SILTSTONE - as 1975-056A, dull gold F, slow streaming milky cut, light olive grey to pale yellowish brown.	5Y6/1 - 10YR6/2	
1975-058	STD-8	A100% SILTSTONE - medium grained, blocky, mod hard - mod soft, non calc, mod micaceous, yellow F, instant streaming milky cut, dark yellowish brown to olive grey.	10YR4/2- 5Y4/1	
1975-059	STD-9	A100% SILTSTONE - medium grained, blocky, mod hard - mod soft, non calc, pale yellow F, instant blooming milky cut, light olive grey to pale yellowish brown.	5Y6/1 - 10YR6/2	
1975-060	STD-10	A100% SILTSTONE - medium grained, blocky, mod hard - mod soft, non calc, occ carbonaceous patches, sl micaceous, dull gold F, no cut, very light grey to pinkish grey.	N8 5YR8/1	-
1975-061	STD-11	A100% SANDSTONE - coarse grained, blocky, hard, well sorted, non calcareous cement, dull gold F, no cut, very light grey to white.	N8 N9	-
1975-062	DST-4	A100% OIL, WELL 7120/2-1 .		
1975-063	DST-A	A100% OIL, REFERENCE SAMPLE .		
1975-064	DST-B	A100% OIL, REFERENCE SAMPLE .		
1975-065	DST-C	A100% OIL, REFERENCE SAMPLE .		

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera, fossiliferous
Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 2
CONCENTRATION (PPM) OF EXTRACTED C₁₅₊ MATERIAL IN ROCK

JOB 1975	L I T H O	DEPTH/ IDENTITY	TOTAL EXTRACT	HYDROCARBONS			NON HYDROCARBONS			
GEOCHEM SAMPLE NUMBER				Saturates	Aromatics	TOTAL	Preciptd. Asphaltenes	Eluted NSO's	Non-Eluted NSO's	TOTAL

WELL: 7120/2-1

1975-001A	1960.95m	1266	886	116	1003	164	92	7	263
1975-002A	1964.00m	1293	881	90	971	163	155	3	322
1975-003A	1967.00m	8899	5290	456	5746	1881	1242	29	3152
1975-004A	1971.00m	3384	1041	83	1124	1996	258	6	2260
1975-005A	1973.00m	5685	1603	143	1746	3581	349	9	3939
1975-006A	1975.00m	2736	2199	270	2470	419	257	9	685
1975-007A	1978.00m	3864	2893	297	3190	242	419	12	674
1975-008A	1980.00m	1343	967	88	1055	97	178	8	284
1975-009A	1983.00m	3911	2983	324	3308	259	336	9	604
1975-010A	1984.00m	3381	2484	244	2728	366	277	10	653
1975-011A	1986.00m	1616	1280	110	1390	73	147	5	226
1975-012A	1990.00m	1605	1194	116	1310	134	157	4	295
1975-013A	1992.70m	2172	1627	164	1791	175	200	7	382
1975-014A	1995.35m	2193	1621	157	1778	174	217	23	414
1975-015A	1999.00m	1171	878	70	949	102	118	3	223
1975-016A	2006.65m	1248	904	82	986	149	112	2	263
1975-017A	2014.35m	3126	1242	94	1336	1422	366	2	1790
1975-018A	2017.00m	10417	2816	214	3030	6596	783	8	7387
1975-019A	2020.35m	6600	2955	210	3164	2639	788	9	3436
1975-020A	2026.00m	3768	2923	234	3156	168	439	4	612
1975-021A	2030.00m	4850	3899	332	4231	175	439	5	620
1975-022A	2033.00m	1629	1282	105	1387	63	175	4	242
1975-023A *	2040.00m	418	174	30	205	78	133	2	214
1975-024A	2050.00m	1473	998	73	1071	113	287	2	402
1975-025A	2059.00m	1056	808	66	874	68	112	1	182
1975-026A	2067.00m	726	542	39	582	57	85	2	144
1975-027A	2070.00m	979	726	57	783	56	138	2	196
1975-028A	2074.00m	2098	1593	121	1714	147	230	8	385
1975-029A	2104.65m	1021	737	57	793	103	120	4	227
1975-030A	2129.65m	602	437	32	469	58	74	1	133
1975-031A	2141.00m	560	427	35	462	22	73	2	98
1975-032A	2145.65m	3302	2549	187	2736	178	384	4	566

TABLE 2
CONCENTRATION (PPM) OF EXTRACTED C₁₅₊ MATERIAL IN ROCK

JOB 1975	L I T H O	DEPTH/ IDENTITY	TOTAL EXTRACT	HYDROCARBONS			NON HYDROCARBONS			
GEOCHEM SAMPLE NUMBER				Saturates	Aromatics	TOTAL	Preciptd. Asphaltenes	Eluted NSO's	Non-Eluted NSO's	TOTAL
1975-033A *		2148.00m	179	61	7	68	38	71	1	111
1975-034A		2150.00m	1983	1458	107	1564	201	212	6	419
1975-035A		2153.00m	941	707	50	757	57	124	2	184
1975-036A		2157.00m	1766	1373	102	1475	89	196	6	291
1975-037A		2163.00m	1196	877	70	947	115	131	2	249
1975-038A		2171.65m	2219	1700	150	1850	156	210	3	369
1975-039A		2177.00m	2062	1545	137	1682	171	204	6	380
1975-040A *		2187.00m	728	401	38	439	189	97	2	289
1975-041A		2191.65m	1672	1136	109	1245	195	227	5	427
1975-042A		2195.00m	1882	1442	123	1565	122	193	3	317
1975-043A *		2202.00m	224	126	10	136	33	55	1	88
1975-044A		2210.65m	3190	1300	129	1429	1426	333	2	1761
1975-045A		2214.00m	2273	1674	196	1870	120	278	5	402
1975-046A *		2219.35m	105	18	5	23	24	57	1	81
1975-047A *		2229.65m	103	12	1	13	23	67	1	91
1975-048A		2237.35m	153	43	2	45	20	87	1	108
1975-049A		2241.65m	270	39	32	71	65	132	1	198
1975-050A *		2641.35m	211	109	9	118	38	53	1	93
1975-051A		STD-1	2045	1502	138	1640	180	220	4	404
1975-052A		STD-2	3763	2948	314	3262	154	339	8	501
1975-053A		STD-3	5462	4286	436	4721	273	462	6	740
1975-054A		STD-4	4107	3155	307	3463	211	424	9	644
1975-055A		STD-5	7056	5190	660	5850	585	608	13	1207
1975-056A		STD-6	4030	2763	313	3076	474	473	8	955
1975-057A		STD-7	1744	1251	121	1372	123	246	2	371
1975-058A		STD-8	10304	7822	771	8592	671	1021	20	1712
1975-059A		STD-9	1391	950	92	1042	108	238	2	349
1975-060A		STD-10	233	86	17	103	39	90	1	130
1975-061A		STD-11	113	21	2	23	56	32	1	89
1975-062		DST-4								
1975-063		DST-A								
1975-064		DST-B								
1975-065		DST-C								

* Extremely lean sample

TABLE 3
COMPOSITION (NORMALISED %) OF C₁₅₊ MATERIAL

JOB 1975 GEOCHEM SAMPLE NUMBER	L I T H O	DEPTH/ IDENTITY	HYDROCARBONS		NON HYDROCARBONS		
			Saturates	Aromatics	Preciptd. Asphaltenes	Eluted NSO's	Non-Eluted NSO's

WELL: 7120/2-1

1975-001A	1960.95m	70.02	9.19	12.98	7.26	0.55
1975-002A	1964.00m	68.11	6.97	12.63	12.02	0.27
1975-003A	1967.00m	59.45	5.12	21.14	13.95	0.33
1975-004A	1971.00m	30.75	2.46	58.99	7.62	0.17
1975-005A	1973.00m	28.20	2.51	62.99	6.14	0.17
1975-006A	1975.00m	80.40	9.89	15.31	9.38	0.34
1975-007A	1978.00m	74.88	7.68	6.26	10.86	0.32
1975-008A	1980.00m	72.04	6.55	7.25	13.29	0.60
1975-009A	1983.00m	76.27	8.29	6.62	8.59	0.22
1975-010A	1984.00m	73.48	7.21	10.82	8.20	0.29
1975-011A	1986.00m	79.19	6.83	4.54	9.12	0.31
1975-012A	1990.00m	74.39	7.23	8.34	9.79	0.25
1975-013A	1992.70m	74.90	7.53	8.07	9.19	0.31
1975-014A	1995.35m	73.93	7.17	7.93	9.92	1.06
1975-015A	1999.00m	74.98	6.01	8.67	10.11	0.23
1975-016A	2006.65m	72.37	6.58	11.92	8.96	0.18
1975-017A	2014.35m	39.74	2.99	45.49	11.72	0.06
1975-018A	2017.00m	27.03	2.05	63.32	7.52	0.08
1975-019A	2020.35m	44.77	3.17	39.98	11.94	0.14
1975-020A	2026.00m	77.57	6.20	4.47	11.65	0.12
1975-021A	2030.00m	80.38	6.84	3.61	9.06	0.11
1975-022A	2033.00m	78.72	6.43	3.88	10.74	0.23
1975-023A *	2040.00m	41.69	7.26	18.74	31.85	0.47
1975-024A	2050.00m	67.73	4.96	7.70	19.47	0.14
1975-025A	2059.00m	76.49	6.26	6.47	10.65	0.13
1975-026A	2067.00m	74.69	5.43	7.90	11.73	0.25
1975-027A	2070.00m	74.11	5.84	5.70	14.13	0.22
1975-028A	2074.00m	75.90	5.77	6.98	10.97	0.38
1975-029A	2104.65m	72.18	5.56	10.06	11.77	0.44
1975-030A	2129.65m	72.63	5.28	9.63	12.23	0.23
1975-031A	2141.00m	76.25	6.30	4.02	13.09	0.35
1975-032A	2145.65m	77.19	5.67	5.40	11.62	0.12
1975-033A *	2148.00m	33.90	4.15	21.46	40.00	0.49
1975-034A	2150.00m	73.51	5.38	10.13	10.67	0.31
1975-035A	2153.00m	75.13	5.35	6.09	13.20	0.23
1975-036A	2157.00m	77.75	5.79	5.03	11.11	0.31
1975-037A	2163.00m	73.35	5.86	9.61	10.98	0.20
1975-038A	2171.65m	76.60	6.77	7.02	9.47	0.14
1975-039A	2177.00m	74.91	6.66	8.27	9.88	0.27
1975-040A *	2187.00m	55.10	5.18	26.03	13.39	0.30
1975-041A	2191.65m	67.95	6.49	11.69	13.58	0.30
1975-042A	2195.00m	76.59	6.55	6.47	10.26	0.13
1975-043A *	2202.00m	56.41	4.27	14.53	24.36	0.43
1975-044A	2210.65m	40.75	4.04	44.70	10.44	0.07
1975-045A	2214.00m	73.68	8.62	5.28	12.21	0.22
1975-046A *	2219.35m	16.88	5.19	22.94	54.11	0.87
1975-047A *	2229.65m	11.17	0.97	22.33	64.56	0.97
1975-048A	2237.35m	28.05	1.22	12.80	57.01	0.91
1975-049A	2241.65m	14.42	12.04	24.09	48.91	0.55
1975-050A *	2641.35m	51.64	4.48	18.21	25.07	0.60
1975-051A	STD-1	73.48	6.74	8.81	10.76	0.21
1975-052A	STD-2	78.36	8.34	4.09	9.01	0.21
1975-053A	STD-3	78.47	7.98	5.00	8.45	0.10

TABLE 3
COMPOSITION (NORMALISED %) OF C₁₅+ MATERIAL

JOB 1975	L I T H O	DEPTH/ IDENTITY	HYDROCARBONS		NON HYDROCARBONS		
ANALYCHEM SAMPLE NUMBER			Saturates	Aromatics	Preciptd. Asphaltenes	Eluted NSO's	Non-Eluted NSO's
1975-054A		STD-4	76.84	7.48	5.13	10.33	0.22
1975-055A		STD-5	73.55	9.35	8.29	8.62	0.19
1975-056A		STD-6	68.56	7.76	11.76	11.73	0.19
1975-057A		STD-7	71.74	6.96	7.07	14.12	0.11
1975-058A		STD-8	75.91	7.48	6.51	9.91	0.19
1975-059A		STD-9	68.31	6.61	7.78	17.14	0.16
1975-060A *		STD-10	36.97	7.14	16.81	38.66	0.42
1975-061A *		STD-11	18.72	1.97	49.75	28.57	0.99
1975-062		DST-4	83.09	9.20	1.08	6.52	0.11
1975-063		DST-A	82.30	10.10	0.96	6.44	0.20
1975-064		DST-B	80.11	12.63	1.34	5.72	0.20
1975-065		DST-C	79.77	13.15	1.15	5.63	0.30

* Extremely lean sample, treat data with caution

TABLE 4
SIGNIFICANT C₁₅₊ RATIOS

JOB 1975	L I T H O	DEPTH/ IDENTITY	TOC (%)	mg/g TOC						HYDROCARBONS % TOTAL EXTRACT	SATURATES AROMATICS
GEOCHEM SAMPLE NUMBER				TOTAL EXTRACT	SATURATES	AROMATICS	TOTAL HYDROCARBONS	ELUTED NSO's	ASPHALTENES		

WELL: 7120/2-1

1975-001A	1960.95m	0.07	1808.60	1266.41	166.14	1432.55	131.32	234.78	79.21	7.62
1975-002A	1964.00m	0.05	2586.14	1761.39	180.20	1941.58	310.89	326.73	75.08	9.77
1975-003A	1967.00m	0.22	4044.79	2404.74	207.24	2611.98	564.36	855.19	64.58	11.60
1975-004A	1971.00m	0.06	5639.18	1734.29	138.53	1872.82	429.76	3326.79	33.21	12.52
1975-005A	1973.00m	0.05	11370.18	3206.47	285.71	3492.18	697.60	7161.63	30.71	11.22
1975-006A	1975.00m	0.03	9118.95	7331.29	901.50	8232.79	855.49	1395.71	90.28	8.13
1975-007A	1978.00m	0.08	4829.51	3616.35	370.97	3987.32	524.33	302.43	82.56	9.75
1975-008A	1980.00m	0.06	2237.71	1611.94	146.63	1758.57	297.40	162.12	78.59	10.99
1975-009A	1983.00m	0.06	6518.79	4972.12	540.61	5512.73	560.00	431.52	84.57	9.20
1975-010A	1984.00m	0.07	4829.75	3548.99	348.24	3897.23	396.22	522.36	80.69	10.19
1975-011A	1986.00m	0.06	2693.05	2132.66	183.98	2316.63	245.70	122.25	86.02	11.59
1975-012A	1990.00m	0.07	2293.48	1706.14	165.78	1871.92	224.52	191.36	81.62	10.29
1975-013A	1992.70m	0.08	2715.55	2033.90	204.50	2238.39	249.63	219.23	82.43	9.95
1975-014A	1995.35m	0.09	2436.20	1801.02	174.63	1975.65	241.65	193.08	81.10	10.31
1975-015A	1999.00m	0.09	1301.55	975.86	78.24	1054.10	131.61	112.81	80.99	12.47
1975-016A	2006.65m	0.05	2496.97	1807.16	164.19	1971.35	223.69	297.52	78.95	11.01
1975-017A	2014.35m	0.08	3908.04	1553.01	116.97	1669.99	457.94	1777.63	42.73	13.28
1975-018A	2017.00m	0.12	8680.47	2346.52	178.20	2524.72	652.56	5496.50	29.09	13.17
1975-019A	2020.35m	0.13	5077.08	2272.96	161.18	2434.14	606.10	2029.82	47.94	14.10
1975-020A	2026.00m	0.06	6279.29	4870.87	389.23	5260.10	731.42	280.39	83.77	12.51
1975-021A	2030.00m	0.07	6928.60	5569.42	474.16	6043.58	627.55	250.17	87.23	11.75
1975-022A	2033.00m	0.14	1163.23	915.68	74.82	990.51	124.93	45.16	85.15	12.24
1975-023A *	2040.00m	1.24	33.73	14.06	2.45	16.51	10.74	6.32	48.95	5.74
1975-024A	2050.00m	0.10	1473.33	997.93	73.02	1070.95	286.90	113.41	72.69	13.67
1975-025A	2059.00m	0.11	960.21	734.47	60.12	794.59	102.24	62.16	82.75	12.22
1975-026A	2067.00m	0.11	660.12	493.05	35.86	528.91	77.42	52.16	80.12	13.75
1975-027A	2070.00m	0.07	1399.26	1036.98	81.69	1118.66	197.67	79.82	79.95	12.69
1975-028A	2074.00m	0.05	4196.60	3185.26	241.97	3427.22	460.30	293.01	81.67	13.16
1975-029A	2104.65m	0.08	1275.67	920.76	70.87	991.63	150.11	128.35	77.73	12.99
1975-030A	2129.65m	0.10	602.21	437.39	31.77	469.15	73.67	58.01	77.91	13.77
1975-031A	2141.00m	0.10	559.69	426.74	35.27	462.02	73.26	22.48	82.55	12.10
1975-032A	2145.65m	0.05	6604.75	5098.31	374.24	5472.54	767.46	356.61	82.86	13.62

TABLE 4
SIGNIFICANT C₁₅₊ RATIOS

JOB 1975	L I T H O	DEPTH/ IDENTITY	TOC (%)	mg/g TOC						HYDROCARBONS % TOTAL EXTRACT	SATURATES AROMATICS
GEOCHEM SAMPLE NUMBER				TOTAL EXTRACT	SATURATES	AROMATICS	TOTAL HYDROCARBONS	ELUTED NSO's	ASPHALTENES		
1975-033A *		2148.00m	0.08	223.31	75.71	9.26	84.97	89.33	47.93	38.05	8.18
1975-034A		2150.00m	0.06	3305.12	2429.46	177.77	2607.22	352.71	334.84	78.88	13.67
1975-035A		2153.00m	0.08	1176.35	883.77	62.94	946.71	155.33	71.64	80.48	14.04
1975-036A		2157.00m	0.06	2942.59	2287.96	170.37	2458.33	326.85	148.15	83.54	13.43
1975-037A		2163.00m	0.05	2392.29	1754.82	140.11	1894.92	262.70	230.01	79.21	12.53
1975-038A		2171.65m	0.04	5547.50	4249.56	375.78	4625.34	525.20	389.16	83.38	11.31
1975-039A		2177.00m	0.05	4124.49	3089.73	274.86	3364.59	407.44	341.15	81.58	11.24
1975-040A *		2187.00m	0.07	1039.39	572.69	53.79	626.48	139.22	270.53	60.27	10.65
1975-041A		2191.65m	0.10	1672.26	1136.23	108.59	1244.82	227.05	195.46	74.44	10.46
1975-042A		2195.00m	0.07	2689.08	2059.55	176.04	2235.58	276.01	173.86	83.14	11.70
1975-043A *		2202.00m	0.07	319.89	180.45	13.67	194.12	77.92	46.48	60.68	13.20
1975-044A		2210.65m	0.20	1594.99	649.98	64.37	714.35	166.52	713.01	44.79	10.10
1975-045A		2214.00m	0.33	688.68	507.42	59.33	566.75	84.10	36.34	82.30	8.55
1975-046A *		2219.35m	0.21	49.80	8.41	2.59	10.99	26.95	11.43	22.08	3.25
1975-047A *		2229.65m	0.16	64.60	7.21	0.63	7.84	41.71	14.43	12.14	11.50
1975-048A		2237.35m	0.28	54.59	15.31	0.67	15.98	31.12	6.99	29.27	23.00
1975-049A		2241.65m	0.09	299.65	43.20	36.09	79.29	146.54	72.18	26.46	1.20
1975-050A *		2641.35m	0.19	111.10	57.37	4.97	62.35	27.86	20.23	56.12	11.53
1975-051A		STD-1	0.10	2044.60	1502.41	137.74	1640.14	219.94	180.15	80.22	10.91
1975-052A		STD-2	0.09	4180.87	3275.93	348.50	3624.44	376.62	171.03	86.69	9.40
1975-053A		STD-3	0.07	7802.39	6122.27	622.61	6744.88	659.53	389.84	86.45	9.83
1975-054A		STD-4	0.24	1711.10	1314.78	128.06	1442.84	176.78	87.74	84.32	10.27
1975-055A		STD-5	0.19	3713.90	2731.43	347.37	3078.80	320.05	307.96	82.90	7.86
1975-056A		STD-6	0.35	1151.55	789.47	89.36	878.83	135.11	135.47	76.32	8.83
1975-057A		STD-7	0.21	830.38	595.71	57.76	653.48	117.24	58.71	78.70	10.31
1975-058A		STD-8	0.14	7360.02	5586.87	550.42	6137.28	729.29	479.36	83.39	10.15
1975-059A		STD-9	0.31	448.62	306.44	29.66	336.10	76.90	34.89	74.92	10.33
1975-060A		STD-10	0.18	129.38	47.84	9.24	57.08	50.01	21.74	44.12	5.18
1975-061A		STD-11	0.02	562.64	105.32	11.09	116.41	160.76	279.94	20.69	9.50
1975-062		DST-4								92.29	9.04
1975-063		DST-A								92.40	8.15
1975-064		DST-B								92.74	6.34
1975-065		DST-C								92.92	6.07

* Extremely lean sample, treat data with caution

TABLE 5
COMPOSITION (NORMALISED %) OF C₁₅+ SATURATE (PARAFFIN - NAPHTHENE) HYDROCARBONS

GEOCHEM SAMPLE NUMBER	062	063	064	065
DEPTH	7120/2-1 DST4	DST A	DST B	DST C
SAMPLE TYPE				
nC15	12.27	6.22	6.40	5.17
nC16	9.86	5.66	5.75	5.14
nC17	9.48	5.76	6.12	4.33
nC18	8.97	5.54	5.64	4.62
nC19	7.49	7.24	7.37	6.39
nC20	8.51	6.31	6.70	5.94
nC21	7.47	6.60	6.45	6.43
nC22	6.22	7.10	6.96	6.81
nC23	4.65	7.21	7.34	6.92
nC24	4.37	7.37	7.40	6.55
nC25	5.08	7.13	6.45	8.26
nC26	3.29	5.11	5.62	5.17
nC27	2.89	4.94	4.94	4.28
nC28	2.57	3.68	4.07	5.57
nC29	2.24	3.24	3.46	3.54
nC30	1.43	2.28	2.46	2.96
nC31	0.91	1.64	1.69	2.36
nC32	1.06	0.94	0.85	1.68
nC33	0.81	1.59	1.57	2.41
nC34	0.16	1.55	1.45	2.39
nC35	0.26	2.87	1.31	3.09
Paraffin	19.34	21.33	17.66	21.29
Isoprenoid	3.86	3.09	2.34	2.66
Naphthene	76.78	75.57	79.99	76.04
CPI 1 Index	1.06	1.06	1.00	1.07
CPI 2 Index	1.14	1.17	1.06	1.05
CPI 3 Index	0.99	1.12	1.02	0.80
Prist/Phytane	1.49	1.66	1.61	1.47
Prist/nC17	0.99	0.97	0.92	1.15
Phytane/nC18	0.70	0.60	0.62	0.73

Job Number : 1975

$$C.P.I. 1 = \frac{1}{2} \frac{C_{21} + C_{23} + C_{25} + C_{27}}{C_{20} + C_{22} + C_{24} + C_{26}} + \frac{C_{21} + C_{23} + C_{25} + C_{27}}{C_{22} + C_{24} + C_{26} + C_{28}}$$

$$C.P.I. 2 = \frac{1}{2} \frac{C_{25} + C_{27} + C_{29} + C_{31}}{C_{24} + C_{26} + C_{28} + C_{30}} + \frac{C_{25} + C_{27} + C_{29} + C_{31}}{C_{26} + C_{28} + C_{30} + C_{32}}$$

$$C.P.I. 3 = \frac{2 \times (C_{27})}{C_{26} + C_{28}}$$

CT - ditch cuttings CO - core SWC - sidewall core

TABLE 6
COMPOSITION (NORMALISED %) OF C₁₅₊ SATURATE (PARAFFIN - NAPHTHENE) HYDROCARBONS

GEOCHEM SAMPLE NUMBER	062	063	064	065
DEPTH	7120/2-1 DST 4	DST A	DST B	DST C
SAMPLE TYPE				
nC15	14.03	8.14	8.23	7.55
nC16	10.66	7.68	7.23	6.94
nC17	9.24	6.53	6.86	6.14
nC18	8.40	6.95	5.74	5.91
nC19	8.49	6.76	6.50	5.97
nC20	8.32	6.49	6.50	6.35
nC21	6.52	7.18	7.35	6.61
nC22	6.27	7.45	7.71	6.76
nC23	5.20	7.49	7.13	7.73
nC24	4.65	6.45	7.26	7.58
nC25	4.34	6.53	5.98	7.63
nC26	3.25	5.26	4.92	5.58
nC27	3.34	4.38	5.49	5.45
nC28	2.11	3.84	3.49	3.74
nC29	2.03	3.04	3.67	3.10
nC30	1.17	2.07	2.06	1.97
nC31	0.79	1.50	1.34	1.66
nC32	0.62	0.73	0.76	1.00
nC33	0.41	0.88	0.85	0.95
nC34	0.05	0.38	0.64	0.84
nC35	0.10	0.23	0.30	0.54
Paraffin	19.34	21.33	17.66	21.29
Isoprenoid	3.86	3.09	2.34	2.66
Naphthene	76.78	75.57	79.99	76.04
CPI 1 Index	1.03	1.05	1.05	1.10
CPI 2 Index	1.20	1.09	1.20	1.20
CPI 3 Index	1.25	0.96	1.31	1.17
Prist/Phytane	1.29	1.70	1.61	1.60
Prist/nC17	0.81	0.77	0.71	0.78
Phytane/nC18	0.68	0.42	0.52	0.51

Job Number : 1975

$$C.P.I. 1 = \frac{1}{2} \frac{C_{21} + C_{23} + C_{25} + C_{27}}{C_{20} + C_{22} + C_{24} + C_{26}} + \frac{C_{21} + C_{23} + C_{25} + C_{27}}{C_{22} + C_{24} + C_{26} + C_{28}}$$

$$C.P.I. 2 = \frac{1}{2} \frac{C_{25} + C_{27} + C_{29} + C_{31}}{C_{24} + C_{26} + C_{28} + C_{30}} + \frac{C_{25} + C_{27} + C_{29} + C_{31}}{C_{26} + C_{28} + C_{30} + C_{32}}$$

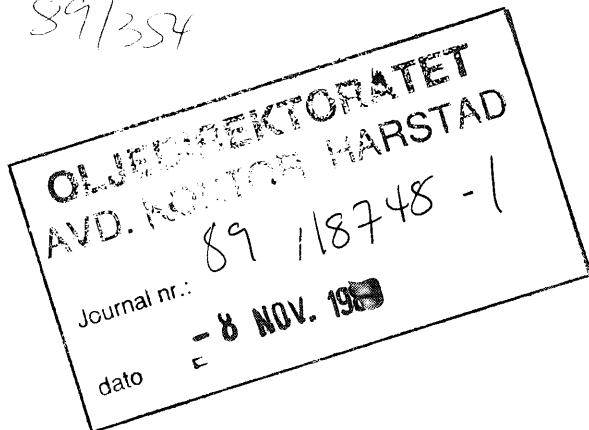
$$C.P.I. 3 = \frac{2 \times (C_{27})}{C_{26} + C_{28}}$$

CT - ditch cuttings CO - core SWC - sidewall core

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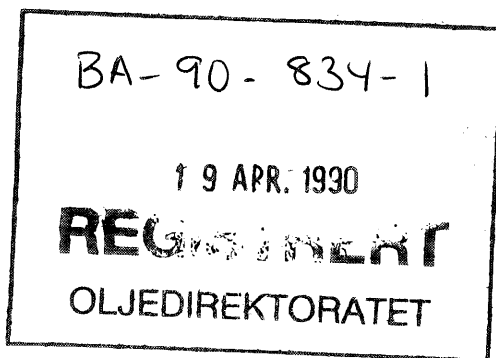
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Prepared for

PL 109

SUPPLEMENTARY C₁₅₊ EXTRACTION DATA FOR CORES FROM
WELL 7120/2-1 (HYDRO)



June 1989

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WELL: 7120/2-1

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2. Concentration (ppm) of extracted C₁₅₊ material
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4. Significant ratios (%) of C₁₅₊ fractions and organic carbon

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 2063				
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt.% of Rock)

WELL: 7120/2-1 (CORES)

2063-001	1965.20m	A100% DOLOMITE - blocky, hard, yellow F, rapid blooming milky cut, olive grey to light olive grey.	5Y4/1 - 5Y6/1	
2063-002	1966.00m	A100% DOLOMITE - blocky, hard, pale yellow F, rapid blooming milky cut, olive grey.	5Y4/1	
2063-003	1967.30m	A100% DOLOMITE - blocky, hard, yellow to gold F, instant blooming milky cut, yellowish grey to light olive grey.	5Y8/1 - 5Y6/1	
2063-004	2001.50m	A100% DOLOMITE - blocky, hard, yellow F, rapid blooming milky cut, light olive grey.	5Y6/1	
2063-005	2012.35m	A100% DOLOMITE - blocky, very hard, yellow to gold F, rapid blooming milky cut, light olive grey.	5Y6/1	
2063-006	2016.00m	A100% DOLOMITE - blocky, very hard, yellow F, slow blooming milky cut, olive grey.	5Y4/1	
2063-007	2019.35m	A100% DOLOMITE - blocky, very hard, pale yellow F, rapid blooming milky cut, pale yellowish brown.	10YR6/2	
2063-008	2022.65m	A100% DOLOMITE - as 2063-007A, yellow F, rapid blooming milky cut, pale yellowish brown.	10YR6/2	
2063-009	2053.65m	A100% DOLOMITE - as 2063-007A, yellow to gold F, rapid blooming milky cut, pale yellowish brown.	10YR6/2	
2063-010	2059.35m	A100% DOLOMITE - blocky, very hard, with silty bands, pale yellow F, rapid blooming milky cut, yellowish grey to light olive grey.	5Y8/1 - 5Y6/1	
2063-011	2067.65m	A100% DOLOMITE - blocky, hard, yellow - gold F, rapid blooming milky cut, light olive grey.	5Y6/1	
2063-012	2071.35m	A100% DOLOMITE - as 2063-011A, F as 2063-011A, yellowish grey.	5Y8/1	
2063-013	2135.65m	A100% DOLOMITE - blocky, hard, F as 2063-011A, light brownish grey.	5YR6/1	

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera, fossiliferous
Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 2063				
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt.% of Rock)
2063-014	2146.65m	A100% DOLOMITE - blocky, mod hard, F as 2063-011A, light olive grey.	5Y6/1	
2063-015	2173.00m	A100% SANDSTONE - coarse grained, blocky, well sorted, hard, non calcareous, yellow - gold F, slow blooming milky cut, yellowish grey to light olive grey.	5Y8/1 - 5Y6/1	
2063-016	2180.65m	A100% SILTSTONE - medium grained, blocky, mod sorted, hard, non calcareous, pale yellow F, slow blooming milky cut, olive grey.	5Y4/1	
2063-017	2185.00m	A100% CONGLOMERATE - rounded pebbles up to 7 mm in a medium to coarse, glauconitic matrix, very pale yellow F, slow blooming milky cut, greenish grey to dark greenish grey	5GY6/1 - 5GY4/1	
2063-018	2193.00m	A100% CONGLOMERATE - as 2063-017A, F as 2063-017A, greenish grey.	5GY6/1	
2063-019	2198.35m	A100% SANDSTONE - med to coarse grained, blocky, well sorted, hard, non calcareous, light olive grey.	5Y6/1	
2063-020	2203.35m	A100% SANDSTONE - med to coarse grained, blocky, well sorted, hard, non calcareous, with traces of bedding, greenish grey to light greenish grey.	5GY6/1 - 5GY8/1	
2063-021	2205.35m	A100% CONGLOMERATE - rounded pebbles up to 3-4 mm in a medium to coarse matrix, greenish grey.	5GY6/1	
2063-022	2208.65m	A100% SANDSTONE - coarse grained, blocky, poorly sorted, hard, non calcareous, pale yellow F, rapid blooming milky cut, brownish grey to pale yellowish brown.	5YR4/1 - 10YR6/2	
2063-023	2212.00m	A100% SILTSTONE - medium grained, blocky, well sorted, hard, non calcareous, olive grey.	5Y4/1	
2063-024	2215.65m	A100% CONGLOMERATE - rounded pebbles up to 3-4 mm in a medium to coarse matrix, olive grey to light olive grey.	5Y4/1 - 5Y6/1	

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera, fossiliferous
Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 2063				
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt.% of Rock)
2063-025	2217.00m	A100% CONGLOMERATE - rounded pebbles up to 1cm in very coarse matrix, pale yellow F, rapid blooming milky cut, light olive grey to moderate orange pink.	5Y6/1 - 5YR8/4	
2063-026	2218.65m	A100% SILTSTONE - fine grained, blocky, well sorted, mod hard, non calcareous, olive grey.	5Y4/1	
2063-027	2220.35m	A100% SILTSTONE - as 2063-026A, olive grey.	5Y4/1	
2063-028	2221.65m	A100% SILTSTONE - fine grained, blocky, well sorted, mod hard, non calcareous, greenish black.	5GY2/1	
2063-029	2223.35m	A100% SILTSTONE - fine grained, blocky, well sorted, mod hard, non calcareous, light olive grey to olive grey.	5Y6/1 - 5Y4/1	
2063-030	2225.00m	A100% SILTSTONE - fine grained, blocky, well sorted, mod hard, non-calcareous, olive grey.	5Y4/1	
2063-031	2232.65m	A100% SANDSTONE - medium grained, blocky, well sorted, hard, non calcareous, brownish grey.	5YR4/1	

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera, fossiliferous
Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 2
CONCENTRATION (PPM) OF EXTRACTED C₁₅₊ MATERIAL IN ROCK

JOB 2063	L I T H O	DEPTH/ IDENTITY	TOTAL EXTRACT	HYDROCARBONS			NON HYDROCARBONS			
GEOCHEM SAMPLE NUMBER				Saturates	Aromatics	TOTAL	Preciptd. Asphaltenes	Eluted NSO's	Non-Eluted NSO's	TOTAL

WELL: 7120/2-1 (CORES)

2063-001A	1965.20m	621	449	33	482	68	69	2	139
2063-002A	1966.00m	555	437	32	469	48	36	2	85
2063-003A	1967.30m	5652	4610	412	5022	151	467	12	630
2063-004A	2001.50m	1640	1296	99	1395	68	173	4	244
2063-005A	2012.35m	3640	2984	230	3214	150	269	7	426
2063-006A	2016.00m	489	364	24	388	60	40	2	102
2063-007A	2019.35m	3569	2112	143	2255	915	392	6	1313
2063-008A	2022.65m	1799	1401	99	1501	139	154	5	298
2063-009A	2053.65m	2288	1746	133	1879	181	225	3	409
2063-010A	2059.35m	2005	1575	137	1712	121	168	4	293
2063-011A	2067.65m	1472	1140	95	1235	108	127	2	237
2063-012A	2071.35m	2555	1529	143	1672	669	207	7	882
2063-013A	2135.65m	332	199	17	215	63	53	1	116
2063-014A	2146.65m	2871	2207	170	2377	253	238	3	495
2063-015A	2173.00m	1820	1393	112	1505	117	194	4	315
2063-016A	2180.65m	247	110	16	126	54	66	1	121
2063-017A	2185.00m	886	683	54	737	51	94	3	148
2063-018A	2193.00m	1126	745	66	810	189	122	5	316
2063-019A	2198.35m	2173	1457	142	1599	330	239	4	574
2063-020A	2203.35m	879	639	52	691	93	92	2	188
2063-021A	2205.35m	397	187	18	205	94	96	2	192
2063-022A	2208.65m	1785	1073	72	1145	445	175	20	640
2063-023A	2212.00m	619	145	60	205	285	127	2	414
2063-024A	2215.65m	1233	727	72	800	266	164	3	433
2063-025A	2217.00m	487	360	26	386	35	63	2	101
2063-026A	2218.65m	343	130	33	163	38	141	1	181
2063-027A	2220.35m	162	78	10	88	20	53	0	74
2063-028A	2221.65m	209	78	10	89	38	81	1	120
2063-029A	2223.35m	151	61	7	68	17	65	1	82
2063-030A	2225.00m	208	67	8	75	43	89	1	133
2063-031A	2232.65m	299	97	33	130	47	121	2	169

S-shale, SS-sandstone, L-limestone, D-dolomite, M-mixed, see Table 1.

TABLE 3
COMPOSITION (NORMALISED %) OF C₁₅₊ MATERIAL

JOB 2063	L I T H O	DEPTH/ IDENTITY	HYDROCARBONS		NON HYDROCARBONS		
GEOCHEM SAMPLE NUMBER			Saturates	Aromatics	Preciptd. Asphaltenes	Eluted NSO's	Non-Eluted NSO's

WELL: 7120/2-1 (CORES)

2063-001A	1965.20m	72.32	5.26	10.88	11.18	0.37
2063-002A	1966.00m	78.79	5.81	8.59	6.42	0.39
2063-003A	1967.30m	81.56	7.29	2.67	8.27	0.21
2063-004A	2001.50m	79.03	6.02	4.12	10.52	0.24
2063-005A	2012.35m	81.96	6.33	4.12	7.38	0.21
2063-006A	2016.00m	74.31	4.87	12.23	8.21	0.38
2063-007A	2019.35m	59.18	4.01	25.64	11.00	0.17
2063-008A	2022.65m	77.89	5.53	7.71	8.58	0.29
2063-009A	2053.65m	76.33	5.79	7.92	9.85	0.12
2063-010A	2059.35m	78.55	6.85	6.03	8.36	0.21
2063-011A	2067.65m	77.45	6.47	7.35	8.60	0.13
2063-012A	2071.35m	59.86	5.61	26.18	8.10	0.26
2063-013A	2135.65m	59.97	4.98	18.85	15.89	0.31
2063-014A	2146.65m	76.85	5.92	8.83	8.28	0.12
2063-015A	2173.00m	76.54	6.17	6.41	10.66	0.21
2063-016A	2180.65m	44.40	6.61	21.83	26.79	0.37
2063-017A	2185.00m	77.13	6.12	5.78	10.64	0.33
2063-018A	2193.00m	66.13	5.82	16.78	10.86	0.42
2063-019A	2198.35m	67.06	6.52	15.20	11.02	0.20
2063-020A	2203.35m	72.74	5.89	10.61	10.50	0.27
2063-021A	2205.35m	47.09	4.48	23.77	24.22	0.45
2063-022A	2208.65m	60.10	4.02	24.94	9.81	1.13
2063-023A	2212.00m	23.40	9.65	46.08	20.59	0.29
2063-024A	2215.65m	58.99	5.88	21.54	13.31	0.28
2063-025A	2217.00m	73.94	5.32	7.27	13.03	0.43
2063-026A	2218.65m	37.93	9.48	11.08	41.13	0.37
2063-027A	2220.35m	48.19	6.02	12.65	32.83	0.30
2063-028A	2221.65m	37.61	4.96	18.24	38.74	0.45
2063-029A	2223.35m	40.66	4.76	11.36	42.86	0.37
2063-030A	2225.00m	32.30	3.62	20.67	42.89	0.52
2063-031A	2232.65m	32.50	11.01	15.63	40.32	0.53