S U M M A R Y

I. 30" CASING INTERVAL

February 29, 1976

The first section was a 36" hole drilled to 850' with a Bentonite/Caustic/Flosal spud mud with returns to the seabed. No problems were encountered while drilling or running casing in this section of the hole. The casing was set at 841'.

Materials	Original Estimate sx.	$	Actual Useage sx.	$
Polymer, H-921 (25 kg.)	98	$6,123.04	-	-
Wyoming Bentonite (50 kg.)	60	$ 646.80	230	$2,525.40
Coat-415 (55 gal.)	1	$ 392.00	-	-
Flosal (50 lbs.)	-	-	53	$ 870.79
Caustic Soda (25 kg.)	-	-	9	$ 133.38
Lime (40 kg.)	-	-	1	$ 6.16
Barite (50 kg.)	-	-	276	$1,338.60
TOTALS		$7,161.84		$4.874.33

Barite was used on this section to pack temporary guide base.

	Original Estimate	Actual Useage
Days on Section	3	3
Cost per day	$2,387.28	$1,624.77
Cost per foot	$ 17.90	$ 5.79
Cost per barrel	$ 5.31	$ 3.61
Cost per barrel/day	$ 1.77	$ 1.20

II. 20" CASING INTERVAL

March 4th - 7th, 1976:

The second section of the hole was displaced with a Wyoming Bentonite/Caustic/ Flosal system. A 17½" pilot hole was drilled to 2510'. In this section 400 bbls. of mud was lost into sand formation. A shortage of drillwater occured, and seawater was used for mixing the spud mud.

The hole was then opened up to 26". The hole was drilled in two days. Due to the fast penetration rate, the sand content increased up to 21% for a while. The Desander and Desilter was run continually. No drilling problem occured in this section of the hole. Casing was run to 2488' with no problems. After running the casing the mud was dumped and all mud pits were cleaned.

Materials	Original Estimate sx.	$	Actual Useage sx.	$
Polymer, H-921 (25 kg.)	228	$14,245.44	-	-
Wyoming Bentonite (50 kg.)	190	$ 2,048.24	1175	$12,666.50
Caustic Soda (25 kg.)	19	$ 563.35	113	$ 1,674.66
Coat 415 (55 gal.)	2	$ 784.00	-	-
Barite, bulk, metric tons	15	$ 1,694.55	110	$ 621.50
Flosal (50 lbs.)	-	-	20	$ 328.60
Lime (40 kg.)	-	-	9	$ 55.44
Lignosulfonate (50 kg.)	-	-	13	$ 186.81
CMC HV (25 kg.)	-	-	115	$ 6,203.10
Soda Ash (50 kg.)	-	-	33	$ 428.01
Wallnut C (25 kg.)	-	-	18	$ 250.74
Mica C (25 kg.)	-	-	18	$ 234.00
TOTALS		$19,335.58		$22,649.36

The cost for this section was excellent considering the mud losses.

	Original Estimate	Actual Useage
Days on Section	3	4
Cost per day	$ 6,445.19	$ 5,664.84
Cost per foot	$ 12.08	$ 13.57
Cost per barrel	$ 4.61	$ 5.40
Cost per barrel/day	$ 1.54	$ 1.35

III. 13 3/8" CASING INTERVAL

March 8th - April 6th, 1976:

This third section of hole was drilled with a 17½" bit to 9030'. Thirty days rig time were required. The drilling rate was 20-25 feet per hour. The Dextrid/ Drispac/Lime system was mixed and displaced in hole. Because of massive sand formation down to 4700' the mud system was heavily treated with Bentonite, Caustic and Drispac. Mud losses into the sand section totaled 1000 bbls. Sand blinding of shaker screens also caused excessive losses. The cost of replacing this mud was $ 10, 500.

Due to the high volume of mud pumped (20 bpm), it was impossible to remove all of the sand with the Desander and Desilter. The Desander and the Desilter were operating at about 50% efficiency. Therefore, the sand concentration in the mud was as high as 35% at times. The penetration rate was 50 ft/hr. down to 4700'. The sandtrap and shaker box were dumped frequently. After drilling the massive sand the mud was converted to a Dextrid/Drispac/Lime system. This system was used to the casing point of 8958'. The formation from 4700' to 7900' was mostly clay and claystone. The average drill rate was about 10 ft/hr.

We had some tight hole from 6300-7200' which was due to insufficient hydrostatic pressure and high filtrate. The filtrate was lowered from 17 cc to 10 cc, and mud weight was inreased from 10.5 ppg to 11.0 ppg. This cured the problem.

This section of the hole was drilled with no more serious mud problems and casing was set at 8958'. Casing went to bottom without any problems. The casing job took 20 hours to complete.

The mud cleaner was installed at ± 5500'. The mud cleaner reduced the sand content from 3% to ½% in one circulation. Some high viscosity was experienced in the last part of this seciton. This was mainly due to the high clay content. This gradually increased to 45 lb/bbl. This came from the formation clays and was due to insufficient surface equipment to handle full pump volume. To control the mud properties it was necessary to add large amount of water. The centrifuge, desander, desilter and cleaner were run continuously but could not handle enough volume.

Materials	Original Estimate sx.	$	Actual Useage sx.	$
Dextrid (50 lbs.)	1100	$38,912.00	1378	$54,982.20
Drispac (50 lbs.)	140	$18,342.80	169	$22,142.38
Lime (40 kg.)	330	$ 2,541.00	469	$ 2,889.04
Q-Broxin (50 lbs.)	365	$ 5 245.05	-	-
Torq Trim (55 gal.)	10	$ 6,753.60	5½	$ 3,174.48
Coat 415 (55 gal.)	8	$ 3,136.00	-	-
Coat 888 (55 lbs.)	100	$ 3,000.00	-	-
Barite, bulk, metric tons	200	$22,594.00	360.85	$40,765.22
Barite, slugs, metric tons	25	$ 2,824.25	-	-
Defoamer W-300	3	$ 1,974.60	-	-
Wyoming Bentonite	-	-	595	$ 6,414.20
Caustic Soda (25 kg.)	-	-	739	$10,951.98
Lignosulfonate (50 lbs.)	-	-	581	$ 8,348.97
Soltex (50 lbs.)	-	-	154	$ 6,974.66
Soda Ash (50 kg.)	-	-	4	$ 51.88
XP-20 (50 lbs.)	-	-	5	$ 71.05
Flosal (50 lbs.)	-	-	20	$ 328.60
TOTALS		$105,323.30		$157,634.66

	Original Estimate	Actual Useage
Days on Section	36	30
Cost per day	$2,905.65	$5,254.48
Cost per foot	$ 14.94	$ 24.09
Cost per barrel	$ 9.82	$ 10.50
Cost per barrel/day	$ 0.27	$ 0.35

Due to the mud losses and high clay/content, which required heavy dilution and increased chemical treatment, the cost for this section was $53,000 higher than estimated. However, drill rates were very good and the section was drilled faster than anticipated.

IV. 9 5/8" CASING INTERVAL

April 7th - May 13th, 1976:

This section was a 12 1/4" hole drilled to 13120'. Average penetration rate was 8 - 10 feet per hour. Thirty two days rig time were required, including three days squeezing cement.

The mud for this section of the hole was a continuation of the mud used in previous section. Lime treatments were discontinued. Excess lime was allowed to drift back so the system was gradually converted to Dextrid/Q-Broxin system. No mud problems were encounted while drilling this section.

A leak off test under the 13 3/8" casing shoe had indicated a fracture pressure of 14.5 ppg. Four cement squeezes increased this fracture pressure to 15.5 ppg. However lost circulation occured when running 9 5/8" casing. The fracture pressure was almost certainly exceeded when running casing. The casing was pulled up to 5000' and a DV tool installed. We were able to rerun the casing without making a conditioning trip. The casing was cemented at 13069 without returns.

Mud losses totalled 900 bbls at a cost of $20,664.

A corrosion program was initiated during this interval. A chemical pump was installed to inject the corrosion chemicals. Corrosion rings indicated moderate

oxygen pitting, but after chemical treatments it was reduced to well within API limits.

Most of this section was drilled with a Diamond bit and turbine. The runs were very successful due to very little abrasive drill solids being present in the mud.

Materials	Original Estimate sx.	$	Actual Useage sx.	$
Dextrid (50 lbs.)	312	$ 10,832.64	426	$16,997.40
Drispac (50 lbs.)	40	$ 5,240.80	27	$ 3,537.54
Caustic Soda (25 kg.)	48	$ 1,423.20	221	$ 3,275.22
Q-Broxin (50 lbs.)	260	$ 3,736.20	528	$ 7 587.36
Torq Trim (55 gal.) drums	10	$ 6,753.60	-	-
Coat-415 (55 gal.) drums	7	$ 2,744.00	-	-
Coat-888 (50 lbs.)	75	$ 2,250.00	6	$ 447.48
Barite, bulk, metric tons	725	$ 81,903.25	554,2	$62,607.97
Defoamer, (55 gal.) drums	1	$ 658.20	10gal.	$ 156.71
Soda Ash (50 kg.)	-	-	40	$ 518.80
Al-Stearate (25 kg.)	-	-	11	$ 371.91
SAPP (25 kg.)	-	-	1	$ 46.50
Soltex (50 lbs.)	-	-	20	$ 905.80
TOTALS		$115,541.89		$96,452.69

	Original Estimate	Actual Useage
Days on Section	35	32
Cost per day	$3,301.20	$3,014.14
Cost per foot	$ 28.89	$ 23.17
Cost per barrel	$ 27.51	$ 22,96
Cost per barrel/day	$ 0.79	$ 0.71

V. 8 3/8" HOLE

May 14th - June 29th, 1976

The last section of the hole was drilled with a 8 3/8" bit to 16100'. Forty seven days rig time were required. The drilling rate was 10-15 feet per hour. The mud system was the same as in previous section, except that lignite was added to reduce high temperature high pressure filtration. A total of of 500 bbl. was lost through a leak in the riser, and over shaker screens. The cost of replacing this mud was $48,540.-.

In this section borehole stability was a problem through most of the upper section. Nine days was spent on reaming and conditioning hole. This can be attributed to these factors.

1) Excessive Annular Velocities:

The velocity was 347 ft/min. around the drill collars and 220 ft./min. around the drill pipe.

2) Pressured shales:

The attached plot of pressure parameters indicates that we drilled most of the troublesome section with less than 300 p.s.i. overbalance. Negative pressure due to swabbing on connections are the probable cause of sloughing shales. The caliper logs show that the hole below 14100' was near gauge. The mud weight was increased from 15.5 to 16.5 ppg. at this depth.

3) Dog legs:

Some dog legs were experienced in this section. A roller reamer and string stabilizer helped this problem.

4) Filtrate and CO_2 gas (bicarbonate problem):

CO_2 gas caused problems from 14500' to 15700'. The filtrate, plastic viscosity and yield point was difficult to control. Lime was added to the system to treat out the CO_2. The system was heavily treated with lignosulfonate to reduce viscosity, and the hole was completed without the necessity of setting a 7" liner.

Five days was used to do the wire line logs and FIT test because of tool failures. The hole was plugged and abandonned.

Materials	Original Estimate sx.	$	Actual Useage sx.	$
Dextrid, 50 lbs.	100	$ 3,472.00	476	$ 18,922.40
Q-Broxin, 50 lbs.	192	$ 2,759.04	623	$ 8,952.51
CC-16, 50 lbs.	100	$ 1,421.00	609	$ 8,653.89
Drispac, 50 lbs.	20	$ 2,620.40	24	$ 3,144.48
Torq Trim, 55 gal. drums	20	$13,507.20	7½	$ 5,065.20
Caustic Soda, 25 kg.	22	$ 652.30	453	$ 6,713.46
Barite, bulk, metric tons	455	$51,401.35	1154.8	$130,457.75
Coat 415, 55 gal. drums	7	$ 2,744.00	-	-
Coat 888, 50 lbs.	75	$ 2,250.00	21	$ 1,566.18
ZN-Oxide	-	-	38	$ 2,209.70
Bentonite, 50 kg.	-	-	417	$ 4,495.26
Aktaflo-S, 55 gal. drums	-	-	22	$ 6,987.20
Soltex, 50 lbs.	-	-	188	$ 8,514.52
Lime, 40 kg.	-	-	183	$ 1,127.28
Desco, 25 lbs.	-	-	42	$ 2,142.84
Sodium Chromate, 25 kg.	-	-	10	$ 231.20
HPD	-	-	5	$ 312.40
CMC-LV, 25 kg.	-	-	61	$ 3,290.34
Al-Stearate, 25 kg.	-	-	2	$ 67.78
Surflo-W-300, 55 gal.	1	$ 658,20	1	$ 658.20
TOTALS		$81,485.49		$213,582.59

	Original Estimate	Actual Useage
Days on Section	25	47
Cost per day	$2,328.16	$4,544.31
Cost per foot	$ 27.16	$ 70.46
Cost per barrel	$ 37.04	$ 97.08
Cost per barrel/day	$ 1.06	$ 2.06

S U M M A R Y O F C O S T S

Materials	Original Estimate sx.	$	Actual Useage sx.	$
Polymer, H-921, 25 kg.	326	$ 20,368.48	5	$ 312.40
Wyoming Bentonite, 50 kg.	250	$ 2,695.04	2417	$ 26,101.36
Coat 415, 55 gal.	25	$ 9,800.00	-	-
Coat 888, 50 lbs.	250	$ 7,500.00	27	$ 2,013.66
Flosal, 50 lbs.	-	-	73	$ 1,199.39
Caustic Soda, 25 kg.	89	$ 1,318.98	1535	$ 22,748.70
Lime, 40 kg.	330	$ 2,032.80	662	$ 4,077.92
Barite, 50 kg.	-	-	276	$ 1,338.60
Barite, bulk, metric tons	1420	$160,417.40	2179.85	$246,257.65
Lignosulfonate, 50 kg.	817	$ 11,740.29	1745	$ 25,075.65
CMC-HV, 25 kg.	-	-	115	$ 6,203.10
Soda Ash, 50 kg.	-	-	77	$ 998.69
Wallnut C, 25 kg.	-	-	18	$ 250.74
Mica C, 25 kg.	-	-	18	$ 234.00
Dextrid, 50 lbs.	1512	$ 60,328.80	2280	$ 90,972.00
Drispac, 50 lbs.	200	$ 26,204.00	220	$ 28,824.40
Torq Trim, 55 gal. drums	30	$ 20,260.80	13	$ 8,779.68
Defoamer, 55 gal. drums	5	$ 3,291.00	1 dr. 10 gal	$ 814.91
Al-Stearate, 25 kg.	-	-	12	$ 439.53
SAPP, 25 kg.	-	-	1	$ 46.50
Soltex, 50 lbs.	-	-	362	$ 16,394.98
ZN-Oxide	-	-	38	$ 2,209.70
Aktaflo-S, 55 gal. drums	-	-	22	$ 6,987.20
Desco, 25 lbs.	-	-	42	$ 2,142.84
Sodium Chromate	-	-	10	$ 231.20
CC-16, (XP-20)50 lbs.	100	$ 1,421.00	614	$ 8,724.94
TOTAL		$328,092.10		$495,193.63

	Original Estimate	Actual Useage
36" hole	$ 7,161.84	$ 4,874.33
26" hole	$ 19,335.58	$ 22,649.36
17½" hole	$165,323.30	$157,634.66
12 1/4" hole	$115,541.89	$ 96,452.69
8 3 /8" hole	$ 81,485.49	$213,582.59
TOTAL	$328,092.10	$495,193.63

The total mud cost was $495,193.63. The programmed cost was $328,012.10, so the difference is quite substantial. However, if the mud losses are subtracted from the total, the difference is not quite so great.

For example:

$495,193.63	Final total
- $ 2,160.00	Mud losses at 26" hole
- $ 10,500.00	Mud losses at sand section at 17½" hole
- $ 20,664.00	Mud losses at 12 1/4" hole
- $ 48,540.00	Mud losses at 8 3/8" hole
$413,329.63	Sub Total

Another big factor effecting the cost was the bulk handling system. For example the mud weight was increased 14.55 ppg to 16.5 ppg. at 14100'. The total mud volume was 1600 bbls. (open hole volume determined by carbide lag). This increase in density should have required 110 metric tons instead it required 180 metric tons.

This is an extreme instance, but huge losses were incurred throughout the well. An estimate of 15% losses out the vent lines are probably very conservative. A total of 2180 metric tons were used during the well. Losses out the vent line were at least 330 metric tons. This is a problem which is not unique to the "Ross Rig". All offshore operations seemed to be plagued by this. In our opinion a simple solution would be to vent back to the bulk system. One tank could be left empty (if possible) and vent from the pea tank to the large silo. That would reduce venting losses considerably.

DRILLING MUD RECORD

BAROID DIVISION
N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway CASING PROGRAM: 30 inch at 841 ft.

WELL 24/9-1 COUNTY North Sea 20 inch at 2488 ft.

DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9 inch at ft

STOCKPOINT Tananger BAROID ENGINEER Ruffing, Svendsen, Asbjørnsen SEC. TWP. RNG. TOTAL DEPTH ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
Febr.	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO_4 ppm	Alk Pf	Oil %	Water %	Solids %	
29.02.	Pit	8.7	150+	N.C.	-	Nil	-	-	-	-	23	95	77	103	-	-	-	-	-	-	-	Arrived rig 28 Feb. Rig crew had mixed 800 bbls. of fresh water & Wyo. Bentonite. Added sea water to increase viscosity & Flosal.
March																						
01.03.	Pit	8.7	150+	N.C.	-	Nil	-	-	-	-	21	82	60	88	-	-	-	-	-	-	-	Pulled out of hole to pick up stabilizer. Wait-on-weather. Could not get survey.
	Pit	8.7	105+	N.C.	-	Nil	-	-	-	-	24	90	70	99	-	-	-	-	-	-	-	
02.03.	630	8.7	200+	N.C.	-	Nil	-	-	-	-	20	97	46	60	-	-	-	-	-	-	-	Run-in-hole. Had 30" fill on bottom. Started drilling. Pump high viscosity mud after each connection. Very slow penetration. T.D. hole at 841'. Made 3 stand wiper trip. 15' fill on bottom. Displaced hole with thick mud. Trip to run 30' casing.
	735	8.7	150+	N.C.	-	Nil	-	-	-	-	20	83	41	57	-	-	-	-	-	-	-	
	841	8.7	110	N.C.	-	Nil	-	-	-	-	15	69	20	48	-	-	-	-	-	-	-	
03.03.	Pit	8.7	48	N.C.	-	Nil	-	-	10.8	-	10	20	7	7	15,000	800	-	0.5	0	98	2	Run 30" casing. Set at 841' Built 1300 bbl. of mud.
04.03.	2368	9.2	49	N.C.	-	6	-	-	10.2	-	9	14	2	4	16,000	950	-	0.6	0	92	8	Drilled cement. Drlg. 17½" pilot hole.
05.03.	2510	9.2	59	N.C.	-	2.5	-	-	10.5	-	14	20	2	10	18,000	800	-	0.7	0	93	7	Drilled to 2510'. P.O.O.H. logging. R.I.H. w/26" under-ream.
06.03.	2510	9.4	65	N.C.	-	5	-	-	10.7	-	15	25	4	16	19,000	900	-	0.8	0	92	8	Underreamed to 2510'. Circ. P.O.O.H. Pulled riser. Running casing.
07.03.	2510	9.4	65	N.C.	-	5	-	-	10.7	-	15	25	4	16	19,000	900	-	0.8	0	92	8	Run 20" casing to 2488', Circ. w/seawater. Cemented W.O.C.

BAROID DIVISION

N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway CASING PROGRAM: 30 inch at 841 ft.

WELL 24/9-1 COUNTY North Sea 20 inch at 2488 ft.

DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9 ____ inch at ____ ft

STOCKPOINT Tananger BAROID ENGINEER Ruffing/Svendsen/Ashjørnsen SEC ____ TWP ____ RNG ____ TOTAL DEPTH ____ ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
March	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO_4 ppm	Alk Pf	Oil %	Water %	Solids %	
07.03.	continued.																					Dumped the spud mud.
08.03.	2510																					Mixing mud. Run B.O.P. Tested stack.
09.03.	3300	9.4	70	N.C.	-	13	-	-	11.5	-	15	32	12	28	19,000	900	-	0.6	0	87	13	Drilled cement. Displaced hole with mud & started drilling. Desander 50% efficient 25-35% sand in mud. Adding Wyo. bentonite to mud.
10.03.	3875	9.7	41	48.6	4	3	-	-	9.5	-	12	17	7	7	17,000	880	-	0.1	0	91	9	Drlg. sand & clay. Running desander & desilter to control sand & solids. Adding
10.03.	4635	9.6	43	10.5	2	4-	-	-	10.5	-	16	15	2	4	17,000	900	-	0.3	0	91	9	water to maintain volume. Difficult to reduce filtrate & increase excess lime. Lost approx. 200 bbls. mud from shaker pan due to surge of rig.
11.03.	4714	9.6	43	26.8	3	1¼	-	-	11.6	-	16	15	2	4	17,000	720	-	2.0	0	92	8	Started trip at 4714'. Very tight hole 12 stands off bottom. Reamed 5 singles to
	4714	10.0	46	19.0	3	2½	-	-	11.2	-	19	18	2	6	17,000	760	-	1.8	0	92	8	get to bottom. Circulated &
	4735	10.0	53	13.4	2	1½	-	-	11.7	-	36	28	1	2	17,500	440	-	2.9	0	91	9	conditioned mud 3 hours. Raised weight to 10 ppg. Tripped to change bit. O.K.
12.03.	4955	10.1	45	18.6	3	2	-	-	11.4	-	23	24	1	1	19,000	560	-	2.2	0	91	9	Run back in hole. Tight hole from 2886'. Had to ream 3
	5300	10.0	45	16.8	3	2	-	-	10.8	-	24	8	1	2	19,000	400	-	1.6	0	91	9	different spots. Drilling clay. Running mud cleaner Some tight hole during connections.

BAROID DIVISION
N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway CASING PROGRAM: 30 inch at 841 ft.

WELL 24/9-1 COUNTY North Sea 20 inch at 2488 ft.

DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9 inch at ft

STOCKPOINT Tananger BAROID ENGINEER Ruffing/Svendsen/Asbjørnsen SEC TWP RNG TOTAL DEPTH ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
March	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO_4 ppm	Alk Pf	Oil %	Water %	Solids %	
13.03.	5602	10.2	63	14.2	2	2	-	-	10.6	-	44	7	1	2	19,000	360	-	0.8	0	90	10	Survey at 5602. Could not retrive tool. Started trip very tight hole at 4860'. Retrived totco & started
	5602	10.5	70	14.0	2	2	-	-	10.6	-	36	22	1	7	19,000	400	2.0	0.7	0	90	10	reaming to bottom. Took 9½ hours to get to bottom. Raised weight to 10.5 ppg. & continued drilling.
	Pit	10.5	76	17.4	3	1	-	-	11.6	-	38	34	2	8	18,500	240	2.1	2.3	0	90	10	Viscosity increasing. Added Q-Broxin to reduce.
14.03.	Pit	10.5	65	18.0	3	1	-	-	11.3	-	36	21	4	15	20,000	320	2.6	1.8	0	90	10	Survey at 5808'. Could not retvire tool. Pulled out of hole. Very tight spots. Max
	5808	10.5	70	10.6	2	1½	-	-	11.7	-	44	31	2	10	19,000	200	2.3	2.8	0	90	10	imum drag 160,000. Changed bit & bottom hole assembly. Run-in-hole. Started ream-
	6000	10.6	60	7.6	2	1½	-	-	11.3	-	43	20	2	8	18,500	200	2.2	2.0	0	90	10	ing at 3943', Spotted drum of Torq Trim while reaming & one when starting to drill to reduce torque & drag.
15.03.	6230	10.6	88	6.1	2	2	-	-	11.3	-	60	18	2	5	19,000	200	2.4	2.2	0	89	11	Drilling clay. Operating mud cleaner & desander to control solids. 45 lbs/bbl clay in mud. Started running desil- ter. Adding large amount of water to dilute mud. Adding barite to control weight.
15.03.	6675	10.5	80	12.8	2	1/4	-	-	11.4	-	32	22	5	6	20,000	220	1.9	2.5	0	88	12	Lost 20000 lb of weight 1000 fsp. Lost 105' of drill collars. Running desilter desander & mud cleaner con- stantly.

BAROID DIVISION
N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway CASING PROGRAM: 30 inch at 841 ft.

WELL 24/9-1 COUNTY North Sea 20 inch at 2488 ft.

DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9 inch at ft

STOCKPOINT Tananger BAROID ENGINEER Ruffing/Svendsen/Asbjørnsen SEC TWP RNG TOTAL DEPTH ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
March	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	In	10 min	Cl ppm	Ca ppm	SO_4 ppm	Alk Pf	Oil %	Water %	Solids %	
16.03.	6750	10.5	55	11.4	2	1/4	-	-	11.6	-	28	28	4	11	20,000	240	2.2	2.9	-	90	10	Running with fish to re-treave lost collars. Dumped 200 bbl. mud.
17.03.	6750	10.5	80	25.4	2	½	-	-	11.5	-	28	42	3	5	20,500	320	2.7	30	-	18	12	Put 150 mesh screen on mud cleaner. Had some tight spot 5030'. Some shale cavings.
18.03.	7193	10.5	54	16.8	3	1½	-	-	11.6	-	34	26	2	14	19,500	200	2.7	3.4	-	89	11	Thinned the mud with polymer. P.O.O.H. tight spot at 3700'
19.03.	7290	11.0	54	9.6	2	1 1/4	-	-	11.6	-	34	28	2	8	19,500	160	2.7	3.2	-	88	12	Reamed from 6356' to 7198'. Hole filled with sloughing shale weighted up to 11 lb/gal. Sloughing decreased to almost nothing.
20.03.	7333	11	58	9	2	½	-	-	11.6		37	30	2	7	20,000	160	2.7	2.7	-	88	12	Form. claystones and some sand. P.O.O.H. tight spot at 6802' to 6713. R.I.H. 100' fill.
21.03.	7619	11	54	8.8	2	1	-	-	11.6		37	26	2	9	20,000	200	3	3.5	-	88	12	No drag hole in good cond.
22.03.	7919	11	48	9	2	1	-	-	11.6		38	24	2	8	20,000	180	2.8	3.4	-	88	12	Drilling in sand and shales.
23.03.	8230	11	51	9	2	3/4	-	-	11.6		40	24	2	8	20,000	160	2.8	3.5	-	87	13	Drilling sandstones.
24.03.	8347	11	50	9.2	2	½	-	-	11.7		40	28	2	7	21,000	120	2.6	3.4	-	87	13	Form. 90% clay. Cleaned and dumped sandtraps and shaker. B.O.P.
25.03.	8440	11.1	56	9.0	2	3/4	-	-	11.8		37	22	2	9	20,000	160	2.6	2.4	-	87	13	Trip tight spot 8330' - 8345' 90% clay.
26.03.	8520	11.1	63	10	2	3/4	-	-	11.7		33	22	2	9	21,000	130	2.4	2.5	-	88	12	P.O.O.H. R.I.H. 5' fill. Drlg. 60% clay and sand.
27.03.	8689	11.0	65	11	2	½	-	-	11.9		33	28	2	10	21,000	300	2.4	2.7	-	89	11	Formation shale and clay. Added water.
28.03.	8745	11.0	52	10.2	2	½	-	-	11.7		29	23	2	7	21,000	320	2.4	2.4	-	88	12	Drlg. limestone, clay, sand. P.O.O.H. to change bit.

BAROID DIVISION
N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway CASING PROGRAM: 30 inch at 841 ft.

WELL 24/9-1 COUNTY Norway 20 inch at 2488 ft.

DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9 ____ inch at ____ ft

STOCKPOINT Tananger BAROID ENGINEER Svendsen, Asbjørnsen SEC ____ TWP ____ RNG ____ TOTAL DEPTH ____ ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO_4 ppm	Alk Pf	Oil %	Water %	Solids %	
29.03.	8823	11.1	51	9.5	2	½	-	-	11.8		34	30	2	12	22,000	280	2.6	2.0	-	87	13	R.I.H. no fill. Hole OK. Drlg. to 8823'. Form. lime-stone, sand and shale.
30.03.	8930	11	55	8	2	TR	-	-	11.9		30	26	2	8	21,000	240	2.6	2.7	-	87	13	Drlg. to 8930'. Form. clay-limestone and sand.
31.03.	9004	11	55	8	2	TR	-	-	11.7		27	24	2	8	21,000	250	2.7	2.5	-	87	13	Drlg. to 9004'. Form. clay-stone and sand. P.O.O.H.
01.04.	9004	11	59	9.6	2	TR	-	-	11.7		32	24	2	8	21,000	240	2.7	2.4	-	87	13	Tripping.
02.04.	9004	11	50	8.8	2	TR	-	-	11.6		28	24	2	7	21,000	160	2.6	2.1	-	87	13	Had a wash out in DC R.I.H.
03.04.	9030	11	50	8.8	2	TR	-	-	11.6		28	26	2	8	21,000	160	2.5	1.8	-	89	11	TD 17½ hole. Running ISE log
04.04.	9030	11	48	8.8	2	TR	-	-	11.6		28	24	2	8	21,000	200	2.2	1.7	-	89	11	RIH. Circ. for 4½ hrs. Cond. mud.
05.04.	9030	11	52	8.8	2	TR	-	-	11.6		30	28	2	9	21,000	200	2.2	1.7	-	89	11	Running casing.
06.04.	9030	11	47	9.4	2	TR	-	-	11.6		26	22	2	7	21,000	240	2.1	1.6	-	89	-	Landed 13 3/8 casing and cemented.
07.04.	9037	10.9	50	9.4	2	TR	-	-	11.4		29	24	3	7	20,000	250	2.4	1.5	-	88	12	Drilling DV coll casing shoe
08.04.	9171	11	48	9	2	TR	-	-	11.6		26	23	2	9	20,000	400	2.7	1.5	-	88	12	Drlg. tight hole 9046'. Drlg. to 9171'.
09.04.	9222	11	60	9.5	2	TR	-	-	11.8		30	27	2	11	16,000	320	2.6	2.4	-	87	13	Drlg. to 9222'. Start lowering weight to 10.5 ppg. P.O.O.H. to shoe. Leak off test 1500 psi.R.I.H. to squeeze.
10.04.	9222	10.6	53	10	2	TR	-	-	11.8		26	21	2	8	19,000	300	3	3	-	87	13	Squeezed twice. Drlg. cement from 8720'. Circ. and W.O.C.
11.04.	9378	10.6	49	8	2	TR	-	-	11.7		24	19	2	7	20,000	250	3.7	3.2	-	89	11	Drilled cement. Tested 15 ppg. Drilled to 9378'.
12.04.	9378	10.6	47	8	2	TR	-	-	11.7		22	16	2	6	20,000	280	3.2	3	-	89	11	P.O.O.H. Lost one cone. R.I.H. w/reverse. Circ. basket. Circ. P.O.O.H. R.I.H.

BAROID DIVISION
N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway CASING PROGRAM: 30 inch at 841 ft.

WELL 24/9-1 COUNTY Norway 20 inch at 2488 ft.

DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9-1 inch at ft

STOCKPOINT Tananger BAROID ENGINEER Svendsen/Asbjørnsen SEC TWP RNG TOTAL DEPTH ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
April	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO_4 ppm lime	Alk Pf	Oil %	Water %	Solids %	
13	9416	11.6	54	8.5	2	TR			11.8		20	17	2	8	20000	200	3	2.9	-	88	12	Milling. P.O.O.H. Tight spot 9100'.
14	9424	11.6	50	8.5	2	TR			11.7		20	16	2	7	20000	180	2.7	2.9	-	89	11	Drilled to 9424'. P.O.O.H. w/turbine bit.
15	9600	11.6	47	9.2	2	TR			11.6		24	20	2	9	21000	180	22	2.6		88	12	Drilling clay & limestone.
16	9754	11	48	9.1	2	TR			11.6		30	25	2	9	21000	180	3.2	2.5		87	13	Lost 500 psi. P.O.O.H.
17	9880	11.2	47	8.8	2	TR			11.4		30	26	2	8	21000	180	3.4	1.9		85	15	R.I.H. No circ. (Wash out in jar).
18	10056	11.4	51	7.2	2	TR			11.3		31	28	3	10	20000	160	3.5	1.5		83	17	Lot of silt in the formation
19	10270	12.6	48	6.2	2	TR			11.3		28	28	3	15	20000	160	3.5	1.4		80	20	Form. claystone & limestone
20	10480	13	48	5.8	2	TR			11.1		29	25	5	20	20000	150	2.5	1.1		76	24	Form. the same.
21	10660	13	49	6.8	2	TR			11.4		29	27	5	24	20000	150	1.9	0.8		75	25	Drilled (gumbo like) form.
22	10865	13	48	7	2	TR			11.5		25	24	2	9	20000	250	1.8	0.6		76	24	Drilled to 10865'.
23	11037	13.3	49	6.9	2	TR			11.1		26	28	5	23	21000	380	1.6	0.5		74	26	Wiper trip weighted up to 13.2.
24	11187	13.3	46	6.5	2	TR			11.0		24	23	4	19	20000	400	1.3	0.5		76	24	R.I.H. Leak off test (14.5 ppg) Circ. Drilling.
25	11374	13.4	48	6.0	2	TR			10.8		24	20	3	15	21000	340	1.0	0.5		76	24	Drilling. Weighted up to 13.4 ppg.
26	11548	13.5	47	6.4	2	TR			10.9		23	22	3	17	21000	380	0.7	0.6		75	25	Drilling. Worked diff. stuck pipe. Wiper trip 5 std. Drlg.
28	11730	13.5	45	6.0	2	TR			10.7		25	20	3	16	22000	370	0.7	0.5		74	26	Drlg. Changed screen on mud cleaner.
29	11920	13.6	49	7.5	2	TR			10.8		28	25	4	20	22000	380	0.7	0.6		74	26	Running centrifuge to control solids.
30	12090	13.9	50	7.4	2	TR			10.9		31	22	3	20	22000	240	0.6	0.6		74	26	Drilling weight up to 13.9.
May																						
1	12174	13.9	48	7.8	2	TR			10.8		27	21	3	20	23000	220	0.5	0.6		73	27	P.O.O.H. Start logging.
2	12210	13.9	48	7.6	2	TR			10.8		26	20	3	20	23000	210	0.4	0.6		73	27	Tested B.O.P. R.I.H. No fill
3	12360	13.9	49	1.4	2	TR			10.8		28	22	3	20	23000	210	0.3	0.6		73	27	Form. limestone & clay. Put new 150 mesh on mud cleaner
									10.9		30	20	4	20	23000	180	0.3	0.7		73	27	Form. same as yesterday.

BAROID DIVISION
N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway CASING PROGRAM: 30 inch at 841 ft.

WELL 24/9-1 COUNTY Norway 20 inch at 2488 ft.

DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9 13 3/8 inch at 8958 ft

STOCKPOINT Tananger BAROID ENGINEER Svendsen, Asbjørnsen SEC TWP RNG TOTAL DEPTH ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT*
	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO_4 ppm	Alk Pf	Oil %	Water %	Solids %	
05.05.	12705	14.1	50	8.0	2	TR			10.8		27	22	4	20	23,000	180	0.2	0.7		72	28	For claystone increased weight 13.9 - 14.1.
06.05.	12882	14.1	47	8.5	2	TR			9.8		20	24	4	18	23,000	300	0.2	0.5		72	28	Lowered pH from 10.8- 9.5
07.05.	13047	14.1	46	8	2-3	TR			10		22	14	3	15	22,000	380	0.5	0.3		73	27	Drilled to 13047'. Short trip 100.000 psi. overpull.
08.05.	13120	14.2	46	8	2	TR			9.8		22	13	3	17	22,000	400	0.6	0.3		73	27	Formation claystone. Wiper trip.
09.05.	13120	14.0	44	8.4	2	TR			9.9		20	11	3	13	22,000	400	0.6	0.3		74	26	Logged 24 hours.
10.05.	13120	14.1	47	7.5	2	TR			10		23	13	3	15	22,000	420	0.6	0.4		74	26	Log. Run in hole. Conditioned mud. Pulled out hole to run 9 5/8 casing.
11.05.	13120	14.1	49	8.5	2	TR			10		23	20	3	20	22,000	410	0.5	0.5		75	25	Conditioned mud. Run 9 5/8 casing.
12.05.	13120	14.0	45	7	2	TR			9.8		20	13	3	14	22,000	370	0.5	0.5		75	25	Circulated. Run 9 5/8 casing.
13.05.	13120	14.1	40	9.2	2	TR			9.1		22	18	3	17	22,000	280	0.2	-		76	24	Landed casing. Mixed 600 bbls 12.5 mud. Cemented first stage. No mud in return. Displaced cement with seawater Had 1200 bbls. in return from second stage of cement job.
14.05.	13060		Drilling with seawater																			R.I.H. Tag cement at 8011'. DV collar at 8031'. Tag first stage of cement at 9779'. Drilling ahead.
15.05.	13120	14.1	42	6.4	2	TR			9.2		20	16	2	12	22,000	360		0.2		77	23	Drilled cement from 9779' to float collar at 12983'. Displaced water with 14.1 lb. mud. Drilled casing shoe 13069 and down to TD 13120' circ. 1½ hour. P.O.O.H

BAROID DIVISION
N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway
WELL 24/9-1 COUNTY Norway
DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9
STOCKPOINT BAROID ENGINEER Asbjørnsen, Svendsen SEC TWP RNG

CASING PROGRAM: 30 inch at 841 ft.
20 inch at 2488 ft.
13 3/8 inch at 8958 ft
9 5/8 inch at 13069' ft.
TOTAL DEPTH ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO_4 ppm	Alk Pf	Oil %	Water %	Solids %	
16.05.	13145	14.5	41	5.4	2	TR			9.5		20	16	2	12	22,000	300		0.4		77	23	Ran CBL VDL log. Tested shoe. Can take 17.5 lb. mud. Mixed 250 bbls. new mud. Increased mud weight to 14.5.ppg.
17.05.	13252	14.5	41	5.5	2	TR			9.5		20	16	2	12	22,000	280		0.4		77	23	Bit torqing up. Mixed slug. P.O.O.H. Lost 1 cone. R.I.H. with fishing tool. Circ. for 45 min. P.O.O.H.
18.05.	13252	14.5	41	5.6	2	TR			9.5		20	16	2	12	22,000	270		0.4		77	23	P.O.O.H. with fishing tool. Lost cone still in hole. R.I.H. with mill. Milling over junk for 3 hours. P.O.O.H.
19.05.	13342	14.5	44	8.6	2	TR			9.5		20	18	2	14	22,000	220		0.5		77	23	Drilled for 10 hours down to 13348'. Form. shale. Slug pipe. P.O.O.H. Tested B.O.P.
20.05.	13606	15	48	9.5	2	TR			9.5		17	20	2	17	21,000	240	0.4	0.6	-	77	27	Drilled to 13606'. Formation claystone.
21.05.	13972	15.5	46	7.0	2	TR			10.0		24	26	3	15	20,000	370	0.5	0.9	-	70	30	Weighted up to 15.5 ppg.
22.05.	14162	16.5	45	8.5	3	TR			9.4		24	27	3	21	21,000	390	0.3	0.3	-	65	35	Weighted up to 16.5 ppg. P.O.O.H. to change bit.
23.05.	14235	16.6	46	7.5	2	TR			9.0		25	26	3	15	21,000	450	0.4	0.2	-	64	36	Formation 100% shale. Weighted up to 16.7 ppg.
24.05.	14362	16.7	51	5.4	2	TR			9.5		29	25	3	11	21,000	350	0.3	0.3	-	65	35	Short trip. Reamed. Lowered the filtrate to 5 cc.
25.05.	14573	16.7	50	4.8	2	15			9.5		27	23	3	15	21,000	350	0.3	0.4	-	65	35	Drilled to 14573'. Running degasser.
26.05.	14634	16.7	50	4.7	2	1			9.5		28	24	3	17	21,000	390	0.2	0.2	-	65	35	Cored 61%. Formation shale and sand.
27.05.	14670	16.7	50	4.8	2	3/4			9.4		28	28	3	15	21,000	200	0.3	0.3	-	66	34	10000' psi. overpull. Formation 100% shale.

BAROID DIVISION
N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway

WELL 24/9-1 COUNTY Norway

DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9

STOCKPOINT Tananger BAROID ENGINEER Asbjørnsen, Svendsen SEC TWP RNG

CASING PROGRAM: 30 inch at 841 ft.
20 inch at 2488 ft.
13 3/8 inch at 8958 ft
9 5/8 13069' ft.
TOTAL DEPTH

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO_4 ppm	Alk Pf	Oil %	Water %	Solids %	
28.05.	14922	16.7	50	4.9	2	½			9.5		28	28	4	19	22,000	210	0.25	0.2	-	65	35	Losing mud at 14914'. No return at 14922'.
29.05.	14922	16.5	51	4.9	2	½			9.5		25	28	4	19	22,000	210	0.25	0.3	-	65	35	Lost 118 bbl. Trip back to casing. No circ. P.O.O.H.
30.05.	14922	16.5	43	3.9	2	½			9.4		26	22	3	12	21,000	210	0.25	0.3	-	64	34	Thinned mud to help on circ. press.
31.05.	14922	16.5	48	4.4	2	½			9.4		26	26	3	16	20,500	210	0.25	0.3	-	66	34	Reaming and work pipe. Hole tight.
01.06.	14922	16.6	50	4.3	2	½			9.4		21	26	3	16	20,000	220	0.25	0.4	-	66	34	Reamed to TD. Increase mud weight from 16.5 - 16.6.
02.06.	14937	16.6	50	4.6	2	½			9.5		27	26	4	20	18,000	220	0.25	0.4		65	35	Logging. Tested B.O.P. No sloughing shale. Drilled ahead.
03.06.	15135	16.6	61	6.0	3	1			10		30	23	0	18	19,000	350	0.3	0.6	-	63	37	Treated mud with lime.
04.06.	15135	16.6	60	6.0	3	1			10		28	22	3	15	19,000	350	0.3	0.6	-	63	37	Pulled into casing shoe. Pulled riser.
05.06.	15135	16.6	54	4.8	2	TR			9.8		29	16	2	10	19,000	340	0.5	0.6	-	66	34	Worked on stack and riser.
06.06.	15135	16.6	56	5.2	2	1			10.4		31	18	2	15	21,000	360	0.4	0.8	-	66	34	Tested riser and displaced with mud.
07.06.	15135	16.6	54	4.6	2	1			10.5		28	16	2	12	21,000	340	0.4	0.9	-	65	35	P.O.O.H. Tested B.O.P. R.I.H. Reamed to 14361'.
08.06.	15151	16.6	53	4.9	2	1			10		32	17	2	16	21,000	320	0.3	0.6	-	66	34	Drilled 16'. Treated mud with Torq Trim.
09.06.	15151	16.6	58	4.5	2	0.8			10.3		30	15	3	16	21,000	380	0.4	0.5	-	66	34	P.O.O.H. Logged. Tool stuck on bot. Got free R.I.H. Reaming.
10.06.	15151	16.6	52	5.7	2	0.6			11.8		42	15	3	14	17,000	320	1.9	2.6	-	66	34	Changed mud to low lime syst.
11.06.	15151	16.6	67	5.5	2	0.5			12.0		67	18	2	6	18,000	280	1.8	3.8	-	66	34	Reaming. Adding lignite.
12.06.	15151	16.6	75	6.0	2	0.5			11.5		70	20	2	4	17,000	300	1.9	2.5	-	66	34	Reaming. Added lime, bent.
13.06.	15151	16.6	62	3.9	2	0.7			11.6		58	15	3	16	17,000	300	1.9	3.4	-	66	34	Ream to bottom. Added Akta-flo-S.
14.06.	15151	16.6	72	4.5	2	0.7			11.5		62	16	2	14	17,000	300	1.5	3.0	-	66	34	Ran Schlumberger logs.
15.06.	15157	16.7	65	4.5	2	0.7			11.5		70	15	3	13	17,000	300	1.5	3.8	-	66	34	Log. Test B.O.P's.

BAROID DIVISION
N L INDUSTRIES, INC.

DRILLING MUD RECORD

COMPANY Conoco Norway Inc. STATE Norway CASING PROGRAM: 30 inch at 841 ft.

WELL 24/9-1 COUNTY Norway 20 inch at 2488 ft.

DATE 1976 CONTRACTOR Ross Drilling Co. LOCATION 24/9 13 3/8 inch at 8948 ft

STOCKPOINT Tananger BAROID ENGINEER Asbjørnsen, Svendsen SEC TWP RNG TOTAL DEPTH ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
	feet	lb/gal	Sec	cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO_4 ppm	Alk Pf	Oil %	Water %	Solids %	
16.06.	15350	16.6	80	4.5	2	0.4			11.4		45	15	2	6	17,000	300	0.75	3.0	-	66	34	Add Soltex,Q-Broxin, Water.
17.06.	15518	16.6	60	4.0	2	0.5			12.0		45	25	2	6	18,000	120	0.75	5.0	-	66	34	Add Soltex, thinner, dextrid.
18.06.	15637	16.6	120	4.5	2	0.6			12.0		45	40	2	6	18,000	120	0.6	5.0	0	64	36	Lost returns. Watered back.
19.06.	15720	16.5	70	6.8	2	0.5			11.4		40	17	2	6	20,000	240	0.5	2.8	0	66	34	Watered back. Drilled ahead.
20.06.	15925	16.5	51	8.5	2	0.4			11.2		35	13	2	6	20,000	120	0.3	1.9	0	66	34	Add water and thinner. Drilled ahead.
21.06.	15954	16.5	55	6.1	2	0.5			11.3		39	15	1	8	20,000	120	0.3	1.8	0	66	34	Drilled. Tripped for new bit.
22.06.	16100	16.5	58	4.8	2	0.5			11.7		44	17	2	9	20,000	160	0.2	3.0	0	66	34	Drilled to 16100'.
23.06.	16100	16.5	60	6.2	2	0.5			11.3		48	18	2	8	20,000	200	0.15	2.8	0	66	34	Ran Schlumberger logs.
24.06.	16100	16.6	53	4.8	2	0.6			11.0		38	15	2	6	20,000	250	0.15	2.4	0	66	34	Logged. R.I.H. Circ. Tool didn't work.
25.06.	16100	16.6	54	5.0	2	0.5			11.0		37	16	2	7	20,000	250	0.15	2.4	0	66	34	Circ. P.O.O.H. Tight. Logging
26.06.	16100	16.6	52	5.5	2	0.5			11.0		36	16	2	8	20,000	250	0.15	2.5	0	66	34	Logged. 24 hours.
27.06.	16100	16.6	54	6.0	2	0.5			11.1		38	18	2	10	20,000	250	0.15	2.4	0	66	34	Logged. Circ. P.O.O.H.
28.06.	16100	16.6	53	6.5	2	0.5			11.0		36	16	2	9	20,000	230	0.15	2.3	0	66	34	Logged 24 hours. Wireline no. 9 failed.
29.06.	16100	16.6	51	7	2	0.5			10.7		34	14	2	6	20,000	240	0.15	2.1	0	66	34	Logged. R.I.H. Circ. Cemented plug no. 1 and 2.

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

REGIONAL PETROLEUM GEOCHEMISTRY
BLOCK 24/12 AND
SURROUNDING AREAS

Well NOCS 24/9-1

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Date : 11.04.90

INTRODUCTION

A total of 106 samples was collected at the Norwegian Petroleum Directorate in Stavanger. The samples between 4321 m and 4907 m RKB were washed and lithologically described. The analysed interval is from 4321 m to 4907 m RKB

From the 106 samples examined, 61 lithologies from 60 samples were selected for screening analysis (TOC and Rock-Eval pyrolysis). Based on the results of these, the following number of samples were selected for further analyses:

Thermal extraction - pyrolysis gas chromatography	31 samples
Extraction, MPLC fractionation, saturated and aromatic hydrocarbon - gas chromatography	10 samples
Vitrinite reflectance microscopy	12 samples
Visual kerogen composition	10 samples
Gas chromatography - mass spectrometry of saturated and aromatic hydrocarbons	4 samples

Stable carbon isotope analysis of C_{15}+ fractions	2 samples

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4321.00								0096
		0.82	95	Sh/Clst:		lt gy to drk gy, calc		0096-2L
			5	Sh/Clst:		gy red, calc		0096-1L
			tr	Ca	:	lt gy		0096-3L
			tr	Cont	:	prp		0096-4L
			tr	Coal	:	blk		0096-5L
4327.00								0097
			90	Sh/Clst:		lt gy to drk gy, calc		0097-2L
			5	Sh/Clst:		gy red, calc		0097-1L
			5	Coal	:	blk		0097-5L
			tr	Ca	:	lt gy		0097-3L
			tr	Cont	:	prp		0097-4L
4330.00								0098
		0.70	95	Sh/Clst:		lt gy to drk gy, calc		0098-2L
			5	Sh/Clst:		gy red, calc		0098-1L
			tr	Ca	:	lt gy		0098-3L
			tr	Coal	:	blk		0098-4L
4336.00								0099
			95	Sh/Clst:		lt gy to drk gy, calc		0099-2L
			5	Sh/Clst:		gy red, calc		0099-1L
			tr	Ca	:	lt gy		0099-3L
			tr	Coal	:	blk		0099-4L
4339.00								0100
		0.88	90	Sh/Clst:		lt gy to drk gy, calc		0100-2L
			5	Sh/Clst:		gy red, calc		0100-1L
			5	Ca	:	w to lt gy		0100-3L
			tr	Coal	:	blk		0100-4L
			tr	Sh/Clst:		brn blk, slt		0100-5L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4342.00								0101
			90	Sh/Clst:		lt gy to drk gy, mrl		0101-2L
			5	Sh/Clst:		gy red, calc		0101-1L
			5	Ca	:	w to lt gy, dsk y brn		0101-3L
			tr	Coal	:	blk		0101-4L
			tr	Other	:	pyr		0101-5L
4345.00								0102
			90	Sh/Clst:		lt gy to drk gy, calc		0102-2L
			5	Sh/Clst:		gy red, calc		0102-1L
			5	Ca	:	w to lt gy, dsk y brn		0102-3L
			tr	Coal	:	blk		0102-4L
			tr	Other	:	pyr		0102-5L
			tr	Sh/Clst:		dsk y brn		0102-6L
4348.00								0103
		0.81	70	Sh/Clst:		lt gy to drk gy, calc		0103-2L
			20	Coal	:	dsk y brn to blk		0103-4L
			5	Sh/Clst:		gy red, calc		0103-1L
			5	Ca	:	w to lt gy, dsk y brn		0103-3L
			tr	Other	:	pyr		0103-5L
			tr	Sh/Clst:		dsk y brn		0103-6L
			tr	Cont	:	Mica-ad, prp		0103-7L
4351.00								0104
			80	Sh/Clst:		lt gy to drk gy, calc		0104-2L
			10	Coal	:	dsk y brn to blk		0104-4L
			5	Sh/Clst:		gy red, calc		0104-1L
			5	Ca	:	w to lt gy, dsk y brn		0104-3L
			tr	Other	:	pyr		0104-5L
			tr	Sh/Clst:		dsk y brn		0104-6L
			tr	Cont	:	st, Mica-ad, prp		0104-7L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type			Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description					
4354.00									0105
		1.08	75	Sh/Clst: lt gy to drk gy, calc					0105-2L
			10	Sh/Clst: dsk brn to dsk y brn					0105-6L
			5	Sh/Clst: gy red, calc					0105-1L
			5	Ca : w to lt gy, dsk y brn					0105-3L
			5	Coal : dsk y brn to blk					0105-4L
			tr	Other : pyr					0105-5L
			tr	Cont : prp, fib					0105-7L
4357.00									0106
			90	Sh/Clst: m gy to drk gy					0106-2L
			5	Sh/Clst: gy red, calc					0106-1L
			5	Sh/Clst: dsk brn to dsk y brn					0106-6L
			tr	Ca : w to lt gy, dsk y brn					0106-3L
			tr	Coal : dsk y brn to blk					0106-4L
			tr	Other : pyr					0106-5L
			tr	Cont : prp, fib					0106-7L
4360.00									0107
		0.94	90	Sh/Clst: m gy to drk gy, slt, mic					0107-2L
			5	Sh/Clst: gy red, calc					0107-1L
			5	Sh/Clst: dsk brn to dsk y brn					0107-6L
			tr	Ca : w to lt gy, dsk y brn					0107-3L
			tr	Coal : dsk y brn to blk					0107-4L
			tr	Other : pyr					0107-5L
4363.00									0108
			80	Sh/Clst: m gy to drk gy, slt, mic					0108-2L
		4.17	15	Sh/Clst: dsk brn to dsk y brn, slt					0108-6L
			5	Sh/Clst: gy red, calc					0108-1L
			tr	Ca : w to lt gy, dsk y brn					0108-3L
			tr	Coal : dsk y brn to blk					0108-4L
			tr	Other : pyr					0108-5L
			tr	Cont : prp					0108-7L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4366.00								0109
			70	Sh/Clst:		lt gy to drk gy, slt, mic		0109-2L
		5.12	25	Sh/Clst:		dsk brn to dsk y brn, slt		0109-6L
			5	Sh/Clst:		gy red, calc		0109-1L
			tr	Ca	:	w to lt gy, dsk y brn		0109-3L
			tr	Coal	:	dsk y brn to blk		0109-4L
			tr	Other	:	pyr		0109-5L
			tr	Cont	:	prp		0109-7L
4369.00								0110
			45	Sh/Clst:		lt gy to drk gy, slt, mic		0110-2L
		5.15	40	Sh/Clst:		dsk brn to dsk y brn, slt		0110-6L
			5	Sh/Clst:		gy red, calc		0110-1L
			5	Ca	:	w to lt gy, dsk y brn		0110-3L
			5	Coal	:	dsk y brn to blk		0110-4L
			tr	Other	:	pyr		0110-5L
			tr	Cont	:	prp		0110-7L
4375.00								0111
			85	Sh/Clst:		lt gy to drk gy, slt, mic		0111-2L
		6.14	15	Sh/Clst:		dsk brn to dsk y brn, slt		0111-6L
			tr	Sh/Clst:		gy red, calc		0111-1L
			tr	Ca	:	w to lt gy, dsk y brn		0111-3L
			tr	Coal	:	dsk y brn to blk		0111-4L
			tr	Other	:	pyr		0111-5L
			tr	Cont	:	prp		0111-7L
4381.00								0112
			65	Sh/Clst:		lt gy to drk gy, slt, mic		0112-2L
		5.79	30	Sh/Clst:		dsk brn to dsk y brn, slt		0112-6L
			5	Ca	:	w to lt gy, dsk y brn		0112-3L
			tr	Sh/Clst:		gy red, calc		0112-1L
			tr	Coal	:	dsk y brn to blk		0112-4L
			tr	Other	:	pyr		0112-5L
			tr	Cont	:	fib		0112-7L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4387.00								0113
			75	Sh/Clst:		lt gy to drk gy, slt, mic		0113-2L
		4.26	20	Sh/Clst:		dsk brn to dsk y brn		0113-5L
			5	Ca	:	w to lt gy, dsk y brn		0113-3L
			tr	Sh/Clst:		gy red, calc		0113-1L
			tr	Other	:	pyr		0113-4L
			tr	Cont	:	fib		0113-6L
4393.00								0114
			60	Sh/Clst:		lt gy to drk gy, slt, mic		0114-2L
		6.08	40	Sh/Clst:		dsk brn to dsk y brn		0114-5L
			tr	Sh/Clst:		gy red, calc		0114-1L
			tr	Ca	:	w to lt gy, dsk y brn		0114-3L
			tr	Other	:	pyr		0114-4L
			tr	Cont	:	fib		0114-6L
4399.00								0115
			55	Sh/Clst:		lt gy to drk gy, slt, mic		0115-2L
		5.18	45	Sh/Clst:		dsk brn to dsk y brn, slt		0115-5L
			tr	Sh/Clst:		gy red, calc		0115-1L
			tr	Ca	:	w to lt gy, dsk y brn		0115-3L
			tr	Other	:	pyr		0115-4L
			tr	Cont	:	fib		0115-6L
4405.00								0116
			70	Sh/Clst:		lt gy to drk gy, slt, mic		0116-2L
		4.57	30	Sh/Clst:		dsk brn to dsk y brn, slt		0116-5L
			tr	Sh/Clst:		gy red, calc		0116-1L
			tr	Ca	:	w to lt gy, dsk y brn		0116-3L
			tr	Other	:	pyr		0116-4L
			tr	Cont	:	fib		0116-6L
			tr	S/Sst	:	lt y brn, cem		0116-7L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4411.00								0117
			50	Sh/Clst:		lt gy to drk gy, slt, mic		0117-2L
		5.44	50	Sh/Clst:		dsk brn to dsk y brn, slt		0117-4L
			tr	Sh/Clst:		gy red, calc		0117-1L
			tr	Ca	:	w to lt gy, dsk y brn		0117-3L
			tr	Cont	:	fib		0117-5L
			tr	S/Sst	:	lt y brn, cem		0117-6L
4417.00								0118
			55	Sh/Clst:		lt gy to drk gy, slt, mic		0118-2L
		6.06	45	Sh/Clst:		dsk brn to dsk y brn, slt		0118-4L
			tr	Sh/Clst:		gy red, calc		0118-1L
			tr	Ca	:	w to lt gy, dsk y brn		0118-3L
			tr	Cont	:	fib		0118-5L
			tr	S/Sst	:	lt y brn, cem		0118-6L
4423.00								0119
			50	Sh/Clst:		lt gy to drk gy, slt, mic		0119-2L
		4.20	50	Sh/Clst:		dsk y brn to brn blk, slt		0119-4L
			tr	Sh/Clst:		gy red, calc		0119-1L
			tr	Ca	:	w to lt gy, dsk y brn		0119-3L
			tr	Cont	:	fib		0119-5L
			tr	S/Sst	:	lt y brn, cem		0119-6L
4429.00								0120
			55	Sh/Clst:		lt gy to drk gy, slt, mic		0120-2L
		5.19	40	Sh/Clst:		dsk y brn to brn blk, slt		0120-4L
			5	Ca	:	w to lt gy, dsk y brn		0120-3L
			tr	Sh/Clst:		gy red, calc		0120-1L
			tr	Cont	:	fib		0120-5L
			tr	S/Sst	:	lt y brn, cem		0120-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
4435.00							0121
		50	Sh/Clst:		lt gy to drk gy, slt, mic		0121-2L
	6.63	50	Sh/Clst:		dsk y brn to brn blk, slt		0121-4L
		tr	Sh/Clst:		gy red, calc		0121-1L
		tr	Ca	:	w to lt gy, dsk y brn		0121-3L
		tr	Cont	:	fib		0121-5L
4441.90	ccp						0122
	4.79	100	Sh/Clst:		brn blk		0122-4L
4446.40	ccp						0123
	6.09	100	Sh/Clst:		dsk y brn to brn blk		0123-4L
4449.40	ccp						0124
	6.17	100	Sh/Clst:		dsk y brn to brn blk		0124-4L
4454.40	ccp						0125
	6.84	100	Sh/Clst:		brn blk, slt, mic		0125-5L
4460.00	ccp						0126
	5.34	100	Sh/Clst:		brn blk		0126-4L
4462.00							0127
		90	Sh/Clst:		lt gy to drk gy, slt, mic		0127-2L
		5	Sh/Clst:		gy red, calc		0127-1L
		5	Sh/Clst:		dsk y brn to brn blk, slt		0127-4L
		tr	Ca	:	w to lt gy, dsk y brn		0127-3L
		tr	Cont	:	fib		0127-5L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4468.00								0128
			70	Sh/Clst:	lt gy to drk gy, slt, mic			0128-2L
			15	Sh/Clst:	dsk y brn to brn blk, slt			0128-4L
			10	Coal	: blk			0128-6L
			5	Ca	: w to lt gy, dsk y brn			0128-3L
			tr	Sh/Clst:	gy red, calc			0128-1L
			tr	Cont	: prp			0128-5L
4474.00								0129
			80	Sh/Clst:	lt gy to drk gy, slt, mic			0129-2L
		7.55	15	Sh/Clst:	dsk y brn to brn blk, slt			0129-4L
			5	Coal	: blk			0129-6L
			tr	Sh/Clst:	gy red, calc			0129-1L
			tr	Ca	: w to lt gy, dsk y brn			0129-3L
			tr	Cont	: prp			0129-5L
4480.00								0130
			70	Sh/Clst:	lt gy to drk gy, slt, mic			0130-2L
			25	Sh/Clst:	dsk y brn to brn blk, slt			0130-4L
			5	Coal	: blk			0130-6L
			tr	Sh/Clst:	gy red, calc			0130-1L
			tr	Ca	: w to lt gy, dsk y brn			0130-3L
			tr	Cont	: prp			0130-5L
4486.00								0131
			85	Sh/Clst:	lt gy to drk gy, slt, mic			0131-2L
			15	Sh/Clst:	dsk y brn to brn blk, slt			0131-4L
			tr	Sh/Clst:	gy red, calc			0131-1L
			tr	Ca	: w to lt gy, dsk y brn			0131-3L
			tr	Cont	: fib			0131-5L
			tr	Coal	: blk			0131-6L

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4492.00								0132
			50	Sh/Clst:		lt gy to drk gy, slt, mic		0132-2L
		5.78	50	Sh/Clst:		dsk y brn to brn blk, slt		0132-4L
			tr	Sh/Clst:		gy red, calc		0132-1L
			tr	Ca	:	w to lt gy, dsk y brn		0132-3L
			tr	Cont	:	prp, fib		0132-5L
			tr	Coal	:	blk		0132-6L
4498.00								0133
			85	Sh/Clst:		lt gy to drk gy, slt, mic		0133-2L
			15	Sh/Clst:		dsk y brn to brn blk, slt		0133-4L
			tr	Sh/Clst:		gy red, calc		0133-1L
			tr	Ca	:	w to lt gy, dsk y brn		0133-3L
			tr	Cont	:	prp, fib		0133-5L
			tr	Coal	:	blk		0133-6L
			tr	S/Sst	:	lt y brn, cem		0133-7L
4504.00								0134
			65	Sh/Clst:		lt gy to drk gy, slt, mic		0134-2L
		5.60	30	Sh/Clst:		dsk y brn to brn blk, slt		0134-4L
			5	Ca	:	w to lt gy, dsk y brn		0134-3L
			tr	Sh/Clst:		gy red, calc		0134-1L
			tr	Cont	:	prp, fib		0134-5L
4510.00								0135
			65	Sh/Clst:		lt gy to drk gy, slt, mic		0135-2L
			25	Sh/Clst:		dsk y brn to brn blk, slt		0135-4L
			10	Coal	:	blk		0135-6L
			tr	Sh/Clst:		gy red, calc		0135-1L
			tr	Ca	:	w to lt gy, dsk y brn		0135-3L
			tr	Cont	:	prp, fib		0135-5L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4516.00								0136
			55	Sh/Clst:		lt gy to drk gy, slt, mic		0136-2L
		5.83	35	Sh/Clst:		dsk y brn to brn blk, slt		0136-4L
			10	Coal	:	blk		0136-6L
			tr	Sh/Clst:		gy red, calc		0136-1L
			tr	Ca	:	w to lt gy, dsk y brn		0136-3L
			tr	Cont	:	prp, fib		0136-5L
4522.00								0137
			65	Sh/Clst:		lt gy to drk gy, slt, mic		0137-2L
			35	Sh/Clst:		dsk y brn to brn blk, slt		0137-4L
			tr	Sh/Clst:		gy red, calc		0137-1L
			tr	Ca	:	w to lt gy, dsk y brn		0137-3L
			tr	Cont	:	prp, fib		0137-5L
			tr	Coal	:	blk		0137-6L
4534.00								0138
			85	Sh/Clst:		lt gy to drk gy, slt, mic		0138-2L
			10	Sh/Clst:		dsk y brn to brn blk, slt		0138-4L
			5	Ca	:	w to lt gy		0138-3L
			tr	Sh/Clst:		gy red, calc		0138-1L
			tr	Cont	:	prp, fib		0138-5L
			tr	Coal	:	blk		0138-6L
4540.00								0139
			65	Sh/Clst:		lt gy to drk gy, slt, mic		0139-2L
		5.83	35	Sh/Clst:		dsk y brn to brn blk, slt		0139-4L
			tr	Sh/Clst:		gy red, calc		0139-1L
			tr	Ca	:	w to lt gy		0139-3L
			tr	Cont	:	prp, fib		0139-5L
			tr	Coal	:	blk		0139-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4546.00								0140
			65	Cont	:	st, Coal-ad, prp, dd, fib		0140-5L
			25	Sh/Clst	:	lt gy to drk gy, slt, mic		0140-2L
			10	Sh/Clst	:	dsk y brn to brn blk, slt		0140-4L
			tr	Sh/Clst	:	gy red, calc		0140-1L
			tr	Ca	:	w to lt gy		0140-3L
4552.00								0141
			95	Sh/Clst	:	lt gy to drk gy, slt, mic		0141-2L
			5	Sh/Clst	:	dsk y brn to brn blk, slt		0141-4L
			tr	Sh/Clst	:	gy red, calc		0141-1L
			tr	Ca	:	w to lt gy		0141-3L
			tr	Cont	:	st, Coal-ad, prp, dd, fib		0141-5L
4558.00								0142
			75	Sh/Clst	:	lt gy to drk gy, slt, mic		0142-2L
			10	Sh/Clst	:	gy red, calc		0142-1L
		4.79	10	Sh/Clst	:	dsk y brn to brn blk, slt		0142-4L
			5	Ca	:	w to lt gy		0142-3L
			tr	Cont	:	st, Coal-ad, prp, dd, fib		0142-5L
4564.00								0143
			90	Sh/Clst	:	lt gy to drk gy, slt, mic		0143-2L
			5	Ca	:	w to lt gy		0143-3L
			5	Sh/Clst	:	dsk y brn to brn blk, slt		0143-4L
			tr	Sh/Clst	:	gy red, calc		0143-1L
			tr	Cont	:	fib		0143-5L
4570.00								0144
			95	Sh/Clst	:	lt gy to drk gy, slt, mic		0144-2L
			5	Sh/Clst	:	dsk y brn to brn blk, slt		0144-4L
			tr	Sh/Clst	:	gy red, calc		0144-1L
			tr	Ca	:	w to lt gy		0144-3L
			tr	Cont	:	st, Coal-ad, fib		0144-5L

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4576.00								0145
			100	Sh/Clst:		lt gy to m gy, slt, mic		0145-2L
			tr	Sh/Clst:		gy red, calc		0145-1L
			tr	Ca	:	w to lt gy		0145-3L
			tr	Sh/Clst:		dsk y brn to brn blk, slt		0145-4L
			tr	Cont	:	fib		0145-5L
4578.00								0146
			75	Sh/Clst:		lt gy to m gy, slt, mic		0146-2L
		4.79	25	Sh/Clst:		dsk y brn to brn blk, slt		0146-4L
			tr	Sh/Clst:		gy red, calc		0146-1L
			tr	Ca	:	w to lt gy		0146-3L
			tr	Cont	:	prp, fib		0146-5L
4582.00								0147
			90	Sh/Clst:		lt gy to m gy, slt, mic		0147-2L
			5	Ca	:	w to lt gy		0147-3L
			5	Sh/Clst:		dsk y brn to brn blk, slt		0147-4L
			tr	Sh/Clst:		gy red, calc		0147-1L
			tr	Cont	:	prp, fib		0147-5L
4588.00								0148
			90	Sh/Clst:		lt gy to m gy, slt, mic		0148-2L
			5	Ca	:	w to lt gy		0148-3L
			5	Sh/Clst:		dsk y brn to brn blk, slt		0148-4L
			tr	Sh/Clst:		gy red, calc		0148-1L
			tr	Cont	:	prp, fib		0148-5L
4594.00								0149
			90	Sh/Clst:		lt gy to drk gy, slt, mic		0149-2L
			5	Sh/Clst:		dsk y brn to brn blk, slt		0149-1L
			5	Ca	:	w to lt gy		0149-5L
			tr	S/Sst	:	lt gy, mic, cem		0149-3L
			tr	Sh/Clst:		gy red		0149-4L
			tr	Cont	:	prp, fib		0149-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4600.00								0150
			85	Sh/Clst:		lt gy to drk gy		0150-4L
			10	Sh/Clst:		dsk y brn to brn blk		0150-1L
			5	Sh/Clst:		gy red		0150-2L
			tr	Ca	:	w to lt gy		0150-3L
4606.00								0151
			65	Sh/Clst:		lt gy to m gy		0151-4L
		5.04	20	Sh/Clst:		dsk y brn to brn blk		0151-1L
			10	Sh/Clst:		drk gy		0151-6L
			5	Sh/Clst:		gy red		0151-2L
			tr	Ca	:	w to lt gy		0151-3L
			tr	Cont	:	prp, fib		0151-5L
4612.00								0152
			60	Sh/Clst:		dsk y brn to brn blk		0152-1L
			25	Sh/Clst:		lt gy to m gy		0152-4L
			10	Ca	:	w to lt gy		0152-3L
			5	Coal	:	blk		0152-7L
			tr	Sh/Clst:		gy red		0152-2L
			tr	Cont	:	st, prp, fib		0152-5L
			tr	Sh/Clst:		drk gy		0152-6L
4618.00								0153
			50	Sh/Clst:		lt gy to m gy, slt, mic		0153-4L
		4.78	45	Sh/Clst:		dsk y brn to brn blk		0153-1L
			5	Ca	:	w to lt gy		0153-3L
			tr	Sh/Clst:		gy red		0153-2L
			tr	Cont	:	prp, fib		0153-5L
			tr	Coal	:	blk		0153-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4624.00								0154
			65	Sh/Clst:		lt gy to m gy, slt, mic		0154-4L
			20	Cont	:	st, prp, fib		0154-5L
			10	Sh/Clst:		dsk y brn to brn blk		0154-1L
			5	Ca	:	w to lt gy		0154-3L
			tr	Sh/Clst:		gy red		0154-2L
			tr	Coal	:	blk		0154-6L
4630.00								0155
			85	Sh/Clst:		lt gy to m gy, slt, mic		0155-4L
			5	Sh/Clst:		dsk y brn to brn blk		0155-1L
			5	Ca	:	w to lt gy		0155-3L
			5	Cont	:	st, prp, fib		0155-5L
			tr	Sh/Clst:		gy red		0155-2L
			tr	Coal	:	blk		0155-6L
4636.00								0156
		5.66	50	Sh/Clst:		dsk y brn to brn blk		0156-1L
			45	Sh/Clst:		lt gy to m gy, slt, mic		0156-4L
			5	Cont	:	st, prp, fib		0156-5L
			tr	Sh/Clst:		gy red		0156-2L
			tr	Ca	:	w to lt gy		0156-3L
			tr	Coal	:	blk		0156-6L
4642.00								0157
			45	Sh/Clst:		dsk y brn to brn blk		0157-1L
			35	Sh/Clst:		lt gy to m gy, slt, mic		0157-4L
			20	Cont	:	st, prp, fib		0157-5L
			tr	Sh/Clst:		gy red		0157-2L
			tr	Ca	:	w to lt gy		0157-3L
			tr	Coal	:	blk		0157-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4648.00								0158
		5.53	40	Sh/Clst:		dsk y brn to brn blk		0158-1L
			40	Sh/Clst:		lt gy to m gy, slt, mic		0158-4L
			20	Cont		: st, prp, fib		0158-5L
			tr	Sh/Clst:		gy red		0158-2L
			tr	Ca		: w to lt gy		0158-3L
			tr	Coal		: blk		0158-6L
4654.00								0159
			55	Sh/Clst:		dsk y brn to brn blk		0159-1L
			30	Sh/Clst:		lt gy to m gy, slt, mic		0159-4L
			15	Cont		: st, prp, fib		0159-5L
			tr	Sh/Clst:		gy red		0159-2L
			tr	Ca		: w to lt gy		0159-3L
			tr	Coal		: blk		0159-6L
4660.00								0160
		6.18	60	Sh/Clst:		dsk y brn to brn blk		0160-1L
			25	Sh/Clst:		lt gy to m gy, slt, mic		0160-4L
			15	Cont		: st, prp, fib		0160-5L
			tr	Sh/Clst:		gy red		0160-2L
			tr	Ca		: w to lt gy		0160-3L
			tr	Coal		: blk		0160-6L
4666.00								0161
			60	Sh/Clst:		dsk y brn to brn blk		0161-1L
			30	Sh/Clst:		lt gy to m gy, slt, mic		0161-4L
			10	Cont		: prp, fib		0161-5L
			tr	Sh/Clst:		gy red		0161-2L
			tr	Ca		: w to lt gy		0161-3L
			tr	Coal		: blk		0161-6L

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4672.00								0162
			55	Sh/Clst:		lt gy to m gy, slt, mic		0162-4L
		5.89	45	Sh/Clst:		dsk y brn to brn blk		0162-1L
			tr	Sh/Clst:		gy red		0162-2L
			tr	Ca	:	w to lt gy		0162-3L
			tr	Cont	:	prp, fib		0162-5L
			tr	Coal	:	blk		0162-6L
4678.00								0163
			45	Sh/Clst:		dsk y brn to brn blk		0163-1L
			45	Sh/Clst:		lt gy to m gy, slt, mic		0163-4L
			10	Cont	:	st, prp, fib		0163-5L
			tr	Sh/Clst:		gy red		0163-2L
			tr	Ca	:	w to lt gy		0163-3L
			tr	Coal	:	blk		0163-6L
4684.00								0164
		4.15	45	Sh/Clst:		dsk y brn to brn blk		0164-1L
			30	Sh/Clst:		lt gy to m gy, slt, mic		0164-4L
			20	Cont	:	st, prp, fib		0164-5L
			5	Sh/Clst:		gy red		0164-2L
			tr	Ca	:	w to lt gy		0164-3L
			tr	Coal	:	blk		0164-6L
4690.00								0165
			35	Sh/Clst:		dsk y brn to brn blk		0165-1L
			25	S/Sst	:	lt gy to lt y brn, l		0165-7L
			20	Sh/Clst:		lt gy to m gy, slt, mic		0165-4L
			20	Cont	:	st, prp, fib		0165-5L
			tr	Sh/Clst:		gy red		0165-2L
			tr	Ca	:	w to lt gy		0165-3L
			tr	Coal	:	blk		0165-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4696.00								0166
		4.01	45	Sh/Clst:		dsk y brn to brn blk		0166-1L
			45	Sh/Clst:		lt gy to m gy, slt, mic		0166-4L
			10	Cont	:	prp, fib		0166-5L
			tr	Sh/Clst:		gy red		0166-2L
			tr	Ca	:	w to lt gy		0166-3L
			tr	S/Sst	:	lt gy to lt y brn, l		0166-6L
4702.00								0167
			60	Sh/Clst:		dsk y brn to brn blk		0167-1L
			30	Sh/Clst:		lt gy to m gy, slt, mic		0167-4L
			10	Cont	:	prp, fib		0167-5L
			tr	Sh/Clst:		gy red		0167-2L
			tr	Ca	:	w to lt gy		0167-3L
			tr	S/Sst	:	lt gy to lt y brn, l		0167-6L
4708.00								0168
			70	Sh/Clst:		lt gy to m gy, calc, slt, mic		0168-4L
			20	Sh/Clst:		dsk y brn to brn blk		0168-1L
			5	Ca	:	w to lt gy		0168-3L
			5	Cont	:	prp, fib		0168-5L
			tr	Sh/Clst:		gy red		0168-2L
			tr	S/Sst	:	lt gy to lt y brn, l		0168-6L
4714.00								0169
		5.41	55	Sh/Clst:		dsk y brn to brn blk		0169-1L
			35	Sh/Clst:		lt gy to m gy, calc, slt, mic		0169-4L
			10	Cont	:	prp, fib		0169-5L
			tr	Sh/Clst:		gy red		0169-2L
			tr	Ca	:	w to lt gy		0169-3L
			tr	S/Sst	:	lt gy to lt y brn, l		0169-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4720.00								0170
		1.91	60	Sh/Clst:		drk gy to brn gy to dsk y brn		0170-1L
			35	Sh/Clst:		lt gy to m gy, calc, slt, mic		0170-4L
			5	Cont	:	prp, fib		0170-5L
			tr	Sh/Clst:		gy red		0170-2L
			tr	Ca	:	w to lt gy		0170-3L
			tr	S/Sst	:	lt gy to lt y brn, l		0170-6L
4726.00								0171
		1.84	70	Sh/Clst:		dsk y brn to brn blk		0171-1L
			30	Sh/Clst:		lt gy to m gy, calc, slt, mic		0171-4L
			tr	Sh/Clst:		gy red		0171-2L
			tr	Ca	:	w to lt gy		0171-3L
			tr	Cont	:	prp, fib		0171-5L
			tr	S/Sst	:	lt gy to lt y brn, l		0171-6L
4732.00								0172
			65	Sh/Clst:		dsk y brn to brn blk to drk gy		0172-1L
			30	Sh/Clst:		lt gy to m gy, calc, slt, mic		0172-4L
			5	Ca	:	w to lt gy		0172-3L
			tr	Sh/Clst:		gy red		0172-2L
			tr	Cont	:	prp, fib		0172-5L
			tr	S/Sst	:	lt gy to lt y brn, l		0172-6L
4744.00								0173
		3.23	55	Sh/Clst:		dsk y brn to brn blk to drk gy		0173-1L
			35	Sh/Clst:		lt gy to m gy, calc, slt, mic		0173-4L
			10	S/Sst	:	lt gy to lt ol gy, l		0173-6L
			tr	Sh/Clst:		gy red		0173-2L
			tr	Ca	:	w to lt gy		0173-3L
			tr	Cont	:	prp, fib		0173-5L

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4750.00								0174
		2.75	55	Sh/Clst:		dsk y brn to brn blk to drk gy		0174-1L
			25	Sh/Clst:		lt gy to m gy, calc, slt, mic		0174-4L
			20	S/Sst	:	lt gy to lt ol gy, l		0174-6L
			tr	Sh/Clst:		gy red		0174-2L
			tr	Ca	:	w to lt gy		0174-3L
			tr	Cont	:	prp, fib		0174-5L
4756.00								0175
		5.43	70	Sh/Clst:		dsk y brn to brn blk to drk gy		0175-1L
			20	Sh/Clst:		lt gy to m gy, calc, slt, mic		0175-4L
			5	Cont	:	prp, fib		0175-5L
			5	S/Sst	:	lt gy to lt ol gy, l		0175-6L
			tr	Sh/Clst:		gy red		0175-2L
			tr	Ca	:	w to lt gy		0175-3L
4762.00								0176
			70	Sh/Clst:		dsk y brn to brn blk to drk gy		0176-1L
			25	Sh/Clst:		lt gy to m gy, calc, slt, mic		0176-4L
			5	Cont	:	prp, fib		0176-5L
			tr	Sh/Clst:		gy red		0176-2L
			tr	Ca	:	w to lt gy		0176-3L
			tr	S/Sst	:	lt gy to lt ol gy, l		0176-6L
4768.00								0177
		3.67	65	Sh/Clst:		dsk y brn to brn blk to drk gy		0177-1L
			20	Sh/Clst:		lt gy to m gy, calc, slt, mic		0177-4L
			10	Ca	:	w to lt gy		0177-3L
			5	Cont	:	prp, fib		0177-5L
			tr	Sh/Clst:		gy red		0177-2L
			tr	S/Sst	:	lt gy to lt ol gy, l		0177-6L

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4774.00								0178
			70	Sh/Clst:	dsk y brn to brn blk to drk gy			0178-1L
			20	Sh/Clst:	lt gy to m gy, calc, slt, mic			0178-4L
			10	Ca	: w to lt gy			0178-3L
			tr	Sh/Clst:	gy red			0178-2L
			tr	Cont	: prp, fib			0178-5L
			tr	S/Sst	: lt gy to lt ol gy, l			0178-6L
4780.00								0179
		4.22	75	Sh/Clst:	dsk y brn to brn blk to drk gy			0179-1L
			15	Sh/Clst:	lt gy to m gy, calc, slt, mic			0179-4L
			10	Ca	: w to lt gy			0179-3L
			tr	Sh/Clst:	gy red			0179-2L
			tr	Cont	: prp, fib			0179-5L
			tr	S/Sst	: lt gy to lt ol gy, l			0179-6L
4786.00								0180
			75	Sh/Clst:	dsk y brn to brn blk to drk gy			0180-1L
			15	Sh/Clst:	lt gy to m gy, calc, slt, mic			0180-4L
			10	Ca	: w to lt gy			0180-3L
			tr	Sh/Clst:	gy red			0180-2L
			tr	Cont	: prp, fib			0180-5L
			tr	S/Sst	: lt gy to lt ol gy, l			0180-6L
4792.00								0181
		4.13	65	Sh/Clst:	dsk y brn to brn blk to drk gy			0181-1L
			25	Sh/Clst:	lt gy to m gy, calc, slt, mic			0181-4L
			10	Ca	: w to lt gy			0181-3L
			tr	Sh/Clst:	gy red			0181-2L
			tr	Cont	: prp, fib			0181-5L
			tr	S/Sst	: lt gy to lt ol gy, l			0181-6L

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4798.00								0182
			75	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0182-1L
			20	Sh/Clst:		lt gy to m gy, calc, slt, mic		0182-4L
			5	Ca	:	w to lt gy		0182-3L
			tr	Sh/Clst:		gy red		0182-2L
			tr	Cont	:	prp, fib		0182-5L
			tr	S/Sst	:	lt gy, l		0182-6L
4804.00								0183
		3.30	70	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0183-1L
			20	Sh/Clst:		lt gy to m gy, calc, slt, mic		0183-4L
			5	Ca	:	w to lt gy		0183-3L
			5	Cont	:	prp, fib		0183-5L
			tr	Sh/Clst:		gy red		0183-2L
			tr	S/Sst	:	lt gy, l		0183-6L
4810.00								0184
			50	Sh/Clst:		lt gy to m gy, calc, slt, mic		0184-4L
			40	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0184-1L
			5	Ca	:	w to lt gy		0184-3L
			5	Cont	:	prp, fib		0184-5L
			tr	Sh/Clst:		gy red		0184-2L
			tr	S/Sst	:	lt gy, l		0184-6L
4816.00								0185
		3.36	45	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0185-1L
			30	Sh/Clst:		lt gy to m gy, calc, slt, mic		0185-4L
			20	Cont	:	prp, fib		0185-5L
			5	Ca	:	w to lt gy		0185-3L
			tr	Sh/Clst:		gy red		0185-2L
			tr	S/Sst	:	lt gy, l		0185-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
4822.00							0186
		40	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0186-1L
		35	Sh/Clst:		lt gy to m gy, calc, slt, mic		0186-4L
		10	Cont	:	prp, fib		0186-5L
		10	S/Sst	:	lt gy, l		0186-6L
		5	Ca	:	w to lt gy		0186-3L
		tr	Sh/Clst:		gy red		0186-2L
4828.00							0187
	4.22	45	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0187-1L
		25	S/Sst	:	lt gy, l		0187-6L
		15	Sh/Clst:		lt gy to m gy, calc, slt, mic		0187-4L
		10	Cont	:	prp, fib		0187-5L
		5	Ca	:	w to lt gy		0187-3L
		tr	Sh/Clst:		gy red		0187-2L
4834.00							0188
	0.57	40	S/Sst	:	lt gy, l		0188-6L
		25	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0188-1L
		15	Sh/Clst:		lt gy to m gy, calc, slt, mic		0188-4L
		15	Cont	:	prp, fib		0188-5L
		5	Ca	:	w to lt gy		0188-3L
		tr	Sh/Clst:		gy red		0188-2L
4838.00							0189
	3.35	80	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0189-1L
		15	Sh/Clst:		lt gy to m gy, calc, slt, mic		0189-4L
		5	Ca	:	w to lt gy		0189-3L
		tr	Sh/Clst:		gy red		0189-2L
		tr	Cont	:	prp, fib		0189-5L
		tr	S/Sst	:	lt gy, l		0189-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A/S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4840.00								0190
			40	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0190-1L
			30	S/Sst	:	lt gy, l		0190-6L
			10	Ca	:	w to lt gy		0190-3L
			10	Sh/Clst:		lt gy to m gy, calc, slt, mic		0190-4L
			10	Cont	:	prp, fib		0190-5L
			tr	Sh/Clst:		gy red		0190-2L
4846.00								0191
			30	Sh/Clst:		dsk y brn to brn blk to drk gy, slt		0191-1L
			30	Sh/Clst:		lt gy to m gy, calc, slt, mic		0191-4L
			20	S/Sst	:	lt gy, l		0191-6L
			10	Ca	:	w to lt gy		0191-3L
			10	Cont	:	prp, fib		0191-5L
			tr	Sh/Clst:		gy red		0191-2L
4852.00								0192
		3.64	45	Sh/Clst:		drk gy to brn blk, slt		0192-1L
			30	Sh/Clst:		lt gy to m gy, calc, slt, mic		0192-4L
			15	Ca	:	w to lt gy		0192-3L
			10	Cont	:	prp, fib		0192-5L
			tr	Sh/Clst:		gy red		0192-2L
			tr	S/Sst	:	lt gy, l		0192-6L
4858.00								0193
			60	Sh/Clst:		drk gy to brn blk, slt		0193-1L
			20	Cont	:	prp, fib		0193-5L
			15	Sh/Clst:		lt gy to m gy, calc, slt, mic		0193-4L
			5	Ca	:	w to lt gy		0193-3L
			tr	Sh/Clst:		gy red		0193-2L
			tr	S/Sst	:	lt gy, l		0193-6L

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4864.00								0194
			55	Sh/Clst:	lt gy to m gy, calc, slt, mic			0194-4L
			15	Cont	: prp, fib			0194-5L
			10	Sh/Clst:	drk gy to brn blk, slt			0194-1L
			10	Ca	: w to lt gy			0194-3L
			10	S/Sst	: lt gy, l			0194-6L
			tr	Sh/Clst:	gy red			0194-2L
4870.00								0195
		3.18	45	Sh/Clst:	drk gy to brn blk, slt			0195-1L
			25	S/Sst	: lt gy, l			0195-6L
			15	Sh/Clst:	lt gy to m gy, calc, slt, mic			0195-4L
			10	Cont	: prp, fib			0195-5L
			5	Ca	: w to lt gy			0195-3L
			tr	Sh/Clst:	gy red			0195-2L
4876.00								0196
			70	Sh/Clst:	drk gy to brn blk, slt			0196-1L
			10	Sh/Clst:	lt gy to m gy, calc, slt, mic			0196-4L
			10	S/Sst	: lt gy, l			0196-6L
			5	Ca	: w to lt gy			0196-3L
			5	Cont	: prp, fib			0196-5L
			tr	Sh/Clst:	gy red			0196-2L
4882.00								0197
		2.76	90	Sh/Clst:	drk gy to brn blk, slt			0197-1L
			5	Sh/Clst:	lt gy to m gy, calc, slt, mic			0197-4L
			5	Cont	: prp, fib			0197-5L
			tr	Sh/Clst:	gy red			0197-2L
			tr	Ca	: w to lt gy			0197-3L
			tr	S/Sst	: lt gy, l			0197-6L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY A.S

Table 1 : Lithology description for well NOCS 24/9-1

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4888.00								0198
			95	Sh/Clst: drk gy to brn blk, slt				0198-1L
			5	Cont : prp, dd, fib				0198-5L
			tr	Sh/Clst: gy red				0198-2L
			tr	Ca : w to lt gy				0198-3L
			tr	Sh/Clst: lt gy to m gy, calc, slt, mic				0198-4L
			tr	S/Sst : lt gy, l				0198-6L
4894.00								0199
		3.96	85	Sh/Clst: drk gy to brn blk, slt				0199-1L
			10	Sh/Clst: lt gy to m gy, calc, slt, mic				0199-4L
			5	Ca : w to lt gy				0199-3L
			tr	Sh/Clst: gy red				0199-2L
			tr	Cont : prp, dd, fib				0199-5L
			tr	S/Sst : lt gy, l				0199-6L
4900.00								0200
			80	Sh/Clst: drk gy to brn blk, slt				0200-1L
			10	Sh/Clst: lt gy to m gy, calc, slt, mic				0200-4L
			5	Ca : w to lt gy				0200-3L
			5	Cont : prp, dd, fib				0200-5L
			tr	Sh/Clst: gy red				0200-2L
			tr	S/Sst : lt gy, l				0200-6L
4907.00								0201
		6.45	95	Sh/Clst: drk gy to brn blk, slt				0201-1L
			5	Cont : prp, dd, fib				0201-5L
			tr	Sh/Clst: gy red				0201-2L
			tr	Ca : w to lt gy				0201-3L
			tr	Sh/Clst: lt gy to m gy, calc, slt, mic				0201-4L
			tr	S/Sst : lt gy, l				0201-6L

Table 2 : Rock-Eval table for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4321.00	cut	Sh/Clst: lt gy to drk gy	0.03	0.07	0.12	0.58	0.82	9	15	0.1	0.30	402	0096-2L
4330.00	cut	Sh/Clst: lt gy to drk gy	0.02	0.10	0.11	0.91	0.70	14	16	0.1	0.17	405	0098-2L
4339.00	cut	Sh/Clst: lt gy to drk gy	0.03	0.13	0.14	0.93	0.88	15	16	0.2	0.19	446	0100-2L
4348.00	cut	Sh/Clst: lt gy to drk gy	0.04	0.14	0.14	1.00	0.81	17	17	0.2	0.22	407	0103-2L
4354.00	cut	Sh/Clst: lt gy to drk gy	0.06	0.12	0.12	1.00	1.08	11	11	0.2	0.33	397	0105-2L
4360.00	cut	Sh/Clst: m gy to drk gy	0.03	0.14	0.18	0.78	0.94	15	19	0.2	0.18	443	0107-2L
4360.00	com	bulk	1.23	5.46	1.02	5.35	3.91	140	26	6.7	0.18	442	0215-0B
4363.00	cut	Sh/Clst: dsk brn to dsk y brn	1.91	6.94	0.43	16.14	4.17	166	10	8.9	0.22	446	0108-6L
4366.00	cut	Sh/Clst: dsk brn to dsk y brn	2.29	7.62	0.45	16.93	5.12	149	9	9.9	0.23	446	0109-6L
4369.00	cut	Sh/Clst: dsk brn to dsk y brn	2.02	8.33	0.95	8.77	5.15	162	18	10.4	0.20	446	0110-6L
4375.00	cut	Sh/Clst: dsk brn to dsk y brn	1.81	8.03	1.63	4.93	6.14	131	27	9.8	0.18	446	0111-6L
4381.00	cut	Sh/Clst: dsk brn to dsk y brn	2.47	8.66	1.11	7.80	5.79	150	19	11.1	0.22	447	0112-6L
4387.00	cut	Sh/Clst: dsk brn to dsk y brn	1.68	6.87	0.87	7.90	4.26	161	20	8.6	0.20	447	0113-5L
4393.00	cut	Sh/Clst: dsk brn to dsk y brn	2.18	7.62	1.45	5.26	6.08	125	24	9.8	0.22	445	0114-5L
4399.00	cut	Sh/Clst: dsk brn to dsk y brn	2.14	8.85	0.98	9.03	5.18	171	19	11.0	0.19	447	0115-5L

GEOLAB NOR
GEOCHEMICAL LABORATORIES OF NORWAY

Table 2 : Rock-Eval table for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4405.00	cut	Sh/Clst: dsk brn to dsk y brn	1.48	6.63	1.16	5.72	4.57	145	25	8.1	0.18	446	0116-5L
4411.00	cut	Sh/Clst: dsk brn to dsk y brn	1.60	6.71	1.08	6.21	5.44	123	20	8.3	0.19	449	0117-4L
4417.00	cut	Sh/Clst: dsk brn to dsk y brn	2.10	8.30	1.12	7.41	6.06	137	18	10.4	0.20	450	0118-4L
4423.00	cut	Sh/Clst: dsk y brn to brn blk	2.06	8.22	0.93	8.84	4.20	196	22	10.3	0.20	446	0119-4L
4429.00	cut	Sh/Clst: dsk y brn to brn blk	1.51	6.99	1.12	6.24	5.19	135	22	8.5	0.18	444	0120-4L
4435.00	cut	Sh/Clst: dsk y brn to brn blk	2.08	8.14	1.23	6.62	6.63	123	19	10.2	0.20	440	0121-4L
4441.90	ccp	Sh/Clst: brn blk	3.76	7.47	0.65	11.49	4.79	156	14	11.2	0.33	449	0122-4L
4446.40	ccp	Sh/Clst: dsk y brn to brn blk	3.02	10.16	0.76	13.37	6.09	167	12	13.2	0.23	452	0123-4L
4449.40	ccp	Sh/Clst: dsk y brn to brn blk	3.13	10.17	0.66	15.41	6.17	165	11	13.3	0.24	454	0124-4L
4454.40	ccp	Sh/Clst: brn blk	2.68	7.30	0.55	13.27	6.84	107	8	10.0	0.27	440	0125-5L
4460.00	ccp	Sh/Clst: brn blk	2.64	6.69	0.44	15.20	5.34	125	8	9.3	0.28	447	0126-4L
4474.00	cut	Sh/Clst: dsk y brn to brn blk	2.45	10.30	1.90	5.42	7.55	136	25	12.8	0.19	441	0129-4L
4492.00	cut	Sh/Clst: dsk y brn to brn blk	1.82	6.66	1.39	4.79	5.78	115	24	8.5	0.21	445	0132-4L
4504.00	cut	Sh/Clst: dsk y brn to brn blk	2.22	6.36	1.34	4.75	5.60	114	24	8.6	0.26	446	0134-4L
4516.00	cut	Sh/Clst: dsk y brn to brn blk	1.75	9.54	1.73	5.51	5.83	164	30	11.3	0.16	441	0136-4L

Table 2 : Rock-Eval table for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4540.00	cut	Sh/Clst: dsk y brn to brn blk	2.16	6.70	1.11	6.04	5.83	115	19	8.9	0.24	450	0139-4L
4558.00	cut	Sh/Clst: dsk y brn to brn blk	1.94	7.23	0.99	7.30	4.79	151	21	9.2	0.21	444	0142-4L
4578.00	cut	Sh/Clst: dsk y brn to brn blk	1.91	6.61	1.22	5.42	4.79	138	25	8.5	0.22	450	0146-4L
4594.00	com	bulk	1.54	4.43	1.13	3.92	3.54	125	32	6.0	0.26	445	0202-0B
4606.00	cut	Sh/Clst: dsk y brn to brn blk	1.87	4.98	0.98	5.08	5.04	99	19	6.8	0.27	447	0151-1L
4618.00	cut	Sh/Clst: dsk y brn to brn blk	2.16	5.87	0.71	8.27	4.78	123	15	8.0	0.27	451	0153-1L
4636.00	cut	Sh/Clst: dsk y brn to brn blk	2.37	6.38	1.67	3.82	5.66	113	30	8.8	0.27	447	0156-1L
4648.00	cut	Sh/Clst: dsk y brn to brn blk	2.86	9.28	1.30	7.14	5.53	168	24	12.1	0.24	448	0158-1L
4660.00	cut	Sh/Clst: dsk y brn to brn blk	2.11	6.95	1.21	5.74	6.18	112	20	9.1	0.23	447	0160-1L
4672.00	cut	Sh/Clst: dsk y brn to brn blk	2.28	8.10	1.13	7.17	5.89	138	19	10.4	0.22	451	0162-1L
4684.00	cut	Sh/Clst: dsk y brn to brn blk	1.79	6.40	1.07	5.98	4.15	154	26	8.2	0.22	449	0164-1L
4696.00	cut	Sh/Clst: dsk y brn to brn blk	2.10	6.36	1.22	5.21	4.01	159	30	8.5	0.25	448	0166-1L
4714.00	cut	Sh/Clst: dsk y brn to brn blk	1.67	6.00	1.32	4.55	5.41	111	24	7.7	0.22	449	0169-1L
4720.00	cut	Sh/Clst: drk gy to brn gy to dsk y brn	0.71	2.72	0.81	3.36	1.91	142	42	3.4	0.21	447	0170-1L

Table 2 : Rock-Eval table for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4726.00	cut	Sh/Clst: dsk y brn to brn blk	0.72	2.87	1.37	2.09	1.84	156	74	3.6	0.20	449	0171-1L
4744.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	1.16	4.33	1.00	4.33	3.23	134	31	5.5	0.21	450	0173-1L
4750.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	0.73	2.83	1.01	2.80	2.75	103	37	3.6	0.21	453	0174-1L
4756.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	2.13	6.99	0.98	7.13	5.43	129	18	9.1	0.23	451	0175-1L
4768.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	1.16	5.02	0.82	6.12	3.67	137	22	6.2	0.19	450	0177-1L
4780.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	1.38	5.47	0.86	6.36	4.22	130	20	6.8	0.20	449	0179-1L
4792.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	1.29	5.25	0.98	5.36	4.13	127	24	6.5	0.20	449	0181-1L
4804.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	1.24	4.81	0.99	4.86	3.30	146	30	6.1	0.20	450	0183-1L
4816.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	0.81	2.95	1.11	2.66	3.36	88	33	3.8	0.22	448	0185-1L
4828.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	1.48	4.90	0.92	5.33	4.22	116	22	6.4	0.23	452	0187-1L

Table 2 : Rock-Eval table for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4834.00	cut	S/Sst : lt gy	0.13	0.35	0.54	0.65	0.57	61	95	0.5	0.27	454	0188-6L
4838.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	1.10	4.38	0.80	5.47	3.35	131	24	5.5	0.20	449	0189-1L
4852.00	cut	Sh/Clst: drk gy to brn blk	0.90	4.14	1.00	4.14	3.64	114	27	5.0	0.18	449	0192-1L
4870.00	cut	Sh/Clst: drk gy to brn blk	0.98	4.10	0.99	4.14	3.18	129	31	5.1	0.19	446	0195-1L
4882.00	cut	Sh/Clst: drk gy to brn blk	0.66	3.04	1.22	2.49	2.76	110	44	3.7	0.18	450	0197-1L
4894.00	cut	Sh/Clst: drk gy to brn blk	1.16	4.06	1.88	2.16	3.96	103	47	5.2	0.22	449	0199-1L
4907.00	cut	Sh/Clst: drk gy to brn blk	1.32	4.41	1.94	2.27	6.45	68	30	5.7	0.23	450	0201-1L

Table 3 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
4363.00	cut	Sh/Clst: dsk brn to dsk y brn	4.76	16.45	41.67	37.12	6.94	0108-6L
4375.00	cut	Sh/Clst: dsk brn to dsk y brn	6.41	14.18	41.42	37.99	8.03	0111-6L
4387.00	cut	Sh/Clst: dsk brn to dsk y brn	5.65	17.06	38.31	38.61	6.87	0113-5L
4399.00	cut	Sh/Clst: dsk brn to dsk y brn	8.09	15.73	38.35	37.84	8.85	0115-5L
4411.00	cut	Sh/Clst: dsk brn to dsk y brn	6.21	20.65	41.02	32.12	6.71	0117-4L
4423.00	cut	Sh/Clst: dsk y brn to brn blk	11.25	17.57	38.91	32.27	8.22	0119-4L
4435.00	cut	Sh/Clst: dsk y brn to brn blk	6.07	17.79	39.51	36.63	8.14	0121-4L
4441.90	ccp	Sh/Clst: brn blk	7.91	11.33	38.39	42.37	7.47	0122-4L
4449.40	ccp	Sh/Clst: dsk y brn to brn blk	9.43	12.46	36.96	41.16	10.17	0124-4L
4460.00	ccp	Sh/Clst: brn blk	2.22	16.39	43.35	38.05	6.69	0126-4L
4474.00	cut	Sh/Clst: dsk y brn to brn blk	10.33	15.04	34.72	39.91	10.30	0129-4L
4492.00	cut	Sh/Clst: dsk y brn to brn blk	7.43	0.39	55.26	36.83	6.66	0132-4L
4516.00	cut	Sh/Clst: dsk y brn to brn blk	6.94	14.38	38.40	40.28	9.54	0136-4L
4540.00	cut	Sh/Clst: dsk y brn to brn blk	9.80	21.35	37.46	31.09	6.70	0139-4L

Table 3 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
4558.00	cut	Sh/Clst: dsk y brn to brn blk	8.44	12.85	40.40	38.31	7.23	0142-4L
4578.00	cut	Sh/Clst: dsk y brn to brn blk	7.17	18.80	40.76	33.26	6.61	0146-4L
4606.00	cut	Sh/Clst: dsk y brn to brn blk	6.36	27.25	41.33	25.06	4.98	0151-1L
4636.00	cut	Sh/Clst: dsk y brn to brn blk	4.20	10.76	52.35	32.69	6.38	0156-1L
4660.00	cut	Sh/Clst: dsk y brn to brn blk	12.78	15.73	40.88	30.61	6.95	0160-1L
4684.00	cut	Sh/Clst: dsk y brn to brn blk	7.09	17.67	40.25	34.99	6.40	0164-1L
4714.00	cut	Sh/Clst: dsk y brn to brn blk	5.72	20.19	40.73	33.37	6.00	0169-1L
4720.00	cut	Sh/Clst: drk gy to brn gy to dsk y brn	13.48	19.50	40.41	26.61	2.72	0170-1L
4744.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	8.51	20.97	39.76	30.76	4.33	0173-1L
4768.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	7.90	19.44	40.96	31.70	5.02	0177-1L
4792.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	6.60	16.73	45.60	31.08	5.25	0181-1L
4816.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	8.85	19.17	47.30	24.68	2.95	0185-1L

Table 3 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
4828.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	8.53	21.40	41.56	28.51	4.90	0187-1L
4834.00	cut	S/Sst : lt gy	6.59	59.49	33.07	0.80	0.35	0188-6L
4852.00	cut	Sh/Clst: drk gy to brn blk	7.26	10.93	50.40	31.41	4.14	0192-1L
4882.00	cut	Sh/Clst: drk gy to brn blk	14.79	21.32	45.25	18.65	3.04	0197-1L
4907.00	cut	Sh/Clst: drk gy to brn blk	8.94	33.28	45.14	12.64	4.41	0201-1L

Table 4 a: Weight of EOM and Chromatographic Fraction for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	Rock Extracted (g)	EOM (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	TOC(e) (%)	Sample
4393.00	com	Composite sample - see table 4 e	5.6	1.6	0.4	0.4	0.4	0.3	0.9	0.7	0.32	0203-0B
4435.00	com	Composite sample - see table 4 e	6.3	0.9	0.3	0.3	0.2	0.1	0.6	0.3	0.26	0204-0B
4449.40	com	Composite sample - see table 4 e	11.4	89.9	52.0	16.8	5.8	15.3	68.8	21.1	6.59	0206-0B
4460.00	com	Composite sample - see table 4 e	10.9	73.9	50.7	18.3	3.2	1.7	69.0	4.9	5.99	0207-0B
4576.00	com	Composite sample - see table 4 e	3.1	1.8	1.0	0.2	0.3	0.3	1.2	0.6	0.38	0214-0B
4660.00	com	Composite sample - see table 4 e	1.6	5.6	2.5	1.0	0.6	1.4	3.6	2.0	3.34	0209-0B
4720.00	com	Composite sample - see table 4 e	5.6	8.7	4.5	1.8	0.7	1.7	6.3	2.4	1.58	0210-0B
4768.00	com	Composite sample - see table 4 e	3.7	3.4	1.4	0.9	0.5	0.7	2.3	1.1	1.51	0211-0B
4828.00	com	Composite sample - see table 4 e	6.1	2.3	0.6	0.3	0.5	0.9	0.9	1.4	1.37	0212-0B
4894.00	com	Composite sample - see table 4 e	4.1	1.3	0.4	0.4	0.3	0.1	0.9	0.4	1.13	0213-0B

Table 4 b: Concentration of EOM and Chromatographic Fraction (wt ppm rock) for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4393.00	com	Composite sample - see table 4 e	286	80	80	71	53	161	125	0203-0B
4435.00	com	Composite sample - see table 4 e	142	47	47	31	15	95	47	0204-0B
4449.40	com	Composite sample - see table 4 e	7858	4541	1470	506	1339	6012	1846	0206-0B
4460.00	com	Composite sample - see table 4 e	6773	4646	1678	293	155	6324	449	0207-0B
4576.00	com	Composite sample - see table 4 e	573	334	47	95	95	382	191	0214-0B
4660.00	com	Composite sample - see table 4 e	3393	1545	636	363	848	2181	1212	0209-0B
4720.00	com	Composite sample - see table 4 e	1559	806	322	125	304	1129	430	0210-0B
4768.00	com	Composite sample - see table 4 e	909	360	240	133	173	601	307	0211-0B
4828.00	com	Composite sample - see table 4 e	375	98	49	81	147	147	228	0212-0B
4894.00	com	Composite sample - see table 4 e	319	110	110	73	24	221	98	0213-0B

Table 4 c: Concentration of EOM and Chromatographic Fraction (mg/g TOC(e)) for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4393.00	com	Composite sample - see table 4 e	89.45	25.16	25.16	22.36	16.77	50.31	39.13	0203-0B
4435.00	com	Composite sample - see table 4 e	54.95	18.32	18.32	12.21	6.11	36.63	18.32	0204-0B
4449.40	com	Composite sample - see table 4 e	119.25	68.92	22.31	7.69	20.32	91.23	28.01	0206-0B
4460.00	com	Composite sample - see table 4 e	113.08	77.57	28.02	4.90	2.60	105.58	7.50	0207-0B
4576.00	com	Composite sample - see table 4 e	150.85	88.00	12.57	25.14	25.14	100.57	50.28	0214-0B
4660.00	com	Composite sample - see table 4 e	101.61	46.27	19.05	10.89	25.40	65.32	36.29	0209-0B
4720.00	com	Composite sample - see table 4 e	98.68	51.04	20.42	7.94	19.28	71.46	27.22	0210-0B
4768.00	com	Composite sample - see table 4 e	60.20	23.90	15.94	8.85	11.51	39.84	20.36	0211-0B
4828.00	com	Composite sample - see table 4 e	27.43	7.16	3.58	5.96	10.73	10.73	16.70	0212-0B
4894.00	com	Composite sample - see table 4 e	28.27	9.78	9.78	6.52	2.17	19.57	8.70	0213-0B

Table 4 d: Composition of material extracted from the rock (%) for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	Sat EOM	Aro EOM	Asph EOM	NSO EOM	HC EOM	Non-HC EOM	Sat Aro	HC Non-HC	Sample
4393.00	com	Composite sample - see table 4 e	28.13	28.13	25.00	18.75	56.25	43.75	100.00	128.57	0203-0B
4435.00	com	Composite sample - see table 4 e	33.33	33.33	22.22	11.11	66.67	33.33	100.00	200.00	0204-0B
4449.40	com	Composite sample - see table 4 e	57.80	18.71	6.45	17.04	76.51	23.49	308.92	325.66	0206-0B
4460.00	com	Composite sample - see table 4 e	68.59	24.78	4.33	2.30	93.37	6.63	276.84	1408.16	0207-0B
4576.00	com	Composite sample - see table 4 e	58.33	8.33	16.67	16.67	66.67	33.33	700.00	200.00	0214-0B
4660.00	com	Composite sample - see table 4 e	45.54	18.75	10.71	25.00	64.29	35.71	242.86	180.00	0209-0B
4720.00	com	Composite sample - see table 4 e	51.72	20.69	8.05	19.54	72.41	27.59	250.00	262.50	0210-0B
4768.00	com	Composite sample - see table 4 e	39.71	26.47	14.71	19.12	66.18	33.82	150.00	195.65	0211-0B
4828.00	com	Composite sample - see table 4 e	26.09	13.04	21.74	39.13	39.13	60.87	200.00	64.29	0212-0B
4894.00	com	Composite sample - see table 4 e	34.62	34.62	23.08	7.69	69.23	30.77	100.00	225.00	0213-0B

Table 4eList of composite samples appearing in well NOCS 24/9-1

Depth unit of measure: m

NOTE: Depths shown in results tables correspond to the composite samples' lower depth.

Upper depth	Lower depth	Typ	Sample		Depth	Typ	Lithology	Sample
4339.00	4360.00	com	0215-0	is composed of:	4339.00	cut	Sh/Clst: brn blk, slt	100-5
					4345.00	cut	Sh/Clst: dsk y brn	102-6
					4348.00	cut	Sh/Clst: dsk y brn	103-6
					4351.00	cut	Sh/Clst: dsk y brn	104-6
					4354.00	cut	Sh/Clst: dsk brn to dsk y brn	105-6
					4357.00	cut	Sh/Clst: dsk brn to dsk y brn	106-6
					4360.00	cut	Sh/Clst: dsk brn to dsk y brn	107-6
4363.00	4393.00	com	0203-0	is composed of:	4363.00	cut	Sh/Clst: dsk brn to dsk y brn, slt	108-6
					4366.00	cut	Sh/Clst: dsk brn to dsk y brn, slt	109-6
					4369.00	cut	Sh/Clst: dsk brn to dsk y brn, slt	110-6
					4375.00	cut	Sh/Clst: dsk brn to dsk y brn, slt	111-6
					4381.00	cut	Sh/Clst: dsk brn to dsk y brn, slt	112-6
					4387.00	cut	Sh/Clst: dsk brn to dsk y brn	113-5
					4393.00	cut	Sh/Clst: dsk brn to dsk y brn	114-5
4399.00	4435.00	com	0204-0	is composed of:	4399.00	cut	Sh/Clst: dsk brn to dsk y brn, slt	115-5
					4405.00	cut	Sh/Clst: dsk brn to dsk y brn, slt	116-5
					4411.00	cut	Sh/Clst: dsk brn to dsk y brn, slt	117-4
					4417.00	cut	Sh/Clst: dsk brn to dsk y brn, slt	118-4
					4423.00	cut	Sh/Clst: dsk y brn to brn blk, slt	119-4
					4429.00	cut	Sh/Clst: dsk y brn to brn blk, slt	120-4
					4435.00	cut	Sh/Clst: dsk y brn to brn blk, slt	121-4

Depth unit of measure: m

NOTE: Depths shown in results tables correspond to the composite samples' lower depth.

Upper depth	Lower depth	Typ	Sample		Depth	Typ	Lithology	Sample
4446.40	4449.40	com	0206-0	is composed of:	4446.40	ccp	Sh/Clst: dsk y brn to brn blk	123-4
					4449.40	ccp	Sh/Clst: dsk y brn to brn blk	124-4
4454.40	4460.00	com	0207-0	is composed of:	4454.40	ccp	Sh/Clst: brn blk, slt, mic	125-5
					4460.00	ccp	Sh/Clst: brn blk	126-4
4522.00	4576.00	com	0214-0	is composed of:	4522.00	cut	Sh/Clst: dsk y brn to brn blk, slt	137-4
					4534.00	cut	Sh/Clst: dsk y brn to brn blk, slt	138-4
					4546.00	cut	Sh/Clst: dsk y brn to brn blk, slt	140-4
					4552.00	cut	Sh/Clst: dsk y brn to brn blk, slt	141-4
					4564.00	cut	Sh/Clst: dsk y brn to brn blk, slt	143-4
					4570.00	cut	Sh/Clst: dsk y brn to brn blk, slt	144-4
					4576.00	cut	Sh/Clst: dsk y brn to brn blk, slt	145-4
4588.00	4594.00	com	0202-0	is composed of:	4588.00	cut	Sh/Clst: dsk y brn to brn blk, slt	148-4
					4594.00	cut	Sh/Clst: dsk y brn to brn blk, slt	149-1
4618.00	4660.00	com	0209-0	is composed of:	4618.00	cut	Sh/Clst: dsk y brn to brn blk	153-1
					4636.00	cut	Sh/Clst: dsk y brn to brn blk	156-1
					4648.00	cut	Sh/Clst: dsk y brn to brn blk	158-1
					4660.00	cut	Sh/Clst: dsk y brn to brn blk	160-1

Table 4eList of composite samples appearing in well NOCS 24/9-1

Depth unit of measure: m

NOTE: Depths shown in results tables correspond to the composite samples' lower depth.

Upper depth	Lower depth	Typ	Sample		Depth	Typ	Lithology	Sample
4672.00	4720.00	com	0210-0	is composed of:	4672.00	cut	Sh/Clst: dsk y brn to brn blk	162-1
					4684.00	cut	Sh/Clst: dsk y brn to brn blk	164-1
					4696.00	cut	Sh/Clst: dsk y brn to brn blk	166-1
					4714.00	cut	Sh/Clst: dsk y brn to brn blk	169-1
					4720.00	cut	Sh/Clst: drk gy to brn gy to dsk y brn	170-1
4744.00	4768.00	com	0211-0	is composed of:	4744.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	173-1
					4750.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	174-1
					4756.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	175-1
					4768.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	177-1
4792.00	4828.00	com	0212-0	is composed of:	4792.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	181-1
					4804.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy, slt	183-1
					4816.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy, slt	185-1
					4828.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy, slt	187-1
4852.00	4894.00	com	0213-0	is composed of:	4852.00	cut	Sh/Clst: drk gy to brn blk, slt	192-1
					4870.00	cut	Sh/Clst: drk gy to brn blk, slt	195-1
					4882.00	cut	Sh/Clst: drk gy to brn blk, slt	197-1
					4894.00	cut	Sh/Clst: drk gy to brn blk, slt	199-1

Table 5 : Saturated Hydrocarbon Ratios for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	Pristane nC17	Pristane Phytane	Pristane + Phytane nC17 + nC18	Phytane nC18	CPI	Sample
4393.00	com	bulk	0.30	1.71	0.28	0.26	0.86	0203-0B
4435.00	com	bulk	0.20	1.68	0.19	0.18	0.95	0204-0B
4449.40	com	bulk	0.42	1.46	0.39	0.35	1.15	0206-0B
4460.00	com	bulk	0.43	1.50	0.39	0.33	1.12	0207-0B
4576.00	com	bulk	0.29	1.47	0.30	0.32	0.74	0214-0B
4660.00	com	bulk	0.46	1.55	0.41	0.36	0.93	0209-0B
4720.00	com	bulk	0.49	1.55	0.44	0.38	1.01	0210-0B
4768.00	com	bulk	0.46	1.49	0.43	0.39	1.05	0211-0B
4828.00	com	bulk	0.40	1.65	0.36	0.31	1.00	0212-0B
4894.00	com	bulk	0.28	1.53	0.27	0.25	1.01	0213-0B

Table 6 : Aromatic Hydrocarbon Ratios for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
4393.00	com	bulk	-	-	-	0.84	0.59	0.62	0.75	-	-	-	0203-0B
4435.00	com	bulk	-	-	-	1.25	0.76	0.92	0.86	-	-	-	0204-0B
4449.40	com	bulk	0.98	1.85	0.14	0.73	0.62	0.71	0.77	0.10	-	-	0206-0B
4460.00	com	bulk	0.98	1.84	0.13	0.73	0.62	0.71	0.77	0.14	-	-	0207-0B
4576.00	com	bulk	-	-	-	-	0.50	-	0.70	-	-	-	0214-0B
4660.00	com	bulk	-	-	-	0.94	0.72	0.86	0.83	0.21	-	-	0209-0B
4720.00	com	bulk	-	-	-	0.68	0.60	0.66	0.76	0.24	35.22	1.69	0210-0B
4768.00	com	bulk	-	-	-	0.58	0.58	0.63	0.75	0.16	-	-	0211-0B
4828.00	com	bulk	-	-	-	0.69	0.70	0.72	0.82	0.21	28.12	2.30	0212-0B
4894.00	com	bulk	-	-	-	0.70	0.73	0.80	0.84	0.09	-	-	0213-0B

Table 7 : Thermal Maturity Data for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
4321.00	cut	bulk	1.13	2	0.01	NDP	-	-	0096-0B
4321.00	cut	Sh/Clst: lt gy to drk gy	-	-	-	-	5.0-5.5	402	0096-2L
4348.00	cut	bulk	0.96	1	0.00	7 (?)	-	-	0103-0B
4363.00	cut	Sh/Clst: dsk brn to dsk y brn	-	-	-	-	6.0(??)	446	0108-6L
4399.00	cut	Sh/Clst: dsk brn to dsk y brn	-	-	-	-	6.5(??)	447	0115-5L
4405.00	cut	bulk	1.17	1	0.00	7 (?)	-	-	0116-0B
4423.00	cut	Sh/Clst: dsk y brn to brn blk	-	-	-	-	6.5(??)	446	0119-4L
4441.90	ccp	bulk	0.92	19	0.11	0	-	-	0122-0B
4449.40	ccp	Sh/Clst: dsk y brn to brn blk	-	-	-	-	7.5(??)	454	0124-4L
4460.00	ccp	bulk	0.88	12	0.10	NDP	-	-	0126-0B
4516.00	cut	bulk	NDP	-	-	7-8 (?)	-	-	0136-0B
4558.00	cut	Sh/Clst: dsk y brn to brn blk	-	-	-	-	7.0(??)	444	0142-4L
4612.00	cut	bulk	0.00	-	0.00	0	-	-	0152-0B
4648.00	cut	Sh/Clst: dsk y brn to brn blk	-	-	-	-	7.5(?)	448	0158-1L

Table 7 : Thermal Maturity Data for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
4666.00	cut	bulk	0.96	8	0.05	7-8 (?)	-	-	0161-0B
4726.00	cut	bulk	1.01	13	0.07	0	-	-	0171-0B
4756.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	-	-	-	-	7.5(?)	451	0175-1L
4774.00	cut	bulk	1.38	1	0.00	0	-	-	0178-0B
4828.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	-	-	-	-	7.0-7.5	452	0187-1L
4838.00	cut	bulk	1.30	2	0.02	0	-	-	0189-0B
4900.00	cut	bulk	1.14	8	0.12	0	-	-	0200-0B
4907.00	cut	Sh/Clst: drk gy to brn blk	-	-	-	-	7.5-8.0(?)	450	0201-1L

Table 8 : Visual Kerogen Composition Data for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	LIPT %	Amor L	LipDet	Spor Pol	Cut Incl	Res Inert	Alg Ael	Dino Afl	Acrit	Bit L	INERT %	Fus in	Sem Fus	Sent Det	Mic Inert	Scler Oid	Bit I	VITR %	Tel in	Col in	Vit Det	Amor V	Bit V	Sample
4321.00	cut	Sh/Clst: lt gy to drk gy	15	*	**	*			*	*			15	*	**					70	**	*				0096-2L
4363.00	cut	Sh/Clst: dsk brn to dsk y brn	40	**	*	*			**	*		*	TR			*				60	*		*	**		0108-6L
4399.00	cut	Sh/Clst: dsk brn to dsk y brn	40	**	*	*			**				TR			*				60	*		*	**		0115-5L
4423.00	cut	Sh/Clst: dsk y brn to brn blk	45	**	*	*			**				TR			*				55	*		*	**		0119-4L
4449.40	ccp	Sh/Clst: dsk y brn to brn blk	50	**	*	*			**				TR			*				50	*		*	**		0124-4L
4558.00	cut	Sh/Clst: dsk y brn to brn blk	40	**	*	*			*	*			TR			*				60	*		*	**		0142-4L
4648.00	cut	Sh/Clst: dsk y brn to brn blk	50	**	*	*			*	*			5		*	**				45	*			*		0158-1L
4756.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	45	**	*	*	*		*			*	5		**	*				50	*		*			0175-1L
4828.00	cut	Sh/Clst: dsk y brn to brn blk to drk gy	30	*	*	*			**	*			15	*	**					55	**		*	*		0187-1L
4907.00	cut	Sh/Clst: drk gy to brn blk	35	**	*	*			*			*	10		*	**				55	*		*	**		0201-1L

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Table 9a : Tabulation of carbon isotope data for EOM/EOM - fractions or Oils for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology	EOM/Oil	Saturated	Aromatic	NSO	Asphaltenes	Kerogen	Sample
4460.00	com	Composite sample	-29.87	-30.22	-29.26	-29.55	-28.36	-	0207-0B
4660.00	com	Composite sample	-	-28.29	-28.66	-29.07	-29.31	-	0209-0B

Table 9b : Tabulation of cv values from carbon isotope data for well NOCS 24/9-1

Depth unit of measure: m

Depth	Typ	Lithology		Saturated	Aromatic	cv value	Sample
4460.00	com	Composite sample		-30.22	-29.26	-0.15	0207-0B
4660.00	com	Composite sample		-28.29	-28.66	-3.70	0209-0B

Table 10A: Variation in Triterpane Distribution for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Lithology	B/A	B/B+A	B B+E+F	C/E	C/C+E	X/E	Z/E	Z/C	Z/Z+E	Q/E	E/E+F	C+D C+D+E+F	D+F/C+E	J1 J1+J2%	Sample
4393.00	Sh/Clst	1.05	0.51	0.12	0.61	0.38	0.03	0.03	0.05	0.03	0.12	0.91	0.38	0.10	63.02	0114-5
4460.00	Sh/Clst	0.05	0.05	0.34	0.64	0.39	4.41	0.94	1.48	0.49	5.75	1.00	0.56	0.40	-	0126-4
4660.00	Sh/Clst	0.19	0.16	0.24	0.65	0.39	0.82	0.19	0.29	0.16	1.12	0.97	0.44	0.12	63.16	0160-1
4828.00	Sh/Clst	1.13	0.53	0.26	0.74	0.42	0.18	0.05	0.07	0.05	0.33	0.81	0.40	0.19	60.15	0187-1

Table 10B: Variation in Sterane Distribution (peak height) for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
4393.00	Sh/Clst	0.77	39.92	70.62	1.28	0.75	0.65	0.52	0.55	0.66	2.00	0114-5
4460.00	Sh/Clst	0.96	49.92	77.59	1.72	0.78	0.70	0.59	0.63	1.00	3.46	0126-4
4660.00	Sh/Clst	0.95	61.77	80.78	1.65	0.77	0.64	0.49	0.68	1.62	5.50	0160-1
4828.00	Sh/Clst	0.90	51.06	71.13	1.74	0.71	0.65	0.57	0.55	1.04	2.52	0187-1

Ratio1: a / a + j
Ratio2: q / q + t * 100%
Ratio3: 2(r + s)/(q + t + 2(r + s)) * 100%
Ratio4: a + b + c + d / h + k + l + n
Ratio5: r + s / r + s + q

Ratio6: u + v / u + v + q + r + s + t
Ratio7: u + v / u + v + i + m + n + q + r + s + t
Ratio8: r + s / q + r + s + t
Ratio9: q / t
Ratio10: r + s / t

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Table 10C: Raw GCMS triterpane data (peak height) for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Lithology	p	q	r	s	t	a	b	z	c	Sample
		x	d	e	f	g	h	i	j1		
		j2	k1	k2	l1	l2	m1	m2			
4393.00	Sh/Clst	9.04	4.97	2.85	1.73	0.99	6.30	6.63	1.30	26.17	0114-5
		1.37	2.75	43.10	4.52	8.30	6.04	1.21	4.72		
		2.77	2.80	1.48	2.01	1.42	1.28	0.95			
4460.00	Sh/Clst	34.33	29.46	17.85	8.96	6.86	50.59	2.66	4.83	3.27	0126-4
		22.56	3.35	5.12	0.00	0.00	0.00	0.00	0.00		
		0.00	0.00	0.00	0.00	0.00	0.00	0.00			
4660.00	Sh/Clst	47.75	32.79	14.94	12.31	11.08	48.83	9.31	5.55	18.98	0160-1
		24.06	4.79	29.33	0.88	9.17	10.79	6.46	6.12		
		3.57	8.93	4.00	4.16	3.11	3.21	2.60			
4828.00	Sh/Clst	58.86	35.79	19.56	18.11	8.11	40.12	45.34	5.58	79.34	0187-1
		19.59	10.64	107.82	24.62	42.14	30.24	9.41	20.18		
		13.37	13.83	5.17	5.03	3.59	2.54	1.48			

Table 10D: Raw GCMS sterane data (peak height) for Well NOCS 24/9-1 Page: 1

Depth unit of measure: m

Depth	Lithology	u	v	a	b	c	d	e	f	g	Sample
		h	i	j	k	l	m	n	o		
		p	q	r	s	t					
4393.00	Sh/Clst	7.66	2.19	5.10	2.87	1.49	1.82	1.81	1.21	1.49	0114-5
		4.35	1.82	1.54	2.34	0.81	0.77	1.29	1.40		
		0.86	0.97	1.50	1.42	1.46					
4460.00	Sh/Clst	94.26	23.80	99.98	57.40	22.19	40.25	35.54	30.97	13.24	0126-4
		63.01	17.16	3.69	31.05	19.77	2.10	13.92	17.14		
		2.44	9.24	18.04	14.00	9.27					
4660.00	Sh/Clst	78.41	17.54	93.39	58.35	22.04	36.44	37.53	29.27	18.16	0160-1
		61.27	26.36	4.73	35.60	13.44	2.09	17.19	21.55		
		4.64	10.89	20.58	16.48	6.74					
4828.00	Sh/Clst	51.81	17.02	58.83	32.81	12.56	22.55	23.67	19.92	10.90	0187-1
		34.15	4.94	6.43	24.00	8.50	4.22	6.23	8.72		
		3.40	8.46	12.24	8.17	8.11					

Table 10E: Aromatisation of Steranes for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Sample
4393.00	Sh/Clst	0.71	0.87	0114-5
4460.00	Sh/Clst	0.75	0.63	0126-4
4660.00	Sh/Clst	0.75	0.65	0160-1
4828.00	Sh/Clst	0.91	0.83	0187-1

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

Ratio2: g1 / g1 + I1

Table 10F: Variation in Triaromatic Sterane Distribution for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Sample
4393.00	Sh/Clst	0.82	0.72	0.56	0.60	0.71	0114-5
4460.00	Sh/Clst	0.94	0.91	0.83	0.84	0.90	0126-4
4660.00	Sh/Clst	0.94	0.89	0.81	0.85	0.89	0160-1
4828.00	Sh/Clst	0.96	0.92	0.84	0.88	0.91	0187-1

Ratio1: a1 / a1 + g1
Ratio2: b1 / b1 + g1
Ratio3: a1 + b1 / a1 + b1 + c1 + d1 + e1 + f1 + g1
Ratio4: a1 / a1 + e1 + f1 + g1
Ratio5: a1 / a1 + d1

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Table 10G: Variation in Monoaromatic Sterane Distribution for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Sample
4393.00	Sh/Clst	0.72	0.51	0.17	0.13	0114-5
4460.00	Sh/Clst	0.68	0.42	0.48	0.22	0126-4
4660.00	Sh/Clst	0.71	0.52	0.40	0.19	0160-1
4828.00	Sh/Clst	0.47	0.24	0.07	0.04	0187-1

Ratio1: A1 / A1 + E1
Ratio2: B1 / B1 + E1
Ratio3: A1 / A1 + E1 + G1
Ratio4: A1+B1 / A1+B1+C1+D1+E1+F1+G1+H1+I1

Table 10H: Raw GCMS monoaromatic sterane data (peak height) for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Lithology	a1	b1	c1	d1	e1	f1	g1	h1	i1	Sample
4393.00	Sh/Clst	3.50	1.44	1.57	0.62	1.36	0.58	15.58	13.04	0.36	0114-5
4460.00	Sh/Clst	102.61	34.82	63.09	6.55	47.39	42.10	63.65	244.65	17.27	0126-4
4660.00	Sh/Clst	30.87	13.22	21.58	3.63	12.37	9.53	33.59	96.03	6.18	0160-1
4828.00	Sh/Clst	10.78	3.84	12.64	8.72	12.30	1.81	137.90	208.90	1.26	0187-1

Table 10I : Raw GCMS trioaromatic sterane data (peak height) for Well NOCS 24/9-1

Depth unit of measure: m

Depth	Lithology	a1	b1	c1	d1	e1	f1	g1	Sample
4393.00	Sh/Clst	11.09	6.17	1.47	4.44	2.97	2.06	2.41	0114-5
4460.00	Sh/Clst	477.55	305.10	21.77	51.99	39.97	20.25	29.36	0126-4
4660.00	Sh/Clst	177.84	95.52	8.86	21.12	13.19	7.82	11.28	0160-1
4828.00	Sh/Clst	135.21	66.74	5.98	13.56	7.51	4.56	5.99	0187-1

A/S Norske Shell
LETE- OG UTVINNINGSAVDELINGEN
(EXPLORATION AND PRODUCTION)

Tel.: 04-57 61 00
P. O. Box 10, N-4033 Forus
Telex 33046 shelp n

CONOCO
P.O. Box 488

4001 STAVANGER

Attn: J.R. Hultman

Your ref:	Our ref:	Date:
	044103 EPXE/1/mr	19.12.83

Dear Sir,

Subject: Geochemical analysis of core samples, well 24/9-1

We refer to your telex of 16/1-83 in which Norske Shell was granted permission to sample the core from 24/9-1 for geochemical studies.

We have now completed our analysis and we have the pleasure to send you copies of the following 3 reports:

- RKER 83.099
  source rock analysis of cores from interval 4441.9 - 4459.6 m of the Kimmeridge Clay Fm, from well 24/9-1, Norway
- RKER 83.062 Geochemical extract analysis of six core samples of the Kimmeridge Clay Formation from interval 4443.1 - 4459.6 m in well 24/9-1, Norway
- Robertson Research. Rock Eval. Pyrolysis data sheets.

We regret our delay in reporting which was caused by instrumental problems in our research laboratory.

Yours faithfully,
A/S NORSKE SHELL

B.M. Thomas
Team Leader
Exploration and Production

MAY 1983

RKER 83.099

SOURCE ROCK ANALYSIS OF CORES FROM INTERVAL 4441.9 TO 4459.6 M OF KIMMERIDGE CLAY FM. FROM WELL 24/9-1, NORWAY

by
J.M.J.Terken and F.M.van der Veen

code: 774.103

in co-operation with

J.E.A.M.Dielwart

R.F.M.Hofland

P.J.van der Vet

Investigation

9.5.4091

KONINKLIJKE/SHELL EXPLORATIE EN PRODUKTIE LABORATORIUM

RIJSWIJK, THE NETHERLANDS

(Shell Research B.V.)

CONTENTS

1.0 INTRODUCTION

A source rock evaluation has been carried out on cores from well 24/9-1

The samples are taken from interval 4441.9 to 4459.6 m

The purpose of the investigation was:

1. to detect the presence (or absence) of source rocks in the samples
2. to determine the quality of the organic matter, as well as its distribution.
3. to establish the degree of organic metamorphism (level of maturity).

GEOCHEMICAL SOURCE ROCK DATA

TABLE 1 WELL: 24/9-1

DEPTH M	TYPE OF SAMPLE	SOURCE ROCK INDICATION BEFORE EXTR.	SOURCE ROCK INDICATION AFTER EXTR.	TYPE OF ORGANIC MATTER	ORGANIC CARBON CONTENT %
4441.90	R	320	155	MK	4.3
4442.00	R	450	330	MK	6.2
4443.10	R	295	255	MK/M	6.3
4443.90	R	340	235	MK	5.6
4444.60	R	240	150	M	5.0
4445.90	R	260	200	M/MK	5.1
4446.90	R	295	180	MK	5.4
4448	R	190	135	M	4.9
4448.60	R	415	280	MK	6.3
4449.40	R	265	170	MK/M	5.2
4450.70	R	460	235	M/MK	6.7
4451.90	R	470	320	MK	7.6
4452.90	R	370	275	MK/M	7.0
4453.70	R	310	205	M/MK	6.5
4454.80	R	490	350	MK	7.7
4455.90	R	395	240	MK/M	7.1
4457.90	R	460	255	MK	6.5
4458.90	R	340	220	M/MK	7.3
4459.80	R	325	235	MK	6.3

TYPE OF SAMPLE C = CUTTINGS, R = CORE, S = SIDEWALL SAMPLE

CONTAMINATION : W = WALNUT FRAGMENTS OR SOME SIMILAR PRODUCT, C = CELLOPHANE SHREDS, F = FIBRES, P = PLASTIC OR PAINT AND X = CONTAMINATED BUT KIND NOT SPECIFIED

A DASH (-) INDICATES TEST NOT MADE, ASTERISKS INDICATE THE ORGANIC CARBON CONTENT IS THE AVERAGE FOR THE SAMPLES CONCERNED

MACERAL DESCRIPTION OF 19 SAMPLES FROM WELL 24/9-1

DEPTH IN M	SAMPLE TYPE	ORGANIC																								INORG.			
			VITR.			LIPTINITE											INERT.												
											ALGAE																		
		SAPROPELIC ORG. MATTER	TELOCOLLINITE	TELINITE	DESMOCOLLINITE	SPORINITE	CUTINITE	RESINITE	LIPTODETRINITE	BOTRYOCOCCUS	TASMANITES	OTHER ALGAE	MICROPLANKTON	EXSUDATINITE	SCLEROTINITE	FUSINITE	MACRINITE	MICRINITE	UNDEFINED MINERALS	FRAMBOIDAL PYRITE	AGGREGATES OF PYRITE	CRYSTALS OF PYRITE
4441.9	CORE	+			-								/		/		+	*	/	-	/
4442.6	CORE	+			-								/		/		+	*	/	-	/
4443.1	CORE	+			-								/		+		+	*	/	-	+
4443.9	CORE	+			-								/		/		+	*	/	/	/
4444.6	CORE	+			-								/		/		+	*	/	-	/
4445.9	CORE	+			-								/		/		+	*	/	-	/
4446.9	CORE	+			-								/		/		+	*	/	-	/
4448.0	CORE	+			-								-		-		+	*	/	/	-
4448.6	CORE	+			-								/		/		+	*	/	-	-
4449.4	CORE	+			-								/		/		+	*	/	/	-
4450.7	CORE	+			-								/		/		+	*	/	/	/
4451.9	CORE	+			-								/		/		+	*	/	/	/
4452.9	CORE	+			-								/		/		+	*	/	-	-
4453.7	CORE	+			-								/		/		+	*	/	/	/
4454.8	CORE	+			-								/		+		+	*	+	/	-
4455.9	CORE	+			-								/		/		+	*	+	/	-
4457.9	CORE	+			-								/		/		+	*	/	-	/

LEGEND	
*	: ABUNDANT
+	: COMMON
/	: FEW
-	: RARE

TABLE: II (part 1)

DEPTH IN M	SAMPLE TYPE
4458.9	CORE
4459.6	CORE

ORGANIC																			INORG.			
	VITR.			LIPTINITE					ALGAE				INERT.									
SAPROPELIC ORG. MATTER	TELOCOLLINITE	TELINITE	DESMOCOLLINITE	SPORINITE	CUTINITE	RESINITE	LIPTODETRINITE	BOTRYOCOCCUS	TASMANITES	OTHER ALGAE	MICROPLANKTON	EXSUDATINITE	SCLEROTINITE	FUSINITE	MACRINITE	MICRINITE	UNDEFINED MINERALS	FRAMBOIDAL PYRITE	AGGREGATES OF PYRITE	CRYSTALS OF PYRITE
+			-								/		+		+	*	+	/	-
+			-								/		+		+	*	/	-	/

L E G E N D	
*	: ABUNDANT
+	: COMMON
/	: FEW
-	: RARE

TABLE: II (part 2)

COMMENT LINES FROM WELL/OUTCROP : 24/9-1

4441.9 M : S.O.M. PARTLY CONVERTED
FOSSIL REMAINS

4442.6 M : S.O.M. PARTLY CONVERTED

4443.1 M : S.O.M. PARTLY CONVERTED

4443.9 M : S.O.M. PARTLY CONVERTED
FOSSIL REMAINS

4444.6 M : S.O.M. PARTLY CONVERTED

4445.9 M : S.O.M. PARTLY CONVERTED

4446.9 M : S.O.M. PARTLY CONVERTED
FOSSIL REMAINS

4448.0 M : FOSSIL REMAINS
S.O.M. PARTLY CONVERTED

4448.6 M : S.O.M. PARTLY CONVERTED
FOSSIL REMAINS

4449.4 M : FOSSIL REMAINS
S.O.M. PARTLY CONVERTED

4450.7 M : S.O.M. PARTLY CONVERTED
FOSSIL REMAINS

4451.9 M : S.O.M. PARTLY CONVERTED

4452.9 M : S.O.M. PARTLY CONVERTED
FOSSIL REMAINS

4453.7 M : S.O.M. PARTLY CONVERTED
FOSSIL REMAINS

4454.8 M : S.O.M. PARTLY CONVERTED
FOSSIL REMAINS

4455.9 M : S.O.M. PARTLY CONVERTED

4457.9 M : FOSSIL REMAINS
S.O.M. PARTLY CONVERTED

4458.9 M : FOSSIL REMAINS
S.O.M. PARTLY CONVERTED

4459.6 M : S.O.M. PARTLY CONVERTED

TABLE: II (part 3)

June 1983

RKER.83.062

GEOCHEMICAL EXTRACT ANALYSIS OF SIX CORE SAMPLES OF THE KIMMERIDGE CLAY FORMATION FROM INTERVAL 4443.1 - 4459.6 M IN WELL 24/9-1, NORWAY

by

P.J. Grantham and J.M.A. Buiskool-Toxopeus

Investigation 9.5.4097

With co-operation from P. Lohbeck and R. Lieffering

KONINKLIJKE/SHELL EXPLORATIE EN PRODUKTIE LABORATORIUM

RIJSWIJK, THE NETHERLANDS

(Shell Research B.V.)

TABLE 1 - GEOCHEMICAL DATA OF EXTRACTS

	Norway 24/9-1 4443.1 m core	24/9-1 4445.9 m core
% ethyl acetate extract	0.61	0.66
% organic carbon after ethyl acetate extraction	6.7	5.5
% sulphur	0.7	0.9
ppm V as metals		
ppm Ni as metals		
pristane/phytane	1.4	1.3
pristane/nC17	0.5	0.5
phytane/nC18	0.4	0.4
C_{15} distribution		
1-ring	52	54
2-ring	31	31
3-ring	17	16
C_{30} distribution		
3-ring	33	37
4-ring	45	43
5-ring	22	20
C_{29} DOM	70	69
% saturates*	67	67
% aromatics	29	27
% heterocompounds	4	6
$\delta^{13}C^{o}/oo$	-30.0	-30.1
extract/carbon	0.09	0.12

* determined by thin-layer chromatography.

TABLE 2 - GEOCHEMICAL DATA OF EXTRACTS

	Norway 24/9-1 4449.4 m core	24/9-1 4451.9 m core
% ethyl acetate extract	0.69	0.42
% organic carbon after ethyl acetate extraction	5.8	7.9
% sulphur	0.8	1.3
ppm V as metals		
ppm Ni as metals		
pristane/phytane	1.4	1.4
pristane/nC17	0.5	0.5
phytane/nC18	0.4	0.4
C_{15} distribution		
1-ring	50	46
2-ring	35	40
3-ring	15	14
C_{30} distribution		
3-ring	32	30
4-ring	45	45
5-ring	23	25
C_{29} DOM	70	69
% saturates*	66	54
% aromatics	25	39
% heterocompounds	9	7
$\delta^{13}C^{o}/oo$	-30.0	-29.9
extract/carbon	0.12	0.05

* determined by thin-layer chromatography.

TABLE 3 - GEOCHEMICAL DATA OF EXTRACTS

	Norway 24/9-1 4454.8 m core	24/9-1 4459.6 m core
% ethyl acetate extract	0.5	0.45
% organic carbon after ethyl acetate extraction	8.0	6.6
% sulphur	0.6	1.0
ppm V as metals		
ppm Ni as metals		
pristane/phytane	1.4	1.3
pristane/nC17	0.5	0.5
phytane/nC18	0.4	0.4
C_{15} distribution		
1-ring	41	43
2-ring	42	38
3-ring	17	19
C_{30} distribution		
3-ring	36	32
4-ring	42	42
5-ring	22	26
C_{29} DOM	69	69
% saturates*	57	59
% aromatics	37	35
% heterocompounds	6	6
$\delta^{13}C^{o}/oo$	-30.0	-30.0
extract/carbon	0.06	0.07

* determined by thin-layer chromatography.

MACERAL DESCRIPTION OF 19 SAMPLES FROM WELL 24/9-1

DEPTH IN M	SAMPLE TYPE	ORGANIC																		INORG.			
			VITR.		LIPTINITE					ALGAE				INERT.									
		SAPROPELIC ORG. MATTER	TELOCOLLINITE	TELINITE	DESMOCOLLINITE	SPORINITE	CUTINITE	RESINITE	LIPTODETRINITE	BOTRYOCOCCUS	TASMANITES	OTHER ALGAE	MICROPLANKTON	EXSUDATINITE	SCLEROTINITE	FUSINITE	MACRINITE	MICRINITE	UNDEFINED MINERALS	FRAMBOIDAL PYRITE	AGGREGATES OF PYRITE	CRYSTALS OF PYRITE
4441.9	CORE	+		-								/	/		+	*	/	-	/
4442.6	CORE	+		-								/	/		+	*	/	-	/
4443.1	CORE	+		-								/	+		+	*	/	-	+
4443.9	CORE	+		-								/	/		+	*	/	/	/
4444.6	CORE	+		-								/	/		+	*	/	-	/
4445.9	CORE	+		-								/	/		+	*	/	-	/
4446.9	CORE	+		-								/	/		+	*	/	-	/
4448.0	CORE	+		-								-	-		+	*	/	/	-
4448.6	CORE	+		-								/	/		+	*	/	-	-
4449.4	CORE	+		-								/	/		+	*	/	/	-
4450.7	CORE	+		-								/	/		+	*	/	/	/
4451.9	CORE	+		-								/	/		+	*	/	/	/
4452.9	CORE	+		-								/	/		+	*	/	-	-
4453.7	CORE	+		-								/	/		+	*	/	/	/
4454.8	CORE	+		-								/	+		+	*	+	/	-
4455.9	CORE	+		-								/	/		+	*	+	/	-
4457.9	CORE	+		-								/	/		+	*	/	-	/

LEGEND	
*	ABUNDANT
+	COMMON
/	FEW
-	RARE

Fig. 11

DEPTH IN M	SAMPLE TYPE
4458.9	CORE
4459.6	CORE

ORGANIC																	INORG.			
	VITR.		LIPTINITE				ALGAE					INERT.								
SAPROPELIC ORG. MATTER	TELOCOLLINITE	TELINITE	DESMOCOLLINITE	SPORINITE	CUTINITE	RESINITE	LIPTODETRINITE	BOTRYOCOCCUS	TASMANITES	OTHER ALGAE	MICROPLANKTON	EXSUDATINITE	SCLEROTINITE	FUSINITE	MACRINITE	MICRINITE	UNDEFINED MINERALS	FRAMBOIDAL PYRITE	AGGREGATES OF PYRITE	CRYSTALS OF PYRITE
+		-									/		+		+	*	+	/	-
+		-									/		+		+	*	/	-	/

L E G E N D	
*	: ABUNDANT
+	: COMMON
/	: FEW
-	: RARE

Fig. 12

COMPANY: NORSKE SHELL **WELL:** 24/9-1 **LOCATION:** NORTH SEA

GENERAL DATA			CHEMICAL ANALYSIS DATA												
				PYROLYSIS					SOLVENT EXTRACTION						
SAMPLE DEPTH (METRES)	SAMPLE TYPE	ANALYSED LITHOLOGY	ORGANIC CARBON % OF ROCK	TEMP. °C ERATURE	HYDROGEN INDEX	OXYGEN INDEX	PRODUCTION INDEX	POTENTIAL YIELD (ppm)	TOTAL EXTRACT (ppm)	HYDRO-CARBONS (ppm)	EXTRACT % OF ORGANIC CARBON	HYDROCARBONS mg/g OF ORGANIC CARBON	HYDROCARBONS % OF EXTRACT	ALKANES % OF HYDRO-CARBONS
4441.9	Core	SH, gy-blk, micr	5.16	449	196	34	.35	10130						
	"	After extraction	4.49	455	115	7	.01	5190						
	"	After extr & decarb	4.74	450	115	5	.03	5490						
4442.6	"	A/a	6.44	448	181	21	.25	11670						
	"	After extraction	5.98	454	116	7	.01	6940						
	"	After extr & decarb	6.35	446	127	2	.03	8080						
4443.1	"	A/a	6.22	444	115	17	.40	7200						
	"	After extraction	5.85	445	90	5	.02	5280						
	"	After extr & decarb	6.22	449	123	10	.02	7650						
4443.9	"	A/a	5.99	438	97	21	.44	5840						
	"	After extraction	5.47	442	67	3	.03	3710						
	"	After extr & decarb	5.79	449	113	5	.03	6580						
4444.6	"	A/a	5.73	431	85	18	.49	4880						
	"	After extraction	5.19	437	63	9	.05	3280						
	"	After extr & decarb	5.65	446	103	5	.03	5850						
4445.9	"	A/a	6.06	448	178	24	.32	10840						
	"	After extraction	5.46	455	116	6	.02	6390						
	"	After extr & decarb	5.77	453	114	4	.02	6630						
4446.9	"	A/a	5.83	437	177	19	.33	10380						
	"	After extraction	5.35	456	110	7	.02	5900						
	"	After extr & decarb	5.80	451	127	4	.02	7420						
4448	"	A/a	5.14	436	97	17	.49	5030						
	"	After extraction	4.74	446	62	5	.03	2940						
	"	After extr & decarb	5.09	449	91	4	.03	4660						
4448.6	"	A/a	6.97	452	186	21	.28	12980						
	"	After extraction	6.38	457	122	8	.01	7790						
	"	After extr & decarb	6.91	451	115	5	.05	7980						
4449.4	"	A/a	5.90	452	173	23	.31	10220						
	"	After extraction	5.29	453	121	9	.02	6410						
	"	After extr & decarb	5.81	450	110	8	.03	6420						
4450.7	"	A/a	7.21	449	142	15	.35	10300						
	"	After extraction	6.62	454	109	7	.02	7220						
	"	After extr & decarb	7.36	446	109	5	.02	8070						
4451.9	"	A/a	7.95	446	124	10	.30	9910						
	"	After extraction	7.33	451	105		.02	7710						
	"	After extr & decarb	8.19	449	129	4	.02	10610						
4452.9	"	A/a	7.48	443	115	14	.34	8620						

TABLE 3A Chemical Analysis Data

COMPANY: NORSKE SHELL WELL: 24/9-1 LOCATION: NORTH SEA

GENERAL DATA			CHEMICAL ANALYSIS DATA												
				PYROLYSIS					SOLVENT EXTRACTION						
SAMPLE DEPTH (METRES)	SAMPLE TYPE	ANALYSED LITHOLOGY	ORGANIC CARBON % OF ROCK	TEMP-ERATURE °C	HYDROGEN INDEX	OXYGEN INDEX	PRODUCTION INDEX	POTENTIAL YIELD (ppm)	TOTAL EXTRACT (ppm)	HYDRO-CARBONS (ppm)	EXTRACT % OF ORGANIC CARBON	HYDROCARBONS mg/g OF ORGANIC CARBON	HYDROCARBONS % OF EXTRACT	ALKANES % OF HYDRO-CARBONS
4452.9	Core	After extraction	6.96	453	96	7	.02	6690						
	"	After extr & decarb	7.70	447	129	7	.03	10010						
4453.7	"	SH, gy-blk, micr	7.01	440	98	12	.38	6910						
	"	After extraction	6.48	443	87	6	.02	5650						
	"	After extr & decarb	7.39	446	102	5	.01	7590						
4454.8	"	A/a	7.88	446	119	16	.34	9400						
	"	After extraction	7.25	453	101	5	.02	7330						
	"	After extr & decarb	8.48	448	114	5	.02	9680						
4455.9	"	A/a	7.40	440	92	17	.38	6870						
	"	After extraction	7.16	446	79	6	.03	5690						
	"	After extr & decarb	8.20	447	105	6	.04	8610						
4457.9	"	A/a	7.04	452	165	27	.28	11670						
	"	After extraction	6.90	456	124	4	.01	8570						
	"	After extr & decarb	7.53	447	109	5	.02	8260						
4458.9	"	A/a	7.92	438	96	22	.38	7680						
	"	After extraction	7.62	448	74	6	.03	5700						
	"	After extr & decarb	8.27	444	92	5	.03	7690						
4459.6	"	A/a	6.74	446	102	21	.35	6920						
	"	After extraction	6.93	450	77	7	.03	5340						
	"	After extr & decarb	7.50	444	94	3	.02	7080						

TABLE 3B Chemical Analysis Data

D-12

ROBERTSON RESEARCH INTERNATIONAL LIMITED

REPORT NO. 4023P

A MATURATION AND SOURCE ROCK STUDY OF THE SECTION 1,800 TO 4,898 METRES OF THE CONOCO NORWAY 24/9-1 WELL, NORWEGIAN NORTH SEA

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NOVEMBER, 1976

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INTRODUCTION

A maturation and source rock study has been carried out using canned wet ditch cuttings and sidewall cores from the section 1,800 to 4,898 metres of the Conoco Norway 24/9-1 well, drilled in the Norwegian North Sea.

Evaluation of maturity has been based on analyses of light hydrocarbon, spore colouration, vitrinite reflectivity and maximum palaeotemperature determinations. Analysis for organic carbon was carried out on all the samples received and the analyses were used in the selection of samples for source rock analyses.

All of the canned samples were analysed for headspace gas, (C_1 to C_4 gases). In some cases it was found that the gases had escaped from the cans during transport. Subsequently the samples were washed in cold water to remove drilling mud and, after drying and description, were found to be of good quality for geochemical analysis except for those in the turbo-drilled interval between 2,873 and 3,709 metres. Over this interval some difficulty has been experienced in vitrinite reflectivity analysis, though this is mainly attributable to the lack of organic particles available for measurements in the Upper Cretaceous sediments.

TABLE 1

HEADSPACE GAS ANALYSIS DATA

CLIENT: CONOCO NORWAY WELL: 24/9-1 LOCATION: NORWEGIAN N. SEA

Sample Depth Metres	Total C_1-C_4 Gas ppm	Percent C_1	Percent C_2	Percent C_3	Percent iso C_4	Percent nC_4
1800 - 30	34	52.9	17.64	8.82	14.71	5.88
1830 - 60	6988	56.3	13.44	11.55	12.26	6.45
1860 - 90	95	52.6	11.58	10.53	14.74	10.53
1890 - 920	10256	64.9	14.15	9.95	8.36	2.55
1920 - 50	-	-	-	-	-	-
1950 - 80	7255	71.4	13.23	7.44	5.78	2.15
1980 - 2010	7194	50.1	15.57	20.64	9.13	4.56
2010 - 40	1389	49.2	13.46	20.59	8.64	8.14
2040 - 70	218	25.7	12.39	26.61	17.89	17.43
2070 - 100	47	4.3	6.38	25.53	29.17	34.04
2100 - 30	2.87	34.9	1.74	12.54	28.57	22.29
2130 - 60	-	-	-	-	-	-
2160 - 90	-	-	-	-	-	-
2190 - 220	-	-	-	-	-	-
2220 - 50	-	-	-	-	-	-
2250 - 80	3774	53.3	12.98	19.16	6.31	8.24
2280 - 310	3566	28.6	17.36	33.96	8.55	11.49
2310 - 40	3596	45.9	13.04	29.00	5.17	6.84
2340 - 70	1302	19.6	11.83	41.24	12.59	14.75
2370 - 400	618	26.7	18.28	40.61	6.15	8.25
2400 - 30	128	36.7	14.17	41.67	3.33	4.21
2430 - 60	39	35.9	7.69	28.21	10.26	17.95
2460 - 90	771	63.4	8.82	14.53	4.67	8.56
2490 - 520	25	60.0	4.04	16.00	8.00	12.00
2520 - 50	1454	53.7	11.00	17.54	8.05	9.69
2550 - 80	No	Gas	No	Gas	No	Gas
2580 - 610	121	52.1	10.74	20.66	5.79	10.74
2610 - 40	1605	33.6	10.28	31.28	7.41	17.38
2640 - 70	3202	27.7	11.89	32.10	12.21	16.11
2670 - 700	1148	32.7	13.24	30.14	10.37	13.59
2700 - 30	No	Gas	No	Gas	No	Gas
2730 - 60	2.2	45.5	tr	18.18	9.09	27.27
2760 - 90	130	66.2	13.08	10.00	2.31	8.46
2790 - 820	29	27.6	27.59	20.69	6.89	17.24
2820 - 50	232	66.4	14.66	16.38	0.43	2.16
2850 - 80	315	71.4	8.88	12.38	1.27	6.03
2880 - 910	4.2	95.2	4.76	tr	-	-
2910 - 40	235	79.2	8.51	7.66	1.28	3.40
2940 - 70	895	79.8	8.72	7.26	0.89	3.35
2970 - 3000	2.4	83.3	4.16	8.33	tr	4.16
3000 - 30	481	82.9	6.45	6.03	0.62	3.95
3030 - 60	601	36.9	38.10	2.99	0.17	1.83
3060 - 90	No	Gas	No	Gas	No	Gas
3090 - 120	300.6	87.8	6.99	3.99	0.20	0.99
3120 - 50	188.4	89.2	6.37	3.18	0.21	1.06
3150 - 80	155.3	88.9	7.08	3.22	0.19	0.64
3180 - 210	263	82.9	7.98	5.32	0.38	3.42
3210 - 40	49.4	95.2	4.05	0.81	-	-

TABLE 1 (Cont'd)

HEADSPACE GAS ANALYSIS DATA

CLIENT: CONOCO NORWAY WELL: 24/9-1 LOCATION: NORWEGIAN N. SEA

Sample Depth Metres	Total C_1-C_4 Gas ppm	Percent C_1	Percent C_2	Percent C_3	Percent iso C_4	Percent nC_4
3240 - 70	973	87.2	8.22	3.08	0.31	1.23
3270 - 300	191.5	86.2	7.83	4.69	0.26	1.04
3300 - 30	496	87.7	8.27	3.23	0.20	0.60
3330 - 60	2528	86.1	9.29	3.68	0.24	0.67
3390 - 420	826	85.5	7.26	3.51	0.61	3.15
3420 - 50	1628	90.4	6.57	2.33	0.18	0.55
3450 - 80	No	Gas	No	Gas	No	Gas
3480 - 510	1542	88.6	8.30	2.39	0.19	0.58
3510 - 40	1480	89.3	7.91	2.09	0.20	0.54
3540 - 70	1018	90.7	6.58	2.16	0.19	0.39
3570 - 600	1994	73.8	8.58	17.20	0.15	0.30
3600 - 630	504	84.9	12.30	1.98	0.19	0.59
3630 - 60	82.2	79.1	15.81	3.65	0.49	0.97
3660 - 90	1270	91.7	6.29	1.57	0.15	0.31
3690 - 720	941	93.3	4.99	1.06	0.21	0.43
3720 - 50	592	88.9	7.43	2.36	0.34	1.01
3750 - 80	19.3	93.3	4.66	2.07	-	-
3780 - 810	334	85.1	8.36	4.48	0.59	1.19
3810 - 40	1222	87.2	6.14	4.42	0.57	1.63
3840 - 70	931	90.2	6.77	1.93	0.32	0.75
3870 - 900	426	91.5	5.87	1.87	0.23	0.46
3900 - 30	405	88.9	7.65	2.22	0.49	0.74
3930 - 60	1675	85.1	7.70	3.13	0.42	1.61
3960 - 90	21.1	80.6	4.27	9.48	1.42	4.27
3990 - 4020	2722	81.6	10.76	6.43	0.73	0.44
4020 - 50	No	Gas	No	Gas	No	Gas
4050 - 80	35.6	89.8	5.62	2.81	0.28	1.40
4080 - 110	No	Gas	No	Gas	No	Gas
4110 - 140	310.4	57.0	41.24	1.6	tr	0.13
4140 - 70	1078.3	73.8	25.68	0.46	tr	0.03
4170 - 200	10772	66.9	12.58	0.37	0.03	0.05
4200 - 30	19944	64.7	30.94	4.21	0.02	0.10
4230 - 60	2483	73.8	21.47	3.91	0.24	0.60
4260 - 90	2061	83.1	13.97	2.47	0.09	0.39
4290 - 320	886	14.5	16.89	33.78	3.57	16.79
4320 - 50	380	19.5	16.58	40.00	3.42	20.53
4350 - 80	5343	48.3	20.96	20.23	2.49	7.97
4380 - 410	2107	46.2	24.29	20.97	2.14	6.41
4410 - 40	17755	36.9	19.22	27.87	3.67	12.36
4440 - 470	7425	63.9	19.54	8.20	2.11	6.24
4470 - 500	-	-	-	-	-	-
4500 - 30	35030	66.0	16.14	12.49	1.73	3.63
4530 - 60	50669	52.2	19.79	18.63	2.63	6.79
4560 - 90	54762	42.8	23.76	22.66	3.17	7.63
4590 - 620	37924	59.4	19.41	15.06	1.88	4.28
4620 - 50	4360	49.6	24.70	24.45	0.39	0.87
4650 - 80	-	-	-	-	-	-

TABLE 1

HEADSPACE GAS ANALYSIS DATA

CLIENT: CONOCO NORWAY WELL: 24/9-1 LOCATION: NORWEGIAN N. SEA

Sample Depth Metres	Total C_1-C_4 Gas ppm	Percent C_1	Percent C_2	Percent C_3	Percent iso C_4	Percent nC_4
4680 - 710	369	16.3	26.29	38.21	3.15	14.09
4740 - 70	14829	31.6	23.73	15.40	2.76	6.46
4770 - 800	261	13.8	14.18	35.25	8.81	27.97
4800 - 30	344	33.7	18.02	27.62	5.23	15.41
4830 - 60	4380	79.5	9.25	8.61	1.03	1.59
4860 - 90	45466	46.2	21.58	24.28	0.33	7.57
4890 - 98	54234	60.9	19.27	14.39	2.11	3.32

TABLE 2

GASEOUS AND GASOLINE HYDROCARBON DATA

CLIENT CONOCO NORWAY WELL 24/9-1 LOCATION NORWEGIAN N. SEA

GAS ($C_1 - C_4$)

SAMPLE NO.	3		4		6		8	
DEPTH METRES	1860-90		1920-50		2040-70		2100-30	
	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$
C_1	4	80	5	83	5	11	5	14
C_2	1	20	1	17	1	2	1	3
C_3	*	*	tr	*	2	4	2	6
iC_4	*	*	*	*	11	24	8	22
nC_4	*	*	*	*	27	59	20	56
TOTAL	5	(100)	6	(100)	46	(100)	36	(100)

GASOLINE RANGE ($C_5 - C_7$)

SAMPLE NO.	3		4		6		8	
DEPTH METRES	1860-90		1920-50		2040-70		2100-30	
	P. P. B.	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$	P. P. B	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$
ISO-PENTANE	*	*	9	2	9	1	75	7
N-PENTANE	*	*	2	1	8	1	80	7
CYCLOPENTANE	2	1	12	2	23	3	23	2
2-ME. PENTANE	11	6	60	11	42	5	84	7
3-ME. PENTANE	10	6	34	6	64	7	51	4
N-HEXANE	10	6	39	7	99	11	99	8
ME. CYCLOPENTANE	9	5	15	3	114	13	106	9
CYCLOHEXANE	7	4	19	3	100	11	104	9
2-ME. HEXANE	35	20	95	17	79	9	91	8
3-ME. HEXANE	27	15	78	14	76	9	70	6
3-ETHYLPENTANE	21	12	57	10	45	5	73	6
N-HEPTANE	7	4	22	4	48	5	44	4
BENZENE	tr	*	8	1	*	*	6	1
DIME. PENTANE	*	*	*	*	*	*	*	*
ME. CYCLOHEXANE	37	21	112	20	160	18	247	21
TOTAL	176	(100)	560	(100)	887	(100)	1153	(100)

TABLE 2 (Cont'd.)

GASEOUS AND GASOLINE HYDROCARBON DATA

CLIENT CONOCO NORWAY WELL 24/9-1 LOCATION NORWEGIAN N. SEA

GAS ($C_1 - C_4$)

SAMPLE NO.	10		11		12		14	
DEPTH METRES	2160-90		2220-50		2280-320		2400-30	
	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$
C_1	5	21	5	8	7	29	9	41
C_2	1	5	2	3	1	4	1	5
C_3	2	9	7	11	2	8	1	5
iC4	6	27	22	33	5	20	4	18
nC4	8	36	29	45	9	37	7	32
TOTAL	22	(100)	65	(100)	24	(100)	22	(100)

GASOLINE RANGE ($C_5 - C_7$)

SAMPLE NO.	10		11		12		14	
DEPTH METRES	2160-90		2220-50		2280-320		2400-30	
	P. P. B.	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$	P. P. B	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$
ISO-PENTANE	tr	*	39	11	2	3	2	9
N-PENTANE	4	8	15	4	2	3	1	4
CYCLOPENTANE	tr	*	10	3	1	2	tr	*
2-ME. PENTANE	2	4	32	9	3	5	1	4
3-ME. PENTANE	2	4	23	7	2	3	1	4
N-HEXANE	3	7	23	7	3	5	1	4
ME. CYCLOPENTANE	5	11	33	9	5	8	2	9
CYCLOHEXANE	*	*	26	8	6	10	2	9
2-ME. HEXANE	4	8	27	8	4	7	1	4
3-ME. HEXANE	3	7	19	6	4	7	1	4
3-ETHYLPENTANE	3	7	28	8	6	10	3	13
N-HEPTANE	7	15	6	2	2	3	1	4
BENZENE	*	*	*	*	*	*	*	*
DIME. PENTANE	*	*	*	*	*	*	*	*
ME. CYCLOHEXANE	13	28	64	19	21	34	7	30
TOTAL	46	(100)	345	(100)	61	(100)	23	(100)

TABLE 2 (Cont'd.)

GASEOUS AND GASOLINE HYDROCARBON DATA

CLIENT CONOCO NORWAY WELL 24/9-1 LOCATION NORWEGIAN N. SEA

GAS ($C_1 - C_4$)

SAMPLE NO.	18		21		27		-	
DEPTH METRES	2580-610		2700-30		2880-910		2970-3000	
	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P.P.B.	$\%C_1 - C_4$
C_1	3	75	4	80	5	83	10	56
C_2	1	25	1	20	1	17	4	22
C_3	tr	*	*	*	*	*	2	11
iC_4	*	*	*	*	*	*	1	6
nC_4	*	*	*	*	*	*	1	6
TOTAL	4	(100)	5	(100)	6	(100)	18	(100)

GASOLINE RANGE ($C_5 - C_7$)

SAMPLE NO.	18		21		27		-	
DEPTH METRES	2580-610		2700-30		2880-910		2970-3000	
	P. P. B.	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$	P. P. B	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$
ISO-PENTANE	4	6	2	10	tr	*	tr	*
N-PENTANE	5	7	2	10	4	24	4	22
CYCLOPENTANE	1	1	*	*	*	*	tr	*
2-ME. PENTANE	5	7	2	10	2	12	1	5
3-ME. PENTANE	4	6	1	5	1	6	1	5
N-HEXANE	12	17	4	20	3	9	4	22
ME. CYCLOPENTANE	3	4	1	5	1	6	1	5
CYCLOHEXANE	5	7	2	10	*	*	2	11
2-ME. HEXANE	4	6	1	5	2	12	1	5
3-ME. HEXANE	3	4	tr	*	1	6	tr	*
3-ETHYLPENTANE	4	6	tr	*	tr	*	tr	*
N-HEPTANE	3	4	1	5	tr	*	1	5
BENZENE	*	*	tr	*	1	6	*	*
DIME. PENTANE	*	*	*	*	*	*	*	*
ME. CYCLOHEXANE	16	23	4	20	2	12	3	16
TOTAL	69	(100)	20	(100)	17	(100)	18	(100)

TABLE 2 (Cont'd.)

GASEOUS AND GASOLINE HYDROCARBON DATA

CLIENT CONOCO NORWAY WELL 24/9-1 LOCATION NORWEGIAN N. SEA

GAS ($C_1 - C_4$)

SAMPLE NO.	33		40		45		50	
DEPTH METRES	3120-50		3420-50		3600-30		3780-810	
	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P.P.B.	$\%C_1 - C_4$
C_1	5	100	23	96	18	90	11	73
C_2	tr	*	1	2	1	5	1	7
C_3	tr	*	1	2	1	5	3	20
iC4	tr	*	tr	*	tr	*	tr	*
nC4	tr	*	tr	*	tr	*	tr	*
TOTAL	5	(100)	25	(100)	20	(100)	15	(100)

GASOLINE RANGE ($C_5 - C_7$)

SAMPLE NO.	33		40		45		50	
DEPTH METRES	3120-50		3420-50		3600-30		3780-810	
	P. P. B.	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$	P. P. B	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$
ISO-PENTANE	tr	*	tr	*	tr	*	tr	*
N-PENTANE	1	7	4	31	1	20	3	30
CYCLOPENTANE	tr	*	tr	*	*	*	tr	*
2-ME. PENTANE	1	7	1	8	tr	*	*	*
3-ME. PENTANE	1	7	1	8	tr	*	*	*
N-HEXANE	3	21	2	15	1	20	2	20
ME. CYCLOPENTANE	1	7	1	8	1	20	tr	*
CYCLOHEXANE	2	14	1	8	tr	*	1	10
2-ME. HEXANE	1	7	1	8	tr	*	1	10
3-ME. HEXANE	tr	*	tr	*	*	*	1	10
3-ETHYLPENTANE	tr	*	tr	*	*	*	*	*
N-HEPTANE	1	7	1	8	1	20	1	10
BENZENE	*	*	*	*	*	*	*	*
DIME. PENTANE	*	*	*	*	*	*	*	*
ME. CYCLOHEXANE	3	21	1	8	1	20	1	10
TOTAL	14	(100)	13	(100)	5	(100)	10	(100)

TABLE 2 (Cont'd.)

GASEOUS AND GASOLINE HYDROCARBON DATA

CLIENT CONOCO NORWAY WELL 24/9-1 LOCATION NORWEGIAN N. SEA

GAS ($C_1 - C_4$)

SAMPLE NO.	55		-		-		-	
DEPTH METRES	3960-90		4050-80		4230-60		4320-50	
	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$
C_1	14	88	10	84	7	70	6	3
C_2	1	6	1	8	3	30	10	6
C_3	1	6	1	8	tr	*	64	4
iC_4	tr	*	*	*	tr	*	11	6
nC_4	tr	*	tr	*	tr	*	86	49
TOTAL	16	(100)	12	(100)	10	(100)	177	(100)

GASOLINE RANGE ($C_5 - C_7$)

SAMPLE NO.	55		-		-		-	
DEPTH METRES	3960-90		4050-80		4230-60		4320-50	
	P. P. B.	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$	P. P. B	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$
ISO-PENTANE	4	10	8	3	10	16	73	5
N-PENTANE	7	17	58	23	12	19	181	12
CYCLOPENTANE	tr	*	5	2	2	3	15	1
2-ME. PENTANE	2	5	21	8	4	6	84	6
3-ME. PENTANE	1	2	12	5	1	2	54	4
N-HEXANE	7	17	42	17	10	16	158	11
ME. CYCLOPENTANE	2	5	12	5	2	3	67	5
CYCLOHEXANE	3	7	16	6	4	6	68	5
2-ME. HEXANE	3	7	14	6	3	5	98	7
3-ME. HEXANE	2	5	12	5	2	3	97	7
3-ETHYLPENTANE	tr	*	6	2	1	2	61	4
N-HEPTANE	5	12	21	8	7	11	233	16
BENZENE	tr	*	tr	*	tr	*	5	1
DIME. PENTANE	*	*	*	*	*	*	*	*
ME. CYCLOHEXANE	5	12	21	8	6	9	231	16
TOTAL	41	(100)	248	(100)	64	(100)	1425	(100)

TABLE 2 (Cont'd.)

GASEOUS AND GASOLINE HYDROCARBON DATA

CLIENT CONOCO NORWAY WELL 24/9-1 LOCATION NORWEGIAN N. SEA

GAS ($C_1 - C_4$)

SAMPLE NO.	-		71		-		78	
DEPTH METRES	4410-40		4500-30		4590-620		4680-710	
	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$
C_1	6	1	5	7	10	14	13	5
C_2	31	5	3	4	2	3	4	1
C_3	225	33	19	27	14	20	66	24
iC_4	61	9	9	13	7	10	35	13
nC_4	350	52	35	49	38	54	154	57
TOTAL	673	(100)	71	(100)	71	(100)	272	(100)

GASOLINE RANGE ($C_5 - C_7$)

SAMPLE NO.	-		71		-		78	
DEPTH METRES	4410-40		4500-30		4590-620		4680-710	
	P. P. B.	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$	P. P. B	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$
ISO-PENTANE	672	12	262	13	91	7	34	12
N-PENTANE	1086	18	438	21	131	10	42	14
CYCLOPENTANE	61	1	26	1	15	1	5	2
2-ME. PENTANE	264	5	204	10	98	8	34	12
3-ME. PENTANE	299	5	103	5	61	5	18	6
N-HEXANE	566	10	357	18	206	16	41	14
ME. CYCLOPENTANE	403	7	88	4	48	4	8	3
CYCLOHEXANE	385	7	78	4	68	5	12	4
2-ME. HEXANE	430	8	94	5	100	8	21	7
3-ME. HEXANE	368	7	76	4	84	7	16	6
3-ETHYLPENTANE	206	4	35	2	33	3	6	2
N-HEPTANE	393	7	100	5	190	15	27	9
BENZENE	18	1	8	1	9	1	3	1
DIME. PENTANE	*	*	*	*	*	*	*	*
ME. CYCLOHEXANE	359	7	133	7	133	10	23	8
TOTAL	5510	(100)	2002	(100)	1267	(100)	290	(100)

TABLE 2 (Cont'd.)

GASEOUS AND GASOLINE HYDROCARBON DATA

CLIENT CONOCO NORWAY WELL 24/9-1 LOCATION NORWEGIAN N. SEA

GAS ($C_1 - C_4$)

SAMPLE NO.	-		87					
DEPTH METRES	4800-30		4890-98					
	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$	P. P. B.	$\%C_1 - C_4$
C_1	5	11	13	13				
C_2	1	2	10	10				
C_3	12	28	16	16				
iC4	5	11	21	21				
nC4	20	47	41	40				
TOTAL	43	(100)	101	(100)				

GASOLINE RANGE ($C_5 - C_7$)

SAMPLE NO.	-		87					
DEPTH METRES	4800-30		4890-98					
	P. P. B.	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$	P. P. B	$\%C_5 - C_7$	P. P. B.	$\%C_5 - C_7$
ISO-PENTANE	668	15	696	17				
N-PENTANE	1159	27	1028	25				
CYCLOPENTANE	62	1	58	1				
2-ME. PENTANE	402	9	363	9				
3-ME. PENTANE	209	5	190	5				
N-HEXANE	687	16	665	16				
ME. CYCLOPENTANE	167	4	172	4				
CYCLOHEXANE	188	4	195	5				
2-ME. HEXANE	159	4	156	4				
3-ME. HEXANE	126	3	121	3				
3-ETHYLPENTANE	54	1	44	1				
N-HEPTANE	263	6	242	6				
BENZENE	17	1	18	1				
DIME. PENTANE	*	*	*	*				
ME. CYCLOHEXANE	199	5	189	5				
TOTAL	4360	(100)	4137	(100)				

TABLE 3

GENERALISED KEROGEN DESCRIPTIONS AND SPORE COLOUR INDEX

Depth in Metres	Dominant Kerogen Types	Spore Colour Index
1800- 30	Inertinite, vitrinite and sapropel	2-3
1980-2010	Inertinite, vitrinite and sapropel (some vitrinitic additive)	2-3
2130- 60	Sapropel and some inertinite	2-3.5
2310- 70	Inertinite, little sapropel	2.5-3.5
2460- 90	Inertinite and sapropel	2.5-3.5
2610- 40	Inertinite and sapropel	2.5-3.5
2760- 90	Mainly inertinite	3-3.5
2880- 910	Mainly inertinite	2.5-3.5
3060- 90	Mainly inertinite, some sapropel	2.5-3.5
3210- 40	Inertinite	3-4
3360- 90	Inertinite, some vitrinite, minor sapropel	3-4
3450- 80	Inertinite, minor sapropel	3-4
3540- 70	Inertinite, minor sapropel	3-4
3630- 60	Inertinite, minor sapropel	3-4
3720- 50	Inertinite, minor sapropel	3-4
3810- 40	Inertinite, minor sapropel	3-4.5
3900- 30	Inertinite, minor sapropel	3-4.5
3990-4020	Inertinite, barren of spores	*
4080- 110	Inertinite and some vitrinite	3.5-4
4170- 200	Inertinite and minor exinite	3.5-4
4260- 90	Inertinite and minor exinite	4-4.5
4350- 80	Inertinite and ?bituminite	4-4.5
4440- 70	Inertinite	4-4.5
4530- 60	Inertinite	4.5-5
4620- 50	Inertinite	4.5-5
4740- 70	Inertinite	4.5
4830- 60	Inertinite and sapropel	4.5-5·5

TABLE 4

MATURATION EVALUATION DATA

COMPANY: CONOCO NORWAY WELL: 24/9-1 LOCATION: NORWEGIAN N. SEA

SAMPLE DEPTH (METRES) OR NOTATION	SAMPLE TYPE	GENERALISED LITHOLOGY	MAXIMUM PALAEOTEMP-ERATURE °F	VITRINITE REFLECTIVITY %	SPORE COLOURATION (1-10)	LIGHT HYDROCARBONS
1. 1800-30	Ctgs	Ol-gy sh	312	-	2-3	-
2. 1804	S.W.C.	Gn-gy sh	<259	-	-	-
3. 1860-90	Ctgs	Ol-gy sh	218	-	-	Immature?
4. 1920-50	"	Ditto	221	-	-	Immature?
5. 1980-2010	"	Ditto	195	0.31	2-3	-
6. 2040-70	"	Med gy slty sh	< 266	-	-	Immature?
7. 2067	S.W.C.	Med gy sh	230	-	-	-
8. 2100-30	Ctgs	Med gy slty sh	255	-	-	Immature?
2130-60	"	Ditto	-	0.27	2-3.5	-
9. 2152	S.W.C.	Ditto	181	-	-	-
10. 2160-90	Ctgs	Ditto	234	-	-	Immature?
11. 2220-50	"	Ditto	313	-	-	Trans-Mature
12. 2280-310	"	Ditto	314	-	-	Transitional
2310-40	"	Ditto	-	0.35	2.5-3.5	-
13. 2340-70	"	Ditto	243	-	-	-
14. 2400-30	"	Ditto	220	-	-	Transitional
15. 2459	S.W.C.	Dk gn-gy sh	218	-	-	-
16. 2460-90	Ctgs	Lt gy sh	281	0.36	2.5-3.5	-
17. 2541	S.W.C.	Med gy sh	< 272	-	-	-
18. 2580-610	Ctgs	Dk gy sh	254	-	-	Transitional
2610-40	"	Ditto	-	0.36	2.5-3.5	-
19. 2640-70	"	Ditto	208	-	-	-
21. 2700-30	"	Med gy sh	259	-	-	Trans (Low)

TABLE 4 (Cont'd.)

MATURATION EVALUATION DATA

COMPANY: CONOCO NORWAY WELL: 24/9-1 LOCATION: NORWEGIAN N. SEA

SAMPLE DEPTH (METRES) OR NOTATION	SAMPLE TYPE	GENERALISED LITHOLOGY	MAXIMUM PALAEOTEMP--ERATURE °F	VITRINITE REFLECTIVITY %	SPORE COLOURATION (1-10)	LIGHT HYDROCARBONS
22. 2705	S.W.C.	Gn-gy sh	284	-	-	-
23. 2740	"	Ditto	260	-	-	-
24. 2760-90	Ctgs	Lt gy sh	269	* (1.60)	3-3.5	-
25. 2820-50	"	Wht lstn	257	-	-	-
26. 2844.5	S.W.C.	Gy sh	282	-	-	-
27. 2880-910	Ctgs	Med gy sh+tr lstn	271	-	-	Trans (Low)
2910-40	"	Lt gy sh	-	* (1.54)	2.5-3.5	-
28. 2940-70	"	Med gy mdst	< 253	-	-	-
29. 2967	S.W.C.	Gy sh	287	-	-	-
2970 3000	Ctgs	Ditto	-	-	-	Trans (Low)
30. 3000-30	"	Med gy mdst	261	-	-	-
31. 3060-90	"	Lt gy sh	-	0.58	2.5-3.5	-
33. 3120-50	"	Ditto	-	-	-	Trans (Low)
34. 3180-210	"	Dk gy sh+lt gy mdst	265	-	-	-
3210-40	"	Ditto	-	0.20	3-4	-
35. 3240-70	"	Ditto	256	-	-	-
36. 3257	S.W.C.	Gy sh	285	-	-	-
37. 3270-300	Ctgs	Med gy mdst	241	-	-	-
39. 3360-90	"	Ditto	246	0.68	3-4	-
40. 3420-50	"	Med gy sh	-	-	-	Trans? (Low)
41. 3450-80	"	Lt gy sh	292	*	3-4	-
42. 3475	S.W.C.	Gy sh	303	-	-	-
44. 3540-70	Ctgs	Dk gy sh	298	*	3-4	-

TABLE 4 (Cont'd.)

MATURATION EVALUATION DATA

COMPANY: CONOCO NORWAY WELL: 24/9-1 LOCATION: NORWEGIAN N. SEA

	SAMPLE DEPTH (METRES) OR NOTATION	SAMPLE TYPE	GENERALISED LITHOLOGY	MAXIMUM PALAEOTEMP-ERATURE °F	VITRINITE REFLECTIVITY %	SPORE COLOURATION (1-10)	LIGHT HYDROCARBONS
45.	3600-30	Ctgs	Med gy sh/mdst	-	-	-	(Low)
46.	3630-60	"	Ditto	295	*	3-4	-
48.	3700	S.W.C.	Gy sh	312	-	-	-
49.	3720-50	Ctgs	Lt gy sh/mdst	306	*	3-4	-
	3780-810	"	Ditto	-	-	-	(Low)
51.	3810-40	"	Lt gy sh	305	*	3-4.5	-
54.	3900-30	"	Dk gy sh	304	*	3-4.5	-
55.	3960-90	Ctgs	Dk gy sh	-	-	-	Transitional ?
56.	3990-4020	"	Med-dk gy sh	284	* (1.11)	Barren	-
57.	3993	S.W.C.	Gy sh	283	-	-	-
	4050-80	Ctgs	Ditto	-	-	-	Mature
59.	4080-110	"	Gn-gy sh	348	0.39; 0.44	3.5-4	-
61.	4170-200	"	Med-dk gy sh	< 319	*	3.5-4	-
	4230-60	"	Ditto	-	-	-	Mature
63.	4260-90	"	Gn-gy/gy sh	318	*	4-4.5	-
	4320-50	"	Ditto	-	-		Mature
66.	4350-80	"	Dk gy sltst	310	0.37	4-4.5	-
67.	4369.5	S.W.C.	Blk sh	336	-	-	-
	4410-40	Ctgs	Gn-gy sh	-	-	-	Mature
69.	4440-70	"	Ditto	345	0.37	4-4.5	-
	4500-30	"	Ditto	-	-	-	Mature
72.	4530-60	"	Lt/dk gy sltst	340	0.55	4.5-5	-

TABLE 4 (Cont'd.)

MATURATION EVALUATION DATA

COMPANY: CONOCO NORWAY WELL: 24/9-1 LOCATION: NORWEGIAN N. SEA

SAMPLE DEPTH (METRES) OR NOTATION	SAMPLE TYPE	GENERALISED LITHOLOGY	MAXIMUM PALAEOTEMP-ERATURE °F	VITRINITE REFLECTIVITY %	SPORE COLOURATION (1-10)	LIGHT HYDROCARBONS
73. 4535	S.W.C.	Blk sh	< 393	-	-	-
4590-620	Ctgs	Gy-gn/gy mdst	-	-	-	Mature
76. 4620-50	"	Lt-dk gy sh	292	* (0.83)	4.5-5	-
4680-710	"	Dk gy sh/sltst	-	-	-	Mature
79. 4699	S.W.C.	Blk sh	342	-	-	-
80. 4740-70	Ctgs	Lt gy sltst	260	* (0.84)	4.5	-
4800-30	"	Gn-gy sh, dk gy sh+sst	-	-	-	Mature
84. 4805	S.W.C.	Blk waxy sh	345	-	-	-
86. 4830-60	Ctgs	Gy-gn sh	298	0.65	4.5-5.5	-
4890-98	"	Ditto	-	-	-	Mature
Core 12	S.W.C.	Dk gn-gy sh	235	-	-	-
Core 24	"	Gn-gy sh	210	-	-	-
Core 27	"	Ditto	222	-	-	-

TABLE 5

SOURCE ROCK EVALUATION DATA

COMPANY: CONOCO NORWAY WELL: 24/9-1 LOCATION: NORWEGIAN NORTH SEA

SAMPLE DEPTH METRES OR NOTATION	SAMPLE TYPE	ANALYSED LITHOLOGY	ORGANIC CARBON % OF ROCK	TOTAL EXTRACT P.P.M.	EXTRACT % OF ORGANIC CARBON	HYDRO-CARBONS P.P.M. OF ROCK	HYDRO-CARBONS % OF EXTRACT	TOTAL ALKANES % HYDRO CARBONS
1. 1800-830	Ctgs	Ol-gy calc sh	0.67	450	6.7	130	29	66
2. 1804	Core	Gn-gy sh	0.55	315	5.7	20	6	64
3. 1860-890	Ctgs	Ol-gy calc sh	0.58	30	0.5	<20	-	-
4. 1920-950	"	Ol-gy/gn-gy sl calc sh	0.89	430	4.8	105	24	64
5. 1980-2010	"	Ditto+mnr snd (walnut shell)	1.52	435	2.9	180	41	67
6. 2040-070	"	Lt-med gy sl slty sh	1.12	505	4.5	95	19	58
7. 2067	Core	Med gy sh	0.92	1750	19.0	95	5	57
8. 2100-130	Ctgs	Lt-med gy sl slty sh+ mnr lt brn-gy sltst+ mnr sst	1.55	755	4.9	190	25	72
9. 2152	Core	Med gy sh	0.97	1660	17.1	95	6	64
10. 2160-190	Ctgs	Lt-med gy sl slty sh+ 10% lt brn-gy sltst	0.69	325	4.7	20	6	57
11. 2220-250	"	Ditto + 25% gn-gy sh+ 20% brn-gy sltst+ pyrite modules+ mnr snd	1.09	520	4.8	95	18	61
12. 2280-310	"	Ditto+ 15% ditto+ kaolin/qtz	0.61	240	3.9	30	12	58
13. 2340-370	"	Ditto+50% kaolin/qtz	0.68	295	4.3	50	17	58
14. 2400-430	"	Ditto + 70% ditto	0.47	180	3.8	<20	-	-
15. 2459	Core	Dk gn-gy sh	0.46	345	7.5	<20	-	-
16. 2460-490	Ctgs	Lt gy sh + 50% kaolin/ qtz	0.56	1250	22.3	<20	-	-
17. 2541	Core	Med gy sh	1.30	1495	11.5	80	5	72
18. 2580-610	Ctgs	Dk gy sh+ 15% kaolin/ qtz	0.62	320	5.2	50	16	73
19. 2640-670	"	Med gy/dk gy sh+ kaolin/snd	0.43	385	9.0	60	15	76
20. 2660	Core	Bl-gy calc sh	0.13	-	-	-	-	-
21. 2700-730	Ctgs	Med gy calc sh + 10% kaolin+mnr dk brn lstn	0.32	350	10.9	25	7	60
22. 2705	Core	Gn-gy calc sh	0.27	-	-	-	-	-

TABLE 5 (Cont.d)

SOURCE ROCK EVALUATION DATA

COMPANY : CONOCO NORWAY WELL : 24/9-1 LOCATION : NORWEGIAN NORTH SEA

SAMPLE DEPTH (METRES OR NOTATION	SAMPLE TYPE	ANALYSED LITHOLOGY	ORGANIC CARBON % OF ROCK	TOTAL EXTRACT P.P.M.	EXTRACT % OF ORGANIC CARBON	HYDRO-CARBONS P.P.M. OF ROCK	HYDRO-CARBONS % OF EXTRACT	TOTAL ALKANES % HYDRO CARBONS
23. 2740	Core	Dk gn-gy calc sh	0.25	-	-	-	-	-
24. 2760-790	Ctgs	Lt gy/med gy calc sh+ mnr kaolin	0.41	155	3.8	<20	-	-
25. 2820-850	"	Wht lstn+10% med gy sh sh+ mnr wht sst	0.48	185	3.9	<20	-	-
26. 2844.5	SWC	Gy calc sh	0.40	210	5.2	55	26	59
27. 2880-910	Ctgs	Med gy calc sh+40% kaolin+tr lstn +tr pyr sst	0.50	275	5.5	35	13	60
28. 2940-970	"	Med gy calc mdst +10% dk gy calc sh + mnr lstn + kaolin	0.44	270	6.1	<20	-	-
29. 2967	SWC	Gy calc sh	0.33	165	5.0	<20	-	-
30. 3000-030	Ctgs	Med gy calc mdst+10% dk gy calc sh	0.22	-	-	-	-	-
31. 3060-090	"	Lt gy calc sh+40 med -dk gy sh/mdst+red mud	0.16	-	-	-	-	-
32. 3118	SWC	Pp calc sh	0.13	-	-	-	-	-
33. 3120-150	Ctgs	Lt gy calc sh +40% med gy mdst/sh	0.16	-	-	-	-	-
34. 3180-210	"	Dk gy calc sh +lt gy mdst/sh	0.31	480	15.5	50	11	85
35. 3240-270	"	Med gy calc mdst/sh	0.28	-	-	-	-	-
36. 3257	SWC	Gy calc sh	0.27	-	-	-	-	-
37. 3270-300	Ctgs	Med gy calc mdst/sh	0.38	210	5.5	30	14	76
38. 3300-330	"	Med gy sh +mnr gy-gy sh + mnr coal	0.60	-	-	-	-	-
39. 3360-390	"	Med gy mdst	0.42	725	17.3	175	24	87
40. 3420-450	"	Med gy sh/sltst	0.30	-	-	-	-	-
41. 3450-480	"	Lt gy sh/sltst+mnr coal	0.28	-	-	-	-	-
42. 3475	SWC	Gy calc sh	0.42	490	11.7	330	67	82
43. 3480-510	Ctgs	Med dk gy sh/mdst	0.31	-	-	-	-	-
44. 3540-570	"	Dk gy sh/mdst	0.37	270	7.3	45	17	81

TABLE 5 (Cont'd)

SOURCE ROCK EVALUATION DATA

COMPANY : CONOCO NORWAY WELL : 24/9-1 LOCATION : NORWEGIAN NORTH SEA

SAMPLE DEPTH (METRES OR NOTATION	SAMPLE TYPE	ANALYSED LITHOLOGY	ORGANIC CARBON % OF ROCK	TOTAL EXTRACT P.P.M.	EXTRACT % OF ORGANIC CARBON	HYDRO-CARBONS P.P.M. OF ROCK	HYDRO-CARBONS % OF EXTRACT	TOTAL ALKANES % HYDRO CARBONS
45. 3600-630	Ctgs	Med gy sh/mdst + mnr lt gy sltst	0.33	-	-	-	-	-
46. 3630-660	"	Ditto (sl calc)	0.29	-	-	-	-	-
47. 3660-690	"	Ditto	0.30	-	-	-	-	-
48. 3700	SWC	Gy calc sh	0.37	190	5.1	50	26	73
49. 3720-750	Ctgs	Med-lt gy sh/mdst	0.20	-	-	-	-	-
50. 3780-810	"	Ditto +gn/gy sltst	0.44	-	-	-	-	-
51. 3810-840	"	Lt gy calc sh	0.20	-	-	-	-	-
52. 3840-870	"	Lt gy sh	0.21	-	-	-	-	-
53. 3873	SWC	Gy calc sh	0.51	320	6.3	<20	-	-
54. 3900-930	Ctgs	Dk gy sh +mnr coal	0.64	175	2.7	<20	-	-
55. 3960-990	"	Dk gy sh +mnr lt gy sltst	0.87	-	-	-	-	-
56. 3990-4020	"	Med-dk gy sh	0.77	875	11.4	35	4	79
57. 3993	SWC	Gy calc sh	0.24	-	-	-	-	-
58. 4020-050	Ctgs	Med gy mdst + iron stain	0.66	-	-	-	-	-
59. 4080-110	"	Gn-gy sh + mnr coal	2.81	1045	3.7	65	6	76
60. 4140-170	"	Gn/gy sh + mnr coal	0.70	-	-	-	-	-
61. 4170-200	"	Med-dk gy sh + mnr lstn	0.48	180	3.8	<20	-	-
62. 4200-230	"	Gn-gy/gy sh + brn-gy sltst	0.48	-	-	-	-	-
63. 4260-290	"	Ditto (sl calc)	1.12	310	2.8	95	30	75
64. 4320-350	"	Ditto (sl calc)	0.61	-	-	-	-	-
65. 4324	SWC	Med-dk gy calc sh	2.44	1310	5.4	390	30	77
66. 4350-380	Ctgs	Dk gy sltst	1.74	1675	9.6	1350	81	75

TABLE 5 (Cont'd)

SOURCE ROCK EVALUATION DATA

COMPANY: CONOCO NORWAY WELL: 24/9-1 LOCATION NORWEGIAN NORTH SEA

SAMPLE DEPTH METRES OR NOTATION	SAMPLE TYPE	ANALYSED LITHOLOGY	ORGANIC CARBON % OF ROCK	TOTAL EXTRACT P.P.M.	EXTRACT % OF ORGANIC CARBON	HYDRO-CARBONS P.P.M. OF ROCK	HYDRO-CARBONS % OF EXTRACT	TOTAL ALKANES % HYDRO CARBONS
67. 4369.5	SWC	Blk sh	7.5	7415	9.9	3200	43	70
68. 4380-410	Ctgs	Gn gy sh (sl calc)	1.35	-	-	-	-	-
69. 4440-470	"	Ditto (sl calc) +mnr lt gy sltst	3.3	2095	6.3	510	24	77
70. 4473	SWC	Blk sh	6.9	4105	5.9	3560	87	70
71. 4500-530	Ctgs	Med gy/gn-gy/lt gy sh (sl calc) + mnr snd	0.6	-	-	-	-	-
72. 4530-560	"	Lt/dk gy sltst	1.63	595	3.7	260	44	80
73. 4535	SWC	Blk sh	6.6	3385	5.1	1490	44	87
74. 4560-590	Ctgs	Gy/gn gy mdst/sltst + mnr red sh	1.16	-	-	-	-	-
75. 4591.5	SWC	Gy slty sst	0.81	695	8.6	130	19	61
76. 4620-650	Ctgs	Dk/med/lt gy sh + mnr coal	3.3	1730	5.2	1085	63	87
77. 4620.5	SWC	Gy slty sst +tr dk gy sh	1.75	1070	6.1	80	7	*
78. 4680-710	Ctgs	Lt gy/dk gy sltst, red sh, mnr snd	2.80	-	-	-	-	-
79. 4699	SWC	Blk sh	8.2	3195	3.9	1250	39	83
80. 4740-770	Ctgs	Lt gy sltst (sl calc) +dk gy sltst	2.48	3525	14.2	200	6	81
81. 4770-800	"	Lt/dk gy sltst	3.1	-	-	-	-	-
82. 4777.5	SWC	Blk sh	9.0	-	-	-	-	-
83. 4801	"	Crs sst with blk surface deposit	1.51	475	3.1	40	8	*
84. 4805	"	Blk waxy (oily?) sh	9.0	1425	1.6	65	5	*
85. 4816	"	Sst with blk intergran deposit	1.79	800	0.4	445	56	*
86. 4830-860	Ctgs	Gy-gn sh + lt gy sltst (calc) + mnr coal	2.62	2660	10.2	420	16	70
87. 4890-98	"	Lt to dk gy calc sltst + mnr coal	3.9	-	-	-	-	-
Core 12	SWC	Dk gn-gy sl calc sh	0.98	1000	10.2	360	36	83
Core 24	"	Dk gn-gy sh	0.32	200	6.2	20	10	*
Core 27	"	Gn-gy sh	0.82	830	10.1	25	3	*