

.3 U-604

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20 OKT. 1989
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OLJEDIREKTORATET

2 INTRODUCTION

This report describes the results of a petroleum geochemical evaluation carried out on behalf of Phillips Petroleum Company Norway of the interval 2160' to 11700' in the 1/2-1 well, drilled in the Central Graben area of the Norwegian North Sea.

A letter with invitation to bid for geochemical services was received on 7th March 1989. A detailed proposal and cost estimate was issued on 13th March 1989. Drill cuttings samples were received at the North Wales laboratories of The Robertson Group on 25th May 1989. The drill stem test oil sample (DST-1) was received on 29th August 1989.

Preliminary geochemical data were forwarded to the client by letter on 24th July 1989, 15th August 1989 and 15th September 1989. Our contact at Phillips Petroleum Company Norway throughout the course of the study has been Mr G V Søliland, whose assistance is acknowledged.

The Robertson Group personnel involved in this study have been as follows:

| | |
|---------------------------------------|--|
| Project co-ordination | - P C Barnard |
| Interpretation and report preparation | - M A Bastow |
| Microscopy studies | - A G Collins, A D Carr and M A Bastow |
| Chemical analysis | - supervised by N Owen |

The lithostratigraphic and biostratigraphic breakdown used in this report, and formation temperature data from wireline log runs and drill stem testing, were provided by the client.

The total number of analyses carried out during the course of the study were as follows:

Drill Cuttings Samples

| | | |
|---|---|-----|
| Sample preparation (cleaning and lithology description) | : | 154 |
| Lithology picking | : | 70 |
| Total organic carbon content | : | 199 |
| Rock-Eval pyrolysis | : | 133 |
| Solvent extraction | : | 3 |
| Extract fractionation | : | 3 |
| Alkane gas chromatography | : | 3 |
| Kerogen preparation | : | 99 |
| Spore colouration and kerogen description | : | 99 |
| Vitrinite reflectivity | : | 100 |

Oil Sample

| | | |
|---------------------------------|---|---|
| API gravity | : | 1 |
| Pour point | : | 1 |
| Viscosity (20°C, 40°C, 60°C) | : | 1 |
| Volatile content (topping loss) | : | 1 |
| Asphaltene content | : | 1 |
| Wax content | : | 1 |
| Water content | : | 1 |
| Sulphur content | : | 1 |
| Nickel content | : | 1 |

| | | |
|---|---|---|
| Vanadium content | : | 1 |
| Column chromatography | : | 1 |
| Whole oil gas chromatography | : | 1 |
| Alkane gas chromatography | : | 1 |
| Aromatic gas chromatography | : | 1 |
| Gasoline hydrocarbon analysis | : | 1 |
| Alkane gas chromatography - mass spectrometry | : | 1 |
| Carbon isotopes - alkane and aromatic fractions | : | 1 |

The abbreviations used in analytical data sheets and a brief summary of the analytical techniques and procedures employed during the course of this study are given in Appendices 1 and 2 respectively.

| GENERAL DATA | | | MATURITY DATA | | KEROGEN COMPOSITION DATA | | | | | | |
|------------------------|----------------|---|--------------------------|---------------------------------|-----------------------------|-----------|----------|----------------|-----|------------|------------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | SPORE COLOUR INDEX | VITR. REFL. R oil av % | % (Visual, from microscopy) | | | % (Calculated) | | | |
| | | | | | INERTINITE | VITRINITE | SAPROPEL | INERT | VIT | ALG SAP | WXY SAP |
| 2160-250 | Ctgs | MDST, lt ol-gy, calc + 20% SND+ mnr foss + mnr CMT | 1.5-2.0 3.0 R | .26(4) | * | 20 | 80 | | | | |
| 2250-340 | Ctgs | MDST, lt ol-gy, calc + 20% SND+ mnr foss | 1.5-2.0 | .24(12) | * | 20 | 80 | | | | |
| 2340-430 | Ctgs | MDST, lt ol-gy, calc + tr foss | 1.5-2.0 | .25(11) | * | 15 | 85 | | | | |
| 2430-520 | Ctgs | MDST, lt ol-gy, calc + mnr foss+ tr SND | 2.0-2.5 | .25(35) .59(5)R | Mnr | Mnr | 100 Am | | | | |
| 2520-610 | Ctgs | MDST, lt ol-gy, calc + tr SND+ tr foss | 2.0-2.5 | .27(23) | * | 10 | 90 Am | | | | |
| 2610-700 | Ctgs | MDST, lt ol-gy, calc + mnr foss+ tr SND | 2.0-2.5 | .22(28) | 10 | Mnr | 90 Am | | | | |
| 2700-790 | Ctgs | MDST, lt ol-gy, calc + tr SND+ tr foss | 2.0 | .24(24) | * | 15 | 85 Am | | | | |
| 2790-880 | Ctgs | MDST, lt ol-gy, calc + tr SND+ tr foss | 2.0 | .25(14) | 10 | Mnr | 90 Am | | | | |
| 2880-970 | Ctgs | MDST, med gy, calc+ mnr foss+ tr SST | 2.0 | .26(5) | * | 15 | 85 Am | | | | |
| 2970-3060 | Ctgs | MDST, med gy, calc+ mnr foss+ tr SST | 2.0 | .27(7) | 10 | 5 | 85 Am | | | | |
| 3060-150 | Ctgs | MDST, med gy, calc+ mnr MDST, yel-gy, calc+ tr SST | 2.0 | .27(25) | 10 | 5 | 85 Am | | | | |
| 3150-240 | Ctgs | MDST, med gy, calc+ mnr MDST, yel-gy, calc+ tr SST | 1.5-2.0 | .28(29) | * | 10 | 90 Am | | | | |
| 3240-330 | Ctgs | MDST, med gy, calc+ 10% MDST, yel-gy, calc+ tr SST+ tr foss | 2.0 | .25(30) | 5 | 35 Am | 60 Am | | | | |
| 3330-420 | Ctgs | MDST, med gy, calc+ 10% SND+ mnr MDST, yel-gy, calc+ mnr foss | 2.0-2.5 7.5 R | .30(37) .49(4)R | * | 40 | 60 | | | | |
| 3420-510 | Ctgs | MDST, med gy, calc+ mnr MDST, yel-gy, calc+ mnr MDST, ol-gy, calc+ tr SND + tr foss | 2.0 | .29(15) .21(4)C | Mnr | Mnr | 100 Am | | | | |
| 3510-600 | Ctgs | MDST, med gy, calc+ 20% MDST, ol-gy, calc+ mnr foss+ tr MDST, yel-gy, calc | 2.0 | * | * | 10 | 90 | | | | |
| 3600-690 | Ctgs | MDST, ol-gy, calc+ 10% MDST, med gy, calc+ tr foss+ tr MDST, yel-gy, calc | 2.0-2.5 4.0 R | * | * | 30 | 70 | | | | |

MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 1A

| GENERAL DATA | | | MATURITY DATA | | KEROGEN COMPOSITION DATA | | | | | | |
|------------------------|----------------|--|--------------------------|---------------------------------|-----------------------------|------------|----------|----------------|-----|------------|------------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | SPORE COLOUR INDEX | VITR. REFL. R oil av % | % (Visual, from microscopy) | | | % (Calculated) | | | |
| | | | | | INERTINITE | VITRINITE | SAPROPEL | INERT | VIT | ALG SAP | WXY SAP |
| 3690-780 | Ctgs | MDST, ol-gy, calc+ mnr foss+ tr MDST, med gy, calc | 2.0-2.5 | .29(2) | 5 | 65 Inc Am | 30 Am | | | | |
| 3780-870 | Ctgs | MDST, ol-gy, calc+ tr foss | 2.5 ? 7.0 ? R | * | * | 30 | 70 | | | | |
| 3870-960 | Ctgs | MDST, ol-gy, calc+ tr foss | 2.5 | .33(20) | Mnr | 60 Inc Am | 40 Am | | | | |
| 3960-4050 | Ctgs | MDST, ol-gy, calc+ mnr MDST, pal yel-brn, calc | 2.0-2.5 | * | * | 5 | 95 | | | | |
| 4050-140 | Ctgs | MDST, ol-gy, calc+ tr foss+ tr MDST, pal yel-brn, calc | 2.5 | .31(6) | Mnr? | 70? Inc Am | 30? Am | | | | |
| 4140-230 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ tr foss | 2.0 4.0-5.0 R | .33(2) | * | * | 100 | | | | |
| 4230-320 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 2.5-3.0 8.5 R | .33(4) | * | * | 100 | | | | |
| 4320-410 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 2.0 4.0-4.5 R | * | * | 10 | 90 | | | | |
| 4410-500 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 2.5-3.0 5.5 R | * | 10 | 10 | 80 Am | | | | |
| 4500-590 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ tr MDST, pal yel-brn, calc | 2.0-2.5 | * | * | 10 | 90 Am | | | | |
| 4590-680 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 2.5-3.0 | * | 10 | Mnr | 90Am, Sp | | | | |
| 4680-770 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ tr MDST, pal yel-brn, calc | 2.0-2.5 6.5-7.0 R | .31(4) | * | 10 | 90 | | | | |
| 4770-860 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 2.5 | .30(7) | Mnr | 90 Am | 10 Sp | | | | |
| 4860-950 | Ctgs | MDST, lt ol-gy, calc + 20% MDST, ol-gy, calc+ mnr MDST, pal yel-brn, calc | 2.5 | .33(12) | Mnr | 100 Am | * | | | | |

MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 1B

| GENERAL DATA | | | MATURITY DATA | | KEROGEN COMPOSITION DATA | | | | | | | |
|------------------------|----------------|--|--------------------------|----------------------------------|-----------------------------|------------|----------|----------------|-----|------------|------------|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | SPORE COLOUR INDEX | VITR. REFL. R-oil av. % | % (Visual, from microscopy) | | | % (Calculated) | | | | |
| | | | | | INERTINITE | VITRINITE | SAPROPEL | INERT | VIT | ALG SAP | WXY SAP | |
| 4950-5040 | Ctgs | MDST, lt ol-gy, calc + 10% MDST, ol-gy, calc+ 10% SST+ mnr MDST, pal yel-brn, calc+ tr pyr | 2.5-3.0 | .30(1) | Mnr | 100 Am | Mnr | | | | | |
| 5040-130 | Ctgs | MDST, ol-gy, calc+ 20% MDST, pal yel-brn, calc+ 10% SST | 2.0-2.5 | * | *? | 95? Am | 5? | | | | | |
| 5130-220 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ mnr SST+ tr MDST, pal yel-brn, calc | 2.5-3.0 | .31(6) | 10 | Mnr | 90 Am | | | | | |
| 5220-310 | Ctgs | MDST, ol-gy, calc+ 10% MDST, pal yel-brn, calc+ mnr SST | 2.5 | * | * | 10 | 90 Am | | | | | |
| 5310-400 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 3.0 | .28(2) | 10 | Mnr | 90 Am | | | | | |
| 5400-490 | Ctgs | MDST, lt ol-gy, calc + 20% MDST, ol-gy, calc | 2.0-2.5 | .31(9) | * | 95 Am | 5 | | | | | |
| 5490-580 | Ctgs | MDST, ol-gy, calc+ 30% MDST, lt ol-gy, calc+ tr SST | 2.5 | .30(17) | Mnr | 90 Am | 10 | | | | | |
| 5580-670 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ tr SST | 2.0-2.5 | .31(12) | * | 95 Am | 5 | | | | | |
| 5670-760 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ tr SST | 2.5 | .31(11) | Mnr? | 90? Am | 10? | | | | | |
| 5760-850 | Ctgs | MDST, lt ol-gy, calc + 20% MDST, ol-gy, calc | 2.5 | .32(40) | *? | 85? Am | 15? | | | | | |
| 5850-940 | Ctgs | MDST, lt ol-gy, calc + 20% MDST, ol-gy, calc | 2.5 | .35(37) | *? | 90? Am | 10? | | | | | |
| 5940-6030 | Ctgs | MDST, lt ol-gy, calc + 30% MDST, ol-gy, calc | 2.5-3.0 | .33(51) | Mnr | 90 Inc Am | 10 | | | | | |
| 6030-120 | Ctgs | SH, lt ol-gy, calc+ 40% SH, brn-gy, calc + tr BIT | 2.5-3.0 | .35(3) | *? | 70? Inc Am | 30? | | | | | |
| 6120-210 | Ctgs | SH, brn-gy, calc+ 30% SH, lt ol-gy, calc+ mnr MDST, yel-gy, calc | 3.0 | .37(17) | Mnr | 90 Inc Am | 10 | | | | | |

MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 1C

| GENERAL DATA | | | MATURITY DATA | | KEROGEN COMPOSITION DATA | | | | | | | |
|------------------------|----------------|---|--------------------------|---------------------------------|-----------------------------|------------|----------|----------------|-----|------------|------------|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | SPORE COLOUR INDEX | VITR. REFL. R oil av % | % (Visual, from microscopy) | | | % (Calculated) | | | | |
| | | | | | INERTINITE | VITRINITE | SAPROPEL | INERT | VIT | ALG SAP | WXY SAP | |
| 6210-300 | Ctgs | SH, brn-gy, calc+ 30% SH, lt ol-gy, calc | 2.5-3.0 | .34(15) .45(20)R | *? | 80? Inc Am | 20? | | | | | |
| 6300-390 | Ctgs | SH, brn-gy, calc+ 20% SH, lt ol-gy, calc | 2.5-3.0 | .35(18) | 10 | 90 Inc Am | Mnr | | | | | |
| 6390-480 | Ctgs | SH, brn-gy, calc+ 20% SH, lt ol-gy, calc+ mnr MDST, yel-gy, calc | 2.5-3.0 | .37(37) .47(8)R | *? | 85? Inc Am | 15? | | | | | |
| 6480-570 | Ctgs | SH, ol-gy, calc+ 30% SH, lt ol-gy, calc+ 10% SH, brn-gy, calc + tr MDST, dsk yel-brn | 3.0 | .32(11) .45(10)R | 10 | 90 Inc Am | Mnr | | | | | |
| 6570-660 | Ctgs | SH, ol-gy+ 10% SH, brn-gy, calc+ 10% SH lt ol-gy+ mnr MDST, yel-gy, calc | 2.5-3.0 | .36(14) .44(24)R | *? | 85? Inc Am | 15? | | | | | |
| 6660-750 | Ctgs | SH, ol-gy+ 10% SH, lt ol-gy+ mnr MDST, yel-gy, calc | 3.0 | * | Mnr? | 100? Am | *? | | | | | |
| 6750-840 | Ctgs | SH, ol-gy+ mnr SH, lt ol-gy+ mnr MDST, yel-gy, calc | 3.0 | .35(3) .48(5)R .77(3)R | Mnr? | 80? Inc Am | 20? | | | | | |
| 6840-930 | Ctgs | MDST, ol-gy+ 10% MDST, lt ol-gy+ mnr MDST, yel-gy, calc+ tr DOL, dsk yel-brn + tr SST | 2.5-3.0 | .31(27) | Mnr? | 100? Am | Mnr? | | | | | |
| 6930-7020 | Ctgs | MDST, ol-gy+ mnr MDST, lt ol-gy+ mnr MDST, yel-gy, calc | 2.5-3.0 | .32(27) | *? | 75? Am | 25? | | | | | |
| 7020-110 | Ctgs | MDST, ol-gy+ 10% MDST, lt ol-gy+ mnr MDST, yel-gy, calc+ tr BIT | 3.0 | .35(1) | Mnr? | 90? Am | 10? | | | | | |
| 7110-200 | Ctgs | SH, brn-gy+ 30% MDST ol-gy+ tr LST, pal yel-brn | 3.0 | .35(6) | *? | 85? Am | 15? | | | | | |
| 7200-290 | Ctgs | MDST, brn-gy+ 20% MDST, ol-gy+ 10% foss+ tr SST+ tr CALT | 3.0 | .35(33) | Mnr | 90 Am | 10 | | | | | |
| 7290-380 | Ctgs | MDST, brn-gy+ 30% MDST, ol-gy+ mnr MDST, pal yel-brn, calc+ mnr foss | 3.0 | .33(15) | Mnr | 100 Inc Am | * | | | | | |
| 7380-470 | Ctgs | SH, dsk yel-brn+ 30% SH, ol-gy+ mnr MDST, pal yel-brn, calc | 3.0 | .33(4) | *? | 90? Am | 10? | | | | | |

MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 1D

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | MATURITY DATA | | KEROGEN COMPOSITION DATA | | | | | | |
|------------------------|----------------|--|--------------------------|---------------------------------|-----------------------------|-------------|----------|----------------|-----|------------|------------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | SPORE COLOUR INDEX | VITR. REFL. R-oil av % | % (Visual, from microscopy) | | | % (Calculated) | | | |
| | | | | | INERTINITE | VITRINITE | SAPROPEL | INERT | VIT | ALG SAP | WXY SAP |
| 7470-560 | Ctgs | SH, ol-gy+ 40% SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc | 3.0-3.5 | .33(4) | Mnr | 100 Inc Am | 5 | | | | |
| 7560-650 | Ctgs | SH, ol-gy+ 30% SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc+ tr SH, lt ol-gy | 3.0 | .33(1) | * | 90 Am | 10 | | | | |
| 7650-740 | Ctgs | SH, dsk yel-brn+ 20% SH, ol-gy+ 10% MDST, pal yel-brn, calc | 3.0 | .34(4) | Mnr | 100 Inc Am | * | | | | |
| 7740-830 | Ctgs | SH, ol-gy+ 40% SH, dsk yel-brn+ 10% MDST, pal yel-brn, calc+ tr SND | 3.0-3.5 | .37(4) | *? | 90? Inc Am | 10? | | | | |
| 7830-920 | Ctgs | SH, dsk yel-brn+ 30% SH, ol-gy+ mnr MDST, pal yel-brn, calc | 3.0-3.5 | .36(41) | Mnr | 100 Inc Am | * | | | | |
| 7920-8010 | Ctgs | SH, lt ol-gy+ 30% SH ol-gy+ 10% SH, dsk yel-brn+ tr MDST pal yel-brn, calc | 3.0-3.5 | .37(14) | Mnr? | 100? Inc Am | Mnr? | | | | |
| 8010-100 | Ctgs | SH, lt ol-gy+ 20% SH ol-gy+ mnr SH, dsk yel-brn+ tr MDST pal yel-brn, calc | 3.0-3.5 | .37(40) | Mnr | 100 Inc Am | Mnr | | | | |
| 8100-190 | Ctgs | SH, lt ol-gy+ 10% SH ol-gy+ mnr SH, dsk yel-brn+ tr MDST pal yel-brn, calc | 3.5 | .39(8) | *? | 90? Inc Am | 10? | | | | |
| 8190-280 | Ctgs | SH, lt ol-gy+ mnr SH ol-gy+ tr MDST, pal yel-brn, calc+ tr pyr+ tr LST, brn-gy | 3.0-3.5 | .35(8) | Mnr | 100 Inc Am | Mnr Sp | | | | |
| 8280-370 | Ctgs | SH, lt ol-gy+ 10% SH ol-gy+ mnr MDST, pal yel-brn, calc+ tr foss+ tr SST | 3.0-3.5 | .37(13) | *? | 90? Inc Am | 10? | | | | |
| 8370-460 | Ctgs | SH, lt ol-gy+ 10% SH ol-gy+ tr SH, dsk yel-brn+ tr MDST yel-gy, calc | 3.0-3.5 | .36(9) | Mnr | 100 Inc Am | Mnr Sp | | | | |
| 8460-550 | Ctgs | SH, lt ol-gy+ 20% SH ol-gy+ tr foss+ tr BIT+ tr MDST, yel-gy calc | 3.0-3.5 | .36(12) | *? | 90? Inc Am | 10? | | | | |
| 8550-640 | Ctgs | SH, lt ol-gy+ 20% SH ol-gy+ mnr SH, dsk yel-brn+ tr MDST yel-gy, calc | 3.5 | .38(46) | Mnr | 100 Inc Am | Mnr Sp | | | | |

MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 1E

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | MATURITY DATA | | KEROGEN COMPOSITION DATA | | | | | | |
|------------------------|----------------|---|--------------------------|---------------------------------|-----------------------------|------------|----------|----------------|-----|------------|------------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | SPORE COLOUR INDEX | VITR. REFL. R oil av % | % (Visual, from microscopy) | | | % (Calculated) | | | |
| | | | | | INERTINITE | VITRINITE | SAPROPEL | INERT | VIT | ALG SAP | WXY SAP |
| 8640-730 | Ctgs | SH, lt ol-gy+ mnr SH ol-gy+ mnr SH, dsk yel-brn+ mnr MDST, yel-gy, calc+ mnr CALT | 3.5 | .36(9) | *? | 90? Inc Am | 10? | | | | |
| 8730-820 | Ctgs | SH, lt gy+ 20% SH, ol-gy+ tr foss+ tr pyr+ tr OS | 3.0-3.5 | .38(4) | Mnr | 100 Inc Am | Mnr | | | | |
| 8820-910 | Ctgs | SH, lt gy+ 20% SH, ol-gy | 3.5 | .36(28) | *? | 85? Inc Am | 15? | | | | |
| 8910-9000 | Ctgs | SH, lt gy+ 30% SH, ol-gy+ mnr MDST, pal yel-brn, calc+ tr foss | 3.5 | .32(16) | *? | 85? Inc Am | 15? | | | | |
| 9000-090 | Ctgs | SH, ol-gy+ 40% SH, lt gy+ tr foss+ tr MDST, pal yel-brn, calc+ tr SND | 3.5 | .36(10) | Mnr | 100 Inc Am | Mnr | | | | |
| 9090-180 | Ctgs | SH, ol-gy+ 20% SH, lt gy+ tr OS+ tr por + tr SND | 3.5 | .33(16) | 10 | 90 Inc Am | Mnr | | | | |
| 9180-270 | Ctgs | SH, ol-gy+ 20% SH, lt ol-gy+ 10% SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc | 3.5-4.0 | .34(1) | *? | 80? Inc Am | 20? | | | | |
| 9270-360 | Ctgs | SH, ol-gy+ 20% SH, lt gy+ tr MDST, pal yel-brn, calc+ tr SH, dsk yel-brn+ tr BIT | 3.0-3.5 | .36(8) | Mnr | 100 Inc Am | Mnr | | | | |
| 9360-450 | Ctgs | SH, ol-gy+ 20% SH, lt gy+ mnr MDST, pal yel-brn, calc+ tr SH, dsk yel-brn | 3.5-4.0 | .34(17) | *? | 90? Inc Am | 10? | | | | |
| 9450-540 | Ctgs | SH, ol-gy+ 30% SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc | 3.5-4.0 | .34(36) | Mnr | 100 Inc Am | Mnr | | | | |
| 9600-630 | Ctgs | SH, med gy+ mnr SH, ol-gy+ tr SH, dsk yel-brn+ tr SND | 3.5 | .34(4) | *? | 80? Inc Am | 20? | | | | |
| 9690-720 | Ctgs | SH, med gy+ 20% SH, ol-gy+ 10% SST+ tr MDST, pal yel-brn, calc | 3.0-3.5 | .35(3) | Mnr | 100 Inc Am | Mnr | | | | |
| 9780-810 | Ctgs | SH, med gy+ 40% SH, ol-gy+ tr SST | 3.5-4.0 | .35(2) | *? | 70? Inc Am | 30? | | | | |
| 9870-900 | Ctgs | SH, med gy+ 20% SH, ol-gy+ tr SH, dsk yel-brn+ tr MDST pal yel-brn, calc+ tr SST | 3.5 | .34(6) | Mnr | 100 Inc Am | Mnr | | | | |

MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 1F

| GENERAL DATA | | | MATURITY DATA | | KEROGEN COMPOSITION DATA | | | | | | |
|------------------------|----------------|--|--------------------------|---------------------------------|-----------------------------|------------|----------|----------------|-----|------------|------------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | SPORE COLOUR INDEX | VITR. REFL. R oil av % | % (Visual, from microscopy) | | | % (Calculated) | | | |
| | | | | | INERTINITE | VITRINITE | SAPROPEL | INERT | VIT | ALG SAP | WXY SAP |
| 9960-990 | Ctgs | SH, ol-gy+ 30% SH, med-dk gy+ 20% SH, lt gy+ mnr SH, dsk yel-brn+ tr CALT | 3.5-4.0 | .34(8) | *? | 70? Inc Am | 30? | | | | |
| 10050-080 | Ctgs | SH, dk gy+ 10% SH, med gy+ mnr MDST, pal yel-brn, slty+ tr MDST, mod brn | 3.0 | .39(1) | 20 | 10 | 70Am, Sp | | | | |
| 10140-170 | Ctgs | SH, dk gy+ 20% MDST, med gy+ tr pyr+ tr MDST, pal yel-brn, slty | 3.5-4.0 | .38(25) | *? | 60? Inc Am | 40? | | | | |
| 10200-230 | Ctgs | SH, dk gy+ 20% MDST, pal yel-brn, slty+ 10% SST+ mnr LCM | 3.5 | .39(25) | 30 | 60 | 10 Sp | | | | |
| 10260-290 | Ctgs | SND+ 40% SH, dk gy+ mnr MDST, v lt gy, slty | 3.5-4.0 | .37(44) | 20 | 70 | 10 Sp | | | | |
| 10350-380 | Ctgs | SND+ 30% SH, med-dk gy+ 20% MDST, v lt gy, slty | 3.5 | .36(18) | 20 | 70 | 10Am, Sp | | | | |
| 10740-770 | Ctgs P | SND+ 10% SH, med-dk gy+ tr COAL COAL | | .40(11) .59(44)R | | | | | | | |
| 10770-800 | Ctgs | SST+ 30% SH, med-dk gy+ 10% SH, dk gy | 4.0 | .38(52) | 30 | 50 | 20Am, Sp | | | | |
| 10860-890 | Ctgs | SH, dk gy+ 30% SH, mod brn+ 20% MDST, pal yel-brn+ mnr MDST, med gy+ tr SST | 3.5 | .40(48) | 80 | 20 | Mnr Sp | | | | |
| 10950-980 | Ctgs | SH, med-dk gy+ 10% SH, gy-brn+ 10% SH, dk gy+ mnr SST+ mnr MDST, lt gy | 3.5-4.0 | .40(5) | 80 | 10 | 10 Sp | | | | |
| 11040-070 | Ctgs | SH, med-dk gy+ 20% SH, dk gy+ 10% LST, wht+ 10% SH, gy-brn + mnr SST | 3.5 | .42(37) | 80 | 10 | 10 Sp | | | | |
| 11130-160 | Ctgs | SH, med-dk gy+ 20% LST, wht+ 10% SH, gy-brn+ mnr SST | 3.5-4.0 | .46(23) | 50 | 40 | 10 Sp | | | | |
| 11310-340 | Ctgs | SH, dk gy+ 30% LST, wht+ 10% SH, gy-brn | 3.5-4.0 | .47(34) | 50 | 20 | 30Am, Sp | | | | |
| 11460-490 | Ctgs | LST, wht+ 30% SH, dk gy+ 10% LST, med gy+ mnr SH, gy-brn | 4.0 | .49(7) | 90 | 10 | Mnr Sp | | | | |

MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 1G

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|----|----|----|--------------------|----------------------------------|-------------|---------------|-----------|--------------------|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT. YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC %OC | ALK. %EX %HC | |
| 2160-250 | Ctgs | MDST, lt ol-gy, calc+ 20% SND+ mnr foss+ mnr CMT | - | | | | | | | | | | | |
| 2250-340 | Ctgs | MDST, lt ol-gy, calc+ 20% SND+ mnr foss | - | | | | | | | | | | | |
| 2340-430 | Ctgs | MDST, lt ol-gy, calc+ tr foss | - | | | | | | | | | | | |
| 2430-520 | Ctgs | MDST, lt ol-gy, calc+ mnr foss+ tr SND | - | | | | | | | | | | | |
| 2520-610 | Ctgs | MDST, lt ol-gy, calc+ tr SND+ tr foss | - | | | | | | | | | | | |
| 2610-700 | Ctgs | MDST, lt ol-gy, calc+ mnr foss+ tr SND | - | | | | | | | | | | | |
| 2700-790 | Ctgs | MDST, lt ol-gy, calc+ tr SND+ tr foss | - | | | | | | | | | | | |
| 2790-880 | Ctgs | MDST, lt ol-gy, calc+ tr SND+ tr foss | - | | | | | | | | | | | |
| 2880-970 | Ctgs | MDST, med gy, calc+ mnr foss+ tr SST | - | | | | | | | | | | | |
| 2970-3060 | Ctgs | MDST, med gy, calc+ mnr foss+ tr SST | - | | | | | | | | | | | |
| 3060-150 | Ctgs | MDST, med gy, calc+ mnr MDST, yel-gy, calc+ tr SST | - | | | | | | | | | | | |
| 3150-240 | Ctgs | MDST, med gy, calc+ mnr MDST, yel-gy, calc+ tr SST | - | | | | | | | | | | | |
| 3240-330 | Ctgs | MDST, med gy, calc+ 10% MDST, yel-gy, calc+ tr SST+ tr foss | - | | | | | | | | | | | |
| 3330-420 | Ctgs | MDST, med gy, calc+ 10% SND+ mnr MDST, yel-gy, calc+ mnr foss | - | | | | | | | | | | | |
| 3420-510 | Ctgs | MDST, med gy, calc+ mnr MDST, yel-gy, calc+ mnr MDST, ol-gy, calc+ tr SND+ tr foss | - | | | | | | | | | | | |
| 3510-600 | Ctgs | MDST, med gy, calc+ 20% MDST, ol-gy, calc+ mnr foss+ tr MDST, yel-gy, calc | - | | | | | | | | | | | |
| 3600-690 | Ctgs | MDST, ol-gy, calc+ 10% MDST, med gy, calc+ tr foss+ tr MDST, yel-gy, calc | - | | | | | | | | | | | |
| 3690-780 | Ctgs | MDST, ol-gy, calc+ mnr foss+ tr MDST, med gy, calc | - | | | | | | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2A

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|-----|-----|-----|--------------------|----------------------------------|-------------|---------------|-----------|-----------|-------------|--|--|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT. YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC %OC | EX %EX | ALK. %HC | | | |
| 3780-870 | Ctgs | MDST, ol-gy, calc+ tr foss | - | | | | | | | | | | | | | | |
| 3870-960 | Ctgs | MDST, ol-gy, calc+ tr foss | - | | | | | | | | | | | | | | |
| 3960-4050 | Ctgs | MDST, ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.65 | 422 | 100 | 84 | .09 | 1650 | | | | | | | | | |
| 4050-140 | Ctgs | MDST, ol-gy, calc+ tr foss+ tr MDST, pal yel-brn, calc | 1.61 | 422 | 89 | 73 | .09 | 1440 | | | | | | | | | |
| 4140-230 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ tr foss | 1.57 | 417 | 93 | 67 | .11 | 1460 | | | | | | | | | |
| 4230-320 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.55 | 419 | 83 | 75 | .08 | 1290 | | | | | | | | | |
| 4320-410 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.62 | 422 | 99 | 67 | .09 | 1600 | | | | | | | | | |
| 4410-500 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.49 | 421 | 105 | 68 | .10 | 1560 | | | | | | | | | |
| 4500-590 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ tr MDST, pal yel-brn, calc | 1.42 | 417 | 92 | 61 | .10 | 1310 | | | | | | | | | |
| 4590-680 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.35 | 417 | 94 | 60 | .10 | 1270 | | | | | | | | | |
| 4680-770 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ tr MDST, pal yel-brn, calc | 1.34 | 416 | 78 | 47 | .13 | 1040 | | | | | | | | | |
| 4770-860 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.31 | 416 | 73 | 59 | .17 | 960 | | | | | | | | | |
| 4860-950 | Ctgs | MDST, lt ol-gy, calc+ 20% MDST, ol-gy, calc+ mnr MDST, pal yel-brn, calc | .99 | 409 | 55 | 71 | .36 | 540 | | | | | | | | | |
| 4950-5040 | Ctgs | MDST, lt ol-gy, calc+ 10% MDST, ol-gy, calc+ 10% SST+ mnr MDST, pal yel-brn, calc+ tr pyr | 1.08 | 401 | 55 | 99 | .22 | 590 | | | | | | | | | |
| 5040-130 | Ctgs | MDST, ol-gy, calc+ 20% MDST, pal yel-brn, calc + 10% SST | 1.35 | * | 68 | 246 | .31 | 920 | | | | | | | | | |
| | P | MDST, pal yel-brn, calc | 1.13 | | | | | | | | | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2B

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|-----|-----|-----|--------------------|----------------------------------|-------------|---------------|-----------|------------|-------------|--|--|--|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT. YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC %OC | EXC %EX | ALK. %HC | | | | |
| 5130-220 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ mnr SST+ tr MDST, pal yel-brn, calc | 1.28 | | | | | | | | | | | | | | | |
| | P | MDST, ol-gy, calc | 1.36 | * | 143 | 105 | .20 | 1950 | | | | | | | | | | |
| 5220-310 | Ctgs | MDST, ol-gy, calc+ 10% MDST, pal yel-brn, calc + mnr SST | 1.28 | | | | | | | | | | | | | | | |
| | P | MDST, ol-gy, calc | 1.32 | * | 116 | 104 | .21 | 1530 | | | | | | | | | | |
| 5310-400 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.26 | * | 71 | 197 | .38 | 900 | | | | | | | | | | |
| | P | MDST, ol-gy, calc | 1.11 | | | | | | | | | | | | | | | |
| 5400-490 | Ctgs | MDST, lt ol-gy, calc+ 20% MDST, ol-gy, calc | 1.35 | 403 | 113 | 115 | .21 | 1530 | | | | | | | | | | |
| 5490-580 | Ctgs | MDST, ol-gy, calc+ 30% MDST, lt ol-gy, calc+ tr SST | 1.36 | 416 | 149 | 105 | .12 | 2030 | | | | | | | | | | |
| 5580-670 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ tr SST | 1.55 | 422 | 174 | 77 | .12 | 2690 | | | | | | | | | | |
| 5670-760 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ tr SST | 2.15 | 424 | 251 | 58 | .07 | 5400 | | | | | | | | | | |
| 5760-850 | Ctgs | MDST, lt ol-gy, calc+ 20% MDST, ol-gy, calc | 2.02 | 422 | 259 | 63 | .07 | 5240 | | | | | | | | | | |
| 5850-940 | Ctgs | MDST, lt ol-gy, calc+ 20% MDST, ol-gy, calc | 2.33 | 422 | 261 | 55 | .06 | 6090 | | | | | | | | | | |
| 5940-6030 | Ctgs | MDST, lt ol-gy, calc+ 30% MDST, ol-gy, calc | 2.15 | 425 | 243 | 61 | .08 | 5230 | | | | | | | | | | |
| 6030-120 | Ctgs | SH, lt ol-gy, calc+ 40% SH, brn-gy, calc+ tr BIT | 2.73 | 427 | 212 | 49 | .07 | 5800 | | | | | | | | | | |
| | P | SH, lt ol-gy, calc | 1.85 | | | | | | | | | | | | | | | |
| | P | SH, brn-gy, calc | 3.91 | 427 | 228 | 33 | .05 | 8920 | | | | | | | | | | |
| 6120-210 | Ctgs | SH, brn-gy, calc+ 30% SH lt ol-gy, calc+ mnr MDST yel-gy, calc | 2.67 | 429 | 193 | 60 | .06 | 5140 | | | | | | | | | | |
| | P | SH, brn-gy, calc | 3.29 | 430 | 214 | 36 | .07 | 7050 | | | | | | | | | | |
| | P | SH, lt ol-gy, calc | 1.93 | 430 | 221 | 52 | .06 | 4260 | | | | | | | | | | |
| 6210-300 | Ctgs | SH, brn-gy, calc+ 30% SH lt ol-gy, calc | 3.13 | 427 | 190 | 47 | .05 | 5940 | | | | | | | | | | |
| | P | SH, brn-gy, calc | 5.23 | 430 | 202 | 34 | .05 | 10570 | | | | | | | | | | |
| 6300-390 | Ctgs | SH, brn-gy, calc+ 20% SH lt ol-gy, calc | 2.29 | 429 | 179 | 49 | .07 | 4110 | | | | | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2C

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|-----|----|-----|--------------------|----------------------------------|-------------|---------------|-----------|-----------|-------------|--|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT. YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC %OC | EX %EX | ALK. %HC | | |
| 6300-390 | P | SH, brn-gy, calc | 4.29 | 430 | 186 | 29 | .04 | 8000 | | | | | | | | |
| | P | SH, lt ol-gy, calc | 1.58 | | | | | | | | | | | | | |
| 6390-480 | Ctgs | SH, brn-gy, calc+ 20% SH lt ol-gy, calc+ mnr MDST yel-gy, calc | 2.53 | 428 | 183 | 50 | .06 | 4630 | | | | | | | | |
| | P | SH, brn-gy, calc | 3.78 | 428 | 189 | 30 | .05 | 7140 | | | | | | | | |
| | P | SH, lt ol-gy, calc | 1.84 | | | | | | | | | | | | | |
| 6480-570 | Ctgs | SH, ol-gy, calc+ 30% SH, lt ol-gy, calc+ 10% SH, brn-gy, calc+ tr MDST, dsk yel-brn | 2.04 | 428 | 187 | 57 | .05 | 3820 | | | | | | | | |
| | P | SH, ol-gy, calc | 2.64 | 430 | 195 | 31 | .04 | 5140 | | | | | | | | |
| | P | SH, lt ol-gy, calc | 1.84 | | | | | | | | | | | | | |
| 6570-660 | Ctgs | SH, ol-gy+ 10% SH, brn-gy, calc+ 10% SH, lt ol-gy+ mnr MDST, yel-gy, calc | 2.15 | 429 | 194 | 51 | .05 | 4180 | | | | | | | | |
| 6660-750 | Ctgs | SH, ol-gy+ 10% SH, lt ol-gy+ mnr MDST, yel-gy, calc | 2.32 | 430 | 213 | 47 | .05 | 4940 | | | | | | | | |
| 6750-840 | Ctgs | SH, ol-gy+ mnr SH, lt ol-gy+ mnr MDST, yel-gy, calc | 2.11 | 431 | 192 | 46 | .05 | 4060 | | | | | | | | |
| 6840-930 | Ctgs | MDST, ol-gy+ 10% MDST, lt ol-gy+ mnr MDST, yel-gy, calc+ tr DOL, dsk yel-brn+ tr SST | 2.36 | 428 | 231 | 45 | .06 | 5460 | | | | | | | | |
| | P | DOL, dsk yel-brn+ SST | .59 | | | | | | | | | | | | | |
| 6930-7020 | Ctgs | MDST, ol-gy+ mnr MDST, lt ol-gy+ mnr MDST, yel-gy, calc | 2.69 | 428 | 230 | 47 | .08 | 6200 | | | | | | | | |
| 7020-110 | Ctgs | MDST, ol-gy+ 10% MDST, lt ol-gy+ mnr MDST, yel-gy, calc+ tr BIT | 2.74 | 427 | 224 | 43 | .11 | 6140 | | | | | | | | |
| 7110-200 | Ctgs | SH, brn-gy+ 30% MDST, ol-gy+ tr LST, pal yel-brn | 2.87 | 427 | 186 | 49 | .05 | 5350 | | | | | | | | |
| 7200-290 | Ctgs | MDST, brn-gy+ 20% MDST, ol-gy+ 10% foss+ tr SST + tr CALT | 2.75 | 429 | 201 | 53 | .08 | 5530 | | | | | | | | |
| | P | MDST, brn-gy | 3.11 | 433 | 223 | 25 | .04 | 6930 | | | | | | | | |
| | P | MDST, ol-gy | 1.51 | | | | | | | | | | | | | |
| 7290-380 | Ctgs | MDST, brn-gy+ 30% MDST, ol-gy+ mnr MDST, pal yel-brn, calc+ mnr foss | 2.75 | 428 | 212 | 43 | .07 | 5820 | | | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2D

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | |
|------------------------|----------------|--|------------------------|------------|-----|-----|-----|--------------------|----------------------------------|-------------|---------------|----|--|------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT. YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC | | ALK. |
| | | | | %OC | %EX | %HC | | | | | | | | |
| 7290-380 | P | MDST, brn-gy | 4.58 | 426 | 255 | 23 | .05 | 11700 | | | | | | |
| 7380-470 | Ctgs | SH, dsk yel-brn+ 30% SH, ol-gy+ mnr MDST, pal yel-brn, calc | 3.41 | 428 | 213 | 39 | .05 | 7250 | | | | | | |
| 7470-560 | Ctgs | SH, ol-gy+ 40% SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc | 2.93 | 430 | 218 | 34 | .04 | 6390 | | | | | | |
| 7560-650 | Ctgs | SH, ol-gy+ 30% SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc+ tr SH lt ol-gy | 3.16 | 429 | 200 | 38 | .06 | 6330 | | | | | | |
| 7650-740 | Ctgs | SH, dsk yel-brn+ 20% SH, ol-gy+ 10% MDST, pal yel-brn, calc | 2.99 | 431 | 199 | 37 | .05 | 5940 | | | | | | |
| | P | SH, ol-gy | 2.46 | 433 | 211 | 29 | .04 | 5180 | | | | | | |
| 7740-830 | Ctgs | SH, ol-gy+ 40% SH, dsk yel-brn+ 10% MDST, pal yel-brn, calc+ tr SND | 2.82 | 430 | 209 | 39 | .05 | 5880 | | | | | | |
| 7830-920 | Ctgs | SH, dsk yel-brn+ 30% SH, ol-gy+ mnr MDST, pal yel-brn, calc | 2.91 | 430 | 199 | 41 | .06 | 5790 | | | | | | |
| 7920-8010 | Ctgs | SH, lt ol-gy+ 30% SH, ol-gy+ 10% SH, dsk yel-brn+ tr MDST, pal yel-brn, calc | 2.13 | 431 | 162 | 45 | .06 | 3460 | | | | | | |
| | P | SH, lt ol-gy | 1.26 | | | | | | | | | | | |
| | P | SH, ol-gy | 3.99 | 431 | 220 | 22 | .05 | 8780 | | | | | | |
| 8010-100 | Ctgs | SH, lt ol-gy+ 20% SH, ol-gy+ mnr SH, dsk yel-brn+ tr MDST, pal yel-brn, calc | 1.58 | 430 | 147 | 55 | .07 | 2320 | | | | | | |
| | P | SH, ol-gy | 2.71 | 428 | 189 | 23 | .06 | 5110 | | | | | | |
| 8100-190 | Ctgs | SH, lt ol-gy+ 10% SH, ol-gy+ mnr SH, dsk yel-brn+ tr MDST, pal yel-brn, calc | 1.44 | 429 | 142 | 47 | .06 | 2040 | | | | | | |
| 8190-280 | Ctgs | SH, lt ol-gy+ mnr SH, ol-gy+ tr MDST, pal yel-brn, calc+ tr pyr+ tr LST, brn-gy | 1.16 | 428 | 105 | 47 | .07 | 1220 | | | | | | |
| 8280-370 | Ctgs | SH, lt ol-gy+ 10% SH, ol-gy+ mnr MDST, pal yel-brn, calc+ tr foss+ tr SST | 1.31 | 432 | 124 | 43 | .07 | 1620 | | | | | | |
| 8370-460 | Ctgs | SH, lt ol-gy+ 10% SH, ol-gy+ tr SH, dsk yel-brn+ tr MDST, yel-gy, calc | 1.37 | 431 | 133 | 39 | .07 | 1820 | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2E

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|-----|----|-----|-------------------|----------------------------------|-------------|---------------|-----------|-----------|-------------|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT.YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC %OC | EX %EX | ALK. %HC | |
| 8460-550 | Ctgs | SH, lt ol-gy+ 20% SH, ol-gy+ tr foss+ tr BIT+ tr MDST, yel-gy, calc | 1.39 | 430 | 135 | 40 | .08 | 1870 | | | | | | | |
| 8550-640 | Ctgs | SH, lt ol-gy+ 20% SH, ol-gy+ mnr SH, dsk yel-brn+ tr MDST, yel-gy, calc | 1.50 | 432 | 144 | 43 | .10 | 2160 | | | | | | | |
| 8640-730 | Ctgs | SH, lt ol-gy+ mnr SH, ol-gy+ mnr SH, dsk yel-brn+ mnr MDST, yel-gy, calc+ mnr CALT | 1.53 | 432 | 150 | 46 | .09 | 2300 | | | | | | | |
| 8730-820 | Ctgs | SH, lt gy+ 20% SH, ol-gy + tr foss+ tr pyr+ tr OS | 1.51 | 432 | 136 | 51 | .08 | 2060 | | | | | | | |
| 8820-910 | Ctgs | SH, lt gy+ 20% SH, ol-gy | 1.40 | 432 | 140 | 54 | .08 | 1960 | | | | | | | |
| 8910-9000 | Ctgs | SH, lt gy+ 30% SH, ol-gy + mnr MDST, pal yel-brn, calc+ tr foss | 1.32 | 432 | 136 | 57 | .08 | 1790 | | | | | | | |
| 9000-090 | Ctgs | SH, ol-gy+ 40% SH, lt gy + tr foss+ tr MDST, pal yel-brn, calc+ tr SND | 1.53 | 431 | 142 | 58 | .08 | 2180 | | | | | | | |
| | P | SH, lt gy | 1.02 | | | | | | | | | | | | |
| 9090-180 | Ctgs | SH, ol-gy+ 20% SH, lt gy + tr OS+ tr por+ tr SND | 1.48 | 433 | 139 | 55 | .08 | 2050 | | | | | | | |
| | P | SH, lt gy | 1.04 | 434 | 146 | 33 | .07 | 1520 | | | | | | | |
| 9180-270 | Ctgs | SH, ol-gy+ 20% SH, lt ol-gy+ 10% SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc | 1.46 | 432 | 136 | 53 | .08 | 1980 | | | | | | | |
| | P | SH, dsk yel-brn | 3.51 | 431 | 230 | 25 | .05 | 8070 | | | | | | | |
| 9270-360 | Ctgs | SH, ol-gy+ 20% SH, lt gy + tr MDST, pal yel-brn, calc+ tr SH, dsk yel-brn + tr BIT | 1.05 | 431 | 114 | 62 | .13 | 1200 | | | | | | | |
| 9360-450 | Ctgs | SH, ol-gy+ 20% SH, lt gy + mnr MDST, pal yel-brn, calc+ tr SH, dsk yel-brn | 1.07 | 432 | 118 | 55 | .12 | 1260 | | | | | | | |
| 9450-540 | Ctgs | SH, ol-gy+ 30% SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc | 1.34 | 432 | 119 | 40 | .08 | 1590 | | | | | | | |
| | P | SH, dsk yel-brn | 3.65 | 431 | 211 | 22 | .04 | 7710 | | | | | | | |
| 9540-570 | Ctgs | SH, ol-gy+ 30% SH, lt gy + 10% MDST, pal yel-brn, calc | .89 | 430 | 101 | 88 | .12 | 900 | | | | | | | |
| 9570-600 | Ctgs | SH, ol-gy+ 30% SH, lt gy + 10% MDST, pal yel-brn, calc+ tr SH, dsk yel-brn | .94 | 431 | 93 | 62 | .13 | 870 | | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2F

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|-----|----|-----|--------------------|----------------------------------|-------------|---------------|-----------|-----------|-------------|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT. YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC %OC | EX %EX | ALK. %HC | |
| 9600-630 | Ctgs | SH, med gy+ mnr SH, ol-gy+ tr SH, dsk yel-brn+ tr SND | .82 | 428 | 87 | 54 | .12 | 710 | | | | | | | |
| 9630-660 | Ctgs | SH, med gy+ mnr SND+ mnr SH, ol-gy+ tr MDST, pal yel-brn, calc+ tr CALT | .82 | 430 | 96 | 61 | .22 | 790 | | | | | | | |
| 9660-690 | Ctgs | SH, med gy+ 10% SH, ol-gy+ mnr SH, dsk yel-brn+ mnr SST+ tr CALT | .87 | 430 | 97 | 66 | .26 | 840 | | | | | | | |
| 9690-720 | Ctgs | SH, med gy+ 20% SH, ol-gy+ 10% SST+ tr MDST, pal yel-brn, calc | 1.02 | 431 | 111 | 68 | .26 | 1130 | | | | | | | |
| 9720-750 | Ctgs | SH, med gy+ 20% SH, ol-gy+ mnr SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc+ tr SST | .78 | 430 | 96 | 77 | .46 | 750 | | | | | | | |
| 9750-780 | Ctgs | SH, med gy+ mnr SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc | .98 | 430 | 93 | 42 | .17 | 910 | | | | | | | |
| 9780-810 | Ctgs | SH, med gy+ 40% SH, ol-gy+ tr SST | 1.01 | 430 | 99 | 36 | .15 | 1000 | | | | | | | |
| | P | SH, med gy | .60 | | | | | | | | | | | | |
| | P | SH, ol-gy | 1.83 | 433 | 181 | 28 | .08 | 3320 | | | | | | | |
| 9810-840 | Ctgs | SH, med gy+ 30% SH, ol-gy+ 10% SH, lt gy+ tr SH, dsk yel-brn | .91 | 429 | 85 | 41 | .16 | 770 | | | | | | | |
| | P | SH, med gy | .64 | | | | | | | | | | | | |
| | P | SH, ol-gy | 2.07 | 434 | 161 | 19 | .05 | 3340 | | | | | | | |
| | P | SH, lt gy | .44 | | | | | | | | | | | | |
| 9840-870 | Ctgs | SH, med gy+ 30% SH, ol-gy+ tr SH, dsk yel-brn | .73 | | | | | | | | | | | | |
| 9870-900 | Ctgs | SH, med gy+ 20% SH, ol-gy+ tr SH, dsk yel-brn+ tr MDST, pal yel-brn, calc+ tr SST | .81 | 430 | 78 | 63 | .11 | 630 | | | | | | | |
| 9900-930 | Ctgs | SH, med gy+ 30% SH, ol-gy+ tr SST | .77 | 447 | 136 | 36 | .09 | 1050 | | | | | | | |
| 9930-960 | Ctgs | SH, med gy+ 20% SH, ol-gy+ mnr SH, dsk yel-brn+ tr MDST, lt gy | .91 | 429 | 66 | 32 | .10 | 600 | | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2G

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|-----|-----|-----|-------------------|----------------------------------|-------------|---------------|-----|----|------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT.YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC | | ALK. |
| | | | | | %OC | %EX | %HC | | | | | | | |
| 9960-990 | Ctgs | SH, ol-gy+ 30% SH, med-dk gy+ 20% SH, lt gy + mnr SH, dsk yel-brn+ tr CALT | 1.02 | 431 | 88 | 30 | .13 | 900 | | | | | | |
| | P | SH, med-dk gy | 1.05 | | | | | | | | | | | |
| 9990-10020 | Ctgs | SH, med gy+ 20% SH, med-dk gy+ 20% SH, ol-gy + mnr SH, mod brn+ tr CALT | .92 | 432 | 83 | 17 | .13 | 760 | | | | | | |
| 10020-050 | Ctgs | SH, dk gy+ 30% MDST, pal yel-brn, slty+ 20% SH, med gy+ 10% MDST, mod brn | 1.05 | 433 | 145 | 164 | .19 | 1520 | | | | | | |
| | P | SH, dk gy | 2.18 | 438 | 286 | 24 | .07 | 6240 | | | | | | |
| | P | MDST, pal yel-brn, slty | .95 | | | | | | | | | | | |
| 10050-080 | Ctgs | SH, dk gy+ 10% SH, med gy+ mnr MDST, pal yel-brn, slty+ tr MDST, mod brn | 1.46 | 428 | 175 | 62 | .37 | 2550 | | | | | | |
| 10080-110 | Ctgs | SH, dk gy+ 30% SH, med gy+ tr MDST, pal yel-brn, slty+ tr pyr | 1.58 | 431 | 177 | 46 | .17 | 2800 | | | | | | |
| 10110-140 | Ctgs | MDST, med gy+ 30% SH, dk gy+ tr SST+ tr MDST, pal yel-brn, slty | 1.22 | 433 | 169 | 76 | .19 | 2060 | | | | | | |
| 10140-170 | Ctgs | SH, dk gy+ 20% MDST, med gy+ tr pyr+ tr MDST, pal yel-brn, slty | 1.29 | 433 | 111 | 93 | .18 | 1430 | | | | | | |
| 10170-200 | Ctgs | SH, dk gy+ 20% MDST, med gy, slty+ 10% SST, pal yel-brn, slty+ tr pyr+ tr MDST, pal yel-brn, slty | 1.09 | | | | | | | | | | | |
| | P | SH, dk gy | 1.91 | 439 | 198 | 25 | .10 | 3790 | | | | | | |
| 10200-230 | Ctgs | SH, dk gy+ 20% MDST, pal yel-brn, slty+ 10% SST+ mnr LCM | 1.61 | 431 | 168 | 86 | .15 | 2700 | | | | | | |
| | P | SH, dk gy | 1.39 | 438 | 175 | 35 | .15 | 2430 | | | | | | |
| 10230-260 | Ctgs | SND+ 40% SH, dk gy+ mnr MDST, v lt gy, slty+ tr BIT+ tr pyr | 1.19 | | | | | | 1460 | 1040 | 12.3 | 87 | 71 | 75 |
| | P | SH, dk gy | 1.80 | 438 | 225 | 18 | .16 | 4050 | | | | | | |
| 10260-290 | Ctgs | SND+ 40% SH, dk gy+ mnr MDST, v lt gy, slty | 1.45 | | | | | | 1885 | 1545 | 13.0 | 106 | 82 | 75 |
| | P | SH, dk gy | 1.55 | 439 | 188 | 28 | .19 | 2920 | | | | | | |
| 10290-320 | Ctgs | SND+ 30% SH, med-dk gy+ 20% MDST, v lt gy, slty | .62 | | | | | | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2H

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|-----|----|-----|--------------------|----------------------------------|-------------|---------------|-----------|-----------|-------------|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT. YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC %OC | EX %EX | ALK. %HC | |
| 10290-320 | P | SH, med-dk gy | 1.70 | 438 | 156 | 20 | .12 | 2650 | | | | | | | |
| | P | MDST, v lt gy, slty | .31 | | | | | | | | | | | | |
| 10320-350 | Ctgs | SND+ 30% SH, med-dk gy+ 20% MDST, v lt gy, slty | .82 | | | | | | 1745 | 1380 | 21.3 | 169 | 79 | 75 | |
| | P | SH, med-dk gy | 1.37 | 437 | 188 | 26 | .21 | 2570 | | | | | | | |
| 10350-380 | Ctgs | SND+ 30% SH, med-dk gy+ 20% MDST, v lt gy, slty | 1.07 | | | | | | | | | | | | |
| | P | SH, med-dk gy | 1.40 | 438 | 181 | 22 | .17 | 2530 | | | | | | | |
| 10380-410 | Ctgs | SND+ 10% SH, med-dk gy+ mnr MDST, v lt gy, slty | .55 | | | | | | | | | | | | |
| | P | SH, med-dk gy | 1.15 | 437 | 189 | 21 | .09 | 2170 | | | | | | | |
| 10410-440 | Ctgs | SND+ tr SH, med-dk gy+ mnr MDST, v lt gy, slty | - | | | | | | | | | | | | |
| 10440-470 | Ctgs | SND+ 10% SH, med-dk gy+ mnr MDST, v lt gy, slty | .50 | | | | | | | | | | | | |
| | P | SH, med-dk gy | 1.37 | 436 | 277 | 26 | .20 | 3800 | | | | | | | |
| 10470-500 | Ctgs | SND+ 10% SH, med-dk gy+ mnr MDST, v lt gy, slty | .17 | | | | | | | | | | | | |
| | P | SH, med-dk gy | 1.26 | 438 | 173 | 21 | .10 | 2180 | | | | | | | |
| 10500-530 | Ctgs | SND+ mnr SH, med-dk gy+ tr pyr+ tr MDST, v lt gy slty | .20 | | | | | | | | | | | | |
| 10530-560 | Ctgs | SND+ mnr SH, med-dk gy+ tr BIT+ mnr MDST, v lt gy, slty | .28 | | | | | | | | | | | | |
| 10560-590 | Ctgs | SND+ 10% SH, med-dk gy+ mnr MDST, v lt gy, slty | .19 | | | | | | | | | | | | |
| | P | SH, med-dk gy | 1.21 | 439 | 141 | 16 | .11 | 1710 | | | | | | | |
| 10590-620 | Ctgs | SND+ mnr SH, med-dk gy+ mnr MDST, v lt gy, slty | - | | | | | | | | | | | | |
| 10620-650 | Ctgs | SND+ mnr SH, med-dk gy+ tr pyr | - | | | | | | | | | | | | |
| 10650-680 | Ctgs | SND+ mnr SH, med-dk gy | .13 | | | | | | | | | | | | |
| | P | SH, med-dk gy | 1.25 | 438 | 142 | 14 | .12 | 1770 | | | | | | | |
| 10680-710 | Ctgs | SND+ 10% SH, med-dk gy | - | | | | | | | | | | | | |
| | P | SH, med-dk gy | 1.04 | 438 | 114 | 18 | .17 | 1190 | | | | | | | |
| 10710-740 | Ctgs | SND+ 10% SH, med-dk gy | - | | | | | | | | | | | | |
| | P | SH, med-dk gy | 1.21 | 441 | 123 | 15 | .12 | 1490 | | | | | | | |
| 10740-770 | Ctgs | SND+ 10% SH, med-dk gy+ tr COAL | .26 | | | | | | | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2I

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | |
|------------------------|----------------|--|------------------------|------------|-----|----|-----|--------------------|----------------------------------|-------------|---------------|-----------|-----------|-------------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT. YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC %OC | EX %EX | ALK. %HC |
| 10740-770 | P | SH, med-dk gy | 1.24 | 440 | 145 | 12 | .14 | 1800 | | | | | | |
| 10770-800 | Ctgs | SST+ 30% SH, med-dk gy+ 10% SH, dk gy | .72 | | | | | | | | | | | |
| 10800-830 | P | SH, dk gy | 1.22 | 440 | 116 | 22 | .15 | 1410 | | | | | | |
| 10800-830 | Ctgs | SH, dk gy+ 20% MDST, pal yel-brn+ mnr SST+ mnr SH, med gy+ tr SH, mod brn | .88 | | | | | | | | | | | |
| 10830-860 | P | SH, dk gy | 1.08 | 440 | 85 | 21 | .15 | 920 | | | | | | |
| 10830-860 | Ctgs | SH, dk gy+ 30% MDST, pal yel-brn+ 20% SH, mod brn+ mnr SH, med gy + tr SST | .64 | | | | | | | | | | | |
| 10860-890 | P | SH, dk gy | 1.05 | 439 | 86 | 20 | .18 | 900 | | | | | | |
| 10860-890 | Ctgs | SH, dk gy+ 30% SH, mod brn+ 20% MDST, pal yel-brn+ mnr MDST, med gy+ tr SST | .45 | | | | | | | | | | | |
| 10890-920 | P | SH, dk gy | .97 | 438 | 77 | 23 | .16 | 750 | | | | | | |
| 10890-920 | Ctgs | SH, med-dk gy+ 20% SH, mod brn+ 20% SND+ 10% SH med gy+ tr LST, wht | .47 | | | | | | | | | | | |
| 10920-950 | Ctgs | SH, med-dk gy+ 20% SST+ 10% SH, gy-brn+ 10% SH, dk gy+ mnr LST, wht | .49 | | | | | | | | | | | |
| 10950-980 | Ctgs | SH, med-dk gy+ 10% SH, gy-brn+ 10% SH, dk gy+ mnr SST+ mnr MDST, lt gy | .53 | | | | | | | | | | | |
| 10980-11010 | Ctgs | SH, med-dk gy+ 10% SH, dk gy+ 10% SH, gy-brn+ mnr SST+ mnr MDST, lt gy | .59 | | | | | | | | | | | |
| | P | SH, med-dk gy | .76 | 438 | 51 | 39 | .20 | 390 | | | | | | |
| | P | SH, gy-brn | .29 | | | | | | | | | | | |
| 11010-040 | Ctgs | SH, med-dk gy+ 20% SH, dk gy+ 10% SH, gy-brn+ mnr SST+ mnr MDST, med-lt gy | .79 | 435 | 56 | 53 | .37 | 440 | | | | | | |
| 11040-070 | Ctgs | SH, med-dk gy+ 20% SH, dk gy+ 10% LST, wht+ 10% SH, gy-brn+ mnr SST | .67 | | | | | | | | | | | |
| | P | SH, dk gy | .93 | 437 | 61 | 43 | .16 | 570 | | | | | | |
| | P | LST, wht | .35 | | | | | | | | | | | |
| 11070-100 | Ctgs | SH, med-dk gy+ 20% LST, wht+ 10% SH, gy-brn+ mnr SST | .60 | | | | | | | | | | | |
| | P | SH, med-dk gy | .91 | 438 | 68 | 29 | .29 | 620 | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2J

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|-----|-----|-----|-------------------|----------------------------------|-------------|---------------|----|--|------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT.YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC | | ALK. |
| | | | | | %OC | %EX | %HC | | | | | | | |
| 11100-130 | Ctgs | SH, med-dk gy+ 20% LST, wht+ 10% SH, gy-brn+ mnr SST | .64 | | | | | | | | | | | |
| | P | SH, med-dk gy | .94 | 437 | 69 | 30 | .18 | 650 | | | | | | |
| | P | LST, wht | .23 | | | | | | | | | | | |
| 11130-160 | Ctgs | SH, med-dk gy+ 20% LST, wht+ 10% SH, gy-brn+ mnr SST | .54 | | | | | | | | | | | |
| | P | SH, med-dk gy | .85 | 438 | 61 | 22 | .17 | 520 | | | | | | |
| 11160-190 | Ctgs | LST, wht+ 30% SH, med-dk gy+ 10% SH, gy-brn+ mnr SST | .45 | | | | | | | | | | | |
| | P | SH, med-dk gy | .91 | 437 | 71 | 29 | .17 | 650 | | | | | | |
| 11190-220 | Ctgs | LST, wht+ 20% SH, med-dk gy+ 10% SH, gy-brn+ tr SST | .45 | | | | | | | | | | | |
| 11220-250 | Ctgs | LST, wht+ 20% SH, dk gy + mnr SH, gy-brn+ 10% SH med gy | .35 | | | | | | | | | | | |
| | P | SH, dk gy | .92 | 437 | 71 | 37 | .18 | 650 | | | | | | |
| 11250-280 | Ctgs | LST, wht+ 10% SH, med gy + 10% SH, dk gy+ mnr SH, gy-brn | .31 | | | | | | | | | | | |
| 11280-310 | Ctgs | LST, wht+ 20% SH, dk gy + mnr SH, med gy+ mnr SH gy-brn | .33 | | | | | | | | | | | |
| | P | SH, dk gy | .88 | 438 | 57 | 33 | .18 | 500 | | | | | | |
| 11310-340 | Ctgs | SH, dk gy+ 30% LST, wht + 10% SH, gy-brn | .80 | 435 | 30 | 56 | .23 | 240 | | | | | | |
| | P | SH, dk gy | .60 | | | | | | | | | | | |
| 11340-370 | Ctgs | LST, wht+ 30% SH, dk gy + 10% SH, gy-brn | .42 | | | | | | | | | | | |
| | P | SH, dk gy | .90 | 438 | 63 | 23 | .15 | 570 | | | | | | |
| 11370-400 | Ctgs | LST, wht+ 30% SH, dk gy + 10% SH, gy-brn | .44 | | | | | | | | | | | |
| 11400-430 | Ctgs | LST, wht+ 20% SH, dk gy + 10% SH, gy-brn | .36 | | | | | | | | | | | |
| 11430-460 | Ctgs | LST, wht+ 30% SH, dk gy + mnr SH, gy-brn | .46 | | | | | | | | | | | |
| 11460-490 | Ctgs | LST, wht+ 30% SH, dk gy + 10% LST, med gy+ mnr SH, gy-brn | .41 | | | | | | | | | | | |
| | P | SH, dk gy | .76 | 437 | 58 | 30 | .23 | 440 | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2K

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | | | |
|------------------------|----------------|---|------------------------|------------|----|----|-----|--------------------|----------------------------------|-------------|---------------|-----------|--------------------|--|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | SOLVENT EXTRACTION/FRACTIONATION | | | | | | |
| | | | | Tmax °C | HI | OI | PI | POT. YLD. (ppm) | EXTR. (ppm) | HC (ppm) | EXTR. % OC | HC %OC | ALK. %EX %HC | | |
| 11490-520 | Ctgs | LST, wht+ 30% SH, dk gy + 10% LST, med gy+ 10% SH, gy-brn | .38 | | | | | | | | | | | | |
| | P | SH, dk gy | .77 | 439 | 64 | 25 | .16 | 490 | | | | | | | |
| 11520-550 | Ctgs | LST, wht+ 10% SH, dk gy + mnr LST, med gy+ mnr SH, gy-brn | .21 | | | | | | | | | | | | |
| 11550-580 | Ctgs | LST, wht+ 10% SH, dk gy + mnr LST, med gy+ mnr SH, gy-brn | .26 | | | | | | | | | | | | |
| 11580-610 | Ctgs | LST, wht+ mnr SH, dk gy + mnr SH, gy-brn+ mnr LST, med gy | .24 | | | | | | | | | | | | |
| 11610-640 | Ctgs | LST, wht+ mnr SH, dk gy + mnr SH, gy-brn+ mnr LST, med gy | .19 | | | | | | | | | | | | |
| 11640-670 | Ctgs | LST, wht+ mnr SH, dk gy + mnr SH, gy-brn+ mnr LST, med gy | .16 | | | | | | | | | | | | |
| 11670-700 | Ctgs | LST, wht+ mnr SH, dk gy + mnr SH, gy-brn+ mnr LST, med gy | .17 | | | | | | | | | | | | |

SUMMARY OF CHEMICAL ANALYSIS DATA

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | |
|------------------------|----------------|---|------------------------|-------------------|-------------|-------------|-----|-----|-----|------------|-------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | P Y R O L Y S I S | | | | | | | |
| | | | | S1 (ppm) | S2 (ppm) | S3 (ppm) | HI | OI | PI | Tmax °C | S2/S3 |
| 3960-4050 | Ctgs | MDST, ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.65 | 160 | 1650 | 1380 | 100 | 84 | .09 | 422 | 1.20 |
| 4050-140 | Ctgs | MDST, ol-gy, calc+ tr foss+ tr MDST, pal yel-brn, calc | 1.61 | 140 | 1440 | 1170 | 89 | 73 | .09 | 422 | 1.23 |
| 4140-230 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ tr foss | 1.57 | 180 | 1460 | 1050 | 93 | 67 | .11 | 417 | 1.39 |
| 4230-320 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.55 | 110 | 1290 | 1170 | 83 | 75 | .08 | 419 | 1.10 |
| 4320-410 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.62 | 160 | 1600 | 1080 | 99 | 67 | .09 | 422 | 1.48 |
| 4410-500 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.49 | 170 | 1560 | 1010 | 105 | 68 | .10 | 421 | 1.54 |
| 4500-590 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ tr MDST, pal yel-brn, calc | 1.42 | 140 | 1310 | 860 | 92 | 61 | .10 | 417 | 1.52 |
| 4590-680 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.35 | 140 | 1270 | 810 | 94 | 60 | .10 | 417 | 1.57 |
| 4680-770 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ tr MDST, pal yel-brn, calc | 1.34 | 150 | 1040 | 630 | 78 | 47 | .13 | 416 | 1.65 |
| 4770-860 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.31 | 190 | 960 | 770 | 73 | 59 | .17 | 416 | 1.25 |
| 4860-950 | Ctgs | MDST, lt ol-gy, calc+ 20% MDST ol-gy, calc+ mnr MDST, pal yel-brn, calc | .99 | 310 | 540 | 700 | 55 | 71 | .36 | 409 | .77 |
| 4950-5040 | Ctgs | MDST, lt ol-gy, calc+ 10% MDST ol-gy, calc+ 10% SST+ mnr MDST pal yel-brn, calc+ tr pyr | 1.08 | 170 | 590 | 1070 | 55 | 99 | .22 | 401 | .55 |
| 5040-130 | Ctgs | MDST, ol-gy, calc+ 20% MDST, pal yel-brn, calc+ 10% SST | 1.35 | 410 | 920 | 3320 | 68 | 246 | .31 | * | .28 |
| | P | MDST, pal yel-brn, calc | 1.13 | | | | | | | | |
| 5130-220 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ mnr SST+ tr MDST, pal yel-brn, calc | 1.28 | | | | | | | | |
| | P | MDST, ol-gy, calc | 1.36 | 480 | 1950 | 1430 | 143 | 105 | .20 | * | 1.36 |
| 5220-310 | Ctgs | MDST, ol-gy, calc+ 10% MDST, pal yel-brn, calc+ mnr SST | 1.28 | | | | | | | | |
| | P | MDST, ol-gy, calc | 1.32 | 400 | 1530 | 1370 | 116 | 104 | .21 | * | 1.12 |
| 5310-400 | Ctgs | MDST, ol-gy, calc+ 10% MDST, lt ol-gy, calc+ mnr MDST, pal yel-brn, calc | 1.26 | 550 | 900 | 2480 | 71 | 197 | .38 | * | .36 |
| | P | MDST, ol-gy, calc | 1.11 | | | | | | | | |

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3A

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | |
|------------------------|----------------|--|------------------------|-------------------|-------------|-------------|-----|-----|-----|------------|-------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | P Y R O L Y S I S | | | | | | | |
| | | | | S1 (ppm) | S2 (ppm) | S3 (ppm) | H1 | O1 | PI | Tmax °C | S2/S3 |
| 5400-490 | Ctgs | MDST, lt ol-gy, calc+ 20% MDST ol-gy, calc | 1.35 | 410 | 1530 | 1550 | 113 | 115 | .21 | 403 | .99 |
| 5490-580 | Ctgs | MDST, ol-gy, calc+ 30% MDST, lt ol-gy, calc+ tr SST | 1.36 | 280 | 2030 | 1430 | 149 | 105 | .12 | 416 | 1.42 |
| 5580-670 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ tr SST | 1.55 | 350 | 2690 | 1200 | 174 | 77 | .12 | 422 | 2.24 |
| 5670-760 | Ctgs | MDST, ol-gy, calc+ 20% MDST, lt ol-gy, calc+ tr SST | 2.15 | 420 | 5400 | 1240 | 251 | 58 | .07 | 424 | 4.35 |
| 5760-850 | Ctgs | MDST, lt ol-gy, calc+ 20% MDST ol-gy, calc | 2.02 | 410 | 5240 | 1280 | 259 | 63 | .07 | 422 | 4.09 |
| 5850-940 | Ctgs | MDST, lt ol-gy, calc+ 20% MDST ol-gy, calc | 2.33 | 400 | 6090 | 1290 | 261 | 55 | .06 | 422 | 4.72 |
| 5940-6030 | Ctgs | MDST, lt ol-gy, calc+ 30% MDST ol-gy, calc | 2.15 | 450 | 5230 | 1320 | 243 | 61 | .08 | 425 | 3.96 |
| 6030-120 | Ctgs | SH, lt ol-gy, calc+ 40% SH, brn-gy, calc+ tr BIT | 2.73 | 460 | 5800 | 1330 | 212 | 49 | .07 | 427 | 4.36 |
| | P | SH, lt ol-gy, calc | 1.85 | | | | | | | | |
| | P | SH, brn-gy, calc | 3.91 | 440 | 8920 | 1280 | 228 | 33 | .05 | 427 | 6.97 |
| 6120-210 | Ctgs | SH, brn-gy, calc+ 30% SH, lt ol-gy, calc+ mnr MDST, yel-gy, calc | 2.67 | 320 | 5140 | 1610 | 193 | 60 | .06 | 429 | 3.19 |
| | P | SH, brn-gy, calc | 3.29 | 550 | 7050 | 1180 | 214 | 36 | .07 | 430 | 5.97 |
| | P | SH, lt ol-gy, calc | 1.93 | 250 | 4260 | 1010 | 221 | 52 | .06 | 430 | 4.22 |
| 6210-300 | Ctgs | SH, brn-gy, calc+ 30% SH, lt ol-gy, calc | 3.13 | 340 | 5940 | 1470 | 190 | 47 | .05 | 427 | 4.04 |
| | P | SH, brn-gy, calc | 5.23 | 530 | 10570 | 1760 | 202 | 34 | .05 | 430 | 6.01 |
| 6300-390 | Ctgs | SH, brn-gy, calc+ 20% SH, lt ol-gy, calc | 2.29 | 300 | 4110 | 1130 | 179 | 49 | .07 | 429 | 3.64 |
| | P | SH, brn-gy, calc | 4.29 | 300 | 8000 | 1260 | 186 | 29 | .04 | 430 | 6.35 |
| | P | SH, lt ol-gy, calc | 1.58 | | | | | | | | |
| 6390-480 | Ctgs | SH, brn-gy, calc+ 20% SH, lt ol-gy, calc+ mnr MDST, yel-gy, calc | 2.53 | 280 | 4630 | 1260 | 183 | 50 | .06 | 428 | 3.67 |
| | P | SH, brn-gy, calc | 3.78 | 340 | 7140 | 1120 | 189 | 30 | .05 | 428 | 6.38 |
| | P | SH, lt ol-gy, calc | 1.84 | | | | | | | | |
| 6480-570 | Ctgs | SH, ol-gy, calc+ 30% SH, lt ol-gy, calc+ 10% SH, brn-gy calc+ tr MDST, dsk yel-brn | 2.04 | 210 | 3820 | 1170 | 187 | 57 | .05 | 428 | 3.26 |
| | P | SH, ol-gy, calc | 2.64 | 230 | 5140 | 810 | 195 | 31 | .04 | 430 | 6.35 |
| | P | SH, lt ol-gy, calc | 1.84 | | | | | | | | |

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3B

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | |
|------------------------|----------------|---|------------------------|-------------------|-------------|-------------|-----|----|-----|------------|-------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | P Y R O L Y S I S | | | | | | | |
| | | | | S1 (ppm) | S2 (ppm) | S3 (ppm) | HI | OI | PI | Tmax °C | S2/S3 |
| 6570-660 | Ctgs | SH, ol-gy+ 10% SH, brn-gy, calc+ 10% SH, lt ol-gy+ mnr MDST, yel-gy, calc | 2.15 | 210 | 4180 | 1090 | 194 | 51 | .05 | 429 | 3.83 |
| 6660-750 | Ctgs | SH, ol-gy+ 10% SH, lt ol-gy+ mnr MDST, yel-gy, calc | 2.32 | 280 | 4940 | 1100 | 213 | 47 | .05 | 430 | 4.49 |
| 6750-840 | Ctgs | SH, ol-gy+ mnr SH, lt ol-gy+ mnr MDST, yel-gy, calc | 2.11 | 220 | 4060 | 980 | 192 | 46 | .05 | 431 | 4.14 |
| 6840-930 | Ctgs | MDST, ol-gy+ 10% MDST, lt ol-gy+ mnr MDST, yel-gy, calc+ tr DOL, dsk yel-brn+ tr SST | 2.36 | 320 | 5460 | 1070 | 231 | 45 | .06 | 428 | 5.10 |
| | P | DOL, dsk yel-brn+ SST | .59 | | | | | | | | |
| 6930-7020 | Ctgs | MDST, ol-gy+ mnr MDST, lt ol-gy+ mnr MDST, yel-gy, calc | 2.69 | 540 | 6200 | 1260 | 230 | 47 | .08 | 428 | 4.92 |
| 7020-110 | Ctgs | MDST, ol-gy+ 10% MDST, lt ol-gy+ mnr MDST, yel-gy, calc+ tr BIT | 2.74 | 790 | 6140 | 1180 | 224 | 43 | .11 | 427 | 5.20 |
| 7110-200 | Ctgs | SH, brn-gy+ 30% MDST, ol-gy+ tr LST, pal yel-brn | 2.87 | 280 | 5350 | 1420 | 186 | 49 | .05 | 427 | 3.77 |
| 7200-290 | Ctgs | MDST, brn-gy+ 20% MDST, ol-gy + 10% foss+ tr SST+ tr CALT | 2.75 | 470 | 5530 | 1450 | 201 | 53 | .08 | 429 | 3.81 |
| | P | MDST, brn-gy | 3.11 | 300 | 6930 | 780 | 223 | 25 | .04 | 433 | 8.88 |
| | P | MDST, ol-gy | 1.51 | | | | | | | | |
| 7290-380 | Ctgs | MDST, brn-gy+ 30% MDST, ol-gy + mnr MDST, pal yel-brn, calc + mnr foss | 2.75 | 420 | 5820 | 1170 | 212 | 43 | .07 | 428 | 4.97 |
| | P | MDST, brn-gy | 4.58 | 560 | 11700 | 1070 | 255 | 23 | .05 | 426 | 10.93 |
| 7380-470 | Ctgs | SH, dsk yel-brn+ 30% SH, ol-gy + mnr MDST, pal yel-brn, calc | 3.41 | 350 | 7250 | 1330 | 213 | 39 | .05 | 428 | 5.45 |
| 7470-560 | Ctgs | SH, ol-gy+ 40% SH, dsk yel-brn + mnr MDST, pal yel-brn, calc | 2.93 | 270 | 6390 | 1010 | 218 | 34 | .04 | 430 | 6.33 |
| 7560-650 | Ctgs | SH, ol-gy+ 30% SH, dsk yel-brn + mnr MDST, pal yel-brn, calc + tr SH, lt ol-gy | 3.16 | 400 | 6330 | 1210 | 200 | 38 | .06 | 429 | 5.23 |
| 7650-740 | Ctgs | SH, dsk yel-brn+ 20% SH, ol-gy + 10% MDST, pal yel-brn, calc | 2.99 | 300 | 5940 | 1100 | 199 | 37 | .05 | 431 | 5.40 |
| | P | SH, ol-gy | 2.46 | 230 | 5180 | 720 | 211 | 29 | .04 | 433 | 7.19 |
| 7740-830 | Ctgs | SH, ol-gy+ 40% SH, dsk yel-brn + 10% MDST, pal yel-brn, calc + tr SND | 2.82 | 340 | 5880 | 1100 | 209 | 39 | .05 | 430 | 5.35 |
| 7830-920 | Ctgs | SH, dsk yel-brn+ 30% SH, ol-gy + mnr MDST, pal yel-brn, calc | 2.91 | 350 | 5790 | 1200 | 199 | 41 | .06 | 430 | 4.82 |
| 7920-8010 | Ctgs | SH, lt ol-gy+ 30% SH, ol-gy+ 10% SH, dsk yel-brn+ tr MDST, pal yel-brn, calc | 2.13 | 230 | 3460 | 960 | 162 | 45 | .06 | 431 | 3.60 |

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3C

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | | | |
|------------------------|----------------|--|------------------------|-------------------|-------------|-------------|-----|----|-----|------------|-------|--|--|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | P Y R O L Y S I S | | | | | | | | | |
| | | | | S1 (ppm) | S2 (ppm) | S3 (ppm) | HI | OI | PI | Tmax °C | S2/S3 | | |
| 7920-8010 | P | SH, lt ol-gy | 1.26 | | | | | | | | | | |
| | P | SH, ol-gy | 3.99 | 440 | 8780 | 880 | 220 | 22 | .05 | 431 | 9.98 | | |
| 8010-100 | Ctgs | SH, lt ol-gy+ 20% SH, ol-gy+ mnr SH, dsk yel-brn+ tr MDST, pal yel-brn, calc | 1.58 | 170 | 2320 | 870 | 147 | 55 | .07 | 430 | 2.67 | | |
| | P | SH, ol-gy | 2.71 | 300 | 5110 | 620 | 189 | 23 | .06 | 428 | 8.24 | | |
| 8100-190 | Ctgs | SH, lt ol-gy+ 10% SH, ol-gy+ mnr SH, dsk yel-brn+ tr MDST, pal yel-brn, calc | 1.44 | 140 | 2040 | 680 | 142 | 47 | .06 | 429 | 3.00 | | |
| 8190-280 | Ctgs | SH, lt ol-gy+ mnr SH, ol-gy+ tr MDST, pal yel-brn, calc+ tr pyr+ tr LST, brn-gy | 1.16 | 90 | 1220 | 540 | 105 | 47 | .07 | 428 | 2.26 | | |
| 8280-370 | Ctgs | SH, lt ol-gy+ 10% SH, ol-gy+ mnr MDST, pal yel-brn, calc+ tr foss+ tr SST | 1.31 | 120 | 1620 | 560 | 124 | 43 | .07 | 432 | 2.89 | | |
| 8370-460 | Ctgs | SH, lt ol-gy+ 10% SH, ol-gy+ tr SH, dsk yel-brn+ tr MDST, yel-gy, calc | 1.37 | 130 | 1820 | 530 | 133 | 39 | .07 | 431 | 3.43 | | |
| 8460-550 | Ctgs | SH, lt ol-gy+ 20% SH, ol-gy+ tr foss+ tr BIT+ tr MDST, yel-gy, calc | 1.39 | 160 | 1870 | 560 | 135 | 40 | .08 | 430 | 3.34 | | |
| 8550-640 | Ctgs | SH, lt ol-gy+ 20% SH, ol-gy+ mnr SH, dsk yel-brn+ tr MDST, yel-gy, calc | 1.50 | 240 | 2160 | 650 | 144 | 43 | .10 | 432 | 3.32 | | |
| 8640-730 | Ctgs | SH, lt ol-gy+ mnr SH, ol-gy+ mnr SH, dsk yel-brn+ mnr MDST, yel-gy, calc+ mnr CALT | 1.53 | 230 | 2300 | 710 | 150 | 46 | .09 | 432 | 3.24 | | |
| 8730-820 | Ctgs | SH, lt gy+ 20% SH, ol-gy+ tr foss+ tr pyr+ tr OS | 1.51 | 180 | 2060 | 770 | 136 | 51 | .08 | 432 | 2.68 | | |
| 8820-910 | Ctgs | SH, lt gy+ 20% SH, ol-gy | 1.40 | 160 | 1960 | 760 | 140 | 54 | .08 | 432 | 2.58 | | |
| 8910-9000 | Ctgs | SH, lt gy+ 30% SH, ol-gy+ mnr MDST, pal yel-brn, calc+ tr foss | 1.32 | 150 | 1790 | 750 | 136 | 57 | .08 | 432 | 2.39 | | |
| 9000-090 | Ctgs | SH, ol-gy+ 40% SH, lt gy+ tr foss+ tr MDST, pal yel-brn, calc+ tr SND | 1.53 | 190 | 2180 | 890 | 142 | 58 | .08 | 431 | 2.45 | | |
| | P | SH, lt gy | 1.02 | | | | | | | | | | |
| 9090-180 | Ctgs | SH, ol-gy+ 20% SH, lt gy+ tr OS+ tr por+ tr SND | 1.48 | 180 | 2050 | 820 | 139 | 55 | .08 | 433 | 2.50 | | |
| | P | SH, lt gy | 1.04 | 120 | 1520 | 340 | 146 | 33 | .07 | 434 | 4.47 | | |
| 9180-270 | Ctgs | SH, ol-gy+ 20% SH, lt ol-gy+ 10% SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc | 1.46 | 180 | 1980 | 780 | 136 | 53 | .08 | 432 | 2.54 | | |
| | P | SH, dsk yel-brn | 3.51 | 430 | 8070 | 860 | 230 | 25 | .05 | 431 | 9.38 | | |

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3D

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | |
|------------------------|----------------|---|------------------------|-------------------|-------------|-------------|-----|----|-----|------------|-------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | P Y R O L Y S I S | | | | | | | |
| | | | | S1 (ppm) | S2 (ppm) | S3 (ppm) | HI | OI | PI | Tmax °C | S2/S3 |
| 9270-360 | Ctgs | SH, ol-gy+ 20% SH, lt gy+ tr MDST, pal yel-brn, calc+ tr SH dsk yel-brn+ tr BIT | 1.05 | 180 | 1200 | 650 | 114 | 62 | .13 | 431 | 1.85 |
| 9360-450 | Ctgs | SH, ol-gy+ 20% SH, lt gy+ mnr MDST, pal yel-brn, calc+ tr SH dsk yel-brn | 1.07 | 170 | 1260 | 590 | 118 | 55 | .12 | 432 | 2.14 |
| 9450-540 | Ctgs | SH, ol-gy+ 30% SH, dsk yel-brn + mnr MDST, pal yel-brn, calc | 1.34 | 140 | 1590 | 540 | 119 | 40 | .08 | 432 | 2.94 |
| | P | SH, dsk yel-brn | 3.65 | 360 | 7710 | 790 | 211 | 22 | .04 | 431 | 9.76 |
| 9540-570 | Ctgs | SH, ol-gy+ 30% SH, lt gy+ 10% MDST, pal yel-brn, calc | .89 | 120 | 900 | 780 | 101 | 88 | .12 | 430 | 1.15 |
| 9570-600 | Ctgs | SH, ol-gy+ 30% SH, lt gy+ 10% MDST, pal yel-brn, calc+ tr SH dsk yel-brn | .94 | 130 | 870 | 580 | 93 | 62 | .13 | 431 | 1.50 |
| 9600-630 | Ctgs | SH, med gy+ mnr SH, ol-gy+ tr SH, dsk yel-brn+ tr SND | .82 | 100 | 710 | 440 | 87 | 54 | .12 | 428 | 1.61 |
| 9630-660 | Ctgs | SH, med gy+ mnr SND+ mnr SH, ol-gy+ tr MDST, pal yel-brn, calc+ tr CALT | .82 | 220 | 790 | 500 | 96 | 61 | .22 | 430 | 1.58 |
| 9660-690 | Ctgs | SH, med gy+ 10% SH, ol-gy+ mnr SH, dsk yel-brn+ mnr SST+ tr CALT | .87 | 300 | 840 | 570 | 97 | 66 | .26 | 430 | 1.47 |
| 9690-720 | Ctgs | SH, med gy+ 20% SH, ol-gy+ 10% SST+ tr MDST, pal yel-brn, calc | 1.02 | 390 | 1130 | 690 | 111 | 68 | .26 | 431 | 1.64 |
| 9720-750 | Ctgs | SH, med gy+ 20% SH, ol-gy+ mnr SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc+ tr SST | .78 | 630 | 750 | 600 | 96 | 77 | .46 | 430 | 1.25 |
| 9750-780 | Ctgs | SH, med gy+ mnr SH, dsk yel-brn+ mnr MDST, pal yel-brn, calc | .98 | 190 | 910 | 410 | 93 | 42 | .17 | 430 | 2.22 |
| 9780-810 | Ctgs | SH, med gy+ 40% SH, ol-gy+ tr SST | 1.01 | 180 | 1000 | 360 | 99 | 36 | .15 | 430 | 2.78 |
| | P | SH, med gy | .60 | | | | | | | | |
| | P | SH, ol-gy | 1.83 | 280 | 3320 | 520 | 181 | 28 | .08 | 433 | 6.38 |
| 9810-840 | Ctgs | SH, med gy+ 30% SH, ol-gy+ 10% SH, lt gy+ tr SH, dsk yel-brn | .91 | 150 | 770 | 370 | 85 | 41 | .16 | 429 | 2.08 |
| | P | SH, med gy | .64 | | | | | | | | |
| | P | SH, ol-gy | 2.07 | 180 | 3340 | 390 | 161 | 19 | .05 | 434 | 8.56 |
| | P | SH, lt gy | .44 | | | | | | | | |
| 9840-870 | Ctgs | SH, med gy+ 30% SH, ol-gy+ tr SH, dsk yel-brn | .73 | | | | | | | | |
| 9870-900 | Ctgs | SH, med gy+ 20% SH, ol-gy+ tr SH, dsk yel-brn+ tr MDST, pal yel-brn, calc+ tr SST | .81 | 80 | 630 | 510 | 78 | 63 | .11 | 430 | 1.24 |

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | |
|------------------------|----------------|--|------------------------|-------------------|-------------|-------------|-----|-----|-----|------------|-------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | P Y R O L Y S I S | | | | | | | |
| | | | | S1 (ppm) | S2 (ppm) | S3 (ppm) | HI | OI | PI | Tmax °C | S2/S3 |
| 9900-930 | Ctgs | SH, med gy+ 30% SH, ol-gy+ tr SST | .77 | 100 | 1050 | 280 | 136 | 36 | .09 | 447 | 3.75 |
| 9930-960 | Ctgs | SH, med gy+ 20% SH, ol-gy+ mnr SH, dsk yel-brn+ tr MDST, lt gy | .91 | 70 | 600 | 290 | 66 | 32 | .10 | 429 | 2.07 |
| 9960-990 | Ctgs | SH, ol-gy+ 30% SH, med-dk gy+ 20% SH, lt gy+ mnr SH, dsk yel-brn+ tr CALT | 1.02 | 130 | 900 | 310 | 88 | 30 | .13 | 431 | 2.90 |
| | P | SH, med-dk gy | 1.05 | | | | | | | | |
| 9990-10020 | Ctgs | SH, med gy+ 20% SH, med-dk gy + 20% SH, ol-gy+ mnr SH, mod brn+ tr CALT | .92 | 110 | 760 | 160 | 83 | 17 | .13 | 432 | 4.75 |
| 10020-050 | Ctgs | SH, dk gy+ 30% MDST, pal yel-brn, slty+ 20% SH, med gy+ 10% MDST, mod brn | 1.05 | 350 | 1520 | 1720 | 145 | 164 | .19 | 433 | .88 |
| | P | SH, dk gy | 2.18 | 490 | 6240 | 520 | 286 | 24 | .07 | 438 | 12.00 |
| | P | MDST, pal yel-brn, slty | .95 | | | | | | | | |
| 10050-080 | Ctgs | SH, dk gy+ 10% SH, med gy+ mnr MDST, pal yel-brn, slty+ tr MDST, mod brn | 1.46 | 1480 | 2550 | 900 | 175 | 62 | .37 | 428 | 2.83 |
| 10080-110 | Ctgs | SH, dk gy+ 30% SH, med gy+ tr MDST, pal yel-brn, slty+ tr pyr | 1.58 | 580 | 2800 | 730 | 177 | 46 | .17 | 431 | 3.84 |
| 10110-140 | Ctgs | MDST, med gy+ 30% SH, dk gy+ tr SST+ tr MDST, pal yel-brn, slty | 1.22 | 480 | 2060 | 930 | 169 | 76 | .19 | 433 | 2.22 |
| 10140-170 | Ctgs | SH, dk gy+ 20% MDST, med gy+ tr pyr+ tr MDST, pal yel-brn, slty | 1.29 | 310 | 1430 | 1200 | 111 | 93 | .18 | 433 | 1.19 |
| 10170-200 | Ctgs | SH, dk gy+ 20% MDST, med gy, slty+ 10% SST, pal yel-brn, slty+ tr pyr+ tr MDST, pal yel-brn, slty | 1.09 | | | | | | | | |
| | P | SH, dk gy | 1.91 | 410 | 3790 | 480 | 198 | 25 | .10 | 439 | 7.90 |
| 10200-230 | Ctgs | SH, dk gy+ 20% MDST, pal yel-brn, slty+ 10% SST+ mnr LCM | 1.61 | 470 | 2700 | 1390 | 168 | 86 | .15 | 431 | 1.94 |
| | P | SH, dk gy | 1.39 | 440 | 2430 | 480 | 175 | 35 | .15 | 438 | 5.06 |
| 10230-260 | Ctgs | SND+ 40% SH, dk gy+ mnr MDST, v lt gy, slty+ tr BIT+ tr pyr | 1.19 | | | | | | | | |
| | P | SH, dk gy | 1.80 | 760 | 4050 | 320 | 225 | 18 | .16 | 438 | 12.66 |
| 10260-290 | Ctgs | SND+ 40% SH, dk gy+ mnr MDST, v lt gy, slty | 1.45 | | | | | | | | |
| | P | SH, dk gy | 1.55 | 700 | 2920 | 440 | 188 | 28 | .19 | 439 | 6.64 |
| 10290-320 | Ctgs | SND+ 30% SH, med-dk gy+ 20% MDST, v lt gy, slty | .62 | | | | | | | | |

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3F

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | |
|------------------------|----------------|---|------------------------|-------------------|-------------|-------------|-----|----|-----|------------|-------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | P Y R O L Y S I S | | | | | | | |
| | | | | S1 (ppm) | S2 (ppm) | S3 (ppm) | HI | OI | PI | Tmax °C | S2/S3 |
| 10290-320 | P | SH, med-dk gy | 1.70 | 370 | 2650 | 340 | 156 | 20 | .12 | 438 | 7.79 |
| | P | MDST, v lt gy, slty | .31 | | | | | | | | |
| 10320-350 | Ctgs | SND+ 30% SH, med-dk gy+ 20% MDST, v lt gy, slty | .82 | | | | | | | | |
| | P | SH, med-dk gy | 1.37 | 680 | 2570 | 350 | 188 | 26 | .21 | 437 | 7.34 |
| 10350-380 | Ctgs | SND+ 30% SH, med-dk gy+ 20% MDST, v lt gy, slty | 1.07 | | | | | | | | |
| | P | SH, med-dk gy | 1.40 | 500 | 2530 | 310 | 181 | 22 | .17 | 438 | 8.16 |
| 10380-410 | Ctgs | SND+ 10% SH, med-dk gy+ mnr MDST, v lt gy, slty | .55 | | | | | | | | |
| | P | SH, med-dk gy | 1.15 | 220 | 2170 | 240 | 189 | 21 | .09 | 437 | 9.04 |
| 10440-470 | Ctgs | SND+ 10% SH, med-dk gy+ mnr MDST, v lt gy, slty | .50 | | | | | | | | |
| | P | SH, med-dk gy | 1.37 | 950 | 3800 | 350 | 277 | 26 | .20 | 436 | 10.86 |
| 10470-500 | Ctgs | SND+ 10% SH, med-dk gy+ mnr MDST, v lt gy, slty | .17 | | | | | | | | |
| | P | SH, med-dk gy | 1.26 | 250 | 2180 | 260 | 173 | 21 | .10 | 438 | 8.38 |
| 10500-530 | Ctgs | SND+ mnr SH, med-dk gy+ tr pyr + tr MDST, v lt gy, slty | .20 | | | | | | | | |
| 10530-560 | Ctgs | SND+ mnr SH, med-dk gy+ tr BIT + mnr MDST, v lt gy, slty | .28 | | | | | | | | |
| 10560-590 | Ctgs | SND+ 10% SH, med-dk gy+ mnr MDST, v lt gy, slty | .19 | | | | | | | | |
| | P | SH, med-dk gy | 1.21 | 210 | 1710 | 190 | 141 | 16 | .11 | 439 | 9.00 |
| 10650-680 | Ctgs | SND+ mnr SH, med-dk gy | .13 | | | | | | | | |
| | P | SH, med-dk gy | 1.25 | 250 | 1770 | 170 | 142 | 14 | .12 | 438 | 10.41 |
| 10680-710 | Ctgs | SND+ 10% SH, med-dk gy | | | | | | | | | |
| | P | SH, med-dk gy | 1.04 | 240 | 1190 | 190 | 114 | 18 | .17 | 438 | 6.26 |
| 10710-740 | Ctgs | SND+ 10% SH, med-dk gy | | | | | | | | | |
| | P | SH, med-dk gy | 1.21 | 210 | 1490 | 180 | 123 | 15 | .12 | 441 | 8.28 |
| 10740-770 | Ctgs | SND+ 10% SH, med-dk gy+ tr COAL | .26 | | | | | | | | |
| | P | SH, med-dk gy | 1.24 | 290 | 1800 | 150 | 145 | 12 | .14 | 440 | 12.00 |
| 10770-800 | Ctgs | SST+ 30% SH, med-dk gy+ 10% SH dk gy | .72 | | | | | | | | |
| | P | SH, dk gy | 1.22 | 250 | 1410 | 270 | 116 | 22 | .15 | 440 | 5.22 |
| 10800-830 | Ctgs | SH, dk gy+ 20% MDST, pal yel-brn+ mnr SST+ mnr SH, med gy+ tr SH, mod brn | .88 | | | | | | | | |

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3G

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | |
|------------------------|----------------|---|------------------------|-------------|-------------|-------------|----|----|-----|------------|-------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | | | |
| | | | | S1 (ppm) | S2 (ppm) | S3 (ppm) | H1 | O1 | PI | Tmax °C | S2/S3 |
| 10800-830 | P | SH, dk gy | 1.08 | 160 | 920 | 230 | 85 | 21 | .15 | 440 | 4.00 |
| 10830-860 | Ctgs | SH, dk gy+ 30% MDST, pal yel-brn+ 20% SH, mod brn+ mnr SH, med gy+ tr SST | .64 | | | | | | | | |
| 10860-890 | P | SH, dk gy | 1.05 | 200 | 900 | 210 | 86 | 20 | .18 | 439 | 4.29 |
| 10860-890 | Ctgs | SH, dk gy+ 30% SH, mod brn+ 20% MDST, pal yel-brn+ mnr MDST, med gy+ tr SST | .45 | | | | | | | | |
| 10890-920 | P | SH, dk gy | .97 | 140 | 750 | 220 | 77 | 23 | .16 | 438 | 3.41 |
| 10890-920 | Ctgs | SH, med-dk gy+ 20% SH, mod brn + 20% SND+ 10% SH, med gy+ tr LST, wht | .47 | | | | | | | | |
| 10920-950 | Ctgs | SH, med-dk gy+ 20% SST+ 10% SH gy-brn+ 10% SH, dk gy+ mnr LST wht | .49 | | | | | | | | |
| 10950-980 | Ctgs | SH, med-dk gy+ 10% SH, gy-brn + 10% SH, dk gy+ mnr SST+ mnr MDST, lt gy | .53 | | | | | | | | |
| 10980-11010 | Ctgs | SH, med-dk gy+ 10% SH, dk gy+ 10% SH, gy-brn+ mnr SST+ mnr MDST, lt gy | .59 | | | | | | | | |
| | P | SH, med-dk gy | .76 | 100 | 390 | 300 | 51 | 39 | .20 | 438 | 1.30 |
| | P | SH, gy-brn | .29 | | | | | | | | |
| 11010-040 | Ctgs | SH, med-dk gy+ 20% SH, dk gy+ 10% SH, gy-brn+ mnr SST+ mnr MDST, med-lt gy | .79 | 260 | 440 | 420 | 56 | 53 | .37 | 435 | 1.05 |
| 11040-070 | Ctgs | SH, med-dk gy+ 20% SH, dk gy+ 10% LST, wht+ 10% SH, gy-brn+ mnr SST | .67 | | | | | | | | |
| | P | SH, dk gy | .93 | 110 | 570 | 400 | 61 | 43 | .16 | 437 | 1.42 |
| | P | LST, wht | .35 | | | | | | | | |
| 11070-100 | Ctgs | SH, med-dk gy+ 20% LST, wht+ 10% SH, gy-brn+ mnr SST | .60 | | | | | | | | |
| | P | SH, med-dk gy | .91 | 250 | 620 | 260 | 68 | 29 | .29 | 438 | 2.38 |
| 11100-130 | Ctgs | SH, med-dk gy+ 20% LST, wht+ 10% SH, gy-brn+ mnr SST | .64 | | | | | | | | |
| | P | SH, med-dk gy | .94 | 140 | 650 | 280 | 69 | 30 | .18 | 437 | 2.32 |
| | P | LST, wht | .23 | | | | | | | | |
| 11130-160 | Ctgs | SH, med-dk gy+ 20% LST, wht+ 10% SH, gy-brn+ mnr SST | .54 | | | | | | | | |
| | P | SH, med-dk gy | .85 | 110 | 520 | 190 | 61 | 22 | .17 | 438 | 2.74 |
| 11160-190 | Ctgs | LST, wht+ 30% SH, med-dk gy+ 10% SH, gy-brn+ mnr SST | .45 | | | | | | | | |

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3H

| GENERAL DATA | | | CHEMICAL ANALYSIS DATA | | | | | | | | |
|------------------------|----------------|---|------------------------|-------------|-------------|-------------|----|----|-----|------------|-------|
| SAMPLE DEPTH (Feet) | SAMPLE TYPE | ANALYSED LITHOLOGY | TOC % OF ROCK | PYROLYSIS | | | | | | | |
| | | | | S1 (ppm) | S2 (ppm) | S3 (ppm) | HI | OI | PI | Tmax °C | S2/S3 |
| 11160-190 | P | SH, med-dk gy | .91 | 130 | 650 | 260 | 71 | 29 | .17 | 437 | 2.50 |
| 11190-220 | Ctgs | LST, wht+ 20% SH, med-dk gy+ 10% SH, gy-brn+ tr SST | .45 | | | | | | | | |
| 11220-250 | Ctgs | LST, wht+ 20% SH, dk gy+ mnr SH, gy-brn+ 10% SH, med gy | .35 | | | | | | | | |
| | P | SH, dk gy | .92 | 140 | 650 | 340 | 71 | 37 | .18 | 437 | 1.91 |
| 11250-280 | Ctgs | LST, wht+ 10% SH, med gy+ 10% SH, dk gy+ mnr SH, gy-brn | .31 | | | | | | | | |
| 11280-310 | Ctgs | LST, wht+ 20% SH, dk gy+ mnr SH, med gy+ mnr SH, gy-brn | .33 | | | | | | | | |
| | P | SH, dk gy | .88 | 110 | 500 | 290 | 57 | 33 | .18 | 438 | 1.72 |
| 11310-340 | Ctgs | SH, dk gy+ 30% LST, wht+ 10% SH, gy-brn | .80 | 70 | 240 | 450 | 30 | 56 | .23 | 435 | .53 |
| | P | SH, dk gy | .60 | | | | | | | | |
| 11340-370 | Ctgs | LST, wht+ 30% SH, dk gy+ 10% SH, gy-brn | .42 | | | | | | | | |
| | P | SH, dk gy | .90 | 100 | 570 | 210 | 63 | 23 | .15 | 438 | 2.71 |
| 11370-400 | Ctgs | LST, wht+ 30% SH, dk gy+ 10% SH, gy-brn | .44 | | | | | | | | |
| 11400-430 | Ctgs | LST, wht+ 20% SH, dk gy+ 10% SH, gy-brn | .36 | | | | | | | | |
| 11430-460 | Ctgs | LST, wht+ 30% SH, dk gy+ mnr SH, gy-brn | .46 | | | | | | | | |
| 11460-490 | Ctgs | LST, wht+ 30% SH, dk gy+ 10% LST, med gy+ mnr SH, gy-brn | .41 | | | | | | | | |
| | P | SH, dk gy | .76 | 130 | 440 | 230 | 58 | 30 | .23 | 437 | 1.91 |
| 11490-520 | Ctgs | LST, wht+ 30% SH, dk gy+ 10% LST, med gy+ 10% SH, gy-brn | .38 | | | | | | | | |
| | P | SH, dk gy | .77 | 90 | 490 | 190 | 64 | 25 | .16 | 439 | 2.58 |
| 11520-550 | Ctgs | LST, wht+ 10% SH, dk gy+ mnr LST, med gy+ mnr SH, gy-brn | .21 | | | | | | | | |
| 11550-580 | Ctgs | LST, wht+ 10% SH, dk gy+ mnr LST, med gy+ mnr SH, gy-brn | .26 | | | | | | | | |
| 11580-610 | Ctgs | LST, wht+ mnr SH, dk gy+ mnr SH, gy-brn+ mnr LST, med gy | .24 | | | | | | | | |
| 11610-640 | Ctgs | LST, wht+ mnr SH, dk gy+ mnr SH, gy-brn+ mnr LST, med gy | .19 | | | | | | | | |
| 11640-670 | Ctgs | LST, wht+ mnr SH, dk gy+ mnr SH, gy-brn+ mnr LST, med gy | .16 | | | | | | | | |
| 11670-700 | Ctgs | LST, wht+ mnr SH, dk gy+ mnr SH, gy-brn+ mnr LST, med gy | .17 | | | | | | | | |

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3I

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| SAMPLE DATA | | | | | | |
|---------------------|-----------|-----------|-----------|-----------|--|--|
| SAMPLE DEPTH (Feet) | 10230-260 | 10244-291 | 10260-290 | 10320-350 | | |
| SAMPLE TYPE | Ctgs | Oil | Ctgs | Ctgs | | |

| COMPONENTS | QUANTIFIED NORMAL AND ISOPRENOID ALKANE ABUNDANCES (%) | | | | | |
|---------------------|--|------|-------|-------|--|--|
| | n-C10 | | | | | |
| n-C11 | | | | | | |
| n-C12 | | | | | | |
| n-C13 | | | | | | |
| n-C14 | 4.29 | 7.69 | 10.78 | 11.67 | | |
| n-C15 | 7.02 | 9.13 | 8.22 | 8.83 | | |
| n-C16 | 7.48 | 8.93 | 6.28 | 7.05 | | |
| n-C17 | 8.00 | 8.80 | 6.28 | 6.13 | | |
| n-C18 | 6.80 | 7.53 | 4.96 | 5.15 | | |
| n-C19 | 6.07 | 6.63 | 4.82 | 5.14 | | |
| n-C20 | 5.72 | 6.20 | 4.66 | 4.97 | | |
| n-C21 | 5.06 | 5.23 | 3.87 | 4.26 | | |
| n-C22 | 4.52 | 4.53 | 4.45 | 4.46 | | |
| n-C23 | 4.65 | 4.16 | 3.91 | 4.24 | | |
| n-C24 | 4.13 | 3.58 | 3.79 | 3.63 | | |
| n-C25 | 3.47 | 3.26 | 3.09 | 4.05 | | |
| n-C26 | 3.04 | 2.63 | 3.57 | 2.54 | | |
| n-C27 | 3.00 | 2.11 | 2.77 | 2.95 | | |
| n-C28 | 2.86 | 3.86 | 4.19 | 3.73 | | |
| n-C29 | 2.86 | 1.62 | 3.15 | 3.31 | | |
| n-C30 | 2.86 | 1.39 | 3.53 | 3.01 | | |
| n-C31 | 2.03 | 1.18 | 1.60 | 1.54 | | |
| n-C32 | 1.42 | .99 | 1.21 | 1.33 | | |
| n-C33 | 1.17 | 1.07 | 2.01 | 1.30 | | |
| n-C34 | 1.41 | .73 | 1.65 | 1.22 | | |
| n-C35 | 1.11 | .62 | 1.30 | 1.22 | | |
| n-C36 | | | | | | |
| i-C15 (Farnesane) | | | | | | |
| i-C16 | | | | | | |
| i-C18 (Norpristane) | | | | | | |
| i-C19 (Pristane) | 7.36 | 4.87 | 6.56 | 5.30 | | |
| i-C20 (Phytane) | 3.66 | 3.26 | 3.34 | 2.99 | | |

| GENERAL DATA | | | | | | |
|----------------------|------|--|------|------|--|--|
| Total Abundance(%) | 100 | | 100 | 100 | | |
| TOC (% of Rock) | 1.19 | | 1.45 | .82 | | |
| Extract (ppm) | 1460 | | 1885 | 1745 | | |
| Hydrocarbons (ppm) | 1040 | | 1545 | 1380 | | |
| Hydrocarbon(mg/gTOC) | 87 | | 106 | 169 | | |
| Alks(% Hydrocarbons) | 75 | | 75 | 75 | | |
| Rock-Eval HI | | | | | | |
| Rock-Eval PI | | | | | | |

| RATIOS | | | | | | |
|---------------|------|------|------|------|--|--|
| CPI-1 | .98 | .85 | .83 | 1.02 | | |
| CPI-2 | 1.00 | .82 | .78 | 1.02 | | |
| CPI-3 | 1.02 | .65 | .71 | .94 | | |
| Bias | 1.39 | 1.85 | 1.08 | 1.17 | | |
| i-C19 / n-C17 | .92 | .55 | 1.04 | .86 | | |
| i-C20 / n-C18 | .54 | .43 | .67 | .58 | | |
| i-C19 / i-C20 | 2.01 | 1.49 | 1.96 | 1.78 | | |

| LEGEND | | | | | | |
|----------------|------------|---|--|--|--|--|
| i - isoprenoid | n - normal | For definition of Ratios CPI-1,-2,-3 and Bias - see Appendix II | | | | |

ALKANE GAS CHROMATOGRAPHY DATA

TABLE : 4

TABLE 5

Oil Sample Physical and Chemical Properties Data

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| GRAVITY (°API) | POUR POINT (°C) | VISCOSITY (cSt) | | |
|-------------------|--------------------|-----------------|------|------|
| | | 20°C | 40°C | 60°C |
| 41 | +7 | 7.7 | 5.6 | 4.6 |

| VOLATILE CONTENT (TOPPING LOSS, %) | ASPHALTENES (%) | SULPHUR (%) | WAX (%) | WATER (%) |
|---------------------------------------|--------------------|----------------|------------|--------------|
| 26.4 | 0.3 | 0.11 | 0.38 | <0.1 |

| NICKEL (ppm) | VANADIUM (ppm) | NICKEL/VANADIUM RATIO |
|-----------------|-------------------|-----------------------|
| 3.2 | <1 | >3.2 |

TABLE 6

Oil Fractionation Data

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| ALKANES (%) | AROMATICS (%) | POLARS (%) | NON-ELUTED (%) | ALKANE/ AROMATIC RATIO |
|----------------|------------------|---------------|-------------------|------------------------------|
| 72.0 | 8.7 | 10.4 | 8.9 | 8.3 |

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| | | | | | | |
|---------------------|-----------|--|--|--|--|--|
| SAMPLE DATA | | | | | | |
| SAMPLE DEPTH (Feet) | 10244-291 | | | | | |
| SAMPLE TYPE | oil | | | | | |

| COMPONENTS | GASOLINE RANGE COMPONENT ABUNDANCE (ppb) | | | | | |
|---------------------|--|--|--|--|--|--|
| i-C4 | 1711 | | | | | |
| n-C4 | 6241 | | | | | |
| i-C5 | 5534 | | | | | |
| n-C5 | 9046 | | | | | |
| 2,2,dmb | 337 | | | | | |
| cp | 333 | | | | | |
| 2,3,dmb | 952 | | | | | |
| 2,mp | 4342 | | | | | |
| 3,mp | 3692 | | | | | |
| n-C6 | 11861 | | | | | |
| mcp+2,2,dmp | 2019 | | | | | |
| 2,4,dmp | 683 | | | | | |
| benz | 1262 | | | | | |
| 3,3,dmp | 217 | | | | | |
| ch | 5424 | | | | | |
| 2,mh | 5762 | | | | | |
| 1,1,dmcp | 672 | | | | | |
| 3,mh | 4781 | | | | | |
| cis,1,3,dmcp | 1000 | | | | | |
| trans,1,3,dmcp | 927 | | | | | |
| trans,1,2,dmcp+3,ep | 1991 | | | | | |
| n-C7 | 14013 | | | | | |
| mch+cis,1,2,dmcp | 5775 | | | | | |
| ecp | 689 | | | | | |
| tol | 3405 | | | | | |

| | | | | | | |
|----------------------|-------|----|----|--|--|--|
| GENERAL DATA | | | | | | |
| Total Abundance(ppb) | 92666 | | | | | |
| TOC (% of Rock) | | | | | | |
| Abundance at 1% TOC | * | | | | | |
| Alkane Composition | 47 | 32 | 21 | | | |
| C7Alkane Composition | 32 | 26 | 42 | | | |
| Aromatic Composition | 5.04 | | | | | |

| | | | | | | |
|---------------------|-------|--|--|--|--|--|
| RATIOS | | | | | | |
| i/n-C4 | .27 | | | | | |
| i/n-C5 | .61 | | | | | |
| cp / 2,3,dmb | .35 | | | | | |
| n-C7 / mch | 2.43 | | | | | |
| 2,mp / 3,mp | 1.18 | | | | | |
| n-C6 / mcp +2,2,dmp | 5.87 | | | | | |
| mch / tol | 1.70 | | | | | |
| Late Mature Index | .22 | | | | | |
| Aromaticity Index | .24 | | | | | |
| Heptane Index | 38.38 | | | | | |
| Isoheptane Index | 2.30 | | | | | |
| Kerogen Type Index | 14.97 | | | | | |

| | | | | | |
|--|-----------|------------|-------------|----------------|---------------|
| LEGEND | | | | | |
| i - iso | c - cyclo | m - methyl | b - butane | h - hexane | tol - toluene |
| n - normal | d - di | e - ethyl | p - pentane | benz - benzene | |
| Alkane Composition - % composition of normal, iso and cyclo alkanes | | | | | |
| C7 Alkane Composition - % composition of C7 normal, iso and cyclo alkanes | | | | | |
| Aromatic Composition - % composition of Benzene + Toluene | | | | | |
| For definition of indices - Late Mature, Aromaticity, Heptane, Isoheptane & Kerogen Type - See Appendix II | | | | | |

GASOLINE RANGE HYDROCARBON DATA

TABLE : 7

TABLE 8

Alkane Gas Chromatography - Mass Spectrometry Ratios

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|------|------|------|------|------|------|----|----|----------|------|------|------|----|
| 1.95 | 0.13 | 0.15 | 1.40 | 1.45 | 0.31 | 47 | 63 | 31/26/43 | 1.08 | 0.40 | 0.13 | * |

Explanation of ratios:

- 1 C_{27} 18 α (H)-trisorneohopane/17 α (H)-trisorphane (Ts/Tm) (m/e 191)
- 2 C_{30} 17 β (H)21 α (H)-moretane/17 α (H)21 β (H)-hopane (m/e 191)
- 3 C_{29} 17 β (H)21 α (H)-normoretane/17 α (H)21 β (H)-norhopane (m/e 191)
- 4 22S/22R OF C_{31} 17 α (H)21 β (H) homohopanes (m/e 191)
- 5 22S/22R of C_{32} 17 α (H)21 β (H) bishomohopanes (m/e 191)
- 6 C_{29} 17 α (H)-norhopane/ C_{29} 17 α (H)-norhopane + C_{30} 17 α (H)-hopane (m/e 191)
- 7 % 20S of 5 α (H)14 α (H) 20R and 20S C_{29} steranes (m/e 217)
- 8 % 5 α (H)14 β (H) 20R and 20S (m/e 218) of total C_{29} steranes (m/e 217, m/e 218)
- 9 Carbon number distribution of C_{27} , C_{28} and C_{29} 5 α (H)14 α (H)17 α (H) 20R steranes (m/e 217)
- 10 C_{30} 17 α (H)21 β (H)-hopane (m/e 191)/total C_{29} steranes (m/e 217, m/e 218)
- 11 13 β (H)17 α (H) 20S and 20R C_{29} diasteranes (m/e 259)/total C_{29} steranes (m/e 217, m/e 218)
- 12 C_{28} 18 α (H)21 β (H)-28,30-bisorhopane/ C_{30} 17 α (H)21 β (H)-hopane (m/e 191)
- 13 C_{29} 17 α (M)21 β (M)-25-norhopane (m/e 177)/ C_{30} 17 α (H)21 β (H)-hopane (m/e 191)

TABLE 9

Carbon Isotope Data

COMPANY: PHILLIPS NORWAY

WELL: 1/2-1

LOCATION: NORWEGIAN NORTH SEA

| ALKANES $\delta^{13}\text{C}$ (‰) | AROMATICS $\delta^{13}\text{C}$ (‰) |
|--------------------------------------|--|
| -29.1 | -28.8 |

Note: Carbon isotope ratios relative to PDB standard.