

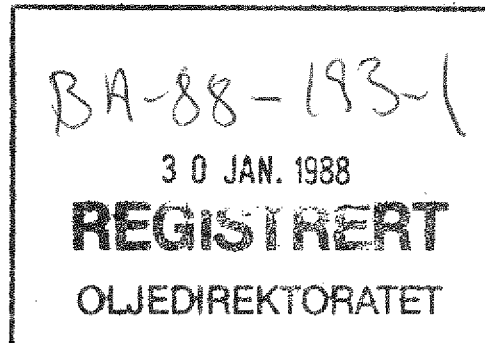
NORTH VIKING GRABEN  
GEOCHEMICAL STUDY

Well no. 30/6-3 NOCS

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Date: 15.12.86

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INTRODUCTION

This well is from the Norwegian sector of the North Sea and within the area of the Oseberg Field. It lies on the eastern flank of the northern Viking Graben and on the structure known as the Bergen High. The source for the Oseberg oil is considered to be the Jurassic (Lower and Upper) to the west in the 'Oseberg Kitchen' (Thomas et al., 1985).

A total of 119 samples was collected from the Norwegian Petroleum Directorate in Stavanger. All the samples were washed (from 1969 - 2940 TD RKB) and a lithological description was performed on every sample.

The analysed interval is from 2335 m to 2940 m. (TD RKB). The sample interval is 3 metres.

A careful selection was made of suitable samples for screening analysis i.e. TOC and Rock Eval analysis. Seventy-four (74) samples were selected and from this data a number of samples for further analysis were chosen as follows:

Thermal extraction - pyrolysis - gas chromatography	33 samples
Extraction, MPLC fractionation, saturated and aromatic hydrocarbon gas chromatography	9 samples
Vitrinite reflectance microscopy	24 samples
Visual kerogen analysis	27 samples

Tables listing in detail which samples were analysed, and the results from the analyses are shown in the Appendix.

Figure 1 shows the litho-variations and some of the fscreening data for the analysed section of the well and also the location of samples for follow-up analysis. Included in the figure are some of the problems and intervals of interest (e.g. oil show intervals) which have affected the choice of samples for analysis. There is contamination from cement in the section below the 9 5/8" casing shoe at 2570 m. As a result, an interval of the Dunlin Group was not analysed. The section from 2421 to 2458 m was cored and the samples in this section consist mainly of caved material. The samples from the top part of the Heather Fm. claystones and the top part of the Dunlin Group claystones probably also contain caved material particularly from the overlying formation.

## LITHOLOGY AND TOTAL ORGANIC CARBON CONTENT

### Cretaceous (2256 - 2353 m)

The Upper Cretaceous samples which were analysed for TOC content consist of green-grey, olive-grey and brown-grey claystones with abundant yellow-grey and white limestones in some samples. The claystones have less than 1% TOC. The top of the Jurassic is at 2353 m and the Draupne Fm. is absent due to erosion or non-deposition.

### Jurassic (2353 - 2940 m)

#### Heather Formation (2353 - 2421 m)

According to the logs the dominant lithology should be dusky yellow-brown claystones. This lithology is absent in the top samples from this interval (2353 - 2380 m), where mostly Cretaceous cavings are present. Dusky yellow-brown claystones are partially mixed with these shales below 2380 m. The increase in TOC downwards from 2362 m i.e. 0.7% to 4.9% at 2410 m probably reflects the decreasing contribution from caved material.

#### Brent Group (2421 - 2512 m)

This interval was cored to 2458 m. The cuttings samples in the cored interval are at least partially unrepresentative since sandstone is much more prominent in the core. Dusky yellow-brown claystones with high TOC values (2.7%, 5.0%) are probably caved Heather claystones in part, although brown-grey, yellow-brown claystones with carbonaceous laminae, lenses and blebs also have high TOC contents. Below the cored section and down to 2509 m there are both

sandstones and claystones. Brown-black claystones recorded in this section have rich TOC values (2.65%, 4.56% and 4.83%). Coals present in samples in this section may be coal additive or caved from the cored interval. The interval from 2482 m down to the top of the Dunlin (2512 m) consists mainly of sandstones.

Dunlin Group (2512 - 2884 m)

Samples in this sequence consist of various coloured claystones (mainly olive and brown-grey but also medium grey to dark grey), separated by the Dunlin sandstone between 2689 - 2780 m. The claystone interval (Drake Fm.) above the sandstone is partly contaminated by cement. TOC of the claystones varies from 0.5 - 3.4%. The TOC of the claystone interval below the sandstones (Burton and Amundsen Fms.) varies from 1.2 - 1.8%.

Statfjord Formation (2884 - 2940 m, TD)

The samples in this sequence consist mainly of sandstones and the minor claystones have less than 1% TOC.

## ROCK-EVAL ANALYSIS

### 1. Kerogen Type and Richness

(Hydrogen Index, Oxygen Index and Petroleum Potential)

#### Cretaceous ( - 2353 m)

Grey shales have type IV kerogen and petroleum potentials less than 1.

#### Jurassic (2353 - 2940 m)

##### Heather Formation (2353 - 2412 m)

Dusky yellow-brown claystones have mainly type IV kerogen (Hydrogen Index < 100) and poor to fair potentials (< 2) except for the bottom 10 - 20 m section, which has a good source potential with type III or II/III kerogen with a petroleum potential at 2410 m of 14.3.

##### Brent Group (2421 - 2512 m)

Carbonaceous claystones in this mainly sandstone sequence have type III or II/III kerogen with petroleum potentials from 3 - 12. These claystones and coals have a fair to rich potential for gas/condensate.

##### Dunlin Group (2512 - 2884 m)

The various claystones in the interval from 2512 - 2640 m (Drake Fm.) have generally poor-fair source potentials, with type III or IV kerogen and petroleum potentials of 3. The

samples in the middle part of this interval consisted mainly of cement and no assessment of potential could be made. In the sequence between 2640 - 2680 m there is a marked improvement in kerogen type and potential of claystones. The kerogen has hydrogen index values of 400+ and petroleum potentials from 3 - 14. These values indicate that this section has a fair-rich potential for oil and gas.

The interval below the Cook sandstones (2689 - 2780 m) consists of various claystones (Burton - Amundsen Fms., 2780 - 2884 m) with type III or II/III kerogens and petroleum potentials from 2 - 5. These values indicate that the interval has a fair to good potential for gas/condensate.

Statfjord Formation (2884 - 2940 m)

Only one claystone sample was analysed from this interval and it has type III/IV kerogen with a petroleum potential of 1. It has poor potential and only for gas.

## 2. Generation/Migration

(Production Index  $S_1/S_1+S_2$  and  $S_1/TOC$ )

The Oseberg oil reservoir is situated in the Brent Gr. Grey claystones below the reservoir section have slightly raised values for immature claystones. Otherwise the low production index values in most of the Jurassic indicate that only minor hydrocarbon generation has occurred (Figure 2).

## 3. Maturity (Tmax)

Table 2 in the appendix lists Rock-Eval data including Tmax values. Figure 3 shows the estimated trend of Tmax with depth. The general trend is from 425 at 2400 m to 436 at

2900 m. The high values, off the estimated trend, from 429 - 439 may be due to kerogen being mainly type III/IV or possibly to oxidation of kerogens during an erosive phase. The Jurassic interval is moderate to early mature based on Tmax values.



EXTRACTION DATA

Samples which are considered to be unaffected by contamination based on hydrocarbon gas chromatograms are as follows:

		EOM ppm.	HC ppm.	%HC
Heather claystone	2410 m	900	401	45%
Brent claystone	2461 m	736	207	28%
Drake claystone	2521 m	1665	811	49%
Cook-Burton claystone	2788 m	578	260	45%
Burton claystone	2818 m	794	324	41%
Burton claystone	2814 m	667	388	58%
Amundsen claystone	2854 m	496	386	78%

The contaminated<sup>+</sup> or possibly migrated\* hydrocarbon-containing samples are:

		EOM ppm.	HC ppm.	%HC
Brent claystone	2473 m*	6466	1542	24%
Amundsen claystone	2842 m <sup>+</sup>	54012	47892	89%

The contamination in the Amundsen claystone is probably pipe dope while the migrated hydrocarbons/asphaltic material in the Brent claystone probably represents a residual oil (the Oseberg reservoir is situated just above this interval).

The Heather, Brent and Dunlin claystones have good-rich amounts of EOM (500 - 1700 ppm) and hydrocarbons (200 - 800 ppm). When normalised to grams of organic carbon the values are all fair for EOM and HC. Values vary from 27 - 61 for

EOM (mgs/g TOC) and from 9 - 33 for hydrocarbons (mgs/g TOC). These are low values for kerogen type II or III and indicate the low maturity of the claystones throughout the Jurassic interval.

### Saturated Hydrocarbons

#### Heather Formation (2353 - 2421 m)

The sample from the Heather Fm. consists of dusky yellow-brown claystone in the interval from 2383 - 2410 m. The n-alkane envelope ranges from  $nC_{12}$  -  $nC_{40}^+$  with a maximum at  $nC_{15}$  and a prominent shoulder out to  $nC_{30}$  (Figure 4). The distinct odd n-alkane preference from  $nC_{23}$  -  $nC_{35}$  indicates an immature - moderate mature sample with a higher plant input. The high pristane/ $nC_{17}$  and pristane/phytane ratios (2.1 and 2.4) also support these conclusions. High pristane/phytane ratios in a marine shale of low maturity indicates that the depositional environment was probably only mildly anoxic.

#### Brent Group (2421 - 2512 m)

The two analysed samples from the Brent Group consist of medium grey and dark brown-grey claystones. Unlike the Heather samples the isoprenoids are much less prominent (pristane/ $nC_{17}$  ratio is  $< 1$ ) and so is the shoulder of n-alkanes between  $nC_{20}$  -  $nC_{30}$  (Figure 5). The lower claystone is the more extreme of the two and is dominated by n-alkanes from  $nC_{11}$  -  $nC_{20}$ . The CPI is similar to the Heather claystone, as are pristane/phytane ratios, which suggests a similar organic input and possibly environment. Migrated hydrocarbons are probably also present in the claystones (this is based mainly on the increased amount of hydrocarbons of less than  $nC_{20}$  in these samples).

Dunlin Group (2512 - 2884 m)

The six samples which were analysed in the Dunlin Group are all fairly similar except for one which is probably contaminated. The general hydrocarbon pattern is as follows: n-alkanes range from  $nC_{13}$  -  $nC_{35}$  with maximum at  $nC_{15}$  and also a prominent shoulder from  $nC_{20}$  -  $nC_{30}$  (Figure 6). There is a distinct odd carbon number predominance (CPI 1.3 - 1.4). Pristane /phytane ratios vary from 2.3 - 2.9 and pristane/ $nC_{17}$  ratios are 1. The data suggest a relatively uniform organic matter with a large land plant input into a mildly anoxic depositional environment.

Aromatic Hydrocarbons

Heather Formation (2353 - 2421 m)

Claystone samples from 2383 - 2410 m in the Heather Fm. were combined for this analysis. The hydrocarbon distribution pattern shows abundant polycyclic compounds relative to diaromatics (Figure 7). This is fairly typical for immature claystones. Low values for MNR, DMNR and MPI 1 also indicate the samples are pre-oil generation in maturity. The low ratios for 4/1 and (3+2)/1 MDBT and fairly high DBT/P also suggest low maturity, as well as indicating that these claystones were deposited in an anoxic environment (Hughes 1984). The two prominent peaks marked with an asterisk have not been identified but they might be cadalene and retene which are indicators of a land plant input.

Brent Group (2421 - 2512 m)

Two samples from the Brent Group were analysed. These consist of medium grey and medium dark brownish-grey claystones directly beneath the oil reservoir. Some of the

aromatic hydrocarbon data suggest that the hydrocarbons in these claystones are partly indigenous and there are some migrated hydrocarbons. The sample from 2458 - 2461 m is similar to the sample from the Heather except that some peaks are more prominent, including phenanthrene (P) and Biphenyl (Bph). This difference may be due to depositional environment/organic input, with the Brent claystones being deposited in a non-marine environment with a mainly terrestrial input. The aromatic hydrocarbon distribution pattern of the second sample (2464 - 2473 m) shows greater changes, the alkyl naphthalenes are much more prominent, and polycyclic compounds much less prominent (Figure 8). Certain aromatic ratios also suggest that the hydrocarbons are slightly more mature. MNR, DMNR and MPI1 values are greater than for samples above and below this interval. However, these changes could partly be due to differences in depositional environment and organic input.

#### Dunlin Group (2512 - 2884 m)

Five claystone samples were analysed from the Dunlin Group: one sample from the top of the Drake Fm., one from the Cook-Burton Fms. combined, one from the Burton Fm. and two from the Amundsen Fm. No samples were analysed in the Drake Fm. from 2521 - 2680 m since the samples consist mainly of contaminants. All the samples except for 2833 - 2842 m in the Amundsen Fm. have very similar aromatic hydrocarbon distributions (Figure 9). Phenanthrene and mono- and di-methyl phenanthrenes dominate the chromatograms. All the aromatic maturity ratios indicate that the samples are of low maturity (e.g. MPI 1 < 0.6) and that they were probably deposited in an mildly anoxic environment.

## THERMAL EXTRACTION - GAS CHROMATOGRAPHY

A total of thirty-three (33) samples were analysed by thermal extraction gas chromatography.

### Heather Formation (2353 - 2411 m)

Six claystones from the Heather Fm. were analysed. All six samples show some light hydrocarbons, basically  $nC_{13}$  and lighter, except for the sample from 2407 - 10 m which shows compounds up to  $nC_{18}$ . The sample from 2407 - 2410 m (Figure 10) clearly shows a hydrocarbon pattern typical for material generated during the diagenesis stage, i.e. from immature kerogen (Bjørøy et al., 1985). This could imply that all the samples represent hydrocarbons generated in situ during diagenesis.

### Brent Group (2421 - 2512 m)

Four claystone samples from the Brent Gr. were analysed. The three uppermost samples show good abundance of thermally extracted hydrocarbons. The pattern seen here indicates that the thermally extracted hydrocarbons consist of a mixture of immature hydrocarbons, generated in-situ during diagenesis and migrated hydrocarbons (Figure 11). The fourth sample from the Brent Gr. 2476 - 2479 m was barren.

### Dunlin Group (2512 - 2884 m)

A total of twenty-one samples (mostly claystones) from the Dunlin Gr. were analysed. The two uppermost samples, 2512 - 2515 m and 2518 - 2521 m, show similar patterns to that found for the Heather Fm., while the samples from 2536 - 39 m and 2545 - 48 m are almost barren. The next three samples

contain small amounts of light hydrocarbons. These data suggest that the kerogen present in the samples is only capable of generating small amounts of hydrocarbons at the best. The next two samples from the Drake Fm., 2569 - 2572 m and 2578 - 2581 m, show good abundances of light hydrocarbons up to  $nC_{16}$  (Figure 12). The hydrocarbon pattern looks mature, indicating that these are probably migrated hydrocarbons. The sandstone from 2638 - 2614 m also contains some light to medium weight hydrocarbons, probably representing migrated material. The lowermost analysed sample in the Drake Fm., 2656 - 2659 m, has only minor amounts of light to medium molecular weight hydrocarbons.

The claystone from the Dunlin Sand from 2701 - 2704 m contains only a small amount of hydrocarbons, which might be generated in situ.

Five samples from the Burton Fm. were analysed. All the samples have low to moderate amounts of low to medium molecular weight hydrocarbons (Figure 13), probably generated in situ.

Four samples from the Amundsen Fm. were analysed all showing similar features to the samples from the Burton Fm.

#### Statfjord Formation (2884 - 2940 m)

One sandstone from the Statfjord Fm. was analysed. It has small amounts of typically immature hydrocarbons, clearly showing that the sandstone does not contain migrated hydrocarbons.

## PYROLYSIS - GAS CHROMATOGRAPHY

A total of thirty-three (33) samples were analysed by pyrolysis - gas chromatography. The Draupne Fm. is not present in this well, and the uppermost analysed samples come from the Heather Fm.

### Heather Formation (2353 - 2422 m)

A total of six samples, all grey-brown claystones were pyrolysed. Four of the samples (2377 - 2380 m, 2383 - 2386 m, 2401 - 2404 m and 2407 - 2410 m) all have a percentage of C<sub>1</sub> - C<sub>5</sub> hydrocarbons over 40 % while the abundance and range of alkenes/alkanes is relatively low. This clearly indicates kerogen type III (Figure 14). The two other samples (2395 - 2398 m and 2413 - 2416 m) show almost no alkenes/alkanes, indicating type IV kerogen.

### Brent Group (2421 - 2512 m)

Four claystone samples from the Brent Gr. were analysed. The samples between 2458 and 2473 m all have C<sub>1</sub> - C<sub>5</sub> hydrocarbon percentages between 40 and 50% with a moderate abundance of alkenes/alkanes and a high abundance of aromatic compounds, indicating type III kerogen. The sample from 2476 - 2479 m shows almost only C<sub>1</sub> - C<sub>6</sub> compounds, indicating type IV kerogen.

### Dunlin Group (2512 - 2884 m)

A total of twenty-one (21) samples from the Dunlin Gr. were pyrolysed. Of these eleven samples are from the Drake Fm., one from the Intra-Dunlin Sand, five from the Burton Fm. and four from the Amundsen Fm. The samples from the Drake Fm.

show a large spread in the percentage of  $C_1 - C_5$  hydrocarbons from 27% to 69%. The samples from 2512 - 2515 m and 2518 - 2521 m have a percentage of  $C_1 - C_5$  between 40 and 50%, with a large abundance of aromatic compounds and moderate to low abundance of alkenes/alkanes, indicating kerogen type III. The analysed samples between 2536 and 2554 m together with the sample from 2563 - 2566 m contain mostly  $C_1 - C_6$  hydrocarbons showing that these samples contain kerogen type IV. The remaining samples from the Drake Fm., except the sample from 2638 - 2641 m, have a high percentage of  $C_1 - C_5$  hydrocarbons, while the pyrograms show a high abundance of aromatic compounds and a low abundance of alkenes/alkanes, indicating a mixture of IV/III kerogen. The sample from 2638 - 2641 m has a low percentage of  $C_1 - C_5$  hydrocarbons, with the pyrogram showing a low abundance of aromatic compounds and a good abundance of alkenes/alkanes. The sample contains type III (or II/III) kerogen (Figure 15).

The one analysed sample from the Dunlin Sand represents a thin claystone bed near the top of the sequence. The sample has a low percentage of  $C_1 - C_5$  hydrocarbons while the pyrogram shows a relatively low concentration of aromatic compounds and a moderate to large abundance of alkenes/alkanes. It contains kerogen II/III or possibly asphaltenes.

The five analysed samples from the Burton Fm. show some variation in the percentage of  $C_1 - C_5$  hydrocarbons from 36% to 52%. The pyrograms also show some variation, both in composition and in shape. Four of the samples contain probably kerogen type III (Figure 16) or possibly II/III, while the sample from 2791 - 2794 m contains a mixture of kerogen type IV/III.

The four analysed samples from the Amundsen Fm. all have a percentage of  $C_1 - C_5$  hydrocarbons of 40% or less. The pyrograms have a moderate abundance of aromatic compounds



and moderate to good abundance of alkenes/alkanes, showing the samples contain kerogen type III (possibly II/III).

Statfjord Formation (2884 - 2940 m)

One sample from the Statfjord Fm. was analysed. This is a sandstone from 2918 - 2921 m. The pyrogram indicates that the sandstone does not contain asphaltenes.

## VITRINITE REFLECTANCE

Twenty-four (24) samples were analysed, covering the interval 2068 m - 2917 m (Table 10, Appendix). In general, it was possible to achieve 20 measurements per sample. This was not possible for the top 4 samples (2068 m - 2347 m) but the values recorded are sufficiently similar to give confidence in a value of 0.4% Ro at this depth. Although fluctuating somewhat, the general gradient gives a value of 0.50% Ro at the base of the section (2800 - 2900 m). A reflectance profile is given in Figure 17. This shows a very gentle increase in reflectance over the approximately 1000 m interval analysed. From 2794 m to the base of the interval (2927 m) the values are consistently 0.50 - 0.52% Ro and are mainly based on 20 readings. This would suggest a high degree of confidence in the value at this depth. Thus the section analysed here does not achieve oil window maturity, ranging from immature at the top to moderate mature at the base. The fluorescence colours observed suggest a range of maturities from approximately 0.3% Ro equivalent to 0.5% to 0.6% equivalent. However, the higher values (0.6%) are approximate.

## VISUAL KEROGEN COMPOSITION

Twenty-seven (27) samples were examined (Table 11, Appendix). These covered the interval 2380 - 2921 m and were generally chosen to complement the pyrolysis analyses.

The quality of the kerogen in terms of "oil prone", "gas prone", or "inert" varies considerably (Figure 18). In general the kerogens appear to have a transitional to favourable potential for oil and gas to gas only products. Samples in the section 2461 m - 2554 m have a very terrestrial appearance.

The liptinitic component of the samples in general is very varied with, in most samples, some input from amorphinite L, Liptodetrinite, spores/pollen and cuticle with occasional dinoflagellates. However, towards the base, the composition becomes more detrital and less amorphous. The inertinite component contains semi-fusinite and inertodetrinite throughout with only traces of identifiable fusinite. Vitrodetrinite is by far the most consistent vitrinitic component with amorphinite V becoming less common towards the base. Traces of telinite and collinite are observed at various points throughout the section.

## CONCLUSIONS

The Draupne Fm. is not present in this well in which the Cretaceous rests directly on the Heather Fm.

### 1. Source Rock Potential

#### Cretaceous ( - 2353 m)

Grey claystones have very poor source rock potential for dry gas.

#### Jurassic (2353 m - TD)

#### Heather Formation (2353 - 2421 m)

The whole of the Heather Fm. is immature based on a number of maturity parameters. The shales in the Heather Fm. vary from 1 - 5% TOC and petroleum potentials mostly less than 3 except for the lowest interval which has > 10. The claystones contain kerogen type III with a poor to fair potential as source rocks for wet gas (good for condensate towards the base of the interval).

#### Brent Group (2421 - 2512 m)

The Brent Group in this well consists of sandstones with some interbedded claystones. The sandstones in the upper part of the Brent Gr. contain migrated hydrocarbons. The interbedded claystones in the Brent Gr. are immature/moderate mature, and contain kerogen type III with a fair potential as source rocks for wet gas.

Dunlin Group (2512 - 2884 m)

The Dunlin Gr. consists of claystones and sandstones. In this well it can be divided into four lithologically distinct formations.

Drake Formation (2512 - 2689 m)

The Drake Fm. consists of claystones which are moderate mature. The claystones contain mainly type III or III/IV kerogen giving them a poor potential as source rocks for wet gas. The section from 2638 - 2659 m contains kerogen type II/III or II. Petroleum potentials are 6 - 14 and TOC content 1 - 3%. This section has a good to rich potential as a source rock for oil and gas.

Dunlin Sand (2689 - 2761 m)

This sequence consists of sandstones with a small oil show at the top of the section.

Burton Formation (2761 - 2827 m)

The Burton Fm. consists of claystones and some interbedded claystone/siltstone/sandstone towards the base. The whole formation is moderate mature. The kerogen composition analysis shows that claystones are rich in liptinite throughout most of the Burton Fm.. Petroleum potentials vary from 2 - 5. The claystone in the formation contains kerogen type II/III, III or III/IV with a mainly poor-fair potential as a source rock for gas and some oil.

Amundsen Formation (2827 - 2884 m)

The whole of the Amundsen Fm. consists of interbedded claystones and siltstones containing kerogen type III possibly with some type II/III in parts. The whole of the section is moderate mature with a poor-fair potential as a source rock for gas and some oil.

Statfjord Formation (2884 m - TD)

The Statfjord Fm. consists mostly of sandstones. There is no indication of migrated hydrocarbons in the analysed samples.

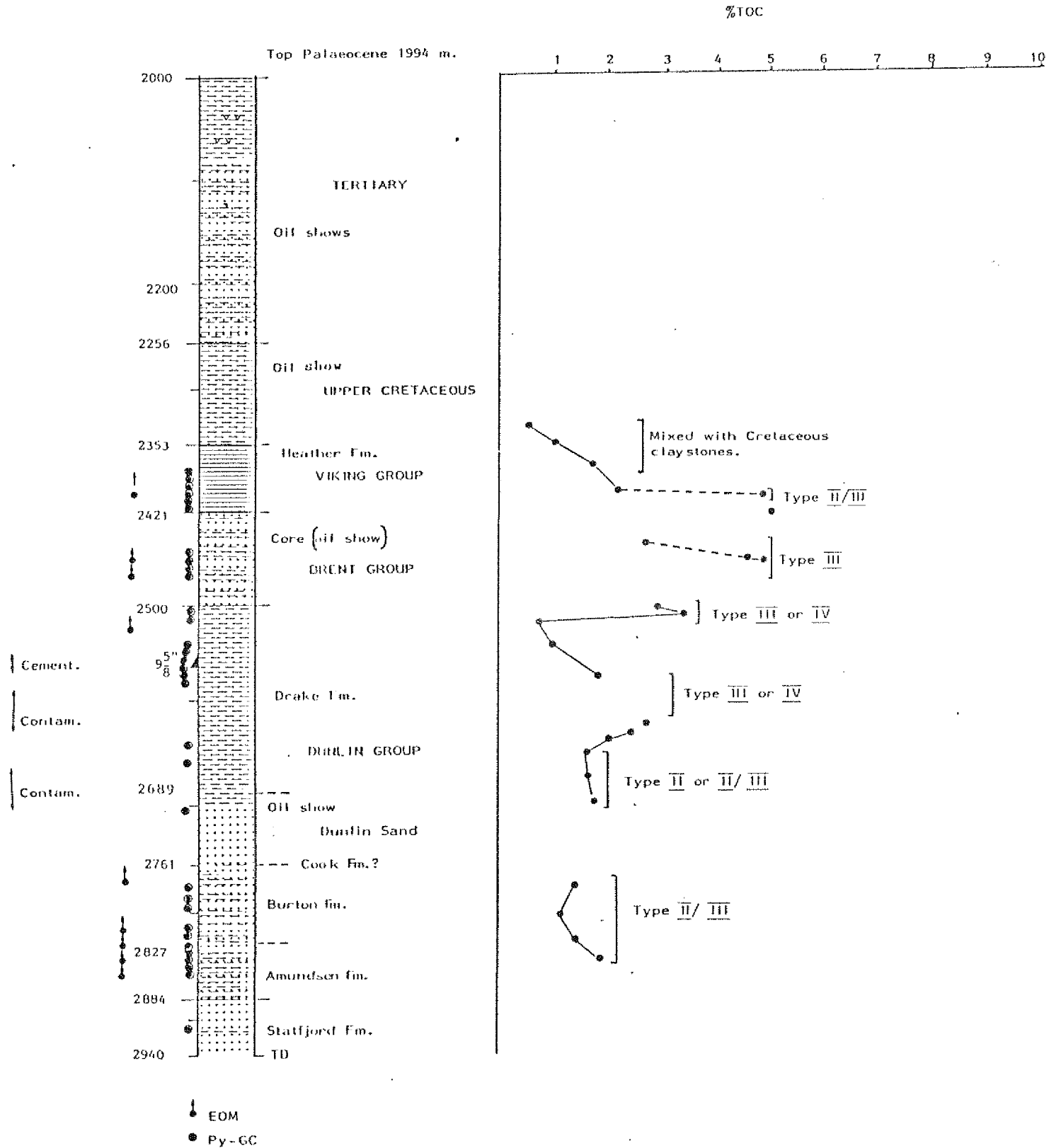
2. Generation and Migration

Hydrocarbons present in the Jurassic claystones are mostly those present during deposition of the kerogen (i.e. with the primary bitumen) plus small amounts produced during diagenesis. No major hydrocarbon generation has occurred. Migrated hydrocarbons are present in the Brent and Cook sandstones. Shales associated with these also contain small amounts of migrated hydrocarbon.

3. Maturity

The maturity trend in the Jurassic interval is immature to moderate mature (0.4% - 0.5% Ro).

Figure 1. NOCS 30/6-3 (OSEBERG)



Analysis SA1532410

10, 1, 1

30/6-3, 2383-2410m, SAT

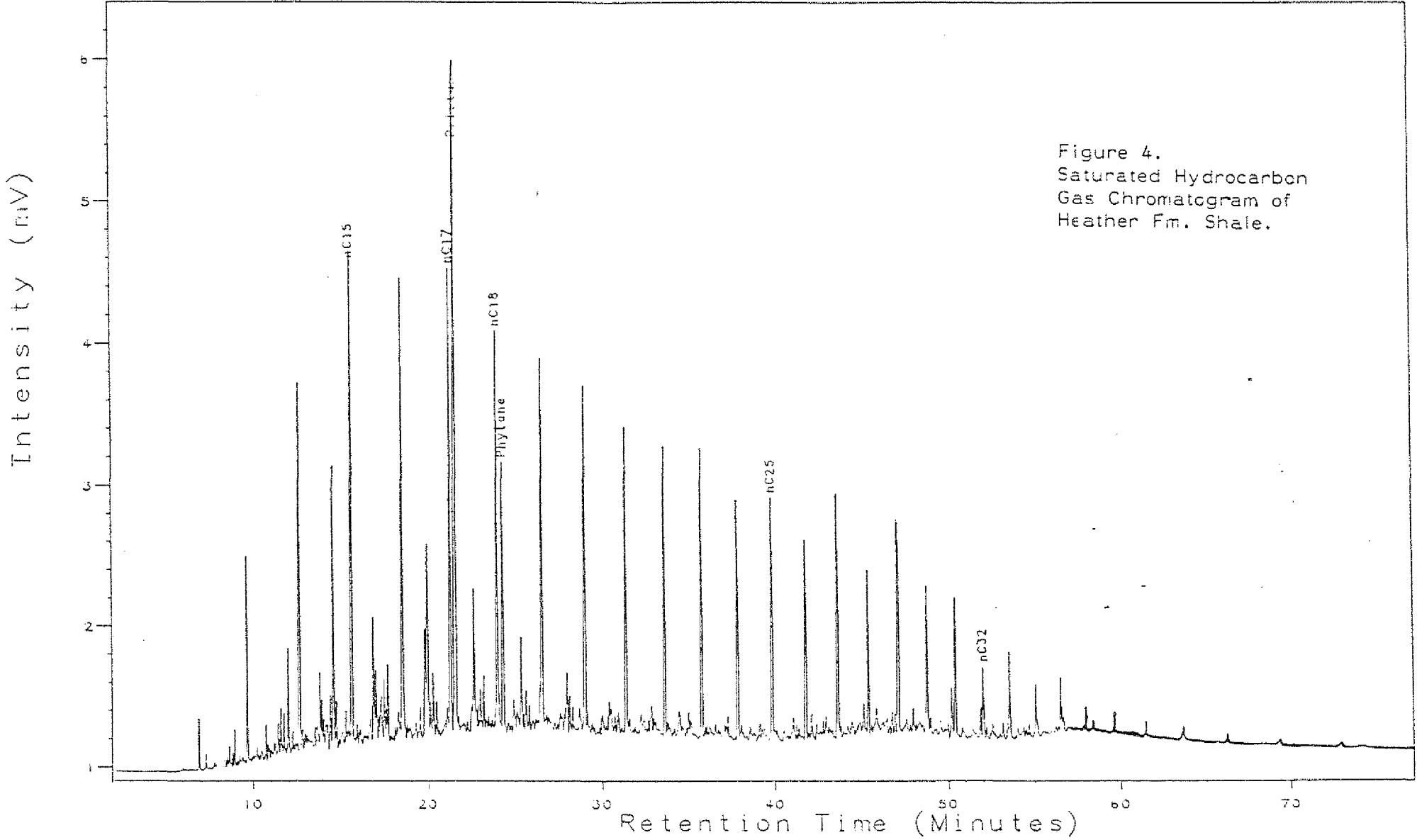


Figure 4.  
Saturated Hydrocarbon  
Gas Chromatogram of  
Heather Fm. Shale.



Analysis SA1532473

10, 1, 1

30/6-3, 2464-2473m, SAT

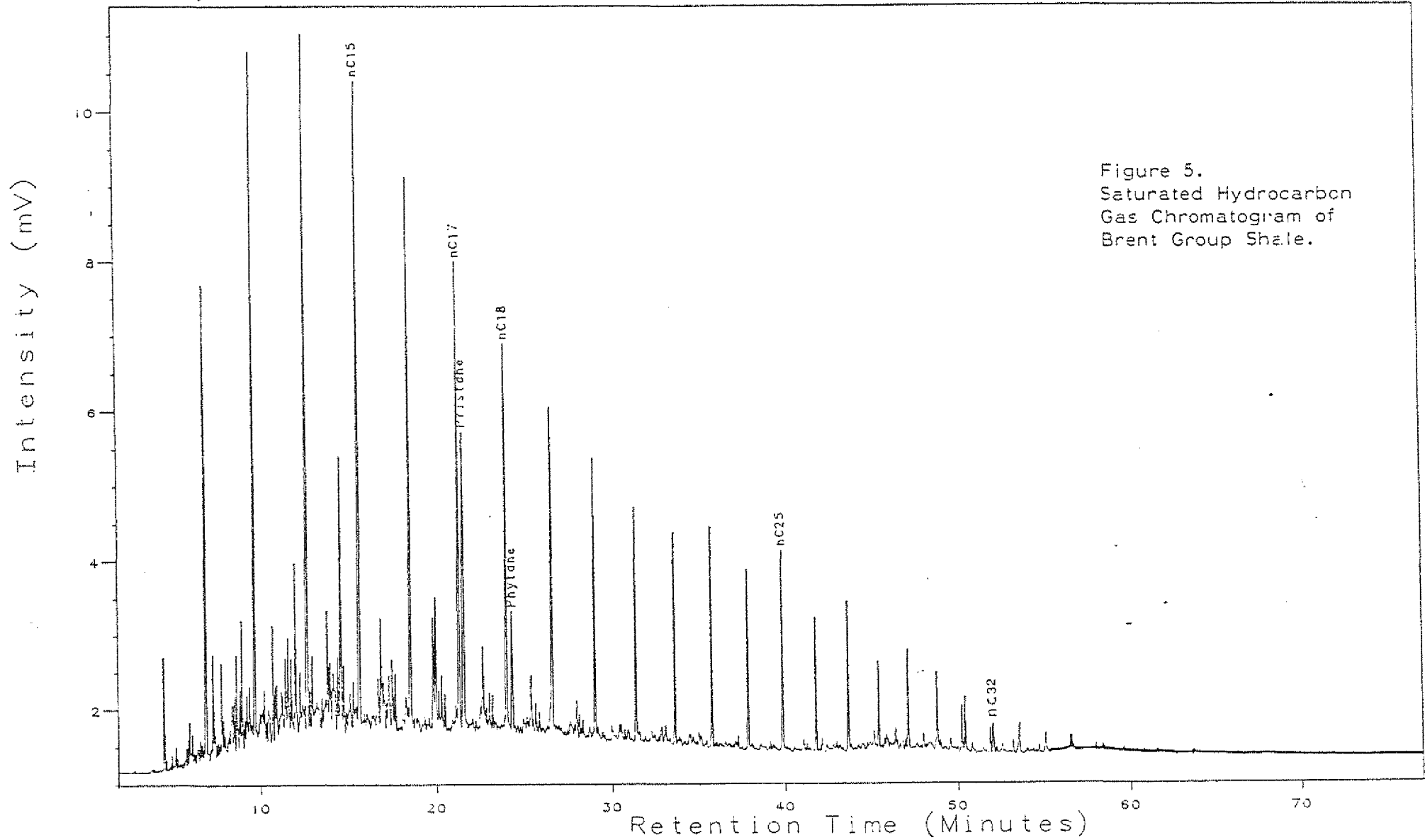


Figure 5.  
Saturated Hydrocarbon  
Gas Chromatogram of  
Brent Group Shale.

Analysis SA1532,24

10, 1, 1

30/6 J, 2821-24m, SAT

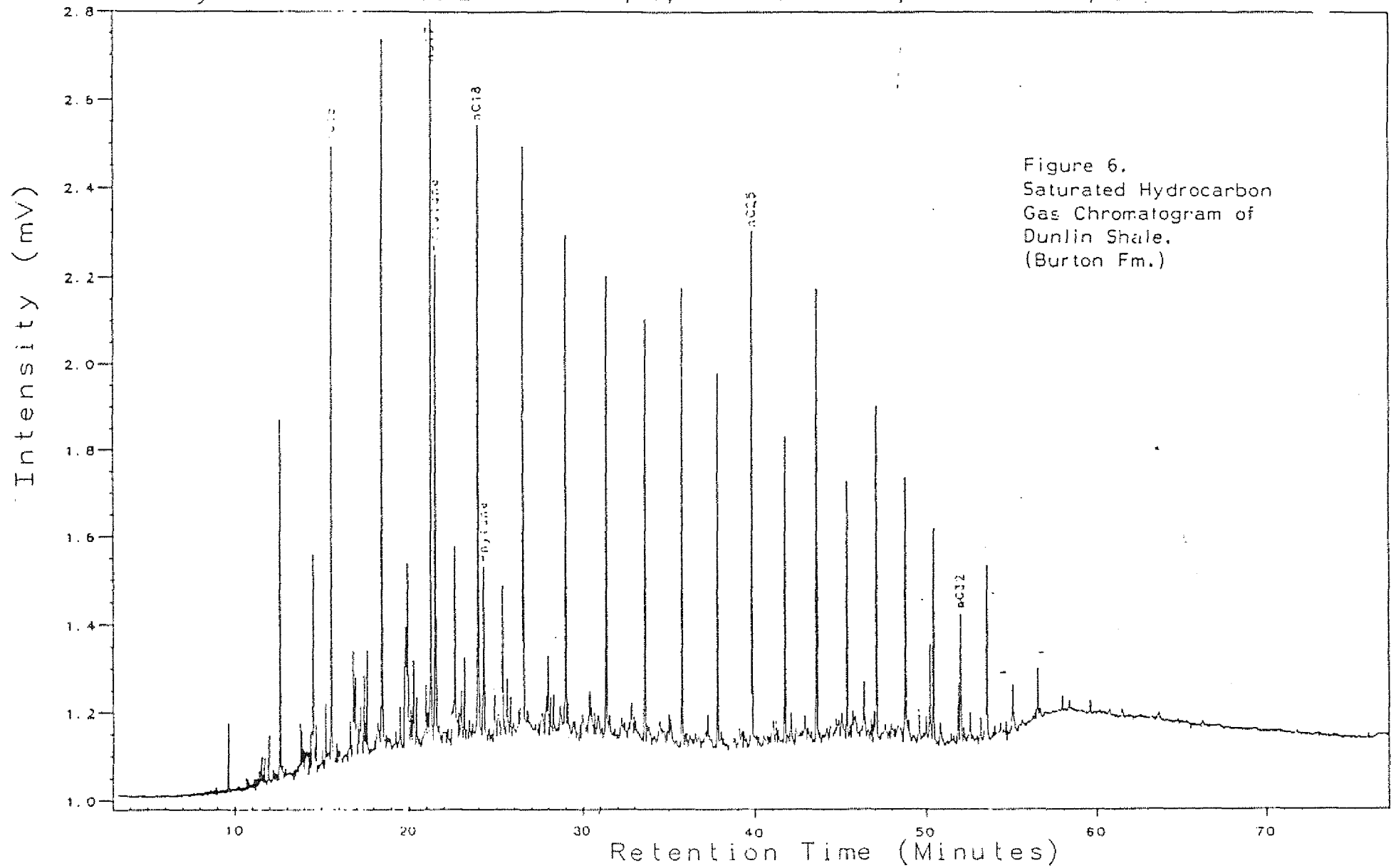


Figure 6.  
Saturated Hydrocarbon  
Gas Chromatogram of  
Dunlin Shale.  
(Burton Fm.)

Analysis AR1532410

8, 1, 1

30/6-3, 2383-2410ARO

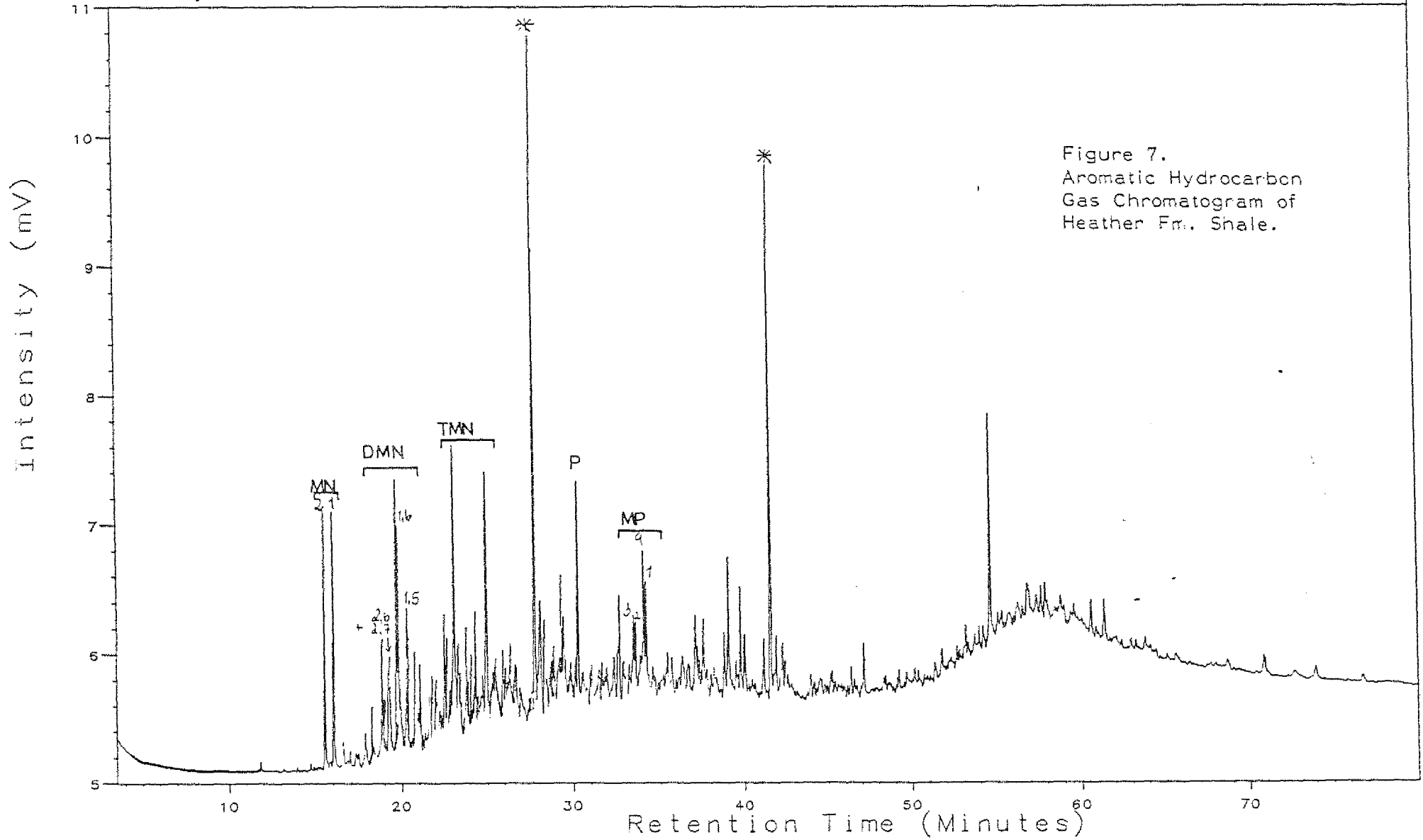


Figure 7.  
Aromatic Hydrocarbon  
Gas Chromatogram of  
Heather Fr. Shale.

Analysis AR1532473

8, 1, 1

30/6-3, 2464-73mARO

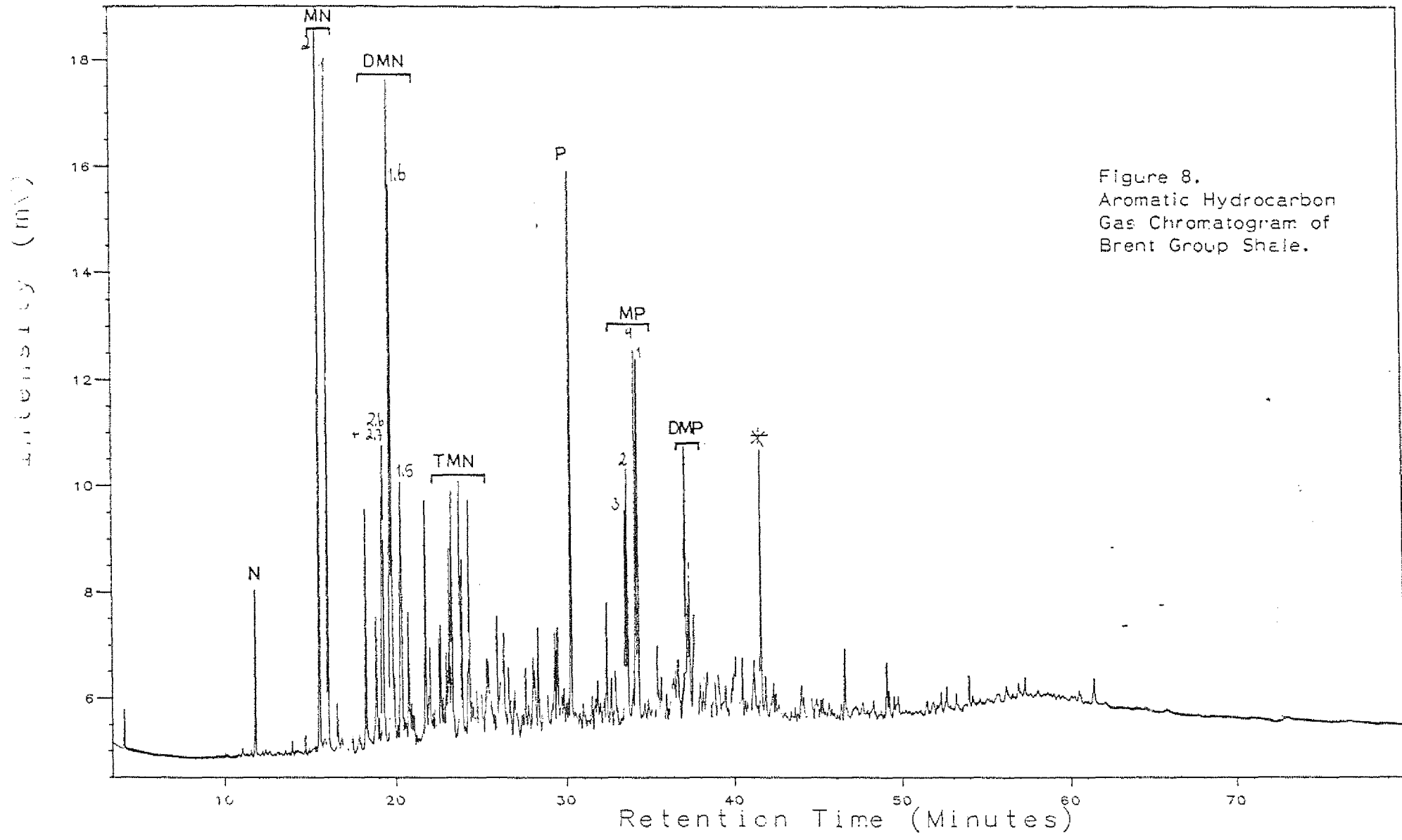


Figure 8.  
Aromatic Hydrocarbon  
Gas Chromatogram of  
Brent Group Shale.

Analysis AR1532824

8. 1. 1

30/6-3, 2821-24m, ARO

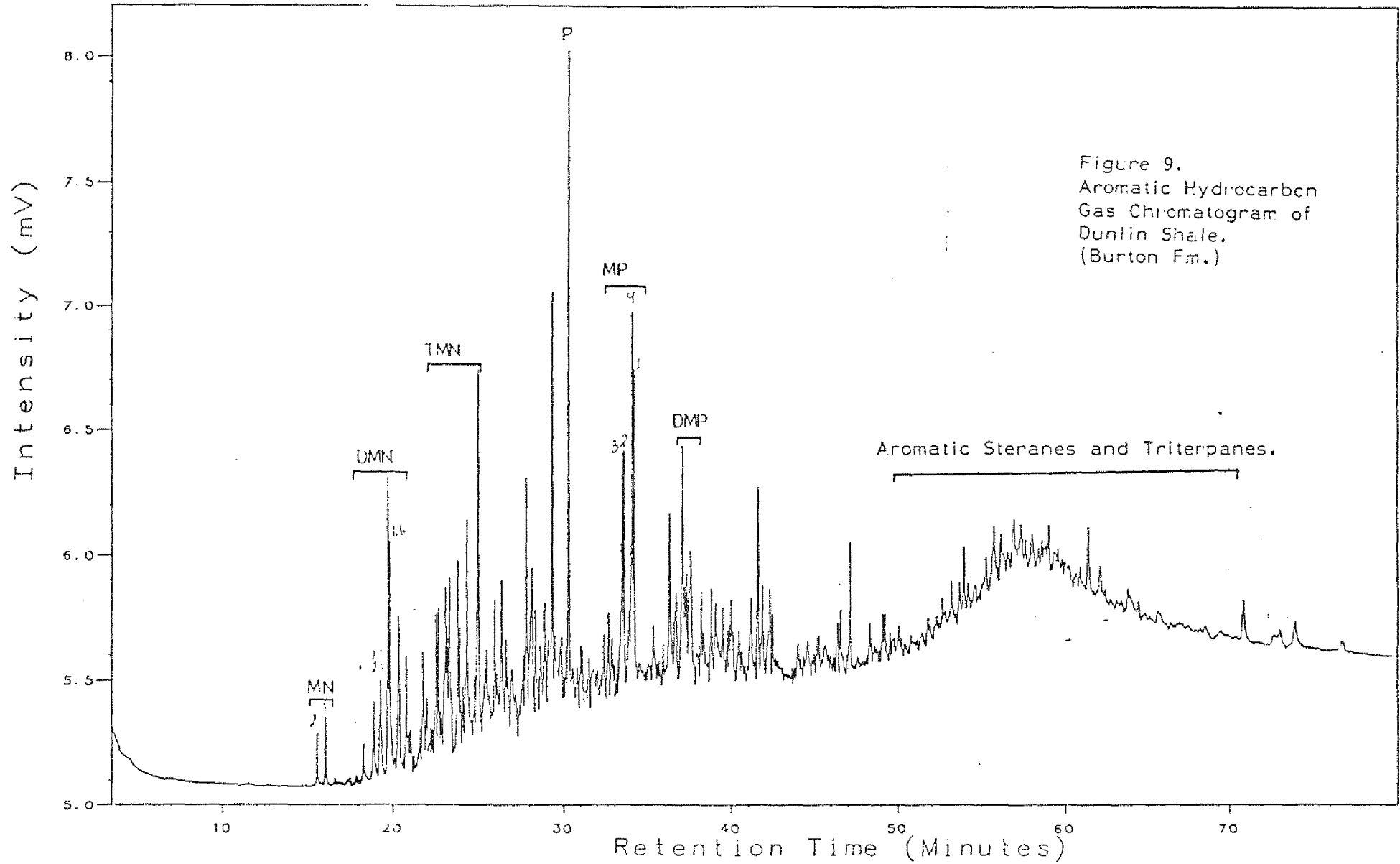


Figure 9.  
Aromatic Hydrocarbon  
Gas Chromatogram of  
Dunlin Shale.  
(Burton Fm.)

Analysis P21532410

12, 1, 1

NOCS, 30/6-3, 2410m, S1

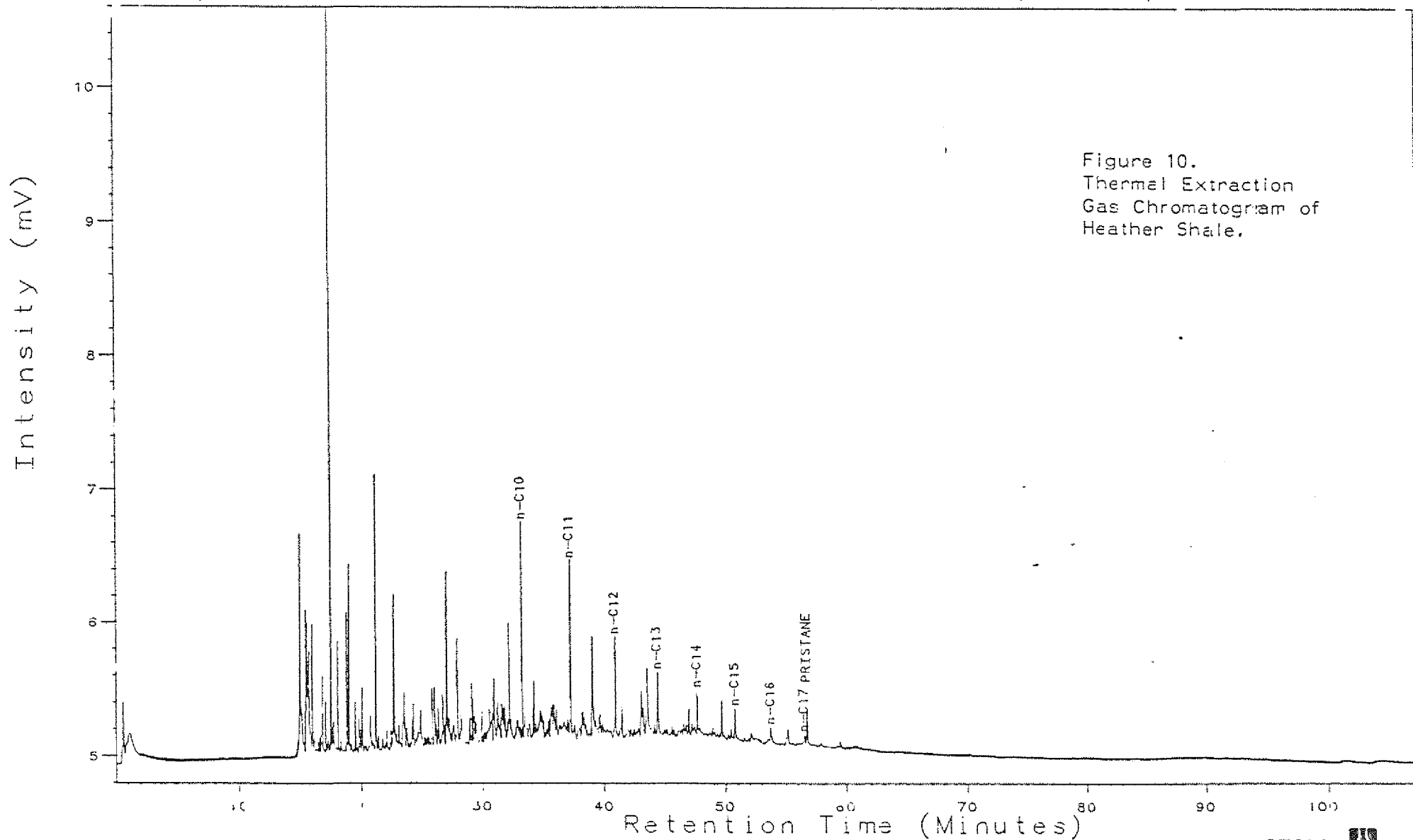


Figure 10.  
Thermal Extraction  
Gas Chromatogram of  
Heather Shale.

Analysis P21532467

12, 1, 1

NOCS, 30/6-3, 2467m, S1

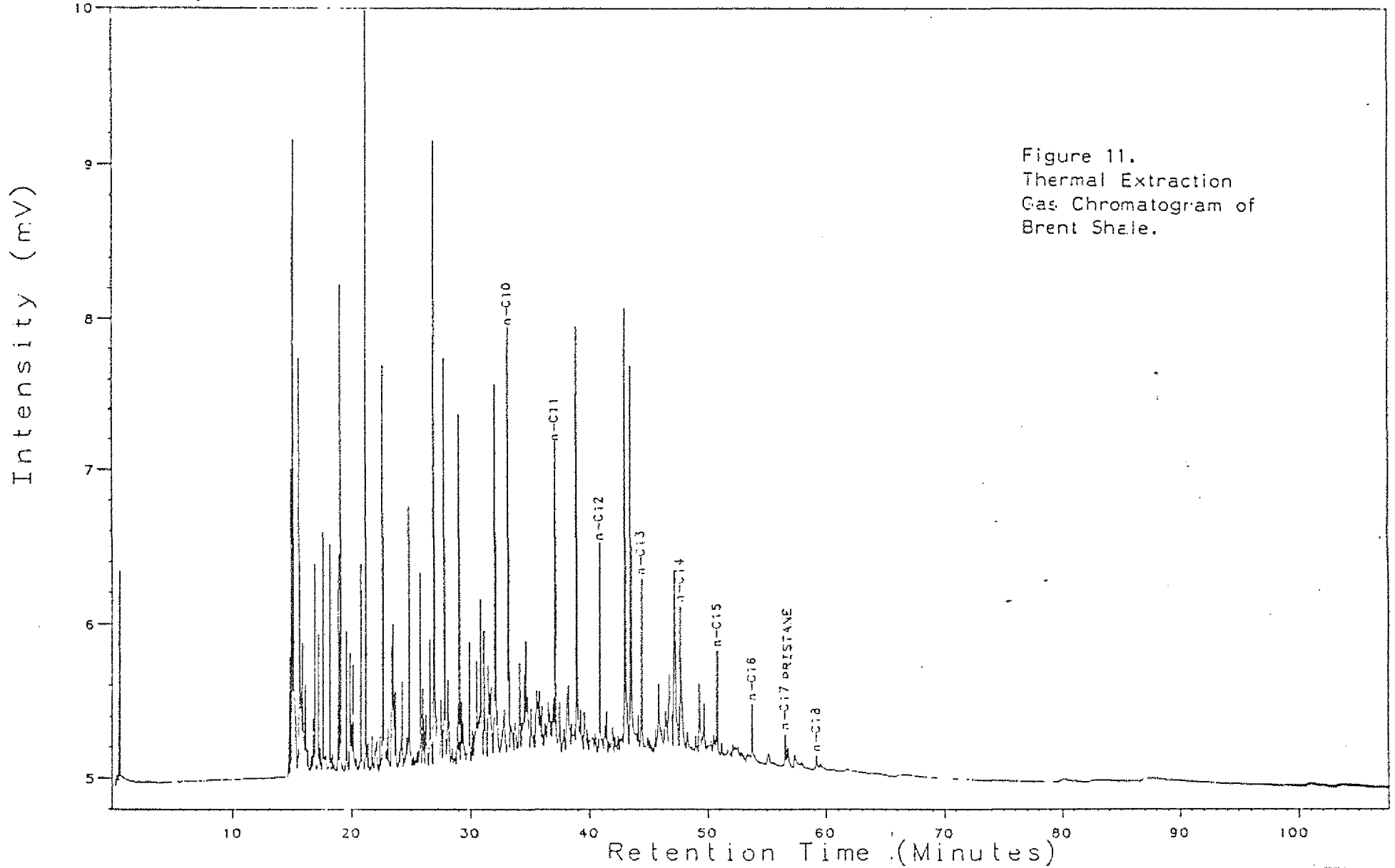


Figure 11.  
Thermal Extraction  
Gas Chromatogram of  
Brent Shale.

Analysis P21532581 12, 1, 1 NOCS, 30/6-3, 2581m, S1

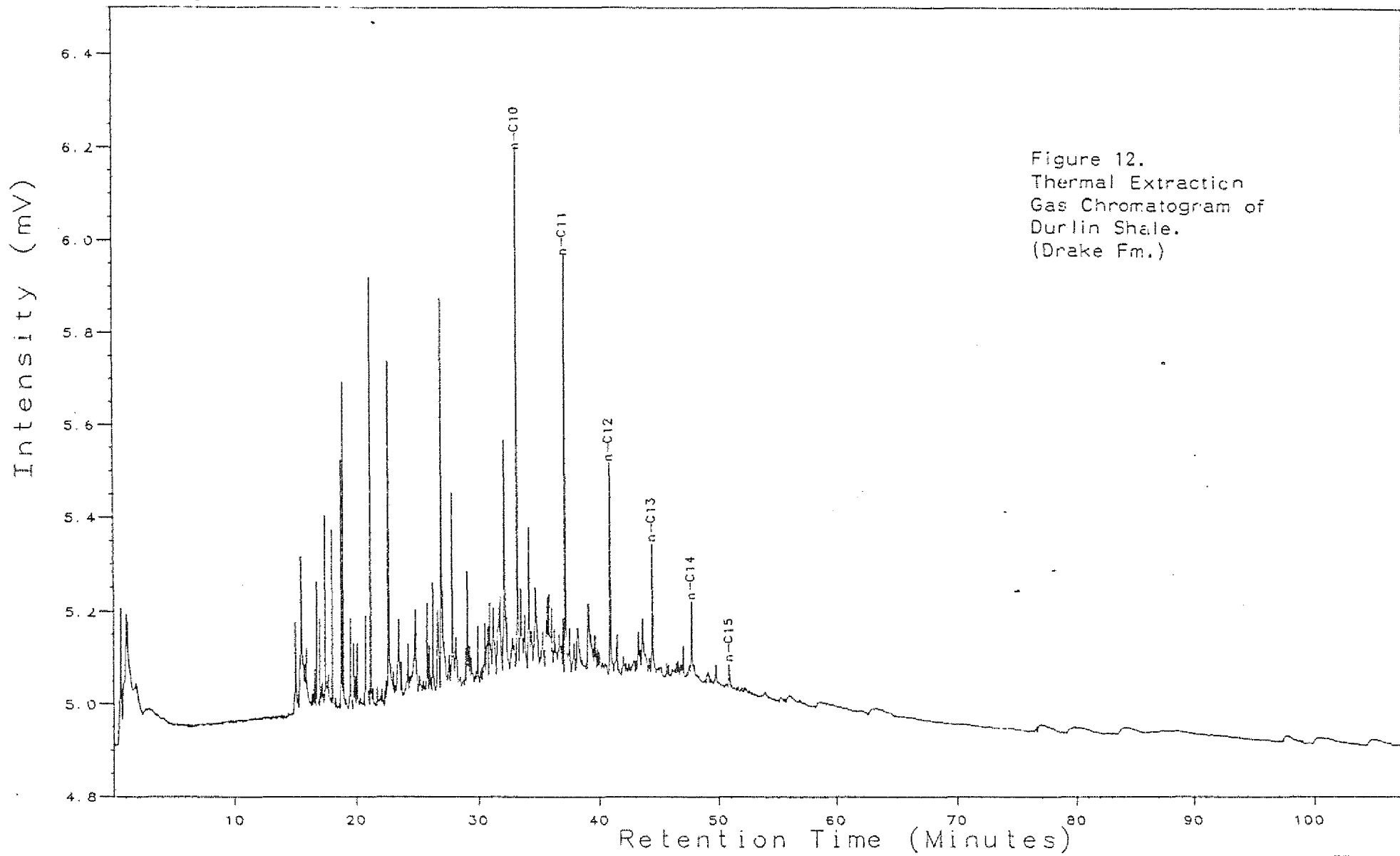


Figure 12.  
Thermal Extraction  
Gas Chromatogram of  
Durlin Shale.  
(Drake Fm.)



Analysis P21532824

12, 1, 1

NOCS, 30/6-3, 2824m, S1

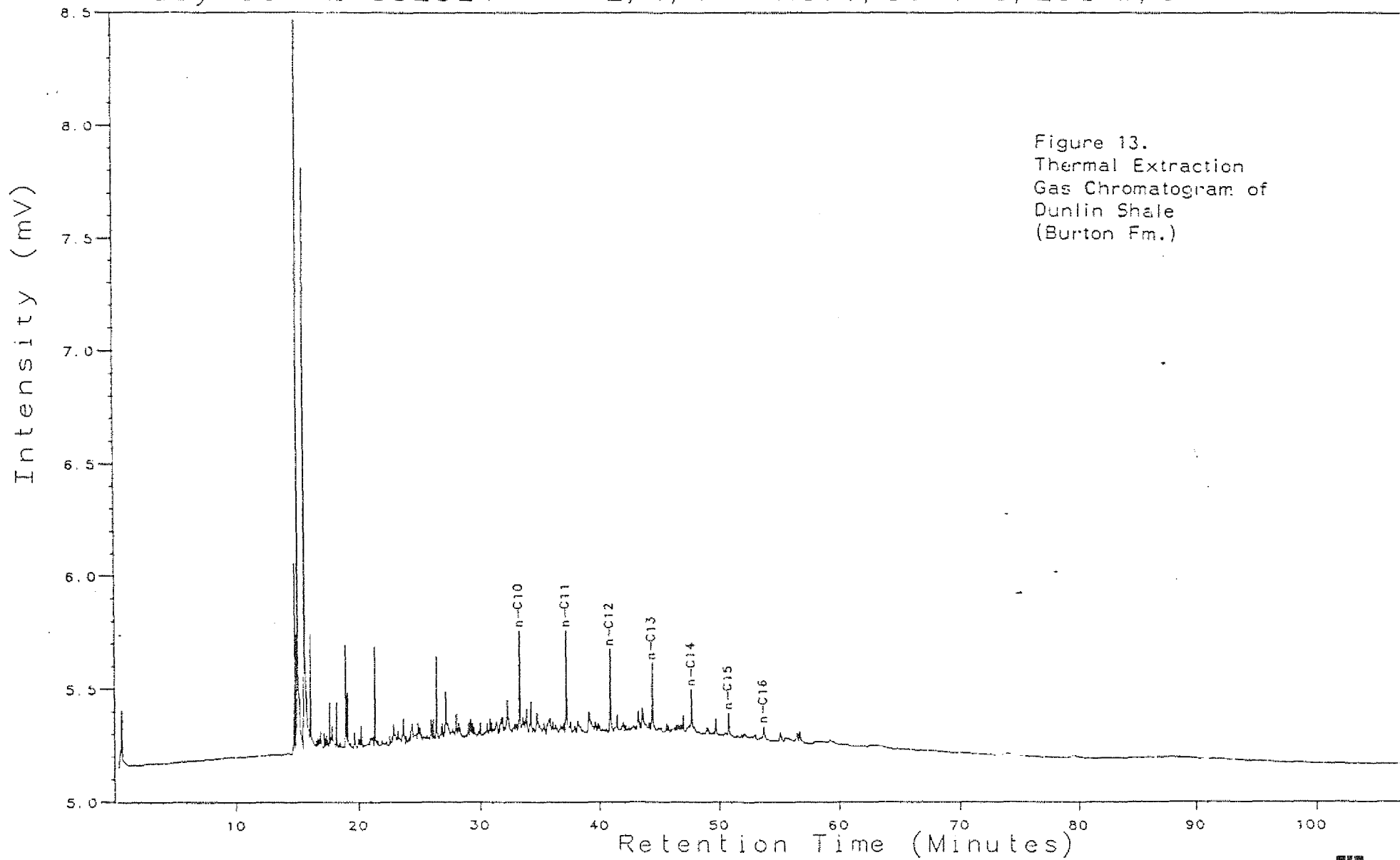


Figure 13.  
Thermal Extraction  
Gas Chromatogram of  
Dunlin Shale  
(Burton Fm.)

Analysis P21532410 11, 1, 1 NOCS, 30/6-3, 2410m, S2

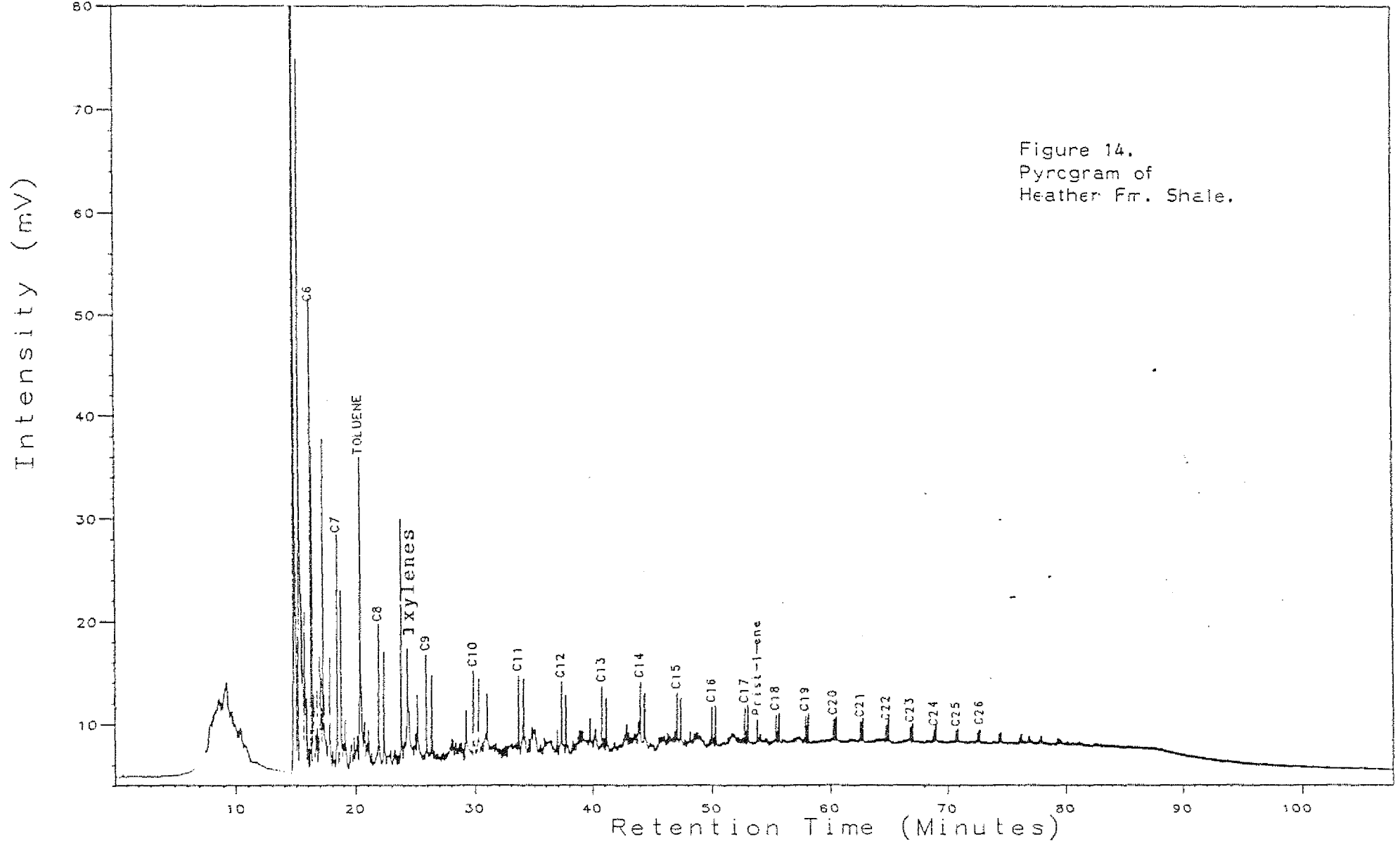


Figure 14.  
Pyrogram of  
Heather Fr. Shale.

Analysis P21532641 11, 1, 1 NOCS, 30/6-3, 2641m, S2

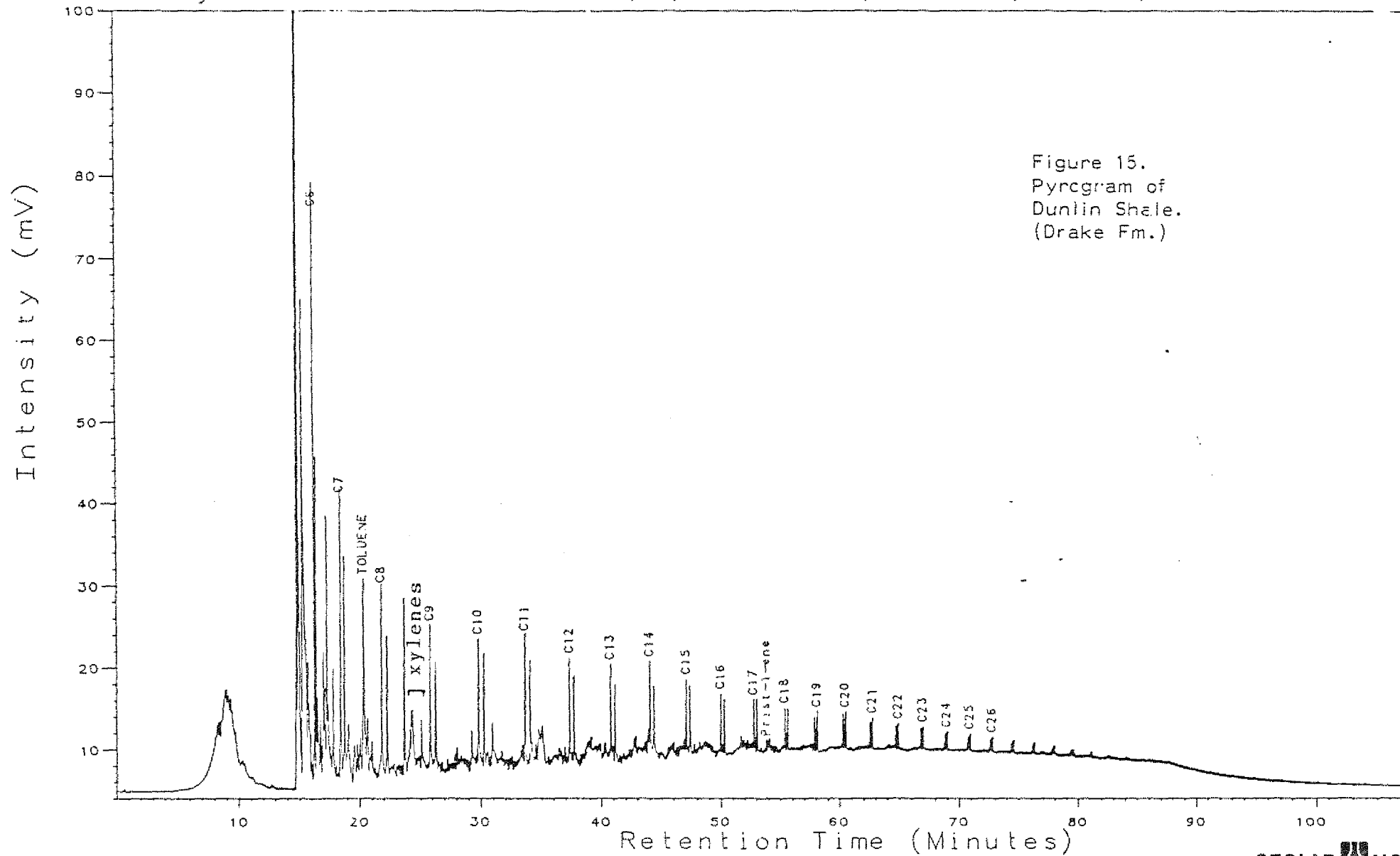


Figure 15.  
Pycrogram of  
Dunlin Shale.  
(Drake Fm.)

Analysis P21532824

11, 1, 1

NOCS, 30/6-3, 2824m, S2

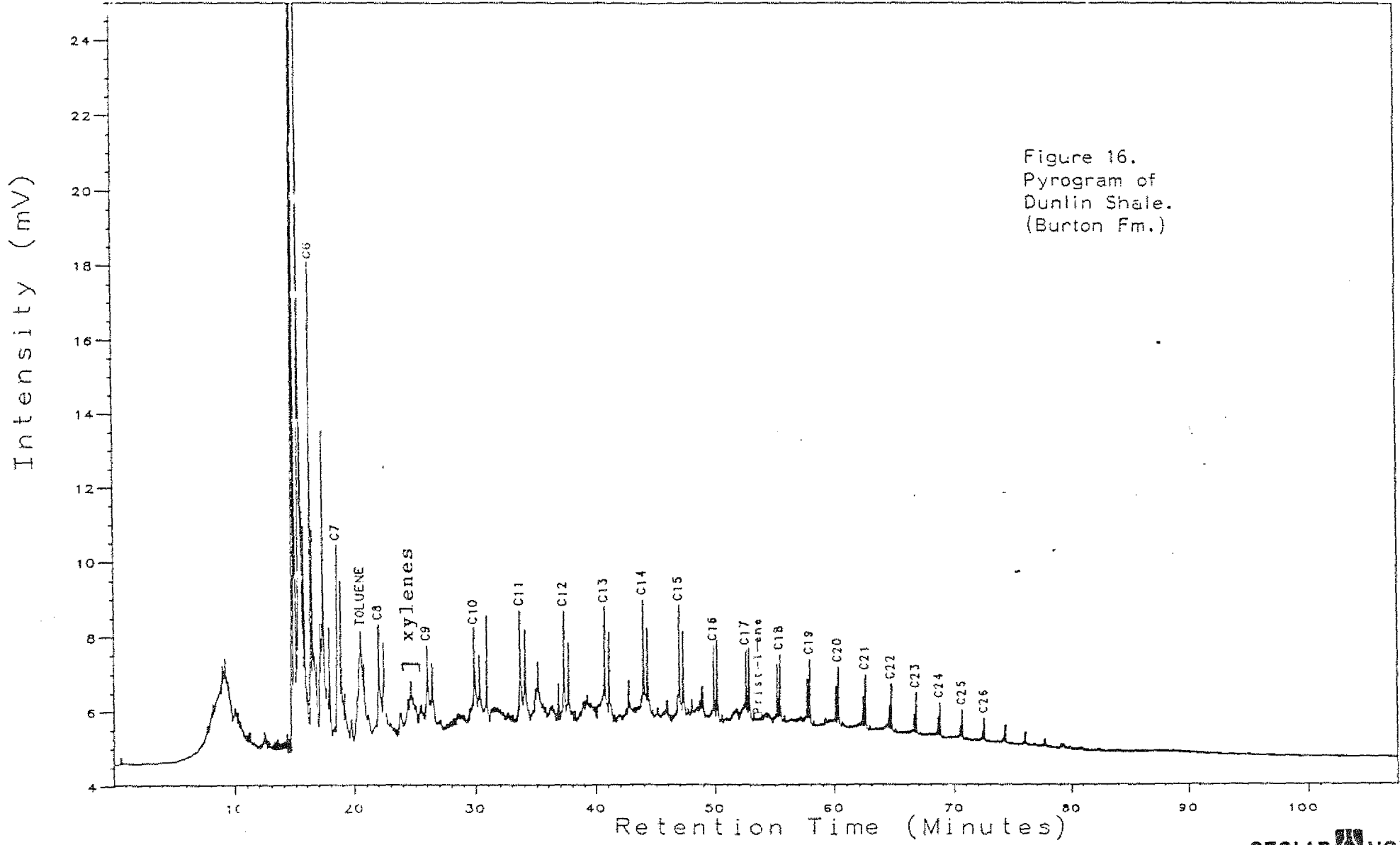


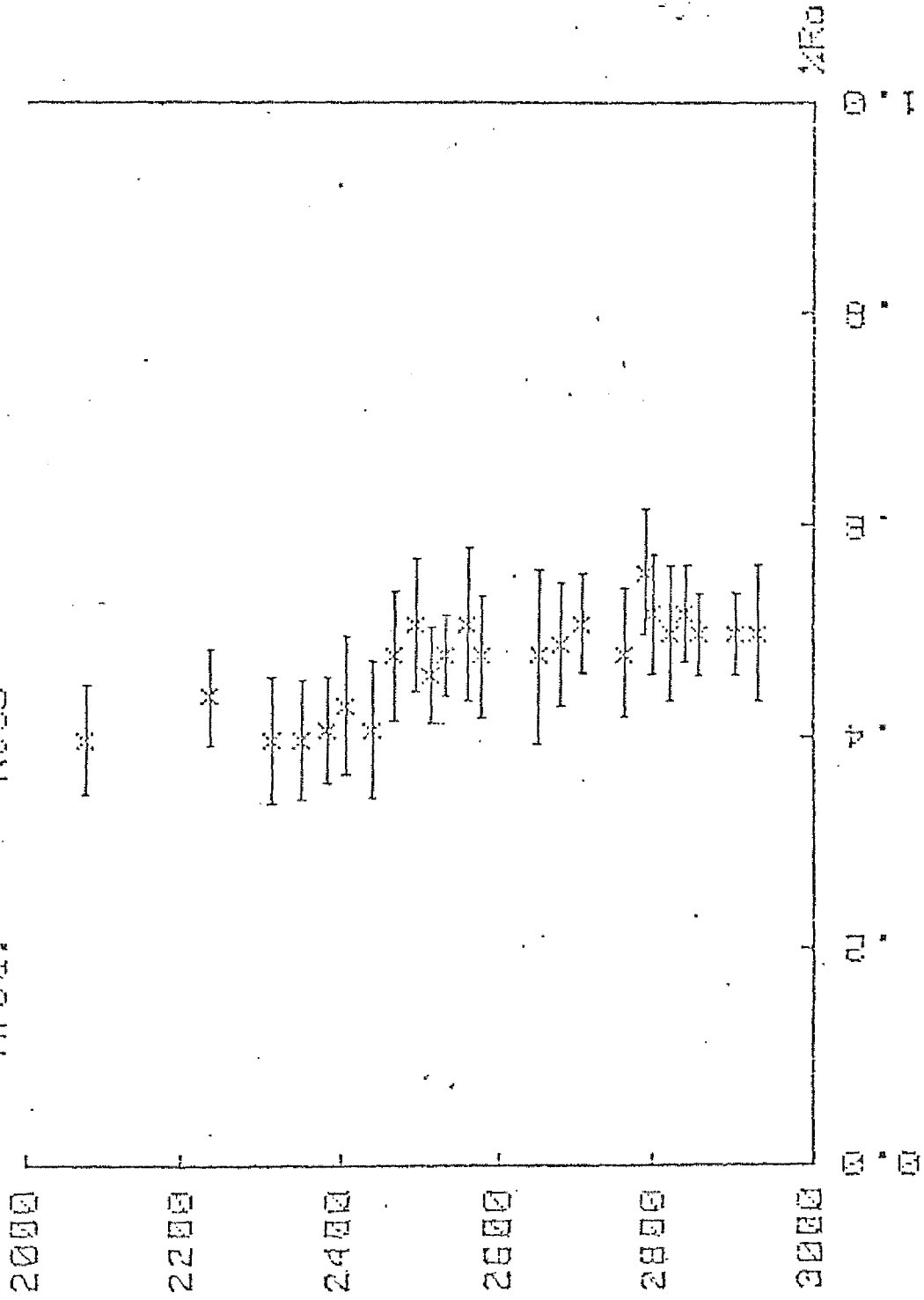
Figure 16.  
Pyrogram of  
Dunlin Shale.  
(Burton Fm.)

Figure 17.

DEPTH-REFLECTANCE GRAPH

Well Name: 20/B-3

Area: NOCS



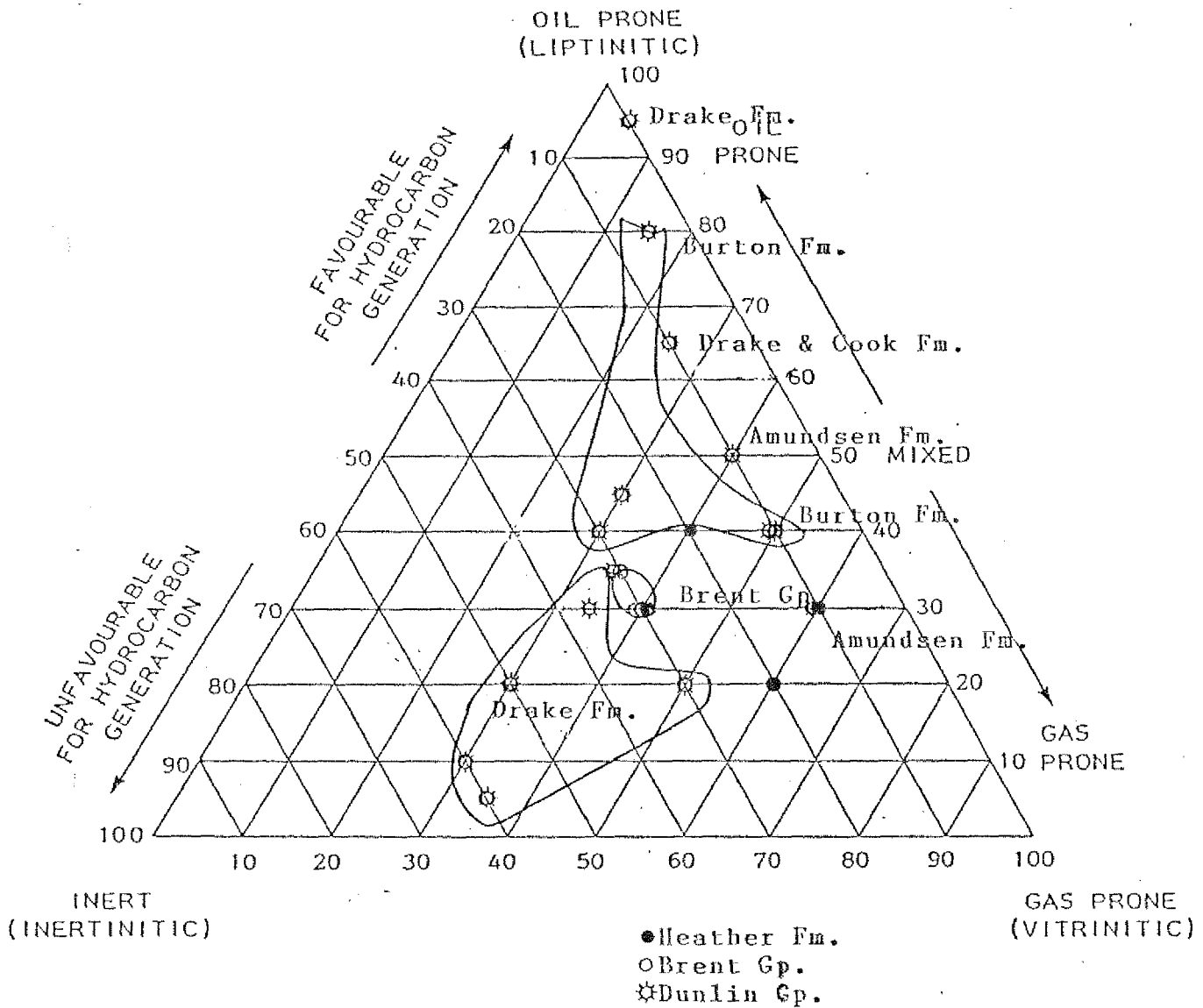


Figure 18. Visual Kerogen Composition Diagram, 30/6-3.

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4510.00				Viki Drau U.Ju/L.Kimm-E.Port		004
	1.13			50 Cont : Mica-ad, prp		004-5
				25 Sh/Clst: drk gy		004-1
				25 Ca : lt gy, m gy		004-2
				tr Sh/Clst: dsk red, calc		004-3
				tr Ca : drk y brn, dol		004-4
4512.00				Viki Drau U.Ju/L.Kimm-E.Port		005
				40 Cont : Mica-ad, prp		005-5
				30 Sh/Clst: drk gy		005-2
				20 Ca : lt gy, m gy		005-3
				10 Ca : drk y brn, dol		005-4
				tr Sh/Clst: dsk red, calc		005-6
4515.00				Viki Drau U.Ju/L.Kimm-E.Port		006
	2.38			40 Cont : Mica-ad, prp, evap		006-5
				30 Sh/Clst: drk gy		006-1
				20 Ca : lt gy, m gy		006-2
				10 Ca : drk y brn, dol		006-3
				tr Sh/Clst: dsk red, calc		006-4
4517.00				Viki Drau U.Ju/L.Kimm-E.Port		007
				60 Sh/Clst: brn blk, drk gy		007-1
				30 Cont : Mica-ad, prp		007-5
				10 Ca : lt gy, m gy		007-2
				tr Ca : drk y brn, dol		007-3
				tr Sh/Clst: dsk red, calc		007-4
4520.00				Viki Drau U.Ju/L.Kimm-E.Port		008
	3.62			60 Sh/Clst: brn blk, drk gy		008-1
				30 Cont : Mica-ad, prp		008-5
				10 Ca : lt gy, m gy		008-2
				tr Ca : drk y brn, dol		008-3
				tr Sh/Clst: dsk red, calc		008-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4522.00				Viki Drau U.Ju/L.Kimm-E.Port		009
				50 Sh/Clst: brn blk, drk gy		009-1
				40 Cont : Mica-ad, prp		009-5
				5 Ca : lt gy, m gy		009-2
				5 Ca : drk y brn, dol		009-3
				tr Sh/Clst: dsk red, calc		009-4
4525.00				Viki Drau U.Ju/L.Kimm-E.Port		010
	4.74			60 Sh/Clst: brn blk, drk gy		010-1
				30 Cont : Mica-ad, prp		010-3
				10 Ca : lt gy, m gy		010-2
				tr S/Sst : lt gy to dsk y brn, dol		010-4
4527.00				Viki Drau U.Ju/L.Kimm-E.Port		011
				50 Sh/Clst: brn blk, drk gy		011-1
				40 Cont : Mica-ad, prp		011-3
				10 Ca : lt gy, m gy		011-2
				tr S/Sst : lt gy to dsk y brn, dol		011-4
4530.00				Viki Drau U.Ju/L.Kimm-E.Port		012
	6.27			70 Sh/Clst: brn blk, drk gy		012-1
				30 Cont : Mica-ad, prp		012-3
				tr Ca : lt gy, m gy		012-2
4532.00				Viki Drau U.Ju/L.Kimm-E.Port		013
				70 Sh/Clst: brn blk, drk gy		013-1
				30 Cont : Mica-ad, prp		013-3
				tr Ca : lt gy, m gy		013-2



Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4535.00				Viki Drau U.Ju/L.Kimm-E.Port		014
	6.10			70 Sh/Clst: brn blk, drk gy		014-1
				30 Cont : Mica-ad, prp		014-3
				tr Ca : lt gy, m gy		014-2
				tr Other : pyr		014-4
4537.00				Viki Drau U.Ju/L.Kimm-E.Port		015
				70 Sh/Clst: brn blk, drk gy		015-1
				30 Cont : Mica-ad, prp		015-3
				tr Ca : lt gy, m gy		015-2
4540.00				Viki Drau U.Ju/L.Kimm-E.Port		016
	5.75			70 Sh/Clst: brn blk, drk gy		016-1
				30 Cont : Mica-ad, prp		016-3
				tr Ca : lt gy, m gy		016-2
				tr Sh/Clst: dsk red, calc		016-4
4542.00				Viki Drau U.Ju/L.Kimm-E.Port		017
				70 Sh/Clst: brn blk, drk gy		017-1
				30 Cont : Mica-ad, prp		017-4
				tr Ca : lt gy, m gy		017-2
				tr S/Sst : lt gy to drk y brn, calc, pyr		017-3
4545.00				Viki Drau U.Ju/L.Kimm-E.Port		018
	3.63			50 Cont : Mica-ad, prp		018-4
				30 Sh/Clst: brn blk, drk gy		018-1
				20 Ca : lt gy, m gy		018-2
				tr S/Sst : lt gy, drk y brn, calc, pyr		018-3

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
4547.00			Viki Drau U.Ju/L.Kimm-E.Port				019
			70	Sh/Clst:	brn blk, drk gy		019-1
			30	Cont	: Mica-ad, prp		019-3
			tr	Ca	: lt gy, m gy		019-2
			tr	Sh/Clst:	dsk red, calc		019-4
4550.00			Viki Drau U.Ju/L.Kimm-E.Port				020
	5.62		70	Sh/Clst:	brn blk, drk gy		020-1
			30	Cont	: Mica-ad, prp		020-3
			tr	Ca	: lt gy, m gy		020-2
4552.00			Viki Drau U.Ju/L.Kimm-E.Port				021
			60	Sh/Clst:	brn blk, drk gy		021-1
			40	Cont	: Mica-ad, prp		021-3
			tr	Ca	: lt gy, m gy		021-2
			tr	S/Sst	: lt gy to drk y brn, calc		021-4
4555.00			Viki Drau U.Ju/L.Kimm-E.Port				022
	5.41		50	Sh/Clst:	brn blk, drk gy		022-1
			40	Cont	: Mica-ad, prp		022-3
			10	Ca	: lt gy, m gy		022-2
			tr	S/Sst	: lt gy to drk y brn, calc		022-4
4557.00			Viki Drau U.Ju/L.Kimm-E.Port				023
			60	Sh/Clst:	brn blk, drk gy		023-1
			30	Cont	: Mica-ad, prp		023-3
			10	Ca	: lt gy, m gy		023-2
			tr	S/Sst	: lt gy to drk y brn, calc		023-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4560.00				Viki Drau U.Ju/L.Kimm-E.Port		024
	6.04			70 Sh/Clst: brn blk, drk gy		024-1
				30 Cont : Mica-ad, prp		024-3
				tr Ca : lt gy, m gy		024-2
				tr Sh/Clst: dsk red, calc		024-4
4562.00				Viki Drau U.Ju/L.Kimm-E.Port		025
				70 Sh/Clst: brn blk, drk gy		025-1
				30 Cont : Mica-ad, prp		025-3
				tr Ca : lt gy, m gy		025-2
				tr Sh/Clst: dsk red, calc		025-4
4565.00				Viki Drau U.Ju/L.Kimm-E.Port		026
	6.16			70 Sh/Clst: brn blk, drk gy		026-1
				30 Cont : Mica-ad, prp		026-3
				tr Ca : lt gy, m gy		026-2
				tr S/Sst : lt gy to drk y brn, calc		026-4
				tr Sh/Clst: dsk red, calc		026-5
4567.00				Viki Drau U.Ju/L.Kimm-E.Port		027
				70 Sh/Clst: brn blk, drk gy		027-1
				30 Cont : Mica-ad, prp		027-3
				tr Ca : lt gy, m gy		027-2
				tr Sh/Clst: dsk red, calc		027-4
4570.00				Viki Drau U.Ju/L.Kimm-E.Port		028
	2.66			35 Sh/Clst: blk, drk gy, calc		028-1
	0.87			35 Ca : lt gy, m gy		028-2
				20 Cont : Mica-ad, prp		028-3
				10 Sh/Clst: dsk red, calc		028-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4572.00				Viki Drau U.Ju/L.Kimm-E.Port		029
				40 Cont : Mica-ad, prp		029-3
				30 Sh/Clst: blk, drk gy, calc		029-1
				30 Ca : lt gy, m gy		029-2
				tr Sh/Clst: dsk red, calc		029-4
4575.00				Viki Drau U.Ju/L.Kimm-E.Port		030
				40 Sh/Clst: blk, drk gy, calc		030-1
				40 Cont : Mica-ad, prp		030-3
				20 Ca : lt gy, m gy		030-2
				tr Sh/Clst: dsk red, calc		030-4
4577.00				Viki Drau U.Ju/L.Kimm-E.Port		031
				50 Cont : Mica-ad, prp		031-3
				40 Sh/Clst: blk, drk gy		031-1
				10 Ca : lt gy, m gy		031-2
				tr Sh/Clst: dsk red, calc		031-4
				tr Sltst : w to lt gy, calc		031-5
4580.00				Viki Drau U.Ju/L.Kimm-E.Port		032
	2.44			50 Cont : Mica-ad, prp		032-3
				30 Sh/Clst: blk, drk gy		032-1
				20 Ca : brn, lt gy		032-2
				tr Sh/Clst: dsk red		032-4
				tr S/Sst : w to lt gy, calc, pyr, glauc, cem		032-5
4582.00				Viki Drau U.Ju/L.Kimm-E.Port		033
				50 Sh/Clst: blk, drk gy		033-1
				40 Cont : Mica-ad, prp		033-3
				10 Ca : brn, lt gy		033-2
				tr Sh/Clst: dsk red		033-4
				tr Sltst : w to lt gy, calc		033-5

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4595.00				Viki Drau U.Ju/L.Kimm-E.Port		038
	1.81			50 Cont : Mica-ad, prp		038-3
				40 Sh/Clst: blk, drk gy		038-1
				10 Ca : brn, lt gy		038-2
				tr Sh/Clst: dsk red		038-4
				tr S/Sst : w to drk gy, calc, pyr, cem		038-5
4597.00				Viki Drau U.Ju/L.Kimm-E.Port		039
				60 Cont : Mica-ad, prp		039-3
				30 Sh/Clst: blk, drk gy		039-1
				10 Ca : brn, lt gy		039-2
				tr Sh/Clst: dsk red		039-4
				tr S/Sst : w to drk gy, calc, pyr, cem		039-5
4599.00				Viki Drau U.Ju/L.Kimm-E.Port		040
	3.28			50 Sh/Clst: blk, drk gy		040-1
				40 Cont : Mica-ad, prp		040-3
				10 Ca : brn, lt gy		040-2
				tr Sh/Clst: dsk red		040-4
				tr S/Sst : w to drk gy, calc, cem		040-5
4605.00				Viki Drau U.Ju/L.Kimm-E.Port		041
	1.55			40 Sh/Clst: blk, drk gy		041-1
				40 Cont : Mica-ad, prp		041-3
				10 Ca : brn, lt gy		041-2
				10 Sh/Clst: dsk red		041-4
4607.00				Viki Drau U.Ju/L.Kimm-E.Port		042
				50 Cont : Mica-ad, prp		042-3
				40 Sh/Clst: blk, drk gy		042-1
				10 Ca : brn, lt gy		042-2
				tr Sh/Clst: dsk red		042-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4610.00				Viki Drau U.Ju/L.Kimm-E.Port		043
	1.70	70	Sh/Clst:	blk, drk gy		043-1
		10	Ca	: brn, lt gy		043-2
		10	Cont	: Mica-ad, prp		043-3
		10	Sh/Clst:	dsk red		043-4
4612.00				Viki Drau U.Ju/L.Kimm-E.Port		044
		70	Sh/Clst:	blk, drk gy		044-1
		10	Ca	: brn, lt gy		044-2
		10	Cont	: Mica-ad, prp		044-3
		10	Sh/Clst:	dsk red		044-4
4617.00				Viki		045
	2.16	50	Sh/Clst:	blk, drk gy, calc		045-1
	0.87	30	Ca	: brn, lt gy		045-2
		20	Sh/Clst:	dsk red		045-4
		tr	Cont	: Mica-ad, prp, fib		045-3
4620.00				Viki		046
	2.52	60	Sh/Clst:	blk, drk gy, calc		046-1
		30	Cont	: Mica-ad, prp		046-3
		10	Ca	: brn, lt gy		046-2
		tr	Sh/Clst:	dsk red		046-4
4622.00				Viki		047
		50	Sh/Clst:	blk, drk gy, calc		047-1
		40	Cont	: Mica-ad, prp		047-3
		10	Ca	: brn, lt gy		047-2
		tr	Sh/Clst:	dsk red		047-4
		tr	Sltst	: w to drk gy, calc		047-5

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4625.00				Viki		048
	3.10			60 Sh/Clst: blk, drk gy		048-1
				30 Cont : Mica-ad, prp, fib		048-3
				10 Ca : brn, lt gy		048-2
				tr Sh/Clst: dsk red		048-4
				tr Sltst : w to drk gy, calc		048-5
4627.00				Viki		049
				50 Sh/Clst: blk, drk gy		049-1
				40 Cont : Mica-ad, prp, fib		049-3
				10 Ca : brn, lt gy		049-2
				tr Sh/Clst: dsk red		049-4
				tr Sltst : w to drk gy, calc		049-5
4630.00				Viki		050
	2.82			50 Sh/Clst: blk, drk gy		050-1
				40 Cont : Mica-ad, prp, fib		050-3
				10 Ca : brn, lt gy		050-2
				tr Sh/Clst: dsk red		050-4
				tr Sltst : w to drk gy, calc		050-5
4632.00				Viki		051
				50 Sh/Clst: blk, drk gy		051-1
				40 Cont : Mica-ad, prp, fib		051-3
				10 Ca : brn, lt gy		051-2
				tr Sh/Clst: dsk red		051-4
				tr Sltst : w to drk gy, calc		051-5
4635.00				Viki		052
	2.87			60 Sh/Clst: blk, drk gy		052-1
				40 Cont : Mica-ad, prp, fib		052-3
				tr Ca : brn, lt gy		052-2
				tr Sh/Clst: dsk red		052-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4637.00				Viki		053
				70 Sh/Clst: blk, drk gy		053-1
				30 Cont : Mica-ad, prp, fib		053-3
				tr Ca : brn, lt gy		053-2
				tr Sh/Clst: dsk red		053-4
4640.00				Viki		054
		3.13		60 Sh/Clst: blk, drk gy		054-1
				30 Cont : Mica-ad, prp, fib		054-3
				10 Ca : brn, lt gy		054-2
				tr Sh/Clst: dsk red		054-4
4642.00				Viki		055
				60 Sh/Clst: blk, drk gy		055-1
				20 Cont : Mica-ad, prp, fib		055-3
				10 Ca : brn, lt gy		055-2
				10 S/Sst : w, calc, glauc, cem, l		055-4
				tr Sh/Clst: dsk red		055-5
4645.00				Viki		056
		1.84		50 Sh/Clst: blk, drk gy		056-1
				30 Cont : Mica-ad, prp		056-3
				10 Ca : brn, lt gy		056-2
				5 S/Sst : w, calc, glauc, cem, l		056-4
				5 Sh/Clst: dsk red		056-5
4647.00				Viki		057
				40 Cont : Mica-ad, prp		057-3
				30 Sh/Clst: blk, drk gy		057-1
				15 Ca : w, m gy		057-2
				15 S/Sst : w, calc, glauc, cem, l		057-4



Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4650.00				Viki		058
	3.12	40	Sh/Clst:	blk, drk gy, mic		058-1
		35	Cont	: Mica-ad, prp		058-3
		15	S/Sst	: w to m gy, calc, glauc, cem, l		058-4
		10	Ca	: gn gy, lt gy		058-2
4652.00				Viki		059
		50	S/Sst	: w, lt gy, calc, glauc, cem, l		059-1
		30	Cont	: Mica-ad		059-3
		20	Sh/Clst:	blk, drk gy, mic		059-2
		tr	Ca	: gn gy to lt gy		059-4
4655.00				Viki		060
	0.32	30	S/Sst	: w, lt gy, calc, glauc, cem, l		060-1
	1.99	30	Sh/Clst:	blk, drk gy, mic		060-2
		30	Cont	: Mica-ad, prp		060-3
		10	Ca	: gn gy to lt gy		060-4
		tr	Sh/Clst:	dsk red		060-5
4657.00				Viki		061
		50	S/Sst	: w, m gy, calc, glauc, cem, l		061-1
		30	Cont	: Mica-ad, prp		061-3
		20	Sh/Clst:	blk, drk gy, mic		061-2
		tr	Ca	: gn gy to lt gy		061-4
4660.00				Viki		062
	3.57	40	Sh/Clst:	blk, drk gy, mic		062-2
		40	Cont	: Mica-ad, prp		062-3
		10	S/Sst	: w, m gy, calc, glauc, cem, l		062-1
		10	Ca	: gn gy to lt gy, dol		062-4
		tr	Sh/Clst:	dsk red		062-5

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4663.00				Viki		063
				35 S/Sst : w, m gy, calc, glauc, cem, l		063-1
				35 Sh/Clst: blk, drk gy, mic		063-2
				30 Cont : Mica-ad, prp		063-3
				tr Ca : gn gy to lt gy, dol		063-4
4665.00				Viki		064
	5.83			50 Sh/Clst: blk, drk gy, mic		064-2
				30 Cont : Mica-ad, prp		064-3
				10 S/Sst : w, m gy, calc, glauc, cem, l		064-1
				10 Ca : gn gy to lt gy, dol		064-4
4667.00				Viki		065
				30 S/Sst : w, m gy, calc, glauc, cem, l		065-1
				30 Sh/Clst: blk, drk gy, mic		065-2
				30 Cont : Mica-ad, prp		065-3
				10 Ca : w to gn gy, dol, chk		065-4
				tr Sh/Clst: dsk red		065-5
4670.00				Viki		066
	0.36			30 S/Sst : w, m gy, calc, glauc, cem, l		066-1
	4.56			30 Sh/Clst: blk, drk gy, mic		066-2
				30 Cont : Mica-ad, prp		066-3
				10 Ca : w to gn gy, dol, chk		066-4
				tr Sh/Clst: dsk red		066-5
4672.00				Viki		067
				30 S/Sst : w, m gy, calc, glauc, cem, l		067-1
				30 Sh/Clst: blk, drk gy, mic		067-2
				30 Cont : Mica-ad, prp		067-3
				10 Ca : w to gn gy, dol, chk		067-4
				tr Sh/Clst: dsk red		067-5

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4675.00				Viki		068
	2.66			30 S/Sst : w, m gy, calc, glauc, cem, l		068-1
				30 Sh/Clst: blk, drk gy, mic		068-2
				30 Cont : Mica-ad, prp		068-3
				10 Ca : w to gn gy, dol, chk		068-4
				tr Sh/Clst: dsk red		068-5
4677.00				Viki		069
				30 S/Sst : w, m gy, calc, glauc, cem, l		069-1
				30 Sh/Clst: blk, drk gy, mic		069-2
				30 Cont : Mica-ad, prp		069-3
				10 Ca : w to gn gy, dol, chk		069-4
				tr Sh/Clst: dsk red		069-5
4680.00				Viki		070
	1.94			30 S/Sst : w, m gy, calc, glauc, cem, l		070-1
				30 Sh/Clst: blk, drk gy, mic		070-2
				30 Cont : Mica-ad, prp		070-3
				10 Ca : w to gn gy, dol, chk		070-4
				tr Sh/Clst: dsk red		070-5
4682.00				Viki		071
				30 S/Sst : w, m gy, calc, glauc, cem, l		071-1
				30 Sh/Clst: blk, drk gy, mic		071-2
				30 Cont : Mica-ad, prp		071-3
				10 Ca : w to gn gy, dol, chk		071-4
				tr Sh/Clst: dsk red		071-5
4685.00				Viki		072
	0.32			40 S/Sst : w, m gy, calc, glauc, cem, l		072-1
	1.93			30 Sh/Clst: blk, drk gy, mic		072-2
				20 Cont : Mica-ad, prp		072-3
				10 Ca : w to gn gy, dol, chk		072-4
				tr Sh/Clst: dsk red		072-5

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4687.00				Viki		073
				40 S/Sst : w, m gy, calc, glauc, cem, l		073-1
				30 Sh/Clst: blk, drk gy, mic		073-2
				20 Cont : Mica-ad, prp		073-3
				10 Ca : w to gn gy, dol, chk		073-4
				tr Sh/Clst: dsk red		073-5
4690.00				Viki		074
	2.52			40 Sh/Clst: blk, drk gy, mic		074-2
				30 Cont : Mica-ad, prp		074-3
				20 S/Sst : w, m gy, calc, glauc, cem, l		074-1
				10 Ca : w to gn gy, dol, chk		074-4
				tr Sh/Clst: dsk red		074-5
4692.00				Viki		075
				50 Sh/Clst: blk, drk gy, mic		075-2
				30 Cont : Mica-ad, prp		075-3
				10 S/Sst : w, m gy, calc, glauc, cem, l		075-1
				10 Ca : w to gn gy, dol, chk		075-4
				tr Sh/Clst: dsk red		075-5
4695.00				Viki		076
	3.90			40 Sh/Clst: blk, drk gy, mic		076-2
				30 Cont : Mica-ad, prp		076-3
				20 S/Sst : w, m gy, calc, glauc, cem, l		076-1
				10 Ca : w to gn gy, dol, chk		076-4
				tr Sh/Clst: dsk red		076-5
4697.00				Viki		077
				50 Sh/Clst: blk, drk gy, mic		077-2
				30 Cont : Mica-ad, prp		077-3
				10 S/Sst : w, m gy, calc, glauc, cem, l		077-1
				10 Ca : w to gn gy, dol, chk		077-4
				tr Sh/Clst: dsk red		077-5

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4700.00				Viki		078
	4.12	40	Sh/Clst:	blk, drk gy, mic		078-1
		30	Cont	: Mica-ad, prp, fib		078-5
		20	S/Sst	: w, m gy, calc, glauc, cem, l		078-2
		10	Ca	: w to gn gy, dol, chk		078-3
		tr	Sh/Clst:	dsk red		078-4
4702.00				Viki		079
		70	Sh/Clst:	blk, drk gy, calc, mic		079-1
		10	S/Sst	: w, m gy, calc, glauc, cem, l		079-2
		10	Ca	: w, gn gy, dol		079-3
		10	Sh/Clst:	dsk red		079-4
		tr	Cont	: Mica-ad, cem, prp, fib		079-5
		tr	*ERROR*			079-6
4705.00				Viki		080
	2.67	60	Sh/Clst:	blk, drk gy, calc, mic		080-1
		20	S/Sst	: w, m gy, calc, glauc, cem, l		080-2
		10	Ca	: w, gn gy, dol		080-3
		10	Sh/Clst:	dsk red		080-4
		tr	Cont	: Mica-ad, prp, fib		080-5
		tr	*ERROR*			080-6
4707.00				Viki		081
		65	S/Sst	: m gy, drk gy, calc, cem, l		081-2
		35	Sh/Clst:	blk, drk gy, calc, mic		081-1
		tr	Ca	: w, m gy		081-3
		tr	Sh/Clst:	dsk red		081-4
		tr	Cont	: Mica-ad, prp, fib		081-5
		tr	*ERROR*			081-6

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4710.00				Viki		082
	0.39	55	S/Sst	: m gy, drk gy, calc, cem, l		082-2
	4.46	45	Sh/Clst:	blk, drk gy, calc, mic		082-1
			tr Ca	: w, m gy		082-3
			tr Sh/Clst:	dsk red		082-4
			tr Cont	: Mica-ad, prp, fib		082-5
			tr	*ERROR*		082-6
4712.00				Viki		083
		55	S/Sst	: m gy, drk gy, calc, cem, l		083-2
		45	Sh/Clst:	blk, drk gy, calc, mic		083-1
			tr Ca	: w, m gy		083-3
			tr Sh/Clst:	dsk red		083-4
			tr Cont	: Mica-ad, prp, fib		083-5
			tr	*ERROR*		083-6
4715.00						084
	0.42	100	S/Sst	: blk, m gy, calc, hd		084-1
			tr Sh/Clst:	blk, drk gy, calc, mic		084-2
			tr Ca	: brn, lt gy, m gy, dol		084-3
			tr Sh/Clst:	dsk red		084-4
			tr Cont	: Mica-ad, prp, dd, fib		084-5
4717.00						085
		50	Sltst	: lt ol gy, pyr		085-1
cvd		30	Sh/Clst:	blk, drk gy, calc, mic		085-2
cvd		10	Ca	: brn, lt gy, m gy, dol		085-3
cvd		10	Sh/Clst:	dsk red		085-4
			tr Cont	: Mica-ad, prp, dd, fib		085-5
			tr Other	: pyr		085-6

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4720.00						086
		1.11		60 Sltst : lt ol gy, pyr, s		086-1
	cvd			20 Sh/Clst: blk, drk gy, calc, mic		086-2
	cvd			10 Ca : brn, lt gy, m gy, dol		086-3
	cvd			10 Sh/Clst: dsk red		086-4
				tr Cont : Mica-ad, prp, dd, fib		086-5
				tr Other : pyr		086-6
4722.00						087
				50 S/Sst : w, lt gy, lt ol gy, m gy, drk gy, slt, cem		087-1
	cvd			30 Sh/Clst: blk, drk gy, calc, mic		087-2
	cvd			10 Ca : brn, lt gy, m gy, dol		087-3
	cvd			10 Sh/Clst: dsk red		087-4
				tr Cont : Mica-ad, prp, dd, fib		087-5
				tr Other : pyr		087-6
4725.00						088
		0.67		50 S/Sst : w, lt gy, lt ol gy, m gy, drk gy, slt, cem		088-1
	cvd			30 Sh/Clst: blk, drk gy, calc, mic		088-2
	cvd			10 Ca : brn, lt gy, m gy, dol		088-3
	cvd			10 Sh/Clst: dsk red		088-4
				tr Cont : Mica-ad, prp, dd, fib		088-5
				tr Other : pyr		088-6
4727.00						089
	cvd			60 S/Sst : w, lt gy, calc, pyr, cem		089-1
				20 Sh/Clst: blk, drk gy, calc, mic		089-3
				10 S/Sst : lt ol gy, m gy, drk gy, calc, slt		089-2
				10 Ca : brn, lt gy, m gy, dol		089-4
				tr Cont : prp, dd		089-5
				tr Other : pyr		089-6

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4730.00						090
	cvd	0.95		60 Sltst : lt ol gy, calc, pyr 20 Sh/Clst: blk, drk gy, calc, mic 10 S/Sst : w, drk gy, calc, pyr, cem 10 Ca : brn, lt gy, m gy, dol tr Cont : prp, dd		090-1 090-3 090-2 090-4 090-5
4732.00						091
				60 Sh/Clst: gy, brn, gn, calc 20 Sltst : lt ol gy, calc 10 Sh/Clst: blk, drk gy, calc, mic 10 Sh/Clst: dsk red tr Cont : prp, dd, fib tr Other : pyr		091-1 091-2 091-3 091-4 091-5 091-6
4735.00						092
		1.09		50 Sh/Clst: gy, brn, gn, calc 30 Sltst : lt ol gy, calc 10 Sh/Clst: blk, drk gy, calc, mic 10 Sh/Clst: dsk red tr Cont : prp, dd, fib tr Other : pyr		092-1 092-2 092-3 092-4 092-5 092-6
4737.00						093
				50 Sh/Clst: gy, brn, gn, calc 20 Sltst : lt ol gy, calc 20 Sh/Clst: blk, drk gy, calc, mic 10 Sh/Clst: dsk red tr Cont : prp, dd, fib tr Other : pyr		093-1 093-2 093-3 093-4 093-5 093-6



Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4740.00						094
	0.71	60	Sh/Clst:	gy, brn, gn, calc		094-1
		20	Sltst	: lt ol gy, calc		094-2
		10	Sh/Clst:	blk, drk gy, calc, mic		094-3
		10	Sh/Clst:	dsk red		094-4
		tr	Cont	: prp, dd, fib		094-5
		tr	Other	: pyr		094-6
4742.00						095
		60	Sh/Clst:	gy, brn, gn, calc		095-1
		20	Sltst	: lt ol gy, calc		095-2
		10	Sh/Clst:	blk, drk gy, calc, mic		095-3
		10	Sh/Clst:	dsk red		095-4
		tr	Cont	: prp, dd, fib		095-5
		tr	Other	: pyr		095-6
4745.00						096
		50	Sh/Clst:	gy, brn, gn, calc		096-1
		30	Sltst	: lt ol gy, calc		096-2
		10	Sh/Clst:	blk, drk gy, calc, mic		096-3
		10	Sh/Clst:	dsk red		096-4
		tr	Cont	: prp, dd, fib		096-5
		tr	Other	: pyr		096-6
4747.00						097
	0.86	50	Sh/Clst:	gy, brn, gn, calc		097-1
	0.94	30	Sltst	: lt ol gy, calc		097-2
		20	Sh/Clst:	blk, drk gy, calc, mic		097-3
		tr	Sh/Clst:	dsk red		097-4
		tr	Cont	: Coal-ad, prp, dd, fib		097-5
		tr	Other	: pyr		097-6

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4750.00						098
				50 Sh/Clst: gy, brn, gn, calc		098-1
				30 Sltst : lt ol gy, calc		098-2
				10 Sh/Clst: blk, drk gy, calc, mic		098-3
				10 Sh/Clst: dsk red		098-4
				tr Cont : prp, dd, fib		098-5
				tr Other : pyr		098-6
4752.00						099
				50 Sh/Clst: gy, brn, gn, calc		099-1
				30 Sltst : lt ol gy, calc		099-2
				10 Sh/Clst: blk, drk gy, calc, mic		099-3
				10 Sh/Clst: dsk red		099-4
				tr Cont : Mica-ad, prp, dd, fib		099-5
				tr Other : pyr		099-6
4755.00						100
	0.79			50 Sh/Clst: gy, brn, gn, calc		100-1
	0.80			30 Sltst : lt ol gy, calc		100-2
				10 Sh/Clst: blk, drk gy, calc, mic		100-3
				10 Sh/Clst: dsk red		100-4
				tr Cont : Mica-ad, prp, dd, fib		100-5
				tr Other : pyr		100-6
4757.00						101
				50 Sh/Clst: gy, brn, gn, calc		101-1
				30 Sltst : lt ol gy, calc		101-2
				10 Sh/Clst: blk, drk gy, calc, mic		101-3
				10 Sh/Clst: dsk red		101-4
				tr Cont : Mica-ad, prp, dd, fib		101-5
				tr Other : pyr		101-6

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4760.00						102
				50 Sh/Clst: gy, brn, gn, calc		102-1
				30 Sltst : lt ol gy, calc		102-2
				10 Sh/Clst: blk, drk gy, calc, mic		102-3
				10 Sh/Clst: dsk red		102-4
				tr Cont : Mica-ad, prp, dd, fib		102-5
				tr Other : pyr		102-6
4762.00						103
	0.83			50 Sh/Clst: gy, brn, gn, calc		103-1
	0.66			30 Sltst : lt ol gy, calc		103-2
				10 Sh/Clst: blk, drk gy, calc, mic		103-3
				10 Sh/Clst: dsk red		103-4
				tr Cont : Mica-ad, prp, dd, fib		103-5
				tr Other : pyr		103-6
4765.00				Indeterminate		104
				50 Sh/Clst: gy, brn, gn, calc		104-1
				30 Sltst : lt ol gy, calc		104-2
				20 Sh/Clst: blk, drk gy, calc, mic		104-3
				tr Sh/Clst: dsk red		104-4
				tr Cont : prp, dd, fib		104-5
				tr Other : pyr		104-6
4767.00				Indeterminate		105
				70 Sh/Clst: gy, brn, gn, calc		105-1
				30 Sltst : lt ol gy, calc		105-2
				tr Sh/Clst: blk, drk gy, calc, mic		105-3
				tr Sh/Clst: dsk red		105-4
				tr Cont : Mica-ad, prp, dd, fib		105-5
				tr Other : pyr		105-6

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4770.00				Indeterminate		106
	0.46		50	Sh/Clst: gy, brn, gn, calc		106-1
	0.86		50	Sltst : lt ol gy, calc		106-2
			tr	Sh/Clst: blk, drk gy, calc, mic		106-3
			tr	Sh/Clst: dsk red		106-4
			tr	Cont : Mica-ad, prp, dd, fib		106-5
			tr	Other : pyr		106-6
4772.00				Indeterminate		107
			45	Sh/Clst: gy, brn, gn, calc		107-1
			45	Sltst : lt ol gy, calc		107-2
			10	Sh/Clst: blk, drk gy, calc, mic		107-3
			tr	Sh/Clst: dsk red		107-4
			tr	Cont : Mica-ad, prp, dd, fib		107-5
			tr	Other : pyr		107-6
4775.00				Indeterminate		108
			50	Sh/Clst: gy, brn, gn, calc		108-1
			50	Sltst : lt ol gy, calc		108-2
			tr	Sh/Clst: blk, drk gy, calc, mic		108-3
			tr	Sh/Clst: dsk red		108-4
			tr	Cont : Mica-ad, prp, dd, fib		108-5
			tr	Other : pyr		108-6
4777.00				Indeterminate		109
	1.06		50	Sh/Clst: gy, brn, gn, calc		109-1
	0.79		50	Sltst : lt ol gy, calc, s		109-2
			tr	Sh/Clst: blk, drk gy, calc, mic		109-3
			tr	Sh/Clst: dsk red		109-4
			tr	Cont : prp, dd, fib		109-5
			tr	Other : pyr		109-6

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4780.00				Indeterminate		110
				50 Sh/Clst: gy, brn, gn, calc		110-1
				50 Sltst : lt ol gy, calc, s		110-2
				tr Sh/Clst: blk, drk gy, calc, mic		110-3
				tr Sh/Clst: dsk red		110-4
				tr Cont : prp, dd, fib		110-5
				tr Other : pyr		110-6
4782.00				Indeterminate		111
				45 Sh/Clst: gy, brn, gn, calc		111-1
				45 Sltst : lt ol gy, calc, s		111-2
				10 Sh/Clst: dsk red		111-4
				tr Sh/Clst: blk, drk gy, calc, mic		111-3
				tr Cont : prp, dd, fib		111-5
				tr Other : pyr		111-6
4785.00				Indeterminate		112
	0.89			70 Sh/Clst: lt gy, m gy, drk gy, mrl		112-1
				10 Sh/Clst: gy, brn, gn, calc		112-2
				10 Sh/Clst: dsk red		112-3
				10 Ca : lt y brn, dsk y brn		112-4
				tr Cont : prp, fib		112-5
				tr Other : pyr		112-6
4787.00				Indeterminate		113
				80 Sh/Clst: lt gy, m gy, drk gy, mrl		113-1
				10 Sh/Clst: gy, brn, gn, calc		113-2
				10 Ca : lt y brn, dsk y brn		113-4
				tr Sh/Clst: dsk red		113-3
				tr Cont : prp, fib		113-5
				tr Other : pyr		113-6

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4790.00				Indeterminate		114
	0.60	80	Sh/Clst:	lt gy, m gy, drk gy, mrl		114-1
		20	Sh/Clst:	gy, brn, gn, calc		114-2
			tr Sh/Clst:	dsk red		114-3
			tr Cont	: prp, fib		114-4
			tr Other	: pyr		114-5
4792.00				Indeterminate		115
		80	Sh/Clst:	lt gy, m gy, drk gy, mrl		115-1
		20	Sh/Clst:	gy, brn, gn, calc		115-2
			tr Cont	: prp, fib		115-3
			tr Other	: pyr		115-4
4795.00				Indeterminate		116
	0.37	90	Sh/Clst:	lt gy, m gy, drk gy, mrl		116-1
		10	Sh/Clst:	gy, brn, gn, calc		116-2
			tr Cont	: prp, fib		116-3
			tr Other	: pyr		116-4
4797.00				Indeterminate		117
		90	Sh/Clst:	lt gy, m gy, drk gy, mrl		117-1
		10	Sh/Clst:	gy, brn, gn, calc		117-2
			tr Cont	: prp, fib		117-3
			tr Other	: pyr		117-4
4800.00				Indeterminate		118
	0.95	90	Sh/Clst:	lt gy, m gy, drk gy, mrl		118-1
		10	Sh/Clst:	gy, brn, gn, calc		118-2
			tr Cont	: prp, fib		118-3
			tr Other	: pyr		118-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4802.00				Indeterminate		119
				90 Sh/Clst: lt gy, m gy, drk gy, calc, slt		119-1
				10 Sh/Clst: gy, brn, gn, calc		119-2
				tr Cont : prp, fib		119-3
				tr Other : pyr		119-4
4805.00				Indeterminate		120
				80 Sh/Clst: lt gy, m gy, drk gy, calc, slt		120-1
				20 Sh/Clst: gy, brn, gn, calc		120-2
				tr Cont : prp, fib		120-3
				tr Other : pyr		120-4
4807.00				Indeterminate		121
	1.32			80 Sh/Clst: lt gy, m gy, drk gy, calc, slt		121-1
				20 Sh/Clst: gy, brn, gn, calc		121-2
				tr Cont : prp, fib		121-3
				tr Other : pyr		121-4
4810.00				Indeterminate		122
				80 Sh/Clst: lt gy, m gy, drk gy, calc, slt		122-1
				20 Sh/Clst: gy, brn, gn, calc		122-2
				tr Cont : prp, fib		122-3
				tr Other : pyr		122-4
4812.00				Indeterminate		123
				80 Sh/Clst: lt gy, m gy, drk gy, calc, slt		123-1
				20 Sh/Clst: gy, brn, gn, calc		123-2
				tr Cont : prp, fib		123-3
				tr Other : pyr		123-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
4815.00				Indeterminate		124
	1.50	80	Sh/Clst: lt gy, m gy, drk gy, calc, slt			124-1
		20	Sh/Clst: gy, brn, gn, calc			124-2
			tr Cont : prp, fib			124-3
			tr Other : pyr			124-4
4817.00				Indeterminate		125
		80	Sh/Clst: lt gy, m gy, drk gy, calc, slt			125-1
		20	Sh/Clst: gy, brn, gn, calc			125-2
			tr Cont : prp, fib			125-3
			tr Other : pyr			125-4
4820.00				Indeterminate		126
		50	Sh/Clst: lt gy, m gy, drk gy, calc, slt			126-1
		50	Sh/Clst: gy, brn, gn, calc			126-2
			tr Cont : prp, fib			126-3
			tr Other : pyr			126-4
4822.00				Indeterminate		127
		50	Sh/Clst: lt gy, m gy, drk gy, calc, slt			127-1
		50	Sh/Clst: gy, brn, gn, calc			127-2
			tr Cont : prp, fib			127-3
			tr Other : pyr			127-4
4825.00				Indeterminate		128
	1.49	90	Sh/Clst: lt gy, drk gy, calc, slt			128-1
		10	Sh/Clst: gy, brn, gn, calc			128-2
			tr Cont : prp, fib			128-3
			tr Other : pyr			128-4



Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4827.00				Indeterminate		129
				90 Sh/Clst: lt gy, drk gy, calc, slt		129-1
				10 Sh/Clst: gy, brn, gn, calc		129-2
				tr Cont : prp, fib		129-3
				tr Other : pyr		129-4
4830.00				Indeterminate		130
	1.29			90 Sh/Clst: lt gy, drk gy, calc, slt		130-1
				10 Sh/Clst: gy, brn, gn, calc		130-2
				tr Cont : prp, fib		130-3
				tr Other : pyr		130-4
4832.00				Indeterminate		131
				90 Sh/Clst: lt gy, drk gy, calc, slt		131-1
				10 Sh/Clst: gy, brn, gn, calc		131-2
				tr Cont : prp, fib		131-3
				tr Other : pyr		131-4
4835.00				Indeterminate		132
	1.42			80 Sh/Clst: blk, lt gy, calc, slt		132-1
				20 Sh/Clst: gy, brn, gn, calc		132-2
				tr Cont : prp, fib		132-3
				tr Other : pyr		132-4
4837.00				Indeterminate		133
				80 Sh/Clst: blk, lt gy, calc, slt		133-1
				20 Sh/Clst: gy, brn, gn, calc		133-2
				tr Cont : prp, fib		133-3
				tr Other : pyr		133-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4840.00				Indeterminate		134
	1.42	90	Sh/Clst:	blk, lt gy, calc, slt		134-1
		10	Sh/Clst:	dsk red		134-2
			tr Cont	: prp, fib		134-3
			tr Other	: pyr		134-4
4842.00				Indeterminate		135
		100	Sh/Clst:	blk, lt gy, calc, slt		135-1
			tr Sh/Clst:	dsk red		135-2
			tr Cont	: prp, fib		135-3
			tr Other	: pyr		135-4
4845.00				Indeterminate		136
	1.42	100	Sh/Clst:	blk, lt gy, calc, slt		136-1
			tr Sh/Clst:	dsk red		136-2
			tr Cont	: prp, fib		136-3
			tr Other	: pyr		136-4
4850.00				Indeterminate		137
	1.19	100	Sh/Clst:	blk, lt gy, calc, slt		137-1
			tr Sh/Clst:	dsk red		137-2
			tr Cont	: prp, fib		137-3
			tr Other	: pyr		137-4
4851.00				Indeterminate		138
		100	Sh/Clst:	blk, lt gy, calc, slt		138-1
			tr Sh/Clst:	dsk red		138-2
			tr Cont	: prp, fib		138-3
			tr Other	: pyr		138-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4852.00				Indeterminate		139
				100 Sh/Clst: blk, lt gy, calc, slt		139-1
				tr Sh/Clst: dsk red		139-2
				tr Cont : prp, fib		139-3
				tr Other : pyr		139-4
4855.00				Dev?		140
				100 Sh/Clst: blk, lt gy, calc, slt		140-1
				tr Sh/Clst: dsk red		140-2
				tr Cont : prp, fib		140-3
				tr Other : pyr		140-4
4857.00				Dev?		141
	0.44			50 Sh/Clst: blk, lt gy, calc, slt		141-1
				50 S/Sst : w to lt gy, calc, slt, cem		141-4
				tr Sh/Clst: dsk red		141-2
				tr Cont : prp, fib		141-3
				tr Coal		141-5
4860.00				Dev?		142
				50 Sh/Clst: blk, lt gy, calc, slt		142-1
				50 S/Sst : w to lt gy, calc, slt, cem		142-4
				tr Sh/Clst: dsk red		142-2
				tr Cont : prp, fib		142-3
				tr Coal		142-5
4862.00				Dev?		143
				60 S/Sst : w to lt gy, calc, slt, cem		143-4
				40 Sh/Clst: blk, lt gy, calc, slt		143-1
				tr Sh/Clst: dsk red		143-2
				tr Cont : prp, fib		143-3
				tr Coal		143-5

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4865.00				Dev?		144
	0.23			50 S/Sst : w to lt gy, calc, silt, cem		144-4
				40 Sh/Clst: blk, lt gy, calc, silt		144-1
				10 Sh/Clst: dsk red		144-2
				tr Cont : prp, fib		144-3
				tr Coal		144-5
4867.00				Dev?		145
				100 Sh/Clst: lt gy, m gy, drk gy, calc		145-1
				tr Sh/Clst: dsk red		145-2
				tr Cont : prp, fib		145-3
				tr S/Sst : w to lt gy, calc, silt, cem		145-4
				tr Coal		145-5
4870.00				Dev?		146
				90 Sh/Clst: lt gy, m gy, drk gy, calc		146-1
				5 Sh/Clst: dsk red		146-2
				5 S/Sst : w to lt gy, calc, silt, cem		146-4
				tr Cont : prp, fib		146-3
				tr Coal		146-5
4872.00				Dev?		147
	1.50			90 Sh/Clst: lt gy, m gy, drk gy, calc		147-1
				10 Sh/Clst: dsk red		147-2
				tr Cont : prp, fib		147-3
				tr S/Sst : w to lt gy, calc, silt, cem		147-4
				tr Coal		147-5
4875.00				Dev?		148
				90 Sh/Clst: lt gy, m gy, drk gy, calc		148-1
				5 Sh/Clst: dsk red		148-2
				5 Coal		148-5
				tr Cont : prp, fib		148-3
				tr S/Sst : w to lt gy, calc, silt, cem		148-4

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4877.00				Dev?		149
				50 Sh/Clst: lt gy, m gy, drk gy, calc		149-1
				50 Cont : prp, fib		149-3
				tr Sh/Clst: dsk red		149-2
				tr S/Sst : w to lt gy, calc, slt, cem		149-4
				tr Coal		149-5
4880.00				Dev?		150
				50 Sh/Clst: lt gy, m gy, drk gy, calc		150-1
				50 Cont : prp, fib		150-3
				tr Sh/Clst: dsk red		150-2
				tr S/Sst : w to lt gy, calc, slt, cem		150-4
				tr Coal		150-5
4882.00				Dev?		151
				70 Sh/Clst: lt gy, m gy, drk gy, calc		151-1
				30 Cont : prp, fib		151-3
				tr Sh/Clst: dsk red		151-2
				tr S/Sst : w to lt gy, calc, slt, cem		151-4
				tr Coal		151-5
4885.00				Dev?		152
				100 Sh/Clst: lt gy, m gy, drk gy, calc		152-1
				tr Sh/Clst: dsk red		152-2
				tr Cont : prp, fib		152-3
				tr S/Sst : w to lt gy, calc, slt, cem		152-4
				tr Coal		152-5
4887.00				Dev?		153
				100 Sh/Clst: lt gy, m gy, drk gy, calc		153-1
				tr Sh/Clst: dsk red		153-2
				tr Cont : prp, fib		153-3
				tr S/Sst : w to lt gy, calc, slt, cem		153-4
				tr Coal		153-5

Table 1 : Lithology description for well UKCS 3/29-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4890.00				Dev?		154
		0.69		40 Sh/Clst: lt gy, m gy, drk gy, calc		154-1
				40 S/Sst : w to lt gy, calc, slt, cem		154-4
				20 Cont : prp, fib		154-3
				tr Sh/Clst: dsk red		154-2
				tr Coal		154-5
4892.00				Dev?		155
				30 Cont : prp, fib		155-3
				30 Coal		155-5
				20 Sh/Clst: lt gy, m gy, drk gy, calc		155-1
				20 S/Sst : w to lt gy, calc, slt, cem		155-4
				tr Sh/Clst: dsk red		155-2
4895.00				Dev?		156
				30 Cont : prp, fib		156-3
				30 Coal		156-5
		1.54		20 Sh/Clst: lt gy, m gy, drk gy, calc		156-1
		0.66		20 S/Sst : w to lt gy, calc, slt, cem		156-4
				tr Sh/Clst: dsk red		156-2
4897.00				Dev?		157
				30 Cont : prp, fib		157-3
				30 Coal		157-5
				20 Sh/Clst: lt gy, m gy, drk gy, calc		157-1
				20 S/Sst : w to lt gy, calc, slt, cem		157-4
				tr Sh/Clst: dsk red		157-2
4900.00				Dev?		158
				30 Cont : prp, fib		158-3
				30 Coal		158-5
				20 Sh/Clst: lt gy, m gy, drk gy, calc		158-1
				20 S/Sst : w to lt gy, calc, slt, cem		158-4
				tr Sh/Clst: dsk red		158-2

Table 2 : Rock-Eval table for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4505.00	cut	Sh/Clst: drk gy	0.67	0.50	0.79	0.63	1.16	43	68	1.2	0.57	374	002-1
4510.00	cut	Sh/Clst: drk gy	0.26	0.25	0.73	0.34	1.13	22	65	0.5	0.51	394	004-1
4515.00	cut	Sh/Clst: drk gy	0.84	1.16	0.67	1.73	2.38	49	28	2.0	0.42	444	006-1
4520.00	cut	Sh/Clst: brn blk, drk gy	1.25	1.56	0.94	1.66	3.62	43	26	2.8	0.44	439	008-1
4525.00	cut	Sh/Clst: brn blk, drk gy	1.64	2.21	0.77	2.87	4.74	47	16	3.9	0.43	443	010-1
4530.00	cut	Sh/Clst: brn blk, drk gy	1.57	2.34	1.37	1.71	6.27	37	22	3.9	0.40	436	012-1
4535.00	cut	Sh/Clst: brn blk, drk gy	1.39	2.57	1.24	2.07	6.10	42	20	4.0	0.35	439	014-1
4540.00	cut	Sh/Clst: brn blk, drk gy	1.13	1.83	1.30	1.41	5.75	32	23	3.0	0.38	433	016-1
4545.00	cut	Sh/Clst: brn blk, drk gy	0.57	1.21	1.41	0.86	3.63	33	39	1.8	0.32	435	018-1
4550.00	cut	Sh/Clst: brn blk, drk gy	1.37	2.12	0.87	2.44	5.62	38	15	3.5	0.39	437	020-1
4555.00	cut	Sh/Clst: brn blk, drk gy	1.13	2.68	1.18	2.27	5.41	50	22	3.8	0.30	444	022-1
4560.00	cut	Sh/Clst: brn blk, drk gy	1.34	3.08	1.04	2.96	6.04	51	17	4.4	0.30	443	024-1
4565.00	cut	Sh/Clst: brn blk, drk gy	0.89	2.24	1.71	1.31	6.16	36	28	3.1	0.28	437	026-1
4570.00	cut	Sh/Clst: blk, drk gy	0.57	1.22	1.20	1.02	2.66	46	45	1.8	0.32	441	028-1
4570.00	cut	Ca : lt gy, m gy	0.36	0.66	1.33	0.50	0.87	76	153	1.0	0.35	367	028-2

Table 2 : Rock-Eval table for well UKCS 3/29-2

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Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4575.00	cut	Sh/Clst: blk, drk gy	0.46	0.84	0.93	0.90	-	-	-	1.3	0.35	440	030-1
4580.00	cut	Sh/Clst: blk, drk gy	0.56	1.02	0.91	1.12	2.44	42	37	1.6	0.35	440	032-1
4585.00	cut	Sh/Clst: blk, drk gy	0.40	0.54	1.06	0.51	1.99	27	53	0.9	0.43	402	034-1
4590.00	cut	Sh/Clst: blk, drk gy	0.54	0.78	0.67	1.16	1.60	49	42	1.3	0.41	402	036-1
4595.00	cut	Sh/Clst: blk, drk gy	0.42	0.61	0.77	0.79	1.81	34	43	1.0	0.41	400	038-1
4599.00	cut	Sh/Clst: blk, drk gy	0.64	1.02	1.14	0.89	3.28	31	35	1.7	0.39	438	040-1
4605.00	cut	Sh/Clst: blk, drk gy	0.50	0.80	0.80	1.00	1.55	52	52	1.3	0.38	435	041-1
4610.00	cut	Sh/Clst: blk, drk gy	0.47	0.72	0.88	0.82	1.70	42	52	1.2	0.39	359	043-1
4617.00	cut	Sh/Clst: blk, drk gy	0.64	1.38	0.94	1.47	2.16	64	44	2.0	0.32	397	045-1
4617.00	cut	Ca : brn, lt gy	0.45	0.56	1.19	0.47	0.87	64	137	1.0	0.45	356	045-2
4620.00	cut	Sh/Clst: blk, drk gy	0.52	1.16	0.63	1.84	2.52	46	25	1.7	0.31	444	046-1
4625.00	cut	Sh/Clst: blk, drk gy	0.38	0.93	0.83	1.12	3.10	30	27	1.3	0.29	442	048-1
4630.00	cut	Sh/Clst: blk, drk gy	0.68	1.30	0.83	1.57	2.82	46	29	2.0	0.34	443	050-1
4635.00	cut	Sh/Clst: blk, drk gy	0.58	1.11	1.14	0.97	2.87	39	40	1.7	0.34	396	052-1
4640.00	cut	Sh/Clst: blk, drk gy	0.87	1.65	0.83	1.99	3.13	53	27	2.5	0.35	445	054-1



Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4645.00	cut	Sh/Clst: blk, drk gy	0.53	1.10	0.73	1.51	1.84	60	40	1.6	0.33	355	056-1
4650.00	cut	Sh/Clst: blk, drk gy	0.96	1.80	0.67	2.69	3.12	58	21	2.8	0.35	450	058-1
4655.00	cut	S/Sst : w, lt gy	0.10	0.20	0.55	0.36	0.32	63	172	0.3	0.33	397	060-1
4655.00	cut	Sh/Clst: blk, drk gy	0.96	1.17	0.89	1.31	1.99	59	45	2.1	0.45	359	060-2
4660.00	cut	Sh/Clst: blk, drk gy	0.78	1.51	0.92	1.64	3.57	42	26	2.3	0.34	442	062-2
4665.00	cut	Sh/Clst: blk, drk gy	1.15	1.90	1.08	1.76	5.83	33	19	3.0	0.38	436	064-2
4670.00	cut	S/Sst : w, m gy	0.22	0.16	0.51	0.31	0.36	44	142	0.4	0.58	407	066-1
4670.00	cut	Sh/Clst: blk, drk gy	1.02	1.89	1.43	1.32	4.56	41	31	2.9	0.35	445	066-2
4675.00	cut	Sh/Clst: blk, drk gy	0.68	1.28	1.13	1.13	2.66	48	42	2.0	0.35	441	068-2
4680.00	cut	Sh/Clst: blk, drk gy	0.59	0.82	0.74	1.11	1.94	42	38	1.4	0.42	361	070-2
4685.00	cut	S/Sst : w, m gy	0.08	0.11	0.13	0.85	0.32	34	41	0.2	0.42	361	072-1
4685.00	cut	Sh/Clst: blk, drk gy	0.62	0.88	0.94	0.94	1.93	46	49	1.5	0.41	378	072-2
4690.00	cut	Sh/Clst: blk, drk gy	0.70	1.08	0.84	1.29	2.52	43	33	1.8	0.39	403	074-2
4695.00	cut	Sh/Clst: blk, drk gy	0.82	1.41	0.88	1.60	3.90	36	23	2.2	0.37	447	076-2
4700.00	cut	Sh/Clst: blk, drk gy	0.53	0.93	1.53	0.61	4.12	23	37	1.5	0.36	435	078-1

Table 2 : Rock-Eval table for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4705.00	cut	Sh/Clst: blk, drk gy	0.99	1.01	1.27	0.80	2.67	38	48	2.0	0.50	366	080-1
4710.00	cut	Sh/Clst: blk, drk gy	0.95	0.56	1.61	0.35	4.46	13	36	1.5	0.63	433	082-1
4710.00	cut	S/Sst : m gy, drk gy	0.26	0.16	0.23	0.70	0.39	41	59	0.4	0.62	405	082-2
4715.00	cut	S/Sst : blk, m gy	0.14	0.33	0.35	0.94	0.42	79	83	0.5	0.30	463	084-1
4720.00	cut	Sltst : lt ol gy	0.53	0.71	1.55	0.46	1.11	64	140	1.2	0.43	364	086-1
4725.00	cut	S/Sst : w, lt gy, lt ol gy, m gy, drk gy	0.28	0.43	0.53	0.81	0.67	64	79	0.7	0.39	368	088-1
4730.00	cut	Sltst : lt ol gy	0.44	4.40	1.49	2.95	0.95	463	157	4.8	0.09	444	090-1
4735.00	cut	Sh/Clst: gy, brn, gn	0.52	0.91	0.92	0.99	1.09	83	84	1.4	0.36	363	092-1
4740.00	cut	Sh/Clst: gy, brn, gn	0.34	0.69	1.00	0.69	0.71	97	141	1.0	0.33	366	094-1
4747.00	cut	Sh/Clst: gy, brn, gn	0.49	0.97	1.09	0.89	0.86	113	127	1.5	0.34	371	097-1
4747.00	cut	Sltst : lt ol gy	0.57	1.14	2.15	0.53	0.94	121	229	1.7	0.33	375	097-2
4755.00	cut	Sh/Clst: gy, brn, gn	0.48	0.79	0.83	0.95	0.79	100	105	1.3	0.38	363	100-1
4755.00	cut	Sltst : lt ol gy	0.40	0.66	1.75	0.38	0.80	83	219	1.1	0.38	368	100-2
4762.00	cut	Sh/Clst: gy, brn, gn	0.55	0.88	0.84	1.05	0.83	106	101	1.4	0.38	366	103-1
4762.00	cut	Sltst : lt ol gy	0.55	0.80	1.46	0.55	0.66	121	221	1.4	0.41	370	103-2

Table 2 : Rock-Eval table for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4770.00	cut	Sh/Clst: gy, brn, gn	0.38	0.66	0.89	0.74	0.46	143	193	1.0	0.37	371	106-1
4770.00	cut	Sltst : lt ol gy	0.57	1.11	1.51	0.74	0.86	129	176	1.7	0.34	375	106-2
4777.00	cut	Sh/Clst: gy, brn, gn	0.45	0.98	0.84	1.17	1.06	92	79	1.4	0.31	361	109-1
4777.00	cut	Sltst : lt ol gy	0.53	0.93	1.59	0.58	0.79	118	201	1.5	0.36	372	109-2
4785.00	cut	Sh/Clst: lt gy, m gy, drk gy	0.59	0.95	0.88	1.08	0.89	107	99	1.5	0.38	359	112-1
4790.00	cut	Sh/Clst: lt gy, m gy, drk gy	0.38	0.54	1.15	0.47	0.60	90	192	0.9	0.41	358	114-1
4795.00	cut	Sh/Clst: lt gy, m gy, drk gy	0.24	0.29	1.00	0.29	0.37	78	270	0.5	0.45	364	116-1
4800.00	cut	Sh/Clst: lt gy, m gy, drk gy	0.71	1.05	0.80	1.31	0.95	111	84	1.8	0.40	359	118-1
4807.00	cut	Sh/Clst: lt gy, m gy, drk gy	0.75	0.99	0.86	1.15	1.32	75	65	1.7	0.43	360	121-1
4815.00	cut	Sh/Clst: lt gy, m gy, drk gy	0.71	1.13	0.75	1.51	1.50	75	50	1.8	0.39	355	124-1
4825.00	cut	Sh/Clst: lt gy, drk gy	1.02	1.13	0.92	1.23	1.49	76	62	2.2	0.47	357	128-1
4830.00	cut	Sh/Clst: lt gy, drk gy	0.68	1.00	0.93	1.08	1.29	78	72	1.7	0.40	363	130-1
4835.00	cut	Sh/Clst: blk, lt gy	0.72	1.43	0.85	1.68	1.42	101	60	2.2	0.33	366	132-1
4840.00	cut	Sh/Clst: blk, lt gy	0.71	1.17	0.67	1.75	1.42	82	47	1.9	0.38	358	134-1
4845.00	cut	Sh/Clst: blk, lt gy	0.87	1.25	0.79	1.58	1.42	88	56	2.1	0.41	358	136-1

Table 2 : Rock-Eval table for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4850.00	cut	Sh/Clst: blk, lt gy	0.85	1.05	0.72	1.46	1.19	88	61	1.9	0.45	354	137-1
4857.00	cut	S/Sst : w to lt gy	0.17	0.38	0.60	0.63	0.44	86	136	0.6	0.31	366	141-4
4865.00	cut	S/Sst : w to lt gy	0.13	0.28	0.41	0.68	0.23	122	178	0.4	0.32	364	144-4
4872.00	cut	Sh/Clst: lt gy, m gy, drk gy	0.68	1.27	0.85	1.49	1.50	85	57	2.0	0.35	362	147-1
4890.00	cut	S/Sst : w to lt gy	0.62	0.52	1.12	0.46	0.69	75	162	1.1	0.54	375	154-4
4895.00	cut	Sh/Clst: lt gy, m gy, drk gy	1.45	1.57	0.77	2.04	1.54	102	50	3.0	0.48	367	156-1
4895.00	cut	S/Sst : w to lt gy	0.93	0.82	0.93	0.88	0.66	124	141	1.8	0.53	376	156-4

Table 3 a: Weight of EOM and Chromatographic Fraction for well UKCS 3/29-2

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
4525.00	com	* Composite sample - see table 3 e *	4.1	9.3	2.6	3.0	2.3	1.4	5.6	3.7	3.70	160-0
4565.00	com	* Composite sample - see table 3 e *	5.6	14.3	4.4	2.6	1.2	6.1	7.0	7.3	4.40	161-0
4605.00	com	* Composite sample - see table 3 e *	2.0	6.6	1.0	1.2	1.5	2.9	2.2	4.4	2.90	162-0
4655.00	com	* Composite sample - see table 3 e *	3.9	4.7	1.1	1.8	0.9	0.9	2.9	1.8	2.80	163-0
4710.00	com	* Composite sample - see table 3 e *	3.4	7.7	2.6	2.1	2.3	0.7	4.7	3.0	3.20	164-0

Table 3 b: Concentration of EOM and Chromatographic Fraction (wt ppm rock) for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4525.00	com	* Composite sample - see table 3 e *	2268	634	731	560	341	1365	902	160-0
4565.00	com	* Composite sample - see table 3 e *	2553	785	464	214	1089	1250	1303	161-0
4605.00	com	* Composite sample - see table 3 e *	3300	500	600	750	1449	1100	2200	162-0
4655.00	com	* Composite sample - see table 3 e *	1205	282	461	230	230	743	461	163-0
4710.00	com	* Composite sample - see table 3 e *	2264	764	617	676	205	1382	882	164-0

Table 3 c: Concentration of EOM and Chromatographic Fraction (mg/g TOC(e)) for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4525.00	com	* Composite sample - see table 3 e *	61.31	17.14	19.78	15.16	9.23	36.91	24.39	160-0
4565.00	com	* Composite sample - see table 3 e *	58.04	17.86	10.55	4.87	24.76	28.41	29.63	161-0
4605.00	com	* Composite sample - see table 3 e *	113.79	17.24	20.69	25.86	50.00	37.93	75.86	162-0
4655.00	com	* Composite sample - see table 3 e *	43.04	10.07	16.48	8.24	8.24	26.56	16.48	163-0
4710.00	com	* Composite sample - see table 3 e *	70.77	23.90	19.30	21.14	6.43	43.20	27.57	164-0

Table 3 d: Composition of material extracted from the rock (%) for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
			EOM	EOM	EOM	EOM	EOM	EOM	EOM	Aro	
4525.00	com	* Composite sample - see table 3 e *	27.96	32.26	24.73	15.05	60.22	39.78	86.67	151.35	160-0
4565.00	com	* Composite sample - see table 3 e *	30.77	18.18	8.39	42.66	48.95	51.05	169.23	95.89	161-0
4605.00	com	* Composite sample - see table 3 e *	15.15	18.18	22.73	43.94	33.33	66.67	83.33	50.00	162-0
4655.00	com	* Composite sample - see table 3 e *	23.40	38.30	19.15	19.15	61.70	38.30	61.11	161.11	163-0
4710.00	com	* Composite sample - see table 3 e *	33.77	27.27	29.87	9.09	61.04	38.96	123.81	156.67	164-0



Table 3 e: List of composite samples appearing in the extraction tables for well UKCS 3/29-2

Depth unit of measure: m

NOTE: Depths shown in tables 3 a to d correspond to the composite samples' lower depth.

<u>Upper depth</u>	<u>Lower depth</u>	<u>Typ</u>	<u>Sample</u>		<u>Depth</u>	<u>Typ</u>	<u>Lithology</u>	<u>Sample</u>
4515.00	4525.00	com	160-0	is composed of:	4515.00	cut	Sh/Clst: drk gy	006-1
					4520.00	cut	Sh/Clst: brn blk, drk gy	008-1
					4525.00	cut	Sh/Clst: brn blk, drk gy	010-1
4530.00	4565.00	com	161-0	is composed of:	4530.00	cut	Sh/Clst: brn blk, drk gy	012-1
					4535.00	cut	Sh/Clst: brn blk, drk gy	014-1
					4540.00	cut	Sh/Clst: brn blk, drk gy	016-1
					4545.00	cut	Sh/Clst: brn blk, drk gy	018-1
					4550.00	cut	Sh/Clst: brn blk, drk gy	020-1
					4555.00	cut	Sh/Clst: brn blk, drk gy	022-1
					4560.00	cut	Sh/Clst: brn blk, drk gy	024-1
					4565.00	cut	Sh/Clst: brn blk, drk gy	026-1
4575.00	4605.00	com	162-0	is composed of:	4575.00	cut	Sh/Clst: blk, drk gy, calc	030-1
					4580.00	cut	Sh/Clst: blk, drk gy	032-1
					4585.00	cut	Sh/Clst: blk, drk gy	034-1
					4590.00	cut	Sh/Clst: blk, drk gy	036-1
					4595.00	cut	Sh/Clst: blk, drk gy	038-1
					4599.00	cut	Sh/Clst: blk, drk gy	040-1
					4605.00	cut	Sh/Clst: blk, drk gy	041-1
4610.00	4655.00	com	163-0	is composed of:	4610.00	cut	Sh/Clst: blk, drk gy	043-1
					4617.00	cut	Sh/Clst: blk, drk gy, calc	045-1
					4620.00	cut	Sh/Clst: blk, drk gy, calc	046-1
					4625.00	cut	Sh/Clst: blk, drk gy	048-1
					4630.00	cut	Sh/Clst: blk, drk gy	050-1
					4635.00	cut	Sh/Clst: blk, drk gy	052-1
					4640.00	cut	Sh/Clst: blk, drk gy	054-1

Depth unit of measure: m

NOTE: Depths shown in tables 3 a to d correspond to the composite samples' lower depth.

<u>Upper depth</u>	<u>Lower depth</u>	<u>Typ</u>	<u>Sample</u>		<u>Depth</u>	<u>Typ</u>	<u>Lithology</u>	<u>Sample</u>
					4645.00	cut	Sh/Clst: blk, drk gy	056-1
					4650.00	cut	Sh/Clst: blk, drk gy, mic	058-1
					4655.00	cut	Sh/Clst: blk, drk gy, mic	060-2
4680.00	4710.00	com	164-0	is composed of:	4680.00	cut	Sh/Clst: blk, drk gy, mic	070-2
					4685.00	cut	Sh/Clst: blk, drk gy, mic	072-2
					4690.00	cut	Sh/Clst: blk, drk gy, mic	074-2
					4695.00	cut	Sh/Clst: blk, drk gy, mic	076-2
					4700.00	cut	Sh/Clst: blk, drk gy, mic	078-1
					4705.00	cut	Sh/Clst: blk, drk gy, calc, mic	080-1
					4710.00	cut	Sh/Clst: blk, drk gy, calc, mic	082-1

Table 4 : Saturated Hydrocarbon Ratios for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	Pristane	Pristane	Pristane + Phytane	Phytane	CPI	Sample
			nC17	Phytane	nC17 + nC18	nC18		
4525.00	com	bulk	0.30	1.30	0.28	-	1.00	160-0
4565.00	com	bulk	0.30	1.50	0.27	-	1.00	161-0
4605.00	com	bulk	0.40	1.80	0.32	-	1.00	162-0
4655.00	com	bulk	0.40	1.80	0.34	-	1.00	163-0
4710.00	com	bulk	0.40	1.90	0.33	-	1.20	164-0

Table 5 : Aromatic Hydrocarbon Ratios for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	DBT/P	4/1MDBT	(3+2)/1MDBT	Sample
4525.00	com	bulk	1.53	1.30	0.56	1.26	0.79	-	-	-	4.59	160-0
4565.00	com	bulk	1.16	1.30	0.50	0.89	0.75	-	-	-	4.30	161-0
4605.00	com	bulk	-	-	-	1.43	0.95	-	-	-	8.00	162-0
4655.00	com	bulk	-	-	-	1.40	0.90	-	-	-	8.14	163-0
4710.00	com	bulk	1.25	1.70	-	0.90	0.77	-	-	-	5.53	164-0

List of aromatic maturity ratios

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MNR	=	$\frac{2\text{-methyl naphthalene}}{1\text{-methyl naphthalene}}$
DMNR	=	$\frac{2,6 + 2,7\text{-dimethyl naphthalene}}{1,5\text{-dimethyl naphthalene}}$
BPHR	=	$\frac{\text{biphenyl}}{1,6 \text{ dimethyl naphthalene}}$
2/1MP	=	$\frac{2\text{-methyl phenanthrene}}{1\text{-methyl phenanthrene}}$
MPI1	=	$\frac{1.5 * (3 + 2\text{-methyl phenanthrene})}{\text{phenanthrene} + 9 + 1\text{-methyl phenanthrene}}$
MPI2	=	$\frac{3.0 * 2\text{-methyl phenanthrene}}{\text{phenanthrene} + 9 + 1\text{-methyl phenanthrene}}$
DBT/P	=	$\frac{\text{dibenzothiophene}}{\text{phenanthrene}}$
4/1MDBT	=	$\frac{4\text{-methyl dibenzothiophene}}{1\text{-methyl dibenzothiophene}}$
(3+2)/1MDBT	=	$\frac{3 + 2\text{-methyl dibenzothiophene}}{1\text{-methyl dibenzothiophene}}$

Table 6 : Thermal Maturity Data for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T <sub>max</sub> (°C)	Sample
4502.00	cut bulk	0.89	13	0.07	8	-	-	001-0
4515.00	cut Sh/Clst: drk gy	-	-	-	-	7	444	006-1
4525.00	cut Sh/Clst: brn blk, drk gy	-	-	-	-	NDP	443	010-1
4540.00	cut Sh/Clst: brn blk, drk gy	-	-	-	-	NDP	433	016-1
4560.00	cut Sh/Clst: brn blk, drk gy	-	-	-	-	NDP	443	024-1
4575.00	cut Sh/Clst: blk, drk gy	-	-	-	-	7	440	030-1
4590.00	cut Sh/Clst: blk, drk gy	-	-	-	-	7	402	036-1
4599.00	cut Sh/Clst: blk, drk gy	-	-	-	-	NDP	438	040-1
4610.00	cut Sh/Clst: blk, drk gy	-	-	-	-	7	359	043-1
4612.00	cut bulk	0.86	6	0.03	8+9	-	-	044-0
4620.00	cut Sh/Clst: blk, drk gy	-	-	-	-	7 - 7.5 ?	444	046-1
4625.00	cut Sh/Clst: blk, drk gy	-	-	-	-	7.5	442	048-1
4635.00	cut Sh/Clst: blk, drk gy	-	-	-	-	7.5	396	052-1
4655.00	cut Sh/Clst: blk, drk gy	-	-	-	-	NDP	359	060-2

Table 6 : Thermal Maturity Data for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
4660.00	cut	Sh/Clst: blk, drk gy	-	-	-	-	NDP	442	062-2
4675.00	cut	Sh/Clst: blk, drk gy	-	-	-	-	NDP	441	068-2
4685.00	cut	Sh/Clst: blk, drk gy	-	-	-	-	8	378	072-2
4700.00	cut	Sh/Clst: blk, drk gy	-	-	-	-	NDP	435	078-1
4702.00	cut	bulk	0.97	13	0.05	8	-	-	079-0
4710.00	cut	Sh/Clst: blk, drk gy	-	-	-	-	NDP	433	082-1
4720.00	cut	Sltst : lt ol gy	-	-	-	-	NDP	364	086-1
4735.00	cut	Sh/Clst: gy, brn, gn	-	-	-	-	NDP	363	092-1
4747.00	cut	Sh/Clst: gy, brn, gn	-	-	-	-	NDP	371	097-1
4750.00	cut	bulk	0.95	20	0.05	8+9	-	-	098-0
4762.00	cut	Sh/Clst: gy, brn, gn	-	-	-	-	NDP	366	103-1
4777.00	cut	Sh/Clst: gy, brn, gn	-	-	-	-	NDP	361	109-1
4802.00	cut	bulk	0.97	15	0.10	8	-	-	119-0
4815.00	cut	Sh/Clst: lt gy, m gy, drk gy	-	-	-	-	7.5 - 8 ?	355	124-1

Table 6 : Thermal Maturity Data for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
4840.00	cut Sh/Clst: blk, lt gy	-	-	-	-	7.5 - 8	358	134-1
4872.00	cut Sh/Clst: lt gy, m gy, drk gy	-	-	-	-	8	362	147-1
4887.00	cut bulk	NDF	-	-	0	-	-	153-0



Table 7 : Visual Kerogen Composition Data for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	L I P T %	A m r e L	L o p p o l	S p / P o l	C u t e r n e	D i n c o r t L	I N E R T %	S F i n s	I m F u e t	M t D r e t	S c l e r o I	V I R %	C T e l l i n	V o l l e n t	A i m D r t V	B o i t V	Sample
4515.00	cut	Sh/Clst: drk gy	10	*	*				40	?	*	*		50	*	*	*	*	006-1
4525.00	cut	Sh/Clst: brn blk, drk gy	TR	*					10	?	*			90		*	*		010-1
4540.00	cut	Sh/Clst: brn blk, drk gy	TR?	*					5		*			95		*	*		016-1
4560.00	cut	Sh/Clst: brn blk, drk gy	TR?	*					10	?	*			90	?	*	*		024-1
4575.00	cut	Sh/Clst: blk, drk gy	5	*	*				20	*	*	*		75		*	*		030-1
4590.00	cut	Sh/Clst: blk, drk gy	5	*	*				40	*	*	*		55	*	*	*		036-1
4599.00	cut	Sh/Clst: blk, drk gy	TR	*					30	?	*			70		*	*		040-1
4610.00	cut	Sh/Clst: blk, drk gy	5	*	*				35		*	*		60		*	*		043-1
4620.00	cut	Sh/Clst: blk, drk gy	5	?	*	*			25		*	*		70	*	*	*		046-1
4625.00	cut	Sh/Clst: blk, drk gy	5	*	*				25	?	*	*		70	?	*	*		048-1
4635.00	cut	Sh/Clst: blk, drk gy	5	*	*				20		*	*		75	*	*	*		052-1
4655.00	cut	Sh/Clst: blk, drk gy	TR?	?					40	?	*			60		*	*		060-2
4660.00	cut	Sh/Clst: blk, drk gy	TR	?					10	?	*			90		?	*		062-2

Table 7 : Visual Kerogen Composition Data for well UKCS 3/29-2

Depth unit of measure: m

Depth	Typ	Lithology	LIP %	Am	Li	ip	S / P	C / D	u	R	A	D	I	N	F	S	I	M	S	B	V	C	V	A	B	Sample
			%	L	t	e	o	l	l	n	e	l	t	%	n	s	t	n	o	I	%	n	t	V	V	
4675.00	cut	Sh/Clst: blk, drk gy	TR	*									40	*	*					60	?	*	*		068-2	
4685.00	cut	Sh/Clst: blk, drk gy	TR		*								40	*	*					60		*	*		072-2	
4700.00	cut	Sh/Clst: blk, drk gy	TR?	*									20	*	*					80	*	*	*		078-1	
4710.00	cut	Sh/Clst: blk, drk gy	?										10	*	*					90			*		082-1	
4720.00	cut	Sltst : lt ol gy	NDP										NDP							NDP					086-1	
4735.00	cut	Sh/Clst: gy, brn, gn	TR	*									50	*	*					50	?	*	*		092-1	
4747.00	cut	Sh/Clst: gy, brn, gn	NDP										NDP							NDP					097-1	
4762.00	cut	Sh/Clst: gy, brn, gn	NDP										NDP							NDP					103-1	
4777.00	cut	Sh/Clst: gy, brn, gn	NDP										NDP							NDP					109-1	
4815.00	cut	Sh/Clst: lt gy, m gy, drk gy	10	*	*								30	*	*	*				60	*	*	*		124-1	
4840.00	cut	Sh/Clst: blk, lt gy	10	*	*								30	?	*	*				60		*	*		134-1	
4872.00	cut	Sh/Clst: lt gy, m gy, drk gy	TR	*	*								40	*	*					60	*	*	*		147-1	

Table                      WELL 3/29-2  
 PYROLYSIS GC ON NON-EXTRACTED ROCK. VALUES FROM S2 PEAK.

DEPTH (m)		% C1-C5 of total	% C6+ of total
=====			
4515		62	38
4525		59	41
4540		57	43
4560		56	44
4570	Clst.	66	34
4570	Lst.	76	24
4590		68	32
4610		72	28
4617	Clst.	68	32
4617	Lst.	99	1
4635		77	23
4655		76	24
4670		86	14
4685		79	21
4700		63	37

Table WELL 3/29-2  
 PYROLYSIS GC ON NON-EXTRACTED ROCK. VALUES FROM S2 PEAK.

DEPTH (m)		% C1-C5 of total	% C6+ of total
=====			
4710	Sst.	92	8
4710	Clst.	63	37
4735		81	19
4747		12	88
4762		0	100
4777		80	20
4815		70	30
4840		86	14
4872		81	19

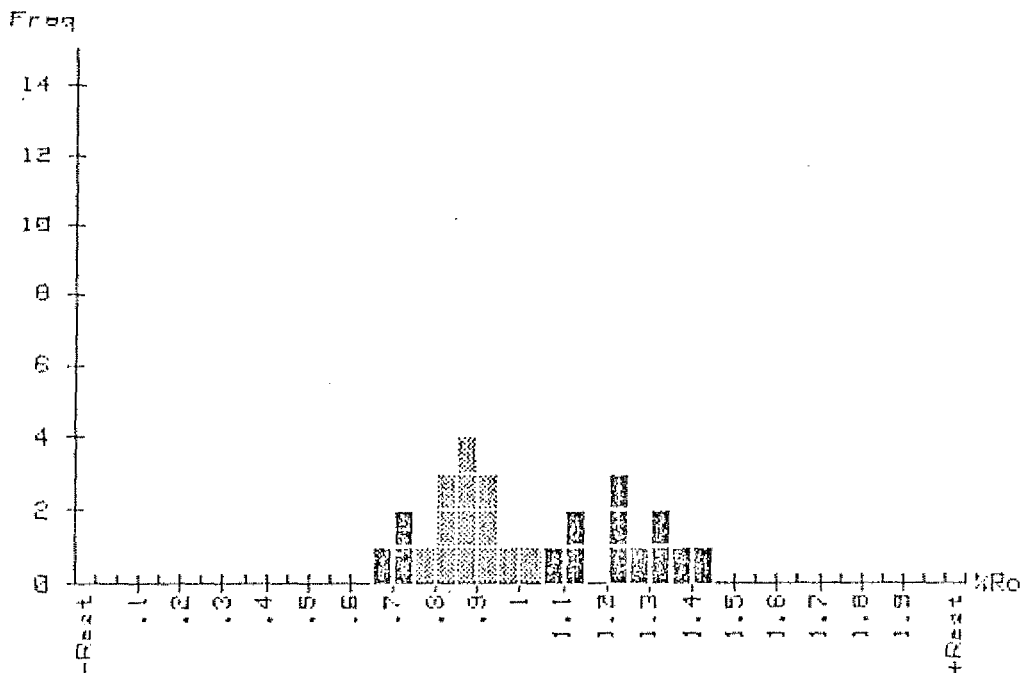
Table WELL 3/29-2

PYROLYSIS GC ON PRE-EXTRACTED ROCK. VALUES FROM S2 PEAK.

DEPTH (m)	% C1-C5 of total	% C6+	of total
=====			
4525	94	6	
4565	63	37	
4605	68	32	
4655	76	24	
4710	66	34	

Histogram of vitrinite reflectance measurements

Sample No.: 1501 1 1A1  
Well Name: 13/29-2  
Depth: 14502M  
Analyst: JJ MC  
Date: 118 3 85



Pop. 1	From	.65 to	.75	Mean=	.71	St.D=	.02	Total=	3
* Pop. 2	From	.75 to	1.05	Mean=	.89	St.D=	.07	Total=	13
Pop. 3	From	1.05 to	1.45	Mean=	1.24	St.D=	.12	Total=	11

The indigenous Population is marked '\*'.

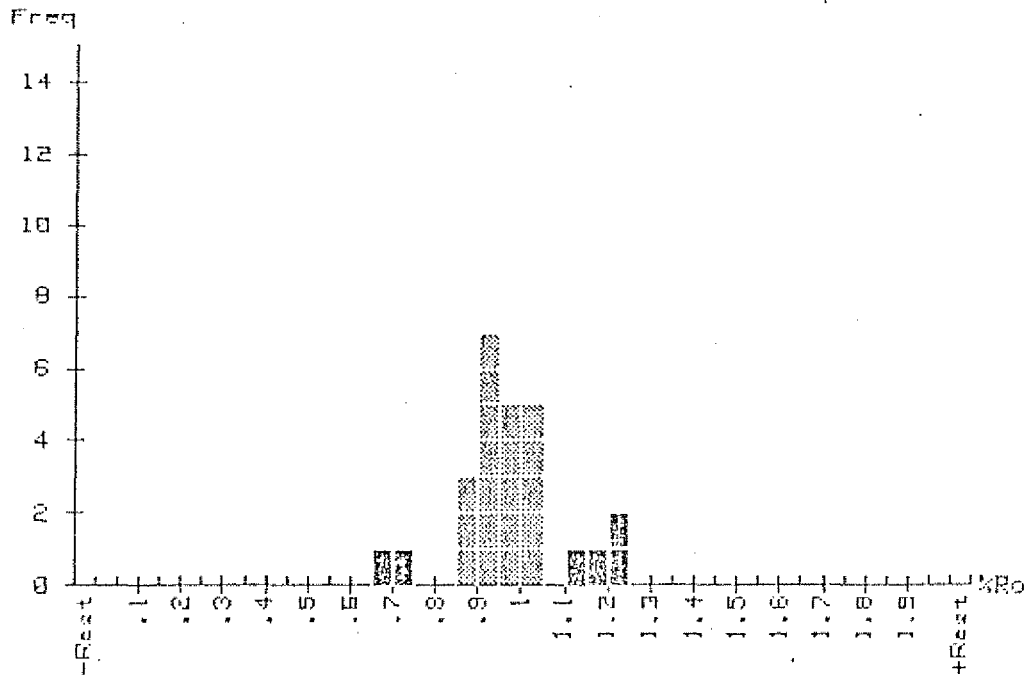
	1	2	3	4	5	6	7	8	9	10
0	.599	.704	.736	.792	.809	.830	.836	.872	.873	.873
10	.899	.903	.914	.940	.997	1.025	1.078	1.106	1.115	1.205
20	1.211	1.211	1.279	1.315	1.337	1.369	1.438			







Sample No.: 1604 | 1A1  
 Well Name: 13/29-2 |  
 Depth: 14750M |  
 Analyst: IJ MC |  
 Date: 118 3 85 |



Pop. 1 From .65 to .75 Mean= .69 St.D= .02 Total= 2  
 \* Pop. 2 From .85 to 1.05 Mean= .95 St.D= .05 Total= 20  
 Pop. 3 From 1.10 to 1.25 Mean= 1.19 St.D= .04 Total= 4

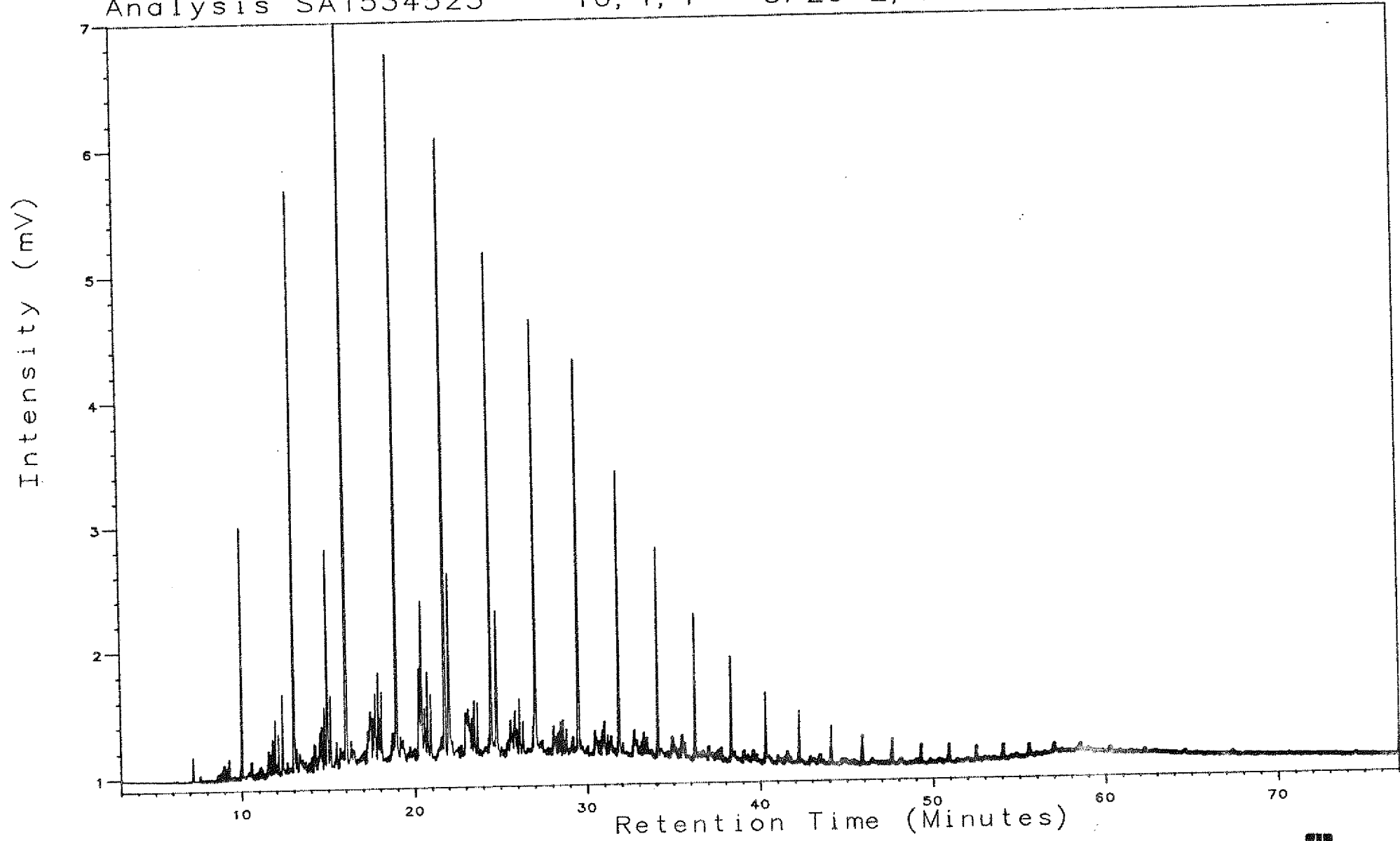
The indigenous Population is marked '\*'.

	1	2	3	4	5	6	7	8	9	10
0	.675	.709	.869	.891	.895	.906	.907	.907	.925	.929
10	.943	.945	.963	.982	.982	.992	1.000	1.003	1.006	1.012
20	1.014	1.022	1.145	1.179	1.202	1.229				



Saturated fraction gas chromatograms

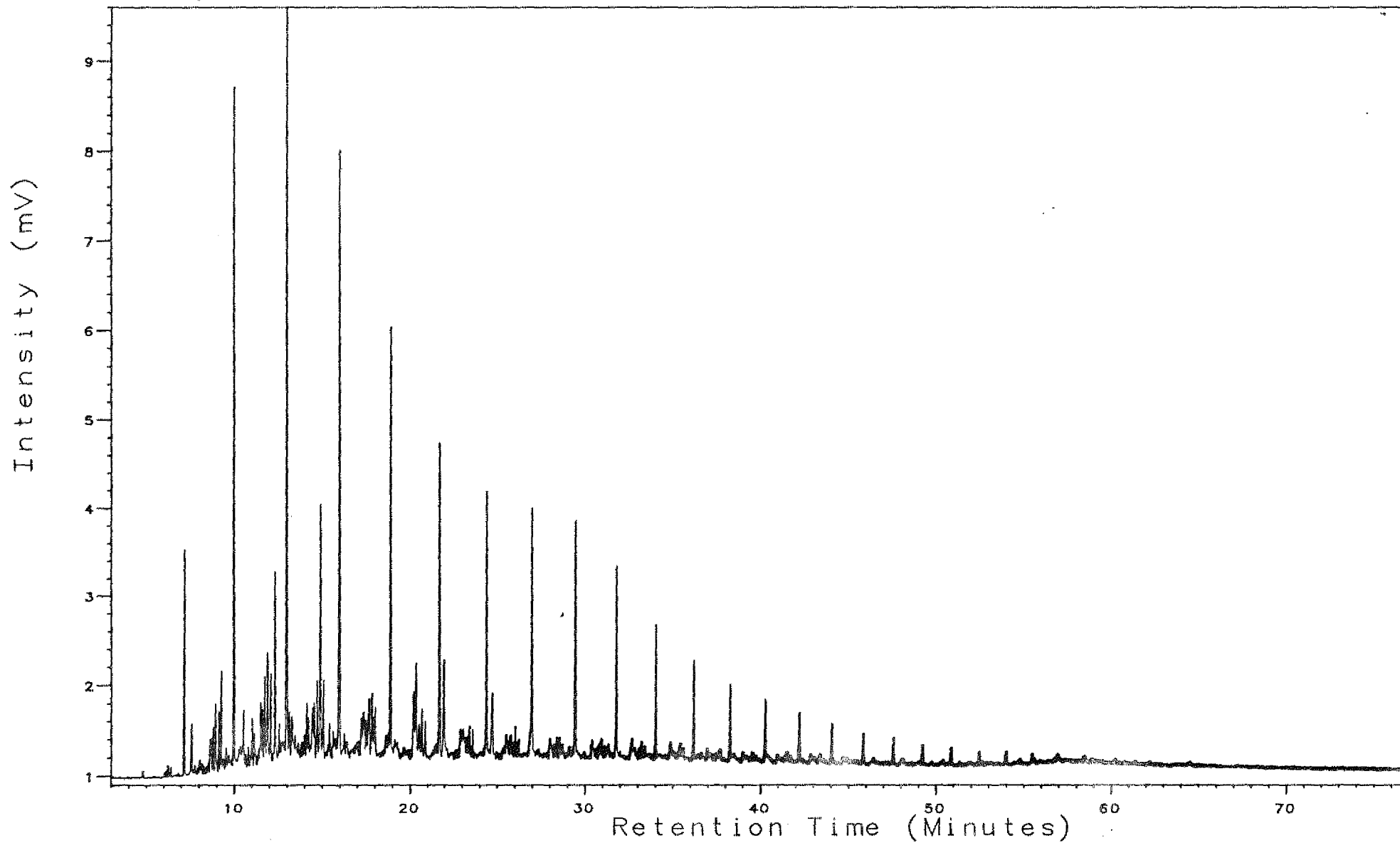
Analysis SA1534525 10, 1, 1 3/29-2, 4515-25m, SAT



Analysis SA1534565

10, 1, 1

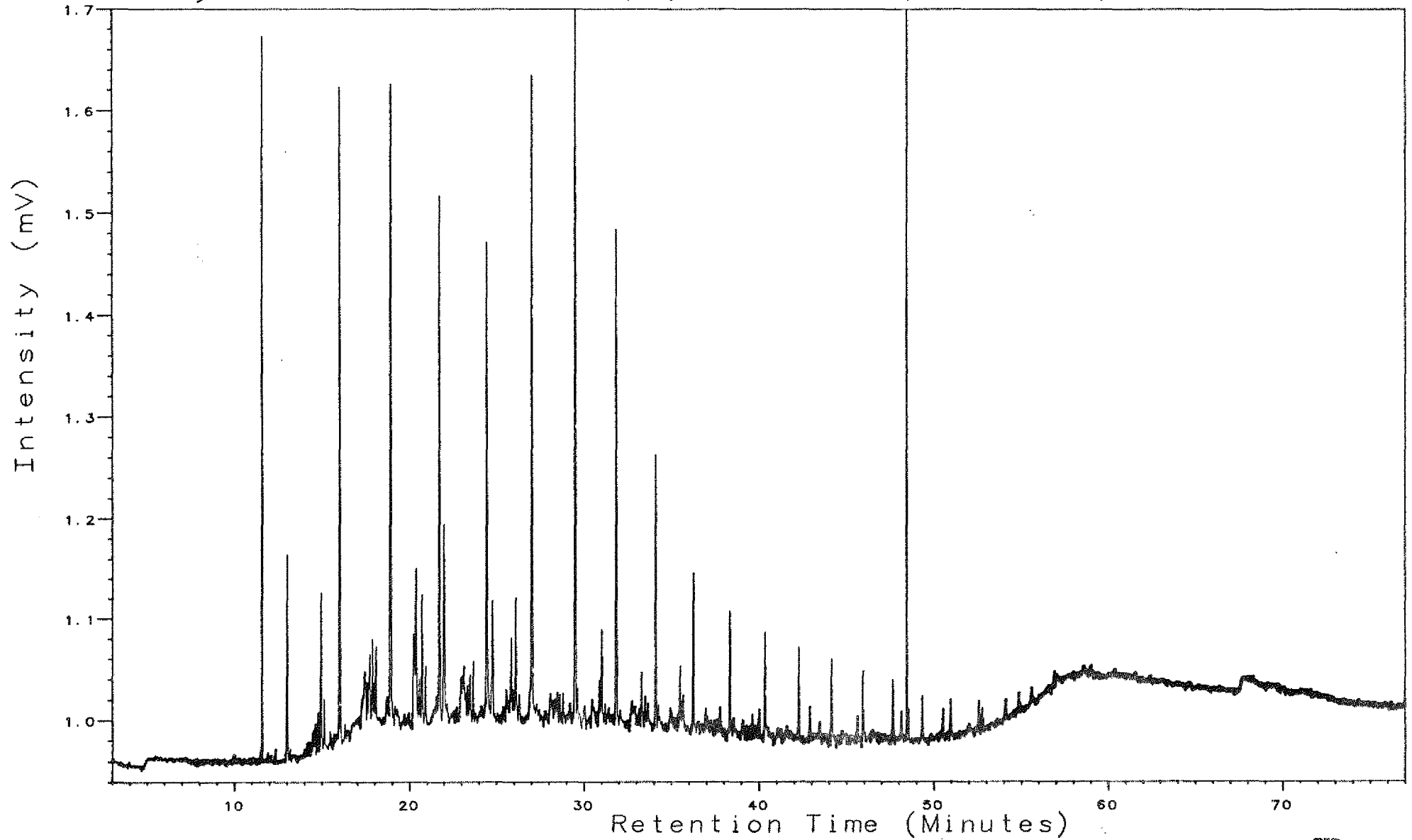
3/29-2, 4530-65m, SAT



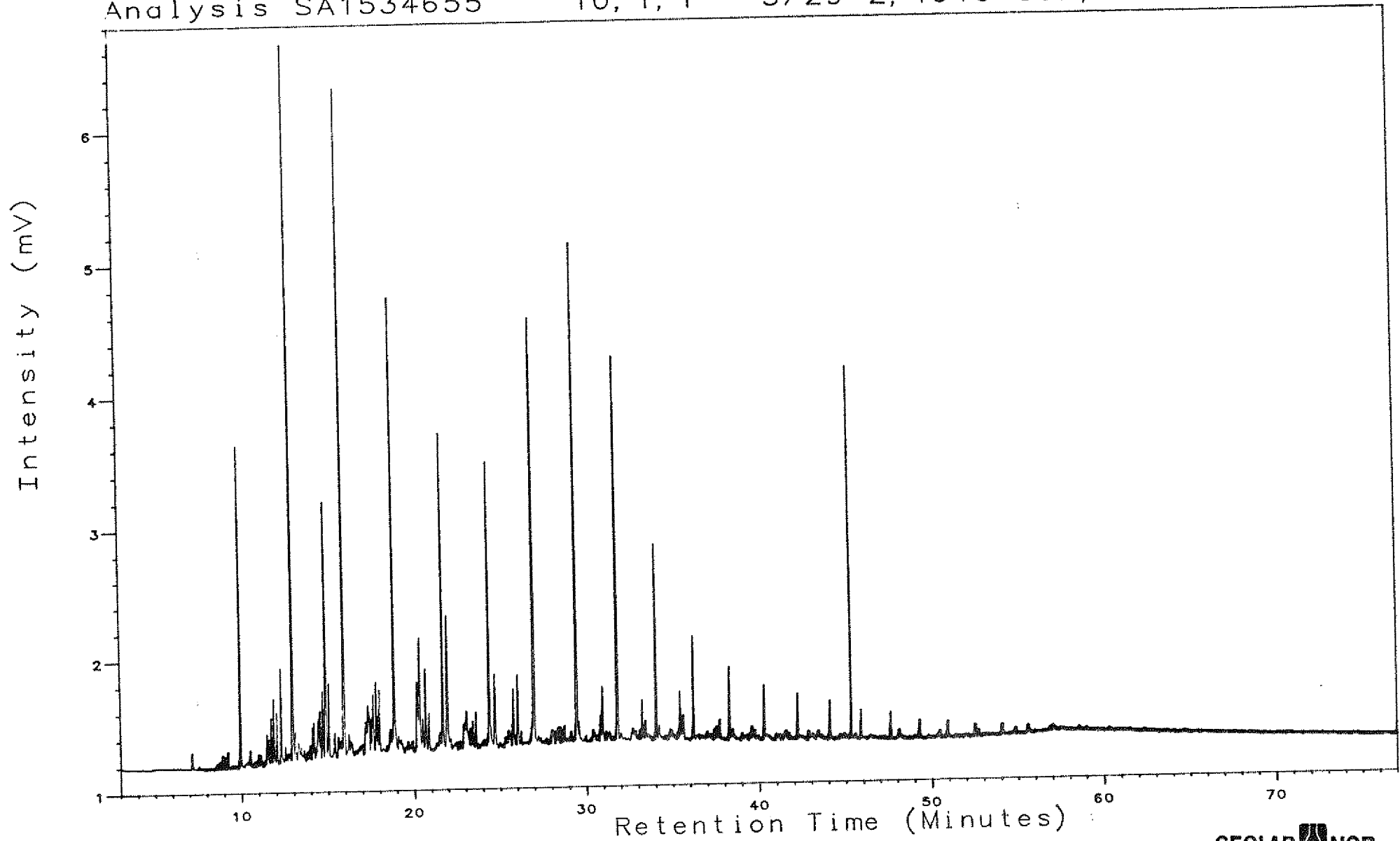
Analysis SA1534605

10, 1, 1

3/29-2, 4575-05m, SAT



Analysis SA1534655 10, 1, 1 3/29-2, 4610-55m, SAT





Analysis SA1534710

10, 1, 1

3/29-2, 4680-10m, SAT

