

NORTH VIKING GRABEN
GEOCHEMICAL STUDY

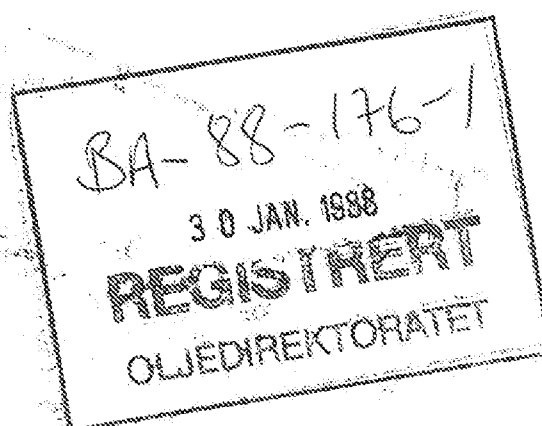
Well no. 33/9-6 NOCS

Client: Fina Exploration Norway

Authors: Peter B. Hall
Malvin Bjorøy
Nigel Mills
Kjell Arne Bakken
Josann McDermott

Geolab Nor A/S
Hornebergveien 5
7000 TRONDHEIM
Norway

Date: 15.12.86



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INTRODUCTION

This well is from the Norwegian sector of the North sea, it is to the north of Statfjord and approximately mid-way between the Murchison field and a discovery well to the east of the Murchison field (33/9-8). The total drilled depth was 3354 m. Samples were collected between 2000 m and 3354 m from the Norwegian Petroleum Directorate in Stavanger. A total of 314 samples were collected, washed and described. The analysed section of the well is from 2854 - 3354 m with a sampling interval of 6 m. A careful selection of suitable samples was made for screening analysis (i.e. TOC and Rock-Eval analysis). Ninety samples were selected for this analysis, and from the data obtained the samples for follow-up analysis were chosen. These are:

Thermal extraction - pyrolysis - gas chromatography	37 samples*
Extraction, MPLC fractionation, saturated and aromatic hydrocarbon gas chromatography	8 samples
Vitrinite reflectance microscopy	17 samples
Visual kerogen analysis	20 samples

* 8 samples were solvent extracted before pyrolysis gc.

Tables, listing in detail which samples were analysed and the results, are given in the appendix.

Figure 1 shows the general litho-variations and some of the screening data for this well and the location of samples for which follow-up analysis was done. Included in this figure are some of the problems encountered which have affected the choice of samples for analysis.

One particular problem which was encountered in this well was the effect that turbodrilling has had on sample quality. For a complete analysis of this factor see the following discussion.

LITHOLOGY AND TOTAL ORGANIC CARBON CONTENT

Cretaceous (- 2943 m)

Only the lowest 80 metres were analysed from this sequence. The samples consist mainly of medium grey to dark claystones with 0.5 - 0.8 % TOC. There are smaller amounts of grey-red to red-brown claystones and white limestones with less than 0.3 % TOC.

Jurassic (2943 - 3354 m)

Viking Group (Draupne/Heather Formations, 2943 - 3000 m)

A considerable amount of caved material is present in this interval which from mud log data consists mainly of dark grey and dark brown-grey claystones. Only one sample from this interval, from 2992 m, is considered to be representative. The dark grey and dusky yellow-brown claystones in this interval from 2986 - 2992 m have a TOC content of 5.3 % (rich).

Brent Group (3000 - 3137 m)

The interval from 2997 - 3033 m was cored and based on log data consists mainly of sandstones with oil shows and some dark grey claystone. The cuttings samples in this interval are mostly unrepresentative caved claystones except for a waxy brown-grey claystone from 3016 m which has a TOC content of 0.75 %. Below 3033 m based on log data samples consist mainly of sandstones and light grey and grey-brown claystones. Three medium grey to dark grey claystones were analysed. They have good TOC contents i.e. between 1 % and 2 %. Towards the base of the Brent Group interval (3112 - 3137

m) dark green-grey to dark brown-grey claystones were picked and analysed. They have a TOC content of 1.5 % to 3.1 %, i.e. good-rich. The higher values may be due to the presence of caved Draupne claystones and/or coal fragments present in the claystones.

Dunlin Group (3137 - 3325 m)

The samples in this interval consist mainly of light to dark brown-grey claystones down to 3200 m. Below this depth, dark brown-grey and brown-black silty claystones and sandstones dominate. There are also smaller amounts of limestone. The samples were heavily contaminated with mud cake, which was difficult to remove. However, the dark, silty claystones have generally good to rich TOC values of 1.0 - 3.4 % between 3166 m and 3325 m. The average TOC content of these claystones is 1.6 %. The light to medium grey claystones (also minor amounts of green-grey and red-brown) which occur mainly in the top 70 m have fair TOC contents of 0.5 % - 1.0 %. The high TOC values, i.e. >3 %, of a few samples in this interval may be due to the presence of some caved Draupne claystones.

Statfjord Formation (3325 - 3354 m)

Samples consist mainly of sandstones and also limestone with less than 0.3 % TOC.

ROCK-EVAL ANALYSIS

1. Kerogen Type and Richness

(Hydrogen Index, Oxygen Index and Petroleum Potential)

Cretaceous (- 2943 m)

The petroleum potential of claystones in this interval is less than 0.5 and hydrogen indices are less than 30 indicating kerogen type IV. The hydrocarbon potential is poor and only for dry gas.

Jurassic (2943 - 3354 m)

Viking Group (Draupne/Heather Formations, 2943 - 3000 m)

Only one sample in this interval is considered to be representative. This sample from 2992 m has a rich petroleum potential of 24 and hydrogen index of 438 indicating type II kerogen. This data indicates that the claystones in this interval have a rich potential for oil and gas at higher maturities.

Brent Group (3000 - 3137 m)

Excluding the claystones with the highest TOC values, which may include caved Draupne claystone, the dark claystone lithologies in the interval have petroleum potentials from 1 to 3 and mainly type III (plus some IV) kerogen (hydrogen indices from 47 - 132). Along with coals in this interval, there is potential for wet gas, rich from coals and poor-fair from analysed claystones.

Dunlin Group (3137 - 3325 m)

Excluding the claystones with the highest TOC values, which may include caved Draupne claystone, the dark claystone lithologies in the interval from 3262 - 3310 m have petroleum potentials from 1 to 5 and mainly type III (plus some II/III) kerogen. These claystones have a fair potential as source rocks for gas and condensate. The lighter claystones have petroleum potentials less than 1 and mainly type IV kerogen with little or no hydrocarbon potential.

Statfjord Formation (3325 - 3354 m)

Sandstones and limestones in this interval have no hydrocarbon potential.

2. Generation and Migration

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

Draupne formation claystones from 2992 m and Dunlin Group claystones from 3260 m to 3310 m have production index values between 0.06 and 0.1, which suggests that little hydrocarbon generation has occurred. High production indices in sandstones and adjacent claystones in the Brent and Dunlin intervals (see figure 2) are probably due to the presence of migrated hydrocarbons. This is especially so for the Brent interval where oil shows were recorded in sandstones. S_1/TOC ratios are roughly 0.2 - 0.3 where migrated hydrocarbons are absent and greater than 0.5 where migrated hydrocarbons are considered to be present.

3. Maturity (T_{max})

In the Jurassic interval from 2943 - 3354 m the T_{max} values

change roughly from 427 to 435, i.e. from immature to early mature for kerogen type II (see figure 3).

EXTRACTION DATA

Viking Group (Draupne/Heather Formations, 2943 - 3000 m)

Two samples were extracted from this interval. Unfortunately, the samples consist partly of caved Cretaceous lithologies and representative claystones were minor components of the top sample. The high TOC content of the claystone sample from 2992 m suggests that it is a more representative sample. The quantity of EOM and extractable hydrocarbons (2273 and 966 ppm) is high and the claystone is classified as a rich source rock although only immature - early mature. The percentage of hydrocarbons in the EOM is quite high considering the low maturity (42.5 %) and the presence of migrated/contaminant hydrocarbons is suspected.

Brent Group (3000 - 3137 m)

No samples were extracted from this interval.

Dunlin Group (3137 - 3325 m), Statfjord Formation (3325 - 3354 m)

Six light to dark brown-grey silty claystones were analysed. They can be classified as good source rocks based on EOM content (1043 - 1746 ppm) and extractable hydrocarbon content (309 - 574 ppm).

Saturated Hydrocarbons

The gas chromatograms are very uniform throughout the Jurassic. Normal alkanes from C_{13} to C_{20} (maximum at nC_{15}) dominate. Normal alkanes greater than nC_{20} are relatively minor components. The distinct odd n-alkane preference from

C₂₀ to C₃₃ in most samples suggests that the Jurassic sequence is relatively immature. The dominant low-medium molecular weight hydrocarbons from C₁₃ to C₂₀ which are indicative of mature hydrocarbons, are probably migrated or contaminant hydrocarbons (figure 4). It should be noted that traces of oil were observed in the drilling mud in the relevant interval, so contamination of cuttings may have occurred.

Aromatic Hydrocarbons

The aromatic hydrocarbon gas chromatograms of the Jurassic samples are all fairly similar in distribution. The dominant hydrocarbons are triaromatics (phenanthrene, methylphenanthrenes and dimethylphenanthrenes) and polycyclic aromatics. The general absence of alkyl naphthalenes and the prominent polycyclic aromatics (figure 5) suggests that the kerogens in the Jurassic claystones are immature or contamination from an oil fraction has occurred. The low MPI 1 and the low 3+2/1 MDBT ratio in a few of the samples is evidence for the low maturity of the Jurassic sequence.

THERMAL EXTRACTION - GAS CHROMATOGRAPHY

Viking Group (Draupne/Heather Formations, 2943 - 3000 m)

Only one sample, from 2992 m, of the four which were thermally extracted is considered to be representative of this interval. The samples above 2992 m are considered to be caved Cretaceous claystones and are dominated by a narrow n-alkane envelope from nC_{10} to nC_{20} with a maximum at nC_{13-14} which is probably due to contamination from diesel used as a mud additive. The sample from 2992 m has a thermal extraction gas chromatogram which is typical for a moderate mature marine type II kerogen. It has abundant alkanes (including isoprenoids) particularly $<nC_{10}$ and from nC_{12} to nC_{20} with a maximum at nC_{13} (figure 6).

Brent Group (3000 - 3137 m)

The claystone samples analysed from this interval show very similar traces to the Viking Group samples which are considered to be caved Cretaceous claystones. The traces are mainly due to contamination.

Dunlin Group (3137 - 3325 m)

Twenty samples of various claystones were thermally extracted. The top two samples show similar hydrocarbon patterns to the Cretaceous claystones and are considered to be contaminated. Below these the samples are partly contaminated but the indigenous hydrocarbon pattern can be seen. This pattern consists mainly of n-alkanes up to C_{20} with a relatively low amount of C_{10} to C_{12} alkanes, probably due to limited generation from early mature kerogen. The general hydrocarbon distribution is typical for early mature type III kerogen or type II/III kerogens (figure 7).

PYROLYSIS - GAS CHROMATOGRAPHY

Cretaceous (- 2943)

One sample of medium dark grey claystone was pyrolysed. The pyrogram is dominated by low molecular weight aromatic hydrocarbons (e.g. xylene, toluene and naphthalene). This and the lack of alkanes indicates that the kerogen in these claystones has only poor gas potential.

Viking Group (Draupne/Heather Formations, 2943 - 3000 m)

Only one of the four pyrograms is taken to be representative. This was the sample from 2992 m. The pyrogram of this sample is fairly typical for type II kerogen. There is a prominent unresolved hump to nC_{30} and the nC_7 to nC_{20} alkene-alkane homology is also particularly prominent. The large prist-1-ene peak suggests that the sample is fairly immature (<0.5 % R) (figure 8). The abundance of aromatics and related compounds between nC_9 and nC_{15} also suggests that the kerogen is fairly immature.

Brent Group (3000 - 3137 m)

Four samples were pyrolysed. The top two medium to dark grey claystones have pyrograms fairly typical of kerogens derived mainly from land plant material, but without the waxy component up to nC_{30} indicating some liquid hydrocarbon potential. Aromatics from toluene to dimethylnaphthalenes dominate the pyrograms. At higher maturities mainly gas-range hydrocarbons would be produced.

A limestone from 3112 m shows a similar pyrogram to the overlying claystones. Pyrolysis products consist mainly of aromatics.

The pyrogram of the dark claystone from 3124 m is representative of a type II/III kerogen with some liquid hydrocarbon potential.

Dunlin Group (3137 - 3325 m)

Twenty various coloured claystones were pyrolysed from this interval. The brown-grey to dark brown-grey silty claystones have very similar pyrograms. Aromatics, including xylene, naphthalene and methylnaphthalenes are prominent. The alkene-alkane homology is also prominent over the range C_1 to nC_{17} . Above nC_{17} alkanes are much more prominent than the alkenes with the same carbon number (figure 9). These features indicate a large land plant input. The kerogens have mainly gas and condensate potential. Light coloured claystones and sandstones which were pyrolysed show mainly low molecular weight aromatics which indicates that they have little or no hydrocarbon potential.

VITRINITE REFLECTANCE

Seventeen samples (2026 m to 2896 m) were analysed from the Cretaceous section of the well. All contain only trace or low amounts of organic matter with inertinite as the dominant phytoclast type. Consequently reflectance values are based on a small number of individual readings but show a reasonable trend with depth from 0.34 % (2026 m) to 0.40 % (2896 m) (figure 10). Only trace to low amounts of fluorescing organic matter are present and spores are generally absent. From the few samples which contain spores a change from yellow to yellow/orange fluorescence colour can be seen with depth. This agrees well with reflectance values.

Five samples (2968 m to 3256 m) were analysed from the Jurassic section of the well. Phytoclast content is much higher than in the Cretaceous, being generally low to moderate. There is also an increase in vitrinite content of the phytoclasts allowing higher numbers of individual readings to be made. Bitumen staining and wisps are generally present in low to trace amounts and there is commonly a low amount of fluorescing organic matter which consists largely of liptodetrinite but also of spores and algal material. Vitrinite reflectance values rise steadily from 0.42 % (2968 m) to 0.53 % (3310 m) showing a strong linear trend. A slightly low value of 0.48 was obtained for the sample at 3256 m and this probably indicates the presence of some caved material. Spores are present in most of the Jurassic samples and spore fluorescence colour remains yellow orange throughout this section, therefore slightly lower than reflectance values.

VISUAL KEROGEN COMPOSITION

Twenty samples from well NOCS 33/9-6 were examined in transmitted light (figure 11). The samples were all shale/claystones of various colours and ranged from 2856 m to 3316 m.

The kerogen composition of the samples were quite variable but generally mixed. Most samples have a composition that would be favourable for hydrocarbon generation but this would be mainly for gas (as the vitrinite component tends to dominate) or at best gas to mixed oil and gas products. Apart from the samples at 2992 m (50 % liptinite, 5 % inertinite and 45 % vitrinite), 3124 m (40 % liptinite, 10 % inertinite and 50 % vitrinite) and 3178 m (40 % liptinite, 20 % inertinite and 40% vitrinite) the most promising section of the well appears to be from 3304 m to 3316 m (30 - 40 % liptinite, 10 % inertinite and 50 - 60 % vitrinite) which has a very favourable composition for mixed oil and gas products. Throughout the analysed sequence it is generally the detrital component that dominates over the amorphous or structured elements.

CONCLUSIONS

Based on the various analyses undertaken on samples from this well the following preliminary conclusions were made:

1. Source Rock Potential

Viking Group (Draupne/Heather Formations, 2943 - 3000 m)

Only one sample was considered to be representative. This was the sample from 2986 - 2992 m. The dark grey/dusky yellow/brown claystones in this interval have a TOC content of 5.3 % and a petroleum potential of 24 and the kerogen is type II. The claystones in this interval have a rich potential for oil and gas at higher maturities.

Brent Group (3000 - 3137 m)

The interval consists mainly of sandstones with minor coal and claystone beds. Thin beds of medium grey to dark grey claystones below 3033 m have TOC values from 1 - 3 %. Petroleum potentials vary from 1 to 3. The pyrograms and Rock-Eval data indicate that the kerogens are moderate mature type III or IV with a poor to fair potential for gas at higher maturities.

Dunlin Group (3137 - 3325 m)

Light to dark brown-grey claystones are developed down to 3200 m becoming darker and siltier below 3200 m. They are interbedded with sandstones and light to medium grey claystones. The dark claystones have an average TOC content of 1.6 % and an average petroleum potential of 5. The

pyrolysis data indicate that the kerogen in these dark claystones is type III or II/III. The light claystones have a poor potential for dry gas, the dark claystones have a fair - good potential for gas and condensate at higher maturities.

Statfjord Formation (3325 - 3354 m)

The sandstones and limestones in this interval have no source rock potential.

2. Generation and Migration

Oil shows were observed in Brent Group sandstones between 3000 and 3050 m. The presence of migrated hydrocarbons was also detected in claystones, directly above these sandstones, on the basis of production index values. The generally high production index values in Brent and Dunlin Group claystones is thought to be due to contamination rather than migrated hydrocarbons. The reason for thinking this, is that the thermal extraction gas chromatograms show that the main hydrocarbons are over a narrow range although the sequence is of low maturity.

3. Maturity

The maturity of the Jurassic interval from 2943 m to 3354 m (TD) is moderate to early mature (i.e. <0.5 % to 0.6 % Ro).

Figure 1. NOCS Well 33/9-6 (nr. MURCHISON)

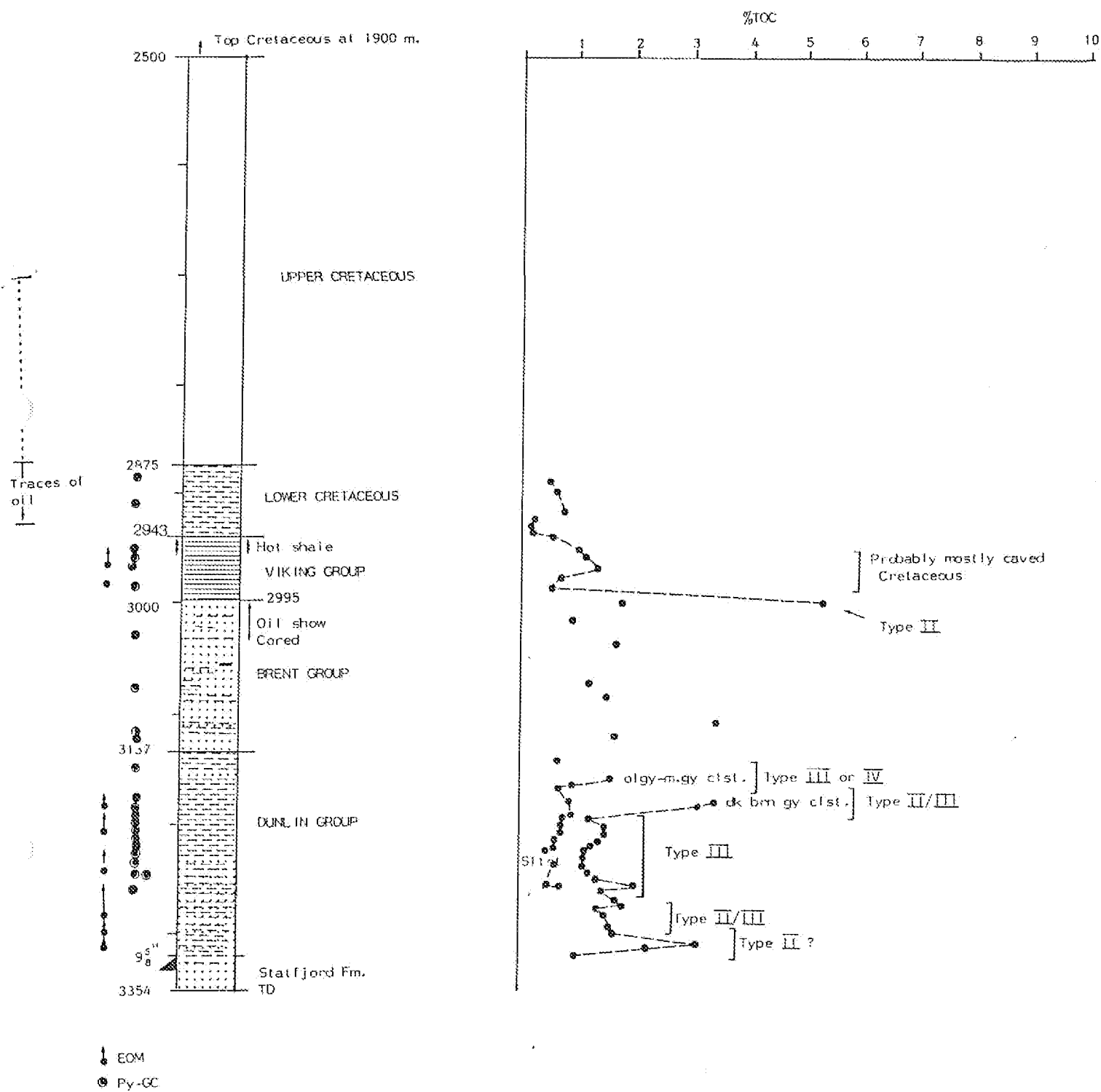


Figure 2. Production Index vs Depth
for well no. 33/9-6

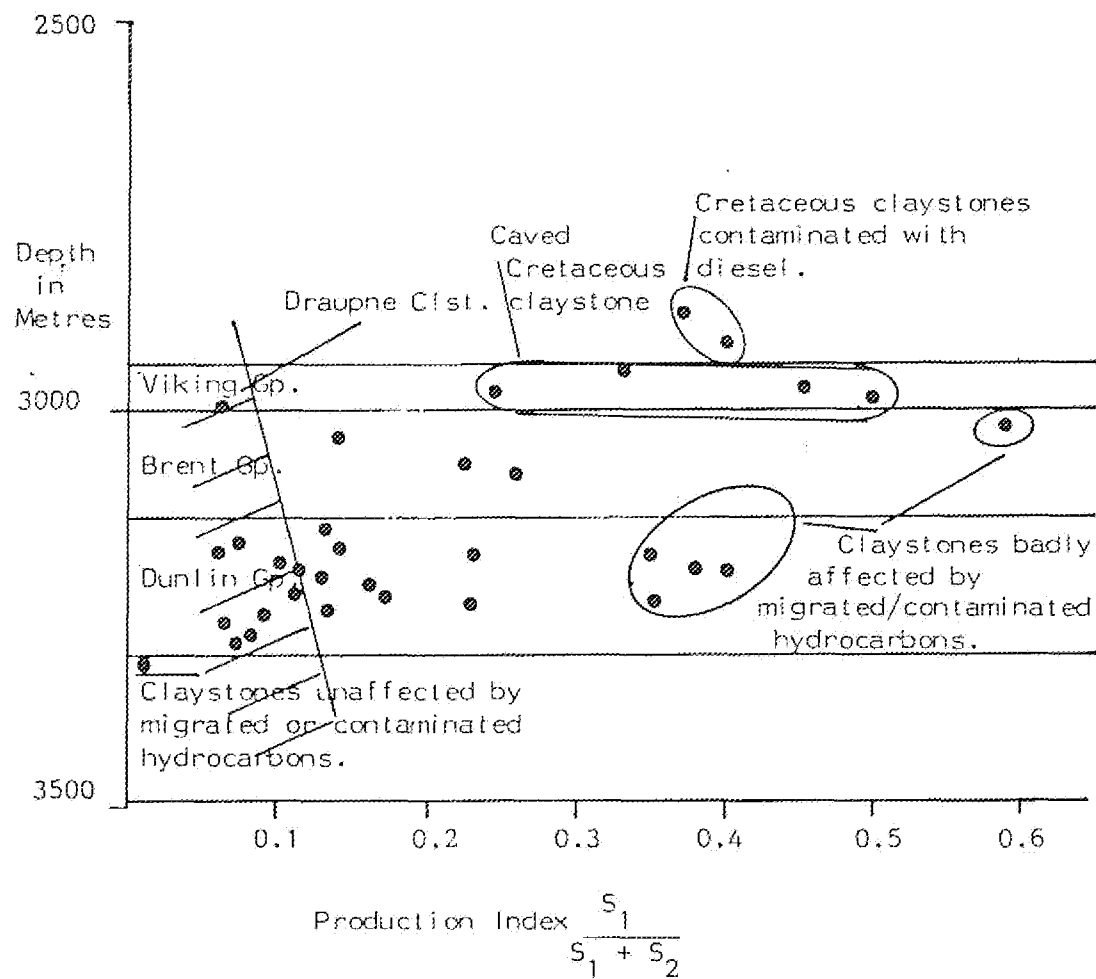
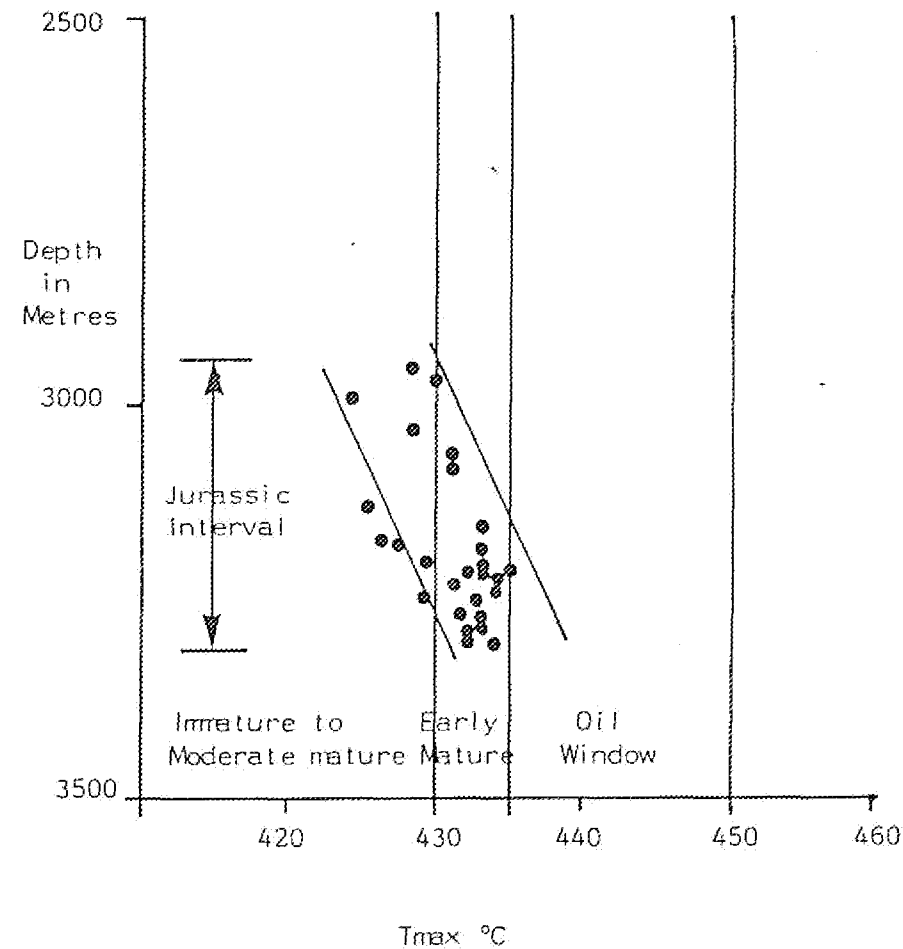


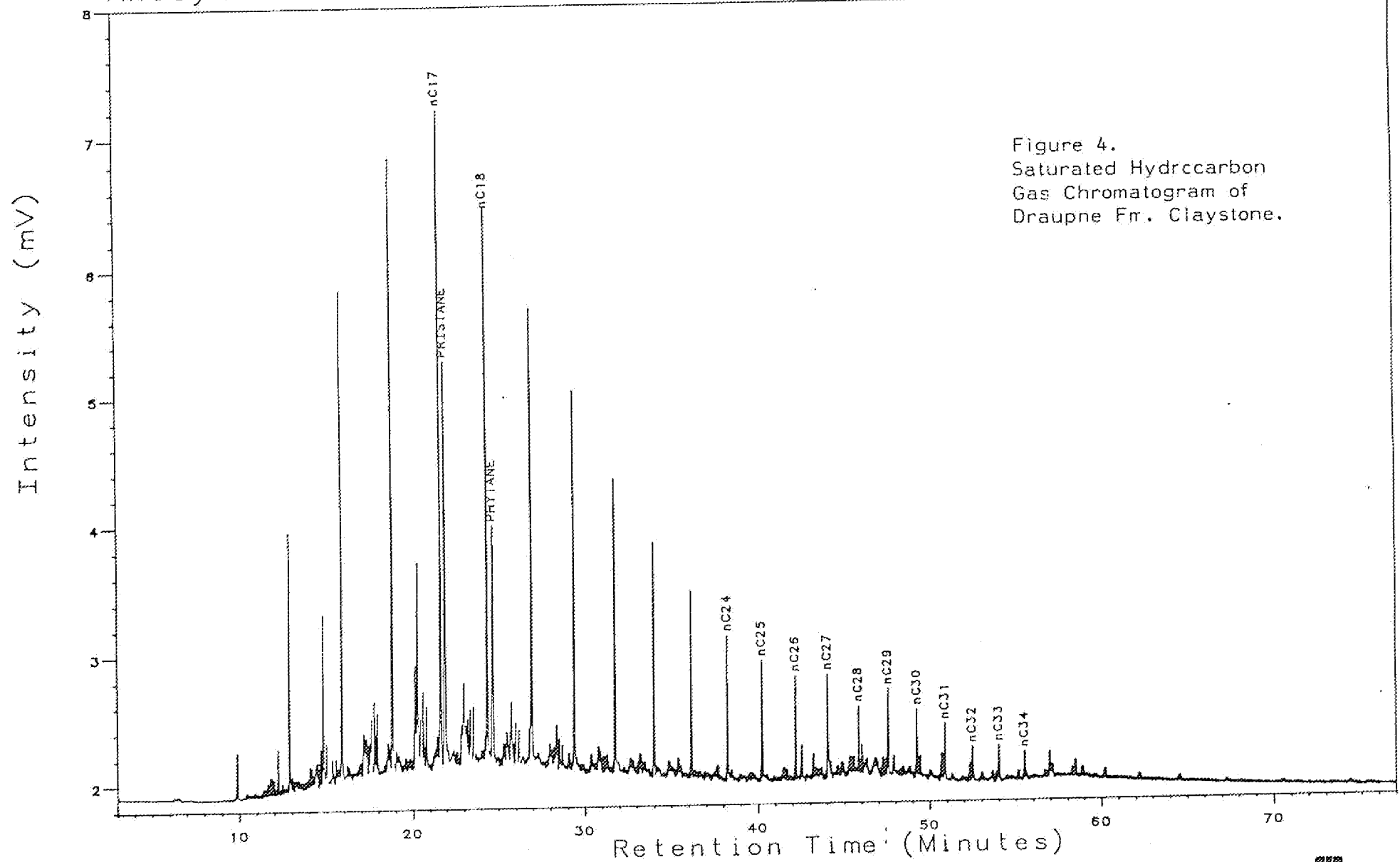
Figure 3. Tmax vs Depth
for well no. 33/9-6



Analysis SA1532992

4, 1, 1

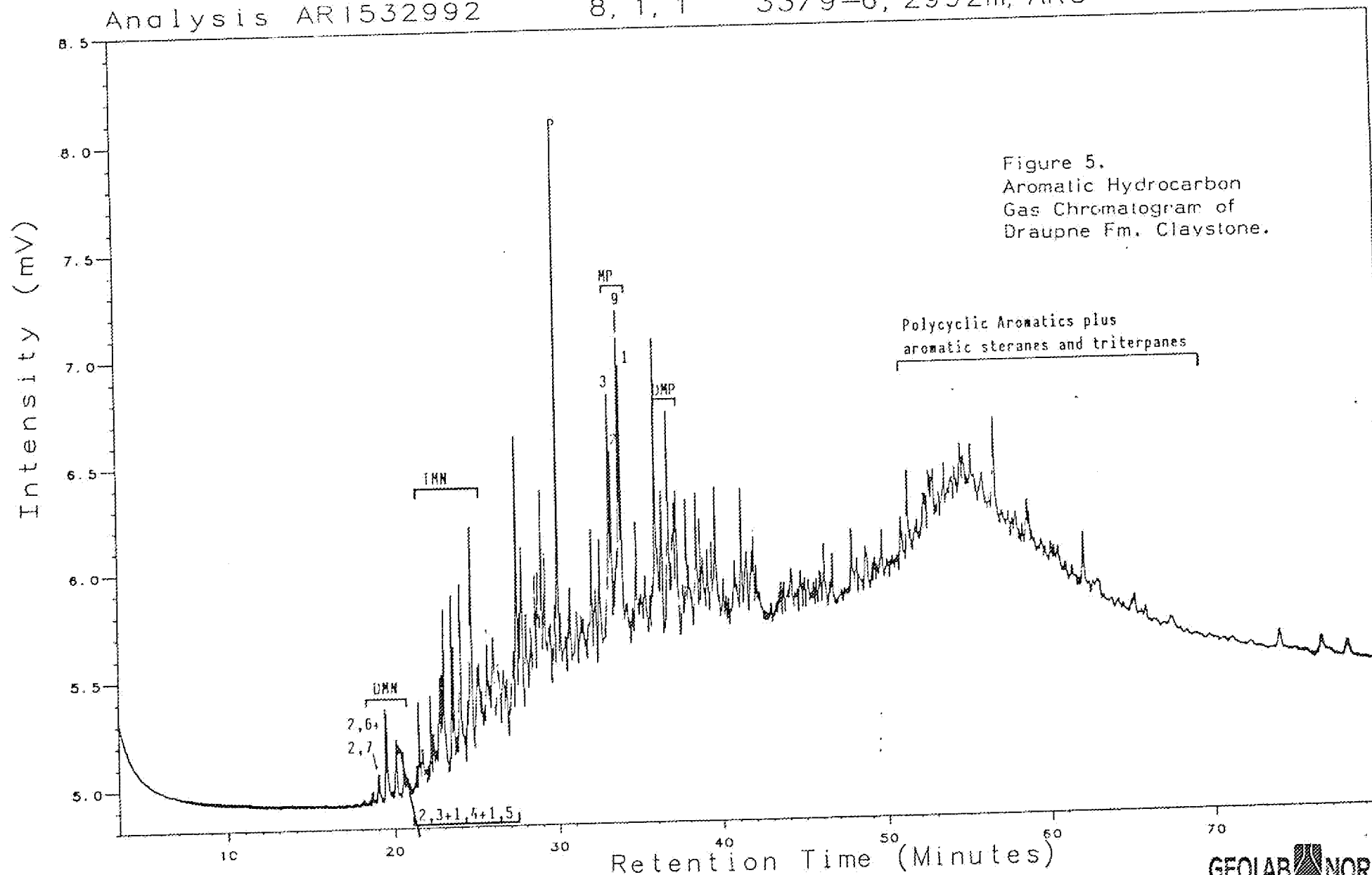
33/9-6, 2992m, SAT



Analysis AR1532992

8, 1, 1

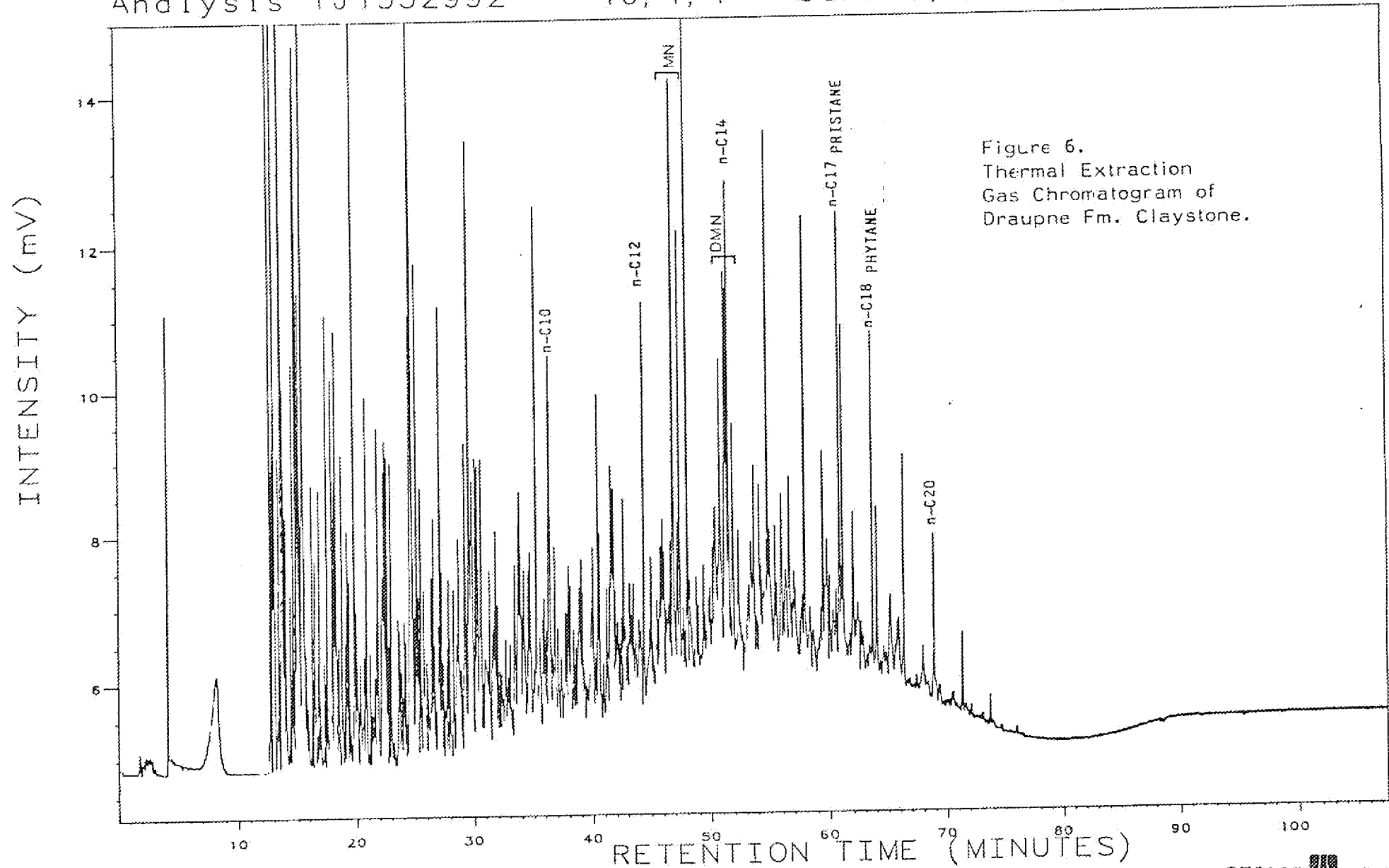
33/9-6, 2992m, ARO



Analysis TJ1532992

10, 1, 1

33/9-6, 2992m, S1

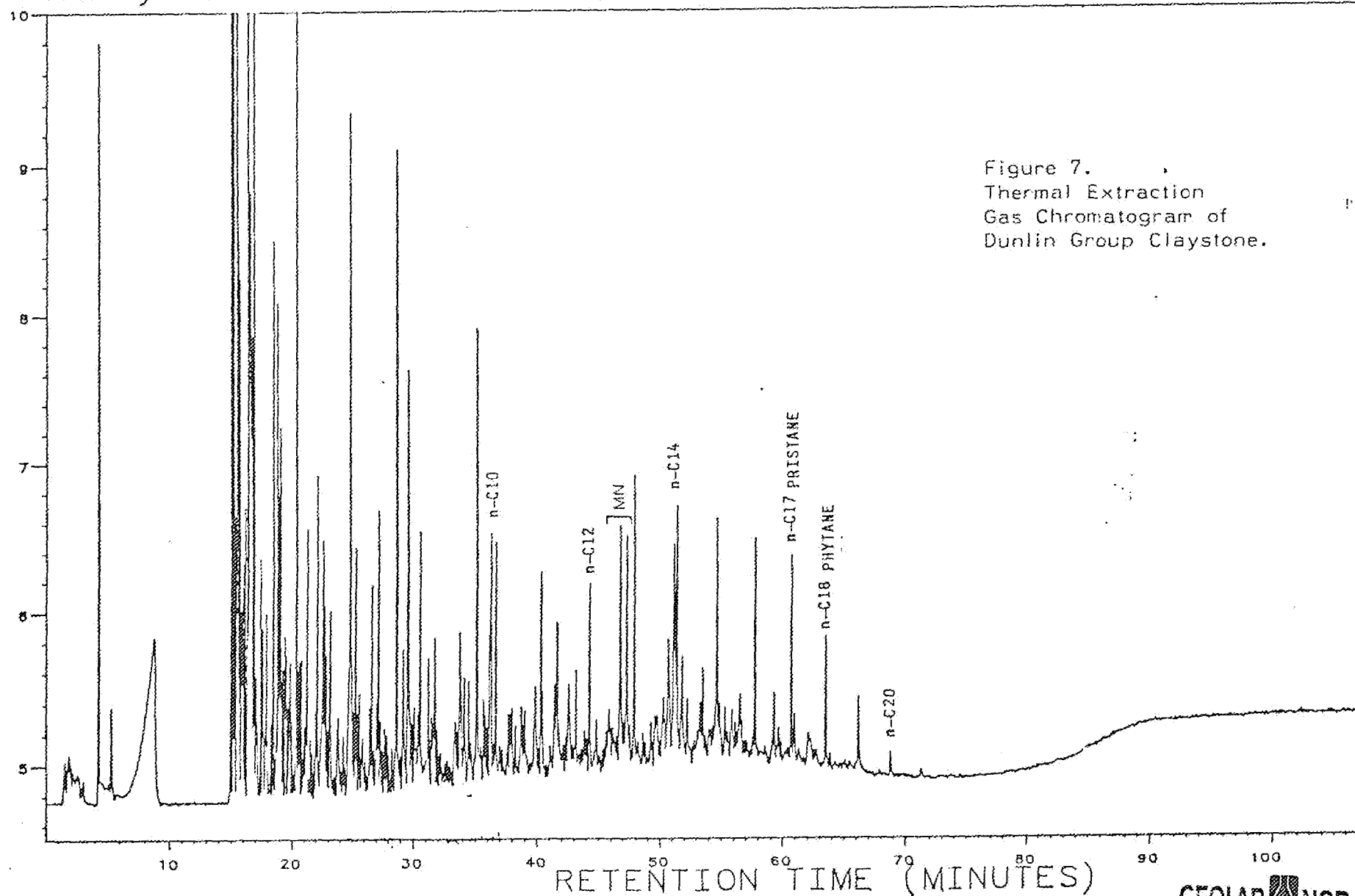


Analysis TJ1533292

10, 1, 1

33/9-2, 3292m, S1

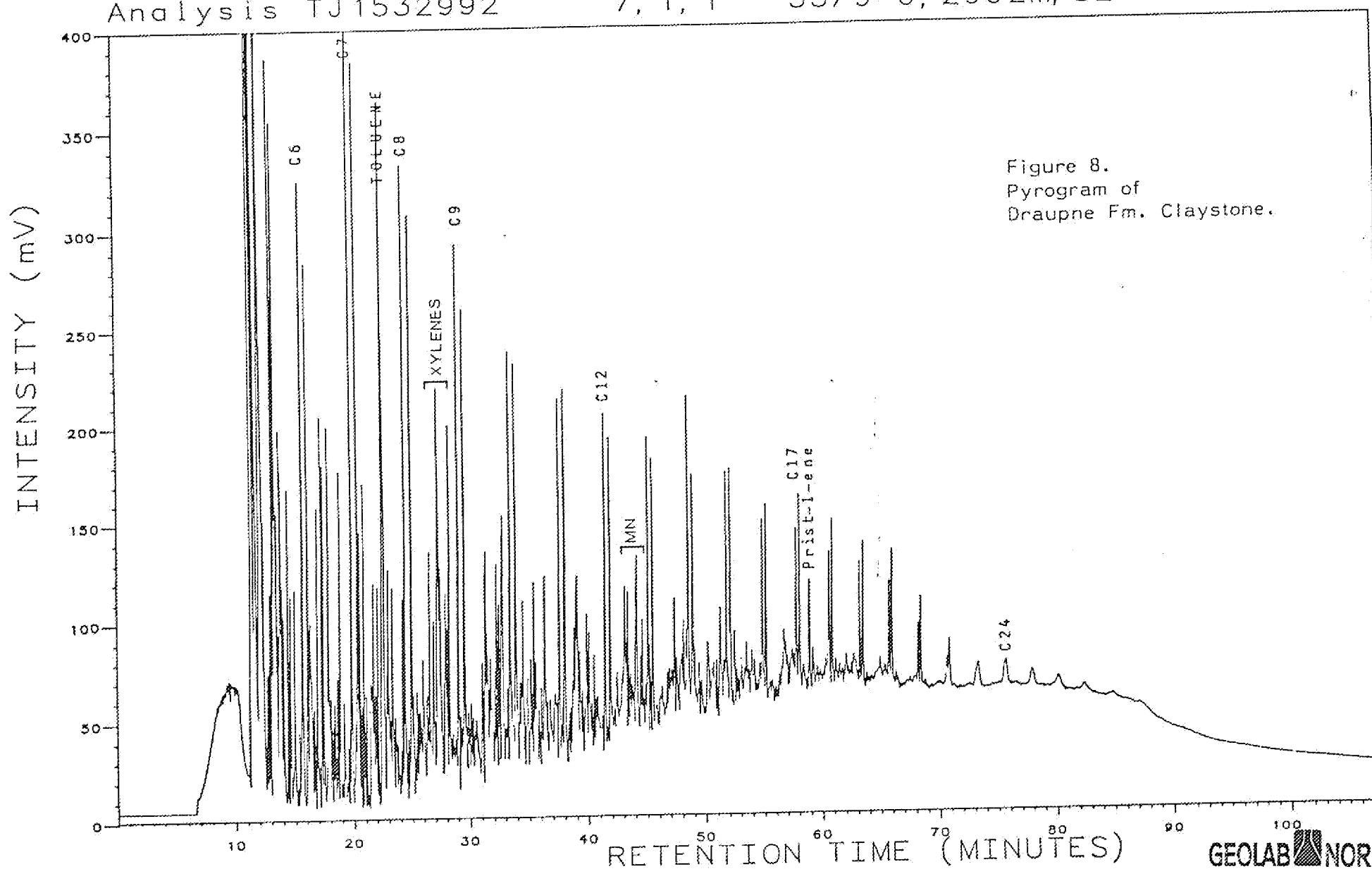
INTENSITY (mV)



Analysis TJ 1532992

7, 1, 1

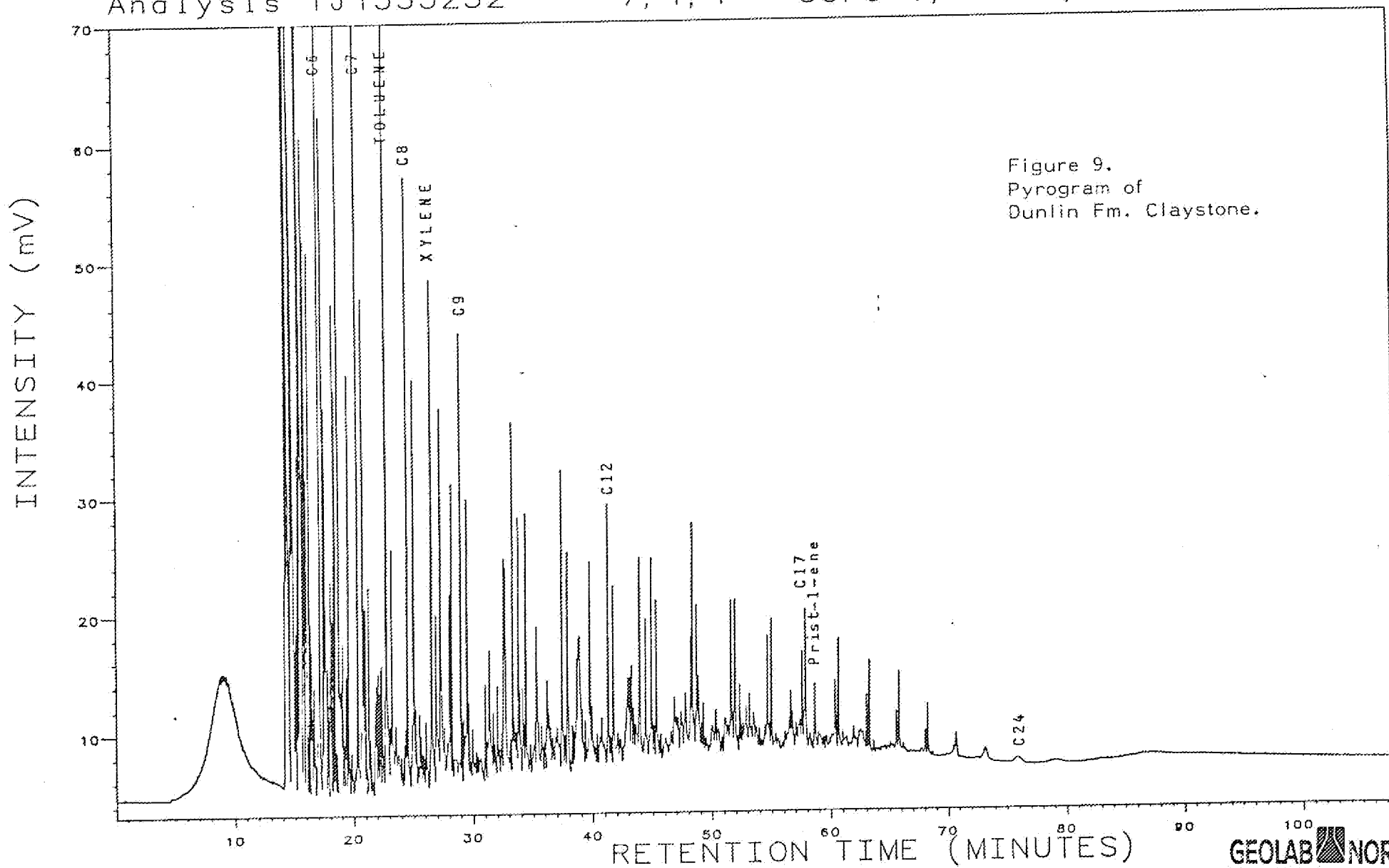
33/9-6, 2992m, S2



Analysis TJ1533232

7, 1, 1

33/9-6, 3232m, S2



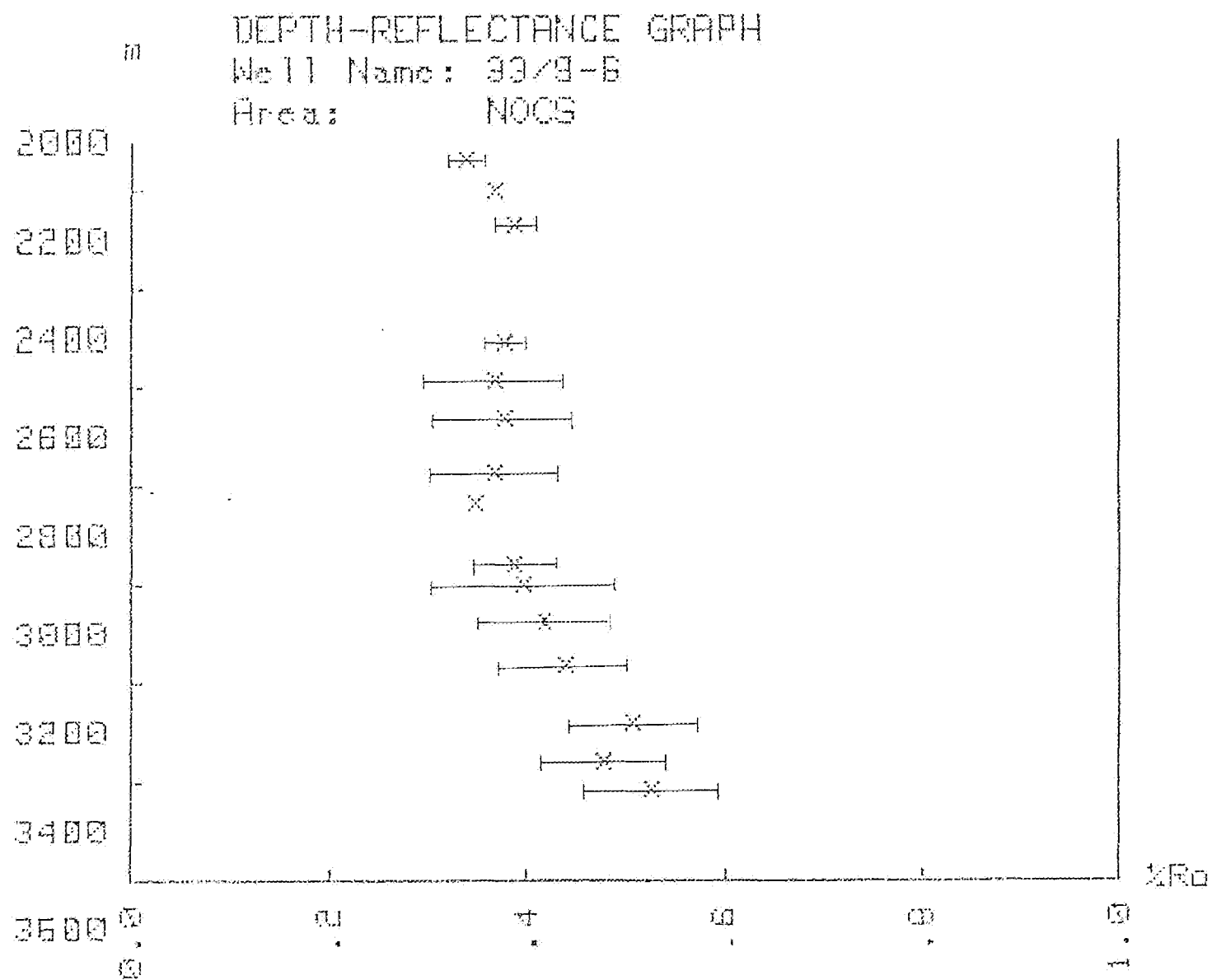


Figure 10. Depth/Reflectance Plot for NOCS Well 33/9-6

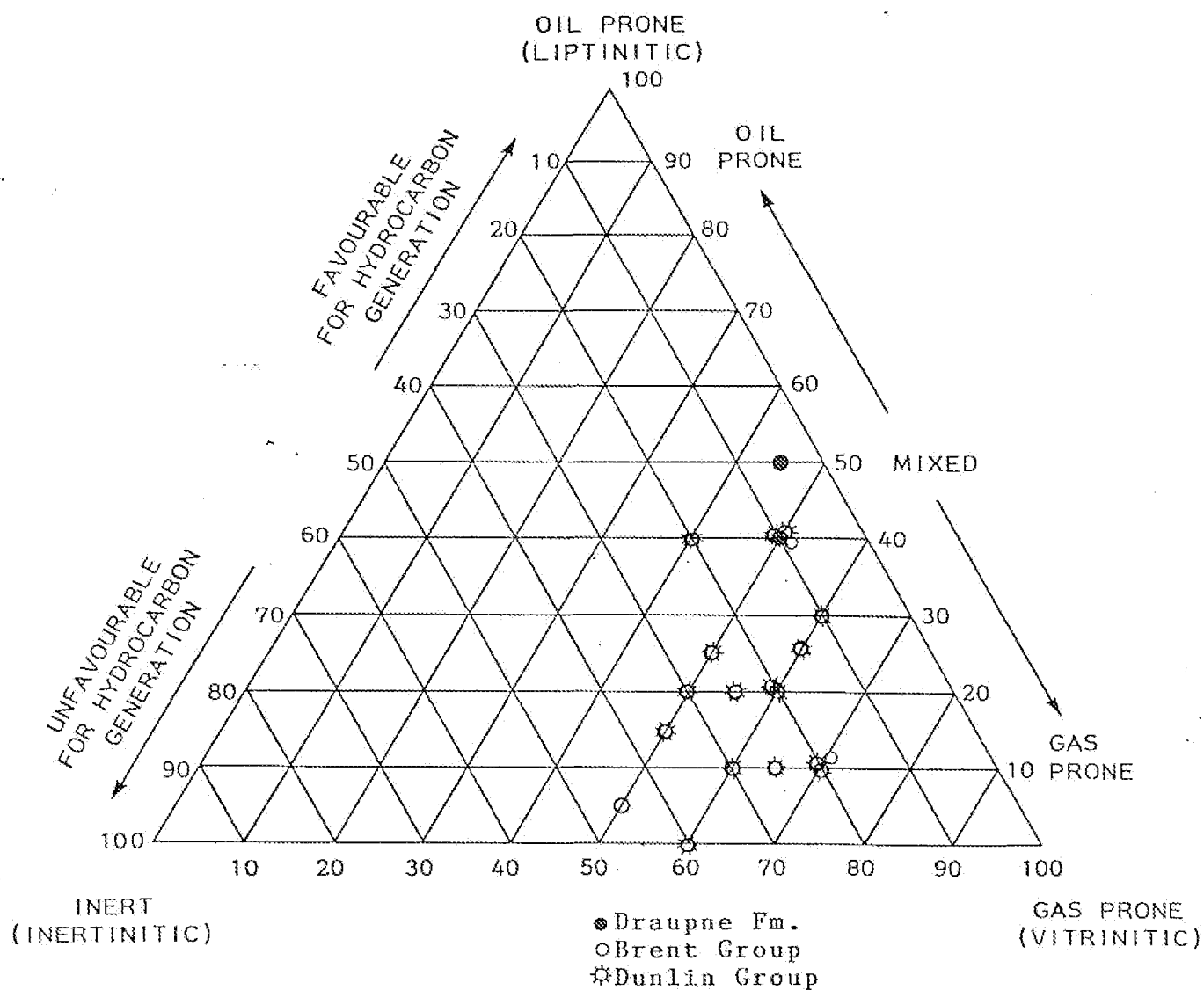


Figure 11. Visual kerogen composition diagram, NOCS 33/9-6

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2008.00		Sht1		U.Cr		001
		80	Sh/Clst:	gn gy, lt gy, lt ol gy, calc, glauc		001-1
		20	Ca	: w		001-2
		tr	Ca	: brn, dol		001-3
		tr	Other	: pyr, glauc		001-4
		tr	S/Sst	: l		001-5
2020.00		Sht1		U.Cr		002
		90	Sh/Clst:	gn gy, lt gy, lt ol gy, calc, pyr, glauc		002-1
		10	Ca	: w		002-2
		tr	Other	: pyr, glauc		002-3
		tr	Cont	: Coal-ad, prp		002-4
		tr	S/Sst	: l		002-5
2026.00		Sht1		U.Cr		003
		100	Sh/Clst:	gn gy, lt gy, lt ol gy, calc, pyr, glauc		003-1
		tr	Ca	: w		003-2
		tr	S/Sst	: l		003-3
2032.00		Sht1		U.Cr		004
		90	Sh/Clst:	gn gy, lt gy, lt ol gy, calc, pyr, glauc		004-1
		10	Cont	: Coal-ad, prp		004-2
		tr	Ca	: w		004-3
2038.00		Sht1		U.Cr		005
		90	Sh/Clst:	gn gy, lt gy, lt ol gy		005-1
		10	Ca	: w		005-2
		tr	Cont	: Coal-ad, prp		005-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2044.00			Sht1	U.Cr		006
			80 Sh/Clst:	gn gy, lt gy, lt ol gy		006-1
			20 Ca	: w, s		006-2
			tr Cont	: prp, dd		006-3
			tr Other	: ign		006-4
2050.00			Sht1	U.Cr		007
			80 Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		007-1
			20 Ca	: w, s		007-2
2056.00			Sht1	U.Cr		008
			60 Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		008-1
			40 Ca	: w, s		008-2
2062.00			Sht1	U.Cr		009
			70 Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		009-1
			30 Ca	: w, s		009-2
2068.00			Sht1	U.Cr		010
			80 Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		010-1
			20 Ca	: w, s		010-2
2074.00			Sht1	U.Cr		011
			90 Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		011-1
			10 Ca	: w, s		011-2
			tr Cont	: Coal-ad, prp		011-3
			tr Other	: pyr, glauc		011-4

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2080.00		Sht1		U.Cr		012
		90	Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		012-1
		10	Ca	: w, s		012-2
		tr	Cont	: Coal-ad, prp		012-3
		tr	Other	: pyr, glauc		012-4
2086.00		Sht1		U.Cr		013
		90	Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		013-1
		10	Ca	: w, s		013-2
		tr	Cont	: Coal-ad, prp		013-3
		tr	Other	: pyr, glauc		013-4
2092.00		Sht1		U.Cr		014
		90	Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		014-1
		10	Ca	: w, s		014-2
		tr	Cont	: Coal-ad, prp		014-3
		tr	Other	: pyr, glauc		014-4
2098.00		Sht1		U.Cr		015
		80	Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		015-1
		20	Ca	: w, s		015-2
2134.00		Sht1		U.Cr		016
		90	Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		016-1
		10	Ca	: w, s		016-2
2140.00		Sht1		U.Cr		017
		90	Sh/Clst:	gn gy, lt gy, lt ol gy, m drk gy		017-1
		10	Ca	: w, s		017-2

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2146.00		Sht1		U.Cr		018
		90	Sh/Clst: gn gy, lt gy, lt ol gy, m drk gy			018-1
		10	Ca : w, s			018-2
2152.00		Sht1		U.Cr		019
		90	Sh/Clst: gn gy, lt gy, lt ol gy, m drk gy			019-1
		10	Ca : w, s			019-2
2158.00		Sht1		U.Cr		020
		100	Sh/Clst: gn gy, lt gy, lt ol gy, m drk gy			020-1
2164.00		Sht1		U.Cr		021
		90	Sh/Clst: gn gy, lt gy, lt ol gy, m drk gy			021-1
		5	Ca : w, brn gy, dol			021-2
		5	S/Sst : w, glauc, f, rnd			021-3
		tr	Other : pyr			021-4
2170.00		Sht1		U.Cr		022
		70	Sh/Clst: gn gy, lt gy, lt ol gy, m drk gy			022-1
		30	S/Sst : f, l			022-2
		tr	Ca : w, brn gy, dol			022-3
		tr	Other : glauc			022-5
2176.00		Sht1		U.Cr		023
		100	Sh/Clst: brn gy, gn gy, red brn, ol gy to lt ol gy, calc			023-1
		tr	Ca : brn, dol, hd			023-2
		tr	S/Sst : l			023-3
		tr	Other : glauc			023-5

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2182.00		Sht1		U.Cr		024
		100	Sh/Clst:	brn gy, gn gy, red brn, ol gy to lt ol gy, drk gy, pl y brn		024-1
		tr Ca	:	brn, w, dol, hd		024-2
		tr S/Sst	:	l		024-3
		tr Other	:	glauc		024-5
2188.00		Sht1		U.Cr		025
		70	Sh/Clst:	brn gy, gn gy, red brn, ol gy to lt ol gy, drk gy, pl y brn		025-1
		30	Ca	:	brn, w, pl y brn, dol, hd	025-3
2194.00		Sht1		U.Cr		026
		70	Sh/Clst:	brn gy, gn gy, red brn, ol gy to lt ol gy, drk gy, pl y brn		026-1
		30	Ca	:	brn, w, pl y brn, dol, hd	026-3
2200.00		Sht1		U.Cr		027
		70	Sh/Clst:	brn gy, gn gy, red brn, ol gy to lt ol gy, drk gy, pl y brn		027-1
		30	Ca	:	brn, w, pl y brn, dol, hd	027-3
2206.00		Sht1		U.Cr		028
		80	Sh/Clst:	brn gy, gn gy, red brn, ol gy to lt ol gy, drk gy, pl y brn		028-1
		20	Ca	:	brn, w, pl y brn, dol, hd	028-3
2212.00		Sht1		U.Cr		029
		80	Sh/Clst:	brn gy, gn gy, red brn, ol gy to lt ol gy, drk gy, pl y brn		029-1
		20	Ca	:	brn, w, pl y brn, dol, hd	029-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2218.00		Sht1		U.Cr		030
		80 Sh/Clst:	brn gy, gn gy, red brn, ol gy to			030-1
			lt ol gy, drk gy, pl y brn			
		20 Ca	: brn, w, pl y brn, dol, hd			030-3
2224.00		Sht1		U.Cr		031
		90 Sh/Clst:	gn gy, ol gy, slt, s, mic, glauc			031-1
		10 Ca	: brn, dol, hd			031-3
2230.00		Sht1		U.Cr		032
		100 Sh/Clst:	gn gy, ol gy, lt gy, slt, s, mic,			032-1
			glauc			
		tr Ca	: brn, dol			032-2
		tr Other	: glauc			032-4
2236.00		Sht1		U.Cr		033
		90 Sh/Clst:	gn gy, ol gy, lt gy, slt, s, mic,			033-1
			glauc			
		10 Ca	: brn, dol			033-2
		tr S/Sst				033-4
		tr Other	: glauc			033-5
2242.00		Sht1		U.Cr		034
		50 Sh/Clst:	gn gy, ol gy, lt gy, slt, s, mic,			034-1
			glauc			
		30 S/Sst	: gn, w, glauc, f			034-2
		10 Ca	: w			034-4
		10 Ca	: brn, dol			034-5

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2248.00			Sht1	U.Cr		035
			90	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		035-1
			10	S/Sst : gn, w, glauc, f		035-3
			tr	Other : glauc		035-4
2254.00			Sht1	U.Cr		036
			90	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		036-1
			10	Ca : brn, dol, hd		036-3
2260.00			Sht1	U.Cr		037
			70	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		037-1
			30	Ca : brn, pl y brn, dol, hd		037-2
			tr	Other : pyr, glauc		037-4
2266.00			Sht1	U.Cr		038
			80	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		038-1
			10	Ca : brn, pl y brn, dol, hd		038-2
			10	S/Sst : slt, glauc, f, l		038-3
			tr	Other : pyr		038-5
2272.00			Sht1	U.Cr		039
			80	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		039-1
			20	Ca : brn, pl y brn, dol, hd		039-2
			tr	S/Sst		039-3
			tr	Other : pyr, glauc		039-5

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2278.00			Sht1	U.Cr		040
			80	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		040-1
			20	Ca : brn, pl y brn, dol, hd		040-3
2284.00			Sht1	U.Cr		041
			70	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		041-1
			30	Ca : brn, pl y brn, dol, hd		041-3
2290.00			Sht1	U.Cr		042
			70	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		042-1
			30	Ca : brn, pl y brn, dol, hd		042-3
2296.00			Sht1	U.Cr		043
			70	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		043-1
			30	Ca : brn, pl y brn, dol, hd		043-3
2302.00			Sht1	U.Cr		044
			60	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		044-1
			40	Ca : w		044-2
			tr S/Sst	: l		044-4
2308.00			Sht1	U.Cr		045
			60	Sh/Clst: gn gy, ol gy, m gy to m drk gy, mic		045-1
			40	S/Sst : w, calc, slt, mic, glauc, f		045-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2404.00			Sht1	U.Cr		046
			60 Sh/Clst:	ol gy, m gy, drk gy, m drk gy, slt		046-1
			40 Slstst :	w, lt gy, calc, s		046-3
2410.00			Sht1	U.Cr		047
			40 Slstst :	w, lt gy, calc, s		047-4
			30 Sh/Clst:	ol gy, m gy, drk gy, m drk gy, slt		047-1
			30 Ca :	brn, pl y brn, dol		047-3
2416.00			Sht1	U.Cr		048
			50 Slstst :	w, lt gy, calc, s		048-1
			40 Sh/Clst:	ol gy, m gy, drk gy, m drk gy, slt		048-3
			10 Ca :	brn, pl y brn, dol		048-4
2420.00			Sht1	U.Cr		049
			60 Slstst :	w, lt gy, calc, s		049-1
			40 Sh/Clst:	ol gy, m gy, drk gy, m drk gy, slt		049-2
			tr Ca :	brn, pl y brn, dol		049-4
			tr Coal			049-5
2428.00			Sht1	U.Cr		050
			50 Slstst :	w, lt gy, calc, s		050-1
			50 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		050-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2434.00		Sht1		U.Cr		051
		70	Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		051-1
		30	Sltst :	w, lt gy, calc, s		051-3
2440.00		Sht1		U.Cr		052
		80	Sltst :	w, lt gy, calc, s		052-1
		20	Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		052-3
2446.00		Sht1		U.Cr		053
		80	Sltst :	w, lt gy, calc, s		053-1
		20	Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		053-3
2452.00		Sht1		U.Cr		054
		90	Sltst :	w, lt gy, calc, s		054-1
		10	Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		054-3
2458.00		Sht1		U.Cr		055
		90	Sltst :	w, lt gy, calc, s		055-1
		10	Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		055-3
2464.00		Sht1		U.Cr		056
		80	Sltst :	w, lt gy, calc, s		056-1
		20	Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		056-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2470.00			Sht1	U.Cr		057
			70 Sltst	: w, lt gy, calc, s		057-1
			30 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		057-3
2476.00			Sht1	U.Cr		058
			60 Sltst	: w, lt gy, calc, s		058-1
			40 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		058-3
2482.00			Sht1	U.Cr		059
			50 Sltst	: w, lt gy, calc, s		059-1
			30 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		059-2
			20 Ca	: brn, pl y brn, dol		059-4
2488.00			Sht1	U.Cr		060
			70 Sltst	: w, lt gy, calc, s		060-1
			20 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		060-2
			10 Ca	: brn, pl y brn, dol		060-4
2494.00			Sht1	U.Cr		061
			70 Sltst	: w, lt gy, calc, s		061-1
			20 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		061-2
			10 Ca	: brn, pl y brn, dol		061-4
2500.00			Sht1	U.Cr		062
			80 Sltst	: w, lt gy, calc, s		062-1
			10 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		062-2
			10 Ca	: brn, pl y brn, dol		062-4

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2506.00			Sht1	U.Cr		063
			80	Sltst : w, lt gy, calc, s		063-1
			10	Sh/Clst: gy pi, ol gy, m gy, drk gy, m drk gy, slt		063-2
			10	Ca : brn, pl y brn, dol		063-4
2512.00			Sht1	U.Cr		064
			50	Sh/Clst: gy pi, ol gy, m gy, drk gy, m drk gy, slt		064-1
			40	Sltst : w, lt gy, calc, s		064-2
			10	Ca : brn, pl y brn, dol		064-4
2518.00			Sht1	U.Cr		065
			90	Sltst : w, lt gy, calc, s		065-1
			10	Sh/Clst: gy pi, ol gy, m gy, drk gy, m drk gy, slt		065-3
			tr	Other : glauc		065-4
2524.00			Sht1	U.Cr		066
			80	Sltst : w, lt gy, calc, s		066-1
			20	Sh/Clst: gy pi, ol gy, m gy, drk gy, m drk gy, slt		066-3
			tr	Other : glauc		066-4
2530.00			Sht1	U.Cr		067
			60	Sltst : w, lt gy, calc, s		067-1
			40	Sh/Clst: gy pi, ol gy, m gy, drk gy, m drk gy, slt		067-3
			tr	Ca : dol		067-4
			tr	Other : glauc		067-5

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2536.00			Sht1	U.Cr		068
			80 Sltst	: w, lt gy, calc, s		068-1
			20 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		068-2
			tr Other	: glauc		068-4
			tr Coal			068-5
2542.00			Sht1	U.Cr		069
			50 Sltst	: w, lt gy, calc, s		069-1
			50 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		069-3
			tr Other	: glauc		069-4
2548.00			Sht1	U.Cr		070
			60 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		070-1
			40 Sltst	: w, lt gy, calc, s		070-3
2554.00			Sht1	U.Cr		071
			70 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		071-1
			30 Sltst	: w, lt gy, calc, s		071-3
2566.00			Sht1	U.Cr		072
			50 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		072-1
			50 Sltst	: w, lt gy, calc, s		072-2
2578.00			Sht1	U.Cr		073
			100 Sh/Clst:	gy pi, ol gy, m gy, drk gy, m drk gy, slt		073-1

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2584.00			Sht1	U.Cr		074
			70	Sh/Clst: gy pi, ol gy, m gy, drk gy, m drk gy, slt		074-1
			30	Sltst : w, lt gy, calc, s		074-2
2590.00			Sht1	U.Cr		075
			80	Sh/Clst: gy pi, ol gy, m gy, drk gy, m drk gy, slt		075-1
			20	Sltst : w, lt gy, calc, s		075-2
2596.00			Sht1	U.Cr		076
			70	Ca : brn, w, pl y brn, dol		076-1
			30	Sh/Clst: gy pi, ol gy, m gy, drk gy, m drk gy, slt		076-2
2602.00			Sht1	U.Cr		077
			70	Sh/Clst: ol gy, m gy to drk gy, slt, mic		077-1
			20	Sltst : w, lt gy, calc, s		077-2
			10	Ca : pl y brn, dol		077-3
			tr	Other : glauc		077-4
2608.00			Sht1	U.Cr		078
			70	Sh/Clst: ol gy, m gy to drk gy, slt, mic		078-1
			20	Sltst : w, lt gy, calc, s		078-2
			10	Ca : pl y brn, dol		078-3
2614.00			Sht1	U.Cr		079
			70	Sh/Clst: ol gy, m gy to drk gy, slt, mic		079-1
			20	Ca : pl y brn, dol		079-2
			10	Sltst : w, lt gy, calc, s		079-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2620.00			Sht1	U.Cr		080
			80	Sh/Clst: ol gy, m gy to drk gy, slt, mic		080-1
			10	Ca : pl y brn, dol		080-2
			10	S/Sst		080-3
2626.00			Sht1	U.Cr		081
			80	Sh/Clst: m gy to drk gy, drk gn, slt, mic, glauc		081-1
			10	Ca : pl y brn, dol		081-2
			10	S/Sst		081-3
			tr	Coal		081-4
2632.00			Sht1	U.Cr		082
			80	Sh/Clst: m gy to drk gy, drk gn, slt, mic, glauc		082-1
			20	Ca : pl y brn, dol		082-2
			tr	S/Sst		082-3
2638.00			Sht1	U.Cr		083
			80	Sh/Clst: m gy to drk gy, drk gn, slt, mic, glauc		083-1
			20	Ca : pl y brn, dol		083-2
			tr	S/Sst		083-3
2644.00			Sht1	U.Cr		084
			60	Sh/Clst: m gy to drk gy, drk gn, slt, mic, glauc		084-1
			40	Ca : brn, w, pl y brn, dol		084-2
			tr	S/Sst		084-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2650.00		Shtl		U.Cr		085
		90	Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		085-1
		10	Ca	: brn, pl y brn, dol, hd		085-2
		tr	S/Sst			085-3
2656.00		Shtl		U.Cr		086
		80	Sltst	: w, lt gy, calc, pyr, s, glauc, f		086-1
		10	Ca	: brn, w, pl y brn, dol		086-2
		10	Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		086-3
		tr	Coal			086-4
		tr	Other	: glauc		086-5
2662.00		Shtl		U.Cr		087
		90	Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		087-1
		10	Ca	: brn, w, pl y brn, dol		087-2
2668.00		Shtl		U.Cr		088
		100	Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		088-1
		tr	Ca	: brn, w, pl y brn, dol		088-2
		tr	S/Sst			088-3
		tr	Other	: pyr		088-4
		tr	Cont	: prp		088-5
2674.00		Shtl		U.Cr		089
		100	Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		089-1
		tr	Ca	: brn, w, pl y brn, dol		089-2
		tr	S/Sst			089-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2680.00			Sht1	U.Cr		090
			60 Sltst	: w, lt gy, calc, pyr, s, glauc, f		090-1
			40 Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		090-2
2686.00			Sht1	U.Cr		091
			100 Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		091-1
			tr S/Sst			091-2
2692.00			Sht1	U.Cr		092
			70 Sltst	: w, lt gy, calc, pyr, s, glauc, f		092-1
			20 Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		092-2
			10 Ca	: brn, w, pl y brn, dol, hd		092-3
2698.00			Sht1	U.Cr		093
			100 Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		093-1
			tr S/Sst			093-2
			tr Ca	: brn, w, pl y brn, dol, hd		093-3
			tr Cont	: dd		093-4
2704.00			Sht1	U.Cr		094
			60 Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		094-1
			40 Sltst	: w, lt gy, calc, pyr, s, glauc, f		094-2
2710.00			Sht1	U.Cr		095
			100 Sh/Clst:	m gy to drk gy, drk gn, slt, mic, glauc		095-1
			tr S/Sst			095-2
			tr Cont	: fib		095-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2716.00			Sht1	U.Cr		096
			60	Sh/Clst: m gy to drk gy, drk gn, slt, mic, glauc		096-1
			40	Sltst : w, lt gy, calc, pyr, s, glauc, f		096-2
			tr	Cont : prp		096-3
			tr	Other : glauc		096-4
2722.00			Sht1	U.Cr		097
			90	Sh/Clst: m gy to drk gy, drk gn, slt, mic, glauc		097-1
			5	Ca : brn, dol, hd		097-2
			5	Sltst : w, lt gy, calc, pyr, s, glauc, f		097-3
2728.00			Sht1	U.Cr		098
			90	Sh/Clst: m gy to drk gy, carb, slt, s		098-1
			10	Sltst : w, lt gy, calc, pyr, s, glauc, f		098-2
			tr	Ca : brn, dol, hd		098-3
2734.00			Sht1	U.Cr		099
			50	Sh/Clst: m gy to drk gy, carb, slt, s		099-1
			30	Ca : w, lt brn gy, pl y brn, dol		099-2
			20	Sltst : w, lt gy, calc, pyr, s, glauc, f		099-3
			tr	Cont : prp		099-4
2740.00			Sht1	U.Cr		100
			70	Sh/Clst: m gy to drk gy, carb, slt, s		100-1
			30	Ca : w, lt brn gy, pl y brn, dol		100-2
			tr	Sltst : w, lt gy, calc, pyr, s, glauc, f		100-3
			tr	Cont : prp		100-4

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2776.00		Sht1		U.Cr		101
		50	Sh/Clst:	m gy to drk gy, carb, slt, s		101-1
		30	Ca	: w, lt brn gy, pl y brn, dol		101-2
		20	Sltst	: w, lt gy, calc, pyr, s, glauc, f		101-3
		tr	Cont	: prp		101-4
2782.00		Sht1		U.Cr		102
		70	Sh/Clst:	m gy to drk gy, carb, slt, s		102-1
		30	Ca	: w, lt brn gy, pl y brn, dol		102-2
		tr	Ca	: w		102-3
		tr	Cont	: prp		102-4
2788.00		Sht1		U.Cr		103
		50	Ca	: w, cly		103-1
		30	Ca	: w, lt brn gy, pl y brn, dol		103-2
		20	Sh/Clst:	m gy to drk gy, carb, slt, s		103-3
		tr	Cont	: prp, dd		103-4
2794.00		Sht1		U.Cr		104
		60	Ca	: w, cly		104-1
		20	Ca	: w, lt brn gy, pl y brn, dol		104-2
		20	Sh/Clst:	m gy to drk gy, carb, slt, s		104-3
2800.00		Sht1		U.Cr		105
		40	Ca	: w, cly		105-1
		30	Ca	: w, lt brn gy, pl y brn, dol		105-2
		30	Sh/Clst:	m gy to drk gy, carb, slt, s		105-3
2806.00		Sht1		U.Cr		106
		30	Sh/Clst:	m gy to drk gy, carb, slt, s		106-1
		30	Ca	: w, cly		106-2
		30	S/Sst	: w, lt gy, calc, pyr, s, glauc, f		106-3
		10	Ca	: w, lt brn gy, pl y brn, dol		106-4

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2812.00		Sht1		U.Cr		107
		90	Sh/Clst:	ol gy, m gy to m drk gy, carb, slt, s, mic		107-1
		10	Ca	: w, lt brn gy, pl y brn, dol		107-2
			tr S/Sst			107-3
2818.00		Sht1		U.Cr		108
		100	Sh/Clst:	ol gy, m gy to m drk gy, carb, slt, s, mic		108-1
			tr S/Sst			108-2
			tr Ca	: w, lt brn gy, pl y brn, dol		108-3
			tr Coal			108-4
2824.00		Sht1		U.Cr		109
		100	Sh/Clst:	ol gy, m gy to m drk gy, carb, slt, s, mic		109-1
			tr S/Sst			109-2
			tr Ca	: w, lt brn gy, pl y brn, dol		109-3
2830.00		Sht1		U.Cr		110
		100	Sh/Clst:	ol gy, m gy to m drk gy, carb, slt, s, mic		110-1
			tr S/Sst			110-2
			tr Cont	: prp, dd		110-3
2836.00		Sht1		U.Cr		111
		80	Sh/Clst:	m gy to drk gy, carb, slt, s		111-1
		20	Sltst	: w, lt gy, calc, pyr, s, glauc, f		111-2

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2842.00			Shtl	U.Cr		112
			80	Sh/Clst: m gy to drk gy, carb, slt, s		112-1
			20	Sltst : w, lt gy, calc, pyr, s, glauc, f		112-2
2848.00			Shtl	U.Cr		113
			80	Sh/Clst: m gy to drk gy, carb, slt, s		113-1
			20	Ca : w, lt brn gy, pl y brn, dol		113-2
2854.00			Shtl	U.Cr		114
			100	Sh/Clst: m gy to drk gy, carb, slt, s		114-1
			tr Ca	: w, lt brn gy, pl y brn, dol		114-2
			tr S/Sst			114-3
2860.00			Shtl	U.Cr		115
			100	Sh/Clst: m gy to drk gy, carb, slt, s		115-1
			tr Ca			115-2
2866.00			Shtl	U.Cr		116
	0.46		90	Sh/Clst: m gy to drk gy, carb, slt, s		116-1
			10	Ca : w, pl y brn		116-2
			tr S/Sst			116-3
2872.00			Shtl	U.Cr		117
			60	Sh/Clst: m gy to drk gy, carb, slt, s		117-1
			40	Ca : w, pl y brn		117-2
2878.00			Crkn	L.Cr		118
	0.63		70	Sh/Clst: m gy to drk gy, carb, slt, s		118-1
			30	Ca : w, pl y brn		118-2

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2884.00		Crkn		L.Cr		119
		70	Sh/Clst:	m gy to drk gy, carb, slt, s		119-1
		30	Ca	: w, pl y brn, dol		119-2
		tr	S/Sst			119-3
2890.00		Crkn		L.Cr		120
	0.64	100	Sh/Clst:	brn gy, m gy, drk gy, m drk gy, slt, glauc		120-1
2896.00		Crkn		L.Cr		121
		90	Sh/Clst:	brn gy, m gy, drk gy, m drk gy, slt, glauc		121-1
		10	Sh/Clst:	brn gy, red brn		121-2
		tr	Ca	: dol		121-3
2902.00		Crkn		L.Cr		122
	0.74	90	Sh/Clst:	brn gy, m gy, drk gy, m drk gy, slt, glauc		122-1
		10	Sh/Clst:	brn gy, red brn		122-2
2908.00		Crkn		L.Cr		123
		40	Ca	: w, red brn		123-1
		30	Sh/Clst:	red brn		123-2
		30	Sh/Clst:	m gy to m drk gy		123-3
2914.00		Crkn		L.Cr		124
	0.79	60	Sh/Clst:	m gy to m drk gy		124-1
		40	Sh/Clst:	brn gy, red brn		124-2
		tr	Ca	: dol		124-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
2920.00		Crkn		L.Cr		125
		50	Sh/Clst:	m gy to m drk gy		125-1
		40	Sh/Clst:	brn gy, red brn		125-2
		10	Ca	: w, red brn		125-3
2926.00		Crkn		L.Cr		126
	0.10	60	Sh/Clst:	red brn, calc		126-1
		20	Sh/Clst:	blk, drk gy, mic		126-2
		20	Sh/Clst:	m gy		126-3
2932.00		Crkn		L.Cr		127
	0.10	40	Ca	: w		127-1
		30	Sh/Clst:	m gy		127-2
		20	Sh/Clst:	red brn		127-3
		10	Sh/Clst:	drk gy		127-4
2938.00		Crkn		L.Cr		128
		50	Sh/Clst:	ol gy, m gy, m drk gy		128-1
		30	Ca	: w		128-2
		10	Sh/Clst:	brn blk, drk gy, pl y brn		128-3
		10	Sh/Clst:	red brn		128-4
2944.00		Crkn		L.Cr		129
		60	Sh/Clst:	ol gy, m gy, m drk gy		129-1
		20	Ca	: w, s		129-2
	0.57	10	Sh/Clst:	pl y brn, mic		129-3
		10	Sh/Clst:	red brn		129-4
		tr	Cont	: Coal-ad		129-5

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2950.00			Viki	U.Ju		130
		1.00	50	Sh/Clst: ol gy, m gy, m drk gy		130-1
	cvd		30	Ca : w, s		130-2
	cvd		20	Sh/Clst: red brn		130-3
2956.00			Viki	U.Ju		131
		1.09	60	Sh/Clst: ol gy, m gy, m drk gy		131-1
	cvd		20	Ca : w, s		131-2
	cvd		20	Sh/Clst: red brn		131-3
			tr	Sh/Clst: pl y brn		131-4
2962.00			Viki	U.Ju		132
		0.73	40	Sh/Clst: m gy to m drk gy		132-1
	cvd		20	Sh/Clst: red brn		132-2
			20	Sltst : w, lt gy, calc, carb, s		132-4
	cvd		10	Ca : w, s		132-3
			10	Sh/Clst: drk gy, pl y brn, mic		132-5
2968.00			Viki	U.Ju		133
		1.35	70	Sh/Clst: ol gy, lt gy, lt ol gy, m gy, m drk gy		133-1
	cvd		10	Sh/Clst: red brn		133-2
			10	Sh/Clst: drk gy, mic		133-3
			10	S/Sst : w, calc, f, cem		133-4
2974.00			Viki	U.Ju		134
		0.67	80	Sh/Clst: ol gy, m gy, m drk gy		134-1
	cvd		20	Sh/Clst: red brn		134-2
			tr	Sh/Clst: drk gy		134-3
	cvd		tr	Ca : w, s		134-4
			tr	S/Sst : w, calc, f, cem		134-5
			tr	Cont : evap		134-6

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
2980.00			Viki	U.Ju		135
	cvd	0.74	90	Sh/Clst: ol gy, m gy, m drk gy		135-1
			10	Sh/Clst: red brn		135-2
			tr	Sh/Clst: drk gy, pl y brn		135-3
2986.00			Viki	U.Ju		136
		0.54	90	Sh/Clst: ol gy, m gy, m drk gy		136-1
			10	Sh/Clst: red brn		136-2
2992.00			Viki	U.Ju		137
		5.25	90	Sh/Clst: v col, red brn to lt gy		137-1
			10	Sh/Clst: drk gy, pl y brn		137-2
			tr	S/Sst		137-3
			tr	Ca		137-4
			tr	Ca : dol		137-5
			tr	Other : pyr		137-6
2998.00			Bren	M.Ju		138
	cvd		30	S/Sst : w, f, l		138-1
	cvd		30	Ca : w, drk brn gy, pl y brn, dol		138-2
	cvd		30	Sh/Clst: red brn, ol gy, m gy, m drk gy		138-3
	cvd		10	Sh/Clst: drk gy, drk brn gy		138-4
3004.00			Bren	M.Ju		139
	cvd		80	Sh/Clst: gn gy, red brn, ol gy, lt gn gy, m gy, m drk gy		139-1
	cvd		10	Sh/Clst: blk to drk gy, drk brn gy		139-2
			10	S/Sst : w, f, l		139-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3010.00			Bren	M.Ju		140
	cvd		90	Sh/Clst: gn gy, red brn, ol gy, lt gn gy, m gy, m drk gy		140-1
	cvd		10	Sh/Clst: blk to drk gy		140-2
			tr S/Sst	: w, f, l		140-3
3016.00			Bren	M.Ju		141
	cvd		70	Sh/Clst: gn gy, red brn, ol gy, lt gn gy, m gy, m drk gy		141-1
			20	Cont : dd		141-3
	0.75		10	Sh/Clst: brn gy, wx		141-2
			tr S/Sst	: w, f, l		141-4
			tr Other	: pyr		141-5
3022.00			Bren	M.Ju		142
	cvd		80	Sh/Clst: gn gy, red brn, ol gy, lt gn gy, m gy, m drk gy		142-1
			10	Sh/Clst: blk to drk gy		142-2
			10	S/Sst : slt, f		142-3
3028.00			Bren	M.Ju		143
	cvd		100	Sh/Clst: gn gy, red brn, ol gy, lt gn gy, m gy, m drk gy		143-1
			tr S/Sst	: slt, f		143-2
			tr Cont	: prp, dd		143-3
3034.00			Bren	M.Ju		144
	0.17		80	S/Sst : w, crs, st, l		144-1
	1.99		20	Sh/Clst: red brn, m gy to drk gy		144-2

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3040.00			Bren	M.Ju		145
			80	S/Sst : w, crs, st, l		145-1
			10	Kaolin		145-2
			10	Sh/Clst: red brn, m gy to drk gy		145-3
3046.00			Bren	M.Ju		146
	0.08		90	S/Sst : w, crs, st, l		146-1
			10	Sh/Clst: red brn, m gy to drk gy		146-2
			tr	Kaolin		146-3
3052.00			Bren	M.Ju		147
			90	S/Sst : w, crs, st, l		147-1
			10	Sh/Clst: red brn, m gy to drk gy		147-2
			tr	Kaolin		147-3
3058.00			Bren	M.Ju		148
	0.07		60	S/Sst : w, crs, st, l		148-1
			20	Sh/Clst: red brn, m gy to drk gy		148-3
			10	Kaolin		148-2
			10	Coal		148-4
3064.00			Bren	M.Ju		149
			60	Coal		149-1
			20	S/Sst : w, crs, st, l		149-2
			20	Sh/Clst: red brn, m gy to drk gy		149-3
3070.00			Bren	M.Ju		150
	0.08		50	S/Sst : w, crs, st, l		150-1
	1.20		30	Sh/Clst: red brn, m gy to drk gy		150-2
			20	Kaolin		150-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3076.00			Bren	M.Ju		151
			70	S/Sst : w, crs, st, l		151-1
			20	Sh/Clst: red brn, m gy to drk gy		151-2
			10	Coal		151-3
3082.00			Bren	M.Ju		152
	1.45		40	S/Sst : w, crs, st, l		152-1
			20	Sh/Clst: red brn, m gy to drk gy		152-2
			20	Coal		152-3
			20	Kaolin		152-4
3088.00			Bren	M.Ju		153
			60	S/Sst : w, crs, st, l		153-1
			30	Kaolin		153-2
			10	Sh/Clst: red brn, m gy to drk gy		153-3
			tr	Coal		153-4
			tr	Cont : dd		153-5
3094.00			Bren	M.Ju		154
	0.15		50	S/Sst : w, crs, st, l		154-1
			40	Kaolin		154-2
			10	Sh/Clst: red brn, m gy to drk gy		154-3
3100.00			Bren	M.Ju		155
			50	S/Sst : w, crs, st, l		155-1
			40	Kaolin		155-2
			10	Sh/Clst: red brn, m gy to drk gy		155-3
3106.00			Bren	M.Ju		156
			30	Cont : dd		156-5
			20	Ca : w, y gy, s		156-1
			20	Kaolin : s		156-2
			20	S/Sst : w, mic, f, crs		156-3
			10	Sh/Clst: red brn, m gy to drk gy		156-4

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
3112.00		Bren		M.Ju		157
	0.35	40 Ca	: w, y gy, s			157-1
		30 Cont	: dd			157-4
		20 S/Sst	: w, mic, f, crs			157-2
		10 Sh/Clst:	red brn, m gy to drk gy			157-3
		tr Coal				157-5
		tr Other	: pyr			157-6
3118.00		Bren		M.Ju		158
		40 Sh/Clst:	drk gn gy, mic, glauc			158-2
		30 S/Sst	: w, calc, slt, mic, f, crs, l, kln			158-1
		10 Sh/Clst:	drk brn gy, mic			158-3
		10 Kaolin				158-4
		10 Cont	: dd			158-7
		tr Ca	: w, y gy, s			158-5
		tr Sh/Clst:	red brn			158-6
3124.00		Bren		M.Ju		159
		80 S/Sst	: w, calc, slt, mic, f, crs, l, kln			159-1
	3.12	20 Sh/Clst:	m gy, drk gy, drk brn gy, drk gn			159-2
		tr Cont	: dd			159-3
3130.00		Bren		M.Ju		160
		90 S/Sst	: w, calc, slt, mic, f, crs, l, kln			160-1
		10 Sh/Clst:	m gy, drk gy, drk brn gy, drk gn			160-2
		tr Cont	: dd			160-3
3136.00		Bren		M.Ju		161
		80 S/Sst	: w, calc, slt, mic, f, crs, l, kln			161-1
	1.49	20 Sh/Clst:	m gy, drk gy, drk brn gy, drk gn			161-2
		tr Coal				161-3
		tr Cont	: dd			161-4

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3142.00			Dunl	L.Ju		162
			70	S/Sst : w, calc, slt, mic, f, crs, l, kln		162-1
			30	Sh/Clst: v col		162-2
			tr	Coal		162-3
			tr	Other : pyr		162-4
			tr	Cont : dd		162-5
3148.00			Dunl	L.Ju		163
			40	Cont : dd		163-4
	0.01		20	Slst : brn gy, drk brn gy, cly, mic		163-1
	0.55		20	Sh/Clst: v col		163-2
			20	S/Sst : w, calc, slt, mic, f, crs, l, kln		163-3
3154.00			Dunl	L.Ju		164
			80	S/Sst : w, crs, l		164-1
	1.52		20	Sh/Clst: v col		164-2
			tr	Other : pyr		164-3
3160.00			Dunl	L.Ju		165
			70	S/Sst : w, crs, l		165-1
	0.81		30	Sh/Clst: v col		165-2
			tr	Other : pyr		165-3
			tr	Cont : dd		165-4
3166.00			Dunl	L.Ju		166
			50	Cont : dd		166-3
	0.66		30	Sh/Clst: v col		166-1
	0.48		20	S/Sst : w, crs, l		166-2

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
3172.00			Dunl	L.Ju		167
		40	S/Sst	: w, crs, l		167-1
		40	Cont	: dd		167-4
	3.44	10	Sh/Clst:	brn gy to drk brn gy, slt, mic		167-2
		10	Sh/Clst:	v col		167-3
3178.00			Dunl	L.Ju		168
	0.87	50	Sh/Clst:	v col		168-1
	3.15	30	Sh/Clst:	drk gy to drk brn gy, slt, mic		168-2
		20	S/Sst	: w, crs, l		168-3
3184.00			Dunl	L.Ju		169
	0.69	80	Sh/Clst:	v col		169-1
		20	S/Sst	: w, crs, l		169-2
		tr	Cont	: dd		169-3
3190.00			Dunl	L.Ju		170
		60	Cont	: dd, evap		170-3
	0.66	20	Sh/Clst:	v col		170-1
	1.14	20	Sh/Clst:	brn blk, drk brn gy, slt, mic		170-2
3196.00			Dunl	L.Ju		171
		50	Cont	: dd		171-3
	0.69	40	Sh/Clst:	ol gy, m gy		171-1
	1.51	10	Sh/Clst:	brn blk, drk brn gy, slt, mic		171-2
		tr	Sh/Clst:	red brn		171-4
3202.00			Dunl	L.Ju		172
		60	Cont	: dd		172-3
	0.67	20	Sh/Clst:	ol gy, m gy		172-1
	1.55	20	Sh/Clst:	brn blk, drk brn gy, slt, mic		172-2

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3208.00			Dunl	L.Ju		173
		0.69	50	Cont : dd, evap		173-4
		1.37	30	Sh/Clst: ol gy, m gy		173-1
		0.64	10	Sh/Clst: brn blk, drk brn gy, slt, mic		173-2
			10	Ca : w, y gy		173-3
3214.00			Dunl	L.Ju		174
		1.24	50	Sh/Clst: brn gy, brn blk, drk brn gy, calc, slt, s, mic		174-1
			40	Cont : dd, evap		174-3
		0.60	10	S/Sst : w, calc, mic, f, cem		174-2
3220.00			Dunl	L.Ju		175
		1.10	40	Cont : dd, evap		175-4
			30	Sh/Clst: brn gy, brn blk, drk brn gy, calc, slt, s, mic		175-1
		0.44	20	S/Sst : w, calc, mic, f, cem		175-2
			10	Sh/Clst: red brn, ol gy, m gy		175-3
3226.00			Dunl	L.Ju		176
		1.10	40	Sh/Clst: brn gy, brn blk, drk brn gy, calc, slt, s, mic		176-1
		0.52	30	S/Sst : w, calc, mic, f, cem		176-2
			30	Cont : dd, evap		176-3
3232.00			Dunl	L.Ju		177
		0.70	40	Sltst : w, brn gy, calc, s, mic, f		177-1
			40	Cont : dd, evap		177-3
		1.06	20	Sh/Clst: drk gy, drk brn gy, mic		177-2
			tr	Coal		177-4

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3238.00			Dunl	L.Ju		178
	1.18		50 Cont	: dd, evap		178-3
			40 Sh/Clst:	drk gy, drk brn gy, slt, s, mic		178-1
			10 Sltst	: w, brn gy, calc, s, mic, f		178-2
3244.00			Dunl	L.Ju		179
	1.15		60 Cont	: dd		179-3
			30 Sh/Clst:	drk gy, drk brn gy, slt, s, mic		179-1
			10 Sltst	: w, brn gy, calc, s, mic		179-2
3250.00			Dunl	L.Ju		180
	1.44		60 Cont	: dd		180-3
			20 Sh/Clst:	drk gy, drk brn gy, slt, s, mic		180-1
	0.43		20 Sltst	: w, brn gy, calc, s, mic		180-2
			tr Coal			180-4
3256.00			Dunl	L.Ju		181
	1.85		50 Sh/Clst:	drk gy, drk brn gy, slt, s, mic		181-1
	0.63		20 Sltst	: w, brn gy, calc, s, mic		181-3
			20 Cont	: dd		181-4
			10 Sh/Clst:	red brn, m gy		181-2
3262.00			Dunl	L.Ju		182
	1.27		60 Sh/Clst:	drk gy, drk brn gy, slt, s, mic		182-1
			30 Cont	: dd, evap		182-3
			10 Sh/Clst:	red brn, drk brn		182-2
3268.00			Dunl	L.Ju		183
	1.49		80 Sh/Clst:	brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		183-1
			20 Cont	: dd		183-2

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3274.00			Dunl	L.Ju		184
	1.63	80	Sh/Clst:	brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		184-1
		10	Sh/Clst:	gn gy, red brn, m gy		184-2
		10	Cont	: dd		184-3
3280.00			Dunl	L.Ju		185
	1.39	60	Sh/Clst:	brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		185-1
		20	Cont	: dd		185-4
		10	S/Sst	: w, f, l		185-2
		10	Sh/Clst:	gn gy, red brn, m gy		185-3
3286.00			Dunl	L.Ju		186
	1.46	70	Sh/Clst:	brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		186-1
	0.33	20	S/Sst	: w, f, l		186-2
		10	Cont	: dd		186-3
3292.00			Dunl	L.Ju		187
	1.59	30	Sh/Clst:	brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		187-1
	0.45	30	S/Sst	: w, f, l		187-2
		20	Cont	: dd		187-5
		10	Sh/Clst:	red brn, m gy		187-3
		10	Ca	: w, gy pi		187-4
3298.00			Dunl	L.Ju		188
	1.62	50	Sh/Clst:	brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		188-1
	0.46	30	S/Sst	: w, glauc, f, l		188-2
		20	Cont	: dd		188-3
		tr	Ca	: brn, dol		188-4

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3304.00			Dunl	L.Ju		189
		3.05	60	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		189-1
		0.50	30	S/Sst : w, glauc, f, l		189-2
			10	Cont : dd		189-3
			tr	Ca : brn, dol		189-4
3310.00			Dunl	L.Ju		190
		2.22	80	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, pyr, slt, s, mic		190-1
			10	S/Sst : w, glauc, f, l		190-2
			10	Sh/Clst: gn gy, m gy		190-3
3316.00			Dunl	L.Ju		191
		0.92	80	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		191-1
			20	S/Sst : w, glauc, f, l		191-2
			tr	Cont : dd		191-3
3322.00			Stat	L.Ju		192
		0.04	80	S/Sst : w, calc, crs, cem		192-1
			10	Ca : w, pl brn		192-2
cvd			10	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		192-3
3328.00			Stat	L.Ju		193
		0.03	80	S/Sst : w, calc, crs, cem		193-1
		0.12	10	Ca : w, pl brn		193-2
cvd			10	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		193-3

Table 1 : Lithology description for well NOCS 33/9-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3334.00				Stat L.Ju		194
			80	S/Sst : w, calc, crs, cem		194-1
			10	Ca : w, pl brn		194-2
	cvd		10	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		194-3
3340.00				Stat L.Ju		195
			70	S/Sst : w, calc, crs, cem		195-1
		0.07	20	Ca : w, pl brn		195-2
	cvd		10	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		195-3
3346.00				Stat L.Ju		196
			80	S/Sst : w, calc, crs, cem		196-1
		0.03	10	Ca : w, pl brn		196-2
	cvd		10	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		196-3
3354.00				Stat L.Ju		197
			70	S/Sst : w, calc, crs, cem		197-1
		0.04	20	Ca : w, pl brn		197-2
	cvd		10	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic		197-3

Table 2: Rock-Eval table for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
2866.00	cut	Sh/Clst: m gy to drk gy	0.09	0.13	0.54	0.24	0.46	28	117	0.2	0.41	415	116-1
2878.00	cut	Sh/Clst: m gy to drk gy	0.10	0.17	0.51	0.33	0.63	27	81	0.3	0.37	418	118-1
2890.00	cut	Sh/Clst: brn gy, m gy, drk gy, m drk gy	0.07	0.09	0.51	0.18	0.64	14	80	0.2	0.44	364	120-1
2902.00	cut	Sh/Clst: brn gy, m gy, drk gy, m drk gy	0.08	0.10	0.45	0.22	0.74	14	61	0.2	0.44	398	122-1
2914.00	cut	Sh/Clst: m gy to m drk gy	0.10	0.15	0.42	0.36	0.79	19	53	0.3	0.40	420	124-1
2926.00	cut	Sh/Clst: red brn	-	-	0.32	-	0.10	-	320	-	-	271	126-1
2932.00	cut	Ca : w	0.01	0.01	0.66	0.02	0.10	10	660	-	0.50	234	127-1
2944.00	cut	Sh/Clst: pl y brn	0.10	0.08	0.46	0.17	0.57	14	81	0.2	0.56	331	129-3
2950.00	cut	Sh/Clst: ol gy, m gy, m drk gy	0.20	0.41	0.32	1.28	1.00	41	32	0.6	0.33	428	130-1
2956.00	cut	Sh/Clst: ol gy, m gy, m drk gy	0.18	0.48	0.30	1.60	1.09	44	28	0.7	0.27	428	131-1
2962.00	cut	Sh/Clst: m gy to m drk gy	-	-	0.26	-	0.73	-	36	-	-	432	132-1
2968.00	cut	Sh/Clst: ol gy, lt gy, lt ol gy, m gy, m drk gy	0.21	0.65	0.39	1.67	1.35	48	29	0.9	0.24	430	133-1
2974.00	cut	Sh/Clst: ol gy, m gy, m drk gy	0.13	0.16	0.21	0.76	0.67	24	31	0.3	0.45	402	134-1
2980.00	cut	Sh/Clst: ol gy, m gy, m drk gy	0.17	0.18	0.24	0.75	0.74	24	32	0.4	0.49	403	135-1
2986.00	cut	Sh/Clst: ol gy, m gy, m drk gy	0.10	0.10	0.25	0.40	0.54	19	46	0.2	0.50	361	136-1

Table 2: Rock-Eval table for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
2992.00	cut	Sh/Clst: drk gy, pl y brn	1.48	23.01	0.73	31.52	5.25	438	14	24.5	0.06	424	137-2
3016.00	cut	Sh/Clst: brn gy	0.83	0.57	1.12	0.51	0.75	76	149	1.4	0.59	392	141-2
3034.00	cut	S/Sst : w	0.05	0.11	0.78	0.14	0.17	65	459	0.2	0.31	419	144-1
3034.00	cut	Sh/Clst: red brn, m gy to drk gy	0.42	2.63	0.43	6.12	1.99	132	22	3.1	0.14	428	144-2
3046.00	cut	S/Sst : w	0.03	0.02	0.27	0.07	0.08	25	338	0.1	0.60	432	146-1
3058.00	cut	S/Sst : w	0.02	0.01	0.30	0.03	0.07	14	429	-	0.67	353	148-1
3070.00	cut	S/Sst : w	0.03	0.04	-	-	0.08	50	-	0.1	0.43	275	150-1
3070.00	cut	Sh/Clst: red brn, m gy to drk gy	0.25	0.74	0.32	2.31	1.20	62	27	1.0	0.25	431	150-2
3082.00	cut	Sh/Clst: red brn, m gy to drk gy	0.24	0.69	0.40	1.73	1.45	48	28	0.9	0.26	431	152-2
3094.00	cut	S/Sst : w	0.03	0.04	0.31	0.13	0.15	27	207	0.1	0.43	381	154-1
3112.00	cut	Ca : w, y gy	0.14	0.25	0.70	0.36	0.35	71	200	0.4	0.36	397	157-1
3124.00	cut	Sh/Clst: m gy, drk gy, drk brn gy, drk gn gy	0.77	11.63	0.59	19.71	3.12	373	19	12.4	0.06	423	159-2
3136.00	cut	S/Sst : w	-	-	-	-	-	-	-	-	-	298	161-1
3136.00	cut	Sh/Clst: m gy, drk gy, drk brn gy, drk gn gy	0.23	0.29	0.44	0.66	1.49	19	30	0.5	0.44	425	161-2

Table 2: Rock-Eval table for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3148.00	cut	Sltst : brn gy, drk brn gy	0.03	0.07	0.19	0.37	0.01	700	1900	0.1	0.30	442	163-1
3148.00	cut	Sh/Clst: v col	0.12	0.19	0.33	0.58	0.55	35	60	0.3	0.39	403	163-2
3154.00	cut	Sh/Clst: v col	0.33	2.24	0.75	2.99	1.52	147	49	2.6	0.13	433	164-2
3160.00	cut	Sh/Clst: v col	0.15	0.27	0.34	0.79	0.81	33	42	0.4	0.36	427	165-2
3166.00	cut	Sh/Clst: v col	0.15	0.32	0.14	2.29	0.66	48	21	0.5	0.32	429	166-1
3166.00	cut	S/Sst : w	0.07	0.19	0.49	0.39	0.48	40	102	0.3	0.27	424	166-2
3172.00	cut	Sh/Clst: brn gy to drk brn gy	0.83	11.48	0.35	32.80	3.44	334	10	12.3	0.07	426	167-2
3178.00	cut	Sh/Clst: v col	0.15	0.90	0.25	3.60	0.87	103	29	1.0	0.14	429	168-1
3178.00	cut	Sh/Clst: drk gy to drk brn gy	0.60	9.79	0.59	16.59	3.15	311	19	10.4	0.06	427	168-2
3184.00	cut	Sh/Clst: v col	0.10	0.34	0.33	1.03	0.69	49	48	0.4	0.23	430	169-1
3190.00	cut	Sh/Clst: v col	0.10	0.19	0.26	0.73	0.66	29	39	0.3	0.34	424	170-1
3190.00	cut	Sh/Clst: brn blk, drk brn gy	0.17	1.46	0.33	4.42	1.14	128	29	1.6	0.10	433	170-2
3196.00	cut	Sh/Clst: ol gy, m gy	0.16	0.35	0.36	0.97	0.69	51	52	0.5	0.31	422	171-1
3196.00	cut	Sh/Clst: brn blk, drk brn gy	0.17	1.46	0.33	4.42	1.51	97	22	1.6	0.10	433	171-2
3202.00	cut	Sh/Clst: ol gy, m gy	0.18	0.30	0.46	0.65	0.67	45	69	0.5	0.38	422	172-1

Table 2: Rock-Eval table for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3202.00	cut	Sh/Clst: brn blk, drk brn gy	0.32	2.57	0.48	5.35	1.55	166	31	2.9	0.11	429	172-2
3208.00	cut	Sh/Clst: ol gy, m gy	0.20	0.30	0.58	0.52	0.69	43	84	0.5	0.40	426	173-1
3208.00	cut	Sh/Clst: brn blk, drk brn gy	0.27	2.26	0.50	4.52	1.37	165	36	2.5	0.11	433	173-2
3208.00	cut	Ca : w, y gy	0.12	0.31	2.49	0.12	0.64	48	389	0.4	0.28	417	173-3
3214.00	cut	Sh/Clst: brn gy, brn blk, drk brn gy	0.20	1.35	0.49	2.76	1.24	109	40	1.6	0.13	433	174-1
3214.00	cut	S/Sst : w	0.15	1.22	0.51	2.39	0.60	203	85	1.4	0.11	432	174-2
3220.00	cut	Sh/Clst: brn gy, brn blk, drk brn gy	0.16	1.35	0.61	2.21	1.10	123	55	1.5	0.11	435	175-1
3220.00	cut	S/Sst : w	0.10	0.69	0.59	1.17	0.44	157	134	0.8	0.13	434	175-2
3226.00	cut	Sh/Clst: brn gy, brn blk, drk brn gy	0.22	1.17	0.57	2.05	1.10	106	52	1.4	0.16	433	176-1
3226.00	cut	S/Sst : w	0.13	0.88	0.41	2.15	0.52	169	79	1.0	0.13	434	176-2
3232.00	cut	Sltst : w, brn gy	0.17	1.38	0.54	2.56	0.70	197	77	1.5	0.11	434	177-1
3232.00	cut	Sh/Clst: drk gy, drk brn gy	0.20	0.96	0.47	2.04	1.06	91	44	1.2	0.17	431	177-2
3238.00	cut	Sh/Clst: drk gy, drk brn gy	0.19	0.90	0.45	2.00	1.18	76	38	1.1	0.17	432	178-1
3244.00	cut	Sh/Clst: drk gy, drk brn gy	0.25	1.23	0.55	2.24	1.15	107	48	1.5	0.17	434	179-1
3250.00	cut	Sh/Clst: drk gy, drk brn gy	0.87	2.88	0.53	5.43	1.44	200	37	3.8	0.23	429	180-1

Table 2: Rock-Eval table for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3250.00	cut	Sltst : w, brn gy	0.38	0.72	0.35	2.06	0.43	167	81	1.1	0.35	423	180-2
3256.00	cut	Sh/Clst: drk gy, drk brn gy	0.27	1.78	0.62	2.87	1.85	96	34	2.0	0.13	433	181-1
3256.00	cut	Sltst : w, brn gy	0.14	0.80	1.11	0.72	0.63	127	176	0.9	0.15	430	181-3
3262.00	cut	Sh/Clst: drk gy, drk brn gy	0.24	2.51	0.51	4.92	1.27	198	40	2.8	0.09	434	182-1
3268.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	0.31	3.91	0.50	7.82	1.49	262	34	4.2	0.07	432	183-1
3274.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	0.30	4.83	0.40	12.07	1.63	296	25	5.1	0.06	433	184-1
3280.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	0.25	2.31	0.49	4.71	1.39	166	35	2.6	0.10	432	185-1
3286.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	0.27	3.04	0.54	5.63	1.46	208	37	3.3	0.08	433	186-1
3286.00	cut	S/Sst : w	0.08	0.42	0.53	0.79	0.33	127	161	0.5	0.16	436	186-2
3292.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	-	4.08	0.61	6.69	1.59	257	38	4.1	-	424	187-1
3292.00	cut	S/Sst : w	0.08	0.35	0.75	0.47	0.45	78	167	0.4	0.19	430	187-2
3298.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	0.35	4.53	0.66	6.86	1.62	280	41	4.9	0.07	432	188-1

Table 2: Rock-Eval table for well NOCS 33/9-6

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Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3298.00	cut	S/Sst : w	0.09	0.39	0.84	0.46	0.46	85	183	0.5	0.19	430	188-2
3304.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	0.64	13.06	0.81	16.12	3.05	428	27	13.7	0.05	424	189-1
3304.00	cut	S/Sst : w	0.09	0.55	0.89	0.62	0.50	110	178	0.6	0.14	432	189-2
3310.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	0.54	8.99	0.78	11.53	2.22	405	35	9.5	0.06	427	190-1
3316.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	0.22	2.37	0.75	3.16	0.92	258	82	2.6	0.08	434	191-1
3322.00	cut	S/Sst : w	0.01	0.03	0.68	0.04	0.04	75	1700	-	0.25	438	192-1
3328.00	cut	S/Sst : w	-	-	0.52	-	0.03	-	1733	-	-	357	193-1
3328.00	cut	Ca : w, pl brn	0.03	0.11	1.74	0.06	0.12	92	1450	0.1	0.21	342	193-2
3334.00	cut	S/Sst : w	-	0.01	0.37	0.03	-	-	-	-	-	297	194-1
3340.00	cut	S/Sst : w	-	0.02	0.27	0.07	-	-	-	-	-	256	195-1
3340.00	cut	Ca : w, pl brn	0.03	0.06	0.97	0.06	0.07	86	1386	0.1	0.33	270	195-2
3346.00	cut	S/Sst : w	0.01	0.03	0.21	0.14	-	-	-	-	0.25	275	196-1
3346.00	cut	Ca : w, pl brn	0.02	0.05	0.79	0.06	0.03	167	2633	0.1	0.29	334	196-2
3354.00	cut	Ca : w, pl brn	0.07	0.16	0.68	0.24	0.04	400	1700	0.2	0.30	390	197-2

Table 3 a: Weight of EOM and Chromatographic Fraction for well NOCS 33/9-6

Page: 1

Depth unit of measure: m

Depth	Typ	Lithology	Rock Extracted (g)	EOM (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	TOC(e) (%)	Sample
2968.00	com	* Composite sample - see table 3 e *	6.3	5.9	1.3	0.4	0.2	4.0	1.7	4.2	1.20	198-0
2992.00	cut	Sh/Clst: drk gy, pl y brn	1.8	4.0	0.8	0.9	0.1	2.2	1.7	2.3	3.10	137-2
3178.00	com	* Composite sample - see table 3 e *	2.8	3.4	0.4	1.2	0.3	1.5	1.6	1.8	1.80	199-0
3208.00	com	* Composite sample - see table 3 e *	4.4	4.6	1.2	0.2	0.1	3.1	1.4	3.2	1.40	200-0
3244.00	com	* Composite sample - see table 3 e *	2.3	3.0	0.1	0.6	0.1	2.2	0.7	2.3	1.50	201-0
3280.00	com	* Composite sample - see table 3 e *	10.2	14.9	4.1	1.8	1.1	7.9	5.9	9.0	1.50	202-0
3298.00	com	* Composite sample - see table 3 e *	3.5	4.7	0.4	0.7	0.4	3.2	1.1	3.6	1.60	203-0
3310.00	com	* Composite sample - see table 3 e *	9.3	16.2	2.8	1.7	1.1	10.6	4.5	11.7	2.60	204-0

Table 3 b: Concentration of EOM and Chromatographic Fraction (wt ppm rock) for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
2968.00	com	* Composite sample - see table 3 e *	936	206	63	31	634	269	666	198-0
2992.00	cut	Sh/Clst: drk gy, pl y brn	2222	444	500	55	1222	944	1277	137-2
3178.00	com	* Composite sample - see table 3 e *	1214	142	428	107	535	571	642	199-0
3208.00	com	* Composite sample - see table 3 e *	1045	272	45	22	704	318	727	200-0
3244.00	com	* Composite sample - see table 3 e *	1304	43	260	43	956	304	1000	201-0
3280.00	com	* Composite sample - see table 3 e *	1460	401	176	107	774	578	882	202-0
3298.00	com	* Composite sample - see table 3 e *	1342	114	200	114	914	314	1028	203-0
3310.00	com	* Composite sample - see table 3 e *	1741	301	182	118	1139	483	1258	204-0

Table 3 c: Concentration of EOM and Chromatographic Fraction (mg/g TOC(e)) for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
2968.00	com	* Composite sample - see table 3 e *	78.04	17.20	5.29	2.65	52.91	22.49	55.56	198-0
2992.00	cut	Sh/Clst: drk gy, pl y brn	71.68	14.34	16.13	1.79	39.43	30.47	41.22	137-2
3178.00	com	* Composite sample - see table 3 e *	67.46	7.94	23.81	5.95	29.76	31.75	35.71	199-0
3208.00	com	* Composite sample - see table 3 e *	74.68	19.48	3.25	1.62	50.32	22.73	51.95	200-0
3244.00	com	* Composite sample - see table 3 e *	86.96	2.90	17.39	2.90	63.77	20.29	66.67	201-0
3280.00	com	* Composite sample - see table 3 e *	97.39	26.80	11.76	7.19	51.63	38.56	58.82	202-0
3298.00	com	* Composite sample - see table 3 e *	83.93	7.14	12.50	7.14	57.14	19.64	64.29	203-0
3310.00	com	* Composite sample - see table 3 e *	67.00	11.58	7.03	4.55	43.84	18.61	48.39	204-0

Table 3 d: Composition of material extracted from the rock (%) for well NOCS 33/9-6

Page: 1

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
			EOM	EOM	EOM	EOM	EOM	EOM	Aro	Non-HC	
2968.00	com	* Composite sample - see table 3 e *	22.03	6.78	3.39	67.80	28.81	71.19	325.00	40.48	198-0
2992.00	cut	Sh/Clst: drk gy, pl y brn	20.00	22.50	2.50	55.00	42.50	57.50	88.89	73.91	137-2
3178.00	com	* Composite sample - see table 3 e *	11.76	35.29	8.82	44.12	47.06	52.94	33.33	88.89	199-0
3208.00	com	* Composite sample - see table 3 e *	26.09	4.35	2.17	67.39	30.43	69.57	600.00	43.75	200-0
3244.00	com	* Composite sample - see table 3 e *	3.33	20.00	3.33	73.33	23.33	76.67	16.67	30.43	201-0
3280.00	com	* Composite sample - see table 3 e *	27.52	12.08	7.38	53.02	39.60	60.40	227.78	65.56	202-0
3298.00	com	* Composite sample - see table 3 e *	8.51	14.89	8.51	68.09	23.40	76.60	57.14	30.56	203-0
3310.00	com	* Composite sample - see table 3 e *	17.28	10.49	6.79	65.43	27.78	72.22	164.71	38.46	204-0

Table 3 e: List of composite samples appearing in the extraction tables for well NOCS 33/9-6

Page: 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>
2950.00	2968.00	com	198-0	is composed of:	2950.00	cut	Sh/Clst: ol gy, m gy, m drk gy	130-1
					2956.00	cut	Sh/Clst: ol gy, m gy, m drk gy	131-1
					2968.00	cut	Sh/Clst: ol gy, lt gy, lt ol gy, m gy, m drk gy	133-1
3172.00	3178.00	com	199-0	is composed of:	3172.00	cut	Sh/Clst: brn gy to drk brn gy, slt, mic	167-2
					3178.00	cut	Sh/Clst: drk gy to drk brn gy, slt, mic	168-2
3190.00	3208.00	com	200-0	is composed of:	3190.00	cut	Sh/Clst: brn blk, drk brn gy, slt, mic	170-2
					3196.00	cut	Sh/Clst: brn blk, drk brn gy, slt, mic	171-2
					3202.00	cut	Sh/Clst: brn blk, drk brn gy, slt, mic	172-2
					3208.00	cut	Sh/Clst: brn blk, drk brn gy, slt, mic	173-2
3226.00	3244.00	com	201-0	is composed of:	3226.00	cut	Sh/Clst: brn gy, brn blk, drk brn gy, calc, slt, s, mic	176-1
					3232.00	cut	Sh/Clst: drk gy, drk brn gy, mic	177-2
					3238.00	cut	Sh/Clst: drk gy, drk brn gy, slt, s, mic	178-1
					3244.00	cut	Sh/Clst: drk gy, drk brn gy, slt, s, mic	179-1
3250.00	3280.00	com	202-0	is composed of:	3250.00	cut	Sh/Clst: drk gy, drk brn gy, slt, s, mic	180-1
					3262.00	cut	Sh/Clst: drk gy, drk brn gy, slt, s, mic	182-1
					3268.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic	183-1
					3274.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk	184-1

Table 3 e: List of composite samples appearing in the extraction tables for well NOCS 33/9-6

Page: 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>
					3280.00	cut	Sh/Clst: brn gy, slt, s, mic brn gy to brn blk, drk gy, drk brn gy, slt, s, mic	185-1
3286.00	3298.00	com	203-0	is composed of:	3286.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic	186-1
					3292.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic	187-1
					3298.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic	188-1
3304.00	3310.00	com	204-0	is composed of:	3304.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, slt, s, mic	189-1
					3310.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy, pyr, slt, s, mic	190-1

Table 4 : Saturated Hydrocarbon Ratios for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	Pristane	Pristane	Pristane + Phytane	Phytane	CPI	Sample
			nC17	Phytane	nC17 + nC18	nC18		
2968.00	com	bulk	0.50	1.60	0.40	-	1.00	198-0
2992.00	cut	Sh/Clst: drk gy, pl y brn	0.60	1.70	0.50	-	1.10	137-2
3178.00	com	bulk	0.60	1.50	0.40	-	1.40	199-0
3208.00	com	bulk	0.50	1.80	0.40	-	1.50	200-0
3244.00	com	bulk	0.50	1.60	0.40	-	1.40	201-0
3280.00	com	bulk	0.60	1.80	0.50	-	1.40	202-0
3298.00	com	bulk	0.70	1.70	0.50	-	1.30	203-0
3310.00	com	bulk	0.70	2.00	0.50	-	1.30	204-0

Table 5 : Aromatic Hydrocarbon Ratios for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	DBT/P	4/1MDBT	(3+2)/1MDBT	Sample
2968.00	cut	Sh/Clst: ol gy, lt gy, lt ol gy, m gy, m drk gy	0.75	1.61	-	0.99	0.73	0.70	0.45	1.79	1.29	133-1
2992.00	cut	Sh/Clst: drk gy, pl y brn	-	0.47	-	0.71	0.60	0.52	0.26	1.04	0.50	137-2
3178.00	cut	Sh/Clst: drk gy to drk brn gy	-	0.69	-	0.97	0.57	0.57	0.52	6.47	2.18	168-2
3208.00	cut	Sh/Clst: brn blk, drk brn gy	-	0.20	-	1.02	0.53	0.59	0.12	7.66	2.10	173-2
3244.00	cut	Sh/Clst: drk gy, drk brn gy	-	-	-	0.81	0.61	0.49	-	6.72	1.93	179-1
3280.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	0.97	0.61	0.14	0.82	0.48	0.48	0.17	8.12	2.03	185-1
3298.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	-	0.74	-	0.89	0.57	0.56	0.22	5.05	1.48	188-1
3310.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	1.01	0.90	0.14	0.82	0.63	0.61	0.26	1.19	0.52	190-1

List of aromatic maturity ratios

MNR	=	$\frac{2\text{-methyl naphthalene}}{1\text{-methyl naphthalene}}$
DMNR	=	$\frac{2,6 + 2,7\text{-dimethyl naphthalene}}{1,5\text{-dimethyl naphthalene}}$
BPNR	=	$\frac{\text{biphenyl}}{1,6 \text{ dimethyl naphthalene}}$
2/1MP	=	$\frac{2\text{-methyl phenanthrene}}{1\text{-methyl phenanthrene}}$
MP11	α	$\frac{1.5 * (3 + 2\text{-methyl phenanthrene})}{\text{phenanthrene} + 9 + 1\text{-methyl phenanthrene}}$
MP12	=	$\frac{3.0 * 2\text{-methyl phenanthrene}}{\text{phenanthrene} + 9 + 1\text{-methyl phenanthrene}}$
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 7 : Thermal Maturity Data for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
2026.00	cut	bulk	0.34	3	0.03	0	-	-	003-0
2092.00	cut	bulk	0.37	1	0.00	3	-	-	014-0
2158.00	cut	bulk	0.39	7	0.02	4	-	-	020-0
2230.00	cut	bulk	NDP	-	-	0	-	-	032-0
2278.00	cut	bulk	NDP	-	-	0	-	-	040-0
2404.00	cut	bulk	0.38	12	0.03	0	-	-	046-0
2482.00	cut	bulk	0.37	6	0.07	4	-	-	059-0
2554.00	cut	bulk	0.38	5	0.07	0	-	-	071-0
2668.00	cut	bulk	0.37	6	0.06	0	-	-	088-0
2728.00	cut	bulk	0.35	1	0.00	0	-	-	098-0
2854.00	cut	bulk	0.39	11	0.04	4	-	-	114-0
2896.00	cut	bulk	0.40	14	0.09	4	-	-	121-0
2956.00	cut	Sh/Clst: ol gy, m gy, m drk gy	-	-	-	-	NDP	428	131-1
2968.00	cut	bulk	0.42	5	0.06	4	-	-	133-0

Table 7 : Thermal Maturity Data for well NOCS 33/9-6

Page: 2

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
2992.00	cut Sh/Clst: drk gy, pl y brn	-	-	-	-	4	424	137-2
3034.00	cut Sh/Clst: red brn, m gy to drk gy	-	-	-	-	NDP	428	144-2
3064.00	cut bulk	0.44	22	0.06	4	-	-	149-0
3082.00	cut Sh/Clst: red brn, m gy to drk gy	-	-	-	-	NDP	431	152-2
3124.00	cut Sh/Clst: m gy, drk gy, drk brn gy, drk gn gy	-	-	-	-	4.5	423	159-2
3154.00	cut Sh/Clst: v col	-	-	-	-	4	433	164-2
3172.00	cut Sh/Clst: brn gy to drk brn gy	-	-	-	-	4	426	167-2
3178.00	cut bulk	0.51	13	0.06	0	-	-	168-0
3178.00	cut Sh/Clst: drk gy to drk brn gy	-	-	-	-	4-4.5?	427	168-2
3190.00	cut Sh/Clst: brn blk, drk brn gy	-	-	-	-	4.5	433	170-2
3208.00	cut Sh/Clst: brn blk, drk brn gy	-	-	-	-	4.5	433	173-2
3220.00	cut Sh/Clst: brn gy, brn blk, drk brn gy	-	-	-	-	5	435	175-1
3232.00	cut Sh/Clst: drk gy, drk brn gy	-	-	-	-	NDP	431	177-2
3250.00	cut Sh/Clst: drk gy, drk brn gy	-	-	-	-	5	429	180-1

Table 7 : Thermal Maturity Data for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
3256.00	cut bulk	0.48	18	0.06	4	-	-	181-0
3274.00	cut Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	-	-	-	-	NDP	433	184-1
3286.00	cut Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	-	-	-	-	5	433	186-1
3292.00	cut Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	-	-	-	-	6	424	187-1
3298.00	cut Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	-	-	-	-	6	432	188-1
3304.00	cut Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	-	-	-	-	5	424	189-1
3310.00	cut bulk	0.53	17	0.07	4	-	-	190-0
3310.00	cut Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	-	-	-	-	NDP	427	190-1
3316.00	cut Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	-	-	-	-	NDP	434	191-1

Table 8 : Visual Kerogen Composition Data for well NOCS 33/9-6

Page: 1

Depth unit of measure: m

Depth	Typ	Lithology	L	A	L	S	C		D		I	S	I	M	S		V	C	V	A	
			I	m	i	p	u	R	A	i	A	B	N	F	u	n	I	T	o	i	m
			P	r	D	P	i	s	g	o	r	t	E	s	F	D	r	e	l	d	r
			T	e	o	c	i	a	f	i	t	L	R	i	u	e	n	i	e	v	v
			%	L	t	l	l	n	e	l	t	L	%	n	s	t	n	o	I	%	n
																					Smple
2956.00	cut	Sh/Clst: ol gy, m gy, m drk gy	TR		?								40	?	*			60	**	*	131-1
2992.00	cut	Sh/Clst: drk gy, pl y brn	50	*	**	**			*				5		*			45	*	**	137-2
3034.00	cut	Sh/Clst: red brn, m gy to drk gy	10	*	*	?							20	**	*			70	*	*	144-2
3082.00	cut	Sh/Clst: red brn, m gy to drk gy	5		*								45		*			50	**		152-2
3124.00	cut	Sh/Clst: m gy, drk gy, drk brn gy, drk gn gy	40	*	**	*							10		*			50	**	*	159-2
3154.00	cut	Sh/Clst: v col	20	*	**	*							30	*	**	**		50	**	*	164-2
3172.00	cut	Sh/Clst: brn gy to drk brn gy	25	*	**	*							25	*	*			50	**	*	167-2
3178.00	cut	Sh/Clst: drk gy to drk brn gy	40	*	*	*							20	*	*			40	*	*	168-2
3190.00	cut	Sh/Clst: brn blk, drk brn gy	10		**	*							30		*			60	**	*	170-2
3208.00	cut	Sh/Clst: brn blk, drk brn gy	15	*	**	*							35	**	*			50	**	*	173-2
3220.00	cut	Sh/Clst: brn gy, brn blk, drk brn gy	10	*	*	*							25	*	**			65	*	*	175-1
3232.00	cut	Sh/Clst: drk gy, drk brn gy	NDP										NDP					NDP			177-2

Table 8 : Visual Kerogen Composition Data for well NOCS 33/9-6

Depth unit of measure: m

Depth	Typ	Lithology	L I P T %	A m o r L	L i o p e t L	S p / D P o l l	C u t P i c l l	R e s i n e	D i n c o f f l	A c c r i t L	I N E R T %	F u s n	S e m F u s t	I n t D e n o	M i c r e i n o	S c l e r I	B i t	V I T R %	T e l l i n	C o l l i n	V i t D e t V	A m o r t V	B i t V	Smple	
3250.00	cut	Sh/Clst: drk gy, drk brn gy	10		*	*					20	?	**	*					70	*	*	*	*		180-1
3274.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	25		*	*					15			*					60	*	*	**	*		184-1
3286.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	20		*	**	*				25		*	*					55			*	*		186-1
3292.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	20		*	**	*				20		*	*					60			*			187-1
3298.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	20		*	**	*				20		*	*					60			*	**		188-1
3304.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	40		*	**	*				10		?	*					50			*	**		189-1
3310.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	40		*	**	*?				10		*	*					50			**	*		190-1
3316.00	cut	Sh/Clst: brn gy to brn blk, drk gy, drk brn gy	30		*	*	**				10		*	*					60			**	*		191-1

Table WELL 33/9-6

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

DEPTH (m)	% C1-C5 of total	% C6+ of total
=====		
2878	62	38
2914	65	35
2950	48	52
2968	37	63
2992	20	80
3034 Clst	37	63
3070 Clst	52	48
3112	70	30
3124	18	82
3154	36	64
3172	20	80
3178 Clst dk gy	27	73
3184	60	40
3190 Clst dk brn	35	65
3202 Clst dk brn	32	68
3208 Lst	59	41
3214 Sst	39	61
3226 Clst/Sltst	47	53
3232 Clst/Sltst	37	63
3250 Sltst/Sst	30	70
3250 Clst	35	65
3268	29	71

Table WELL 33/9-6

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

DEPTH (m)	% C1-C5 of total	% C6+ of total
=====	=====	=====
3274	24	76
3286 Clst	31	69
3292 Clst	35	65
3298 Clst	28	72
3304 Clst	19	81
3310	20	80
3328 Lst	24	76

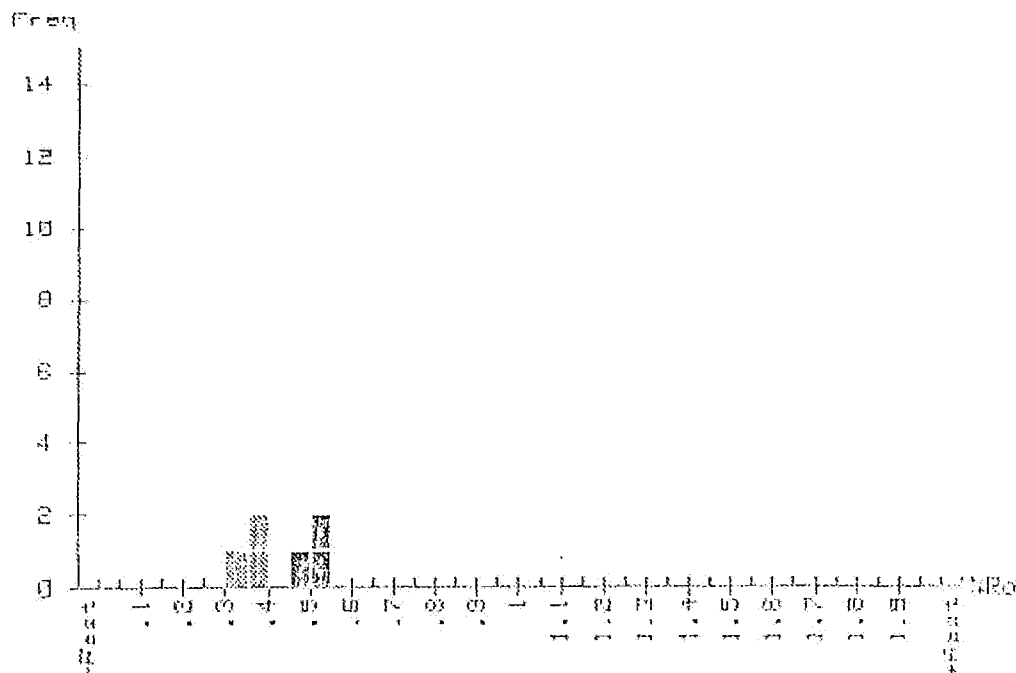
Table WELL 33/9-6

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

DEPTH (m)	% C1-C5 of total	% C6+ of total
=====		
2968	54	46
2992	26	74
3178	47	53
3208	37	63
3244	48	52
3280	36	64
3298	48	52
3310	18	82

Histogram of vitrinite reflectance measurements

Sample No.: 1301 1 1B1
Well Name: 133/9-6
Depth: 12026M
Analyst: IJ MC
Date: 15 5 86

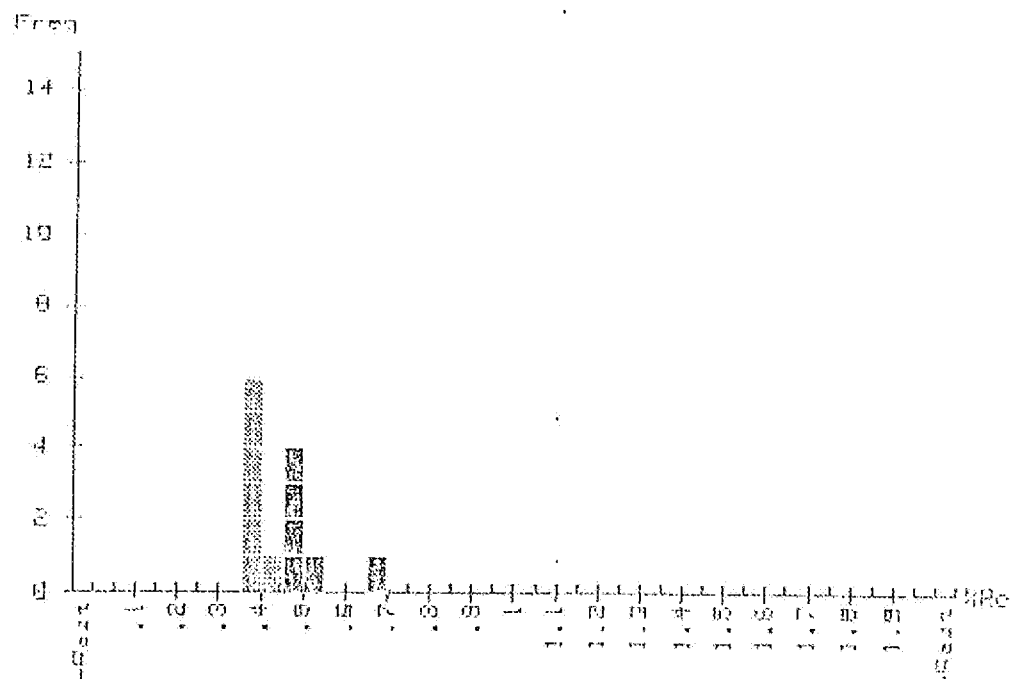


* Pop. 1 From .30 to .40 Mean= .34 St.D= .03 Total= 3
Pop. 2 From .45 to .55 Mean= .49 St.D= .03 Total= 3

The indigenous Population is marked '*'.

	1	1	2	3	4	5	5	7	8	9	10
0	1	.307	.354	.365	.451	.504	.512				

Sample No.: 1303 1 101
Well Name: 133/9-B
Depth: 12158M
Analyst: BJ HC
Date: 15 5 86

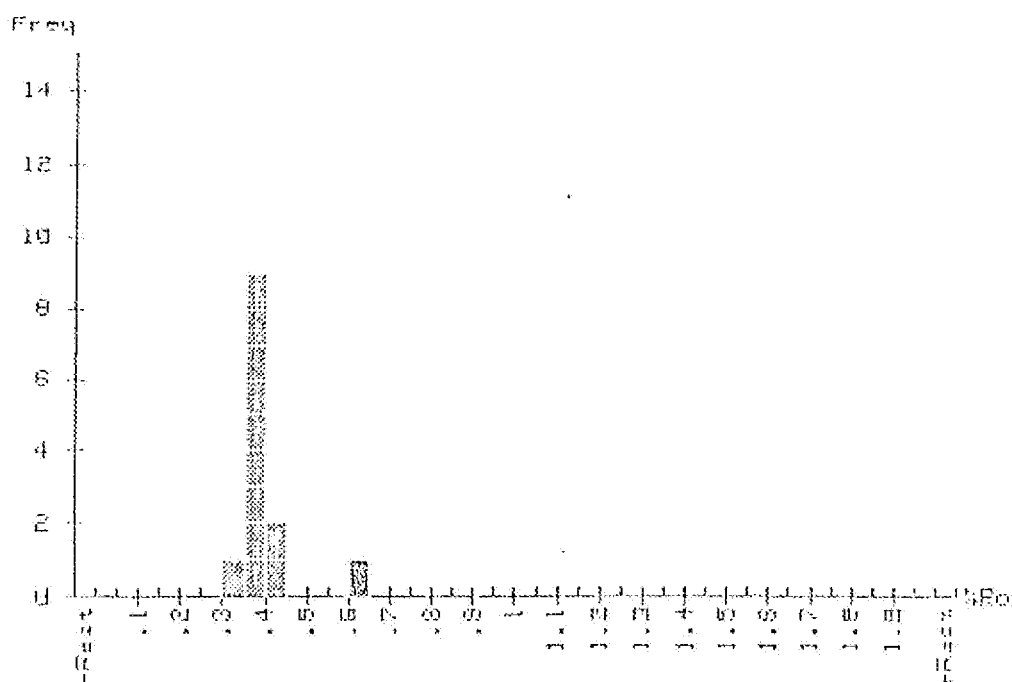


* Pop. 1 From .35 to .45 Mean= .39 St.D= .02 Total= 7
Pop. 2 From .45 to .70 Mean= .52 St.D= .09 Total= 6

The indigenous Population is marked '*'.
.....

	1	2	3	4	5	6	7	8	9	10
0	.372	.379	.382	.384	.395	.399	.420	.455	.458	.470
10	.482	.645	.680							

Sample No.: 1306 1 181
Well Name: 133/9-6 1
Depth: 12404M 1
Analyst: IJ NC 1
Date: 15 5 86 1

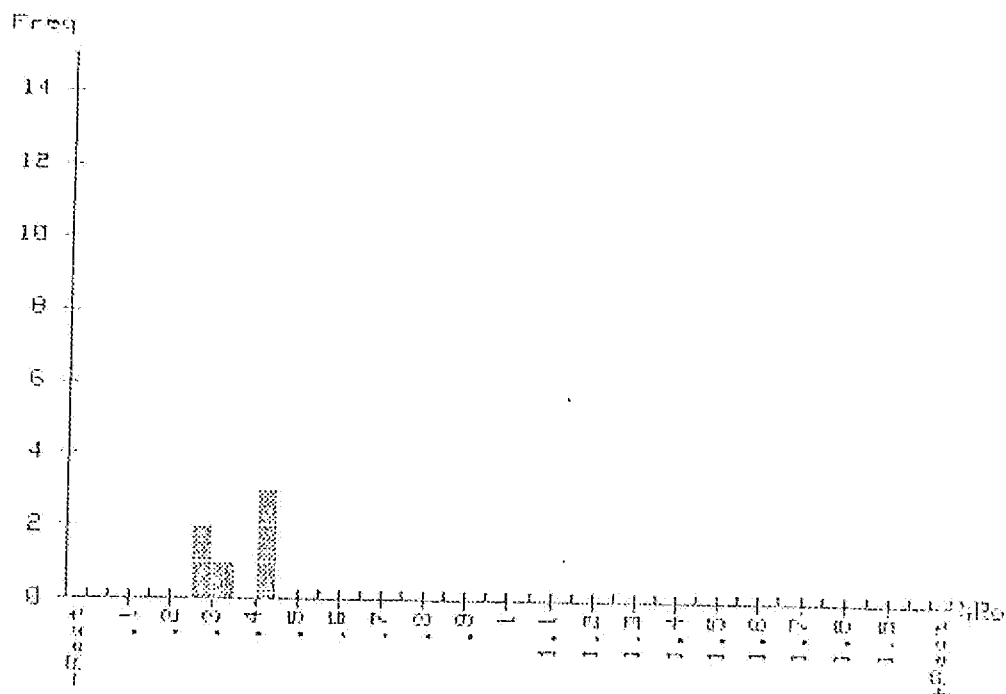


* Pop. 1 From .30 to .45 Mean= .38 St.D.= .03 Total= 12
Pop. 2 From .60 to .65 Total= 0

The indigenous Population is marked '*'.

	1	1	2	3	4	5	6	7	9	9	10
0	1	.304	.350	.366	.367	.368	.388	.394	.395	.398	.399
10	1	.403	.418	.532							

Sample No.: 1307 1 1B1
Well Name: 133/9-6
Depth: 12482M
Analyst: IJ NC
Date: 15 5 86

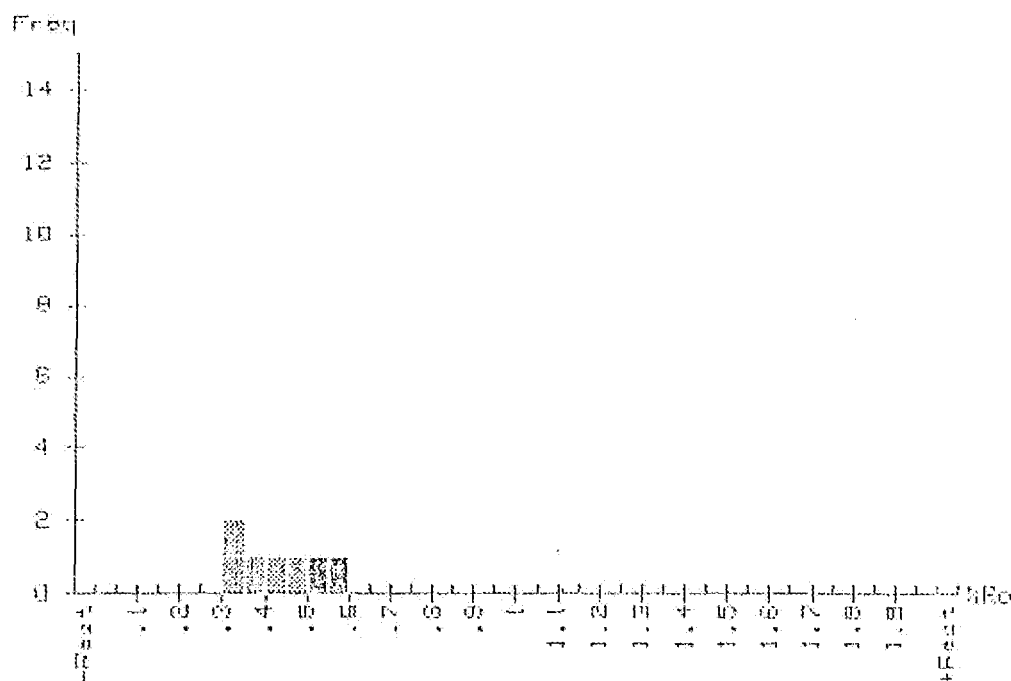


< Pop. 1 From .25 to .45 Mean= .37 St.D= .07 Total= 6

The Indigenous Population is marked '*'.

	1	2	3	4	5	6	7	8	9	10
0	.280	.297	.342	.434	.436	.449				

Sample No.: 1308 1 161
Well Name: 133/9-6
Depth: 12554M
Analyst: IJ MC
Date: 16 5 86

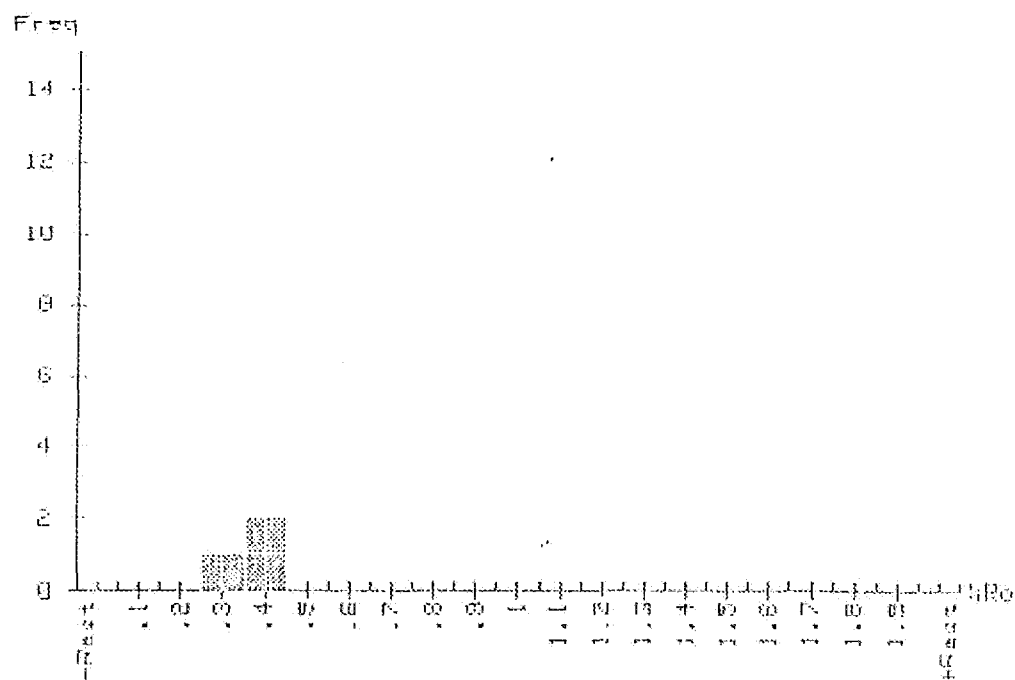


* Pop. 1 From .30 to .50 Mean= .38 St.D= .07 Total= 5
Pop. 2 From .50 to .60 Mean= .54 St.D= .04 Total= 2

The indigenous Population is marked '*'. *

	1	2	3	4	5	6	7	8	9	10
0	1	.312	.338	.367	.403	.436	.507	.570		

Sample No.: 1309 1 1B1
Well Name: 133/9-6
Depth: 12668M
Analyst: IJ NC
Date: 15 5 86

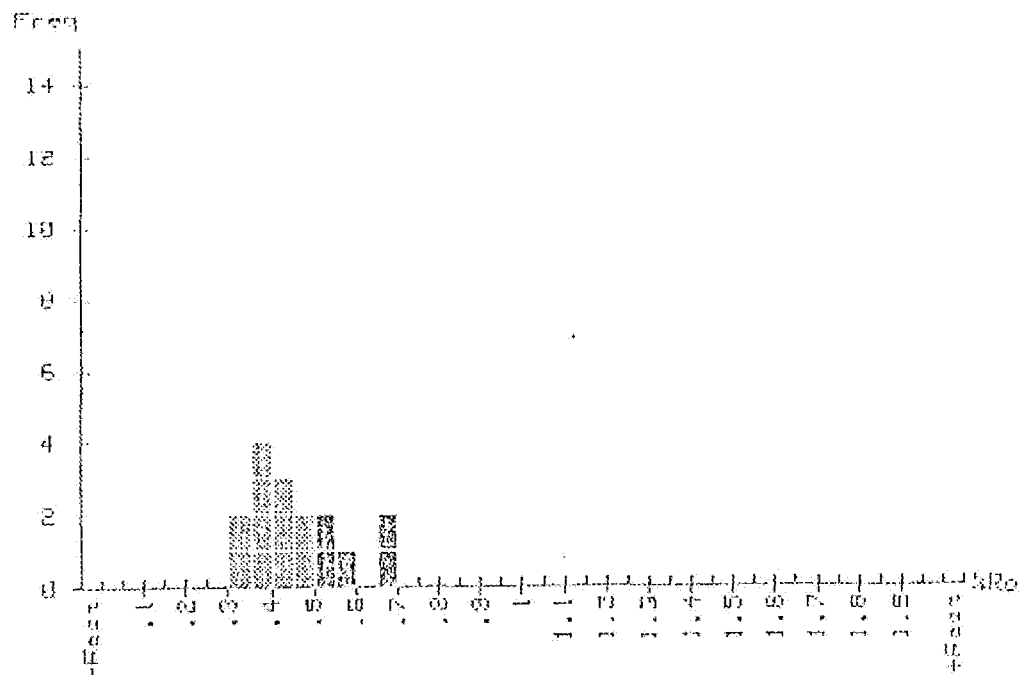


* Pop. 1 From .25 to .45 Mean= .37 Std.= .06 Total= 6

The indigenous Population is marked '*'.

	1	2	3	4	5	6	7	8	9	10
0	.270	.342	.388	.396	.419	.430				

Sample No.: 1311 1 181
Well Name: 133/9-6
Depth: 12854M
Analyst: IJ MC
Date: 15 5 85

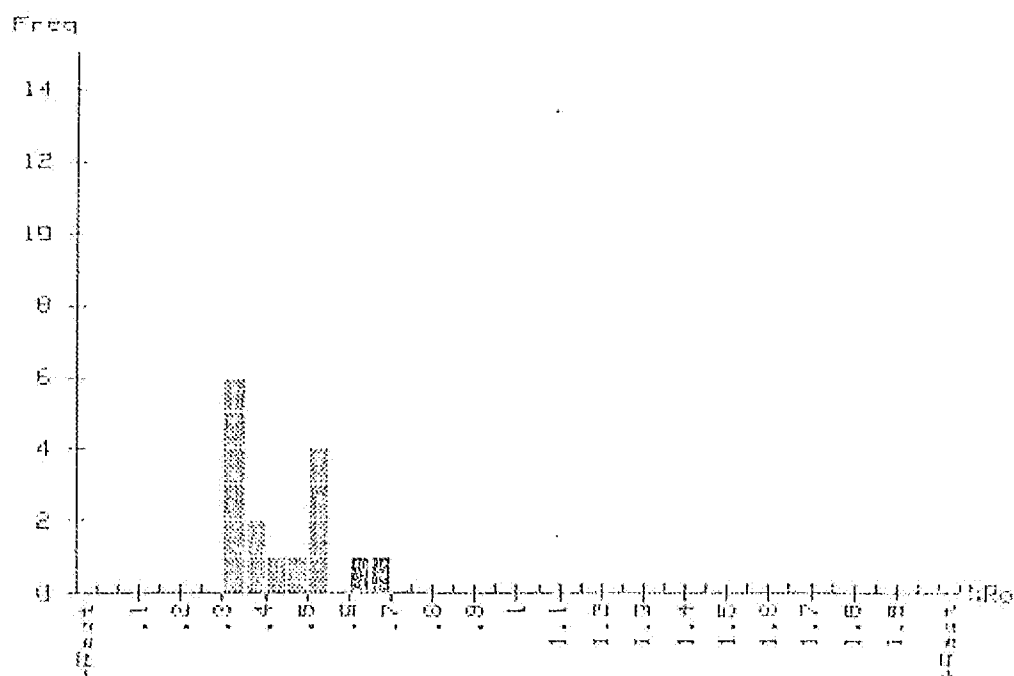


* Pop. 1 From .30 to .50 Mean= .39 St.D= .04 Totals= 11
Pop. 2 From .50 to .70 Mean= .61 St.D= .07 Totals= 5

The indigenous Population is marked '*'.

	1	2	3	4	5	6	7	8	9	10
0	.317	.349	.360	.364	.377	.383	.406	.406	.408	.450
10	.451	.529	.546	.596	.663	.693				

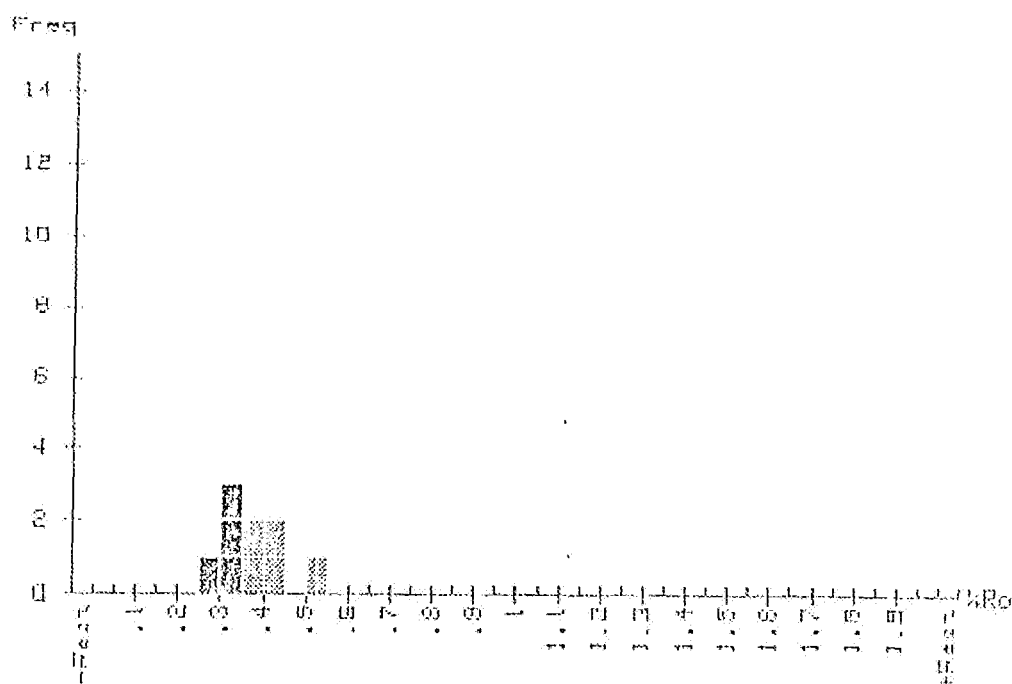
Sample No.: 1312 1 101
Well Name: 133/9-5
Depth: 12896M
Analyst: 13 NC
Date: 15 5 86



* Pop. 1 From .30 to .55 Mean= .40 St.D= .09 total= 14
Pop. 2 From .60 to .70 Mean= .65 St.D= .04 Total= 2

The Indigenous Population is marked '*'.

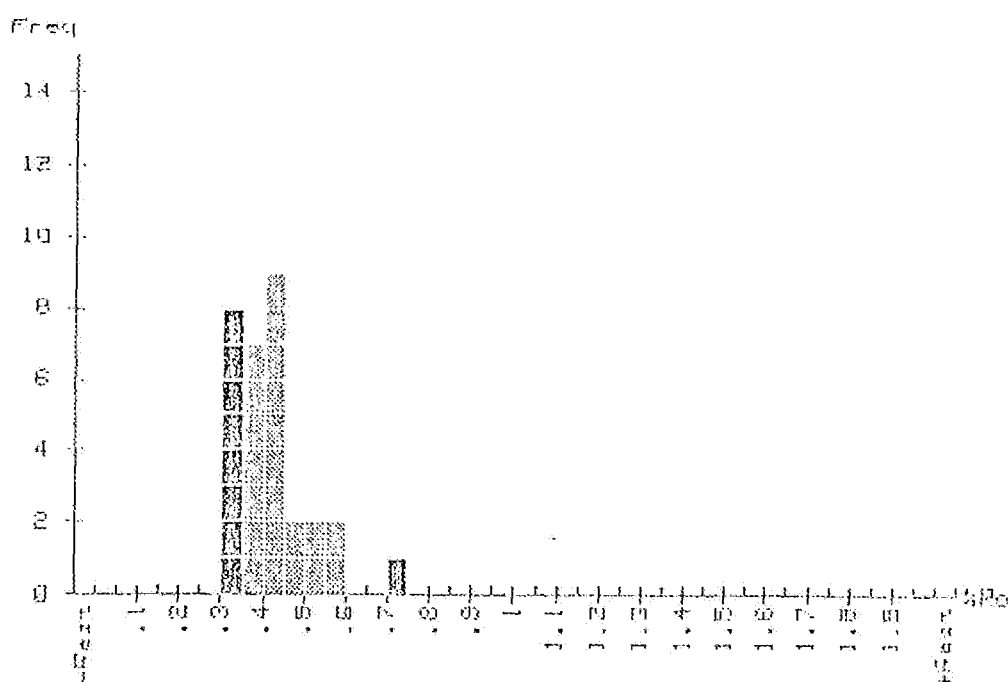
	1	2	3	4	5	6	7	8	9	10
0	.301	.315	.318	.324	.330	.332	.359	.372	.401	.462
10	.512	.531	.533	.539	.548	.591				



Pop. 1	From	.25 to	.35	Mean=	.32	Std=	.02	Total=	4
* Pop. 2	From	.35 to	.55	Mean=	.42	Std=	.06	Total=	5

The indigenous Population is marked '*'.
 * * * * *

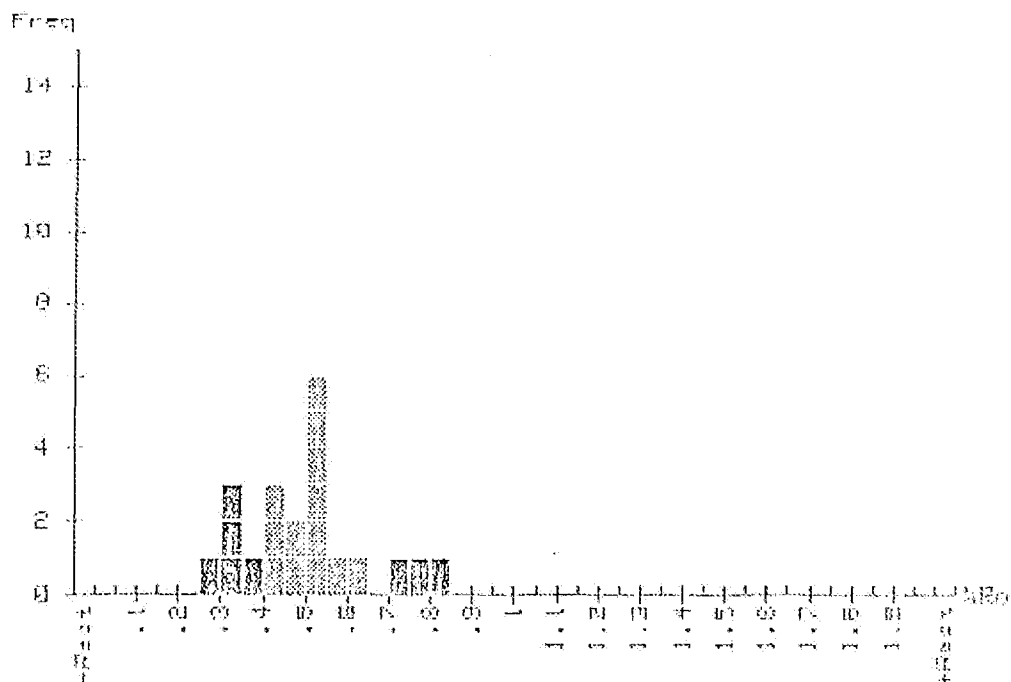
	1	2	3	4	5	6	7	8	9	10
0	.297	.325	.337	.338	.379	.394	.402	.410	.522	



Pop. 1	From	.30 to	.35	Mean=	.33	St.D=	.01	Total=	8
* Pop. 2	From	.35 to	.60	Mean=	.44	St.D=	.06	Total=	22
Pop. 3	From	.70 to	.75					Total=	0

The indigenous Population is marked '*'.
The indigenous population is marked '*'.

[illegible]

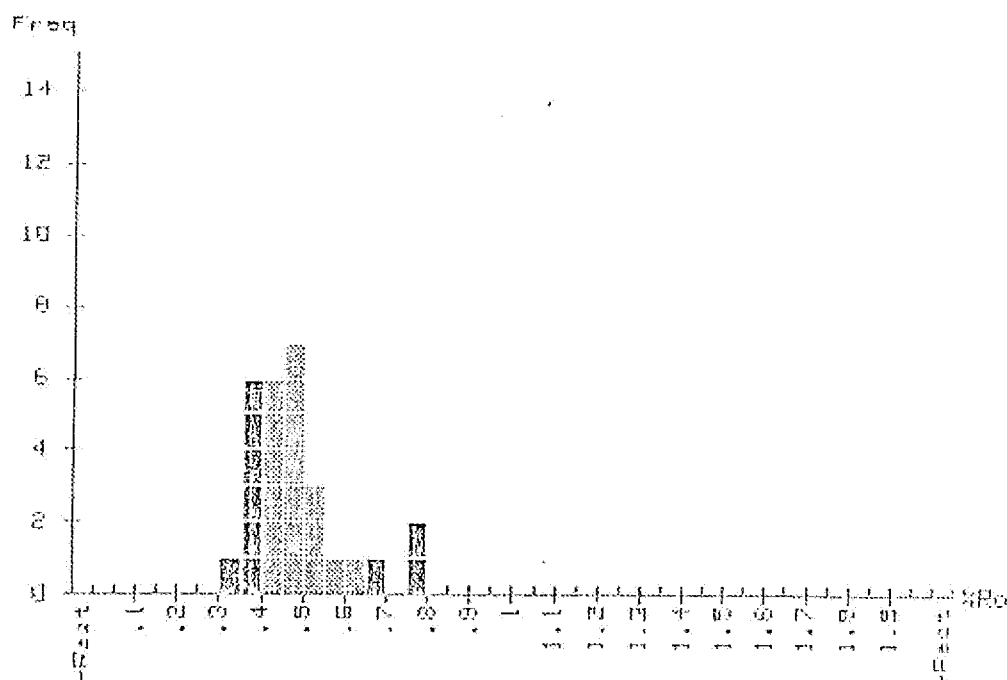


Pop. 1	From	.25 to	.40	Mean=	.34	Std.=	.03	Total=	5
* Pop. 2	From	.40 to	.65	Mean=	.51	Std.=	.06	Total=	13
Pop. 3	From	.70 to	.85	Mean=	.77	Std.=	.07	Total=	3

The indigenous Population is marked '*'.
The population of the islands is marked 'x'.

[illegible]

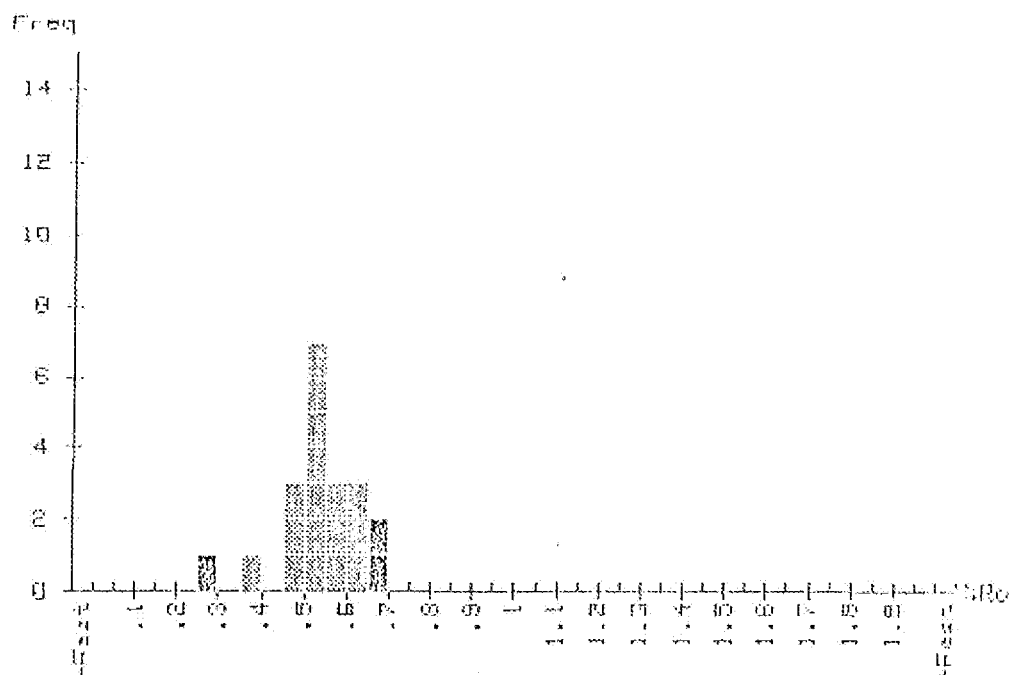
Sample No.: 1316 1 1B1
Well Name: 133/9-6
Depth: 13256M
Analyst: IJ MC
Date: 15 5 86



Pop. 1	From	.30 to	.40	Mean=	.37	St.D=	.01	Total=	7
Pop. 2	From	.40 to	.65	Mean=	.48	St.D=	.05	Total=	18
Pop. 3	From	.65 to	.80	Mean=	.75	St.D=	.08	Total=	3

The indigenous Population is marked '*'. *

	1	1	2	3	4	5	6	7	8	9	10
0	*	.344	.358	.371	.374	.380	.383	.383	.410	.415	.438
10	*	.438	.440	.446	.457	.466	.480	.482	.481	.496	.499
20	*	.507	.511	.548	.557	.644	.656	.789	.782		



Pop.	1	From	.25 to	.30				Total=	1	
* Pop.	2	From	.35 to	.65	Mean=	.53	St.D=	.07	Total=	17
Pop.	3	From	.65 to	.70	Mean=	.65	St.D=	.01	Total=	2

The indigenous Population is marked 'x'.

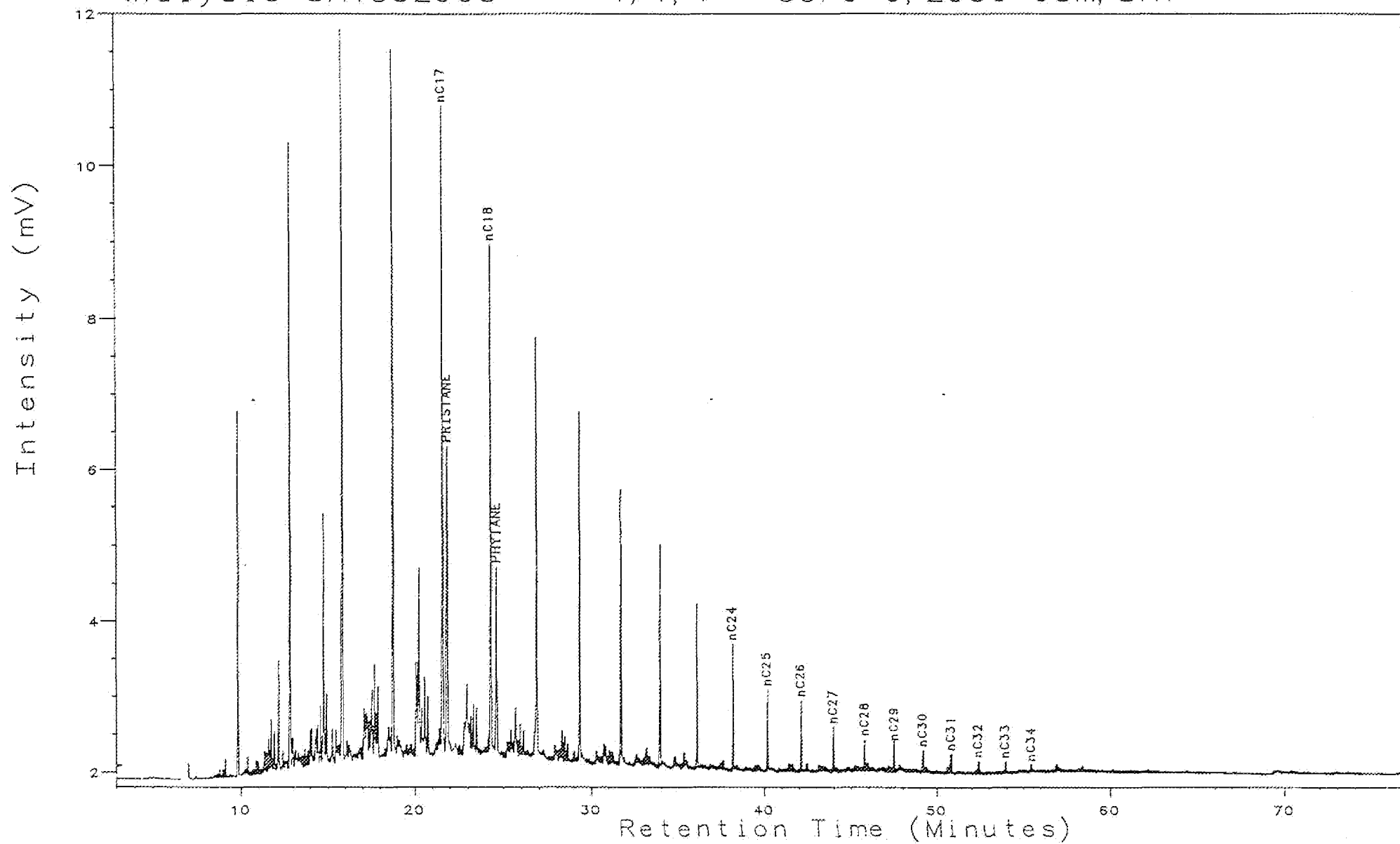
	1	2	3	4	5	6	7	8	9	10
0	.267	.367	.457	.459	.482	.507	.508	.512	.521	.531
10	.545	.545	.556	.558	.593	.612	.618	.624	.656	.673

Saturated fraction gas chromatograms

Analysis SA1532968

4, 1, 1

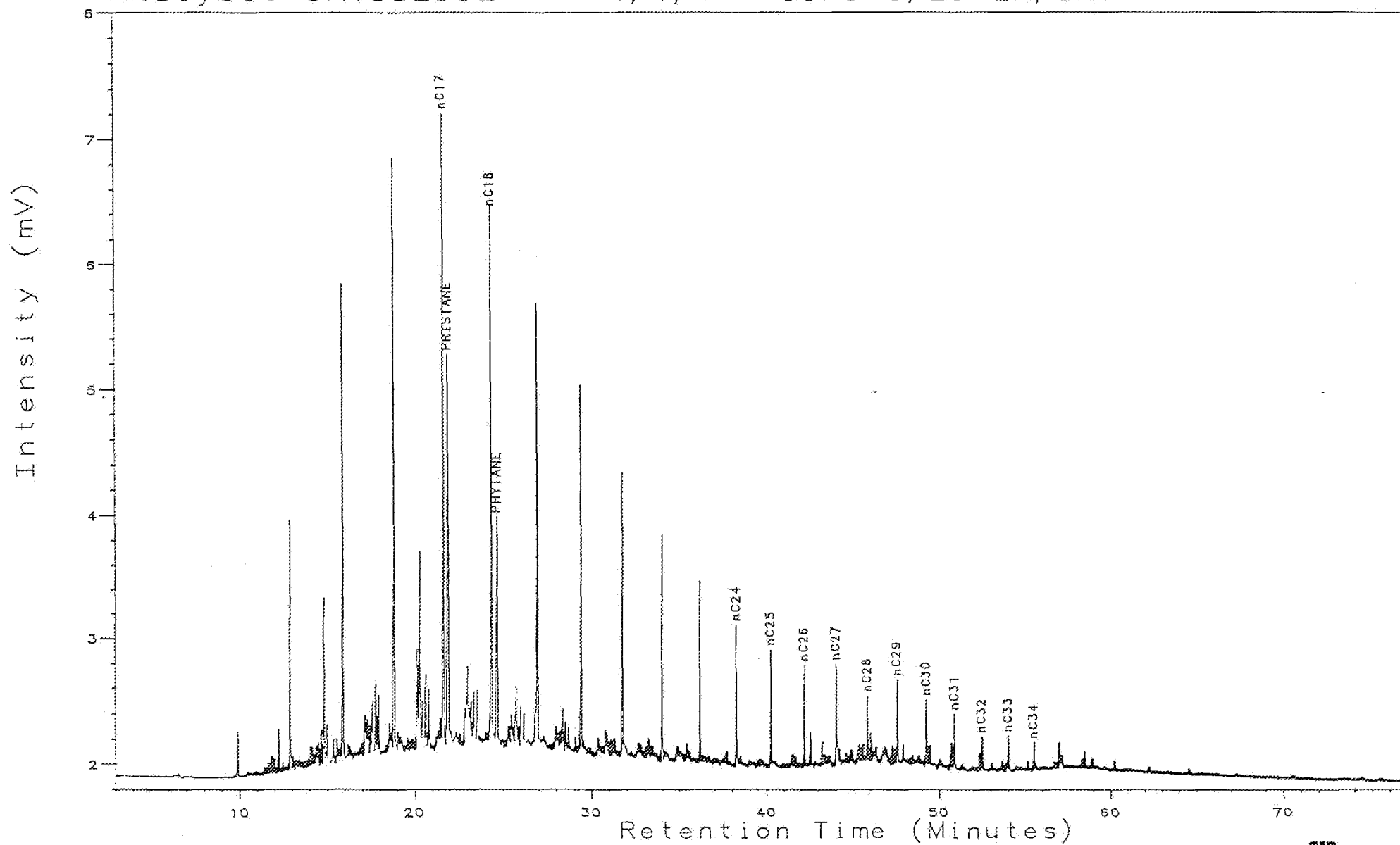
33/9-6, 2950-68m, SAT



Analysis SA1532992

4, 1, 1

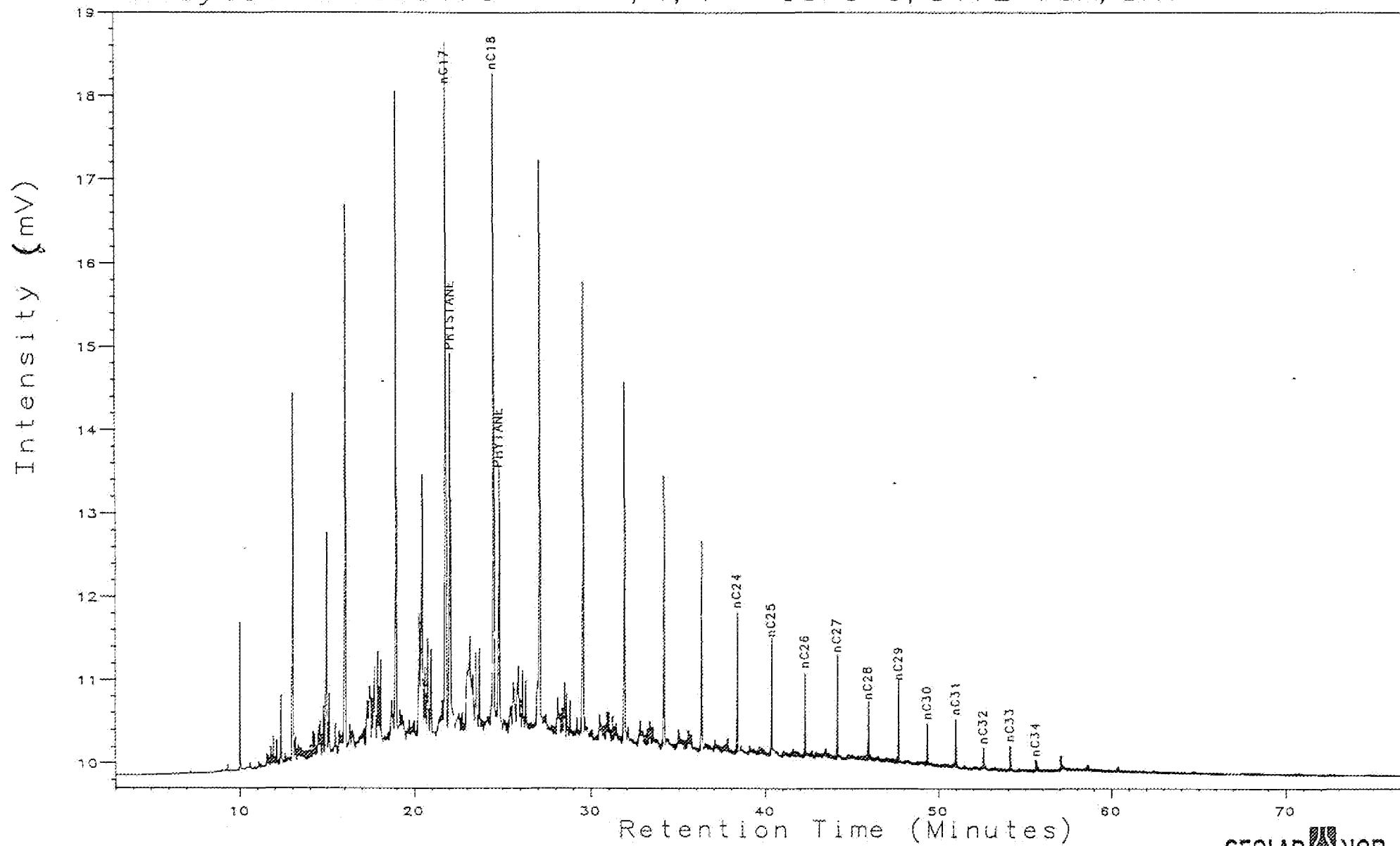
33/9-6, 2992m, SAT



Analysis SA1533178

4, 1, 1

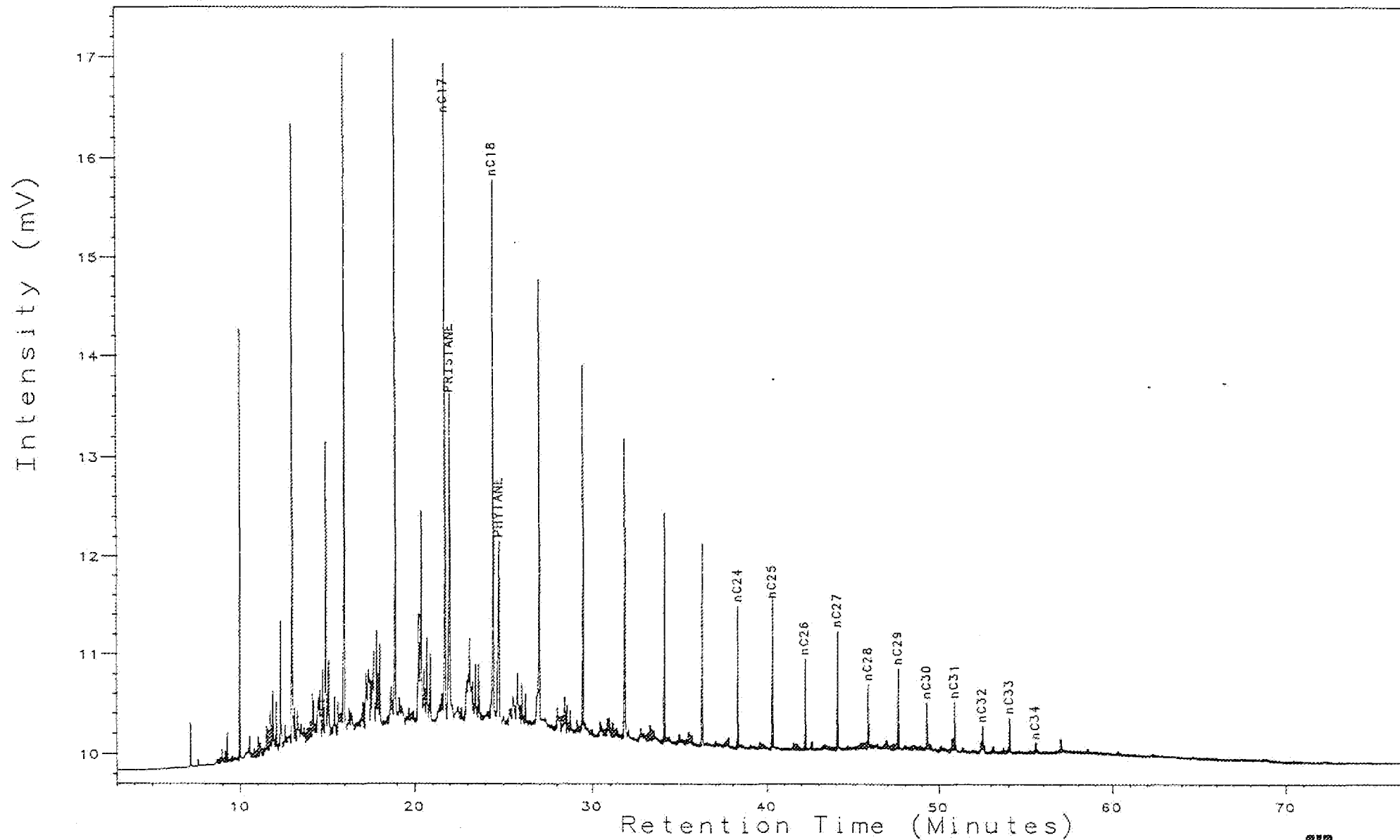
33/9-6, 3172-78m, SAT



Analysis SA1533208

4, 1, 1

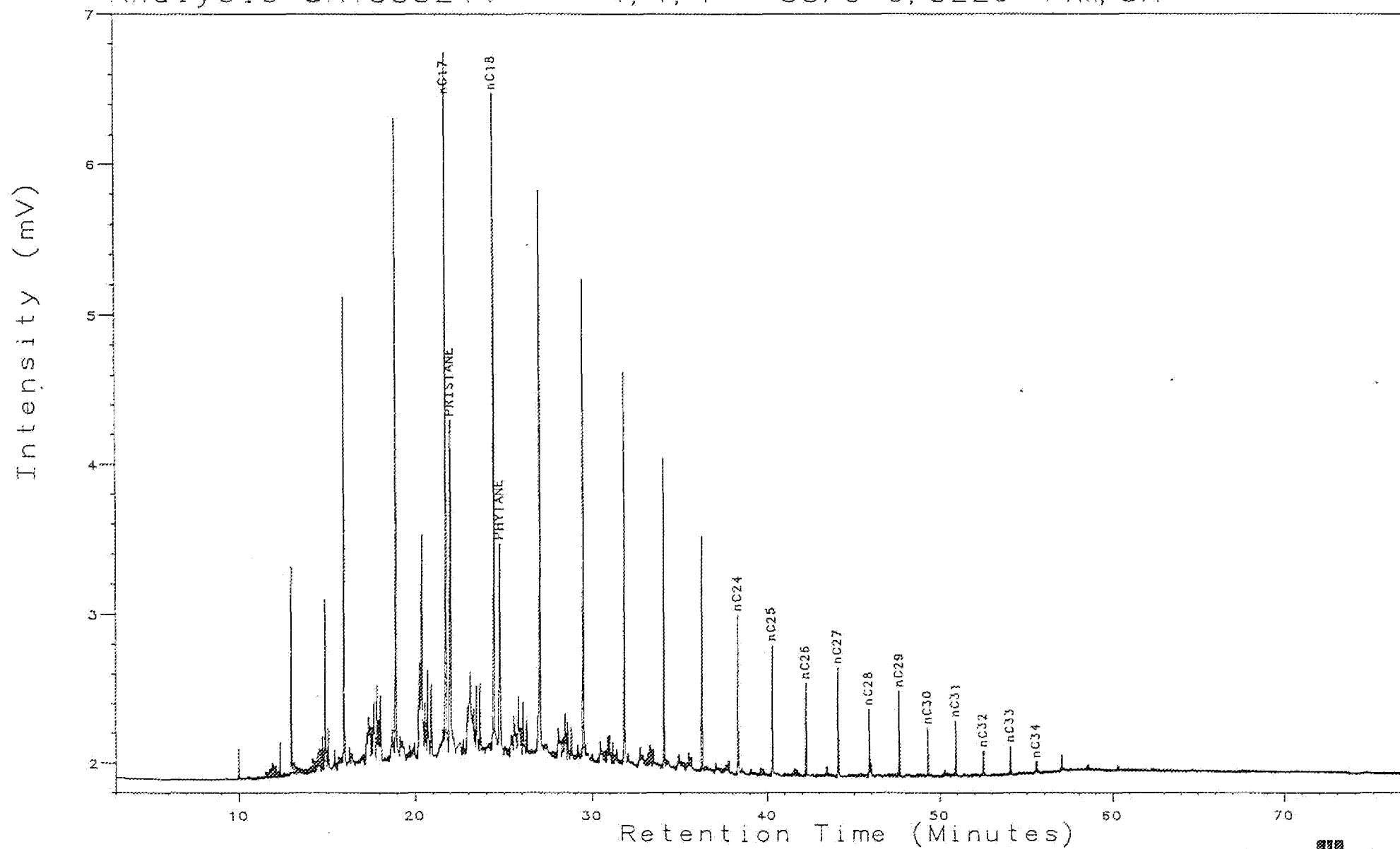
33/9-6, 3190-3208m, SA



Analysis SA1533244

4, 1, 1

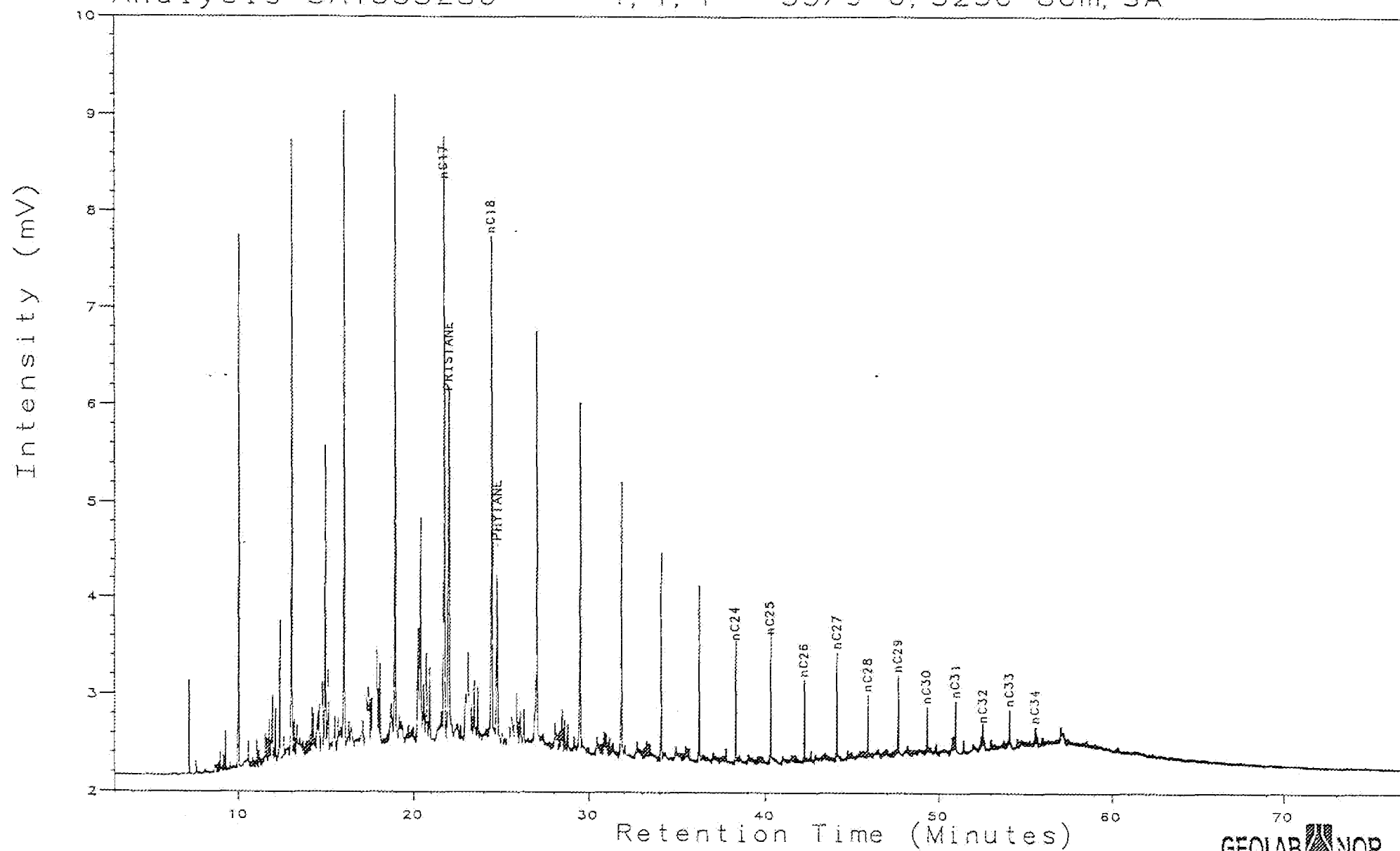
33/9-6, 3226-44m, SA



Analysis SA1533280

4, 1, 1

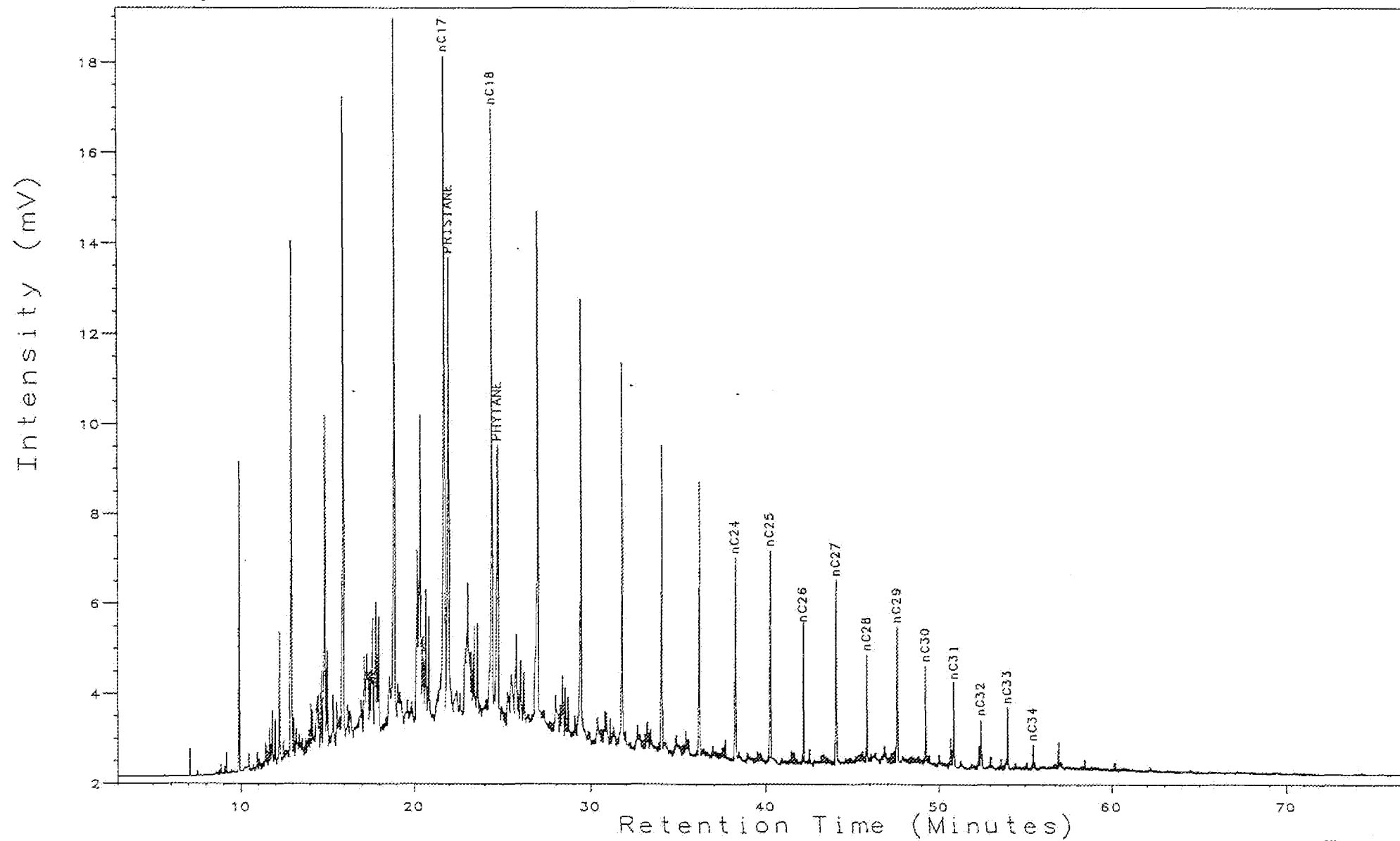
33/9-6, 3250-80m, SA



Analysis SA1533298

4, 1, 1

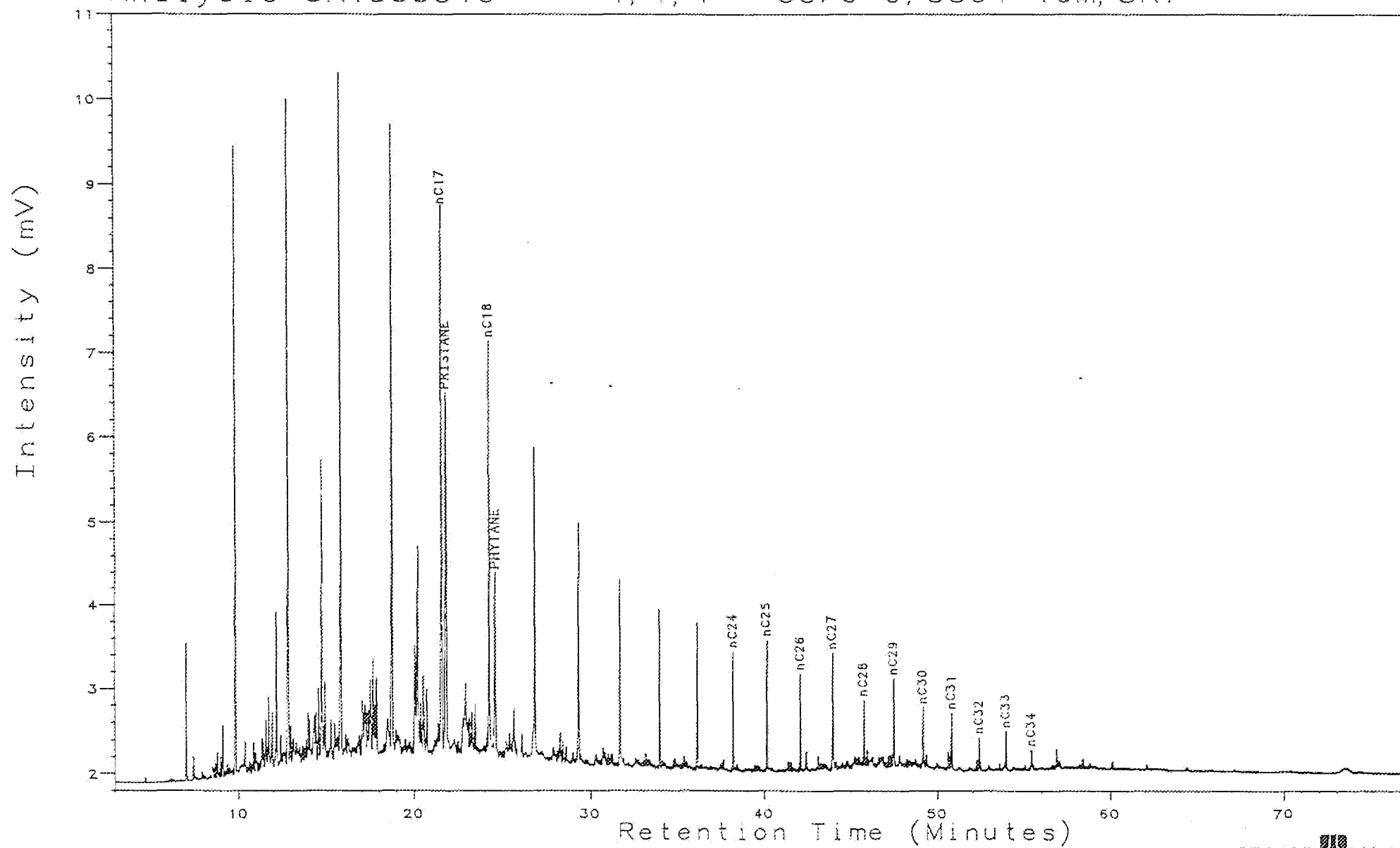
33/9-6, 3286-98m, SAT



Analysis SA1533310

4, 1, 1

33/9-6, 3304-10m, SAT



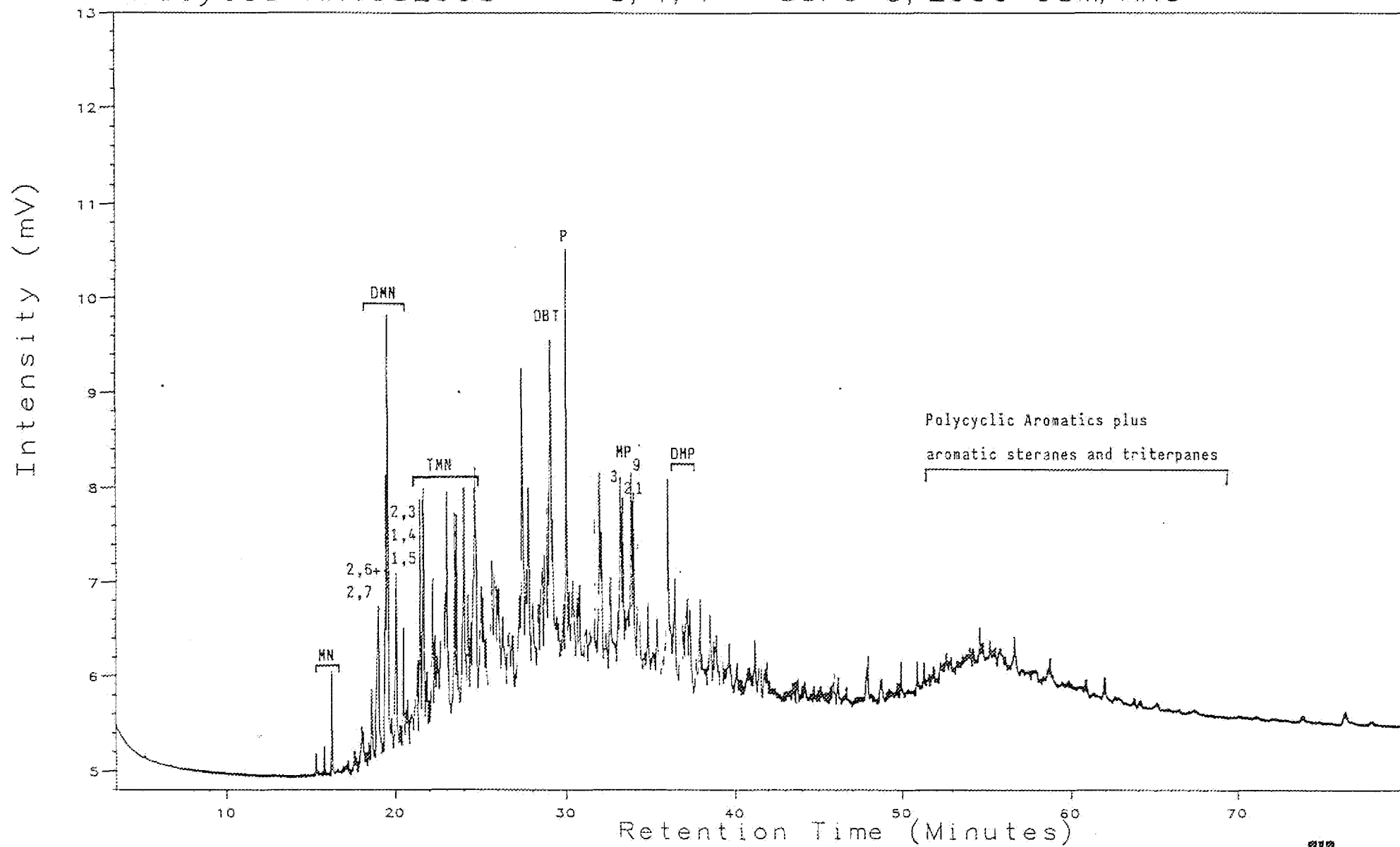
Aromatic fraction gas chromatograms

FID (flame ionisation detector)

Analysis AR1532968

8, 1, 1

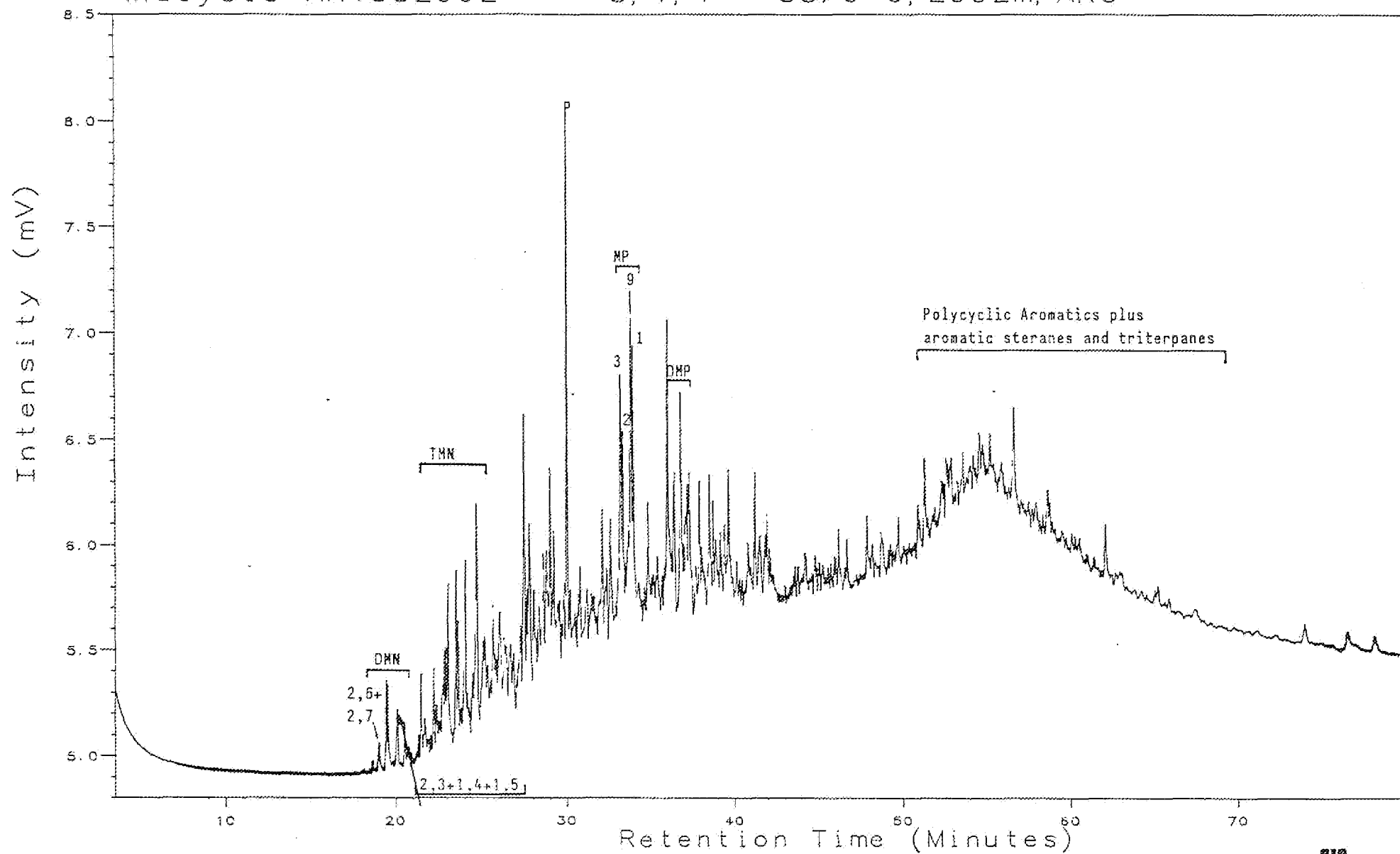
33/9-6, 2950-68m, ARO



Analysis AR1532992

8, 1, 1

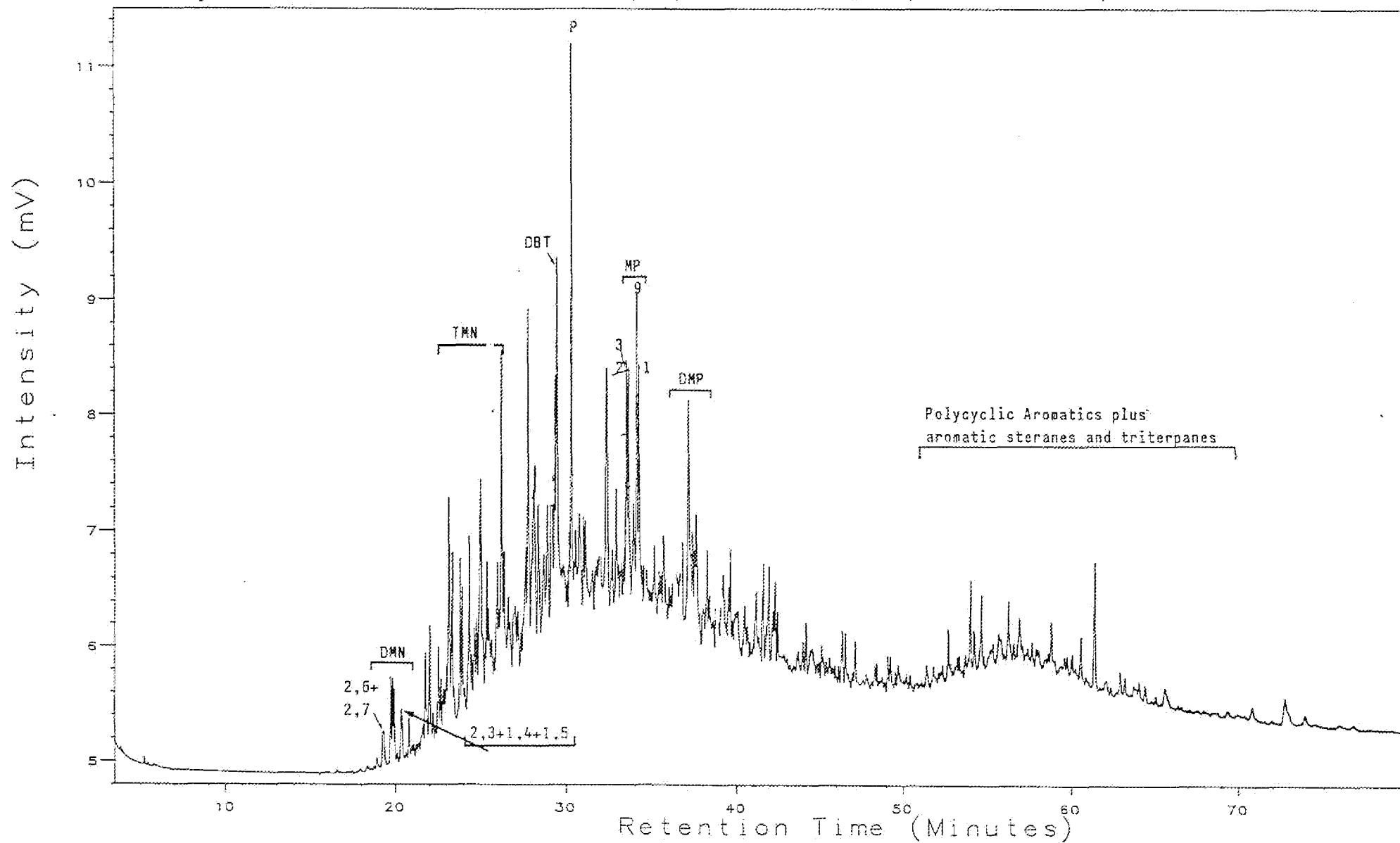
33/9-6, 2992m, ARO



Analysis AR1533178

8, 1, 1

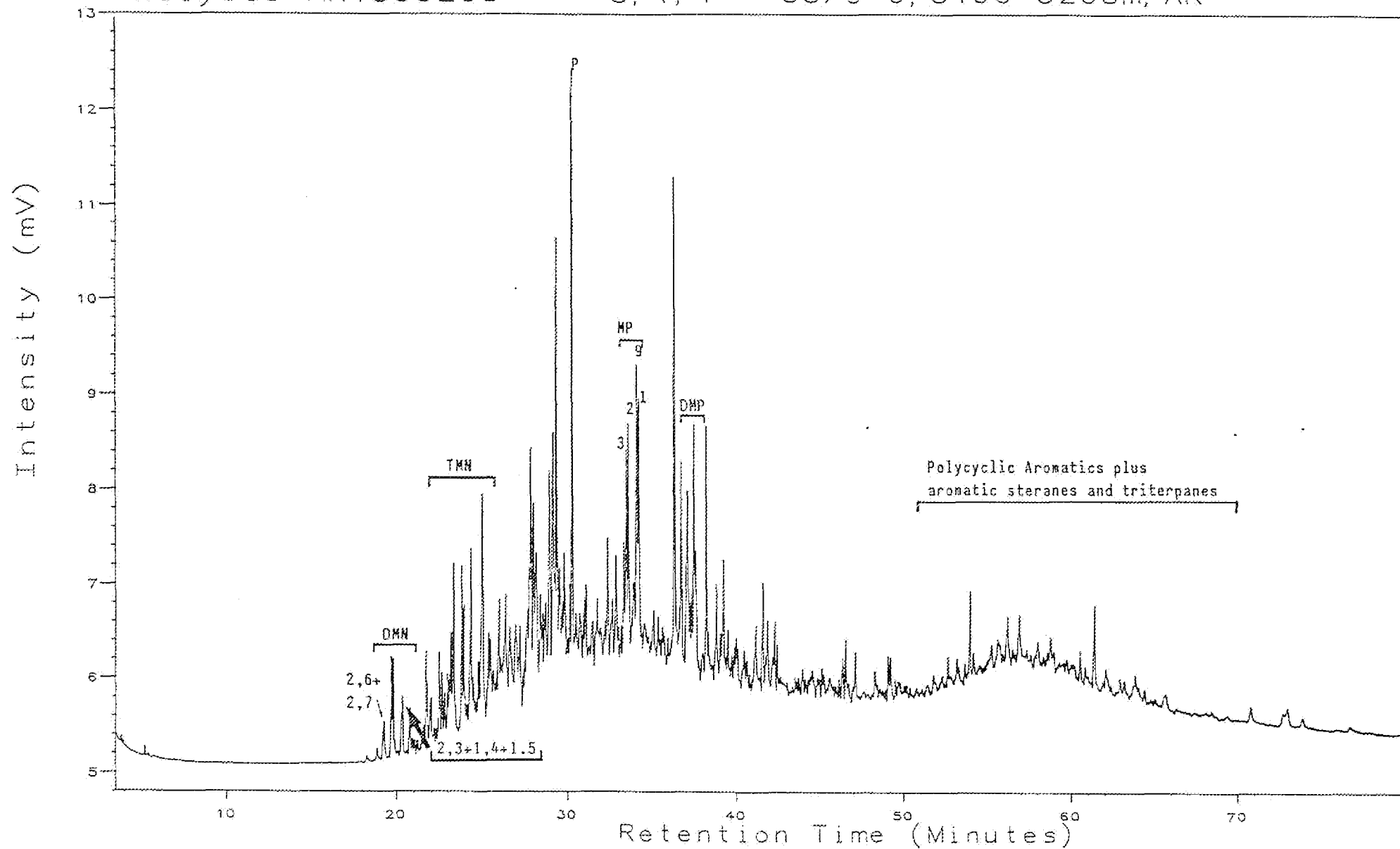
33/9-6, 3172-78m, ARO



Analysis AR1533208

8, 1, 1

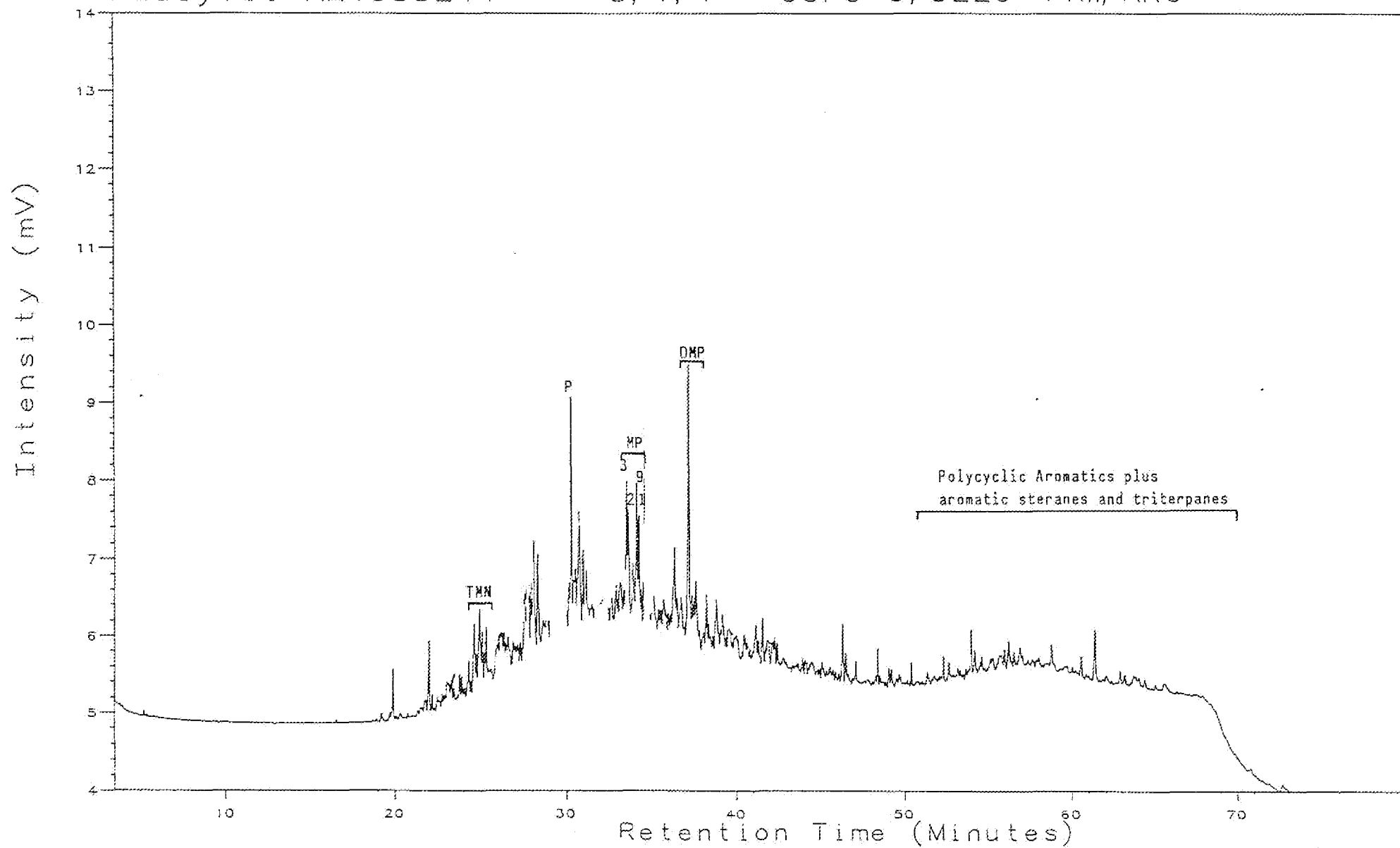
33/9-6, 3190-3208m, AR



Analysis AR1533244

8, 1, 1

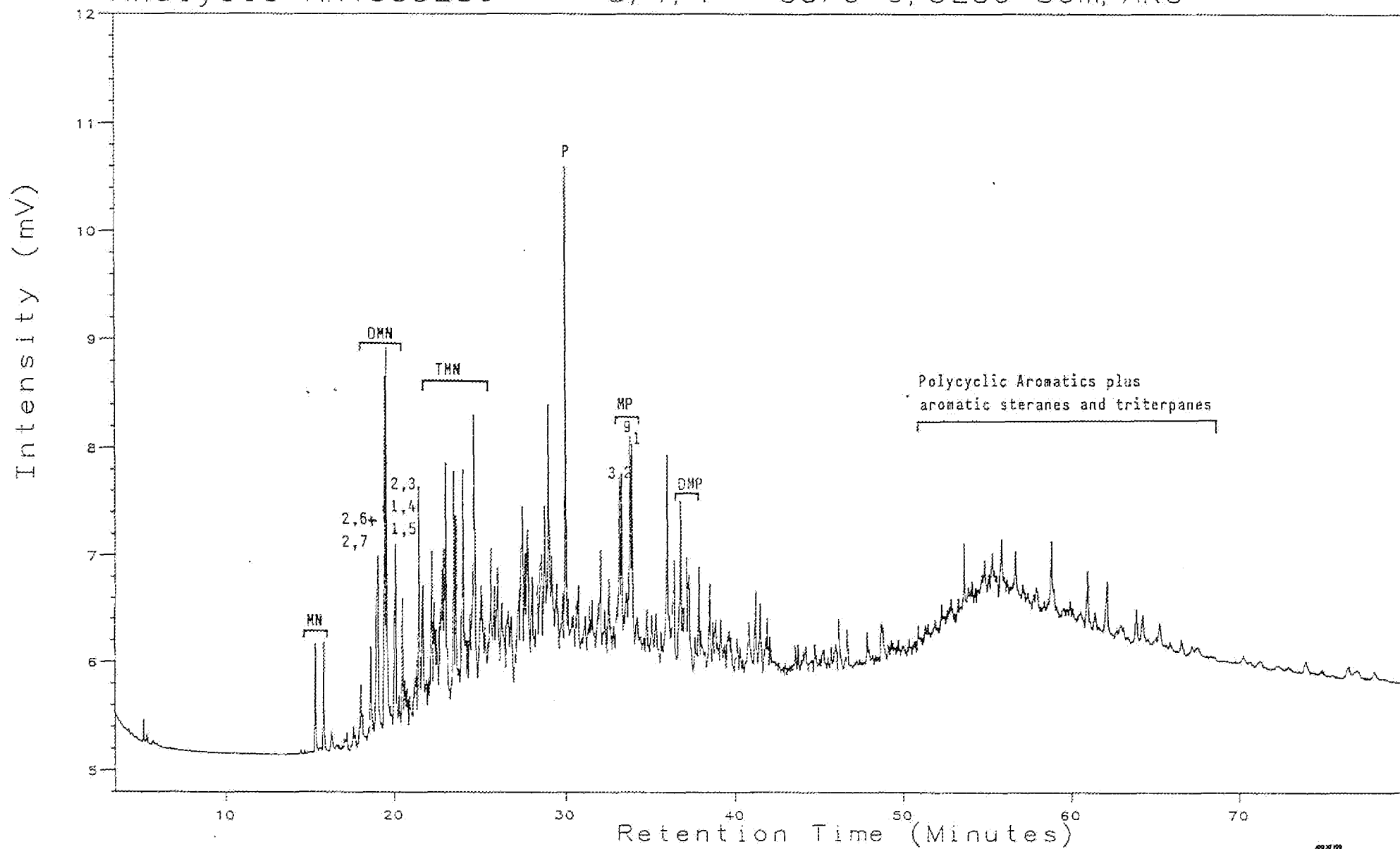
33/9-6, 3226-44m, ARO



Analysis AR1533280

8, 1, 1

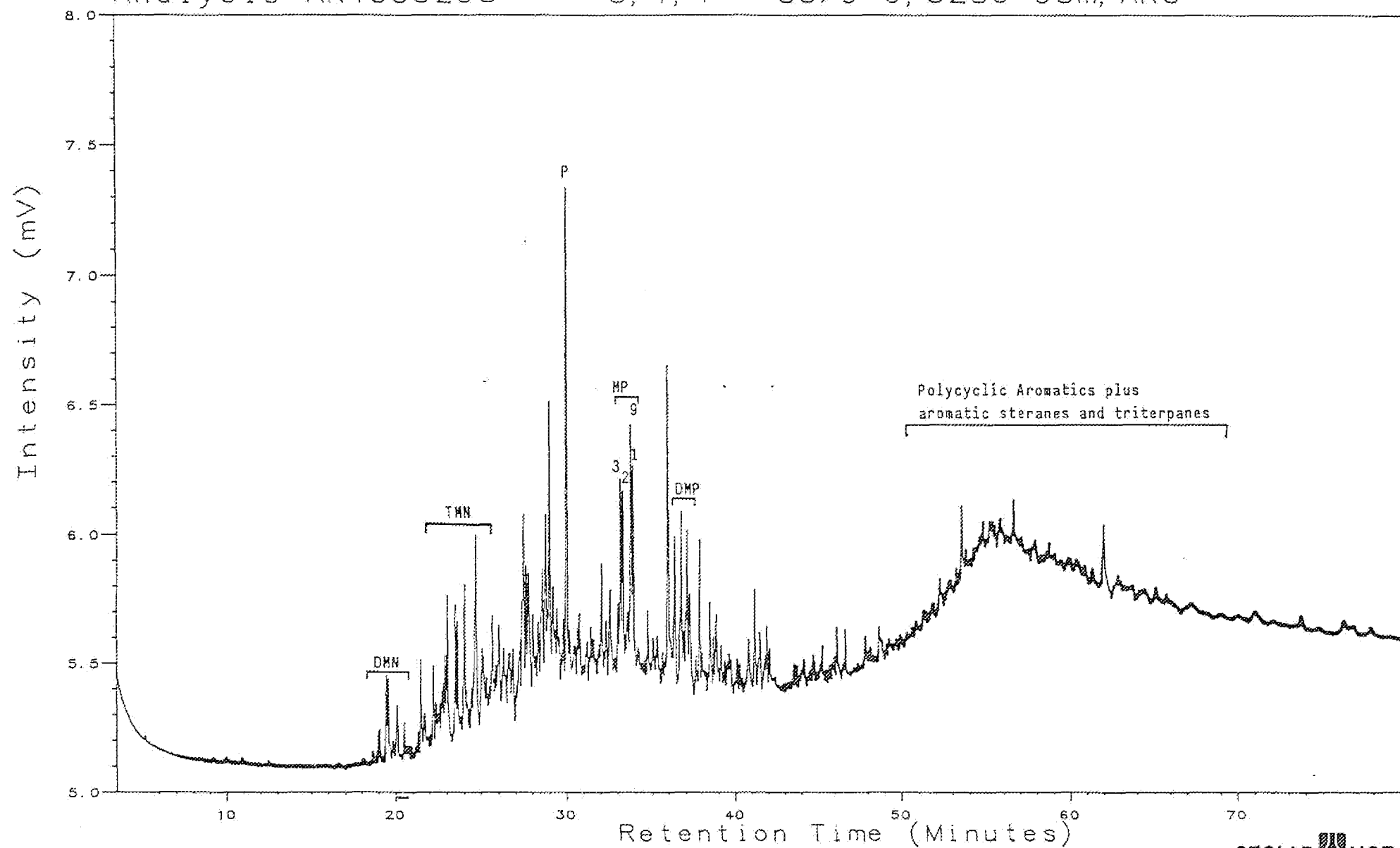
33/9-6, 3250-80m, ARO



Analysis AR1533298

8, 1, 1

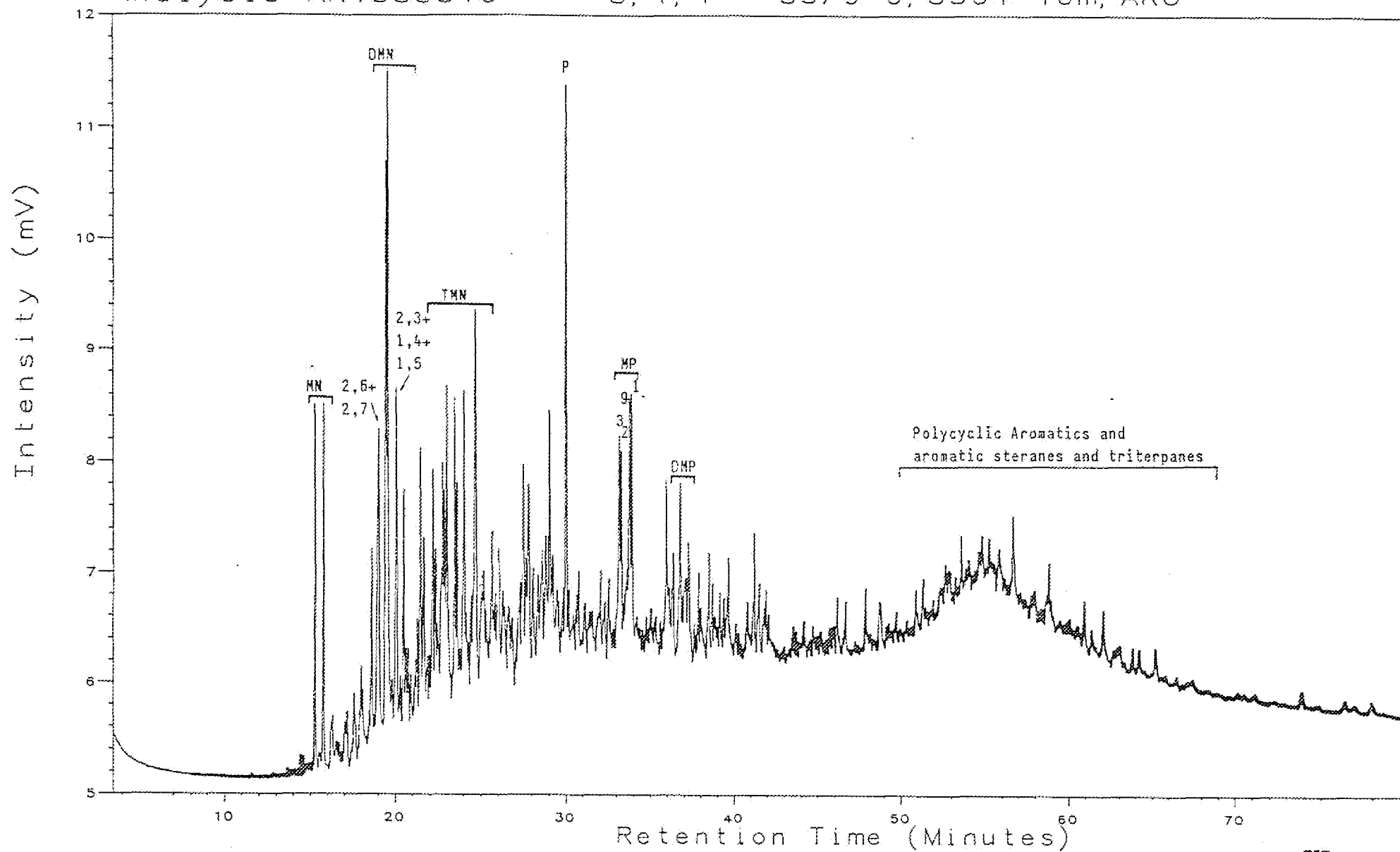
33/9-6, 3286-98m, ARO



Analysis AR1533310

8, 1, 1

33/9-6, 3304-10m, ARO

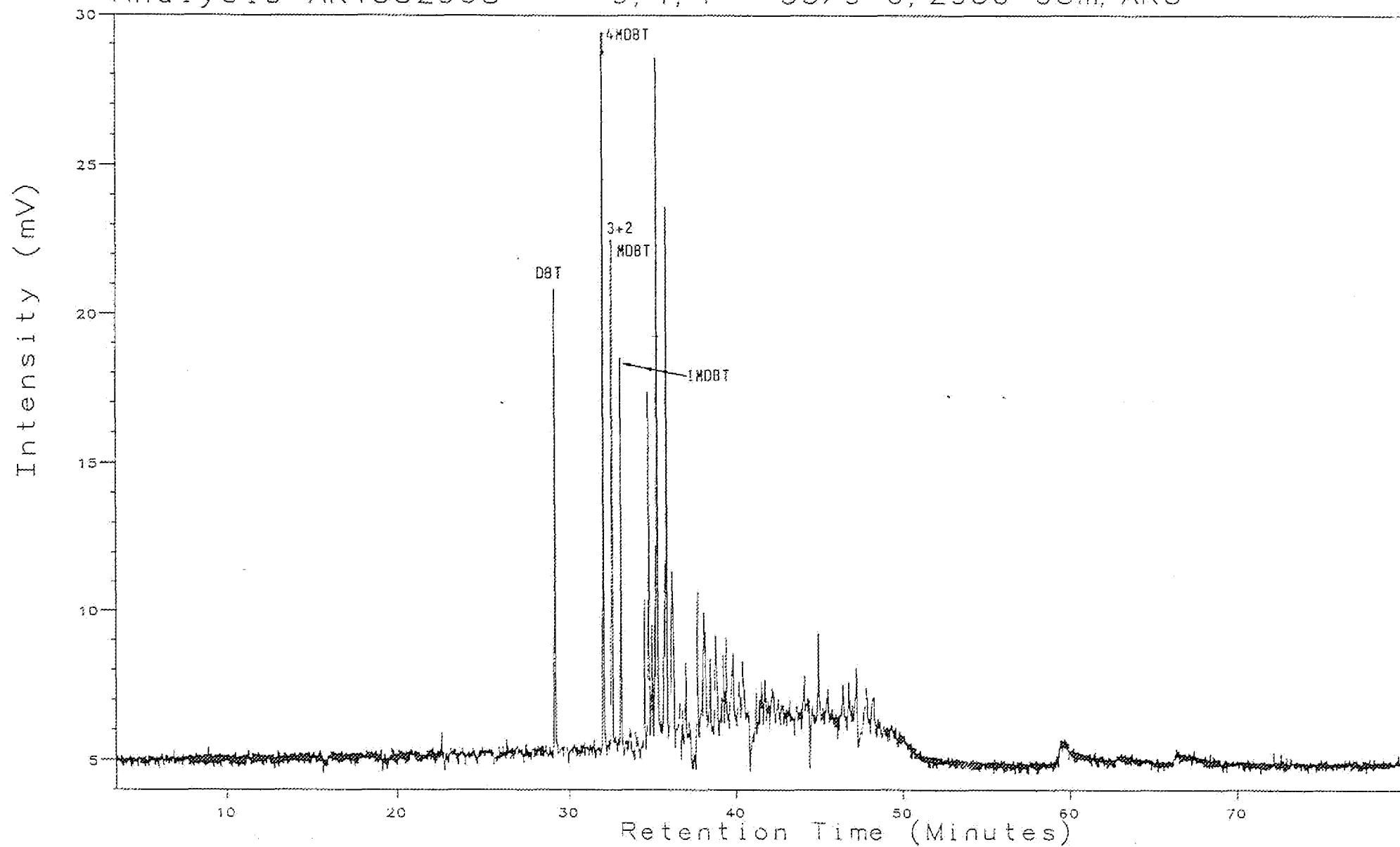


Aromatic fraction gas chromatograms
FPD (flame photometric detector)

Analysis AR1532968

9, 1, 1

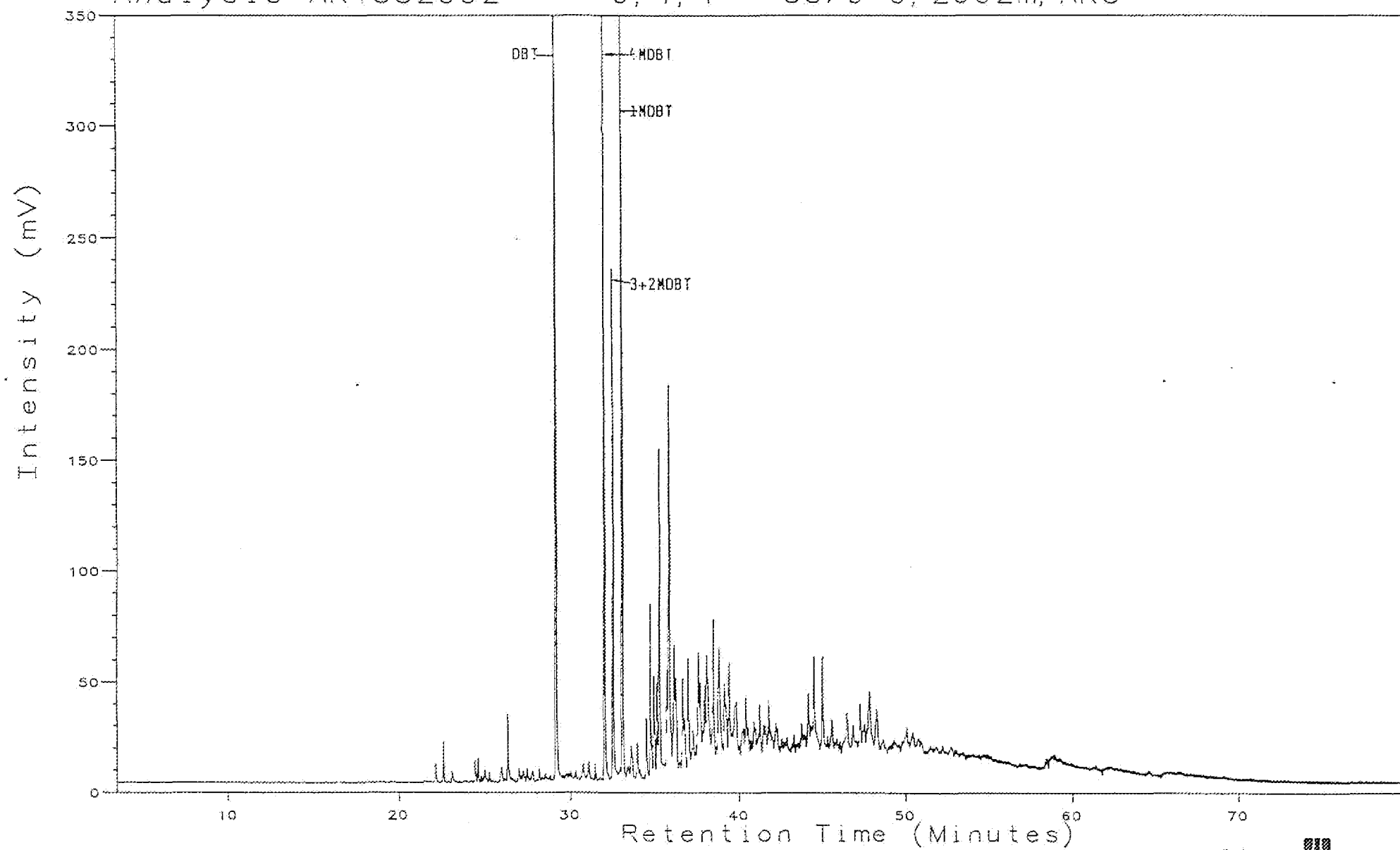
33/9-6, 2950-68m, ARO



Analysis AR1532992

9, 1, 1

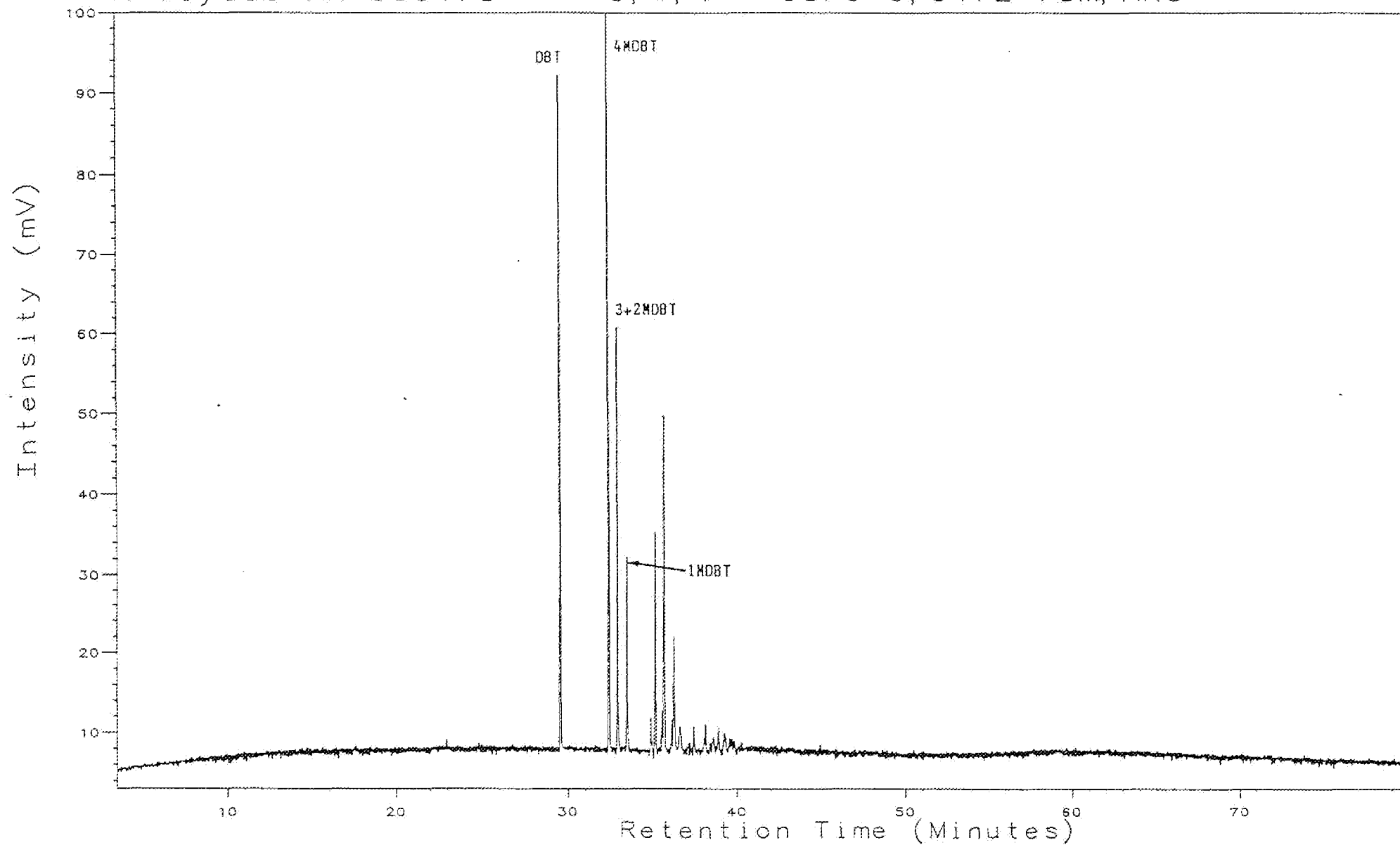
33/9-6, 2992m, ARO



Analysis AR1533178

9, 1, 1

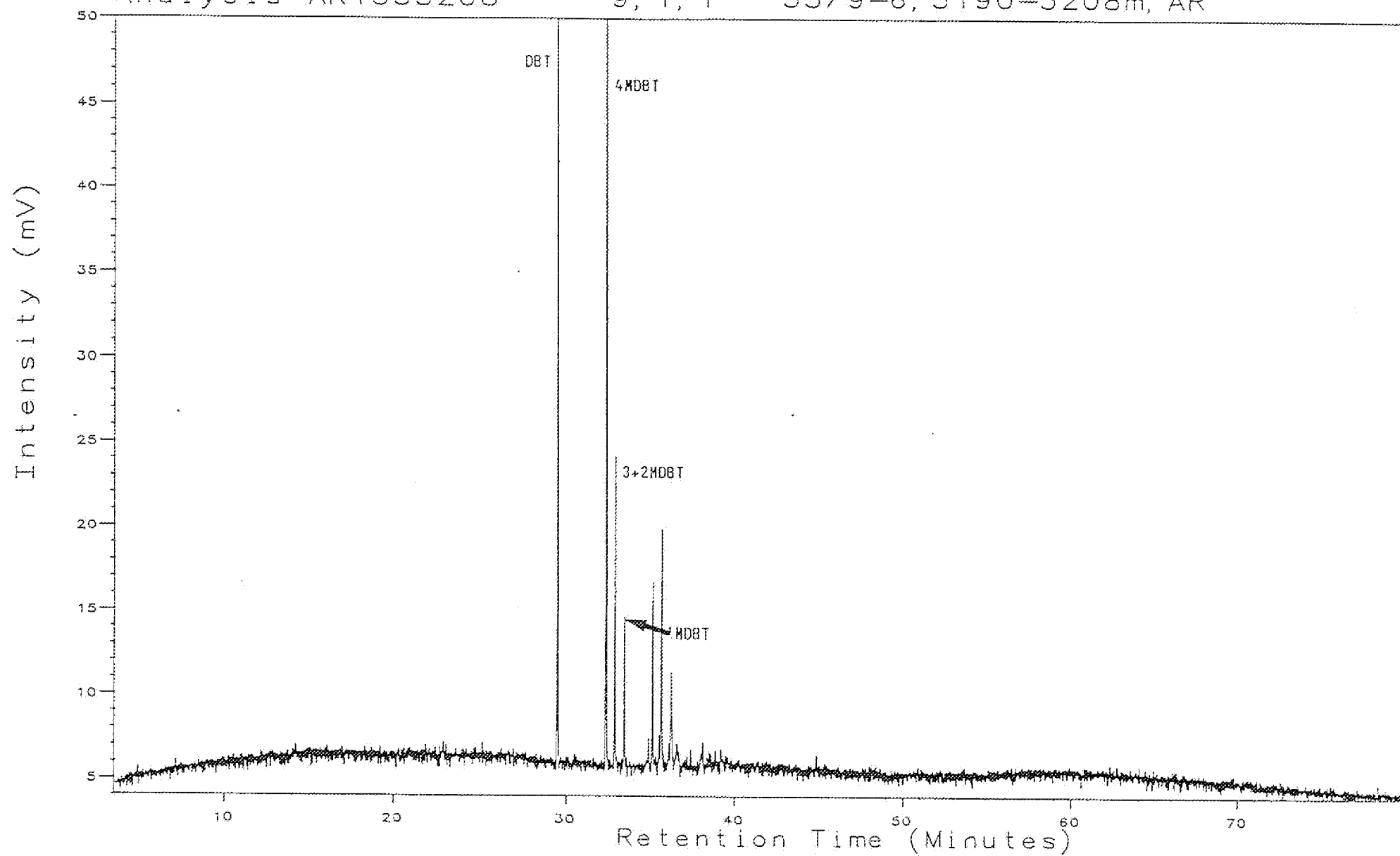
33/9-6, 3172-78m, ARO



Analysis AR1533208

9, 1, 1

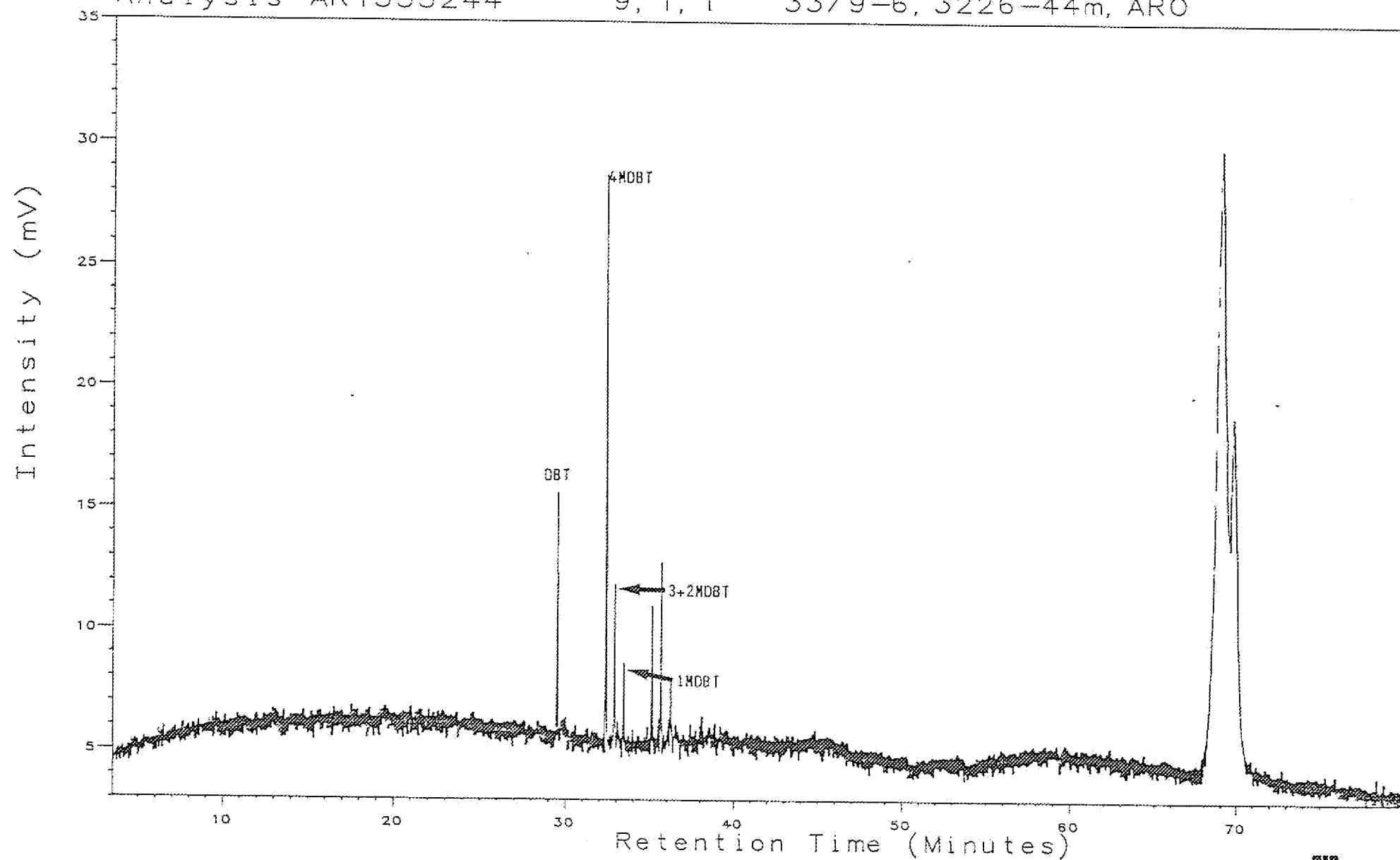
33/9-6, 3190-3208m, AR



Analysis AR1533244

9, 1, 1

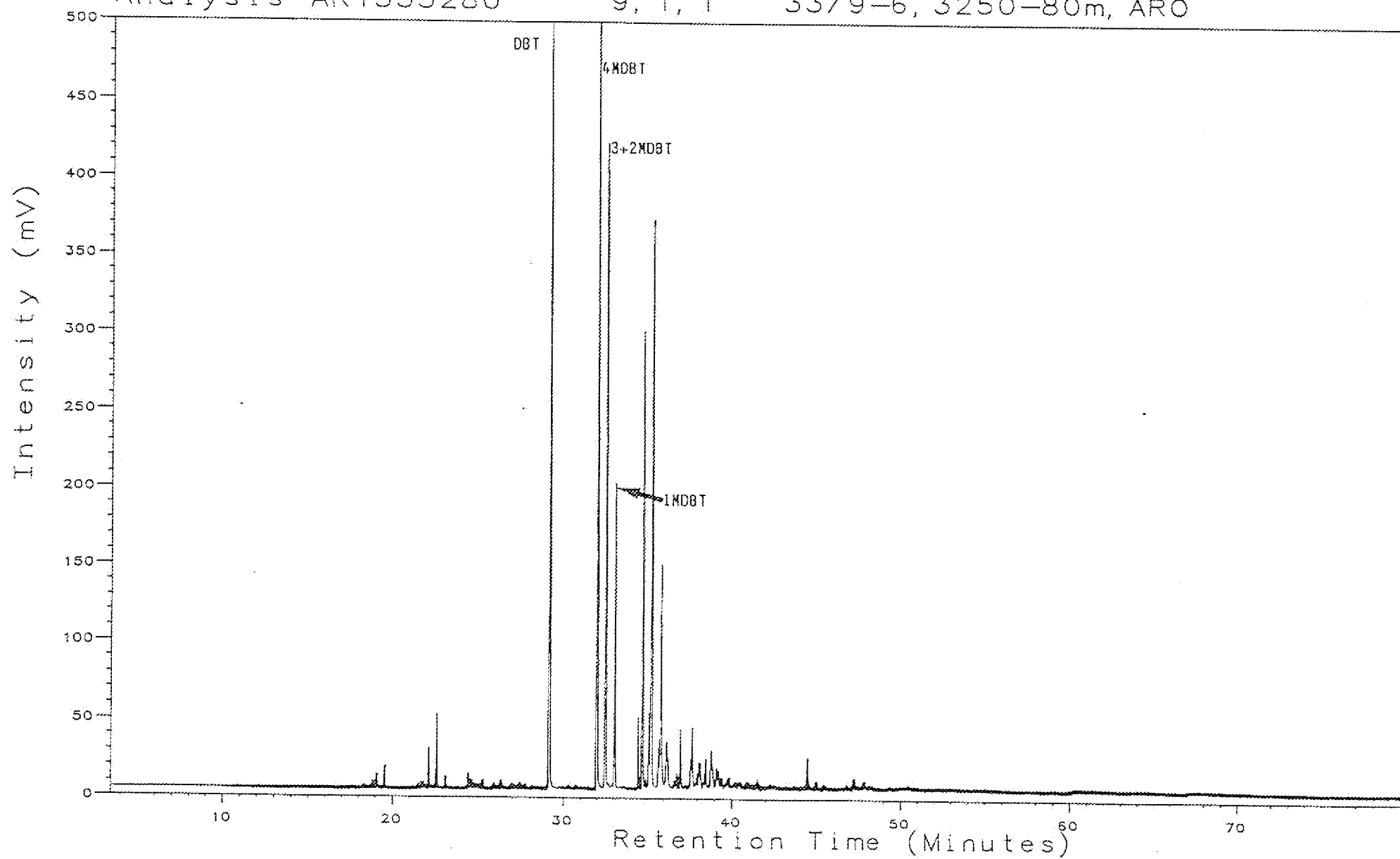
33/9-6, 3226-44m, ARO



Analysis AR1533280

9, 1, 1

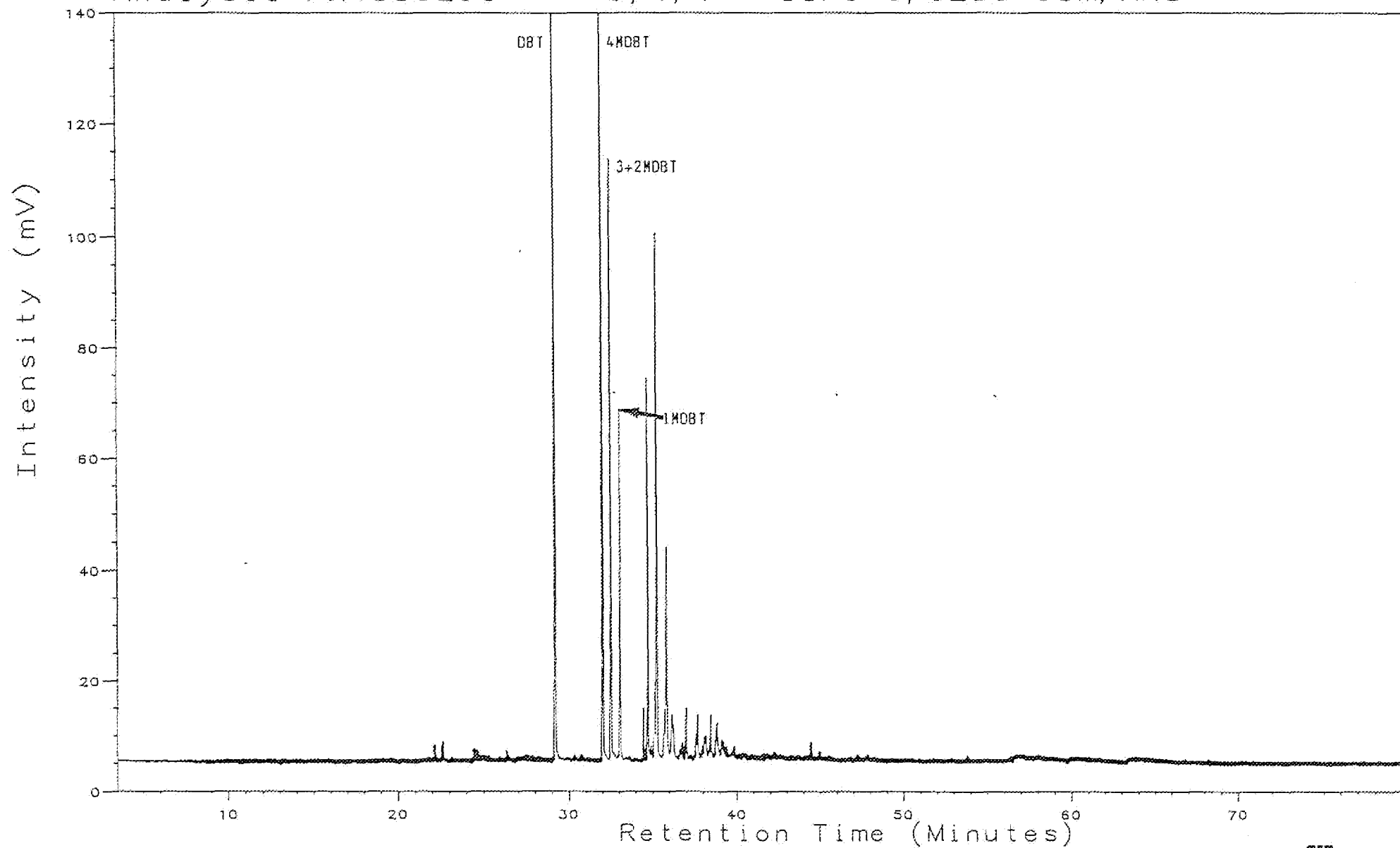
33/9-6, 3250-80m, ARO



Analysis AR1533298

9, 1, 1

33/9-6, 3286-98m, ARO



Analysis AR1533310

9, 1, 1

33/9-6, 3304-10m, ARO

