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Report

Confidential X

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OIL - OIL AND OIL - SOURCE ROCK CORRELATION

IN WELL : 6407/7-1

by

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Sign.

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Summary/Conclusion/Recommendation

In this report are reported the geochemical characterisation of the oil from well 6407/7-1. The oils are nonbiodegraded and of a predominantly marine origin.
The oils from 6407/7-1 are correlated with oil samples from 6407/1-2 and 6407/9-1 using multivariate statistics on biomarker distributions.
The same oils are correlated with extracts from the Jurassic part of well 6407/7-1 using the same techniques. The source rocks in well 6407/7-1 are considered too immature to have been the source for any of the oil samples under investigation, but a lateral more equivalent of the Upper Jurassic sediments may have acted as a source for the oil samples above.

Key words: Correlations, biomarkers, organic geocemistry

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CONTENTS

INTRODUCTION

In this report 8 oil samples from wells 6407/1-2, 6407/7-1, and 6407/9-2 are correlated with each other and with extracts in the interval from 2699 m to 3075.45 m (Jurassic) from well 6407/7-1.
The correlation is based on the distribution of biomarkers of the sterane and pentacyclic triterpane type analysed by selected metastable ion monitoring (SMIM). The results are compared using principal component analysis.
The geochemical analysis of the four DST samples and one STO (Stock Tank Oil) sample from well 6407/7-1 are also reported.
A well location map is given in Fig. 1.

Test
STO ... = ※3 (stock tank)
※2 3022.9 - 3034,4 - Reservoir 3
※3 2946.5 - 2923 - Reservoir 2
※4 2939,1 - 2885,9 - Reservoir 2
※5 2758 - 2781 - Reservoir 1

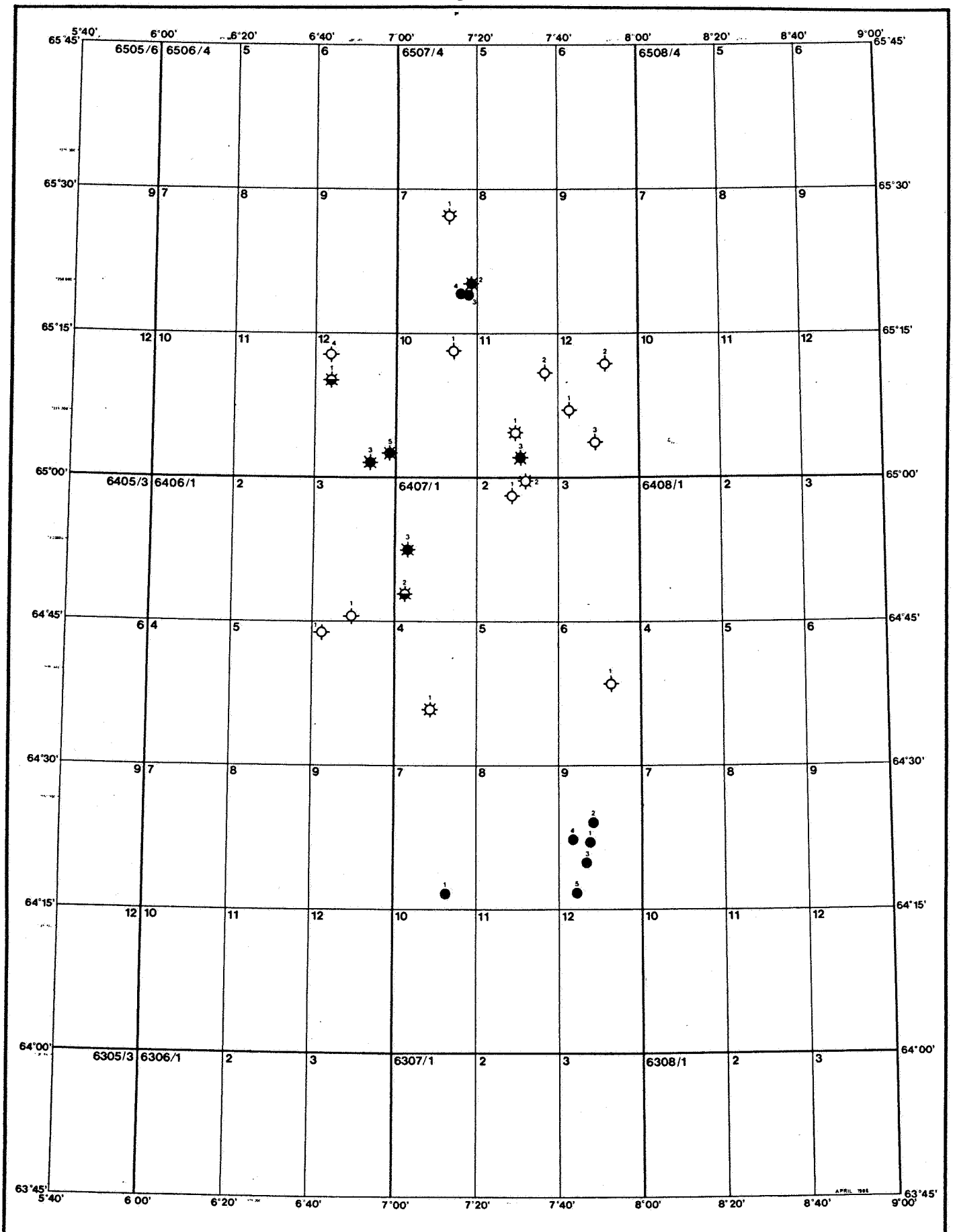


Figure 1: Well location map.

RESULTS AND DISCUSSION

OIL SAMPLES FROM WELL 6407/7-1:

C_2 - C_9 hydrocarbons:

The gas chromatograms of the light hydrocarbons are given in Appendix I, and the quantitative results are presented in Table 1.
All the oils are nonbiodegraded, with a relatively high concentration of aromatic hydrocarbons.
There is a general increase in the amount of light hydrocarbons going from DST#2 to DST#5.

Saturated hydrocarbons:

The gas chromatograms of the saturated hydrocarbons of the oils from well 6407/7-1 are given in Appendix II. The pristane/phytane and pristane/n-C_{17} ratios are given in Table 2:

Sample	Pristane/n-C_{17}		Pristane/Phytane		Ph/18
6407/7-1 STO	0.80	0,77	1.71	2,00	0,45
6407/7-1 DST#2	0.88	0,76	1.85	1,91	0,47
6407/7-1 DST#3	0.80	0,75	1.57	1,86	0,46
6407/7-1 DST#4	0.90	0,80	1.77	1,80	0,52
6407/7-1 DST#5	0.77	0,79	1.94	1,92	0,48

målt med linjal

Table 2: Molecular ratios from the gas chromatograms of the saturated hydrocarbons.

In some of the chromatograms the light end of the sample have been affected, probably as a result of sample handling (evaporative loss). Otherwise the chromatograms are very similar with a smooth homologous series of n-alkanes typical of mature hydrocarbons with a predominantly marine origin.
The samples from DST#3 and DST#5 have lower ~~Pristane/n-C_{17}~~ Pr/Ph ratios than the other samples, and the DST#5 have a higher ~~Pristane/Phytane~~ Pr/C17 ratio and the DST#3 have a lower Pristane/Phytane ratio than the rest of the samples.

Gas chromatography of aromatic hydrocarbons:

The gas chromatograms of the aromatic hydrocarbons are given in Appendix III.
The Methylphenanthrene indices (MPI-1) are given in Table 3:

Sample	MPI-1
6407/7-1 STO	0.74
6407/7-1 DST#2	0.75
6407/7-1 DST#3	0.72
6407/7-1 DST#4	0.72
6407/7-1 DST#5	0.66

Table 3: Methylphenanthrene index (MPI-1).

$$MPI\text{-}1 = \frac{1.5 \times (3\text{-}MP + 2\text{-}MP)}{P + 9\text{-}MP + 1\text{-}MP}$$

The gas chromatogram of the STO sample appears to have a higher relative concentration of biphenyl compared to the DST samples. In the DST samples there is also a high concentration of monoaromatic hydrocarbons extending up into the naphtalene region. This could be a result of the group type separation.
The DST#5 sample have a lower value of the MPI-1 index and this could be an effect of a lower maturity of this particular sample.

Biomarkers:

The mass fragmentograms of m/z 191 (triterpanes) and m/z 217 (steranes) for the oil samples from well 6407/7-1 are given in Appendix IV.
The biomarkers are also discussed under the correlation section of this report and are not treated further in this section.

Stable isotopes:

The δC_{13} versus PDB values are listed in Table 4:

Sample	Fraction	δC_{13}
6407/7-1 STO	Sat	-29.75
	Aro	-28.65
	NSO	-28.73
6407/7-1 DST#2	Sat	-29.75
	Aro	-28.70
	NSO	-28.92
6407/7-1 DST#3	Sat	-29.80
	Aro	-28.74
	NSO	-28.69
6407/7-1 DST#4	Sat	-29.70
	Aro	-29.00
	NSO	-29.19
6407/7-1 DST#5	Sat	-29.06
	Aro	-28.63
	NSO	-27.90
NBS 22		-29.77

Table 4: Stable isotope values
(University of Bergen)

The different samples are very similar, except DST#5 which appears to be isotopically heavier than the other samples, and could indicate a more terrigenous influenced origin for this oil.

OIL - OIL CORRELATION:

The oil-oil correlation is undertaken using metastable ion monitoring and unsupervised principal component analysis. The biomarker composition of 8 oil samples were correlated. The gas chromatograms of the saturated and aromatic fractions of the oil samples from 6407/9-1 and 6407/1-2 are given i Appendix V. The sample from 6407/9-1 appears to be slightly biodegraded as there is a depletion of n-alkanes in this sample.
The normalised peak heights for the 47 individual biomarkers, 14 pentacyclic triterpanes and 33 steranes, used in this investigation are given Table 5 and a tentative peak identification is given in Table 6.
The results of the selected metastable ion monitoring of the oil sample from 6407/7-1 DST#5 is shown in Fig. 2.

The multivariate correlation of the 8 oil samples included in this report is carried out on the steranes and triterpanes combined, with the triterpanes having variable number 1 to 14 and the steranes variable number 15 to 47.

The scores of the 8 oil samples on the first two principal components are given in Fig. 3. The STO and DST#2 to 4 from well 6407/7-1 plot close together, while the sample from 6407/1-2 plot together with the two parallell samples from 6407/9-1. DST#5 from well 6407/7-1 appears to be different from the other samples and plots separately.
Most of the variance is accounted for by the first principal component and the two principal components are not scaled in Fig. 3 so the separation along the second principal component is smaller than along the first principal component.
The loadingplot in Fig. 4 explains the principal components in terms of the original variables. The numbers correspond to the 47 variables used in this correlation. The negative correlation between the 25,28,30-trisnorhopane (variable 3) and the unknown C_{29} and C_{30} triterpanes (variables 11 and 8) appears to be most important effect along the first principal component. The oils from 6407/7-1 contains more of these latter compounds than the other oils while the relative concentration of the 25,28,30-trisnorhopane is lower in these oil samples.

The second principal component appears to be dominated by the negative correlation between the the triterpanes (1 to 14) and the steranes (15 to 47). There is also a negative correlation between the C_{29} regular steranes and the other regular steranes. The C_{29} steranes and the triterpanes are positively correlated.

These results indicate that the DST#5 sample from well 6407/7-1 have a higher input of terrigenous organic matter than the other samples as shown by the higher relative amounts of triterpanes and C_{29} steranes.

The first principal component may be explained in terms of facies variations within the source, or possibly maturity differences. Several of the important variables on this principal component corresponds to biomarkers with an unknown structure and little is known about their geochemical significance.

OIL - SOURCE ROCK CORRELATION:

The oil-source rock correlation is carried out using metastable ion monitoring and unsupervised principal component analysis. The biomarker composition of 9 oil samples (2 parallels from well 6407/1-2) are correlated with 17 sediment extracts from well 6407/7-1. All the extracts originates from the Jurassic section of this well in the interval from 2699 m to 3075.45 m. The extracted material is either SWC or core chips. More details of these extracts are reported in "Source Rock Evaluation of Well 6407/7-1).

The normalised peak heights for the 47 individual biomarkers used in this investigation are given in Table 7 and a tentative peak identification is given in Table 6. The variable numbers correspond to the peak identification in Table 6.

The multivariate analysis have been undertaken on the triterpanes and steranes separately, using 14 peaks from the pentacyclic triterpanes and 33 peaks from the steranes.

Fig. 5 shows the 26 samples used in this investigation projected onto a plane spanned out by the first two principal components using the steranes as input data. All the 9 oil samples are grouped together on the right side of the plot. The oil samples from well 6407/7-1 are plotting very close and apart from the other oil samples. The extracts appear to group in four clusters. One consisting of the samples 17 and 18, one consisting of the samples from 1 to 4, one consisting of the samples from 5 to 10 pluss sample 15 and the last group which plot together with the oils from well 6407/7-1.
The principal components (factors) can be interpreted in terms of the original variables and this is shown in Fig. 6. In this loadingplot the effect of the different variables on the two first principal components are shown. In group I are the C_{27}, C_{28} and C_{30} $\alpha\alpha\alpha$ steranes, in group II are the C_{29} $\alpha\alpha\alpha$ steranes and in group III are the C_{29} rearranged

steranes. All the other steranes are plotting close together. It appears that the negative correlation between the ααα and the αββ steranes is the most important effect along the first principal component (factor). This is a well known effect of maturity.

Along the second principal component there is a negative correlation between the C_{29} steranes and rearranged steranes (diasteranes). This could be an effect of both maturity and depositional environment. All the extracts except those plotting together with the oils appear to have a maturity lower than that of the oils and the oils can thus not be sourced from these potential source rocks. The extracts plotting with the oils are all from the part of the well with the main reservoirs, and could well be contaminated by the mature migrated hydrocarbons found in these reservoirs. The oilsamples are more similar to the extracts from the Upper Jurassic shales than the coal samples (16 and 17) plotting in the upper left hand corner.

A plot of the 26 samples on the first two principal components using the triterpanes as input is shown in Fig. 7. The different groups are positioned relative to each other similar to Fig. 5, using the steranes as input.
The loading plot in Fig. 8 shows that the most important effect on the first principal component is the negative correlation between the peaks 8 (28,30-bisnorhopane), 9 (unknown C_{29} triterpane), 11 (unknown C_{29} triterpane), 14 (Ts) and the rest of the triterpanes. This is most likely an effect of maturity. The principal effect of the second principal component is the negative correlation between peak 9 and peaks 8,11,12 and 14.

The multivariate analysis of the steranes and the triterpanes are both strongly influenced by maturity differences between the oil samples and the sediment extracts.

The carbon number distribution of the C_{27} to C_{29} steranes are often used as a source indicator. In Table 8 the relative concentration of the ααα (20R) epimers for the samples under investigation are listed. The results are also plotted in a triangular diagram in Fig. 9.

All the oil samples have similar sterane carbon number distribution compared to the variation among the sediment extracts. This distribution correlates well with the distribution in the samples in the interval from 2699m to 2706 m. The extracts in the interval from 2837 m to 3064.37 m are probably contaminated by the reservoired hydrocarbons in well 6407/7-1.

CONCLUSION

The oil samples from well 6407/7-1 are analysed by conventional geochemical techniques. The STO and DST#2, DST#3 and DST#4 are very similar and suggests a mature source of predominantly marine origin. The DST#5 sample have a higher contribution of terrigenous organic matter and at least have some contribution from a more terrestrially derived source. This sample is also isotopically heavier than the rest of the samples.
The C_6 to C_9 hydrocarbon analysis indicates a relatively high contribution of aromatic hydrocarbons.
The oil samples from 6407/9-1 and 6407/1-2 are very similar in their biomarker distribution and may have a common source. The differences between these oils and the oils from 6407/7-1 may be attributed to either facies variations or possibly maturity differences.

The oil source rock correlation shows that the majority of the extracts from well 6407/7-1 are too immature to source the oils in this investigation.
Some of the extracts appear to be contaminated by migrated hydrocarbons.
A comparison of the sterane distribution suggests that a lateral, more mature equivalent of the source rocks in the interval 2699 m to 2706 m may have acted as a source for the oils under investigation.

EXPERIMENTAL

The oils and sediment extracts were deasphalted, and the hexane soluble part was separated into saturated- and aromatic hydrocarbons and polar NSO-compounds using a MPLC system with an amino modified silica precolumn and a silica main column and hexane as the mobile phase.

The saturated hydrocarbons were analysed by gas chromatography on a HP5880 gas chromatograph fitted with a 30 m DB-1 (J&W) fused silica column. The aromatic hydrocarbons were analysed on a HP5880 gas chromatograph fitted with a 60 m DB-5 (J&W) fused silica column. The light hydrocarbons were analysed on a HP5880 gas chromatograph fitted with a 50 m PONA column (HP) and a packed precolumn

All chromatographic results were collected on a VG Multichrom lab data system for integration and calibration.

The saturated hydrocarbons were analysed on a VG 7070E mass spectrometer interfaced to a HP 5790 gas chromatograph.

The peak heights of the individual biomarkers were measured using a VG 11/250 data system and transferred to a VAX 11/785 where they were normalised to 100%. The principal components were calculated using a program called Unscrambler implemented on the VAX computer. The normalized peak heights were used as input to this program and the variables were either weighed by dividing by the standard deviation or by using log of the normalised peak height.

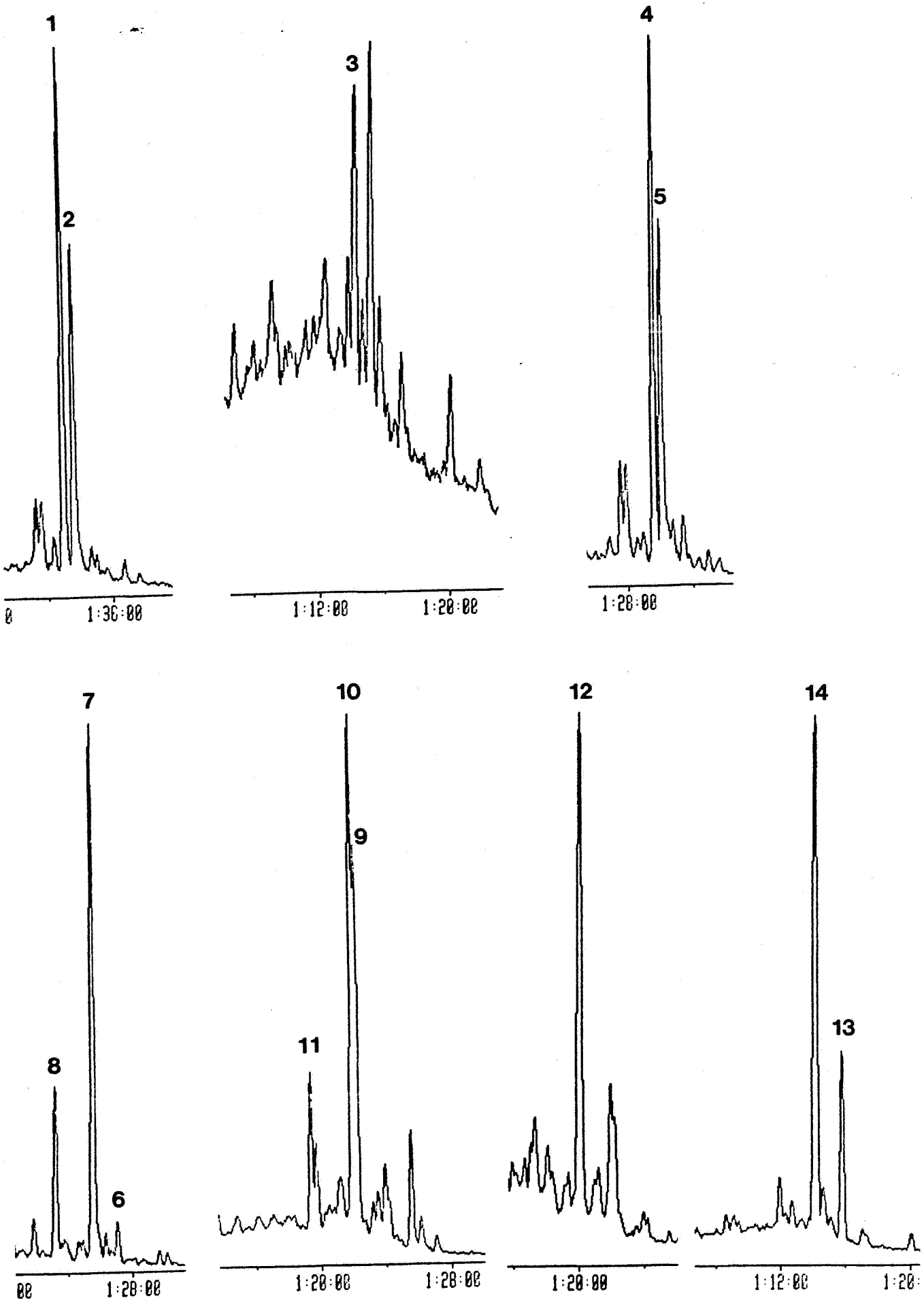
FIGURES

Figure 2: Results of metastable ion monitoring of the saturated hydrocarbons from 6407/7-1 DST 5.

2a Triterpanes

2b Steranes

Numbers correspond to peak identification in Table 6.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3
4
5
0
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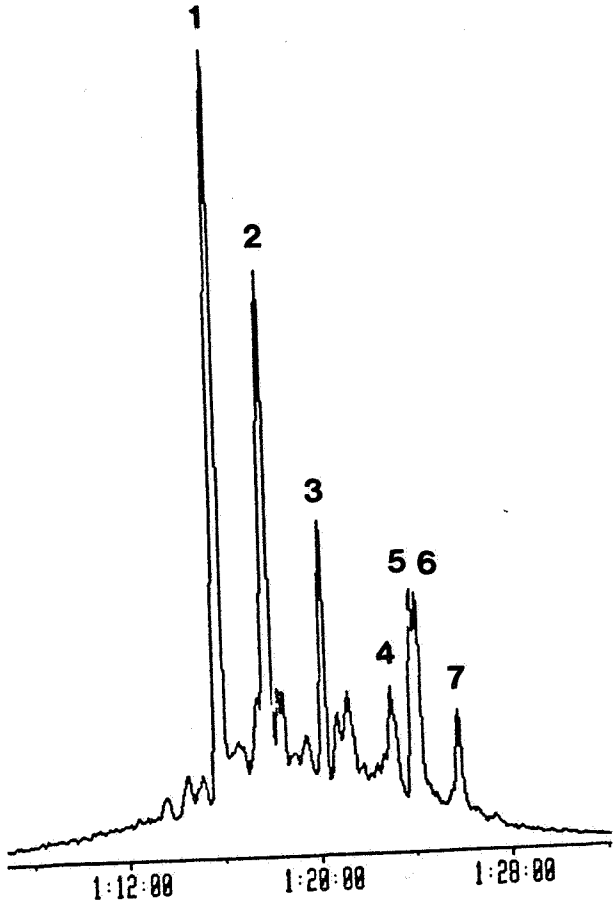
1:28:00
7
8
6
10
9
11
12
14
13
00
1:28:00
1:28:00
1:28:00
1:28:00
1:12:00
1:20:

Figure 2a


1
2
3
4
5 6
7
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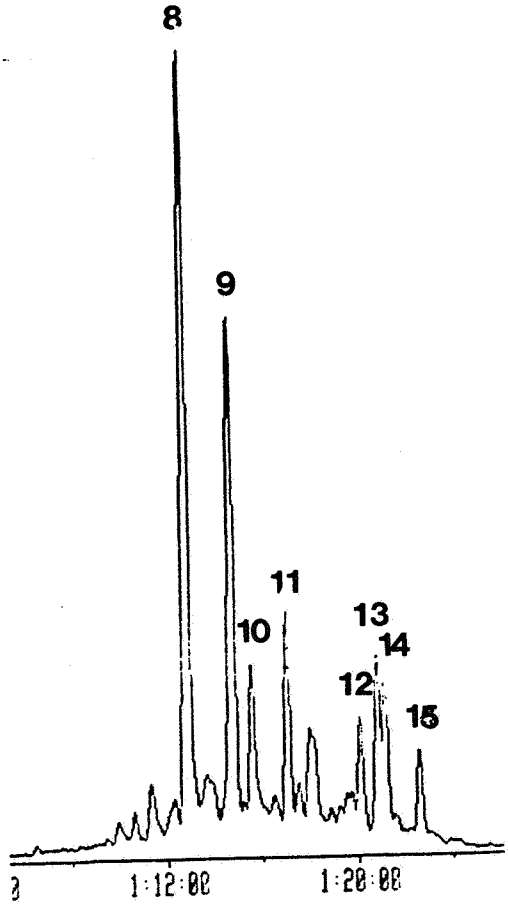
1:28:00


8
9
10
11
12
13
14
15
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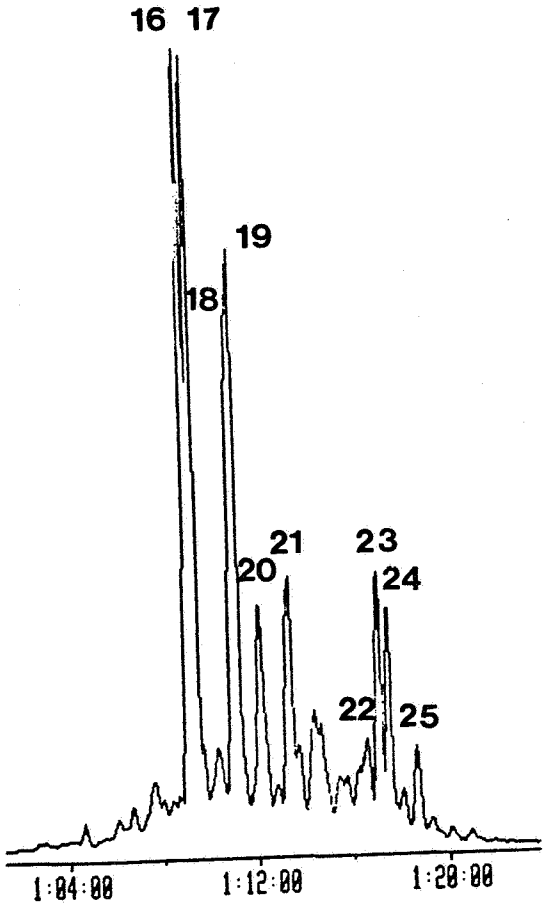
1:20:00


16 17
18
19
20
21
22
23
24
25
1:04:00
1:12:00
1:20:00

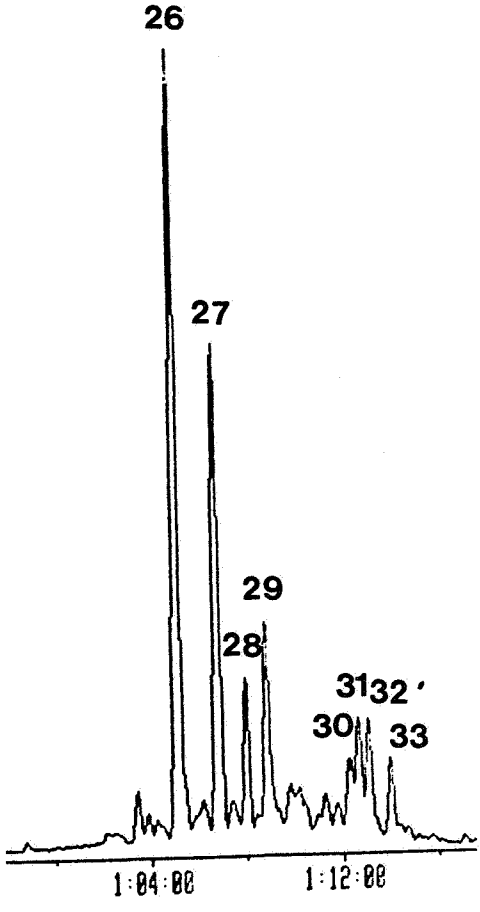
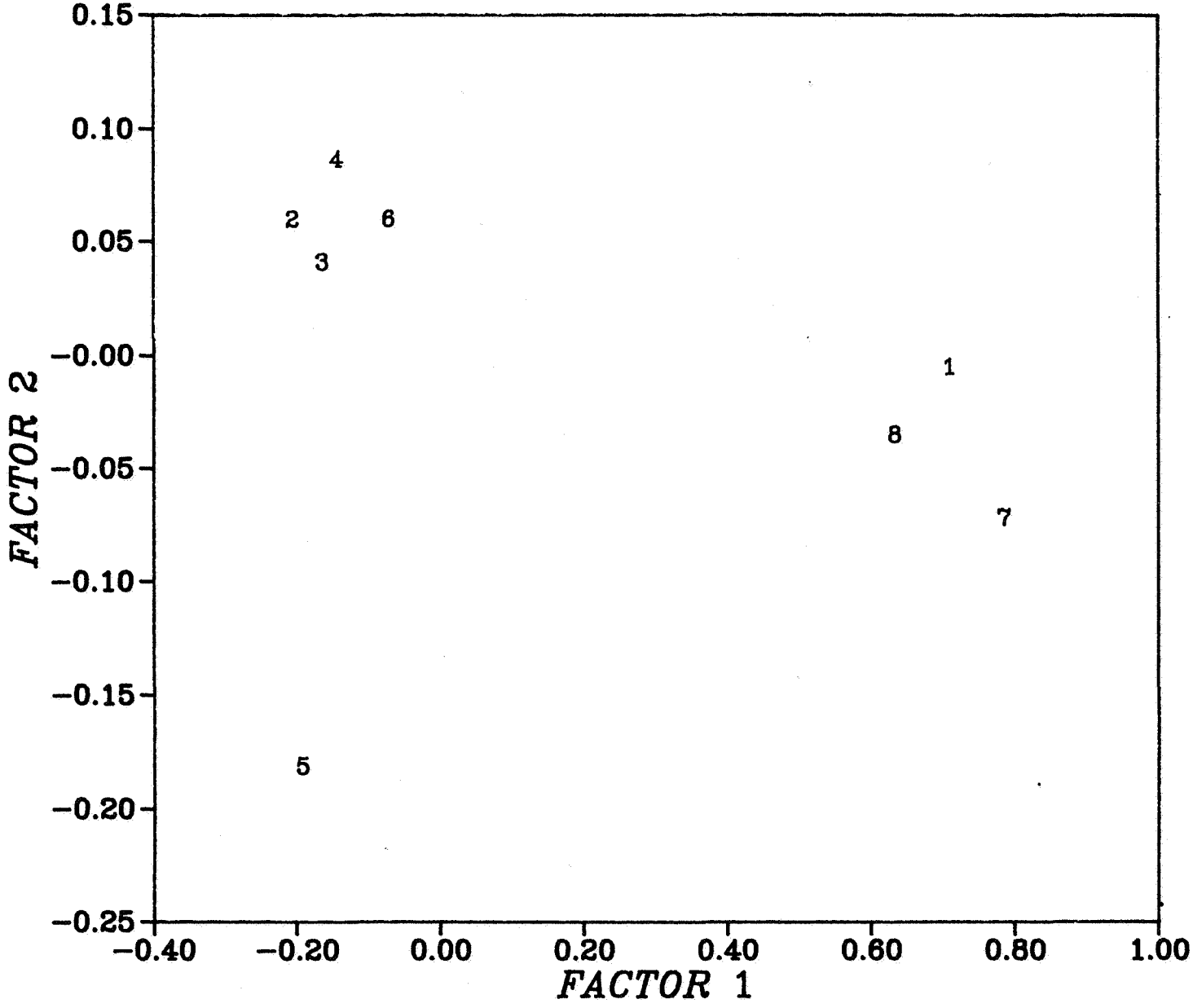

26
27
28
29
30
31
32
33
1:04:00
1:12:00

Figure 2b

Figure 3: The scores of the 8 oil samples on the first two principal components.

CORRELATION OILS



1	6407/1-2 #1
2	6407/7-1 #2
3	6407/7-1 #3
4	6407/7-1 #4
5	6407/7-1 #5
6	6407/7-1 STO
7	6407/9-1
8	6407/9-1

Figure 4: Loadingplot for the first two principal components. Numbers 1 to 14 are the triterpanes and numbers 15 to 47 are the steranes.

LOADINGPLOT BIOMARKERS

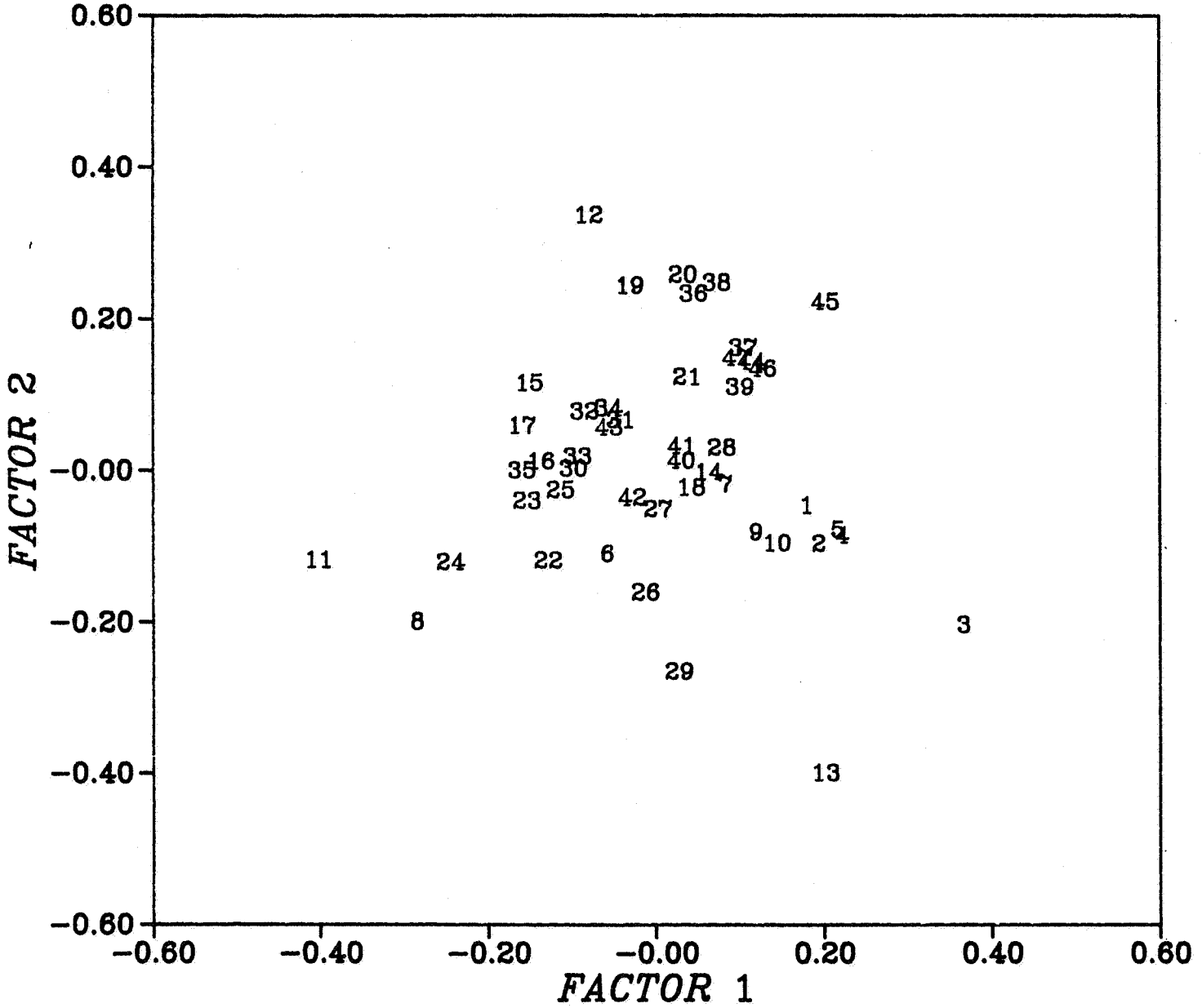
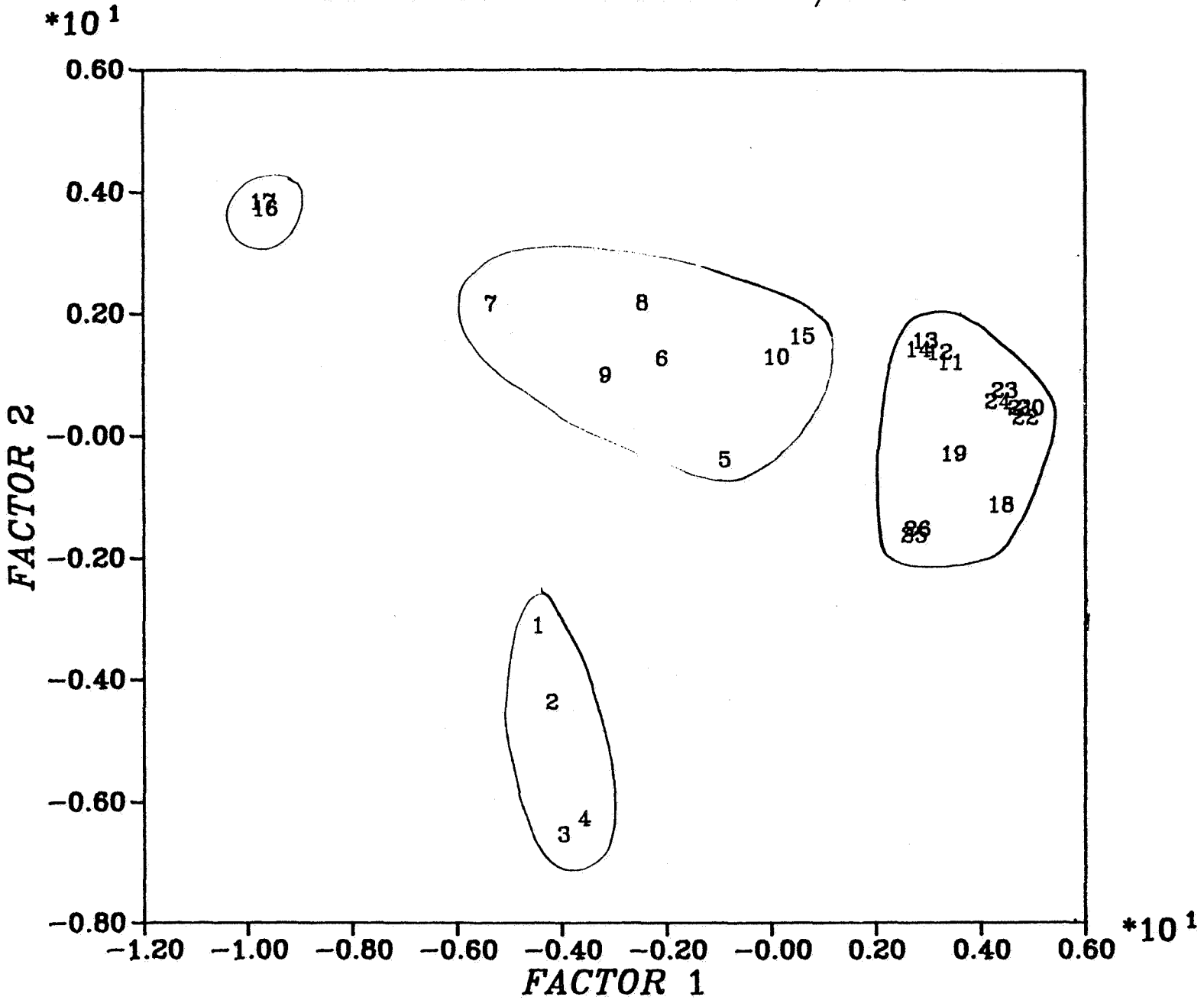


Figure 5: Score plot for the 26 samples on the first two principal components.

CORRELATION WELL: 6407/7–1



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2	2700.00
3	2704.00
4	2704.50
5	2706.00
6	2709.00
7	2711.00
8	2712.00
9	2713.00
10	2837.00
11	2915.00
12	2956.00
13	3024.00
14	3027.80
15	3064.37
16	3071.57
17	3075.45
18	6407/1-2 #1
19	6407/1-2 #1
20	6407/7-1 #2
21	6407/7-1 #3
22	6407/7-1 #4
23	6407/7-1 #5
24	6407/7-1 STO
25	6407/9-1
26	6407/9-1

Figure 6: Loadingplot for the first two principal components using steranes as input.

LOADINGPLOT STERANES

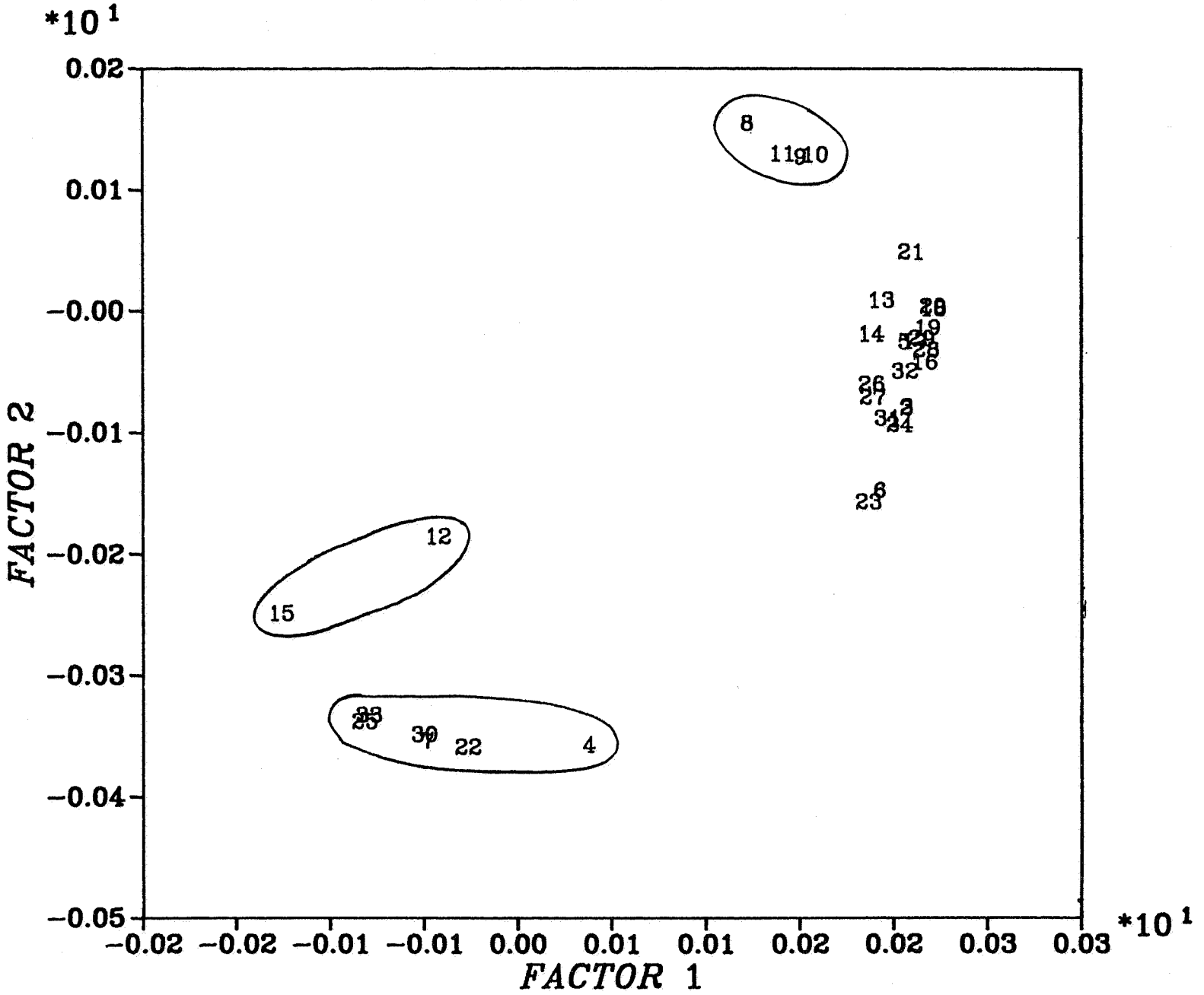
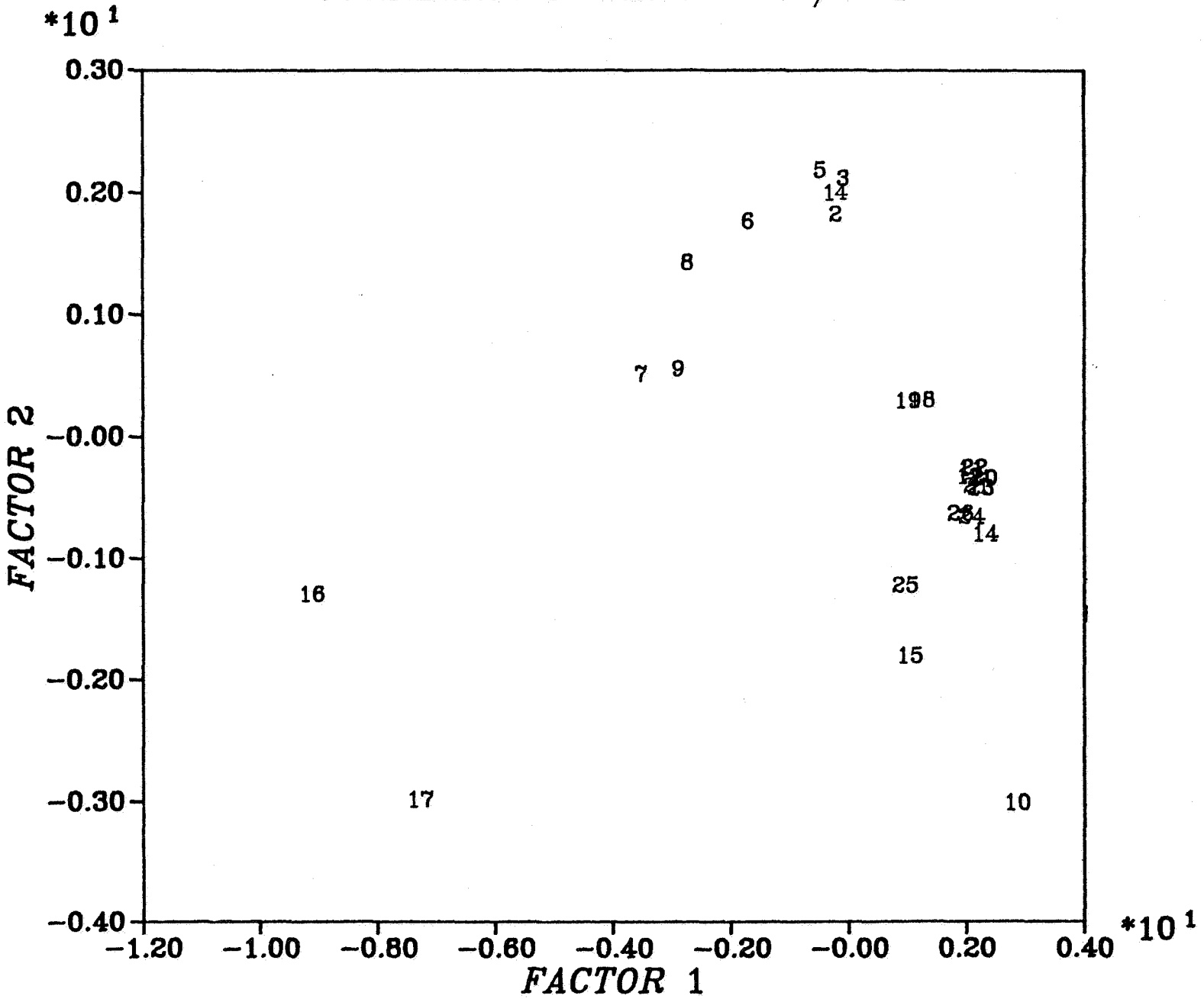


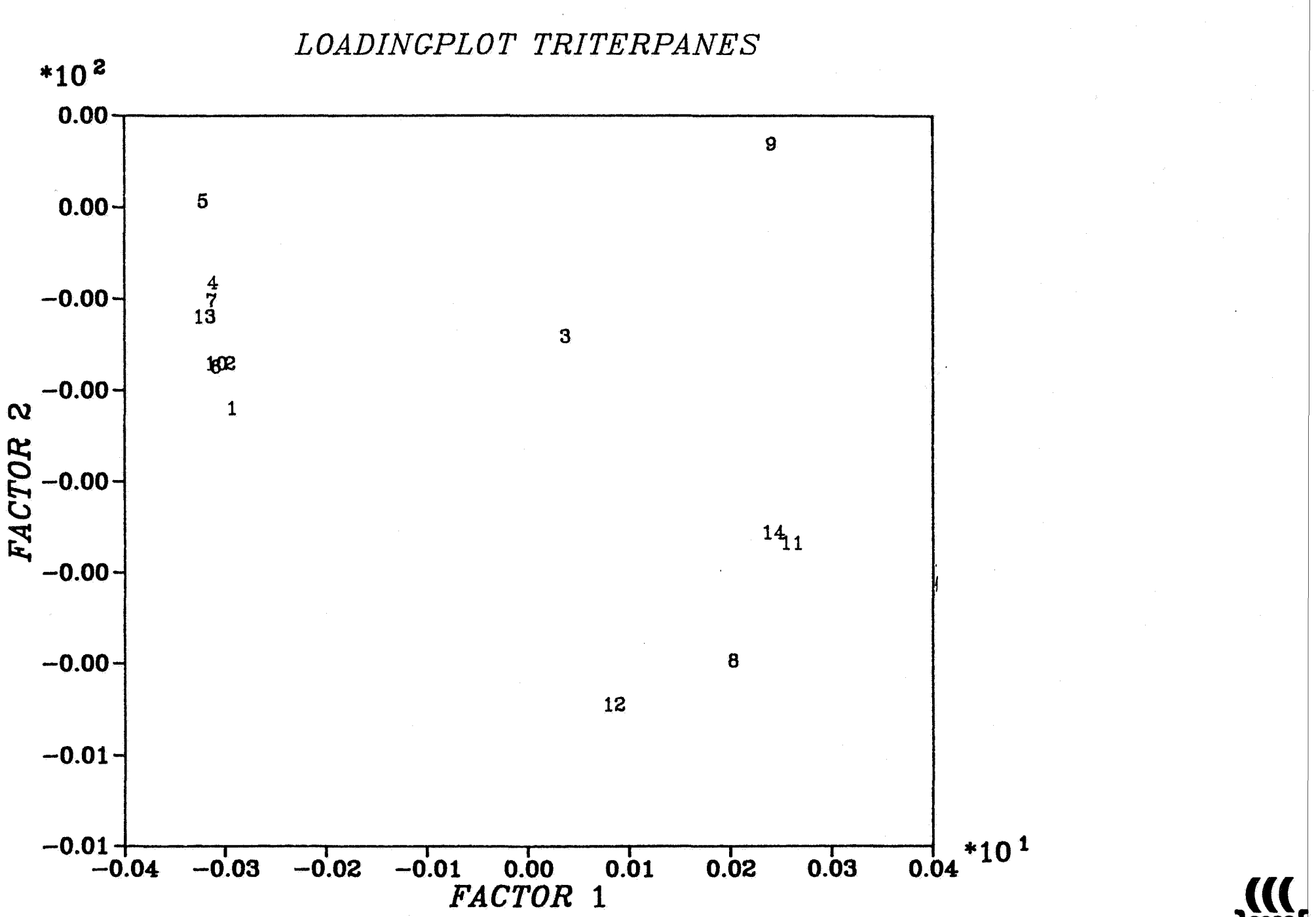
Figure 7: Score plot for the 26 samples on the first two principal components using triterpanes.

CORRELATION WELL: 6407/7–1



SAMPLE	
1	2699.00
2	2700.00
3	2704.00
4	2704.50
5	2706.00
6	2709.00
7	2711.00
8	2712.00
9	2713.00
10	2837.00
11	2915.00
12	2956.00
13	3024.00
14	3027.80
15	3064.37
16	3071.57
17	3075.45
18	6407/1-2 #1
19	6407/1-2 #1
20	6407/7-1 #2
21	6407/7-1 #3
22	6407/7-1 #4
23	6407/7-1 #5
24	6407/7-1 STO
25	6407/9-1
26	6407/9-1

Figure 8: Loadingplot for the first two principal components using triterpanes as input.


LOADINGPLOT TRITERPANES
*10 2
0.00
0.00
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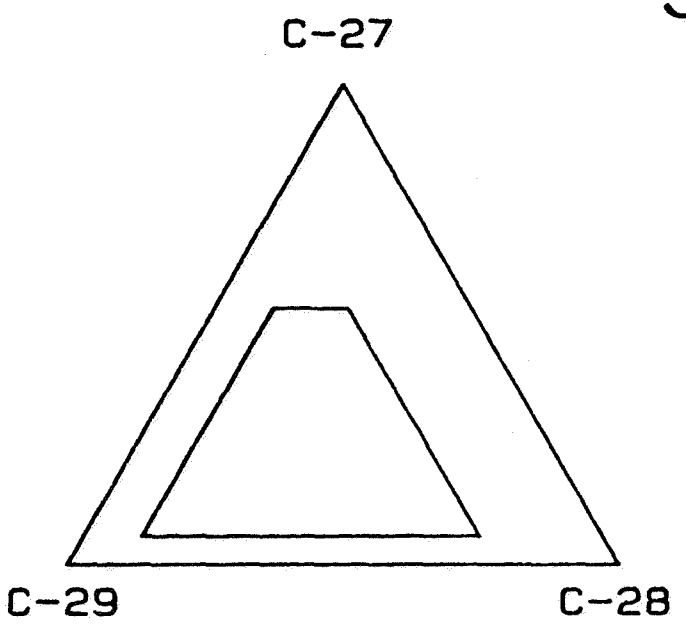
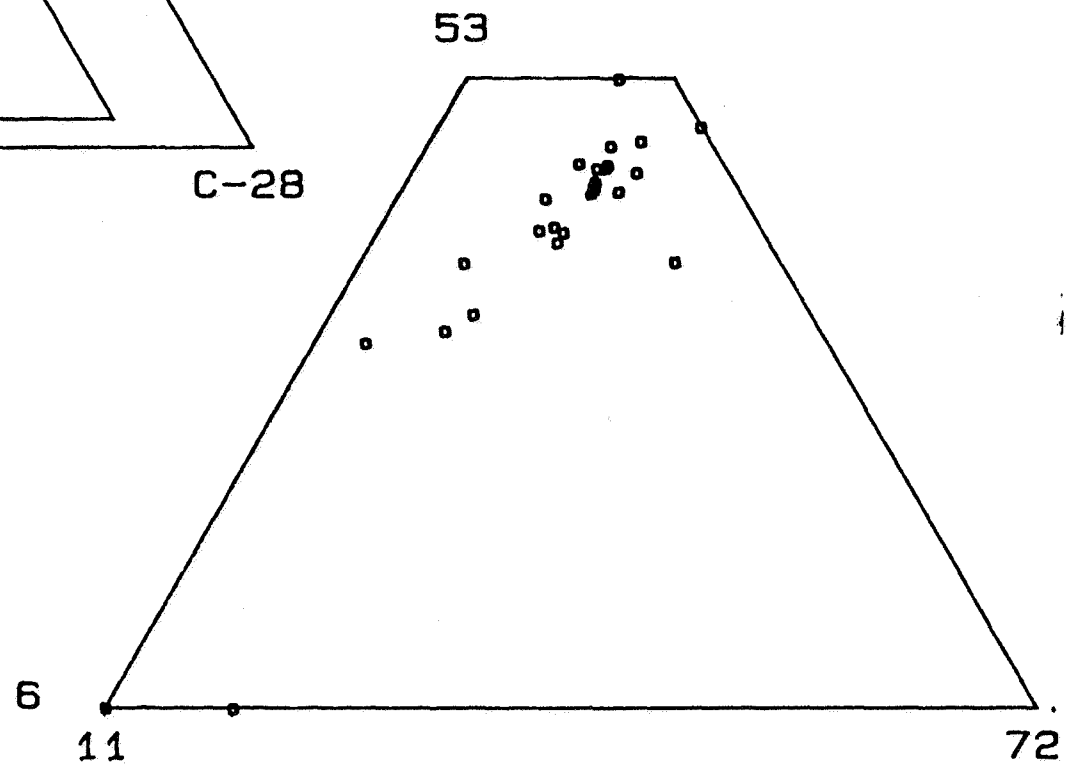
-0.00
-0.00
-0.01
-0.01
FACTOR 2
9
5
4
7
13
3
1
14
11
8
12
-0.04
-0.03
-0.02
-0.01
0.00
0.01
0.02
0.03
0.04
*10 1
FACTOR 1

Figure 9: Triangular plot of the sterane distribution.

STERANE DISTRIBUTION





TABLES

Table 1: Quantitative results for the C_2-C_9 hydrocarbons in the oil samples from 6407/7-1.

NORSK HYDRO E-BERGEN

Analyst Name :HILDE/FRODE Analysis ID: RESIDUELL
Information :

OLJEANALYSR VED PVT, RESERVOAR.

Channel:8 Title: C1-C10 Date 8-Mar-86 Time 9:21
Analysis:HALTEN4 Sample Name:6407/7-1 STO Sample ID: 0
Sample 1 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKT%	Identity	Width	Type
1SC	3.979	3.978	100.0	241	396	0.003	METHANE	1.8	
2SC	4.067	4.066	200.0	1995	3075	0.021	ETHANE	1.6	
3SC	4.272	4.271	300.0	13859	21870	0.151	PROPANE	1.6	
4C	4.592	4.591	354.3	8538	14244	0.098	ISO-BUTANE	1.6	
5RSC	4.861	4.860	400.0	32988	56969	0.394	N-BUTANE	1.8	
6C	5.856	5.861	465.0	26529	55994	0.387	ISO-PENTANE	2.1	
7RSC	6.392	6.400	500.0	42830	96397	0.666	N-PENTANE	2.2	
8C	7.411	7.421	525.7	826	2140	0.015	2,2-DM BUTANE	2.6	
9C	8.485	8.498	552.7	4017	11568	0.080	2,3-DM BUTANE	2.6A	FO
10C	8.539	8.552	554.1	2661	7794	0.054	CYCLOPENTANE	3.2A	0
11C	8.715	8.728	558.5	19918	60246	0.416	2-M PENTANE	2.9	LO
12C	9.405	9.420	575.9	11402	37309	0.258	3-M PENTANE	3.0	
13RSC	10.363	10.380	600.0	37249	127577	0.881	N HEXANE	3.4	
14C	11.941	11.966	618.9	778	2914	0.020	2,2-DM PENTANE	3.7	FO
15RC	12.115	12.140	621.0	15759	62190	0.430	M-CYCLO PENTANE	3.7	0
16C	12.381	12.408	624.2	1651	6381	0.044	2,4-DM PENTANE	3.7	LO
17C	13.891	13.928	642.3	11447	48877	0.338	BENZENE	4.0	
18C	14.365	14.406	648.0	376	1672	0.012	3,3-DM PENTANE	4.3	
19RC	14.677	14.720	651.8	26361	118102	0.816	CYCLO HEXANE	4.3	
20C	15.472	15.515	661.3	10283	43969	0.304	2-M HEXANE	4.3	FO
21C	15.616	15.659	663.0	3066	14195	0.098	2,3-DM PENTANE	4.3	0
22C	15.861	15.904	666.0	2601	12127	0.084	1,1 DM CY-PENTAN	4.3	LO
23RC	16.267	16.310	670.8	11337	50789	0.351	3-M HEXANE	4.3	
24C	16.848	16.893	677.8	3596	16868	0.117	C 1,3-DM CYLOPENTANE	4.6	FO
25C	17.115	17.161	681.0	3351	15588	0.108	T1,3-DM CYCLOPENTANE	4.6	0
26C	17.237	17.284	682.5	958	4343	0.030	3-ETYL PENTANE	5.1A	0
27C	17.381	17.428	684.2	5450	26502	0.183	T1,2-DM CYCLOPENTANE	5.0	0
28I	17.568	17.616	686.4	28005	137065		ISO-OCTANE	4.6	LO
29RSC	18.699	18.750	700.0	31252	149471	1.033	N HEPTANE	4.6	
30C	20.763	20.829	717.7	41506	230660	1.594	M CYCLO HEXANE	5.3	FO
31C	21.061	21.130	720.2	2621	14391	0.099	2,2-DM HEXANE	5.3	LO
32C	21.989	22.065	728.1	1792	8813	0.061	ETYL CYCLOPENTANE	4.6	FO
33C	22.149	22.226	729.5	1343	7150	0.049	2,5-DM HEXANE	4.6	0
34C	22.363	22.441	731.3	1786	9328	0.064	2,4-DM HEXANE	5.0	LO
35C	22.976	23.058	736.6	2197	11189	0.077	1T,2C,4-TM CYCLOPENT	5.0	FO
36C	23.141	23.225	738.0	505	2698	0.019	3,3-DM HEXANE	5.3	LO
37C	23.816	23.904	743.8	2016	10724	0.074	1,T2,C3-TM CYPENTANE	5.3	
38C	24.141	24.232	746.5	251	1320	0.009	2,3,4-TM PENTANE	5.3	
39RC	24.576	24.670	750.3	21119	114217	0.789	TOLUENE	5.3	
40C	25.445	25.535	757.7	1653	12913	0.089	2,3-DM HEXANE	6.9	
41C	26.189	26.276	764.1	11207	59521	0.411	2-M HEPTANE	5.0	FO
42C	26.355	26.441	765.5	3486	17073	0.118	4M-HEPTANE	5.0	0
43C	26.419	26.504	766.0	617	4639	0.032	C1,2-DM CYHEXANE	19.5A	LO
44C	26.824	26.908	769.5	196	1416	0.010	3,4-DM HEXANE	7.2	FO
45C	27.091	27.173	771.8	7078	36645	0.253	3-M HEPTANE	5.3	0
46C	27.240	27.322	773.0	8878	56435	0.390	C1,3-DM CYHEXANE	6.2	0
47C	27.459	27.540	774.9	4093	20962	0.145	T1,4-DM-CYHEXANE	5.0	LO

NORSK HYDRO F-BERGEN

Channel:8 Title: C1-C10 Date 8-Mar-86 Time 9:21
Analysis:HALTEN4 Sample Name:6407/7-1 STO Sample ID: 0
Sample 1 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKT%	Identity	Width	Type
48C	28.107	28.185	780.5	1583	8828	0.061	1,1-DM-CYHEXANE	5.3	
49C	28.552	28.628	784.3	587	2963	0.020	2,2,4-TM HEXANE	5.3	
50C	28.813	28.888	786.5	539	2835	0.020	C1,3-M,ET PENTANE	5.3	FO
51C	28.968	29.042	787.8	1395	7619	0.053	1-ET,2-M CYPENTANE	5.3	O
52C	29.224	29.297	790.0	353	1939	0.013	T1,2-DM CYHEXANE	5.3	LO
53C	29.573	29.645	793.0	4804	27104	0.187	C-1,4-DM CYHEXANE	5.3	
54RSC	30.392	30.460	800.0	25850	153390	1.060	N-OCTANE	5.9	FO
55	30.461	30.529	800.6	2519	8151	0.056		8.0A	LO
56C	31.357	31.422	807.7	196	1048	0.007	T1,3-DM CYHEXANE	5.6	
57C	32.083	32.146	813.6	196	1056	0.007	USP.C-9	5.3	
58C	32.349	32.412	815.7	211	1093	0.008	C1,2-DM CYHEXANE	5.3	
59C	32.579	32.640	817.5	162	862	0.006	USPES. C-9	5.3	FO
60C	32.787	32.848	819.2	514	2785	0.019	2,2-DM HEPTANE	5.3	LO
61C	33.307	33.366	823.4	2037	15107	0.104	2,4-DM HEPTANE	6.2	
62RC	34.003	34.060	829.0	11078	68381	0.472	ET CYHEXANE	5.9	FO
63C	34.120	34.178	829.9	4429	22148	0.153	USPES. C-9	5.4A	LO
64	34.669	34.730	834.3	3646	20446	0.141	N-PROP-CYPENTANE	5.6	FO
65C	34.936	34.998	836.5	2894	16562	0.114	3,5-DM HEPTANE	5.6	O
66	35.016	35.079	837.1	518	3921	0.027		20.8A	O
67C	35.288	35.352	839.3	267	1512	0.010	USPES. C-9	6.2	O
68C	35.448	35.513	840.6	453	2434	0.017	3,3,-DM HEPTANE	6.4A	O
69	35.491	35.556	840.9	345	2554	0.018		22.7A	LO
70C	36.195	36.263	846.6	3086	18812	0.130	ETYL BENZENE	5.9	FO
71	36.328	36.397	847.6	878	4885	0.034		6.1A	O
72C	36.568	36.639	849.6	1731	10164	0.070	NAFTEN 9	5.9	LO
73RC	37.325	37.400	855.6	11741	72038	0.498	M XYLENE	5.9	FO
74C	37.453	37.528	856.7	4513	35882	0.248	P XYLENE	10.6A	LO
75C	37.840	37.914	859.8	372	3536	0.024	3,4-DM HEPTANE	10.7	FO
76C	38.043	38.117	861.4	1003	8316	0.057	2,3-DM HEPTANE	8.5	LO
77C	38.493	38.567	865.0	3613	19994	0.138	4-M OCTANE	5.9	FO
78C	38.632	38.706	866.1	4899	26280	0.182	2-M OCTANE	5.3	LO
79C	39.080	39.154	869.7	245	1353	0.009	3-ET HEPTANE	5.9	
80C	39.285	39.359	871.4	706	3758	0.026	PARAF. 9	4.8A	FO
81RC	39.467	39.540	872.8	5530	32451	0.224	3-M OCTANE	5.9	O
82	39.547	39.620	873.5	319	951	0.007		13.4A	LO
83C	40.112	40.186	878.0	5545	34262	0.237	O XYLENE	5.9	FO
84	40.197	40.271	878.7	556	3173	0.022		11.5A	LO
85	40.872	40.947	884.1	1286	7551	0.052		6.4A	FO
86C	41.016	41.091	885.3	4339	24216	0.167	N-BUTYL CYHEXANE	5.3	LO
87C	41.293	41.368	887.5	2793	16677	0.115	USPES. C9	5.6	
88C	41.595	41.670	889.9	175	849	0.006	1-ME,4-ET CYHEXANE	5.0	FO
89C	41.760	41.836	891.2	261	1811	0.013	USPES. C9	6.2	LO
90C	42.459	42.535	896.8	462	2969	0.021	PARAF. 9	5.9	FO
91RSC	42.853	42.930	900.0	25110	149795	1.035	N NONANE	5.9	LO
92	43.195	43.272	902.7	2649	16838	0.116		6.6	
93	43.512	43.589	905.3	784	5499	0.038		7.2	
94	43.952	44.030	908.8	995	4987	0.034		5.3	
95	44.357	44.435	912.1	2043	13878	0.096		5.9	FO
96	44.571	44.649	913.8	2008	11828	0.082		5.3	LO
97	44.880	44.959	916.3	1114	5247	0.036		5.3	
Residual				0	0	0.000			
Total				625000	2737467	17.966			

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 ISTD : 0.947

NORSK HYDRO F-BERGEN

Analyst Name :FRODE Analysis ID: FROM FLASH
Information :*****

OLJEANALYSR VED PVT, RESERVOAR.

Channel:8 Title: C1-C10 Date 29-Apr-86 Time 8:17
Analysis:HALTEN6 Sample Name:6407/7-1 DST#2 Sample ID: 0
Sample 1 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKI%	Identity	Width	Type
1SC	4.003	3.982	100.0	490	812	0.005	METHANE	1.8	FO
2SC	4.091	4.069	200.0	3134	4889	0.033	ETHANE	1.8	LO
3SC	4.296	4.274	300.0	17228	27254	0.182	PROPANE	1.8	
4C	4.616	4.592	354.3	9757	16071	0.107	ISO-BUTANE	1.6	
5RSC	4.885	4.860	400.0	36234	62359	0.416	N-BUTANE	1.8	FO
6C	4.979	4.954	406.1	285	982	0.007	NEO-PENTANE	8.3A	LO
7C	5.880	5.861	465.0	26560	54260	0.362	ISO-PENTANE	2.1	
8RSC	6.416	6.400	500.0	40885	89261	0.596	N-PENTANE	2.2	
9C	7.435	7.421	525.7	782	1996	0.013	2,2-DM BUTANE	2.4	
10C	8.512	8.501	552.8	3756	10661	0.071	2,3-DM BUTANE	2.9A	FO
11C	8.565	8.554	554.1	2387	6828	0.046	CYCLOPENTANE	3.2A	0
12C	8.739	8.728	558.5	18125	52526	0.351	2-M PENTANE	2.9	LO
13C	9.432	9.423	576.0	10276	32638	0.218	3-M PENTANE	3.0	
14RSC	10.387	10.380	600.0	33075	109898	0.734	N HEXANE	3.2	
15C	11.968	11.966	619.0	706	2585	0.017	2,2-DM PENTANE	3.5	FO
16RC	12.141	12.140	621.0	14689	56006	0.374	M-CYCLO PENTANE	3.5	0
17C	12.408	12.408	624.2	1503	5696	0.038	2,4-DM PENTANE	3.7	LO
18C	13.920	13.931	642.4	10837	45076	0.301	BENZENE	3.8	
19C	14.392	14.406	648.0	345	1468	0.010	3,3-DM PENTANE	4.3	
20RC	14.704	14.720	651.8	24728	107177	0.715	CYCLO HEXANE	4.0	
21C	15.499	15.515	661.3	9408	39107	0.261	2-M HEXANE	4.3	FO
22C	15.643	15.659	663.0	2822	12697	0.085	2,3-DM PENTANE	4.3	0
23C	15.888	15.904	666.0	2434	10987	0.073	1,1 DM CY-PENTAN	4.3	LO
24RC	16.293	16.310	670.8	10460	45184	0.302	3-M HEXANE	4.3	
25C	16.880	16.884	677.9	3426	15458	0.103	C 1,3-DM CYLOPENTANE	4.3	FO
26C	17.141	17.139	681.0	3126	14438	0.096	T1,3-DM CYCLOPENTANE	4.6	0
27C	17.264	17.259	682.5	861	3863	0.026	3-ETYL PENTANE	5.1A	0
28C	17.408	17.400	684.2	5046	24479	0.163	T1,2-DM CYCLOPENTANE	4.6	0
29I	17.605	17.593	686.6	36688	180990		ISO-OCTANE	5.0	LO
30SC	18.725	18.689	700.0	28772	134892	0.900	N HEPTANE	4.6	
31	20.789	20.708	717.6	39622	216859	1.447		5.3	FO
32RC	21.088	21.000	720.2	2470	13556	0.090	M-CYCLO HEXANE	5.3	LO
33C	22.021	21.973	728.2	1719	8368	0.056	ETYL CYCLOPENTANE	5.0	FO
34C	22.181	22.140	729.5	1270	6591	0.044	2,5-DM HEXANE	5.0	0
35C	22.395	22.362	731.4	1714	8605	0.057	2,4-DM HEXANE	5.0	LO
36C	23.013	23.007	736.7	2106	10581	0.071	1T,2C,4-TM CYCLOPENT	5.0	FO
37C	23.173	23.174	738.0	484	2514	0.017	3,3-DM HEXANE	5.3	LO
38C	23.845	23.875	743.8	1960	10121	0.068	1,T2,C3-TM CYPENTANE	5.3	
39C	24.173	24.217	746.6	246	1254	0.008	2,3,4-TM PENTANE	5.0	
40RC	24.608	24.670	750.3	20101	108760	0.726	TOLUENE	5.3	
41C	25.477	25.532	757.7	1576	12244	0.082	2,3-DM HEXANE	6.6	
42C	26.221	26.270	764.1	10861	55976	0.374	2-M HEPTANE	5.0	FO
43C	26.387	26.434	765.5	3325	16144	0.108	4M-HEPTANE	5.0	0
44C	26.451	26.498	766.0	604	4451	0.030	C1,2-DM CYHEXANE	19.5A	LO
45C	26.867	26.911	769.6	182	1322	0.009	3,4-DM HEXANE	7.5	FO
46C	27.123	27.165	771.8	6616	34270	0.229	3-M HEPTANE	5.3	0
47C	27.272	27.313	773.1	8595	54730	0.365	C1,3-DM CYHEXANE	5.9	0

NORSK HYDRO E-BERGEN

Channel:8 Title: C1-C10 Date 29-Apr-86 Time 8:17
Analysis:HALTENG Sample Name:6407/7-1 DST#2 Sample ID: 0
Sample 1 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKT%	Identity	Width	Type
48C	27.496	27.535	775.0	3931	20280	0.135	T1,4-DM-CYHEXANE	5.0	LO
49C	28.139	28.172	780.5	1562	8538	0.057	1,1-DM-CYHEXANE	5.3	
50C	28.589	28.619	784.3	567	2888	0.019	2,2,4-TM HEXANE	5.0	
51C	28.851	28.879	786.6	534	2763	0.018	C1,3-M,ET PENTANE	5.3	FO
52C	29.005	29.032	787.9	1344	7371	0.049	1-ET,2-M CYPENTANE	5.3	O
53C	29.256	29.281	790.0	346	1882	0.013	T1,2-DM CYHEXANE	5.3	LO
54RC	29.608	29.630	793.0	4756	26584	0.177	C-1,4-DM CYHEXANE	5.6	
55RSC	30.424	30.460	800.0	24904	146154	0.975	N-OCTANE	5.6	FO
56	30.493	30.515	800.6	2572	8555	0.057		8.0A	LO
[illegible]	31.400	31.421	807.8	188	949	0.006	T1,3-DM CYHEXANE	5.0	
58C	32.120	32.141	813.6	196	1033	0.007	USP.C-9	5.3	
59C	32.384	32.405	815.7	214	1129	0.008	C1,2-DM CYHEXANE	5.3	FO
60C	32.619	32.639	817.6	163	861	0.006	USPES. C-9	5.3	O
61C	32.821	32.842	819.2	514	2725	0.018	2,2-DM HEPTANE	5.3	LO
62C	33.339	33.359	823.4	1994	14766	0.099	2,4-DM HEPTANE	6.2	
63RC	34.040	34.060	829.0	10868	67837	0.453	ET CYHEXANE	5.9	FO
64C	34.157	34.178	829.9	4303	21466	0.143	USPES. C-9	5.4A	LO
65C	34.707	34.729	834.3	3659	20284	0.135	2,5-DM HEPTANE	5.6	FO
66C	34.973	34.997	836.5	2849	16289	0.109	3,5-DM HEPTANE	5.6	O
67C	35.053	35.077	837.1	490	3790	0.025	USPES. C-9	20.8A	O
68C	35.320	35.345	839.3	272	1466	0.010	USPES. C-9	5.6	O
69C	35.485	35.511	840.6	454	2951	0.020	3,3,-DM HEPTANE	5.8A	O
70C	35.672	35.698	842.1	244	1928	0.013	NAFTEN 9	5.4A	LO
71RC	36.232	36.260	846.6	3105	18349	0.122	ETYL BENZENE	5.6	FO
72C	36.365	36.396	847.6	896	4964	0.033	USPES. C9	5.4A	O
73C	36.600	36.635	849.5	1760	10164	0.068	NAFTEN 9	5.6	LO
74RC	37.352	37.400	855.5	11739	71672	0.478	M XYLENE	5.9	FO
75C	37.491	37.538	856.7	4438	35281	0.235	P XYLENE	9.9A	LO
76C	37.877	37.924	859.8	364	3535	0.024	3,4-DM HEPTANE	11.0	FO
77C	38.069	38.115	861.3	1016	8355	0.056	2,3-DM HEPTANE	8.5	LO
78C	38.531	38.575	865.0	3557	19526	0.130	4-M OCTANE	5.9	FO
79C	38.664	38.708	866.1	4793	26238	0.175	2-M OCTANE	5.6	LO
80C	39.112	39.155	869.7	246	1396	0.009	3-ET HEPTANE	5.9	
81C	39.323	39.365	871.3	722	3731	0.025	PARAF. 9	5.4A	FO
82RC	39.499	39.540	872.8	5589	32480	0.217	3-M OCTANE	5.6	O
83	39.584	39.626	873.4	273	935	0.006		13.4A	LO
84RC	40.144	40.190	877.9	5591	34287	0.229	O XYLENE	5.9	FO
85C	40.235	40.281	878.7	540	3137	0.021	USPES. C9	11.5A	LO
86C	40.904	40.955	884.0	1314	7707	0.051	N-BUTYL CYHEXANE	6.4A	FO
87C	41.053	41.106	885.2	4371	24530	0.164	USPES. C9	5.3	LO
88C	41.323	41.377	887.4	2856	16935	0.113	1-ME,4-ET CYHEXANE	5.9	
89C	41.627	41.683	889.8	170	798	0.005	USPES. C9	5.0	
90C	41.792	41.850	891.1	255	1434	0.010	PARAF. 9	5.3	
91C	42.501	42.564	896.8	483	2987	0.020	USPES. C9	5.9	FO
92SC	42.896	42.962	900.0	25354	150614	1.005	N NONANE	5.9	LO
93	43.237	43.306	902.7	2697	17140	0.114		5.9	
94	43.555	43.625	905.3	833	5612	0.037		7.2	
95	43.984	44.058	908.7	996	5058	0.034		5.3	
96	44.389	44.466	912.0	2113	14196	0.095		6.6	FO
97	44.603	44.681	913.7	2043	12133	0.081		5.3	LO
98	44.912	44.992	916.2	1097	5237	0.035		5.3	
Residual				0	0	0.000			
Total				618410	2657803	16.531			

NORSK HYDRO F-BERGEN

Analyst Name :FRODE Analysis ID: FROM FLASH
Information :*****

OLJEANALYSR VED PVT, RESERVOAR.

Channel:8 Title: C1-C10 Date 29-Apr-86 Time 11:15
Analysis:HALTEN6 Sample Name:6407/7-1 DST#3 Sample ID: 0
Sample 2 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKT%	Identity	Width	Type
1SC	3.992	3.980	100.0	134	219	0.002	METHANE	1.8	
2SC	4.080	4.068	200.0	2493	3715	0.027	ETHANE	1.6	
3SC	4.285	4.272	300.0	21207	31685	0.233	PROPANE	1.6	
4C	4.603	4.589	353.8	14539	22421	0.165	ISO-BUTANE	1.6	
5RSC	4.875	4.860	400.0	56442	92337	0.679	N-BUTANE	1.8	FO
6C	5.013	4.999	409.0	365	863	0.006	NEO-PENTANE	2.2A	LO
7C	5.869	5.859	464.9	40366	79082	0.582	ISO-PENTANE	2.1	
8RSC	6.408	6.400	500.0	61130	128648	0.946	N-PENTANE	2.1	
9C	7.427	7.419	525.6	1104	2723	0.020	2,2-DM BUTANE	2.4	
10C	8.504	8.497	552.7	5057	13900	0.102	2,3-DM BUTANE	3.0	FO
11C	8.560	8.553	554.1	3147	9002	0.066	CYCLOPENTANE	2.9A	O
12C	8.733	8.726	558.4	24133	68952	0.507	2-M PENTANE	2.7	LO
13C	9.427	9.420	575.9	13608	41783	0.307	3-M PENTANE	3.0	
14RSC	10.387	10.380	600.0	42186	137730	1.013	N HEXANE	3.2	
15C	11.965	11.968	618.9	867	3108	0.023	2,2-DM PENTANE	3.5	FO
16RC	12.136	12.140	621.0	17568	65901	0.485	M-CYCLO PENTANE	3.7	O
17C	12.403	12.408	624.2	1848	6766	0.050	2,4-DM PENTANE	3.5	LO
18C	13.915	13.927	642.3	12508	51181	0.376	BENZENE	3.8	
19C	14.387	14.401	648.0	408	1685	0.012	3,3-DM PENTANE	4.0	
20RC	14.704	14.720	651.8	28017	121024	0.890	CYCLO HEXANE	4.3	
21C	15.499	15.515	661.3	10739	44298	0.326	2-M HEXANE	4.0	FO
22C	15.643	15.659	663.0	3194	14011	0.103	2,3-DM PENTANE	4.3	O
23C	15.883	15.899	665.9	2753	12211	0.090	1,1 DM CY-PENTAN	4.0	LO
24RC	16.293	16.310	670.8	11676	50426	0.371	3-M HEXANE	4.3	
25C	16.875	16.879	677.8	3785	16851	0.124	C 1,3-DM CYLOPENTANE	4.3	FO
26C	17.141	17.140	681.0	3428	15588	0.115	T1,3-DM CYCLOPENTANE	4.3	O
27C	17.259	17.255	682.4	945	4306	0.032	3-ETYL PENTANE	5.1A	O
28C	17.408	17.402	684.2	5636	26311	0.194	T1,2-DM CYCLOPENTANE	4.6	O
29I	17.595	17.584	686.4	32389	156750		ISO-OCTANE	4.6	LO
30SC	18.725	18.692	700.0	31034	146191	1.075	N HEPTANE	4.6	
31	20.784	20.708	717.6	41052	224285	1.650		5.3	FO
32RC	21.083	21.000	720.2	2598	13991	0.103	M-CYCLO HEXANE	5.0	LO
33C	22.016	21.973	728.2	1763	8625	0.063	ETYL CYCLOPENTANE	5.0	FO
34C	22.176	22.140	729.5	1328	6896	0.051	2,5-DM HEXANE	5.0	O
35C	22.384	22.357	731.3	1772	8940	0.066	2,4-DM HEXANE	4.6	LO
36C	23.005	23.005	736.6	2195	10818	0.080	1T,2C,4-TM CYCLOPENT	5.0	FO
37C	23.165	23.171	738.0	505	2594	0.019	3,3-DM HEXANE	5.0	LO
38C	23.835	23.869	743.7	2028	10282	0.076	1,T2,C3-TM CYPENTANE	5.0	
39C	24.163	24.211	746.5	248	1256	0.009	2,3,4-TM PENTANE	5.0	
40RC	24.603	24.670	750.3	20280	109997	0.809	TOLUENE	5.3	
41C	25.472	25.534	757.7	1603	12336	0.091	2,3-DM HEXANE	6.6	
42C	26.211	26.268	764.0	10743	56427	0.415	2-M HEPTANE	5.3	FO
43C	26.376	26.432	765.5	3416	16250	0.120	4M-HEPTANE	5.0	O
44C	26.440	26.496	766.0	591	4402	0.032	C1,2-DM CYHEXANE	19.5A	LO
45C	26.851	26.904	769.5	185	1323	0.010	3,4-DM HEXANE	7.5	FO
46C	27.112	27.163	771.8	6609	34443	0.253	3-M HEPTANE	5.0	O
47C	27.261	27.312	773.0	8591	53777	0.396	C1,3-DM CYHEXANE	5.9	O

NORSK HYDRO F-BERGEN

Channel:8 Title: C1-C10 Date 29-Apr-86 Time 11:15
Analysis:HALTEN6 Sample Name:6407/7-1 DST#3 Sample ID: 0
Sample 2 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKT%	Identity	Width	Type
48C	27.485	27.534	774.9	3888	19840	0.146	T1,4-DM-CYHEXANE	5.0	LO
49C	28.133	28.178	780.5	1553	8385	0.062	1,1-DM-CYHEXANE	5.3	
50C	28.579	28.621	784.3	567	2829	0.021	2,2,4-TM HEXANE	5.0	
51C	28.840	28.880	786.5	520	2659	0.020	C1,3-M,ET PENTANE	5.0	FO
52C	28.995	29.034	787.9	1316	7261	0.053	1-ET,2-M CYPENTANE	5.3	O
53C	29.245	29.283	790.0	339	1852	0.014	T1,2-DM CYHEXANE	5.3	LO
54RC	29.595	29.630	793.0	4729	25702	0.189	C-1,4-DM CYHEXANE	5.3	
55RSC	30.413	30.460	800.0	24759	143695	1.057	N-OCTANE	5.9	FO
56	30.483	30.517	800.6	2456	8124	0.060		8.0A	LO
57C	31.389	31.423	807.8	180	916	0.007	T1,3-DM CYHEXANE	5.3	
58C	32.109	32.142	813.6	187	979	0.007	USP.C-9	5.3	
59C	32.368	32.400	815.7	210	1116	0.008	C1,2-DM CYHEXANE	5.3	FO
60C	32.603	32.635	817.6	158	858	0.006	USPES. C-9	5.3	O
61C	32.805	32.837	819.2	490	2658	0.020	2,2-DM HEPTANE	5.3	LO
62C	33.328	33.359	823.4	1906	14218	0.105	2,4-DM HEPTANE	6.2	
63RC	34.029	34.060	829.0	10494	64193	0.472	ET CYHEXANE	5.9	FO
64C	34.147	34.178	830.0	4094	20999	0.154	USPES. C-9	4.8A	LO
65C	34.688	34.723	834.3	3459	18992	0.140	2,5-DM HEPTANE	5.6	
66C	34.955	34.991	836.4	2558	13847	0.102	3,5-DM HEPTANE	5.6	
67C	35.304	35.342	839.2	175	698	0.005	USPES. C-9	4.3	
68C	35.469	35.509	840.6	373	2626	0.019	3,3,-DM HEPTANE	7.2	FO
69C	35.651	35.691	842.0	212	1137	0.008	NAFTEN 9	5.9	LO
70RC	36.216	36.260	846.6	2978	17474	0.129	ETYL BENZENE	5.9	FO
71C	36.349	36.396	847.6	830	4739	0.035	USPES. C9	6.1A	O
72C	36.589	36.640	849.6	1636	9511	0.070	NAFTEN 9	5.9	LO
73RC	37.336	37.400	855.6	11224	67725	0.498	M XYLENE	5.9	FO
74C	37.469	37.533	856.6	4231	33385	0.246	P XYLENE	10.6A	LO
75C	37.861	37.924	859.8	356	3342	0.025	3,4-DM HEPTANE	10.7	FO
76C	38.059	38.120	861.4	956	7829	0.058	2,3-DM HEPTANE	8.5	LO
77C	38.515	38.575	865.0	3470	18425	0.136	4-M OCTANE	5.6	FO
78C	38.648	38.708	866.1	4513	24662	0.181	2-M OCTANE	5.3	LO
79C	39.101	39.160	869.7	231	1284	0.009	3-ET HEPTANE	5.6	
80C	39.307	39.365	871.4	673	3487	0.026	PARAF. 9	5.4A	FO
81RC	39.483	39.540	872.8	5229	30404	0.224	3-M OCTANE	5.6	O
82	39.568	39.626	873.5	263	895	0.007		13.4A	LO
83RC	40.128	40.190	878.0	5273	31884	0.235	O XYLENE	5.6	FO
84C	40.213	40.276	878.6	544	3062	0.023	USPES. C9	12.2A	LO
85C	40.888	40.955	884.1	1195	7069	0.052	N-BUTYL CYHEXANE	6.4A	FO
86C	41.032	41.101	885.2	4096	22524	0.166	USPES. C9	5.3	LO
87C	41.307	41.377	887.4	2618	15586	0.115	1-ME,4-ET CYHEXANE	5.9	
88C	41.608	41.681	889.8	171	849	0.006	USPES. C9	5.3	FO
89C	41.784	41.858	891.2	269	2213	0.016	PARAF. 9	6.6	LO
90C	42.480	42.559	896.8	440	2775	0.020	USPES. C9	5.3	FO
91SC	42.875	42.957	900.0	24171	139297	1.025	N NONANE	5.9	LO
92	43.216	43.300	902.7	2532	15705	0.116		6.6	
93	43.533	43.620	905.3	761	5148	0.038		6.6	
94	43.973	44.063	908.8	925	4687	0.034		5.3	
95	44.379	44.471	912.1	1891	12937	0.095		5.9	FO
96	44.581	44.676	913.7	1858	11098	0.082		5.3	LO
97	44.891	44.987	916.2	1035	4945	0.036		5.3	
Residual				0	0	0.000			
Total				707205	2812836	19.537			

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 ISTD : 1.153

NORSK HYDRO F-BERGEN

Analyst Name :FRODE Analysis ID: FROM FLASH
Information :*****

OLJEANALYSR VED PVT, RESERVOAR.

Channel:8 Title: C1-C10 Date 29-Apr-86 Time 13:09
Analysis:HALTEN7 Sample Name:6407/7-1 DST#4 Sample ID: 0
Sample 1 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKT%	Identity	Width	Type
1SC	4.093	4.068	200.0	4284	7288	0.051	ETHANE	1.8	
2SC	4.299	4.272	300.0	33438	58842	0.414	PROPANE	1.8	
3C	4.619	4.590	331.8	18098	33268	0.234	ISO-BUTANE	1.8	
4RSC	4.891	4.860	400.0	65296	126805	0.891	N-BUTANE	1.9	FO
5C	4.992	4.962	406.6	766	3120	0.022	NEO-PENTANE	8.0A	LO
6C	5.885	5.861	465.0	40904	94910	0.667	ISO-PENTANE	2.2	
7RSC	6.421	6.400	500.0	61600	151104	1.062	N-PENTANE	2.2	
8C	7.443	7.421	525.7	1012	2764	0.019	2,2-DM BUTANE	2.7	
9C	8.520	8.498	552.7	5214	15750	0.111	2,3-DM BUTANE	2.9A	FO
10C	8.571	8.549	554.0	3295	10167	0.071	CYCLOPENTANE	3.8A	O
11C	8.749	8.727	558.5	23473	76177	0.535	2-M PENTANE	2.9	LO
12C	9.440	9.418	575.8	13156	45518	0.320	3-M PENTANE	3.2	
13RSC	10.403	10.380	600.0	41838	150994	1.061	N HEXANE	3.2	
14C	11.981	11.966	618.9	790	3026	0.021	2,2-DM PENTANE	3.7	FO
15RC	12.155	12.140	621.0	18087	73902	0.519	M-CYCLO PENTANE	3.8	O
16C	12.419	12.405	624.2	1812	7429	0.052	2,4-DM PENTANE	3.8	LO
17C	13.931	13.924	642.3	12123	54733	0.385	BENZENE	4.2	
18C	14.403	14.399	648.0	370	1597	0.011	3,3-DM PENTANE	4.3	
19RC	14.723	14.720	651.8	28261	132608	0.932	CYCLO HEXANE	4.3	
20C	15.515	15.516	661.3	10479	45703	0.321	2-M HEXANE	4.3	FO
21C	15.653	15.656	663.0	3327	16304	0.115	2,3-DM PENTANE	4.6	O
22C	15.899	15.902	666.0	2781	13331	0.094	1,1 DM CY-PENTAN	4.3	LO
23RC	16.304	16.310	670.8	11532	53769	0.378	3-M HEXANE	4.3	
24C	16.885	16.879	677.8	3825	18542	0.130	C 1,3-DM CYLOPENTANE	4.6	FO
25C	17.152	17.139	681.0	3561	17132	0.120	T1,3-DM CYCLOPENTANE	4.6	O
26C	17.275	17.259	682.5	1053	4922	0.035	3-ETYL PENTANE	5.1A	O
27C	17.419	17.400	684.2	5778	28963	0.204	T1,2-DM CYCLOPENTANE	5.0	O
28I	17.605	17.583	686.4	32736	166447		ISO-OCTANE	5.0	O
29	17.824	17.797	689.1	287	1028	0.007		9.6A	LO
30SC	18.736	18.689	700.0	31744	157406	1.106	N HEPTANE	4.6	
31	20.800	20.708	717.7	42262	242637	1.706		5.6	FO
32RC	21.099	21.000	720.2	2622	14640	0.103	M-CYCLO HEXANE	5.3	LO
33C	22.027	21.969	728.2	1851	9349	0.066	ETYL CYCLOPENTANE	5.0	FO
34C	22.187	22.136	729.5	1319	7304	0.051	2,5-DM HEXANE	5.0	O
35C	22.400	22.359	731.3	1790	9422	0.066	2,4-DM HEXANE	5.0	LO
36C	23.013	22.999	736.6	2249	11618	0.082	1T,2C,4-TM CYCLOPENT	5.0	FO
37C	23.173	23.166	738.0	510	2834	0.020	3,3-DM HEXANE	5.9	LO
38C	23.848	23.871	743.7	2103	11381	0.080	1,T2,C3-TM CYPENTANE	5.3	FO
39C	24.179	24.216	746.6	261	1391	0.010	2,3,4-TM PENTANE	5.0	LO
40RC	24.613	24.670	750.3	20589	115979	0.815	TOLUENE	5.3	
41C	25.483	25.534	757.7	1625	13250	0.093	2,3-DM HEXANE	6.9	
42C	26.219	26.265	764.0	10841	57434	0.404	2-M HEPTANE	5.3	FO
43C	26.384	26.429	765.4	3204	14724	0.104	4M-HEPTANE	4.6	LO
44C	26.867	26.909	769.6	192	1388	0.010	3,4-DM HEXANE	7.2	FO
45C	27.128	27.169	771.8	6729	35468	0.249	3-M HEPTANE	5.3	O
46C	27.272	27.312	773.0	8993	58888	0.414	C1,3-DM CYHEXANE	6.2	O
47C	27.491	27.529	774.9	4075	21844	0.154	T1,4-DM-CYHEXANE	5.3	LO

NORSK HYDRO F-BERGEN

Channel:8 Title: C1-C10 Date 29-Apr-86 Time 13:09
Analysis:HALTEN7 Sample Name:6407/7-1 DST#4 Sample ID: 0
Sample 1 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKT%	Identity	Width	Type
48C	28.139	28.173	780.4	1567	8897	0.063	1,1-DM-CYHEXANE	5.6	
49C	28.589	28.621	784.3	598	3117	0.022	2,2,4-TM HEXANE	5.0	
50C	28.851	28.880	786.5	556	2881	0.020	C1,3-M,ET PENTANE	5.6	FO
51C	29.005	29.034	787.9	1453	8350	0.059	1-ET,2-M CYPENTANE	5.6	O
52C	29.256	29.283	790.0	354	2027	0.014	T1,2-DM CYHEXANE	5.6	LO
53RC	29.605	29.630	793.0	4880	28175	0.198	C-1,4-DM CYHEXANE	5.6	
54RSC	30.424	30.460	800.0	25861	153534	1.079	N-OCTANE	5.9	FO
55	30.493	30.518	800.6	2757	9131	0.064		8.6A	LO
56C	31.400	31.425	807.8	194	1018	0.007	T1,3-DM CYHEXANE	5.3	
57C	32.120	32.145	813.6	192	1059	0.007	USP.C-9	5.6	
58C	32.379	32.404	815.7	207	1131	0.008	C1,2-DM CYHEXANE	5.3	FO
59C	32.613	32.638	817.6	175	966	0.007	USPES. C-9	5.6	O
60C	32.816	32.841	819.2	484	2664	0.019	2,2-DM HEPTANE	5.6	LO
61C	33.339	33.364	823.4	1956	15205	0.107	2,4-DM HEPTANE	6.6	
62RC	34.035	34.060	829.0	10921	69435	0.488	ET CYHEXANE	6.2	FO
63C	34.152	34.178	829.9	4378	22216	0.156	USPES. C-9	4.8A	LO
64C	34.699	34.728	834.3	3644	20495	0.144	2,5-DM HEPTANE	5.3	
65C	34.960	34.991	836.4	2500	14022	0.099	3,5-DM HEPTANE	5.6	
66C	35.315	35.348	839.3	180	734	0.005	USPES. C-9	4.3	FO
67C	35.480	35.514	840.6	404	1986	0.014	3,3,-DM HEPTANE	5.8A	O
68	35.523	35.557	841.0	292	2167	0.015		22.7A	LO
69RC	36.221	36.260	846.6	3447	26217	0.184	ETYL BENZENE	5.9	FO
70C	36.595	36.638	849.6	1764	10412	0.073	NAFTEN 9	5.6	LO
71RC	37.347	37.400	855.6	11756	72400	0.509	M XYLENE	5.9	FO
72C	37.475	37.528	856.6	4586	36603	0.257	P XYLENE	11.2A	LO
73C	37.867	37.920	859.8	357	3416	0.024	3,4-DM HEPTANE	10.7	FO
74C	38.069	38.122	861.4	1021	8385	0.059	2,3-DM HEPTANE	8.2	LO
75C	38.520	38.573	865.0	3482	18974	0.133	4-M OCTANE	5.9	FO
76C	38.653	38.706	866.1	4705	25912	0.182	2-M OCTANE	5.6	LO
77C	39.107	39.159	869.7	240	1372	0.010	3-ET HEPTANE	5.9	
78C	39.312	39.364	871.4	672	3546	0.025	PARAF. 9	5.4A	FO
79RC	39.488	39.540	872.8	5290	31964	0.225	3-M OCTANE	5.6	O
80	39.573	39.626	873.5	296	962	0.007		13.4A	LO
81RC	40.133	40.190	878.0	5602	34440	0.242	O XYLENE	5.9	FO
82C	40.224	40.281	878.7	550	3136	0.022	USPES. C9	11.5A	LO
83C	40.893	40.955	884.1	1327	7846	0.055	N-BUTYL CYHEXANE	6.4A	FO
84C	41.043	41.106	885.3	4285	24514	0.172	USPES. C9	5.6	LO
85C	41.315	41.380	887.5	2774	16722	0.118	1-ME,4-ET CYHEXANE	5.9	
86C	41.613	41.681	889.9	183	943	0.007	USPES. C9	5.3	FO
87C	41.789	41.858	891.3	290	2455	0.017	PARAF. 9	6.9	LO
88C	42.491	42.564	896.9	443	2816	0.020	USPES. C9	5.9	FO
89SC	42.875	42.951	900.0	25221	148266	1.042	N NONANE	5.9	LO
90	43.227	43.306	902.8	2697	16952	0.119		5.9	
91	43.544	43.625	905.4	790	5419	0.038		7.2	
92	43.973	44.058	908.8	1020	5195	0.037		5.3	
93	44.379	44.466	912.1	2082	14021	0.099		6.6	FO
94	44.592	44.681	913.8	1955	11763	0.083		5.3	LO
95	44.901	44.992	916.3	1068	5104	0.036		5.3	
Residual				0	0	0.000			
Total				743589	3112065	20.705			

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 ISTD : 1.170
Method: PVT Calibration: PVT Type: IS Using:Area
UC type: next peak

NORSK HYDRO E-BERGEN

Analyst Name :ERODE Analysis ID: FROM FLASH
Information :*****

OLJEANALYSR VED PVT, RESERVOAR.

Channel:8 Title: C1-C10 Date 29-Apr-86 Time 15:32
Analysis:HALTEN7 Sample Name:6407/7-1 DST#5 Sample ID: 0
Sample 2 Injection 1

Peak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKT%	Identity	Width	Type
1SC	4.[illegible]	[illegible]	[illegible]	116	191	0.001	METHANE	1.8	
2SC	4.099	4.071	200.0	5109	8209	0.061	ETHANE	1.6	
3SC	4.304	4.275	300.0	37955	61721	0.458	PROPANE	1.6	
4C	4.621	4.590	353.8	20406	34475	0.256	ISO-BUTANE	1.8	
5RSC	4.893	4.860	400.0	76802	136456	1.013	N-BUTANE	1.8	FO
6C	5.032	4.999	409.0	577	1590	0.012	NEO-PENTANE	2.6A	LO
7C	5.888	5.859	464.9	49232	104752	0.777	ISO-PENTANE	2.1	
8RSC	6.427	6.400	500.0	71812	162021	1.202	N-PENTANE	2.2	
9C	7.445	7.418	525.6	1280	3343	0.025	2,2-DM BUTANE	2.6	
10C	8.523	8.495	552.6	6251	18107	0.134	2,3-DM BUTANE	2.6A	FO
11C	8.576	8.549	554.0	3791	11203	0.083	CYCLOPENTANE	3.5A	O
12C	8.752	8.725	558.4	26025	78210	0.580	2-M PENTANE	2.9	LO
13C	9.445	9.418	575.8	14481	47221	0.350	3-M PENTANE	3.2	
14RSC	10.408	10.380	600.0	44822	154955	1.150	N HEXANE	3.2	
15C	11.984	11.963	618.9	819	3022	0.022	2,2-DM PENTANE	3.7	FO
16RC	12.160	12.140	621.0	20974	82311	0.611	M-CYCLO PENTANE	3.7	O
17C	12.424	12.406	624.2	1872	7335	0.054	2,4-DM PENTANE	3.7	LO
18C	13.936	13.926	642.3	12564	54156	0.402	BENZENE	4.0	
19C	14.408	14.401	648.0	399	1700	0.013	3,3-DM PENTANE	4.3	
20RC	14.725	14.720	651.8	33003	145727	1.081	CYCLO HEXANE	4.0	
21C	15.515	15.510	661.2	10779	45936	0.341	2-M HEXANE	4.0	FO
22C	15.659	15.654	663.0	3267	14937	0.111	2,3-DM PENTANE	4.3	O
23C	15.904	15.899	665.9	2786	12886	0.096	1,1 DM CY-PENTAN	4.3	LO
24RC	16.315	16.310	670.8	11719	51902	0.385	3-M HEXANE	4.0	
25C	16.896	16.894	677.8	4105	19208	0.143	C 1,3-DM CYLOPENTANE	4.3	FO
26C	17.163	17.162	681.0	3818	17687	0.131	T1,3-DM CYCLOPENTANE	4.3	O
27C	17.280	17.280	682.4	967	4507	0.033	3-ETYL PENTANE	5.8A	O
28C	17.424	17.425	684.1	6066	29462	0.219	T1,2-DM CYCLOPENTANE	5.0	O
29I	17.616	17.618	686.4	31836	158350		ISO-OCTANE	4.6	LO
30SC	18.747	18.754	700.0	31946	154269	1.145	N HEPTANE	5.0	
31	20.816	20.833	717.7	45451	258195	1.916		5.6	FO
32C	21.109	21.128	720.2	2552	13806	0.102	2,2-DM HEXANE	5.3	LO
33C	22.037	22.060	728.1	2011	9954	0.074	ETYL CYCLOPENTANE	5.0	FO
34C	22.197	22.221	729.5	1265	6761	0.050	2,5-DM HEXANE	5.0	O
35C	22.411	22.435	731.3	1712	8724	0.065	2,4-DM HEXANE	5.0	LO
36C	23.029	23.057	736.6	2186	11170	0.083	1T,2C,4-TM CYCLOPENT	5.0	FO
37C	23.189	23.218	738.0	475	2517	0.019	3,3-DM HEXANE	5.3	LO
38C	23.856	23.888	743.7	1965	10363	0.077	1,T2,C3-TM CYPENTANE	5.3	
39C	24.189	24.223	746.5	220	1115	0.008	2,3,4-TM PENTANE	5.0	
40RC	24.635	24.670	750.3	23447	128968	0.957	TOLUENE	5.3	
41C	25.499	25.529	757.7	1572	12239	0.091	2,3-DM HEXANE	6.9	
42C	26.229	26.256	764.0	10716	54523	0.405	2-M HEPTANE	5.0	FO
43C	26.395	26.421	765.4	3274	15982	0.119	4M-HEPTANE	5.0	O
44C	26.464	26.490	766.0	557	4407	0.033	C1,2-DM CYHEXANE	19.8A	LO
45C	26.883	26.906	769.5	198	1439	0.011	3,4-DM HEXANE	7.5	FO
46C	27.139	27.161	771.7	6518	34066	0.253	3-M HEPTANE	5.3	O
47C	27.288	27.309	773.0	9117	58204	0.432	C1,3-DM CYHEXANE	5.9	O

ORSK HYDRO E-BERGEN

hannel:8 Title: C1-C10 Date 29-Apr-86 Time 15:32
nalysis:HALTEN7 Sample Name:6407/7-1 DST#5 Sample ID: 0
ample 2 Injection 1

eak	R/T m.	RT Corr	RT Val	Hght uV	Area uVs	VEKT%	Identity	Width	Type
48C	27.512	27.532	774.9	4283	22299	0.165	T1,4-DM-CYHEXANE	4.6	LO
49C	28.160	28.176	780.5	1552	8629	0.064	1,1-DM-CYHEXANE	5.3	
50C	28.605	28.619	784.3	582	3007	0.022	2,2,4-TM HEXANE	5.0	
51C	28.867	28.879	786.5	535	2771	0.021	C1,3-M,ET PENTANE	5.3	FO
52C	29.016	29.028	787.8	1349	7477	0.055	1-ET,2-M CYPENTANE	5.3	O
53C	29.272	29.283	790.0	328	1801	0.013	T1,2-DM CYHEXANE	5.3	LO
54RC	29.621	29.630	793.0	4857	27301	0.203	C-1,4-DM CYHEXANE	5.3	
55RSC	30.445	30.460	800.0	24751	146750	1.089	N-OCTANE	5.6	FO
56	30.509	30.516	800.5	2781	9495	0.070		8.6A	LO
57C	32.141	32.144	813.6	175	939	0.007	USP.C-9	5.6	
58C	32.403	32.405	815.7	190	1016	0.008	C1,2-DM CYHEXANE	5.3	FO
59C	32.637	32.639	817.6	165	912	0.007	USPES. C-9	5.3	O
60C	32.840	32.841	819.2	444	2446	0.018	2,2-DM HEPTANE	5.3	LO
61C	33.365	33.366	823.4	1845	13908	0.103	2,4-DM HEPTANE	6.2	
62RC	34.061	34.060	829.0	10796	69066	0.512	ET CYHEXANE	6.2	FO
63C	34.173	34.172	829.9	3843	17762	0.132	USPES. C-9	5.4A	LO
64C	34.728	34.729	834.3	3254	17861	0.133	2,5-DM HEPTANE	5.3	FO
65C	34.995	34.997	836.5	2436	14246	0.106	3,5-DM HEPTANE	5.6	O
66C	35.075	35.077	837.1	447	3307	0.025	USPES. C-9	20.8A	O
67C	35.341	35.345	839.2	240	1300	0.010	USPES. C-9	5.6	O
68C	35.507	35.511	840.6	402	1933	0.014	3,3,-DM HEPTANE	5.8A	O
69	35.539	35.543	840.8	331	2480	0.018		24.6A	LO
70RC	36.253	36.260	846.5	3670	20605	0.153	ETYL BENZENE	5.6	FO
71C	36.323	36.330	847.1	909	5384	0.040	USPES. C9	13.8A	O
72C	36.627	36.636	849.5	1676	9705	0.072	NAFTEN 9	5.6	LO
73RC	37.384	37.400	855.6	12973	79772	0.592	M XYLENE	5.9	FO
74C	37.512	37.528	856.6	4955	35495	0.263	P XYLENE	9.3A	LO
75C	37.904	37.921	859.8	322	3058	0.023	3,4-DM HEPTANE	10.7	FO
76C	38.101	38.119	861.3	996	7981	0.059	2,3-DM HEPTANE	8.2	LO
77C	38.552	38.570	865.0	3252	17861	0.133	4-M OCTANE	5.9	FO
78C	38.685	38.704	866.0	4375	23569	0.175	2-M OCTANE	5.3	LO
79C	39.149	39.169	869.7	238	1349	0.010	3-ET HEPTANE	5.9	
80C	39.344	39.364	871.3	638	3340	0.025	PARAF. 9	4.8A	FO
81RC	39.520	39.540	872.7	4869	28802	0.214	3-M OCTANE	5.9	O
82	39.605	39.625	873.4	291	949	0.007		14.1A	LO
83RC	40.171	40.190	877.9	6100	37335	0.277	O XYLENE	5.9	FO
84C	40.261	40.281	878.7	508	2848	0.021	USPES. C9	12.2A	LO
85C	40.931	40.949	884.0	1159	6683	0.050	N-BUTYL CYHEXANE	6.4A	FO
86C	41.075	41.093	885.2	4222	23741	0.176	USPES. C9	5.6	LO
87C	41.352	41.370	887.4	2654	15765	0.117	1-ME,4-ET CYHEXANE	5.9	
88C	41.651	41.668	889.8	155	763	0.006	USPES. C9	5.0	FO
89C	41.827	41.844	891.2	267	2181	0.016	PARAF. 9	6.6	LO
90C	42.523	42.540	896.8	413	2300	0.017	USPES. C9	5.3	
91SC	42.925	42.942	900.0	23862	138783	1.030	N NONANE	5.9	
92	43.259	43.275	902.7	2551	15722	0.117		6.6	
93	43.576	43.592	905.2	752	5213	0.039		6.6	
94	44.016	44.031	908.7	1109	5617	0.042		5.3	
95	44.421	44.436	912.0	1754	10964	0.081		5.9	
96	44.632	44.647	913.7	1829	10029	0.074		5.3	
97	44.933	44.948	916.1	747	2984	0.022		4.6	
esidual				0	0	0.000			
otal				801647	3153786	22.227			

ample Type: SA Scale Factor: 1.000 Amount: 1.000 ISTD : 1.175

Table 6: Tentative peak identification.

Table 6a Triterpanes

Table 6b Steranes

Table 5: Normalised peak heights for the 8 oil samples used in the oil-oil correlation.

0 SAMPLE	1 C-32 H	2 C-32 H	3 C-27	4 C-31 H	5 C-31 H
1 6407/1-2 #1	1.6	1.0	0.6	2.9	1.9
2 6407/7-1 #2	1.0	0.6	0.3	1.8	1.2
3 6407/7-1 #3	1.1	0.7	0.3	1.9	1.2
4 6407/7-1 #4	1.1	0.7	0.3	1.9	1.2
5 6407/7-1 #5	1.1	0.7	0.3	1.9	1.2
6 6407/7-1 STO	1.2	0.8	0.2	2.0	1.3
7 6407/9-1	1.5	1.0	1.3	2.8	1.8
8 6407/9-1	1.0	0.6	1.6	1.9	1.2

0 SAMPLE	6 MORETANE	7 HOPANE	8 C-30 T	9 C-29	10 NORH	11 C-29
1 6407/1-2 #1	0.4	7.1	1.0	2.4	3.3	0.3
2 6407/7-1 #2	0.4	5.8	1.7	1.8	2.4	0.7
3 6407/7-1 #3	0.4	6.0	1.8	1.9	2.5	0.7
4 6407/7-1 #4	0.4	6.1	1.6	1.8	2.5	0.7
5 6407/7-1 #5	0.4	6.0	1.9	1.9	2.6	0.8
6 6407/7-1 STO	0.4	6.7	1.8	2.0	2.7	0.7
7 6407/9-1	0.6	8.8	1.3	1.9	3.7	0.5
8 6407/9-1	0.4	6.9	1.2	1.7	3.3	0.5

0 SAMPLE	12 C-28 BIS	13 TM	14 TS	15 30-D	16 30-D	17 30-D
1 6407/1-2 #1	1.1	1.5	3.7	1.4	0.9	0.5
2 6407/7-1 #2	1.4	0.9	3.3	2.0	1.2	0.7
3 6407/7-1 #3	1.4	0.9	3.2	1.9	1.2	0.7
4 6407/7-1 #4	1.4	0.9	3.2	2.0	1.2	0.6
5 6407/7-1 #5	1.1	1.2	3.2	1.8	1.2	0.6
6 6407/7-1 STO	1.4	1.0	3.9	1.7	1.1	0.6
7 6407/9-1	2.2	1.7	2.8	1.1	0.8	0.4
8 6407/9-1	1.9	1.8	3.0	1.2	0.8	0.4

0 SAMPLE	18 C-30	19 C-30	20 C-30	21 C-30	22 C-29	23 C-29
1 6407/1-2 #1	0.3	0.5	0.6	0.3	5.6	3.6
2 6407/7-1 #2	0.2	0.5	0.6	0.2	7.2	4.8
3 6407/7-1 #3	0.3	0.6	0.6	0.2	7.1	4.8
4 6407/7-1 #4	0.3	0.6	0.6	0.3	7.0	4.9
5 6407/7-1 #5	0.3	0.5	0.5	0.2	7.7	5.0
6 6407/7-1 STO	0.2	0.5	0.6	0.2	6.7	4.4
7 6407/9-1	0.5	0.6	0.7	0.5	5.7	4.2
8 6407/9-1	0.4	0.5	0.5	0.4	7.1	4.4

0	SAMPLE	24 C-29	25 C-29	26 C-29	27 C-29	28 C-29	29 C-29
1	6407/1-2 #1	0.8	1.6	1.0	1.7	1.8	0.7
2	6407/7-1 #2	1.3	2.0	1.0	1.7	1.5	0.7
3	6407/7-1 #3	1.3	2.0	1.0	1.7	1.5	0.6
4	6407/7-1 #4	1.3	2.0	1.0	1.7	1.5	0.7
5	6407/7-1 #5	1.4	2.0	1.1	1.8	1.5	0.8
6	6407/7-1 STO	1.2	1.9	0.8	1.6	1.6	0.6
7	6407/9-1	1.1	1.9	2.0	2.4	2.3	1.3
8	6407/9-1	1.4	1.7	2.1	2.1	1.7	1.2

0	SAMPLE	30 C-28	31 C-28	32 C-28	33 C-28	34 C-28	35 C-28
1	6407/1-2 #1	4.1	4.7	2.7	3.0	1.2	1.1
2	6407/7-1 #2	5.2	5.2	3.4	3.7	1.3	1.5
3	6407/7-1 #3	5.0	5.3	3.2	3.5	1.3	1.4
4	6407/7-1 #4	4.9	5.1	3.3	3.6	1.3	1.5
5	6407/7-1 #5	5.0	5.0	3.2	3.6	1.3	1.5
6	6407/7-1 STO	4.7	4.9	3.0	3.4	1.4	1.3
7	6407/9-1	3.4	3.4	2.3	2.6	1.1	1.0
8	6407/9-1	4.0	4.0	2.5	2.5	1.1	0.9

0	SAMPLE	36 C-28	37 C-28	38 C-28	39 C-28	40 C-27	41 C-27
1	6407/1-2 #1	0.4	2.0	1.6	0.6	11.6	7.1
2	6407/7-1 #2	0.4	1.6	1.4	0.4	10.9	6.7
3	6407/7-1 #3	0.3	1.6	1.4	0.5	11.1	6.8
4	6407/7-1 #4	0.4	1.6	1.4	0.5	10.9	6.7
5	6407/7-1 #5	0.4	1.5	1.2	0.4	10.8	6.6
6	6407/7-1 STO	0.4	1.7	1.5	0.4	11.1	7.2
7	6407/9-1	0.8	2.0	1.7	0.8	8.0	5.4
8	6407/9-1	0.9	2.0	1.6	0.9	9.7	5.6

0	SAMPLE	42 C-27	43 C-27	44 C-27	45 C-27	46 C-27	47 C-27
1	6407/1-2 #1	1.8	2.4	1.0	2.2	1.8	1.1
2	6407/7-1 #2	1.9	2.8	0.8	1.5	1.4	1.0
3	6407/7-1 #3	1.9	2.7	0.8	1.5	1.4	0.9
4	6407/7-1 #4	1.8	2.6	0.8	1.6	1.4	1.0
5	6407/7-1 #5	1.9	2.6	0.7	1.3	1.3	0.9
6	6407/7-1 STO	1.8	2.5	0.7	1.7	1.5	0.9
7	6407/9-1	1.4	1.9	1.5	2.0	1.7	1.5
8	6407/9-1	1.8	2.0	2.2	2.2	1.5	1.7

PEAK	IDENTIFICATION
1	Bishomohopane (22S)
2	Bishomohopane (22R)
3	25,28,30-trisnorhopane
4	Homohopane (22S)
5	Homohopane (22R)
6	Moretane
7	Hopane
8	Unknown C_{30} triterpane
9	Unknown C_{29} triterpane
10	Norhopane
11	Unknown C_{29} triterpane
12	17α(H)-28,30-bisnorhopane
13	17α(H)-22,29,30-trisnorhopane
14	β(H)-22,29,30-trisnorhopane

Table 6a

PEAK	IDENTIFICATION
1	C_{30} βα-diasterane (20S)
2	C_{30} βα-diasterane (20R)
3	C_{30} αβ-diasterane (20S)
4	C_{30} ααα-sterane (20S)
5	C_{30} αββ-sterane (20R)
6	C_{30} αββ-sterane (20S)
7	C_{30} ααα-sterane (20R)
8	βα-24-ethyldiacholestane (20S)
9	βα-24-ethyldiacholestane (20R)
10	αβ-24-ethyldiacholestane (20S)
11	αβ-24-ethyldiacholestane (20R)
12	ααα-24-ethylcholestane (20S)
13	αββ-24-ethylcholestane (20R)
14	αββ-24-ethylcholestane (20S)
15	ααα-24-ethylcholestane (20R)
16	βα-24-methyldiacholestane (20S)
17	"
18	βα-24-methyldiacholestane (20R)
19	"
20	αβ-24-methyldiacholestane (20S)
21	αβ-24-methyldiacholestane (20R)
22	ααα-24-methylcholestane (20S)
23	αββ-24-methylcholestane (20R)
24	αββ-24-methylcholestane (20S)
25	ααα-24-methylcholestane (20R)
26	βα-diacholestane (20S)
27	βα-diacholestane (20R)
28	αβ-diacholestane (20S)
29	αβ-diacholestane (20R)
30	ααα-cholestane (20S)
31	αββ-cholestane (20R)
32	αββ-cholestane (20S)
33	ααα-cholestane (20R)

Table 6b

Table 7: Normalised peak heights for the samples used in the oil-source rock correlation.

Table 7a Triterpanes

Table 7b Steranes

0	SAMPLE	1	2	3	4	5	6	7	8	9
1	2699.00	1.1	0.7	0.1	4.5	3.0	0.8	9.7	0.2	2.8
2	2700.00	1.1	0.8	0.1	3.5	2.1	0.5	11.2	0.3	2.2
3	2704.00	1.1	0.7	0.1	3.7	2.5	0.6	9.6	0.2	2.3
4	2704.50	1.0	0.6	0.1	3.6	2.0	0.8	11.1	0.1	2.3
5	2706.00	1.1	0.7	0.1	3.4	2.2	0.9	9.3	0.3	1.6
6	2709.00	1.6	1.1	0.1	2.9	4.6	1.4	11.5	0.4	1.7
7	2711.00	2.2	1.3	0.1	7.5	4.8	1.9	15.7	0.2	1.8
8	2712.00	1.4	1.1	0.3	3.1	4.3	1.7	14.3	0.5	0.0
9	2713.00	2.5	1.7	0.2	5.9	4.0	2.4	11.8	0.6	2.0
10	2837.00	1.2	0.8	0.1	2.7	1.8	0.7	10.3	3.0	3.5
11	2915.00	1.1	0.7	0.1	1.9	1.2	0.5	7.2	1.6	1.8
12	2956.00	1.1	0.7	0.1	1.9	1.2	0.5	7.2	1.7	1.9
13	3024.00	1.1	0.6	0.1	1.8	1.1	0.4	7.6	1.7	2.0
14	3027.80	1.1	0.7	0.1	2.0	1.2	0.3	8.5	1.7	2.2
15	3064.37	1.7	1.1	0.1	3.4	2.1	0.9	10.1	1.8	2.2
16	3071.57	3.8	2.4	0.4	10.9	7.3	3.4	21.1	0.6	0.0
17	3075.45	2.8	1.6	0.2	8.4	5.6	4.5	21.7	0.7	0.0
18	6407/1-2 #1	1.4	0.9	0.8	2.7	1.7	0.3	6.3	0.9	2.2
19	6407/1-2 #1	1.6	1.0	0.6	2.9	1.9	0.4	7.1	1.0	2.4
20	6407/7-1 #2	1.0	0.6	0.3	1.8	1.2	0.4	5.8	1.7	1.8
21	6407/7-1 #3	1.1	0.7	0.3	1.9	1.2	0.4	6.0	1.8	1.9
22	6407/7-1 #4	1.1	0.7	0.3	1.9	1.2	0.4	6.1	1.6	1.8
23	6407/7-1 #5	1.1	0.7	0.3	1.9	1.2	0.4	6.0	1.9	1.9
24	6407/7-1 STO	1.2	0.8	0.2	2.0	1.3	0.4	6.7	1.8	2.0
25	6407/9-1	1.5	1.0	1.3	2.8	1.8	0.6	8.8	1.3	1.9
26	6407/9-1	1.0	0.6	1.6	1.9	1.2	0.4	6.9	1.2	1.7

Table 7a

0	SAMPLE	10	11	12	13	14
1	2699.00	6.5	0.2	0.5	3.6	1.3
2	2700.00	6.8	0.1	0.6	2.9	1.5
3	2704.00	5.7	0.1	0.5	3.5	1.9
4	2704.50	6.8	0.1	0.6	3.2	1.9
5	2706.00	6.0	0.1	0.1	3.9	1.3
6	2709.00	7.3	0.1	0.0	4.3	1.0
7	2711.00	10.1	0.1	0.9	6.8	0.9
8	2712.00	9.4	0.0	0.0	6.2	1.4
9	2713.00	7.5	0.3	0.1	5.3	1.1
10	2837.00	4.7	0.9	2.0	2.7	8.6
11	2915.00	2.4	0.6	1.3	0.9	4.3
12	2956.00	2.6	0.6	1.3	0.9	4.2
13	3024.00	2.7	0.6	1.3	1.0	4.9
14	3027.80	2.9	0.6	1.6	1.2	5.4
15	3064.37	5.6	0.7	1.8	2.6	6.1
16	3071.57	24.3	0.0	0.1	17.8	0.1
17	3075.45	29.0	0.0	3.2	13.5	0.3
18	6407/1-2 #1	2.9	0.4	1.2	1.4	3.2
19	6407/1-2 #1	3.3	0.3	1.1	1.5	3.7
20	6407/7-1 #2	2.4	0.7	1.4	0.9	3.3
21	6407/7-1 #3	2.5	0.7	1.4	0.9	3.2
22	6407/7-1 #4	2.5	0.7	1.4	0.9	3.2
23	6407/7-1 #5	2.6	0.8	1.1	1.2	3.2
24	6407/7-1 STO	2.7	0.7	1.4	1.0	3.9
25	6407/9-1	3.7	0.5	2.2	1.7	2.8
26	6407/9-1	3.3	0.5	1.9	1.8	3.0

Table 7a contd.

0	SAMPLE	1	2	3	4	5	6	7	8	9
1	2699.00	0.6	0.4	0.2	0.3	0.1	0.2	0.9	4.6	3.1
2	2700.00	0.7	0.5	0.3	0.4	0.1	0.3	1.3	3.5	2.1
3	2704.00	1.2	0.7	0.3	0.7	0.1	0.4	2.5	3.4	2.2
4	2704.50	1.2	0.8	0.4	0.8	0.2	0.6	2.3	2.7	1.6
5	2706.00	0.9	0.6	0.3	0.3	0.1	0.2	0.4	7.6	4.2
6	2709.00	0.7	0.5	0.2	0.2	0.1	0.2	0.3	8.9	4.9
7	2711.00	0.4	0.2	0.1	0.1	0.1	0.0	0.2	7.4	4.3
8	2712.00	0.0	0.6	0.4	0.2	0.1	0.1	0.2	9.5	5.2
9	2713.00	0.5	0.3	0.2	0.2	0.1	0.1	0.3	7.3	4.7
10	2837.00	0.8	0.5	0.3	0.1	0.3	0.3	0.2	5.1	3.2
11	2915.00	1.6	1.0	0.5	0.2	0.4	0.5	0.2	7.5	4.2
12	2956.00	1.5	1.0	0.5	0.2	0.4	0.5	0.2	7.8	4.2
13	3024.00	1.4	0.9	0.4	0.1	0.3	0.5	0.1	7.8	4.1
14	3027.80	1.4	0.8	0.5	0.2	0.4	0.4	0.2	6.9	4.1
15	3064.37	1.0	0.6	0.3	0.1	0.3	0.3	0.2	6.1	3.6
16	3071.57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.0
17	3075.45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	1.2
18	6407/1-2 #1	1.6	1.1	0.6	0.4	0.7	0.6	0.4	6.0	4.0
19	6407/1-2 #1	1.4	0.9	0.5	0.3	0.5	0.6	0.3	5.6	3.6
20	6407/7-1 #2	2.0	1.2	0.7	0.2	0.5	0.6	0.2	7.2	4.8
21	6407/7-1 #3	1.9	1.2	0.7	0.3	0.6	0.6	0.2	7.1	4.8
22	6407/7-1 #4	2.0	1.2	0.6	0.3	0.6	0.6	0.3	7.0	4.9
23	6407/7-1 #5	1.8	1.2	0.6	0.3	0.5	0.5	0.2	7.7	5.0
24	6407/7-1 STO	1.7	1.1	0.6	0.2	0.5	0.6	0.2	6.7	4.4
25	6407/9-1	1.1	0.8	0.4	0.5	0.6	0.7	0.5	5.7	4.2
26	6407/9-1	1.2	0.8	0.4	0.4	0.5	0.5	0.4	7.1	4.4

Table 7b

0	SAMPLE	10	11	12	13	14	15	16	17	18
1	2699.00	0.5	1.1	1.7	0.6	0.8	4.9	3.2	3.4	1.5
2	2700.00	0.4	0.9	1.4	0.7	1.0	4.6	2.3	2.5	1.3
3	2704.00	0.4	0.8	1.8	0.6	0.7	4.5	2.9	3.0	1.5
4	2704.50	0.3	0.7	1.2	0.6	0.7	3.7	2.8	3.1	1.3
5	2706.00	1.1	2.0	1.5	0.9	0.9	2.7	3.3	3.8	2.0
6	2709.00	1.3	2.4	1.6	0.8	0.9	2.7	2.7	3.0	1.6
7	2711.00	0.8	1.6	1.3	0.6	0.7	3.2	1.5	1.7	0.8
8	2712.00	1.0	2.0	1.1	0.7	0.8	1.8	2.5	3.1	1.7
9	2713.00	1.5	2.4	2.2	0.9	1.1	3.3	2.3	2.4	1.3
10	2837.00	0.8	1.5	0.8	1.4	1.3	0.7	3.3	3.6	2.2
11	2915.00	1.0	1.8	0.5	1.1	1.1	0.3	4.8	5.3	2.9
12	2956.00	0.9	1.7	0.6	1.2	1.2	0.3	4.9	5.5	3.0
13	3024.00	0.9	1.6	0.5	1.1	1.1	0.4	4.9	5.4	3.1
14	3027.80	1.1	1.7	0.5	1.4	1.2	0.4	4.6	5.2	2.9
15	3064.37	1.0	1.6	0.8	1.3	1.2	0.6	3.7	4.1	2.2
16	3071.57	0.3	0.5	0.7	0.4	0.4	0.7	0.3	0.3	0.2
17	3075.45	0.3	0.5	0.8	0.4	0.5	0.9	0.1	0.2	0.1
18	6407/1-2 #1	1.2	1.7	1.3	1.9	1.6	0.9	4.9	4.1	2.8
19	6407/1-2 #1	0.8	1.6	1.0	1.7	1.8	0.7	4.1	4.7	2.7
20	6407/7-1 #2	1.3	2.0	1.0	1.7	1.5	0.7	5.2	5.2	3.4
21	6407/7-1 #3	1.3	2.0	1.0	1.7	1.5	0.6	5.0	5.3	3.2
22	6407/7-1 #4	1.3	2.0	1.0	1.7	1.5	0.7	4.9	5.1	3.3
23	6407/7-1 #5	1.4	2.0	1.1	1.8	1.5	0.8	5.0	5.0	3.2
24	6407/7-1 STO	1.2	1.9	0.8	1.6	1.6	0.6	4.7	4.9	3.0
25	6407/9-1	1.1	1.9	2.0	2.4	2.3	1.3	3.4	3.4	2.3
26	6407/9-1	1.4	1.7	2.1	2.1	1.7	1.2	4.0	4.0	2.5

Table 7b contd.

0	SAMPLE	19	20	21	22	23	24	25	26	27
1	2699.00	1.9	0.6	0.6	1.1	0.4	0.7	3.6	8.4	5.5
2	2700.00	1.6	0.7	0.6	1.0	1.3	0.8	3.7	9.8	5.6
3	2704.00	2.0	0.5	0.0	1.4	1.7	0.9	4.2	7.6	5.4
4	2704.50	1.7	0.6	0.6	1.2	1.5	0.8	4.6	8.7	5.5
5	2706.00	2.4	1.0	0.8	0.7	1.1	0.7	1.6	10.3	6.4
6	2709.00	1.9	0.7	0.7	0.5	0.8	0.4	1.1	9.0	5.7
7	2711.00	1.0	0.4	0.4	0.3	0.5	0.3	0.9	7.0	4.3
8	2712.00	1.8	0.7	0.6	0.4	0.7	0.4	0.8	8.8	5.1
9	2713.00	1.6	0.7	0.7	0.6	0.8	0.5	1.3	6.0	3.8
10	2837.00	2.5	1.0	0.9	0.4	1.3	1.2	0.4	9.1	6.0
11	2915.00	3.6	1.3	1.1	0.3	1.4	1.2	0.4	13.5	8.9
12	2956.00	3.4	1.3	1.0	0.2	1.5	1.1	0.3	13.7	8.3
13	3024.00	3.5	1.3	1.1	0.2	1.3	1.1	0.3	13.4	8.3
14	3027.80	3.4	1.1	1.1	0.3	1.4	1.3	0.3	12.3	7.7
15	3064.37	2.5	1.0	1.0	0.3	1.4	1.1	0.4	10.0	6.1
16	3071.57	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1
17	3075.45	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1
18	6407/1-2 #1	3.1	1.4	1.3	0.7	1.9	1.6	0.7	9.3	6.1
19	6407/1-2 #1	3.0	1.2	1.1	0.4	2.0	1.6	0.6	11.6	7.1
20	6407/7-1 #2	3.7	1.3	1.5	0.4	1.6	1.4	0.4	10.9	6.7
21	6407/7-1 #3	3.5	1.3	1.4	0.3	1.6	1.4	0.5	11.1	6.8
22	6407/7-1 #4	3.6	1.3	1.5	0.4	1.6	1.4	0.5	10.9	6.7
23	6407/7-1 #5	3.6	1.3	1.5	0.4	1.5	1.2	0.4	10.8	6.6
24	6407/7-1 STO	3.4	1.4	1.3	0.4	1.7	1.5	0.4	11.1	7.2
25	6407/9-1	2.6	1.1	1.0	0.8	2.0	1.7	0.8	8.0	5.4
26	6407/9-1	2.5	1.1	0.9	0.9	2.0	1.6	0.9	9.7	5.6

Table 7b continued

0	SAMPLE	28	29	30	31	32	33
1	2699.00	1.0	1.5	3.1	0.6	0.4	7.5
2	2700.00	1.0	1.5	3.4	0.9	0.7	9.5
3	2704.00	1.1	1.6	3.7	1.2	0.7	8.3
4	2704.50	1.0	1.3	3.5	1.0	0.7	8.2
5	2706.00	1.6	2.1	2.1	0.9	0.7	3.5
6	2709.00	1.3	1.8	1.6	0.6	0.4	2.5
7	2711.00	0.8	1.1	1.0	0.4	0.2	2.0
8	2712.00	1.0	1.7	1.1	0.5	0.3	1.4
9	2713.00	1.1	1.4	1.6	0.6	0.5	2.4
10	2837.00	1.5	2.1	0.7	1.5	1.2	0.8
11	2915.00	1.6	2.5	0.6	1.5	1.1	0.5
12	2956.00	1.7	2.4	0.5	1.4	1.2	0.5
13	3024.00	1.7	2.4	0.5	1.5	1.2	0.5
14	3027.80	1.8	2.4	0.5	1.4	1.1	0.7
15	3064.37	1.4	1.8	0.6	1.4	1.2	0.7
16	3071.57	0.0	0.0	0.1	0.0	0.0	0.1
17	3075.45	0.0	0.1	0.1	0.0	0.0	0.1
18	6407/1-2 #1	2.1	2.3	1.5	2.3	2.0	1.5
19	6407/1-2 #1	1.8	2.4	1.0	2.2	1.8	1.1
20	6407/7-1 #2	1.9	2.8	0.8	1.5	1.4	1.0
21	6407/7-1 #3	1.9	2.7	0.8	1.5	1.4	0.9
22	6407/7-1 #4	1.8	2.6	0.8	1.6	1.4	1.0
23	6407/7-1 #5	1.9	2.6	0.7	1.3	1.3	0.9
24	6407/7-1 STO	1.8	2.5	0.7	1.7	1.5	0.9
25	6407/9-1	1.4	1.9	1.5	2.0	1.7	1.5
26	6407/9-1	1.8	2.0	2.2	2.2	1.5	1.7

Table 7b contd.

	SAMPLE	CARBON NUMBER DISTRIBUTION 29	28	27
1	2699.00	30.7	22.6	46.7
2	2700.00	25.9	20.7	53.4
3	2704.00	26.7	24.5	48.7
4	2704.50	22.3	27.8	49.8
5	2706.00	35.2	20.4	44.4
6	2709.00	43.0	17.5	39.5
7	2711.00	52.5	14.0	33.5
8	2712.00	44.3	20.1	35.7
9	2713.00	46.8	18.7	34.4
10	2837.00	35.7	22.0	42.3
11	2915.00	29.2	31.3	39.6
12	2956.00	28.3	25.4	46.3
13	3024.00	30.2	24.9	44.9
14	3027.80	28.9	22.7	48.4
15	3064.37	35.4	22.8	41.8
16	3071.57	75.0	19.1	5.9
17	3075.45	83.4	10.6	6.0
18	6407/1-2	30.1	23.2	46.7
19	6407/1-2 #1	29.9	23.2	46.9
20	6407/7-1 #2	31.7	21.2	47.1
21	6407/7-1 #3	31.4	23.0	45.6
22	6407/7-1 #4	31.6	23.3	45.1
23	6407/7-1 #5	36.9	21.1	42.0
24	6407/7-1 STO	31.6	23.1	45.3
25	6407/9-1	36.1	22.8	41.1
26	6407/9-2 #1	32.0	23.2	44.8

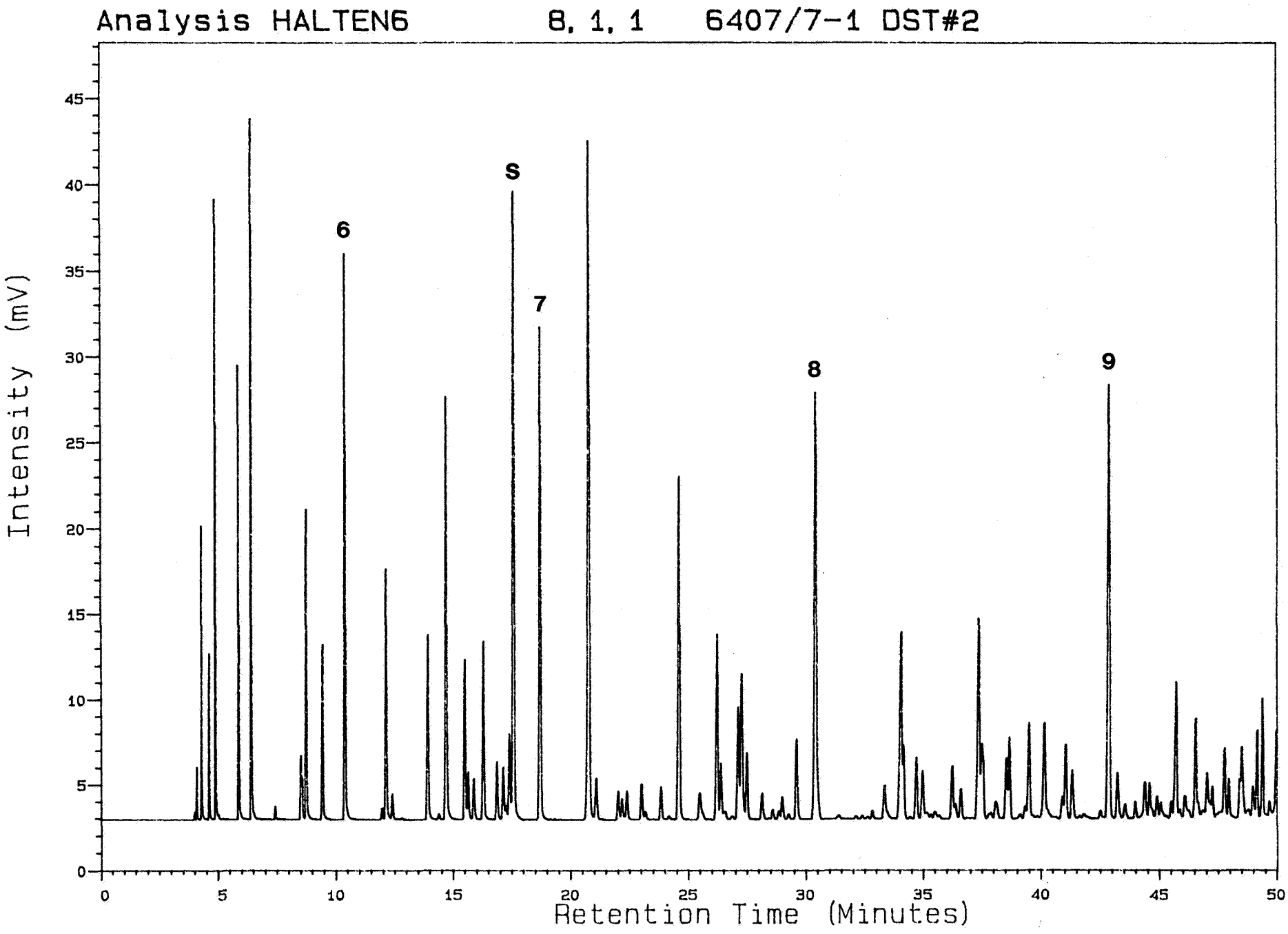
Table 8: Carbon number distribution of the steranes in %.

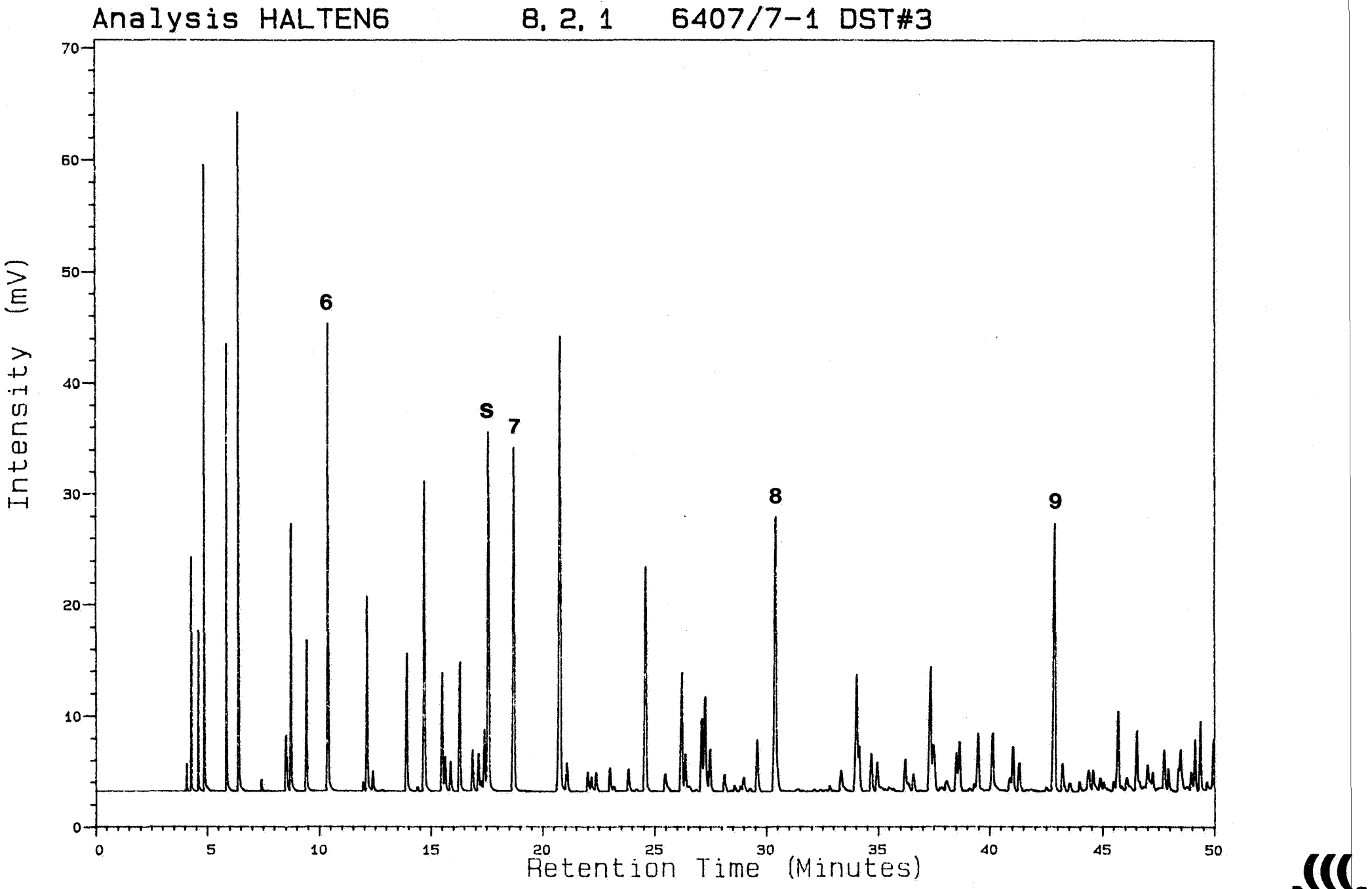
APPENDIX I

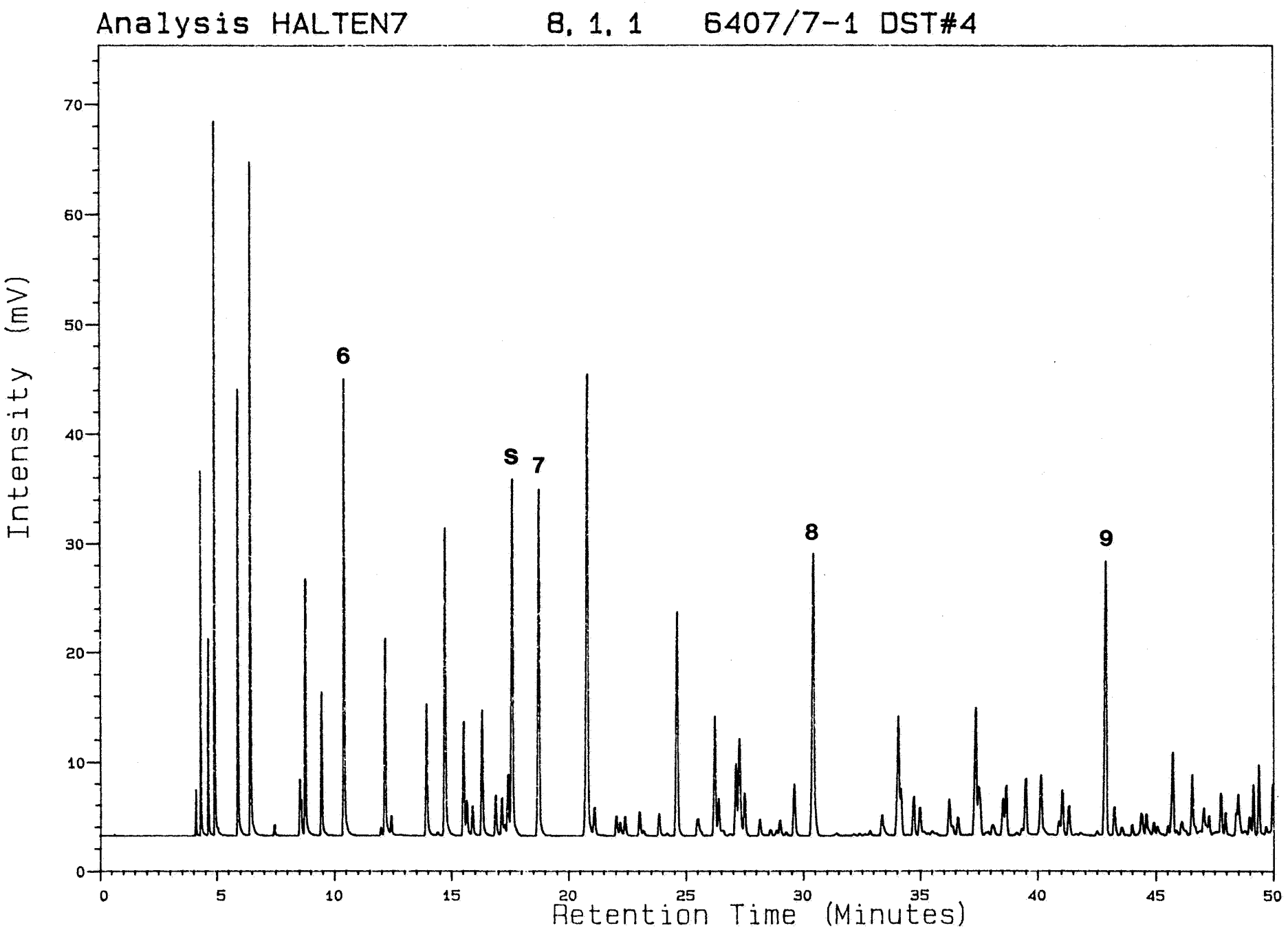
Gas chromatograms of C_2-C_9 hydrocarbons.

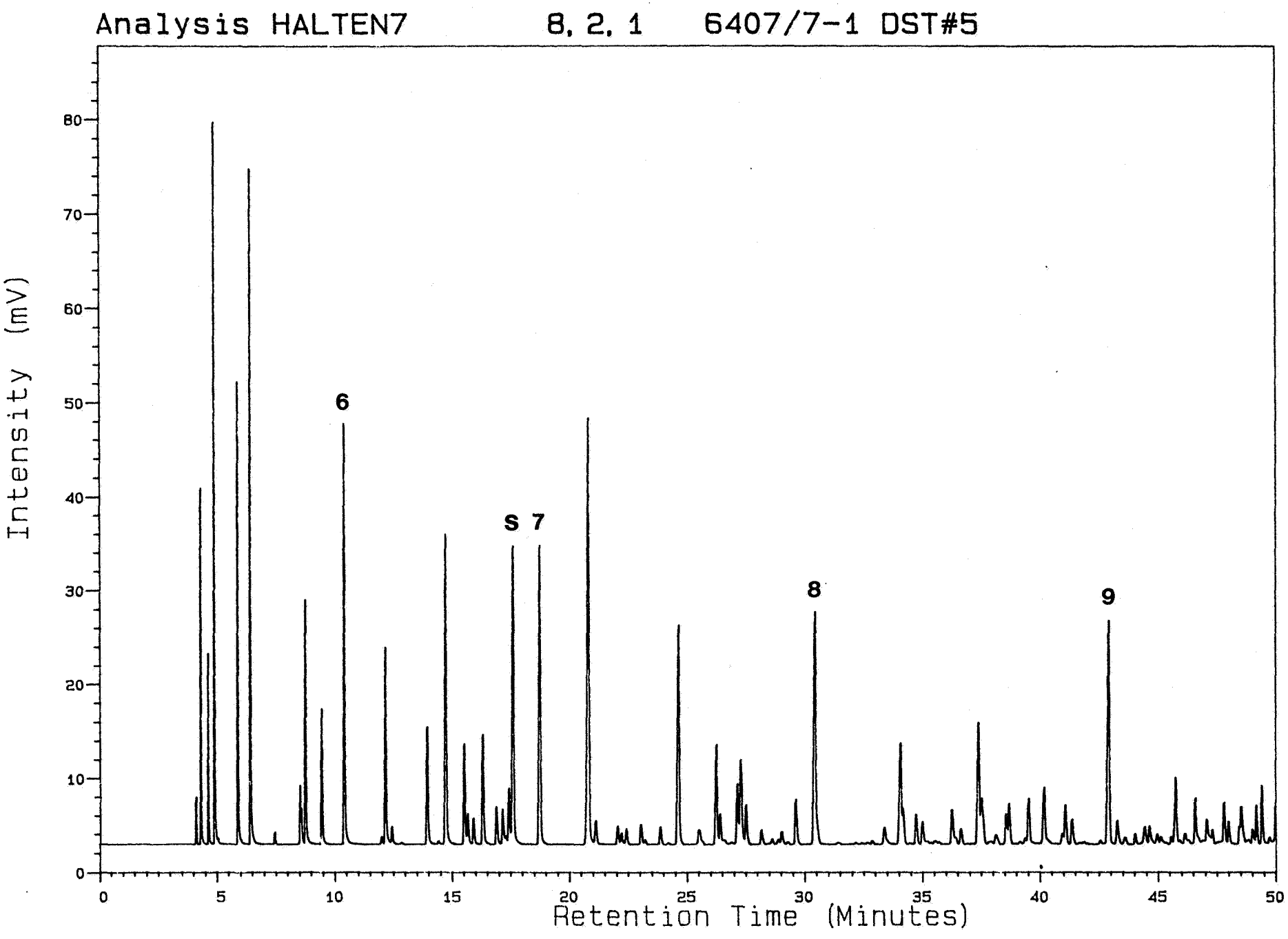
Numbers correspond to n-alkane with the same carbon number

S- internal standard


Analysis HALTEN6 8, 1, 1 6407/7-1 DST#2
Intensity (mV)
Retention Time (Minutes)
6
S
7
8
9
0
5
10
15
20
25
30
35
40
45
50


Analysis HALTEN6 8, 2, 1 6407/7-1 DST#3
Intensity (mV)
Retention Time (Minutes)
6
S
7
8
9
0
10
20
30
40
50
60
70
0
5
10
15
20
25
30
35
40
45
50

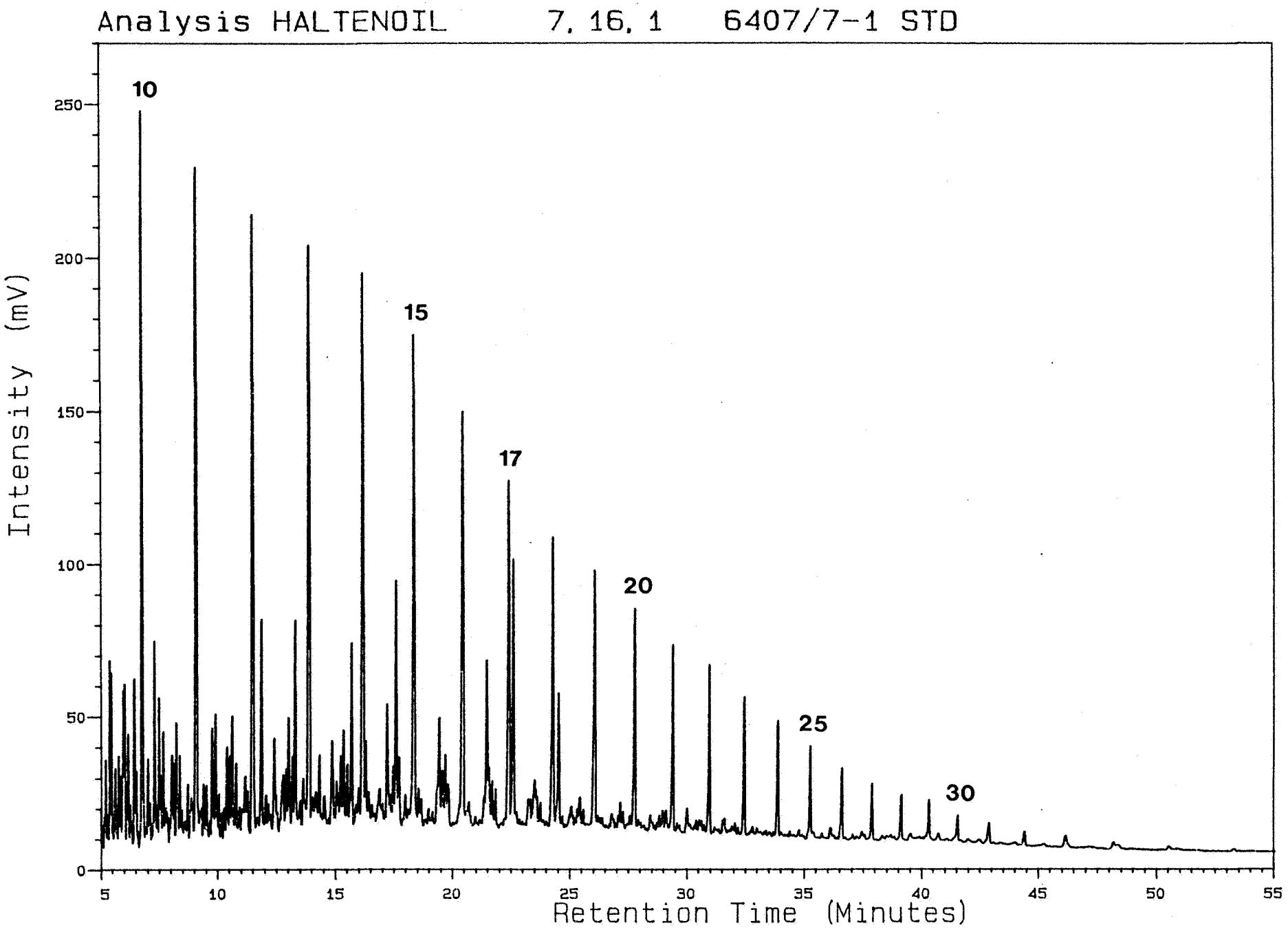

Analysis HALTEN7 8, 1, 1 6407/7-1 DST#4
Intensity (mV)
Retention Time (Minutes)
6
S
7
8
9
0
10
20
30
40
50
60
70
0
5
10
15
20
25
30
35
40
45
50

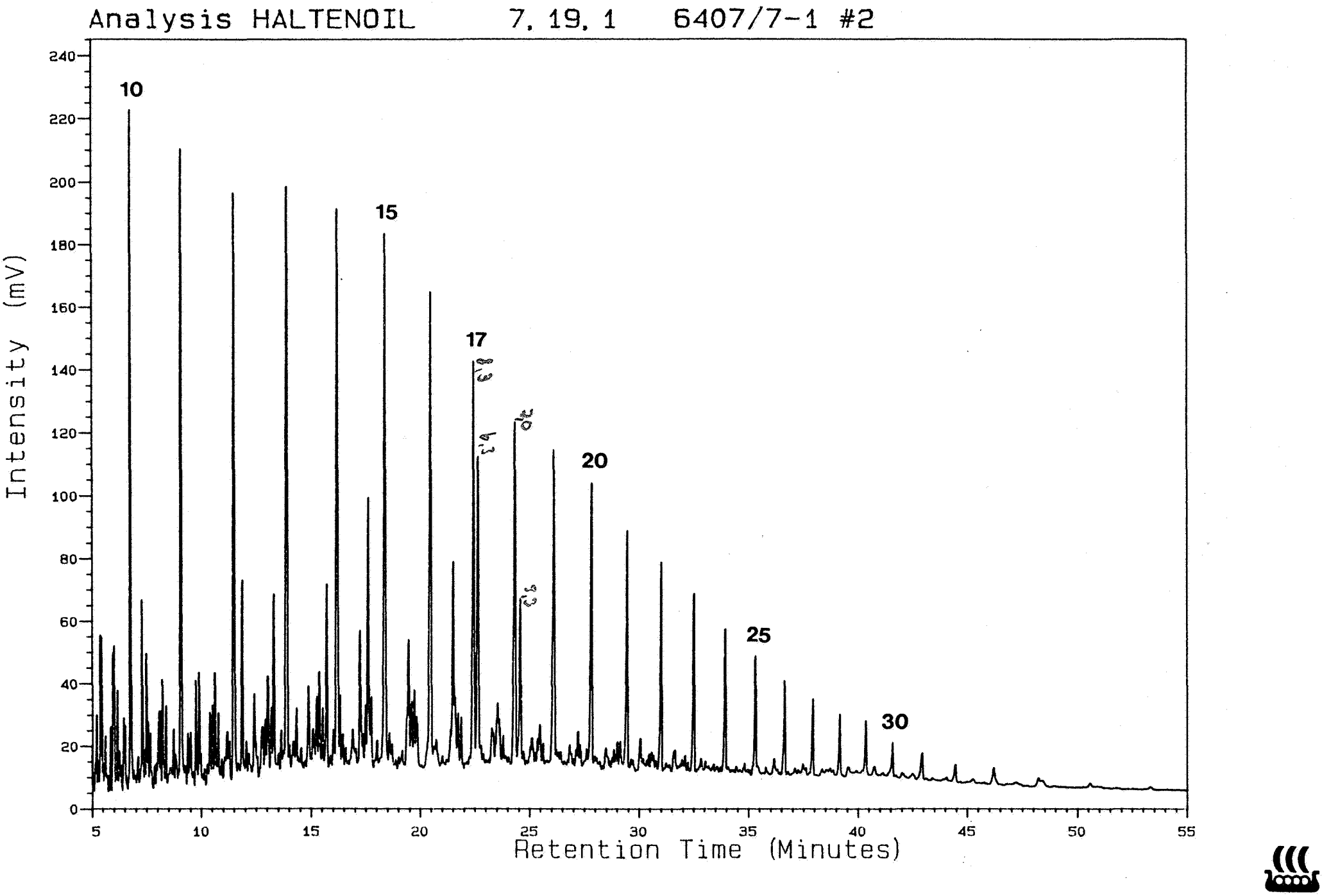

Analysis HALTEN7 8, 2, 1 6407/7-1 DST#5
Intensity (mV)
Retention Time (Minutes)
6
S 7
8
9
0
10
20
30
40
50
60
70
80
0
5
10
15
20
25
30
35
40
45
50

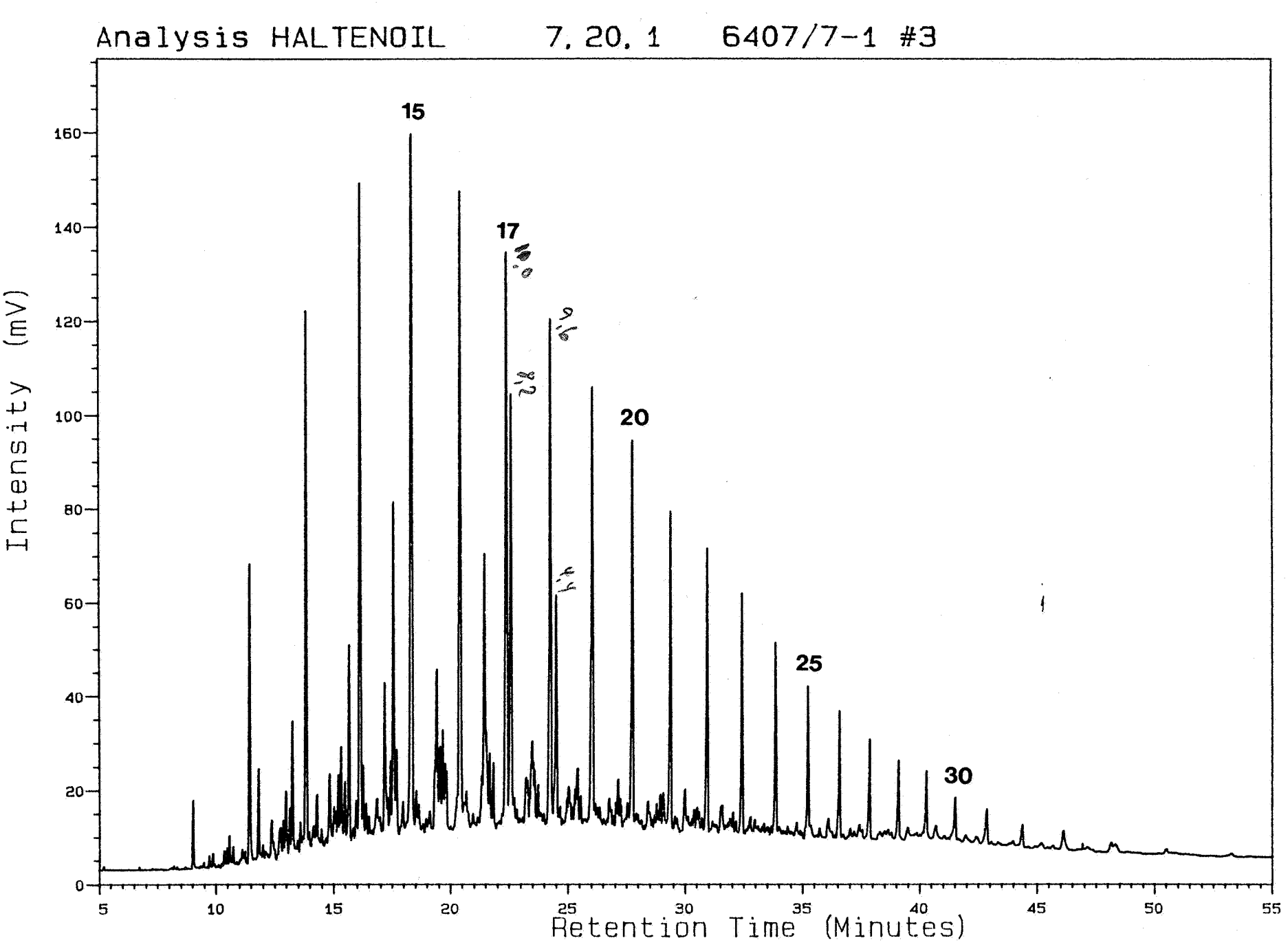
APPENDIX II

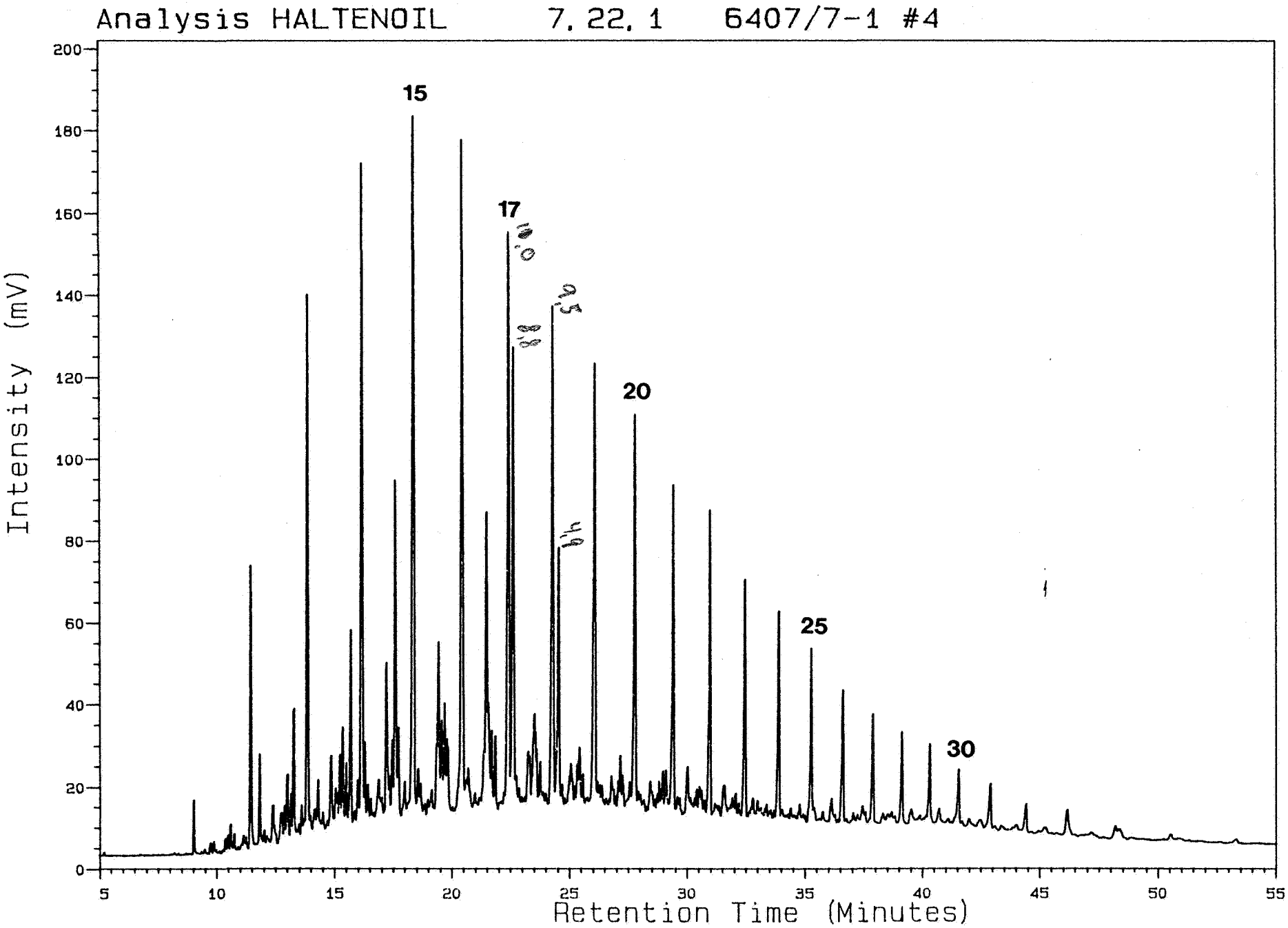
Gas chromatograms of saturated fractions of oil samples from well 6407/7-1.

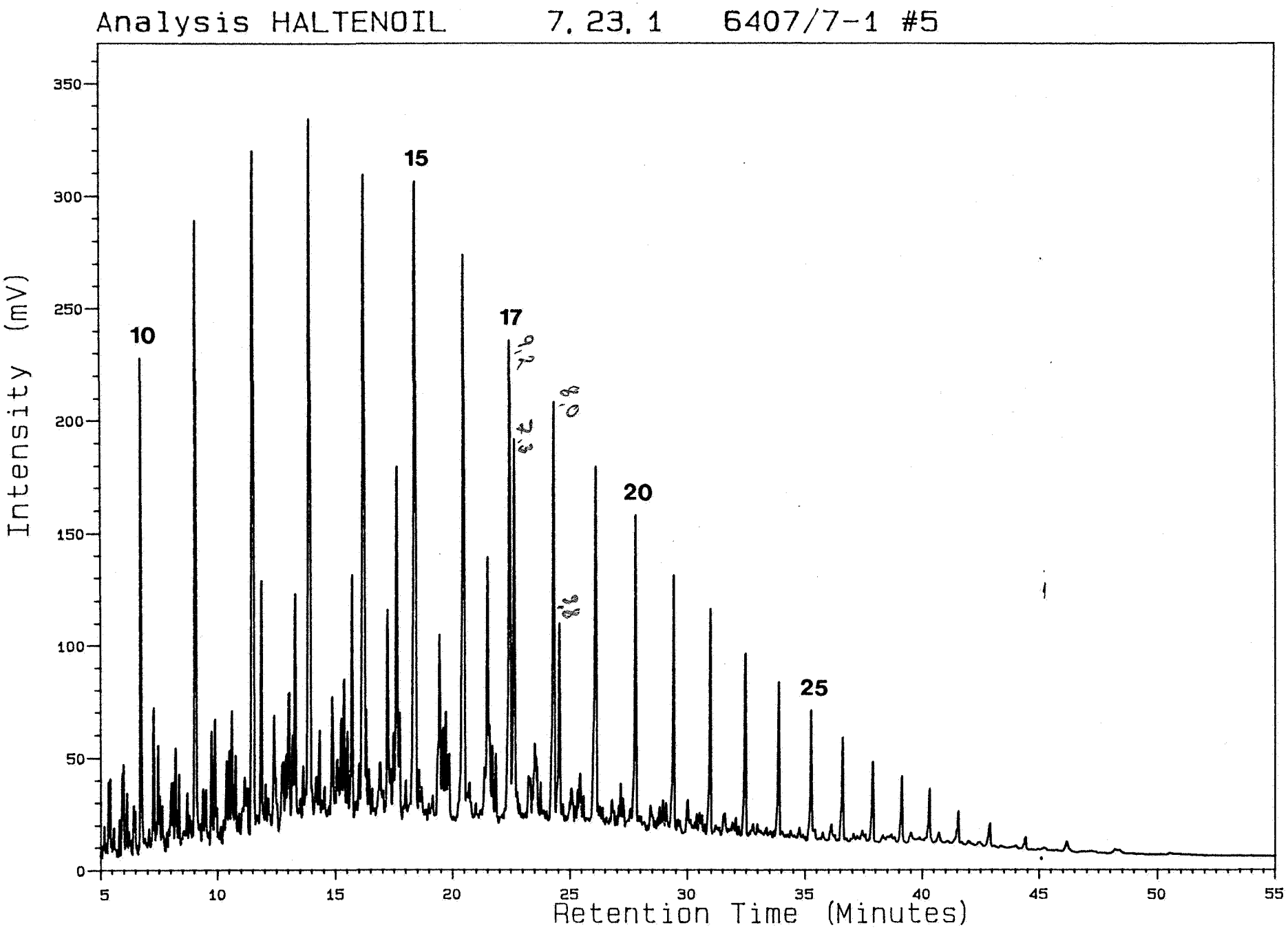
Numbers correspond to n-alkanes with same carbon number


Analysis HALTENOIL 7, 16, 1 6407/7-1 STD
10
15
17
20
25
30
Intensity (mV)
0
50
100
150
200
250
5
10
15
20
25
30
35
40
45
50
55
Retention Time (Minutes)


Analysis HALTENOIL 7, 19, 1 6407/7-1 #2
Intensity (mV)
Retention Time (Minutes)
10
15
17
20
25
30
0
20
40
60
80
100
120
140
160
180
200
220
240
5
10
15
20
25
30
35
40
45
50
55


Analysis HALTENOIL 7, 20, 1 6407/7-1 #3
15
17
20
25
30
Intensity (mV)
Retention Time (Minutes)
0
20
40
60
80
100
120
140
160
5
10
15
20
25
30
35
40
45
50
55

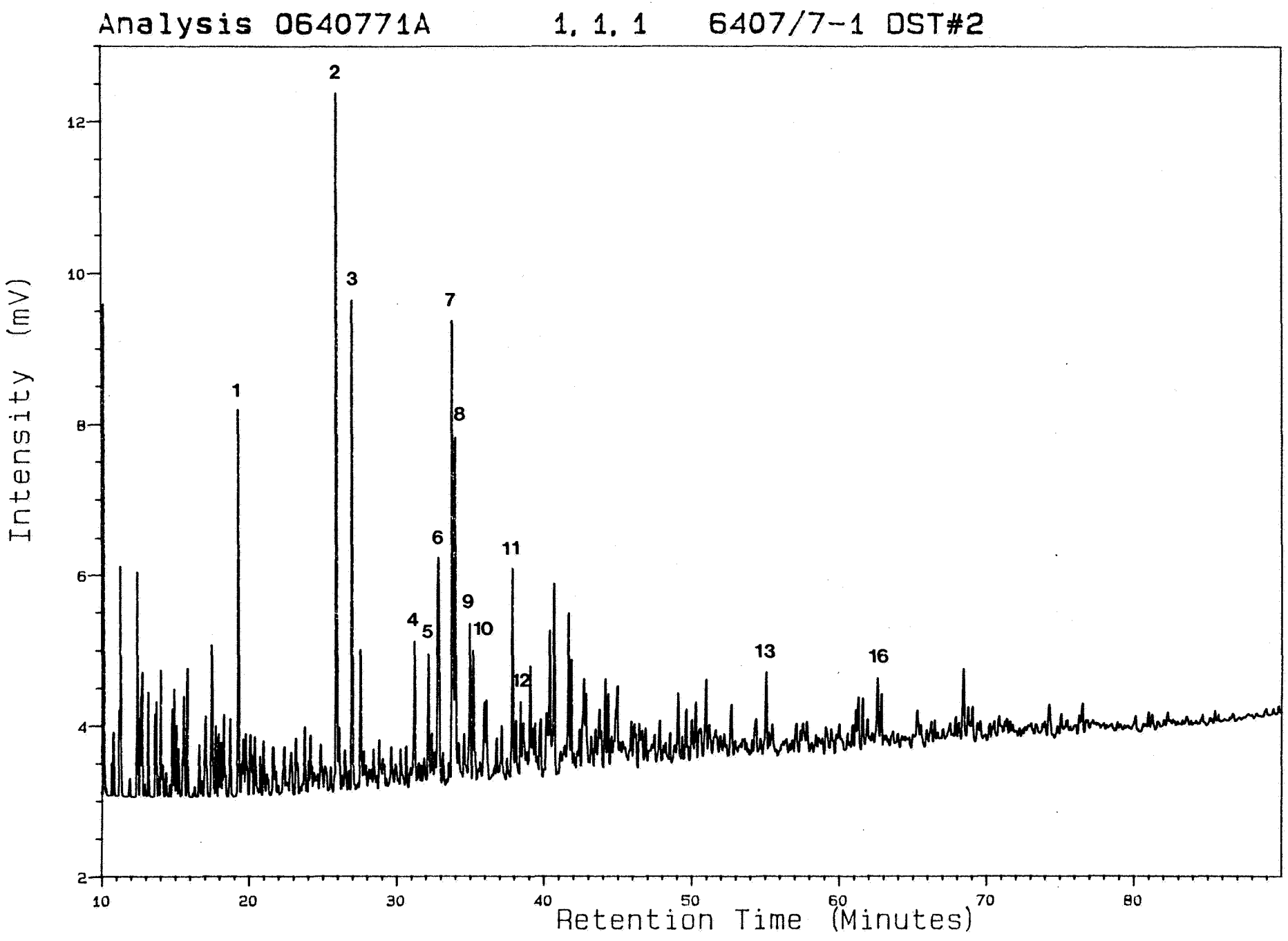

Analysis HALTENOIL 7.22.1 6407/7-1 #4
Intensity (mV)
Retention Time (Minutes)
15
17
20
25
30
200
180
160
140
120
100
80
60
40
20
0
5
10
15
20
25
30
35
40
45
50
55

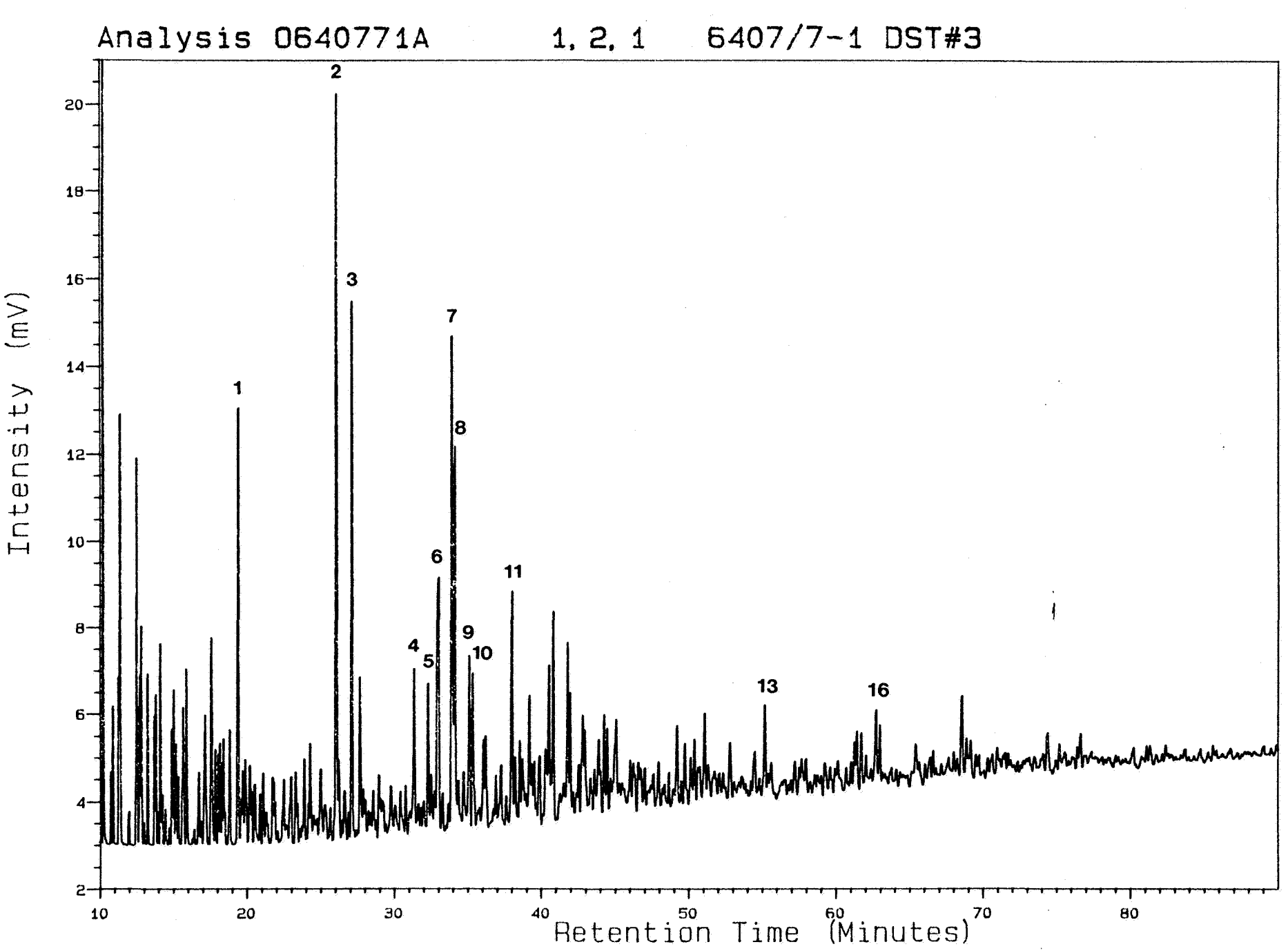

Analysis HALTENOIL 7.23.1 6407/7-1 #5
Intensity (mV)
Retention Time (Minutes)
10
15
17
20
25
0
50
100
150
200
250
300
350
5
10
15
20
25
30
35
40
45
50
55

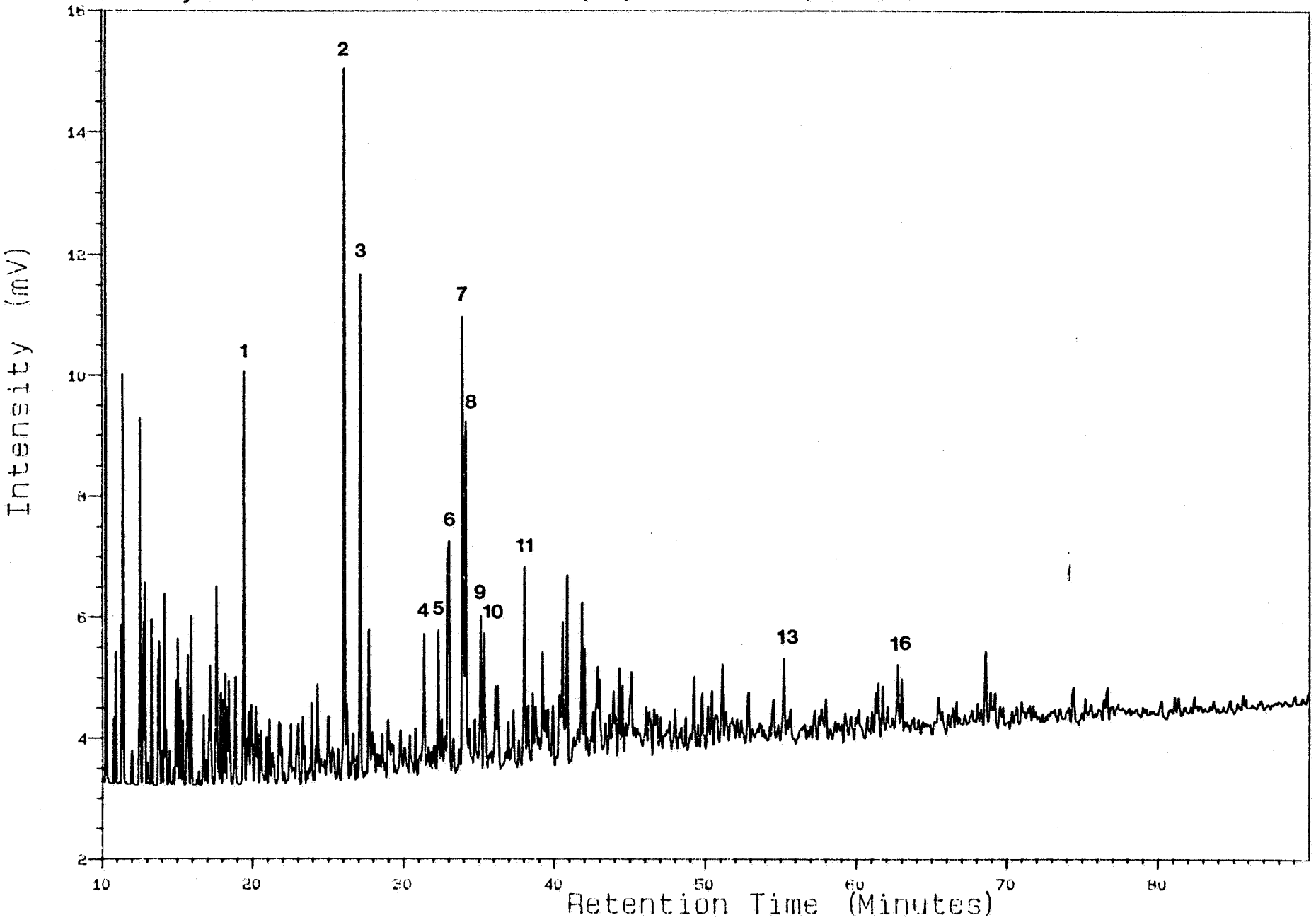
APPENDIX III

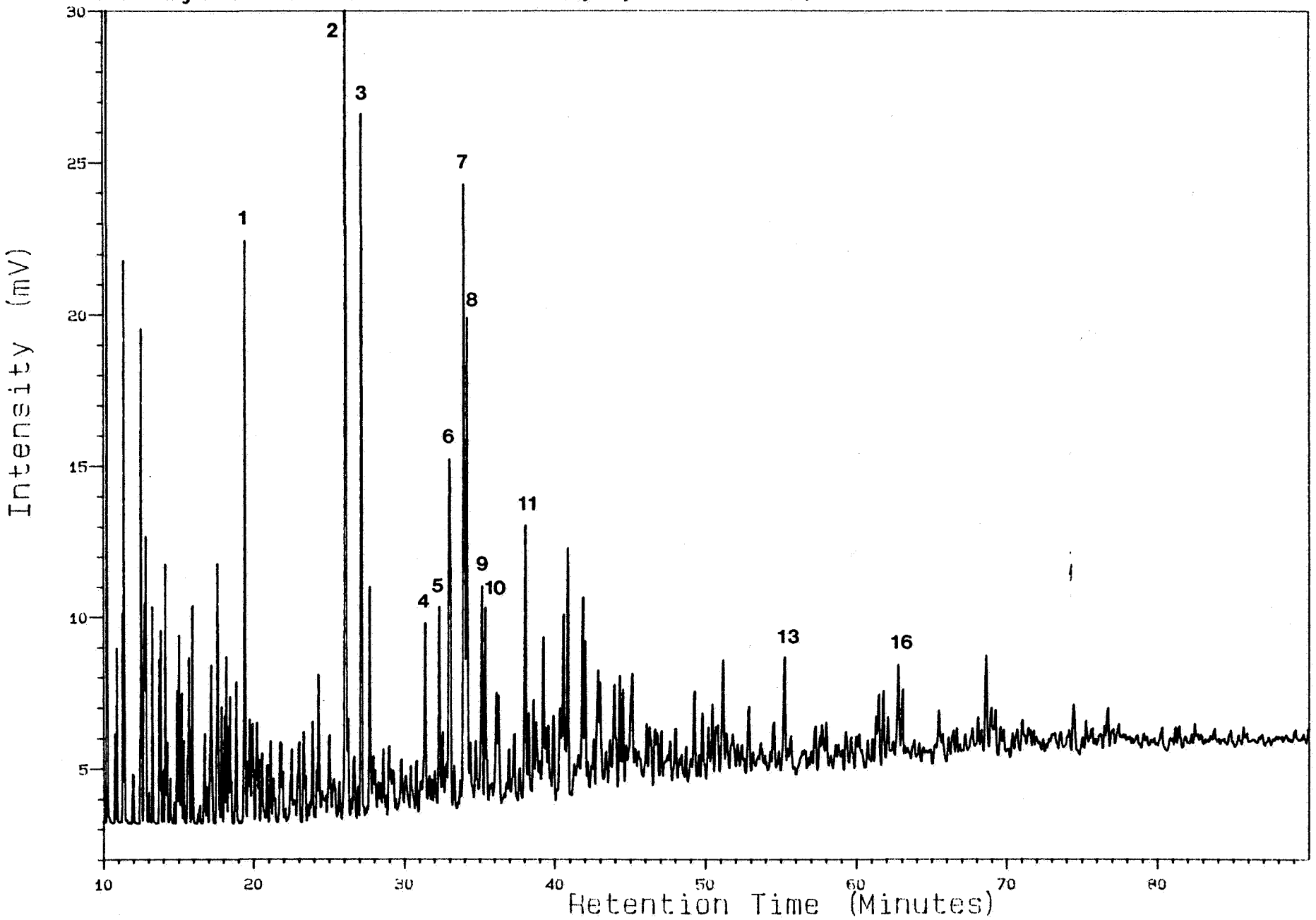
Gas chromatograms of aromatic hydrocarbons from oil samples from well 6407/7-1.

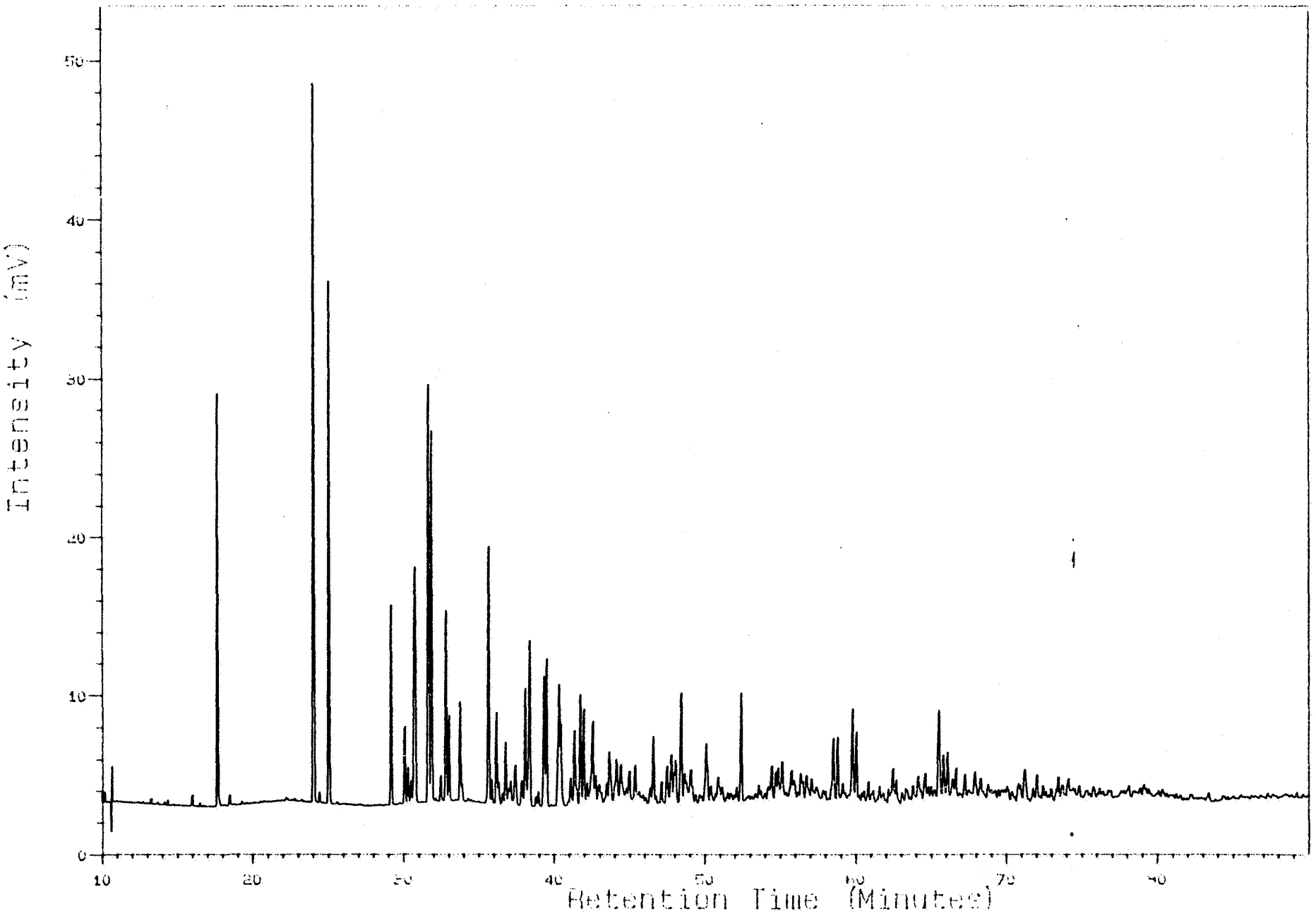
1	Naphtalene
2	2-methylnaphtalene
3	1-methylnaphtalene
4	Bipheny
5	Ethylnaphtalene
6	2,6 + 2,7-dimethylnaphtalene
7	1,3 + 1,7-dimethylnaphtalene
8	1,6-dimethylnaphtalene
9	1,4 + 2,3-dimethylnaphtalene
10	1,5-dimethylnaphtalene
11	4-methylbiphenyl
12	Propylnaphtalene
13	Phenanthrene
16	9-methylphenanthrene


Analysis 0640771A 1, 1, 1 6407/7-1 DST#2
Intensity (mV)
Retention Time (Minutes)
1
2
3
4
5
6
7
8
9
10
11
12
13
16


Analysis 0640771A 1, 2, 1 6407/7-1 DST#3
Intensity (mV)
Retention Time (Minutes)
1
2
3
4
5
6
7
8
9
10
11
13
16


Analysis 0640771A 1, 3, 1 6407/7-1 DST#4
Intensity (mV)
Retention Time (Minutes)
1
2
3
4
5
6
7
8
9
10
11
13
16


Analysis 0640771A 1.4.1 6407/7-1 DST#5
Intensity (mV)
Retention Time (Minutes)
1
2
3
4
5
6
7
8
9
10
11
13
16


Analysis HALT1A 3, 7, 1 6407/7-1 STD
Intensity (mV)
50
40
30
20
10
0
10
20
30
40
50
60
70
80
Retention Time (Minutes)

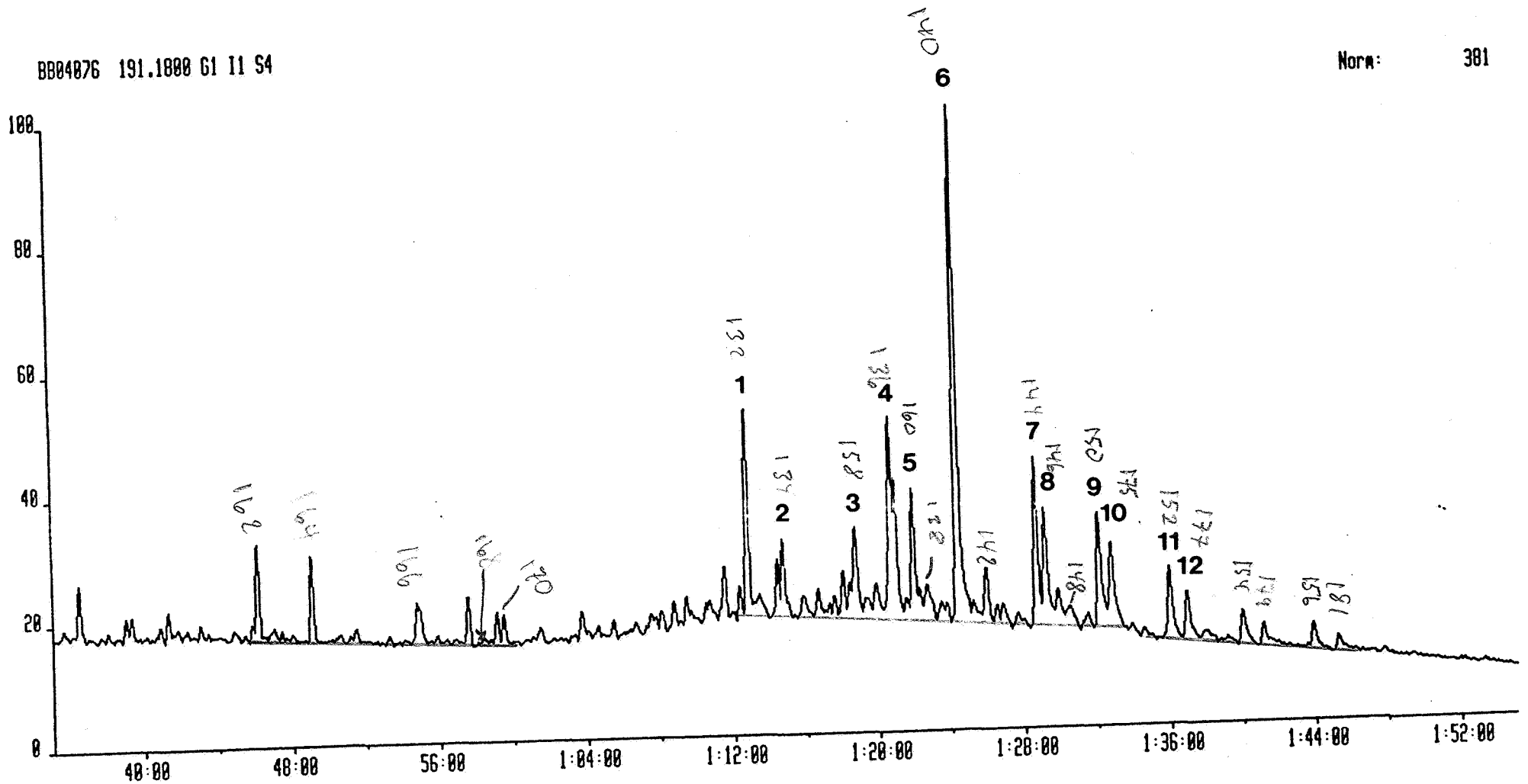
APPENDIX IV

Mass fragmentograms of m/z 191 (triterpanes) and m/z 217 (steranes) in oil samples from well 6407/7-1.

1	Ts
2	Tm
3	28,30-bisnorhopane
4	Norhopane
5	Unknown triterpane
6	Hopane
7	Homohopane (22S)
8	Homohopane (22R)
9	Bishomohopane (22S)
10	Bishomohopane (22R)
11	Trishomohopane (22S)
12	Trishomohopane (22R)

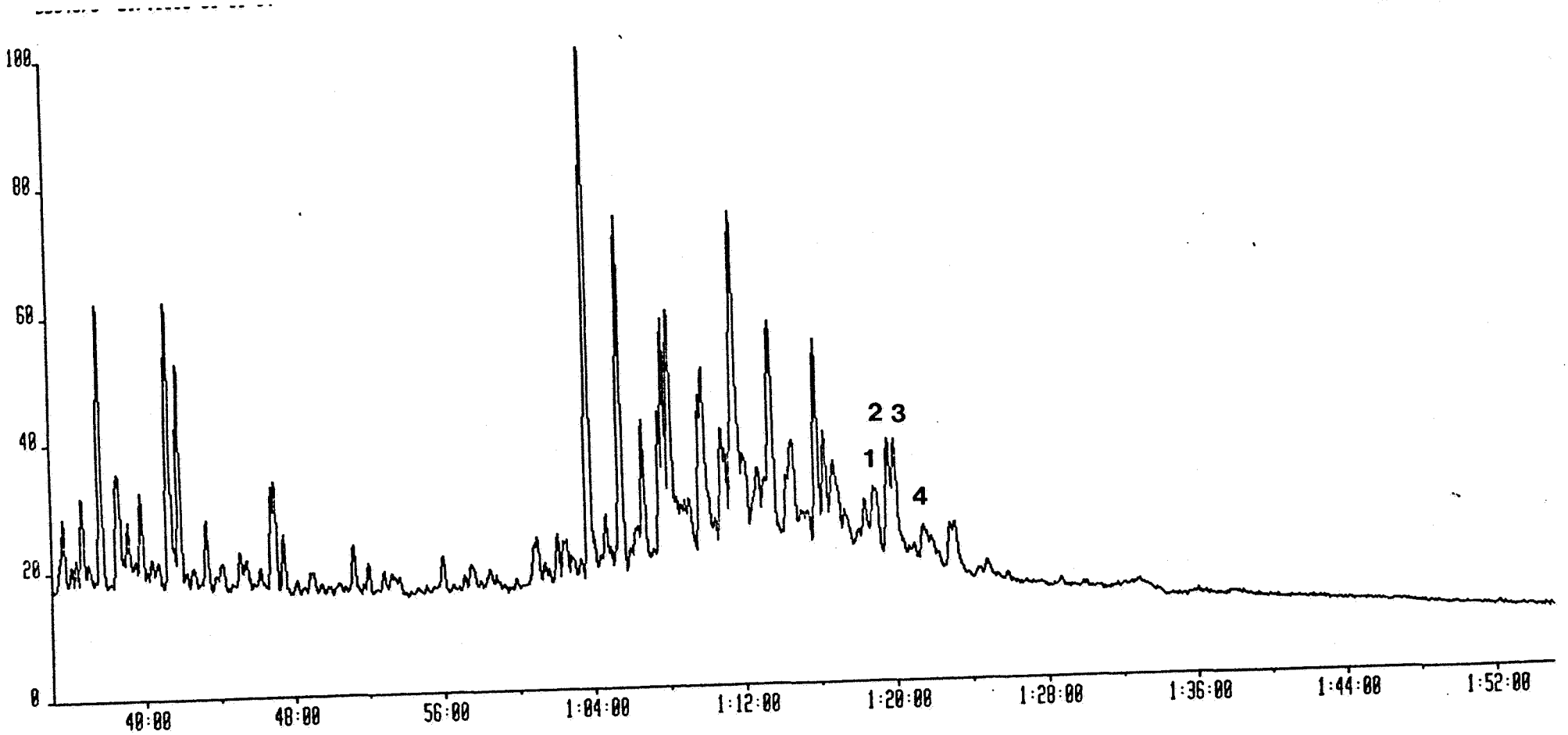
1	ααα-ethylcholestane (20S)
2	αββ-ethylcholestane (20R)
3	αββ-ethylcholestane (20S)
4	ααα-ethylcholestane (20R)

STO


BB04076 191.1800 G1 I1 S4
Norm: 381
100
80
60
40
20
0
40:00
48:00
56:00
1:04:00
1:12:00
1:20:00
1:28:00
1:36:00
1:44:00
1:52:00
1
2
3
4
5
6
7
8
9
10
11
12

STO

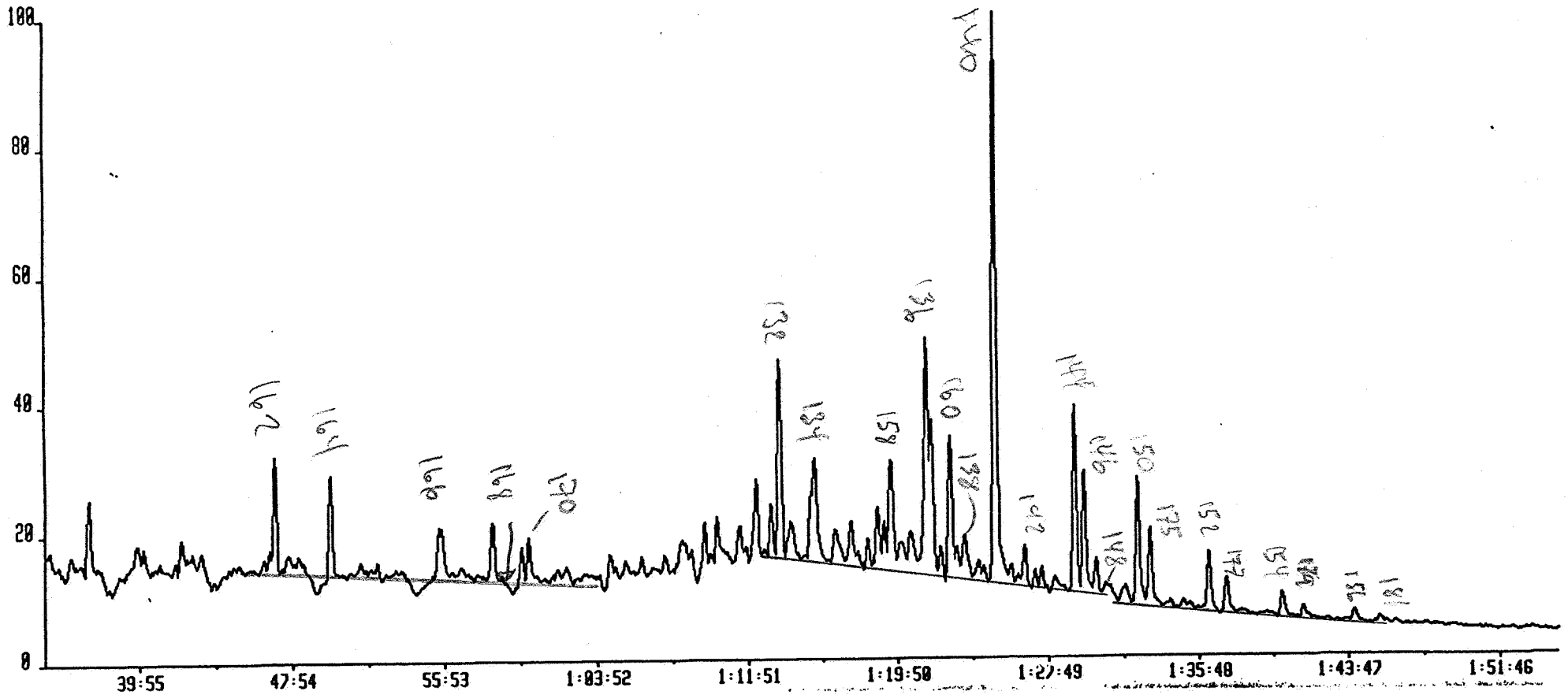
Kora: 181


100
80
60
40
20
0
40:00
48:00
56:00
1:04:00
1:12:00
1:20:00
1:28:00
1:36:00
1:44:00
1:52:00
2 3
1
4

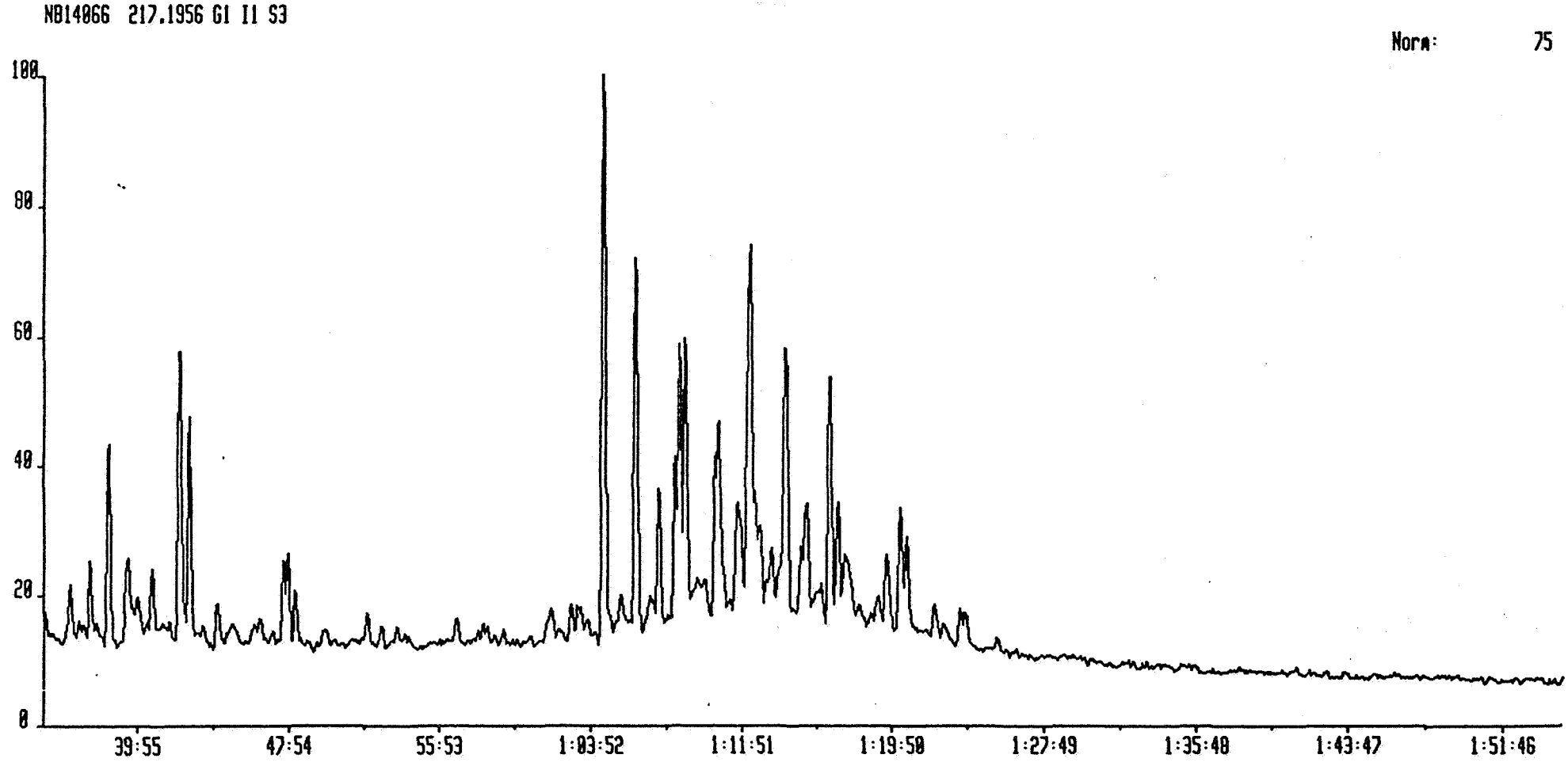
DST 2

NB14066 191.1800 G1 I1 S3

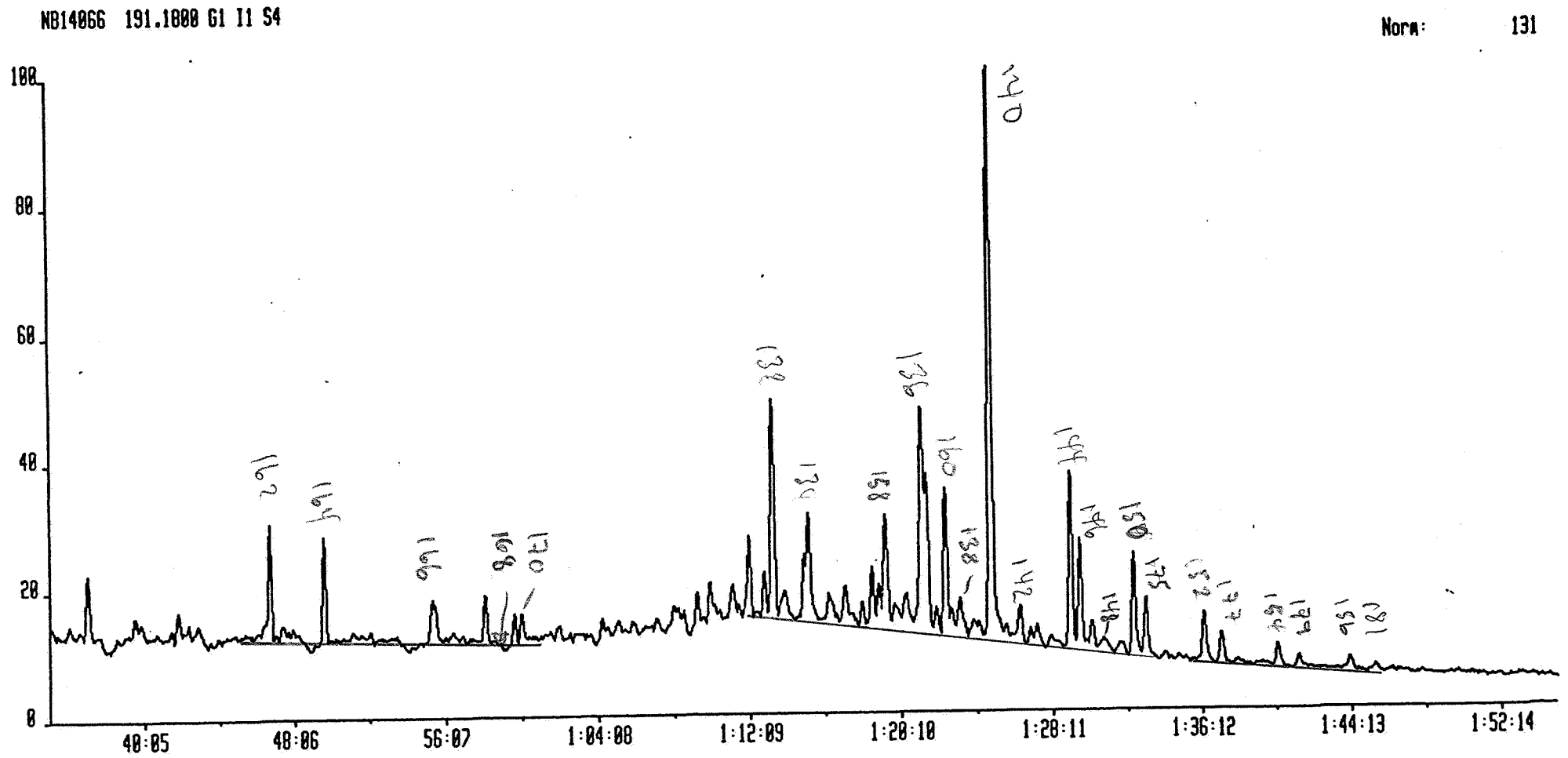
Norm: 157



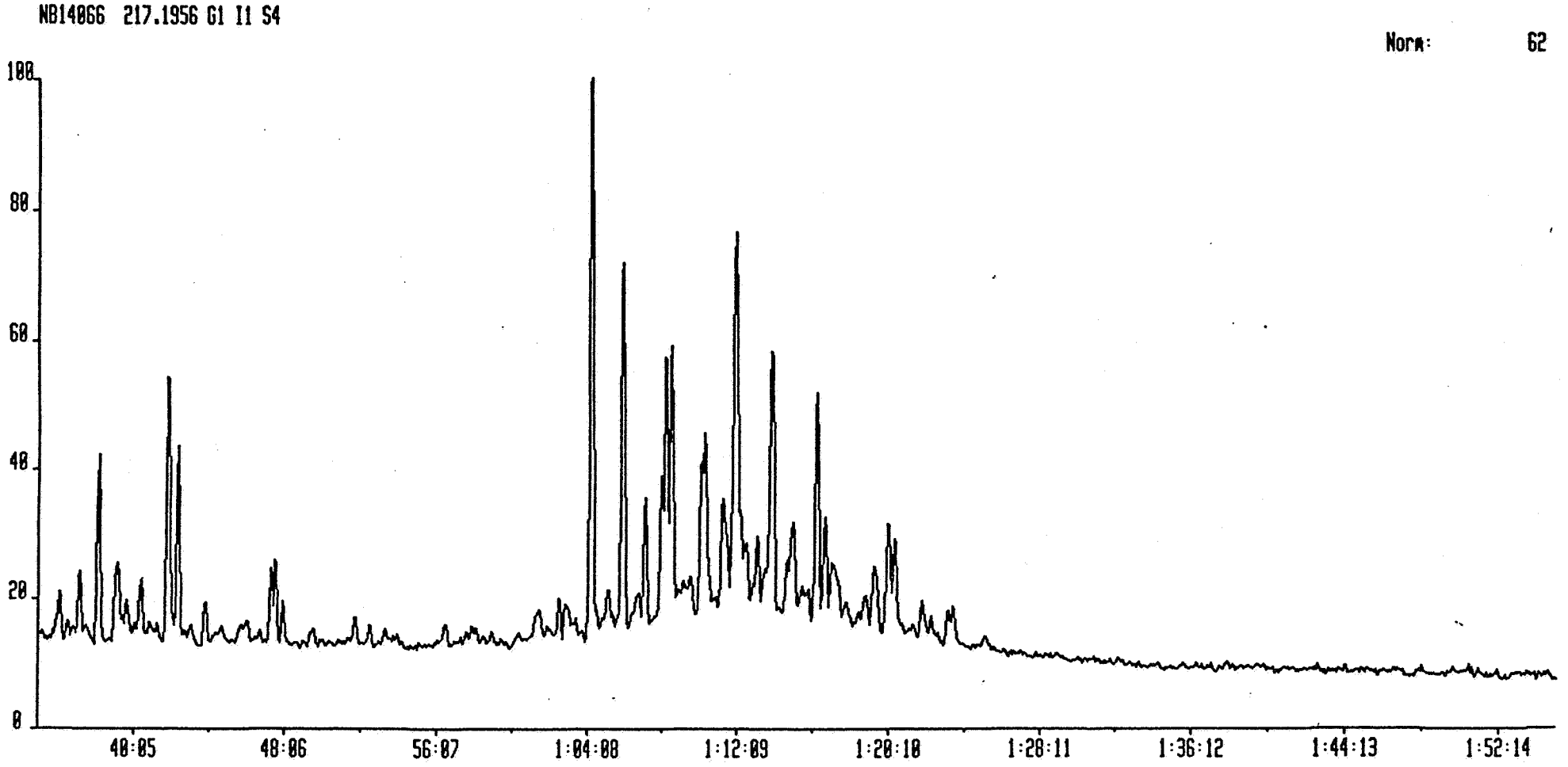
DST 2


NB14066 217.1956 G1 I1 S3
Norm: 75
100
80
60
40
20
0
39:55
47:54
55:53
1:03:52
1:11:51
1:19:50
1:27:49
1:35:48
1:43:47
1:51:46

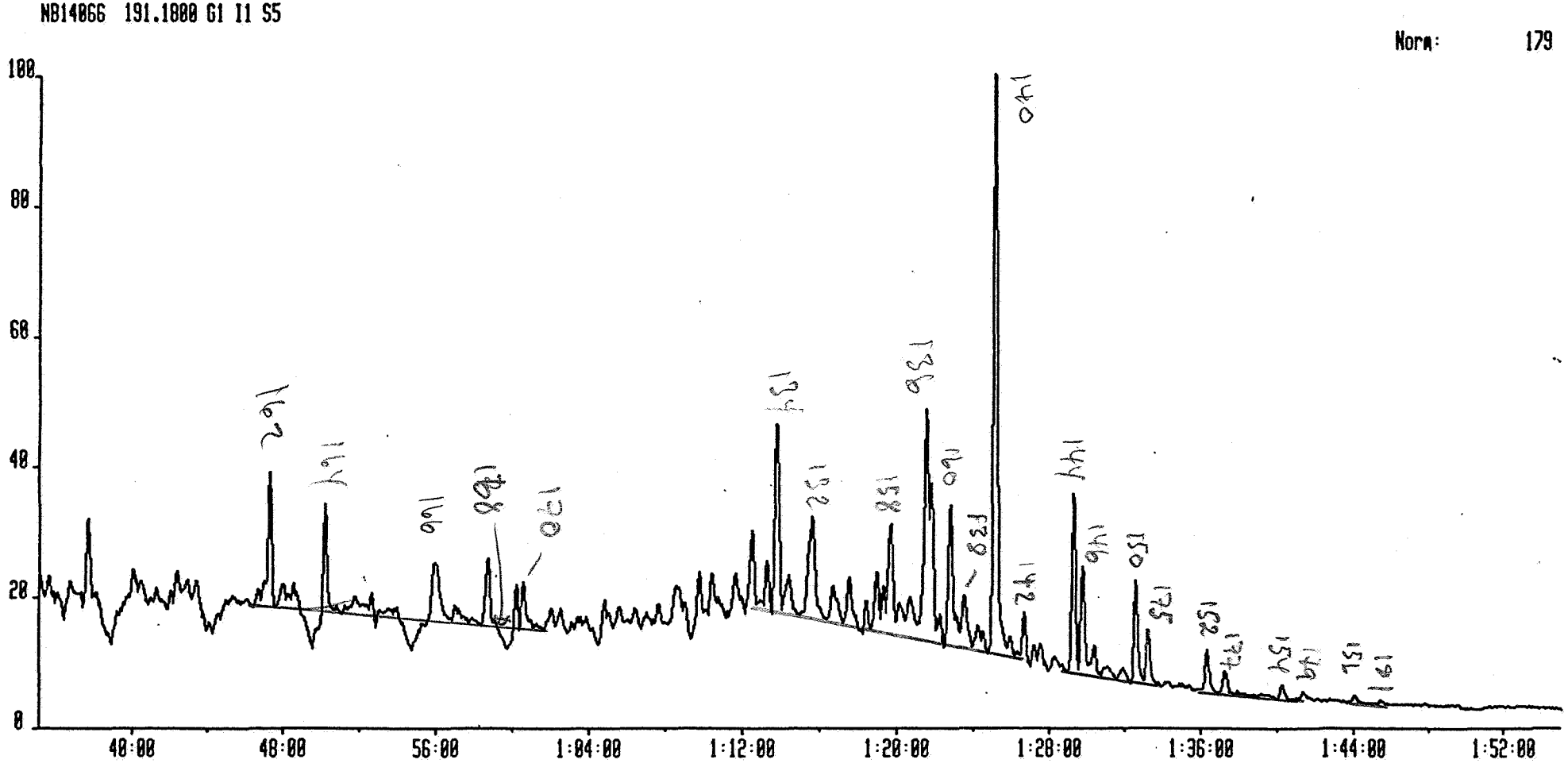
DST 3


NB14066 191.1800 G1 I1 S4
Norm: 131
100
80
60
40
20
0
40:05
48:06
56:07
1:04:08
1:12:09
1:20:10
1:28:11
1:36:12
1:44:13
1:52:14

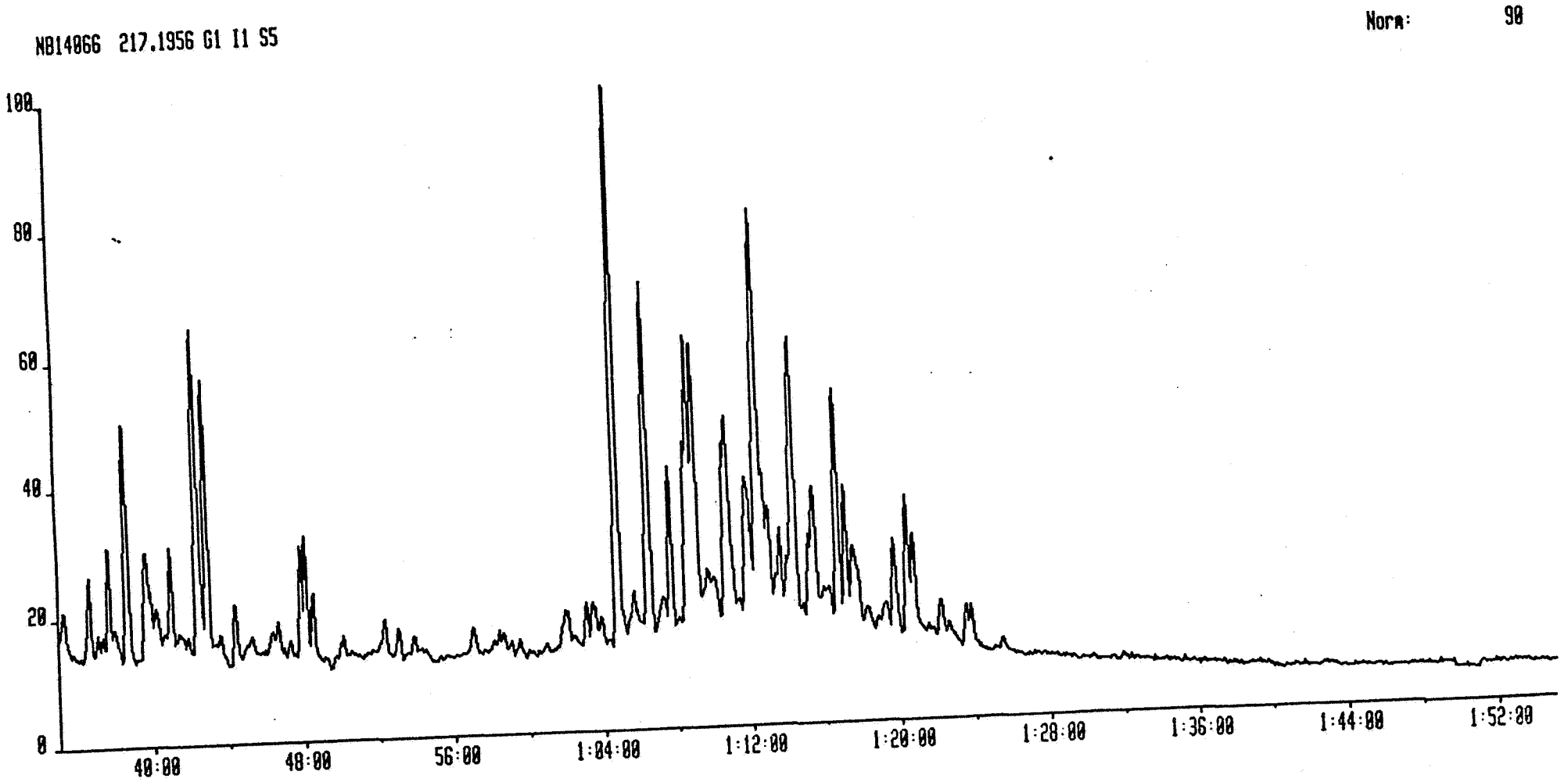
DST 3


NB14066 217.1956 G1 I1 S4
Norm: 62
100
80
60
40
20
0
40:05
48:06
56:07
1:04:08
1:12:09
1:20:10
1:28:11
1:36:12
1:44:13
1:52:14

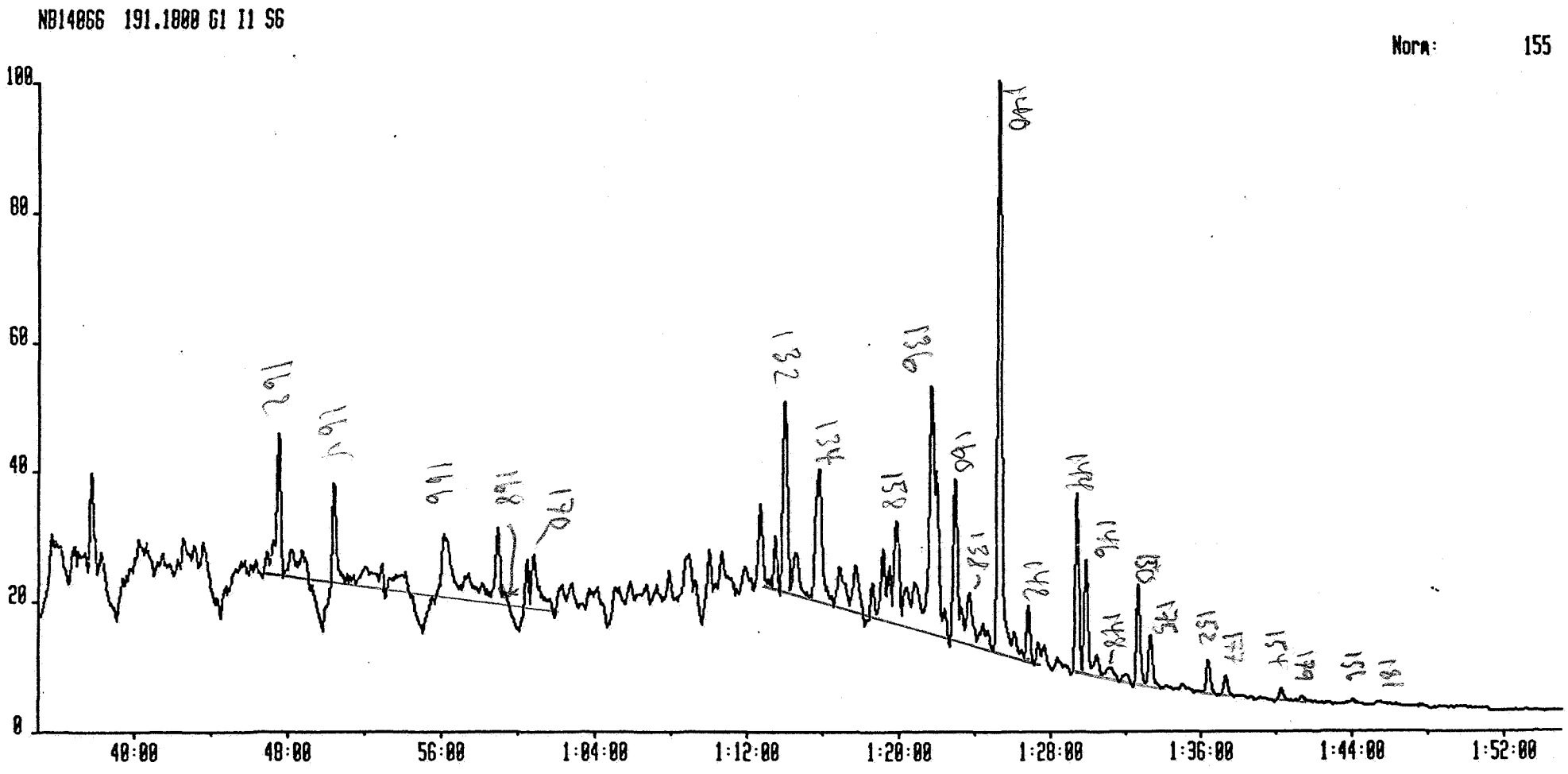
DST 4


NB14066 191.1800 G1 I1 S5
Norm: 179
100
80
60
40
20
0
40:00
48:00
56:00
1:04:00
1:12:00
1:20:00
1:28:00
1:36:00
1:44:00
1:52:00

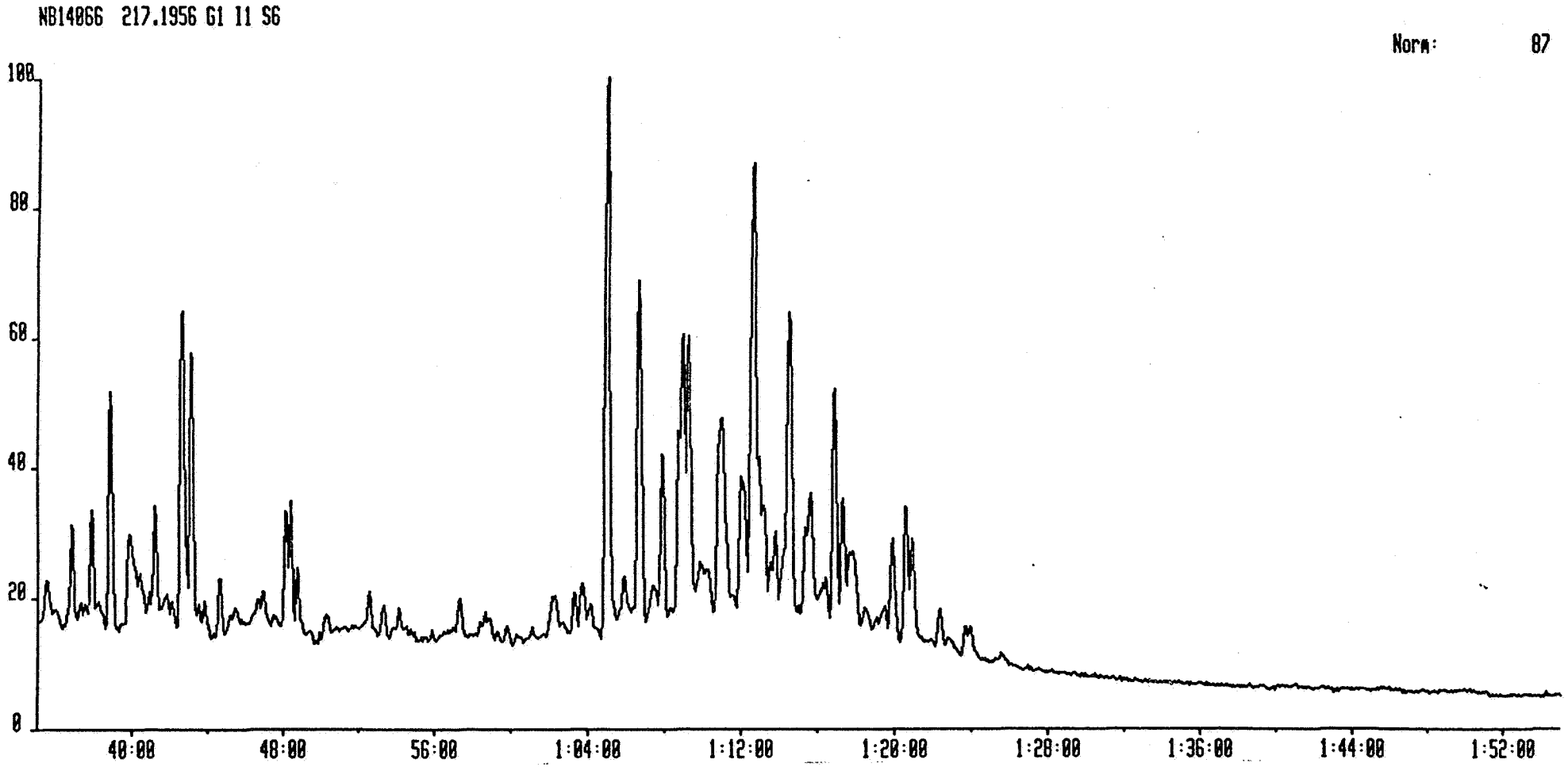
DST 4


NB14066 217.1956 G1 I1 S5
Norm: 90
100
80
60
40
20
0
40:00
48:00
56:00
1:04:00
1:12:00
1:20:00
1:28:00
1:36:00
1:44:00
1:52:00

DST 5

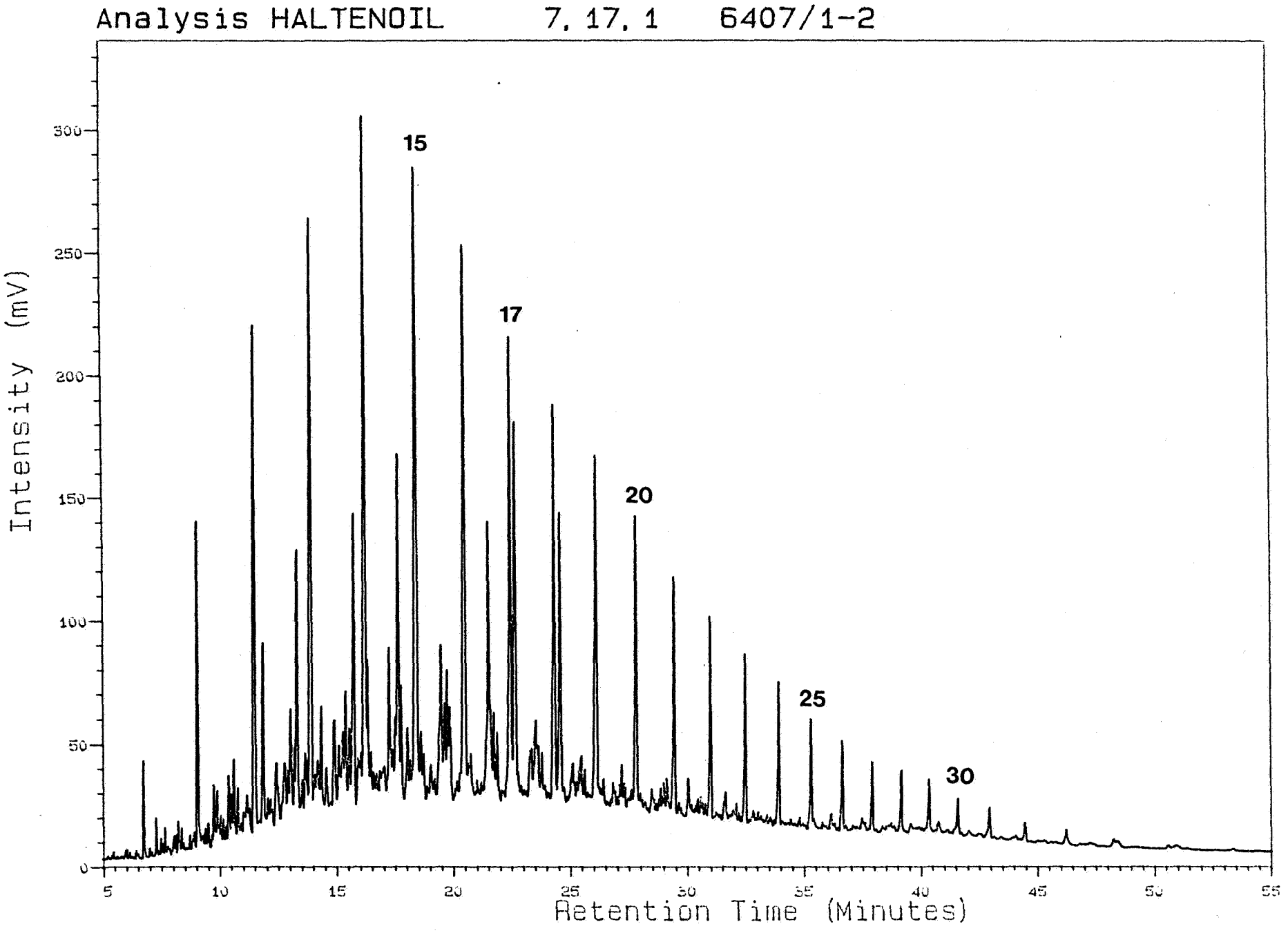

NB14866 191.1000 G1 I1 S6
Norm: 155
100
80
60
40
20
0
40:00
48:00
56:00
1:04:00
1:12:00
1:20:00
1:28:00
1:36:00
1:44:00
1:52:00

DST 5

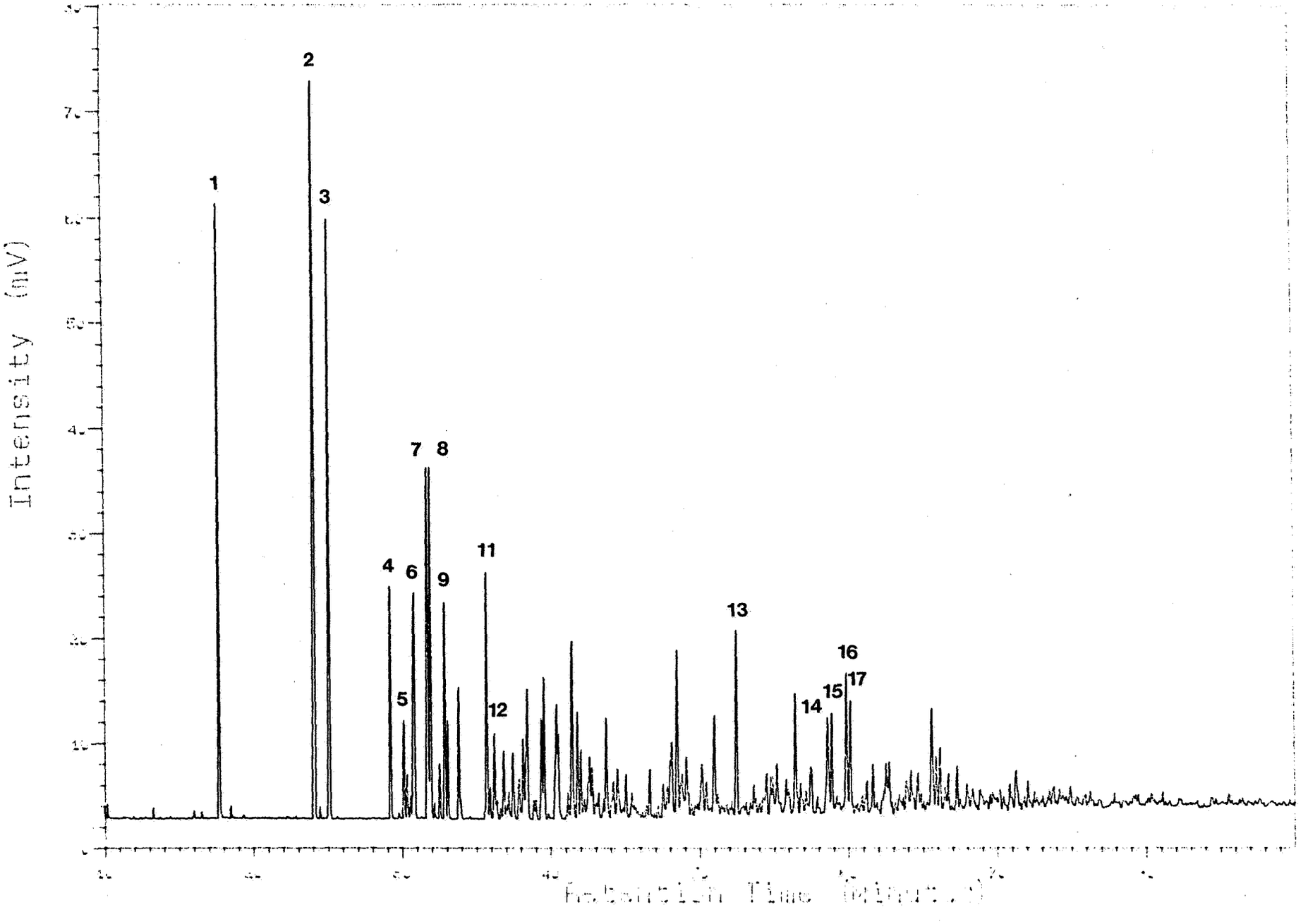

NB14066 217.1956 G1 I1 S6
Norm: 87
100
80
60
40
20
0
40:00
48:00
56:00
1:04:00
1:12:00
1:20:00
1:28:00
1:36:00
1:44:00
1:52:00

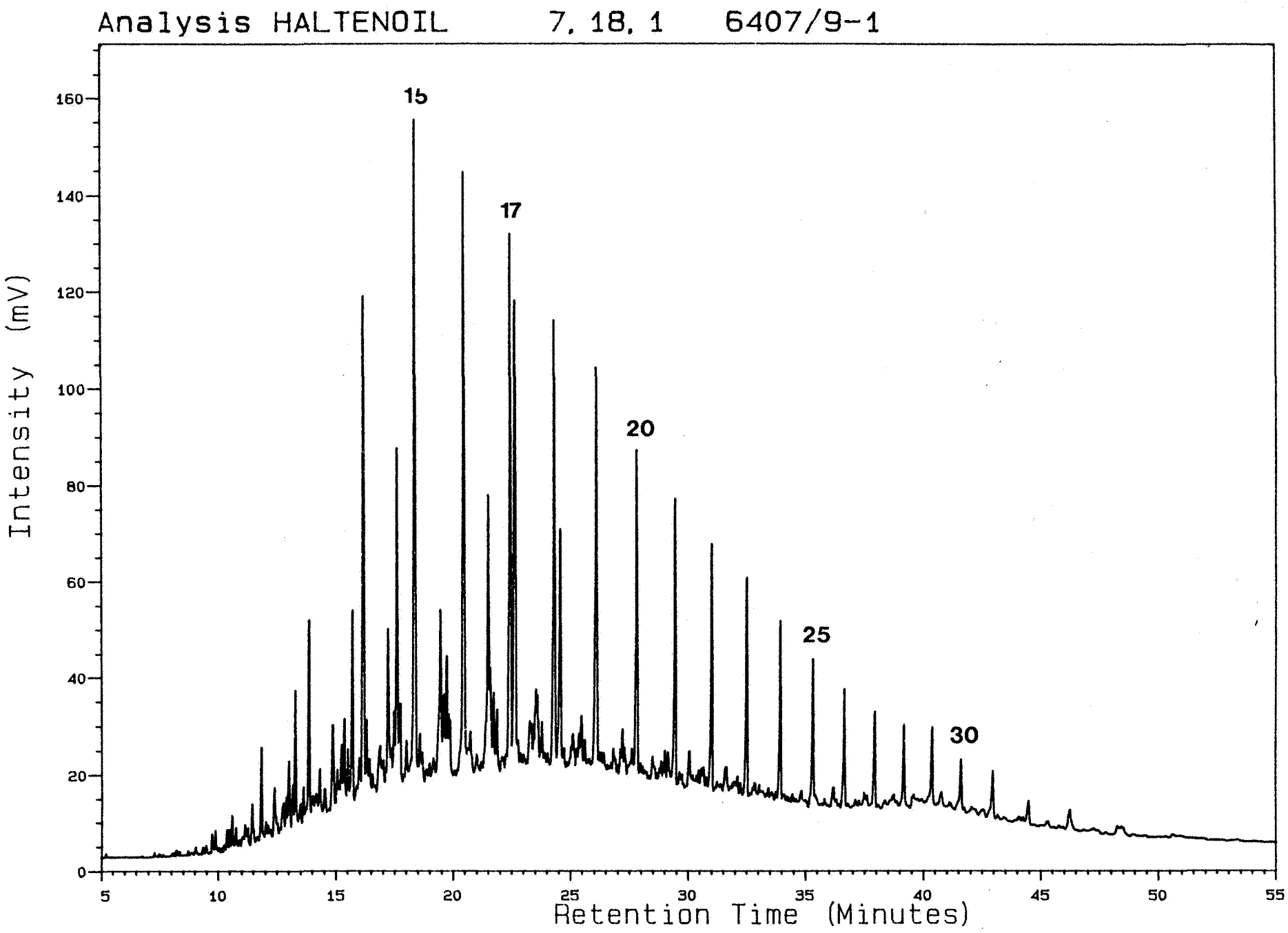
APPENDIX V

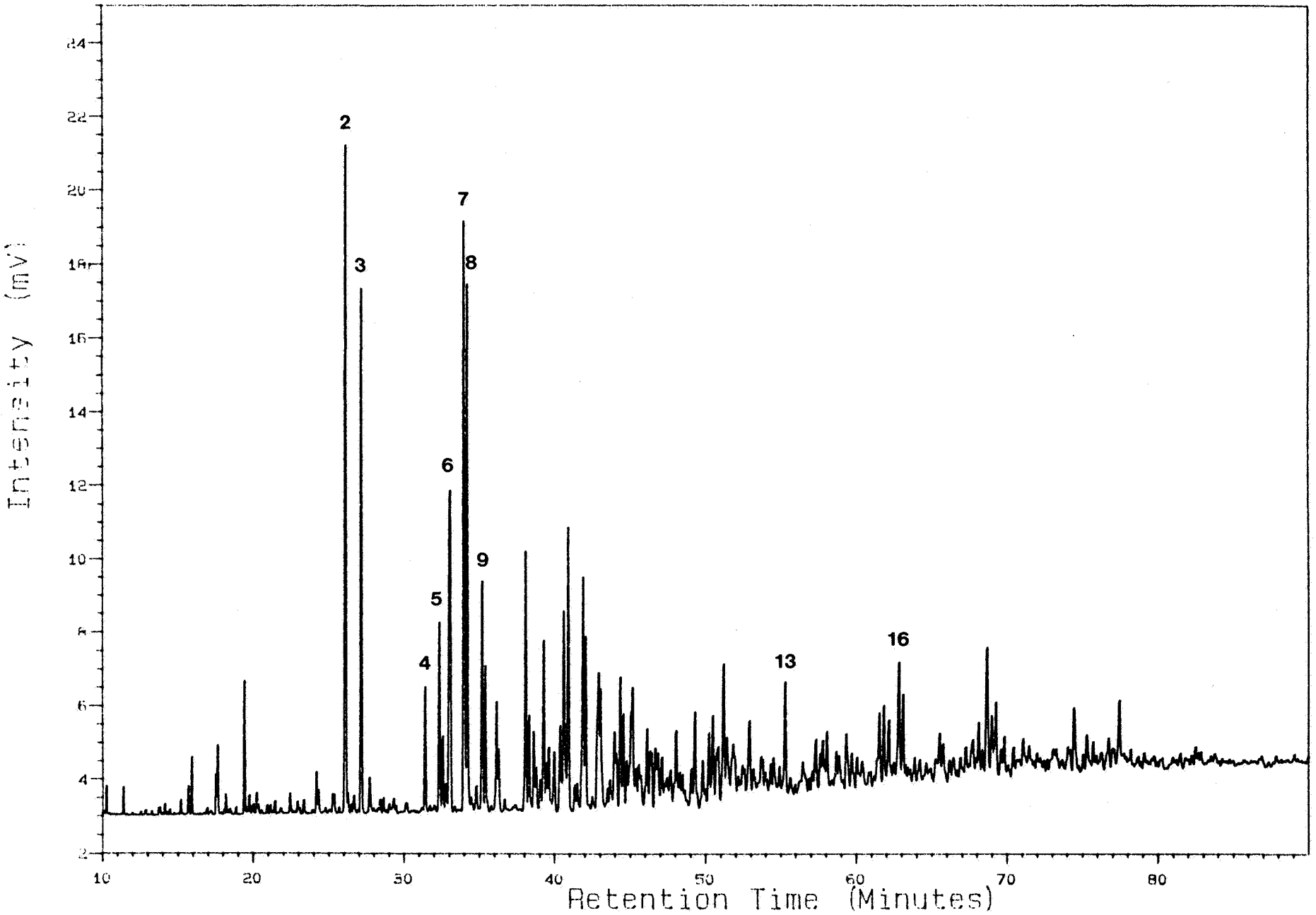
Gas chromatograms of saturated and aromatic hydrocarbons from oilsamples from well 6407/1-2 and 6407/9-1.


Analysis HALTENOIL 7.17.1 6407/1-2
Intensity (mV)
300
250
200
150
100
50
0
15
17
20
25
30
5
10
15
20
25
30
35
40
45
50
55
Retention Time (Minutes)

Analysis HALT2A 3, 5, 1 6407/1-2




Analysis HALTENOIL 7.18.1 6407/9-1
15
17
20
25
30
Intensity (mV)
0
20
40
60
80
100
120
140
160
5
10
15
20
25
30
35
40
45
50
55
Retention Time (Minutes)


Analysis 0640771A 1.5.1 6407/9-1
Intensity (mV)
Retention Time (Minutes)
2
3
4
5
6
7
8
9
13
16