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Title
Correlation study
of
30/9-8
BA-90-257-1

Summary/Conclusion/Recommendation

This correlation study is based on geochemical data from group type separation, GC-FID of SAT-fraction, GC-FID of ARO-fraction, GC-FID of C10+ hydrocarbons in whole oil, $\delta^{13}C$ isotopic compositions of whole oil, group type fractions, SAT- and ARO-biomarker distributions:

Investigated oils:

- 30/9-3A, DST1, 2910-2916m
- 30/9-7, DST1, 2811-2822m
- 30/9-8, DST2A, 2836m

are positively correlated.

Keywords

Geochemistry, correlation, hydrocarbons, isotope, biomarkers

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Section	Geo-section		
Authors	Arne Steen		
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CONTENT

	page:
Introduction.....	3
Experimental.....	5
Result and discussion.....	7
Conclusion.....	8
Appendix I-V.....	9

INTRODUCTION

The aim of this study was to correlate the oils from the Omega structure in Block 30/9 (30/9-3A, 30/9-8) with the oil from 30/9-7 (Fig. 1, next page), using organic geochemical techniques.

The following samples were analysed:

30/9-3A, DST1, 2910-2916m

30/9-7, DST1, 2811-2822m

30/9-8, DST2A, 2836m

Sample 30/6-13 was partly included as a reference sample.

All samples were prepared and analysed by Norsk Hydro Research Centre in Bergen. The $\delta^{13}\text{C}$ isotopic compositions were measured by GeolabNor, Trondheim.

PROSPECT OVERVIEW, BLOCK 30/9

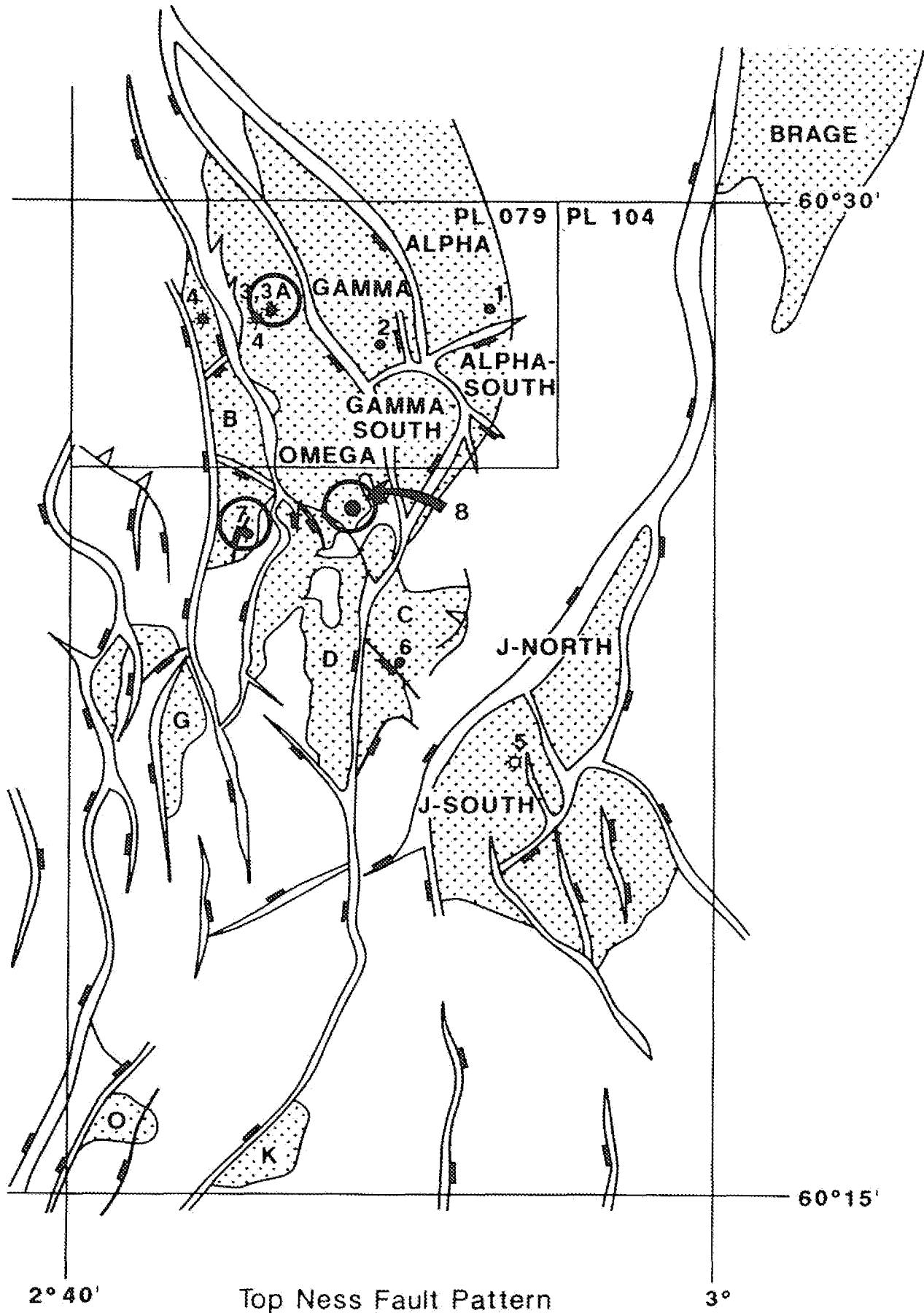


Fig. 1

EXPERIMENTAL

The analysed oils are group type separated according to standard lab procedures. The fraction data are presented in Appendix I.

SAT- and ARO-fractions are analysed by GC-FID. The chromatograms and related peak data are presented in Appendix IIa and IIb respectively.

Whole oils are analysed for C10+ distributions by GC-FID and chromatograms are presented in Appendix III. Squalane is added as internal standard for extended PVT-studies.

$\delta^{13}\text{C}$ isotopic compositions are investigated for whole oils and related group type fractions. Data are presented in Appendix IV.

Standard lab procedures of selected metastable ion monitoring by GC/MS are used to detect pre-selected groups of SAT-biomarkers.

List of detected metastable transitions:

Group 1 (low molecular weight biomarkers):

a.	360 m/z	-> 191 m/z	=> C ₂₆	tricyclic terpanes
b.	346	-> 191	=> C ₂₅	-----"-----
c.	332	-> 191	=> C ₂₄	-----"-----
d.	318	-> 191	=> C ₂₃	-----"-----
e.	304	-> 191	=> C ₂₂	-----"-----
f.	290	-> 191	=> C ₂₁	-----"-----
g.	276	-> 191	=> C ₂₀	-----"-----
h.	316	-> 217	=> C ₂₃	steranes
i.	302	-> 217	=> C ₂₂	----"----
j.	288	-> 217	=> C ₂₁	----"----

Group 2:

k.	454	m/z	->	191	m/z	=>	C ₃₃	pentacyclic triterpanes
l.	440		->	191		=>	C ₃₂	-----"-----
m.	426		->	191		=>	C ₃₁	-----"-----
n.	412		->	191		=>	C ₃₀	-----"-----
o.	398		->	191		=>	C ₂₉	-----"-----
p.	384		->	191		=>	C ₂₈	-----"-----
q.	370		->	191		=>	C ₂₇	-----"-----
r.	414		->	217		=>	C ₃₀	steranes
s.	400		->	217		=>	C ₂₉	----"-----
t.	386		->	217		=>	C ₂₈	----"-----
u.	372		->	217		=>	C ₂₇	----"-----

The relative distribution of the analysed SAT-biomarkers are presented in bargraphs, - measured as peak heights and normalized to the most abundant compound:

Data are listed and bargraphs are presented in Appendix V.

This semi-quantitative presentation is strictly related to the analytical method.

The concentration/response-ratio is not necessarily comparable between different type of compounds. A quantitative comparison of biomarker distributions are hence restricted to a narrow range of concentrations.

The distribution of ARO-biomarkers are detected by GC/MS analysis of common fragment ions:

- Tri-aromatic steranes: m/z 231.11
- Mono-aromatoc steranes: m/z 253.19

The fragmentograms are enclosed in Appendix VI.

RESULTS AND DISCUSSION

Correlation of the analysed oils:

- 30/9-3A, DST1, 2910-2916m
- 30/9-7, DST1, 2811-2822m
- 30/9-8, DST2A, 2836m

are based on:

- fraction data, Appendix I (yellow page).
- GC-FID detection of SAT-fraction, Appendix IIa (pale pink page).
- GC-FID detection of ARO-fraction, Appendix IIb (red page).
- GC-FID detection of C10+ distribution of whole oils, Appendix III (green page).
- $\delta^{13}\text{C}$ isotopic compositions of whole oils and group type fractions, Appendix IV (blue page).
- SAT-biomarker distributions, Appendix V (pink page).
- ARO-biomarker distributions, Appendix V (white page).

Data from all these analytical methods shows nearly identical compositions and hence, indicates a positive correlation.

Deuterium labelled Cholestane is added to each samples as internal standard for the SAT-biomarker GC/MS analysis. The concentrations of these compound can be indicated by relating the peak intensities to the internal standard. The result from this exercise is presented below:

Lith.	Well	Conc. (ppm) C27-33 triterpanes	Conc. (ppm) C27-30 steranes
DST2A	30/9-8	1180	990
DST1	30/9-3A	860	790
DST1	30/9-7	1070	990
DST3	30/6-13		

As indicated, the amount of these SAT-biomarkers are of the same magnitude for all three samples. Even this parameter is correlating.



APPENDIX I.

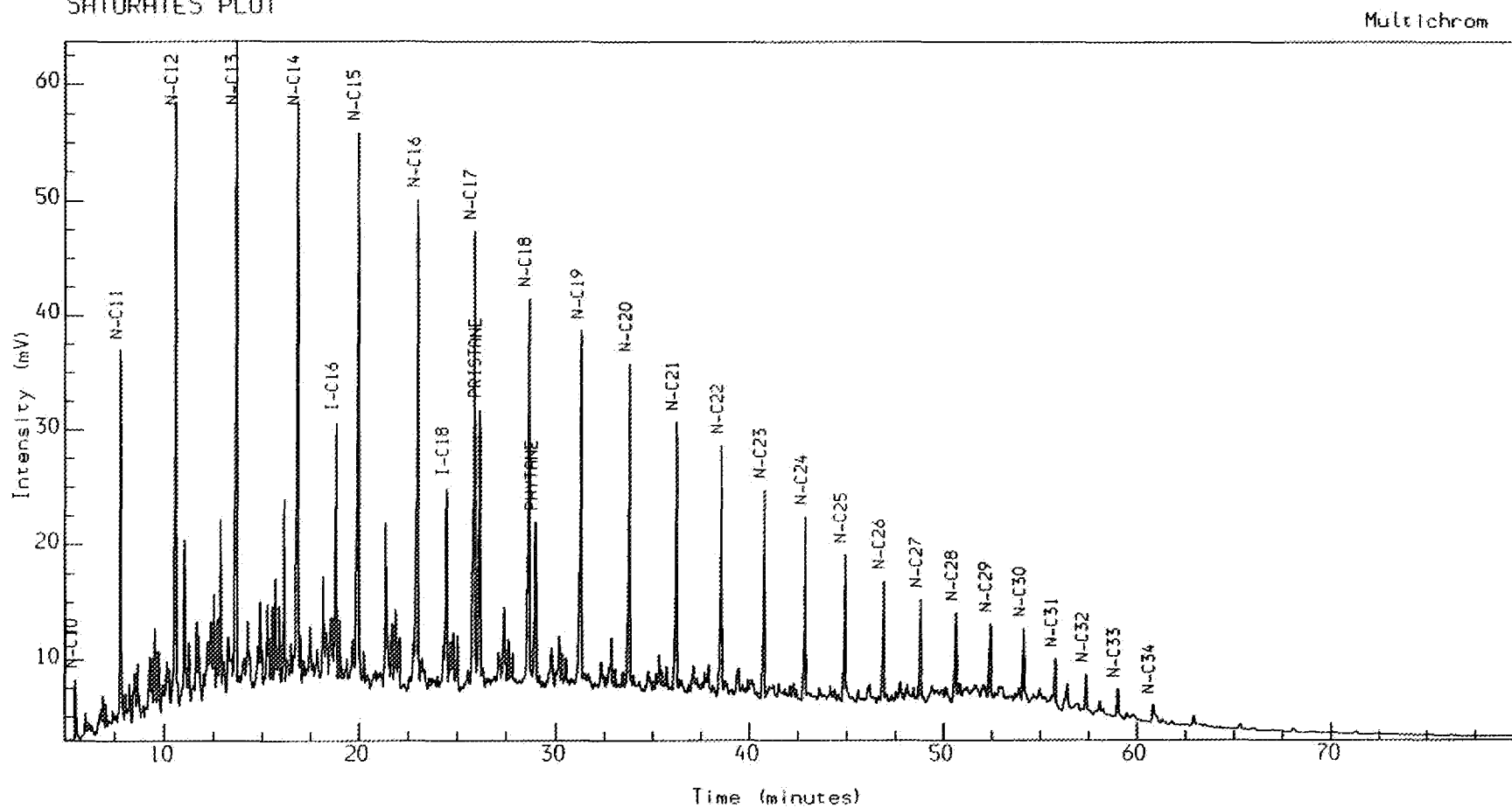
Group type fraction data.

NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analysis Name : [PETRO] 7 B300908S.1.1.

30/9-8 Amount : 1.000

SATURATES PLOT



Instrument : HP5890

Method : MSDS

Channel Title : MSD

Calibration : MSDS

Lims ID :

Run Sequence : MSDS

Acquired on 13-OCT-1989 at 09:28

Reported on 13-OCT-1989 at 15:46

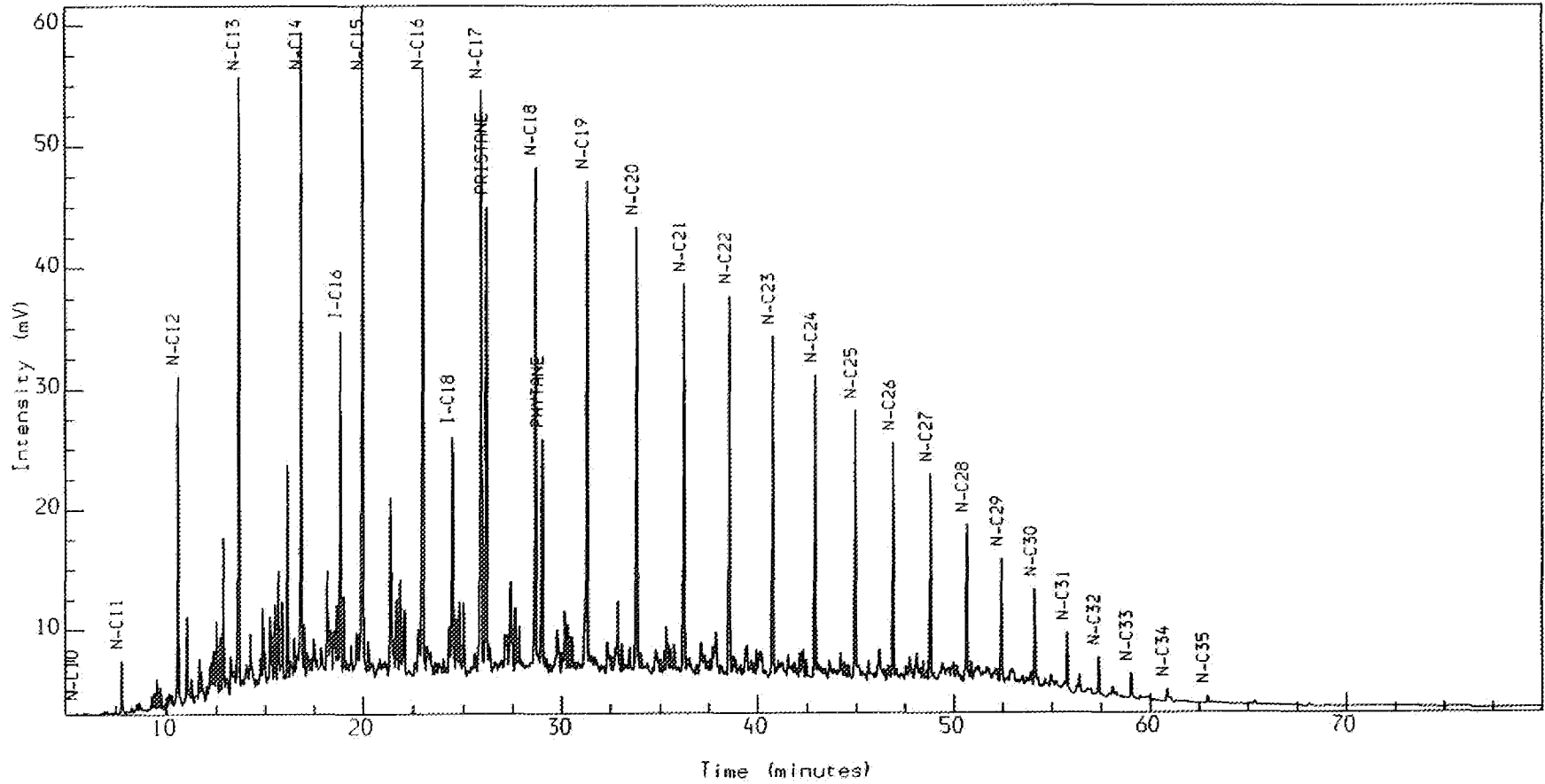
NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analysis Name : [PETRO] 7 B300908S,3,1.

30/9-7 Amount : 1.000

SATURATES PLOT

Multichrom



Instrument : HP5890

Method : MSDS

Channel Title : MSD

Calibration : MSDS

Lims ID :

Run Sequence : MSDS

Acquired on 15-OCT-1989 at 12:32

Reported on 15-OCT-1989 at 15:55

Injection Report

Acquired on 13-OCT-1989 at 12:32

NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analyst Name : ELIN E087
 Lims Id :
 Comment : OLJEKORRELASJON 30/9-8
 Method Title : GCMSD SATURATED HYDROCARBONS
 Sample Name : 30/9-7
 Sample Id :
 Sample Type : Sample Amount=1.00000
 Bottle No : 4

PEAK INFORMATION

Peak	RT mins	RT Corr	Hght uV	Area uVs	Area %	Peak name	Width
1	5.547	5.567	131	376	6.58E-3	N-C10	2.6
6	7.781	7.811	4284	14515	0.25	N-C11	3.0
22	10.573	10.613	27058	96422	1.68	N-C12	3.4
42	13.683	13.734	50891	212314	3.71	N-C13	3.8
61	16.867	16.930	53397	256931	4.49	N-C14	4.6
75	18.853	18.892	28226	117053	2.05	I-C16	4.2
82	19.992	20.017	55027	277742	4.85	N-C15	4.8
99	23.013	23.001	50234	253387	4.43	N-C16	4.8
108	24.453	24.460	19845	121236	2.12	I-C18	5.9
116	25.909	25.935	48284	237509	4.15	N-C17	4.6
117	26.192	26.221	38635	210344	3.68	PRISTANE	5.4
134	28.675	28.736	41367	204834	3.58	N-C18	4.6
135	29.008	29.074	19181	100406	1.75	HEPTANE	5.1
150	31.317	31.414	40554	204603	3.58	N-C19	4.3
165	33.843	33.972	36997	169307	2.96	N-C20	4.5
181	36.256	36.369	32081	144922	2.53	N-C21	4.3
194	38.565	38.662	31491	144275	2.52	N-C22	4.3
207	40.781	40.863	28097	125733	2.20	N-C23	4.5
220	42.912	42.979	24843	114211	2.00	N-C24	4.5
233	44.957	45.010	22394	109442	1.91	N-C25	4.5
243	46.928	46.967	19751	86530	1.51	N-C26	4.2
254	48.827	48.853	17121	69957	1.22	N-C27	4.2
262	50.653	50.667	13054	59671	1.04	N-C28	4.0
270	52.419	52.420	10304	46102	0.81	N-C29	4.2
276	54.128	54.117	8102	33969	0.59	N-C30	3.8
281	55.787	55.764	4794	19728	0.34	N-C31	3.8
284	57.387	57.353	3023	10747	0.19	N-C32	3.4
289	59.035	58.990	2116	10716	0.19	N-C33	4.6
291	60.869	60.812	997	7493	0.13	N-C34	5.3
292	62.931	62.859	602	3079	0.05	N-C35	5.1

Totals

Unknowns	510305	2258967	39.47
Quantified	732879	3463555	60.52
Grand Total	1243184	5722522	100.00

SATURATES REPORT

Analysis : B300908S

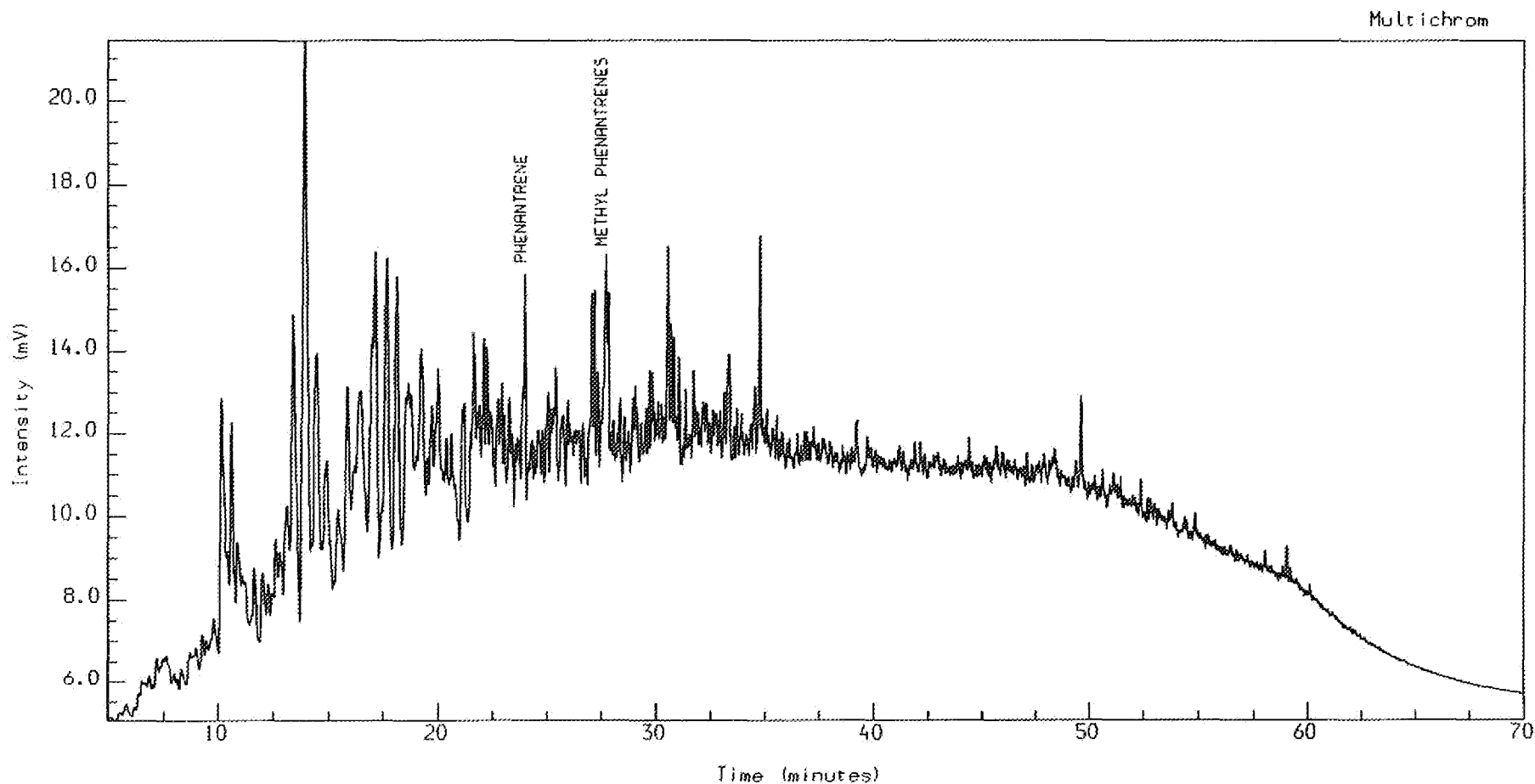
Sample : 3, Injection : 1

C.P.I. 1	: 1.06
C.P.I. 2	: 0.96
Pristan/N-C17	: 0.89
Phytan/N-C18	: 0.49
Pristan/Phytan	: 2.09
N-C17/N-C27	: 3.40

NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analysis Name : [PETRO] 1 A30_9_8A.2.1.

30/9-8 Amount : 1.000



Instrument : HP5880

Method : ARO

Channel Title : HP5880A GC

Calibration : ARO

Lims ID :

Run Sequence : ARO

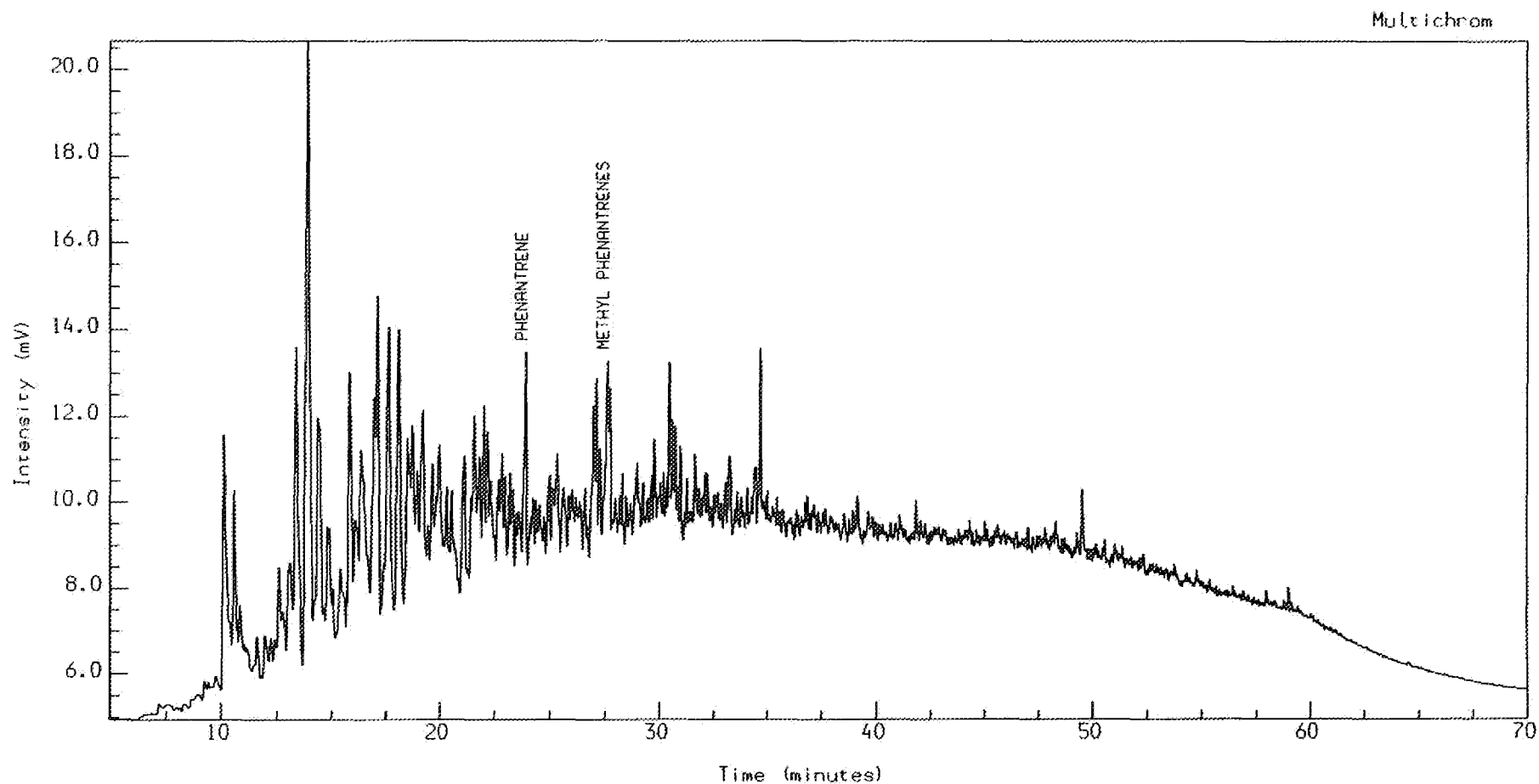
Acquired on 11-OCT-1989 at 18:19

Reported on 12-OCT-1989 at 10:39

NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analysis Name : [PETRO] 1 A30_9_8A,3.1.

30/9-3A Amount : 1.000



Instrument : HP5880

Method : ARO

Channel Title : HP5880A GC

Calibration : ARO

Lims ID :

Run Sequence : ARO

Acquired on 11-OCT-1989 at 19:59

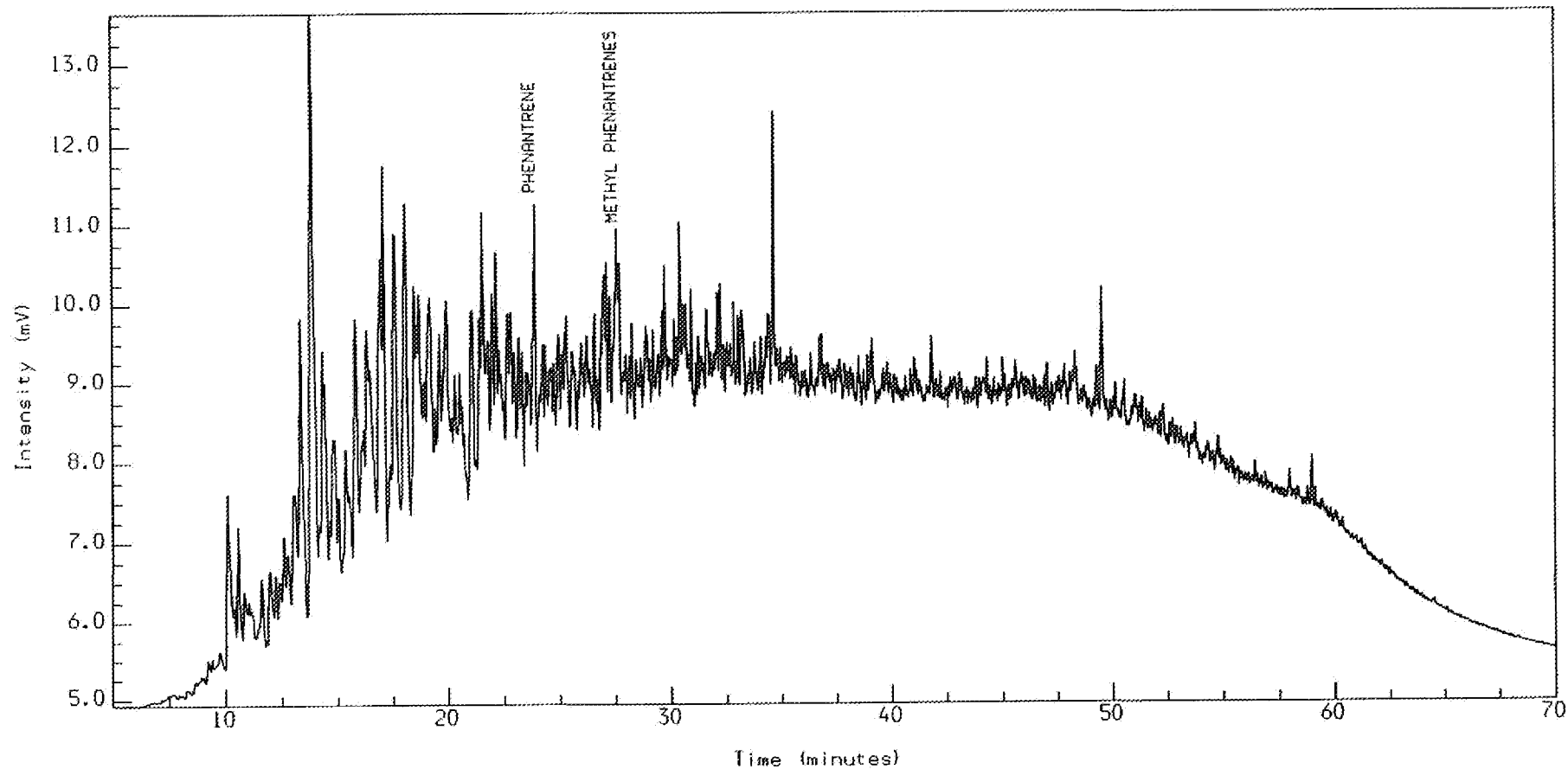
Reported on 12-OCT-1989 at 10:46

NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analysis Name : [PETRO] 1 A30_9_8A.5.1.

30/9-7 Amount : 1.000

Multichrom



Instrument : HP5880

Method : ARO

Channel Title : HP5880A GC

Calibration : ARO

Lims ID :

Run Sequence : ARO

Acquired on 11-OCT-1989 at 23:20

Reported on 12-OCT-1989 at 10:57

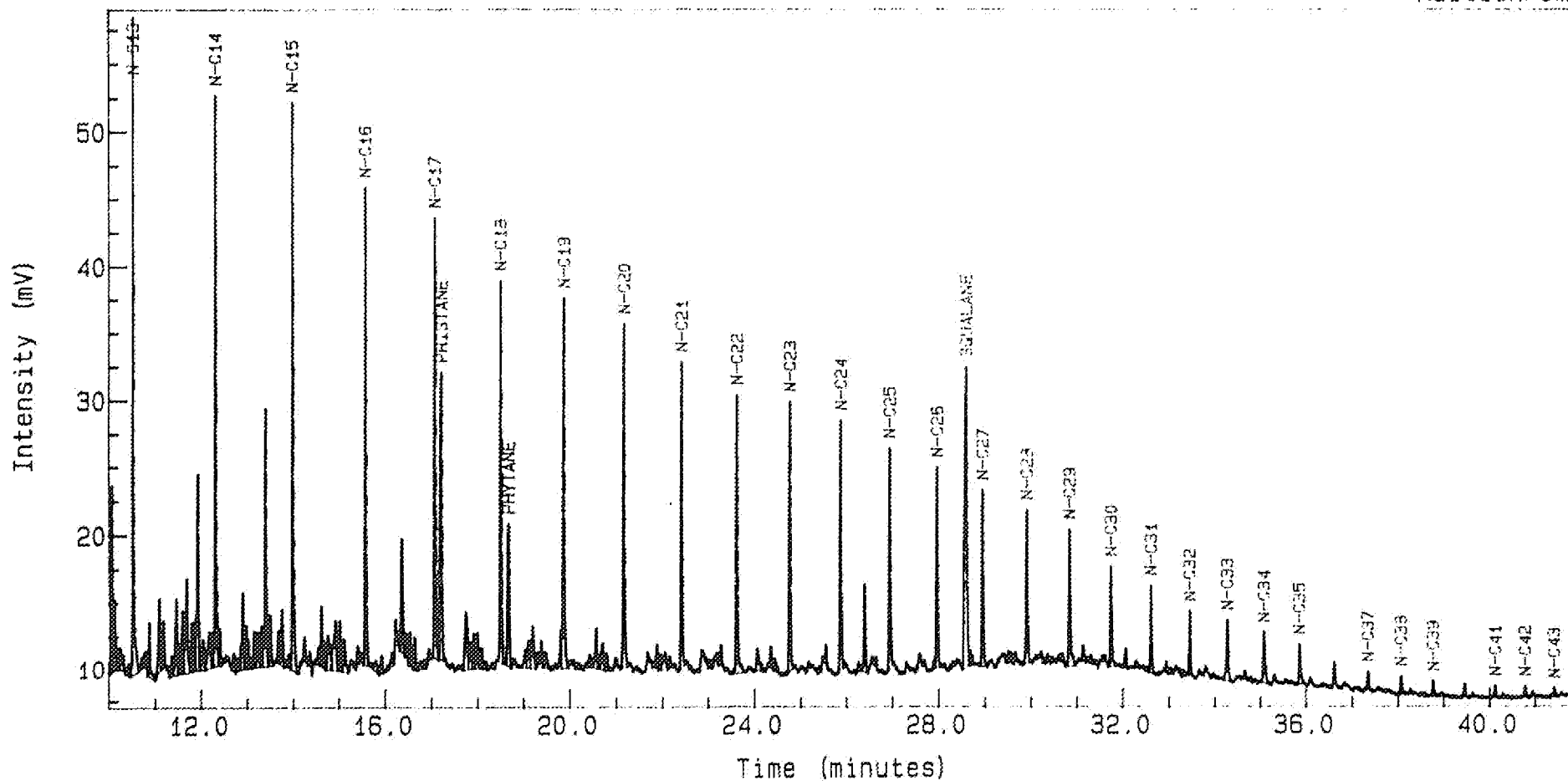


APPENDIX III.

C10+ chromatograms of whole oils.

Analysis Name : [PVT] 11 A03009XXX, 7, 1.
30/9-7 Amount : 0.500

Multichrom

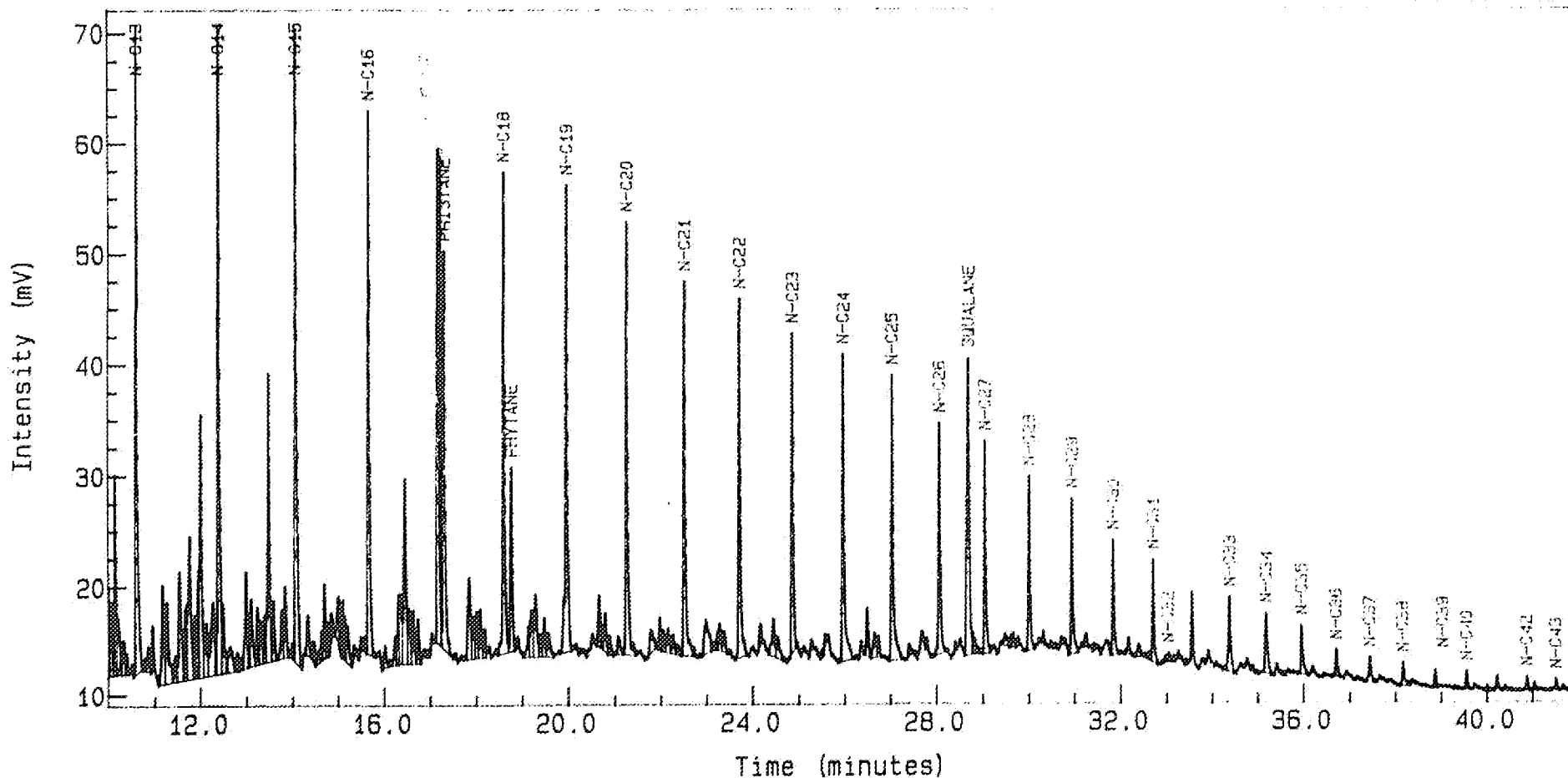


Instrument : HRGC5300
Channel Title : WAX ANALYSIS
Lims ID :
Acquired on 31-OCT-1989 at 13:23
Reported on 7-NOV-1989 at 14:27

Method : WAX
Calibration : VOKS
Run Sequence : WAX

Analysis Name : [PVT] 11 A03009XXX, 5, 1.
30/9-3A Amount : 0.500

Multichrom



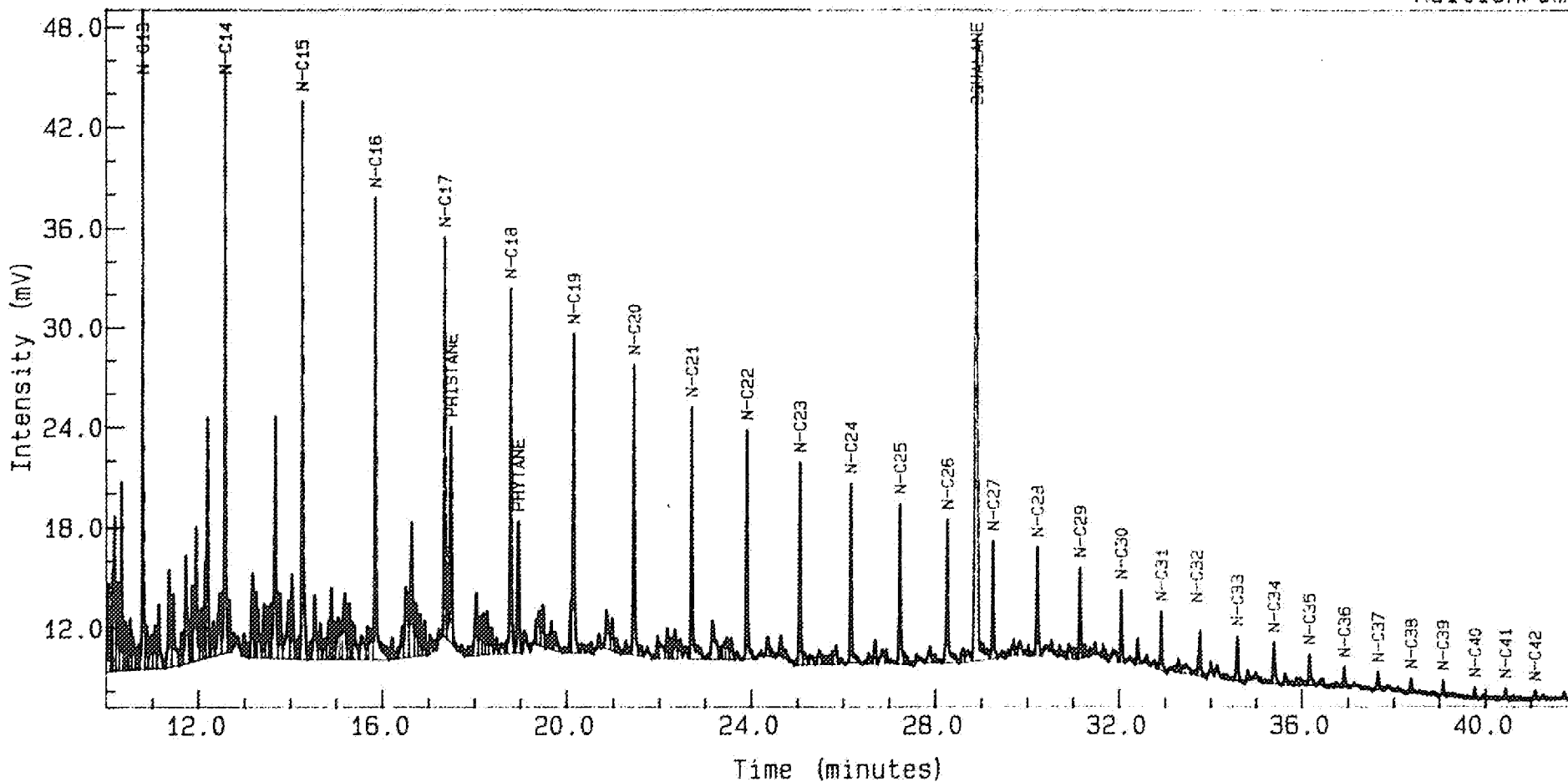
Instrument : HR6C5300
Channel Title : WAX ANALYSIS
Lims ID :
Acquired on 31-OCT-1989 at 09:48
Reported on 7-NOV-1989 at 14:24

Method : WAX
Calibration : VOKS
Run Sequence : WAX

Analysis Name : [PVT] 11 AX300908BHS, 1, 1.

30/9-8 Amount : 0.500

Multichrom



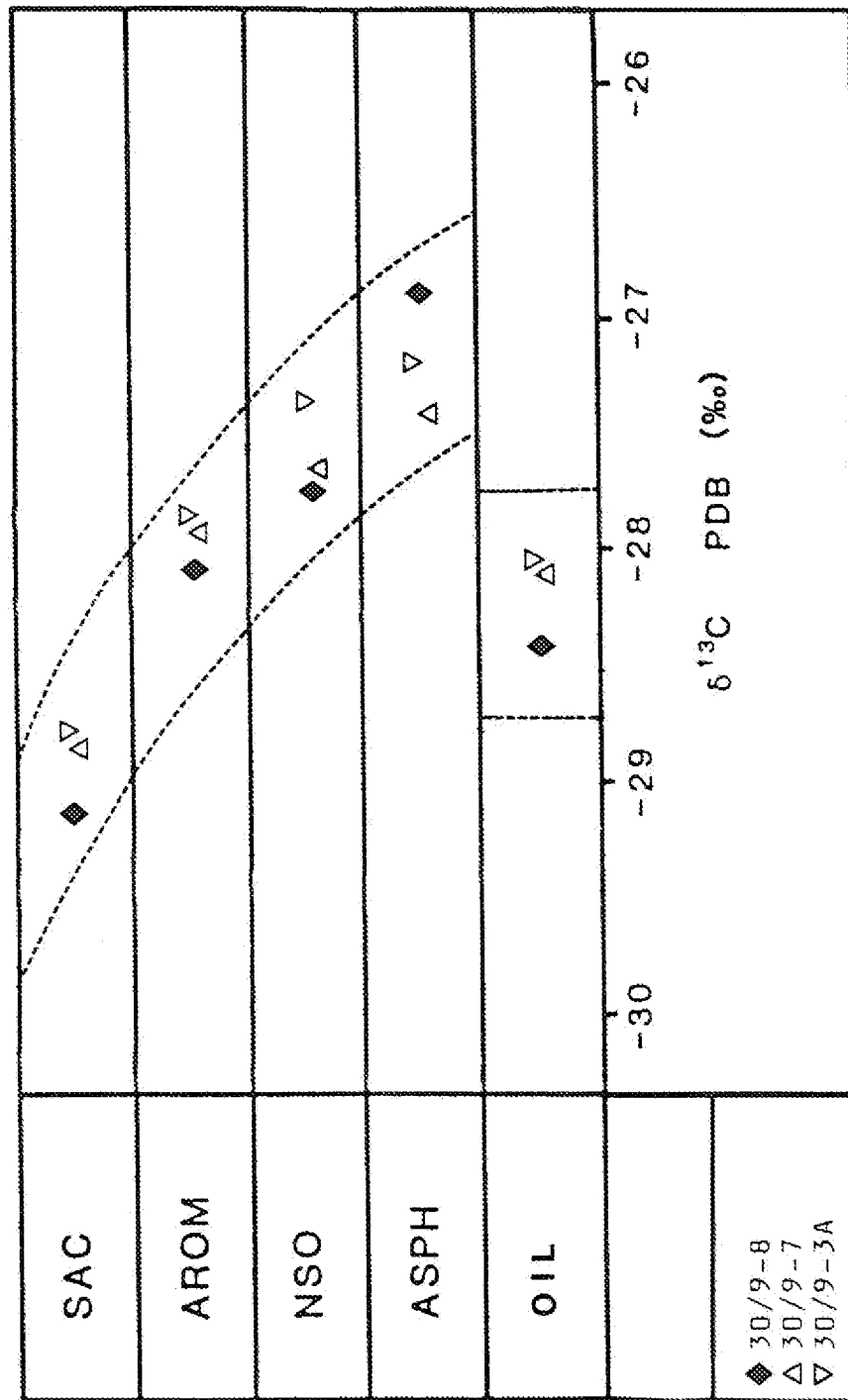
Instrument : HRGC5300
Channel Title : WAX ANALYSIS
Lims ID :
Acquired on 30-OCT-1989 at 17:28
Reported on 7-NOV-1989 at 14:15

Method : WAX
Calibration : voks
Run Sequence : WAX



APPENDIX IV.

$\delta^{13}\text{C}$ isotopic compositions of whole oils and related fractions.





APPENDIX V.

SAT-biomarkers.

Listed data of biomarker distributions.

Normalized bargraphs of biomarker distributions.



Standardized identification of SAT-biomarkers:

Triterpanes:

Numbers from 18 to 35 correspond to the carbon number of the molecule, the subsequent capital letter identifies the stereochemistry and/or the number of rings.

- A 17 α (H)-hopanes (I) 22S
- B 17 α (H)-hopanes 22R
- C 17 β (H)-moretanes (II) 22S
- D 17 β (H)-moretanes 22R
- E 17 β (H)-hopanes (III)
- F Neohopanes (IV)
- G Gammacerane (V)
- H Hopenes (VI)
- I 25-norhopanes (VII)
- L Lupane (VIII)
- O 18 α (H)-oleanane (IX)
- X Tetracyclic terpanes (X)
- Y Tricyclic terpanes (XI)
- N Unidentified

Steranes:

Numbers from 20 to 30 correspond to the carbon number of the molecules, the subsequent small letter identifies the stereochemistry.

- a 13 β (H),17 α (H)-diasteranes 20S (1)
- b 13 β (H),17 α (H)-diasteranes 20R (2)
- c 13 α (H),17 β (H)-diasteranes 20S (3)
- d 13 α (H),17 β (H)-diasteranes 20R (4)
- e 5 α (H),14 α (H),17 α (H)-steranes 20S (5)
- f 5 α (H),14 β (H),17 β (H)-steranes 20R (6)
- g 5 α (H),14 β (H),17 β (H)-steranes 20S (7)
- h 5 α (H),14 α (H),17 α (H)-steranes 20R (8)
- i 5 β (H),14 α (H),17 α (H)-steranes (9)
- k 4-methylsteranes (10)
- n unidentified

Examples: 31B corresponds to 17 α (H)-homohopane 22R

29e corresponds to $\alpha\alpha$ -ethylcholestane 20S



The analysed SAT-biomarkers, presented in the included bargraphs, are abbreviated accordingly:

Terpanes:

26Y: C-26 Tri-cyclic terpanes
26YY: C-26 Tri-cyclic terpanes
25Y: C-25 Tri-cyclic terpanes
24Y: C-24 Tri-cyclic terpanes
24XY: C-24 Tetra-cyclic terpanes
23Y: C-23 Tri-cyclic terpanes
22Y: C-22 Tri-cyclic terpanes
21Y: C-21 Tri-cyclic terpanes
20Y: C-20 Tri-cyclic terpanes

Low molecular weight steranes:

23a: C-23 Sterane
23k: C-23 Sterane
22a: C-22 Sterane
22k: C-22 Sterane
21a: C-21 Sterane
21k: C-21 Sterane



Triterpanes:

- 33A: C-33 $17\alpha(H), 21\beta(H)$ -trishomohopane-22S
33B: C-33 $17\alpha(H), 21\beta(H)$ -trishomohopane-22R
- 32A: C-32 $17\alpha(H), 21\beta(H)$ -bishomohopane-22S
32B: C-32 $17\alpha(H), 21\beta(H)$ -bishomohopane-22R
- 31A: C-31 $17\alpha(H), 21\beta(H)$ -homohopane-22S
31B: C-31 $17\alpha(H), 21\beta(H)$ -homohopane-22R
31C: C-31 $17\beta(H), 21\beta(H)$ -homohopane-22S
31D: C-31 $17\beta(H), 21\beta(H)$ -homohopane-22R
- 30F: C-30 ?-hopane
30A: C-30 $17\alpha(H), 21\beta(H)$ -hopane
30H: C-30 ?-hopene
30C: C-30 $17\beta(H), 21\alpha(H)$ -moretane
- 29N: C-29 ?-30-norhopane
29A: C-29 $17\alpha(H), 21\beta(H)$ -30-norhopane
29F: C-29 ?-30-norhopane
29C: C-29 $17\beta(H), 21\alpha(H)$ -30-normoretane
- 28A: C-28 $17\alpha(H), 21\beta(H)$ -28,30-bisnorhopane + $\beta\alpha$ -
bisnormoretane
28N: C-28 ?- $17\beta(H), 21\beta(H)$ -28,30-bisnorhopane
- 27F: C-27 $18\alpha(H)$ -22,29,30-trisnorneohopane (Ts)
27A: C-27 $17\alpha(H)$ -22,29,30-trinorhopane (Tm)



Steranes:

- 30a: C-30 13 β (H),17 α (H)-diasterane-20S
b: C-30 13 β (H),17 α (H)-diasterane-20R
c: C-30 13 α (H),17 β (H)-diasterane-20S
d: C-30 13 α (H),17 β (H)-diasterane-20R
e: C-30 5 α (H),14 α (H),17 α -sterane-20S
f: C-30 5 α (H),14 β (H),17 β -sterane-20R
g: C-30 5 α (H),14 β (H),17 β -sterane-20S
h: C-30 5 α (H),14 α (H),17 α -sterane-20R
- 29a: C-29 13 β (H),17 α (H)-diasterane-20S
b: C-29 13 β (H),17 α (H)-diasterane-20R
c: C-29 13 α (H),17 β (H)-diasterane-20S
d: C-29 13 α (H),17 β (H)-diasterane-20R
e: C-29 5 α (H),14 α (H),17 α -sterane-20S
f: C-29 5 α (H),14 β (H),17 β -sterane-20R
g: C-29 5 α (H),14 β (H),17 β -sterane-20S
h: C-29 5 α (H),14 α (H),17 α -sterane-20R
- 28a: C-28 13 β (H),17 α (H)-diasterane-20S
28aa: C-28 ?-diasterane-20S
b: C-28 13 β (H),17 α (H)-diasterane-20R
28bb: C-28 ?-diasterane-20R
c: C-28 13 α (H),17 β (H)-diasterane-20S
d: C-28 13 α (H),17 β (H)-diasterane-20R
e: C-28 5 α (H),14 α (H),17 α -sterane-20S
f: C-28 5 α (H),14 β (H),17 β -sterane-20R
g: C-28 5 α (H),14 β (H),17 β -sterane-20S
h: C-28 5 α (H),14 α (H),17 α -sterane-20R
- 27a: C-27 13 β (H),17 α (H)-diasterane-20S
b: C-27 13 β (H),17 α (H)-diasterane-20R
c: C-27 13 α (H),17 β (H)-diasterane-20S
d: C-27 13 α (H),17 β (H)-diasterane-20R
e: C-27 5 α (H),14 α (H),17 α -sterane-20S
f: C-27 5 α (H),14 β (H),17 β -sterane-20R
g: C-27 5 α (H),14 β (H),17 β -sterane-20S
h: C-27 5 α (H),14 α (H),17 α -sterane-20R

0 Depth	1 Depth	2 Sample	3 Lith.	4 Well	5 Geochem	6 MS-	7 26Y	8 26YY	9 25Y	10 24Y
start int.	end int.	type			job #	File	360-191/2	360-191/2	346-191	332-191/1
1 ST11109A		OIL			F-BG	NS11109	1.30	1.38	2.51	4.86
2 2836	2836.0	OIL	DST2A	30/9-8.	F-BG	NS11109	3.26	3.51	6.45	11.64
3 2910	2916.0	OIL	DST1	30/9-3A	F-BG	NS11109	2.31	2.43	4.53	7.72
4 2811	2822.0	OIL	DST1	30/9-7.	F-BG	NS11109	1.84	2.40	4.31	7.31
5 2573	2578.5	OIL	DST3	30/6-13.	F-BG	NS11109	1.56	1.67	2.79	4.63
6 ST11109B		OIL			F-BG	NS11109	1.02	1.13	3.68	5.79

0 Depth	11 24X-Y	12 23Y	13 22Y	14 21Y	15 20Y	16 23a	17 23k	18 22a	19 22k
start int.	332-191/1	318-191	304-191	290-191	276-191	316-217/1	316-217/2	302-217/1	302-217/2
1 ST11109A	1.94	6.53	2.17	4.68	3.83	7.15	2.21	17.13	14.77
2 2836	5.16	16.40	4.67	10.03	8.97	15.43	6.55	36.66	35.99
3 2910	3.67	9.82	3.57	5.92	6.24	9.61	4.20	20.87	20.08
4 2811	3.09	9.08	2.62	5.02	4.87	8.68	3.58	18.06	20.78
5 2573	2.54	6.05	1.52	4.35	3.27	5.87	1.86	12.73	12.35
6 ST11109B	3.62	7.02	2.46	5.32	4.27	8.46	2.83	19.82	17.71

0 Depth	20 21a	21 21k	22 33A	23 33B	24 32A	25 32B	26 31A	27 31B
start int.	288-217/1	288-217/2	454-191/1	454-191/2	440-191/1	440-191/2	426-191/1	426-191/2
1 ST11109A	23.84	43.99	16.66	10.42	32.09	19.61	51.38	33.30
2 2836	52.26	89.05	48.18	30.34	77.15	52.43	120.42	79.78
3 2910	28.93	57.61	29.74	17.20	52.92	33.55	83.49	56.56
4 2811	27.21	54.53	32.50	19.91	55.31	36.77	87.08	58.56
5 2573	18.28	35.17	15.90	9.34	27.06	16.64	44.61	28.55
6 ST11109B	25.94	47.97	22.15	13.28	37.06	23.68	57.96	38.26

0 Depth	28 31C	29 31D	30 30F	31 30A	32 30H	33 30C	34 29N	35 29A	36 29F
start int.	426-191/3	426-191/4	412-191	412-191	412-191	412-191	398-191	398-191	398-191
1 ST11109A	2.71	3.30	10.78	152.12	6.34	8.85	12.89	63.58	27.20
2 2836	8.54	9.68	27.42	330.66	15.54	21.54	43.89	138.77	65.73
3 2910	5.70	6.73	16.55	225.59	9.23	13.02	20.79	98.61	41.89
4 2811	5.16	5.66	15.94	228.99	9.35	14.47	20.38	103.35	41.13
5 2573	3.48	3.24	8.70	129.90	5.08	6.88	10.57	54.22	22.26
6 ST11109B	2.62	3.42	12.28	166.58	6.54	8.96	14.52	68.94	29.61

0 Depth	37 29C	38 28A	39 28N	40 27F	41 27A	42 30a	43 30b	44 30c	45 30d	46 30e
start int.	398-191	384-191	384-191	370-191	370-191	414-217	414-217	414-217	414-217	414-217
1 ST11109A	9.22	15.88	4.63	31.68	20.62	5.13	3.53	1.87	1.49	2.93
2 2836	31.80	91.83	14.78	68.79	53.94	14.21	9.75	6.45	5.58	10.04
3 2910	18.05	53.92	7.46	46.06	33.64	8.72	5.14	4.29	3.72	6.47
4 2811	20.37	63.88	7.58	42.70	35.34	8.20	5.68	3.33	2.50	7.38
5 2573	7.51	30.35	3.07	25.24	17.99	4.81	2.50	1.62	0.97	2.52
6 ST11109B	10.30	38.35	4.44	34.20	23.02	5.97	3.42	3.06	1.62	3.55

0 Depth	47 30f	48 30g	49 30h	50 29a	51 29b	52 29c	53 29d	54 29e	55 29f	56 29g
start int.	414-217	414-217	414-217	400-217	400-217	400-217	400-217	400-217	400-217	400-217
1 ST11109A	3.56	6.80	2.71	43.71	29.86	12.35	9.27	12.63	18.42	19.95
2 2836	10.95	14.05	9.70	95.01	69.31	34.21	20.58	29.69	40.19	41.95
3 2910	7.79	10.29	5.81	66.71	46.26	20.60	14.83	23.82	36.23	38.66
4 2811	9.39	11.30	8.21	64.29	44.88	21.01	16.39	28.83	39.10	41.18
5 2573	3.18	3.70	2.58	38.05	25.24	10.38	7.27	9.98	15.27	15.70
6 ST11109B	4.41	5.65	4.02	48.39	33.93	14.71	10.19	15.14	20.79	22.25

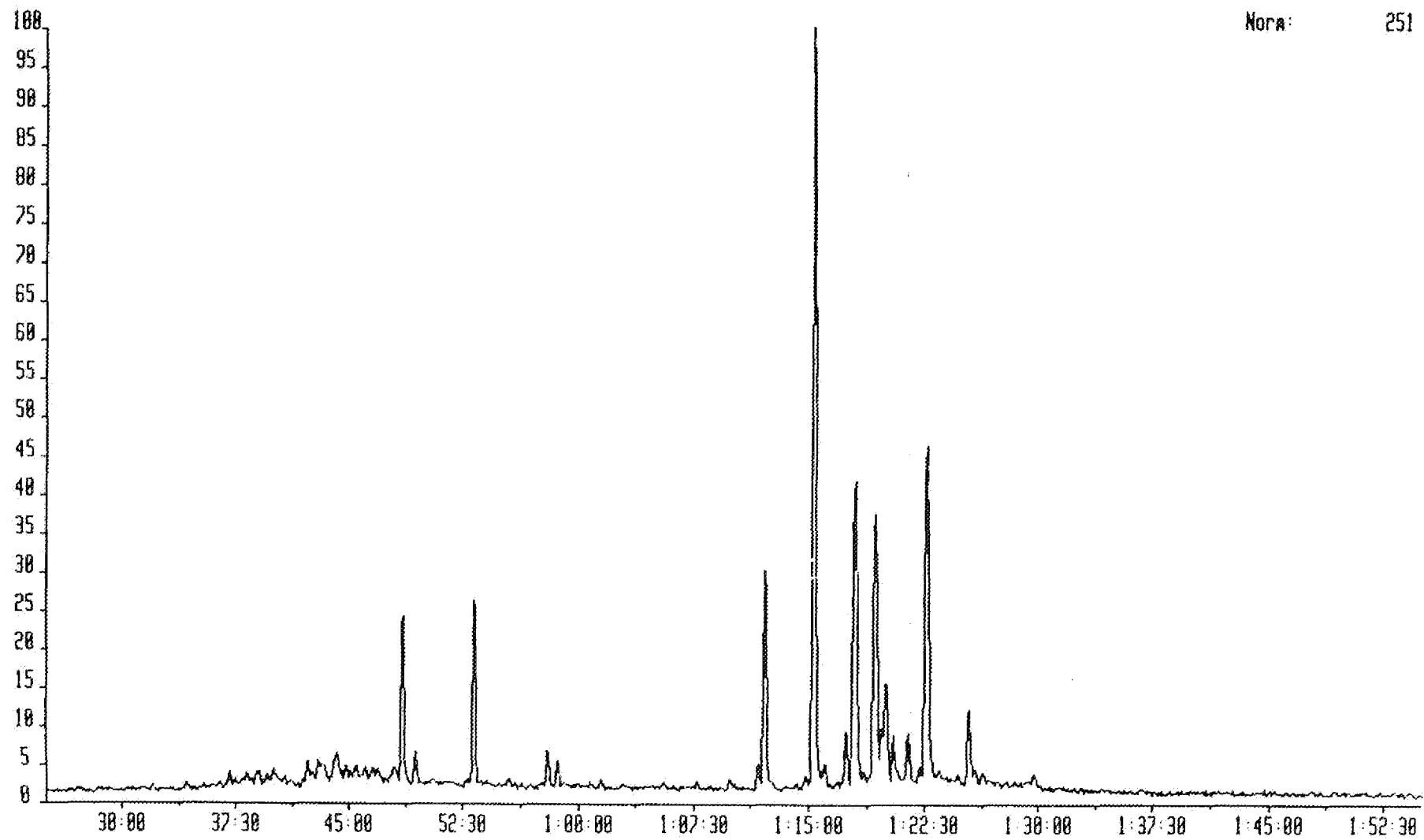
0 Depth	57 29h	58 28a	59 28aa	60 28b	61 28bb	62 28c	63 28d	64 28e	65 28f	66 28g
start int.	400-217	386-217	386-217	386-217	386-217	386-217	386-217	386-217	386-217	386-217
1 ST11109A	11.03	19.78	22.54	13.71	15.76	5.78	5.41	3.86	17.48	13.67
2 2836	24.10	50.10	54.68	35.22	39.47	16.12	15.48	11.10	39.66	31.93
3 2910	20.30	32.44	35.42	21.50	23.62	9.75	8.86	8.35	32.46	26.51
4 2811	27.12	30.56	33.27	19.57	23.20	9.65	8.92	9.66	35.13	28.44
5 2573	8.94	17.83	19.30	11.39	13.33	5.52	4.54	4.24	14.61	11.29
6 ST11109B	15.02	24.90	27.15	16.82	19.24	7.07	6.46	4.91	21.02	17.26

0 Depth	67 28h	68 27a	69 27b	70 27c	71 27d	72 27e	73 27f	74 27g	75 27h	76
start int.	386-217	372-217	372-217	372-217	372-217	372-217	372-217	372-217	372-217	
1 ST11109A	4.97	62.63	41.76	8.61	11.47	9.10	18.53	12.45	9.16	
2 2836	12.91	129.09	87.46	22.43	30.06	22.50	34.03	26.66	21.82	
3 2910	9.52	90.05	60.77	12.67	18.05	17.24	32.35	25.10	17.74	
4 2811	13.29	85.18	58.22	12.43	17.86	21.53	34.36	27.58	23.73	
5 2573	4.03	52.35	38.74	7.15	9.60	8.29	12.93	10.19	7.91	
6 ST11109B	7.13	67.54	46.31	10.65	14.46	11.74	18.94	14.81	11.90	

0 Depth	77 24X	78 Status	79 D-MIX	80 D4-C21	81 D2-C29	82 D4-C27
start int.	330-191		DATE	292-221	400-191	376-221
1 ST11109A	6.24	OK				
2 2836	16.19	OK	VERSION-G	34.51	8.49	28.32
3 2910	9.97	OK	VERSION-G	30.35	6.76	25.43
4 2811	9.09	OK	VERSION-G	25.23	5.81	21.07
5 2573	6.12	OK				
6 ST11109B	8.20	OK				

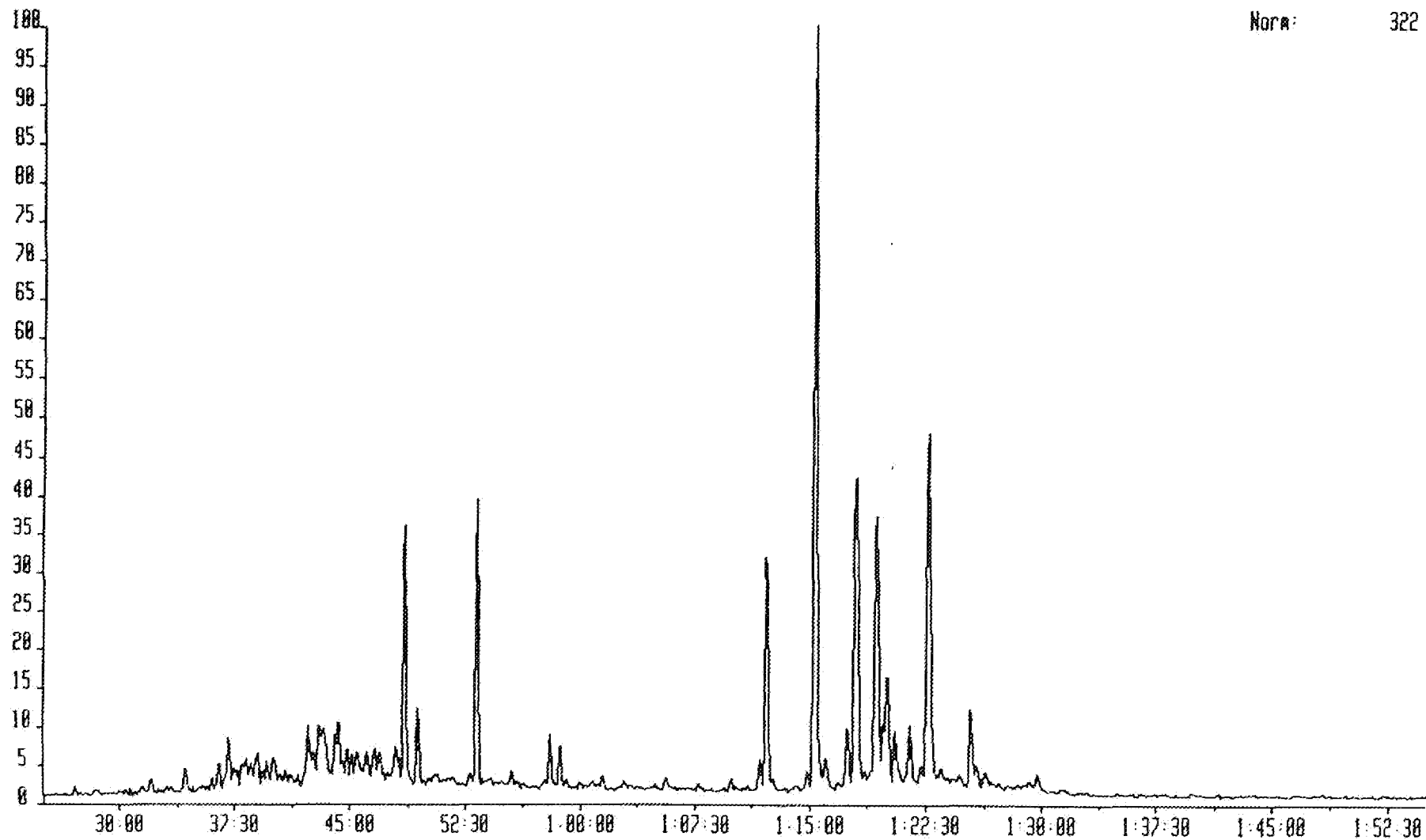
RB20109 20-OCT-09 Str:Voltage 70E Sys: GC810M
Sample 3 Injection 1 Group 1 Mass 231.1174
Text: 30/9-7

Now: 251



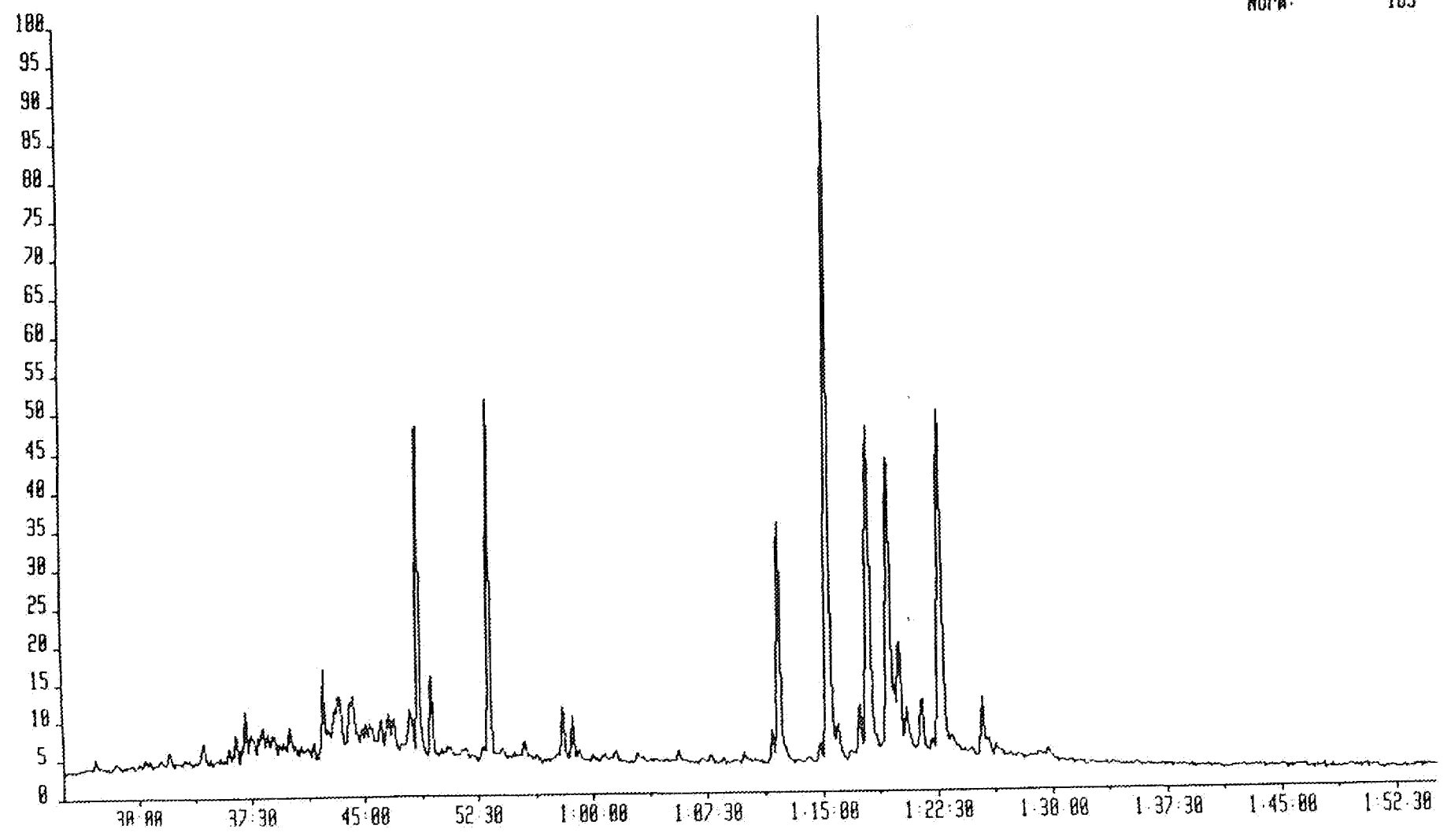
AB20109 28-OCT-09 Sir:Voltage 78E Sys: GC810M
Sample 4 Injection 1 Group 1 Mass 231.1174
Text: 30/9-30

Norm: 322



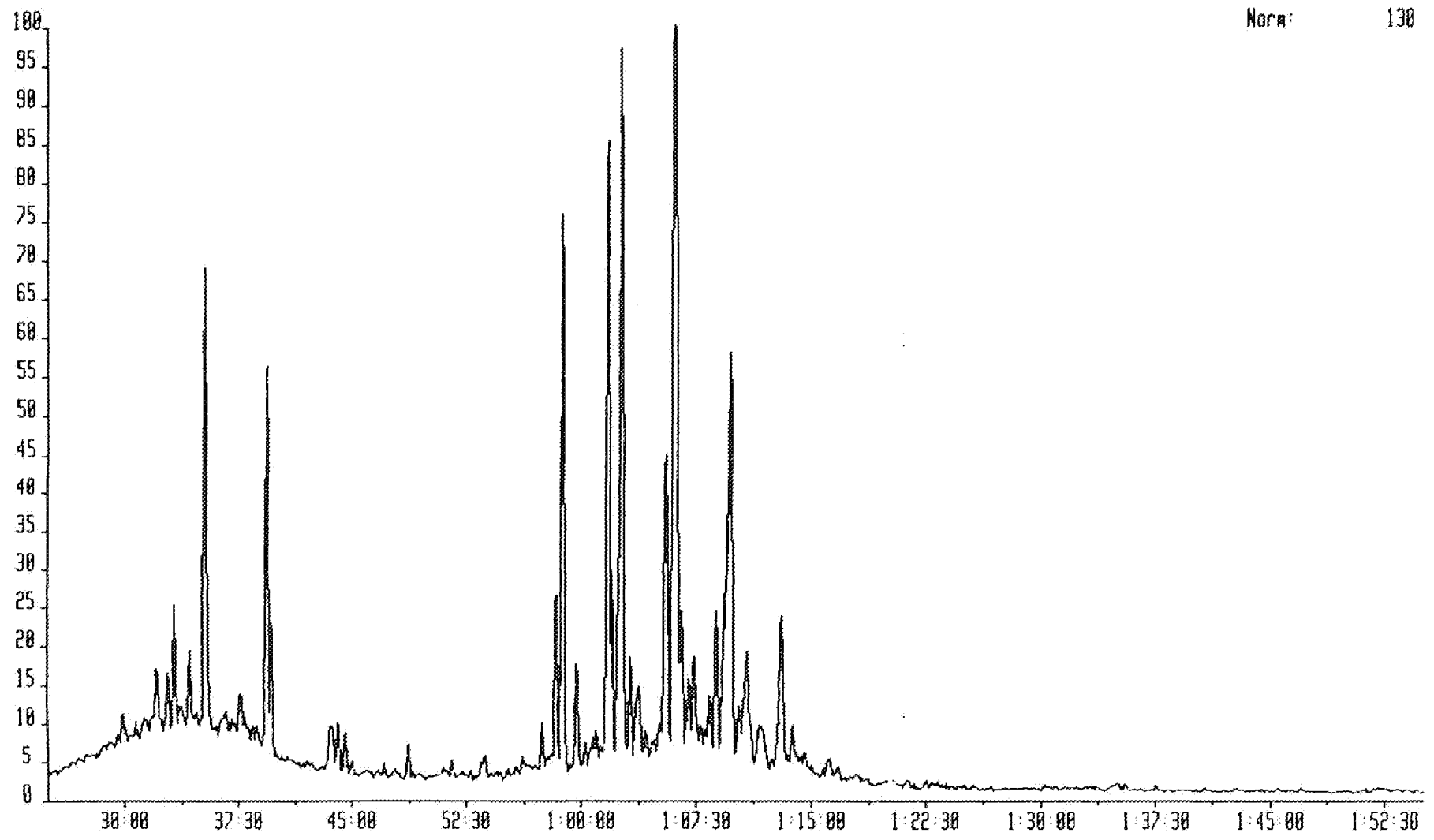
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Sample 1 Injection 1 Group 1 Mass 231.1174
Text:30/6-13

Norm: 109



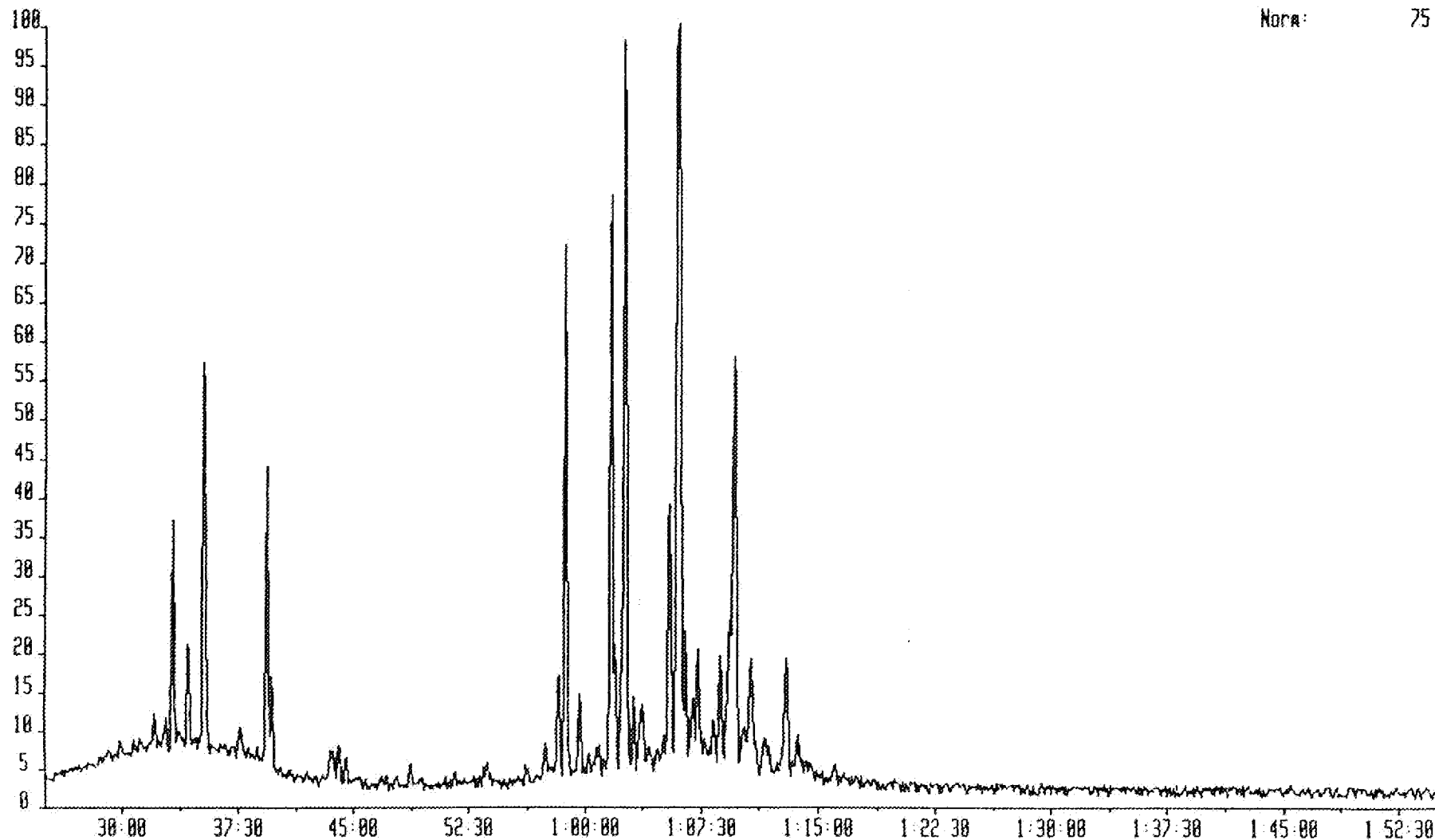
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Sample 2 Injection 1 Group 1 Mass 253.1956
Text: 30/9-8

Norm: 130



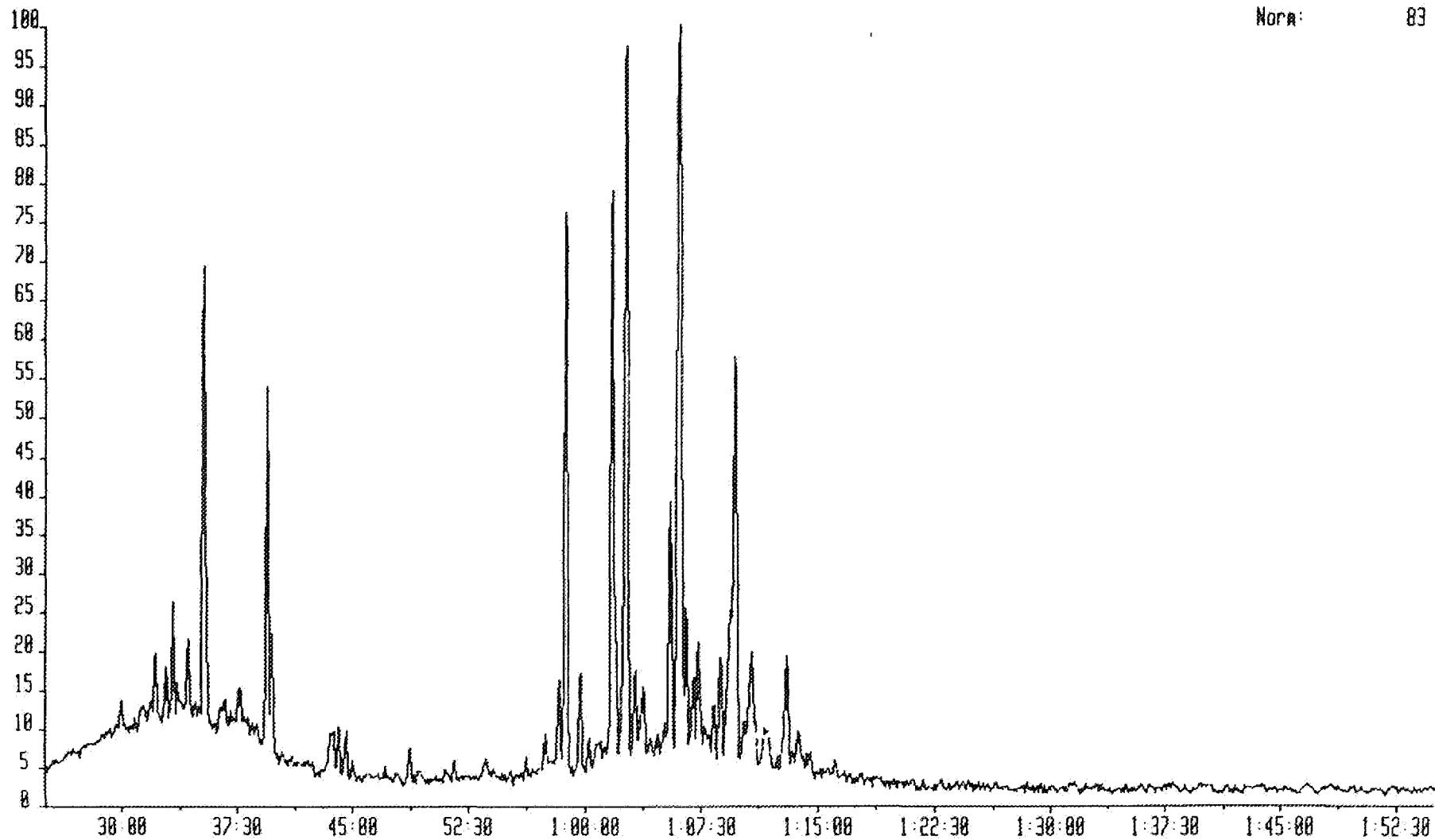
RB20109 20-OCT-89 Sir:Voltage 70E Sys: GCBIOM
Sample 3 Injection 1 Group 1 Mass 253.1956
Text:30/9-7

Norm: 75



R020109 20-OCT-89 Sir:Voltage 70E Sys: GCBIOM
Sample 4 Injection 1 Group 1 Mass 253.1956
Text: 30/9-3A

Norm: 83



AB20109 20-OCT-89 Sir-Voltage 70E Sys: GCBIOM
Sample 1 Injection 1 Group 1 Mass 253.1956
Text: 30/6-13

Norm: 73

