

Geochemical Report on 27-20X annulus oil comparison with Embla and Eldfisk Oils

BA-93-2033-1

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Chapter 1

INTRODUCTION

1.1 General Comments

At the request of Phillips Petroleum Norway an evaluation of the source (i.e. from either Embla or Eldfisk reservoir sections) of an oil found in the annulus of well 2/7-20X was performed.

1.2 Analytical Program

<u>Analysis type</u>	<u>Sample No.s</u>
MPLC/HPLC separation	1
Whole Oil GC	1
Saturated hydrocarbon GC	1
Aromatic hydrocarbon GC	1
Isotope- GC or GC-IR MS	1
Thermal extraction - GC - MS	1

A. 2/7-20X Annulus oil

APPENDIX I

TABLES

Table 1a: Weight of Oil and Chromatographic Fraction for EMBLA

Well	Description	Whole oil (g)	Light (mg)	Topped (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (%)	Sample
2/7-20X	Annulus	-		46.0	30.0	11.1	1.0	3.9	41.1	4.9	I65/0046

Table 1b: Composition of material extracted from the oil (%) for EMBLA

Well	Description	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
		EOM	EOM	EOM	EOM	EOM	EOM	Aro	Non-HC	
2/7-20X	Annulus	65.22	24.13	2.17	8.48	89.35	10.65	270.27	838.78	165/0046

Table 2: Saturated Hydrocarbon Ratios for EMBLA

Well	Description	Pristane	Pristane	Pristane/nC17	Phytane	CPI1	nC17	Sample
		nC17	Phytane	Phytane/nC18	nC18		nC17+nC27	
2/7-20X	Annulus	0.46	1.34	1.15	0.40	1.04	0.79	I65/0046

Table 3a: Aromatic Hydrocarbon Ratios for EMBLA

Well	Description	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
2/7-20X	Annulus	1.42	2.32	0.18	1.10	1.05	0.98	1.03	0.41	5.62	1.32	165/0046

Table 3b: Aromatic Hydrocarbon Ratios for EMBLA

Well	Description	F1	F2	Sample
2/7-20X	Annulus	0.52	0.24	I65/0046

Table 4A : Isotope GC of Whole Oil for EMBLA

Well	Description	iC4	nC4	iC5	nC5	2,3DMC4	CyC5	2,3DMC4 /CyC5	2MC5	3MC5	nC6	Sample
2/7-20X	Annulus	-28.70	-29.30	-28.50	-29.40	-24.20	-31.10	-	-27.80	-28.20	-29.50	165/0046

Table 4B : Isotope GC of Whole Oil for EMBLA

<u>Well</u>	<u>Description</u>	<u>MCyC5</u>	<u>Benz</u>	<u>CyC6</u>	<u>2MC6</u>	<u>3MC6</u>	<u>1,3ciDMCyC5</u>	<u>1,3trDMCyC6</u>	<u>1,2trDMCyC5</u>	<u>Sample</u>
2/7-20X	Annulus	-26.10	-27.20	-27.40	-28.10	-26.90	-24.50	-25.50	-27.00	I65/0046

Table 4C : Isotope GC of Whole Oil for EMBLA

Well	Description	nC7	MCyC6	Tol	2MC7	3MC7+1,2 3MCyC5	nC8	n-PrCyC5	1-cis-2 DMCyC5	1,1,3 TMCyC5	EtBenz	Sample
2/7-20X	Annulus	-29.30	-27.50	-27.00	-27.70	-26.50	-29.00	-26.60	-27.80	-26.70	-26.40	165/0046

Table 4D : Isotope GC of Whole Oil for EMBLA

<u>Well</u>	<u>Description</u>	<u>p/m-Xyl</u>	<u>2+4MC8</u>	<u>3MC8</u>	<u>o-Xyl</u>	<u>nC9</u>	<u>TeBuCyC5</u>	<u>SeBUCyC5</u>	<u>n-PrCyC6</u>	<u>2MC9</u>	<u>Sample</u>
2/7-20X	Annulus	-27.40	-27.20	-27.40	-26.50	-29.00	-26.20	-25.60	-27.60	-27.90	165/0046

<u>Well</u>	<u>Description</u>	<u>o-EtTol</u>	<u>3,6DMC8</u>	<u>iC10</u>	<u>nC10</u>	<u>4MC10</u>	<u>iC11</u>	<u>nC11</u>	<u>4MC11</u>	<u>iC12</u>	<u>Sample</u>
2/7-20X	Annulus	-26.50	-27.70	-26.30	-29.20	-23.90	-26.70	-29.20	-27.00	-26.40	I65/0046

Table 4F : Isotope GC of Whole Oil for EMBLA

<u>Well</u>	<u>Description</u>	<u>nC12</u>	<u>iC13</u>	<u>iC14</u>	<u>nC13</u>	<u>iC15</u>	<u>nC14</u>	<u>iC16</u>	<u>nC15</u>	<u>nC16</u>	<u>iC18</u>	<u>Sample</u>
2/7-20X	Annulus	-28.80	-24.30	-24.60	-28.70	-23.90	-28.30	-23.80	-28.40	-28.70	-24.90	I65/0046

Table 4G : Isotope GC of Whole Oil for EMBLA

<u>Well</u>	<u>Description</u>	<u>nC17</u>	<u>Pristane</u>	<u>nC18</u>	<u>Phytane</u>	<u>nC19</u>	<u>nC20</u>	<u>nC21</u>	<u>nC22</u>	<u>nC23</u>	<u>nC24</u>	<u>Sample</u>
2/7-20X	Annulus	-28.50	-25.90	-27.80	-25.50	-26.90	-27.10	-26.90	-26.80	-26.10	-26.90	165/0046

Table 4H : Isotope GC of Whole Oil for EMBLA

<u>Well</u>	<u>Description</u>	<u>nC25</u>	<u>nC26</u>	<u>nC27</u>	<u>nC28</u>	<u>nC29</u>	<u>nC30</u>	<u>nC31</u>	<u>nC32</u>	<u>nC33</u>	<u>nC34</u>	<u>Sample</u>
2/7-20X	Annulus	-26.50	-26.90	-27.10	-27.10	-27.30	-	-	-	-	-	I65/0046

APPENDIX II

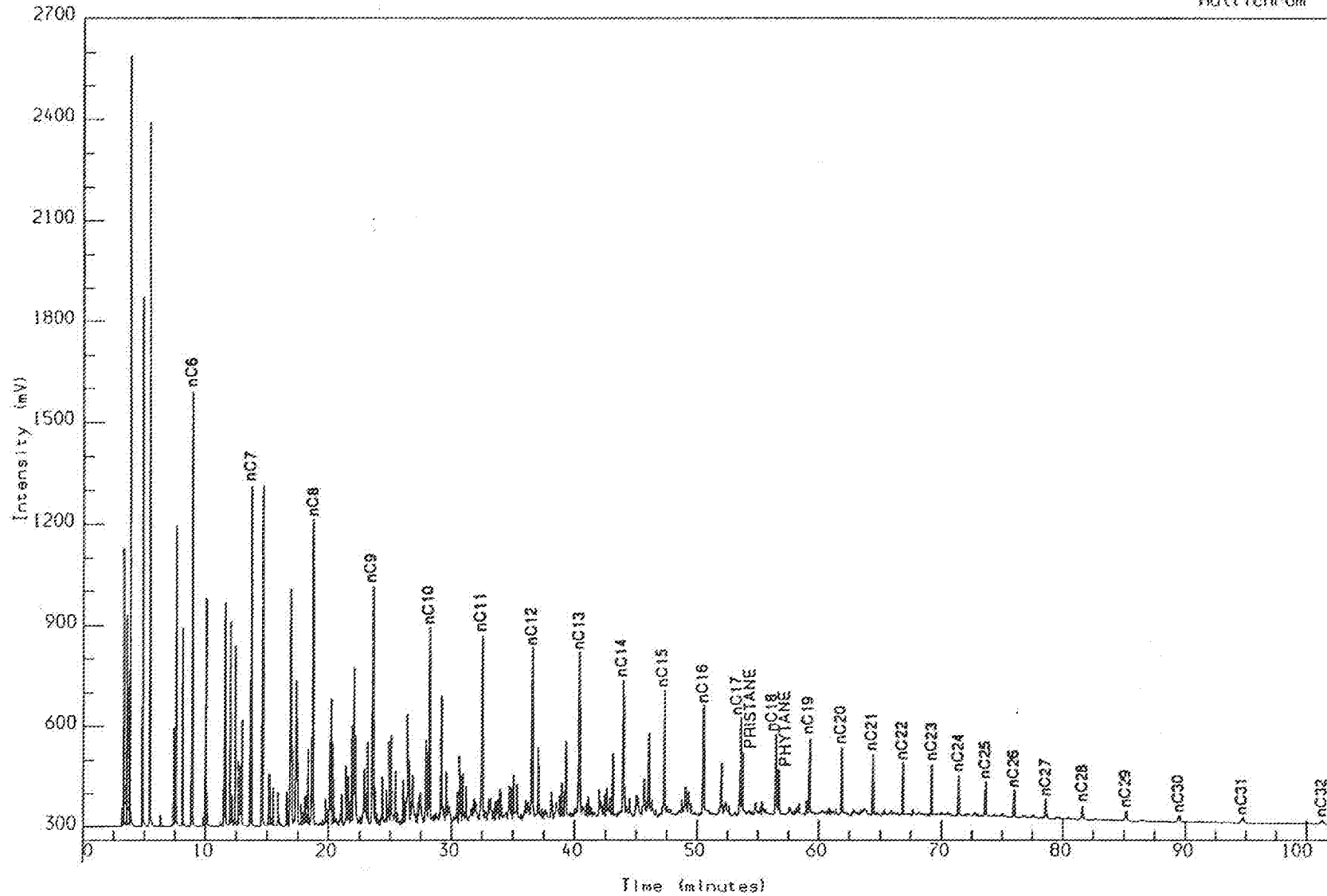
GAS CHROMATOGRAMS

- I. Whole Oil Gas Chromatograms**
- II. Saturated Hydrocarbon Fraction Chromatograms (FID)**
- III. Aromatic Hydrocarbon Fraction Chromatograms (FID and FPD)**
- IV. Isotope Gas Chromatograms**

I. Whole Oil Gas Chromatograms

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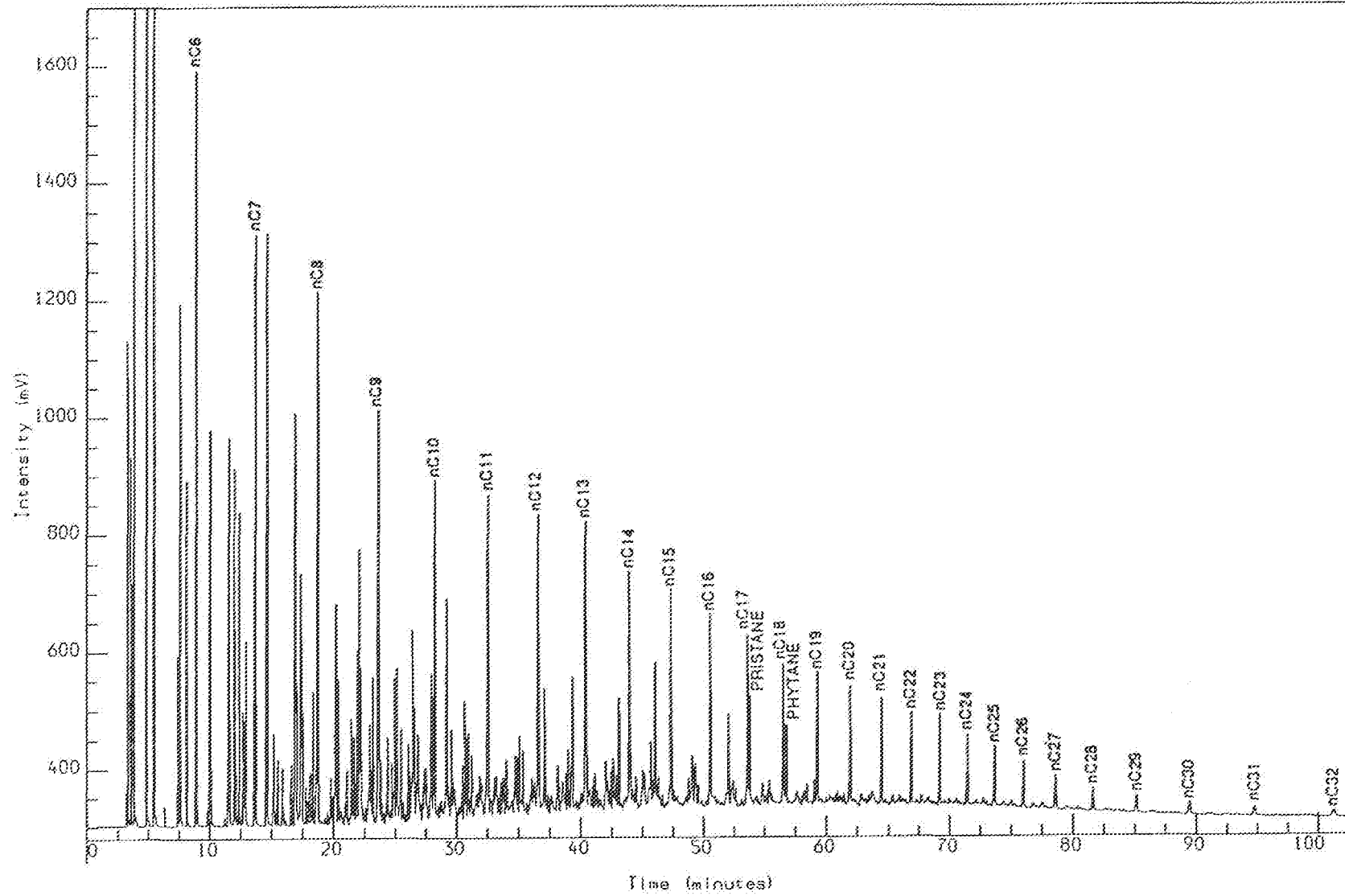
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WHOLE OIL GC (FID)

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GECO-PRAKLA

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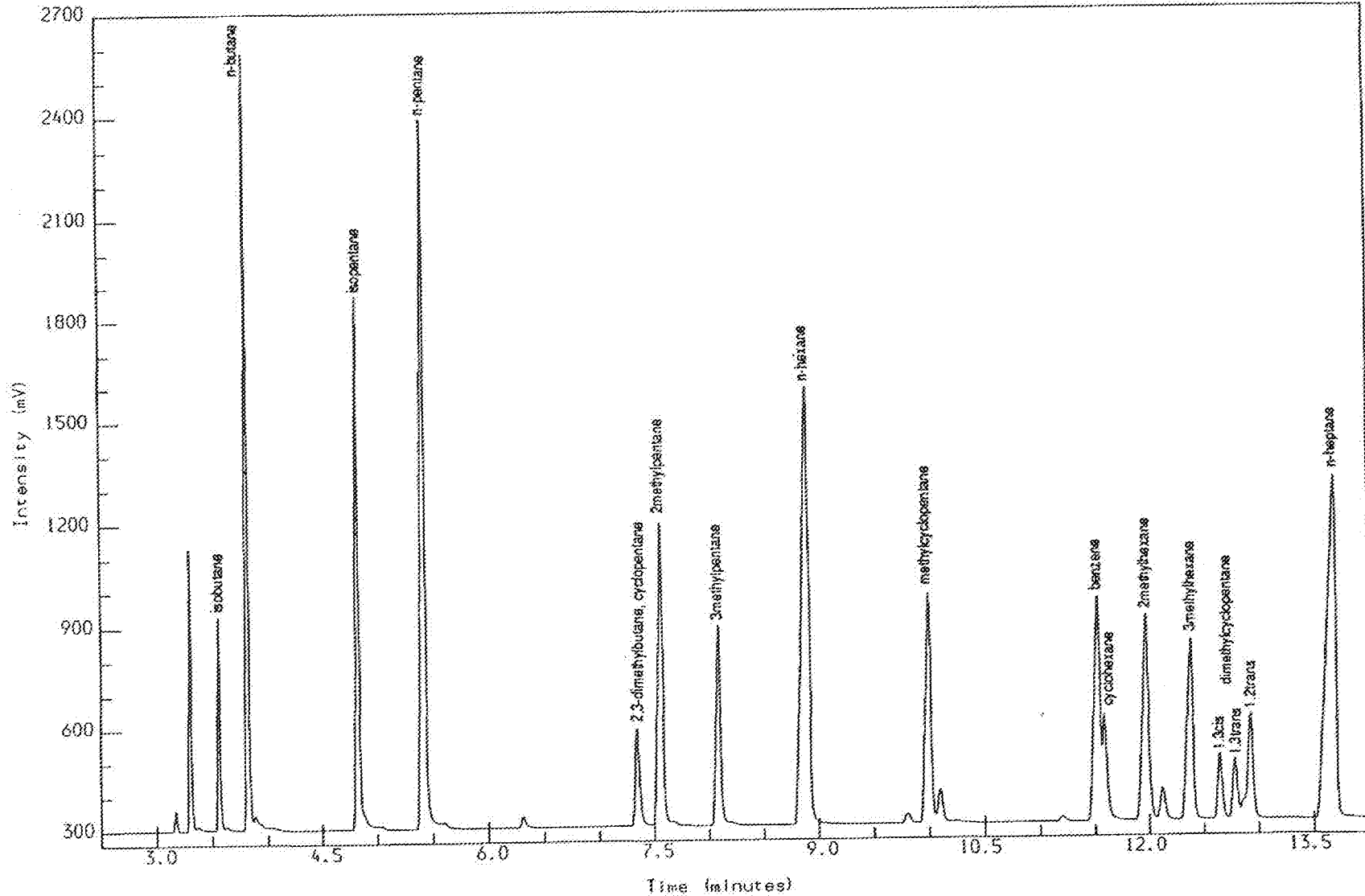


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WHOLE OIL GC (FID)

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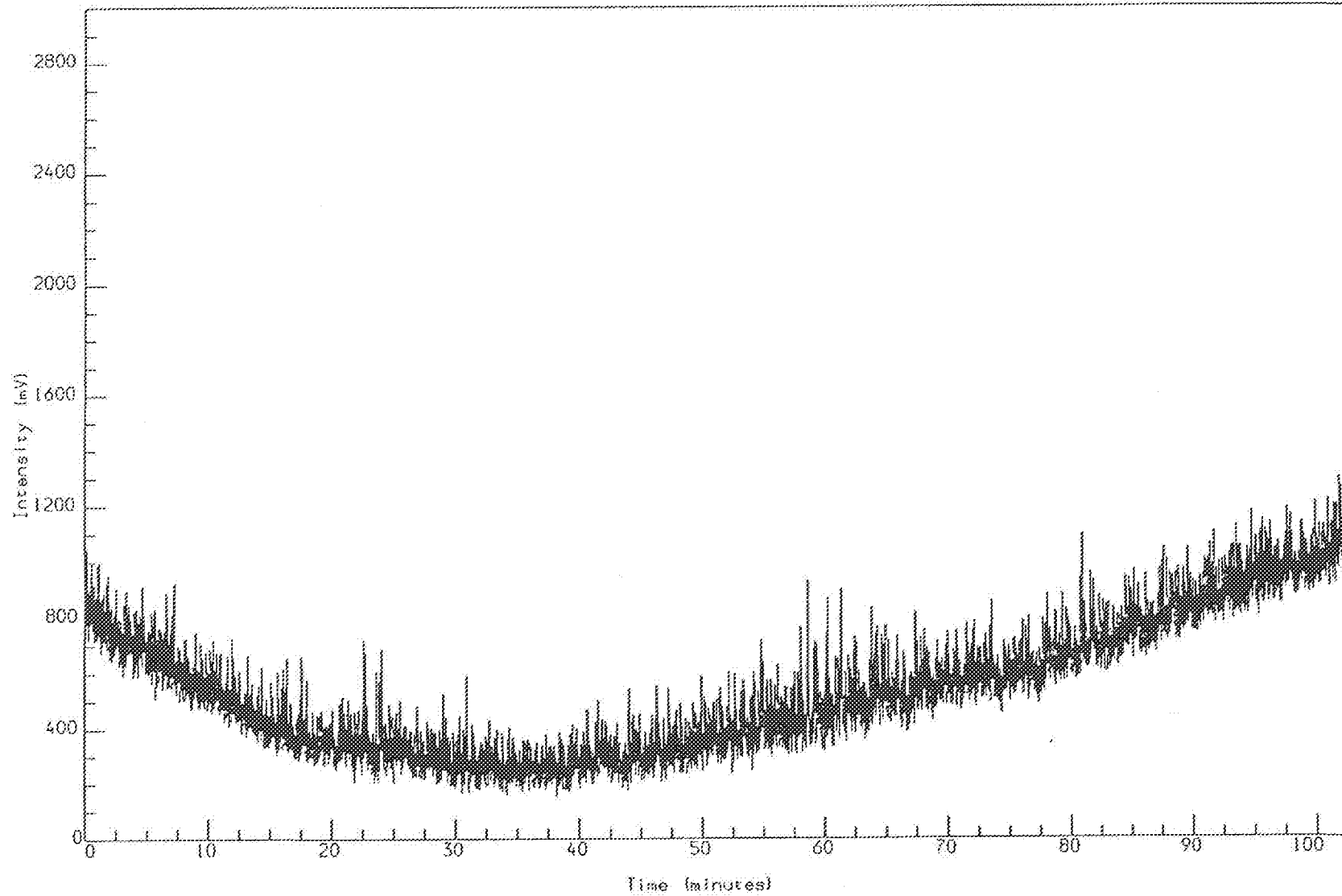
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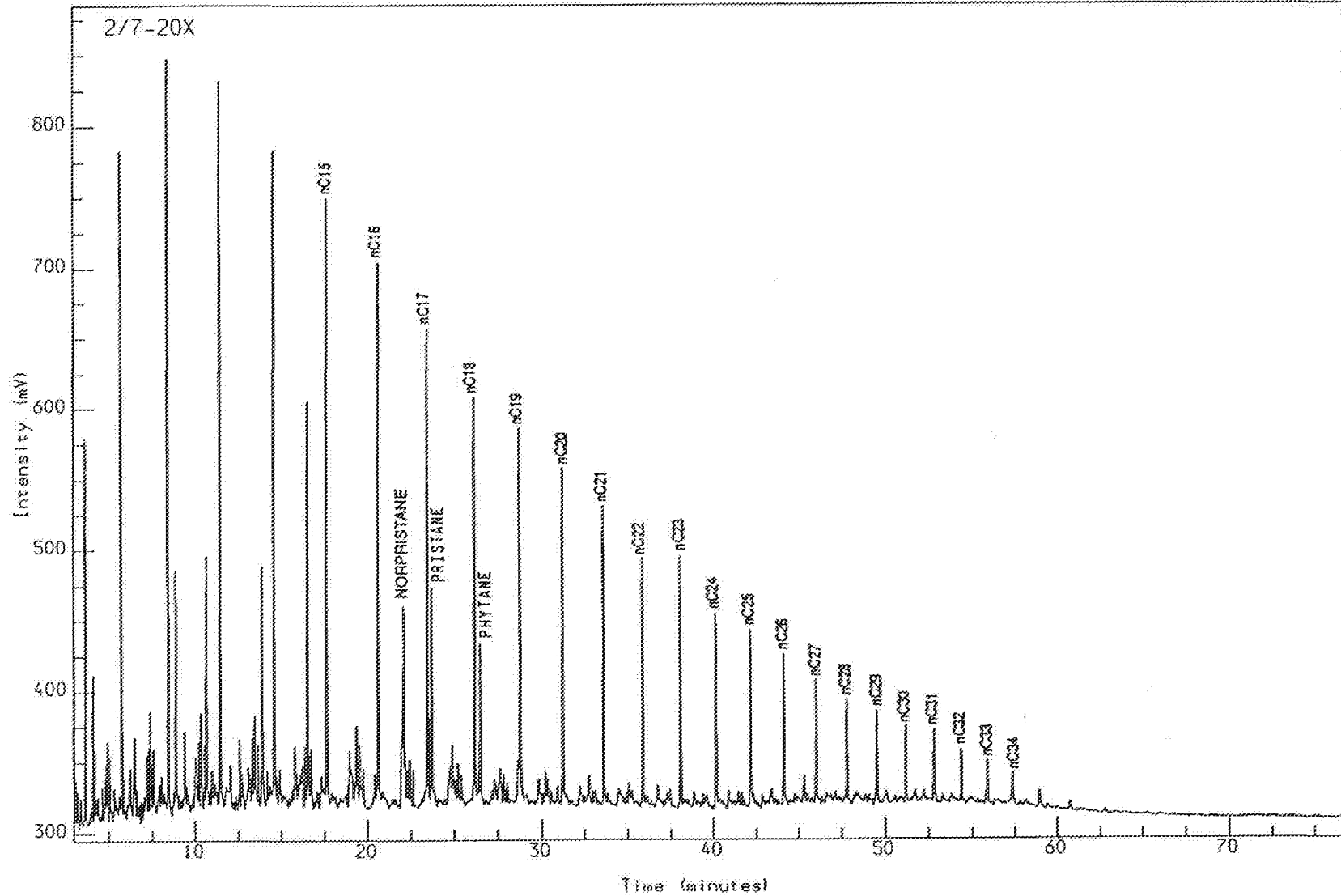
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WELL NOCS 2/7-20X ANNULUS
WHOLE OIL BC (FPD)

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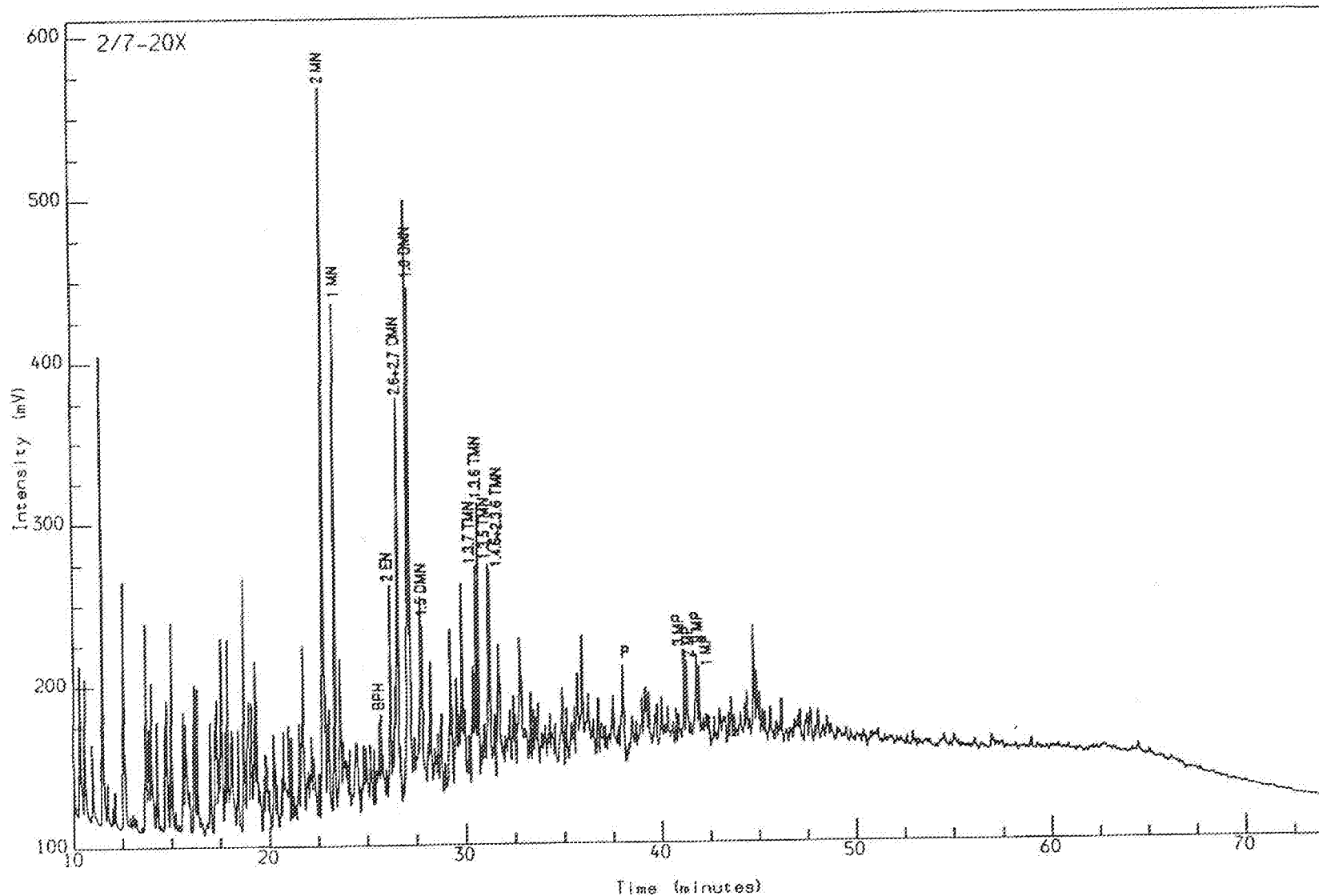
II. Saturated Hydrocarbon Fraction Chromatograms (FID)



WELL NOCS 2/7-20X ANNULUS
SATURATED GC

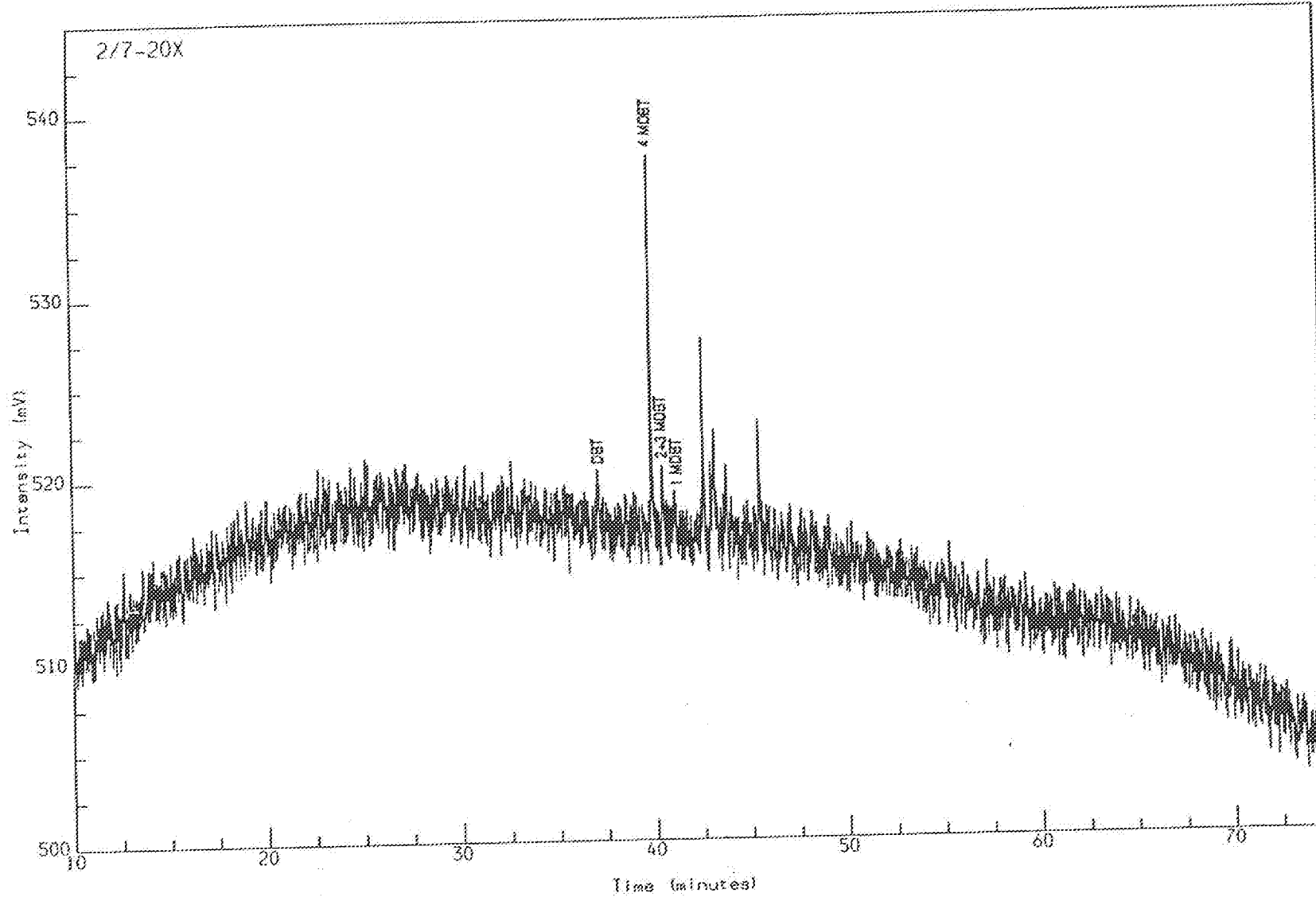
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III. Aromatic Hydrocarbon Fraction Chromatograms (FID and FPD)



WELL NOCS 2/7-20X ANNULUS
AROMATIC GC (FID)

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WELL NOCS 2/7-20X ANNULUS
AROMATIC GC (FPD)

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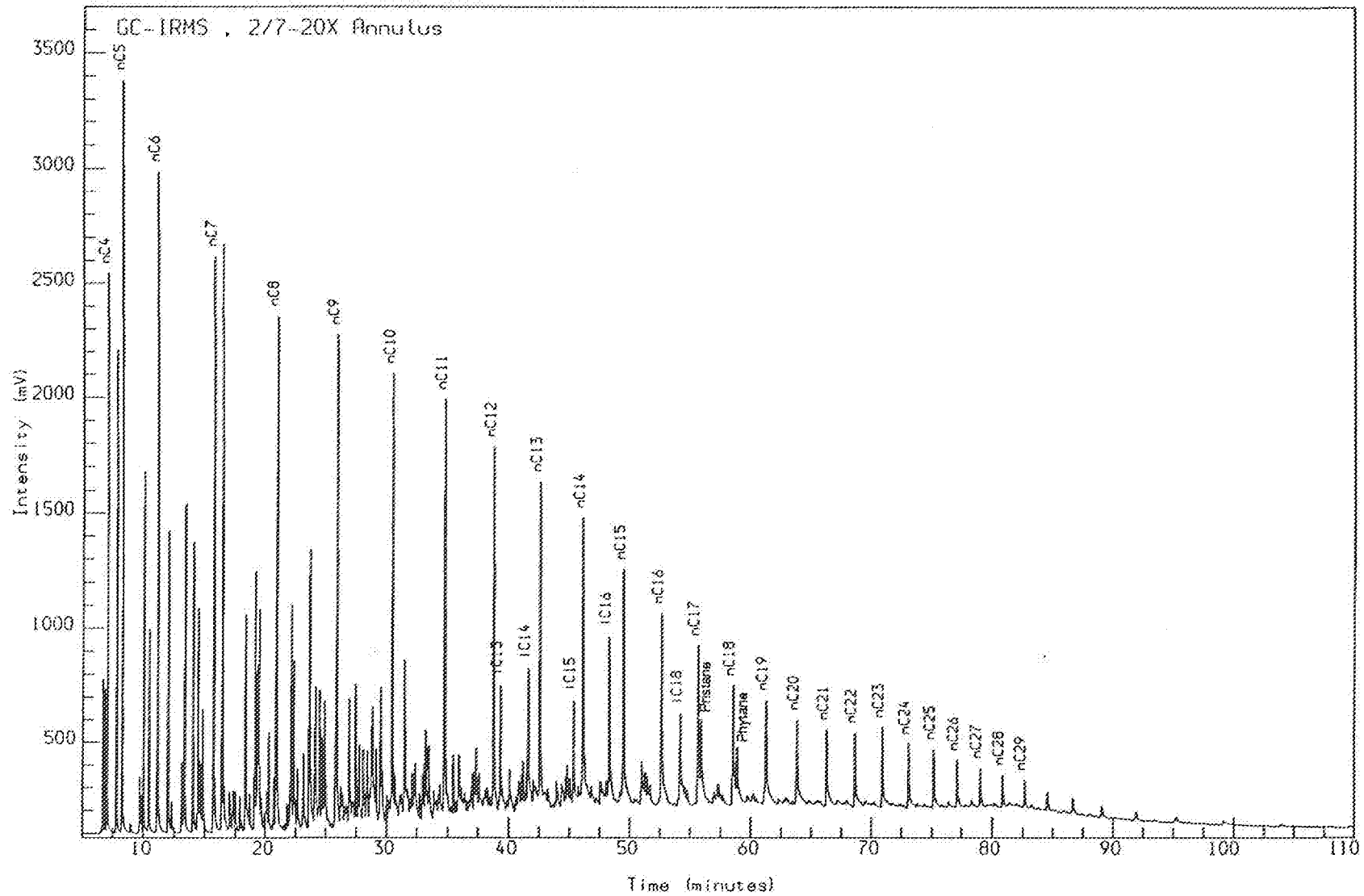
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IV. Isotope Gas Chromatograms

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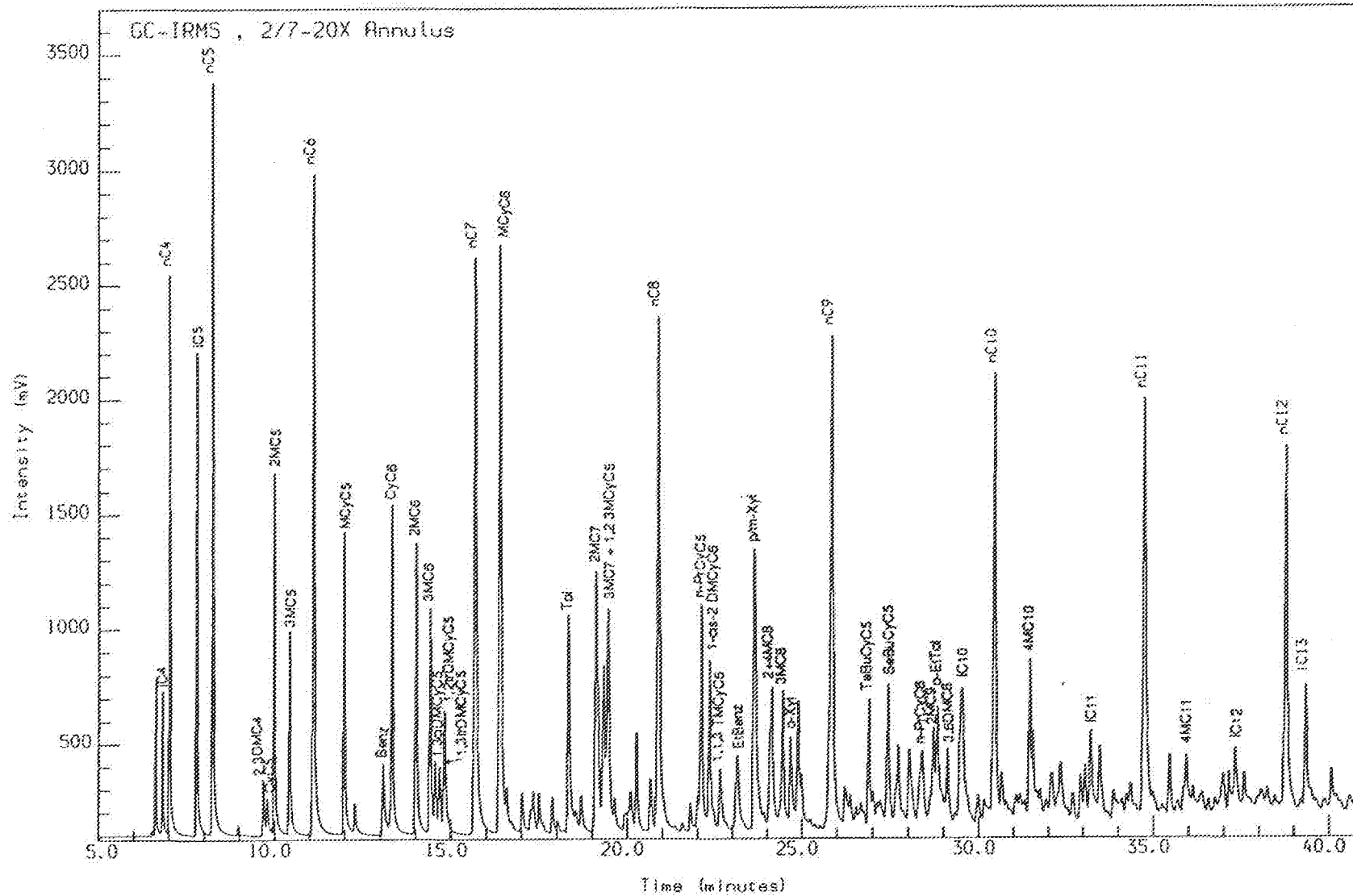
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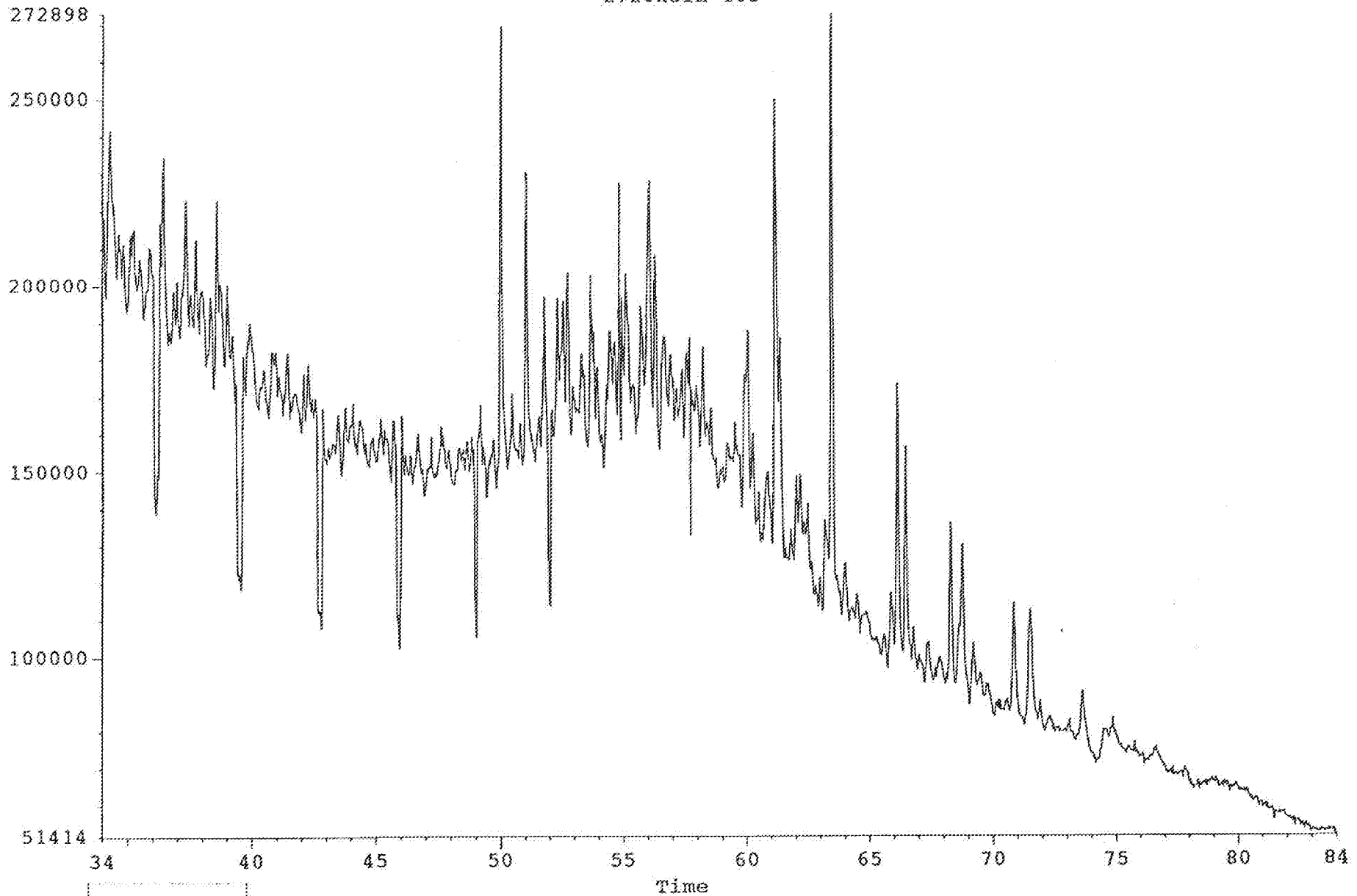
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APPENDIX III

GAS CHROMATOGRAPHY - MASS SPECTROMETRY, FRAGMENTOGRAMS

2720XOIL 163

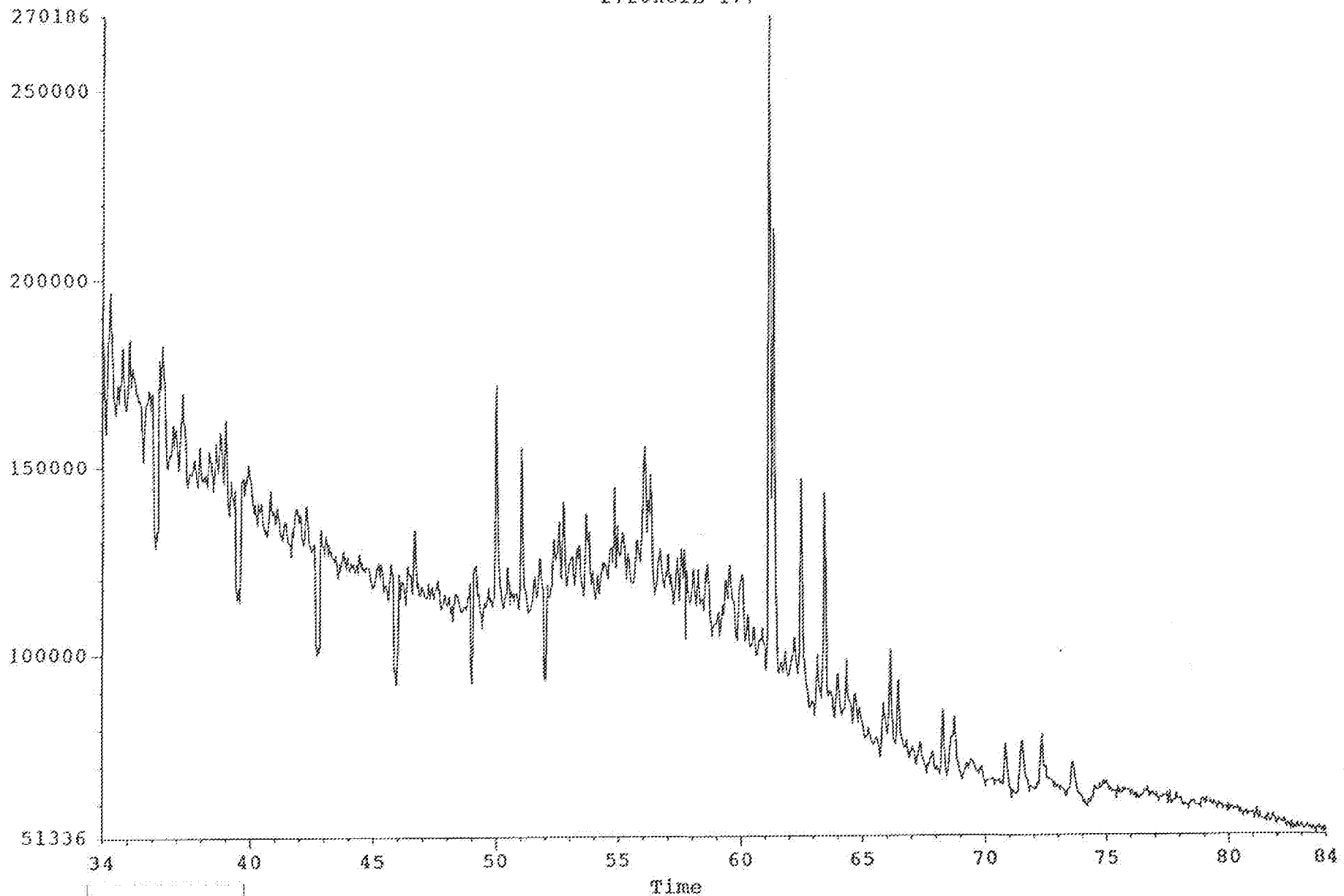


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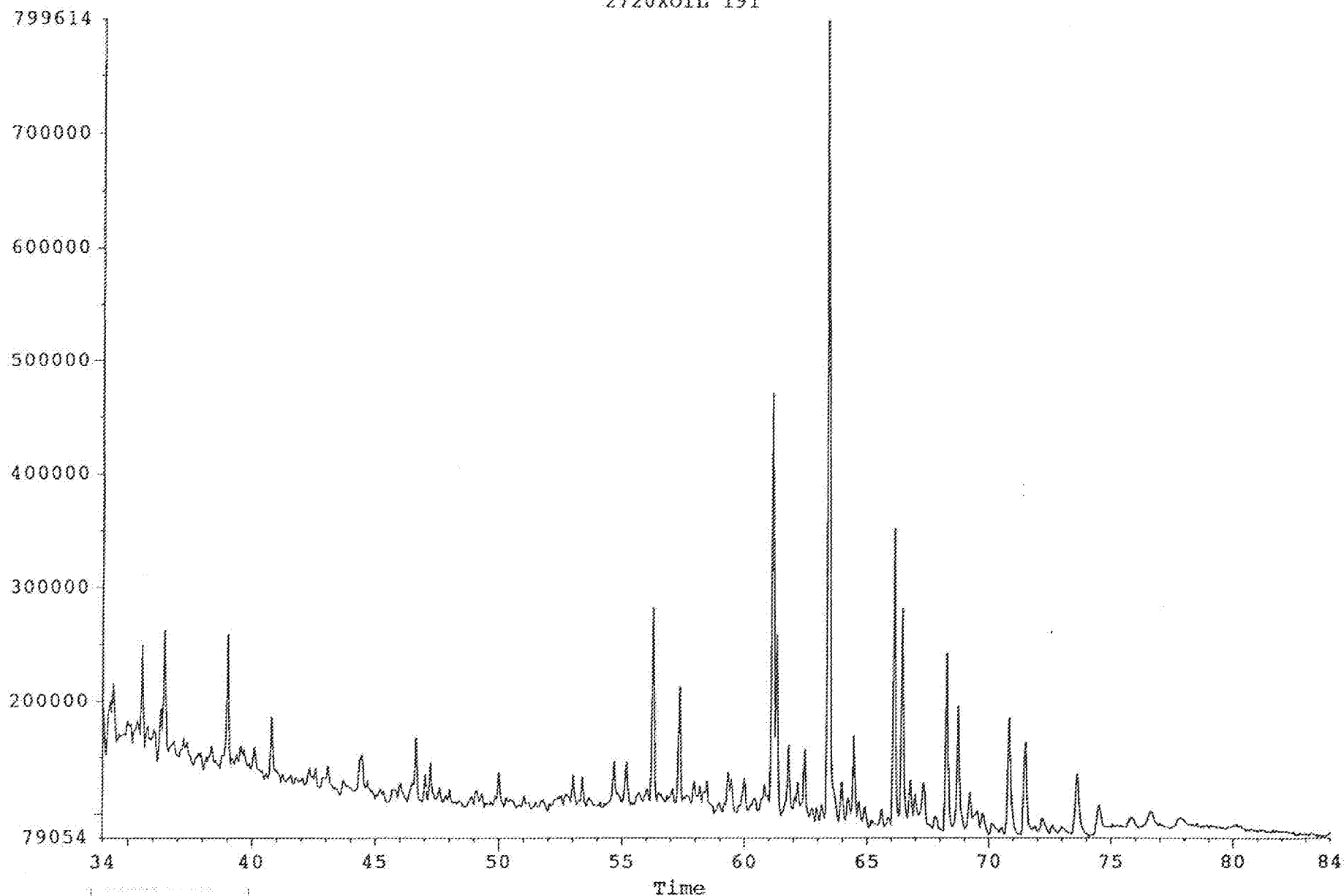


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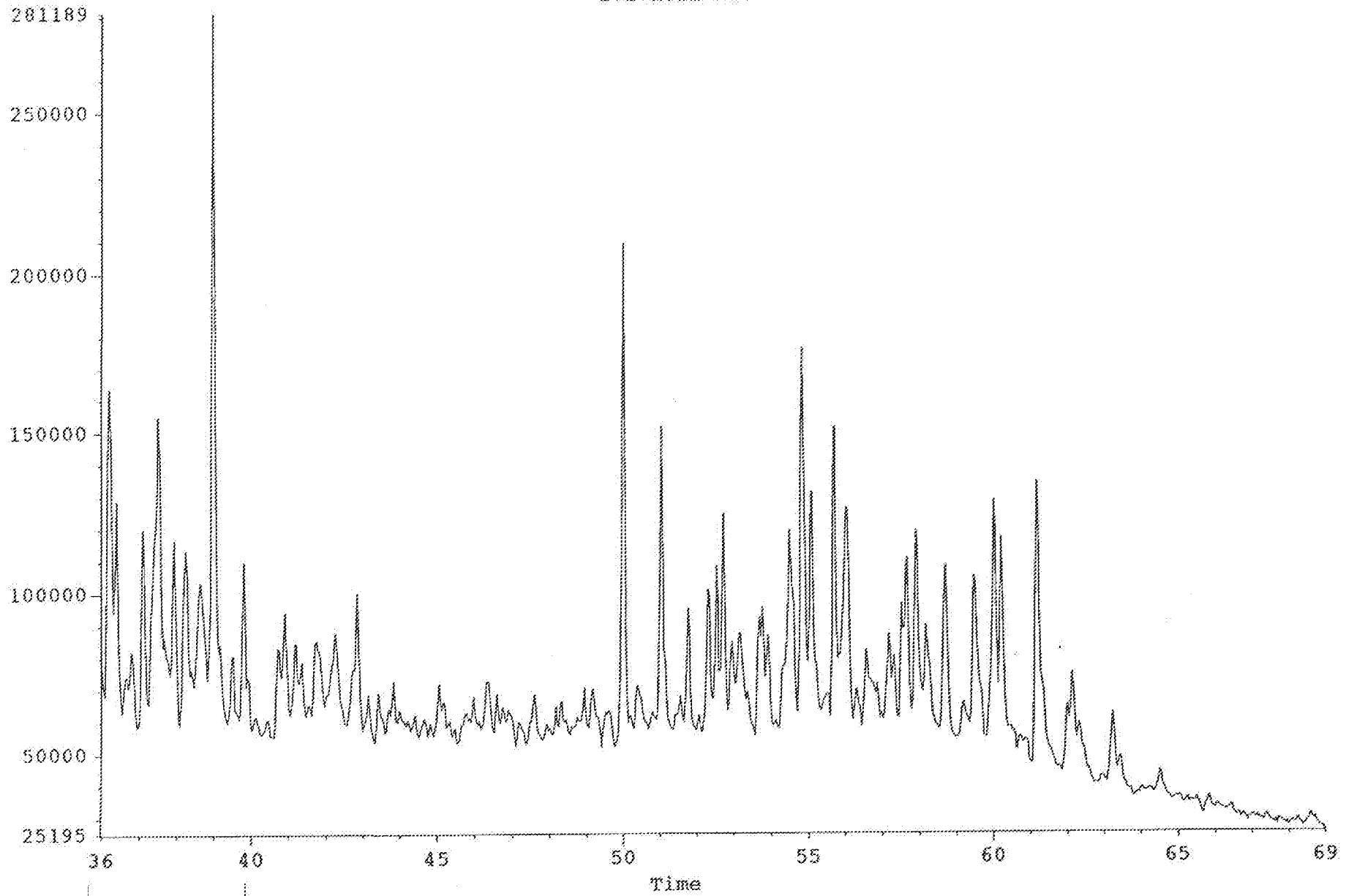


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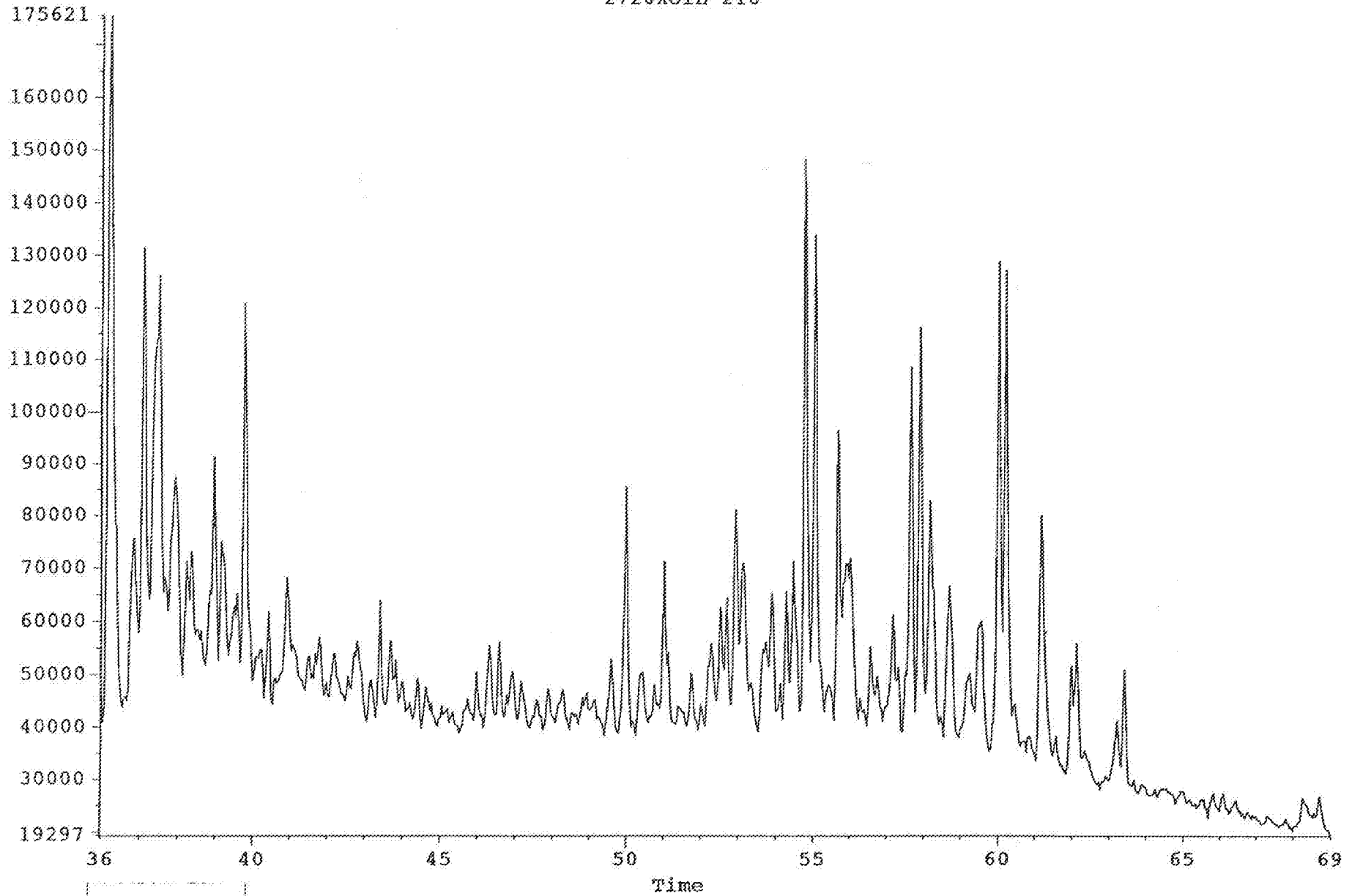


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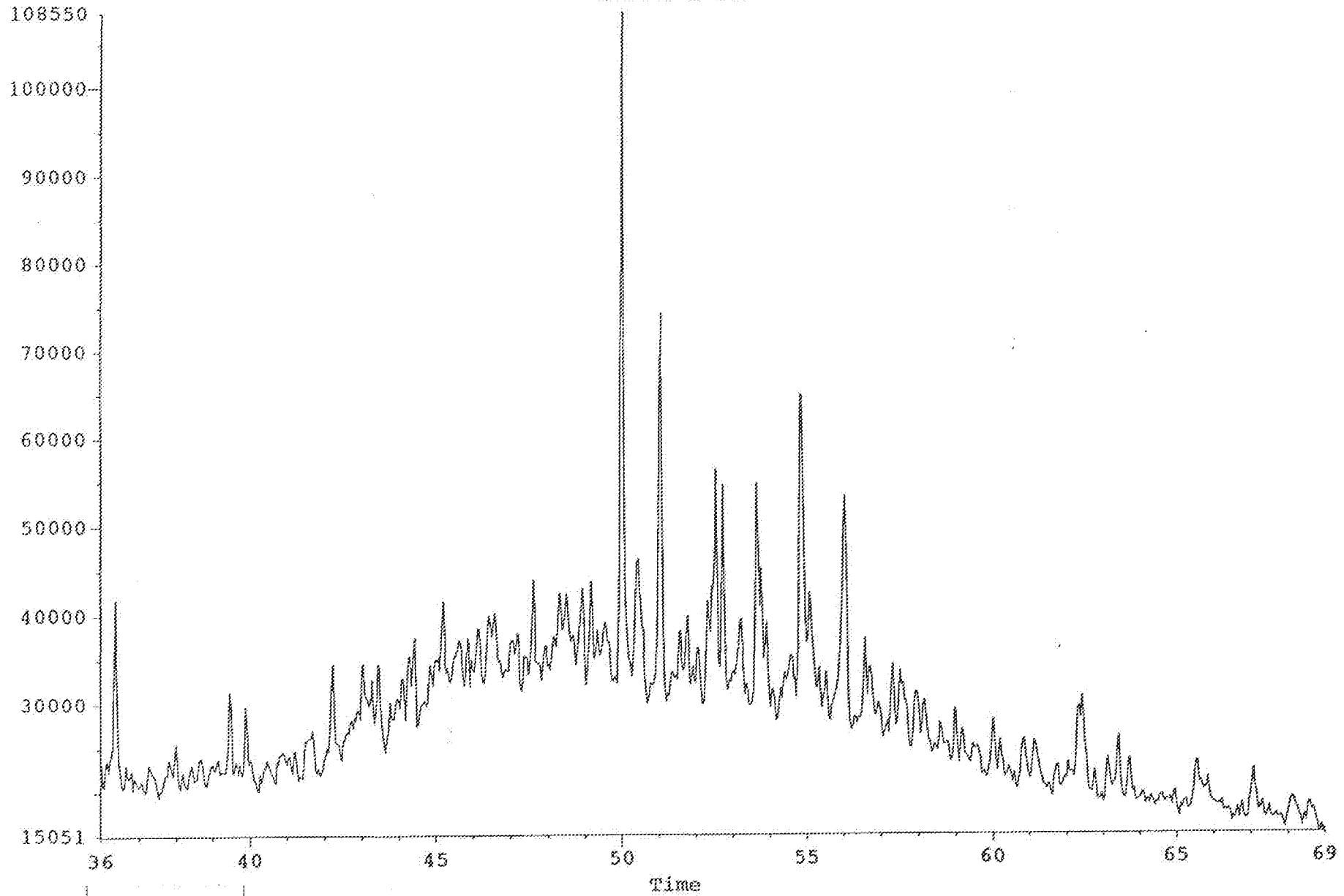


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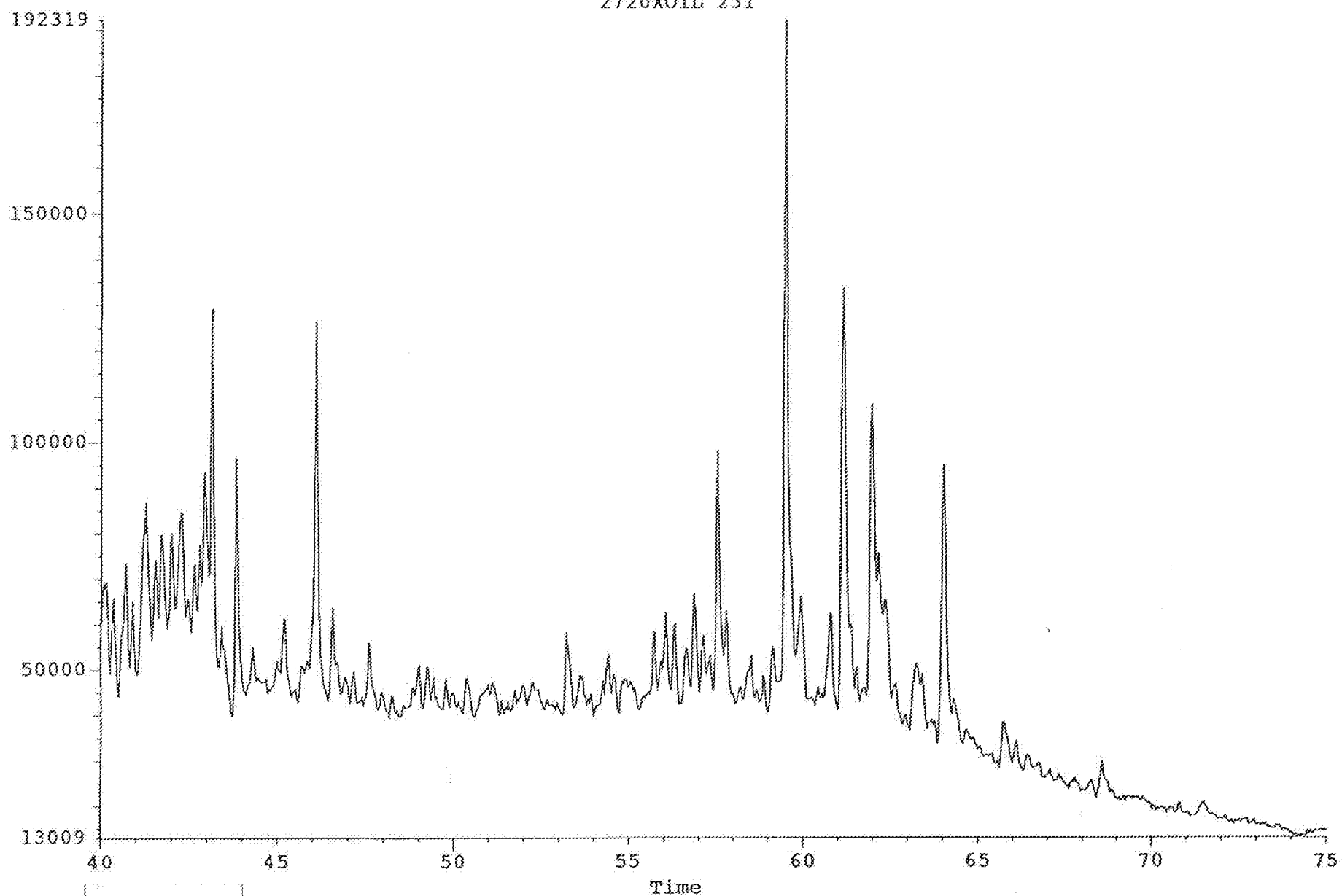


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B. 2/7-20X DST 1

APPENDIX I
TABLES

Table 1a: Weight of EOM and Chromatographic Fraction for well NOCS 2/7-20X

Depth unit of measure: ft

Depth	Typ	Lithology	Rock Extracted (g)	EOM (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	TOC(e) (%)	Sample
1.00	oil	bulk	-	50.9	38.9	8.9	1.6	1.5	47.8	3.1	-	0045-0B

Depth unit of measure: ft

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
			EOM	EOM	EOM	EOM	EOM	EOM	EOM	Aro	
1.00	oil	bulk	76.42	17.49	3.14	2.95	93.91	6.09	437.08	1541.94	0045-0B

Table 2: Saturated Hydrocarbon Ratios for well NOCS 2/7-20X

Depth unit of measure: ft

Depth	Typ	Lithology	Pristane	Pristane	Pristane + Phytane	Phytane	CPI	Sample
			nC17	Phytane	nC17 + nC18	nC18		
1.00	oil	bulk	0.45	1.27	0.43	0.41	1.09	0045-0B

Table 3: Aromatic Hydrocarbon Ratios for well NOCS 2/7-20X

Depth unit of measure: ft

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
1.00	oil	bulk	1.73	3.17	0.26	1.25	1.01	1.07	1.01	0.22	-	-	0045-0B

Table 4A : Isotope GC of Whole Oil for EMBLA OILS

<u>Well</u>	<u>Description</u>	<u>iC4</u>	<u>nC4</u>	<u>iC5</u>	<u>nC5</u>	<u>2,3DMC4</u>	<u>Cyc5</u>	<u>2,3DMC4</u> <u>/Cyc5</u>	<u>2MC5</u>	<u>3MC5</u>	<u>nC6</u>	<u>Sample</u>
2/7-20X	DST-1	-27.70	-27.70	-27.70	-29.00	-19.20	-29.40	-	-27.30	-27.20	-29.40	I65/0045

<u>Well</u>	<u>Description</u>	<u>MCyC5</u>	<u>Benz</u>	<u>CyC6</u>	<u>2MC6</u>	<u>3MC6</u>	<u>1,3ciDMCyC5</u>	<u>1,3trDMCyC6</u>	<u>1,2trDMCyC5</u>	<u>Sample</u>
2/7-20X	DST-1	-25.00	-27.00	-26.60	-27.40	-26.40	-24.30	-24.70	-27.00	165/0045

Table 4C : Isotope GC of Whole Oil for EMBLA OILS

Well	Description	nC7	MCyC6	Tol	2MC7	3MC7+1,2 3MCyC5	nC8	n-PrCyC5	1-cis-2 DMCyC6	1,1,3 TMCyC6	EtBenz	Sample
2/1-20X	DST-1	-29.50	-26.70	-27.30	-27.00	-26.60	-29.40	-25.00	-27.20	-26.80	-24.90	165/0045

<u>Well</u>	<u>Description</u>	<u>p/m-Xyl</u> ^o	<u>2+4MC8</u>	<u>3MC8</u>	<u>o-Xyl</u>	<u>nC9</u>	<u>TeBuCyC5</u>	<u>SeBUCyC5</u>	<u>n-PrCyC6</u>	<u>2MC9</u>	<u>Sample</u>
2/7-20X	DST-1	-27.20	-26.40	-26.20	-26.20	-29.00	-25.60	-23.60	-26.10	-25.30	I65/0045

Table 4E : Isotope GC of Whole Oil for L&SIA OILS

<u>Well</u>	<u>Description</u>	<u>o-EtTol</u>	<u>3,6DMC8</u>	<u>iC10</u>	<u>nC10</u>	<u>4MC10</u>	<u>iC11</u>	<u>nC11</u>	<u>4MC11</u>	<u>iC12</u>	<u>Sample</u>
2/7-20X	DST-1	-25.50	-26.70	-24.80	-28.80	-21.90	-25.90	-30.10	-25.20	-26.10	I65/0045

Table 4F : Isotope GC of Whole Oil for EMBLA OILS

<u>Well</u>	<u>Description</u>	<u>nC12</u>	<u>iC13</u>	<u>iC14</u>	<u>nC13</u>	<u>iC15</u>	<u>nC14</u>	<u>iC16</u>	<u>nC15</u>	<u>nC16</u>	<u>iC18</u>	<u>Sample</u>
2/7-20x	DST-1	-28.60	-23.00	-23.20	-28.40	-22.00	-27.80	-22.40	-28.20	-27.90	-22.90	I65/0045

Table 4G : Isotope GC of Whole Oil for PRAKLA OILS

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<u>Well</u>	<u>Description</u>	<u>nC17</u>	<u>Pristane</u>	<u>nC18</u>	<u>Phytane</u>	<u>nC19</u>	<u>nC20</u>	<u>nC21</u>	<u>nC22</u>	<u>nC23</u>	<u>nC24</u>	<u>Sample</u>
2/7-20X	DST-1	-27.80	-25.90	-27.40	-24.50	-26.80	-26.70	-26.30	-26.30	-25.20	-26.50	I65/0045

<u>Well</u>	<u>Description</u>	<u>nC25</u>	<u>nC26</u>	<u>nC27</u>	<u>nC28</u>	<u>nC29</u>	<u>nC30</u>	<u>nC31</u>	<u>nC32</u>	<u>nC33</u>	<u>nC34</u>	<u>Sample</u>
2/7-20X	DST-1	-26.10	-26.60	-26.50	-26.60	-26.60	-26.30	-	-	-	-	I65/0045

Table 5A: Variation in Triterpane Distribution (peak height) SIR for EMBLA OILS

Well	Descript.	B/A	B/B+A	B		C/E	C/C+E	X/E	Z/E	Z/C	Z/Z+E	Q/E	E/E+F	C+D		J1		Sample
				B+E+F										C+D+E+F	D+F/C+E	J1+J2%		
2/1-20X	DST-1	-	-	-	1.24	0.55	2.54	-	-	-	3.41	0.68	0.46	0.21	-	-	-	I65/0045

Table 58: Variation in Sterane Distribution (peak height) SIR for EMBLA OILS

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
2/7-20X	DST-1	0.90	950.22	79.94	2.16	0.80	0.53	0.39	0.67	1.01	4.00	I65/0045

Ratio1: $a / a + j$ Ratio2: $q / q + t * 100\%$ Ratio3: $2(r + s) / (q + t + 2(r + s)) * 100\%$ Ratio4: $a + b + c + d / h + k + l + n$ Ratio5: $r + s / r + s + q$ Ratio6: $u + v / u + v + q + r + s + t$ Ratio7: $u + v / u + v + i + m + n + q + r + s + t$ Ratio8: $r + s / q + r + s + t$ Ratio9: q / t Ratio10: $r + s / t$

Table 5C: Variation in Triaromatic Sterane Distribution for Well EMBLA OILS

<u>Well</u>	<u>Descript.</u>	<u>Ratio1</u>	<u>Ratio2</u>	<u>Ratio3</u>	<u>Ratio4</u>	<u>Ratio5</u>	<u>Sample</u>
2/7-20X	DST-1	1.00	1.00	0.97	1.00	0.95	I65/0045

Ratio1: $a1 / a1 + g1$

Ratio2: $b1 / b1 + g1$

Ratio3: $a1 + b1 / a1 + b1 + c1 + d1 + e1 + f1 + g1$

Ratio4: $a1 / a1 + e1 + f1 + g1$

Ratio5: $a1 / a1 + d1$

<u>Well</u>	<u>Descript.</u>	<u>Ratio1</u>	<u>Ratio2</u>	<u>Ratio3</u>	<u>Ratio4</u>	<u>Sample</u>
2/7-20X	DST-1	0.89	0.80	0.82	0.75	I65/0045

Ratio1: A1 / A1 + E1
 Ratio2: B1 / B1 + E1

Ratio3: A1 / A1 + E1 + G1
 Ratio4: A1+B1 / A1+B1+Cl+D1+E1+F1+G1+H1+I1

Table 5E: Aromatisation of Steranes for ENEBA OILS

Well	Descript.	Ratio1	Ratio2	Sample
2/1-20X	DST-1	0.84	-	I65/0045

$$\text{Ratio1: } \frac{\text{C1+D1+E1+F1+G1+H1+I1}}{\text{C1+D1+E1+F1+G1+H1+I1} + \text{c1+d1+e1+f1+g1}}$$

$$\text{Ratio2: } \text{g1} / \text{g1} + \text{I1}$$

Table 5F: Raw triterpane data (peak height) SIR for EMBLA OILS

Well	Descript.	SIR for EMBLA OILS											Sample
		p	q	r	s	t	a	b	z	c			
		x	d	e	f	g	h	i	j1				
		j2	k1	k2	l1	l2	m1	m2					
2/7-20X	DST-1	110683.4	80674.3	31668.0	32775.3	33350.7	98430.9	0.0	0.0	0.0	29337.6	165/0045	
		60274.4	0.0	23688.5	11257.6	0.0	0.0	0.0	0.0	0.0	0.0		
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

Table 5G: Raw sterane data (peak height) SIR for EMBLA OILS

Well	Descript.	u	v	a	b	c	d	e	f	g	Sample
		h	i	j	k	l	m	n	o		
		p	q	r	s	t					
2/7-20X	DST-1	103848.3	40144.1	337960.0	217854.8	86561.6	82060.3	125332.0	65120.0	39328.0	I65/0045
		160280.0	60256.0	35484.9	109306.5	38547.8	14688.0	26682.1	56766.6		
		12590.6	21315.4	47580.9	36973.8	21132.4					

Table 5H: Raw triaromatic sterane data (peak height) for EMBLA OILS

Well	Descript.	a1	b1	c1	d1	e1	f1	g1	Sample
2/7-20X	DST-1	267184.2	194080.5	0.0	14832.9	0.0	0.0	0.0	165/0045

Table 5I: Raw monoaromatic sterane data (peak height) for EMBLA OILS

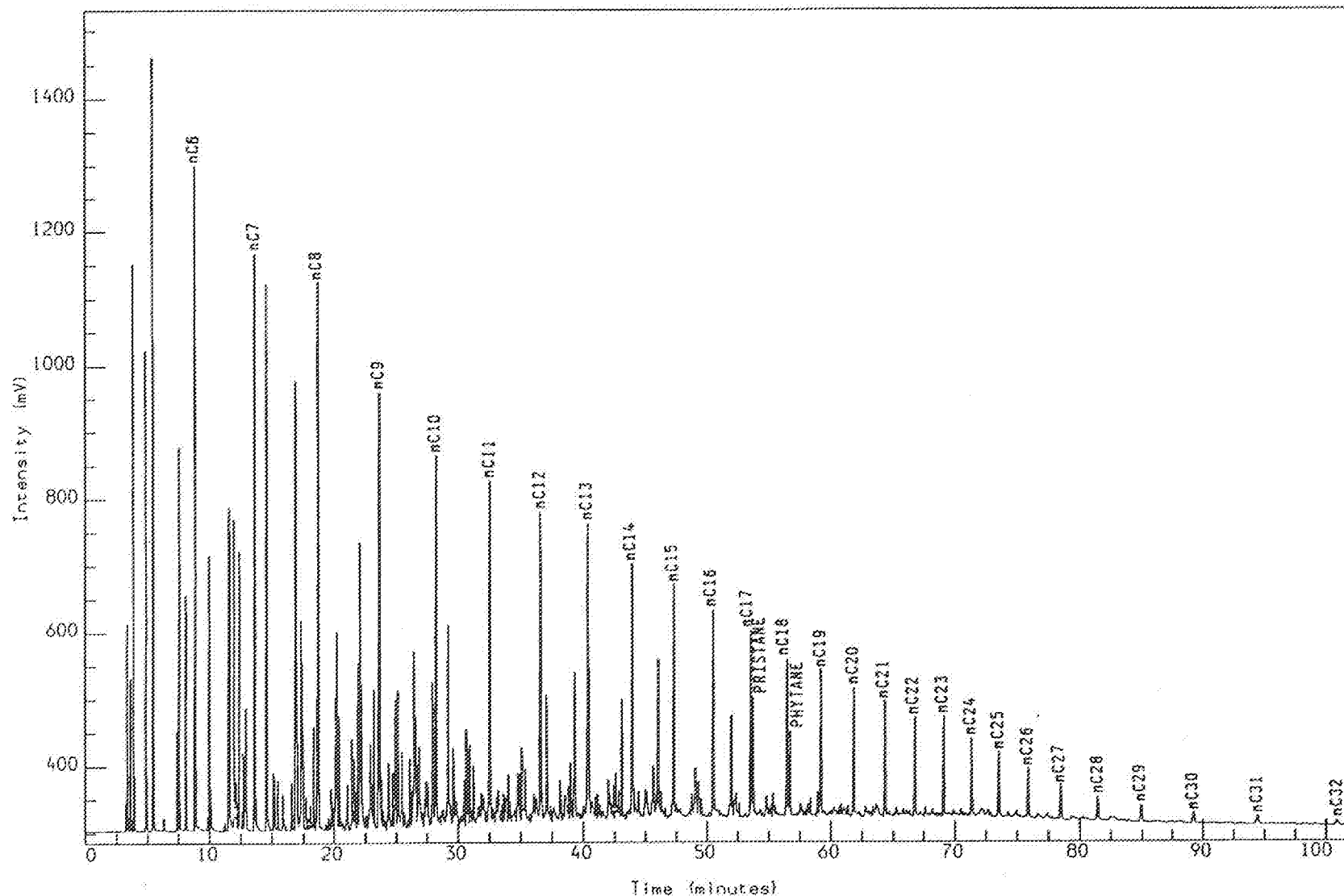
Well	Descript.	ai	bi	ci	di	ei	fi	gi	hi	ii	Sample
2/7-20X	DST-1	154045.1	74152.1	11272.0	10500.6	18225.4	12320.0	16026.6	9755.5	0.0	165/0045

APPENDIX II

GAS CHROMATOGRAMS

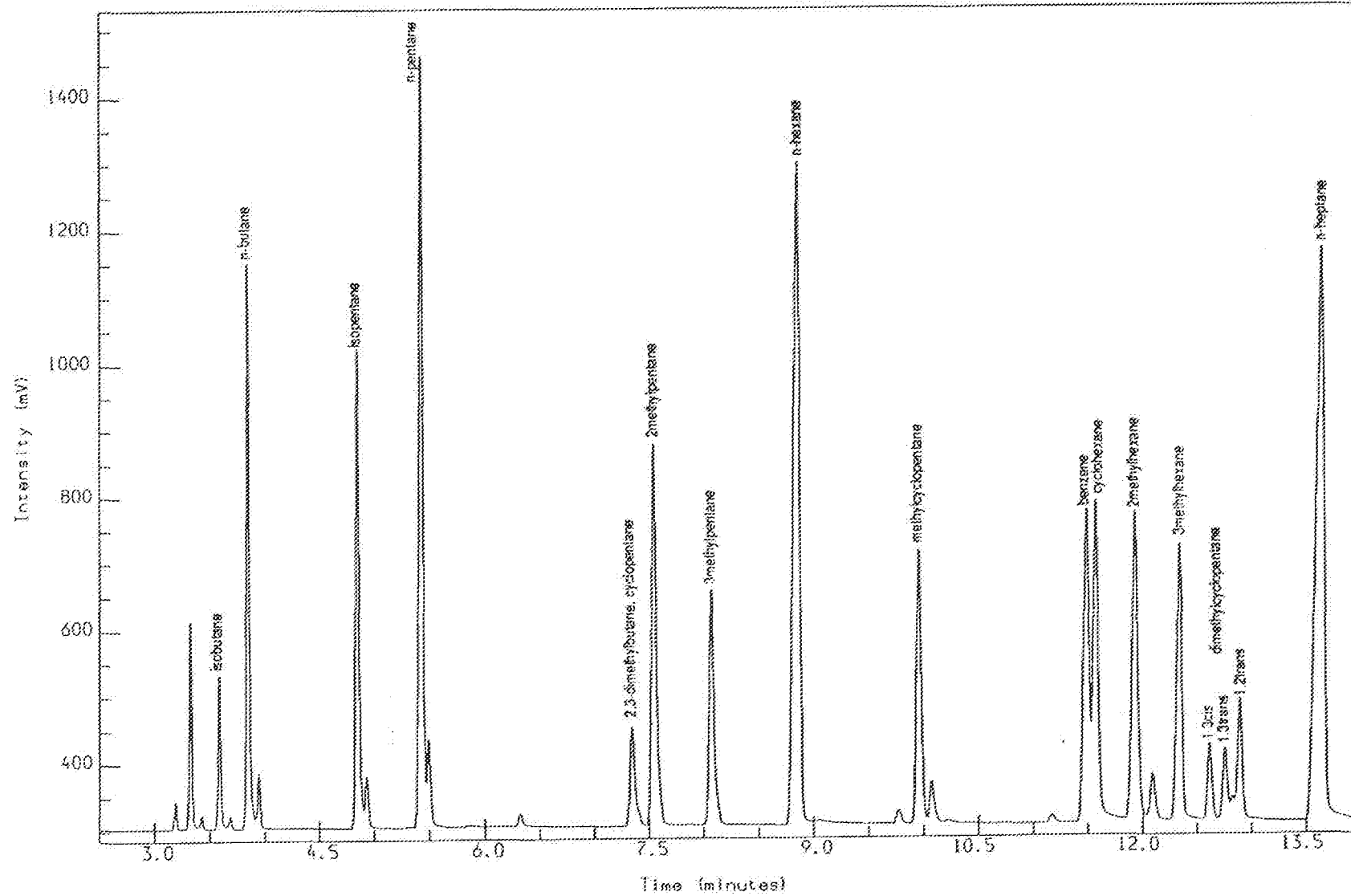
- I. Whole Oil Gas Chromatograms**
- II. Saturated Hydrocarbon Fraction Chromatograms (FID)**
- III. Aromatic Hydrocarbon Fraction Chromatograms (FID and FPD)**
- IV. Isotope Gas Chromatograms**

I. Whole Oil Gas Chromatograms



WELL NOCS 2/7-20X DST. 1
WHOLE DIL GC (FID)

Reported on 6-JUL-1993 at 14.59



WELL NOCS 277-20X DST.1
WHOLE OIL GC (FID)

Reported on 7-JUL-1993 at 09.03

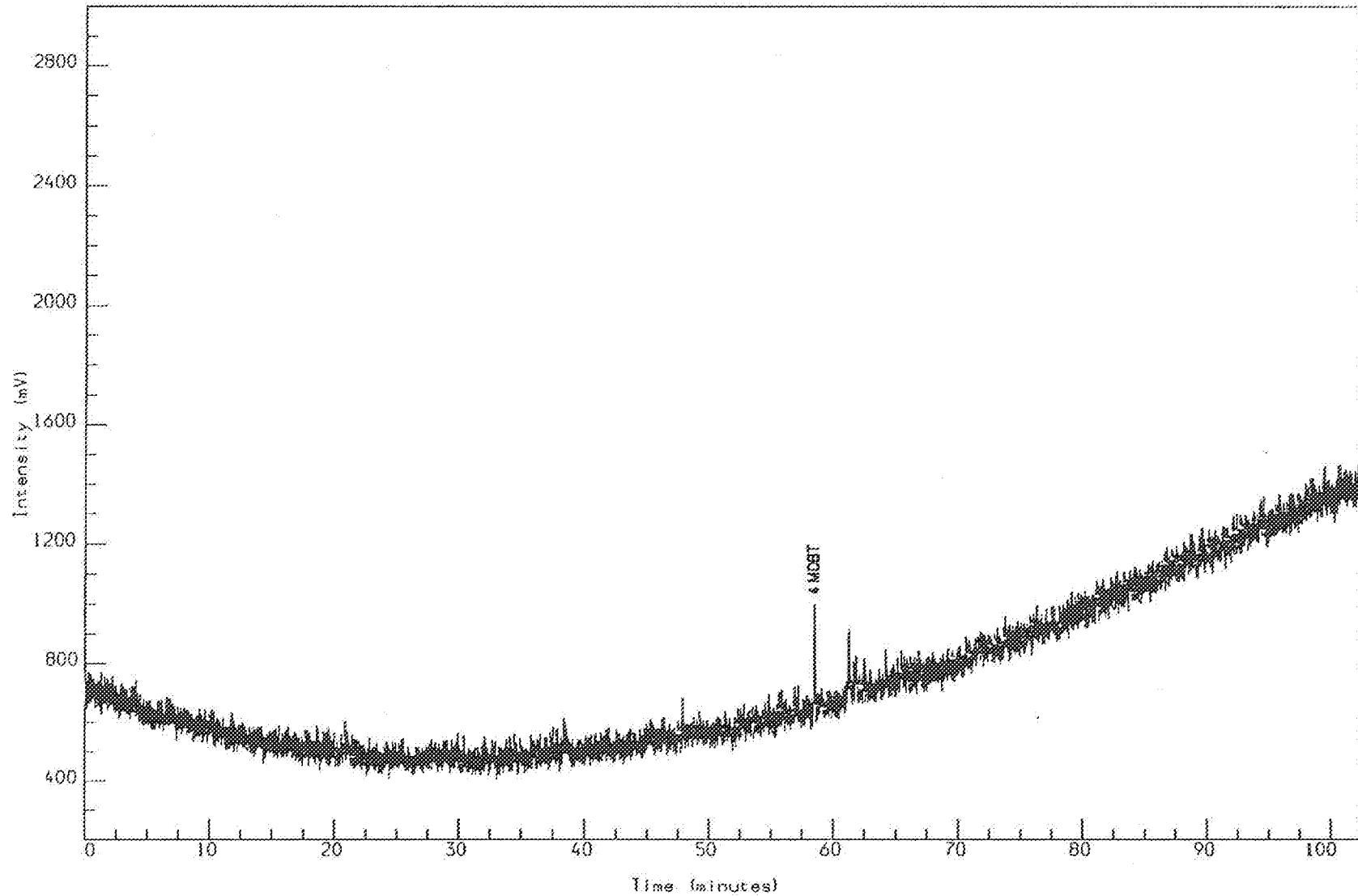
Schlumberger

GECO-PRAKLA

GEOLAB NOR

Analysis Name : [60401] 32 W02720X1.1.1.

Multichrom



WELL NDCS 2/7-20X DST.1
WHOLE OIL GC (FPD)

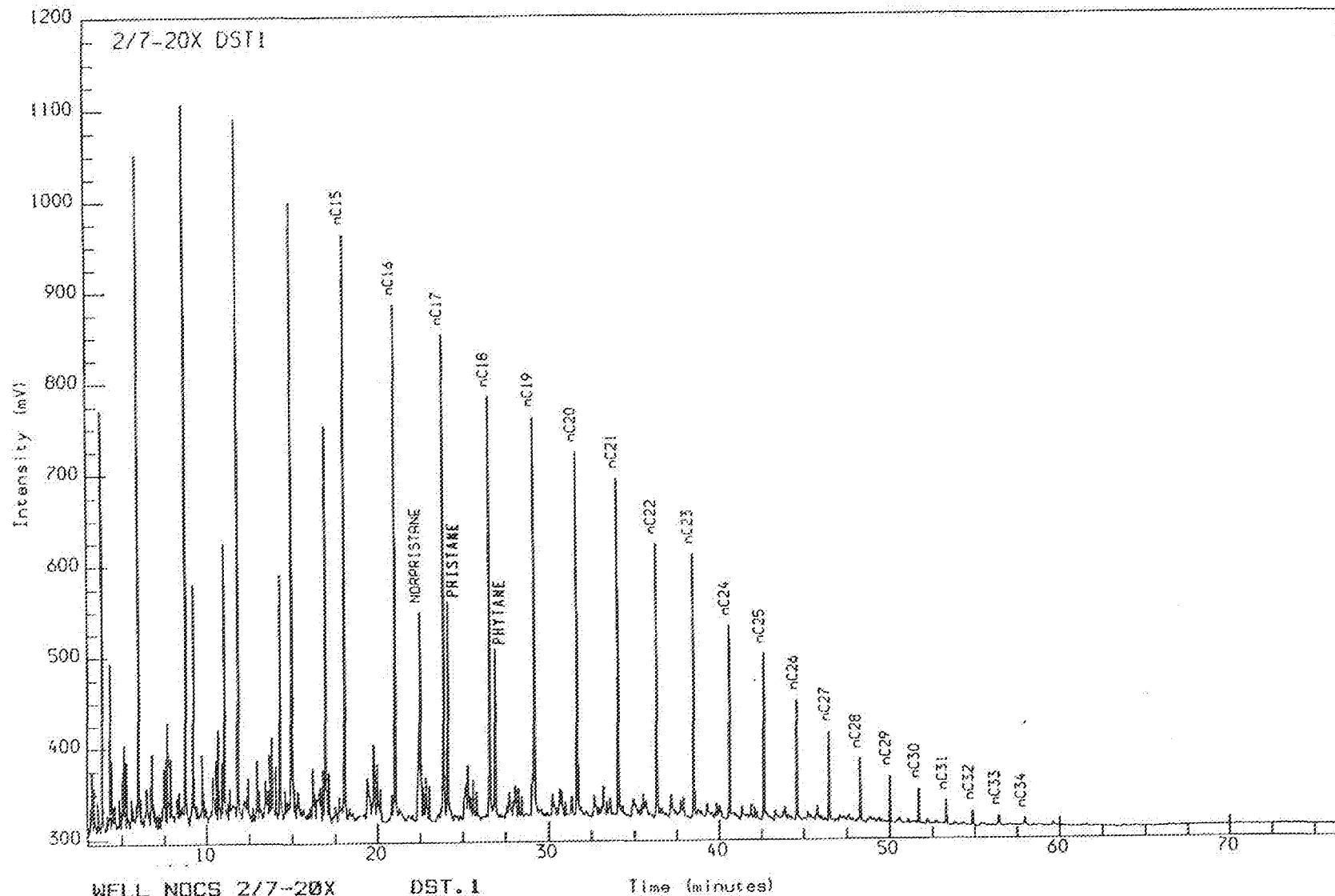
Reported on 6-JUL-1993 at 15:36

Schlumberger

GECO-PRAKLA

GEOLAB NOR

II. Saturated Hydrocarbon Fraction Chromatograms (FID)



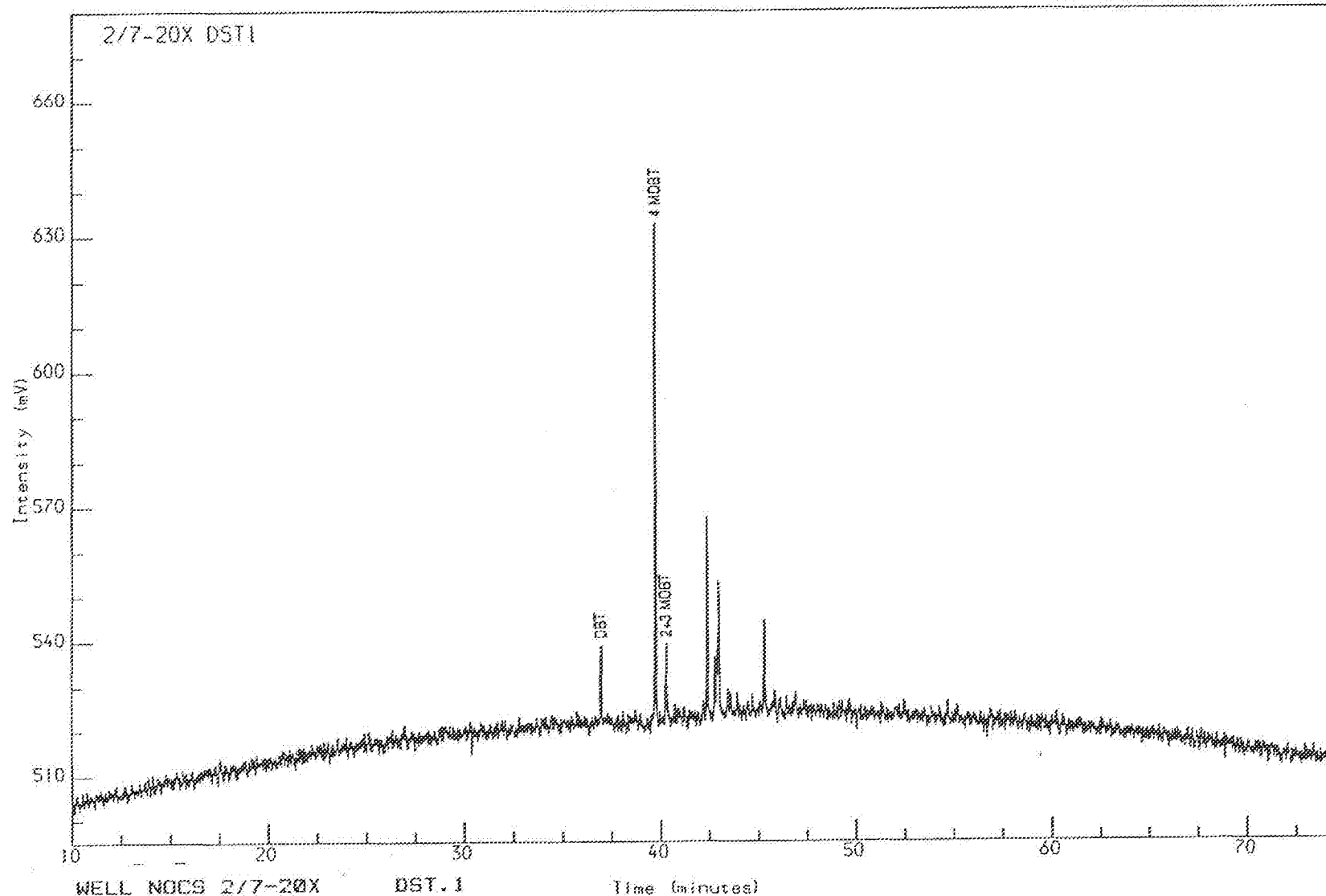
WELL NOCS 2/7-20X
SATURATED GC
DIL

DST.1

Time (minutes)

Reported on 23-JUN-1993 at 07:54

III. Aromatic Hydrocarbon Fraction Chromatograms (FID and FPD)



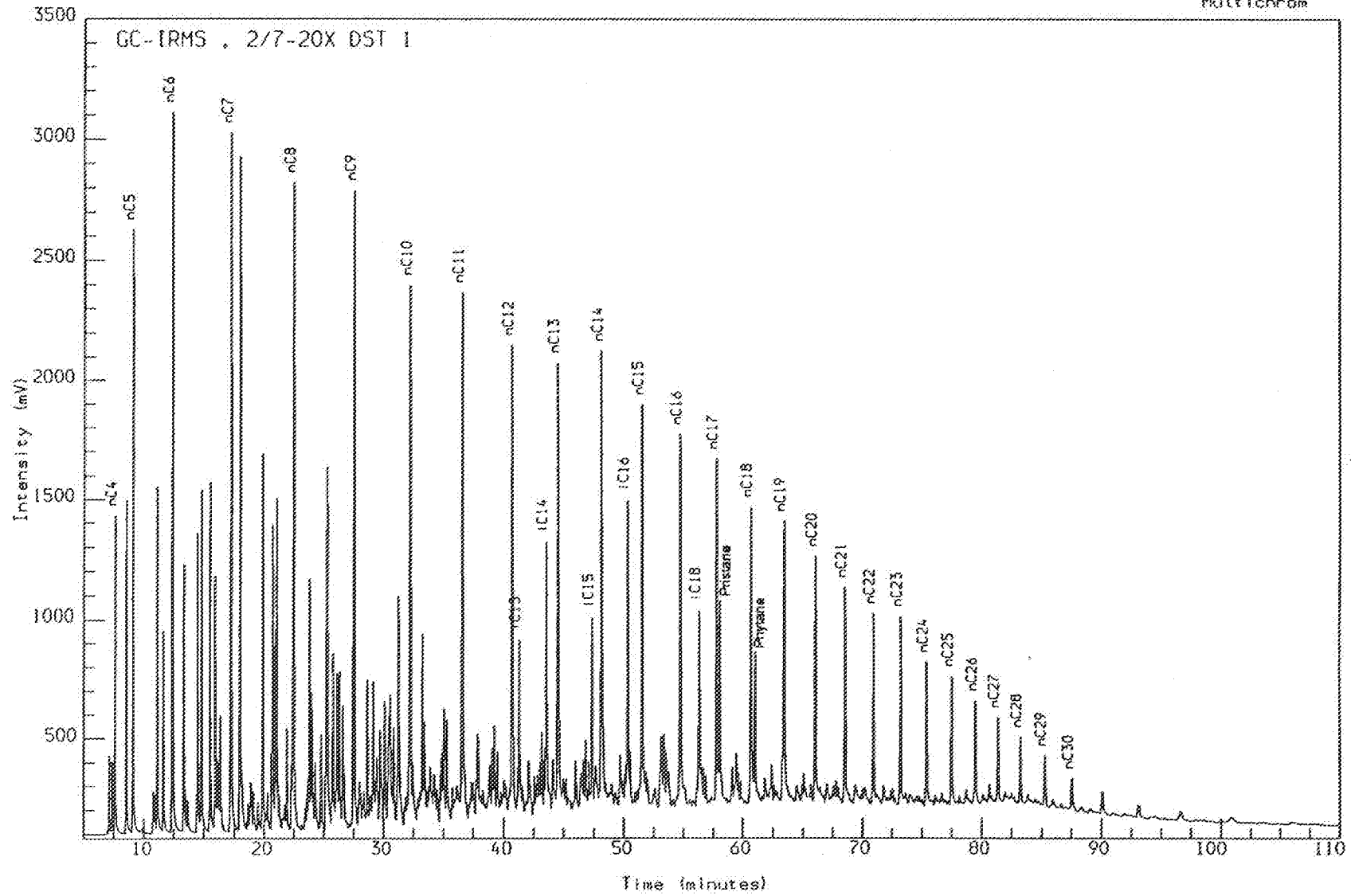
WELL NOCS 2/7-20X DST.1
AROMATIC GC (FPD)
DIL

Reported on 23-JUN-1993 at 09:11

IV. Isotope Gas Chromatograms

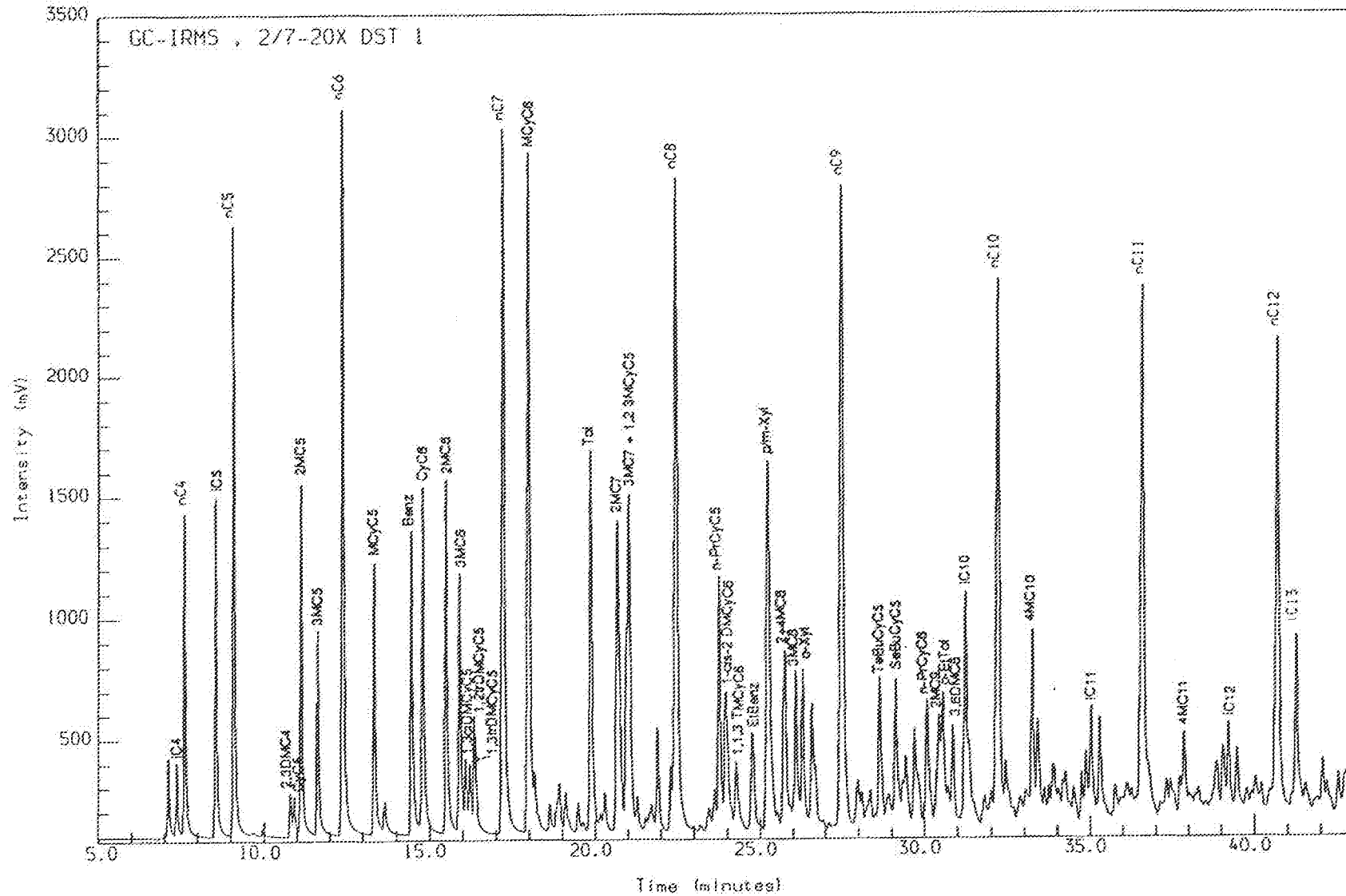
Analysis Name : [60401] 1 WH2720XDST1.1.1.

Multichrom



Analysis Name : [60401] 1 WH2720XDST1,1,1.

Multichrom



Schlumberger

GECO-PRAKLA

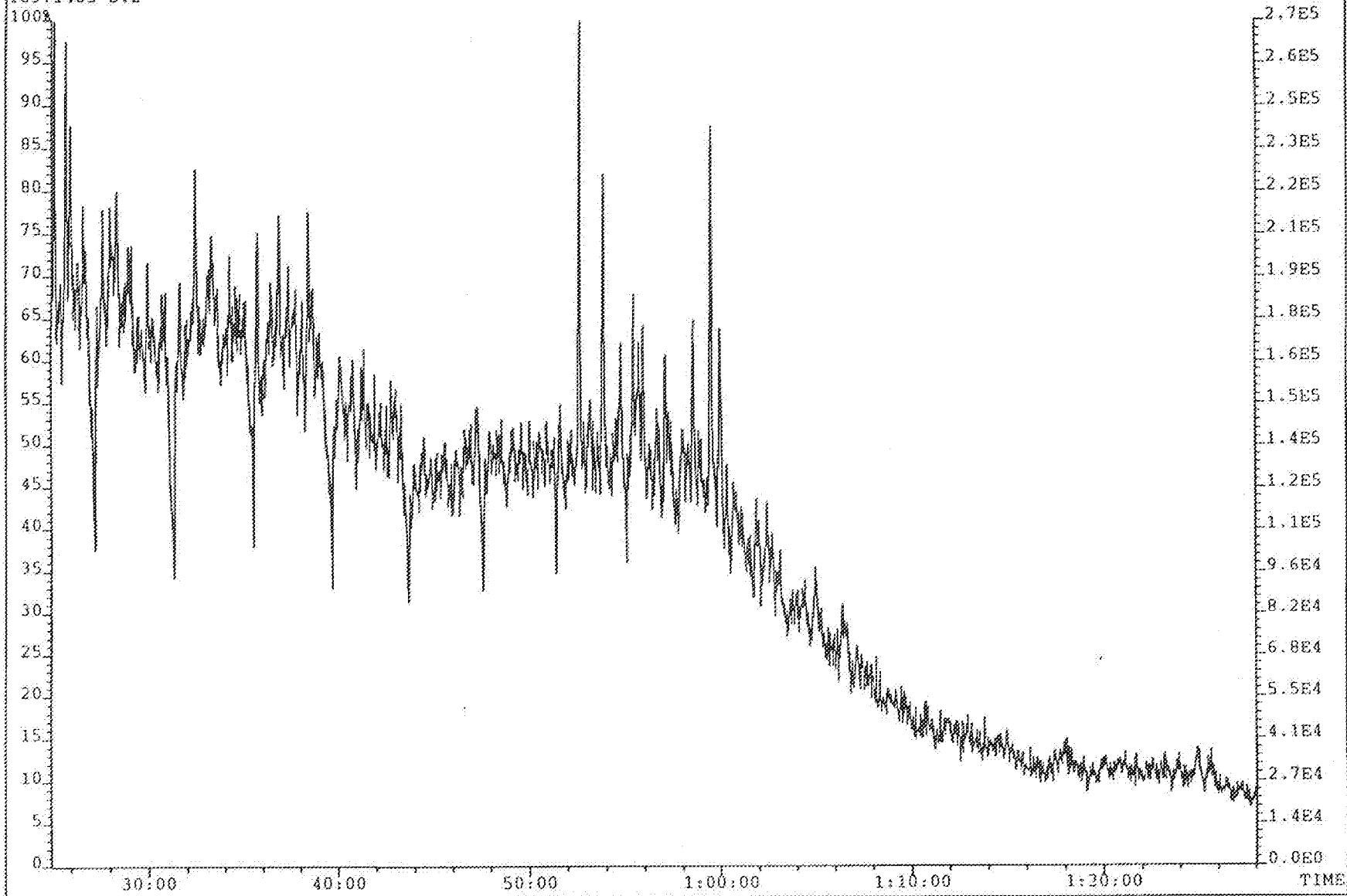
GEOLAB NOR

APPENDIX III

GAS CHROMATOGRAPHY - MASS SPECTROMETRY, FRAGMENTOGRAMS

File: BRUCESAJ #1-4059 Acq: 6-AUG-93 01:03:15 EI+ Magnet SIR
Sample#2 Text: WELL 2/7-20X, DST 1, SATURATED FRACTION FROM OIL
163.1485 S:2

Exp: SAT1



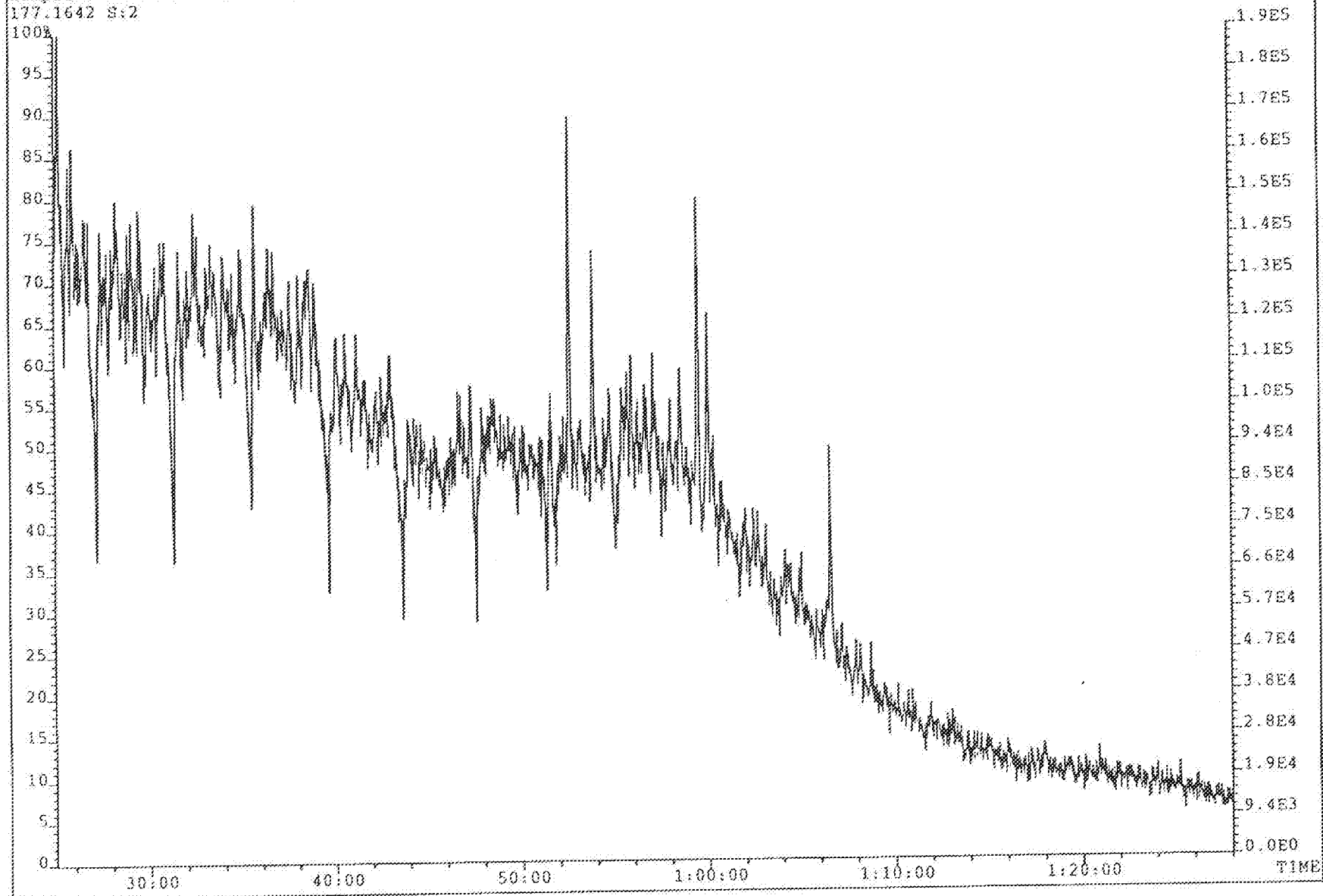
Schlumberger

GECO-PRAKLA

GEOLAB NOR

File: BRUCESAJ #1-4059 Acq: 6-AUG-93 01:01:15 EI+ Magnet SIR
Sample#2 Text: WELL 2/7-20X, DST 1, SATURATED FRACTION FROM OIL
177.1642 S:2

Exp: SAT1



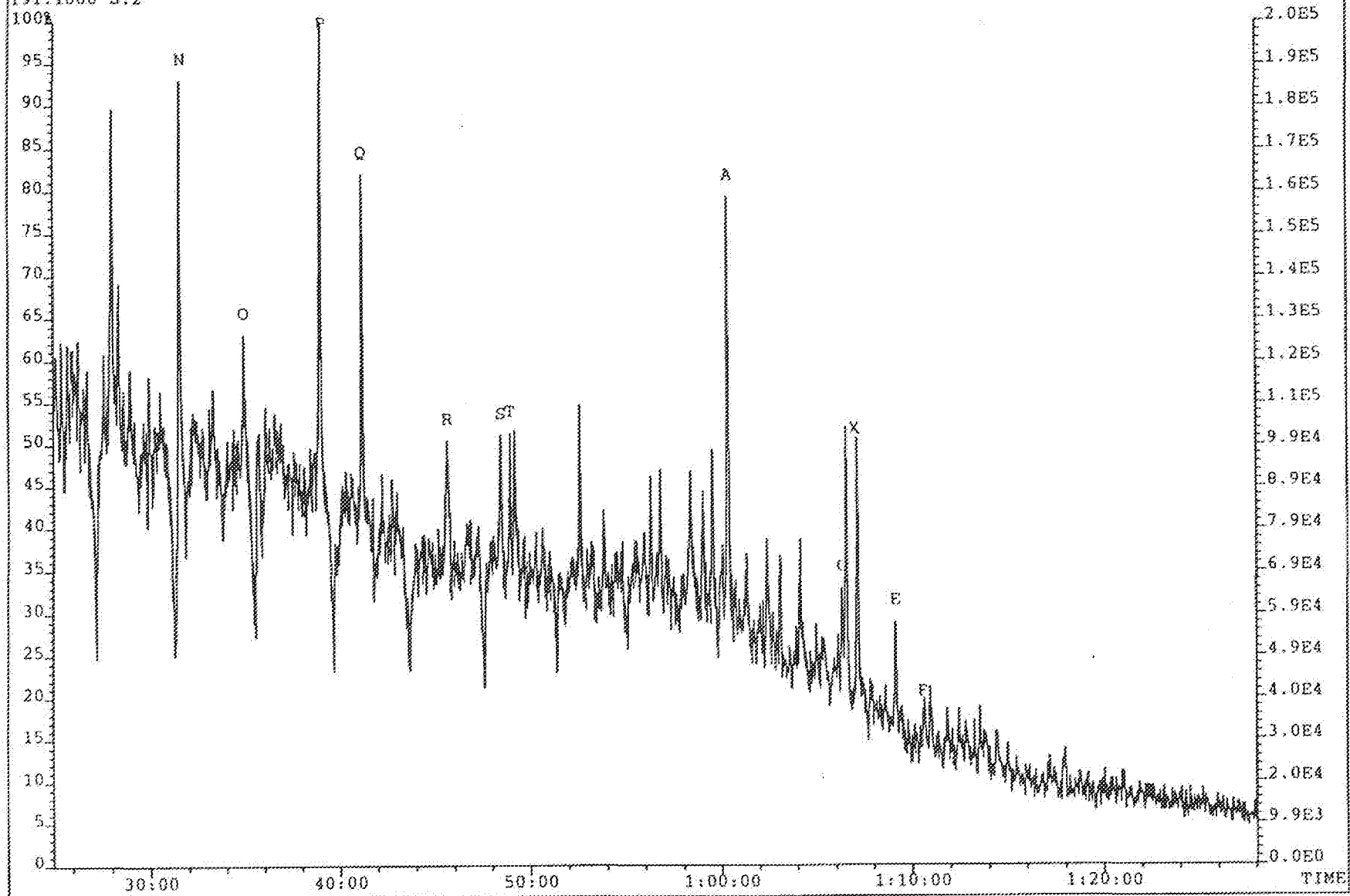
Schlumberger

GECO-PRAKLA

GEOLAB NOR

File: BRUCESAJ #1-4059 Acq: 6-AUG-93 01:03:15 EI+ Magnet SIR
Sample#2 Text: WELL 2/7-20X, DST 1, SATURATED FRACTION FROM OIL
191.1800 S:2

Exp: SAT1



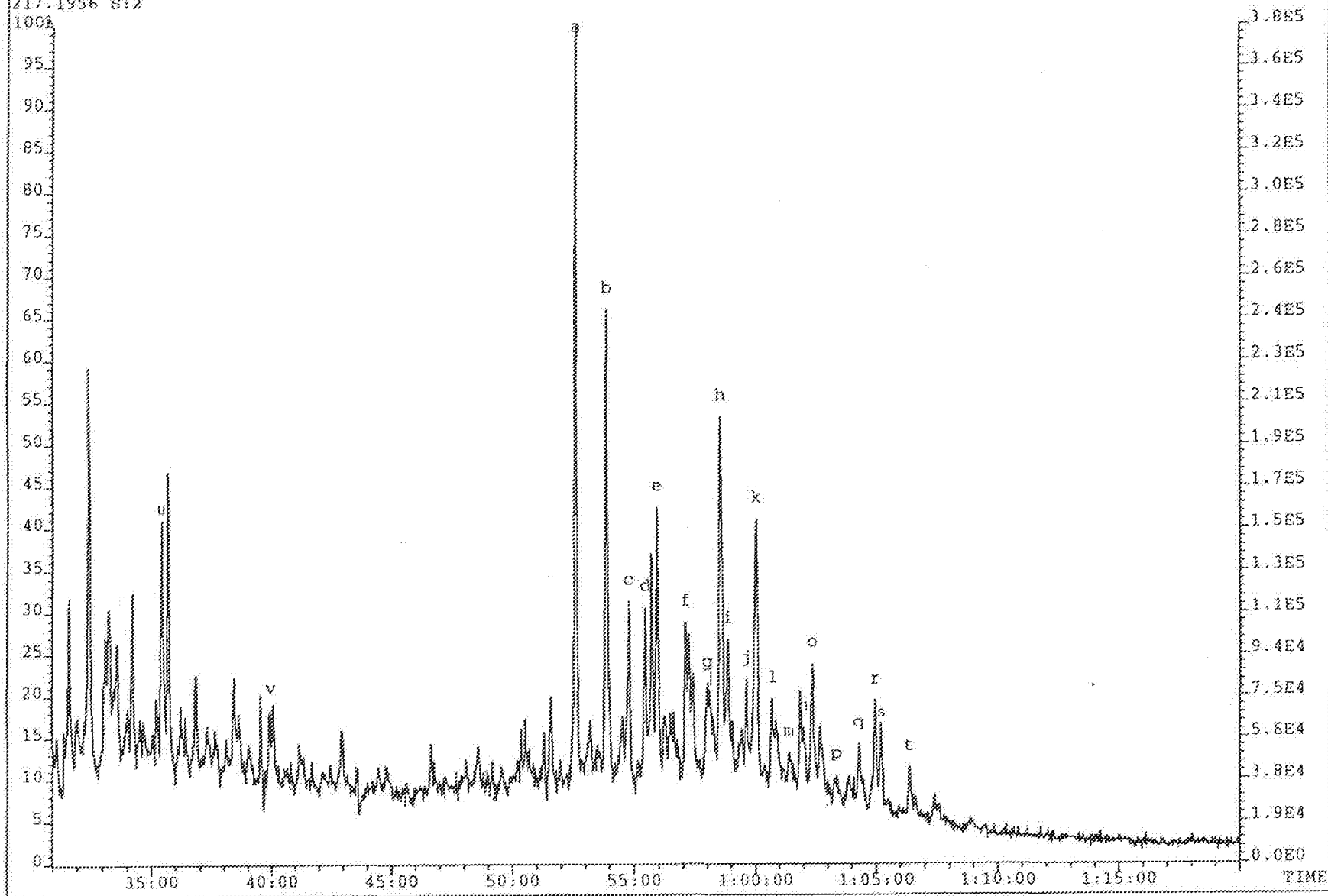
Schlumberger

GECO-PRAKLA

GEOLAB NOR

File: BRUCESAJ #1-4059 Acq: 6-AUG-93 01:03:15 EI+ Magnet SIR
Sample#2 Text: WELL 2/7-20X, DST 1, SATURATED FRACTION FROM OIL
217.1956 S:2

Exp: SAT1



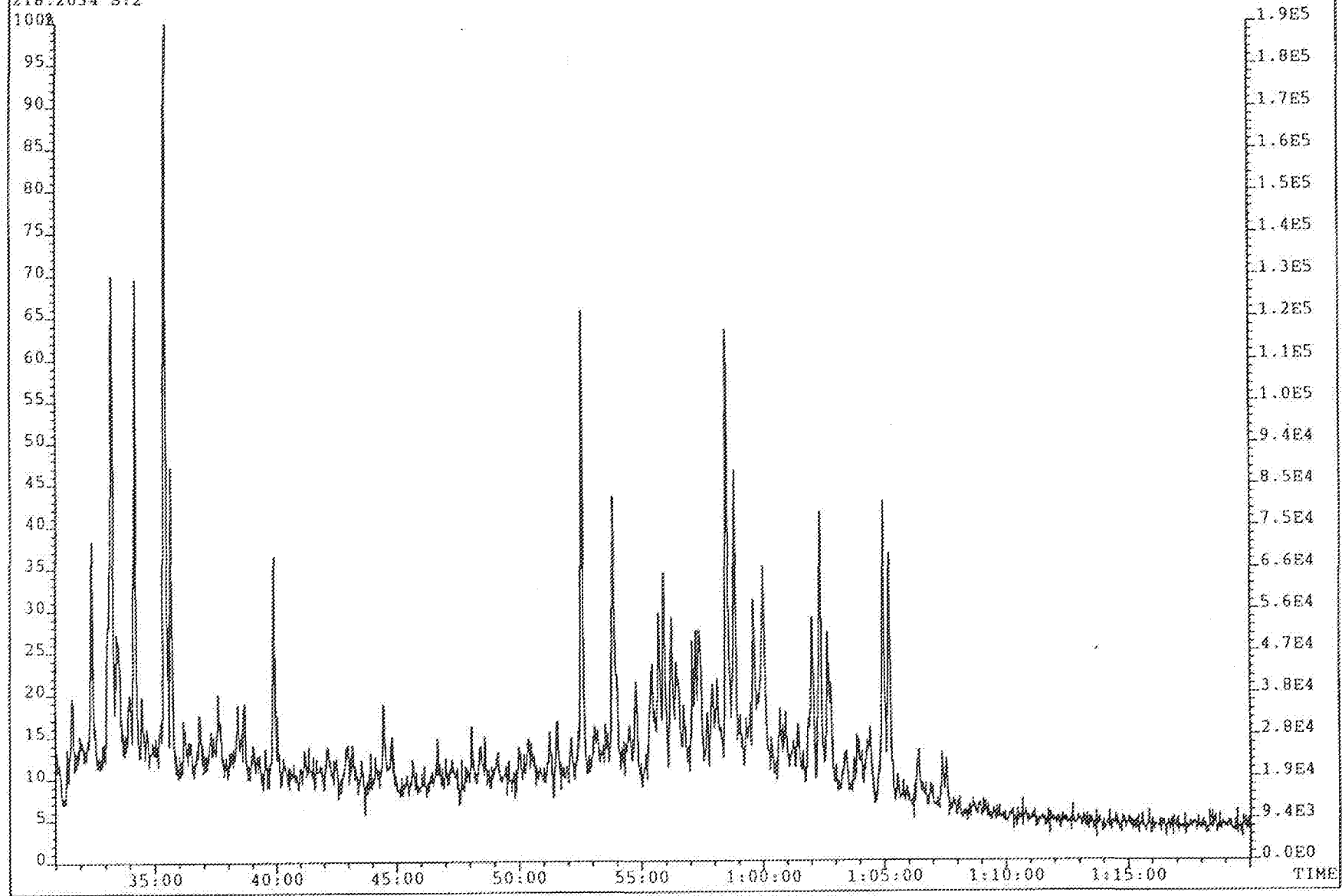
Schlumberger

GECO-PRAKLA

GEOLAB NOR

File: BRUCESA3 #1-4059 Acq: 6-AUG-93 01:03:15 E14 Magnet SIR
Sample#2 Text: WELL 2/7-20X, DST 1, SATURATED FRACTION FROM OIL
218.2034 S:2

Exp: SAT1

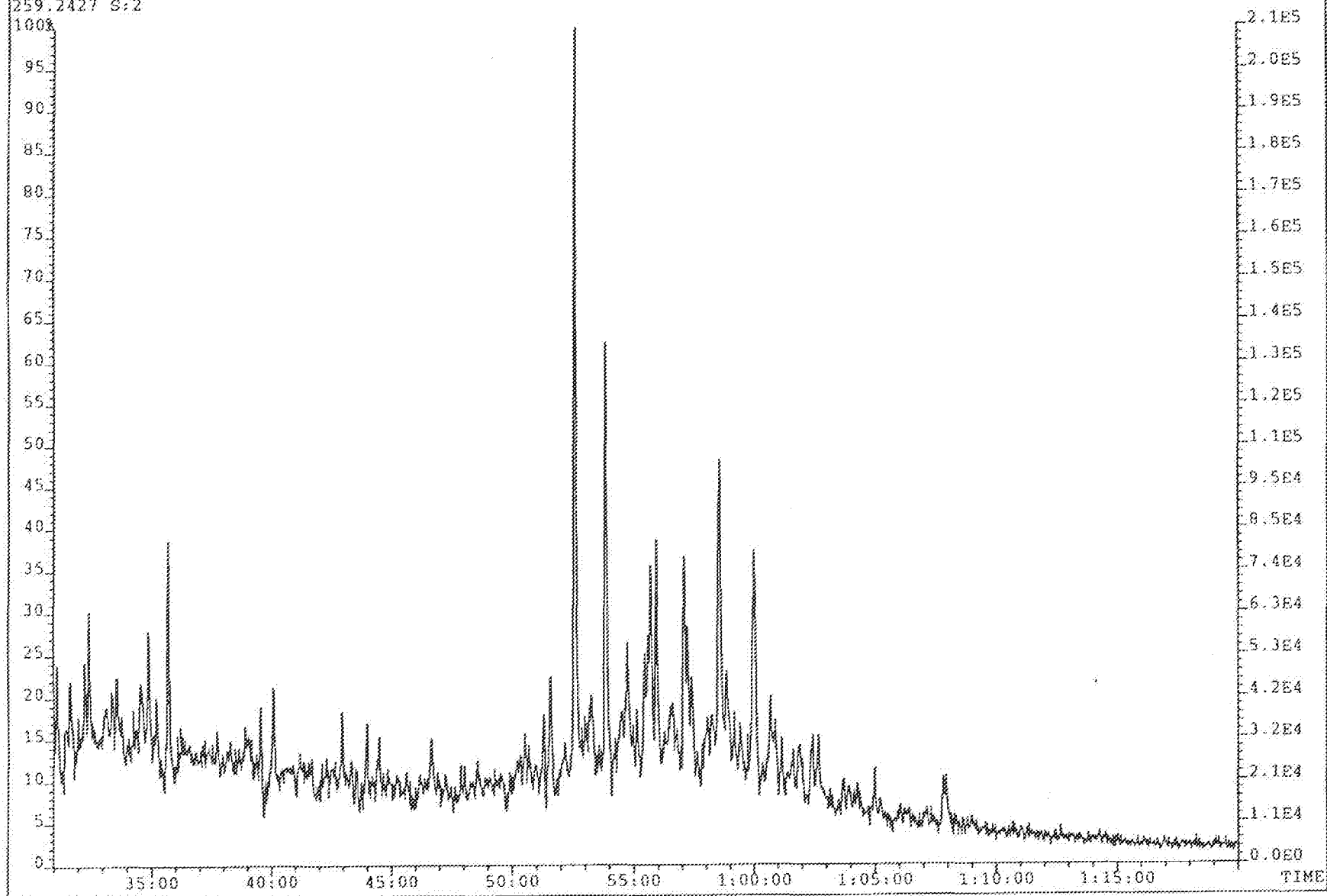


Schlumberger GECO-PRAKLA

GEOLAB NOR

File: BRUCESAJ #1-4059 Acq: 8-AUG-93 01:03:15 EI+ Magnet SIR
Sample#2 Text: WELL 2/7-20X, DST 1, SATURATED FRACTION FROM OIL
259.2427 S:2

Exp: SAT1



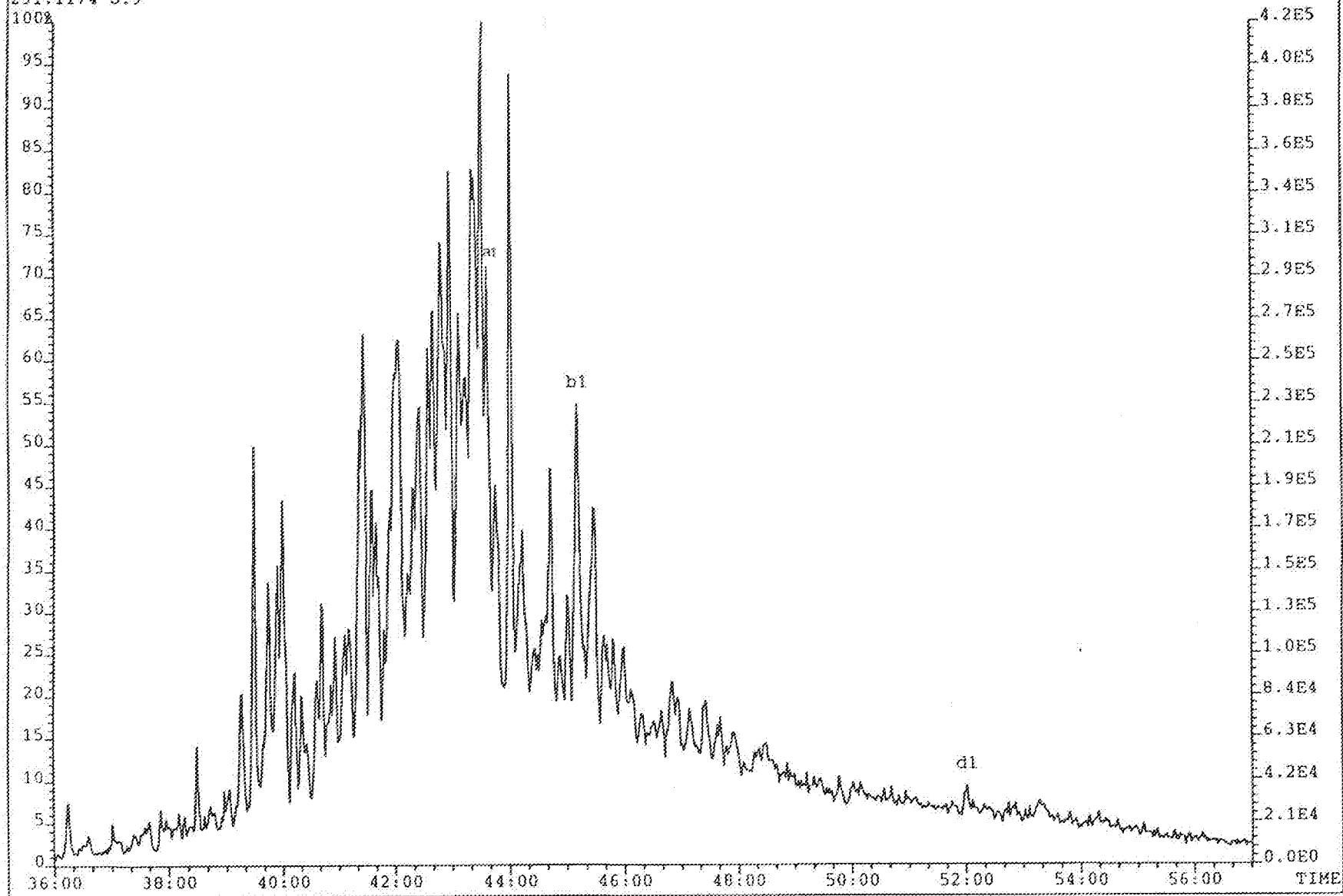
Schlumberger

GECO-PRAKLA

GEOLAB NOR

File: BRUCEAR2 #1-2572 Acq: 5-AUG-91 20:43:00 EI+ Magnet SIR
Sample#9 Text: WELL 2/7-20X, DST1, AROMATIC FRACTION FROM OIL
231.1174 S:9

Exp: ARO1



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GEOLAB NOR

C. 2/7A-16A

APPENDIX I

GAS CHROMATOGRAMS

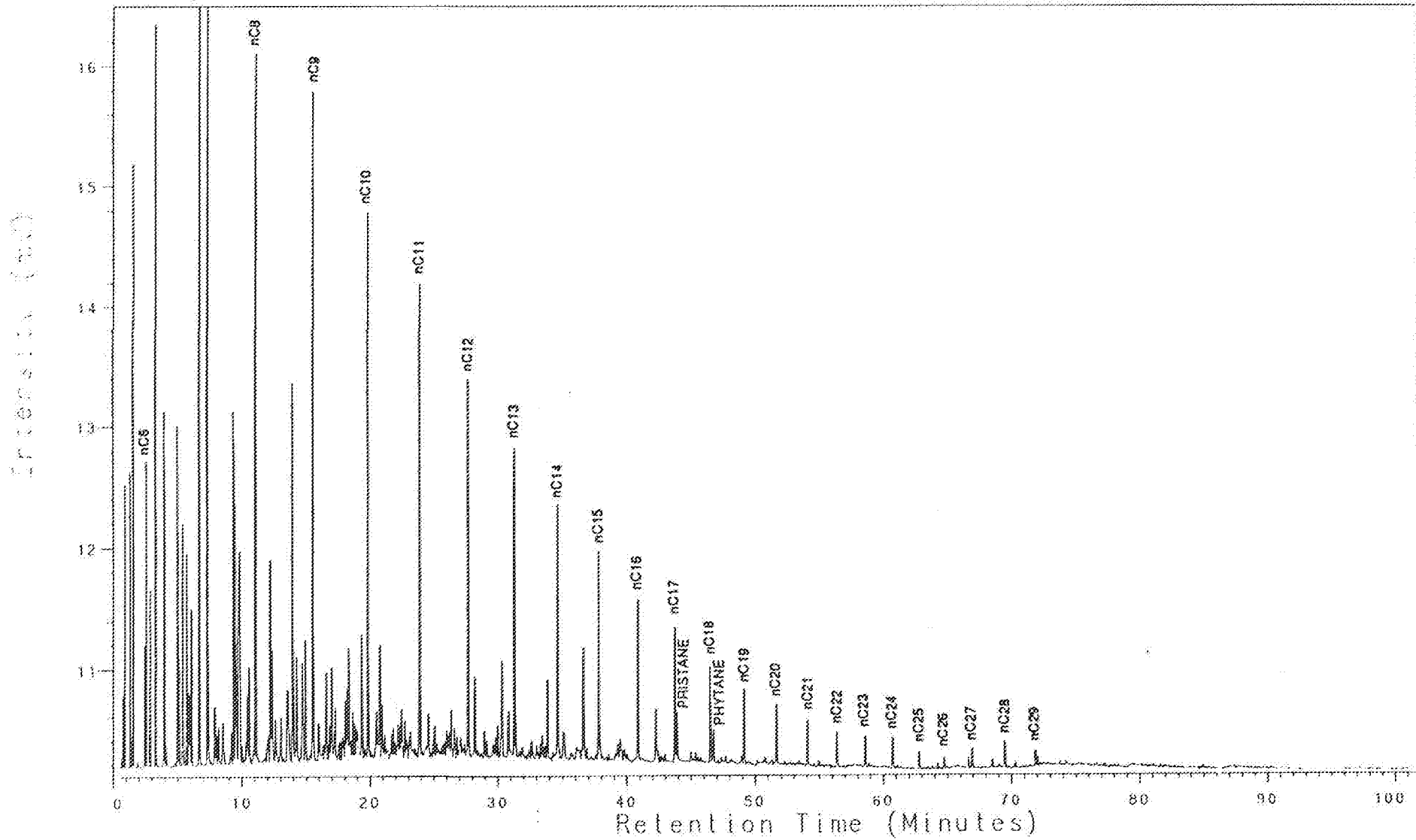
- I. Whole Oil Gas Chromatograms**
- II. Saturated Hydrocarbon Fraction Chromatograms (FID)**
- III. Aromatic Hydrocarbon Fraction Chromatograms (FID and FPD)**
- IV. Isotope Gas Chromatograms**

I. Whole Oil Gas Chromatograms

Analysis W02432716

8, 1, 1

2/7A-16A HOD FM.



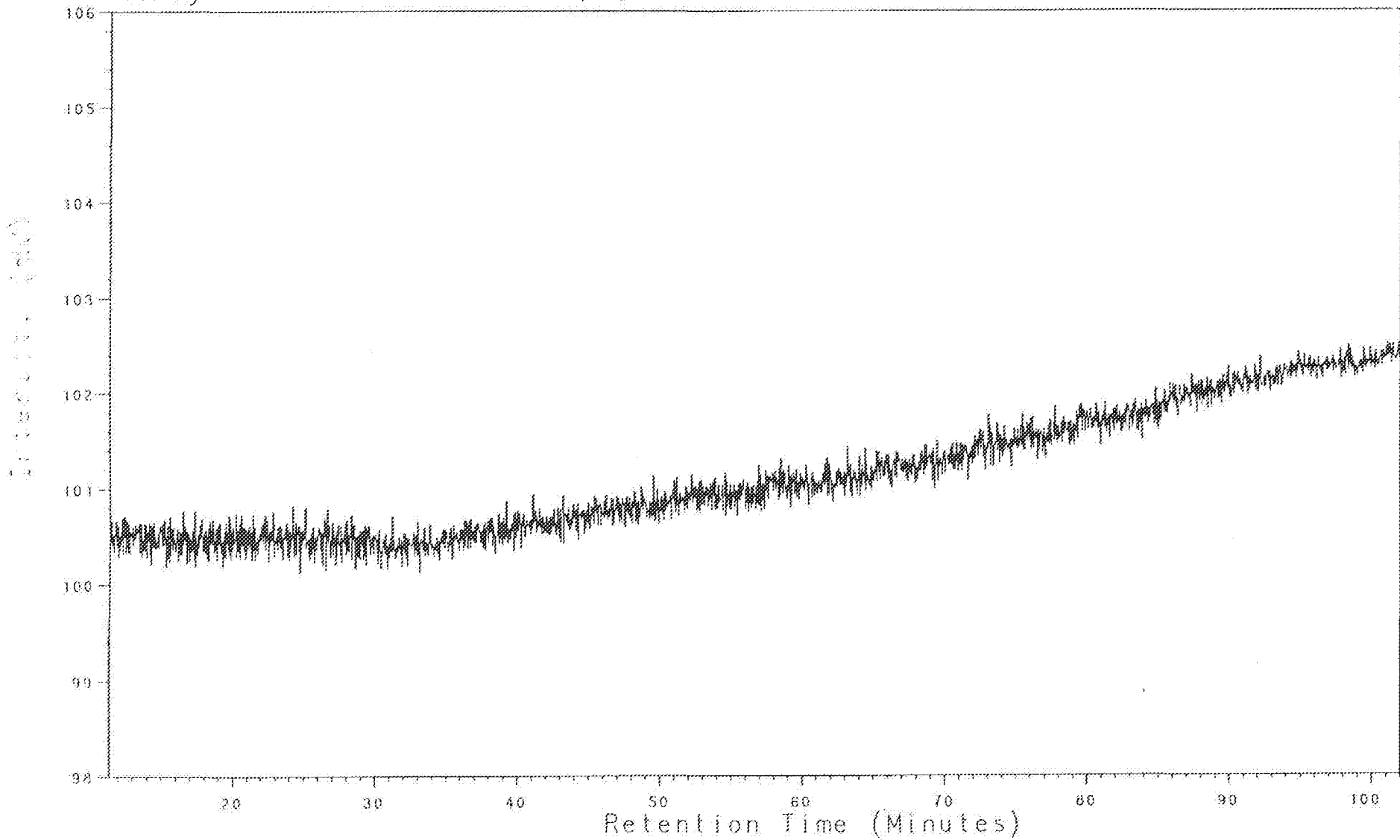
HOC9 2/7A-16A ELDFISK
HOD FM.
WHOLE OIL (FID)

Schlumberger

GECO-PRAKLA

GEOLAB NOR

Analysis W02432716 9, 1, 1 2/7A-16A HOD FM.

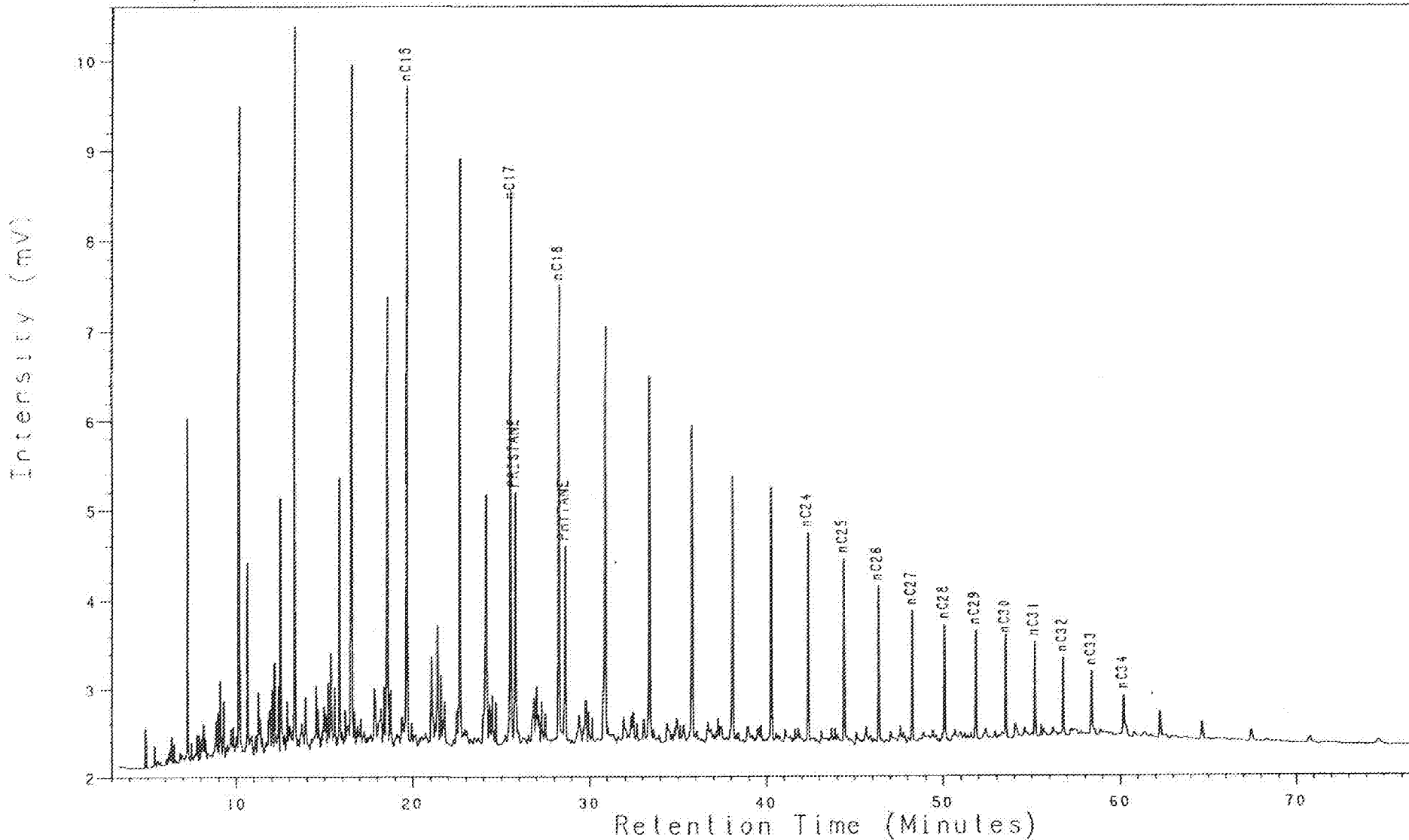


NOCS 2/7A-16A ELDFISK
HOD FM.
WHOLE OIL (FPD)

Schlumberger GECO-PRAKLA

GEOLAB NOR

II. Saturated Hydrocarbon Fraction Chromatograms (FID)



EIDFISK 2/7A-16A

SATURATED GC

Schlumberger

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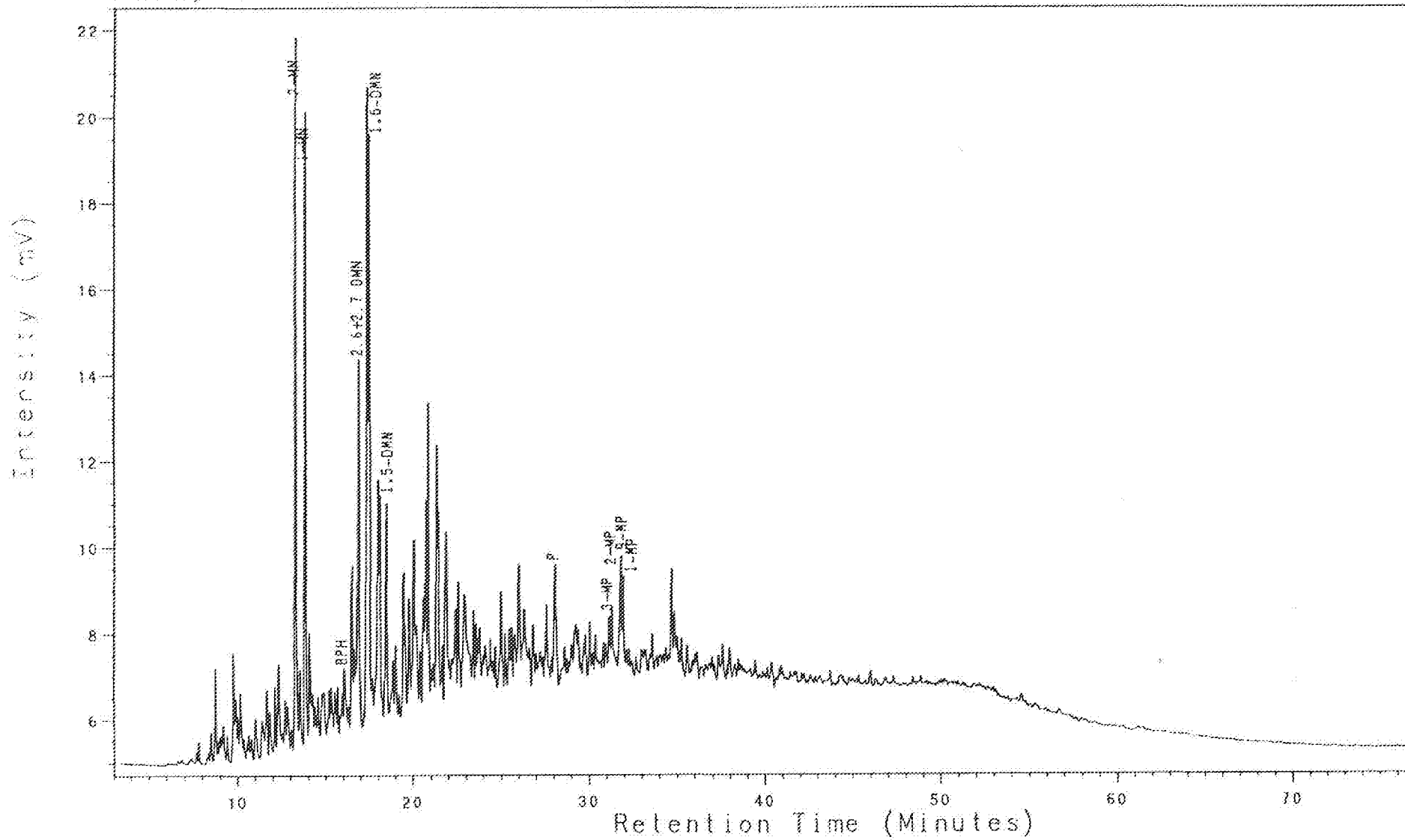
GEOLAB NOR

III. Aromatic Hydrocarbon Fraction Chromatograms (FID and FPD)

Analysis AR2042716

8, 1, 1

2/7A-16A ARO



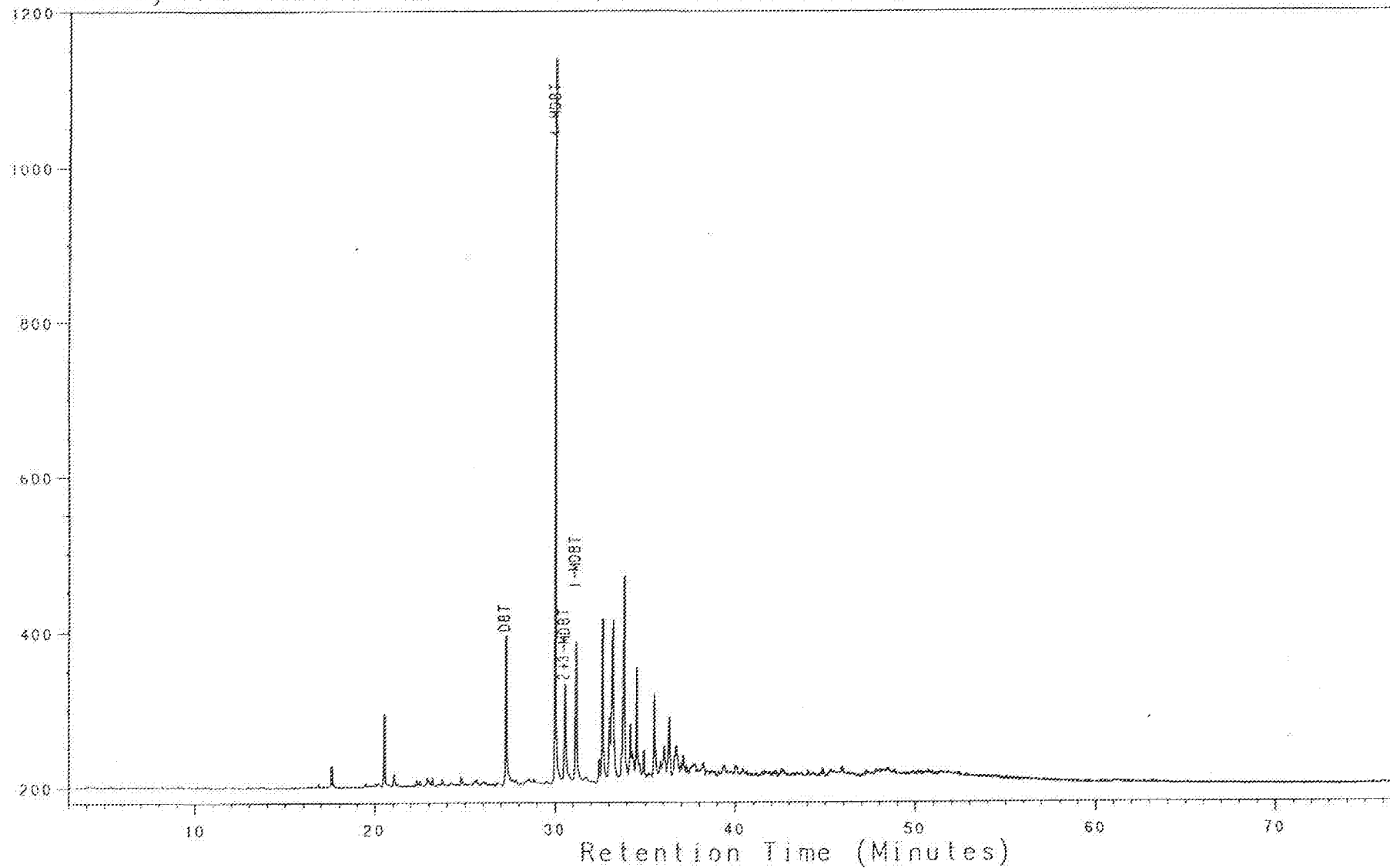
ELDFISK 2/7A-16A

AROMATIC GC (FID)

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GEOLAB NOR

Analysis AR2042716 7.1.1 2/7A-16A ARO



ELDFISK 2/7A-16A

AROMATIC GC (FPD)

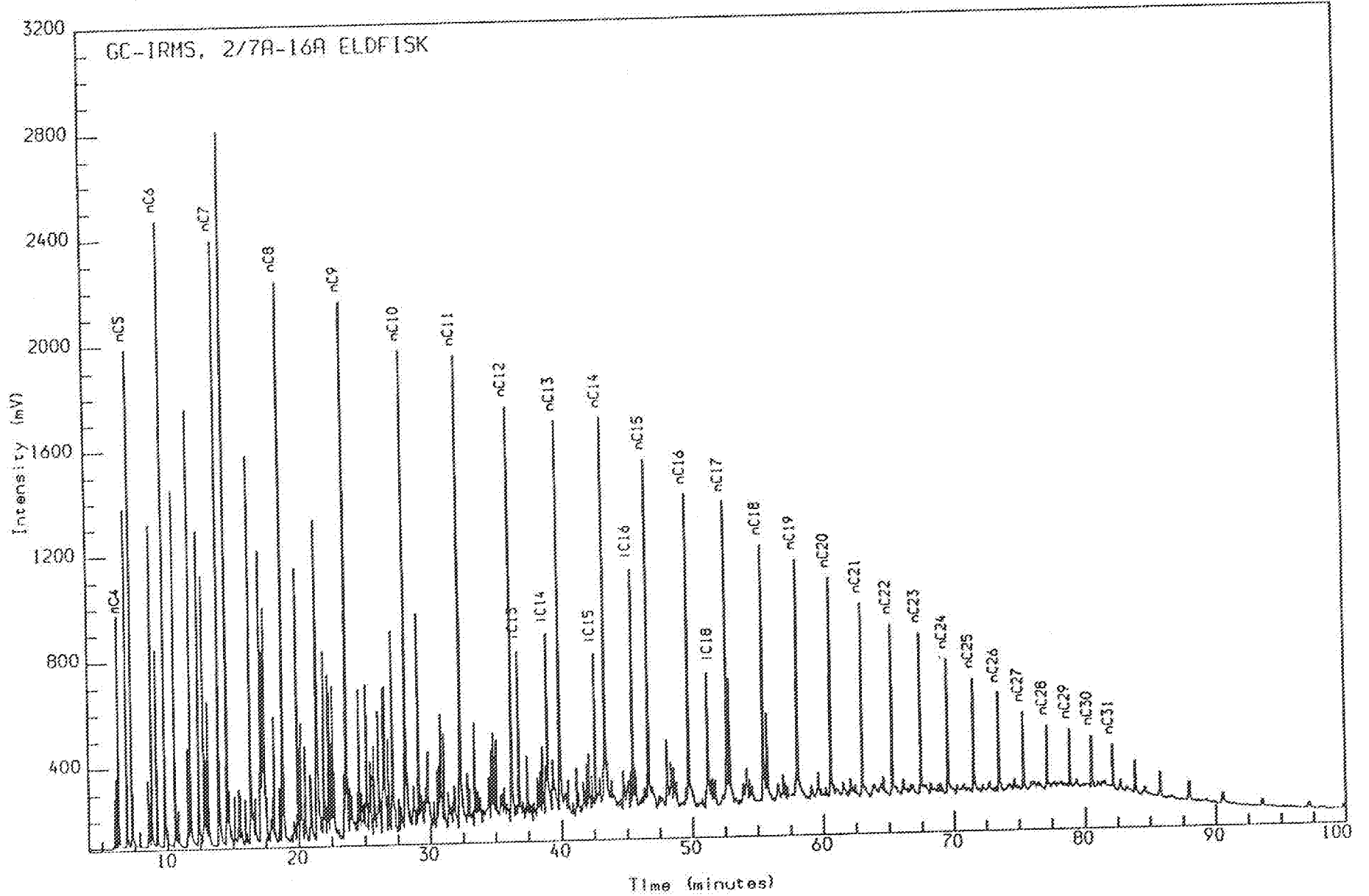
Schlumberger GECO-PRAKLA

GEOLAB NOR

IV. Isotope Gas Chromatograms

Analysis Name : [511004] 1 IWHAMOC03,1,1.

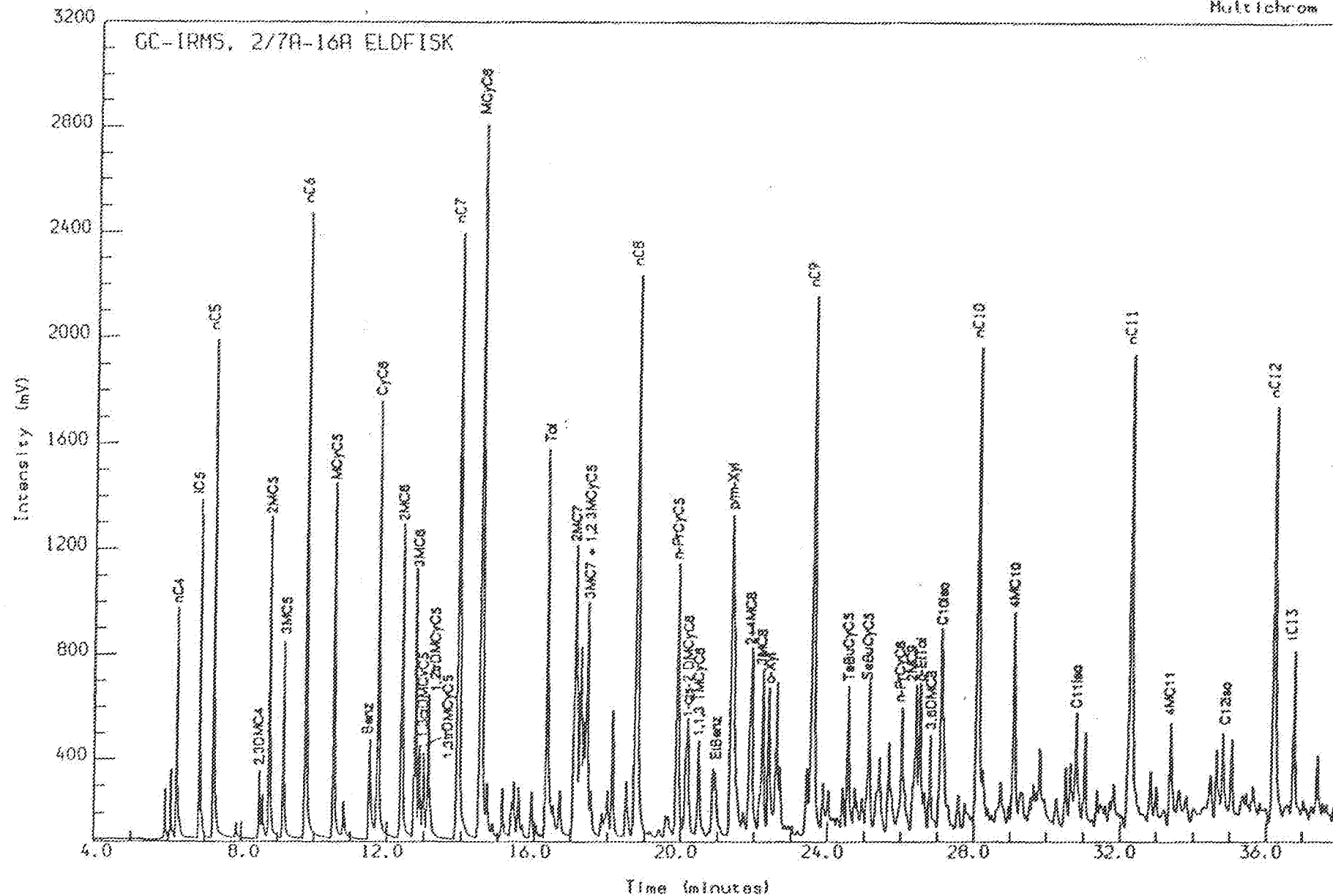
Multichrom



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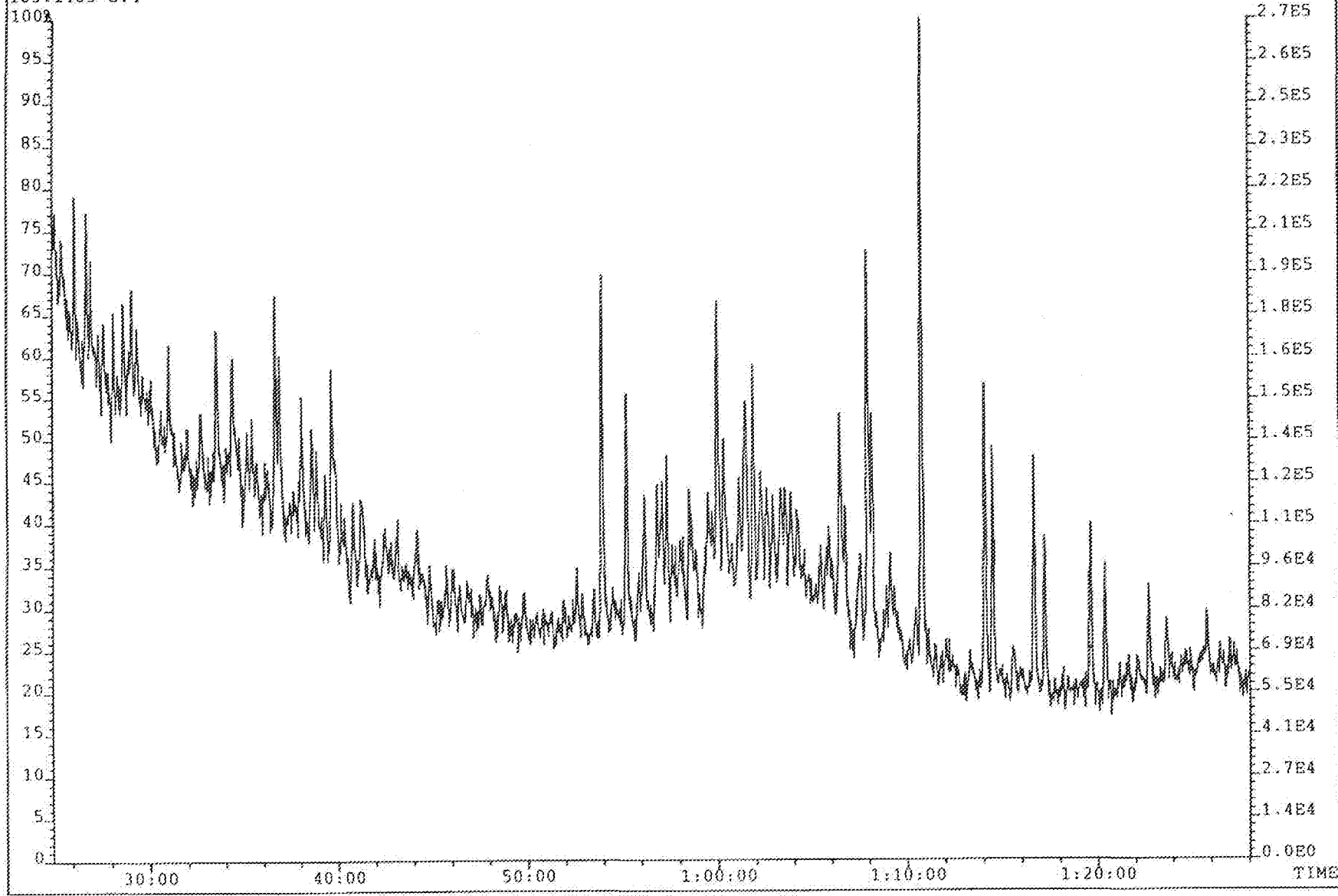


APPENDIX II

GAS CHROMATOGRAPHY - MASS SPECTROMETRY, FRAGMENTOGRAMS

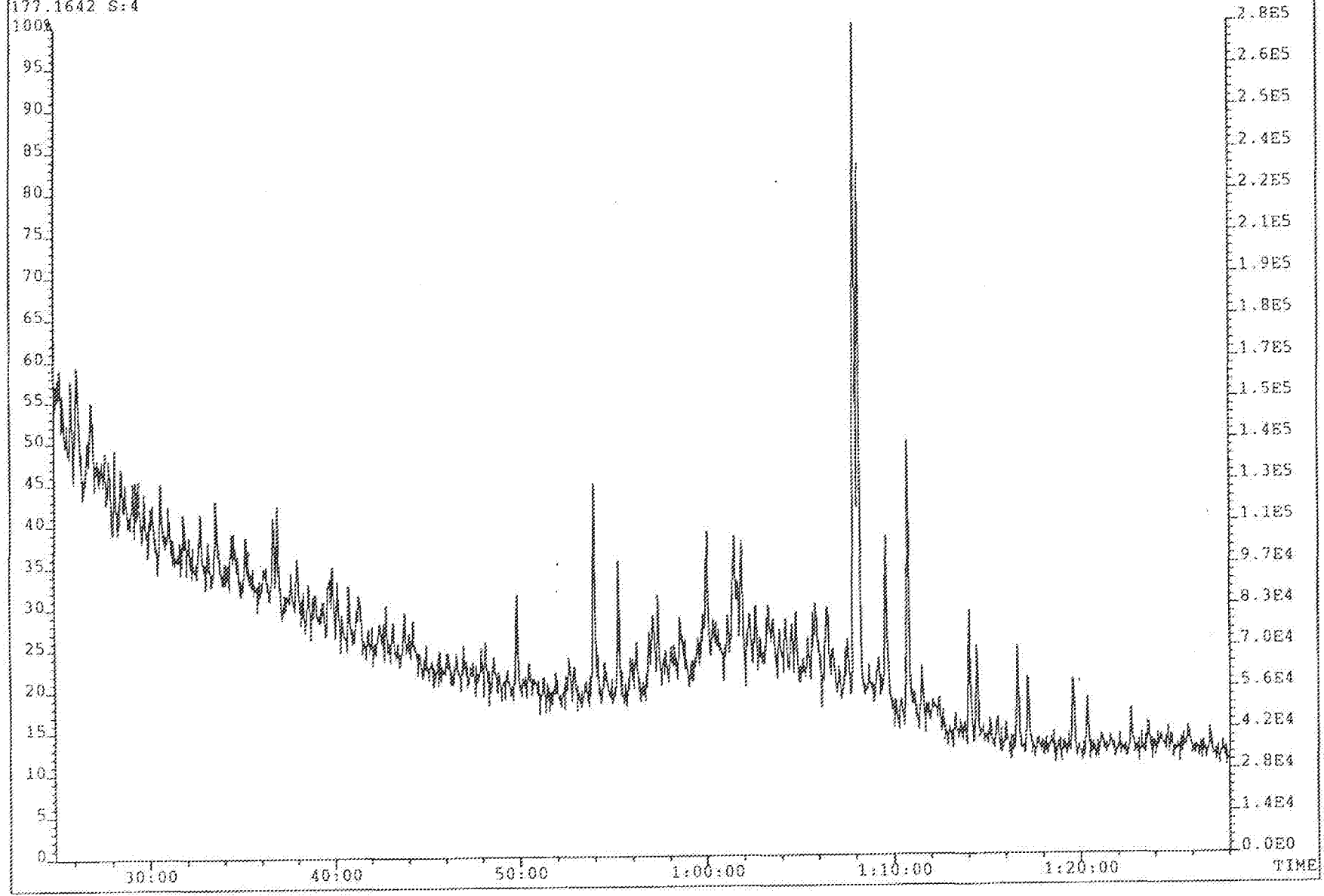
File:KEYSAT1 #1-4892 Acq:8-OCT-92 14:44:56 EI+ Magnet SIR
Sample#4 Text:WELL 2/7A-16A, SATURATED FRACTION FROM OIL
163.1485 S:4

Exp:SAT1



File: KEYSATJ #1-4892 Acq: 8-OCT-92 14:44:56 EI* Magnet SIR
Sample#4 Text: WELL 2/7A-16A, SATURATED FRACTION FROM OIL
177.1642 S: 4

Exp: SAT1

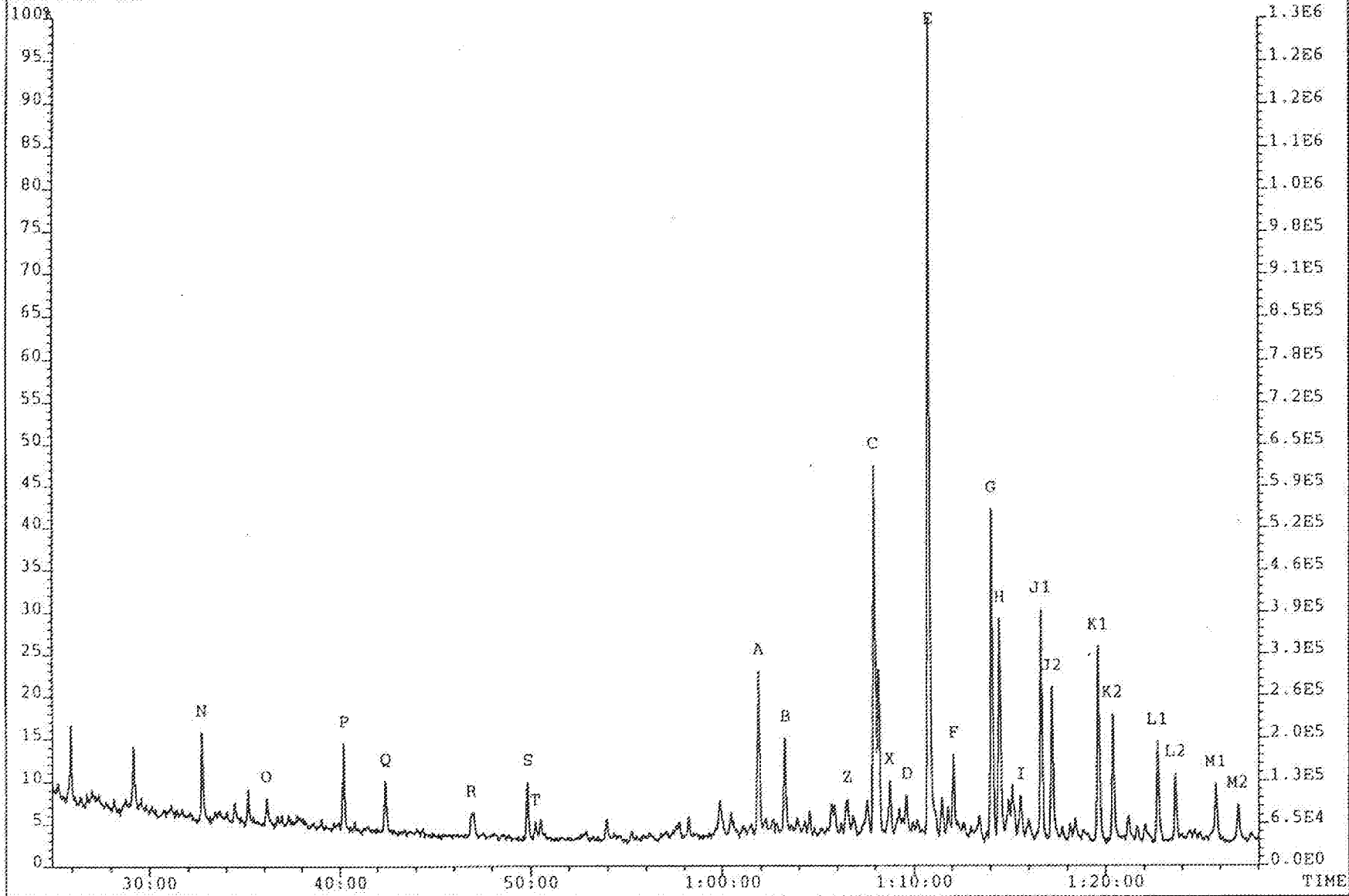


Schlumberger GECO-PRAKLA

GEOLAB NOR

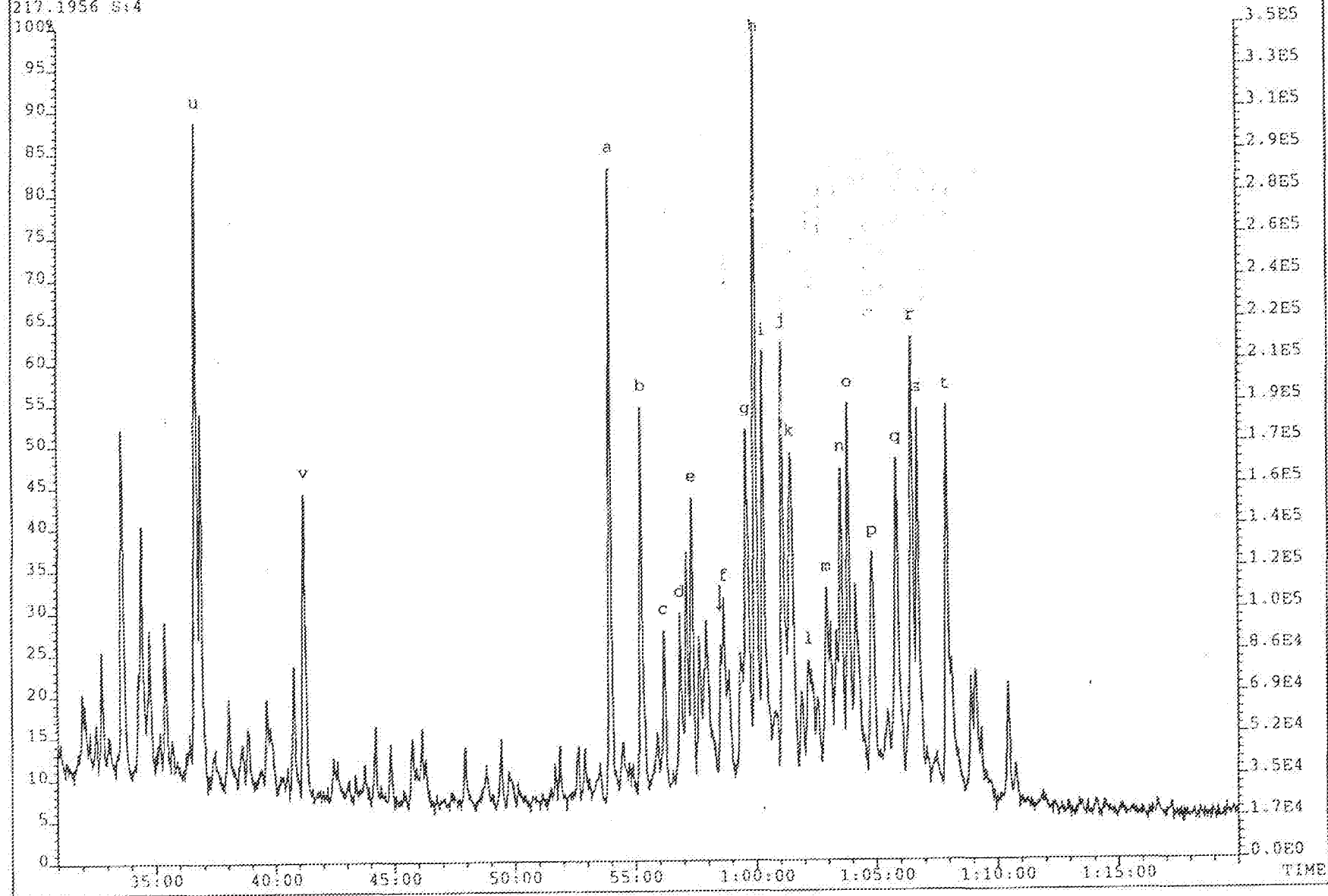
File:KEYSAT3 #1-4892 Acq:8-OCT-92 14:44:56 EI+ Magnet SIR
Sample#4 Text:WELL 2/7A-16A, SATURATED FRACTION FROM OIL
191.1800 S:4

Exp:SAT1



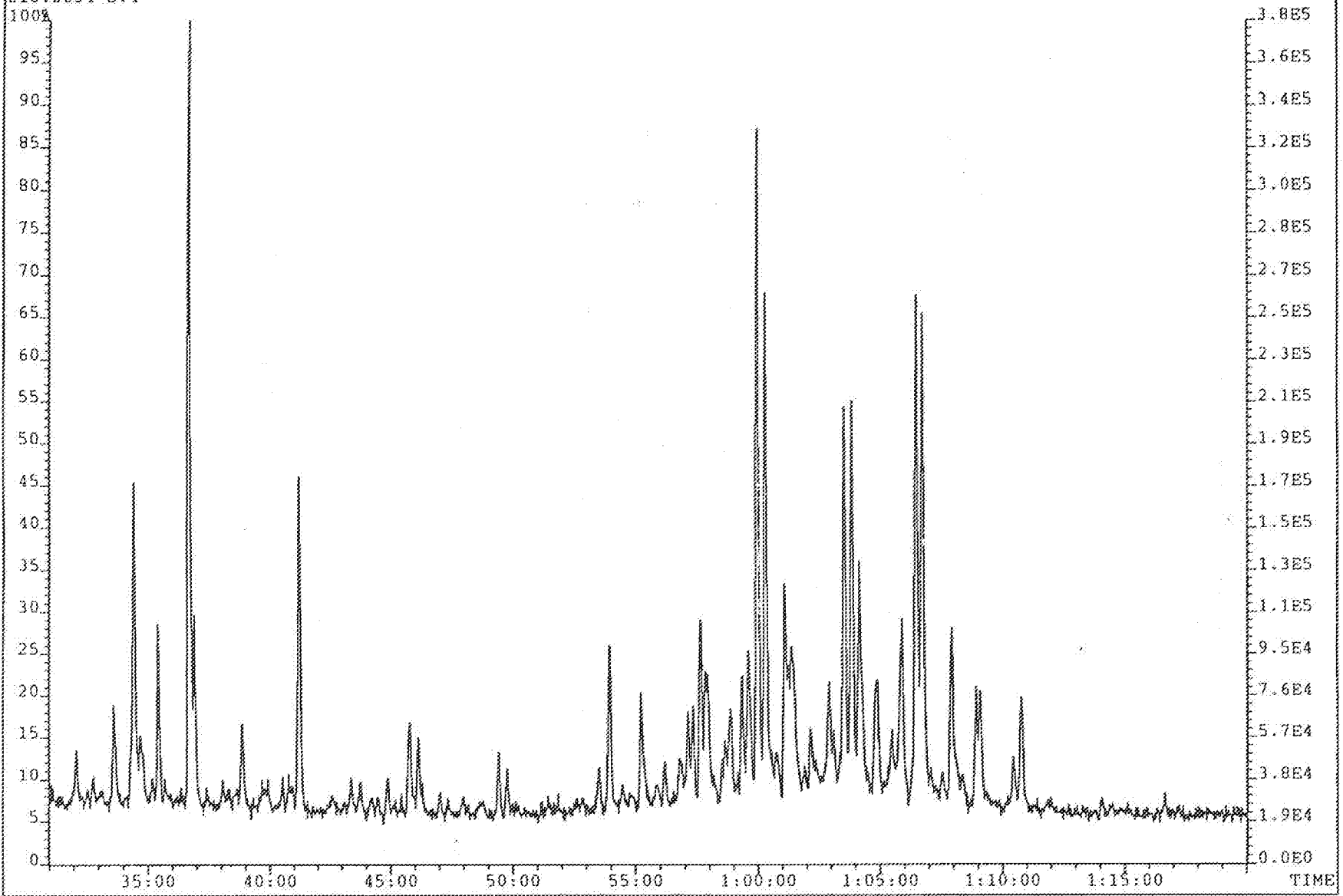
File:KEYSAT3 #1-4892 Acq:8-OCT-92 14:44:56 BY: Magnet SIR
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217.1956 S:4

Exp:SAT1



FILE:KEYSAT3 #1-4892 Acq:8-OCT-92 14:44:56 EI+ Magnet SIR
Sample#4 Text:WELL 2/7A-16A, SATURATED FRACTION FROM OIL
218.2034 S:4

Exp:SAT1



Schlumberger

GECO-PRAKLA

GEOLAB NOR