Superior Water Light & Power
Superior, Wisconsin

Sediment Investigation Report
Former Manufactured Gas Plant
Superior, Wisconsin

ENSR *International*
March 2004
Document Number 09413-098-500

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1.0 INTRODUCTION

This report presents the results of the sediment investigation completed in March and April 2003 at the Superior Water Light & Power (SWL&P) Former Manufactured Gas Plant (MGP), located at the intersection of Winter and Water Street in Superior, Wisconsin (Site). The sediment samples were collected from the boat slip in Superior Bay located northeast of the Site. The Site location and boat slip location are shown in Figure 1-1.

This investigation followed the scope of work and methodologies outlined in the Sediment Investigation Work Plan submitted to the Wisconsin Department of Natural Resources (WDNR) in February 2003. There was only one deviation from the Work Plan – one sediment sample, instead of the two proposed samples, was collected from the storm sewer upstream from the Site. The sediment samples from the boat slip were collected on March 12, 2003. The sediment samples from the storm sewer were collected on April 15, 2003.

1.1 Purpose of Investigation

The Wisconsin Department of Natural Resources (WDNR) collected sediment samples at six locations in the boat slip near the Site in September 2000. The analytical results of WDNR's sampling indicated total PAH concentrations ranging from less than 10 parts per million to over 360 parts per million. The highest concentrations were found close to the four-foot diameter storm sewer outfall pipe located at the head of the boat slip. Based on the higher total PAH concentrations, a higher proportion of low molecular weight PAH, and the shallower occurrence of the PAH, the storm sewer appeared to be a likely conduit for PAH to enter the boat slip.

The purpose of the investigation was to determine the PAH content and chemical fingerprints of the shallow sediments in the head of the boat slip. The sediment fingerprints are compared to the fingerprints previously established for Site during the Phase II Part II Investigation. The Work Plan stated that sediment samples would be collected from the storm sewer. The storm sewer sediment upstream of the Site represents typical urban sediment "contribution" to the storm sewer unaffected by the MGP Site. Very little sediment was actually present in the storm sewer; consequently, the volume of sediment available for laboratory analysis was quite small. Only one sample was collected upstream of the Site for chemical fingerprinting due to the small amount of sediment found.

1.2 Scope of Work

The scope of work for the sediment investigation was outlined in the February 2003 Work Plan and was slightly modified based on field conditions. The scope of work is summarized below.

Three cores were installed in the boat slip to a depth of approximately two feet below the sediment surface using a split spoon and drill rod hand-driven into the sediment. The two-foot cores were divided in half to yield two samples: one from the top foot of sediments, and one from a depth of approximately

one to two feet below the sediment/water interface. The sediment samples were transferred directly from the split spoon into laboratory-supplied containers. The samples were placed in an ice filled cooler and shipped overnight under chain-of-custody to the laboratories. An insufficient quantity of sediment was recovered so a sample was not replicated for QA/QC purposes. The samples were analyzed for PAH by EnChem and by GIT to determine their chemical fingerprints.

Two sediment samples were collected from the storm sewer; one upstream of the Site and one at the outfall of the storm sewer pipe. The sediment samples were collected using hand tools such as a dipper cup attached to a rod and a clean decontaminated shovel. The samples were immediately transferred into laboratory supplied containers. The outfall sample was analyzed for PAH by EnChem and by GTI to determine the chemical fingerprint. There was not a sufficient quantity of sediment in the upstream sample location, so the sample was only analyzed for chemical fingerprint.

1.3 Site Location and Ownership

The former MGP Site is located in the vicinity of the intersection of Winter and Water Streets in Superior, Wisconsin. The Site occupies a portion of the northwest quarter of Section 13, Township 49 North and Range 14 West (NW ¼ of Sec. 13, T49N, R14W).

Portions of the former MGP property are now owned by SWL&P, the City of Superior, the U.S. Department of Transportation, and CLM, Inc. The SWL&P owner contact is:

Bill Bombich
Superior Water Light & Power Company
2915 Hill Avenue
Superior, Wisconsin 54880
(715) 395-6288

1.4 Consultant and Contractor Identification

The Site investigation activities were conducted by ENSR. The contact for this investigation is:

William M. Gregg
ENSR *International*
4500 Park Glen Road, Suite 210
St. Louis Park, MN 55416
(952) 924-0117 - phone
(952) 924-0317 – fax

Subcontractors that provided services for this investigation are identified below.

Laboratory Analytical Services

EnChem, Inc.
Attn: Laurie Woelfel
1795 Industrial Drive
Green Bay, WI 54302
(800) 736-2436 – phone
(414) 469-8827 – fax
(WDNR Certification 405132750)

Laboratory Analytical Services

GTI
Attn: Diane Saber
1700 South Mount Prospect Road
Des Plaines, IL 60018
(847) 768-0500 – phone
(847) 768-0501 – fax

Surveying

Salo Engineering
Attn: Dale Berntsen
15 East First Street
Duluth, MN 55802
(218) 727-8796 – phone
(218) 727-0216 – fax

2.0 SITE BACKGROUND

2.1 Site Description

A 3,000-square foot brick building, that was an original MGP building reconstructed in 1929, is located on the northeast side of Water Street, between Water Street and the railroad tracks that roughly parallel the shoreline of Superior Bay. Gravel parking areas surround the building. Several parcels of land adjacent to the building were part of the former MGP property including a vacant grass-covered field to the west of the building where two gas holders were once located. Another larger gas holder was located on the now-vacant property south of the building, immediately south of U.S. Highway 53. A city street and vacant, grass-covered lots are now located where the larger gas holder was situated.

The Site is irregularly shaped consisting of approximately five acres, and is situated approximately two miles from downtown Superior. The area surrounding the Site consists of industrial land along the Superior Bay shoreline and commercial/residential properties further inland. The property east of the Site is a fenced parcel used by Lakehead Cement Company for storage and a ready mix plant. East of the Site is the City of Superior wastewater treatment plant. North of the Site is a former coal dock that is now owned and operated by CLM, Inc. for the production of lime. Adjacent to the CLM, Inc. dock are two large aboveground storage tanks that formerly contained fuel oil. Northeast of the Site is the boat slip where the sediment samples were collected for this investigation. CLM utilizes the boat slip for loading and unloading coal and other materials from boats. Commercial and residential properties are located along Winter Street and other city streets south of the Site.

2.2 Site History

The gas plant was built in 1888 and began operations on November 1, 1889. The gas produced was a water gas made by the improved “Springer” process. Two gas holders were initially constructed on the Site: one single lift of 35,000 cubic feet capacity, built in October 1889, and one double lift holder of 250,000 cubic feet capacity, dimensions of 92 ft x 21 ft x 21 ft, completed in October 1891. In 1924, a third gas holder was constructed at the subject property. This 750,000-cubic foot gas holder was located southwest of the former MGP building. A spherical gas holder called the “Horton Sphere” was constructed in 1950.

Gas was produced at the Superior MGP from November 1889 to August 1904. After August 1904, all gas sold by SWL&P was purchased from the Zenith Furnace Company (later known as Interlake, Corporation). The gas purchased from Zenith/Interlake was purified in West Duluth before it was piped to SWL&P’s plant in Superior. Therefore, no purifier wastes were generated at the Site after August 1904. The MGP at the Site produced a total of approximately 262,000 MCF (million cubic feet) of gas during its 15-year production history.

In 1929, the gas plant building was rebuilt to its present configuration. Gas purchased from Zenith/Interlake was stored in the gas holders, and pumped and metered from the reconstructed

building. Storage and metering of manufactured gas purchased from Zenith/Interlake continued until natural gas supplies became available in 1959. The 35,000-cubic foot gas holder was removed prior to 1938. The 250,000-cubic foot gas holder was removed between 1940 and 1961. The 750,000-cubic foot gas holder was removed between 1962 and 1966, and the Horton Sphere was removed in 1985.

In 1978, SWL&P sold the former gas plant building and portions of the property to CLM, Inc. The building was gutted, concrete floors were poured over the existing sand floors, and the building has been used for storage since that time.

Rough estimates of the amount of MGP wastes produced by the plant were calculated in the Phase I report. Based on a total plant gas production of 262,000 MCF, an estimated 200-cubic yards of coal ash, 2 to 22 cubic yards of coal tar sludge, and 70 to 350 cubic yards of gas purification wastes were produced at the Superior MGP.

2.3 Source Areas

The previous Site investigations determined there are several areas which may be source areas for the PAH in the sediment. The purpose of this investigation was to determine the amount of PAH in the boat slip sediments and, based on the chemical fingerprint, determine if the PAH found in the sediment is similar to the PAH found on-Site.

2.4 Geologic and Hydrogeologic Setting

The subject property lies at an elevation between 610 and 620 feet above mean sea level. The topography in the area of the subject property is relatively flat with little or no slope. The results of the subsurface investigations indicate that there are two distinct soil types encountered: a red high-plasticity clay and a fill material consisting primarily of white to dark gray lime-like material. There were also small amounts of miscellaneous fill, such as bricks, wood, and cinders, encountered in several locations. Sandstone bedrock (Keweenawan Formation) may be found beneath the unconsolidated soils. Depth to bedrock is estimated to be from 100 to 200 feet below the ground surface.

A perched groundwater table was encountered in the lime-like material above the clay 6 to 10 feet below the ground surface. Based on the proximity to Lake Superior and groundwater gauging data, the overall groundwater flow direction is assumed to be east to northeast towards Lake Superior. The elevation of the ice at the time of the investigation was 601 feet above mean sea level.

3.0 OVERVIEW OF SEDIMENT INVESTIGATION

3.1 Boat Slip Sediment Samples

Three sediment sampling locations, SD1, SD2, and SD3, were advanced through the ice in the boat slip adjacent to the Site. The sediment sampling locations are illustrated on Figure 3-1. The ice was drilled out using a power auger or hand auger. The ice was approximately 2.5 feet thick, with black flecks of coal-like material observed throughout the ice. The depth of the surface of the sediment ranged from 2.5 to 4 feet below the top of the ice.

The sediment cores were installed in the boat slip to a depth of approximately two feet below the sediment surface using a split spoon and drill rod hand-pushed into the sediment. The tools were hand-hammered to achieve the two-foot depth. The two-foot cores were divided in half to yield two samples: one from the top foot of sediments, and one from a depth of approximately one to two feet below the sediment/water interface. The sediment samples were transferred directly from the split spoon into laboratory-supplied containers. The samples were placed in an ice filled cooler and shipped overnight under chain-of-custody to the laboratories. The samples were sent to EnChem for PAH analysis and to GTI for chemical fingerprinting.

3.2 Storm Sewer Sediment Samples

Two sediment samples were collected from the storm sewer, one upstream of the Site and one at the outfall of the storm sewer pipe. The sample locations are illustrated on Figure 3-2. The upstream sediment sample was collected using hand tools (a dipper cup attached to a rod). The upstream sample was collected at a manhole access point. The outfall sediment sample was collected using a clean decontaminated shovel. The outfall sample was collected just beyond the pipe outlet in the boat slip from zero to four inches in sediment depth. The samples were immediately transferred into laboratory-supplied containers. The outfall sample was analyzed for PAH by EnChem and by GTI to determine the chemical fingerprint. The upstream sample was analyzed by GTI to determine the chemical fingerprint. There was not a sufficient quantity of sediment in the upstream sample location to collect a sample for PAH analysis by EnChem.

3.3 Decontamination Procedures

Sampling equipment was decontaminated before and between sampling points to prevent potential cross contamination between sample locations. Sampling equipment, including split spoon samplers, were decontaminated prior to each use with a detergent wash followed by a potable water rinse. Disposable equipment, such as the dipper cup, was used only one time, then discarded. Nitrile gloves were worn when handling sampling equipment.

3.4 Elevation Survey

Upon completion of the sediment investigation, the elevation and location of sediment sample locations (except the upstream location) were surveyed by ENSR's subcontractor Salo Engineering. The results of the survey are illustrated in the map found in Appendix A.

4.0 INVESTIGATION RESULTS

4.1 Boat Slip Analytical Results

The boat slip sediment sampled for this study consisted of dark brown fine silty sand with an odor of decaying organic material. The ice was approximately 2.5 feet thick, with black particulate material observed throughout the ice. Coal piles immediately west of the boat slip on the CLM dock are believed to be the likely source of the black particulate.

The results of the En Chem PAH analyses are summarized in Table 4-1, and the total PAH concentrations are illustrated on Figure 4-1. The complete EnChem laboratory report is included as Appendix B. The sample IDs indicate the sample point followed by the sample depth (SD1-0-1 = Sample point SD1 sampled from 0 to 1 foot below the top of sediment).

As shown in Table 4-1, the total PAH concentrations ranged from 2.65 parts per million (ppm) in sample SD1-1-2 to 35.96 ppm in sample SD3-0-1. The sediment sample collected from the outfall contained 15 ppm total PAH.

4.2 Discussion

Results of fingerprinting analyses by GTI suggest that the PAH in the sediment samples collected for this investigation may have been derived from typical urban runoff. The storm sewer at the head of the boat slip conveys runoff from an area of Superior that includes industrial and other areas that may be sources of PAH. The coal particles observed in the ice may also contribute PAH.

The WDNR collected sediment samples at six locations in the boat slip near the Site in September 2000. The analytical results of WDNR's sampling indicated total PAH concentrations ranging from less than 10 parts per million to over 360 parts per million. The highest concentrations were found close to the four-foot diameter storm sewer outfall pipe located at the head of the boat slip (WDNR samples SPG-1, 2 and 3). The WDNR sample SPG-3 was collected near the storm sewer outfall. The total PAH in sample SPG-3 was 362.9 ppm from the shallow sample, and 197.1 ppm from the deep sample. The corresponding shallow sample collected by ENSR, SS-Outfall, contained 15.1 ppm total PAH. It is unclear why the two samples collected from the same area have such dissimilar results. However, the relatively low levels of PAH in the samples collected by ENSR were insufficient to definitively characterize the source of the PAH.

5.0 SUMMARY AND RECOMMENDATIONS

5.1 Summary

This report presents the results of the Sediment investigation performed at the Site in March and April 2003. Three sediment cores were advanced in the boat slip, SD1, SD2, and SD3, with a hand tools lowered through a hole in the ice. Sediment samples were collected from the cores for PAH and fingerprinting analysis. Two sediment samples were collected from the storm sewer that drains into the boat slip. One storm sewer sample was collected at a manhole access point upstream of the Site, and one sample was collected at the sewer outfall. The samples were collected with hand tools, and were analyzed for PAH and/or fingerprinting. The results of the fingerprinting indicated the PAH may have been derived from typical sources in urban runoff.

The concentrations of total PAH were up to an order of magnitude less than the comparable samples collected by the WDNR in September 2000. Further sampling would be necessary to determine if the levels of PAH discovered by WDNR are reproducible. However, the sampling done for this study indicates that PAH may be less of a problem in the boat slip than originally thought, and that the focus of the MGP investigation can shift back to the known areas of MGP-impact on land.

5.2 Recommendations

Based on the results of this sediment investigation, the most important part of the MGP investigation is to determine the extent of the previously discovered PAH and volatile organic compound (VOC) impacts. The extent of the soil and groundwater impacts has been delineated to the west and south of the Site. ENSR recommends conducting additional investigations to the north and east of the Site. A work plan was submitted to WDNR on November 21, 2003 to install up to eight Geoprobe® borings and five monitoring wells to further investigate the Site. Figure 5-1 illustrates the location of the proposed monitoring wells and Geoprobe soil borings.

The sampling methodologies outlined in the November 2001 and July 2002 Work Plans will be used during this proposed Phase II, Part III investigation. Soil samples will be collected from the Geoprobe borings and from the monitoring well borings for PAH and VOC analysis. Groundwater samples will be collected from temporary 1-inch wells installed in the Geoprobe borings. Groundwater samples will also be collected from the new monitoring wells after they are properly developed, and from existing wells MW-5, MW-6, and MW-7. The groundwater samples will be analyzed for PAH and VOC.

The placement of the borings and wells may be modified depending on whether access agreements can be obtained from the off-site property owners. The Phase II, Part III fieldwork will begin after receiving signed access agreements.

FIGURES

SWL&P Former MGP
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SOURCE: USGS 7½ Minute Topographic Quadrangle from DeLorme Superior, Wisconsin, 1993

SCALE

0 1/4 1/2 1 MILE

N

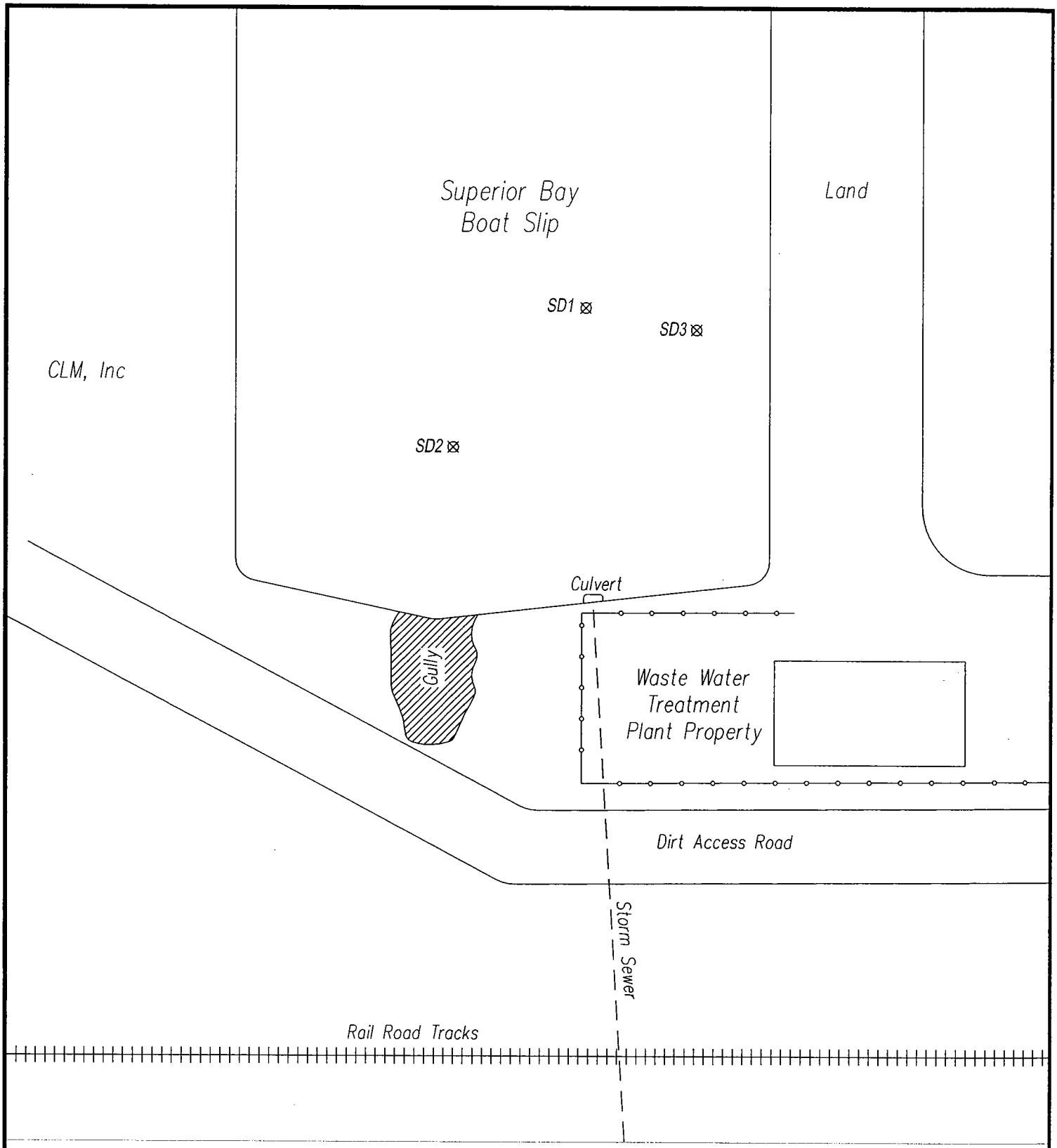
ENSR INTERNATIONAL

Figure 1-1

SITE LOCATION MAP

Superior Water Light & Power Former MGP
Superior, Wisconsin

PREPARED BY: CMB	DATE: Nov 2002	PROJECT NO: 09413-098	REV: 0
FILE NO.: FIG1-1.doc	CHECKED: WMG		



Explanation:

SD1 ⊠ = Sediment Sample Location (3/12/03)

Source:

Salo Engineering Survey, 3/14/03 and
ENSR field observations

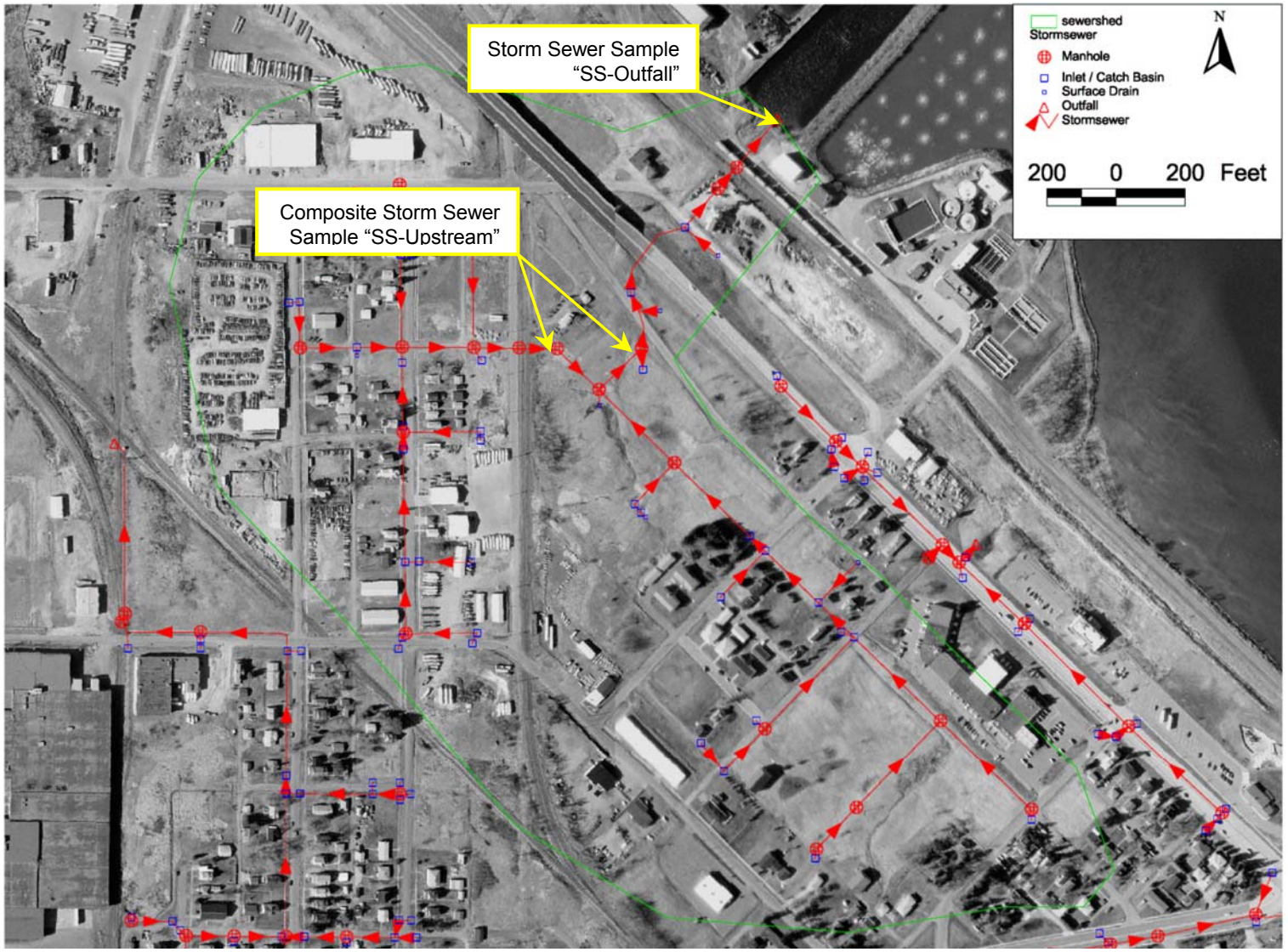
APPROXIMATE SCALE
1 INCH = 50 FEET

0 50

Figure 3-1
SEDIMENT SAMPLE LOCATIONS
Superior Water Light & Power
Former MGP
Superior, Wisconsin

DRAWN: CMB/5802	DATE: Sept 2003
FILE No.: Fig 3-1.dwg	PROJECT: 09413-098-500

ENSR INTERNATIONAL



Note: Sediment Samplers were collected from the storm sewer on April 15, 2003.

Source: Storm sewer location map obtained from SWL&P and the City of Superior, Wisconsin.

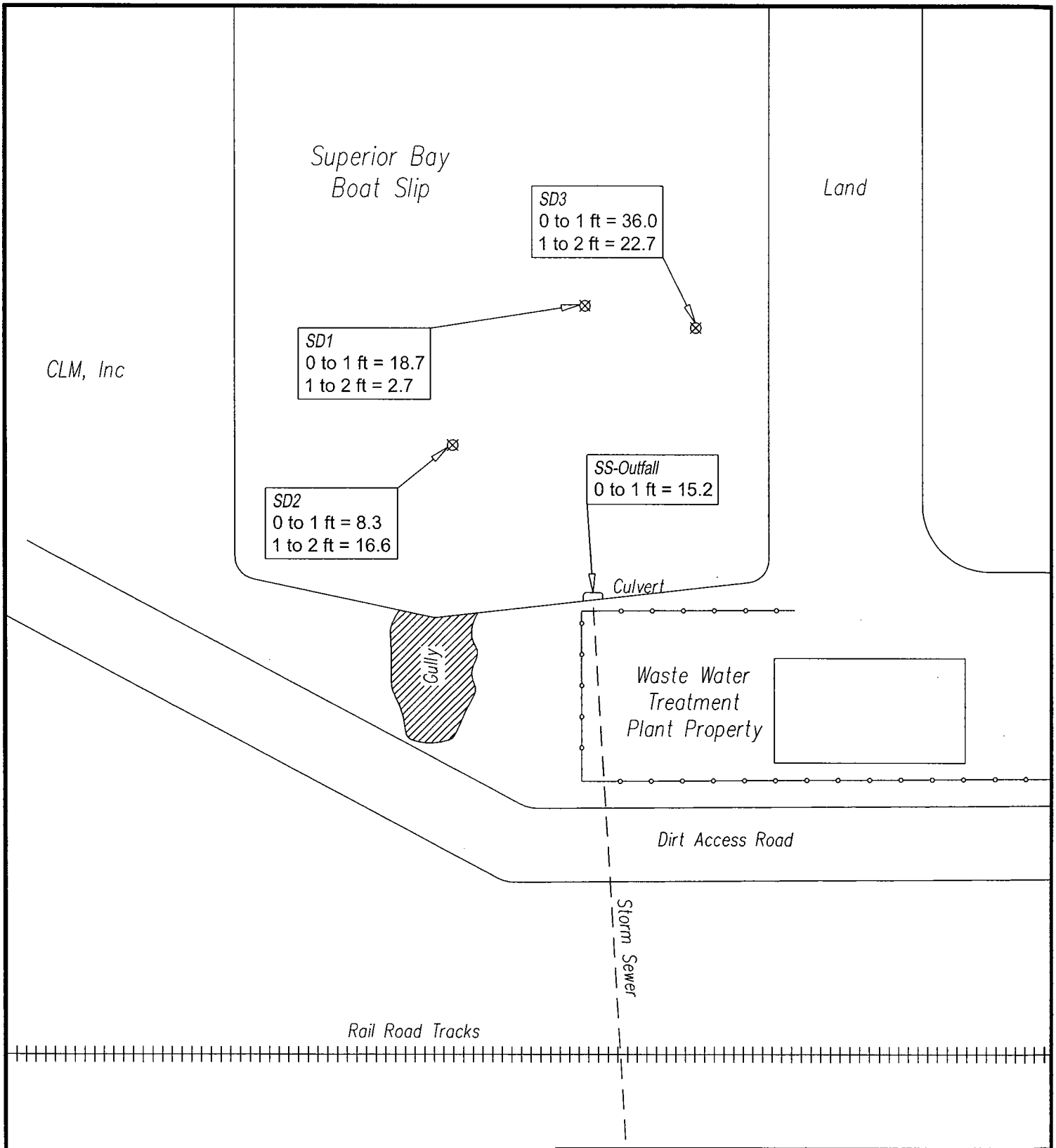
N

ENSR INTERNATIONAL

FIGURE 3-2

STORM SEWER SAMPLE LOCATIONS
Superior Water Light & Power
Former MGP
Superior, Wisconsin

DRAWN: C. Boehm	DATE: September 2003	PROJECT NO: 09413-098-500	REV: 0
FILE NO.: FIG 3-2.doc	CHECKED: B. Gregg		



Explanation:

SD1 ⊠ = Sediment sample with sample depth in feet below sediment-water interface and total PAH concentration in parts per million (mg/kg)

APPROXIMATE SCALE
1 INCH = 50 FEET

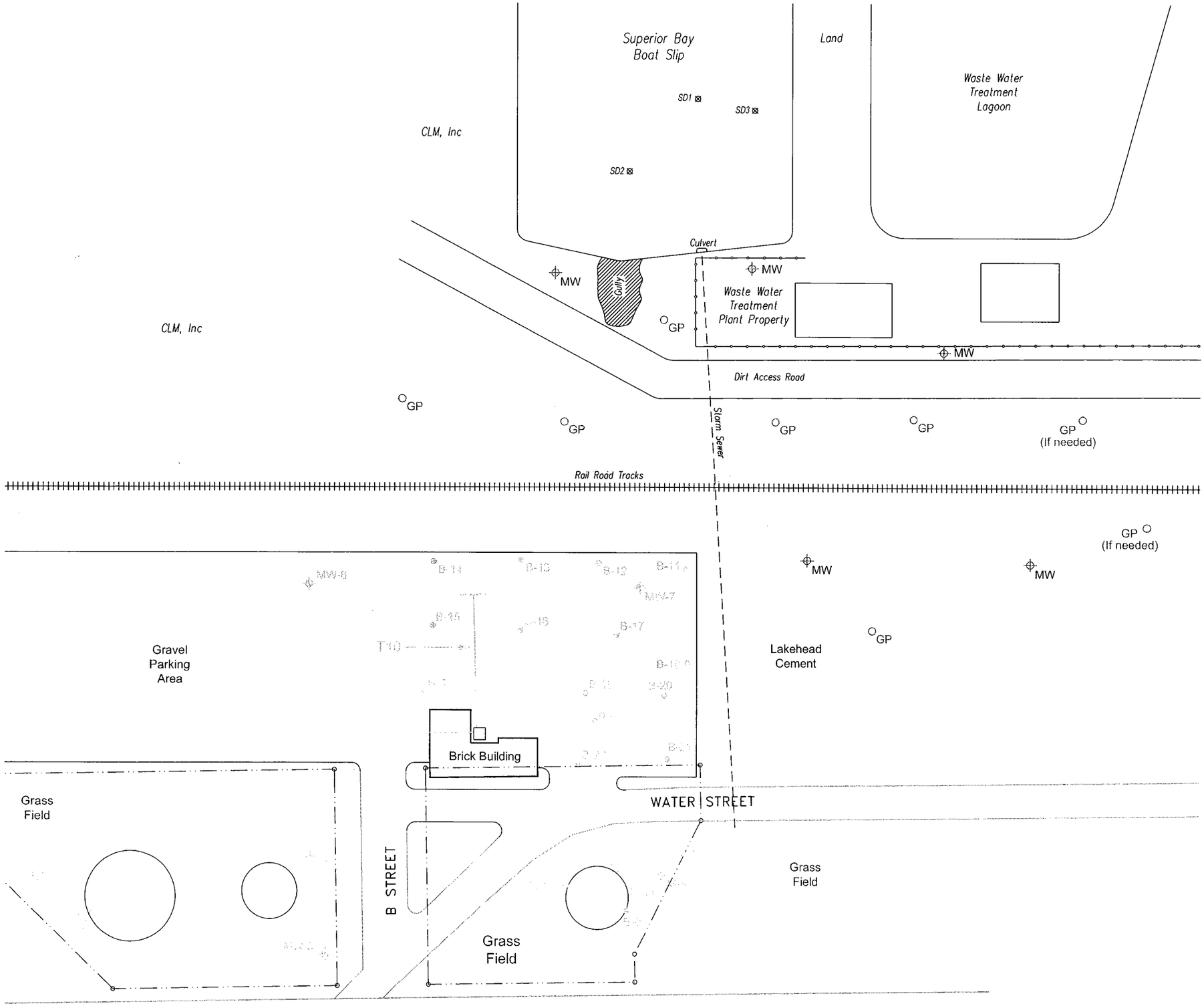
0 50

Source:

Salo Engineering Survey, 3/14/03 and ENSR field observations

Figure 4-1
TOTAL PAH CONCENTRATION IN SEDIMENT SAMPLES
Superior Water Light & Power
Former MGP
Superior, Wisconsin

DRAWN: CMB/5802	DATE: Sept 2003	ENSR INTERNATIONAL
FILE No.: Fig 4-1.dwg	PROJECT: 09413-098-500	



EXPLANATION:

○ GP	Proposed Geoprobe Boring
⊕ MW	Proposed Monitoring Well
	Railroad Tracks
	SWL&P Property Boundary
⊠ SD1	Sediment Sample Location (March 2003)
⊕ B-2	Geoprobe Soil Boring (Nov 2001/Sept 2002)
⊕ MW-1	Monitoring Well Location (Nov 2001)
T10	Test Trench (Nov 2001/Sept 2002)
	Former Gas Holder

NOTES:

TR1 to TR4 and TR6 to TR9, B-1 to B-7, and MW-1 to MW-7 were in were installed in November 2001.

TR10 and B-9 to B-23 were in were installed in September 2002.

SOURCE:

Survey of SWL&P Property performed by Salo Engineering, dated 12/13/01 and ENSR field observations.

APPROXIMATE SCALE
1 INCH = 70 FEET

0 70 140

Figure 5-1
PROPOSED GEOPROBE BORING AND MONITORING WELL LOCATIONS
Superior Water Light & Power
Former MGP
Superior, Wisconsin

DRAWN: CMB/5802	DATE: Nov. 2003	ENSR INTERNATIONAL
FILE No.: Fig 1-2.dwg	PROJECT: 09413-098	

TABLE

SWL&P Former MGP
Sediment Investigation Report
March 2004

Table 4-1
Summary of Sediment Sample Analtical Results
Superior Water Light Power Former MGP
Superior, Wisconsin

PAH Compound	SD1-0-1	SD1-1-2	SD2-0-1	SD2-1-2	SD3-0-1	SD3-1-2	SS-Outfall
1-Methylnaphthalene	400	90	270	490	1,600	1,200	390
2-Methylnaphthalene	400	95	260	510	970	1,600	440
Acenaphthene	550	120	300	380	2,200	1,500	500
Acenaphthylene	400	46	92	77	520	300	110
Anthracene	620	110	290	540	1,400	1,100	580
Benzo(a)anthracene	1,400	160	530	1,100	2,400	950	860
Benzo(a)pyrene	1,700	170	530	1,100	2,400	890	740
Benzo(b)fluoranthene	1,000	130	410	970	1,400	460	590
Benzo(ghi)perylene	680	70	210	330	780	290	230
Benzo(k)fluoranthene	1,200	120	410	910	1,800	600	650
Chrysene	1,400	160	550	1,100	2,400	940	880
Dibenzo(a,h)anthracene	190	19	65	120	250	68	110
Fluoranthene	2,200	320	1,100	2,600	4,200	2,000	2,200
Fluorene	320	68	210	350	1,000	730	560
Indeno(1,2,3-cd)pyrene	680	70	230	400	840	280	250
Naphthalene	740	160	520	870	1,600	3,300	1,400
Phenanthrene	2,200	360	1,300	2,500	5,300	3,800	3,000
Pyrene	2,600	380	1,000	2,300	4,900	2,700	1,700
Total PAH	18,680	2,648	8,277	16,647	35,960	22,708	15,190

Notes:

Samples SD1, SD2, and SD3 were collected on 3/12/03. Sample SS-Outfall was collected on 4/15/03.
Sample depth in feet is indicated following the sample number. (e.g. SD1-0-1 = Sample point SD1, depth zero to one foot below the sediment-water interface.)
All results are reported in micrograms per kilogram (ug/kg) or parts per billion.

APPENDIX A
Survey of Sample Locations

SWL&P Former MGP
Sediment Investigation Report
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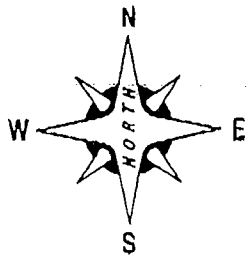
TP = ICE BORINGS

SD-1
Elev: 600.90
N: 308311.66
E: 154494.88

SD-3
Elev: 601.10
N: 308276.65
E: 154516.36

SD-2
Elev: 601.10
N: 308310.10
E: 154423.43

72" CULVERT
N: 308231.81
E: 154419.44



SCALE

0 30' 60'

L-4116

CITY OF SUPERIOR, DOUGLAS COUNTY, WI.

I HEREBY CERTIFY THAT THIS SURVEY WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH CHAPTER AE-7 AND THAT IT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DALE L. BERNTSEN
SIGNATURE PRINTED NAME

3/14/03
DATE

REQ. NO.

NO	DATE	REVISION	BY
1			
2			
3			

BORE HOLES AND CULVERT LOCATION
FOR: ENSR INTERNATIONAL

APPENDIX B
EnChem Laboratory Analytical Report

SWL&P Former MGP
Sediment Investigation Report
March 2004

EN CHEM INC.

Corporate Office & Laboratory
1241 Bellevue Street, Suite 9 • Green Bay, WI 54302
920-469-2436 • FAX: 920-469-8827 • 800-7-ENCHEM
www.enchem.com

- Analytical Report -

Project Name : SWL&P MGP

Project Number : 09413-098 **Client: ENSR-MN**

WI DNR LAB ID : 405132750

Sample No.	Field ID	Collection Date	Sample No.	Field ID	Collection Date
832159-001	SD1-0-1	03/12/03			
832159-002	SD1-1-2	03/12/03			
832159-003	SD2-0-1	03/12/03			
832159-004	SD2-1-2	03/12/03			
832159-005	SD3-0-1	03/12/03			
832159-006	SD3-1-2	03/12/03			

Please visit our Internet homepage at: www.enchem.com

The "Q" flag is present when a parameter has been detected below the LOQ. This indicates the results are qualified due to the uncertainty of the parameter concentration between the LOD and the LOQ.

Soil VOC detects are corrected for the total solids, unless otherwise noted.

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. Reported results shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested.

Approval Signature

04/01/03
Date

En Chem, Inc. Cooler Receipt Log

Batch No. 832159

Project Name or ID 0943-098 No. of Coolers: 1 Temps: RT

A. Receipt Phase: Date cooler was opened: 3-14-03 **By:** KK

1: Were samples received on ice? (Must be ≤ 6 C)	(YES)	NO[2]	
2. Was there a Temperature Blank?	(YES)	NO	
3: Were custody seals present and intact? (Record on COC)	YES	(NO)	
4: Are COC documents present?	(YES)	NO[2]	
5: Does this Project require quick turn around analysis?	YES	(NO)	
6: Is there any sub-work?	YES	(NO)	
7: Are there any short hold time tests?	YES	(NO)	
8: Are any samples nearing expiration of hold-time? (Within 2 days)	YES[1]	(NO)	Contacted by/Who_____
9: Do any samples need to be Filtered or Preserved in the lab?	YES[1]	(NO)	Contacted by/Who_____

B. Check-in Phase: Date samples were Checked-in: 3-14-03 **By:** KK

1: Were all sample containers listed on the COC received and intact?	(YES)	NO[2]	NA
2: Sign the COC as received by En Chem. Completed	(YES)	NO	
3: Do sample labels match the COC?	(YES)	NO[2]	
4: Check sample pH of preserved samples. (Not VOCs) Completed	YES	NO	(NA)
5: Do samples have correct chemical preservation?	YES	NO[2]	(NA)
6: Are dissolved parameters field filtered?	YES	NO[2]	(NA)
7: Are sample volumes adequate for tests requested?	(YES)	NO[2]	
8: Are VOC samples free of bubbles >6mm	YES	NO[2]	(NA)
9: Enter samples into logbook. Completed	(YES)	NO	
10: Place laboratory sample number on all containers and COC. Completed	(YES)	NO	
11: Complete Laboratory Tracking Sheet (LTS). Completed	YES	NO	(NA)
12: Start Nonconformance form.	YES	NO	(NA)
13: Initiate Subcontracting procedure. Completed	YES	NO	(NA)
14: Check laboratory sample number on all containers and COC. GO	(YES)	NO	NA

Short Hold-time tests:

48 Hours or less	7 days
Coliform (6 hrs)	Flashpoint
Hexavalent Chromium (24 Hrs)	TSS
BOD	Total Solids
Nitrite or Nitrate	TDS
Low Level Mercury	Sulfide
Ortho Phosphorus	Free Liquids
Turbidity	Total Volatile Solids
Surfactants	Aqueous Extractable Organics- ALL
Sulfite	Unpreserved VOC's
En Core Preservation	Ash
Color	

Footnotes
1 Notify proper lab group immediately.
2 Complete nonconformance memo.

Rev. 9/5/2001, Attachment to 1-REC-5.
Subject to QA Audit.

Reviewed by/date WW 3/17/03

p:/everyone/forms/samplereceiving/crl.doc

En Chem Inc.

1241 Bellevue Street
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

- Analytical Report -

Project Name : SWL&P MGP
Project Number : 09413-098
Field ID : SD1-0-1
Lab Sample Number : 832159-001
WI DNR LAB ID : 405132750
Client : ENSR-MN
Report Date : 04/01/03
Collection Date : 03/12/03
Matrix Type : SOIL

Inorganic Results

Test	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method	Analyst
Solids, percent	75.6				%		03/15/03	SM 2540G M	SM 2540G M	KJP

Organic Results

PAH/PNA - SEMIVOLATILES **Prep Method:** SW846 3545 **Prep Date:** 03/20/03 **Analyst:** aro

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
Acenaphthene	550	58	180		ug/kg		03/24/03	SW846 8270C
Acenaphthylene	400	95	300		ug/kg		03/24/03	SW846 8270C
Anthracene	620	58	180		ug/kg		03/24/03	SW846 8270C
Benzo(a)anthracene	1400	32	100		ug/kg		03/24/03	SW846 8270C
Benzo(a)pyrene	1700	32	100		ug/kg		03/24/03	SW846 8270C
Benzo(b)fluoranthene	1000	34	110		ug/kg		03/24/03	SW846 8270C
Benzo(ghi)perylene	680	64	200		ug/kg		03/24/03	SW846 8270C
Benzo(k)fluoranthene	1200	48	150		ug/kg		03/24/03	SW846 8270C
Chrysene	1400	37	120		ug/kg		03/24/03	SW846 8270C
Dibenzo(a,h)anthracene	190	39	120		ug/kg		03/24/03	SW846 8270C
Fluoranthene	2200	42	130		ug/kg		03/24/03	SW846 8270C
Fluorene	320	32	100		ug/kg		03/24/03	SW846 8270C
Indeno(1,2,3-cd)pyrene	680	58	180		ug/kg		03/24/03	SW846 8270C
1-Methylnaphthalene	400	37	120		ug/kg		03/24/03	SW846 8270C
2-Methylnaphthalene	400	40	130		ug/kg		03/24/03	SW846 8270C
Naphthalene	740	40	130		ug/kg		03/24/03	SW846 8270C
Phenanthrene	2200	42	130		ug/kg		03/24/03	SW846 8270C
Pyrene	2600	69	220		ug/kg		03/24/03	SW846 8270C
Nitrobenzene-d5	50				%Recov		03/24/03	SW846 8270C
2-Fluorobiphenyl	50				%Recov		03/24/03	SW846 8270C
Terphenyl-d14	56				%Recov		03/24/03	SW846 8270C

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- Analytical Report -

Project Name : SWL&P MGP

Project Number : 09413-098 **Client :** ENSR-MN

Field ID : SD1-1-2 **Report Date :** 04/01/03

Lab Sample Number : 832159-002 **Collection Date :** 03/12/03

WI DNR LAB ID : 405132750 **Matrix Type :** SOIL

Inorganic Results

Test	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method	Analyst
Solids, percent	78.6				%		03/15/03	SM 2540G M	SM 2540G M	KJP

Organic Results

PAH/PNA - SEMIVOLATILES **Prep Method:** SW846 3545 **Prep Date:** 03/20/03 **Analyst:** aro

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
Acenaphthene	120	28	89		ug/kg		03/24/03	SW846 8270C
Acenaphthylene	< 46	46	150		ug/kg		03/24/03	SW846 8270C
Anthracene	110	28	89		ug/kg		03/24/03	SW846 8270C
Benzo(a)anthracene	160	15	48		ug/kg		03/24/03	SW846 8270C
Benzo(a)pyrene	170	15	48		ug/kg		03/24/03	SW846 8270C
Benzo(b)fluoranthene	130	17	54		ug/kg		03/24/03	SW846 8270C
Benzo(ghi)perylene	70	31	99		ug/kg	Q	03/24/03	SW846 8270C
Benzo(k)fluoranthene	120	23	73		ug/kg		03/24/03	SW846 8270C
Chrysene	160	18	57		ug/kg		03/24/03	SW846 8270C
Dibenzo(a,h)anthracene	19	19	61		ug/kg	Q	03/24/03	SW846 8270C
Fluoranthene	320	20	64		ug/kg		03/24/03	SW846 8270C
Fluorene	68	15	48		ug/kg		03/24/03	SW846 8270C
Indeno(1,2,3-cd)pyrene	70	28	89		ug/kg	Q	03/24/03	SW846 8270C
1-Methylnaphthalene	90	18	57		ug/kg		03/24/03	SW846 8270C
2-Methylnaphthalene	95	19	61		ug/kg		03/24/03	SW846 8270C
Naphthalene	160	19	61		ug/kg		03/24/03	SW846 8270C
Phenanthrene	360	20	64		ug/kg		03/24/03	SW846 8270C
Pyrene	380	33	110		ug/kg		03/24/03	SW846 8270C
Nitrobenzene-d5	40				%Recov		03/24/03	SW846 8270C
2-Fluorobiphenyl	61				%Recov		03/24/03	SW846 8270C
Terphenyl-d14	78				%Recov		03/24/03	SW846 8270C

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- Analytical Report -

Project Name : SWL&P MGP

Project Number : 09413-098

Client : ENSR-MN

Field ID : SD2-0-1

Report Date : 04/01/03

Lab Sample Number : 832159-003

Collection Date : 03/12/03

WI DNR LAB ID : 405132750

Matrix Type : SOIL

Inorganic Results

Test	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method	Analyst
Solids, percent	69.9				%		03/15/03	SM 2540G M	SM 2540G M	KJP

Organic Results

PAH/PNA - SEMIVOLATILES **Prep Method:** SW846 3545 **Prep Date:** 03/20/03 **Analyst:** aro

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
Acenaphthene	300	31	99		ug/kg		03/24/03	SW846 8270C
Acenaphthylene	92	51	160		ug/kg	Q	03/24/03	SW846 8270C
Anthracene	290	31	99		ug/kg		03/24/03	SW846 8270C
Benzo(a)anthracene	530	17	54		ug/kg		03/24/03	SW846 8270C
Benzo(a)pyrene	530	17	54		ug/kg		03/24/03	SW846 8270C
Benzo(b)fluoranthene	410	19	61		ug/kg		03/24/03	SW846 8270C
Benzo(ghi)perylene	210	34	110		ug/kg		03/24/03	SW846 8270C
Benzo(k)fluoranthene	410	26	83		ug/kg		03/24/03	SW846 8270C
Chrysene	550	20	64		ug/kg		03/24/03	SW846 8270C
Dibenzo(a,h)anthracene	65	21	67		ug/kg	Q	03/24/03	SW846 8270C
Fluoranthene	1100	23	73		ug/kg		03/24/03	SW846 8270C
Fluorene	210	17	54		ug/kg		03/24/03	SW846 8270C
Indeno(1,2,3-cd)pyrene	230	31	99		ug/kg		03/24/03	SW846 8270C
1-Methylnaphthalene	270	20	64		ug/kg		03/24/03	SW846 8270C
2-Methylnaphthalene	260	21	67		ug/kg		03/24/03	SW846 8270C
Naphthalene	520	21	67		ug/kg		03/24/03	SW846 8270C
Phenanthrene	1300	23	73		ug/kg		03/24/03	SW846 8270C
Pyrene	1000	37	120		ug/kg		03/24/03	SW846 8270C
Nitrobenzene-d5	42				%Recov		03/24/03	SW846 8270C
2-Fluorobiphenyl	64				%Recov		03/24/03	SW846 8270C
Terphenyl-d14	82				%Recov		03/24/03	SW846 8270C

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Green Bay, WI 54302
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- Analytical Report -

Project Name : SWL&P MGP

Project Number : 09413-098 **Client :** ENSR-MN

Field ID : SD2-1-2 **Report Date :** 04/01/03

Lab Sample Number : 832159-004 **Collection Date :** 03/12/03

WI DNR LAB ID : 405132750 **Matrix Type :** SOIL

Inorganic Results

Test	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method	Analyst
Solids, percent	67.9				%		03/15/03	SM 2540G M	SM 2540G M	KJP

Organic Results

PAH/PNA - SEMIVOLATILES **Prep Method:** SW846 3545 **Prep Date:** 03/20/03 **Analyst:** aro

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
Acenaphthene	380	32	100		ug/kg		03/24/03	SW846 8270C
Acenaphthylene	77	53	170		ug/kg	Q	03/24/03	SW846 8270C
Anthracene	540	32	100		ug/kg		03/24/03	SW846 8270C
Benzo(a)anthracene	1100	18	57		ug/kg		03/24/03	SW846 8270C
Benzo(a)pyrene	1100	18	57		ug/kg		03/24/03	SW846 8270C
Benzo(b)fluoranthene	970	19	61		ug/kg		03/24/03	SW846 8270C
Benzo(ghi)perylene	330	35	110		ug/kg		03/24/03	SW846 8270C
Benzo(k)fluoranthene	910	27	86		ug/kg		03/24/03	SW846 8270C
Chrysene	1100	20	64		ug/kg		03/24/03	SW846 8270C
Dibenzo(a,h)anthracene	120	22	70		ug/kg		03/24/03	SW846 8270C
Fluoranthene	2600	24	76		ug/kg		03/24/03	SW846 8270C
Fluorene	350	18	57		ug/kg		03/24/03	SW846 8270C
Indeno(1,2,3-cd)pyrene	400	32	100		ug/kg		03/24/03	SW846 8270C
1-Methylnaphthalene	490	21	67		ug/kg		03/24/03	SW846 8270C
2-Methylnaphthalene	510	22	70		ug/kg		03/24/03	SW846 8270C
Naphthalene	870	22	70		ug/kg		03/24/03	SW846 8270C
Phenanthrene	2500	24	76		ug/kg		03/24/03	SW846 8270C
Pyrene	2300	38	120		ug/kg		03/24/03	SW846 8270C
Nitrobenzene-d5	48				%Recov		03/24/03	SW846 8270C
2-Fluorobiphenyl	67				%Recov		03/24/03	SW846 8270C
Terphenyl-d14	85				%Recov		03/24/03	SW846 8270C

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- Analytical Report -

Project Name : SWL&P MGP
Project Number : 09413-098
Client : ENSR-MN
Field ID : SD3-0-1
Report Date : 04/01/03
Lab Sample Number : 832159-005
Collection Date : 03/12/03
WI DNR LAB ID : 405132750
Matrix Type : SOIL

Inorganic Results

Test	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method	Analyst
Solids, percent	70.7				%		03/15/03	SM 2540G M	SM 2540G M	KJP

Organic Results

PAH/PNA - SEMIVOLATILES **Prep Method:** SW846 3545 **Prep Date:** 03/20/03 **Analyst:** aro

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
Acenaphthene	2200	120	380		ug/kg		03/25/03	SW846 8270C
Acenaphthylene	520	200	640		ug/kg	Q	03/25/03	SW846 8270C
Anthracene	1400	120	380		ug/kg		03/25/03	SW846 8270C
Benzo(a)anthracene	2400	68	220		ug/kg		03/25/03	SW846 8270C
Benzo(a)pyrene	2400	68	220		ug/kg		03/25/03	SW846 8270C
Benzo(b)fluoranthene	1400	74	240		ug/kg		03/25/03	SW846 8270C
Benzo(ghi)perylene	780	140	450		ug/kg		03/25/03	SW846 8270C
Benzo(k)fluoranthene	1800	100	320		ug/kg		03/25/03	SW846 8270C
Chrysene	2400	78	250		ug/kg		03/25/03	SW846 8270C
Dibenzo(a,h)anthracene	250	84	270		ug/kg	Q	03/25/03	SW846 8270C
Fluoranthene	4200	91	290		ug/kg		03/25/03	SW846 8270C
Fluorene	1000	68	220		ug/kg		03/25/03	SW846 8270C
Indeno(1,2,3-cd)pyrene	840	120	380		ug/kg		03/25/03	SW846 8270C
1-Methylnaphthalene	1600	79	250		ug/kg		03/25/03	SW846 8270C
2-Methylnaphthalene	970	85	270		ug/kg		03/25/03	SW846 8270C
Naphthalene	1600	85	270		ug/kg		03/25/03	SW846 8270C
Phenanthrene	5300	91	290		ug/kg		03/25/03	SW846 8270C
Pyrene	4900	150	480		ug/kg		03/25/03	SW846 8270C
Nitrobenzene-d5	41				%Recov		03/25/03	SW846 8270C
2-Fluorobiphenyl	55				%Recov		03/25/03	SW846 8270C
Terphenyl-d14	71				%Recov		03/25/03	SW846 8270C

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- Analytical Report -

Project Name : SWL&P MGP
Project Number : 09413-098
Field ID : SD3-1-2
Lab Sample Number : 832159-006
WI DNR LAB ID : 405132750
Client : ENSR-MN
Report Date : 04/01/03
Collection Date : 03/12/03
Matrix Type : SOIL

Inorganic Results

Test	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method	Analyst
Solids, percent	70.8				%		03/15/03	SM 2540G M	SM 2540G M	KJP

Organic Results

PAH/PNA - SEMIVOLATILES **Prep Method:** SW846 3545 **Prep Date:** 03/20/03 **Analyst:** aro

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
Acenaphthene	1500	62	200		ug/kg		03/25/03	SW846 8270C
Acenaphthylene	300	100	320		ug/kg	Q	03/25/03	SW846 8270C
Anthracene	1100	62	200		ug/kg		03/25/03	SW846 8270C
Benzo(a)anthracene	950	34	110		ug/kg		03/25/03	SW846 8270C
Benzo(a)pyrene	890	34	110		ug/kg		03/25/03	SW846 8270C
Benzo(b)fluoranthene	460	37	120		ug/kg		03/25/03	SW846 8270C
Benzo(ghi)perylene	290	68	220		ug/kg		03/25/03	SW846 8270C
Benzo(k)fluoranthene	600	51	160		ug/kg		03/25/03	SW846 8270C
Chrysene	940	39	120		ug/kg		03/25/03	SW846 8270C
Dibenzo(a,h)anthracene	68	42	130		ug/kg	Q	03/25/03	SW846 8270C
Fluoranthene	2000	45	140		ug/kg		03/25/03	SW846 8270C
Fluorene	730	34	110		ug/kg		03/25/03	SW846 8270C
Indeno(1,2,3-cd)pyrene	280	62	200		ug/kg		03/25/03	SW846 8270C
1-Methylnaphthalene	1200	40	130		ug/kg		03/25/03	SW846 8270C
2-Methylnaphthalene	1600	42	130		ug/kg		03/25/03	SW846 8270C
Naphthalene	3300	42	130		ug/kg		03/25/03	SW846 8270C
Phenanthrene	3800	45	140		ug/kg		03/25/03	SW846 8270C
Pyrene	2700	73	230		ug/kg		03/25/03	SW846 8270C
Nitrobenzene-d5	36				%Recov		03/25/03	SW846 8270C
2-Fluorobiphenyl	54				%Recov		03/25/03	SW846 8270C
Terphenyl-d14	76				%Recov		03/25/03	SW846 8270C

All soil results are reported on a dry weight basis unless otherwise noted.

(Please Print Legibly)

Company Name: ENSR

Branch or Location: Maple Grove

Project Contact: Bill Gregg

Telephone: 952-953-0117

Project Number: 09413-098

Project Name: SWL&P MGP

Project State: WI

Sampled By (Print): Chris Boehm

EN CHEM INC.

1241 Bellevue St., Suite 9
Green Bay, WI 54302
920-469-2436
FAX 920-469-8827

CHAIN OF CUSTODY

99244

Page 1 of 1

P.O. # _____ Quote # _____

Mail Report To: Bill Gregg

Company: ENSR

Address: 4500 Park Glen Rd, Suite 210
St Louis Park, MN 55416

Invoice To: -Same-

Company: _____

Address: _____

Mail Invoice To: _____

*Preservation Codes

A=None B=HCL C=H2SO4 D=HNO3 E=EnCore F=Methanol G=NaOH
H = Sodium Bisulfate Solution I = Sodium Thiosulfate J = Other

Data Package Options - (please circle if requested)

Sample Results Only (no QC)
EPA Level II (Subject to Surcharge)
EPA Level III (Subject to Surcharge)
EPA Level IV (Subject to Surcharge)

Regulatory Program	Matrix Codes
UST	W=Water
RCRA	S=Soil
SDWA	A=Air
NPDES	C=Charcoal
CERCLA	B=Biota
	Sl=Sludge

LABORATORY ID (Lab Use Only)	FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO)	PRESERVATION (CODE)*	ANALYSES REQUESTED: PAH 8270	TOTAL # OF BOTTLES SENT	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
001	SD1-0-1	3/12/03	1145	S		X		1	4-8oz Amber KK 3-14-03	
002	SD1-1-2		1150							
003	SD2-0-1		1230							
004	SD2-1-2		1240							
005	SD3-0-1		1330							
006	SD3-1-2		1340							

Rush Turnaround Time Requested (TAT) - Prelim

(Rush TAT subject to approval/surcharge)

Date Needed: Standard TAT - Invoice

Transmit Prelim Rush Results by (circle):

Phone Fax E-Mail

Phone #: _____

Fax #: _____

E-Mail Address: kwrenn@ensr.com

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
Chris Boehm	3/12/03 1530	[illegible]	3-12-03 15:50
[illegible]	3-13-03 14:00	Dunham	3-13-03 14:00
Dunham		Gloria Arthur	3/14/03 0755

En Chem Project No.: 032159.1

Sample Receipt Temp: ROI / ROI

Sample Receipt pH (Wet/Metals): N/A

Cooler Custody Seal: Present / Not Present

Intact / Not Intact

Version 2.0: 1/02

EN CHEM INC.

Corporate Office & Laboratory
1241 Bellevue Street, Suite 9 • Green Bay, WI 54302
920-469-2436 • FAX: 920-469-8827 • 800-7-ENCHEM
www.enchem.com

Analytical Report Number: 833349

Client : ENSR CORPORATION

Project Name : SWL & PMGP

Project Number : 09413-098-500

Lab Sample Number	Field ID	Matrix	Collection Date
833349-001	SS-OUTFALL	SOIL	04/15/03

The "Q" flag is present when a parameter has been detected below the LOQ. This indicates the results are qualified due to the uncertainty of the parameter concentration between the LOD and the LOQ.

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. Reported results shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested.

Approval Signature

4/22/03

Date

En Chem, Inc. Cooler Receipt Log

Batch No. 833349

Project Name or ID 09413-098-500 No. of Coolers: 1 Temps: 1.7°C

A. Receipt Phase: Date cooler was opened: 4-17-03 **By:** AM

1: Were samples received on ice? (Must be ≤ 6 C)	(YES)	NO[2]	
2. Was there a Temperature Blank?	(YES)	NO	
3: Were custody seals present and intact? (Record on COC)	YES	(NO)	
4: Are COC documents present?	(YES)	NO[2]	
5: Does this Project require quick turn around analysis?	(YES)	NO	
6: Is there any sub-work?	YES	(NO)	
7: Are there any short hold time tests?	YES	(NO)	
8: Are any samples nearing expiration of hold-time? (Within 2 days)	YES[1]	(NO)	Contacted by/Who_____
9: Do any samples need to be Filtered or Preserved in the lab?	YES[1]	(NO)	Contacted by/Who_____

B. Check-in Phase: Date samples were Checked-in: 4-17-03 **By:** AM

1: Were all sample containers listed on the COC received and intact?	(YES)	NO[2]	NA
2: Sign the COC as received by En Chem. Completed	(YES)	NO	
3: Do sample labels match the COC?	(YES)	NO[2]	
4: Completed pH check on preserved samples.. *(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)*	YES	NO	(NA)
5: Do samples have correct chemical preservation? *(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)*	YES	NO[2]	(NA)
6: Are dissolved parameters field filtered?	YES	NO[2]	(NA)
7: Are sample volumes adequate for tests requested?	(YES)	NO[2]	
8: Are VOC samples free of bubbles >6mm	YES	NO[2]	(NA)
9: Enter samples into logbook. Completed	(YES)	NO	
10: Place laboratory sample number on all containers and COC. Completed	(YES)	NO	
11: Complete Laboratory Tracking Sheet (LTS). Completed	YES	NO	(NA)
12: Start Nonconformance form.	YES	NO	(NA)
13: Initiate Subcontracting procedure. Completed	YES	NO	(NA)
14: Check laboratory sample number on all containers and COC. GAO	(YES)	NO	NA

Short Hold-time tests:

48 Hours or less	7 days
Coliform (6 hrs)	Flashpoint
Hexavalent Chromium (24 Hrs)	TSS
BOD	Total Solids
Nitrite or Nitrate	TDS
Low Level Mercury	Sulfide
Ortho Phosphorus	Free Liquids
Turbidity	Total Volatile Solids
Surfactants	Aqueous Extractable Organics- ALL
Sulfite	Unpreserved VOC's
En Core Preservation	Ash
Color	

Footnotes
1 Notify proper lab group immediately.
2 Complete nonconformance memo.

Rev. 4/11/03, Attachment to 1-REC-5.
Subject to QA Audit.

Reviewed by/date WW 4/18/03

En Chem Inc.

Analysis Summary by Laboratory

Test Group Name	833349-001
PAH/PNA	G
PERCENT SOLIDS	G

WISCONSIN Certification	
G = En Chem Green Bay	405132750
K = En Chem Kimberly	445134030
S = Subcontracted Analysis	

En Chem Inc.

1241 Bellevue Street
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Fax: 920-469-8827

Analytical Report Number: 833349

Client : ENSR CORPORATION
Project Name : SWL & PMGP
Project Number : 09413-098-500
Field ID : SS-OUTFALL

Matrix Type : SOIL
Collection Date : 04/15/03
Report Date : 04/21/03
Lab Sample Number : 833349-001

INORGANICS

Test	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method	Analyst
Percent Solids	87.4				%		04/17/03	SM 2540G M	SM 2540G M	CX

PAH/PNA

Prep Method: SW846 3545 **Prep Date:** 04/21/03 **Analyst:** aro

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
1-Methylnaphthalene	390	40	130		ug/kg		04/18/03	SW846 8270C
2-Methylnaphthalene	440	43	140		ug/kg		04/18/03	SW846 8270C
Acenaphthene	500	63	200		ug/kg		04/18/03	SW846 8270C
Acenaphthylene	110	100	320		ug/kg	Q	04/18/03	SW846 8270C
Anthracene	580	63	200		ug/kg		04/18/03	SW846 8270C
Benzo(a)anthracene	860	34	110		ug/kg		04/18/03	SW846 8270C
Benzo(a)pyrene	740	34	110		ug/kg		04/18/03	SW846 8270C
Benzo(b)fluoranthene	590	37	120		ug/kg		04/18/03	SW846 8270C
Benzo(ghi)perylene	230	69	220		ug/kg		04/18/03	SW846 8270C
Benzo(k)fluoranthene	650	51	160		ug/kg		04/18/03	SW846 8270C
Chrysene	880	39	120		ug/kg		04/18/03	SW846 8270C
Dibenzo(a,h)anthracene	110	42	130		ug/kg	Q	04/18/03	SW846 8270C
Fluoranthene	2200	46	150		ug/kg		04/18/03	SW846 8270C
Fluorene	560	34	110		ug/kg		04/18/03	SW846 8270C
Indeno(1,2,3-cd)pyrene	250	63	200		ug/kg		04/18/03	SW846 8270C
Naphthalene	1400	43	140		ug/kg		04/18/03	SW846 8270C
Phenanthrene	3000	46	150		ug/kg		04/18/03	SW846 8270C
Pyrene	1700	74	240		ug/kg		04/18/03	SW846 8270C
Nitrobenzene-d5	51				%Recov		04/18/03	SW846 8270C
2-Fluorobiphenyl	44				%Recov		04/18/03	SW846 8270C
Terphenyl-d14	49				%Recov		04/18/03	SW846 8270C

All soil results are reported on a dry weight basis unless otherwise noted.

(Please Print Legibly)

Company Name: ENSR

Branch or Location: Mpls, MN

Project Contact: Bill Gregg

Telephone: 952-924-8117

Project Number: 09413-098-500

Project Name: SWL+PMGP

Project State: WI

Sampled By (Print): Chris Boehm

EN CHEM INC.

☐ 1241 Bellevue St., Suite 9, Green Bay, WI 54302, 920-469-2436, FAX 920-469-8827

☐ 525 Science Drive, Madison, WI 53711, 608-232-3300, FAX: 608-233-0502

CHAIN OF CUSTODY

Page 1 of 1

P.O. # ______ Quote # ______

Mail Report To: Bill Gregg

Company: ENSR

Address: [illegible] Rd, Suite 210, St. Louis Park, MN 55416

Invoice To: Same

Company:

Address:

Mail Invoice To:

*Preservation Codes

A=None B=HCL C=H2SO4 D=HNO3 E=EnCore F=Methanol G=NaOH H = Sodium Bisulfate Solution I = Sodium Thiosulfate J = Other

FILTERED? (YES/NO)

PRESERVATION (CODE)* 4

ANALYSES REQUESTED: PAH

not [illegible] 4-23-03 4-28-03

Data Package Options - (please circle if requested)

- Sample Results Only (no QC)
- EPA Level II (Subject to Surcharge)
- EPA Level III (Subject to Surcharge)
- EPA Level IV (Subject to Surcharge)

Regulatory Program: UST, RCRA, SDWA, NPDES, CERCLA

Matrix Codes: W=Water, S=Soil, A=Air, C=Charcoal, B=Biota, SI=Sludge

LABORATORY ID (Lab Use Only)	FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	PAH							TOTAL # OF BOTTLES SENT	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
001	SS-outfall	4/15/03	1550	S	X							1		[illegible]

Rush Turnaround Time Requested (TAT) - Prelim (Rush TAT subject to approval/surcharge)

Date Needed: Standard

Transmit Prelim Rush Results by (circle): Phone Fax E-Mail

Phone #:

Fax #:

E-Mail Address:

Samples on HOLD are subject to special pricing and release of liability

Relinquished By	Date/Time	Received By	Date/Time
Chris Boehm	4/15/03/1620	[signature]	4-15-03 16:20
[signature]	4-16-03 14:00	Dunham	4-16-03 [illegible]
Dunham	4-17-03 8:00	Annette Yanke	4-17-03 [illegible]

En Chem Project No. 883349

Sample Receipt Temp. 1.7°C

Sample Receipt pH (Wet/Metals) NA

Cooler Custody Seal: Present / Not Present (Not Present circled)

Intact / Not Intact

APPENDIX C
GTI Fingerprinting Analytical Report

SWL&P Former MGP
Sediment Investigation Report
March 2004

IGT Project Number: 49010-01

COMPARATIVE ANALYSIS OF EIGHT SOIL SAMPLES AND FIVE SEDIMENT SAMPLES FROM OR NEAR THE SWL&P FORMER MGP SITE, SUPERIOR, WISCONSIN

Prepared by

GAS TECHNOLOGY INSTITUTE
1700 South Mount Prospect Road
Des Plaines, Illinois 60018

For

SUPERIOR WATER, LIGHT & POWER
2915 Hill Avenue
P.O. Box 519
Superior, Wisconsin 54880

February, 2004

INTRODUCTION

Superior Water, Light and Power Company (SWL&P) has contracted Gas Technology Institute (GTI) to determine whether the organic residues found in soil samples from and sediment samples near their Superior, Wisconsin former manufactured gas plant (MGP) site are chemically similar or dissimilar to petrogenic, pyrogenic, or other organic materials specifically associated with MGP operations. GTI has performed a series of highly definitive, defendable tests designed to: (1) determine the generic source of the organic materials, (2) determine the chemical similarity or dissimilarity among all the samples, and (3) determine the exact composition of the samples.

Recent trends in environmental investigation, particularly of sites containing former MGP materials, have increasingly employed the use of environmental forensic techniques to identify specific wastes. Environmental forensic methodologies have been especially effective in discerning MGP-type tars from other tars and waste mixtures. Former MGP wastes possess distinct "chemical fingerprints," based upon the gas production process used and other factors. This attribute is also true of other tar wastes, such as asphalt/roofing tar and creosotes. Chemical fingerprinting has the capability to identify compounds associated with the tars, either tars from distinctly separate sources or tar purposely co-mingled with other compounds. Therefore, the analysis and comparison of specific fingerprints with known standards may elucidate the sources of the contamination.

Chemical fingerprinting has also been applied to site investigations to determine the extent of organic residues that may be attributable to specific sources. The chemical fingerprints of site samples can be compared to each other and to the fingerprints of off-site samples to determine if off-site impacts are caused by on-site sources. As a result, environmental forensic methods have been increasing applied to a variety of site investigation efforts. Chemical fingerprinting and comparison of data generated from the chemical fingerprinting analysis have more recently been applied to the identification of background contamination, as part of general urban and industrial activities.

Hydrocarbons, such as those found on former MGP sites, can be divided into three classes: (1) petrogenic substances, (2) pyrogenic substances, and (3) diagenetic substances. Petrogenic substances are defined as the substances that originate from petroleum, including crude oil, fuels, lubricants and the derivatives of those materials. Aliphatic and aromatic hydrocarbons constitute the vast majority of these compounds. Two features most clearly represent fresh crude oil include: (1) a regular series of normal alkanes peaks (the "picket fence") on the chromatogram and (2) the "hump" in the baseline of the chromatogram (unresolved complex mixture or UCM). The fraction of crude oil contained in the sample (e.g., gasoline, diesel fuel, and kerosene) can be determined by the examination of the elution time of the cluster of peaks and the presence of particular compounds.

Pyrogenic substances are defined as the organic substances that originate from oxygen-depleted, high temperature processes, which include incomplete combustion, pyrolysis, cracking, and destructive distillation. Pyrogenic materials consist primarily of aromatic hydrocarbons. By definition, tar is a pyrogenic material. MGP-type tars are distinct because of the conditions

under which they were formed; therefore, their chromatograms possess a particular pattern. Furthermore, the examination of the ratios of specific polycyclic aromatic hydrocarbons (PAHs) and alkylated PAHs can be used as indicator of the source of the tarry material. Typically, the ratios of fluoranthene to pyrene and dibenzofuran to fluorene are most often examined. Comparison of these ratios can differentiate MGP tars from non-MGP tars as well as within the grouping of MGP tars (e.g., carburetted water gas (CWG) tar from oil gas or coal carbonization tar). In addition, the identification of tars may also be based upon the relative abundance of certain PAHs, such as naphthalene and anthracene.

Finally, diagenetic substances include PAHs from natural sources. These sources include vascular plant debris (e.g., leaf waxes, resins and lipids), microbial biomass, and buried organic material, including municipal waste.

In general, the application of chemical fingerprinting for source identification has been particularly effective in source identification for "gross" contamination situations. However, the chemical identification techniques become less reliable and rigorous at low-levels of contamination (less than 50 ppm). Therefore, an alternate identification technique is needed. Recently developed instruments are capable of measuring the ratio of the two natural stable isotopes of carbon for individual PAHs in a sample. This method is called compound-specific carbon isotope ratio (CSIR) determination and is done with a GC/IRMS (gas chromatograph with an isotope ratio mass spectrometer). Researchers have noted that the carbon isotope ratios of PAHs from different hydrocarbon sources (e.g., coal, oil, and biomass) are often different. Because CSIR values are not dependent on chemical concentrations in the sample, CSIRs can provide a method for separating PAH sources when the PAH concentration profiles cannot.

METHODOLOGY

GTI has completed chemical forensic analysis of eight soil samples from and five sediment samples near a former MGP site in Superior, Wisconsin. The soil samples included samples T10-1, T10-2, T10-3, B-11-12-13, B-12-11-12, B-13-12-13, B-23-6-8, and B-23-10-12. The sediment samples included samples SD1-0-1, SD2-0-1, SD3-0-1, SS-Upstream, and SS-Outfall. Analyses of these samples included identification and/or quantification of: (1) monocyclic hydrocarbons (MAHs), (2) polycyclic aromatic hydrocarbons (PAHs), and (3) aliphatic and polar hydrocarbons. Analyses and hydrocarbon fingerprinting were performed using gas chromatography with flame ionization detection (GC/FID) and gas chromatography with mass spectrometry (GC/MS). The soil and sediment samples were prepared by solvent extraction (EPA 3570) using dichloromethane (DCM). The extracts were spiked with internal standards and analyzed by GC/FID (EPA 8100 mod.) and GC/MS (EPA 8270 mod.).

The GC/FID method of analysis is routinely used to identify specific compounds present in a sample, which can then be compared with a "standard" sample of known origin or composition. The GC/FID analysis does not quantify the compounds found in the mixture. Result obtained from a single GC/FID scan shows the FID detector response versus residence time of each compound in the chromatographic column. The pattern of peaks versus residence time that is generated in the GC/FID scan is sometimes referred to as the "fingerprint" of the sample. In this way, an investigator may "fingerprint" the sample by comparing scan features of the test sample with scan features of control samples. For instance, particular relative ratios of one compound to another, the relatively high concentration of a compound or the absence of particular compounds may be indicative of a CWG tar, a high temperature coal tar or a mixture of alternate origins. Generally, several identified reference samples are used when conducting the GC/FID analysis, so that the test sample may be compared with accuracy.

In order to quantify the compounds or classes of compounds contained in the sample mixture, the sample is subjected to a second set of analyses through GC/MS. In GC/MS, chromatograms are produced containing peaks that are similar to the chromatograms obtained in GC/FID analysis. In addition, a mass spectrum is produced for every compound detected. When performed in a controlled and reproducible manner, the GC/MS method produces multiple "fingerprints" for each sample (i.e., chromatogram and compound-specific mass spectra). Interpretation of the specific ions distribution can be highly useful for the identification of compounds in a sample. Additionally, compounds of certain target classes, such as biomarker compounds, can be selectively measured using their characteristic ion masses.

Samples were also analyzed by GC/IRMS at the University of Oklahoma using a Hewlett-Packard 6890 GC coupled with a Finnigan XL isotope ratio mass spectrometer via a combustion furnace heated at 940°C and a water trap. The isotopic composition was expressed relative to a reference standard that can be traced to the PDB standard of the University of Chicago (Belemnitella Americana, Peedee Formation, Cretaceaous, South Carolina). Results are expressed as:

$$\delta^{13}C = \frac{\left[\left({}^{13}C/{}^{12}C\right)_{sample} - \left({}^{13}C/{}^{12}C\right)_{standard}\right]}{\left({}^{13}C/{}^{12}C\right)_{standard}} \times 1000$$

The results are expressed in parts per thousand (‰). This commonly used convention was utilized for the data presented in this report.

Results of these analyses are included in this report, with expanded analytical data detailed in Appendices A-E.

Appendix A
Chains of Custody

META ENVIRONMENTAL SAMPLE RECEIPT

Lab ID	Field ID	Matrix	Analysis			Date Sampled	Date Received	Client/ Project	Container/ Storage
GT020924-01	T10-1	Soil				9/18/2002	9/24/2002		4oz. Jar
GT020924-02	T10-2	Soil				9/18/2002	9/24/2002		4oz. Jar
GT020924-03a,b	B-11-12-13	Soil				9/19/2002	9/24/2002		4oz. Jar
GT020924-04a,b	B-12-11-12	Soil				9/19/2002	9/24/2002		4oz. Jar
GT020924-05a,b	B13-12-13	Soil				9/19/2002	9/24/2002		4oz. Jar
GT020924-06a,b	B23-6-8	Soil				9/19/2002	9/24/2002		4oz. Jar
GT020924-07a,b	B-23-10-12	Soil				9/19/2002	9/24/2002		4oz. Jar

9/24/02

Chain of Custody Record

GTI

SEVERN TRENT SERVICES — Severn Trent Laboratories, Inc.

STL-4124 (0901)

Client	Project Manager	Date	Chain of Custody Number
ENSR	Bill Gregg	9/18/02	150716
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
4500 Park Glen Road, Suite 210	952-924-0117		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
St. Louis Park / MN / 55416		Diane Saber	
Project Name and Location (State)	**Carrier/Waybill Number**		
Superior MGP, Wisconsin			
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Analysis: PLANO	Fingerprint	Special Instructions/ Conditions of Receipt
T10-1	9/18/02	1130				X	1						X	X	broken jar / GT020924-01
T10-2	↓	1230				↓	↓						↓	↓	-02
T10-3	↓	1530				↓	↓						↓	↓	
~~B-8-6-8~~		~~1745~~													
B-11-12-13	9/19/02	800				X	2						X	X	-03a,b
B-12-11-12	↓	850				↓	↓						↓	↓	-04a,b
B-13-12-13		945													-05a,b
B-23-6-8		1615													-06a,b
B-23-10-12	↓	1620				↓	↓						↓	↓	-07a,b

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other _____

QC Requirements (Specify)

	Relinquished By	Date	Time	Received By	Date	Time
1.	Chris Bachun / ENSR	9/19/02	1730		9/19/02	
2.	John Connell / GTI	9/23/02			9/24/02	9:30am
3.				rec'd @ 6.5°C		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

META ENVIRONMENTAL SAMPLE RECEIPT

Lab ID	Field ID	Matrix	Analysis			Date Sampled	Date Received	Client/ Project	Container/ Storage
GT021121-01	ENSRSWLP MGP T10-3	Soil	3540	4007	4008	9/18/2002	11/21/2002	G13010-60	4oz. Jar

11/21/02

NO.

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS	DESIRED ANALYSIS: Fingerprinting					REMARKS
80014-19								Rush Superior G13010
SAMPLERS: (Signature)								

SAMPLE NO.	DATE	TIME	SAMPLE LOCATION								
	9/18/02	15:30	FNSR SWLP MGP T10-3	1		X		GTI	1121-	01	From previous sample set

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	11/20/02 0800				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)		Date / Time	
		[signature]		11/21/02 9:15am	

REMARKS:

recvd @ 4.5°C

IGT

INSTITUTE OF GAS TECHNOLOGY
1700 S. Mount Prospect Rd.
Des Plaines, IL 60018-1804

META ENVIRONMENTAL SAMPLE RECEIPT

Lab ID	Field ID	Matrix	Analysis	Date Sampled	Date Received	Client/ Project	Container/ Storage
GT030314-01	SD1-0-1	Soil	2508/4007 (4008)	3/12/2003	3/14/2003	G13008-60	8oz. Jar
GT030314-02	SD2-0-1	Soil	2508/4007	3/12/2003	3/14/2003	G13008-60	8oz. Jar
GT030314-03	SD3-0-1	Soil	2508/4007	3/12/2003	3/14/2003	G13008-60	8oz. Jar

Dusk 3/14/03

(Please Print)
Company Name: ENSR
Branch or Location: MN
Project Contact: Bill Gregg
Telephone: 952-924-0117
Project Number: 09413-098
Project Name: SWL+P M&P Superior
Project State: WI
Sampled By (Print): Chris Boehm

EN CHEM INC.

1241 Bellevue St., Suite 9
Green Bay, WI 54302
920-469-2436
FAX 920-469-8827

CHAIN OF CUSTODY

99245

Page 1 of 1

P.O. # _____ Quote # _____

Mail Report To: Bill Gregg
Company: ENSR
Address: 4500 Park Glen Rd, Suite 210
St. Louis Park, MN 55416

Invoice To: _____
Company: _____
Address: _____
Mail Invoice To: _____

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=EnCore F=Methanol G=NaOH
H = Sodium Bisulfate Solution I = Sodium Thiosulfate J = Other

FILTERED? (YES/NO)
PRESERVATION (CODE)*

Data Package Options - (please circle if requested)
Sample Results Only (no QC)
EPA Level II (Subject to Surcharge)
EPA Level III (Subject to Surcharge)
EPA Level IV (Subject to Surcharge)

Regulatory Program: UST, RCRA, SDWA, NPDES, CERCLA

Matrix Codes: W=Water, S=Soil, A=Air, C=Charcoal, B=Biota, Sl=Sludge

LABORATORY ID (Lab Use Only)	FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	ANALYSES REQUESTED: Fingerprinting	TOTAL # OF BOTTLES SENT	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
	SD1-0-1	3/12/03	1145	S	X	1		GT030314-01
	SD2-0-1	↓	1230	↓	↓	↓		-02
	SD3-0-1	↓	1330	↓	↓	↓		-03

Rush Turnaround Time Requested (TAT) - Prelim
(Rush TAT subject to approval/surcharge)
Date Needed: _____
Transmit Prelim Rush Results by (circle):
Phone Fax (E-Mail)
Phone #: _____
Fax #: _____
E-Mail Address: bgregg@ensr.com

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
Chris Boehm	3/12/03 1600	Michael Lamb	03/13/03 14:45
Michael Lamb	3/13/03 14:45	Russ Zerhusen	03/14/03
		reid @	
		0.7°C	

En Chem Project No.
Sample Receipt Temp.
Sample Receipt pH (Wet/Metals)
Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 2.0: 1/02

META ENVIRONMENTAL SAMPLE RECEIPT

Lab ID	Field ID	Matrix	Analysis			Date Sampled	Date Received	Client/ Project	Container/ Storage
GT030417-01	SS-UPStream	SEDIME	2508/4007			4/16/2003	4/17/2003	G13010-60	8oz. Jar
GT030417-02	SS-OUTfall	SEDIME	2508/4007			4/16/2003	4/17/2003	G13010-60	8oz. Jar

4/17/03

NO.

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
04413-098-500	SWLP MGP, WISCONSIN

SAMPLERS: (Signature)
CHRIS BOEHM: ~~EPER~~ ENSR

SAMPLE NO.	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	DESIRED ANALYSIS: FINGER PRINTING	REMARKS
	4/16/03		SS-UPSTREAM "SEDIMENT"	1	X	GT030417-01
	4/16/03		SS- OUTFALL "SEDIMENT"	1	X	↓ -02

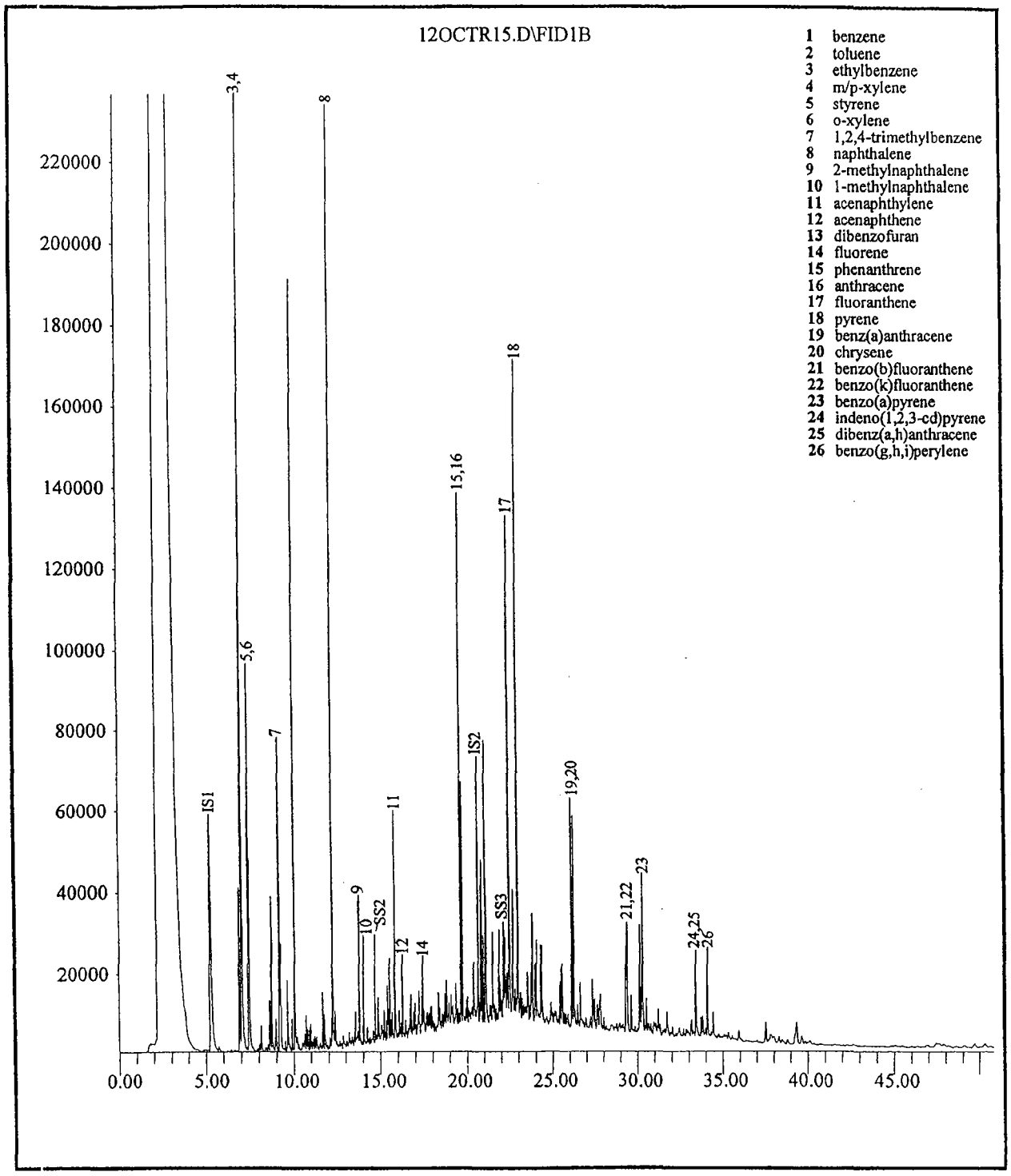
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
John R. Conrad	4/16/03				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
		10-8C 4/17			
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time		

REMARKS: FOR FURTHER CLARIFICATION CONTACT
DIANE SABER GTI PROJECT MANAGER 847-768-0538

GTI / IGT
INSTITUTE OF GAS TECHNOLOGY
1700 S. Mount Prospect Rd.
Des Plaines, IL 60018-1804

Appendix B
GC/FID Fingerprints

GC/FID Fingerprint

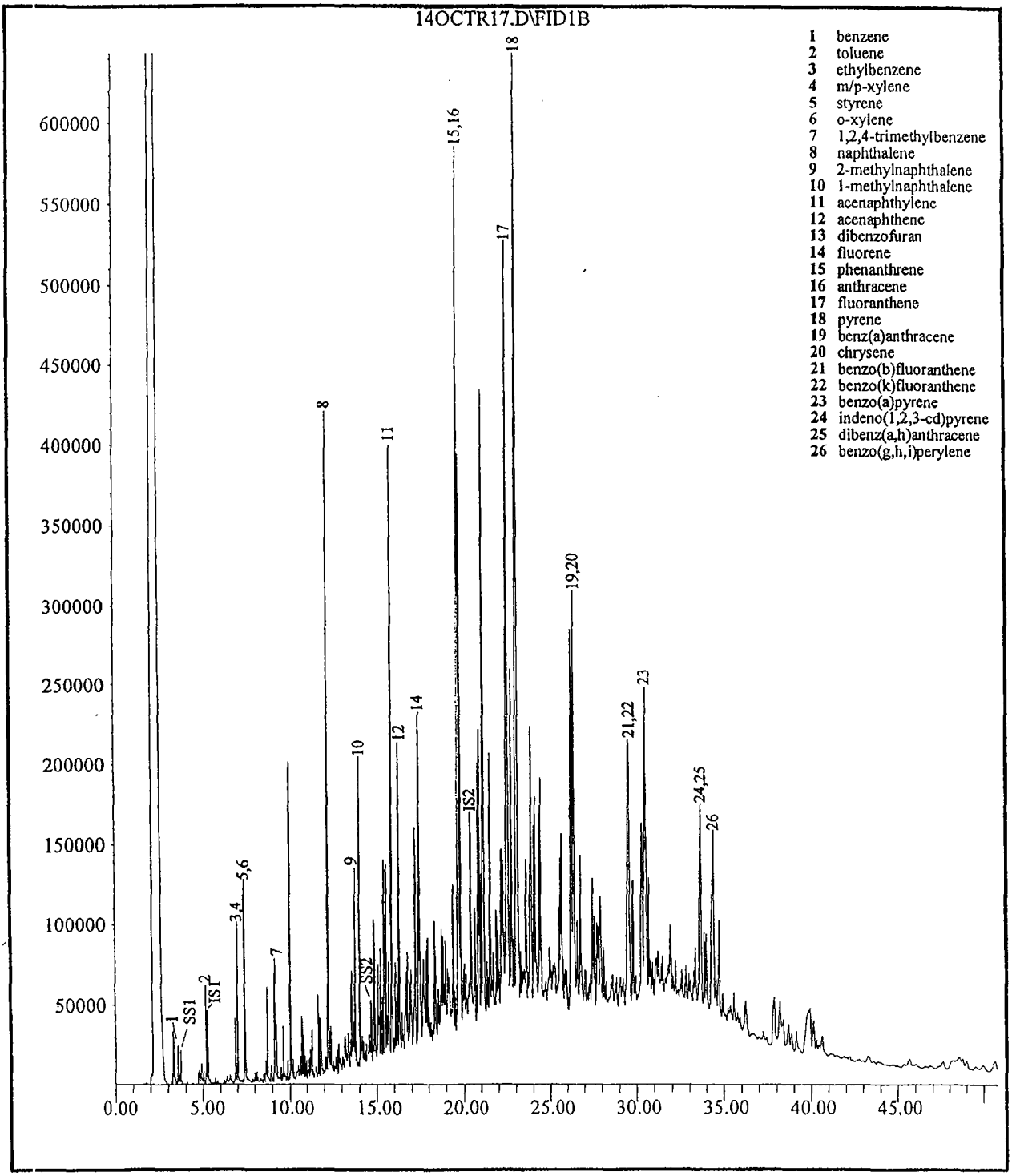


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**T10-1**
Laboratory ID:	GT020924-01
Method:	MET4007D

META

GC/FID Fingerprint

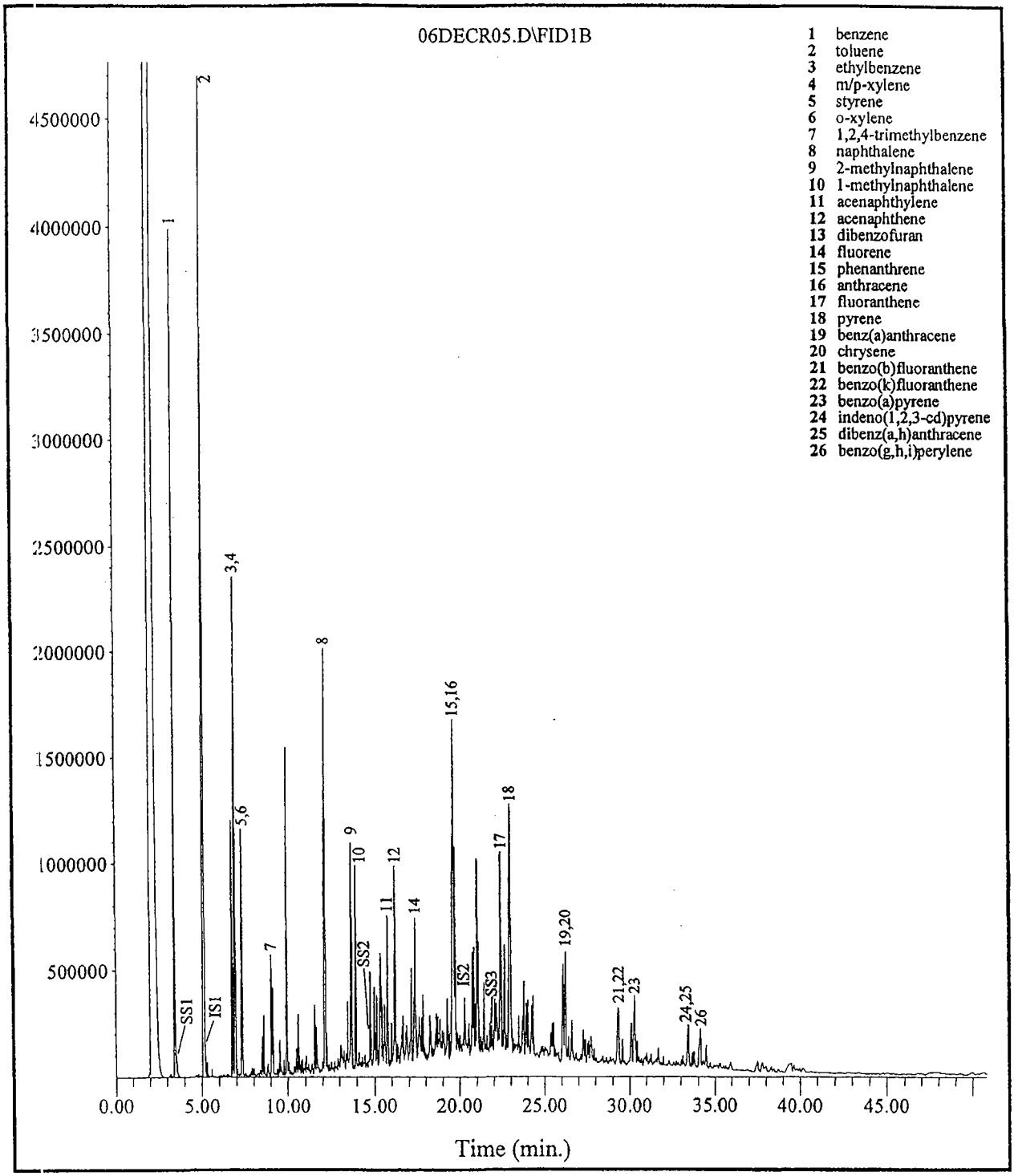


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**T10-2**
Laboratory ID:	GT020924-02
Method:	MET4007D

META

GC/FID Fingerprint

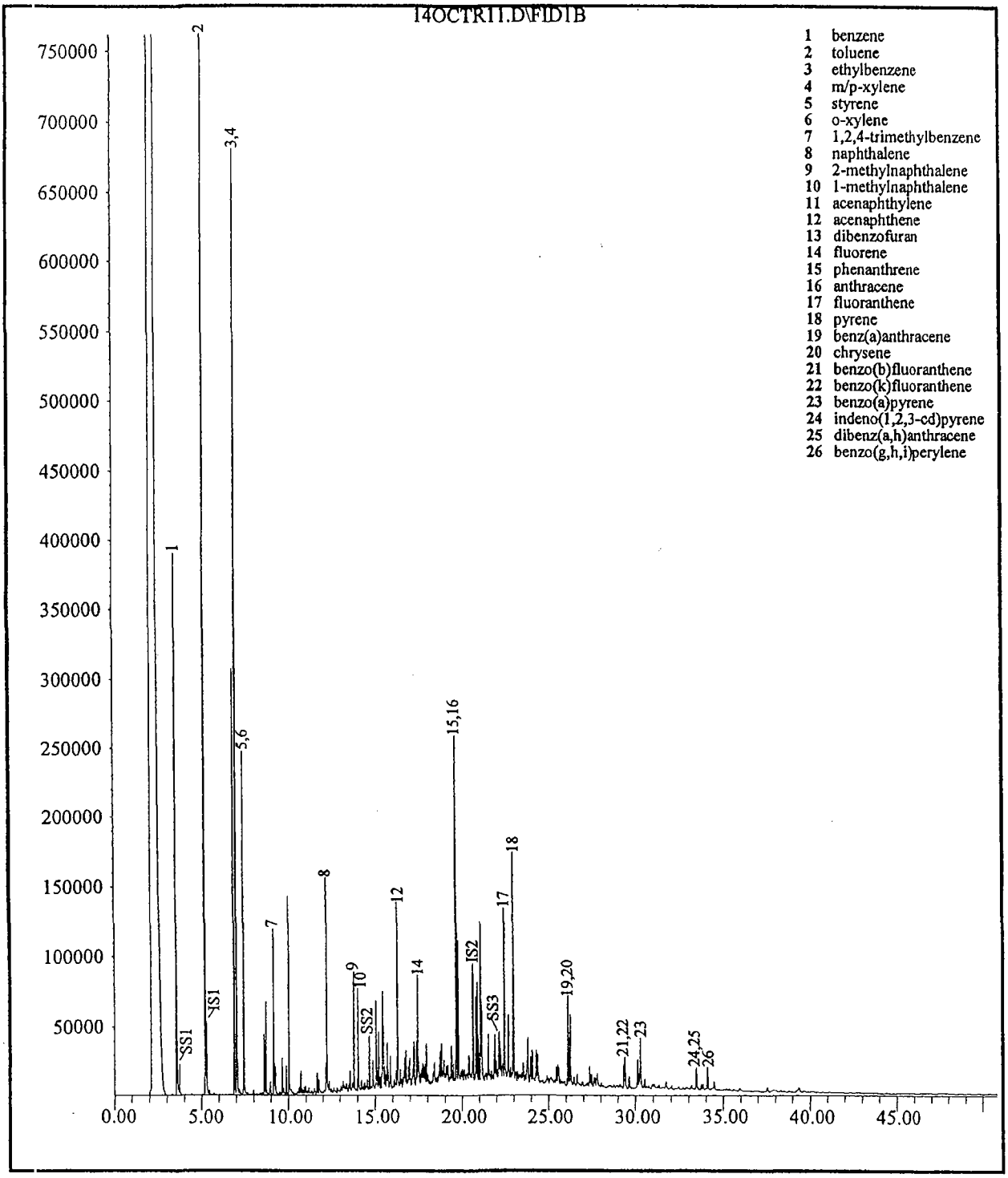


IS1 – 2,4-difluorotoluene
IS2 – o-terphenyl
SS1 – fluorobenzene
SS2 – 2-fluorobiphenyl
SS3 – 5α-androstane
SS4 – benzo(a)pyrene-d12

Field ID:	**T10-3**
Laboratory ID:	GT021121-01
Method:	MET4007

META

GC/FID Fingerprint

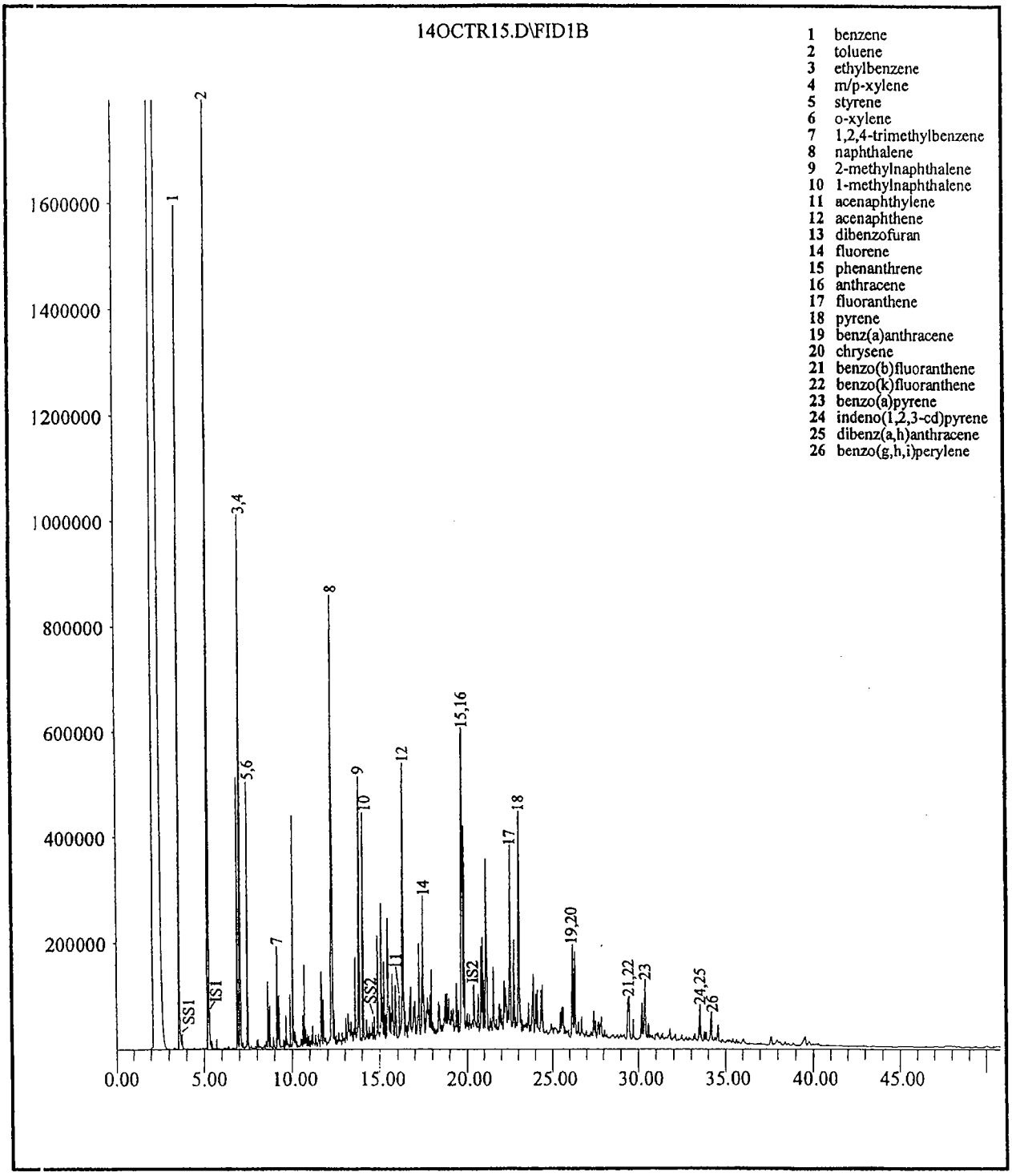


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**B-11-12-13**
Laboratory ID:	GT020924-03
Method:	MET4007D

META

GC/FID Fingerprint

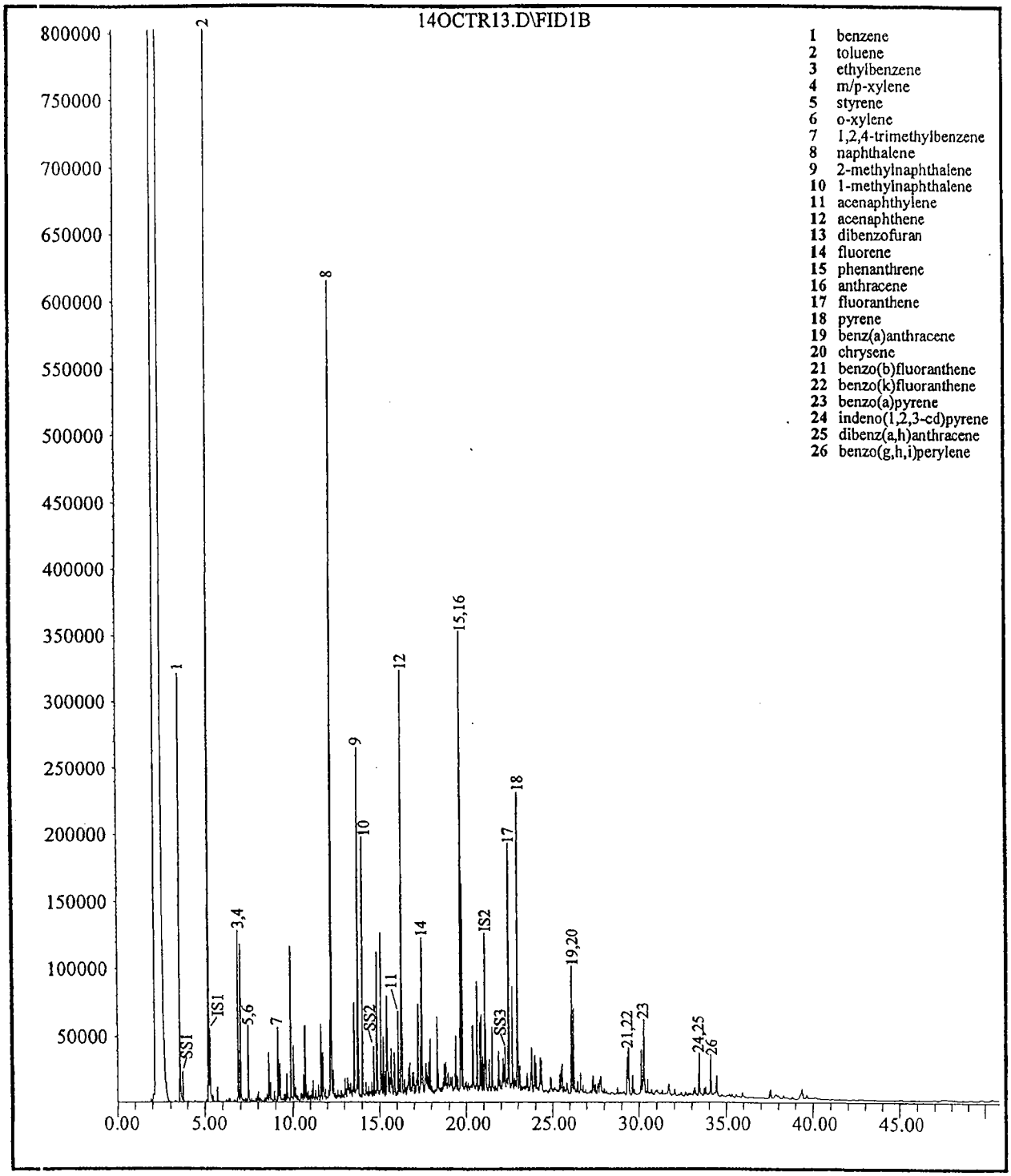


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**B-12-11-12**
Laboratory ID:	GT020924-04
Method:	MET4007D

META

GC/FID Fingerprint

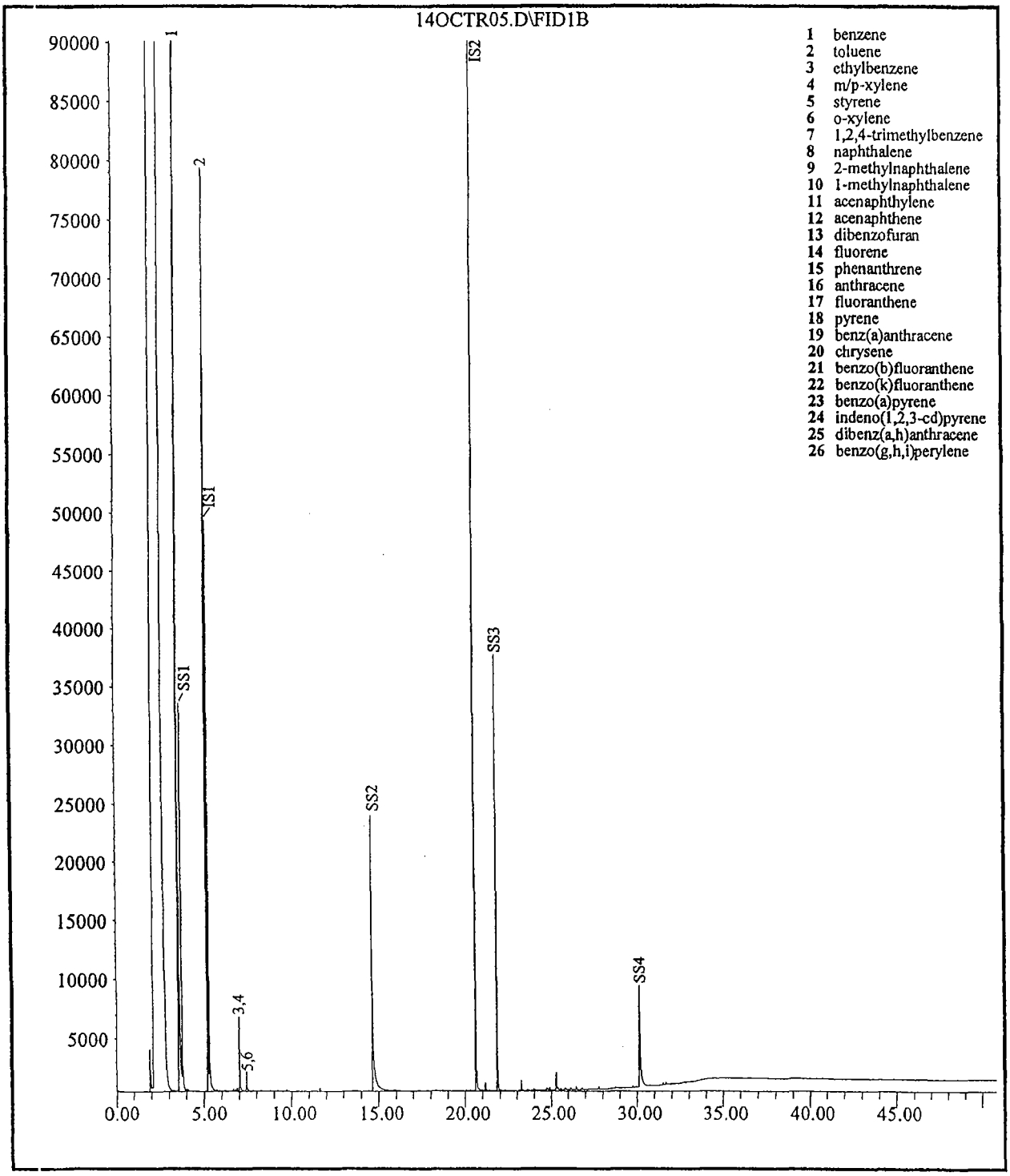


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane

Field ID:	**B13-12-13**
Laboratory ID:	GT020924-05
Method:	MET4007D

META

GC/FID Fingerprint



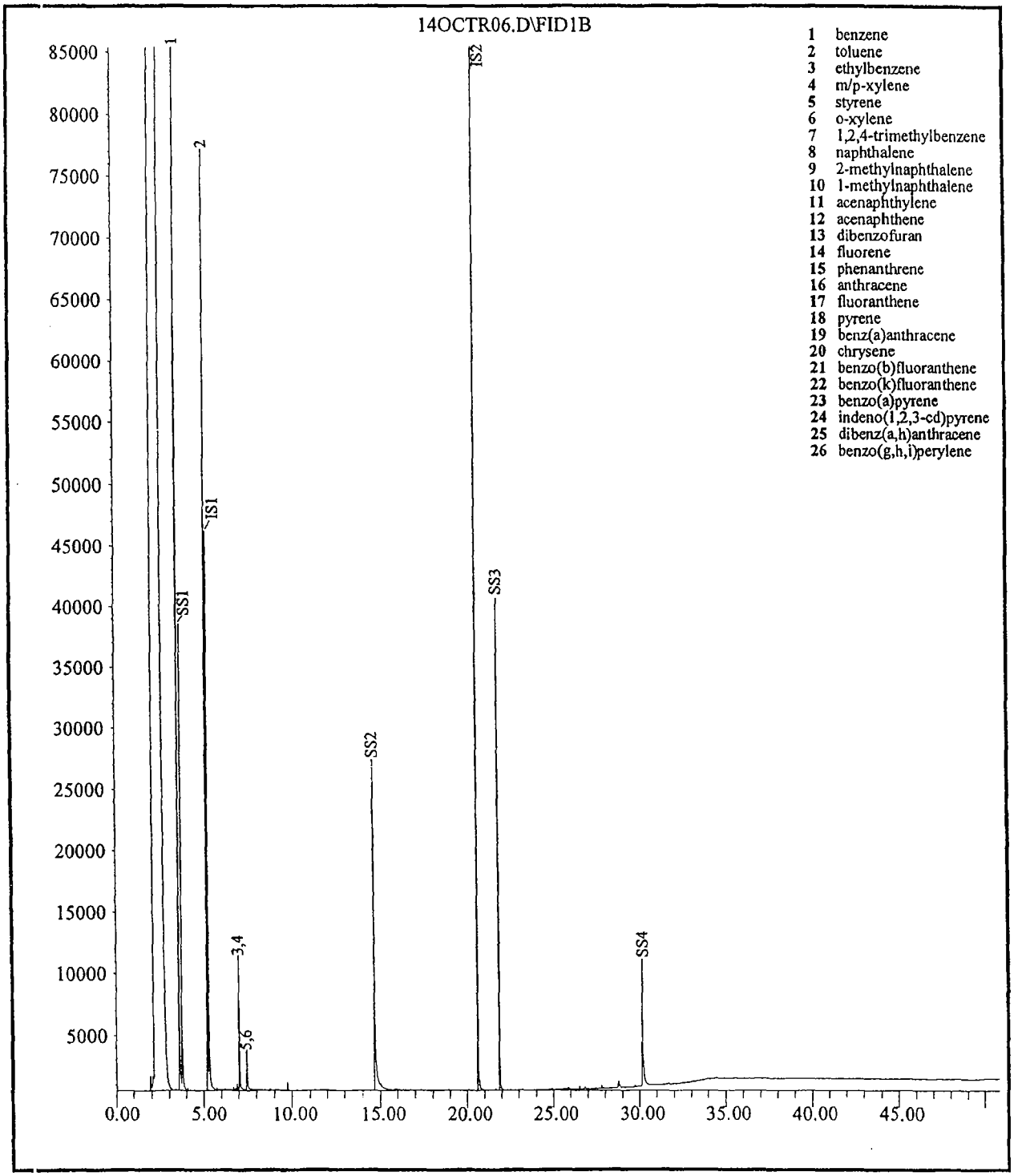
IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane
SS4 – benzo(a)pyrene-d12

Field ID:	**B23-6-8**
Laboratory ID:	GT020924-06
Method:	MET4007D

gt0924_2.ppt

META

GC/FID Fingerprint



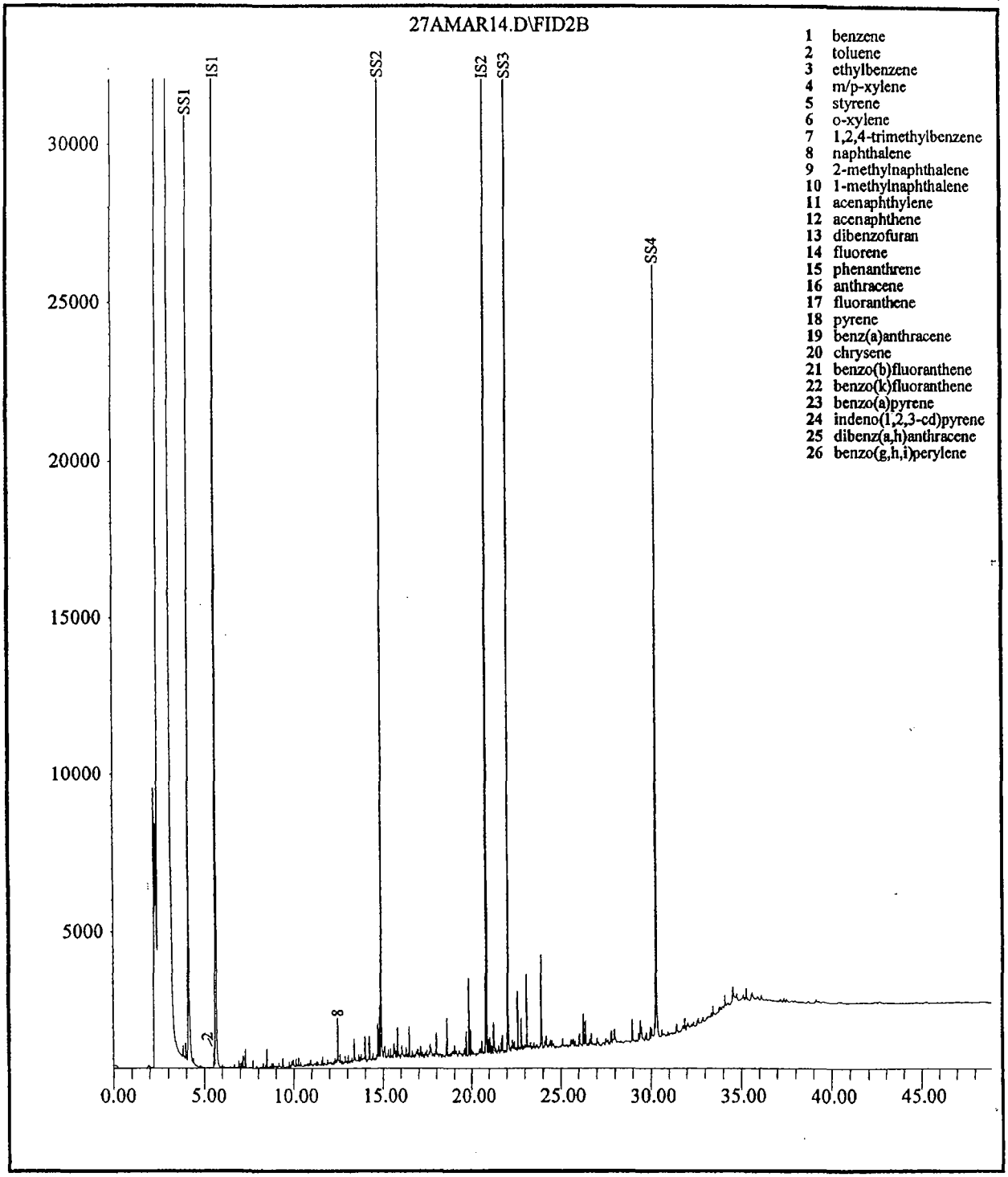
IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane
SS4 – benzo(a)pyrene-d12

Field ID:	**B-23-10-12**
Laboratory ID:	GT020924-07
Method:	MET4007D

gt0924_2.ppt

META

GC/FID Fingerprint

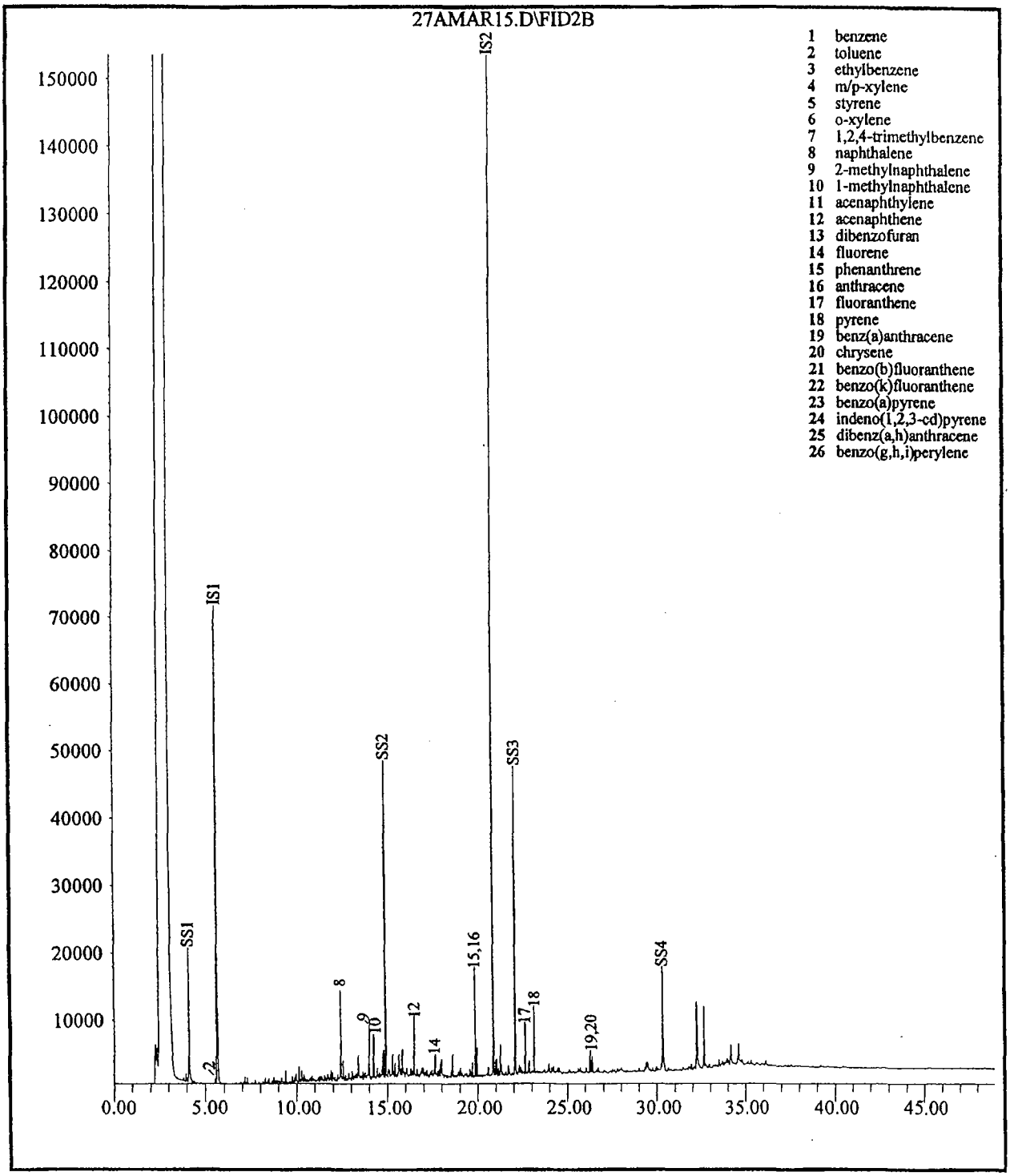


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane
SS4 – benzo(a)pyrene-d12

Field ID:	SD1-0-1
Laboratory ID:	GT030314-01
Method:	MET4007D

META

GC/FID Fingerprint

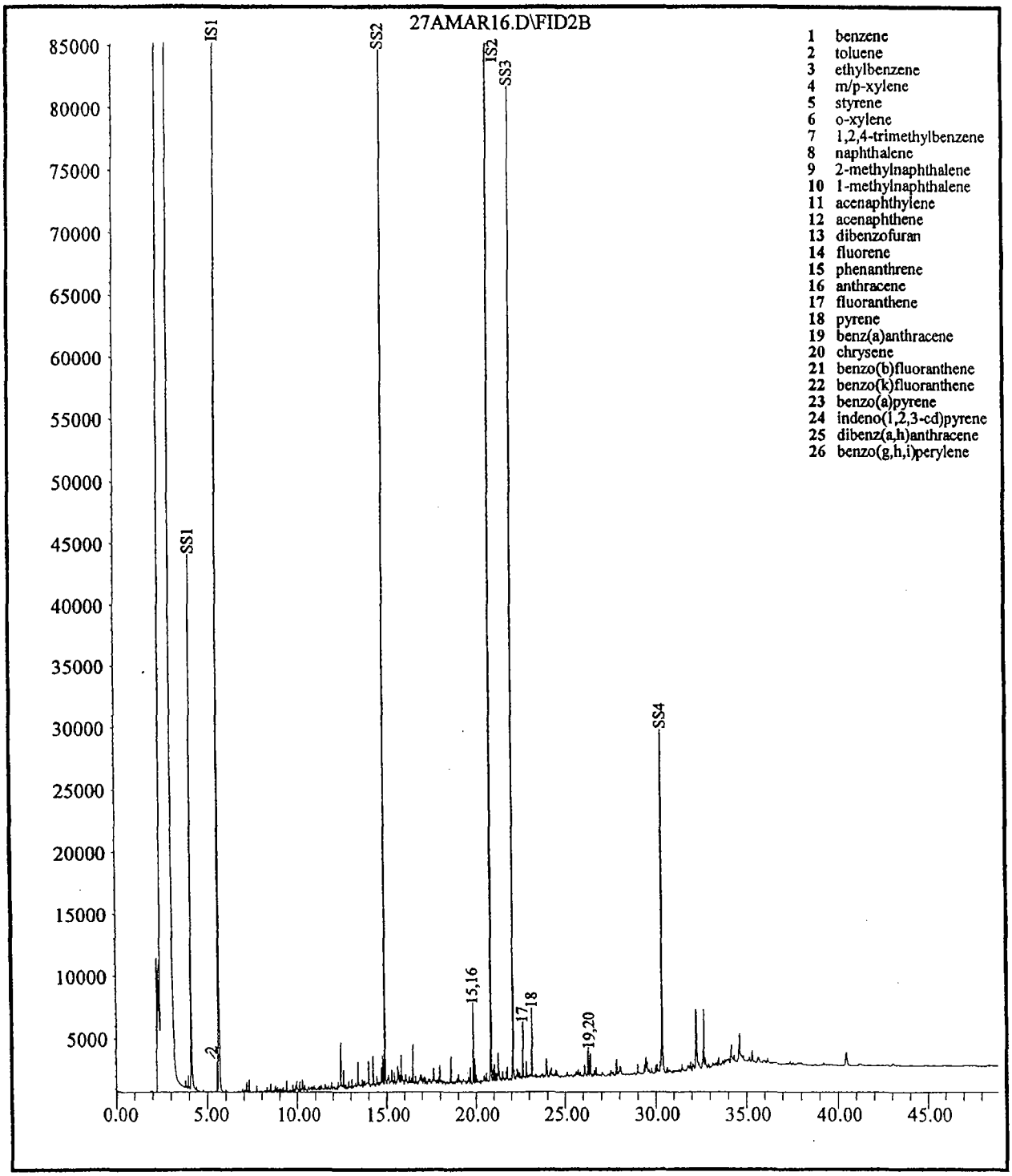


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane
SS4 -- benzo(a)pyrene-d12

Field ID:	SD2-0-1
Laboratory ID:	GT030314-02
Method:	MET4007D

META

GC/FID Fingerprint



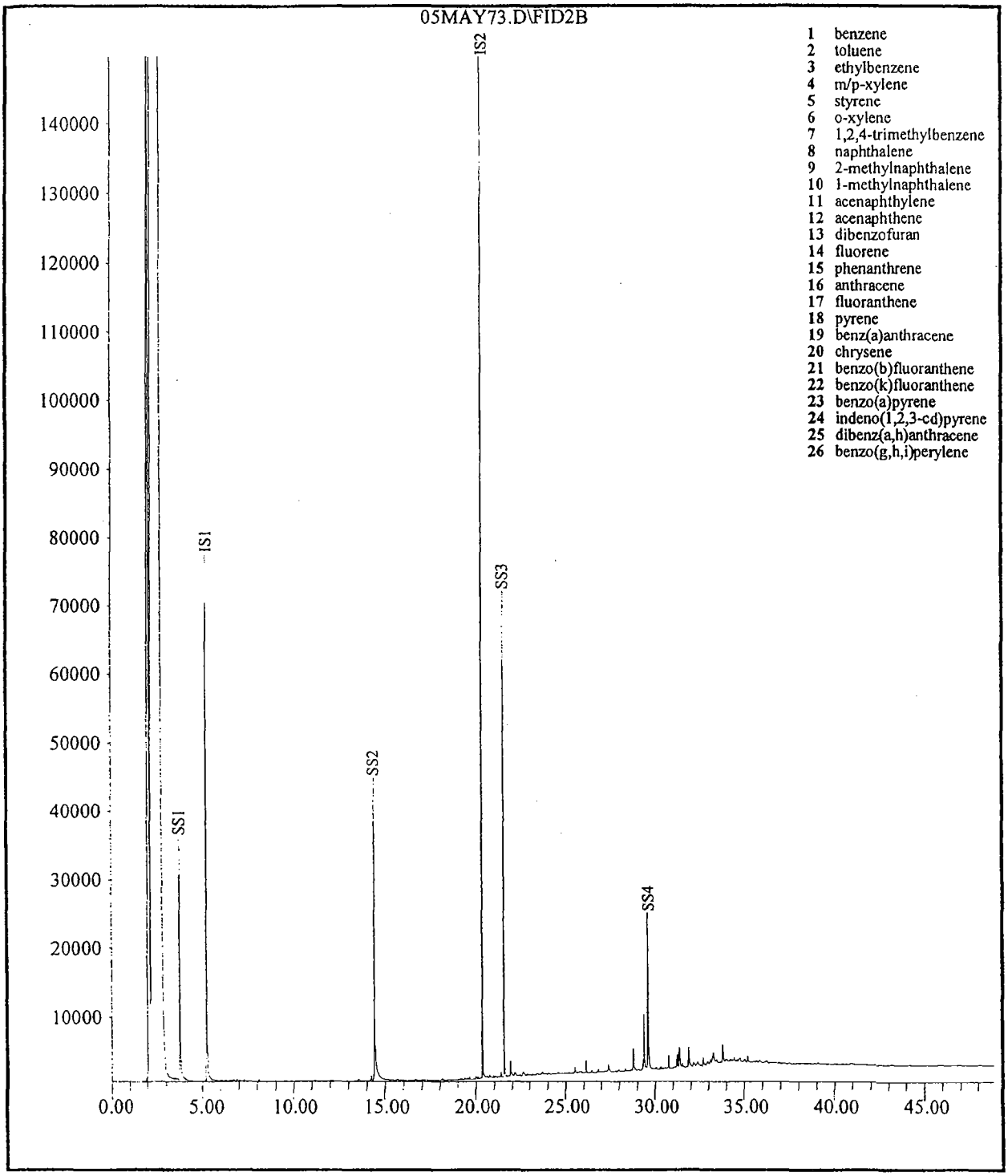
IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane
SS4 – benzo(a)pyrene-d12

Field ID:	SD3-0-1
Laboratory ID:	GT030314-03
Method:	MET4007D

gt0314.ppt

META

GC/FID Fingerprint

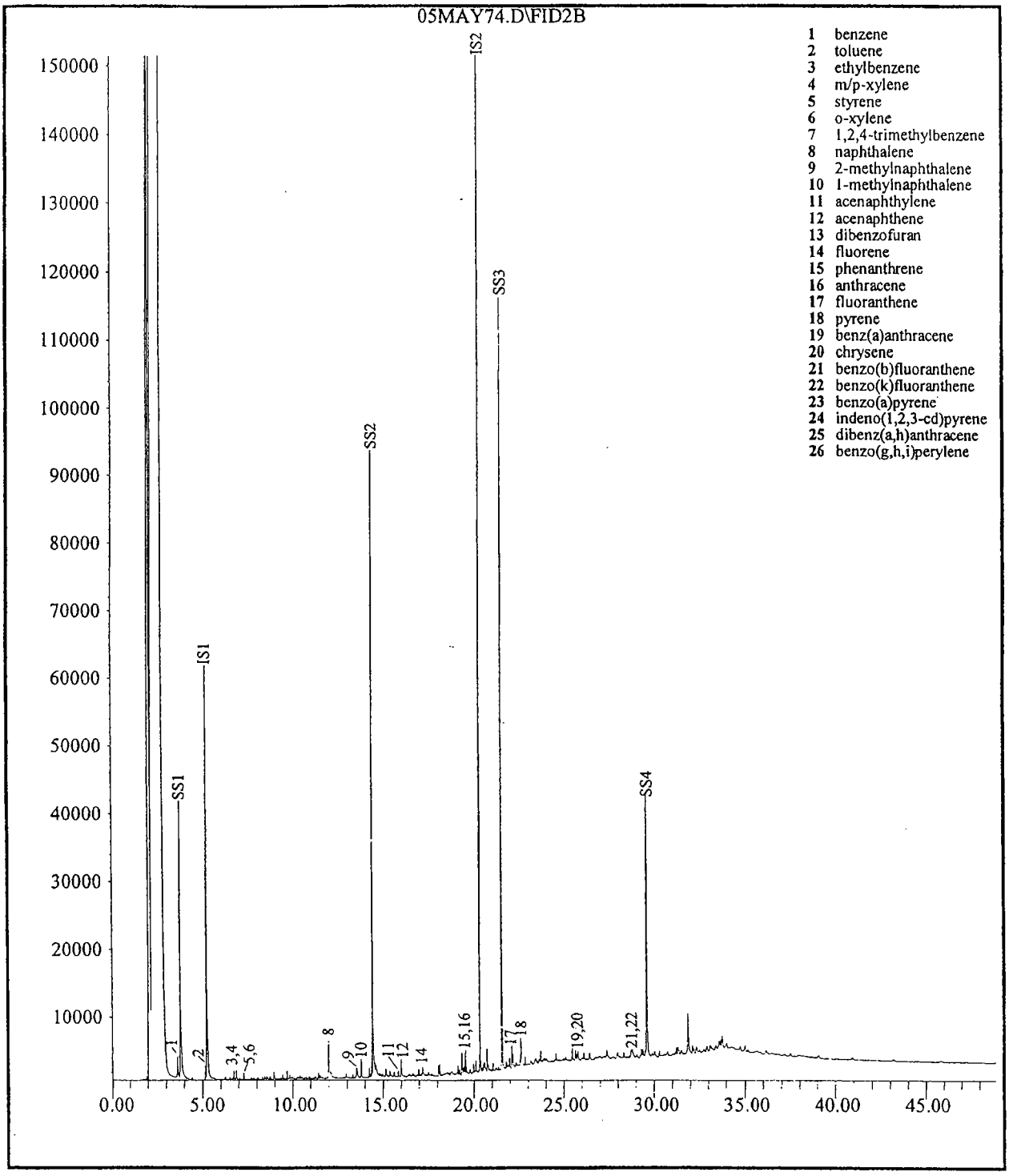


IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane
SS4 – benzo(a)pyrene-d12

Field ID:	SS-UPStream
Laboratory ID:	GT030417-01
Method:	MET4007D

META

GC/FID Fingerprint



IS1 - 2,4-difluorotoluene
IS2 - o-terphenyl
SS1 - fluorobenzene
SS2 - 2-fluorobiphenyl
SS3 - 5α-androstane
SS4 – benzo(a)pyrene-d12

Field ID:	SS-OUTfall
Laboratory ID:	GT03417-02
Method:	MET4007D

META

Appendix C
Chemical Concentrations

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: T10-1

Client:	GTI	Preparation Method:	EPA 3570	
Project:	Superior	Cleanup Method(s):		
Lab ID:	GT020924-01 1:10	Analysis Method:	GC/MS (EPA 8270 Mod.)	
File ID:	14OCT18.D	Matrix:	Soil	
		Preservation:	None	
Date Sampled:	9/18/2002	Decanted:	No	
Date Received:	9/24/2002	Sample Size:	2.212	g
Date Prepared:	10/11/2002	%Solid:	74%	
Date Cleanup:		Extract Volume:	2	mL
Date Analyzed:	15 Oct 2002 7:15 am	Prep DF:	10	
Instrument:	GC/MS Ins	Analysis DF:	1	
Operator:	ECC	Injection Volume:	0.001	mL
		Batch QC:	GT021011-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	32.4		1.22	0.61	
Toluene	217	B	1.22	0.61	
Ethylbenzene	82.5		1.22	0.61	
m/p-Xylenes	422		1.22	0.61	
Styrene	105		1.22	0.61	
o-Xylene	135		1.22	0.61	
1,2,4-Trimethylbenzene	110		1.22	0.61	
Naphthalene	339		1.22	0.61	
2-Methylnaphthalene	56.4		1.22	0.61	
1-Methylnaphthalene	37.7		1.22	0.61	
Acenaphthylene	61.9		1.22	0.61	
Acenaphthene	30.2		1.22	0.61	
Dibenzofuran	3.84		1.22	0.61	
Fluorene	35.0		1.22	0.61	
Phenanthrene	209		1.22	0.61	
Anthracene	68.9		1.22	0.61	
Fluoranthene	131		1.22	0.61	
Pyrene	178		1.22	0.61	
Benz[a]anthracene	41.6		1.22	0.61	
Chrysene	46.1		1.22	0.61	
Benzo[b]fluoranthene	22.7		1.22	0.61	
Benzo[k]fluoranthene	22.7		1.22	0.61	
Benzo(e)pyrene	23.5		1.22	0.61	
Benzo[a]pyrene	26.5		1.22	0.61	
Perylene	3.89		1.22	0.61	
Indeno[1,2,3-cd]pyrene	16.9		1.22	0.61	
Dibenz[a,h]anthracene	4.73		1.22	0.61	
Benzo[g,h,i]perylene	38.7		1.22	0.61	
ALKYLATED PAHs:					
C0 - Benzene	32.4		1.22	0.61	
C1 - Benzene	260		1.22	0.61	
C2 - Benzene	769		1.22	0.61	
C3 - Benzene	236		1.22	0.61	
C4 - Benzene	67.1		1.22	0.61	
C5 - Benzene	12.7		1.22	0.61	
C0 - Naphthalene	339		1.22	0.61	
C1 - Naphthalene	53.9		1.22	0.61	
C2 - Naphthalene	32.2		1.22	0.61	
C3- Naphthalene	19.4		1.22	0.61	
C4- Naphthalene	12.7		1.22	0.61	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: T10-1

Client:	GTI	Preparation Method:	EPA 3570	
Project:	Superior	Cleanup Method(s):		
Lab ID:	GT020924-01 1:10	Analysis Method:	GC/MS (EPA 8270 Mod.)	
File ID:	14OCT18.D	Matrix:	Soil	
		Preservation:	None	
Date Sampled:	9/18/2002	Decanted:	No	
Date Received:	9/24/2002	Sample Size:	2.212	g
Date Prepared:	10/11/2002	%Solid:	74%	
Date Cleanup:		Extract Volume:	2	mL
Date Analyzed:	15 Oct 2002 7:15 am	Prep DF:	10	
Instrument:	GC/MS Ins	Analysis DF:	1	
Operator:	ECC	Injection Volume:	0.001	mL
		Batch QC:	GT021011-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	35.0		1.22	0.61	
C1 - Fluorene	34.5		1.22	0.61	
C2 - Fluorene	12.8		1.22	0.61	
C3 - Fluorene	6.48		1.22	0.61	
C0 - Phenanthrene/Anthracene	290		1.22	0.61	
C1 - Phenanthrene/Anthracene	120		1.22	0.61	
C2 - Phenanthrene/Anthracene	44.2		1.22	0.61	
C3 - Phenanthrene/Anthracene	8.30		1.22	0.61	
C4 - Phenanthrene/Anthracene	3.29		1.22	0.61	
C0 - Dibenzothiophene	49.3		1.22	0.61	
C1 - Dibenzothiophene	16.3		1.22	0.61	
C2 - Dibenzothiophene	9.49		1.22	0.61	
C3 - Dibenzothiophene	5.16		1.22	0.61	
C0 - Fluoranthene/Pyrene	346		1.22	0.61	
C1 - Fluoranthene/Pyrene	68.0		1.22	0.61	
C2 - Fluoranthene/Pyrene	14.7		1.22	0.61	
C3 - Fluoranthene/Pyrene	4.20		1.22	0.61	
C0 - Benz(a)anthracene/Chrysene	98.0		1.22	0.61	
C1 - Benz(a)anthracene/Chrysene	20.3		1.22	0.61	
C2 - Benz(a)anthracene/Chrysene	5.30		1.22	0.61	
C3 - Benz(a)anthracene/Chrysene	1.32		1.22	0.61	
C4 - Benz(a)anthracene/Chrysene	0.89	J	1.22	0.61	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	57%	50%	150%
2-Fluorobiphenyl	83%	50%	120%
5a-Androstane	71%	50%	120%
Benzo(a)pyrene-d12	59%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: T10-2

Client:	GTI	Preparation Method:	EPA 3570	
Project:	Superior	Cleanup Method(s):		
Lab ID:	GT020924-02 1:10	Analysis Method:	GC/MS (EPA 8270 Mod.)	
File ID:	14OCT19.D	Matrix:	Soil	
		Preservation:	None	
Date Sampled:	9/18/2002	Decanted:	No	
Date Received:	9/24/2002	Sample Size:	2.183	g
Date Prepared:	10/11/2002	%Solid:	37%	
Date Cleanup:		Extract Volume:	2	mL
Date Analyzed:	15 Oct 2002 8:26 am	Prep DF:	10	
Instrument:	GC/MS Ins	Analysis DF:	1	
Operator:	ECC	Injection Volume:	0.001	mL
		Batch QC:	GT021011-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	42.3		2.51	1.26	
Toluene	116	B	2.51	1.26	
Ethylbenzene	78.8		2.51	1.26	
m/p-Xylenes	185		2.51	1.26	
Styrene	241		2.51	1.26	
o-Xylene	156		2.51	1.26	
1,2,4-Trimethylbenzene	138		2.51	1.26	
Naphthalene	1,260		2.51	1.26	
2-Methylnaphthalene	360		2.51	1.26	
1-Methylnaphthalene	554		2.51	1.26	
Acenaphthylene	1,160		2.51	1.26	
Acenaphthene	590		2.51	1.26	
Dibenzofuran	56.2		2.51	1.26	
Fluorene	793		2.51	1.26	
Phenanthrene	2,670		2.51	1.26	
Anthracene	803		2.51	1.26	
Fluoranthene	1,410		2.51	1.26	
Pyrene	1,820		2.51	1.26	
Benz[a]anthracene	533		2.51	1.26	
Chrysene	518		2.51	1.26	
Benzo[b]fluoranthene	305		2.51	1.26	
Benzo[k]fluoranthene	453		2.51	1.26	
Benzo(e)pyrene	447		2.51	1.26	
Benzo[a]pyrene	637		2.51	1.26	
Perylene	112		2.51	1.26	
Indeno[1,2,3-cd]pyrene	511		2.51	1.26	
Dibenz[a,h]anthracene	147		2.51	1.26	
Benzo[g,h,i]perylene	951		2.51	1.26	
ALKYLATED PAHs:					
C0 - Benzene	42.3		2.51	1.26	
C1 - Benzene	140		2.51	1.26	
C2 - Benzene	505		2.51	1.26	
C3 - Benzene	430		2.51	1.26	
C4 - Benzene	244		2.51	1.26	
C5 - Benzene	82.9		2.51	1.26	
C0 - Naphthalene	1,260		2.51	1.26	
C1 - Naphthalene	520		2.51	1.26	
C2 - Naphthalene	611		2.51	1.26	
C3- Naphthalene	229		2.51	1.26	
C4- Naphthalene	107		2.51	1.26	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: T10-2

Client:	GTI	Preparation Method:	EPA 3570		
Project:	Superior	Cleanup Method(s):			
Lab ID:	GT020924-02 1:10	Analysis Method:	GC/MS (EPA 8270 Mod.)		
File ID:	14OCT19.D	Matrix:	Soil		
		Preservation:	None		
Date Sampled:	9/18/2002	Decanted:	No		
Date Received:	9/24/2002	Sample Size:	2.183	g	
Date Prepared:	10/11/2002	%Solid:	37%		
Date Cleanup:		Extract Volume:	2	mL	
Date Analyzed:	15 Oct 2002 8:26 am	Prep DF:	10		
Instrument:	GC/MS Ins	Analysis DF:	1		
Operator:	ECC	Injection Volume:	0.001	mL	
		Batch QC:	GT021011-SB		

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	793		2.51	1.26	
C1 - Fluorene	412		2.51	1.26	
C2 - Fluorene	126		2.51	1.26	
C3 - Fluorene	54.1		2.51	1.26	
C0 - Phenanthrene/Anthracene	3,650		2.51	1.26	
C1 - Phenanthrene/Anthracene	1,110		2.51	1.26	
C2 - Phenanthrene/Anthracene	367		2.51	1.26	
C3 - Phenanthrene/Anthracene	72.6		2.51	1.26	
C4 - Phenanthrene/Anthracene	29.5		2.51	1.26	
C0 - Dibenzothiophene	215		2.51	1.26	
C1 - Dibenzothiophene	146		2.51	1.26	
C2 - Dibenzothiophene	90.7		2.51	1.26	
C3 - Dibenzothiophene	49.0		2.51	1.26	
C0 - Fluoranthene/Pyrene	3,820		2.51	1.26	
C1 - Fluoranthene/Pyrene	791		2.51	1.26	
C2 - Fluoranthene/Pyrene	188		2.51	1.26	
C3 - Fluoranthene/Pyrene	49.7		2.51	1.26	
C0 - Benz(a)anthracene/Chrysene	1,150		2.51	1.26	
C1 - Benz(a)anthracene/Chrysene	265		2.51	1.26	
C2 - Benz(a)anthracene/Chrysene	89.9		2.51	1.26	
C3 - Benz(a)anthracene/Chrysene	23.1		2.51	1.26	
C4 - Benz(a)anthracene/Chrysene	8.78		2.51	1.26	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	63%	50%	150%
2-Fluorobiphenyl	92%	50%	120%
5a-Androstane	65%	50%	120%
Benzo(a)pyrene-d12	84%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: T10-3

Client:	GTI	Preparation Method:	EPA 3540	
Project:	Superior	Cleanup Method(s):		
Lab ID:	GT021121-01 1/10	Analysis Method:	GC/MS (EPA 8270 Mod.)	
File ID:	15DEC10.D	Matrix:	Soil	
		Preservation:	None	
Date Sampled:	9/18/2002	Decanted:	No	
Date Received:	11/21/2002	Sample Size:	10.369	g
Date Prepared:	11/21/2002	%Solid:	58%	
Date Cleanup:		Extract Volume:	10	mL
Date Analyzed:	16 Dec 2002 12:10 am	Prep DF:	10	
Instrument:	GC4-MS_59	Analysis DF:	1	
Operator:	DRC	Injection Volume:	0.001	mL
		Batch QC:	IS021121-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	5,610	D	1.66	0.83	
Toluene	8,840	D	1.66	0.83	
Ethylbenzene	1,290		1.66	0.83	
m/p-Xylenes	4,180	D	1.66	0.83	
Styrene	721		1.66	0.83	
o-Xylene	943		1.66	0.83	
1,2,4-Trimethylbenzene	473		1.66	0.83	
Naphthalene	4,070	D	1.66	0.83	
2-Methylnaphthalene	1,400		1.66	0.83	
1-Methylnaphthalene	1,050		1.66	0.83	
Acenaphthylene	806		1.66	0.83	
Acenaphthene	1,200		1.66	0.83	
Dibenzofuran	41.6		1.66	0.83	
Fluorene	815		1.66	0.83	
Phenanthrene	4,150	D	1.66	0.83	
Anthracene	961		1.66	0.83	
Fluoranthene	1,050		1.66	0.83	
Pyrene	1,290		1.66	0.83	
Benz[a]anthracene	691		1.66	0.83	
Chrysene	833		1.66	0.83	
Benzo[b]fluoranthene	537		1.66	0.83	
Benzo[k]fluoranthene	460		1.66	0.83	
Benzo(e)pyrene	562		1.66	0.83	
Benzo[a]pyrene	870		1.66	0.83	
Perylene	182		1.66	0.83	
Indeno[1,2,3-cd]pyrene	419		1.66	0.83	
Dibenz[a,h]anthracene	127		1.66	0.83	
Benzo[g,h,i]perylene	575		1.66	0.83	
ALKYLATED PAHs:					
C0 - Benzene	5,610	D	1.66	0.83	
C1 - Benzene	9,590	D	1.66	0.83	
C2 - Benzene	7,710	D	1.66	0.83	
C3 - Benzene	1,430		1.66	0.83	
C4 - Benzene	548		1.66	0.83	
C5 - Benzene	256		1.66	0.83	
C0 - Naphthalene	4,070	D	1.66	0.83	
C1 - Naphthalene	2,260		1.66	0.83	
C2 - Naphthalene	2,920		1.66	0.83	
C3- Naphthalene	1,120		1.66	0.83	
C4- Naphthalene	241		1.66	0.83	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: T10-3

Client:	GTI	Preparation Method:	EPA 3540		
Project:	Superior	Cleanup Method(s):			
Lab ID:	GT021121-01 1/10	Analysis Method:	GC/MS (EPA 8270 Mod.)		
File ID:	15DEC10.D	Matrix:	Soil		
		Preservation:	None		
Date Sampled:	9/18/2002	Decanted:	No		
Date Received:	11/21/2002	Sample Size:	10.369	g	
Date Prepared:	11/21/2002	%Solid:	58%		
Date Cleanup:		Extract Volume:	10	mL	
Date Analyzed:	16 Dec 2002 12:10 am	Prep DF:	10		
Instrument:	GC4-MS_59	Analysis DF:	1		
Operator:	DRC	Injection Volume:	0.001	mL	
		Batch QC:	IS021121-SB		

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	815		1.66	0.83	
C1 - Fluorene	684		1.66	0.83	
C2 - Fluorene	169		1.66	0.83	
C3 - Fluorene	90.9		1.66	0.83	
C0 - Phenanthrene/Anthracene	5,820	D	1.66	0.83	
C1 - Phenanthrene/Anthracene	473		1.66	0.83	
C2 - Phenanthrene/Anthracene	374		1.66	0.83	
C3 - Phenanthrene/Anthracene	95.0		1.66	0.83	
C4 - Phenanthrene/Anthracene	27.2		1.66	0.83	
C0 - Dibenzothiophene	246		1.66	0.83	
C1 - Dibenzothiophene	139		1.66	0.83	
C2 - Dibenzothiophene	79.6		1.66	0.83	
C3 - Dibenzothiophene	33.2		1.66	0.83	
C0 - Fluoranthene/Pyrene	3,100		1.66	0.83	
C1 - Fluoranthene/Pyrene	1,320		1.66	0.83	
C2 - Fluoranthene/Pyrene	369		1.66	0.83	
C3 - Fluoranthene/Pyrene	152		1.66	0.83	
C0 - Benz(a)anthracene/Chrysene	1,540		1.66	0.83	
C1 - Benz(a)anthracene/Chrysene	669		1.66	0.83	
C2 - Benz(a)anthracene/Chrysene	278		1.66	0.83	
C3 - Benz(a)anthracene/Chrysene	78.6		1.66	0.83	
C4 - Benz(a)anthracene/Chrysene	28.2		1.66	0.83	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	63%	50%	150%
2-Fluorobiphenyl	138%	50%	120%
5a-Androstane	148%	50%	120%
Benzo(a)pyrene-d12	62%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **B11-12-13**

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
Lab ID:	GT020924-03	Matrix:	Soil
File ID:	14OCT33.D	Preservation:	None
		Decanted:	No
		Sample Size:	1.547 g
Date Sampled:	9/19/2002	%Solid:	77%
Date Received:	9/24/2002	Extract Volume:	2 mL
Date Prepared:	10/11/2002	Prep DF:	1
Date Cleanup:		Analysis DF:	1
Date Analyzed:	16 Oct 2002 1:06 am	Injection Volume:	0.001 mL
Instrument:	GC/MS Ins		
Operator:	ECC	Batch QC:	GT021011-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	568	D	0.17	0.08	
Toluene	1,380	D	0.17	0.08	
Ethylbenzene	531	D	0.17	0.08	
m/p-Xylenes	1,370	D	0.17	0.08	
Styrene	24.1		0.17	0.08	
o-Xylene	386	D	0.17	0.08	
1,2,4-Trimethylbenzene	219	D	0.17	0.08	
Naphthalene	303	D	0.17	0.08	
2-Methylnaphthalene	157		0.17	0.08	
1-Methylnaphthalene	127		0.17	0.08	
Acenaphthylene	27.2		0.17	0.08	
Acenaphthene	282	D	0.17	0.08	
Dibenzofuran	14.4		0.17	0.08	
Fluorene	152		0.17	0.08	
Phenanthrene	520	D	0.17	0.08	
Anthracene	118		0.17	0.08	
Fluoranthene	112		0.17	0.08	
Pyrene	145		0.17	0.08	
Benz[a]anthracene	42.7		0.17	0.08	
Chrysene	46.5		0.17	0.08	
Benzo[b]fluoranthene	17.6		0.17	0.08	
Benzo[k]fluoranthene	29.8		0.17	0.08	
Benzo(e)pyrene	27.9		0.17	0.08	
Benzo[a]pyrene	41.4		0.17	0.08	
Perylene	6.63		0.17	0.08	
Indeno[1,2,3-cd]pyrene	24.2		0.17	0.08	
Dibenz[a,h]anthracene	7.85		0.17	0.08	
Benzo[g,h,i]perylene	44.7		0.17	0.08	
ALKYLATED PAHs:					
C0 - Benzene	568	D	0.17	0.08	
C1 - Benzene	1,650	D	0.17	0.08	
C2 - Benzene	2,710	D	0.17	0.08	
C3 - Benzene	566	D	0.17	0.08	
C4 - Benzene	51.7		0.17	0.08	
C5 - Benzene	20.7		0.17	0.08	
C0 - Naphthalene	303	D	0.17	0.08	
C1 - Naphthalene	163		0.17	0.08	
C2 - Naphthalene	207		0.17	0.08	
C3- Naphthalene	67.6		0.17	0.08	
C4- Naphthalene	25.1		0.17	0.08	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **B11-12-13**

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
Lab ID:	GT020924-03	Matrix:	Soil
File ID:	14OCT33.D	Preservation:	None
		Decanted:	No
Date Sampled:	9/19/2002	Sample Size:	1.547 g
Date Received:	9/24/2002	%Solid:	77%
Date Prepared:	10/11/2002	Extract Volume:	2 mL
Date Cleanup:		Prep DF:	1
Date Analyzed:	16 Oct 2002 1:06 am	Analysis DF:	1
Instrument:	GC/MS Ins	Injection Volume:	0.001 mL
Operator:	ECC	Batch QC:	GT021011-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	152		0.17	0.08	
C1 - Fluorene	95.5		0.17	0.08	
C2 - Fluorene	27.6		0.17	0.08	
C3 - Fluorene	8.22		0.17	0.08	
C0 - Phenanthrene/Anthracene	679	D	0.17	0.08	
C1 - Phenanthrene/Anthracene	191		0.17	0.08	
C2 - Phenanthrene/Anthracene	67.2		0.17	0.08	
C3 - Phenanthrene/Anthracene	13.0		0.17	0.08	
C4 - Phenanthrene/Anthracene	5.18		0.17	0.08	
C0 - Dibenzothiophene	34.6		0.17	0.08	
C1 - Dibenzothiophene	26.8		0.17	0.08	
C2 - Dibenzothiophene	15.4		0.17	0.08	
C3 - Dibenzothiophene	8.06		0.17	0.08	
C0 - Fluoranthene/Pyrene	314		0.17	0.08	
C1 - Fluoranthene/Pyrene	91.4		0.17	0.08	
C2 - Fluoranthene/Pyrene	23.6		0.17	0.08	
C3 - Fluoranthene/Pyrene	6.78		0.17	0.08	
C0 - Benz(a)anthracene/Chrysene	99.3		0.17	0.08	
C1 - Benz(a)anthracene/Chrysene	31.5		0.17	0.08	
C2 - Benz(a)anthracene/Chrysene	11.8		0.17	0.08	
C3 - Benz(a)anthracene/Chrysene	2.82		0.17	0.08	
C4 - Benz(a)anthracene/Chrysene	0.72		0.17	0.08	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	75%	50%	150%
2-Fluorobiphenyl	102%	50%	120%
5a-Androstane	72%	50%	120%
Benzo(a)pyrene-d12	120%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: B12-11-12

Client:	GTI	Preparation Method:	EPA 3570	
Project:	Superior	Cleanup Method(s):		
Lab ID:	GT020924-04 1:10	Analysis Method:	GC/MS (EPA 8270 Mod.)	
File ID:	14OCT21.D	Matrix:	Soil	
		Preservation:	None	
Date Sampled:	9/19/2002	Decanted:	No	
Date Received:	9/24/2002	Sample Size:	1.26	g
Date Prepared:	10/11/2002	%Solid:	76%	
Date Cleanup:		Extract Volume:	2	mL
Date Analyzed:	15 Oct 2002 10:49 am	Prep DF:	10	
Instrument:	GC/MS Ins	Analysis DF:	1	
Operator:	ECC	Injection Volume:	0.001	mL
		Batch QC:	GT021011-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	3,050	E	2.08	1.04	
Toluene	4,330	E	2.08	1.04	
Ethylbenzene	1,250		2.08	1.04	
m/p-Xylenes	2,600	E	2.08	1.04	
Styrene	85.8		2.08	1.04	
o-Xylene	916		2.08	1.04	
1,2,4-Trimethylbenzene	401		2.08	1.04	
Naphthalene	3,230	E	2.08	1.04	
2-Methylnaphthalene	2,070		2.08	1.04	
1-Methylnaphthalene	1,410		2.08	1.04	
Acenaphthylene	157		2.08	1.04	
Acenaphthene	2,260	E	2.08	1.04	
Dibenzofuran	80.9		2.08	1.04	
Fluorene	982		2.08	1.04	
Phenanthrene	2,480	E	2.08	1.04	
Anthracene	862		2.08	1.04	
Fluoranthene	695		2.08	1.04	
Pyrene	915		2.08	1.04	
Benz[a]anthracene	223		2.08	1.04	
Chrysene	220		2.08	1.04	
Benzo[b]fluoranthene	132		2.08	1.04	
Benzo[k]fluoranthene	126		2.08	1.04	
Benzo(e)pyrene	137		2.08	1.04	
Benzo[a]pyrene	214		2.08	1.04	
Perylene	31.4		2.08	1.04	
Indeno[1,2,3-cd]pyrene	126		2.08	1.04	
Dibenz[a,h]anthracene	35.9		2.08	1.04	
Benzo[g,h,i]perylene	240		2.08	1.04	
ALKYLATED PAHs:					
C0 - Benzene	3,050	E	2.08	1.04	
C1 - Benzene	5,190		2.08	1.04	
C2 - Benzene	5,670		2.08	1.04	
C3 - Benzene	1,260		2.08	1.04	
C4 - Benzene	807		2.08	1.04	
C5 - Benzene	159		2.08	1.04	
C0 - Naphthalene	3,230	E	2.08	1.04	
C1 - Naphthalene	1,990		2.08	1.04	
C2 - Naphthalene	1,210		2.08	1.04	
C3- Naphthalene	334		2.08	1.04	
C4- Naphthalene	112		2.08	1.04	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: B23-6-8

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
Lab ID:	GT020924-06	Matrix:	Soil
File ID:	14OCT23.D	Preservation:	None
		Decanted:	No
		Sample Size:	2.057 g
Date Sampled:	9/18/2002	%Solid:	73%
Date Received:	9/24/2002	Extract Volume:	1.5 mL
Date Prepared:	10/11/2002	Prep DF:	1
Date Cleanup:		Analysis DF:	1
Date Analyzed:	15 Oct 2002 1:13 pm	Injection Volume:	0.001 mL
Instrument:	GC/MS Ins		
Operator:	ECC	Batch QC:	GT021011-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	138	E	0.10	0.05	
Toluene	53.1	B	0.10	0.05	
Ethylbenzene	0.28		0.10	0.05	
m/p-Xylenes	5.71		0.10	0.05	
Styrene	0.72		0.10	0.05	
o-Xylene	1.22		0.10	0.05	
1,2,4-Trimethylbenzene	0.15		0.10	0.05	
Naphthalene	0.18		0.10	0.05	
2-Methylnaphthalene	0.06	J	0.10	0.05	
1-Methylnaphthalene		U	0.10	0.05	
Acenaphthylene		U	0.10	0.05	
Acenaphthene	0.10	J	0.10	0.05	
Dibenzofuran		U	0.10	0.05	
Fluorene		U	0.10	0.05	
Phenanthrene	0.10		0.10	0.05	
Anthracene		U	0.10	0.05	
Fluoranthene		U	0.10	0.05	
Pyrene		U	0.10	0.05	
Benz[a]anthracene		U	0.10	0.05	
Chrysene		U	0.10	0.05	
Benzo[b]fluoranthene		U	0.10	0.05	
Benzo[k]fluoranthene		U	0.10	0.05	
Benzo(e)pyrene		U	0.10	0.05	
Benzo[a]pyrene		U	0.10	0.05	
Perylene		U	0.10	0.05	
Indeno[1,2,3-cd]pyrene		U	0.10	0.05	
Dibenz[a,h]anthracene		U	0.10	0.05	
Benzo[g,h,i]perylene		U	0.10	0.05	
ALKYLATED PAHs:					
C0 - Benzene	138	E	0.10	0.05	
C1 - Benzene	63.7	B	0.10	0.05	
C2 - Benzene	8.87		0.10	0.05	
C3 - Benzene	0.36		0.10	0.05	
C4 - Benzene		U	0.10	0.05	
C5 - Benzene		U	0.10	0.05	
C0 - Naphthalene	0.18		0.10	0.05	
C1 - Naphthalene	0.06	J	0.10	0.05	
C2 - Naphthalene		U	0.10	0.05	
C3- Naphthalene		U	0.10	0.05	
C4- Naphthalene		U	0.10	0.05	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: B23-6-8

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
Lab ID:	GT020924-06	Matrix:	Soil
File ID:	14OCT23.D	Preservation:	None
		Decanted:	No
Date Sampled:	9/18/2002	Sample Size:	2.057 g
Date Received:	9/24/2002	%Solid:	73%
Date Prepared:	10/11/2002	Extract Volume:	1.5 mL
Date Cleanup:		Prep DF:	1
Date Analyzed:	15 Oct 2002 1:13 pm	Analysis DF:	1
Instrument:	GC/MS Ins	Injection Volume:	0.001 mL
Operator:	ECC	Batch QC:	GT021011-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene		U	0.10	0.05	
C1 - Fluorene		U	0.10	0.05	
C2 - Fluorene		U	0.10	0.05	
C3 - Fluorene		U	0.10	0.05	
C0 - Phenanthrene/Anthracene	0.14		0.10	0.05	
C1 - Phenanthrene/Anthracene		U	0.10	0.05	
C2 - Phenanthrene/Anthracene		U	0.10	0.05	
C3 - Phenanthrene/Anthracene		U	0.10	0.05	
C4 - Phenanthrene/Anthracene		U	0.10	0.05	
C0 - Dibenzothiophene		U	0.10	0.05	
C1 - Dibenzothiophene		U	0.10	0.05	
C2 - Dibenzothiophene		U	0.10	0.05	
C3 - Dibenzothiophene		U	0.10	0.05	
C0 - Fluoranthene/Pyrene		U	0.10	0.05	
C1 - Fluoranthene/Pyrene		U	0.10	0.05	
C2 - Fluoranthene/Pyrene		U	0.10	0.05	
C3 - Fluoranthene/Pyrene		U	0.10	0.05	
C0 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C1 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C2 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C3 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C4 - Benz(a)anthracene/Chrysene		U	0.10	0.05	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	74%	50%	150%
2-Fluorobiphenyl	82%	50%	120%
5a-Androstane	63%	50%	120%
Benzo(a)pyrene-d12	91%	50%	120%
FRACTIONATION SURROGATE COMPOUNDS:			
2,5-Dibromotoluene	Not Spiked	50%	150%
2-Bromonaphthalene	0%	50%	150%
1-Chlorooctadecane	Not Spiked	50%	150%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: B23-6-8

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
Lab ID:	GT020924-06	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	14OCT23.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	9/18/2002	Decanted:	No
Date Received:	9/24/2002	Sample Size:	2.057 g
Date Prepared:	10/11/2002	%Solid:	73%
Date Cleanup:		Extract Volume:	1.5 mL
Date Analyzed:	15 Oct 2002 1:13 pm	Prep DF:	1
Instrument:	GC/MS Ins	Analysis DF:	1
Operator:	ECC	Injection Volume:	0.001 mL
		Batch QC:	GT021011-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	138	E	0.10	0.05	
Toluene	53.1	B	0.10	0.05	
Ethylbenzene	0.28		0.10	0.05	
m/p-Xylenes	5.71		0.10	0.05	
Styrene	0.72		0.10	0.05	
o-Xylene	1.22		0.10	0.05	
1,2,4-Trimethylbenzene	0.15		0.10	0.05	
Naphthalene	0.18		0.10	0.05	
2-Methylnaphthalene	0.06	J	0.10	0.05	
1-Methylnaphthalene		U	0.10	0.05	
Acenaphthylene		U	0.10	0.05	
Acenaphthene	0.10	J	0.10	0.05	
Dibenzofuran		U	0.10	0.05	
Fluorene		U	0.10	0.05	
Phenanthrene	0.10		0.10	0.05	
Anthracene		U	0.10	0.05	
Fluoranthene		U	0.10	0.05	
Pyrene		U	0.10	0.05	
Benz[a]anthracene		U	0.10	0.05	
Chrysene		U	0.10	0.05	
Benzo[b]fluoranthene		U	0.10	0.05	
Benzo[k]fluoranthene		U	0.10	0.05	
Benzo(e)pyrene		U	0.10	0.05	
Benzo[a]pyrene		U	0.10	0.05	
Perylene		U	0.10	0.05	
Indeno[1,2,3-cd]pyrene		U	0.10	0.05	
Dibenz[a,h]anthracene		U	0.10	0.05	
Benzo[g,h,i]perylene		U	0.10	0.05	
ALKYLATED PAHs:					
C0 - Benzene	138	E	0.10	0.05	
C1 - Benzene	63.7	B	0.10	0.05	
C2 - Benzene	8.87		0.10	0.05	
C3 - Benzene	0.36		0.10	0.05	
C4 - Benzene		U	0.10	0.05	
C5 - Benzene		U	0.10	0.05	
C0 - Naphthalene	0.18		0.10	0.05	
C1 - Naphthalene	0.06	J	0.10	0.05	
C2 - Naphthalene		U	0.10	0.05	
C3- Naphthalene		U	0.10	0.05	
C4- Naphthalene		U	0.10	0.05	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: B23-6-8

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
Lab ID:	GT020924-06	Matrix:	Soil
File ID:	14OCT23.D	Preservation:	None
		Decanted:	No
Date Sampled:	9/18/2002	Sample Size:	2.057 g
Date Received:	9/24/2002	%Solid:	73%
Date Prepared:	10/11/2002	Extract Volume:	1.5 mL
Date Cleanup:		Prep DF:	1
Date Analyzed:	15 Oct 2002 1:13 pm	Analysis DF:	1
Instrument:	GC/MS Ins	Injection Volume:	0.001 mL
Operator:	ECC	Batch QC:	GT021011-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene		U	0.10	0.05	
C1 - Fluorene		U	0.10	0.05	
C2 - Fluorene		U	0.10	0.05	
C3 - Fluorene		U	0.10	0.05	
C0 - Phenanthrene/Anthracene	0.14		0.10	0.05	
C1 - Phenanthrene/Anthracene		U	0.10	0.05	
C2 - Phenanthrene/Anthracene		U	0.10	0.05	
C3 - Phenanthrene/Anthracene		U	0.10	0.05	
C4 - Phenanthrene/Anthracene		U	0.10	0.05	
C0 - Dibenzothiophene		U	0.10	0.05	
C1 - Dibenzothiophene		U	0.10	0.05	
C2 - Dibenzothiophene		U	0.10	0.05	
C3 - Dibenzothiophene		U	0.10	0.05	
C0 - Fluoranthene/Pyrene		U	0.10	0.05	
C1 - Fluoranthene/Pyrene		U	0.10	0.05	
C2 - Fluoranthene/Pyrene		U	0.10	0.05	
C3 - Fluoranthene/Pyrene		U	0.10	0.05	
C0 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C1 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C2 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C3 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C4 - Benz(a)anthracene/Chrysene		U	0.10	0.05	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	74%	50%	150%
2-Fluorobiphenyl	82%	50%	120%
5a-Androstane	63%	50%	120%
Benzo(a)pyrene-d12	91%	50%	120%
FRACTIONATION SURROGATE COMPOUNDS:			
2,5-Dibromotoluene	Not Spiked	50%	150%
2-Bromonaphthalene	0%	50%	150%
1-Chlorooctadecane	Not Spiked	50%	150%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: B23-10-12

Client:	GTI	Preparation Method:	EP A 3570	
Project:	Superior	Cleanup Method(s):		
Lab ID:	GT020924-07	Analysis Method:	GC/MS (EPA 8270 Mod.)	
File ID:	14OCT26.D	Matrix:	Soil	
		Preservation:	None	
Date Sampled:	9/19/2002	Decanted:	No	
Date Received:	9/24/2002	Sample Size:	2.018	g
Date Prepared:	10/11/2002	%Solid:	77%	
Date Cleanup:		Extract Volume:	1.3	mL
Date Analyzed:	15 Oct 2002 3:57 pm	Prep DF:	1	
Instrument:	GC/MS Ins	Analysis DF:	1	
Operator:	ECC	Injection Volume:	0.001	mL
		Batch QC:	GT021011-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	49.7		0.08	0.04	
Toluene	49.1	B	0.08	0.04	
Ethylbenzene	0.60		0.08	0.04	
m/p-Xylenes	9.68		0.08	0.04	
Styrene	2.70		0.08	0.04	
o-Xylene	2.23		0.08	0.04	
1,2,4-Trimethylbenzene	0.50		0.08	0.04	
Naphthalene	0.37		0.08	0.04	
2-Methylnaphthalene	0.37		0.08	0.04	
1-Methylnaphthalene	0.35		0.08	0.04	
Acenaphthylene	0.35		0.08	0.04	
Acenaphthene	0.42		0.08	0.04	
Dibenzofuran	0.39		0.08	0.04	
Fluorene	0.34		0.08	0.04	
Phenanthrene	0.32		0.08	0.04	
Anthracene	0.35		0.08	0.04	
Fluoranthene	0.23		0.08	0.04	
Pyrene	0.22		0.08	0.04	
Benz[a]anthracene	0.09		0.08	0.04	
Chrysene	0.16		0.08	0.04	
Benzo[b]fluoranthene	0.12		0.08	0.04	
Benzo[k]fluoranthene	0.20		0.08	0.04	
Benzo(e)pyrene		U	0.08	0.04	
Benzo[a]pyrene	0.20		0.08	0.04	
Perylene		U	0.08	0.04	
Indeno[1,2,3-cd]pyrene	0.11		0.08	0.04	
Dibenz[a,h]anthracene	0.06	J	0.08	0.04	
Benzo[g,h,i]perylene	0.20		0.08	0.04	
ALKYLATED PAHs:					
C0 - Benzene	49.7		0.08	0.04	
C1 - Benzene	58.9	B	0.08	0.04	
C2 - Benzene	15.7		0.08	0.04	
C3 - Benzene	1.29		0.08	0.04	
C4 - Benzene	0.44		0.08	0.04	
C5 - Benzene		U	0.08	0.04	
C0 - Naphthalene	0.37		0.08	0.04	
C1 - Naphthalene	0.43		0.08	0.04	
C2 - Naphthalene		U	0.08	0.04	
C3- Naphthalene		U	0.08	0.04	
C4- Naphthalene		U	0.08	0.04	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: B23-10-12

Client:	GTI	Preparation Method:	EP A 3570		
Project:	Superior	Cleanup Method(s):			
Lab ID:	GT020924-07	Analysis Method:	GC/MS (EPA 8270 Mod.)		
File ID:	14OCT26.D	Matrix:	Soil		
		Preservation:	None		
Date Sampled:	9/19/2002	Decanted:	No		
Date Received:	9/24/2002	Sample Size:	2.018	g	
Date Prepared:	10/11/2002	%Solid:	77%		
Date Cleanup:		Extract Volume:	1.3	mL	
Date Analyzed:	15 Oct 2002 3:57 pm	Prep DF:	1		
Instrument:	GC/MS Ins	Analysis DF:	1		
Operator:	ECC	Injection Volume:	0.001	mL	
		Batch QC:	GT021011-SB		

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	0.34		0.08	0.04	
C1 - Fluorene		U	0.08	0.04	
C2 - Fluorene		U	0.08	0.04	
C3 - Fluorene		U	0.08	0.04	
C0 - Phenanthrene/Anthracene	0.66		0.08	0.04	
C1 - Phenanthrene/Anthracene		U	0.08	0.04	
C2 - Phenanthrene/Anthracene		U	0.08	0.04	
C3 - Phenanthrene/Anthracene		U	0.08	0.04	
C4 - Phenanthrene/Anthracene		U	0.08	0.04	
C0 - Dibenzothiophene		U	0.08	0.04	
C1 - Dibenzothiophene		U	0.08	0.04	
C2 - Dibenzothiophene		U	0.08	0.04	
C3 - Dibenzothiophene		U	0.08	0.04	
C0 - Fluoranthene/Pyrene	0.47		0.08	0.04	
C1 - Fluoranthene/Pyrene		U	0.08	0.04	
C2 - Fluoranthene/Pyrene		U	0.08	0.04	
C3 - Fluoranthene/Pyrene		U	0.08	0.04	
C0 - Benz(a)anthracene/Chrysene	0.26		0.08	0.04	
C1 - Benz(a)anthracene/Chrysene		U	0.08	0.04	
C2 - Benz(a)anthracene/Chrysene		U	0.08	0.04	
C3 - Benz(a)anthracene/Chrysene		U	0.08	0.04	
C4 - Benz(a)anthracene/Chrysene		U	0.08	0.04	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	87%	50%	150%
2-Fluorobiphenyl	89%	50%	120%
5a-Androstane	67%	50%	120%
Benzo(a)pyrene-d12	91%	50%	120%
FRACTIONATION SURROGATE COMPOUNDS:			
2,5-Dibromotoluene	Not Spiked	50%	150%
2-Bromonaphthalene	1%	50%	150%
1-Chlorooctadecane	Not Spiked	50%	150%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	Various	Preparation Method:	EPA 3570
Project:	Various	Cleanup Method(s):	
Lab ID:	GT021011-SB	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	16OCT11.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	2 g
Date Prepared:	10/11/2002	%Solid:	100%
Date Cleanup:		Extract Volume:	1.1 mL
Date Analyzed:	16 Oct 2002 9:39 pm	Prep DF:	1
Instrument:	GC/MS Ins	Analysis DF:	1
Operator:	ECC	Injection Volume:	0.001 mL
		Batch QC:	GT021011-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene		U	0.06	0.03	
Toluene	0.04	J	0.06	0.03	
Ethylbenzene		U	0.06	0.03	
m/p-Xylenes		U	0.06	0.03	
Styrene		U	0.06	0.03	
o-Xylene		U	0.06	0.03	
1,2,4-Trimethylbenzene		U	0.06	0.03	
Naphthalene		U	0.06	0.03	
2-Methylnaphthalene		U	0.06	0.03	
1-Methylnaphthalene		U	0.06	0.03	
Acenaphthylene		U	0.06	0.03	
Acenaphthene		U	0.06	0.03	
Dibenzofuran		U	0.06	0.03	
Fluorene		U	0.06	0.03	
Phenanthrene		U	0.06	0.03	
Anthracene		U	0.06	0.03	
Fluoranthene		U	0.06	0.03	
Pyrene		U	0.06	0.03	
Benz[a]anthracene		U	0.06	0.03	
Chrysene		U	0.06	0.03	
Benzo[b]fluoranthene		U	0.06	0.03	
Benzo[k]fluoranthene		U	0.06	0.03	
Benzo(e)pyrene		U	0.06	0.03	
Benzo[a]pyrene		U	0.06	0.03	
Perylene		U	0.06	0.03	
Indeno[1,2,3-cd]pyrene		U	0.06	0.03	
Dibenz[a,h]anthracene		U	0.06	0.03	
Benzo[g,h,i]perylene		U	0.06	0.03	
ALKYLATED PAHs:					
C0 - Benzene		U	0.06	0.03	
C1 - Benzene	0.05	J	0.06	0.03	
C2 - Benzene		U	0.06	0.03	
C3 - Benzene		U	0.06	0.03	
C4 - Benzene		U	0.06	0.03	
C5 - Benzene		U	0.06	0.03	
C0 - Naphthalene		U	0.06	0.03	
C1 - Naphthalene		U	0.06	0.03	
C2 - Naphthalene		U	0.06	0.03	
C3 - Naphthalene		U	0.06	0.03	
C4 - Naphthalene		U	0.06	0.03	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **Soil Blank**

Client:	Various	Preparation Method:	EPA 3570
Project:	Various	Cleanup Method(s):	
Lab ID:	GT021011-SB	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	16OCT11.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	2 g
Date Prepared:	10/11/2002	%Solid:	100%
Date Cleanup:		Extract Volume:	1.1 mL
Date Analyzed:	16 Oct 2002 9:39 pm	Prep DF:	1
Instrument:	GC/MS Ins	Analysis DF:	1
Operator:	ECC	Injection Volume:	0.001 mL
		Batch QC:	GT021011-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene		U	0.06	0.03	
C1 - Fluorene		U	0.06	0.03	
C2 - Fluorene		U	0.06	0.03	
C3 - Fluorene		U	0.06	0.03	
C0 - Phenanthrene/Anthracene		U	0.06	0.03	
C1 - Phenanthrene/Anthracene		U	0.06	0.03	
C2 - Phenanthrene/Anthracene		U	0.06	0.03	
C3 - Phenanthrene/Anthracene		U	0.06	0.03	
C4 - Phenanthrene/Anthracene		U	0.06	0.03	
C0 - Dibenzothiophene		U	0.06	0.03	
C1 - Dibenzothiophene		U	0.06	0.03	
C2 - Dibenzothiophene		U	0.06	0.03	
C3 - Dibenzothiophene		U	0.06	0.03	
C0 - Fluoranthene/Pyrene		U	0.06	0.03	
C1 - Fluoranthene/Pyrene		U	0.06	0.03	
C2 - Fluoranthene/Pyrene		U	0.06	0.03	
C3 - Fluoranthene/Pyrene		U	0.06	0.03	
C0 - Benz(a)anthracene/Chrysene		U	0.06	0.03	
C1 - Benz(a)anthracene/Chrysene		U	0.06	0.03	
C2 - Benz(a)anthracene/Chrysene		U	0.06	0.03	
C3 - Benz(a)anthracene/Chrysene		U	0.06	0.03	
C4 - Benz(a)anthracene/Chrysene		U	0.06	0.03	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	67%	50%	150%
2-Fluorobiphenyl	80%	50%	120%
5a-Androstane	68%	50%	120%
Benzo(a)pyrene-d12	109%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank Spike

Client:	Various	Preparation Method:	EPA 3570
Project:	Various	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
Lab ID:	GT021011-SBS	Matrix:	Soil
File ID:	14OCT17.D	Preservation:	None
		Decanted:	No
Date Sampled:		Sample Size:	2 g
Date Received:		%Solid:	100%
Date Prepared:	10/11/2002	Extract Volume:	1.3 mL
Date Cleanup:		Prep DF:	1
Date Analyzed:	15 Oct 2002 6:05 am	Analysis DF:	1
Instrument:	GC/MS Ins	Injection Volume:	0.001 mL
Operator:	ECC	Batch QC:	GT021011-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	14.8		0.07	0.03	72.1%
Toluene	16.7		0.07	0.03	72.5%
Ethylbenzene	18.3		0.07	0.03	68.5%
m/p-Xylenes	16.8		0.07	0.03	67.1%
Styrene	20.0		0.07	0.03	65.4%
o-Xylene	17.5		0.07	0.03	67.8%
1,2,4-Trimethylbenzene	22.1		0.07	0.03	68.2%
Naphthalene	22.4		0.07	0.03	69.2%
2-Methylnaphthalene	25.7		0.07	0.03	71.8%
1-Methylnaphthalene	24.7		0.07	0.03	72.7%
Acenaphthylene	24.8		0.07	0.03	73.6%
Acenaphthene	27.2		0.07	0.03	72.7%
Dibenzofuran	24.7		0.07	0.03	71.8%
Fluorene	23.1		0.07	0.03	71.5%
Phenanthrene	21.5		0.07	0.03	68.1%
Anthracene	20.5		0.07	0.03	62.9%
Fluoranthene	14.6		0.07	0.03	61.0%
Pyrene	14.1		0.07	0.03	57.2%
Benz[a]anthracene	9.47		0.07	0.03	44.3%
Chrysene	10.6		0.07	0.03	49.4%
Benzo[b]fluoranthene	10.3		0.07	0.03	40.1%
Benzo[k]fluoranthene	12.5		0.07	0.03	52.8%
Benzo[a]pyrene	10.3		0.07	0.03	46.6%
Indeno[1,2,3-cd]pyrene	15.5		0.07	0.03	61.4%
Dibenz[a,h]anthracene	12.1		0.07	0.03	51.7%
Benzo[g,h,i]perylene	18.8		0.07	0.03	74.3%

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	73%	50%	150%
2-Fluorobiphenyl	82%	50%	120%
5a-Androstane	67%	50%	120%
Benzo(a)pyrene-d12	87%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	GTI	Preparation Method:	EPA 3540
Project:	Superior	Cleanup Method(s):	
Lab ID:	IS021121-SB	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	15DEC05.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	10 g
Date Prepared:	11/21/2002	%Solid:	100%
Date Cleanup:		Extract Volume:	2 mL
Date Analyzed:	15 Dec 2002 6:27 pm	Prep DF:	1
Instrument:	GC4-MS_59	Analysis DF:	1
Operator:	DRC	Injection Volume:	0.001 mL
		Batch QC:	IS021121-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene		U	0.02	0.01	
Toluene	0.02	J	0.02	0.01	
Ethylbenzene		U	0.02	0.01	
m/p-Xylenes		U	0.02	0.01	
Styrene		U	0.02	0.01	
o-Xylene		U	0.02	0.01	
1,2,4-Trimethylbenzene		U	0.02	0.01	
Naphthalene		U	0.02	0.01	
2-Methylnaphthalene		U	0.02	0.01	
1-Methylnaphthalene		U	0.02	0.01	
Acenaphthylene		U	0.02	0.01	
Acenaphthene		U	0.02	0.01	
Dibenzofuran		U	0.02	0.01	
Fluorene		U	0.02	0.01	
Phenanthrene		U	0.02	0.01	
Anthracene		U	0.02	0.01	
Fluoranthene		U	0.02	0.01	
Pyrene		U	0.02	0.01	
Benz[a]anthracene		U	0.02	0.01	
Chrysene		U	0.02	0.01	
Benzo[b]fluoranthene		U	0.02	0.01	
Benzo[k]fluoranthene		U	0.02	0.01	
Benzo(e)pyrene		U	0.02	0.01	
Benzo[a]pyrene		U	0.02	0.01	
Perylene		U	0.02	0.01	
Indeno[1,2,3-cd]pyrene		U	0.02	0.01	
Dibenz[a,h]anthracene		U	0.02	0.01	
Benzo[g,h,i]perylene		U	0.02	0.01	
ALKYLATED PAHs:					
C0 - Benzene		U	0.02	0.01	
C1 - Benzene	0.02	J	0.02	0.01	
C2 - Benzene		U	0.02	0.01	
C3 - Benzene		U	0.02	0.01	
C4 - Benzene		U	0.02	0.01	
C5 - Benzene		U	0.02	0.01	
C0 - Naphthalene		U	0.02	0.01	
C1 - Naphthalene		U	0.02	0.01	
C2 - Naphthalene		U	0.02	0.01	
C3- Naphthalene		U	0.02	0.01	
C4- Naphthalene		U	0.02	0.01	

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	GTI	Preparation Method:	EPA 3540
Project:	Superior	Cleanup Method(s):	
Lab ID:	IS021121-SB	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	15DEC05.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	10 g
Date Prepared:	11/21/2002	%Solid:	100%
Date Cleanup:		Extract Volume:	2 mL
Date Analyzed:	15 Dec 2002 6:27 pm	Prep DF:	1
Instrument:	GC4-MS_59	Analysis DF:	1
Operator:	DRC	Injection Volume:	0.001 mL
		Batch QC:	IS021121-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene		U	0.02	0.01	
C1 - Fluorene		U	0.02	0.01	
C2 - Fluorene		U	0.02	0.01	
C3 - Fluorene		U	0.02	0.01	
C0 - Phenanthrene/Anthracene		U	0.02	0.01	
C1 - Phenanthrene/Anthracene		U	0.02	0.01	
C2 - Phenanthrene/Anthracene		U	0.02	0.01	
C3 - Phenanthrene/Anthracene		U	0.02	0.01	
C4 - Phenanthrene/Anthracene		U	0.02	0.01	
C0 - Dibenzothiophene		U	0.02	0.01	
C1 - Dibenzothiophene		U	0.02	0.01	
C2 - Dibenzothiophene		U	0.02	0.01	
C3 - Dibenzothiophene		U	0.02	0.01	
C0 - Fluoranthene/Pyrene		U	0.02	0.01	
C1 - Fluoranthene/Pyrene		U	0.02	0.01	
C2 - Fluoranthene/Pyrene		U	0.02	0.01	
C3 - Fluoranthene/Pyrene		U	0.02	0.01	
C0 - Benz(a)anthracene/Chrysene		U	0.02	0.01	
C1 - Benz(a)anthracene/Chrysene		U	0.02	0.01	
C2 - Benz(a)anthracene/Chrysene		U	0.02	0.01	
C3 - Benz(a)anthracene/Chrysene		U	0.02	0.01	
C4 - Benz(a)anthracene/Chrysene		U	0.02	0.01	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	75%	50%	150%
2-Fluorobiphenyl	119%	50%	120%
5a-Androstane	109%	50%	120%
Benzo(a)pyrene-d12	55%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Blank Spike

Client:	GTI	Preparation Method:	EPA 3540
Project:	Superior	Cleanup Method(s):	
Lab ID:	IS021121-SBS	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	15DEC06.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	10 g
Date Prepared:	11/21/2002	%Solid:	100%
Date Cleanup:		Extract Volume:	2 mL
Date Analyzed:	15 Dec 2002 7:36 pm	Prep DF:	1
Instrument:	GC4-MS_59	Analysis DF:	1
Operator:	DRC	Injection Volume:	0.001 mL
		Batch QC:	IS021121-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	3.49		0.02	0.01	69.8%
Toluene	5.40		0.02	0.01	108.0%
Ethylbenzene	5.77		0.02	0.01	115.4%
m/p-Xylenes	5.84		0.02	0.01	116.8%
Styrene	5.77		0.02	0.01	115.4%
o-Xylene	5.75		0.02	0.01	115.0%
1,2,4-Trimethylbenzene	5.50		0.02	0.01	110.0%
Naphthalene	5.65		0.02	0.01	113.0%
2-Methylnaphthalene	5.75		0.02	0.01	115.0%
1-Methylnaphthalene	5.44		0.02	0.01	108.8%
Acenaphthylene	5.59		0.02	0.01	111.8%
Acenaphthene	5.35		0.02	0.01	107.0%
Dibenzofuran	5.24		0.02	0.01	104.8%
Fluorene	5.37		0.02	0.01	107.4%
Phenanthrene	5.24		0.02	0.01	104.8%
Anthracene	4.87		0.02	0.01	97.4%
Fluoranthene	5.23		0.02	0.01	104.6%
Pyrene	5.26		0.02	0.01	105.2%
Benz[a]anthracene	5.75		0.02	0.01	115.0%
Chrysene	5.31		0.02	0.01	106.2%
Benzo[b]fluoranthene	6.22		0.02	0.01	124.4%
Benzo[k]fluoranthene	5.16		0.02	0.01	103.2%
Benzo(e)pyrene	5.64		0.02	0.01	112.8%
Benzo[a]pyrene	5.64		0.02	0.01	112.8%
Perylene	5.64		0.02	0.01	112.8%
Indeno[1,2,3-cd]pyrene	6.14		0.02	0.01	122.8%
Dibenz[a,h]anthracene	6.25		0.02	0.01	125.0%
Benzo[g,h,i]perylene	5.70		0.02	0.01	114.0%

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	77%	50%	150%
2-Fluorobiphenyl	119%	50%	120%
5a-Androstane	108%	50%	120%
Benzo(a)pyrene-d12	56%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SD1-0-1

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
Lab ID:	GT030314-01	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	28MAR23.D	Matrix:	Soil
		Preservation:	None
		Decanted:	No
Date Sampled:	3/12/2003	Sample Size:	2.087 g
Date Received:	3/14/2003	%Solid:	76%
Date Prepared:	3/27/2003	Extract Volume:	1.5 mL
Date Cleanup:		Prep DF:	1
Date Analyzed:	29 Mar 2003 4:33 pm	Analysis DF:	1
Instrument:	GC2-MS_59	Injection Volume:	0.001 mL
Operator:	KP	Batch QC:	GT030327-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	0.30		0.10	0.05	
Toluene	0.35		0.10	0.05	
Ethylbenzene	0.14		0.10	0.05	
m/p-Xylenes	0.20		0.10	0.05	
Styrene		U	0.10	0.05	
o-Xylene	0.05	J	0.10	0.05	
1,2,4-Trimethylbenzene		U	0.10	0.05	
Naphthalene	0.52		0.10	0.05	
2-Methylnaphthalene	0.24		0.10	0.05	
1-Methylnaphthalene	0.23		0.10	0.05	
Acenaphthylene	0.09	J	0.10	0.05	
Acenaphthene	0.28		0.10	0.05	
Dibenzofuran		U	0.10	0.05	
Fluorene	0.15		0.10	0.05	
Phenanthrene	0.81		0.10	0.05	
Anthracene	0.22		0.10	0.05	
Fluoranthene	0.60		0.10	0.05	
Pyrene	0.77		0.10	0.05	
Benz[a]anthracene	0.32		0.10	0.05	
Chrysene	0.34		0.10	0.05	
Benzo[b]fluoranthene	0.21		0.10	0.05	
Benzo[k]fluoranthene	0.22		0.10	0.05	
Benzo(e)pyrene	0.24		0.10	0.05	
Benzo[a]pyrene	0.37		0.10	0.05	
Perylene	0.09	J	0.10	0.05	
Indeno[1,2,3-cd]pyrene	0.16		0.10	0.05	
Dibenz[a,h]anthracene	0.07	J	0.10	0.05	
Benzo[g,h,i]perylene	0.45	B	0.10	0.05	
ALKYLATED PAHs:					
C0 - Benzene	0.30		0.10	0.05	
C1 - Benzene	0.44		0.10	0.05	
C2 - Benzene	0.51		0.10	0.05	
C3 - Benzene	0.24		0.10	0.05	
C4 - Benzene	0.19		0.10	0.05	
C5 - Benzene	0.08	J	0.10	0.05	
C0 - Naphthalene	0.52		0.10	0.05	
C1 - Naphthalene	0.32		0.10	0.05	
C2 - Naphthalene	0.37		0.10	0.05	
C3- Naphthalene	0.18		0.10	0.05	
C4- Naphthalene	0.13		0.10	0.05	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SD1-0-1

		Preparation Method:	EPA 3570		
		Cleanup Method(s):			
Client:	GTI	Analysis Method:	GC/MS (EPA 8270 Mod.)		
Project:	Superior	Matrix:	Soil		
		Preservation:	None		
Lab ID:	GT030314-01	Decanted:	No		
File ID:	28MAR23.D				
		Sample Size:	2.087	g	
Date Sampled:	3/12/2003	%Solid:	76%		
Date Received:	3/14/2003	Extract Volume:	1.5	mL	
Date Prepared:	3/27/2003	Prep DF:	1		
Date Cleanup:		Analysis DF:	1		
Date Analyzed:	29 Mar 2003 4:33 pm	Injection Volume:	0.001	mL	
Instrument:	GC2-MS_59				
Operator:	KP	Batch QC:	GT030327-SB		

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	0.15		0.10	0.05	
C1 - Fluorene	0.14		0.10	0.05	
C2 - Fluorene	0.07	J	0.10	0.05	
C3 - Fluorene	0.05	J	0.10	0.05	
C0 - Phenanthrene/Anthracene	1.06		0.10	0.05	
C1 - Phenanthrene/Anthracene	0.44		0.10	0.05	
C2 - Phenanthrene/Anthracene	0.26		0.10	0.05	
C3 - Phenanthrene/Anthracene	0.08	J	0.10	0.05	
C4 - Phenanthrene/Anthracene		U	0.10	0.05	
C0 - Dibenzothiophene	0.06	J	0.10	0.05	
C1 - Dibenzothiophene	0.15		0.10	0.05	
C2 - Dibenzothiophene	0.09	J	0.10	0.05	
C3 - Dibenzothiophene	0.06	J	0.10	0.05	
C0 - Fluoranthene/Pyrene	1.52		0.10	0.05	
C1 - Fluoranthene/Pyrene	0.39		0.10	0.05	
C2 - Fluoranthene/Pyrene	0.16		0.10	0.05	
C3 - Fluoranthene/Pyrene		U	0.10	0.05	
C0 - Benz(a)anthracene/Chrysene	0.63		0.10	0.05	
C1 - Benz(a)anthracene/Chrysene	0.20		0.10	0.05	
C2 - Benz(a)anthracene/Chrysene	0.09	J	0.10	0.05	
C3 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C4 - Benz(a)anthracene/Chrysene		U	0.10	0.05	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	51%	50%	150%
2-Fluorobiphenyl	78%	50%	120%
5a-Androstane	73%	50%	120%
Benzo(a)pyrene-d12	75%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SD2-0-1

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
Lab ID:	GT030314-02	Matrix:	Soil
File ID:	28MAR24.D	Preservation:	None
		Decanted:	No
Date Sampled:	3/12/2003	Sample Size:	2.091 g
Date Received:	3/14/2003	%Solid:	68%
Date Prepared:	3/27/2003	Extract Volume:	1.5 mL
Date Cleanup:		Prep DF:	1
Date Analyzed:	29 Mar 2003 5:49 pm	Analysis DF:	1
Instrument:	GC2-MS_59	Injection Volume:	0.001 mL
Operator:	KP	Batch QC:	GT030327-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	0.64		0.11	0.05	
Toluene	0.46		0.11	0.05	
Ethylbenzene	0.37		0.11	0.05	
m/p-Xylenes	0.33		0.11	0.05	
Styrene	0.10	J	0.11	0.05	
o-Xylene	0.10	J	0.11	0.05	
1,2,4-Trimethylbenzene	0.06	J	0.11	0.05	
Naphthalene	5.09		0.11	0.05	
2-Methylnaphthalene	2.78		0.11	0.05	
1-Methylnaphthalene	2.21		0.11	0.05	
Acenaphthylene	0.25		0.11	0.05	
Acenaphthene	2.88		0.11	0.05	
Dibenzofuran	0.10	J	0.11	0.05	
Fluorene	1.16		0.11	0.05	
Phenanthrene	5.84		0.11	0.05	
Anthracene	1.44		0.11	0.05	
Fluoranthene	2.68		0.11	0.05	
Pyrene	3.48		0.11	0.05	
Benz[a]anthracene	1.15		0.11	0.05	
Chrysene	1.16		0.11	0.05	
Benzo[b]fluoranthene	0.62		0.11	0.05	
Benzo[k]fluoranthene	0.68		0.11	0.05	
Benzo(e)pyrene	0.67		0.11	0.05	
Benzo[a]pyrene	1.08		0.11	0.05	
Perylene	0.22		0.11	0.05	
Indeno[1,2,3-cd]pyrene	0.50		0.11	0.05	
Dibenz[a,h]anthracene	0.19		0.11	0.05	
Benzo[g,h,i]perylene	0.65	B	0.11	0.05	
ALKYLATED PAHs:					
C0 - Benzene	0.64		0.11	0.05	
C1 - Benzene	0.58		0.11	0.05	
C2 - Benzene	1.06		0.11	0.05	
C3 - Benzene	1.71		0.11	0.05	
C4 - Benzene	2.12		0.11	0.05	
C5 - Benzene	0.64		0.11	0.05	
C0 - Naphthalene	5.09		0.11	0.05	
C1 - Naphthalene	3.46		0.11	0.05	
C2 - Naphthalene	2.81		0.11	0.05	
C3- Naphthalene	1.02		0.11	0.05	
C4- Naphthalene	0.48		0.11	0.05	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SD2-0-1

		Preparation Method:	EPA 3570		
		Cleanup Method(s):			
Client:	GTI	Analysis Method:	GC/MS (EPA 8270 Mod.)		
Project:	Superior	Matrix:	Soil		
		Preservation:	None		
Lab ID:	GT030314-02	Decanted:	No		
File ID:	28MAR24.D				
		Sample Size:	2.091	g	
Date Sampled:	3/12/2003	%Solid:	68%		
Date Received:	3/14/2003	Extract Volume:	1.5	mL	
Date Prepared:	3/27/2003	Prep DF:	1		
Date Cleanup:		Analysis DF:	1		
Date Analyzed:	29 Mar 2003 5:49 pm	Injection Volume:	0.001	mL	
Instrument:	GC2-MS_59				
Operator:	KP	Batch QC:	GT030327-SB		

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	1.16		0.11	0.05	
C1 - Fluorene	0.92		0.11	0.05	
C2 - Fluorene	0.32		0.11	0.05	
C3 - Fluorene	0.16		0.11	0.05	
C0 - Phenanthrene/Anthracene	7.38		0.11	0.05	
C1 - Phenanthrene/Anthracene	2.34		0.11	0.05	
C2 - Phenanthrene/Anthracene	0.99		0.11	0.05	
C3 - Phenanthrene/Anthracene	0.29		0.11	0.05	
C4 - Phenanthrene/Anthracene	0.09	J	0.11	0.05	
C0 - Dibenzothiophene	0.38		0.11	0.05	
C1 - Dibenzothiophene	0.42		0.11	0.05	
C2 - Dibenzothiophene	0.27		0.11	0.05	
C3 - Dibenzothiophene	0.21		0.11	0.05	
C0 - Fluoranthene/Pyrene	7.09		0.11	0.05	
C1 - Fluoranthene/Pyrene	1.62		0.11	0.05	
C2 - Fluoranthene/Pyrene	0.56		0.11	0.05	
C3 - Fluoranthene/Pyrene	0.20		0.11	0.05	
C0 - Benz(a)anthracene/Chrysene	2.22		0.11	0.05	
C1 - Benz(a)anthracene/Chrysene	0.62		0.11	0.05	
C2 - Benz(a)anthracene/Chrysene	0.25		0.11	0.05	
C3 - Benz(a)anthracene/Chrysene	0.07	J	0.11	0.05	
C4 - Benz(a)anthracene/Chrysene		U	0.11	0.05	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	34%	50%	150%
2-Fluorobiphenyl	51%	50%	120%
5a-Androstane	47%	50%	120%
Benzo(a)pyrene-d12	46%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SD3-0-1

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
Lab ID:	GT030314-03	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	28MAR27.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/12/2003	Decanted:	No
Date Received:	3/14/2003	Sample Size:	2.138 g
Date Prepared:	3/27/2003	%Solid:	74%
Date Cleanup:		Extract Volume:	1.5 mL
Date Analyzed:	29 Mar 2003 8:51 pm	Prep DF:	1
Instrument:	GC2-MS_59	Analysis DF:	1
Operator:	KP	Injection Volume:	0.001 mL
		Batch QC:	GT030327-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	0.44		0.10	0.05	
Toluene	1.06		0.10	0.05	
Ethylbenzene	0.24		0.10	0.05	
m/p-Xylenes	0.32		0.10	0.05	
Styrene		U	0.10	0.05	
o-Xylene	0.09	J	0.10	0.05	
1,2,4-Trimethylbenzene		U	0.10	0.05	
Naphthalene	1.22		0.10	0.05	
2-Methylnaphthalene	0.59		0.10	0.05	
1-Methylnaphthalene	0.70		0.10	0.05	
Acenaphthylene	0.15		0.10	0.05	
Acenaphthene	0.87		0.10	0.05	
Dibenzofuran	0.09	J	0.10	0.05	
Fluorene	0.42		0.10	0.05	
Phenanthrene	2.06		0.10	0.05	
Anthracene	0.53		0.10	0.05	
Fluoranthene	1.41		0.10	0.05	
Pyrene	1.73		0.10	0.05	
Benz[a]anthracene	0.70		0.10	0.05	
Chrysene	0.75		0.10	0.05	
Benzo[b]fluoranthene	0.41		0.10	0.05	
Benzo[k]fluoranthene	0.47		0.10	0.05	
Benzo(e)pyrene	0.46		0.10	0.05	
Benzo[a]pyrene	0.69		0.10	0.05	
Perylene	0.17		0.10	0.05	
Indeno[1,2,3-cd]pyrene	0.31		0.10	0.05	
Dibenz[a,h]anthracene	0.13		0.10	0.05	
Benzo[g,h,i]perylene	0.58	B	0.10	0.05	
ALKYLATED PAHs:					
C0 - Benzene	0.44		0.10	0.05	
C1 - Benzene	1.33		0.10	0.05	
C2 - Benzene	0.85		0.10	0.05	
C3 - Benzene	0.72		0.10	0.05	
C4 - Benzene	0.64		0.10	0.05	
C5 - Benzene	0.31		0.10	0.05	
C0 - Naphthalene	1.22		0.10	0.05	
C1 - Naphthalene	0.89		0.10	0.05	
C2 - Naphthalene	1.08		0.10	0.05	
C3- Naphthalene	0.48		0.10	0.05	
C4- Naphthalene	0.28		0.10	0.05	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SD3-0-1

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
		Analysis Method:	GC/MS (EPA 8270 Mod.)
Lab ID:	GT030314-03	Matrix:	Soil
File ID:	28MAR27.D	Preservation:	None
		Decanted:	No
		Sample Size:	2.138 g
Date Sampled:	3/12/2003	%Solid:	74%
Date Received:	3/14/2003	Extract Volume:	1.5 mL
Date Prepared:	3/27/2003	Prep DF:	1
Date Cleanup:		Analysis DF:	1
Date Analyzed:	29 Mar 2003 8:51 pm	Injection Volume:	0.001 mL
Instrument:	GC2-MS_59		
Operator:	KP	Batch QC:	GT030327-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	0.42		0.10	0.05	
C1 - Fluorene	0.33		0.10	0.05	
C2 - Fluorene	0.16		0.10	0.05	
C3 - Fluorene	0.11		0.10	0.05	
C0 - Phenanthrene/Anthracene	2.66		0.10	0.05	
C1 - Phenanthrene/Anthracene	1.00		0.10	0.05	
C2 - Phenanthrene/Anthracene	0.57		0.10	0.05	
C3 - Phenanthrene/Anthracene	0.16		0.10	0.05	
C4 - Phenanthrene/Anthracene	0.06	J	0.10	0.05	
C0 - Dibenzothiophene	0.15		0.10	0.05	
C1 - Dibenzothiophene	0.24		0.10	0.05	
C2 - Dibenzothiophene	0.18		0.10	0.05	
C3 - Dibenzothiophene	0.11		0.10	0.05	
C0 - Fluoranthene/Pyrene	3.48		0.10	0.05	
C1 - Fluoranthene/Pyrene	0.90		0.10	0.05	
C2 - Fluoranthene/Pyrene	0.38		0.10	0.05	
C3 - Fluoranthene/Pyrene		U	0.10	0.05	
C0 - Benz(a)anthracene/Chrysene	1.40		0.10	0.05	
C1 - Benz(a)anthracene/Chrysene	0.41		0.10	0.05	
C2 - Benz(a)anthracene/Chrysene	0.19		0.10	0.05	
C3 - Benz(a)anthracene/Chrysene		U	0.10	0.05	
C4 - Benz(a)anthracene/Chrysene		U	0.10	0.05	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	54%	50%	150%
2-Fluorobiphenyl	85%	50%	120%
5a-Androstane	81%	50%	120%
Benzo(a)pyrene-d12	82%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
Lab ID:	GT030327-SB	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	28MAR18.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	2 g
Date Prepared:	3/27/2003	%Solid:	100%
Date Cleanup:		Extract Volume:	1.3 mL
Date Analyzed:	29 Mar 2003 10:04 am	Prep DF:	1
Instrument:	GC2-MS_59	Analysis DF:	1
Operator:	KP	Injection Volume:	0.001 mL
		Batch QC:	GT030327-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene		U	0.07	0.03	
Toluene		U	0.07	0.03	
Ethylbenzene		U	0.07	0.03	
m/p-Xylenes		U	0.07	0.03	
Styrene		U	0.07	0.03	
o-Xylene		U	0.07	0.03	
1,2,4-Trimethylbenzene		U	0.07	0.03	
Naphthalene		U	0.07	0.03	
2-Methylnaphthalene		U	0.07	0.03	
1-Methylnaphthalene		U	0.07	0.03	
Acenaphthylene		U	0.07	0.03	
Acenaphthene		U	0.07	0.03	
Dibenzofuran		U	0.07	0.03	
Fluorene		U	0.07	0.03	
Phenanthrene		U	0.07	0.03	
Anthracene		U	0.07	0.03	
Fluoranthene		U	0.07	0.03	
Pyrene		U	0.07	0.03	
Benz[a]anthracene		U	0.07	0.03	
Chrysene		U	0.07	0.03	
Benzo[b]fluoranthene		U	0.07	0.03	
Benzo[k]fluoranthene		U	0.07	0.03	
Benzo(e)pyrene		U	0.07	0.03	
Benzo[a]pyrene		U	0.07	0.03	
Perylene		U	0.07	0.03	
Indeno[1,2,3-cd]pyrene		U	0.07	0.03	
Dibenz[a,h]anthracene		U	0.07	0.03	
Benzo[g,h,i]perylene	0.18		0.07	0.03	
ALKYLATED PAHs:					
C0 - Benzene		U	0.07	0.03	
C1 - Benzene		U	0.07	0.03	
C2 - Benzene		U	0.07	0.03	
C3 - Benzene		U	0.07	0.03	
C4 - Benzene		U	0.07	0.03	
C5 - Benzene		U	0.07	0.03	
C0 - Naphthalene		U	0.07	0.03	
C1 - Naphthalene		U	0.07	0.03	
C2 - Naphthalene		U	0.07	0.03	
C3- Naphthalene		U	0.07	0.03	
C4- Naphthalene		U	0.07	0.03	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

		Preparation Method:	EPA 3570
		Cleanup Method(s):	
Client:	GTI	Analysis Method:	GC/MS (EPA 8270 Mod.)
Project:	Superior	Matrix:	Soil
		Preservation:	None
Lab ID:	GT030327-SB	Decanted:	No
File ID:	28MAR18.D		
		Sample Size:	2 g
Date Sampled:		%Solid:	100%
Date Received:		Extract Volume:	1.3 mL
Date Prepared:	3/27/2003	Prep DF:	1
Date Cleanup:		Analysis DF:	1
Date Analyzed:	29 Mar 2003 10:04 am	Injection Volume:	0.001 mL
Instrument:	GC2-MS_59		
Operator:	KP	Batch QC:	GT030327-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene		U	0.07	0.03	
C1 - Fluorene		U	0.07	0.03	
C2 - Fluorene		U	0.07	0.03	
C3 - Fluorene		U	0.07	0.03	
C0 - Phenanthrene/Anthracene		U	0.07	0.03	
C1 - Phenanthrene/Anthracene		U	0.07	0.03	
C2 - Phenanthrene/Anthracene		U	0.07	0.03	
C3 - Phenanthrene/Anthracene		U	0.07	0.03	
C4 - Phenanthrene/Anthracene		U	0.07	0.03	
C0 - Dibenzothiophene		U	0.07	0.03	
C1 - Dibenzothiophene		U	0.07	0.03	
C2 - Dibenzothiophene		U	0.07	0.03	
C3 - Dibenzothiophene		U	0.07	0.03	
C0 - Fluoranthene/Pyrene		U	0.07	0.03	
C1 - Fluoranthene/Pyrene		U	0.07	0.03	
C2 - Fluoranthene/Pyrene		U	0.07	0.03	
C3 - Fluoranthene/Pyrene		U	0.07	0.03	
C0 - Benz(a)anthracene/Chrysene		U	0.07	0.03	
C1 - Benz(a)anthracene/Chrysene		U	0.07	0.03	
C2 - Benz(a)anthracene/Chrysene		U	0.07	0.03	
C3 - Benz(a)anthracene/Chrysene		U	0.07	0.03	
C4 - Benz(a)anthracene/Chrysene		U	0.07	0.03	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	48%	50%	150%
2-Fluorobiphenyl	69%	50%	120%
5a-Androstane	65%	50%	120%
Benzo(a)pyrene-d12	66%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **Soil Blank Spike**

		Preparation Method:	EPA 3570	
		Cleanup Method(s):		
Client:	GTI	Analysis Method:	GC/MS (EPA 8270 Mod.)	
Project:	Superior	Matrix:	Soil	
		Preservation:	None	
Lab ID:	GT030327-SBS	Decanted:	No	
File ID:	28MAR19.D			
		Sample Size:	2	g
Date Sampled:		%Solid:	100%	
Date Received:		Extract Volume:	1.2	mL
Date Prepared:	3/27/2003	Prep DF:	1	
Date Cleanup:		Analysis DF:	1	
Date Analyzed:	29 Mar 2003 11:21 am	Injection Volume:	0.001	mL
Instrument:	GC2-MS_59			
Operator:	KP	Batch QC:	GT030327-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	15.2		0.06	0.03	60.8%
Toluene	17.6		0.06	0.03	70.4%
Ethylbenzene	17.8		0.06	0.03	71.2%
m/p-Xylenes	17.9		0.06	0.03	71.6%
Styrene	18.1		0.06	0.03	72.4%
o-Xylene	17.6		0.06	0.03	70.4%
1,2,4-Trimethylbenzene	17.6		0.06	0.03	70.4%
Naphthalene	20.0		0.06	0.03	80.0%
2-Methylnaphthalene	19.2		0.06	0.03	76.8%
1-Methylnaphthalene	18.7		0.06	0.03	74.8%
Acenaphthylene	17.9		0.06	0.03	71.6%
Acenaphthene	18.0		0.06	0.03	72.0%
Dibenzofuran	18.4		0.06	0.03	73.6%
Fluorene	18.4		0.06	0.03	73.6%
Phenanthrene	18.9		0.06	0.03	75.6%
Anthracene	15.9		0.06	0.03	63.6%
Fluoranthene	18.7		0.06	0.03	74.8%
Pyrene	18.4		0.06	0.03	73.6%
Benz[a]anthracene	19.0		0.06	0.03	76.0%
Chrysene	18.4		0.06	0.03	73.6%
Benzo[b]fluoranthene	20.1		0.06	0.03	80.4%
Benzo[k]fluoranthene	17.3		0.06	0.03	69.2%
Benzo(e)pyrene		U	0.06	0.03	
Benzo[a]pyrene	18.9		0.06	0.03	75.6%
Perylene		U	0.06	0.03	
Indeno[1,2,3-cd]pyrene	18.9		0.06	0.03	75.6%
Dibenz[a,h]anthracene	18.8		0.06	0.03	75.2%
Benzo[g,h,i]perylene	17.0	B	0.06	0.03	68.0%

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	53%	50%	150%
2-Fluorobiphenyl	70%	50%	120%
5a-Androstane	76%	50%	120%
Benzo(a)pyrene-d12	78%	50%	120%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SS-UPStream

Client:	GTI	Preparation Method:	EPA 3570	
Project:	Superior	Cleanup Method(s):		
Lab ID:	GT030417-01	Analysis Method:	GC/MS (EPA 8270 Mod.)	
File ID:	07MAY44.D	Matrix:	Soil	
		Preservation:	0	
Date Sampled:	4/16/2003	Decanted:	0	
Date Received:	4/17/2003	Sample Size:	2.093	g
Date Prepared:	4/28/2003	%Solid:	51%	
Date Cleanup:		Extract Volume:	1.5	mL
Date Analyzed:	9 May 2003 11:54 am	Prep DF:	1	
Instrument:	GC2-MS_59	Analysis DF:	1	
Operator:	KP	Injection Volume:	0.001	mL
		Batch QC:	GT030428-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene		U	0.14	0.07	
Toluene	0.22	B	0.14	0.07	
Ethylbenzene		U	0.14	0.07	
m/p-Xylenes	0.09	J	0.14	0.07	
Styrene		U	0.14	0.07	
o-Xylene		U	0.14	0.07	
1,2,4-Trimethylbenzene		U	0.14	0.07	
Naphthalene	0.12	J	0.14	0.07	
2-Methylnaphthalene	0.15		0.14	0.07	
1-Methylnaphthalene	0.10	J	0.14	0.07	
Acenaphthylene		U	0.14	0.07	
Acenaphthene		U	0.14	0.07	
Dibenzofuran		U	0.14	0.07	
Fluorene		U	0.14	0.07	
Phenanthrene	0.24		0.14	0.07	
Anthracene		U	0.14	0.07	
Fluoranthene	0.40		0.14	0.07	
Pyrene	0.36		0.14	0.07	
Benz[a]anthracene	0.17		0.14	0.07	
Chrysene	0.22		0.14	0.07	
Benzo[b]fluoranthene	0.16		0.14	0.07	
Benzo[k]fluoranthene	0.16		0.14	0.07	
Benzo(e)pyrene	0.13	J	0.14	0.07	
Benzo[a]pyrene	0.18		0.14	0.07	
Perylene		U	0.14	0.07	
Indeno[1,2,3-cd]pyrene	0.09	J	0.14	0.07	
Dibenz[a,h]anthracene		U	0.14	0.07	
Benzo[g,h,i]perylene	0.12	J	0.14	0.07	
ALKYLATED PAHs:					
C0 - Benzene		U	0.14	0.07	
C1 - Benzene	0.26	B	0.14	0.07	
C2 - Benzene	0.25		0.14	0.07	
C3 - Benzene	0.24		0.14	0.07	
C4 - Benzene	0.11	J	0.14	0.07	
C5 - Benzene		U	0.14	0.07	
C0 - Naphthalene	0.12	J	0.14	0.07	
C1 - Naphthalene	0.18		0.14	0.07	
C2 - Naphthalene	0.16		0.14	0.07	
C3- Naphthalene	0.08	J	0.14	0.07	
C4- Naphthalene	0.08	J	0.14	0.07	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SS-UPStream

		Preparation Method:	EPA 3570	
		Cleanup Method(s):		
Client:	GTI	Analysis Method:	GC/MS (EPA 8270 Mod.)	
Project:	Superior	Matrix:	Soil	
		Preservation:	0	
Lab ID:	GT030417-01	Decanted:	0	
File ID:	07MAY44.D			
		Sample Size:	2.093	g
Date Sampled:	4/16/2003	%Solid:	51%	
Date Received:	4/17/2003	Extract Volume:	1.5	mL
Date Prepared:	4/28/2003	Prep DF:	1	
Date Cleanup:		Analysis DF:	1	
Date Analyzed:	9 May 2003 11:54 am	Injection Volume:	0.001	mL
Instrument:	GC2-MS_59			
Operator:	KP	Batch QC:	GT030428-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene		U	0.14	0.07	
C1 - Fluorene		U	0.14	0.07	
C2 - Fluorene		U	0.14	0.07	
C3 - Fluorene		U	0.14	0.07	
C0 - Phenanthrene/Anthracene	0.34		0.14	0.07	
C1 - Phenanthrene/Anthracene	0.19		0.14	0.07	
C2 - Phenanthrene/Anthracene	0.15		0.14	0.07	
C3 - Phenanthrene/Anthracene		U	0.14	0.07	
C4 - Phenanthrene/Anthracene		U	0.14	0.07	
C0 - Dibenzothiophene		U	0.14	0.07	
C1 - Dibenzothiophene	0.15		0.14	0.07	
C2 - Dibenzothiophene		U	0.14	0.07	
C3 - Dibenzothiophene		U	0.14	0.07	
C0 - Fluoranthene/Pyrene	0.85		0.14	0.07	
C1 - Fluoranthene/Pyrene	0.15		0.14	0.07	
C2 - Fluoranthene/Pyrene	0.12	J	0.14	0.07	
C3 - Fluoranthene/Pyrene		U	0.14	0.07	
C0 - Benz(a)anthracene/Chrysene	0.39		0.14	0.07	
C1 - Benz(a)anthracene/Chrysene	0.10	J	0.14	0.07	
C2 - Benz(a)anthracene/Chrysene		U	0.14	0.07	
C3 - Benz(a)anthracene/Chrysene		U	0.14	0.07	
C4 - Benz(a)anthracene/Chrysene		U	0.14	0.07	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	56%	50%	150%
2-Fluorobiphenyl	68%	50%	120%
5a-Androstane	78%	50%	120%
Benzo(a)pyrene-d12	70%	50%	120%
FRACTIONATION SURROGATE COMPOUNDS:			
2,5-Dibromotoluene	Not Spiked	50%	150%
2-Bromonaphthalene	Not Spiked	50%	150%
1-Chlorooctadecane	Not Spiked	50%	150%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **Matrix Spike**

		Preparation Method:	EPA 3570	
		Cleanup Method(s):		
Client:	GTI	Analysis Method:	GC/MS (EPA 8270 Mod.)	
Project:	Superior	Matrix:	Soil	
		Preservation:	0	
Lab ID:	GT030417-01MS	Decanted:	0	
File ID:	07MAY45.D			
		Sample Size:	2.119	g
Date Sampled:	4/16/2003	%Solid:	51%	
Date Received:	4/17/2003	Extract Volume:	1.5	mL
Date Prepared:	4/28/2003	Prep DF:	1	
Date Cleanup:		Analysis DF:	1	
Date Analyzed:	9 May 2003 1:10 pm	Injection Volume:	0.001	mL
Instrument:	GC2-MS_59			
Operator:	KP	Batch QC:	GT030428-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	22.0		0.14	0.07	47.2%
Toluene	30.3	B	0.14	0.07	64.5%
Ethylbenzene	32.1		0.14	0.07	68.8%
m/p-Xylenes	32.6		0.14	0.07	69.7%
Styrene	32.2		0.14	0.07	69.1%
o-Xylene	32.5		0.14	0.07	69.7%
1,2,4-Trimethylbenzene	32.6		0.14	0.07	69.9%
Naphthalene	31.3		0.14	0.07	66.9%
2-Methylnaphthalene	31.5		0.14	0.07	67.2%
1-Methylnaphthalene	31.3		0.14	0.07	66.9%
Acenaphthylene	31.1		0.14	0.07	66.7%
Acenaphthene	31.8		0.14	0.07	68.2%
Dibenzofuran	32.4		0.14	0.07	69.5%
Fluorene	30.4		0.14	0.07	65.2%
Phenanthrene	32.2		0.14	0.07	68.5%
Anthracene	33.7		0.14	0.07	72.3%
Fluoranthene	32.8		0.14	0.07	69.5%
Pyrene	32.3		0.14	0.07	68.5%
Benz[a]anthracene	30.7		0.14	0.07	65.5%
Chrysene	31.2		0.14	0.07	66.4%
Benzo[b]fluoranthene	30.7		0.14	0.07	65.5%
Benzo[k]fluoranthene	29.8		0.14	0.07	63.6%
Benzo(e)pyrene		U	0.14	0.07	
Benzo[a]pyrene	30.6		0.14	0.07	65.2%
Perylene		U	0.14	0.07	
Indeno[1,2,3-cd]pyrene	29.7		0.14	0.07	63.5%
Dibenz[a,h]anthracene	30.6		0.14	0.07	65.6%
Benzo[g,h,i]perylene	28.8		0.14	0.07	61.5%

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	50%	50%	150%
2-Fluorobiphenyl	72%	50%	120%
5a-Androstane	77%	50%	120%
Benzo(a)pyrene-d12	72%	50%	120%

FRACTIONATION SURROGATE COMPOUNDS:			
2,5-Dibromotoluene	Not Spiked	50%	150%
2-Bromonaphthalene	Not Spiked	50%	150%
1-Chlorooctadecane	Not Spiked	50%	150%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

META

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SS-OUTfall

Client:	GTI	Preparation Method:	EPA 3570	
Project:	Superior	Cleanup Method(s):		
Lab ID:	GT030417-02	Analysis Method:	GC/MS (EPA 8270 Mod.)	
File ID:	07MAY46.D	Matrix:	Soil	
		Preservation:	0	
Date Sampled:	4/16/2003	Decanted:	0	
Date Received:	4/17/2003	Sample Size:	2.276	g
Date Prepared:	4/28/2003	%Solid:	78%	
Date Cleanup:		Extract Volume:	1	mL
Date Analyzed:	9 May 2003 2:25 pm	Prep DF:	1	
Instrument:	GC2-MS_59	Analysis DF:	1	
Operator:	KP	Injection Volume:	0.001	mL
		Batch QC:	GT030428-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	1.02		0.06	0.03	
Toluene	0.79	B	0.06	0.03	
Ethylbenzene	0.31		0.06	0.03	
m/p-Xylenes	0.32		0.06	0.03	
Styrene	0.09		0.06	0.03	
o-Xylene	0.15		0.06	0.03	
1,2,4-Trimethylbenzene		U	0.06	0.03	
Naphthalene	2.09		0.06	0.03	
2-Methylnaphthalene	0.65		0.06	0.03	
1-Methylnaphthalene	0.67		0.06	0.03	
Acenaphthylene	0.19		0.06	0.03	
Acenaphthene	0.63		0.06	0.03	
Dibenzofuran	0.05	J	0.06	0.03	
Fluorene	0.27		0.06	0.03	
Phenanthrene	0.99		0.06	0.03	
Anthracene	0.29		0.06	0.03	
Fluoranthene	0.77		0.06	0.03	
Pyrene	0.95		0.06	0.03	
Benz[a]anthracene	0.29		0.06	0.03	
Chrysene	0.35		0.06	0.03	
Benzo[b]fluoranthene	0.19		0.06	0.03	
Benzo[k]fluoranthene	0.20		0.06	0.03	
Benzo(e)pyrene	0.20		0.06	0.03	
Benzo[a]pyrene	0.26		0.06	0.03	
Perylene	0.06		0.06	0.03	
Indeno[1,2,3-cd]pyrene	0.13		0.06	0.03	
Dibenz[a,h]anthracene	0.05	J	0.06	0.03	
Benzo[g,h,i]perylene	0.15		0.06	0.03	
ALKYLATED PAHs:					
C0 - Benzene	1.02		0.06	0.03	
C1 - Benzene	0.93	B	0.06	0.03	
C2 - Benzene	1.11		0.06	0.03	
C3 - Benzene	0.90		0.06	0.03	
C4 - Benzene	0.57		0.06	0.03	
C5 - Benzene	0.10		0.06	0.03	
C0 - Naphthalene	2.09		0.06	0.03	
C1 - Naphthalene	0.89		0.06	0.03	
C2 - Naphthalene	0.63		0.06	0.03	
C3- Naphthalene	0.30		0.06	0.03	
C4- Naphthalene	0.23		0.06	0.03	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SS-OUTfall

		Preparation Method:	EPA 3570	
		Cleanup Method(s):		
Client:	GTI	Analysis Method:	GC/MS (EPA 8270 Mod.)	
Project:	Superior	Matrix:	Soil	
		Preservation:	0	
Lab ID:	GT030417-02	Decanted:	0	
File ID:	07MAY46.D			
		Sample Size:	2.276	g
Date Sampled:	4/16/2003	%Solid:	78%	
Date Received:	4/17/2003	Extract Volume:	1	mL
Date Prepared:	4/28/2003	Prep DF:	1	
Date Cleanup:		Analysis DF:	1	
Date Analyzed:	9 May 2003 2:25 pm	Injection Volume:	0.001	mL
Instrument:	GC2-MS_59			
Operator:	KP	Batch QC:	GT030428-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	0.27		0.06	0.03	
C1 - Fluorene	0.26		0.06	0.03	
C2 - Fluorene	0.10		0.06	0.03	
C3 - Fluorene	0.08		0.06	0.03	
C0 - Phenanthrene/Anthracene	1.35		0.06	0.03	
C1 - Phenanthrene/Anthracene	0.61		0.06	0.03	
C2 - Phenanthrene/Anthracene	0.36		0.06	0.03	
C3 - Phenanthrene/Anthracene	0.13		0.06	0.03	
C4 - Phenanthrene/Anthracene	0.06		0.06	0.03	
C0 - Dibenzothiophene	0.08		0.06	0.03	
C1 - Dibenzothiophene	0.14		0.06	0.03	
C2 - Dibenzothiophene	0.09		0.06	0.03	
C3 - Dibenzothiophene	0.07		0.06	0.03	
C0 - Fluoranthene/Pyrene	1.96		0.06	0.03	
C1 - Fluoranthene/Pyrene	0.43		0.06	0.03	
C2 - Fluoranthene/Pyrene	0.22		0.06	0.03	
C3 - Fluoranthene/Pyrene	0.10		0.06	0.03	
C0 - Benz(a)anthracene/Chrysene	0.64		0.06	0.03	
C1 - Benz(a)anthracene/Chrysene	0.20		0.06	0.03	
C2 - Benz(a)anthracene/Chrysene	0.11		0.06	0.03	
C3 - Benz(a)anthracene/Chrysene	0.03	J	0.06	0.03	
C4 - Benz(a)anthracene/Chrysene		U	0.06	0.03	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	52%	50%	150%
2-Fluorobiphenyl	75%	50%	120%
5a-Androstane	80%	50%	120%
Benzo(a)pyrene-d12	70%	50%	120%
FRACTIONATION SURROGATE COMPOUNDS:			
2,5-Dibromotoluene	Not Spiked	50%	150%
2-Bromonaphthalene	Not Spiked	50%	150%
1-Chlorooctadecane	Not Spiked	50%	150%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SS-OUTfall

Client:	GTI	Preparation Method:	EPA 3570		
Project:	Superior	Cleanup Method(s):			
Lab ID:	GT030417-02DUP	Analysis Method:	GC/MS (EPA 8270 Mod.)		
File ID:	07MAY47.D	Matrix:	Soil		
		Preservation:	0		
Date Sampled:	4/16/2003	Decanted:	0		
Date Received:	4/17/2003	Sample Size:	2.428	g	
Date Prepared:	4/28/2003	%Solid:	78%		
Date Cleanup:		Extract Volume:	1.2	mL	
Date Analyzed:	9 May 2003 3:40 pm	Prep DF:	1		
Instrument:	GC2-MS_59	Analysis DF:	1		
Operator:	KP	Injection Volume:	0.001	mL	
		Batch QC:	GT030428-SB		

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	0.59		0.06	0.03	53.4%
Toluene	0.35	B	0.06	0.03	77.2%
Ethylbenzene	0.23		0.06	0.03	29.6%
m/p-Xylenes	0.18		0.06	0.03	56.0%
Styrene	0.12		0.06	0.03	28.6%
o-Xylene	0.09		0.06	0.03	50.0%
1,2,4-Trimethylbenzene		U	0.06	0.03	
Naphthalene	1.72		0.06	0.03	19.4%
2-Methylnaphthalene	0.58		0.06	0.03	11.4%
1-Methylnaphthalene	0.50		0.06	0.03	29.1%
Acenaphthylene	0.17		0.06	0.03	11.1%
Acenaphthene	0.57		0.06	0.03	10.0%
Dibenzofuran		U	0.06	0.03	
Fluorene	0.22		0.06	0.03	20.4%
Phenanthrene	0.79		0.06	0.03	22.5%
Anthracene	0.23		0.06	0.03	23.1%
Fluoranthene	0.48		0.06	0.03	46.4%
Pyrene	0.64		0.06	0.03	39.0%
Benz[a]anthracene	0.21		0.06	0.03	32.0%
Chrysene	0.25		0.06	0.03	33.3%
Benzo[b]fluoranthene	0.15		0.06	0.03	23.5%
Benzo[k]fluoranthene	0.16		0.06	0.03	22.2%
Benzo(e)pyrene	0.18		0.06	0.03	10.5%
Benzo[a]pyrene	0.25		0.06	0.03	3.9%
Perylene	0.05	J	0.06	0.03	18.2%
Indeno[1,2,3-cd]pyrene	0.10		0.06	0.03	26.1%
Dibenz[a,h]anthracene		U	0.06	0.03	
Benzo[g,h,i]perylene	0.13		0.06	0.03	14.3%
ALKYLATED PAHs:					
C0 - Benzene	0.59		0.06	0.03	53.4%
C1 - Benzene	0.41	B	0.06	0.03	77.6%
C2 - Benzene	0.73		0.06	0.03	41.3%
C3 - Benzene	0.62		0.06	0.03	36.8%
C4 - Benzene	0.45		0.06	0.03	23.5%
C5 - Benzene	0.08		0.06	0.03	22.2%
C0 - Naphthalene	1.72		0.06	0.03	19.4%
C1 - Naphthalene	0.73		0.06	0.03	19.8%
C2 - Naphthalene	0.54		0.06	0.03	15.4%
C3- Naphthalene	0.19		0.06	0.03	44.9%
C4- Naphthalene	0.11		0.06	0.03	70.6%

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: SS-OUTfall

Client:	GTI	Preparation Method:	EPA 3570	
Project:	Superior	Cleanup Method(s):		
Lab ID:	GT030417-02DUP	Analysis Method:	GC/MS (EPA 8270 Mod.)	
File ID:	07MAY47.D	Matrix:	Soil	
		Preservation:	0	
Date Sampled:	4/16/2003	Decanted:	0	
Date Received:	4/17/2003	Sample Size:	2.428	g
Date Prepared:	4/28/2003	%Solid:	78%	
Date Cleanup:		Extract Volume:	1.2	mL
Date Analyzed:	9 May 2003 3:40 pm	Prep DF:	1	
Instrument:	GC2-MS_59	Analysis DF:	1	
Operator:	KP	Injection Volume:	0.001	mL
		Batch QC:	GT030428-SB	

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene	0.22		0.06	0.03	20.4%
C1 - Fluorene	0.21		0.06	0.03	21.3%
C2 - Fluorene	0.07		0.06	0.03	35.3%
C3 - Fluorene	0.05	J	0.06	0.03	46.2%
C0 - Phenanthrene/Anthracene	1.08		0.06	0.03	22.2%
C1 - Phenanthrene/Anthracene	0.42		0.06	0.03	36.9%
C2 - Phenanthrene/Anthracene	0.23		0.06	0.03	44.1%
C3 - Phenanthrene/Anthracene	0.07		0.06	0.03	60.0%
C4 - Phenanthrene/Anthracene		U	0.06	0.03	
C0 - Dibenzothiophene	0.06	J	0.06	0.03	28.6%
C1 - Dibenzothiophene	0.12		0.06	0.03	15.4%
C2 - Dibenzothiophene	0.05	J	0.06	0.03	57.1%
C3 - Dibenzothiophene	0.05	J	0.06	0.03	33.3%
C0 - Fluoranthene/Pyrene	1.32		0.06	0.03	39.0%
C1 - Fluoranthene/Pyrene	0.37		0.06	0.03	15.0%
C2 - Fluoranthene/Pyrene	0.16		0.06	0.03	31.6%
C3 - Fluoranthene/Pyrene	0.04	J	0.06	0.03	85.7%
C0 - Benz(a)anthracene/Chrysene	0.47		0.06	0.03	30.6%
C1 - Benz(a)anthracene/Chrysene	0.17		0.06	0.03	16.2%
C2 - Benz(a)anthracene/Chrysene	0.08		0.06	0.03	31.6%
C3 - Benz(a)anthracene/Chrysene		U	0.06	0.03	
C4 - Benz(a)anthracene/Chrysene		U	0.06	0.03	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	49%	50%	150%
2-Fluorobiphenyl	72%	50%	120%
5a-Androstane	77%	50%	120%
Benzo(a)pyrene-d12	65%	50%	120%

FRACTIONATION SURROGATE COMPOUNDS:			
2,5-Dibromotoluene	Not Spiked	50%	150%
2-Bromonaphthalene	Not Spiked	50%	150%
1-Chlorooctadecane	Not Spiked	50%	150%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
Lab ID:	GT030428-SB	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	07MAY06.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	2 g
Date Prepared:	4/28/2003	%Solid:	100%
Date Cleanup:		Extract Volume:	1.1 mL
Date Analyzed:	7 May 2003 4:30 pm	Prep DF:	1
Instrument:	GC2-MS_59	Analysis DF:	1
Operator:	KP	Injection Volume:	0.001 mL
		Batch QC:	GT030428-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene		U	0.06	0.03	
Toluene	0.04	J	0.06	0.03	
Ethylbenzene		U	0.06	0.03	
m/p-Xylenes		U	0.06	0.03	
Styrene		U	0.06	0.03	
o-Xylene		U	0.06	0.03	
1,2,4-Trimethylbenzene		U	0.06	0.03	
Naphthalene		U	0.06	0.03	
2-Methylnaphthalene		U	0.06	0.03	
1-Methylnaphthalene		U	0.06	0.03	
Acenaphthylene		U	0.06	0.03	
Acenaphthene		U	0.06	0.03	
Dibenzofuran		U	0.06	0.03	
Fluorene		U	0.06	0.03	
Phenanthrene		U	0.06	0.03	
Anthracene		U	0.06	0.03	
Fluoranthene		U	0.06	0.03	
Pyrene		U	0.06	0.03	
Benz[a]anthracene		U	0.06	0.03	
Chrysene		U	0.06	0.03	
Benzo[b]fluoranthene		U	0.06	0.03	
Benzo[k]fluoranthene		U	0.06	0.03	
Benzo(e)pyrene		U	0.06	0.03	
Benzo[a]pyrene		U	0.06	0.03	
Perylene		U	0.06	0.03	
Indeno[1,2,3-cd]pyrene		U	0.06	0.03	
Dibenz[a,h]anthracene		U	0.06	0.03	
Benzo[g,h,i]perylene		U	0.06	0.03	
ALKYLATED PAHs:					
C0 - Benzene		U	0.06	0.03	
C1 - Benzene	0.04	J	0.06	0.03	
C2 - Benzene		U	0.06	0.03	
C3 - Benzene		U	0.06	0.03	
C4 - Benzene		U	0.06	0.03	
C5 - Benzene		U	0.06	0.03	
C0 - Naphthalene		U	0.06	0.03	
C1 - Naphthalene		U	0.06	0.03	
C2 - Naphthalene		U	0.06	0.03	
C3- Naphthalene		U	0.06	0.03	
C4- Naphthalene		U	0.06	0.03	

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: Soil Blank

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
Lab ID:	GT030428-SB	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	07MAY06.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	2 g
Date Prepared:	4/28/2003	%Solid:	100%
Date Cleanup:		Extract Volume:	1.1 mL
Date Analyzed:	7 May 2003 4:30 pm	Prep DF:	1
Instrument:	GC2-MS_59	Analysis DF:	1
Operator:	KP	Injection Volume:	0.001 mL
		Batch QC:	GT030428-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
C0 - Fluorene		U	0.06	0.03	
C1 - Fluorene		U	0.06	0.03	
C2 - Fluorene		U	0.06	0.03	
C3 - Fluorene		U	0.06	0.03	
C0 - Phenanthrene/Anthracene		U	0.06	0.03	
C1 - Phenanthrene/Anthracene		U	0.06	0.03	
C2 - Phenanthrene/Anthracene		U	0.06	0.03	
C3 - Phenanthrene/Anthracene		U	0.06	0.03	
C4 - Phenanthrene/Anthracene		U	0.06	0.03	
C0 - Dibenzothiophene		U	0.06	0.03	
C1 - Dibenzothiophene		U	0.06	0.03	
C2 - Dibenzothiophene		U	0.06	0.03	
C3 - Dibenzothiophene		U	0.06	0.03	
C0 - Fluoranthene/Pyrene		U	0.06	0.03	
C1 - Fluoranthene/Pyrene		U	0.06	0.03	
C2 - Fluoranthene/Pyrene		U	0.06	0.03	
C3 - Fluoranthene/Pyrene		U	0.06	0.03	
C0 - Benz(a)anthracene/Chrysene		U	0.06	0.03	
C1 - Benz(a)anthracene/Chrysene		U	0.06	0.03	
C2 - Benz(a)anthracene/Chrysene		U	0.06	0.03	
C3 - Benz(a)anthracene/Chrysene		U	0.06	0.03	
C4 - Benz(a)anthracene/Chrysene		U	0.06	0.03	

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	65%	50%	150%
2-Fluorobiphenyl	68%	50%	120%
5a-Androstane	76%	50%	120%
Benzo(a)pyrene-d12	76%	50%	120%

FRACTIONATION SURROGATE COMPOUNDS:			
2,5-Dibromotoluene	Not Spiked	50%	150%
2-Bromonaphthalene	Not Spiked	50%	150%
1-Chlorooctadecane	Not Spiked	50%	150%

Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

Field ID: **Soil Blank Spike**

Client:	GTI	Preparation Method:	EPA 3570
Project:	Superior	Cleanup Method(s):	
Lab ID:	GT030428-SBS	Analysis Method:	GC/MS (EPA 8270 Mod.)
File ID:	07MAY07.D	Matrix:	Soil
		Preservation:	None
Date Sampled:		Decanted:	No
Date Received:		Sample Size:	2 g
Date Prepared:	4/28/2003	%Solid:	100%
Date Cleanup:		Extract Volume:	1.4 mL
Date Analyzed:	7 May 2003 5:51 pm	Prep DF:	1
Instrument:	GC2-MS_59	Analysis DF:	1
Operator:	KP	Injection Volume:	0.001 mL
		Batch QC:	GT030428-SB

Analyte:	Concentration mg/kg	Q	RL mg/kg	EDL mg/kg	Comments
PAH COMPOUNDS:					
Benzene	16.2		0.07	0.04	64.8%
Toluene	18.4		0.07	0.04	73.6%
Ethylbenzene	18.5		0.07	0.04	74.0%
m/p-Xylenes	18.7		0.07	0.04	74.8%
Styrene	18.6		0.07	0.04	74.4%
o-Xylene	18.5		0.07	0.04	74.0%
1,2,4-Trimethylbenzene	18.5		0.07	0.04	74.0%
Naphthalene	18.3		0.07	0.04	73.2%
2-Methylnaphthalene	18.1		0.07	0.04	72.4%
1-Methylnaphthalene	18.2		0.07	0.04	72.8%
Acenaphthylene	17.4		0.07	0.04	69.6%
Acenaphthene	18.0		0.07	0.04	72.0%
Dibenzofuran	17.9		0.07	0.04	71.6%
Fluorene	17.1		0.07	0.04	68.4%
Phenanthrene	18.0		0.07	0.04	72.0%
Anthracene	18.8		0.07	0.04	75.2%
Fluoranthene	18.5		0.07	0.04	74.0%
Pyrene	18.5		0.07	0.04	74.0%
Benz[a]anthracene	19.2		0.07	0.04	76.8%
Chrysene	18.9		0.07	0.04	75.6%
Benzo[b]fluoranthene	19.8		0.07	0.04	79.2%
Benzo[k]fluoranthene	18.7		0.07	0.04	74.8%
Benzo(e)pyrene		U	0.07	0.04	
Benzo[a]pyrene	19.0		0.07	0.04	76.0%
Perylene		U	0.07	0.04	
Indeno[1,2,3-cd]pyrene	18.1		0.07	0.04	72.4%
Dibenz[a,h]anthracene	18.7		0.07	0.04	74.8%
Benzo[g,h,i]perylene	17.5		0.07	0.04	70.0%

EXTRACTION SURROGATE COMPOUNDS:	%R	Min	Max
Fluorobenzene	68%	50%	150%
2-Fluorobiphenyl	75%	50%	120%
5a-Androstane	83%	50%	120%
Benzo(a)pyrene-d12	85%	50%	120%

FRACTIONATION SURROGATE COMPOUNDS:			
2,5-Dibromotoluene	Not Spiked	50%	150%
2-Bromonaphthalene	Not Spiked	50%	150%
1-Chlorooctadecane	Not Spiked	50%	150%

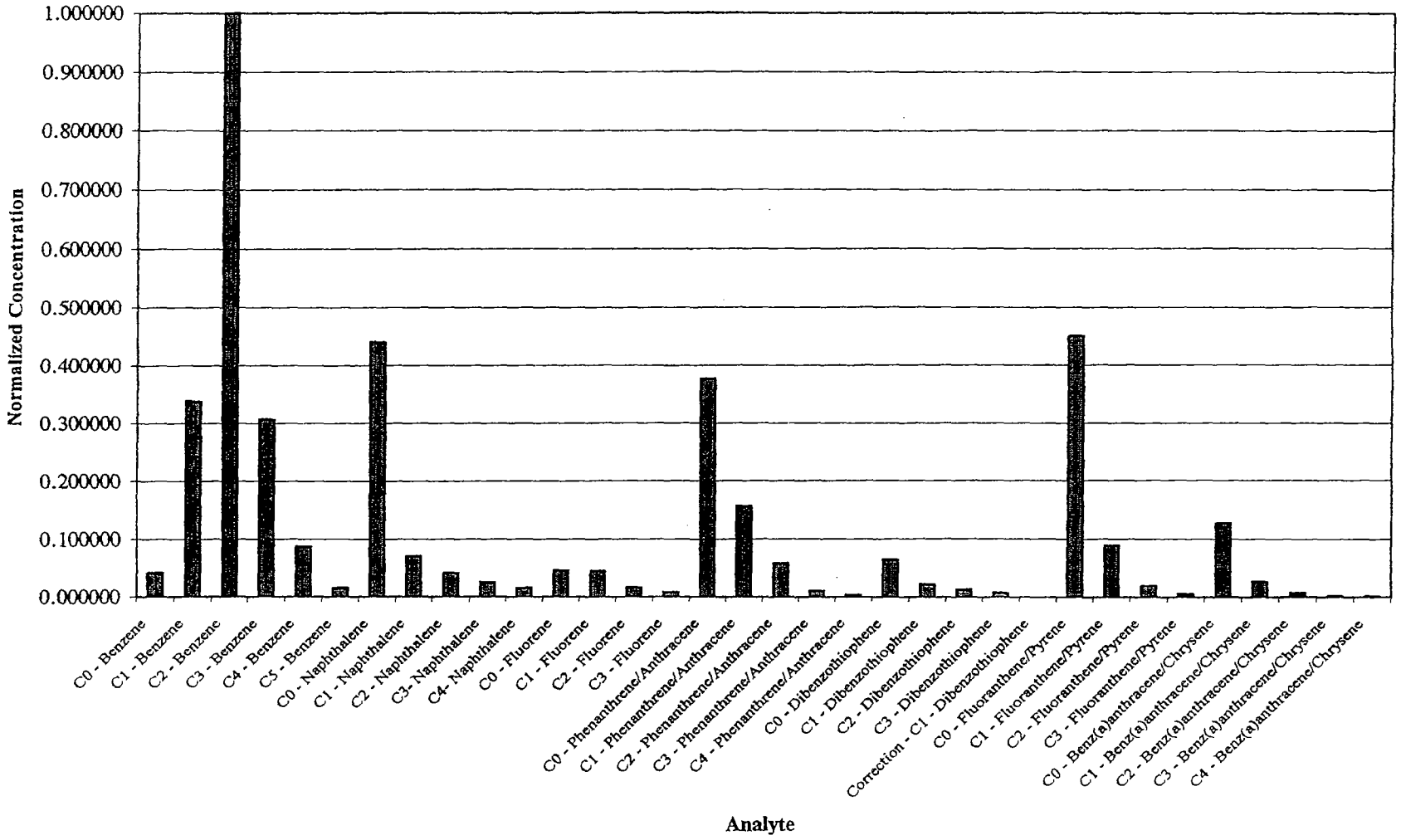
Qualifiers:

B	Analyte detected in the blank
D	Analyte reported from a diluted extract
U	Undetected above the detection limit
J	Estimated value detected between the reporting and detection limits
E	Estimated value detected above calibration range
RL	Reporting limit is the sample equivalent of the lowest linear calibration concentration
EDL	Estimated detection limit is 50% of the RL

META

Appendix D
Extended PAH Profiles – Bar Graphs

T10-1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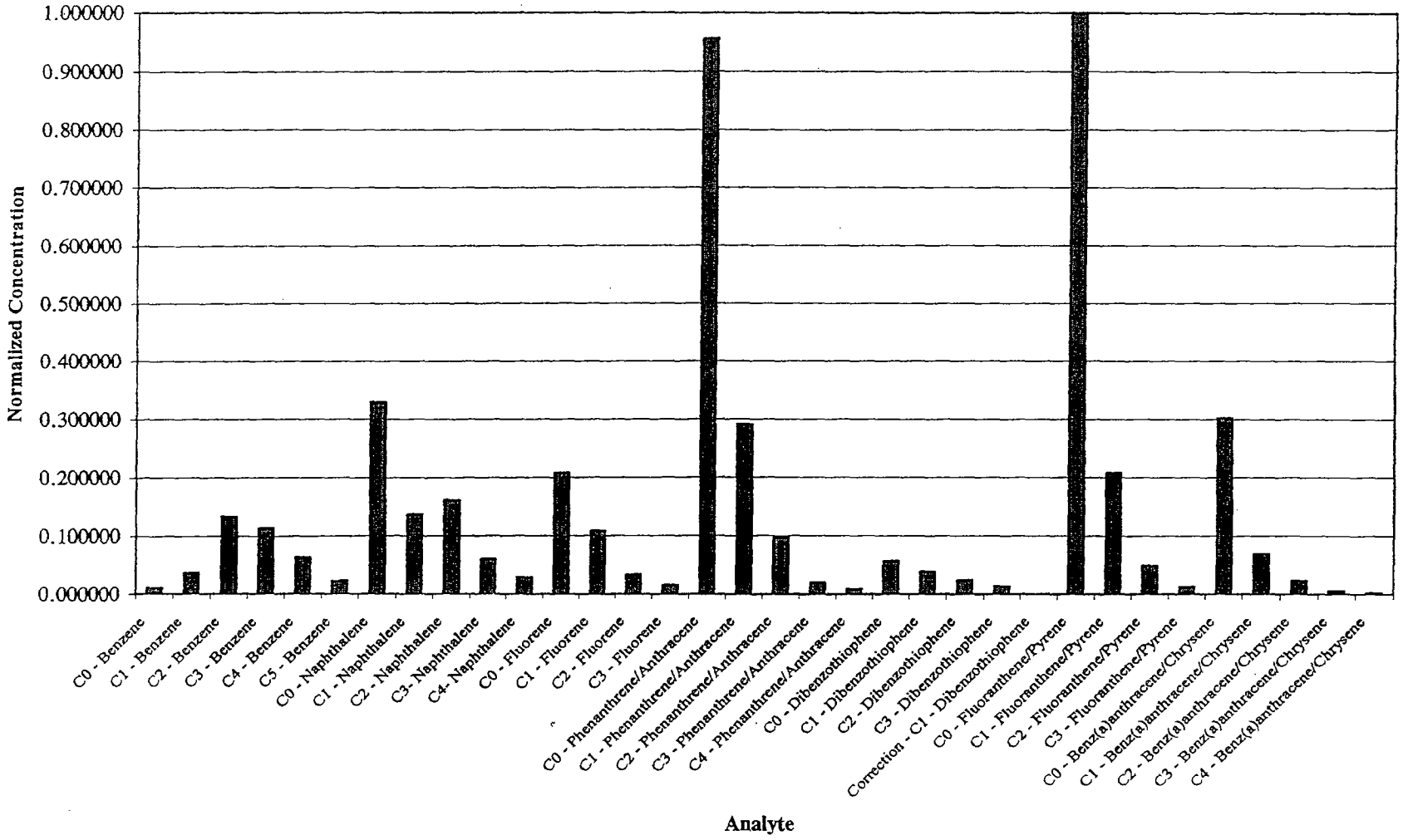
1.000000
0.900000
0.800000
0.700000
0.600000
0.500000
0.400000
0.300000
0.200000
0.100000
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
Correction - C1 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

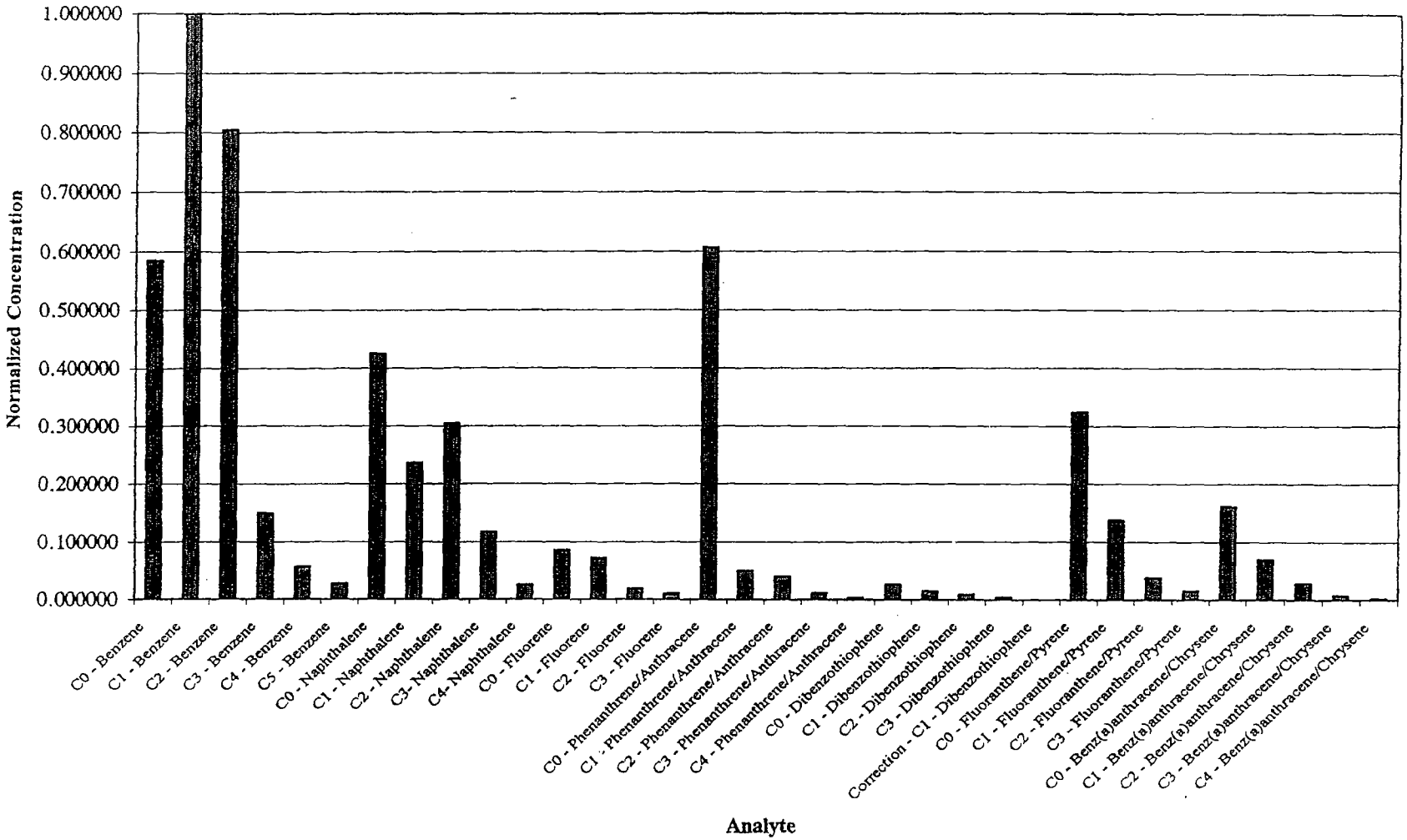
META

T10-2


Normalized Concentration
1.000000
0.900000
0.800000
0.700000
0.600000
0.500000
0.400000
0.300000
0.200000
0.100000
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
Correction - C1 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

T10-3


Normalized Concentration
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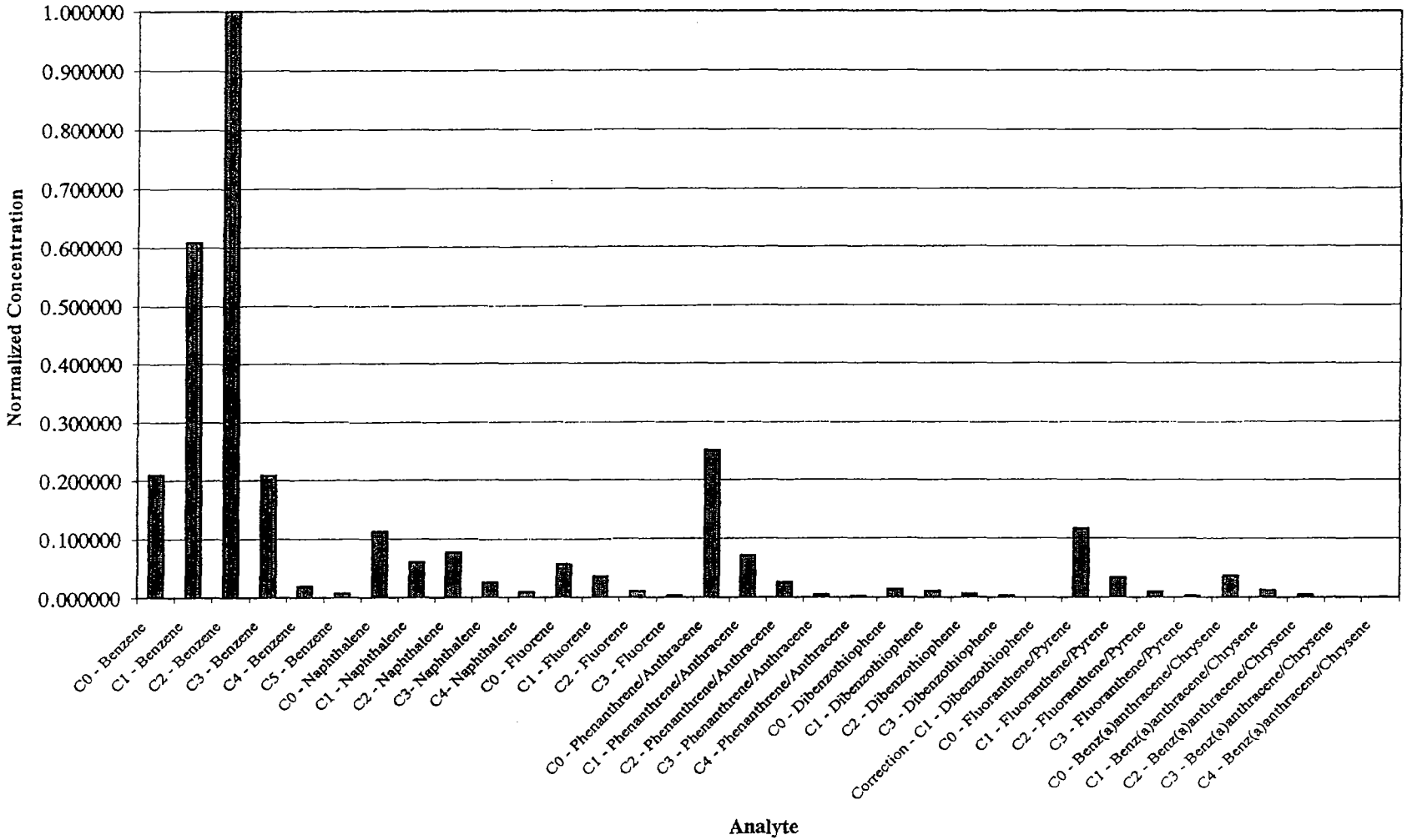
0.900000
0.800000
0.700000
0.600000
0.500000
0.400000
0.300000
0.200000
0.100000
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
Correction - C1 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

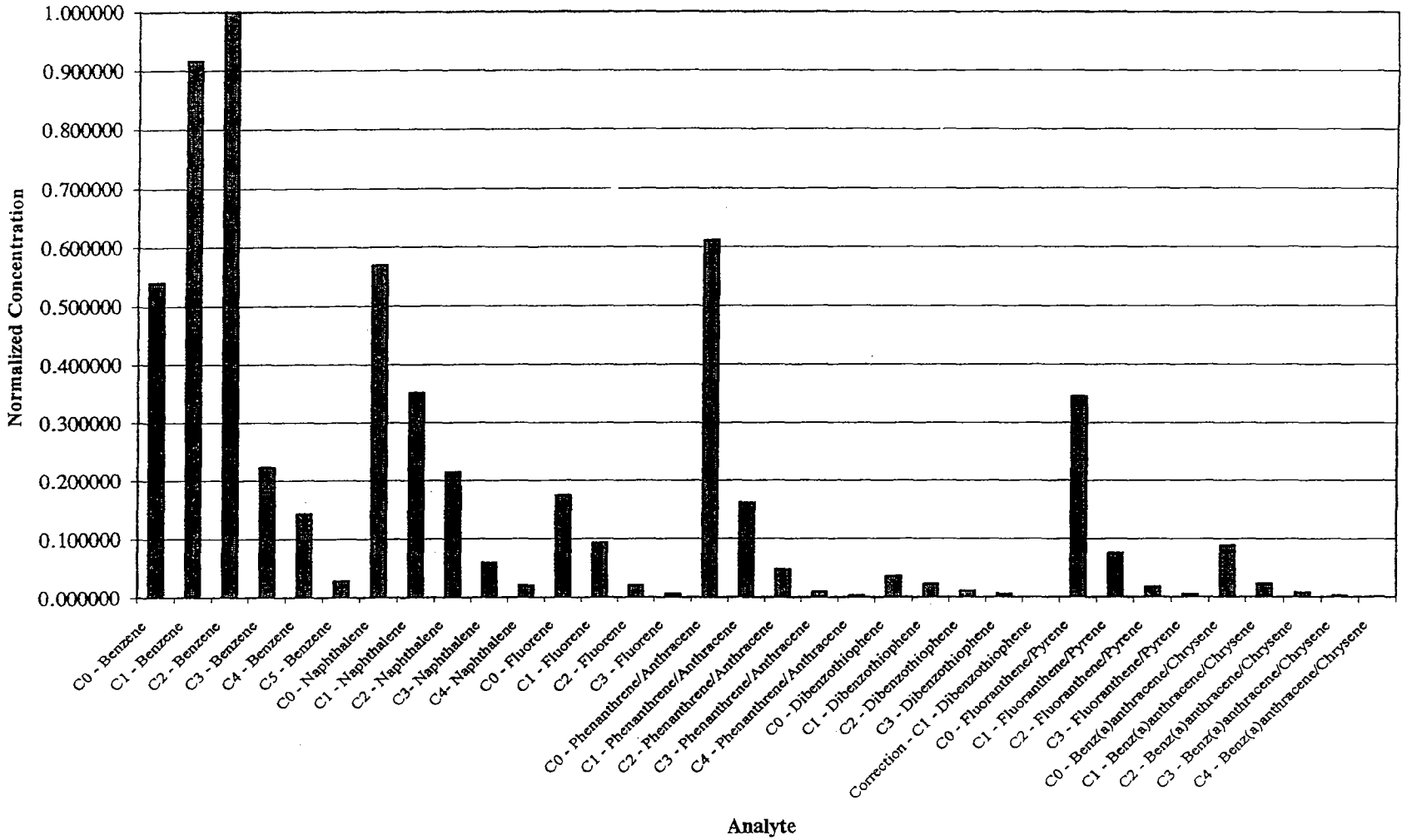
META

B-11-12-13



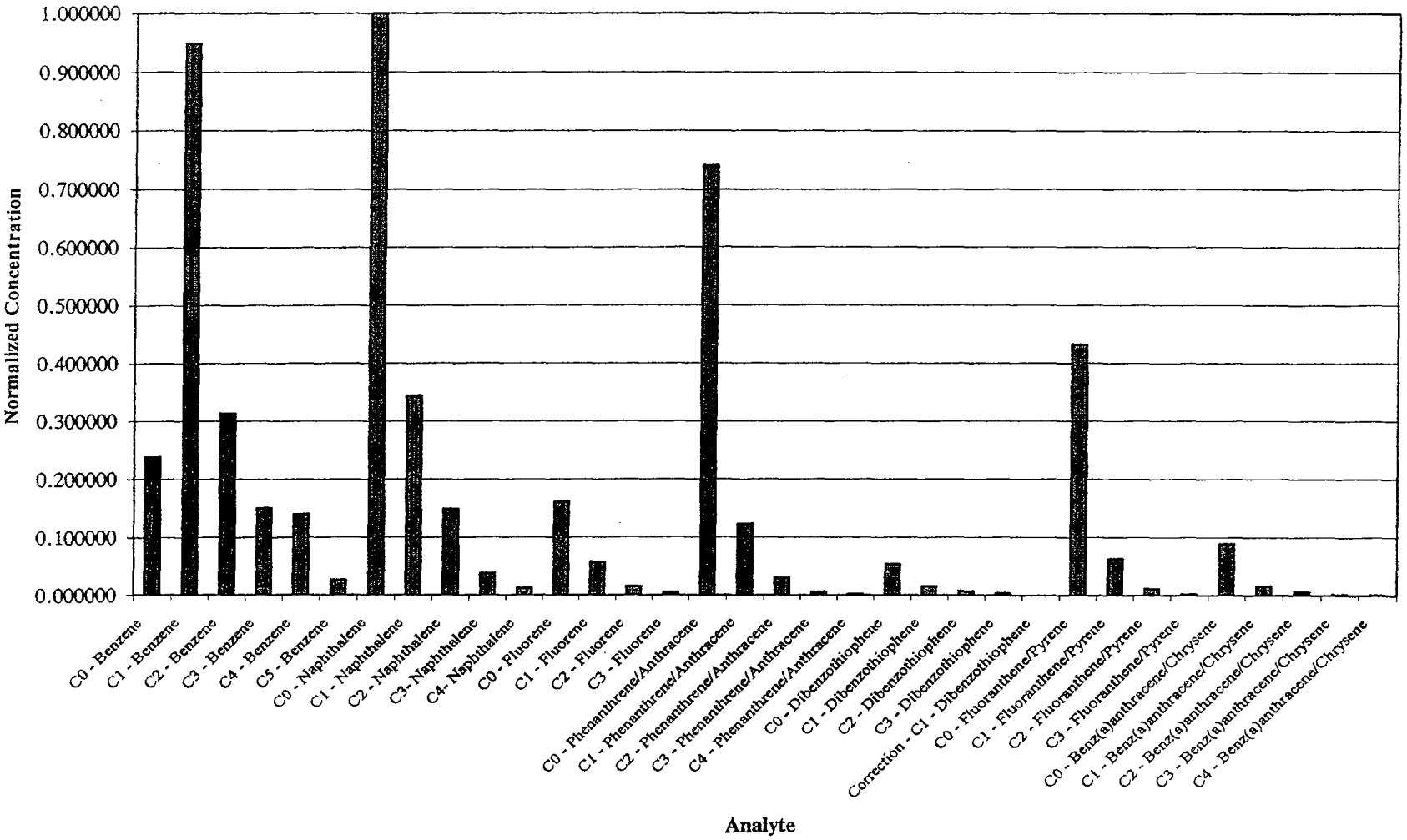
META

B-12-11-12



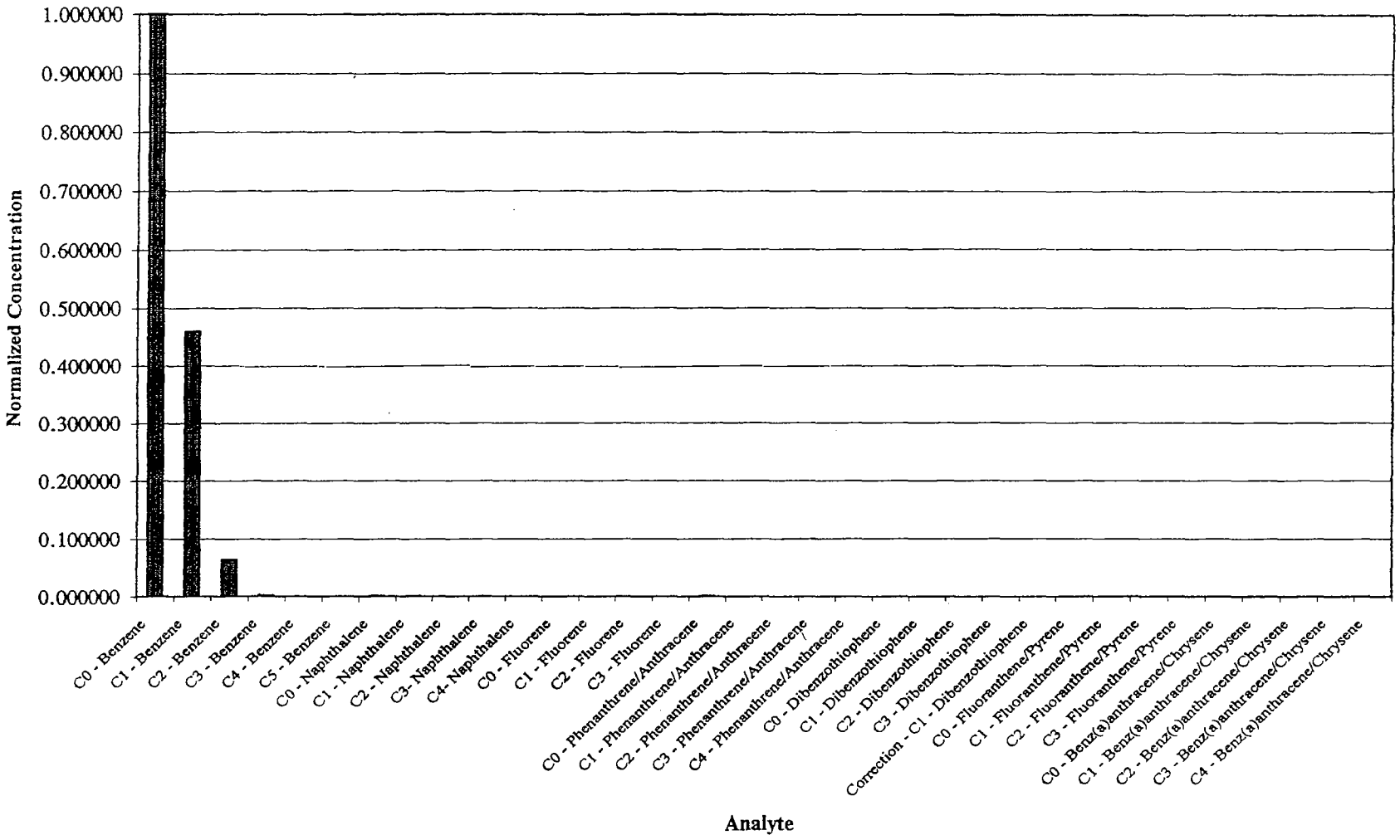
META

B-13-12-13



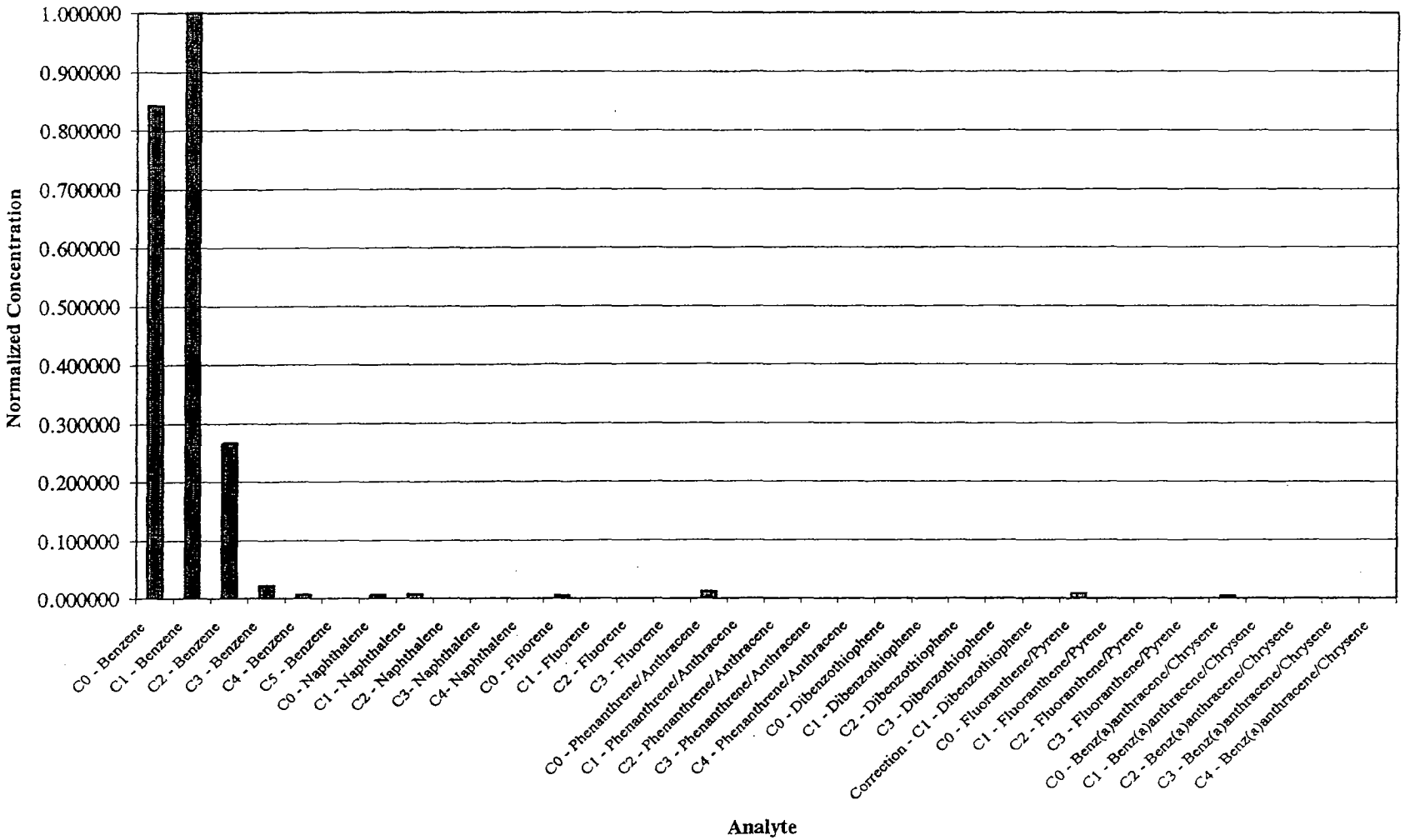
META

B-23-6-8


Normalized Concentration
1.000000
0.900000
0.800000
0.700000
0.600000
0.500000
0.400000
0.300000
0.200000
0.100000
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
Correction - C1 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

B-23-10-12



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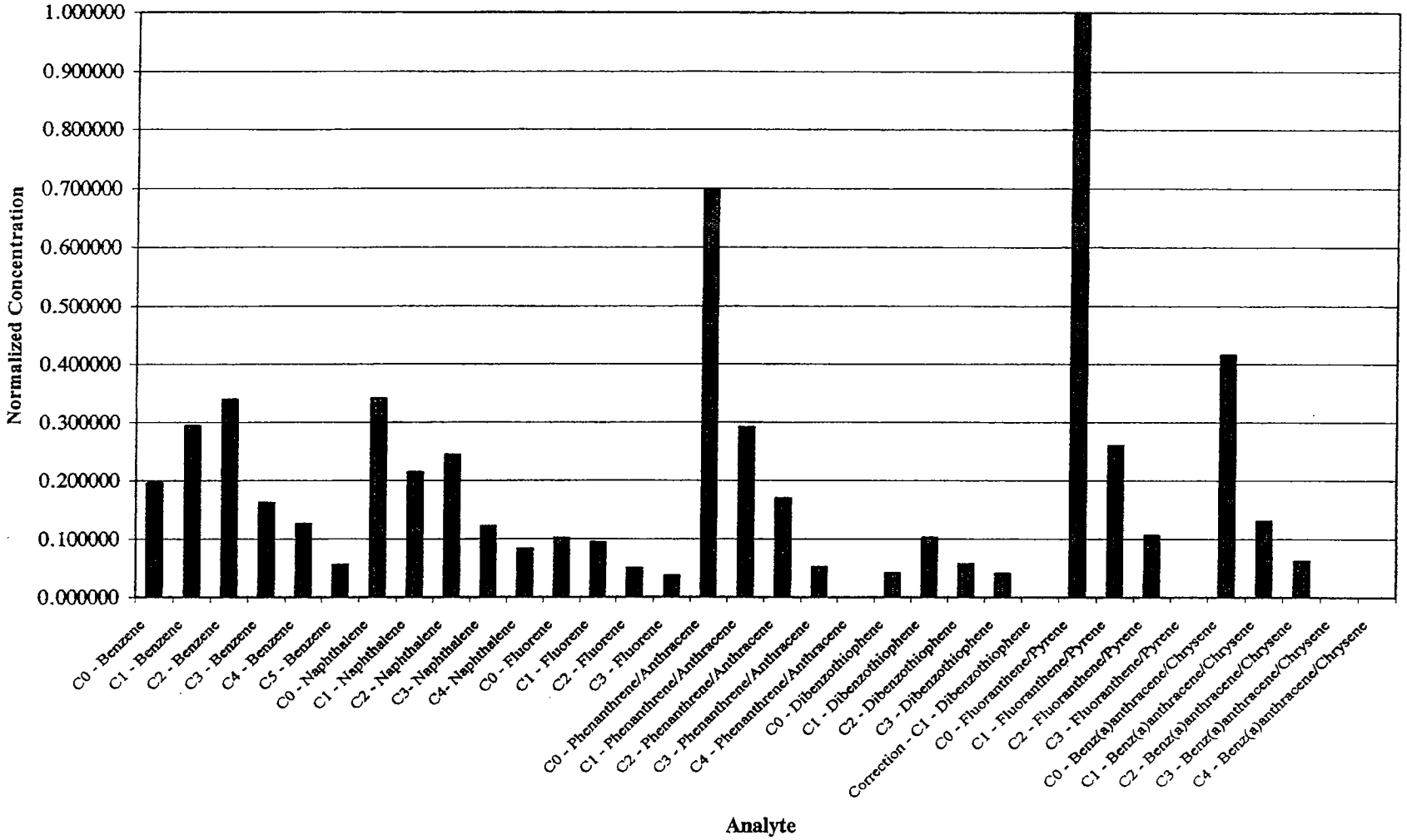
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0.000000
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C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
Correction - C1 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
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C4 - Benz(a)anthracene/Chrysene
Analyte

META

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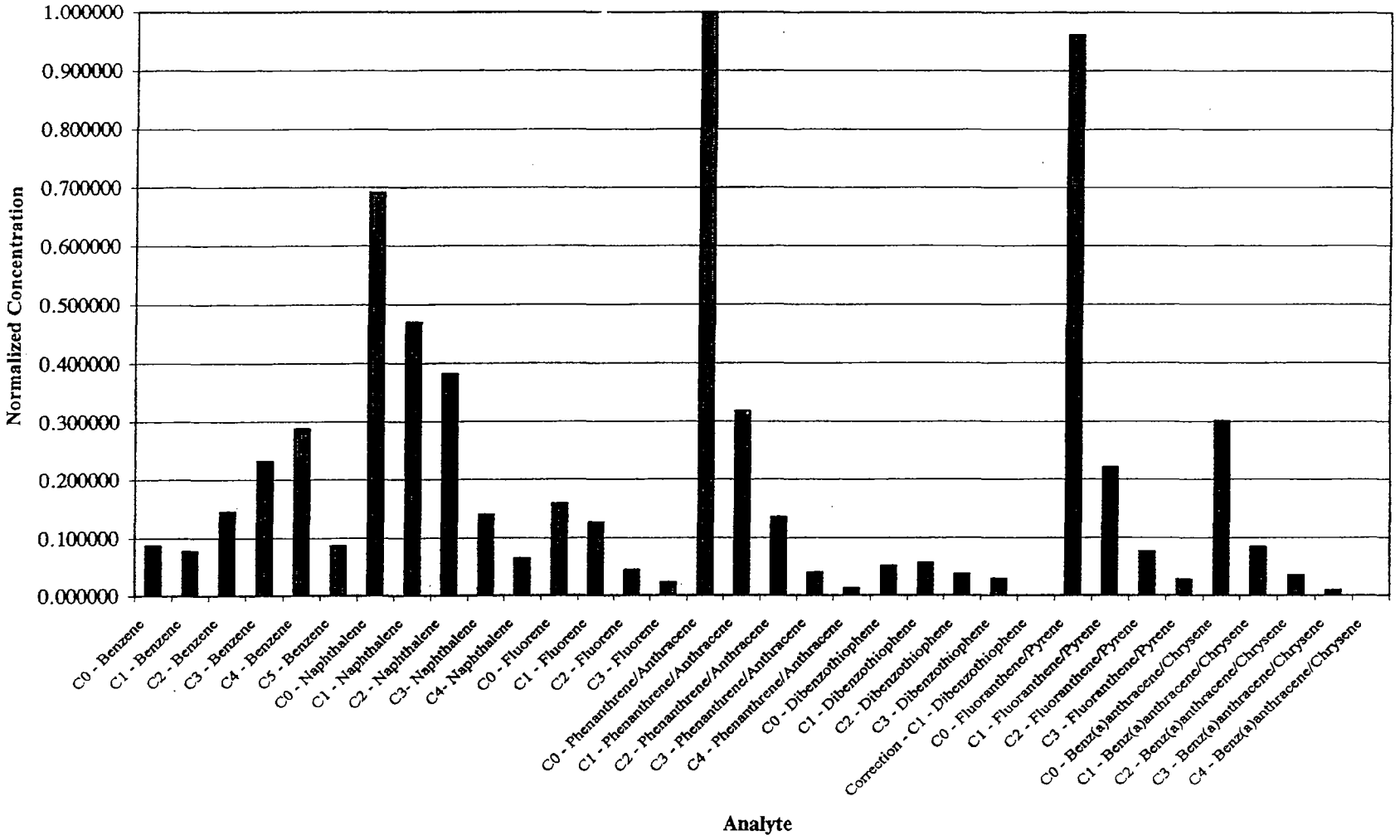
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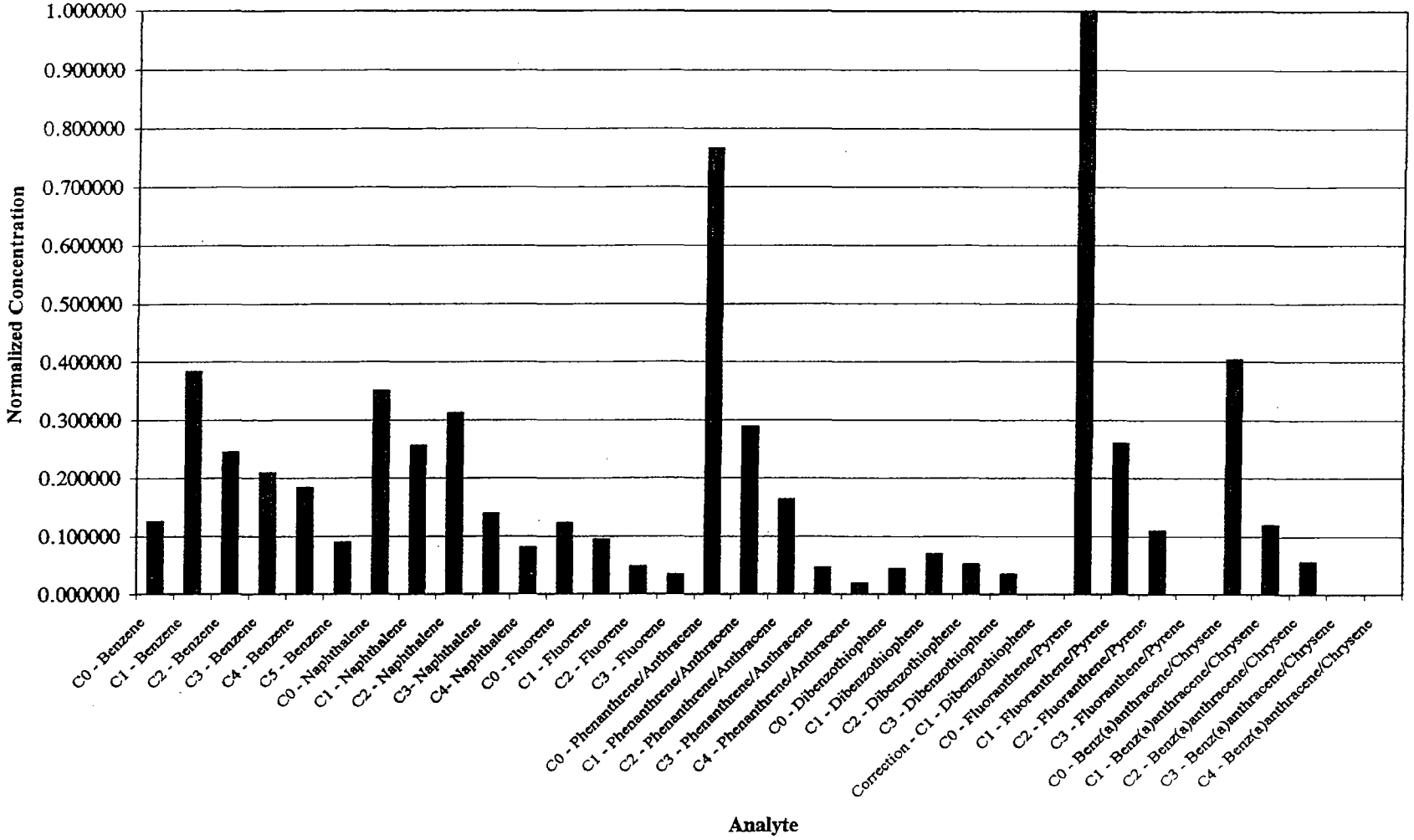
0.100000
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
Correction - C1 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

SD3-0-1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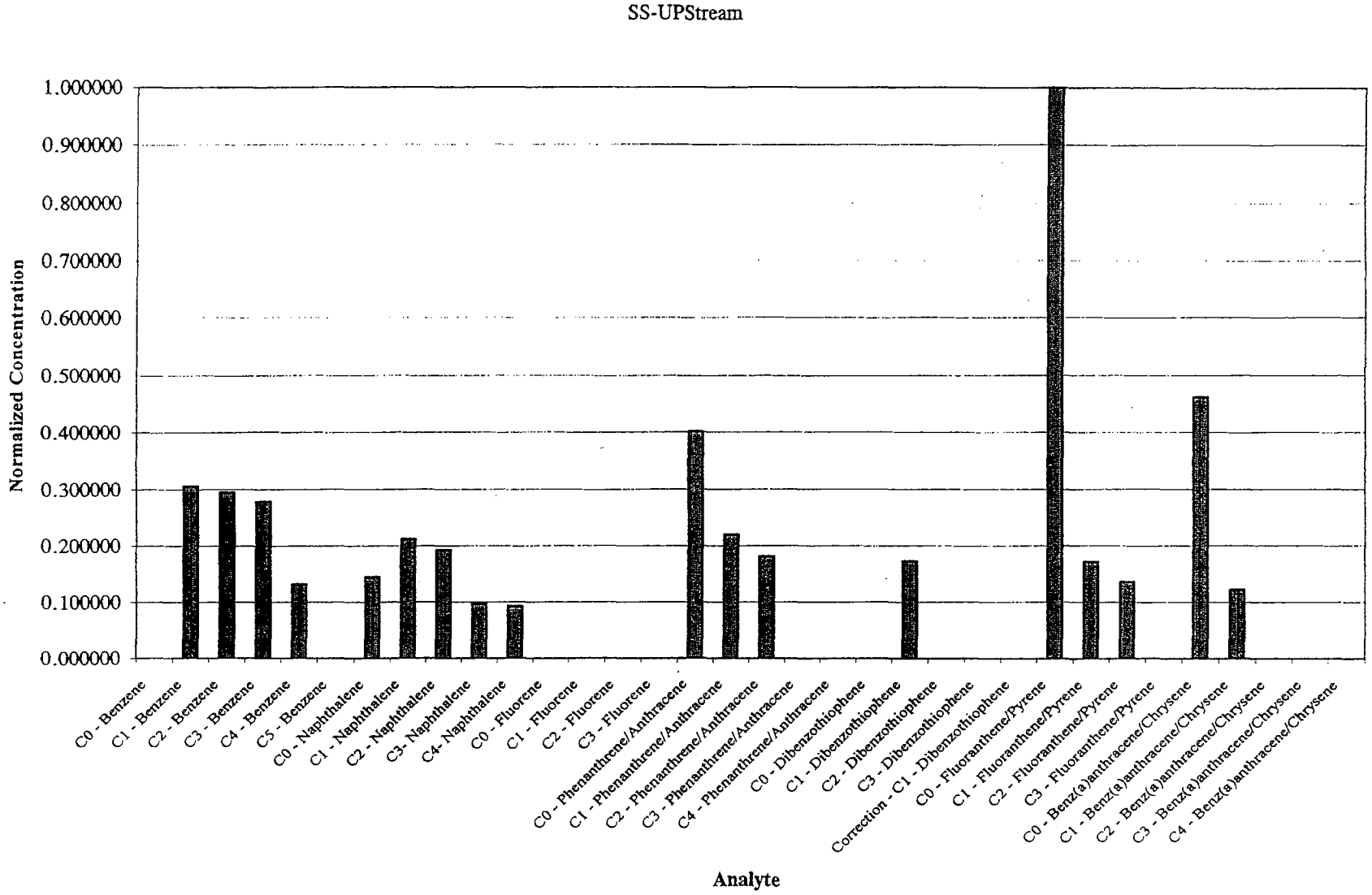
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
Correction - C1 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META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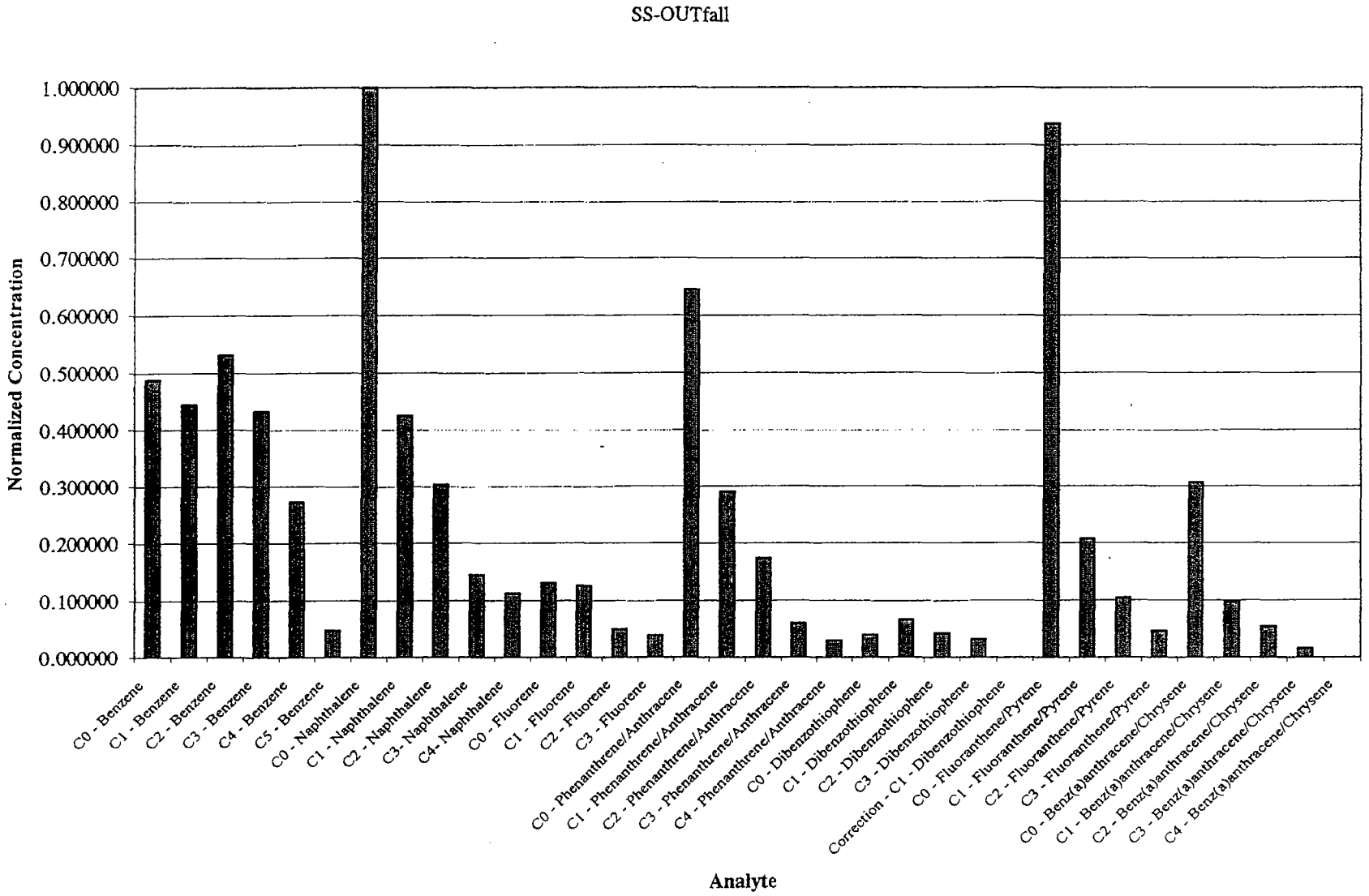
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
Correction - C1 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META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0.200000
0.100000
0.000000
C0 - Benzene
C1 - Benzene
C2 - Benzene
C3 - Benzene
C4 - Benzene
C5 - Benzene
C0 - Naphthalene
C1 - Naphthalene
C2 - Naphthalene
C3- Naphthalene
C4- Naphthalene
C0 - Fluorene
C1 - Fluorene
C2 - Fluorene
C3 - Fluorene
C0 - Phenanthrene/Anthracene
C1 - Phenanthrene/Anthracene
C2 - Phenanthrene/Anthracene
C3 - Phenanthrene/Anthracene
C4 - Phenanthrene/Anthracene
C0 - Dibenzothiophene
C1 - Dibenzothiophene
C2 - Dibenzothiophene
C3 - Dibenzothiophene
Correction - C1 - Dibenzothiophene
C0 - Fluoranthene/Pyrene
C1 - Fluoranthene/Pyrene
C2 - Fluoranthene/Pyrene
C3 - Fluoranthene/Pyrene
C0 - Benz(a)anthracene/Chrysene
C1 - Benz(a)anthracene/Chrysene
C2 - Benz(a)anthracene/Chrysene
C3 - Benz(a)anthracene/Chrysene
C4 - Benz(a)anthracene/Chrysene
Analyte

META

Appendix E
Extracted Ion Current Profiles (EICs)

Primary Ions for Target Compounds and Compound Groups

Target Compound or Group	Abbreviation	Ion
Alkylated cyclohexanes		83
Normal alkanes, pristane, phytane		85
Isoprenoid hydrocarbons, pristane, phytane		113
Olefins		115
Hopanes		191
Steranes		217
Benzene	B	78
Monoalkylbenzenes	C1B	91
Dialkylbenzenes	C2B	91
Trialkylbenzenes	C3B	105
Tetraalkylbenzenes	C4B	119
Pentaalkylbenzenes	C5B	133
Naphthalene	N	128
Monoalkylnaphthalenes	C1N	142
Dialkylnaphthalenes	C2N	156
Trialkylnaphthalenes	C3N	170
Tetraalkylnaphthalenes	C4N	184
Fluorene	F	166
Monoalkylfluorenes	C1F	180
Dialkylfluorenes	C2F	194
Trialkylfluorenes	C3F	208
Phenanthrene, anthracene	PA	178
Monoalkylphenanthrenes and anthracenes	C1PA	192
Dialkylphenanthrenes and anthracenes	C2PA	206
Trialkylphenanthrenes and anthracenes	C3PA	220
Tetraalkylphenanthrenes and anthracenes	C4PA	234
Dibenzothiophene	D	184
Monoalkyldibenzothiophenes	C1D	198
Dialkyldibenzothiophenes	C2D	212
Trialkyldibenzothiophenes	C3D	226
Fluoranthene, pyrene	FP	202
Monoalkylfluoranthenes and pyrenes	C1FP	216
Dialkylfluoranthenes and pyrenes	C2FP	230
Trialkyfluoranthenes and pyrenes	C3FP	244
Benz(a)anthracene, chrysene	BC	228
Monoalkylbenz(a)anthracenes and chrysenes	C1BC	242
Dialkylbenz(a)anthracenes and chrysenes	C2BC	256
Trialkylbenz(a)anthracenes and chrysenes	C3BC	270
Tetraalkylbenz(a)anthrancenes and chrysenes	C4BC	284

Field ID: T10-1
Lab ID: GT020924-01 1:10
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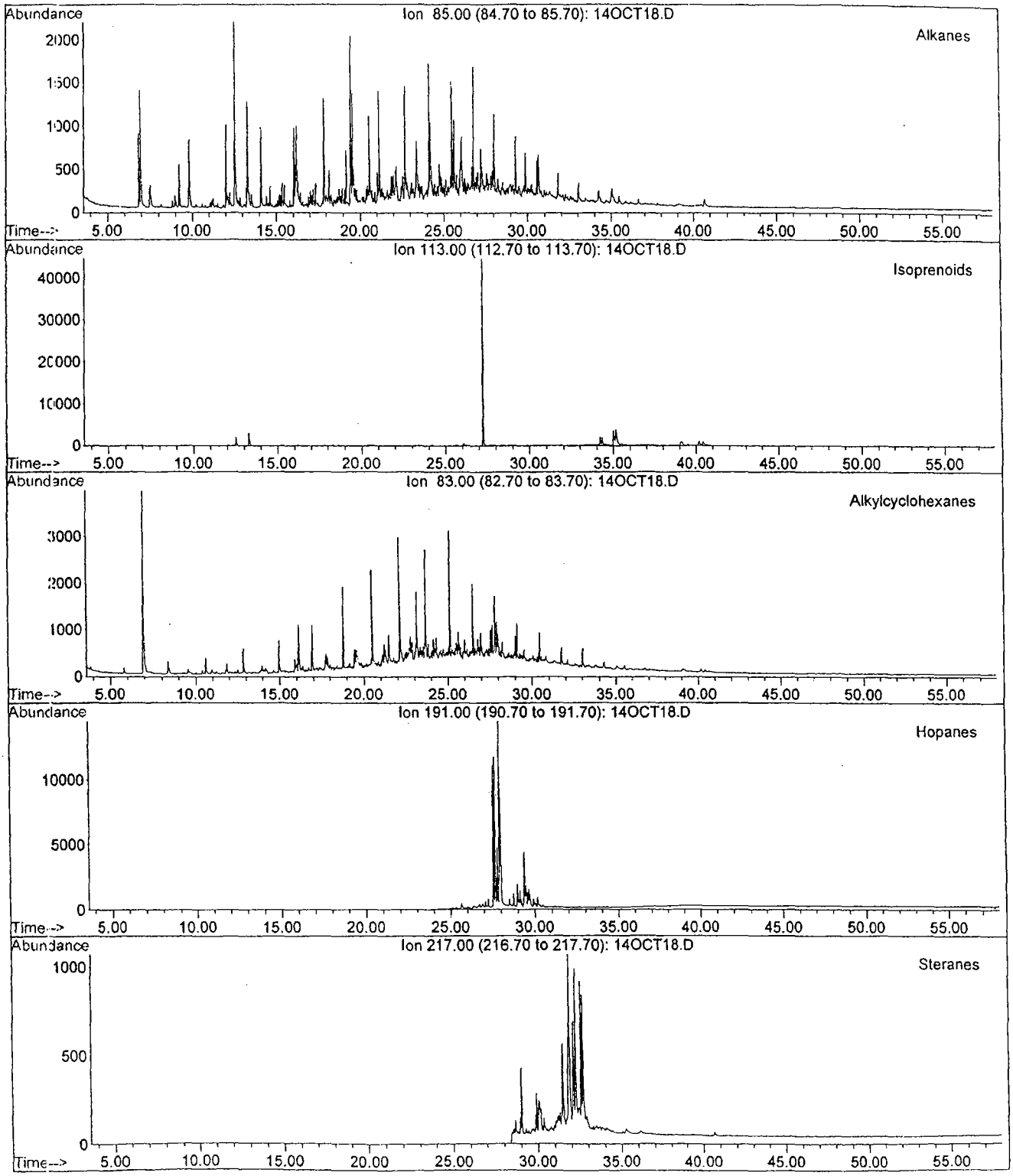
Instrument: GC/MS Ins Operator: ECC



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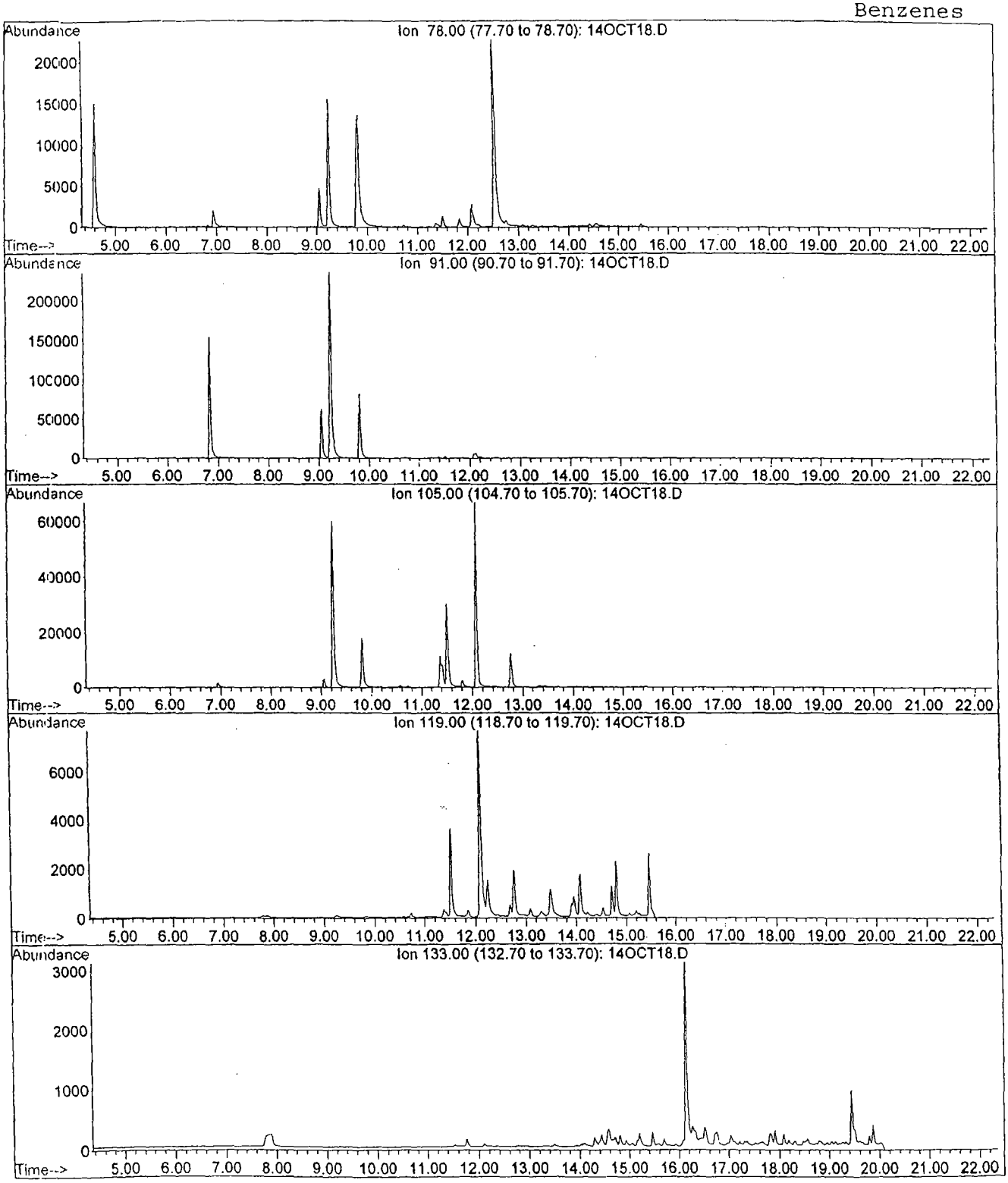
Benzenes



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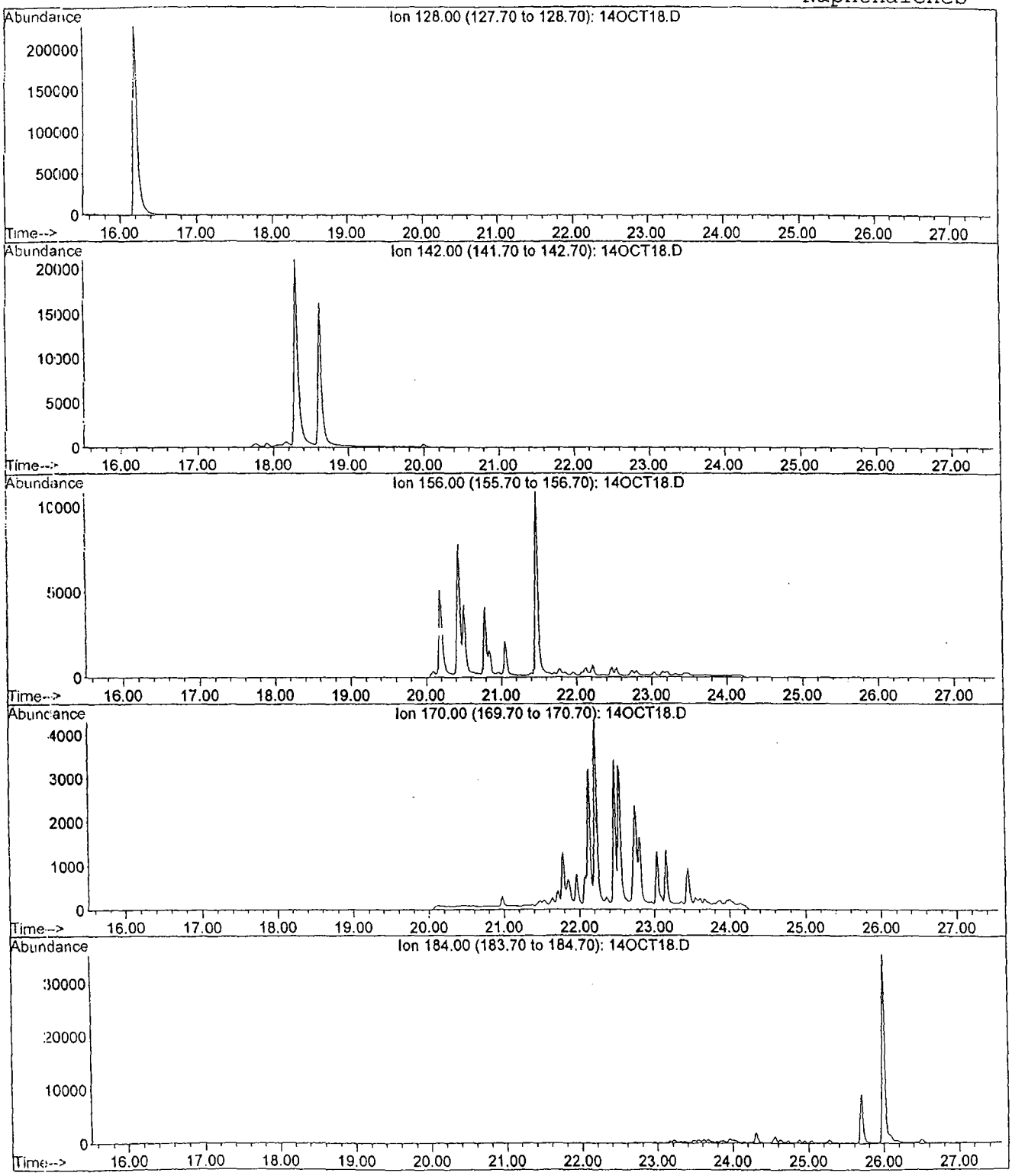
Instrument: GC/MS Ins Operator: ECC

Naphthalenes



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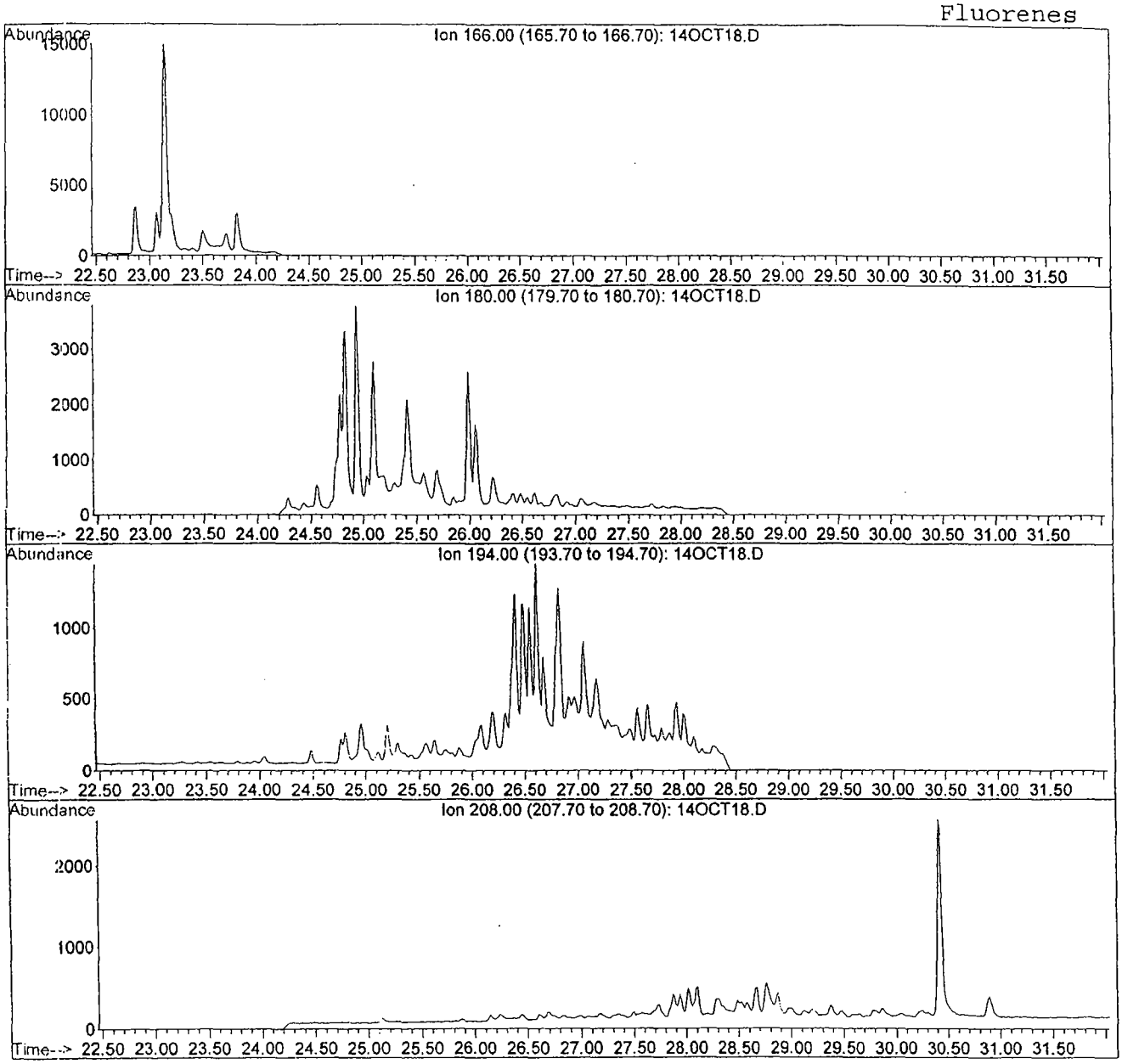
Fluorenes



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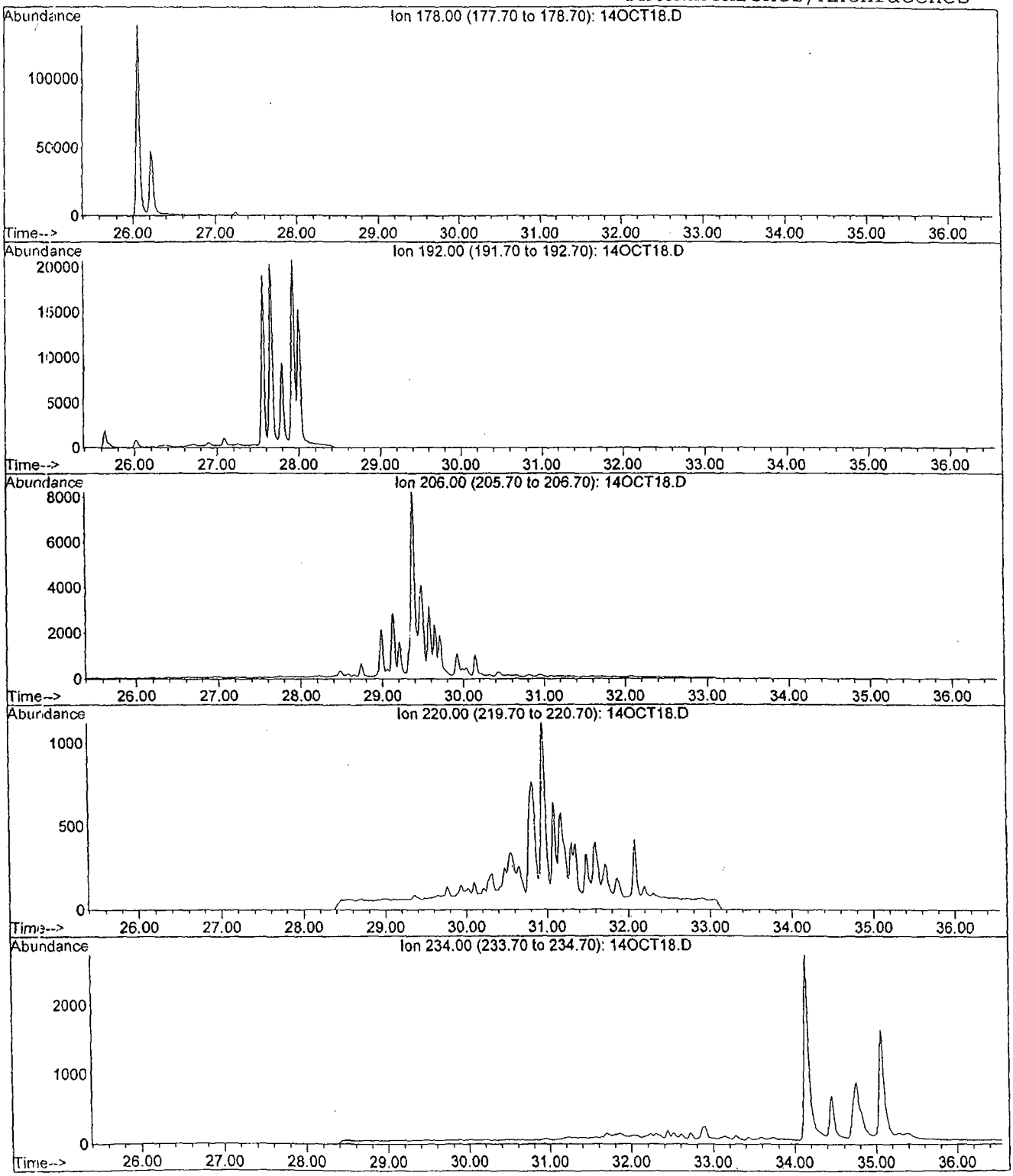
Instrument: GC/MS Ins Operator: ECC

Phenanthrenes/Anthracenes



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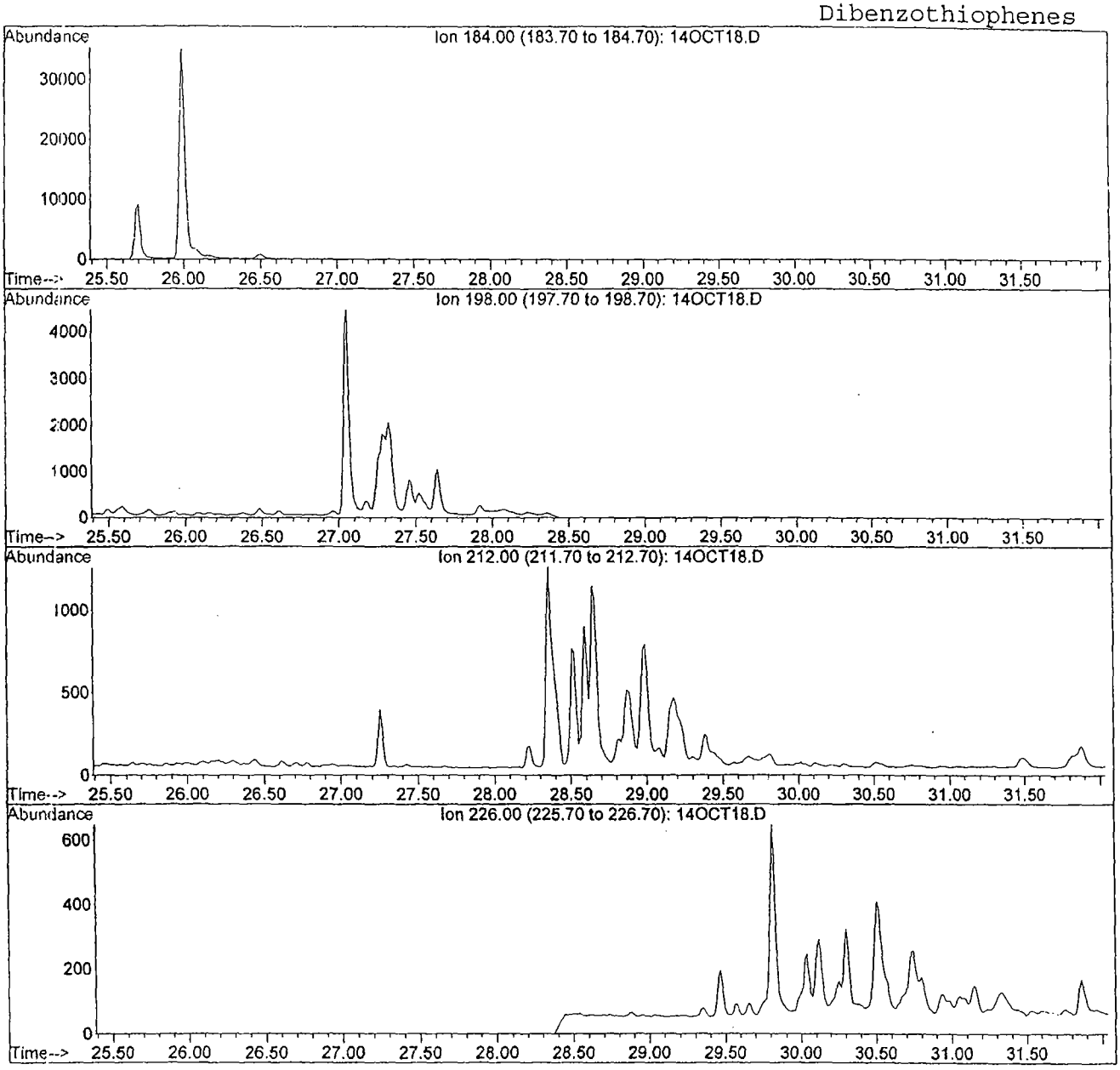
Dibenzothiophenes



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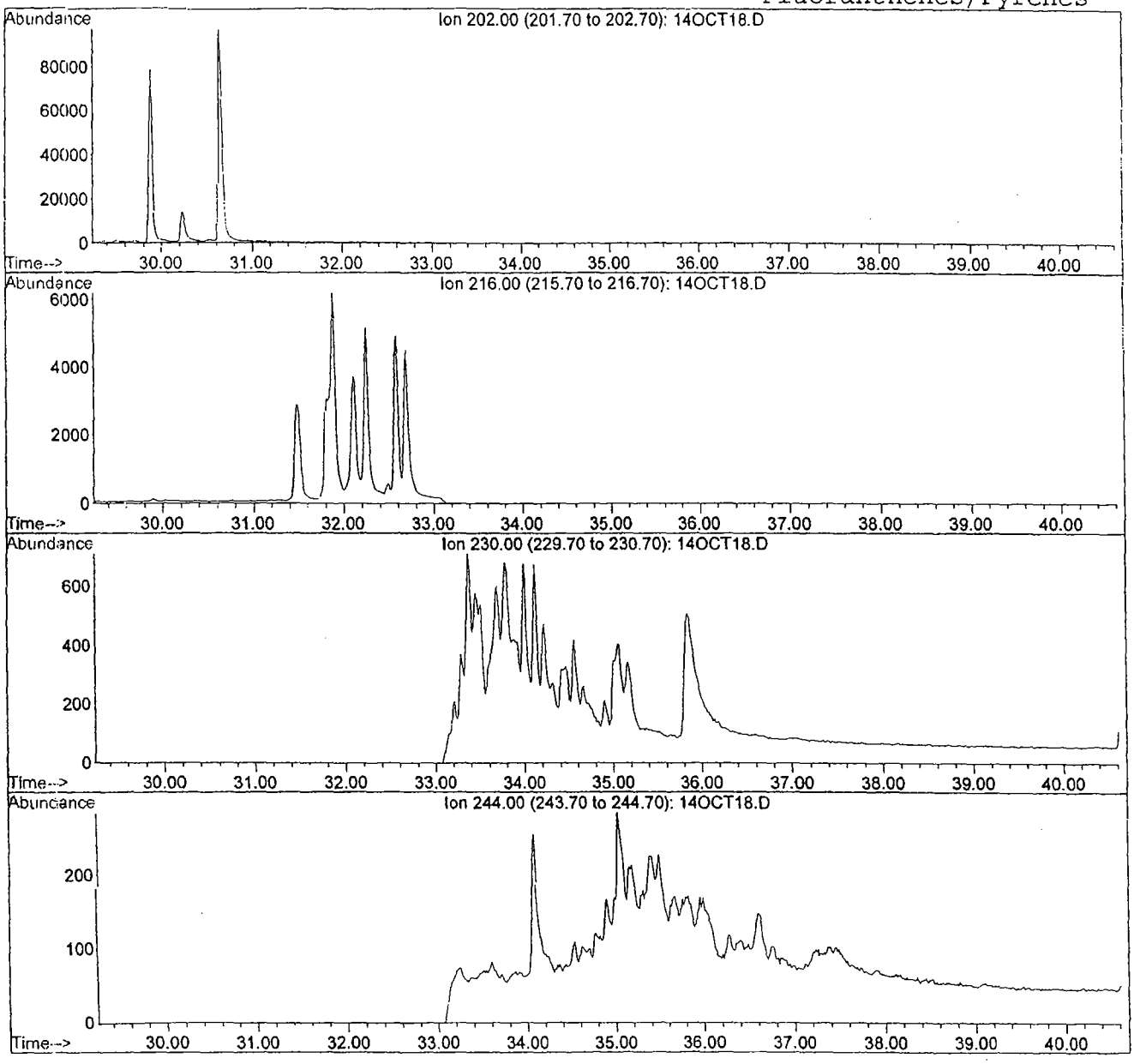
Fluoranthenes/Pyrenes



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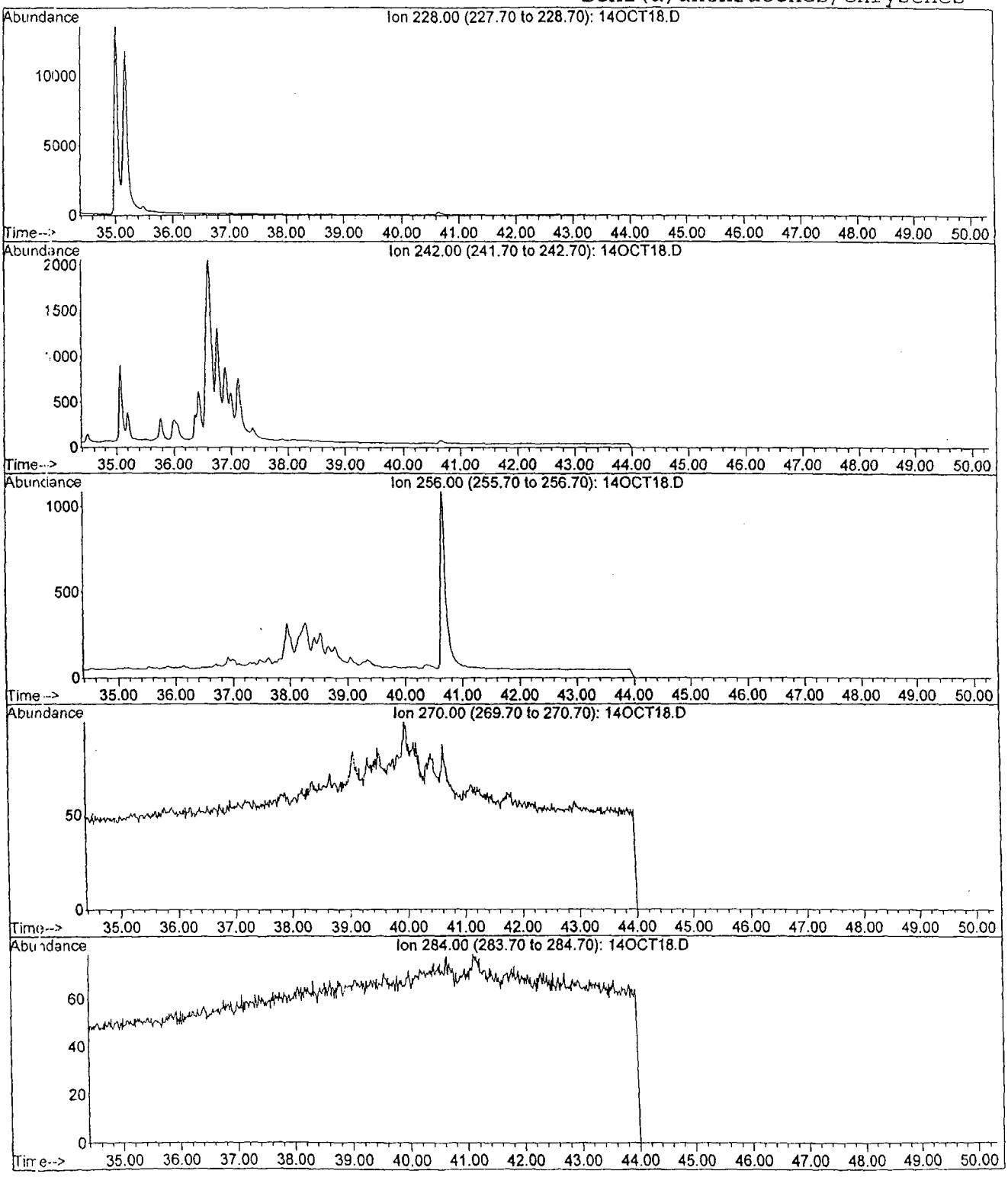
Benz(a)anthracenes/Chrysenes



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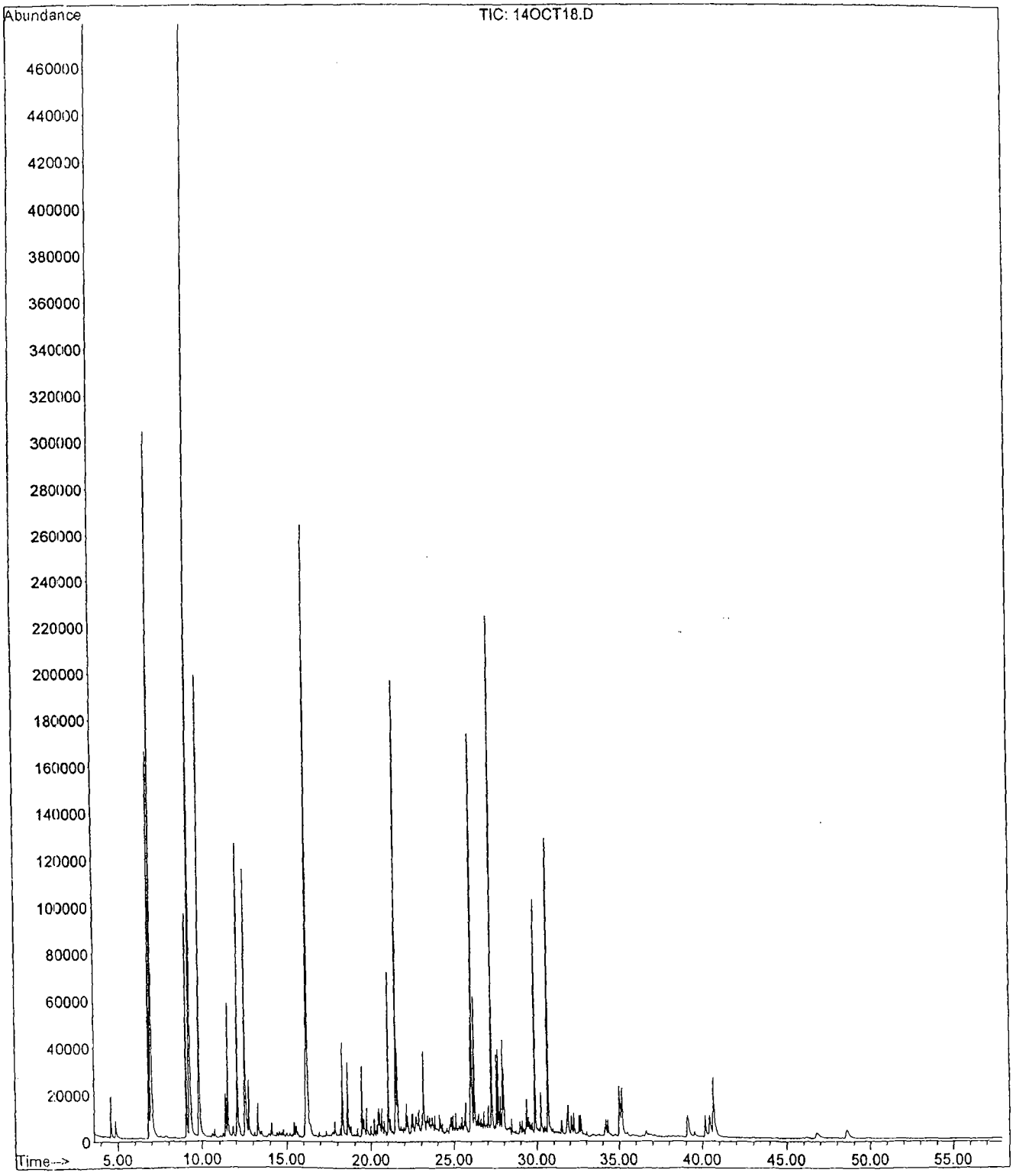

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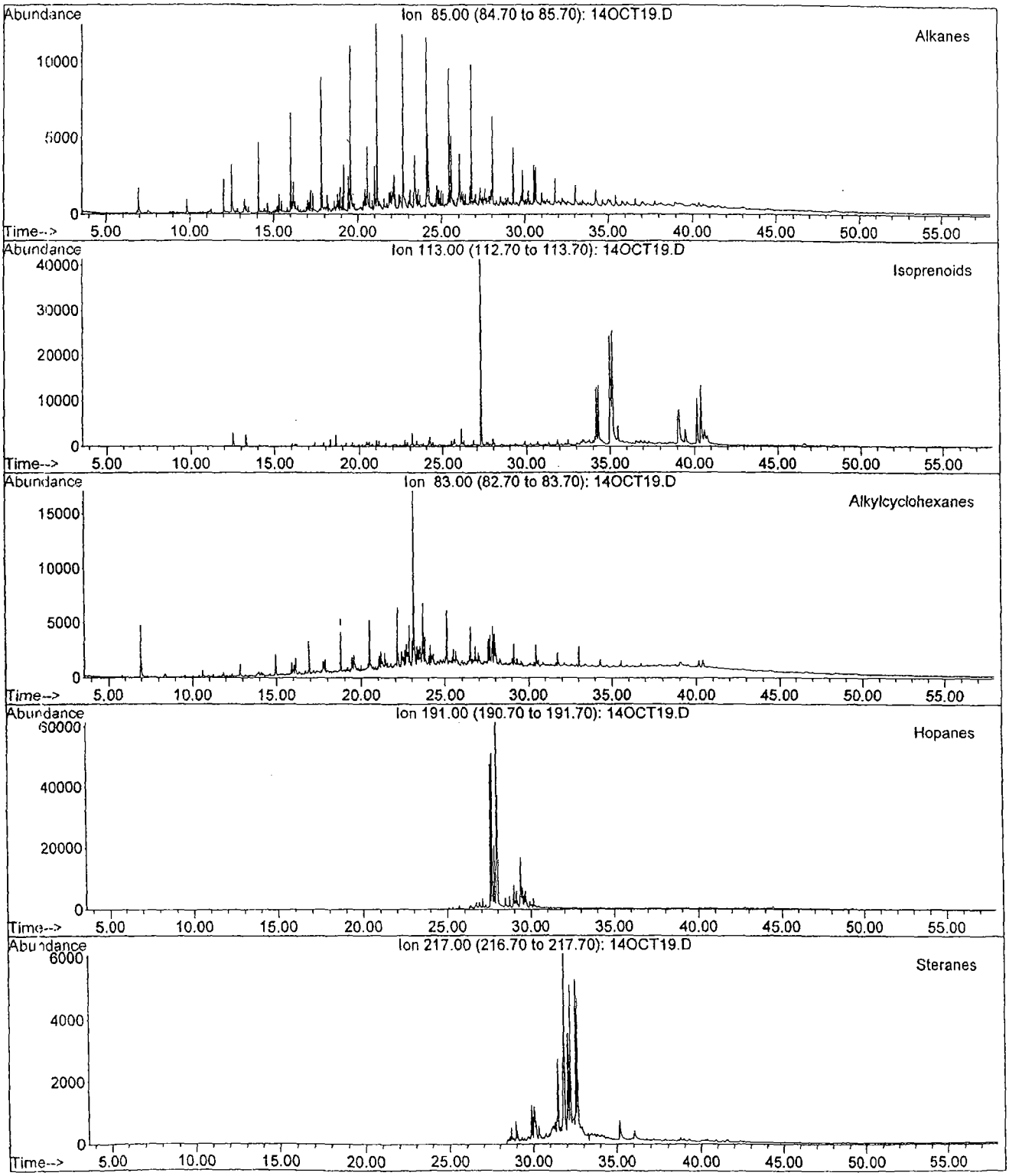

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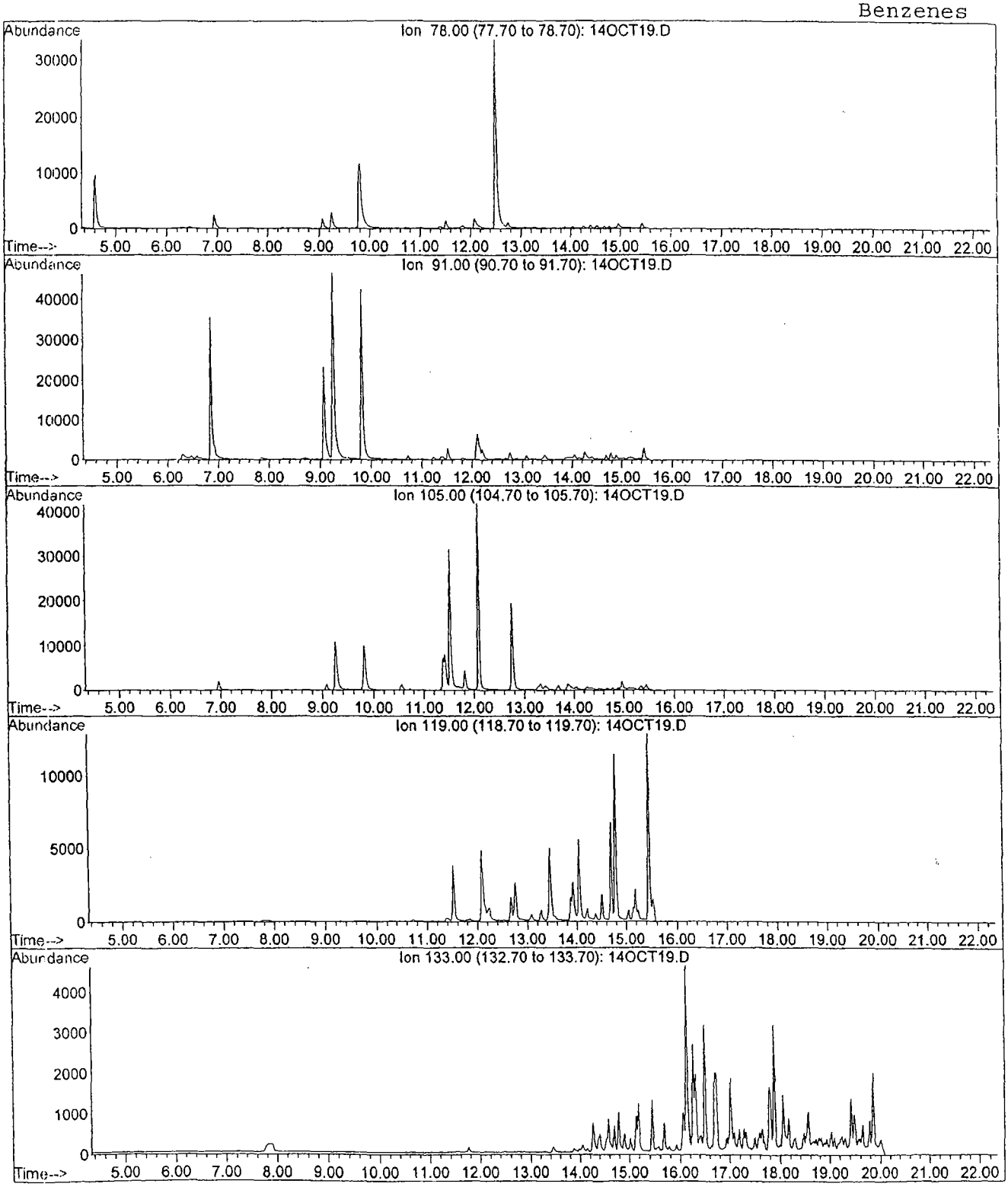
Instrument: GC/MS Ins Operator: ECC

Benzenes



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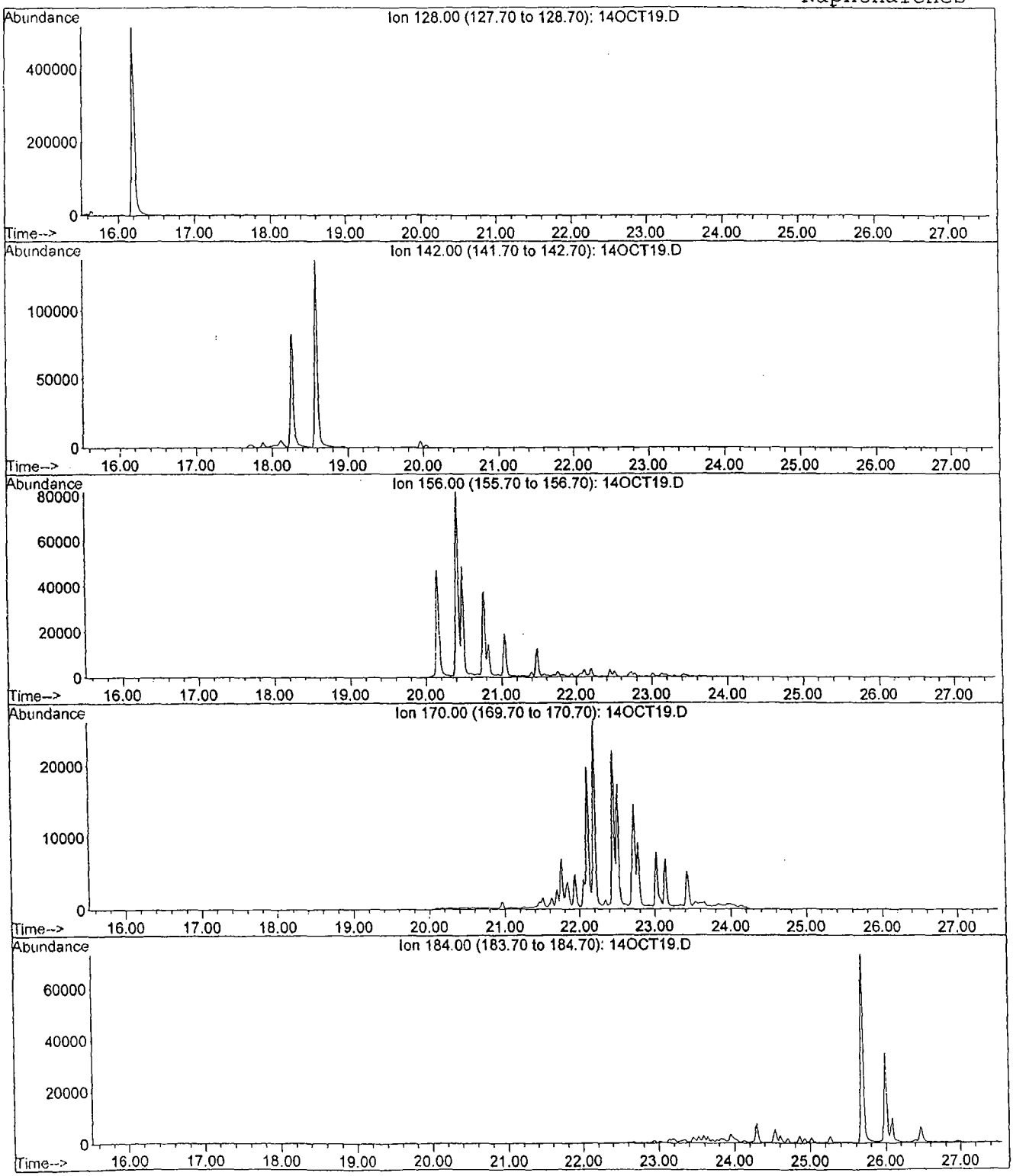
Naphthalenes



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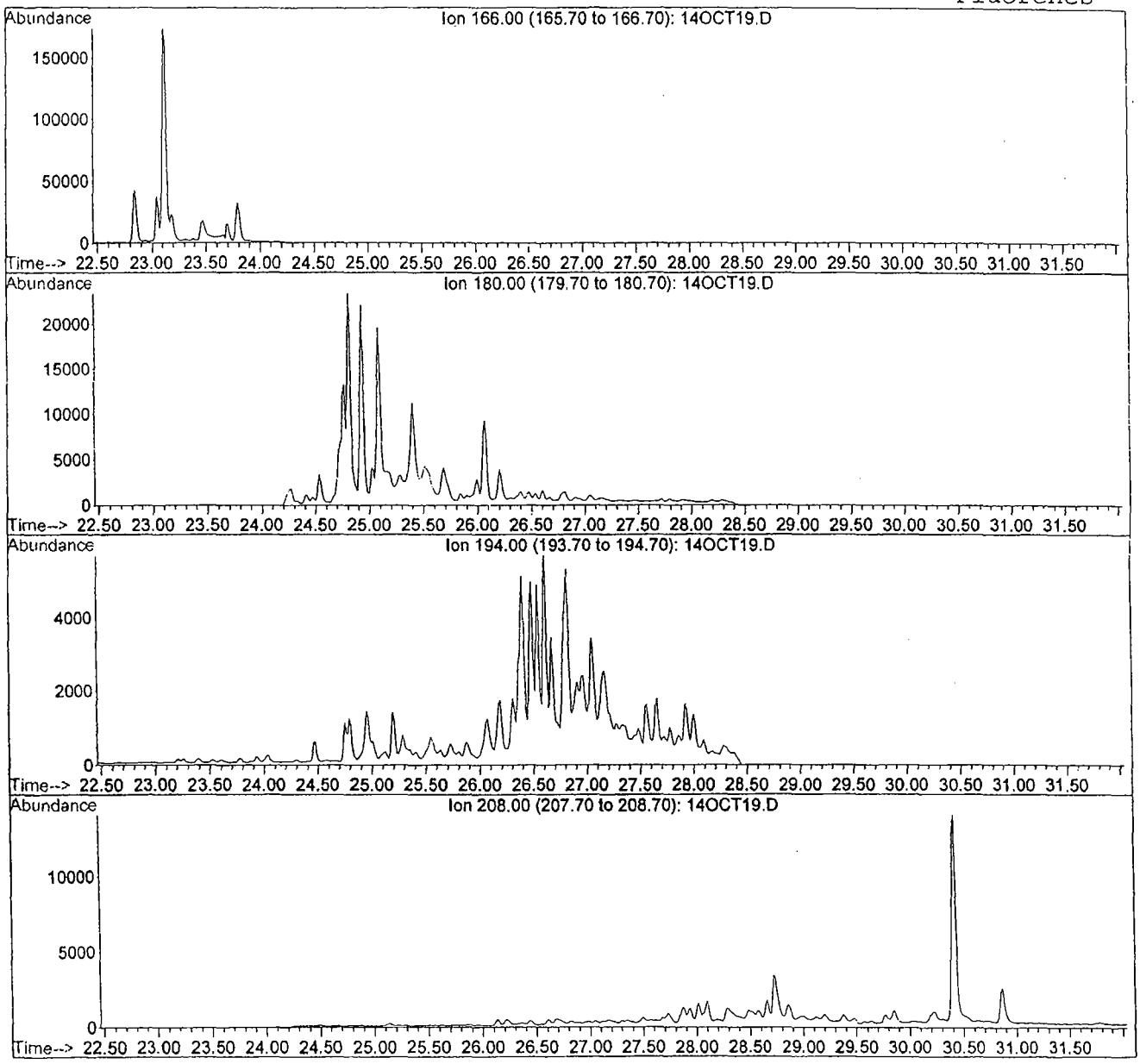
Fluorenes



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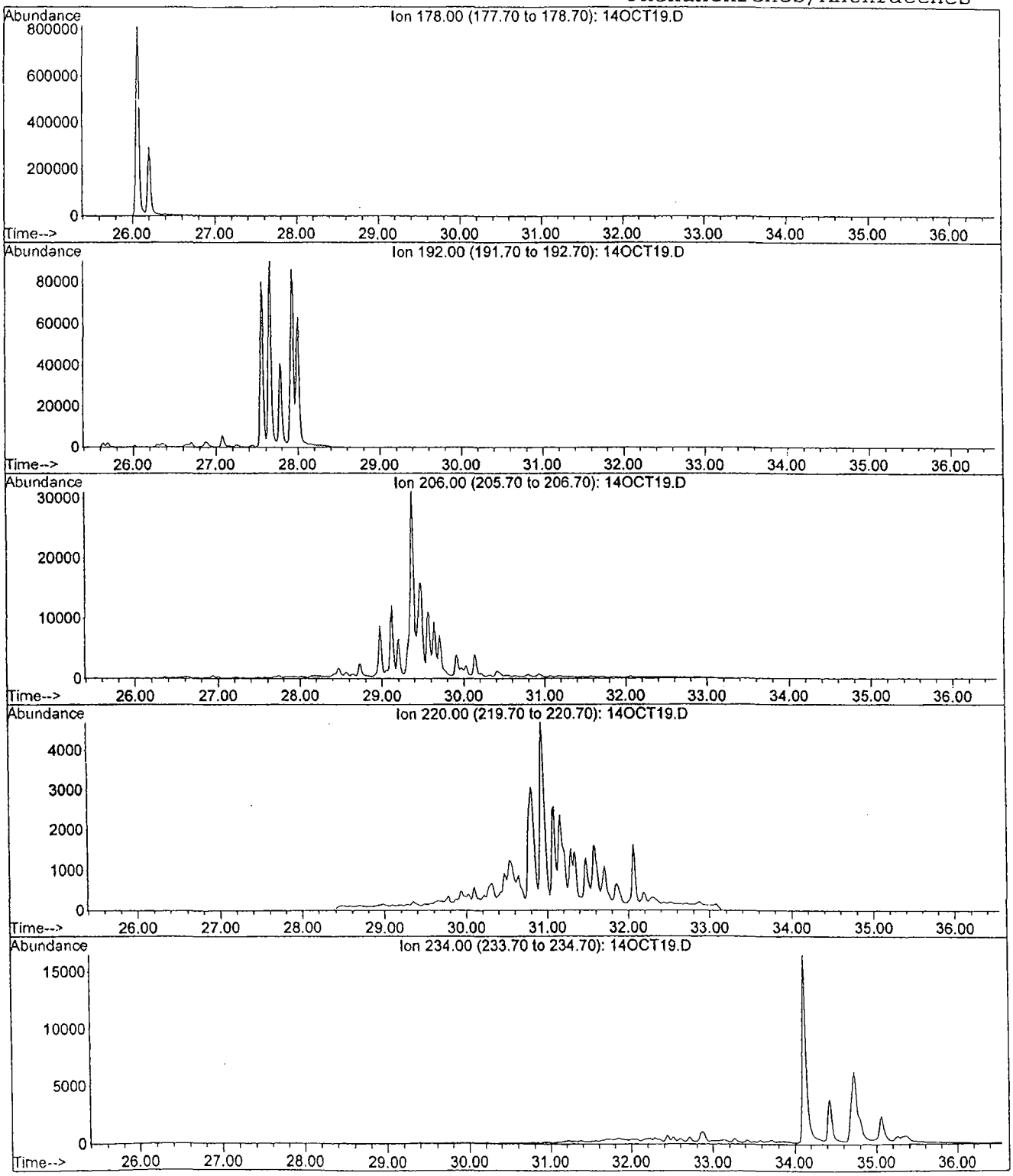
Phenanthrenes/Anthracenes



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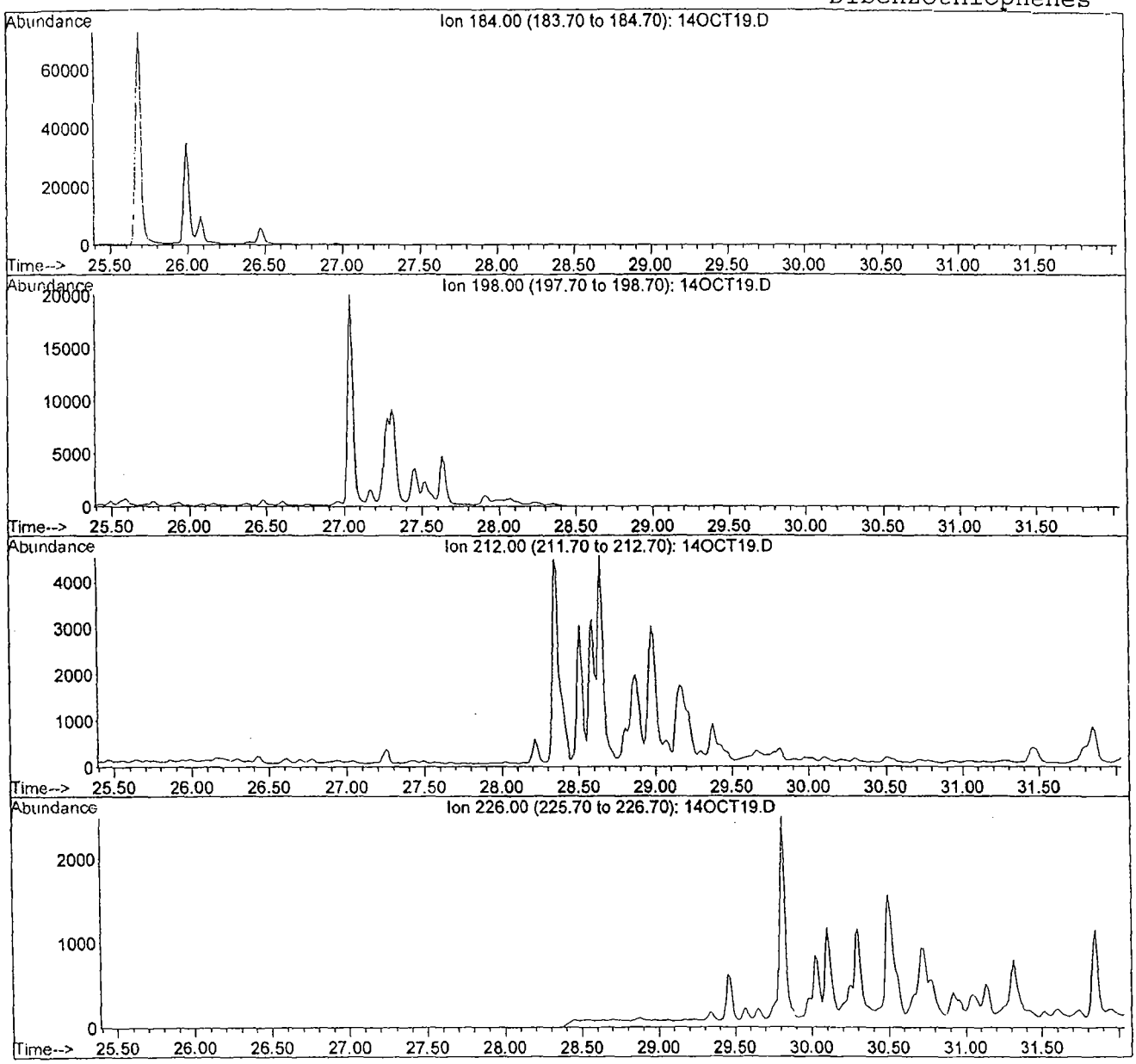
Dibenzothiophenes



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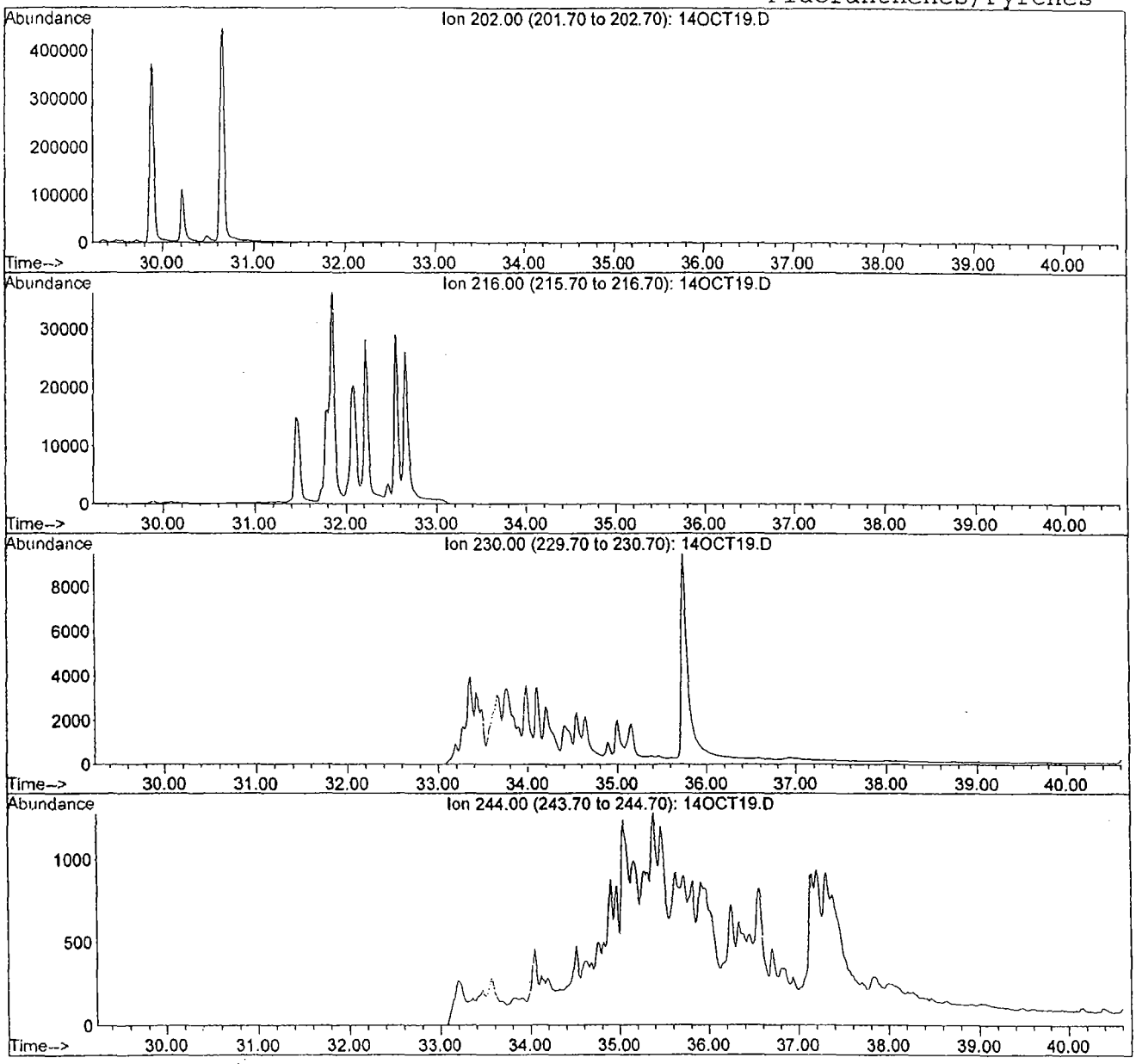
Fluoranthenes/Pyrenes



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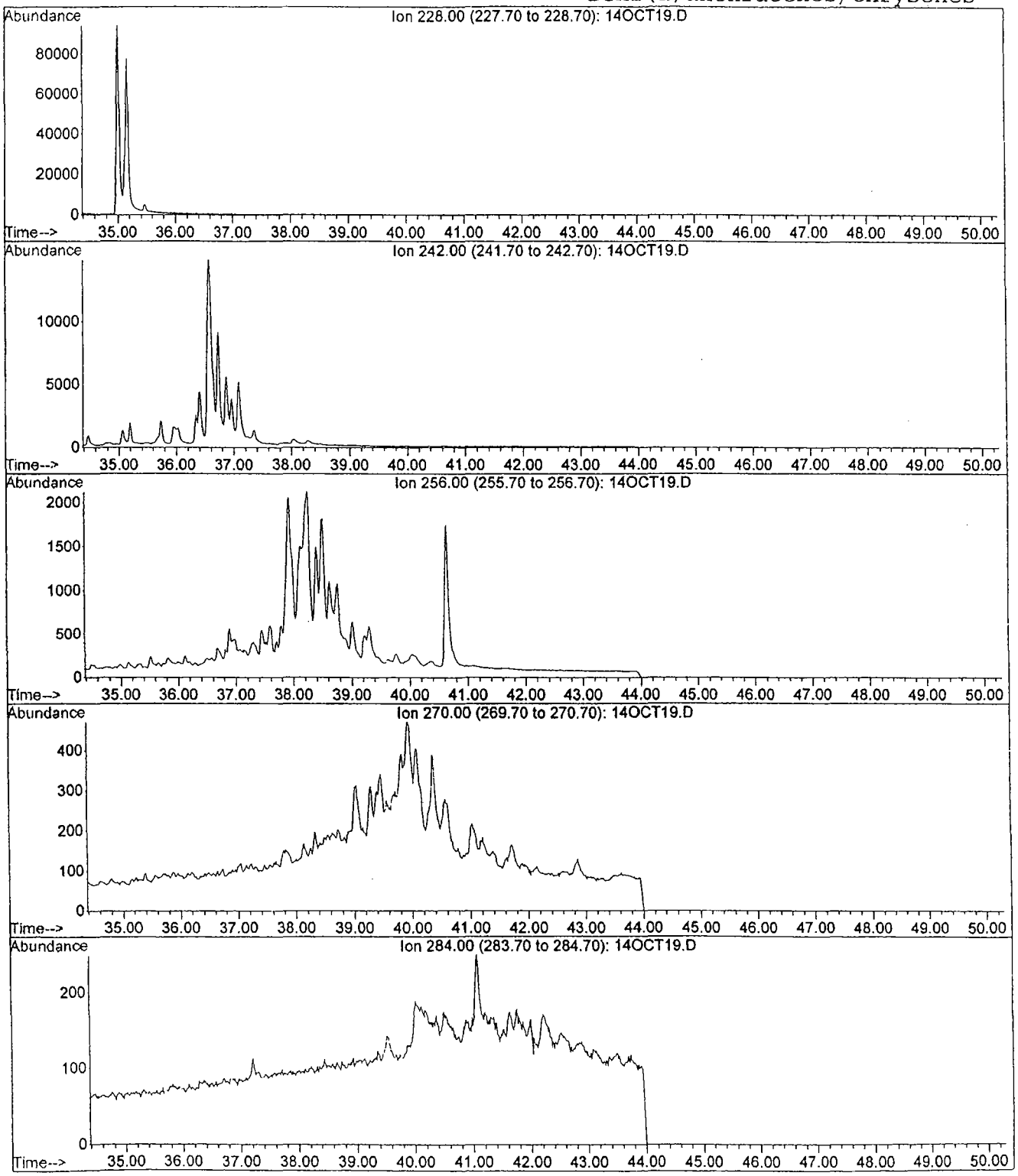
Benz(a)anthracenes/Chrysenes



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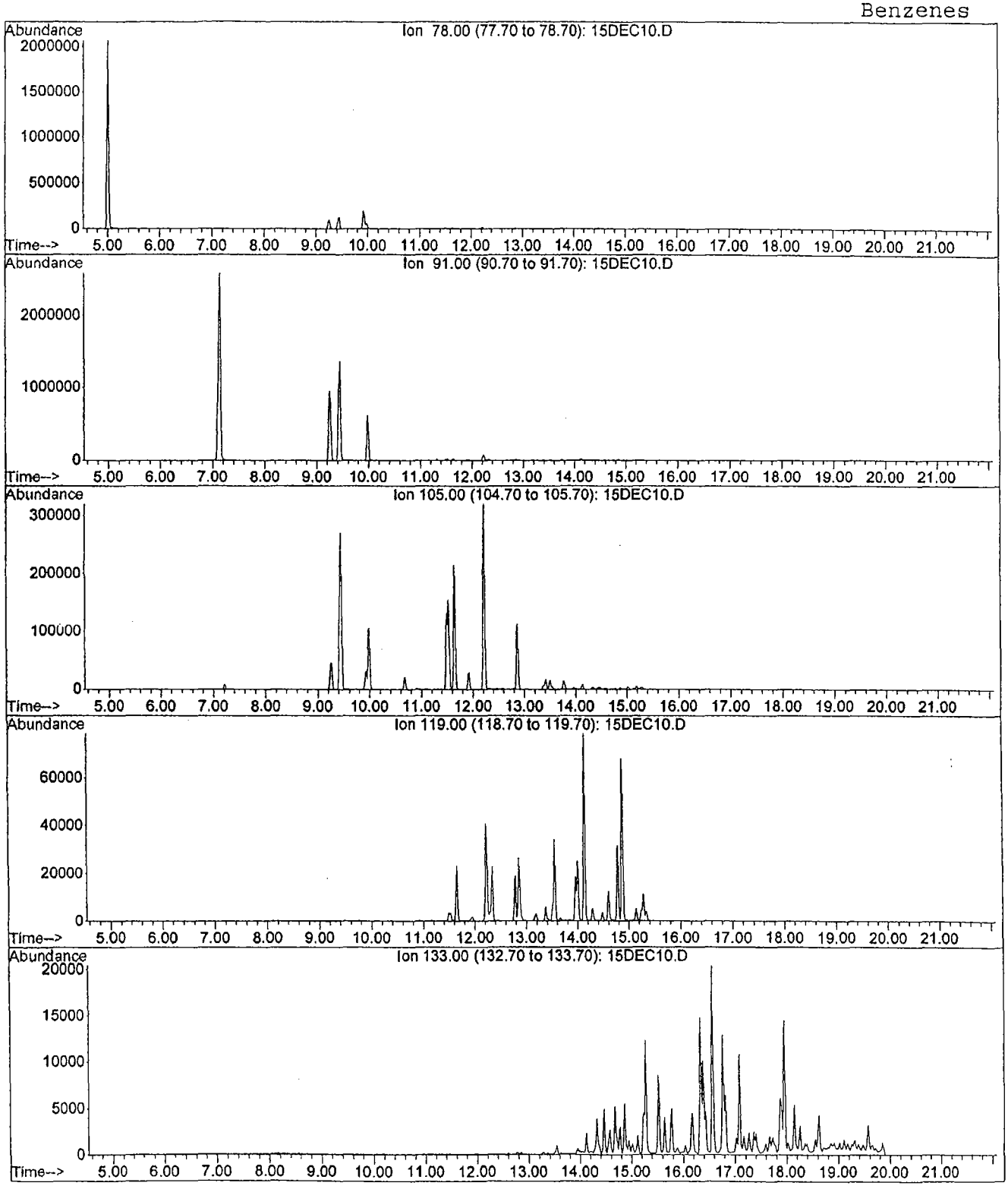
Benzenes



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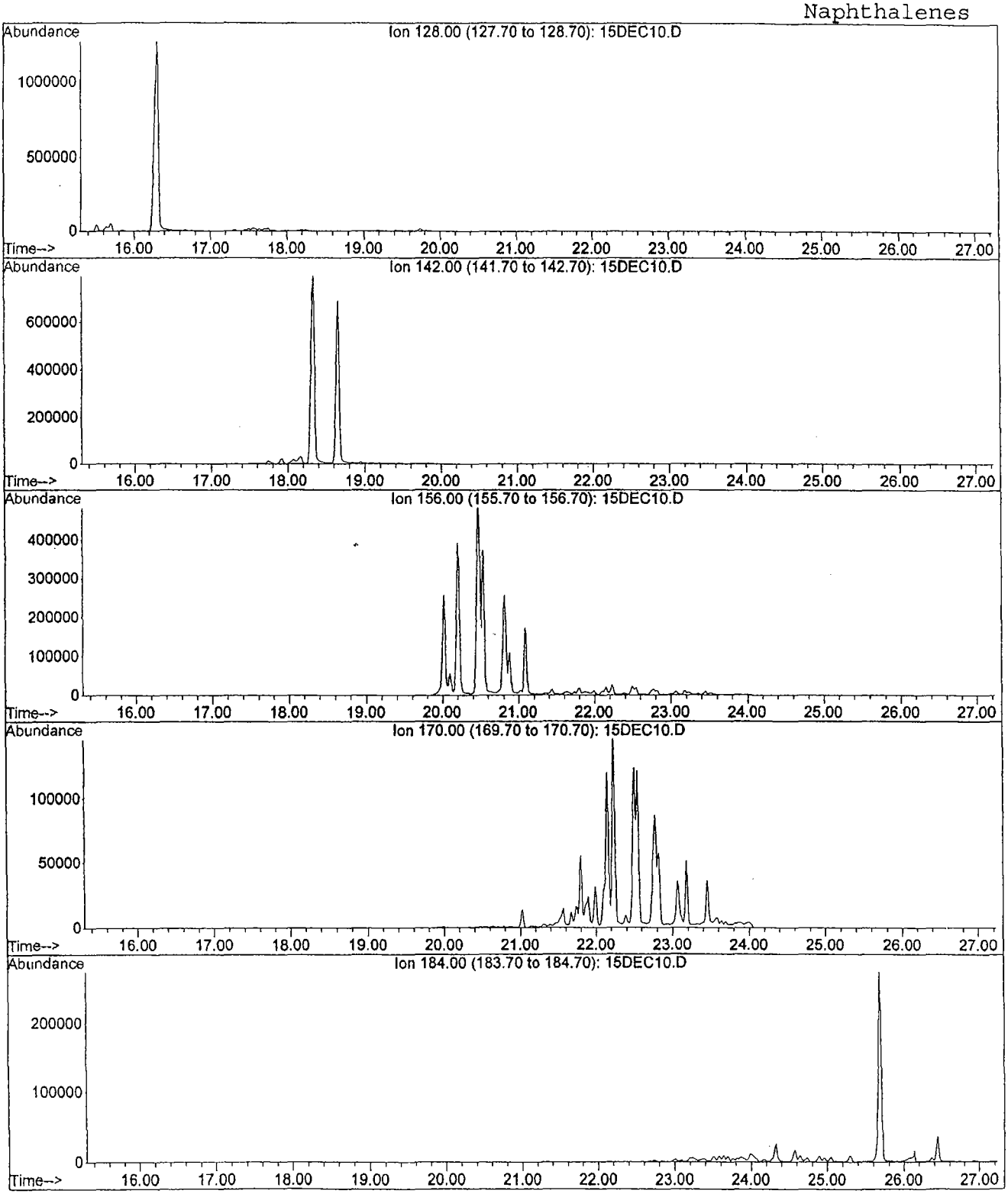
Naphthalenes



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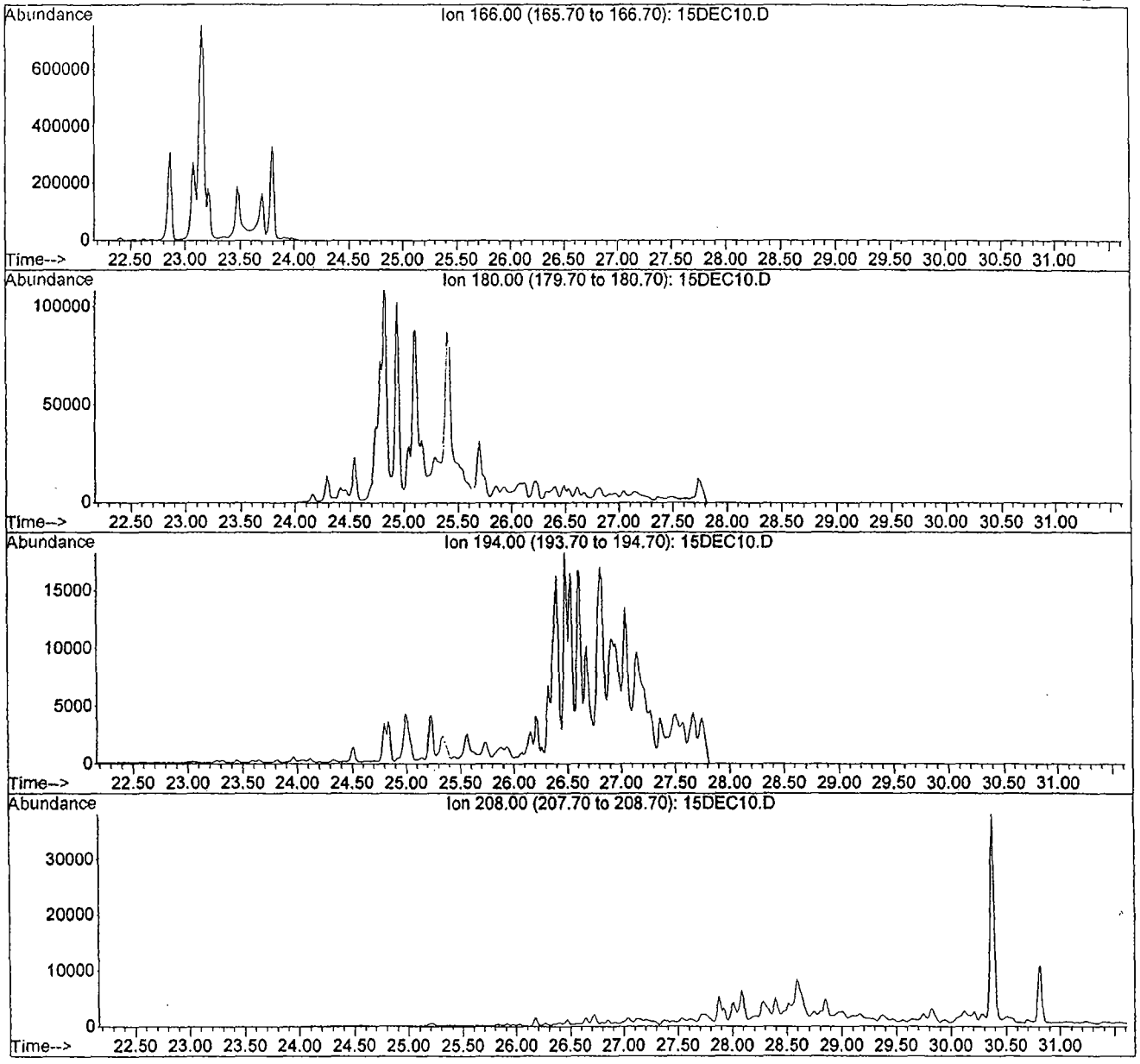
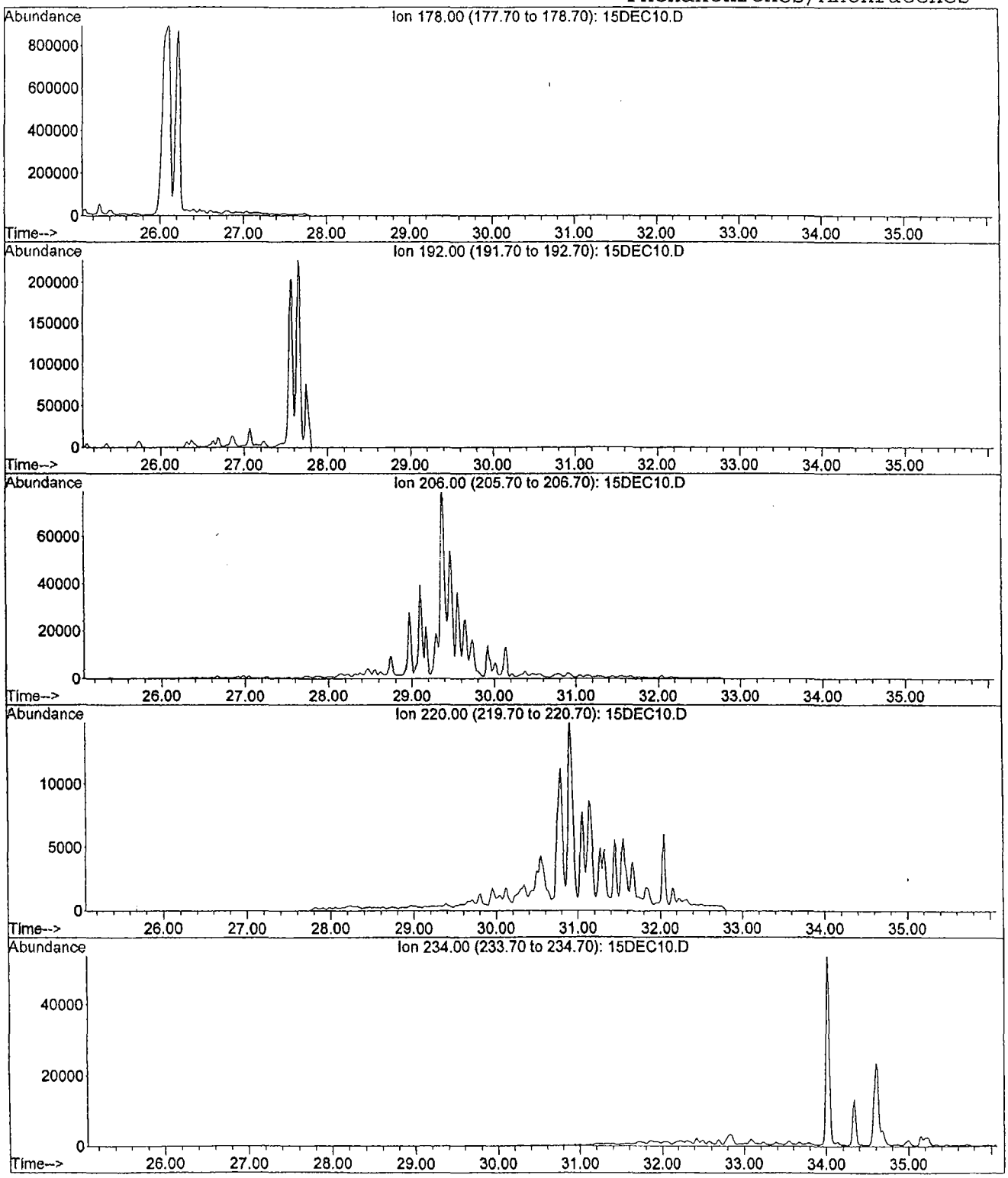
Instrument: GC4-MS_59 Operator: DRC

Fluorenes



Field ID: T10-3
Lab ID: GT021121-01 1/10
File: I:\4\DATA\021215\15DEC10.D
Acquired: 16 Dec 2002 12:10 am using AcqMethod MET4008
Instrument: GC4-MS_59 Operator: DRC

Phenanthrenes/Anthracenes



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Lab ID: GT021121-01 1/10
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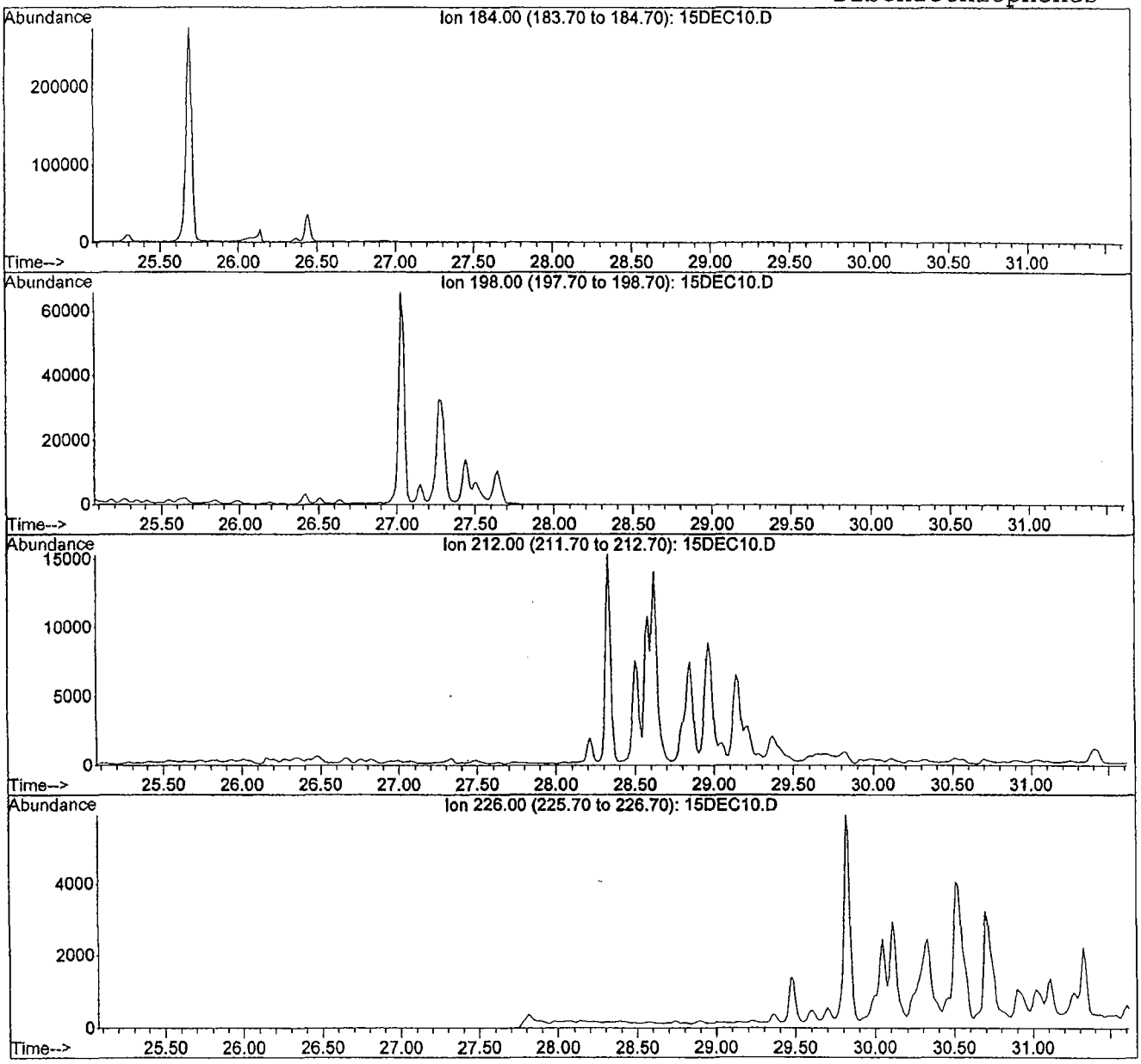
Instrument: GC4-MS_59 Operator: DRC

Dibenzothiophenes



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Lab ID: GT021121-01 1/10
File: I:\4\DATA\021215\15DEC10.D
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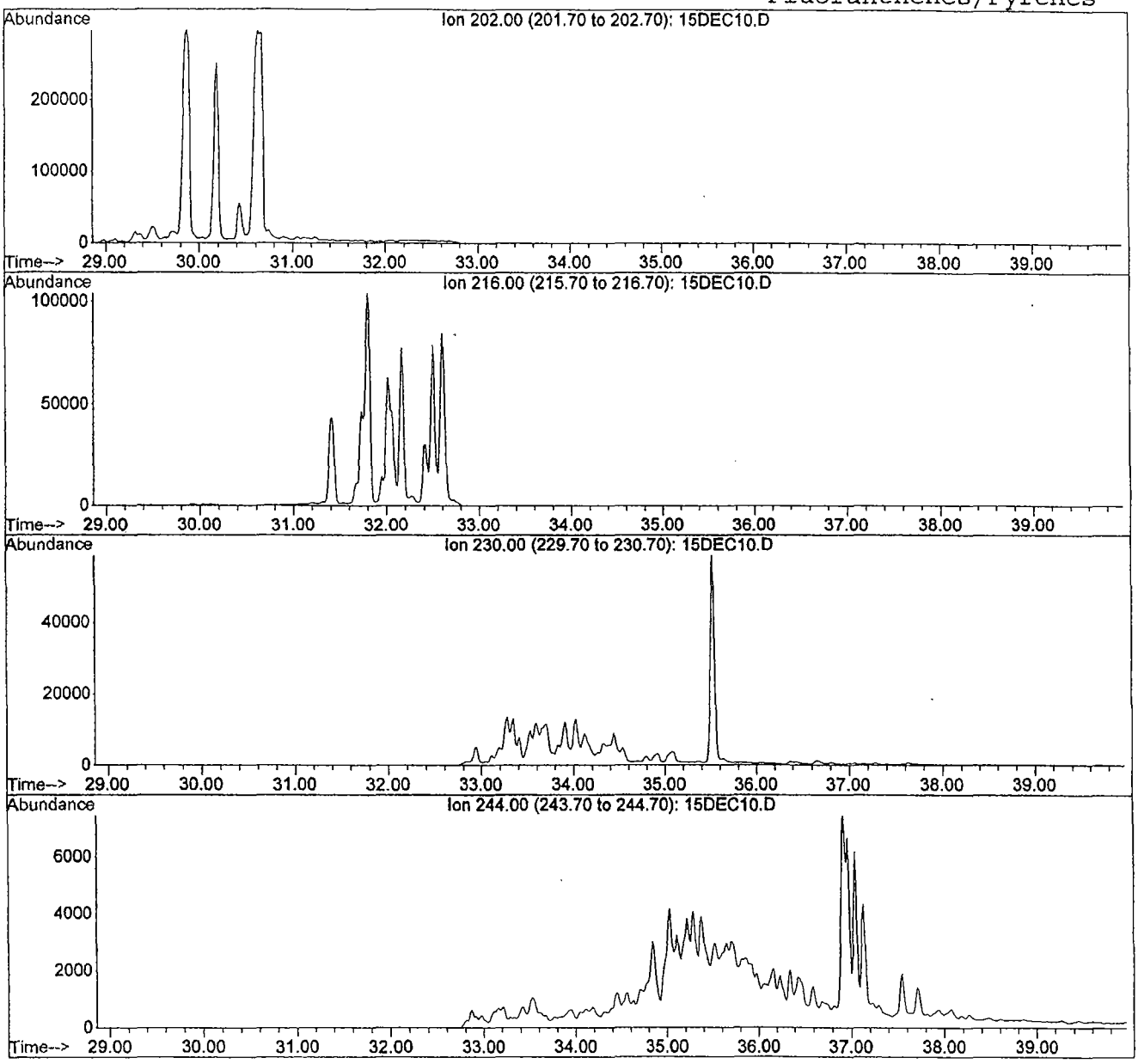
Instrument: GC4-MS_59 Operator: DRC

Fluoranthenes/Pyrenes



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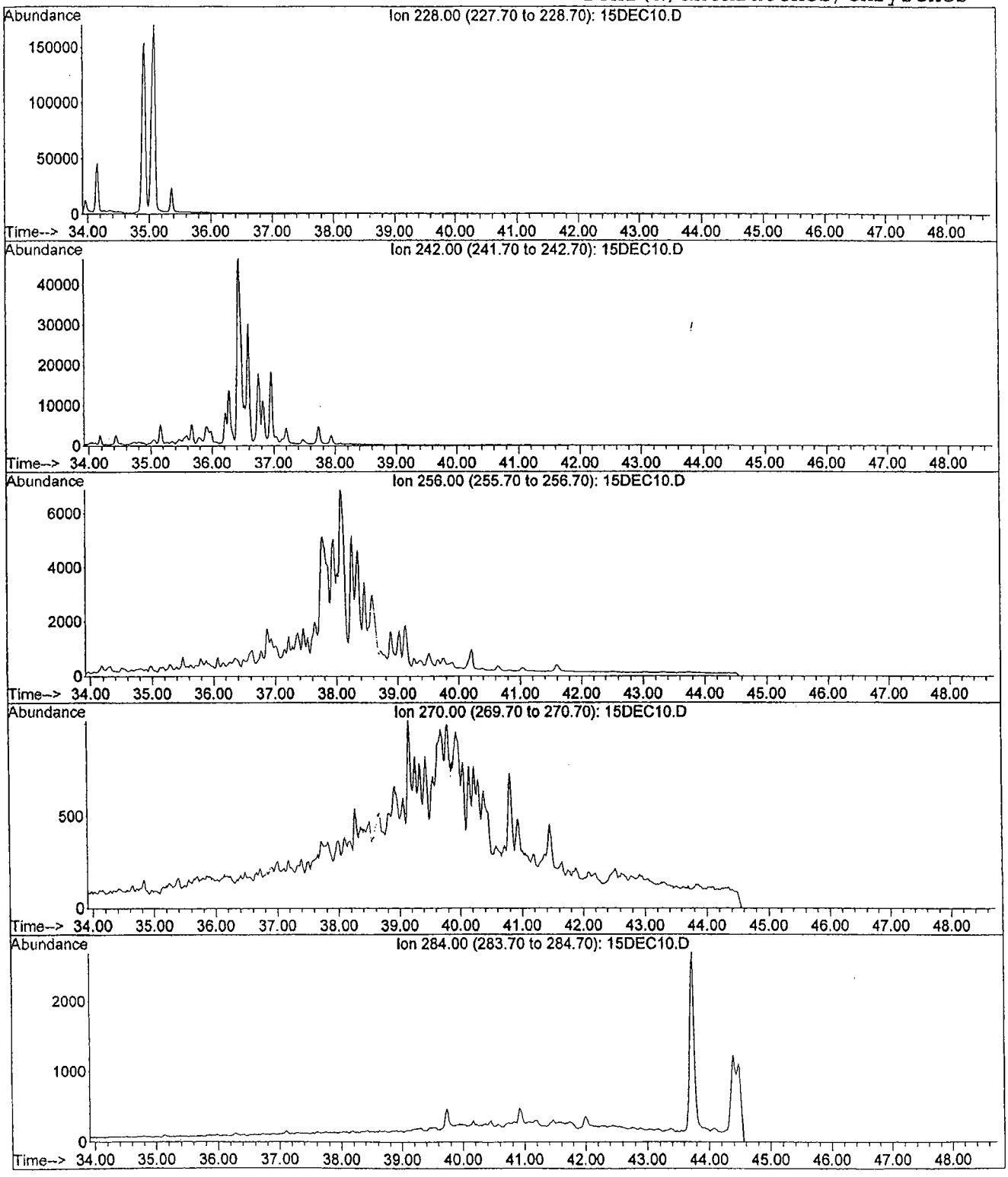
Lab ID: GT021121-01 1/10
File: I:\4\DATA\021215\15DEC10.D
Acquired: 16 Dec 2002 12:10 am using AcqMethod MET4008
Instrument: GC4-MS_59 Operator: DRC

Benz(a)anthracenes/Chrysenes



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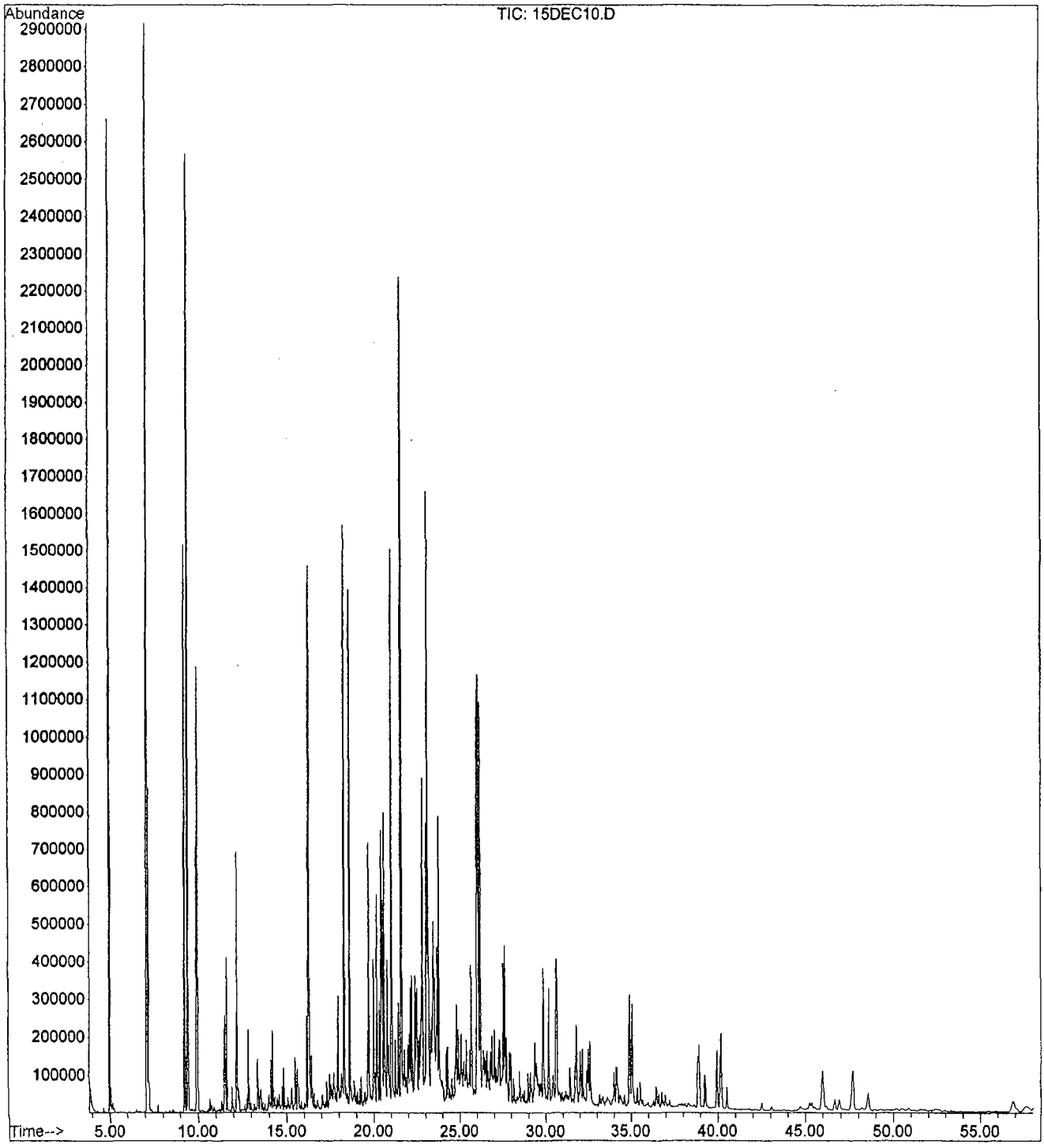
Instrument : GC4-MS_59
Sample Name: GT021121-01 1/10
Misc Info : T10-3
Vial Number: 10



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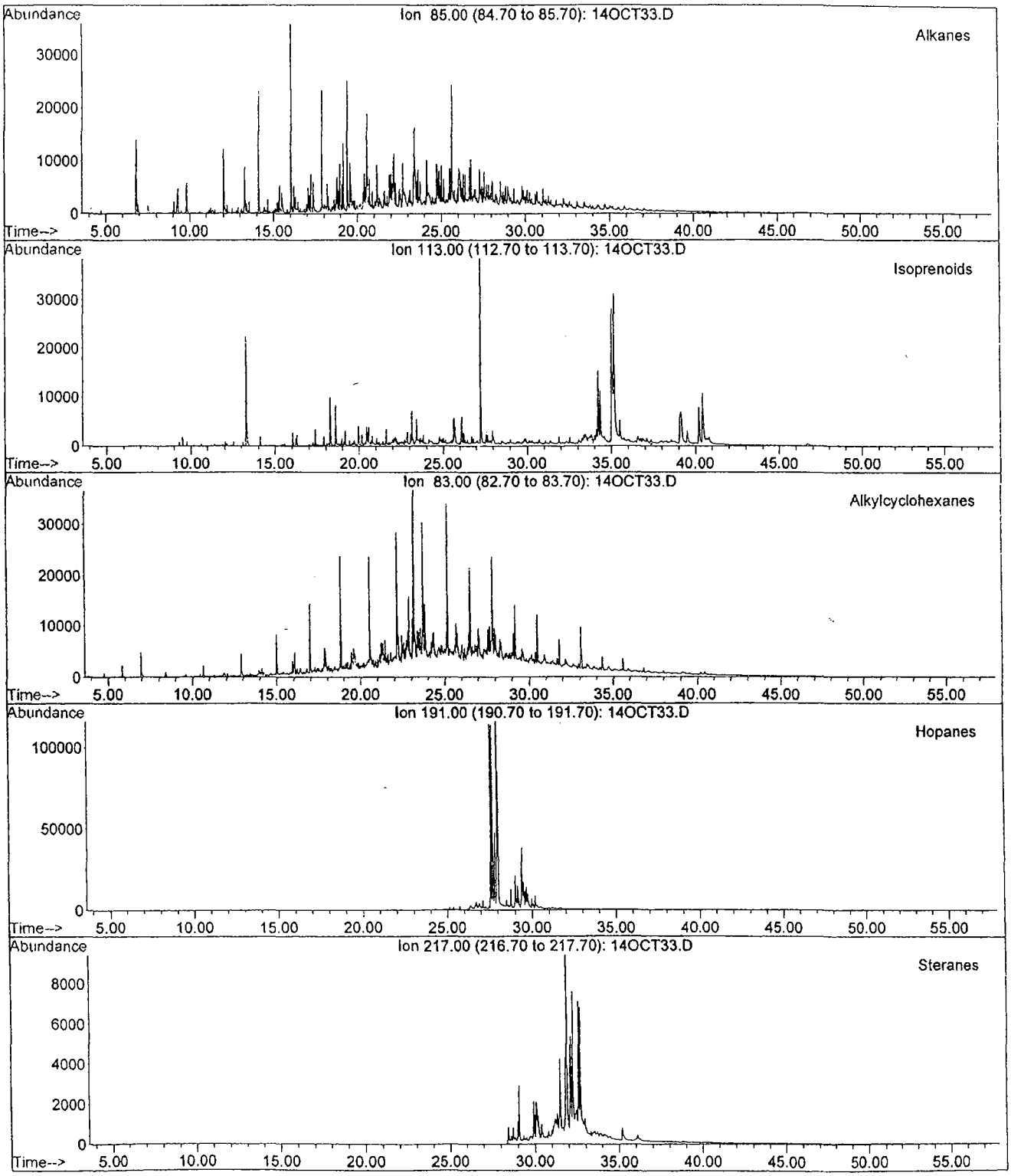
Lab ID: GT020924-03
File: G:\1\DATA\021014\14OCT33.D
Acquired: 16 Oct 2002 1:06 am using AcqMethod SIM4008Z
Instrument: GC/MS Ins Operator: ECC



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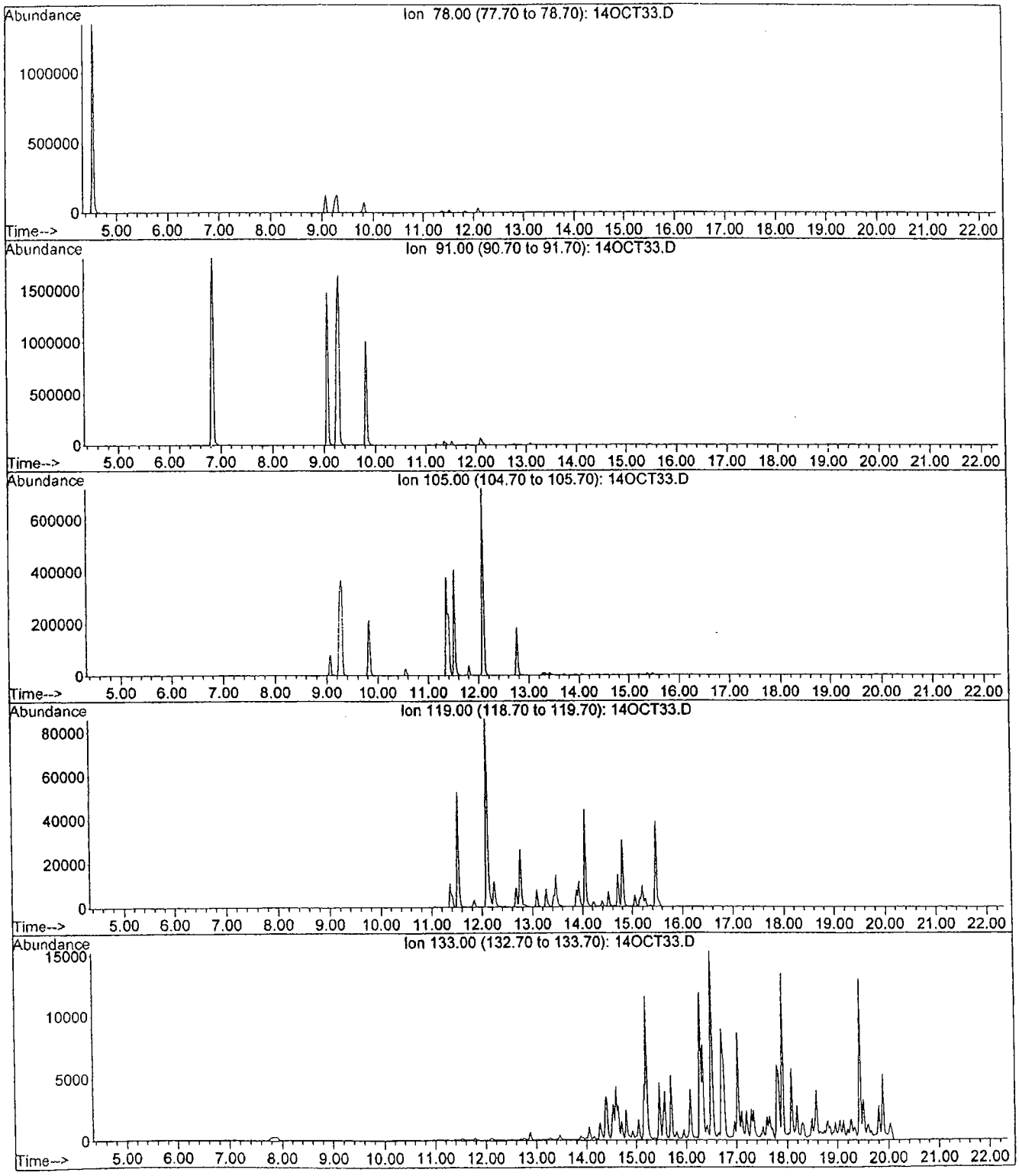
Instrument: GC/MS Ins Operator: ECC

Benzenes



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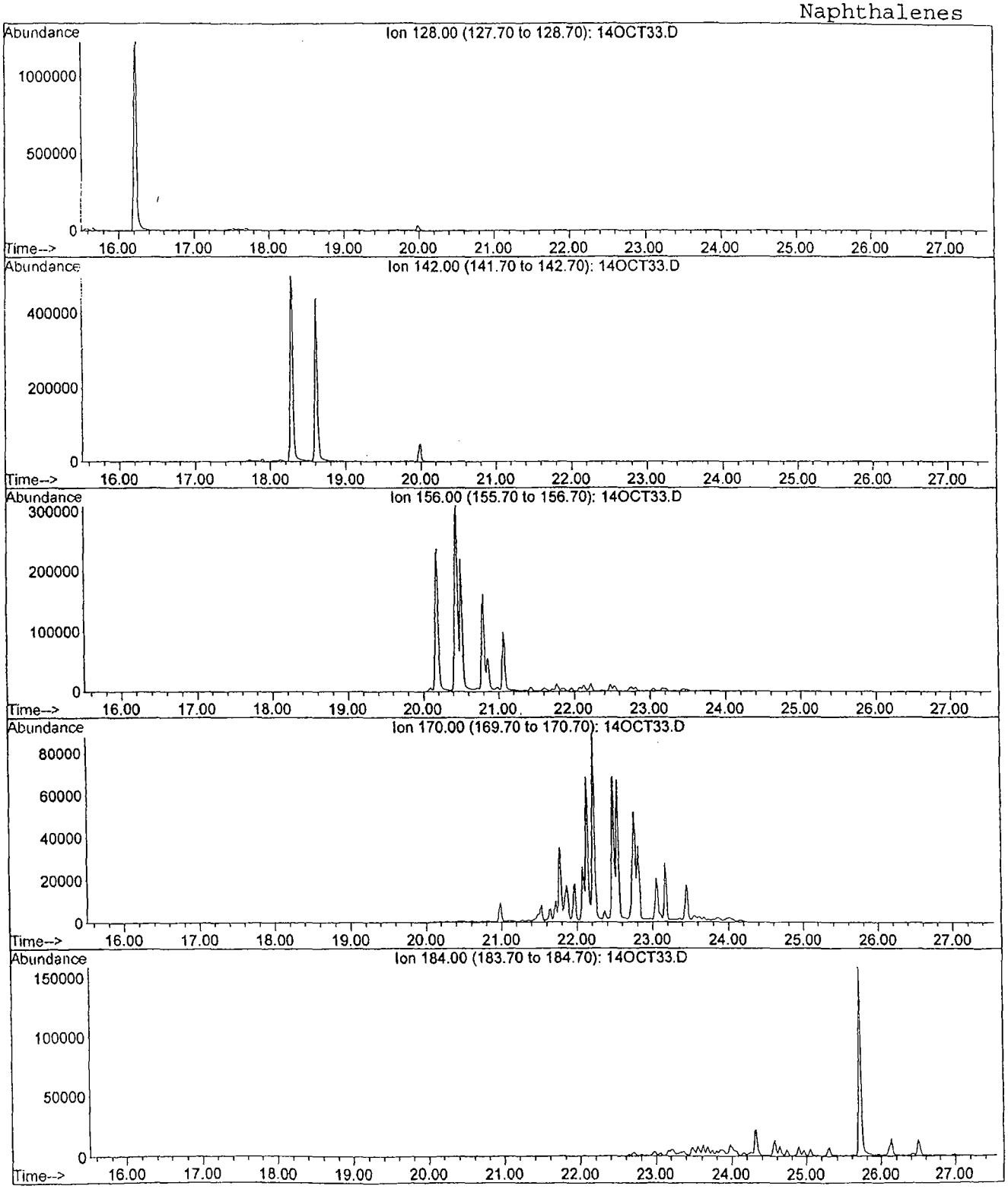
Instrument: GC/MS Ins Operator: ECC

Naphthalenes



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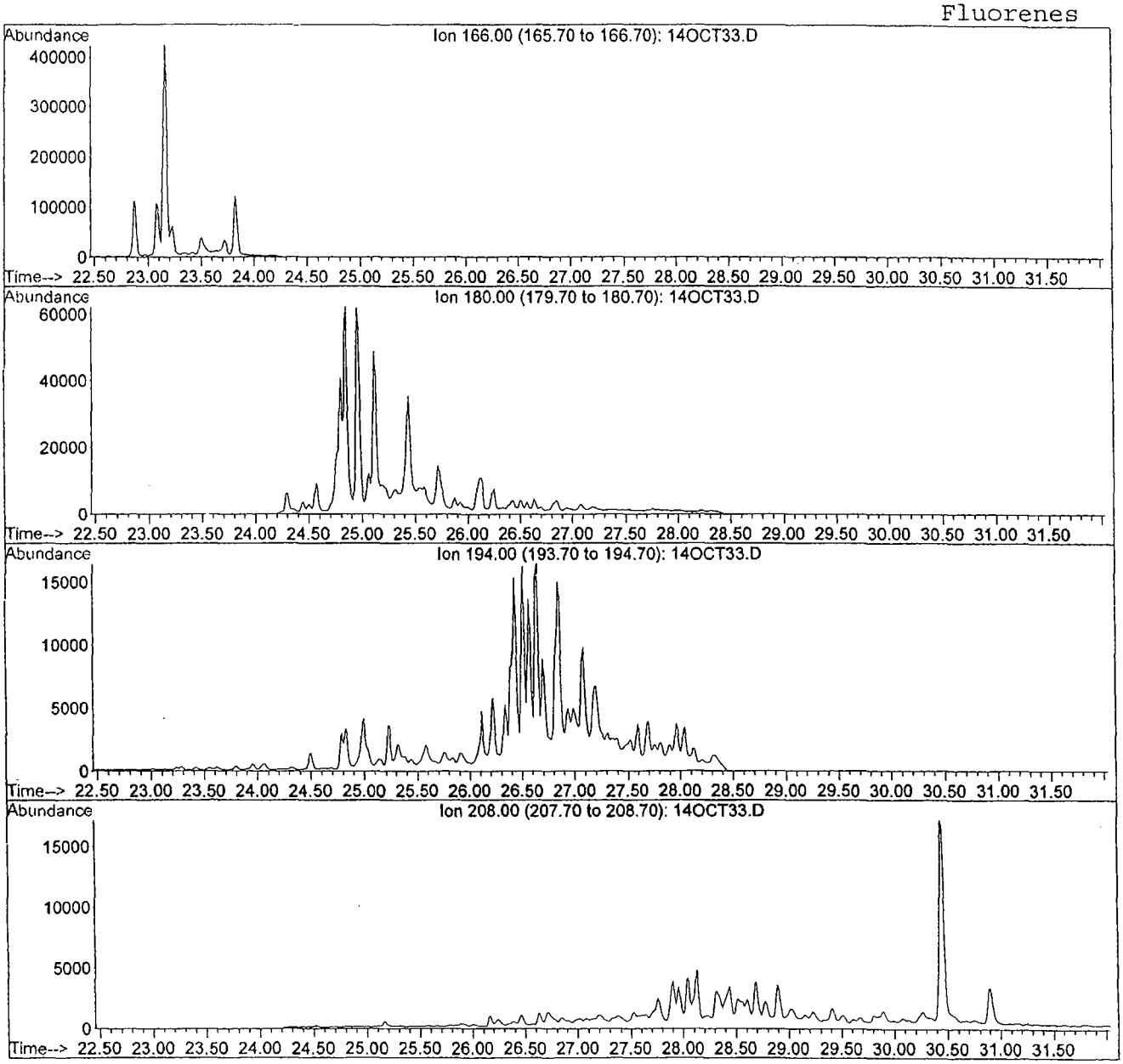
Instrument: GC/MS Ins Operator: ECC

Fluorenes



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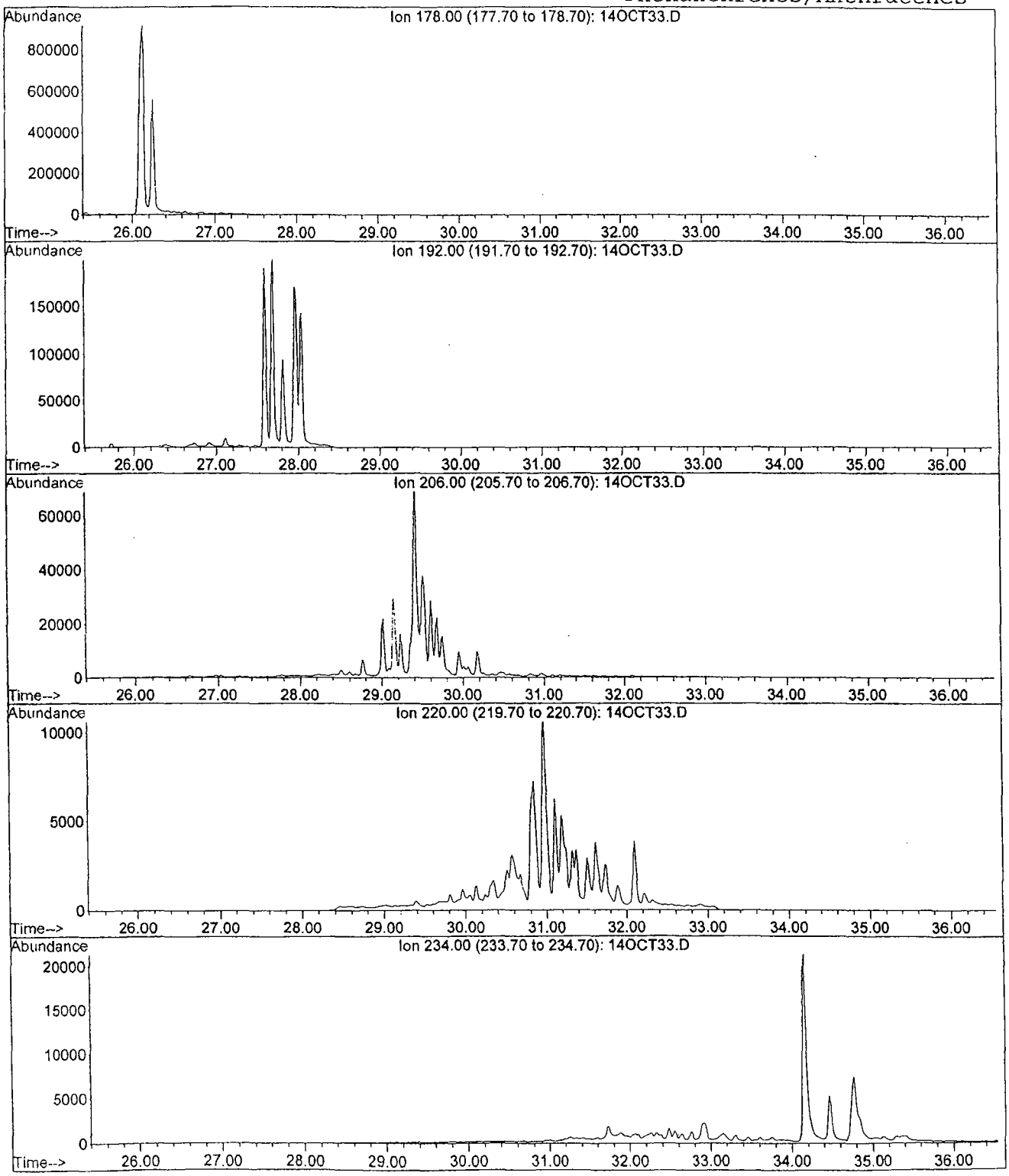
Instrument: GC/MS Ins Operator: ECC

Phenanthrenes/Anthracenes



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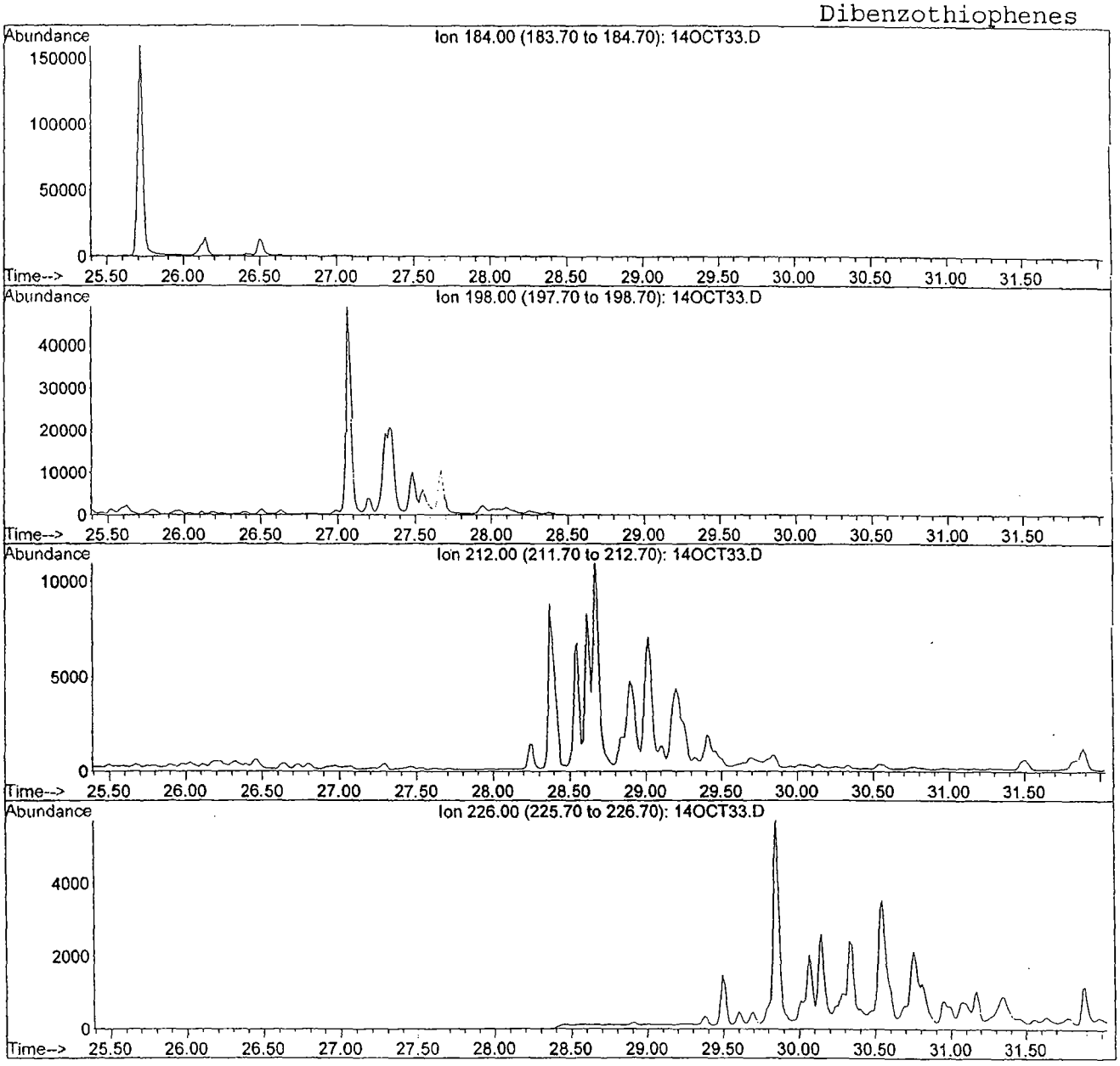
Instrument: GC/MS Ins Operator: ECC

Dibenzothiophenes



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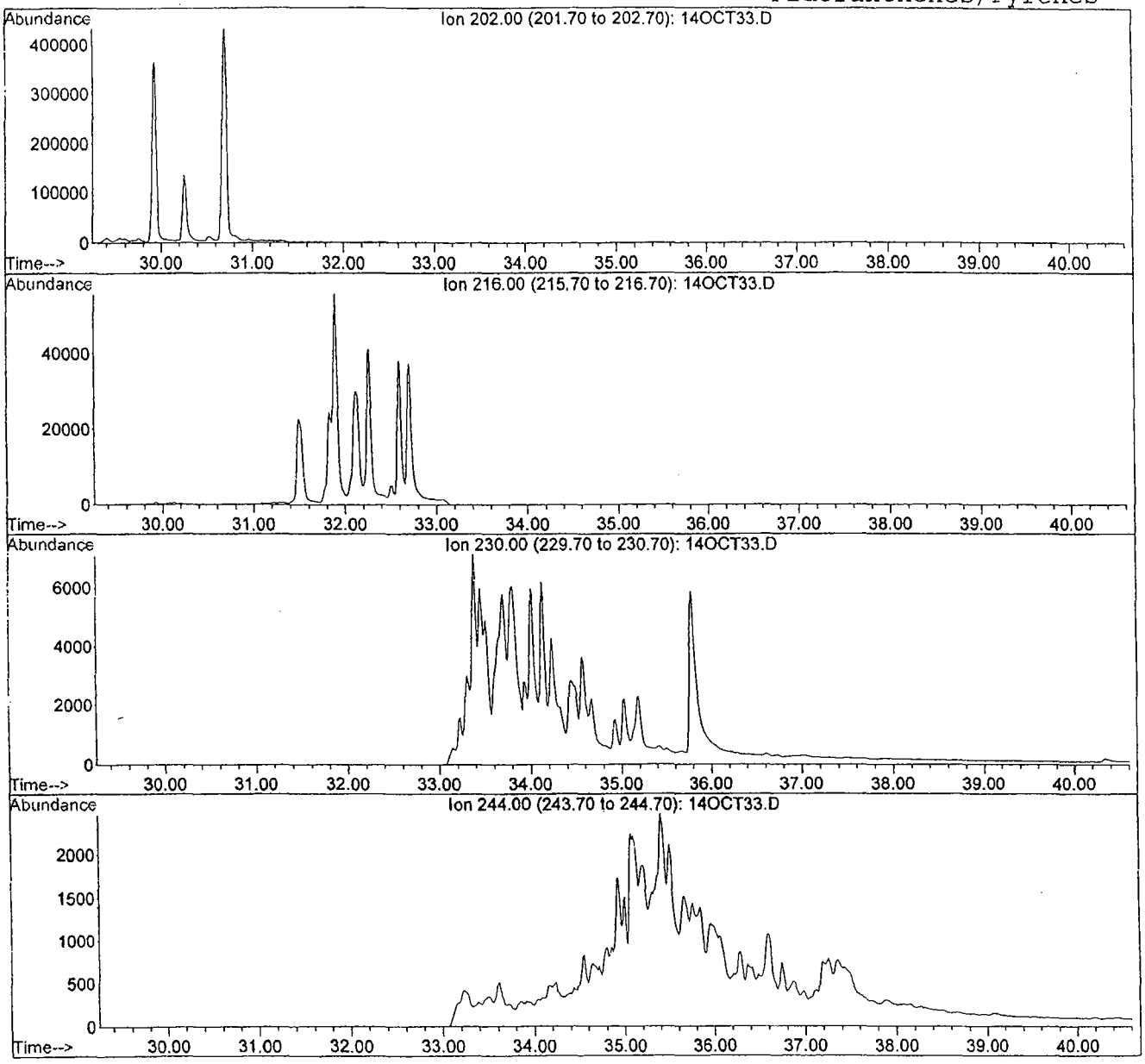
Lab ID: GT020924-03
File: G:\1\DATA\021014\14OCT33.D
Acquired: 16 Oct 2002 1:06 am using AcqMethod SIM4008Z
Instrument: GC/MS Ins Operator: ECC

Fluoranthenes/Pyrenes



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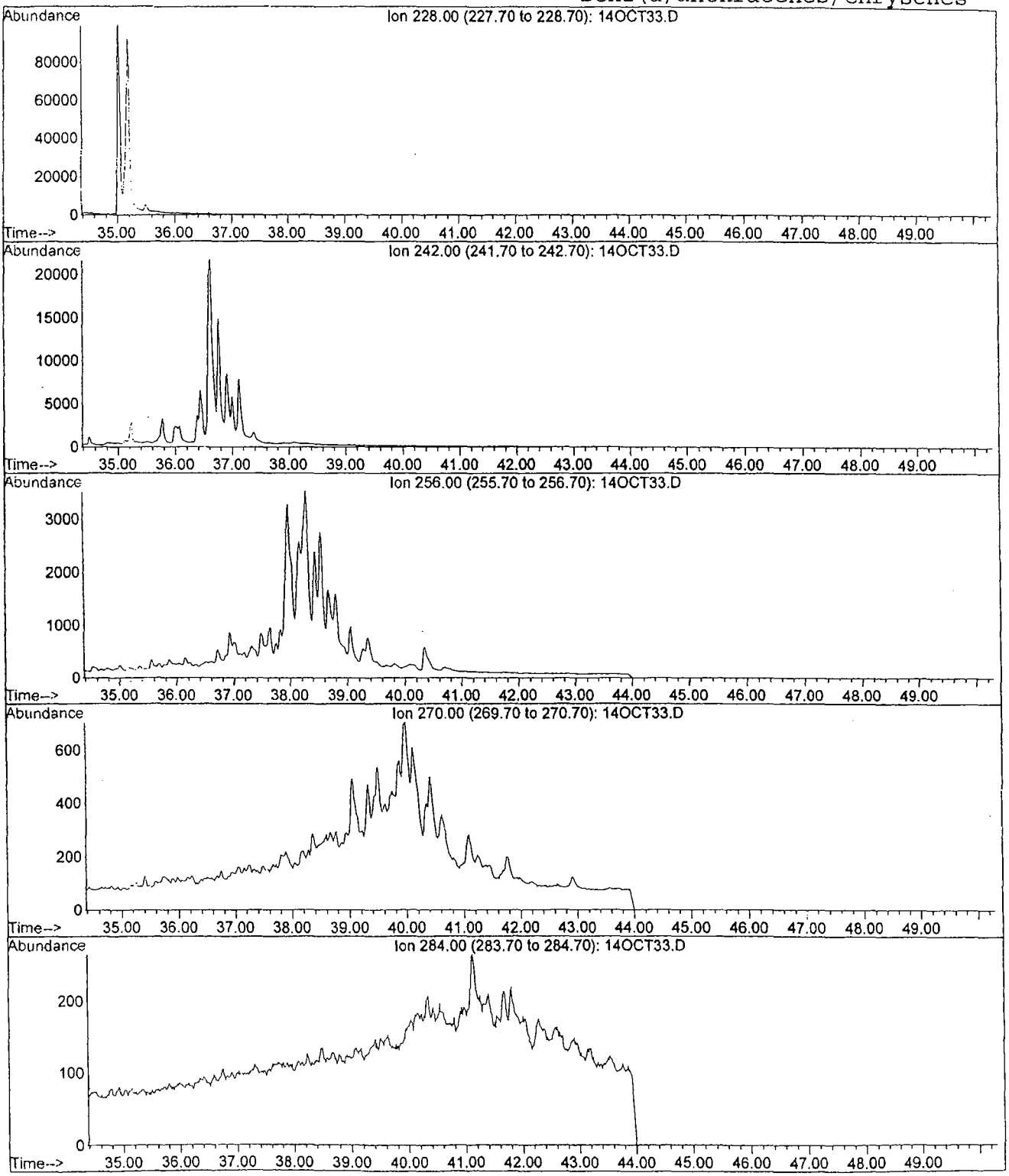
Instrument: GC/MS Ins Operator: ECC

Benz(a)anthracenes/Chrysenes



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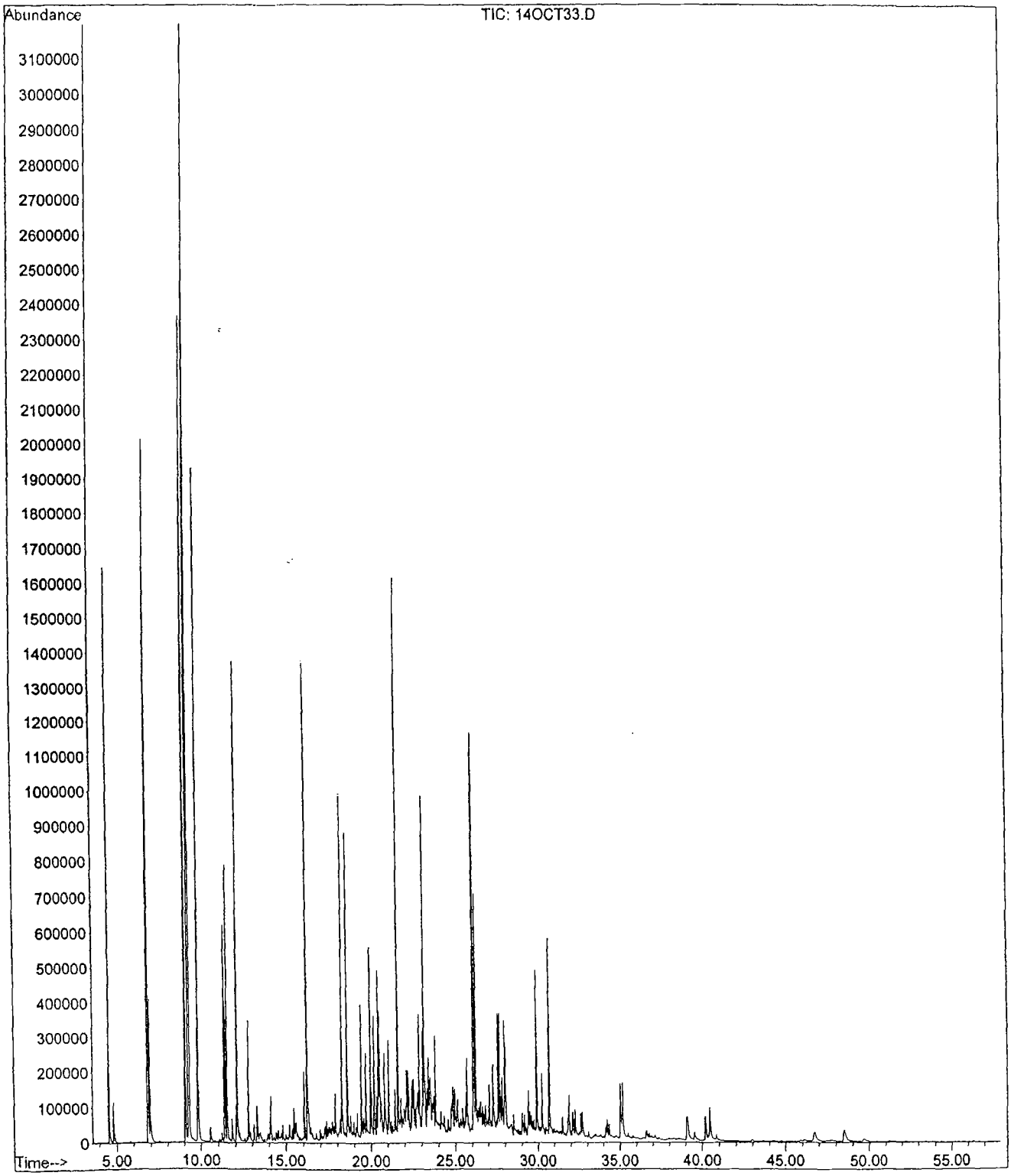

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Lab ID: GT020924-04 1:10
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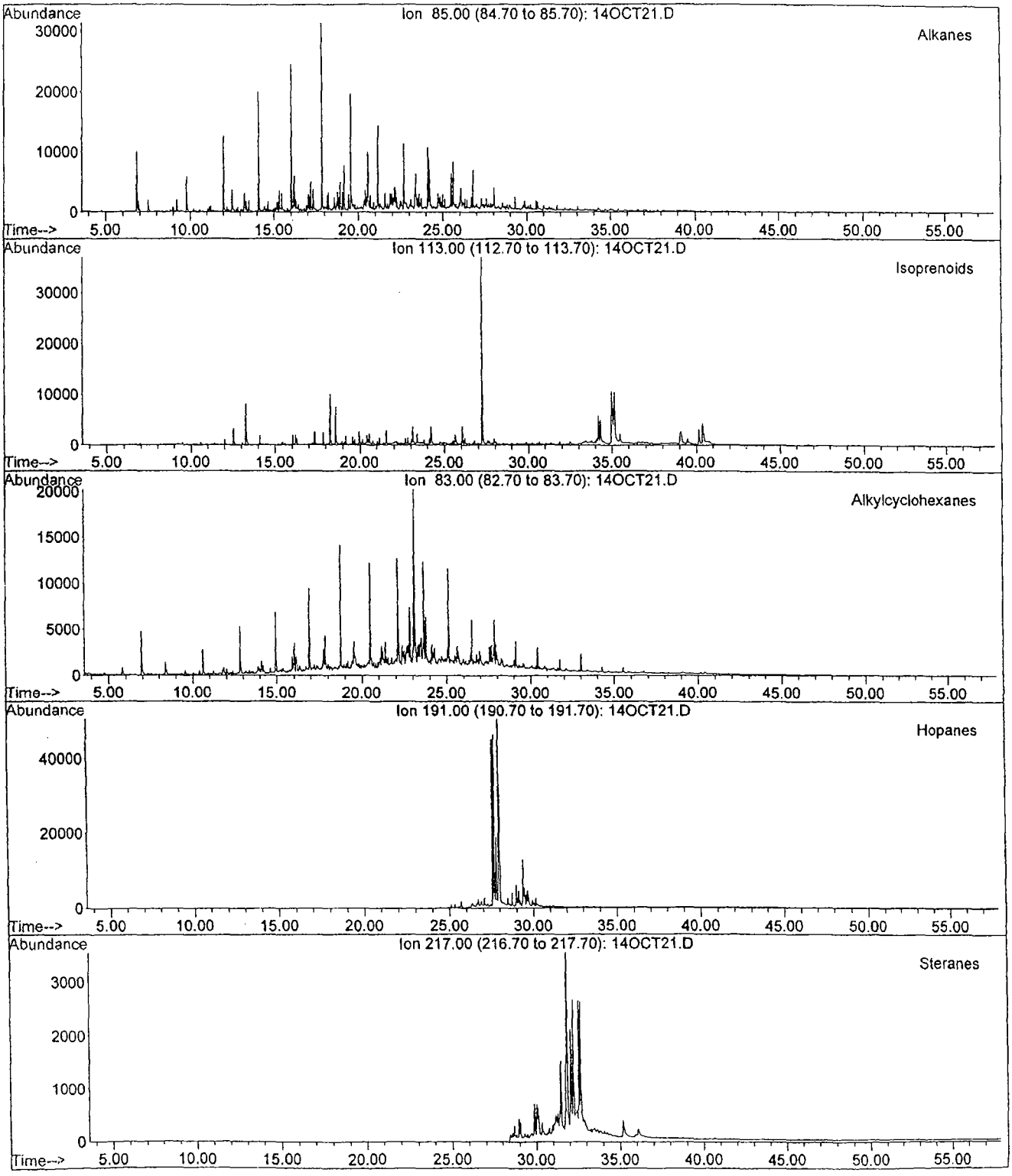
Instrument: GC/MS Ins Operator: ECC



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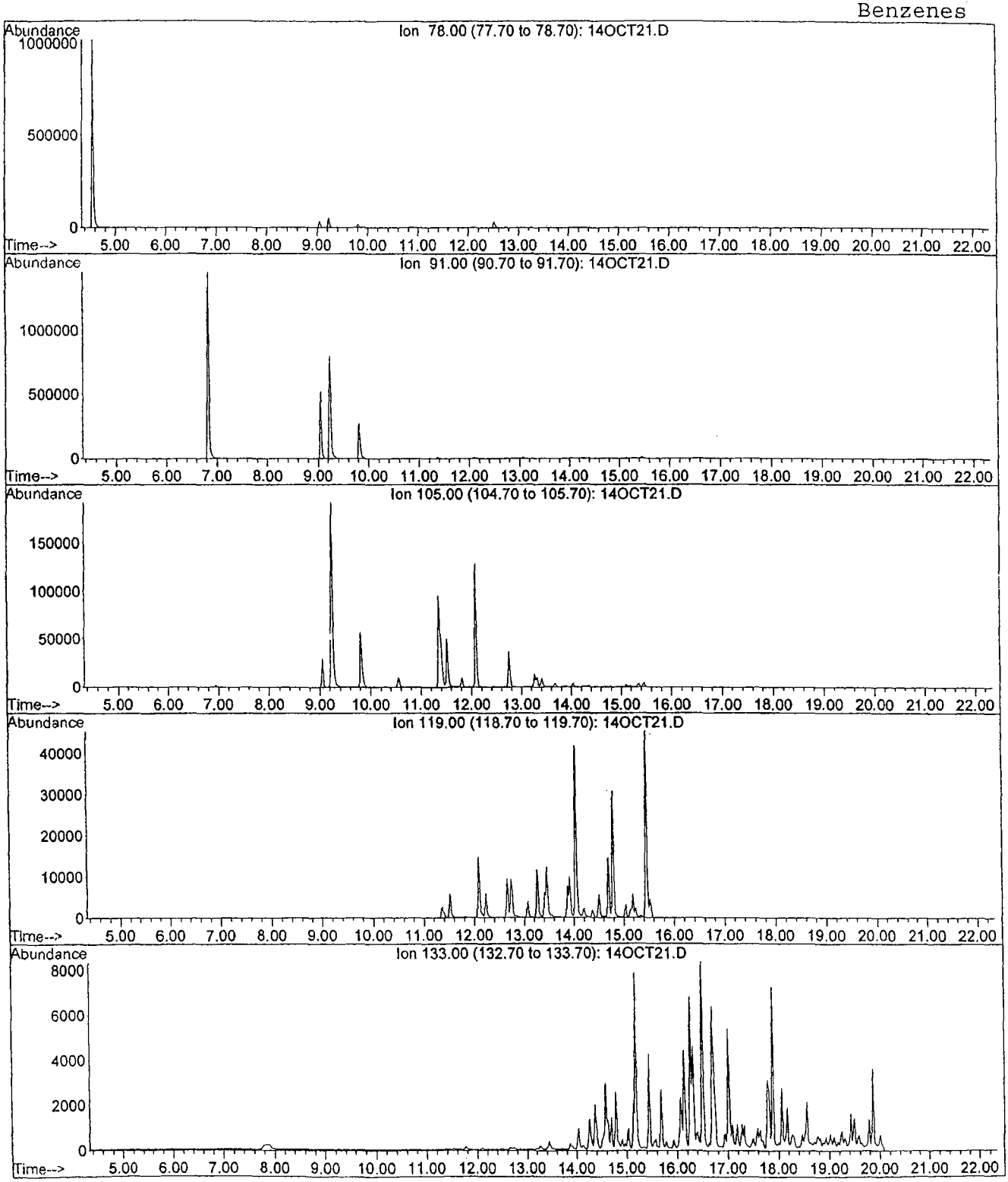
Instrument: GC/MS Ins Operator: ECC

Benzenes



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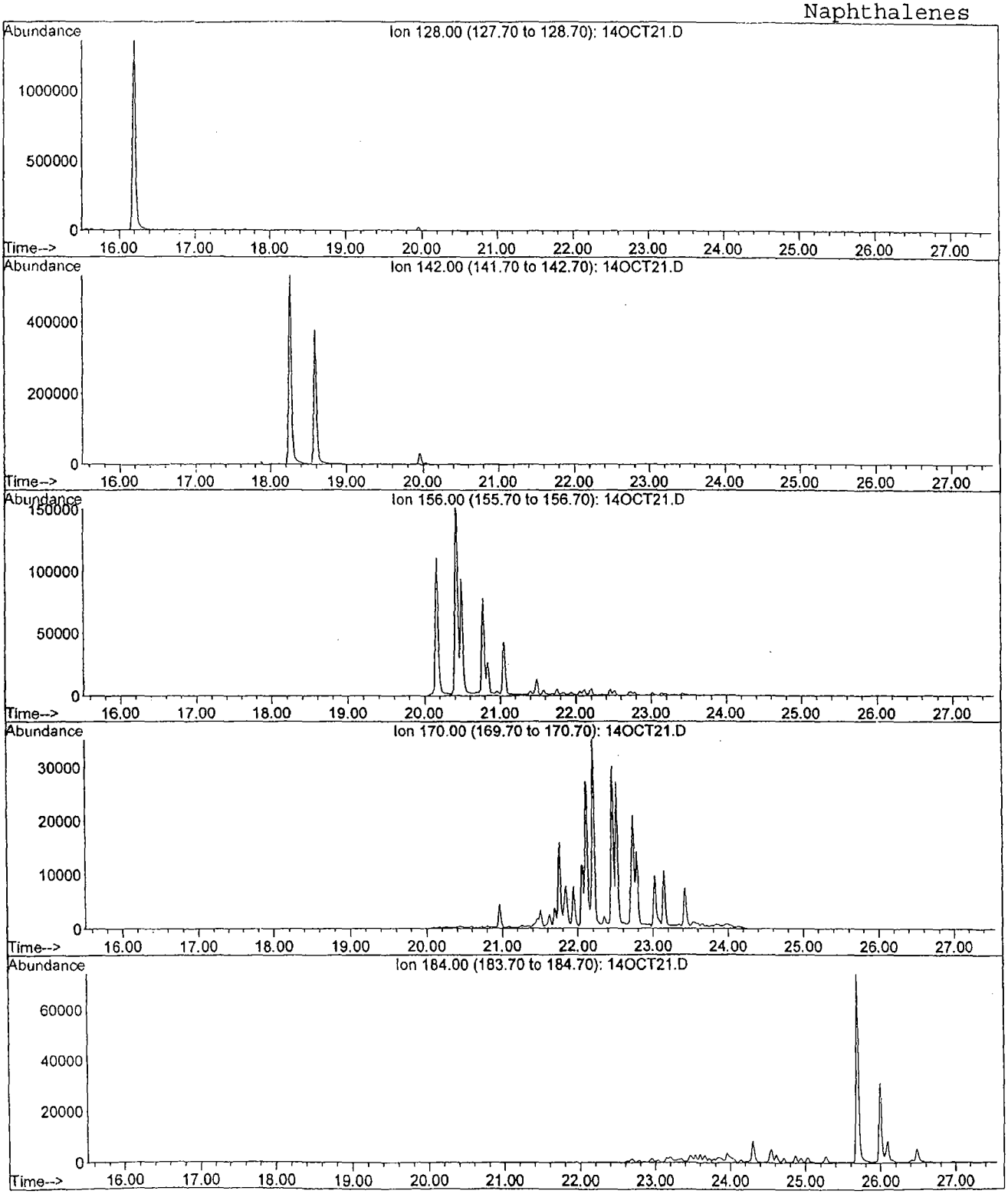
Instrument: GC/MS Ins Operator: ECC

Naphthalenes



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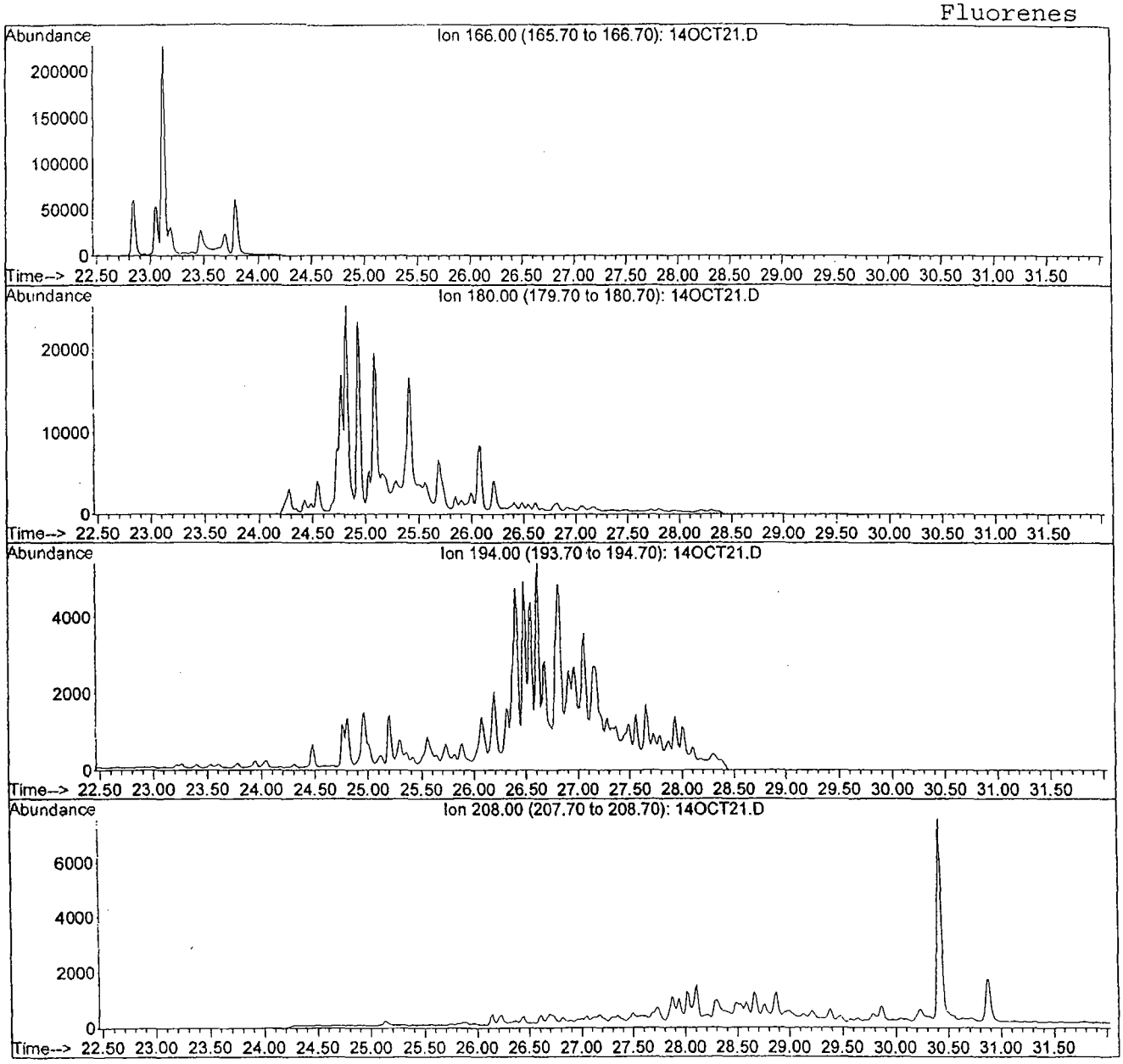
Instrument: GC/MS Ins Operator: ECC

Fluorenes



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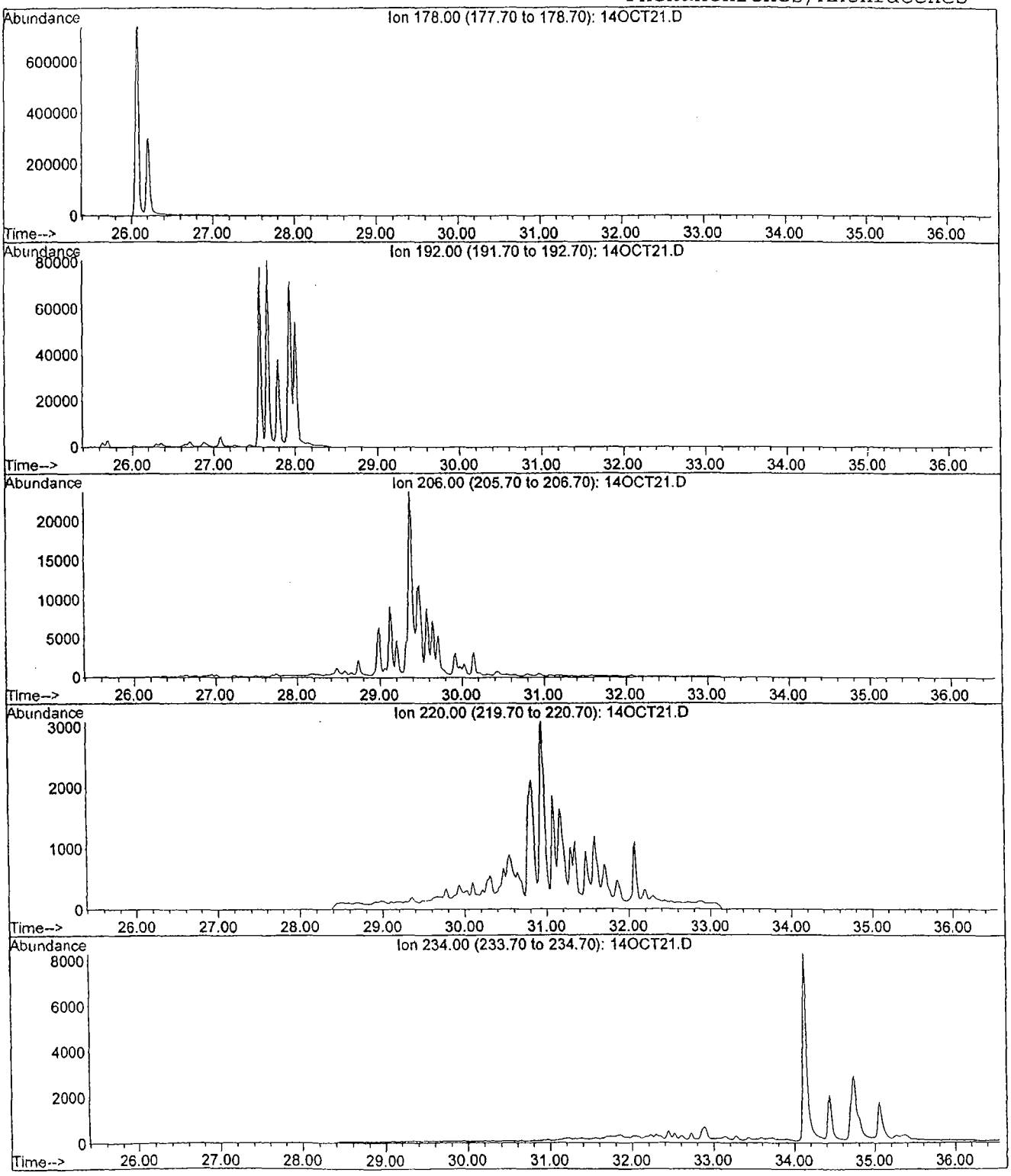
Acquired: 15 Oct 2002 10:49 am using AcqMethod SIM4008Z
Instrument: GC/MS Ins Operator: ECC

Phenanthrenes/Anthracenes



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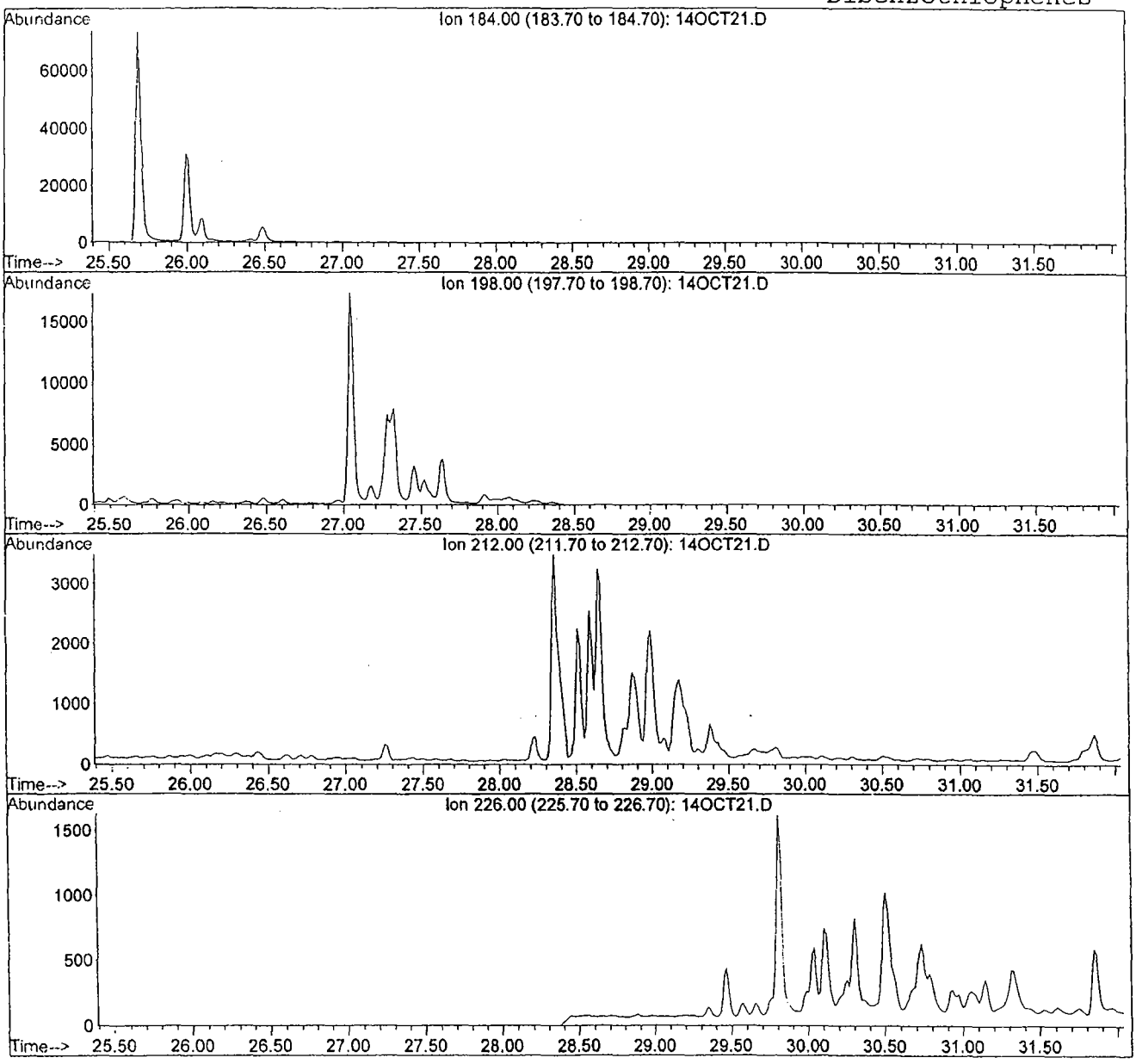
Instrument: GC/MS Ins Operator: ECC

Dibenzothiophenes



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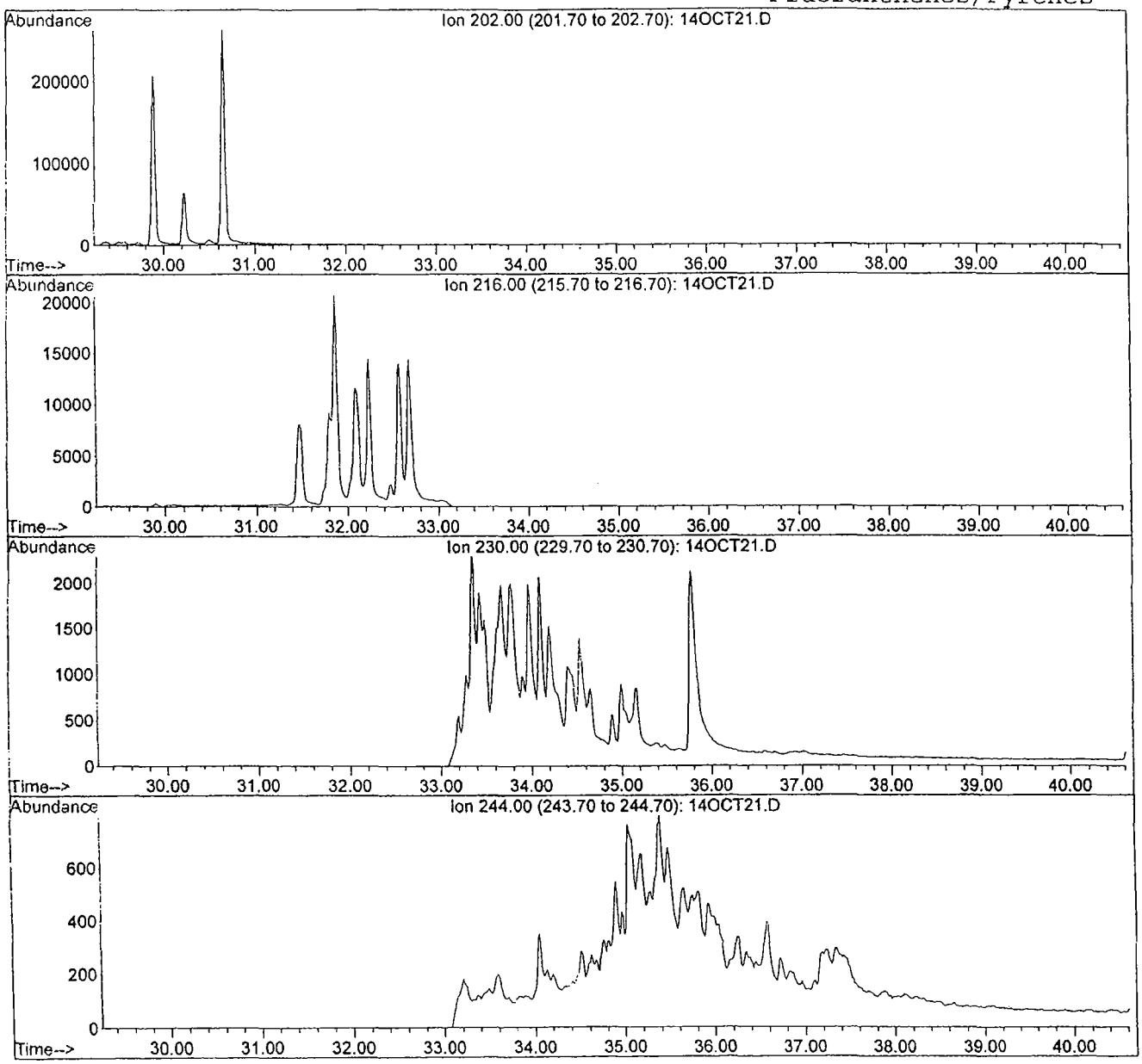
Fluoranthenes/Pyrenes



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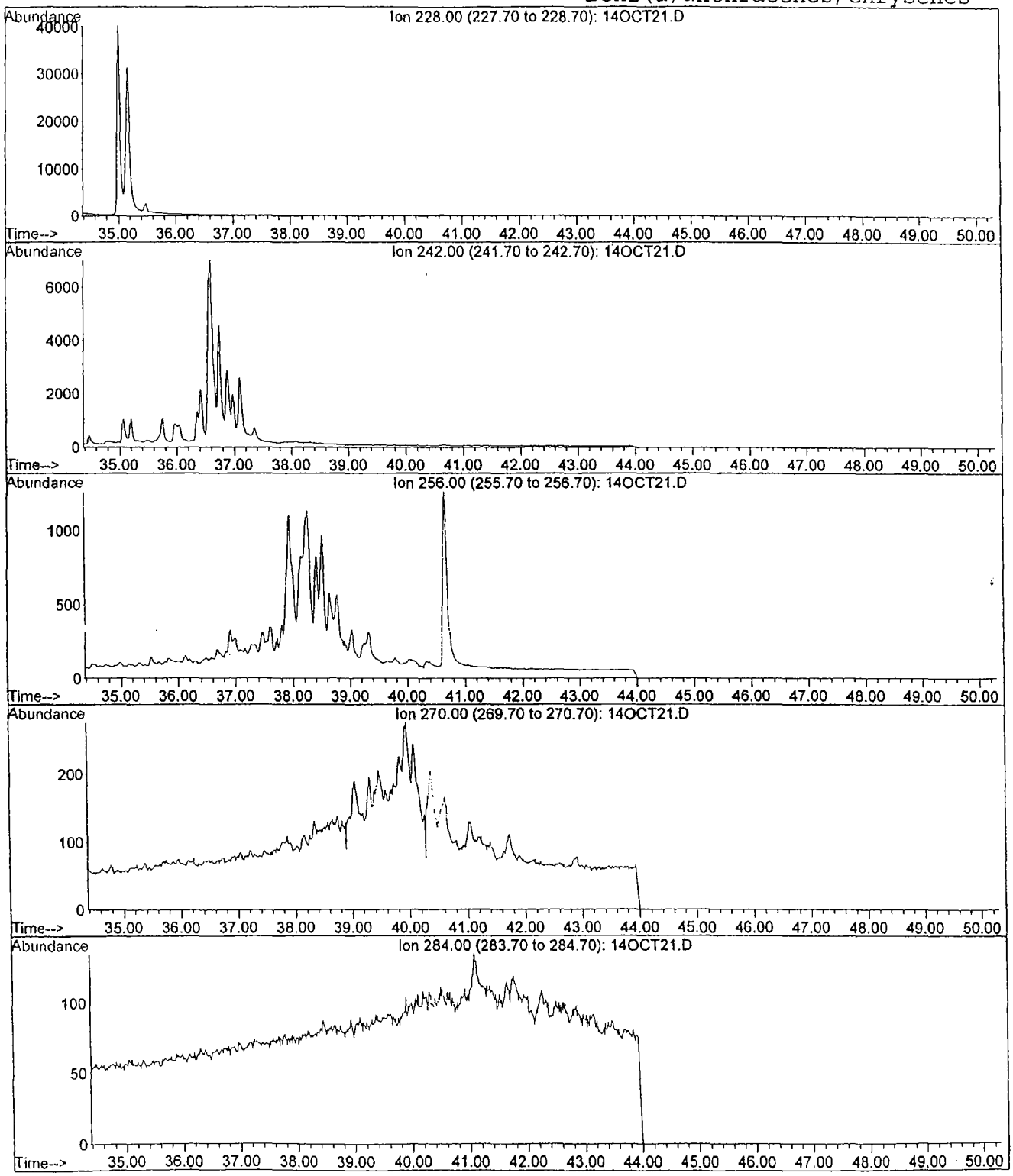
Benz(a)anthracenes/Chrysenes



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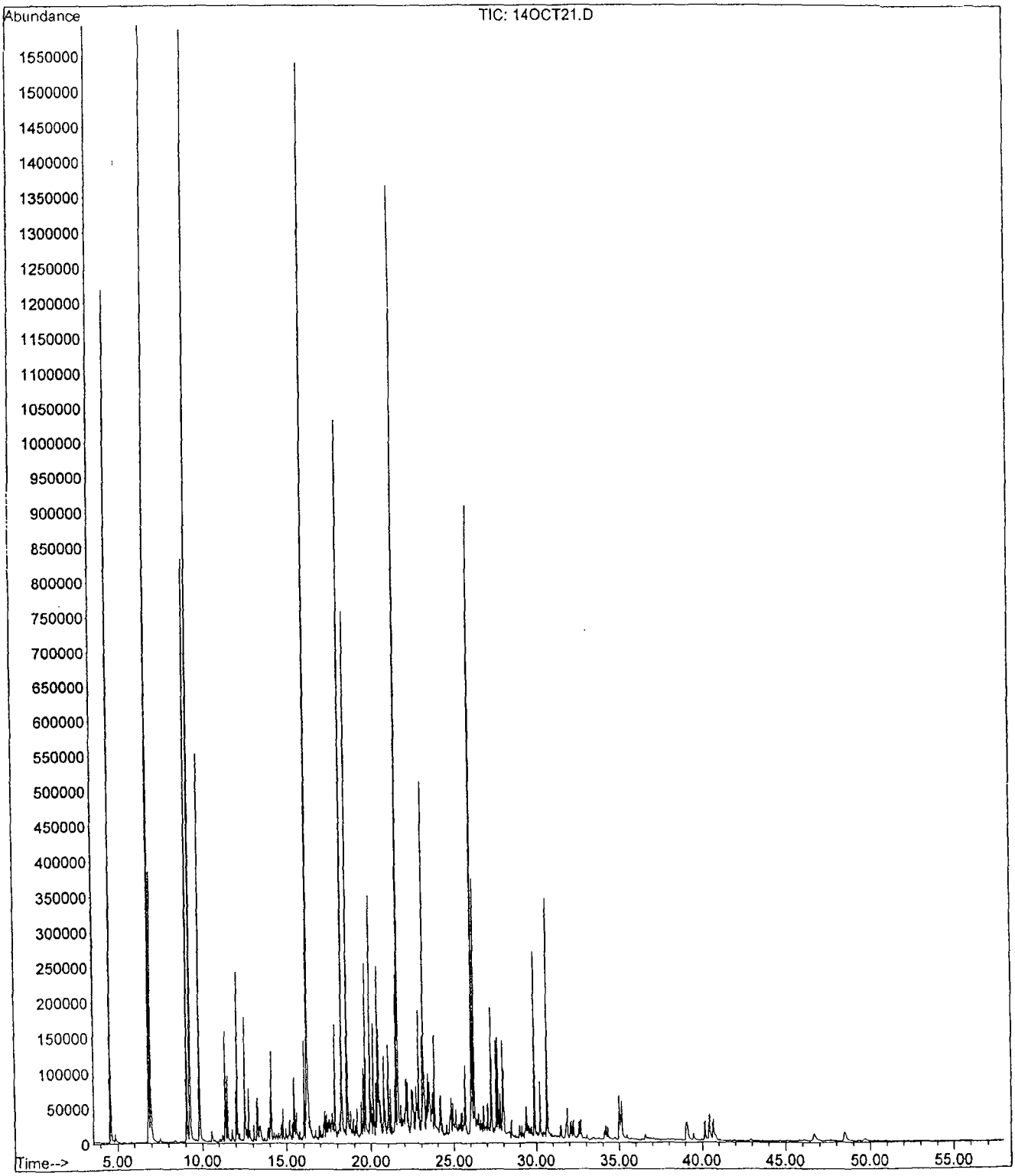

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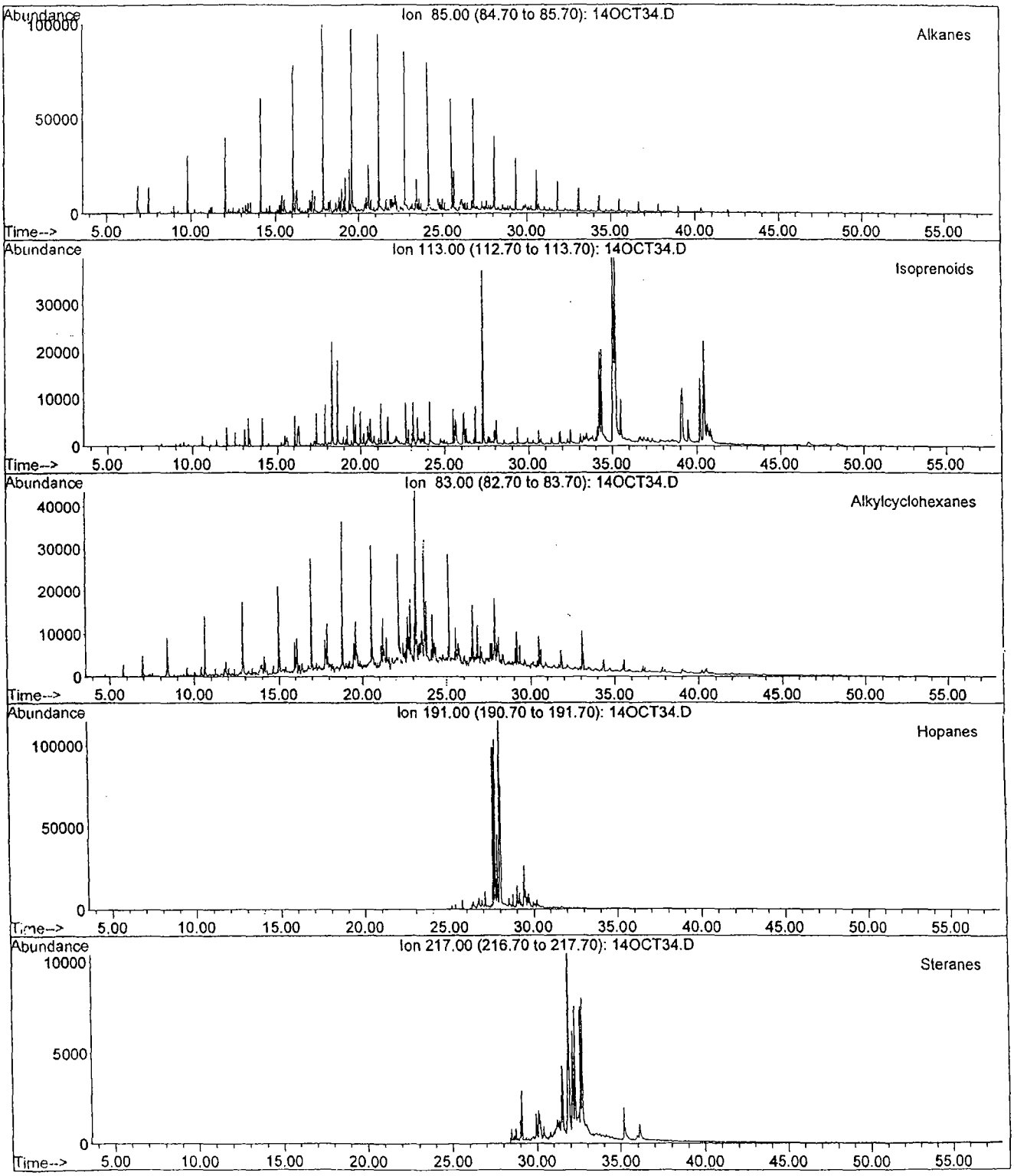
Instrument: GC/MS Ins Operator: ECC



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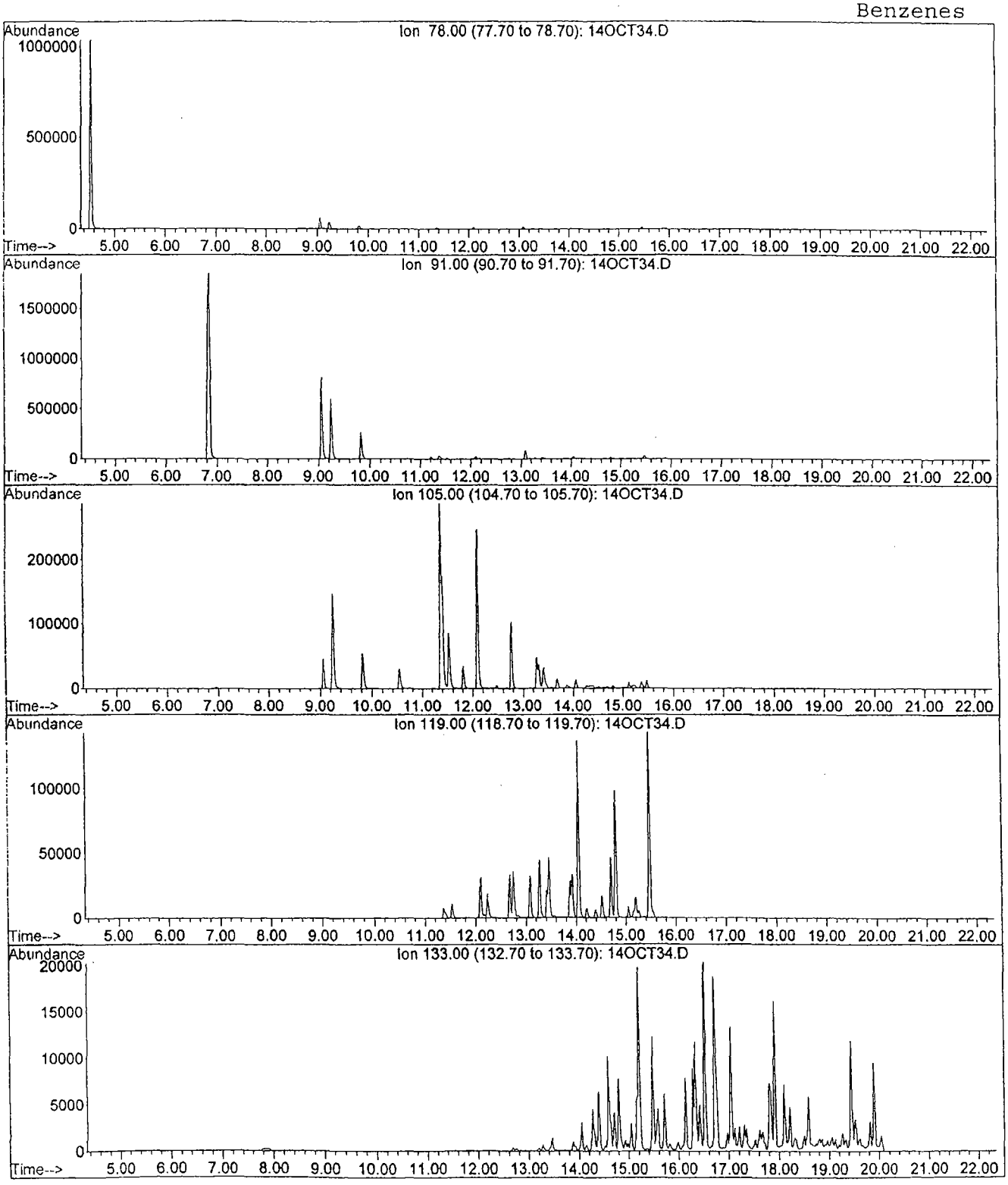
Instrument: GC/MS Ins Operator: ECC

Benzenes



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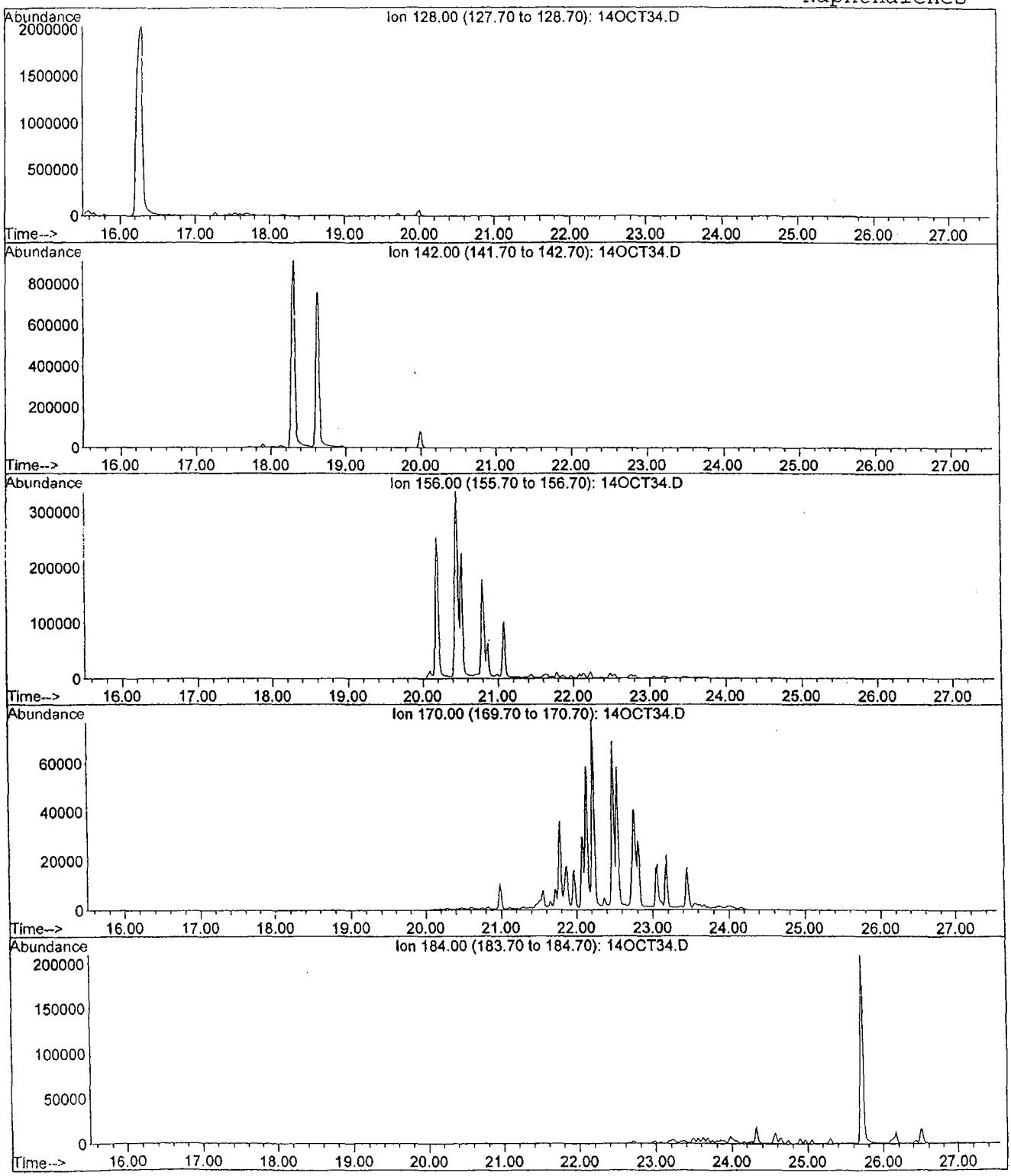
Naphthalenes



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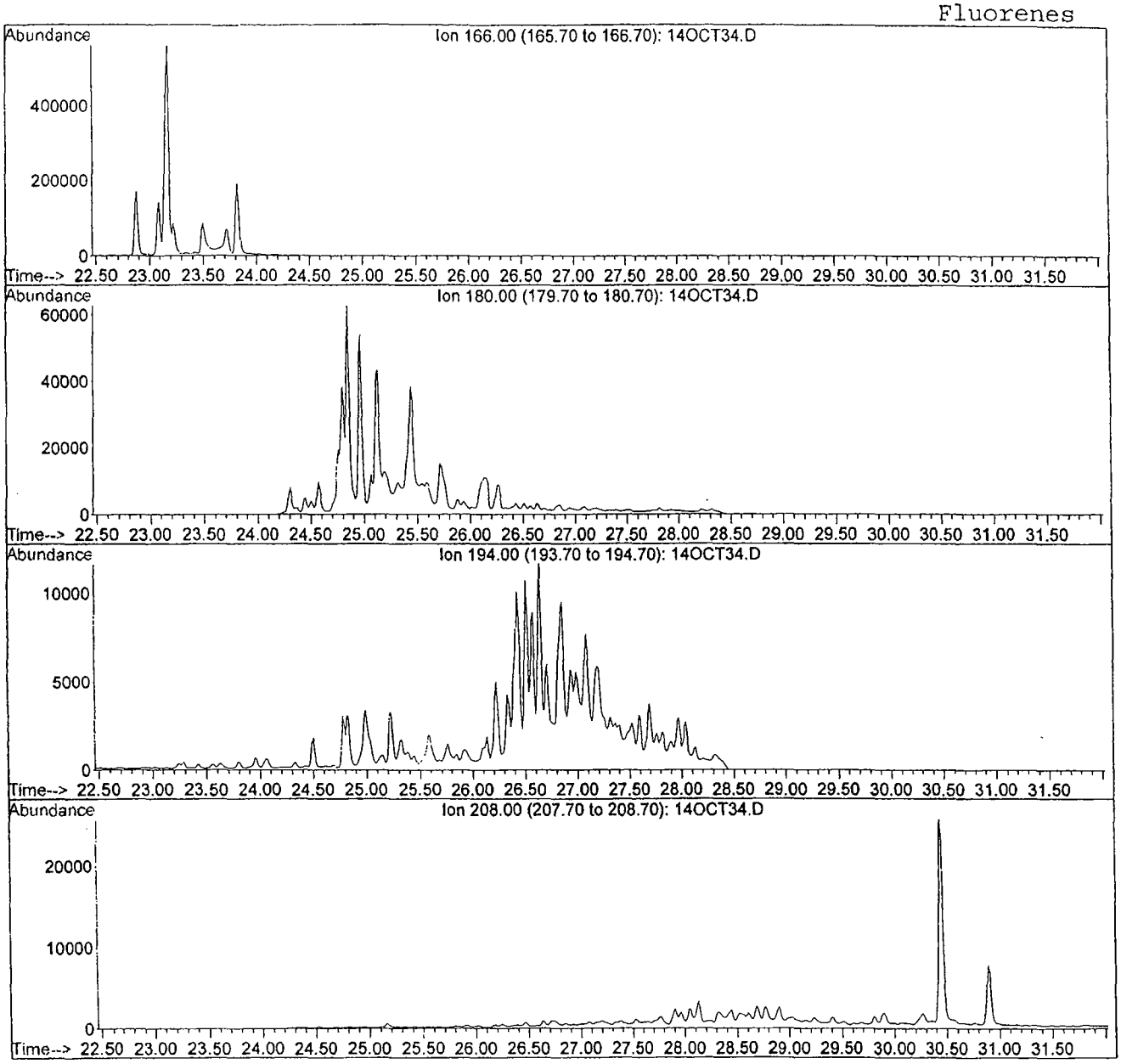
Fluorenes



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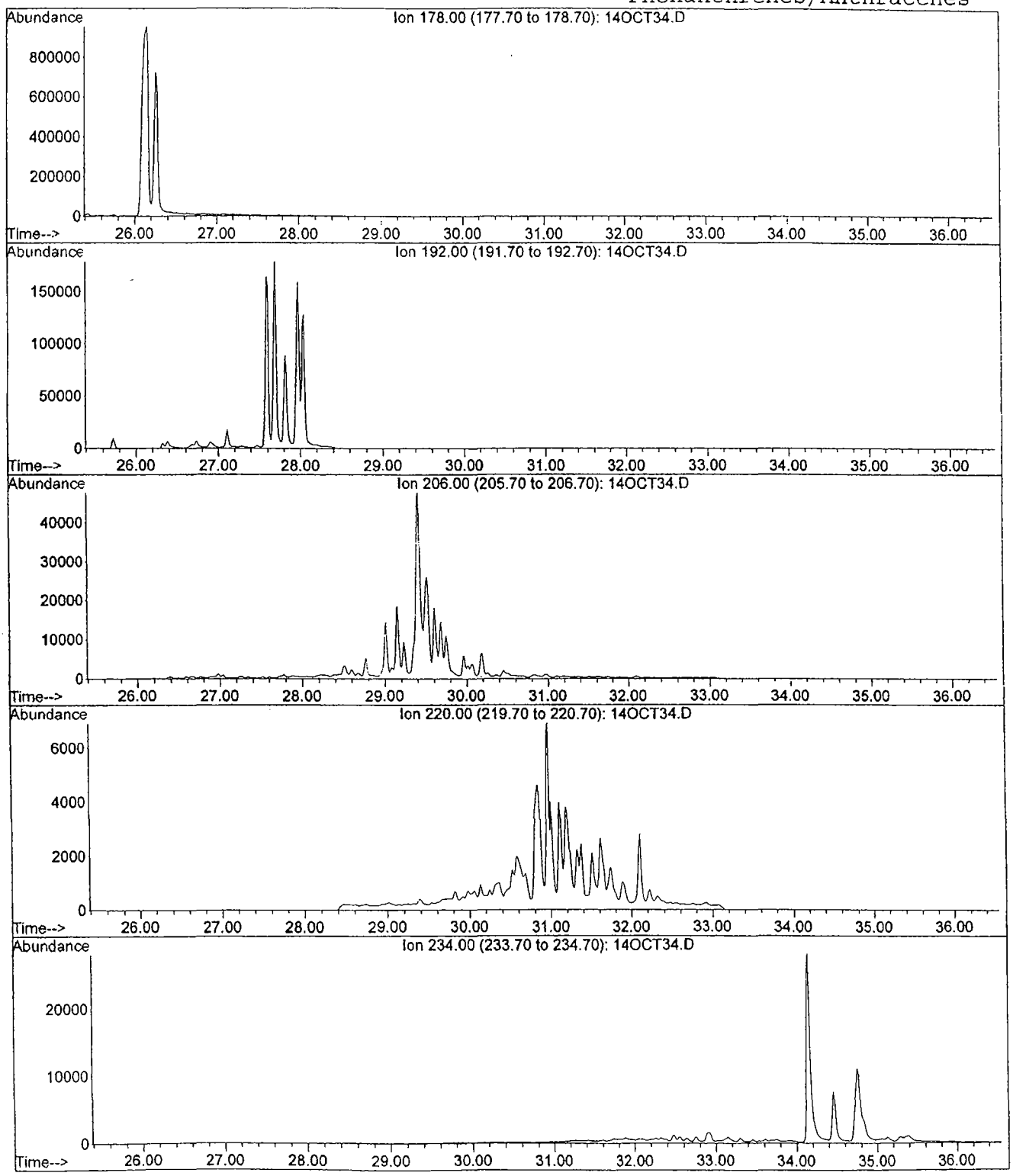
Instrument: GC/MS Ins Operator: ECC

Phenanthrenes/Anthracenes



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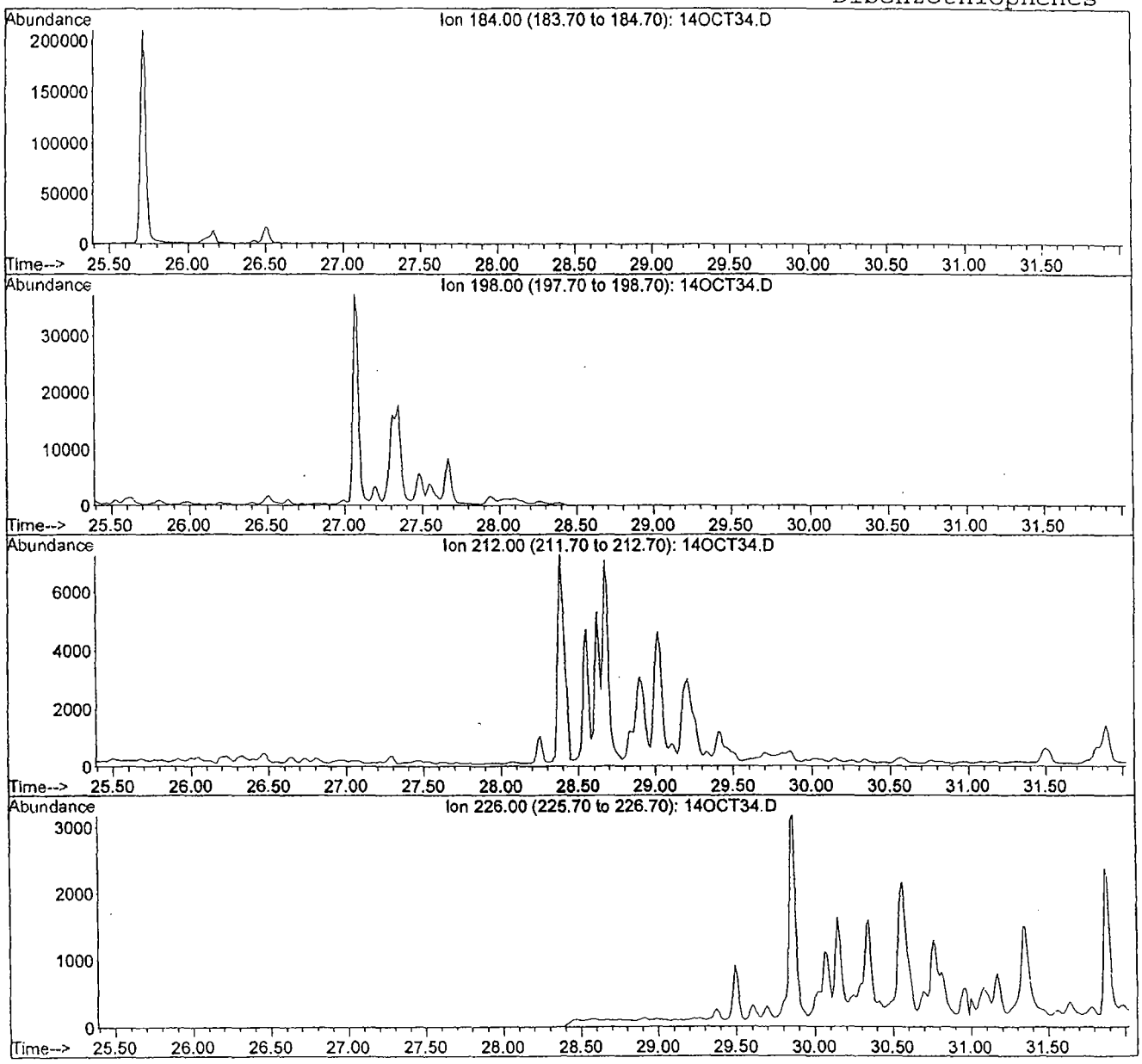
Instrument: GC/MS Ins Operator: ECC

Dibenzothiophenes



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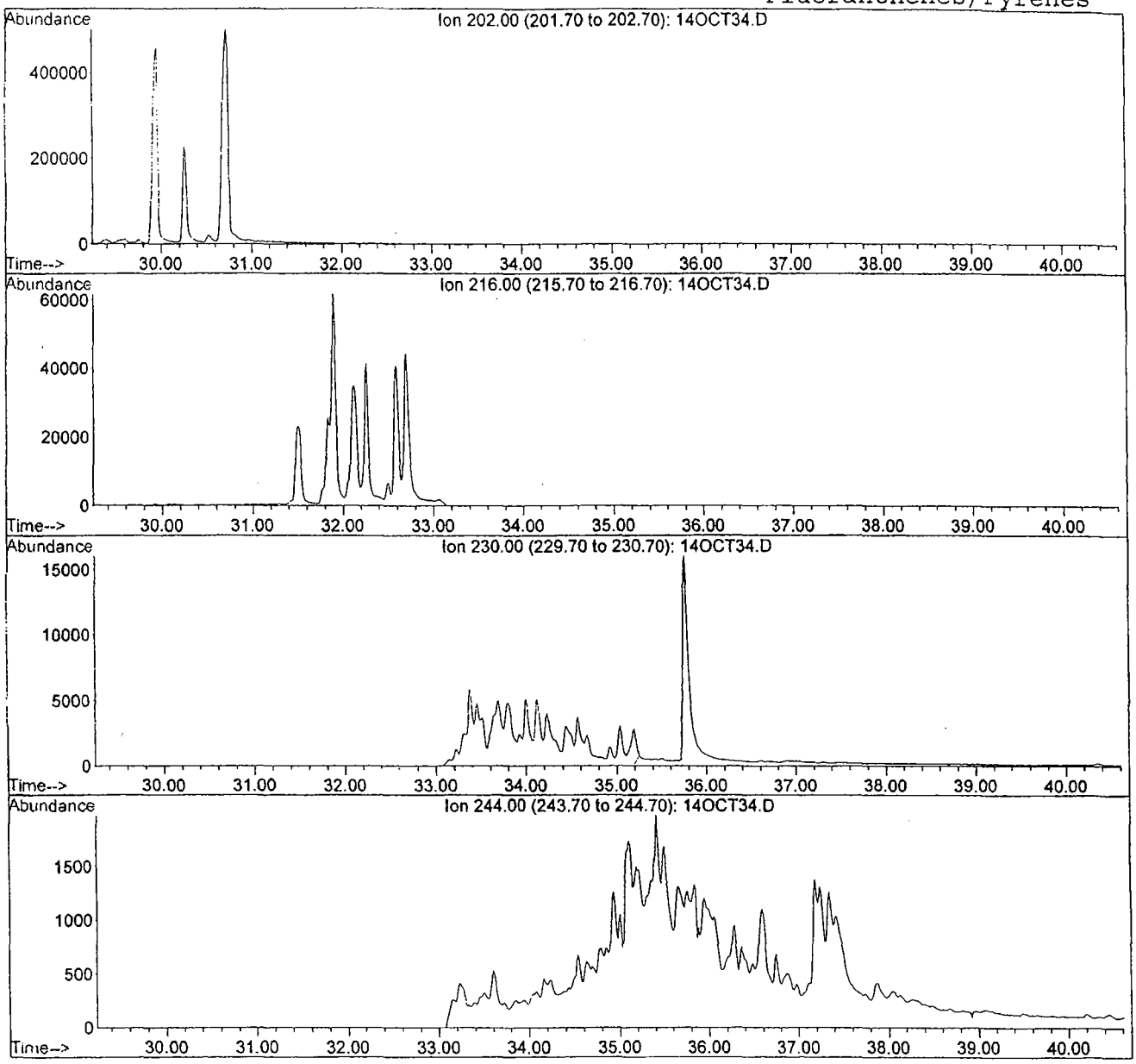
Instrument: GC/MS Ins Operator: ECC

Fluoranthenes/Pyrenes



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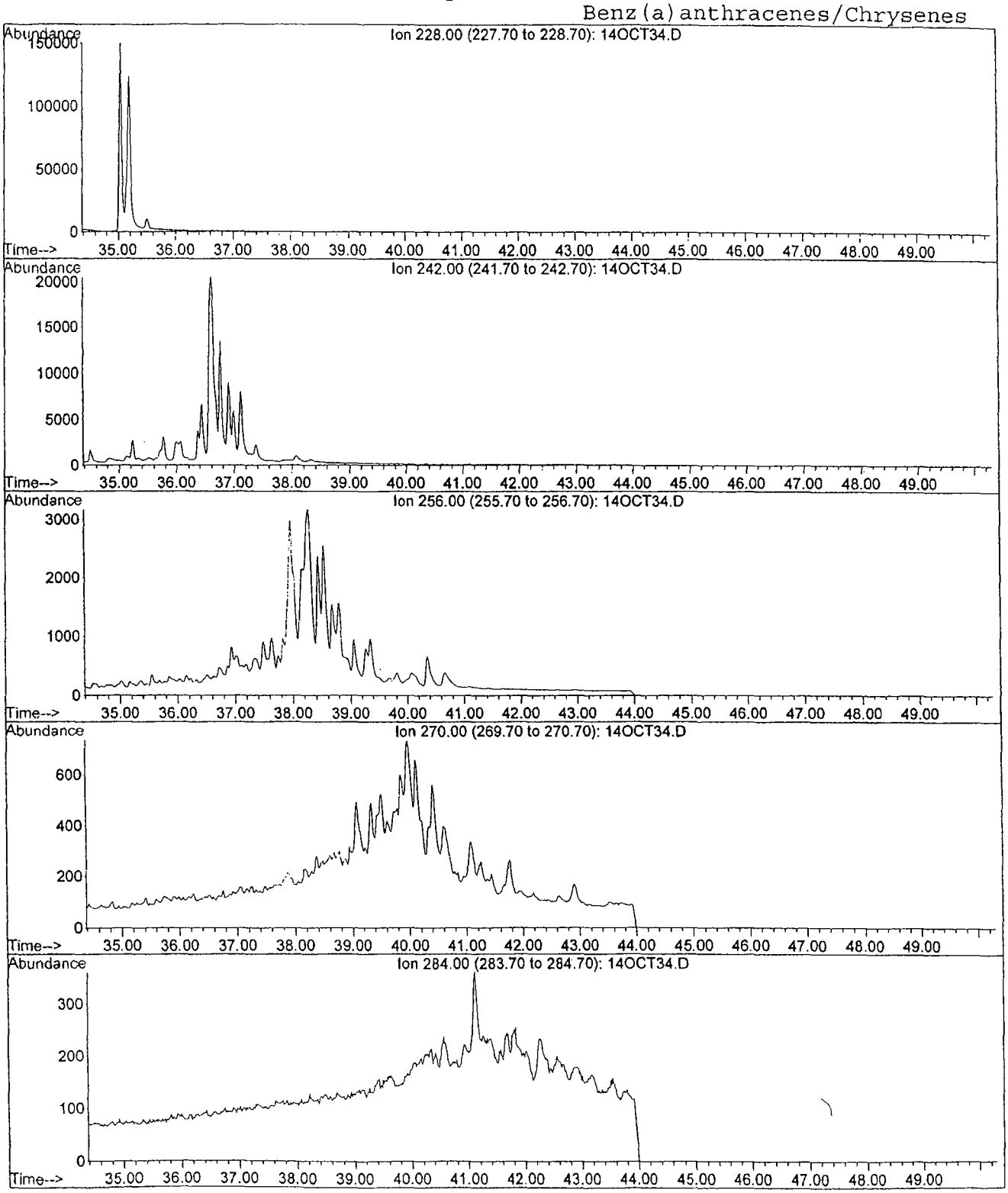
Instrument: GC/MS Ins Operator: ECC

Benz(a)anthracenes/Chrysenes



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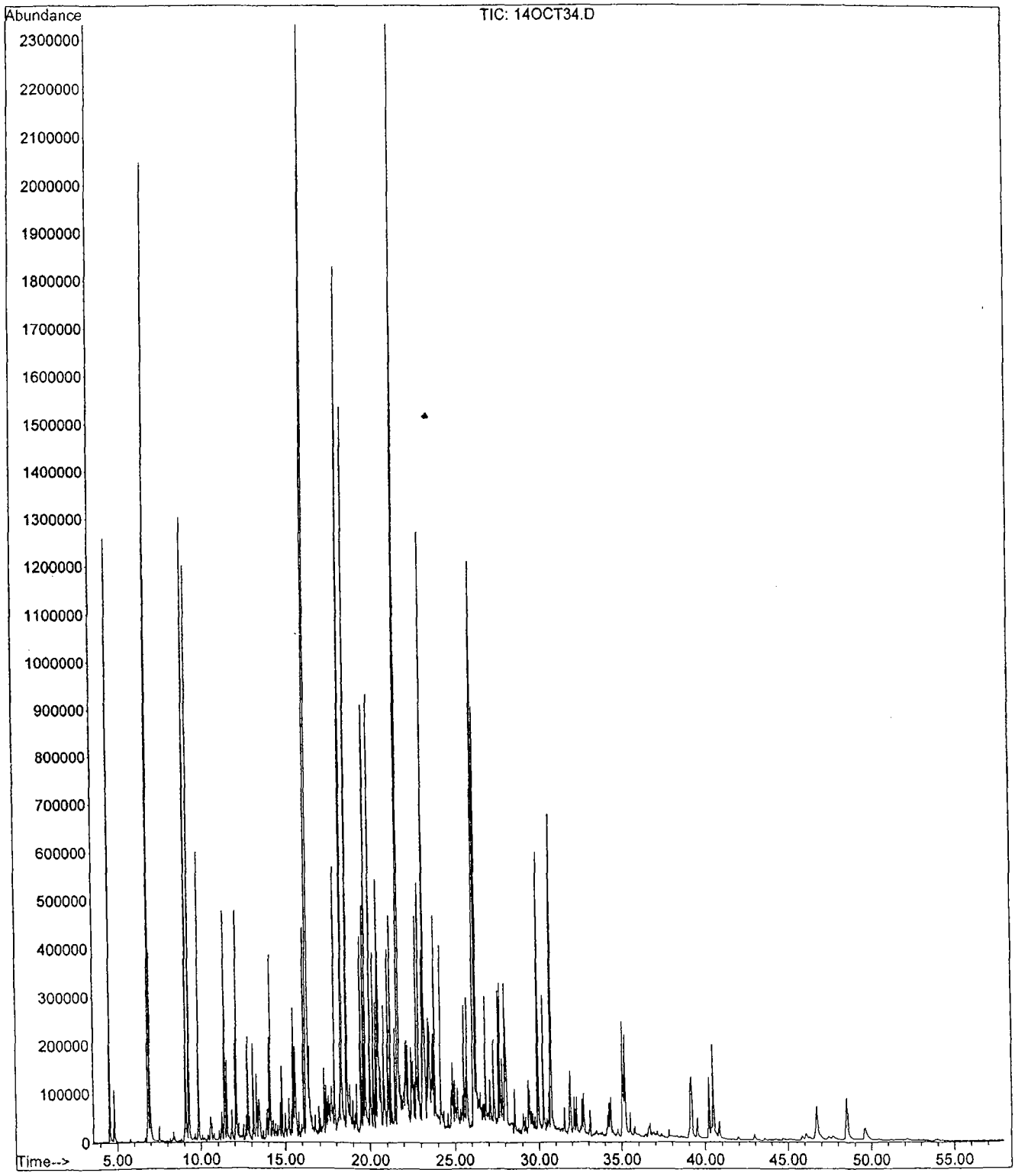
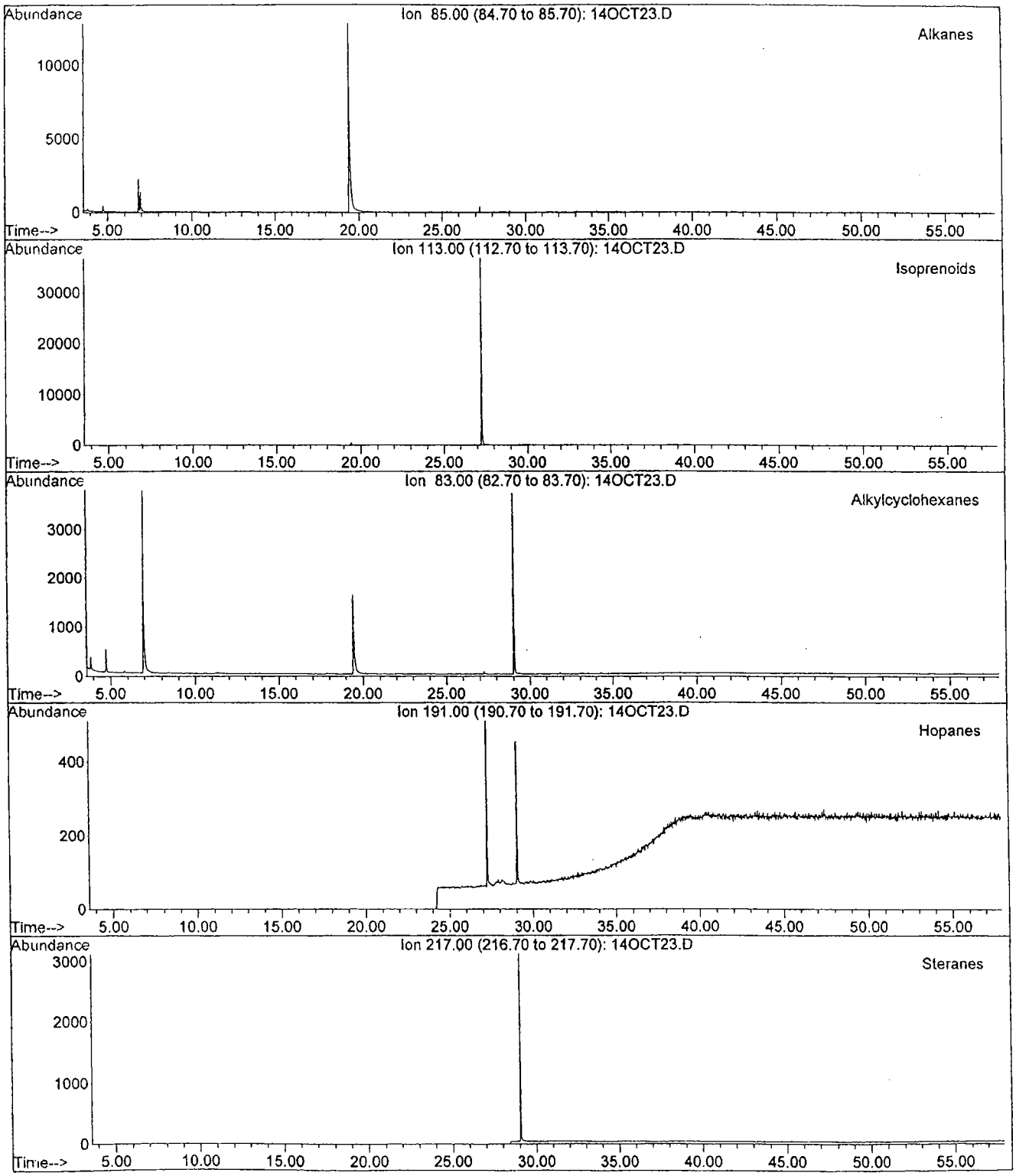


Field ID: B23-6-8
Lab ID: GT020924-06
File: G:\1\DATA\021014\14OCT23.D
Acquired: 15 Oct 2002 1:13 pm using AcqMethod SIM4008Z
Instrument: GC/MS Ins Operator: ECC



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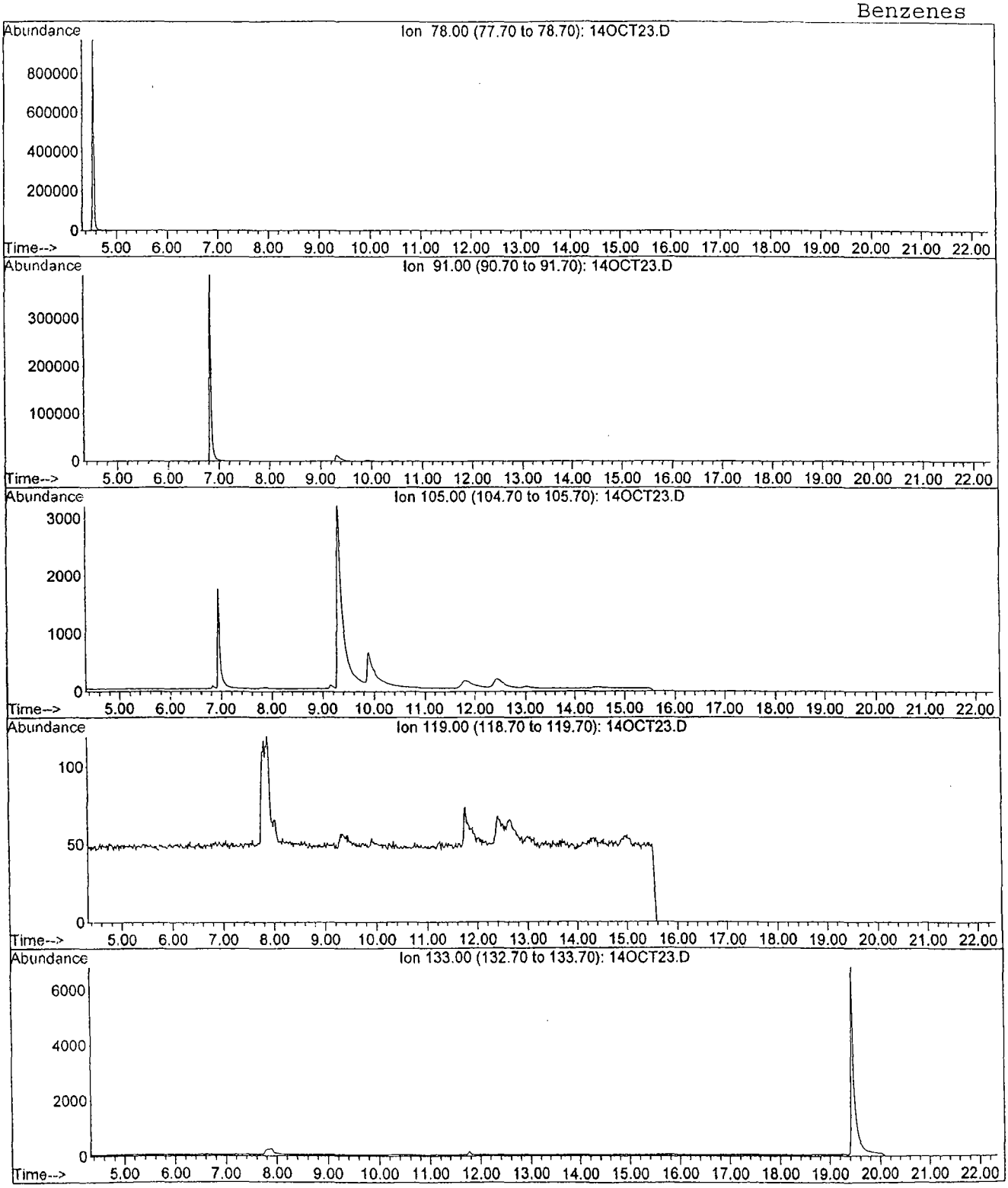
Instrument: GC/MS Ins Operator: ECC

Benzenes



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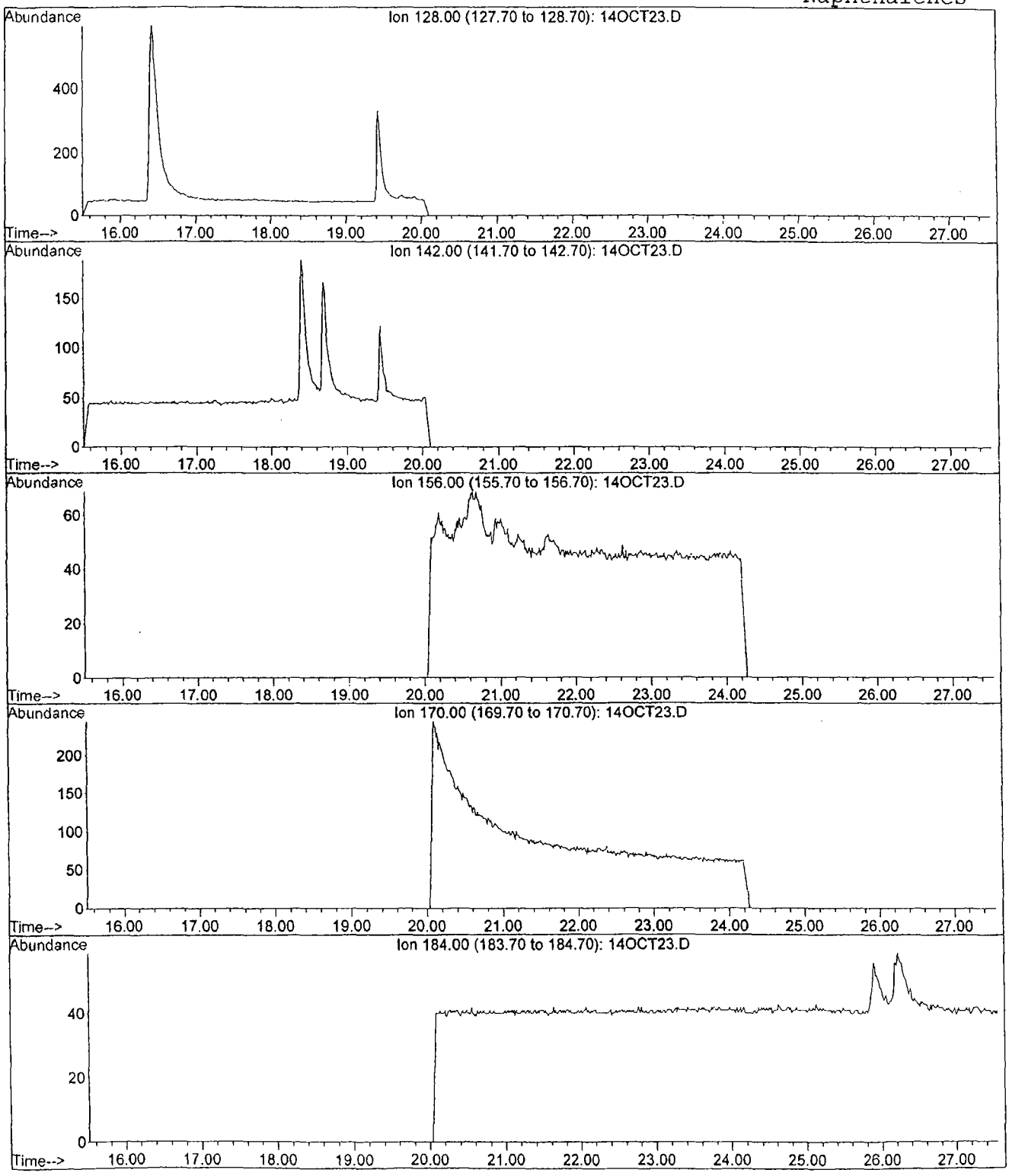
Instrument: GC/MS Ins Operator: ECC

Naphthalenes



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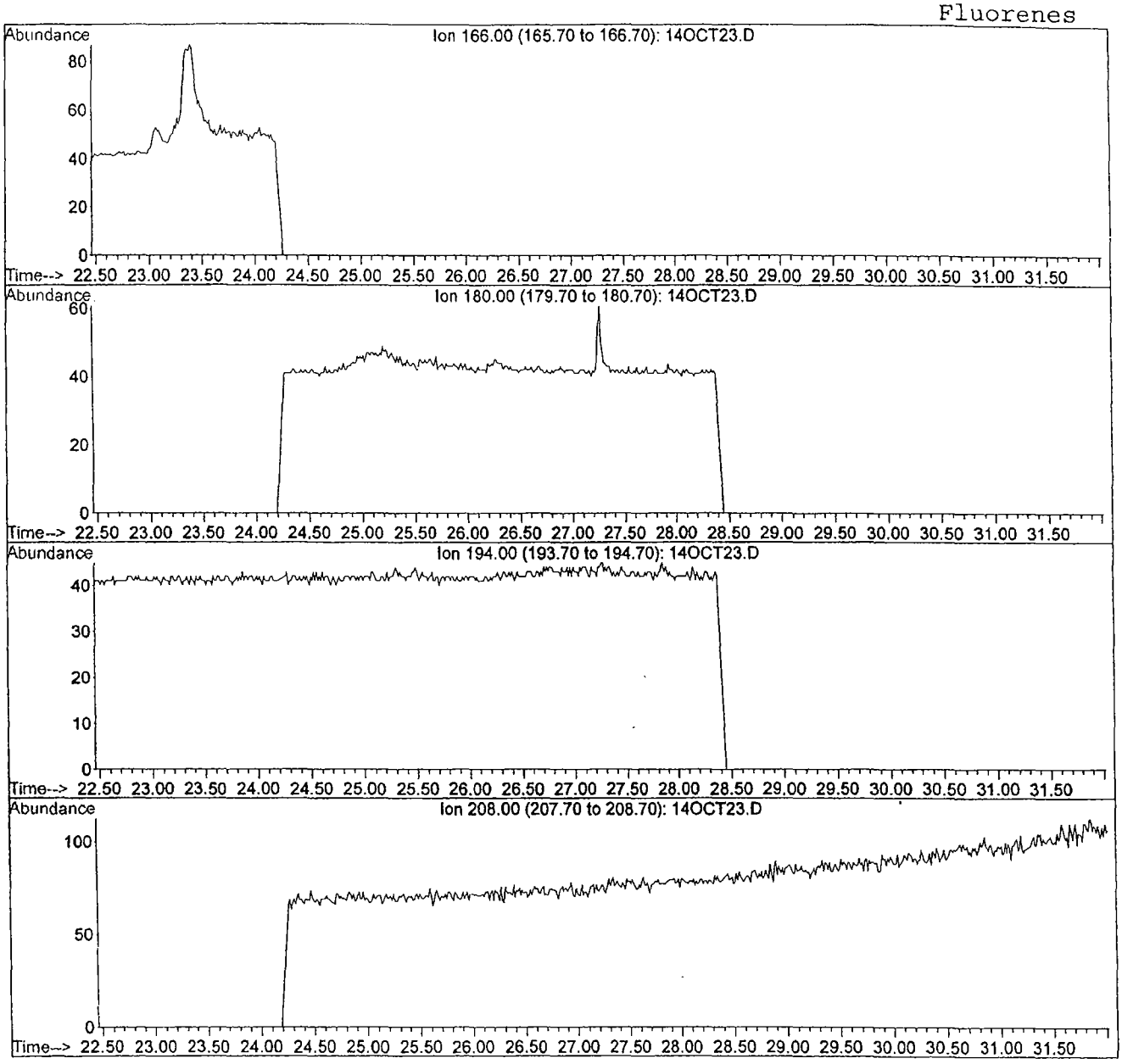
Instrument: GC/MS Ins Operator: ECC

Fluorenes



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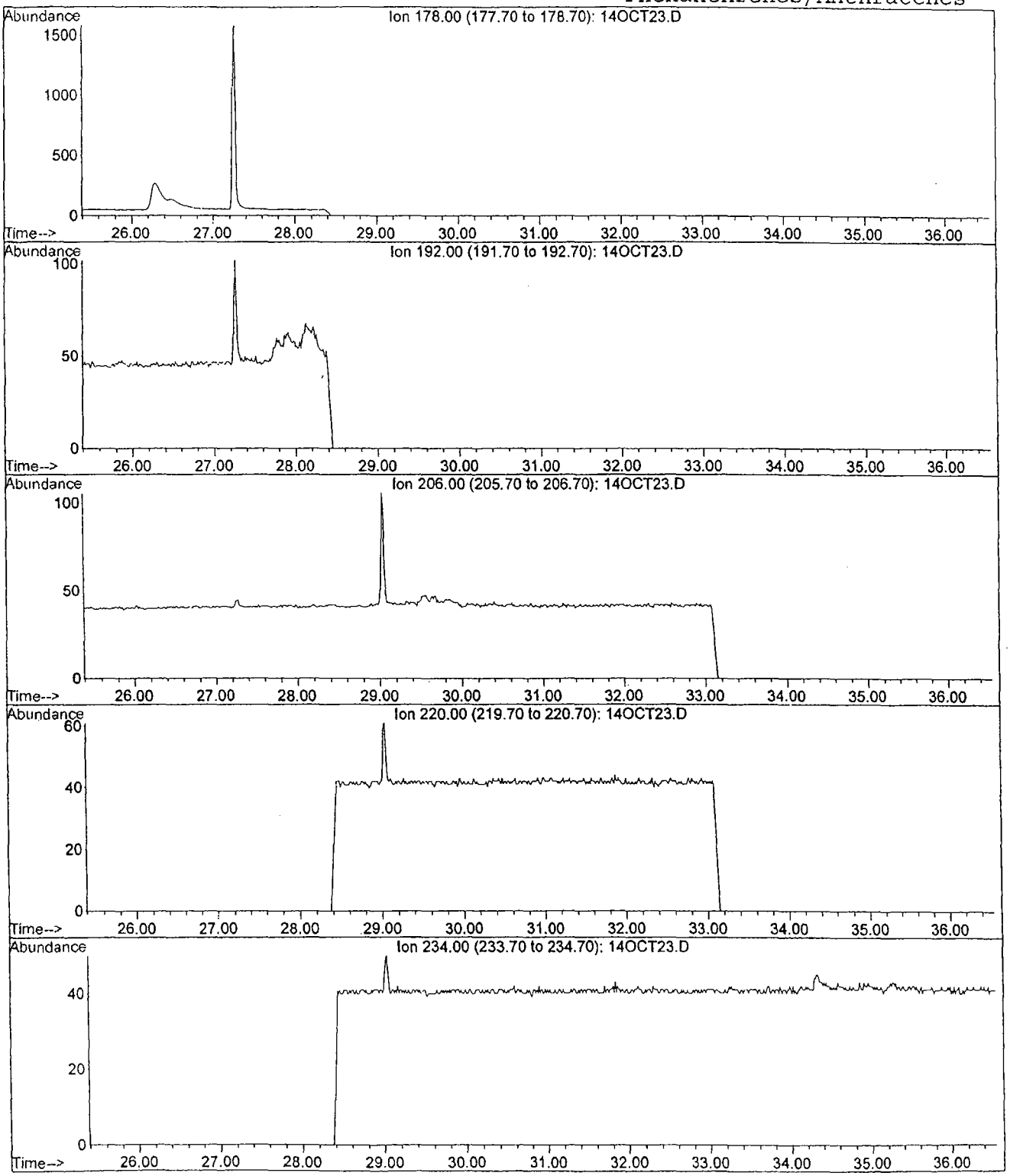
Acquired: 15 Oct 2002 1:13 pm using AcqMethod SIM4008Z
Instrument: GC/MS Ins Operator: ECC

Phenanthrenes/Anthracenes



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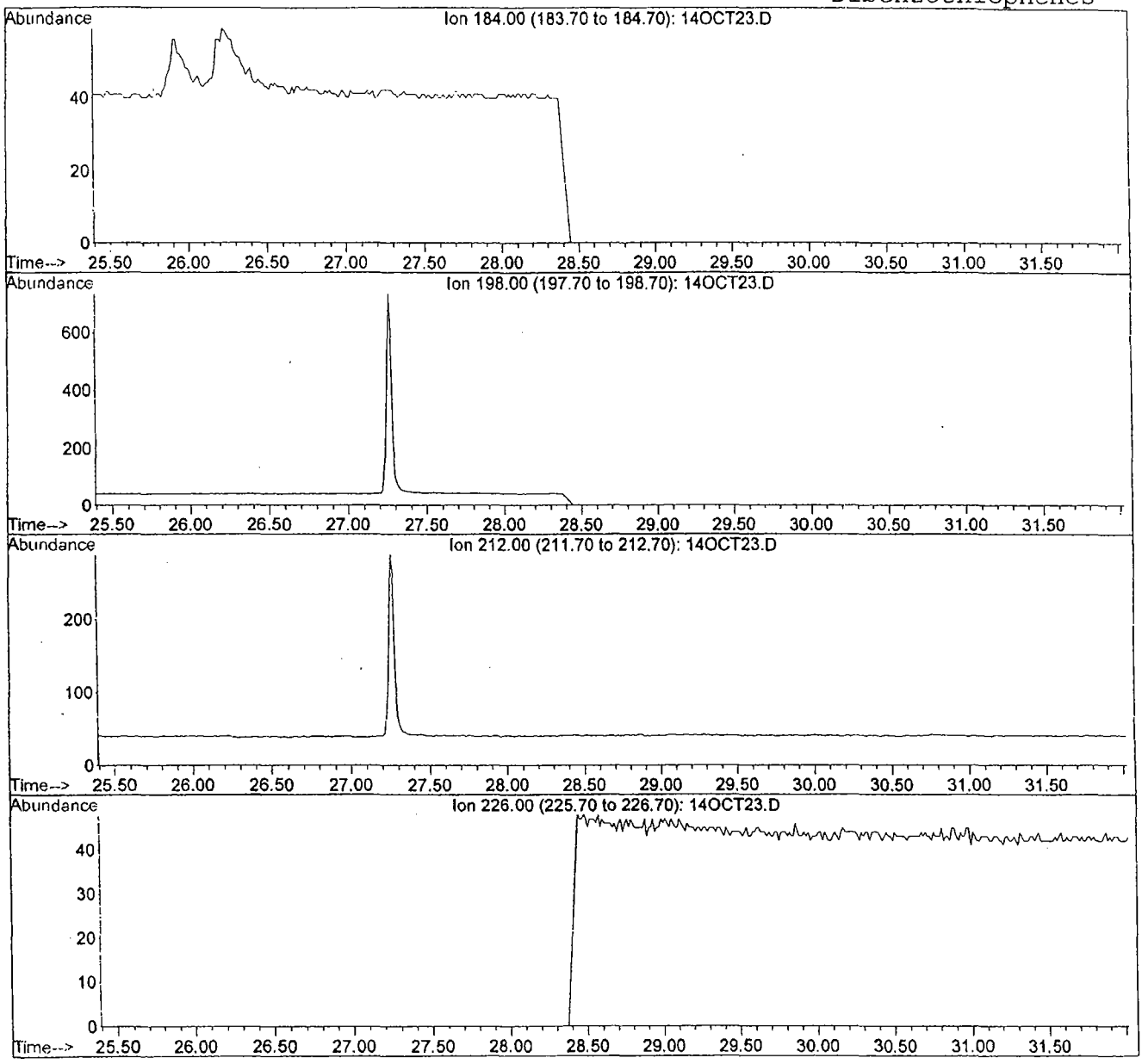
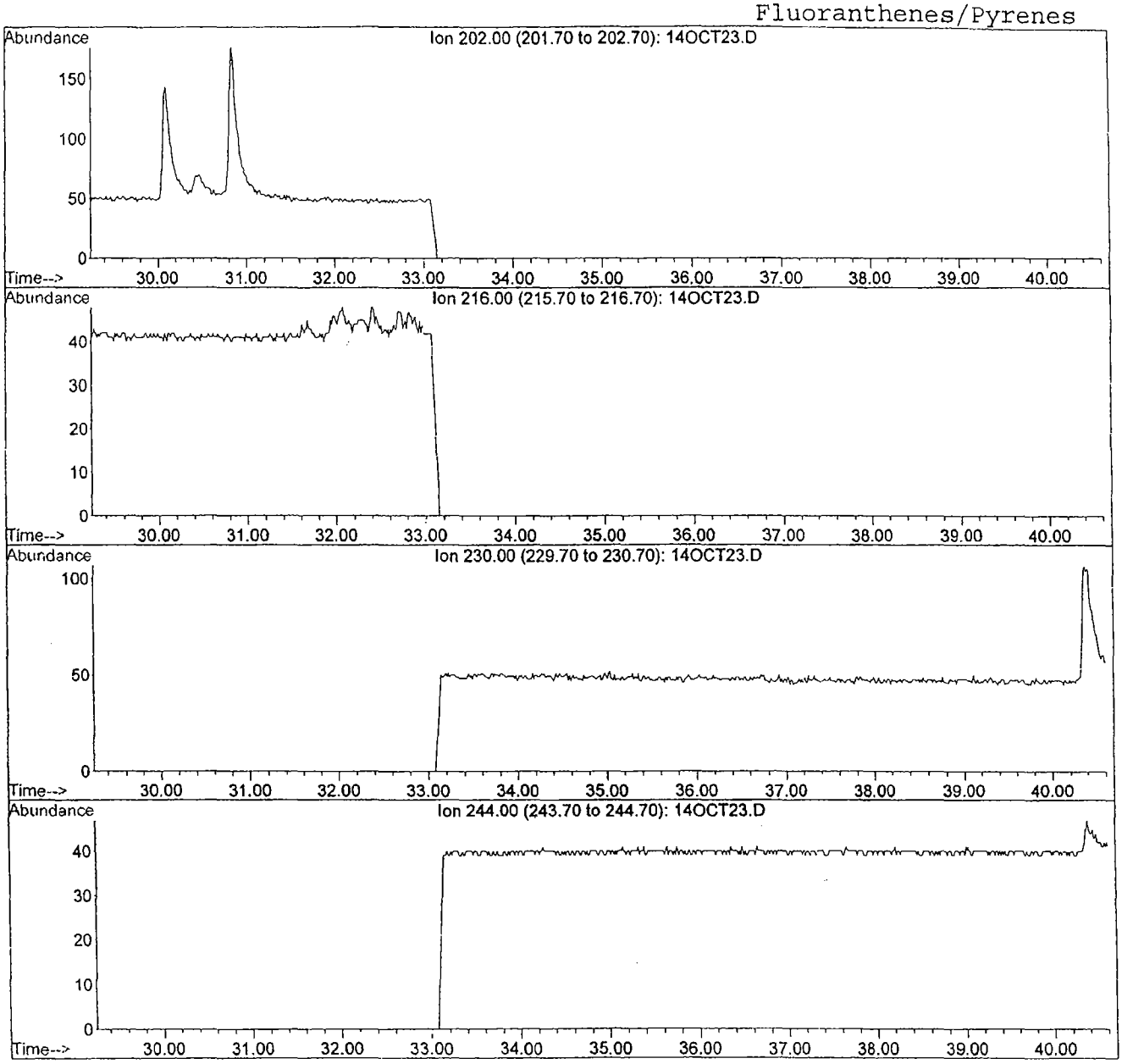
Instrument: GC/MS Ins Operator: ECC

Dibenzothiophenes



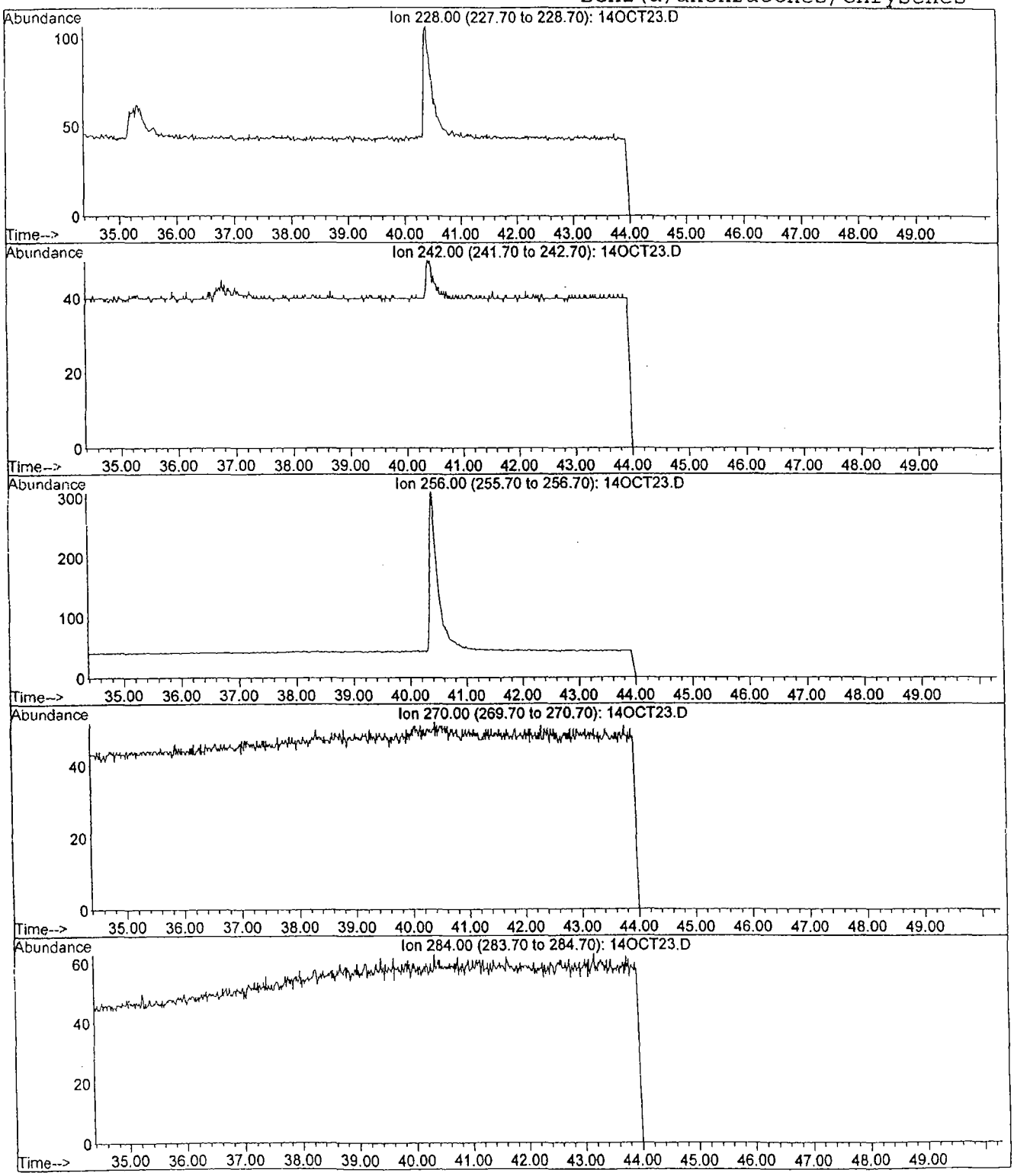
Field ID: B23-6-8
Lab ID: GT020924-06
File: G:\1\DATA\021014\14OCT23.D
Acquired: 15 Oct 2002 1:13 pm using AcqMethod SIM4008Z
Instrument: GC/MS Ins Operator: ECC

Fluoranthenes/Pyrenes



Field ID: B23-6-8
Lab ID: GT020924-06
File: G:\1\DATA\021014\14OCT23.D
Acquired: 15 Oct 2002 1:13 pm using AcqMethod SIM4008Z
Instrument: GC/MS Ins Operator: ECC

Benz(a)anthracenes/Chrysenes



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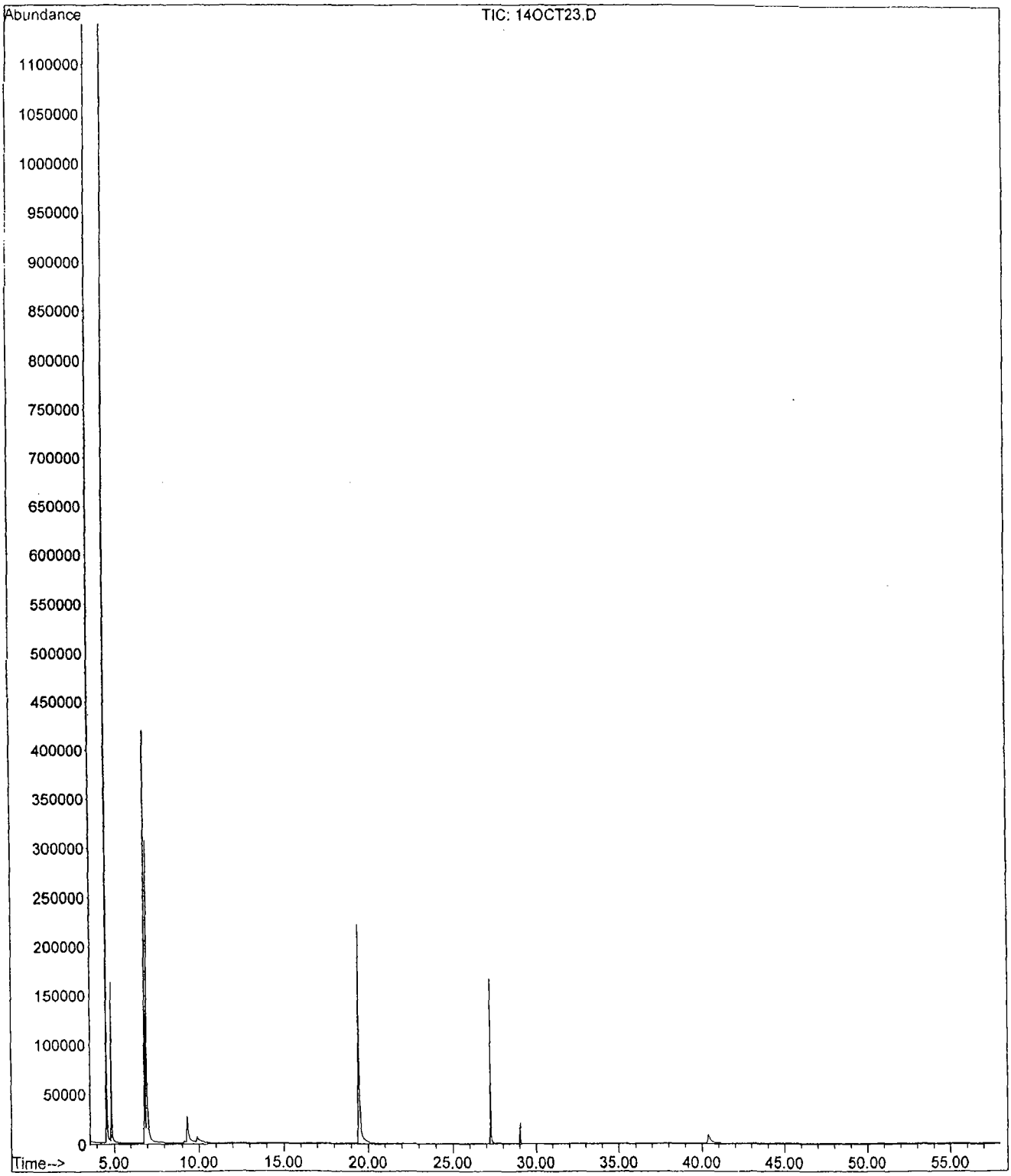

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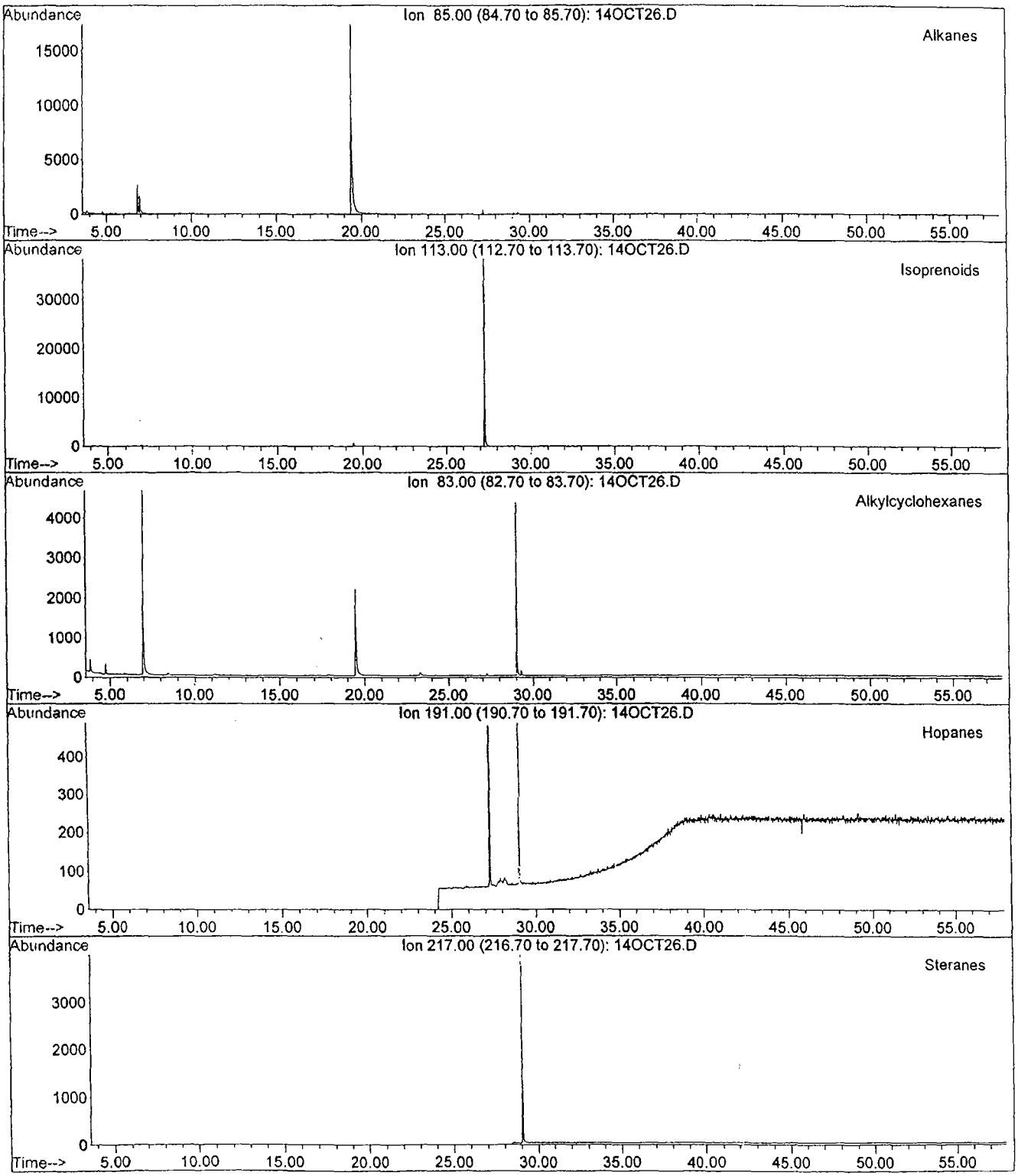
Lab ID: GT020924-07
File: G:\1\DATA\021014\14OCT26.D
Acquired: 15 Oct 2002 3:57 pm using AcqMethod SIM4008Z
Instrument: GC/MS Ins Operator: ECC



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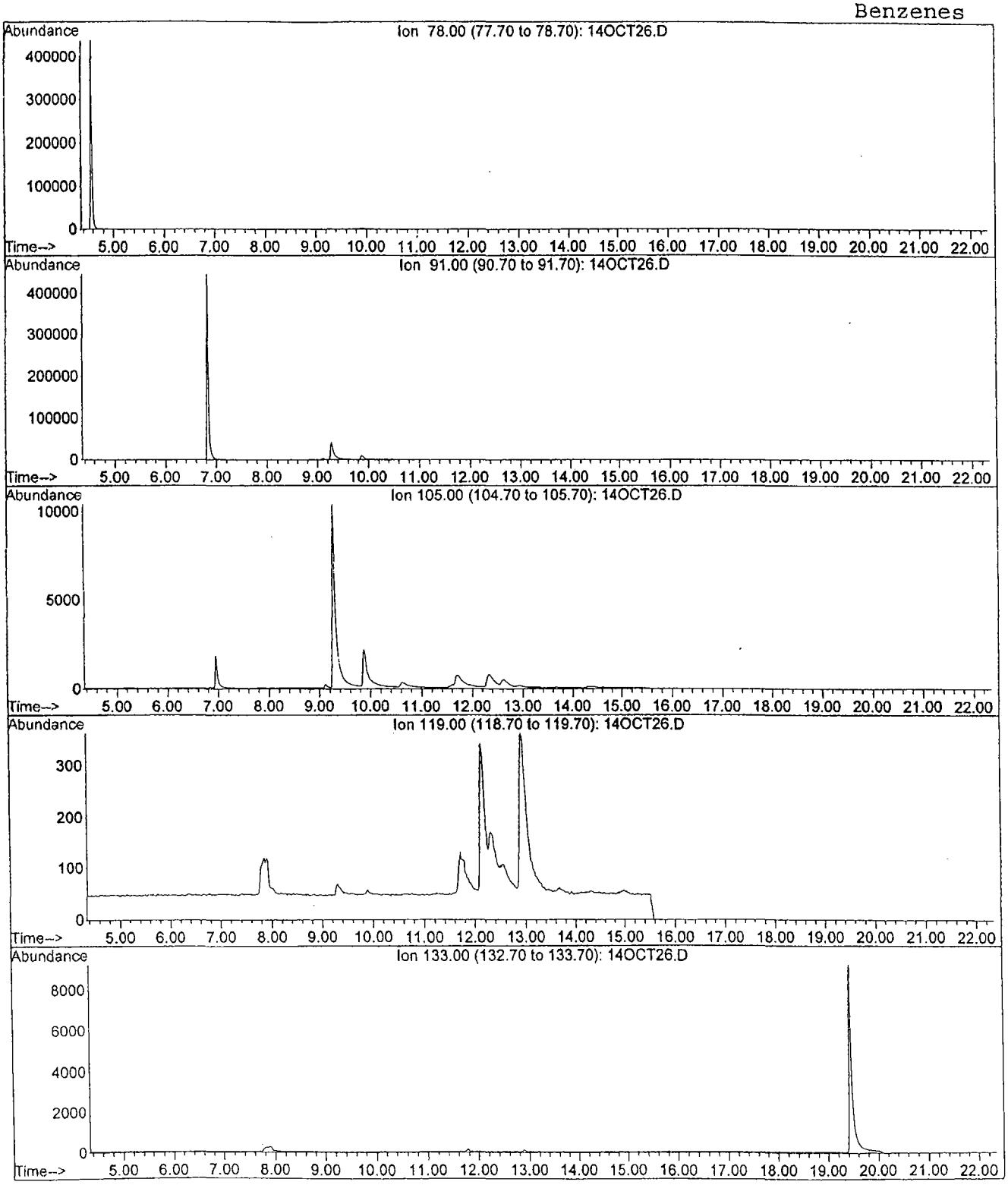
Instrument: GC/MS Ins Operator: ECC

Benzenes



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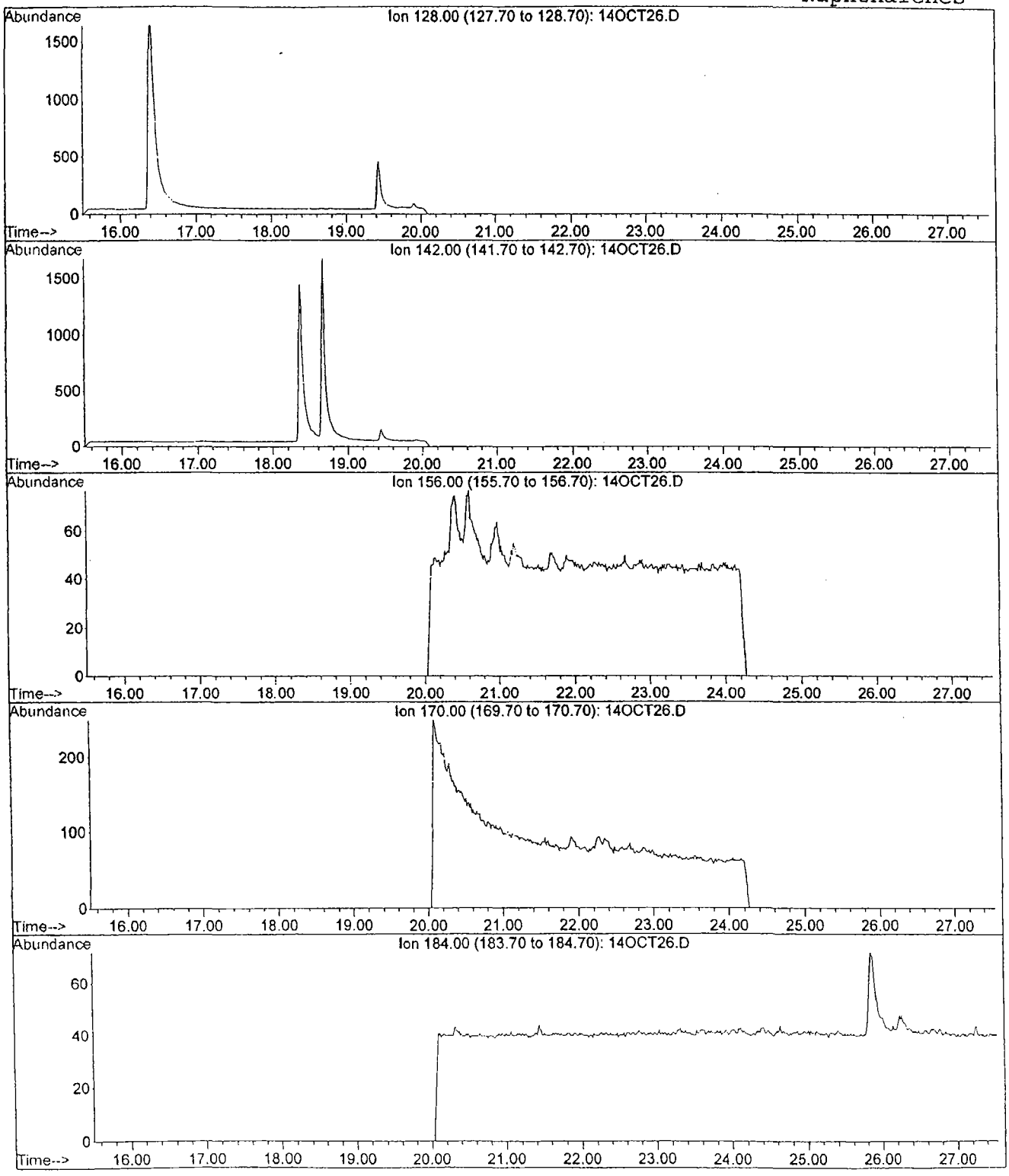
Instrument: GC/MS Ins Operator: ECC

Naphthalenes



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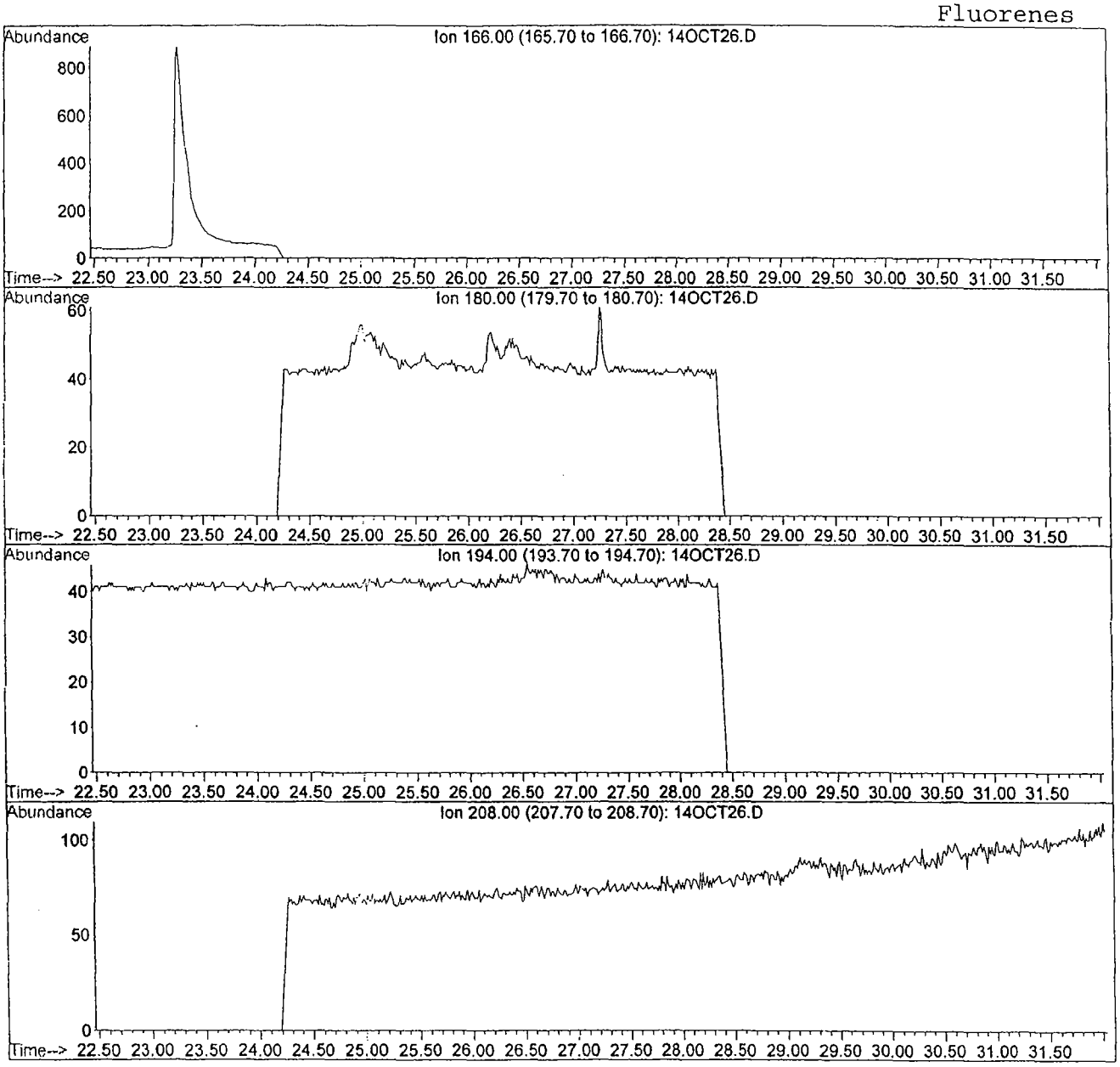
Instrument: GC/MS Ins Operator: ECC

Fluorenes



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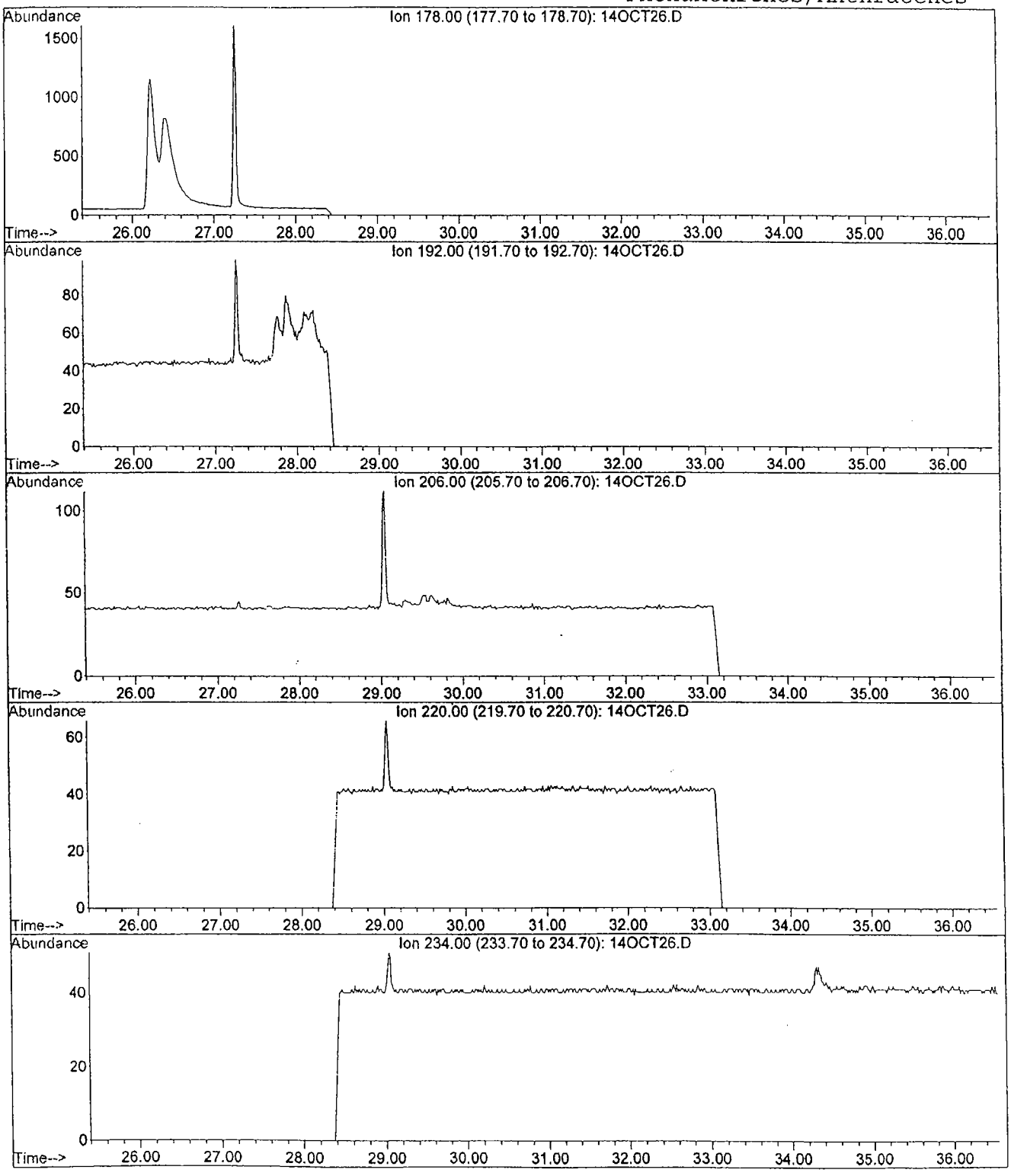
Instrument: GC/MS Ins Operator: ECC

Phenanthrenes/Anthracenes



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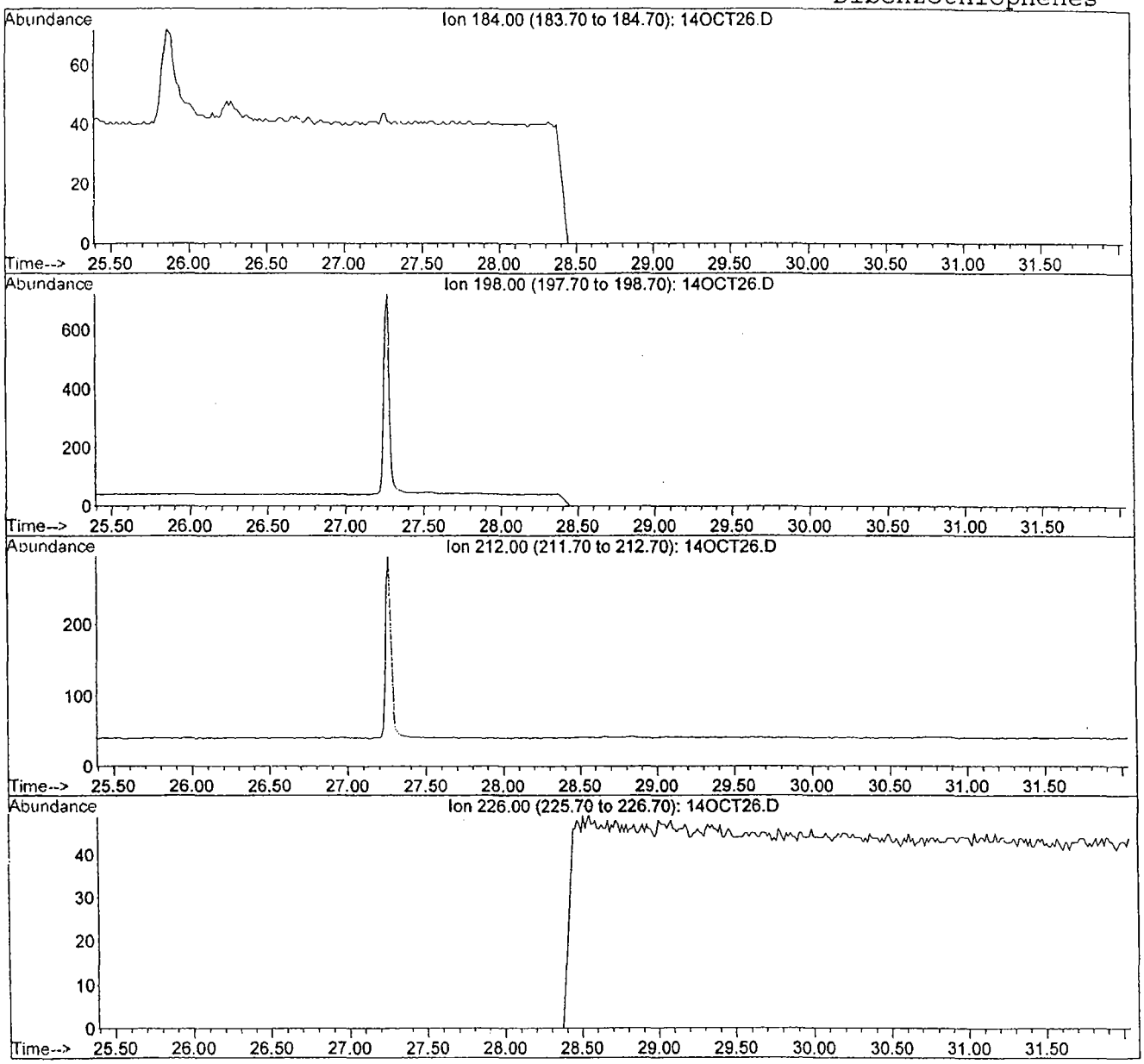
Instrument: GC/MS Ins Operator: ECC

Dibenzothiophenes



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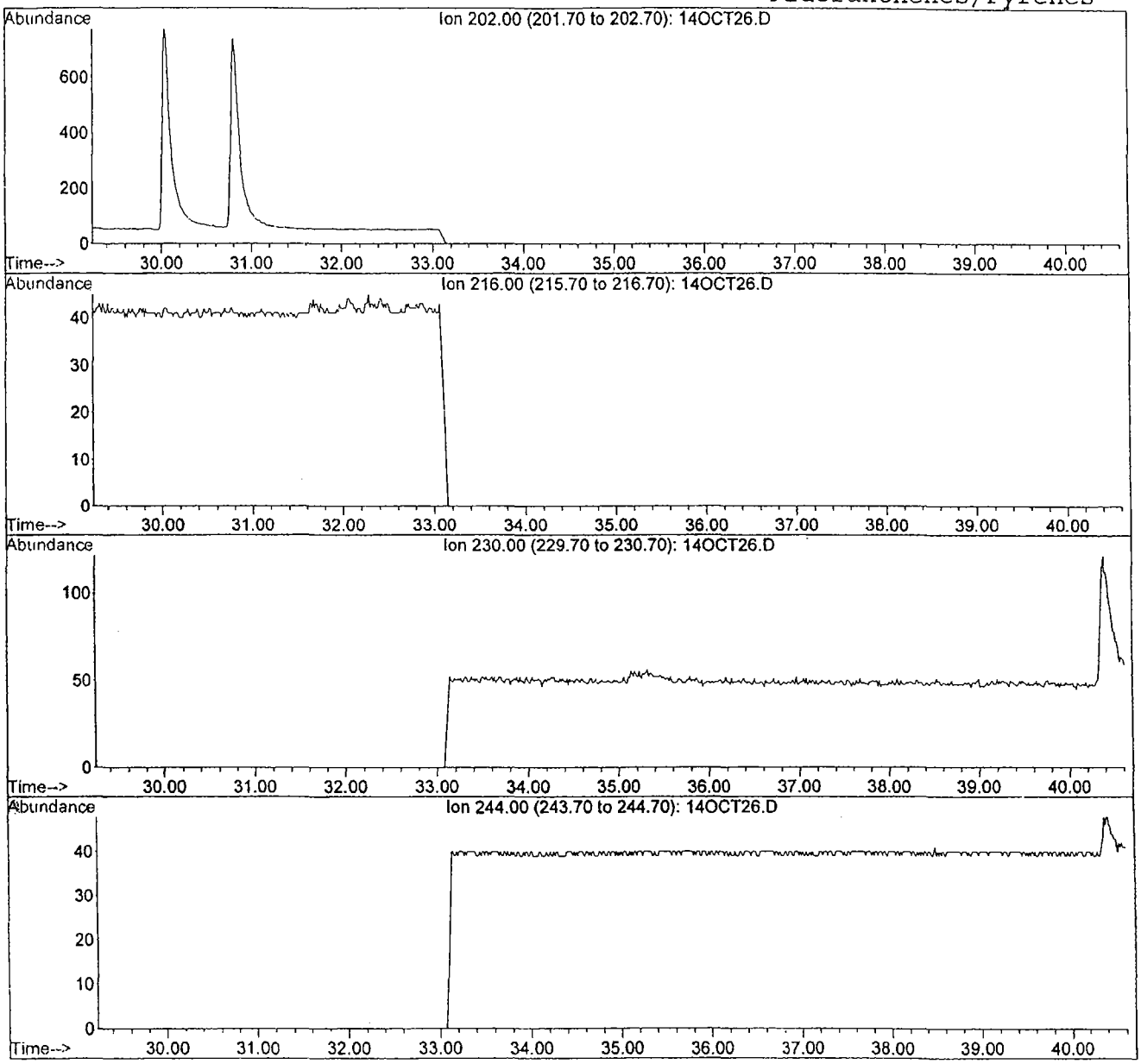
Fluoranthenes/Pyrenes



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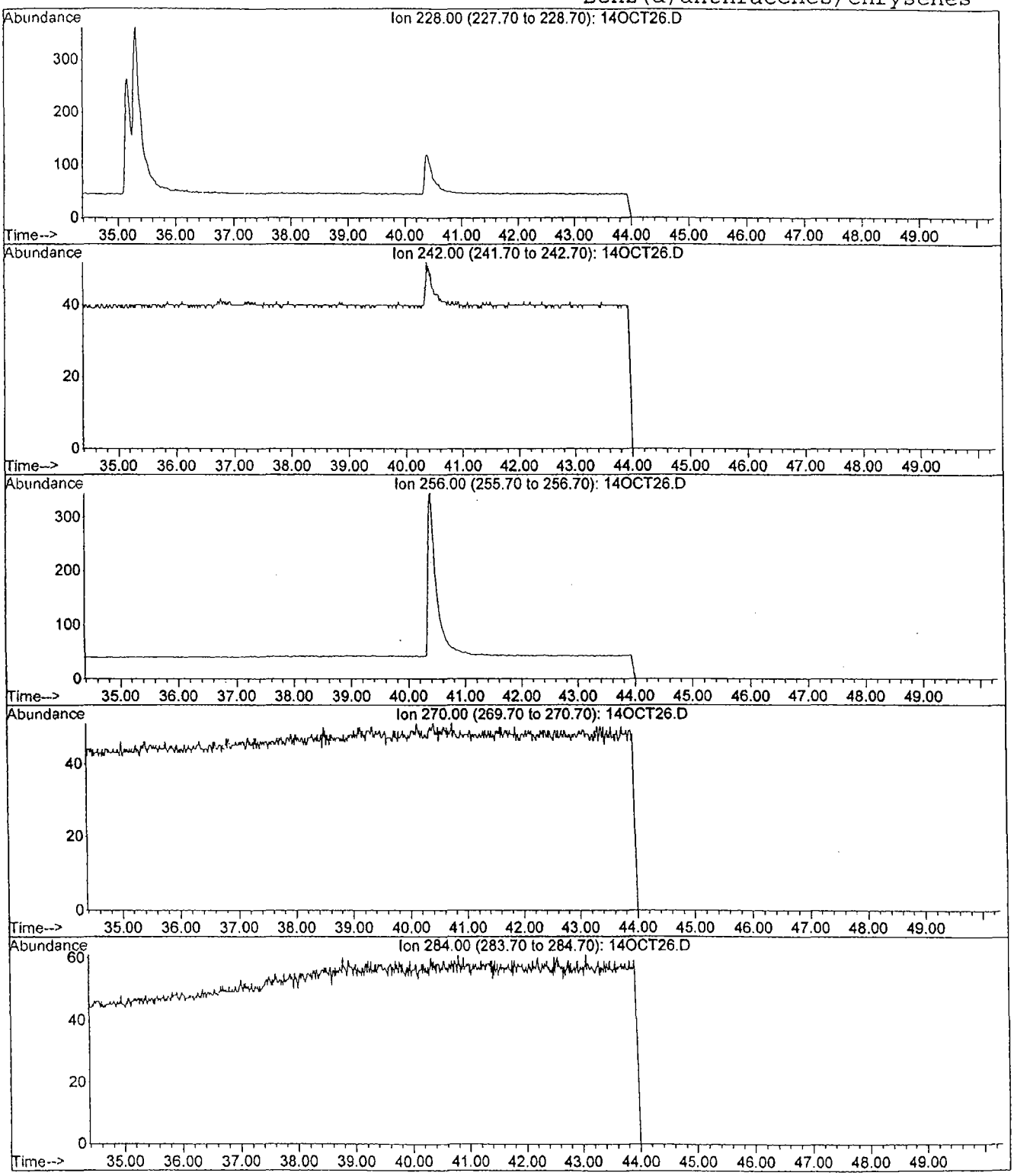
Benz(a)anthracenes/Chrysenes



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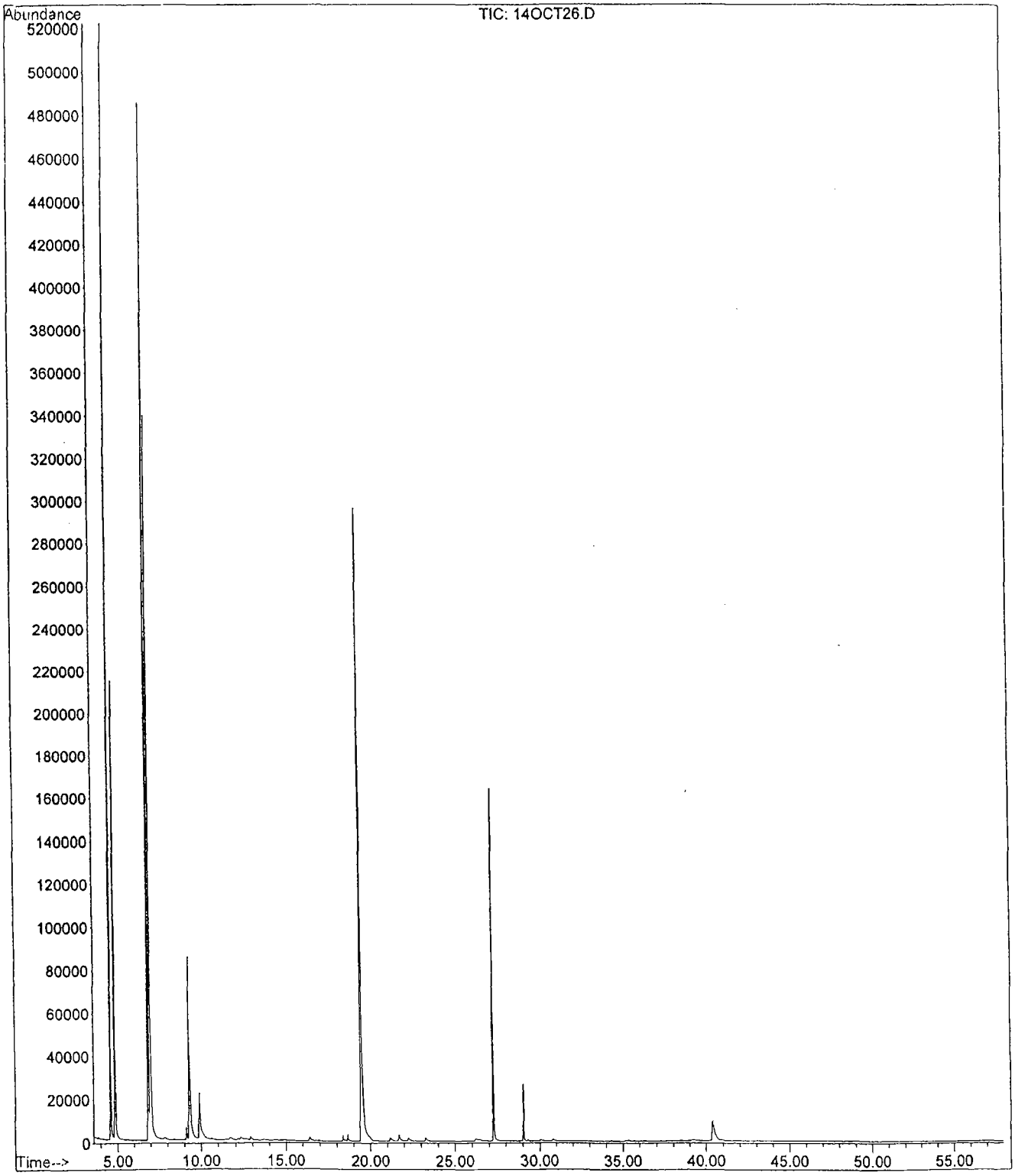

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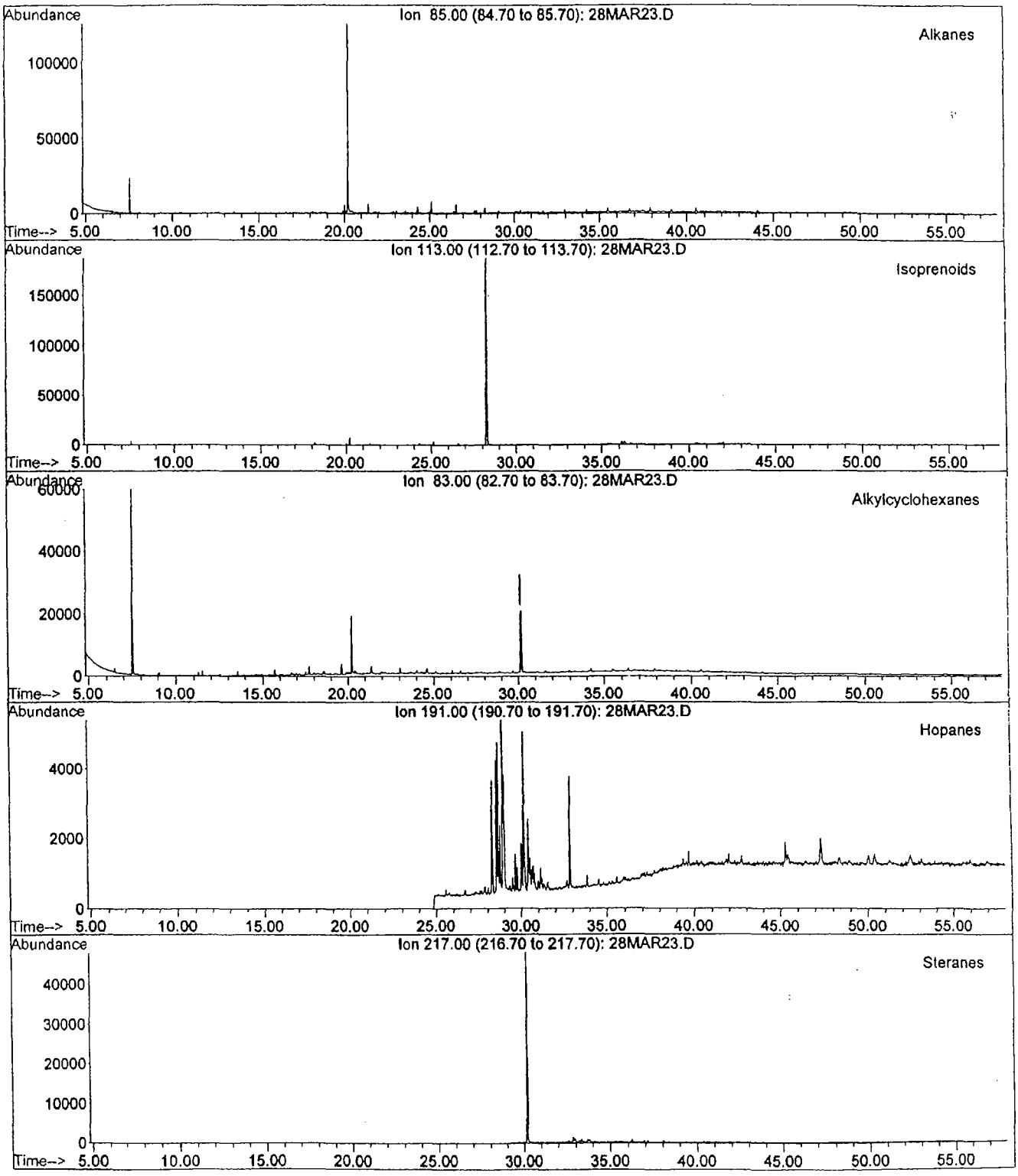
File: G:\2\DATA\030328\28MAR23.D
Acquired: 29 Mar 2003 4:33 pm using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP



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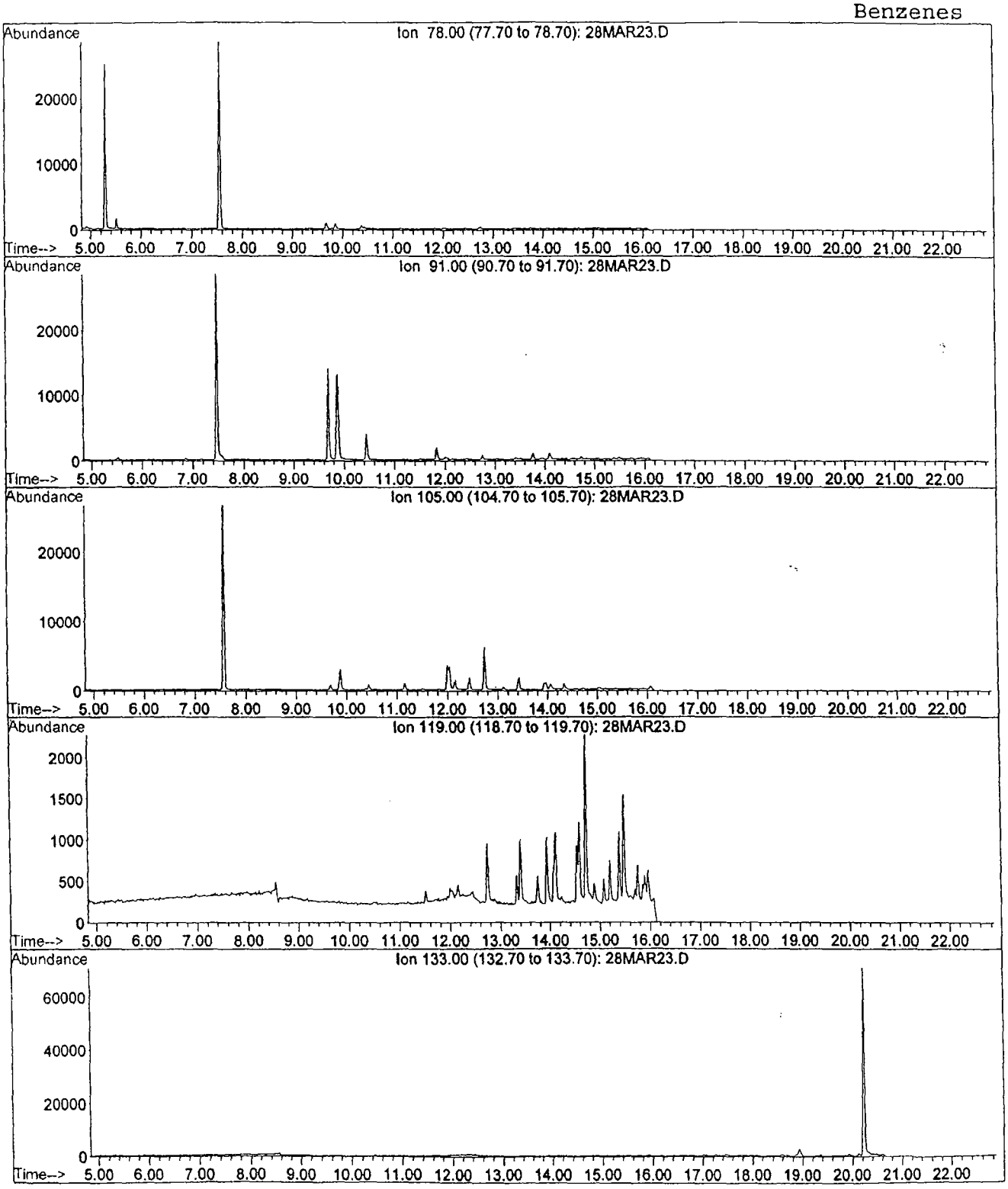
Instrument: GC2-MS_59 Operator: KP

Benzenes



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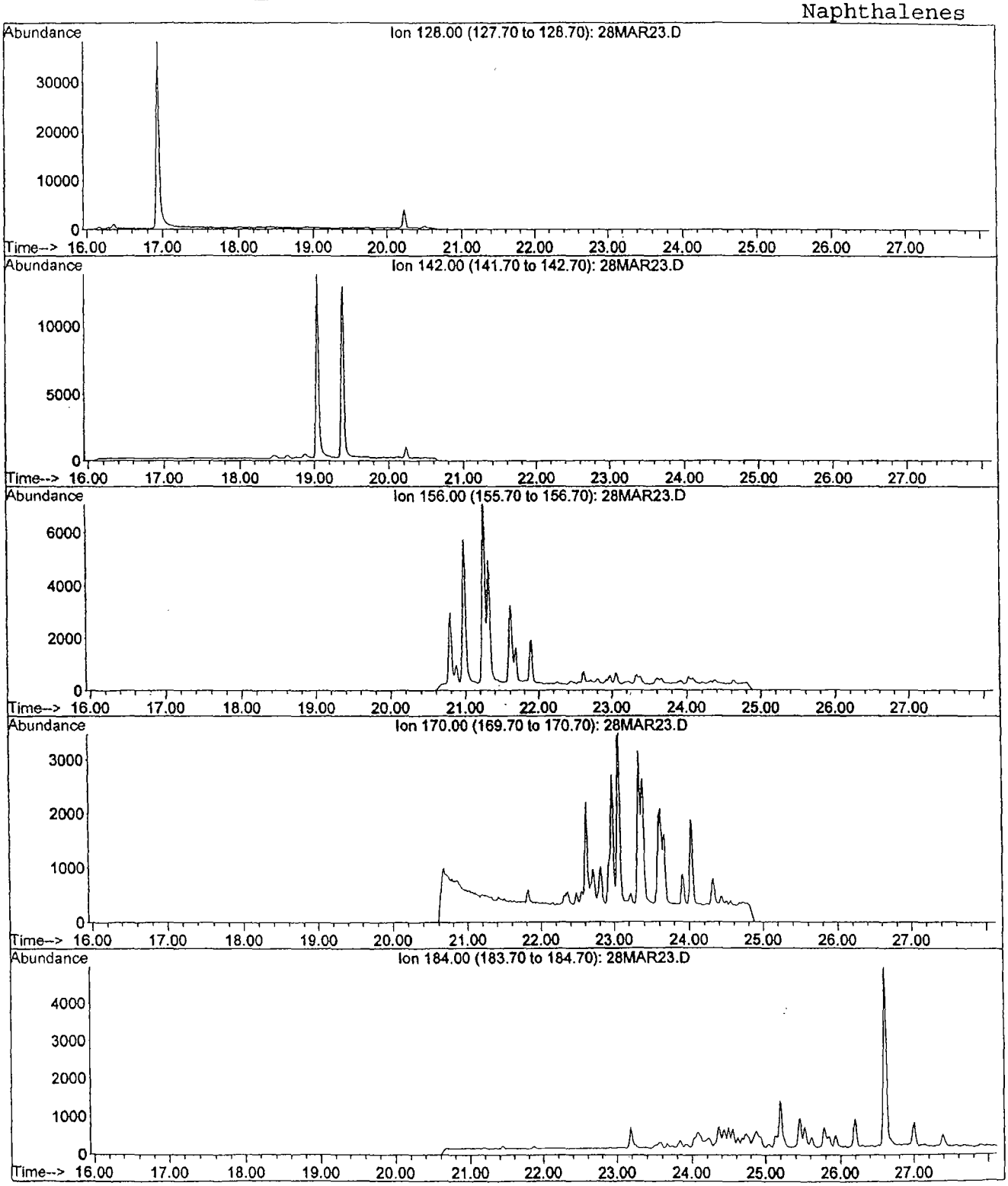
Acquired: 29 Mar 2003 4:33 pm using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Naphthalenes



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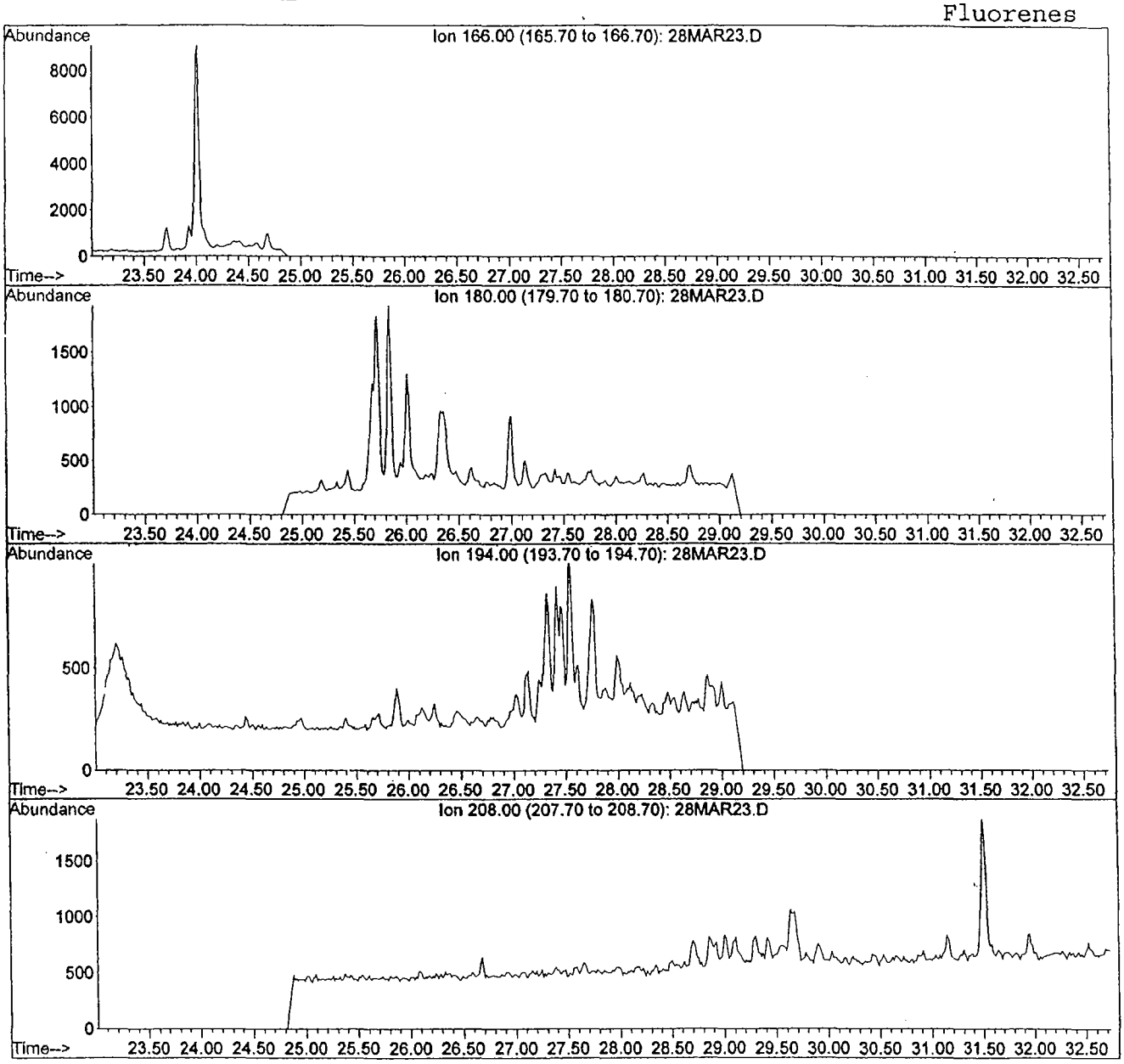
Instrument: GC2-MS_59 Operator: KP

Fluorenes



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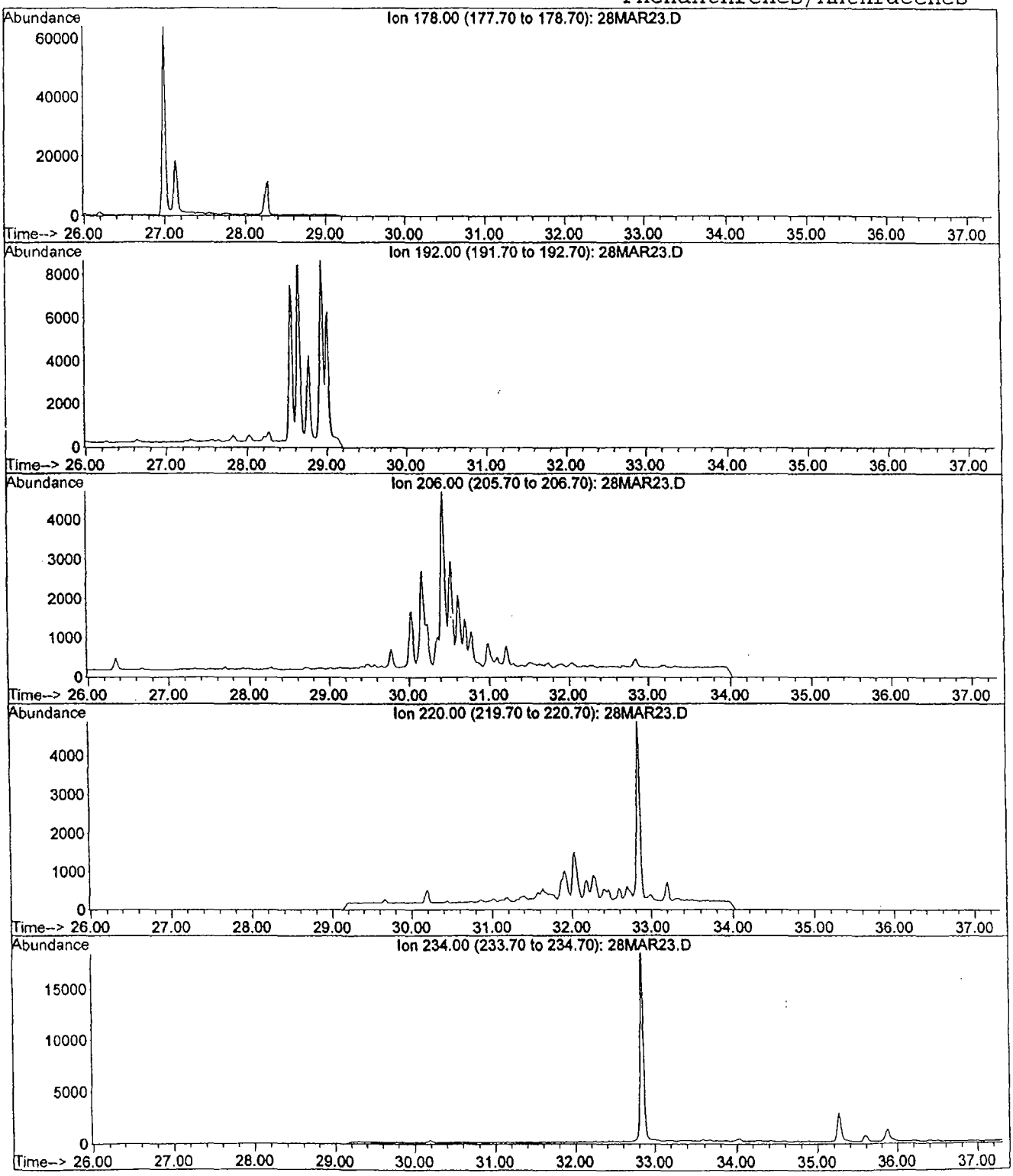
Instrument: GC2-MS_59 Operator: KP

Phenanthrenes/Anthracenes



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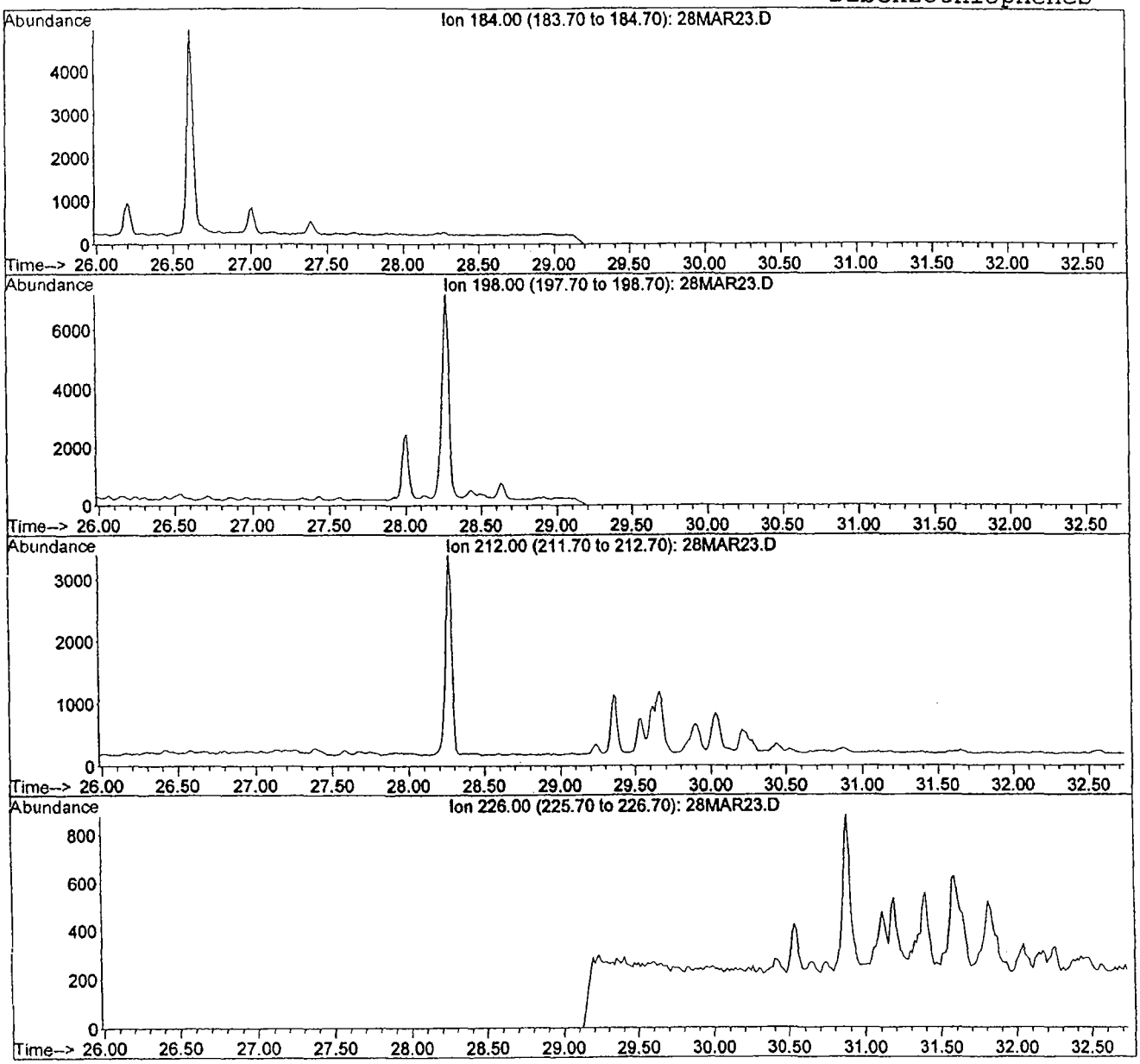
Instrument: GC2-MS_59 Operator: KP

Dibenzothiophenes



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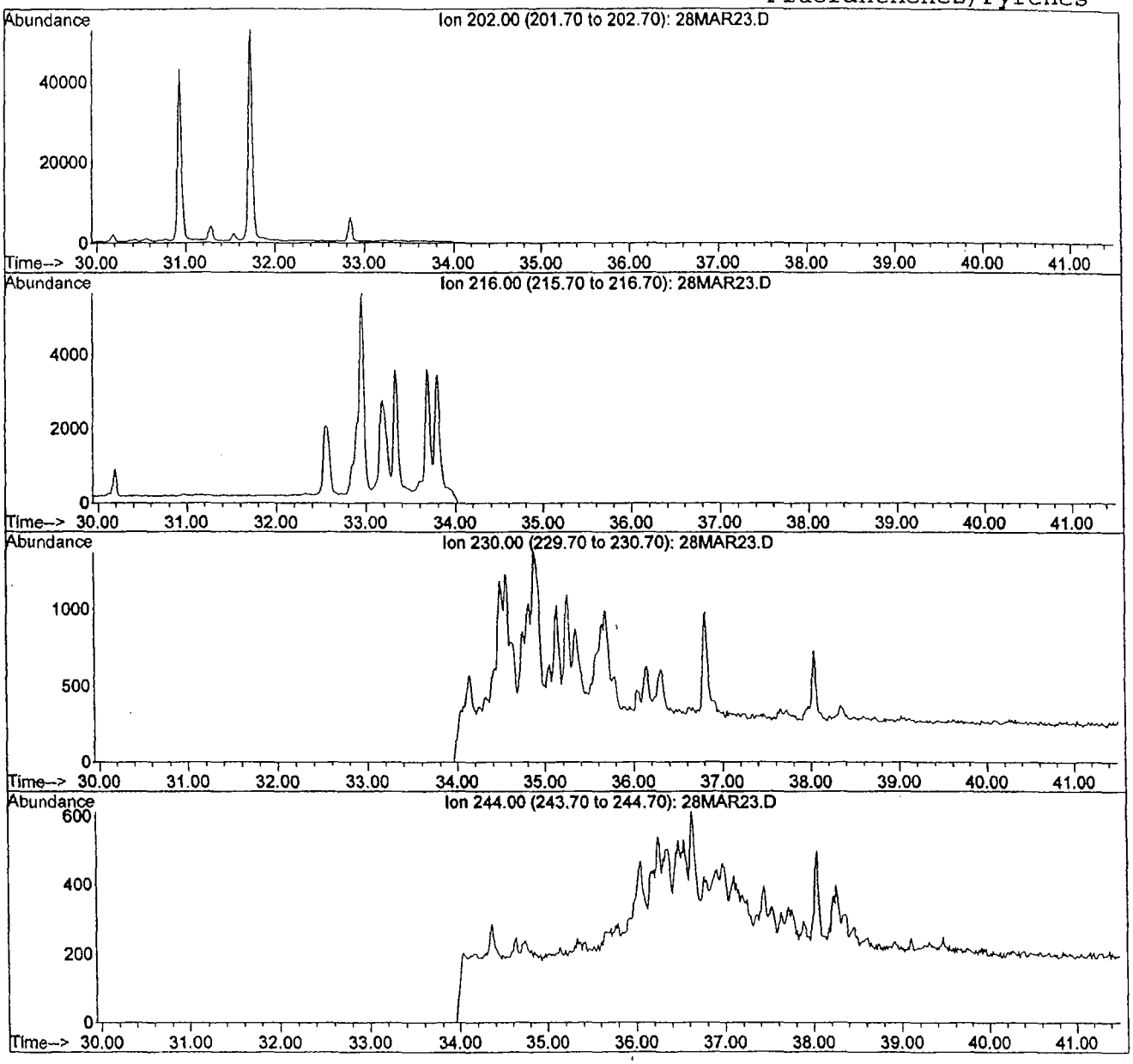
Fluoranthenes/Pyrenes



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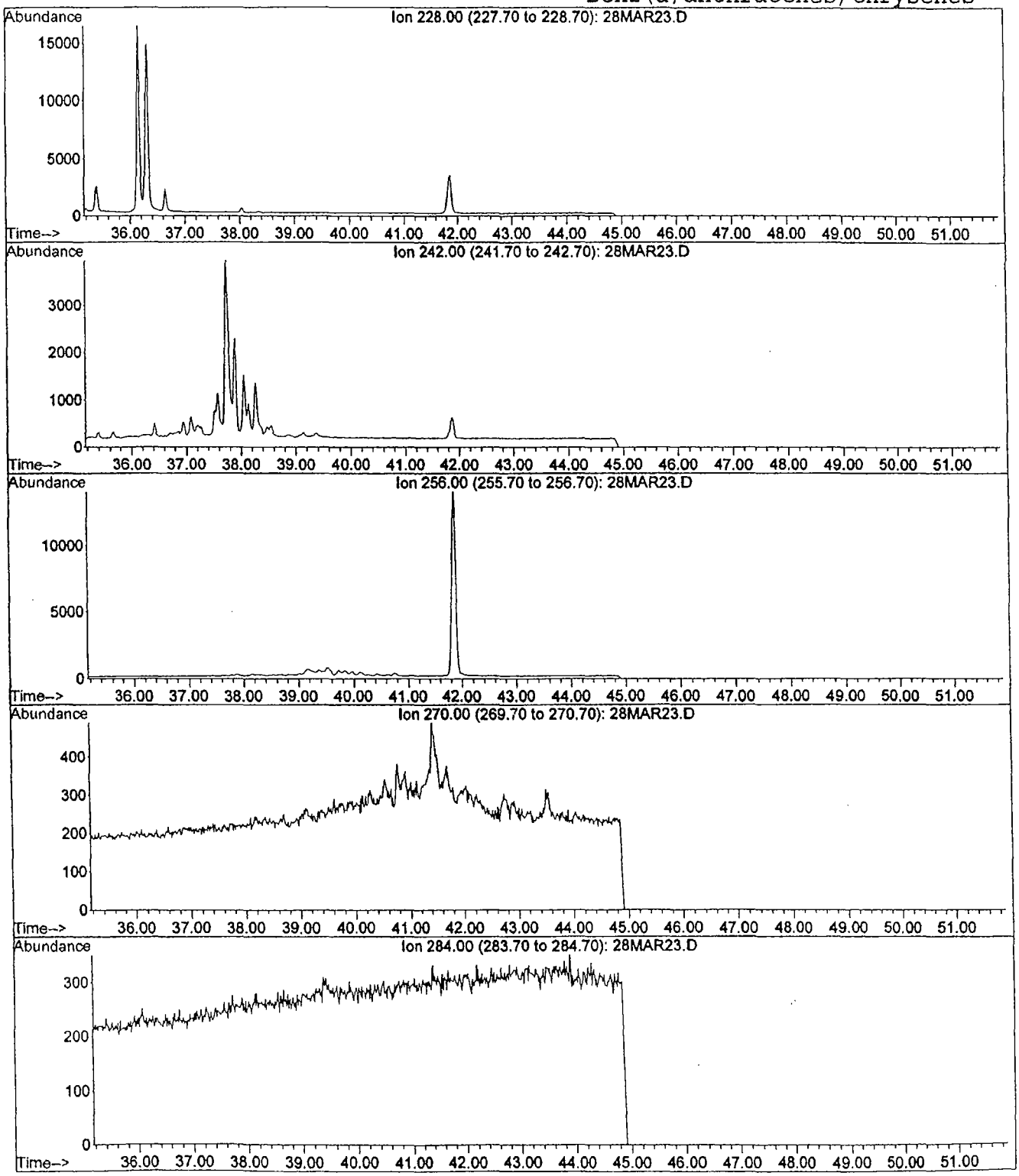
Instrument: GC2-MS_59 Operator: KP

Benz(a)anthracenes/Chrysenes



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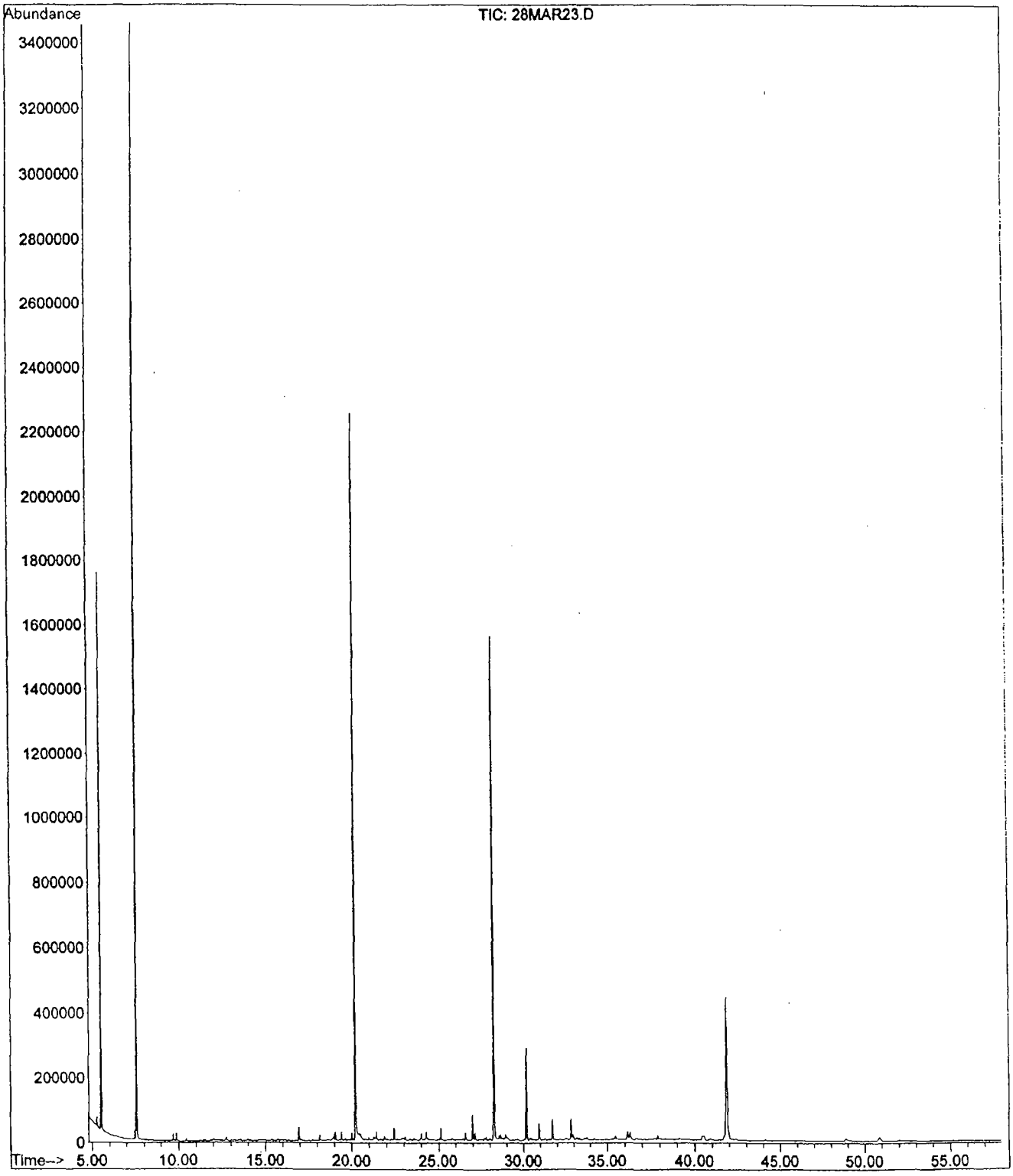

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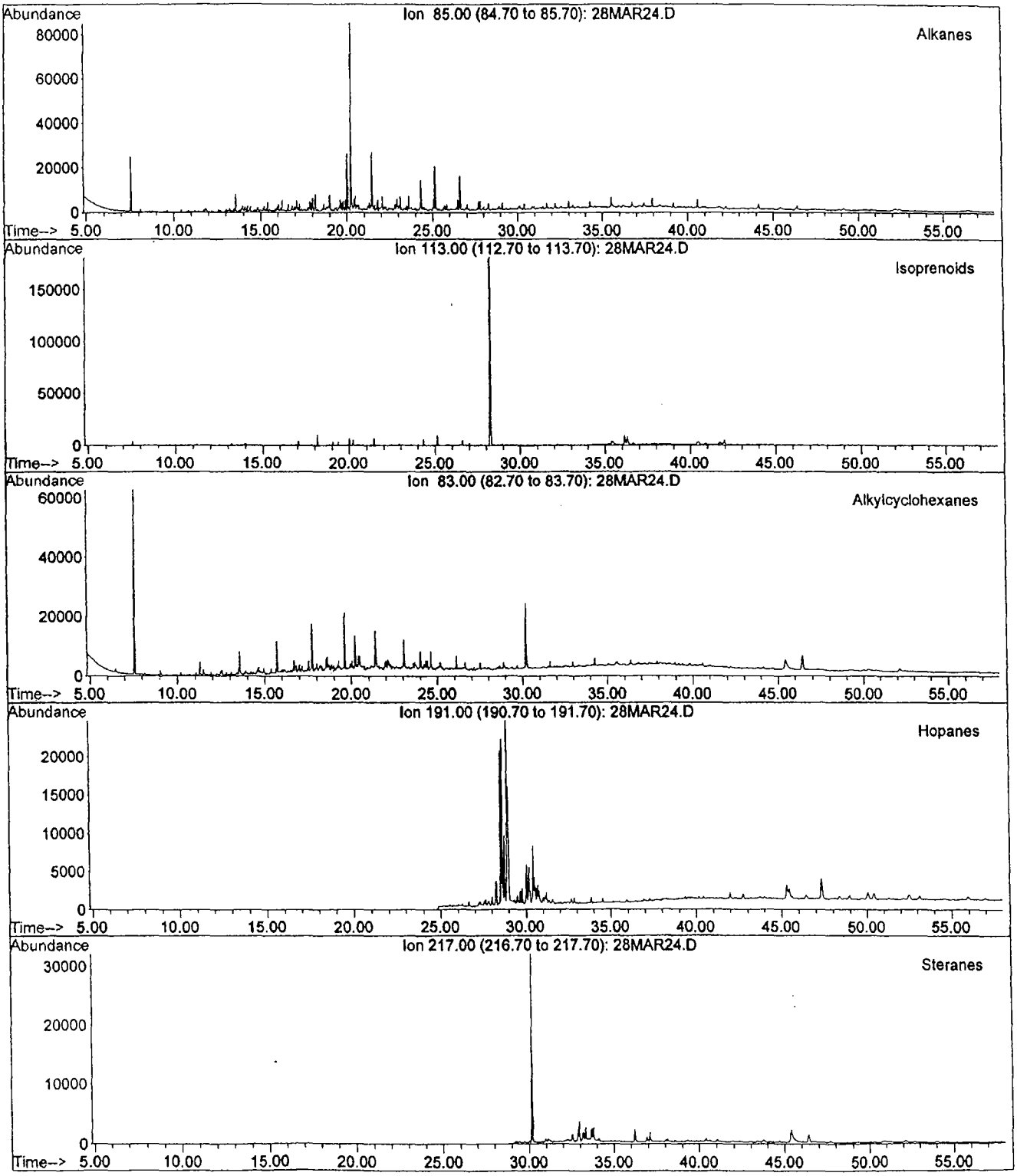
Instrument: GC2-MS_59 Operator: KP



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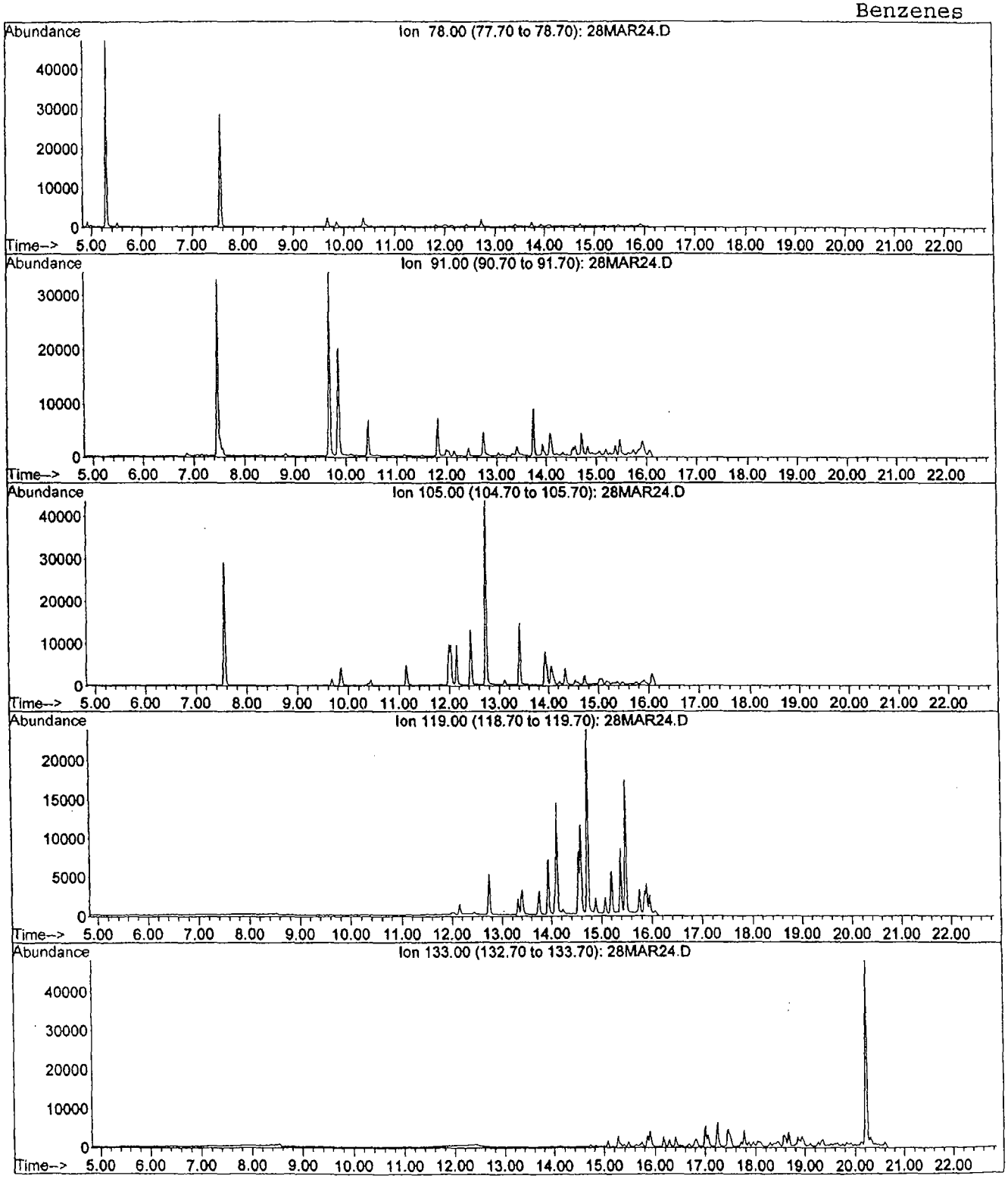
Benzenes



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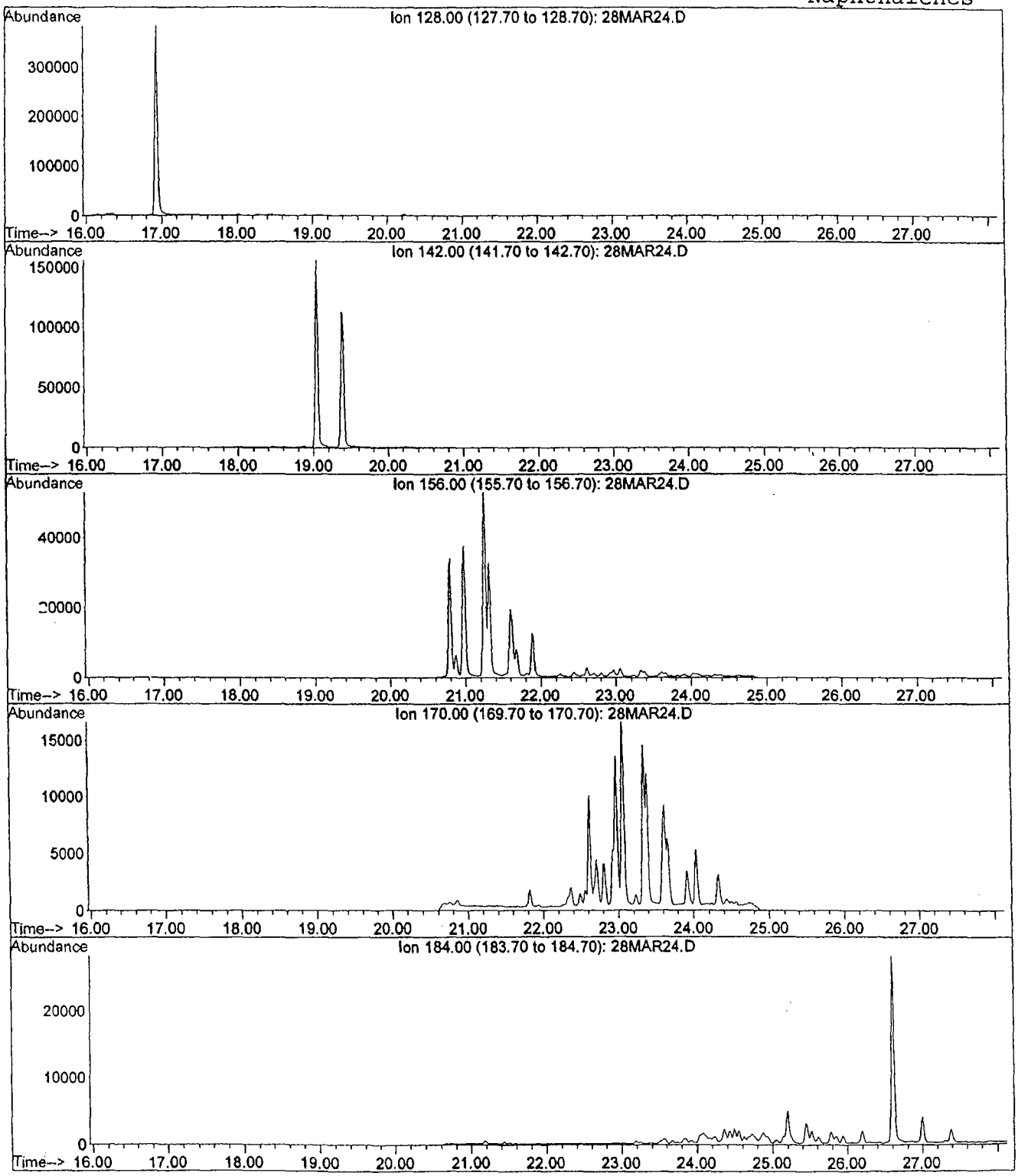
Instrument: GC2-MS_59 Operator: KP

Naphthalenes



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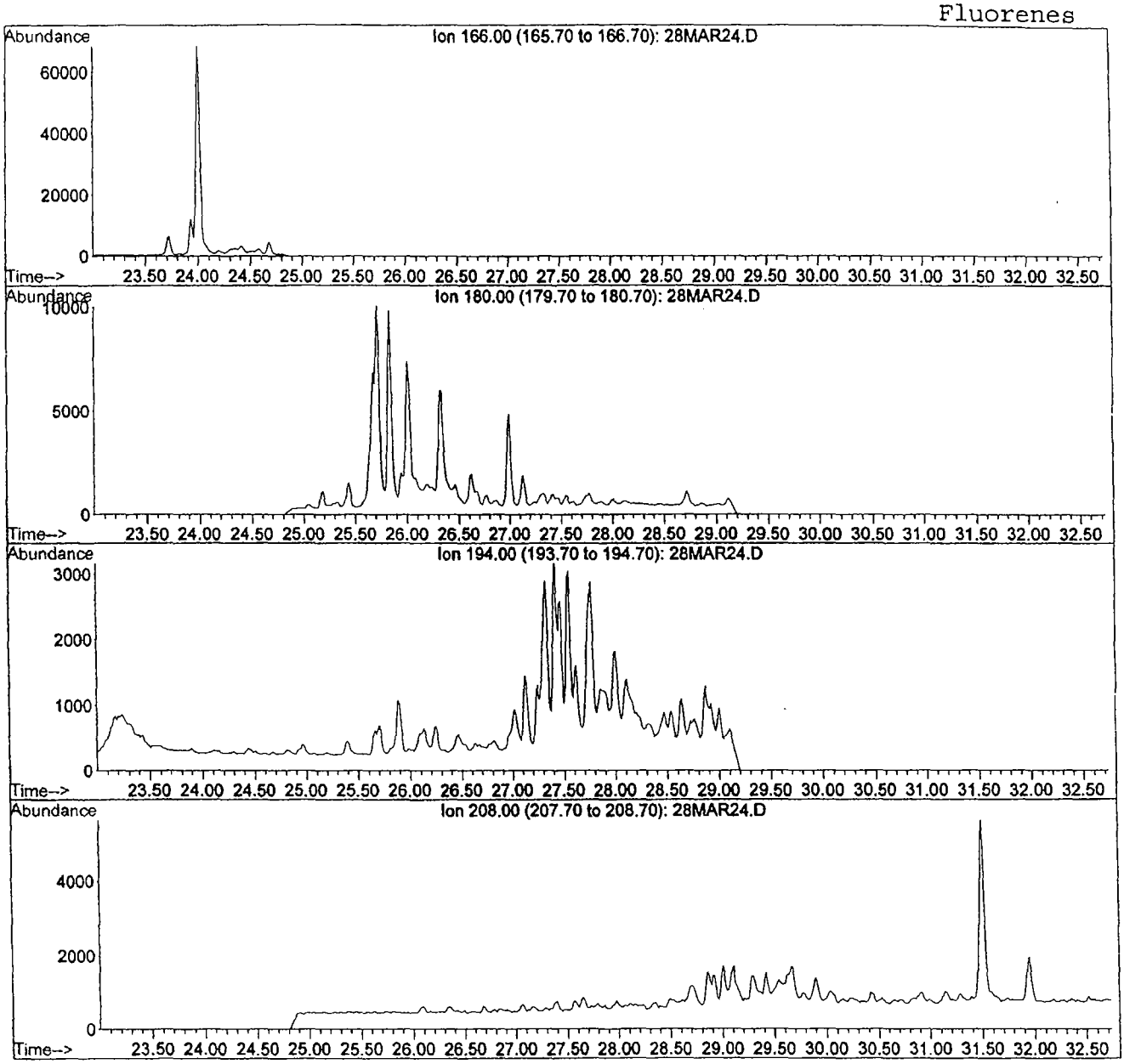
Instrument: GC2-MS_59 Operator: KP

Fluorenes



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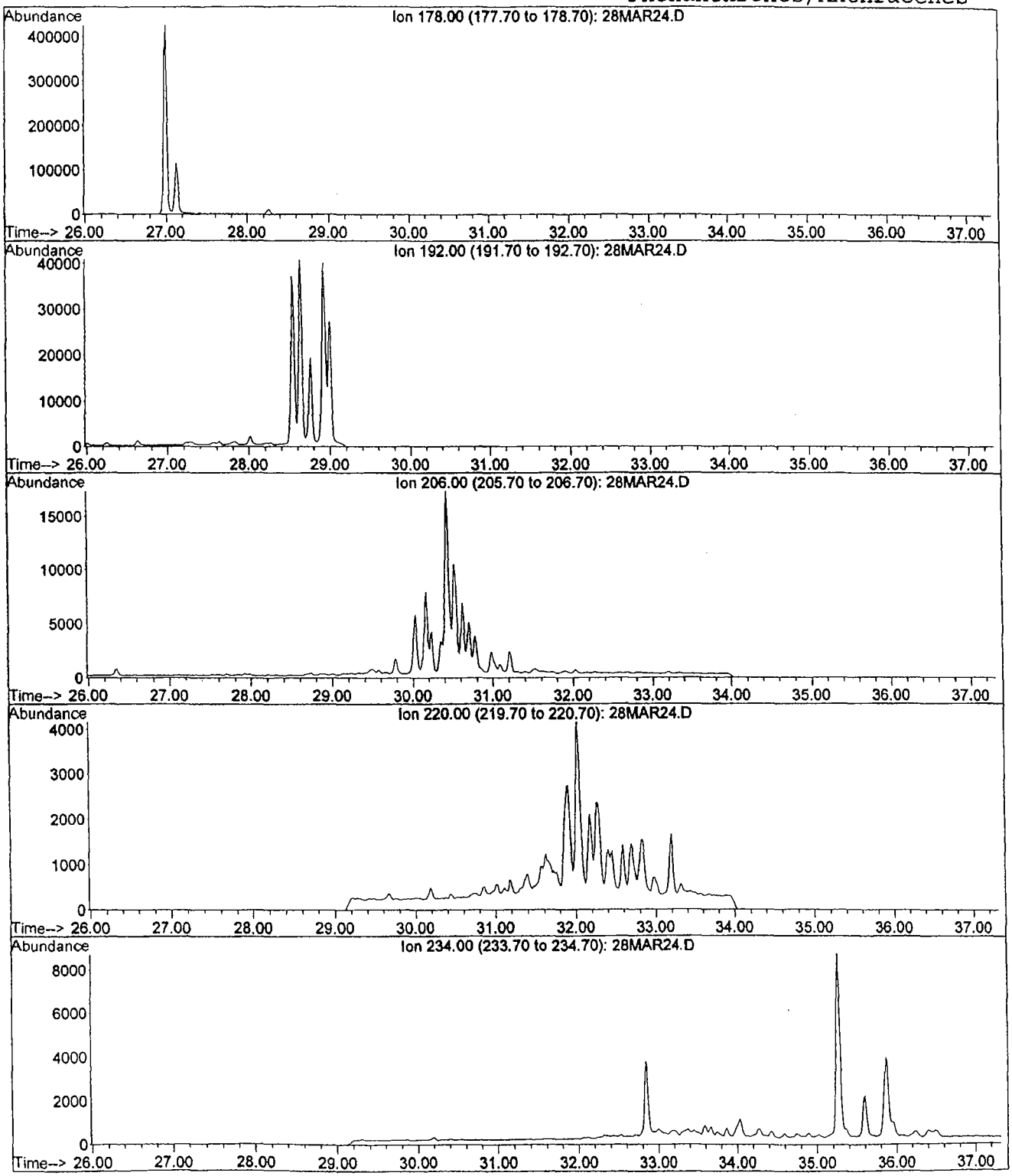
Instrument: GC2-MS_59 Operator: KP

Phenanthrenes/Anthracenes



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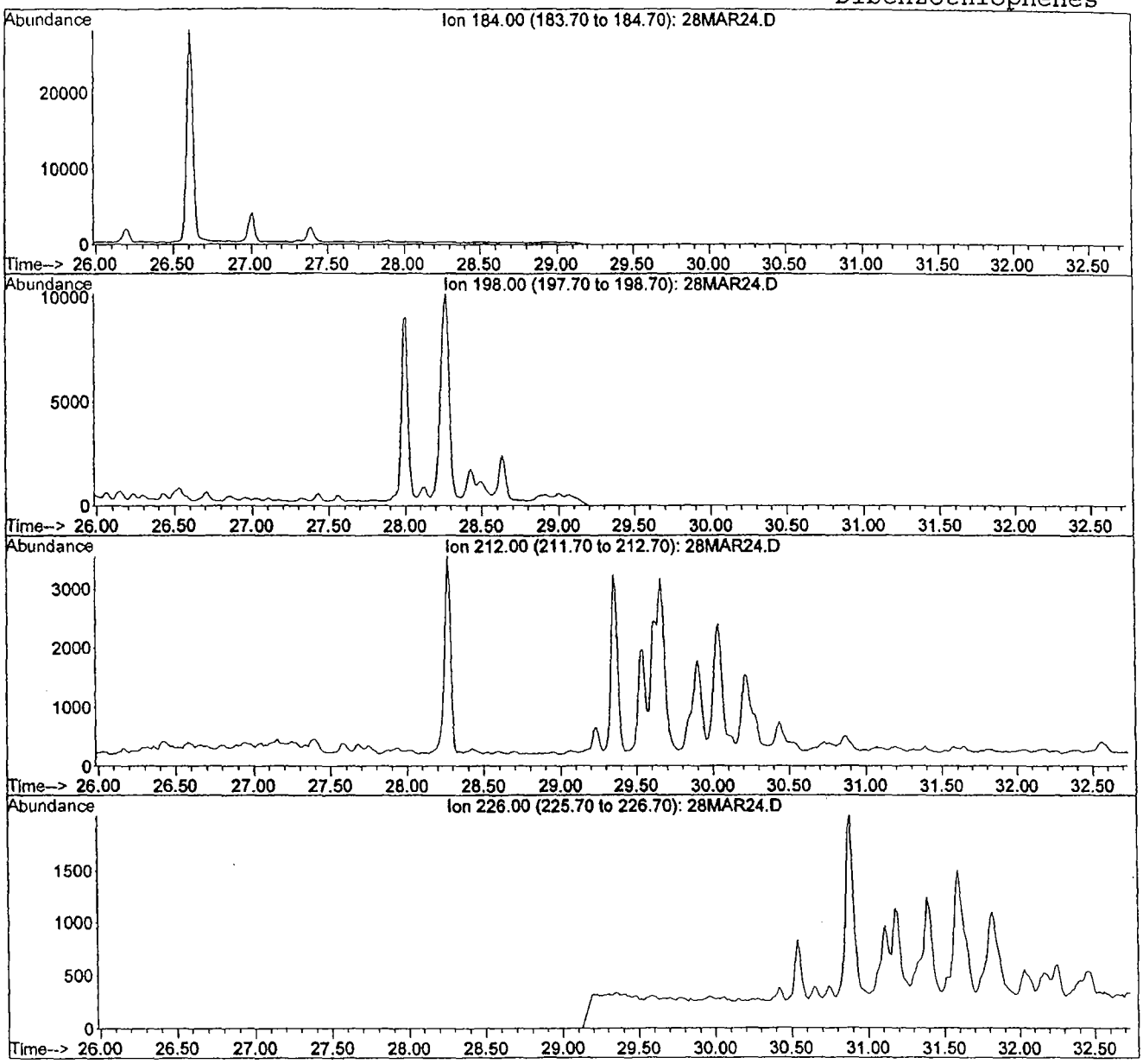
Instrument: GC2-MS_59 Operator: KP

Dibenzothiophenes



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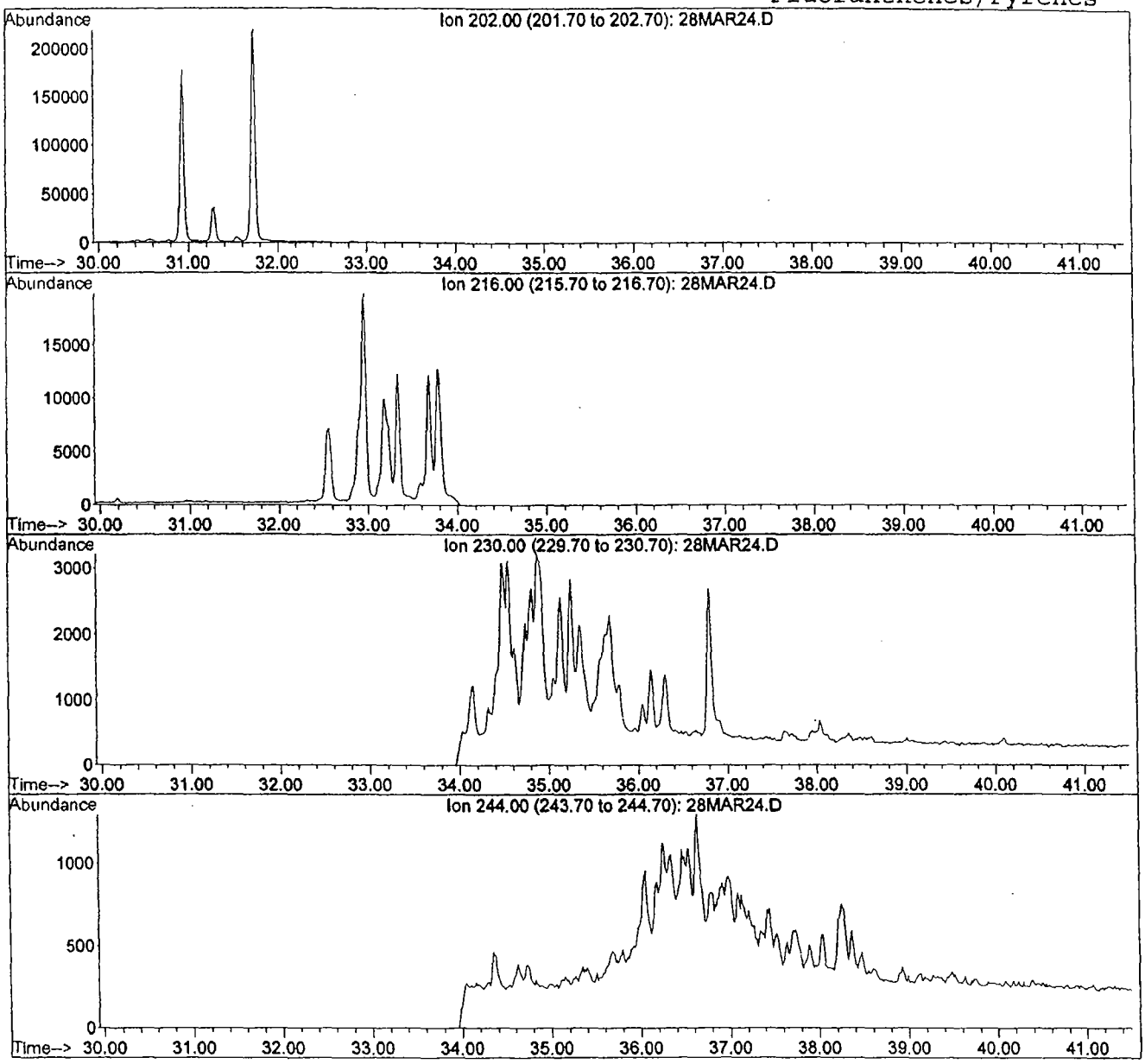
Instrument: GC2-MS_59 Operator: KP

Fluoranthenes/Pyrenes



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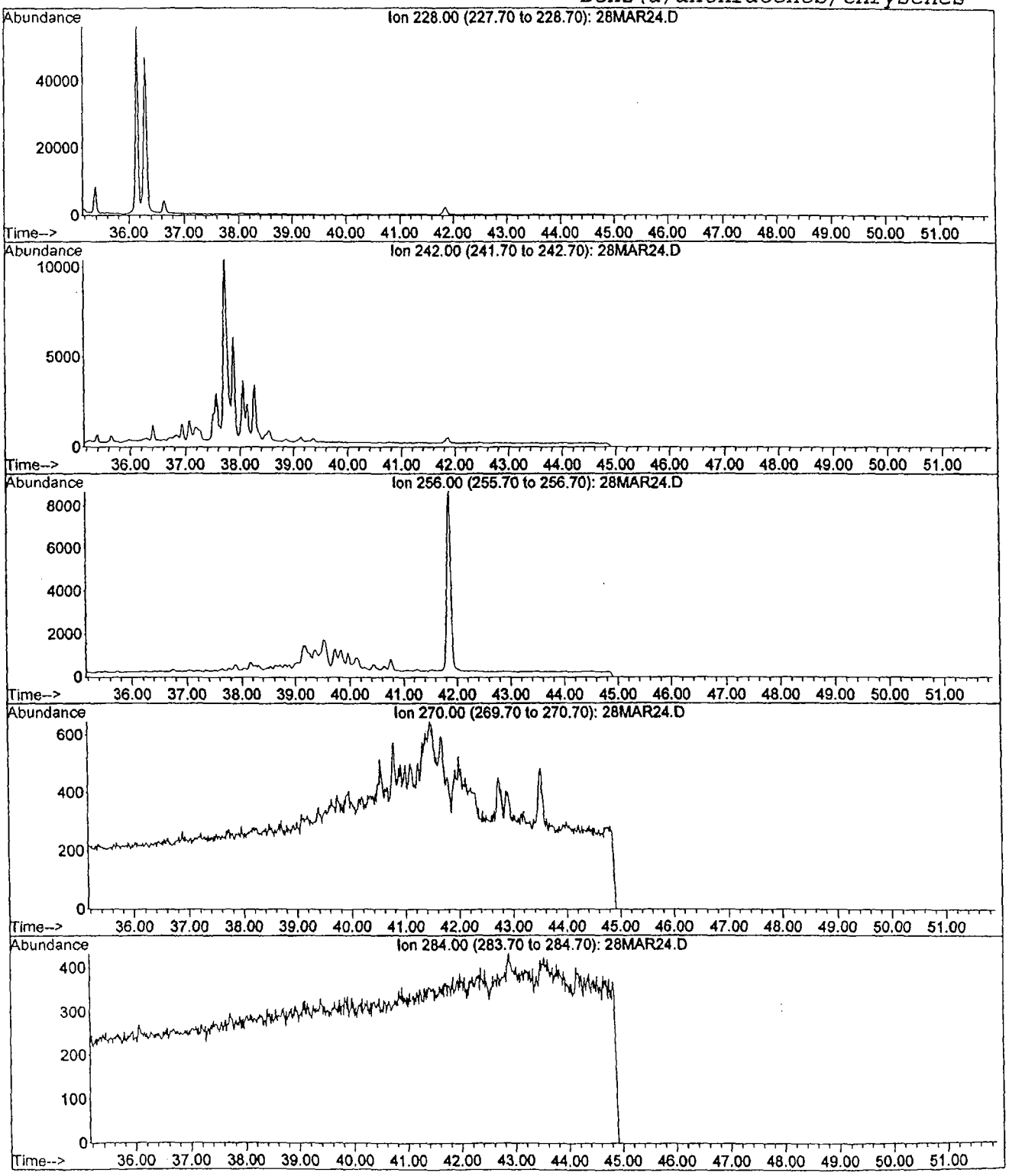
Instrument: GC2-MS_59 Operator: KP

Benz(a)anthracenes/Chrysenes



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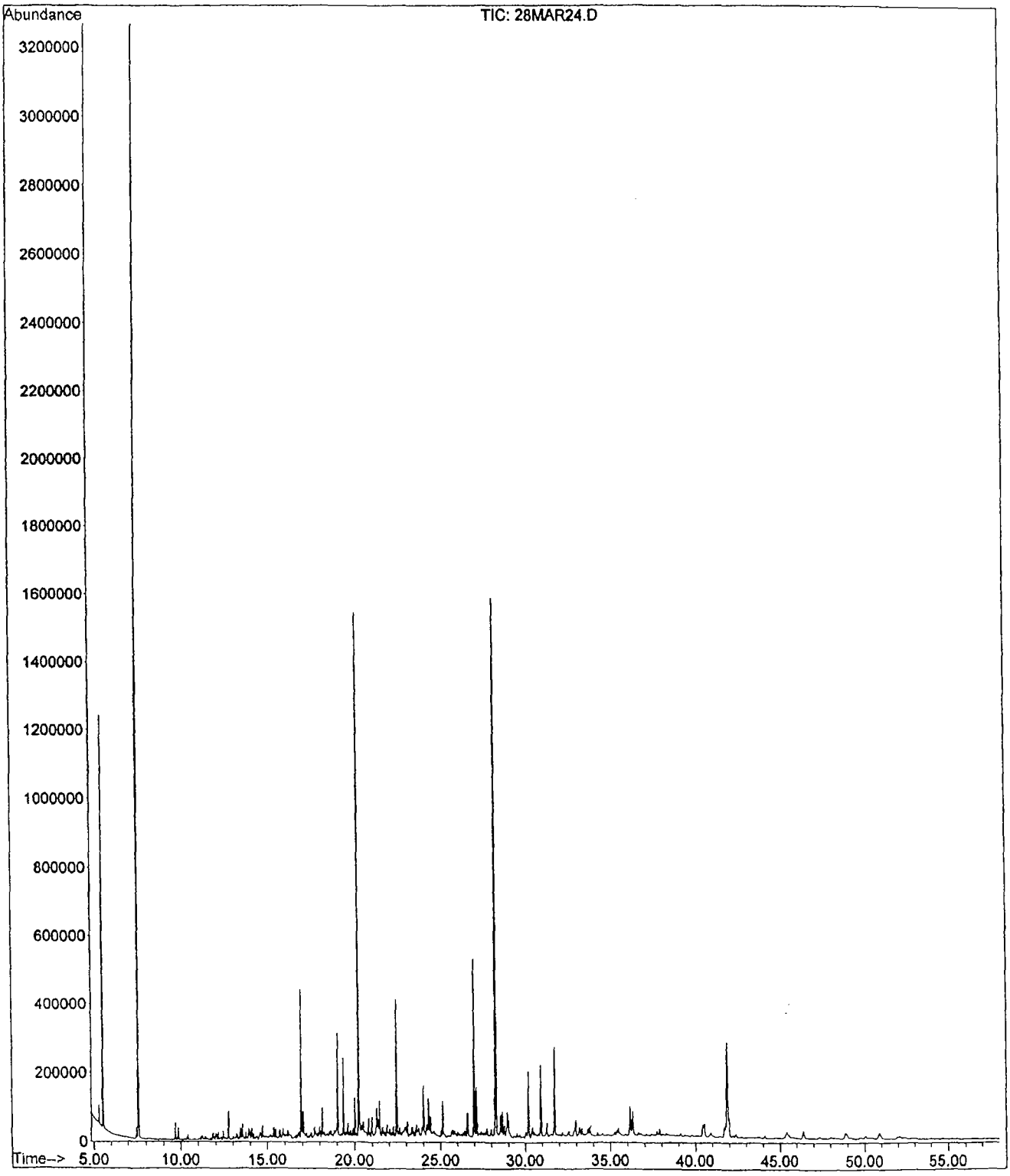

Field ID:
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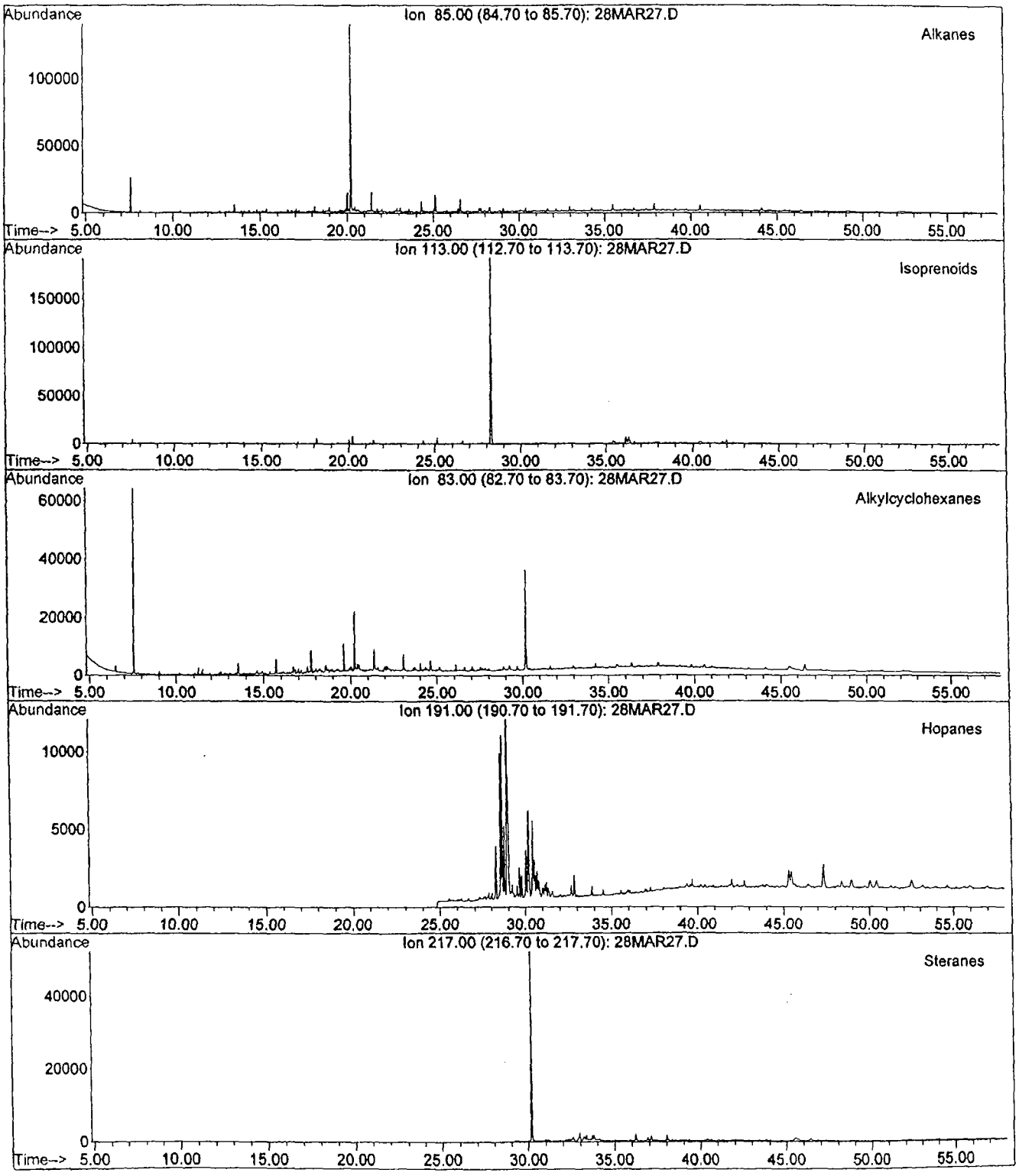
Acquired: 29 Mar 2003 8:51 pm using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP



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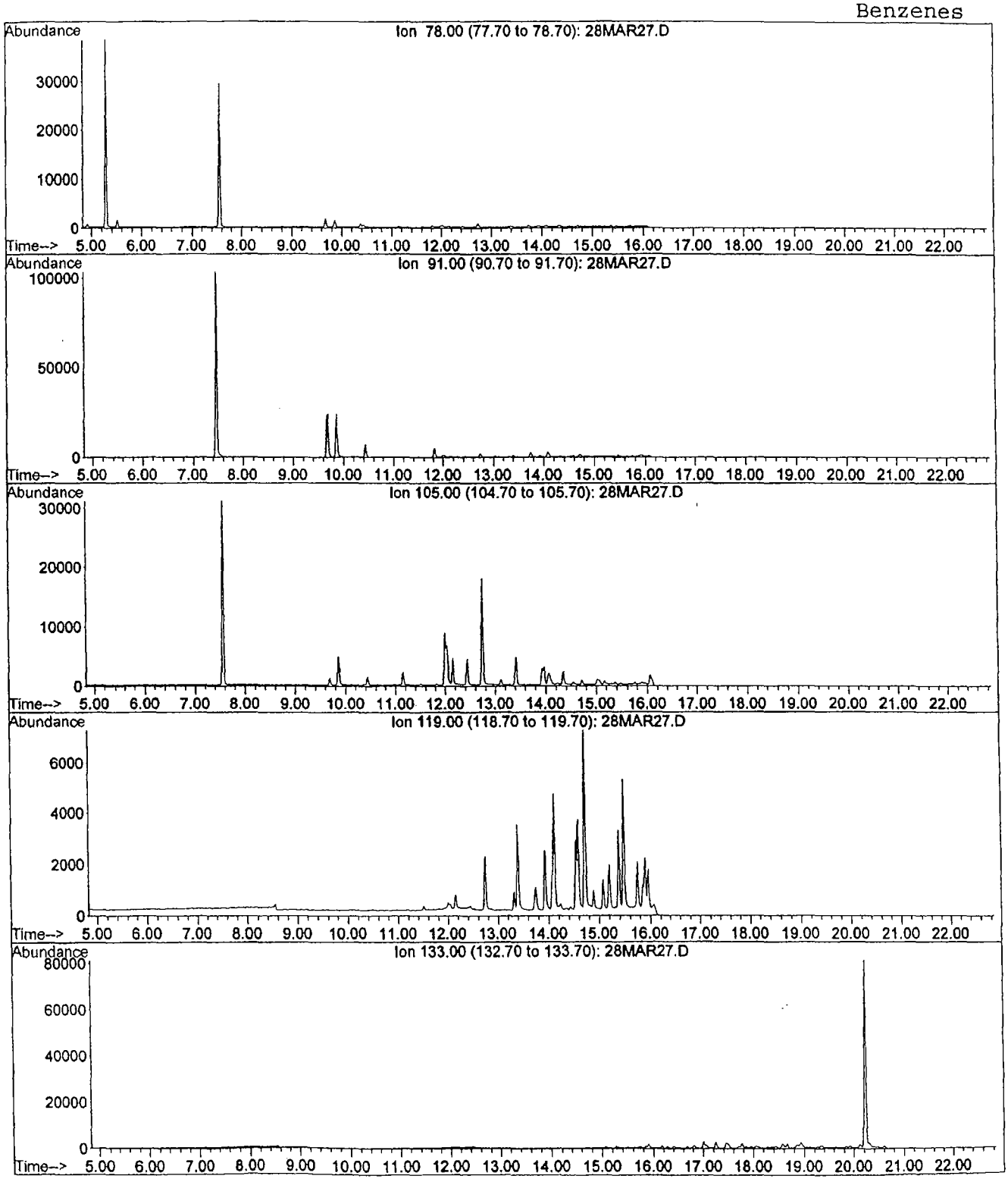
Instrument: GC2-MS_59 Operator: KP

Benzenes



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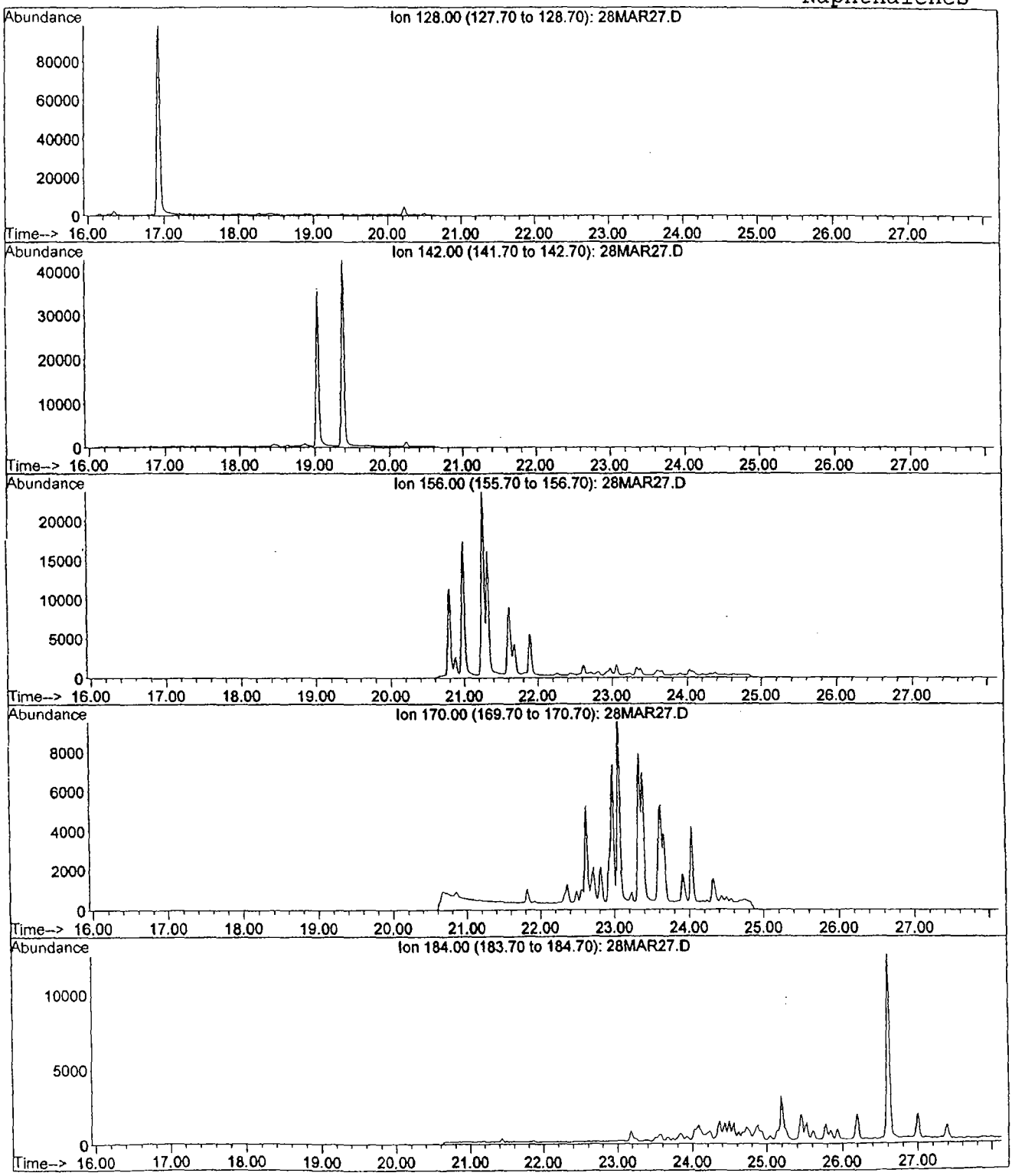
Instrument: GC2-MS_59 Operator: KP

Naphthalenes



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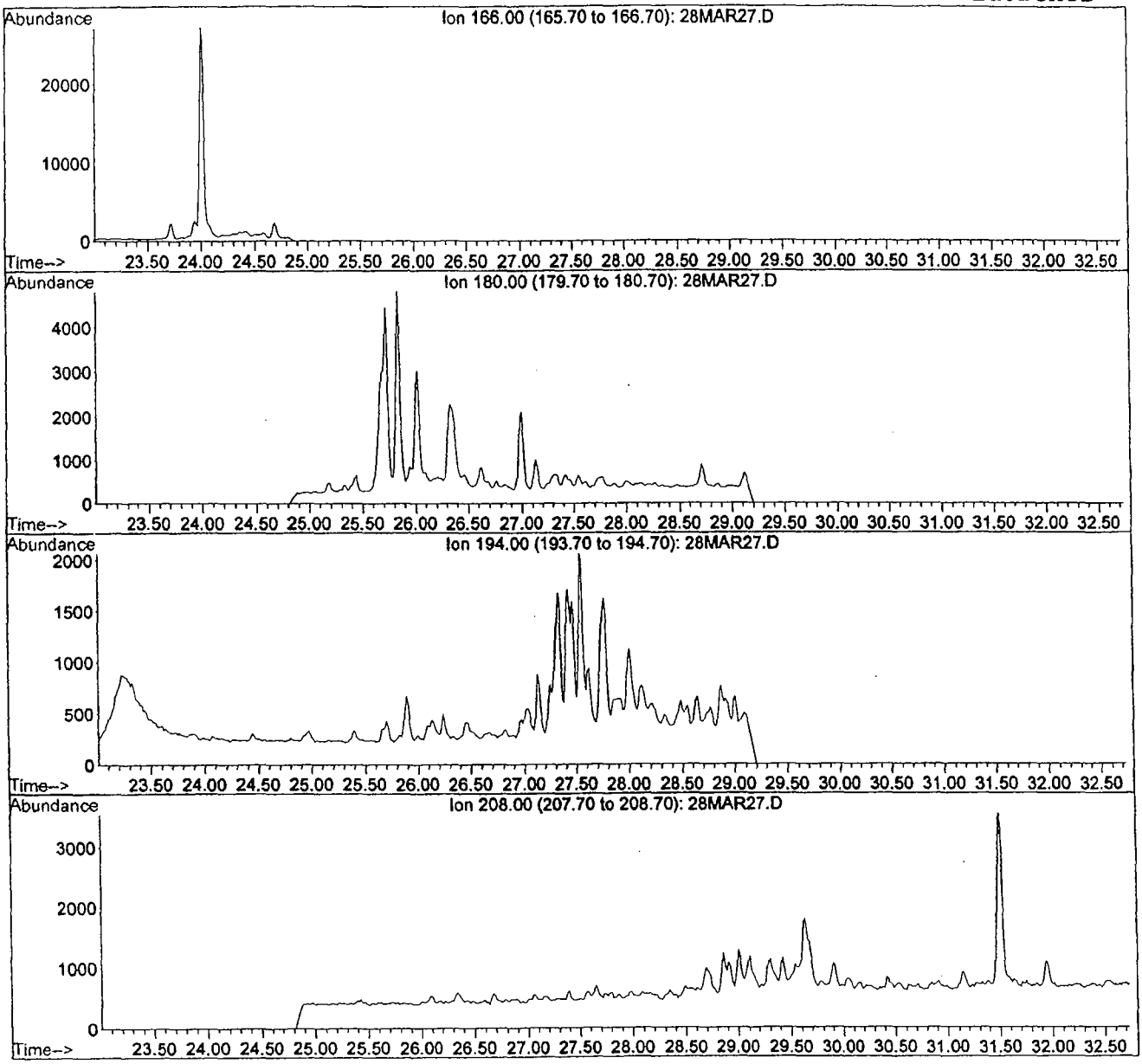
Fluorenes



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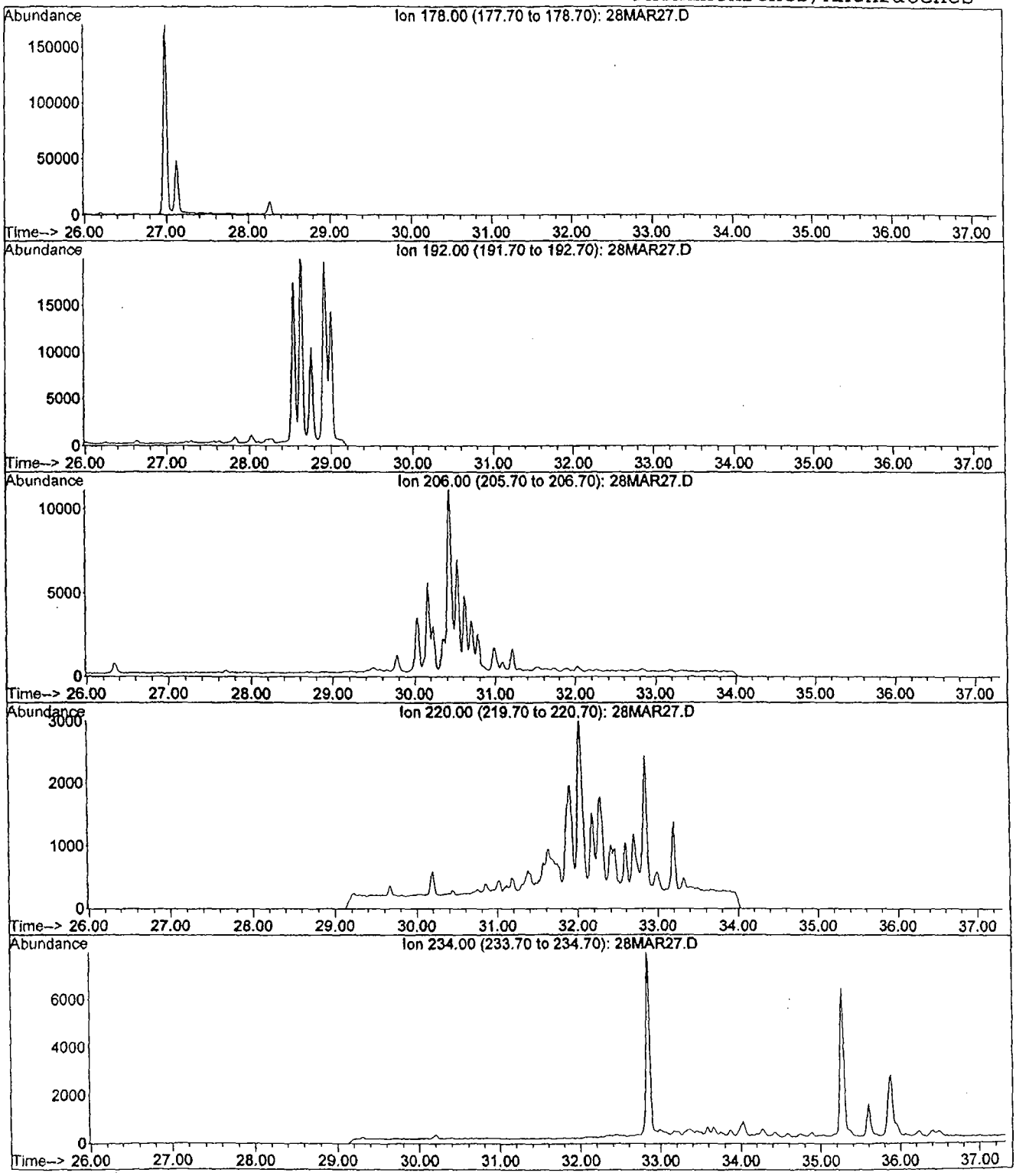
Phenanthrenes/Anthracenes



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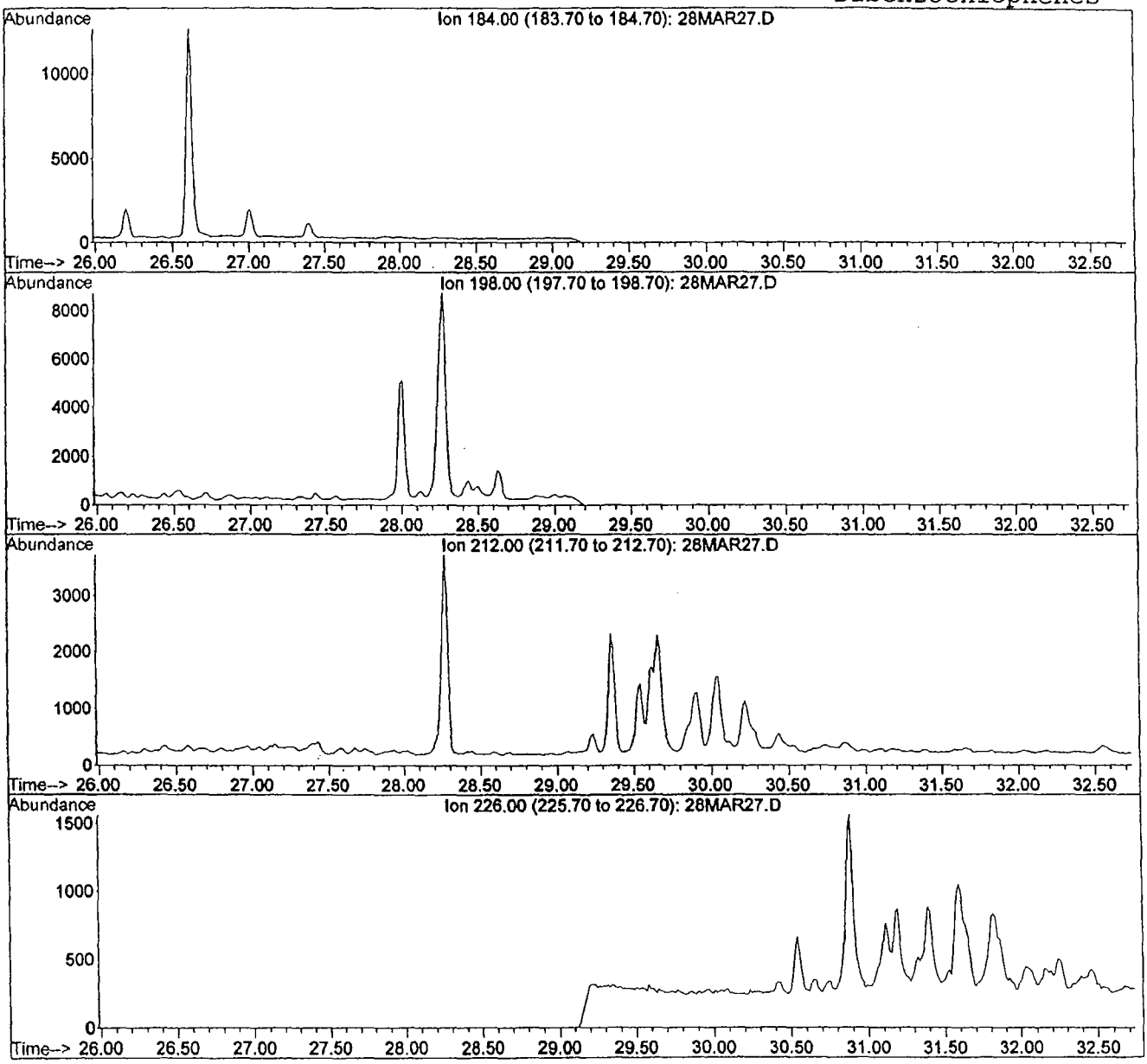
Instrument: GC2-MS_59 Operator: KP

Dibenzothiophenes



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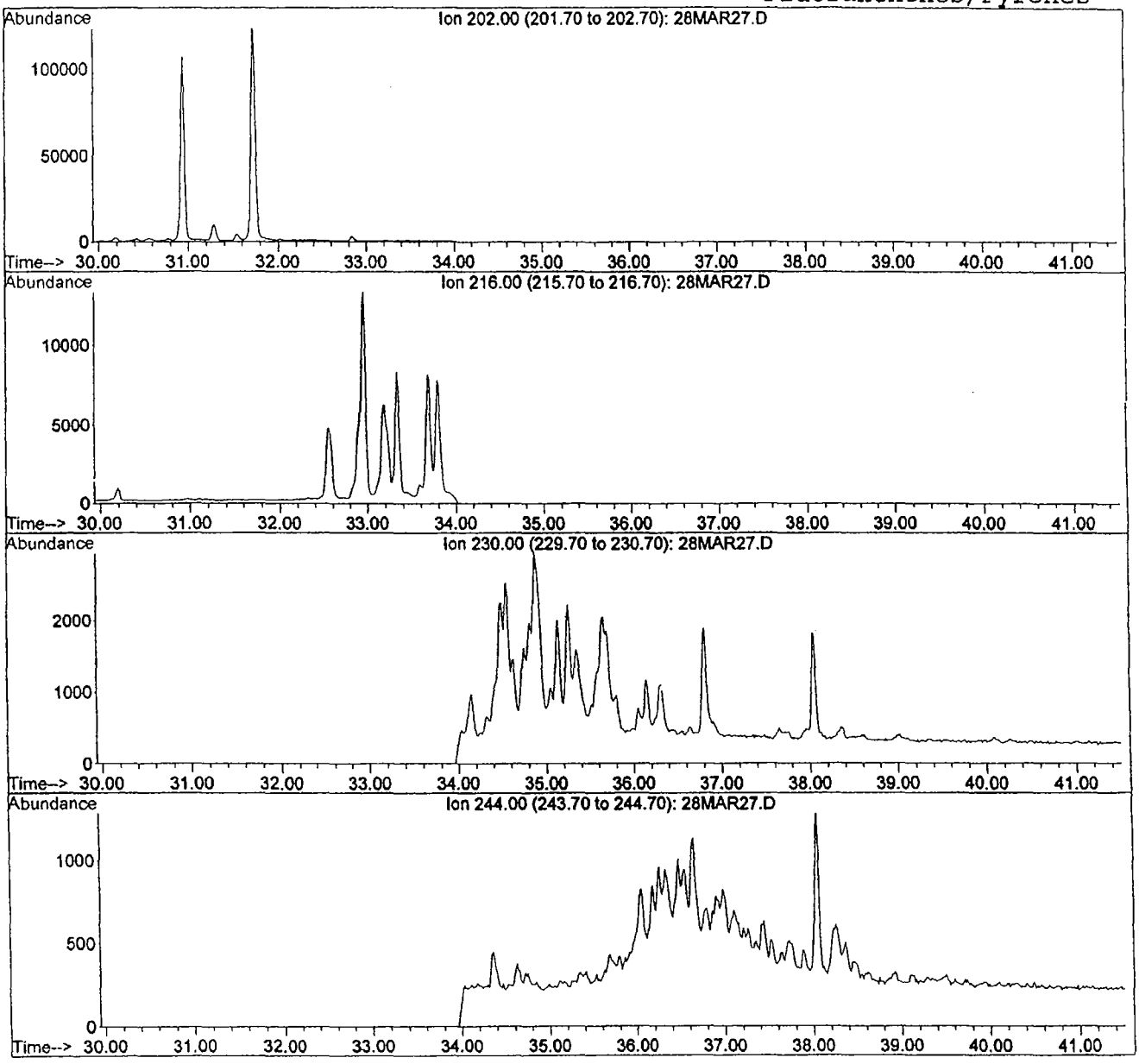
Instrument: GC2-MS_59 Operator: KP

Fluoranthenes/Pyrenes



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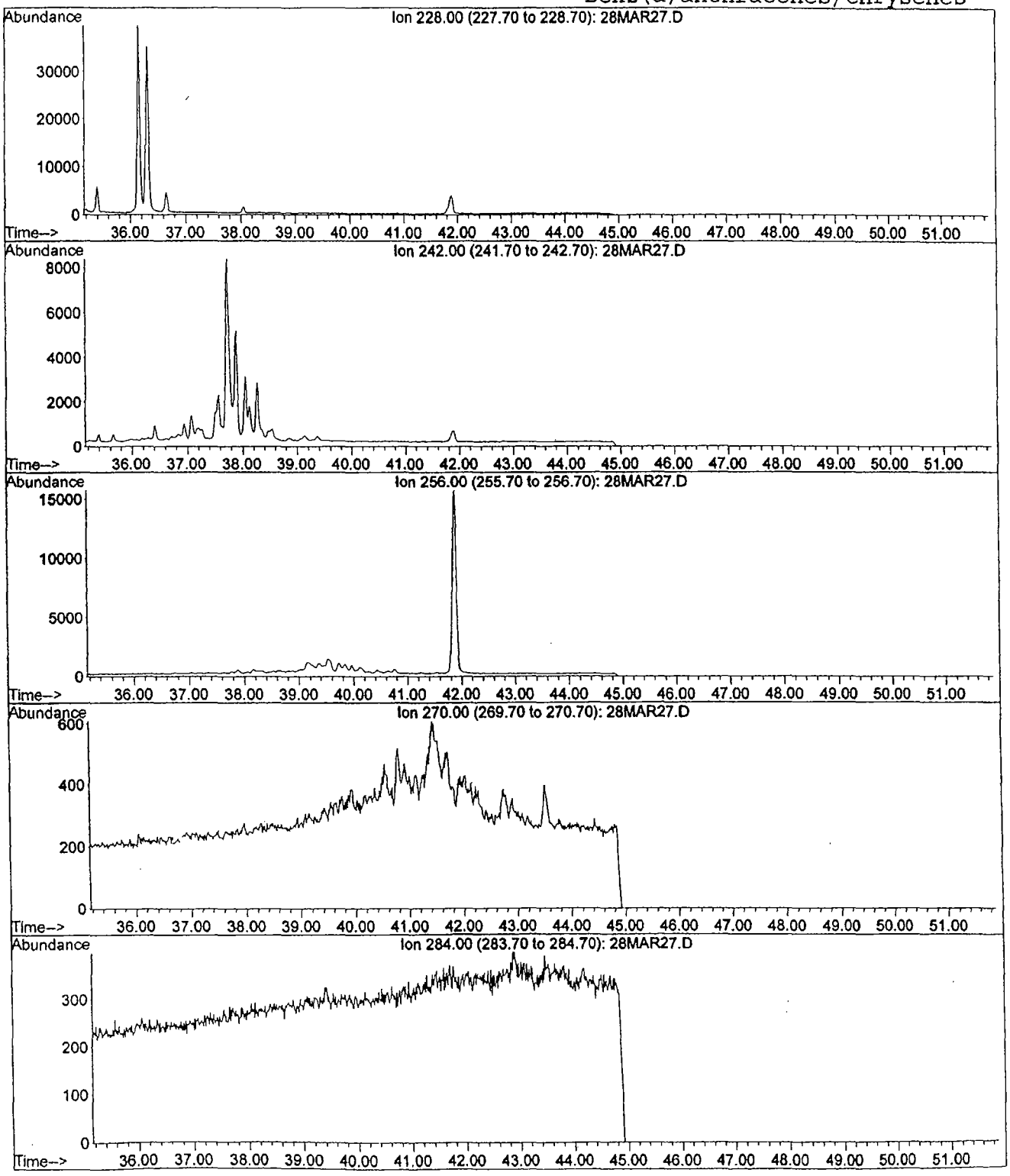
Instrument: GC2-MS_59 Operator: KP

Benz(a)anthracenes/Chrysenes



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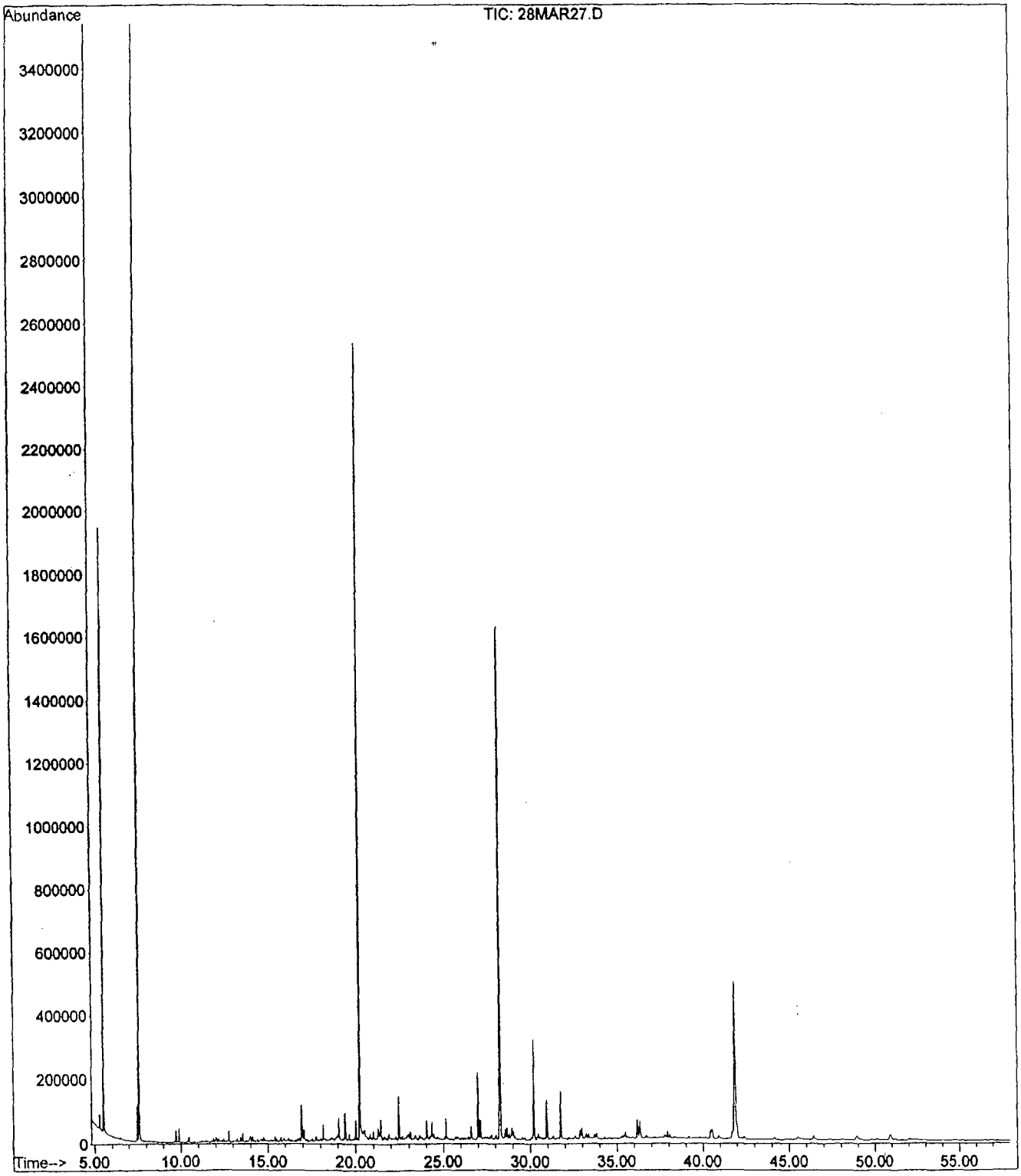

Field ID:
Lab ID: GT030417-01
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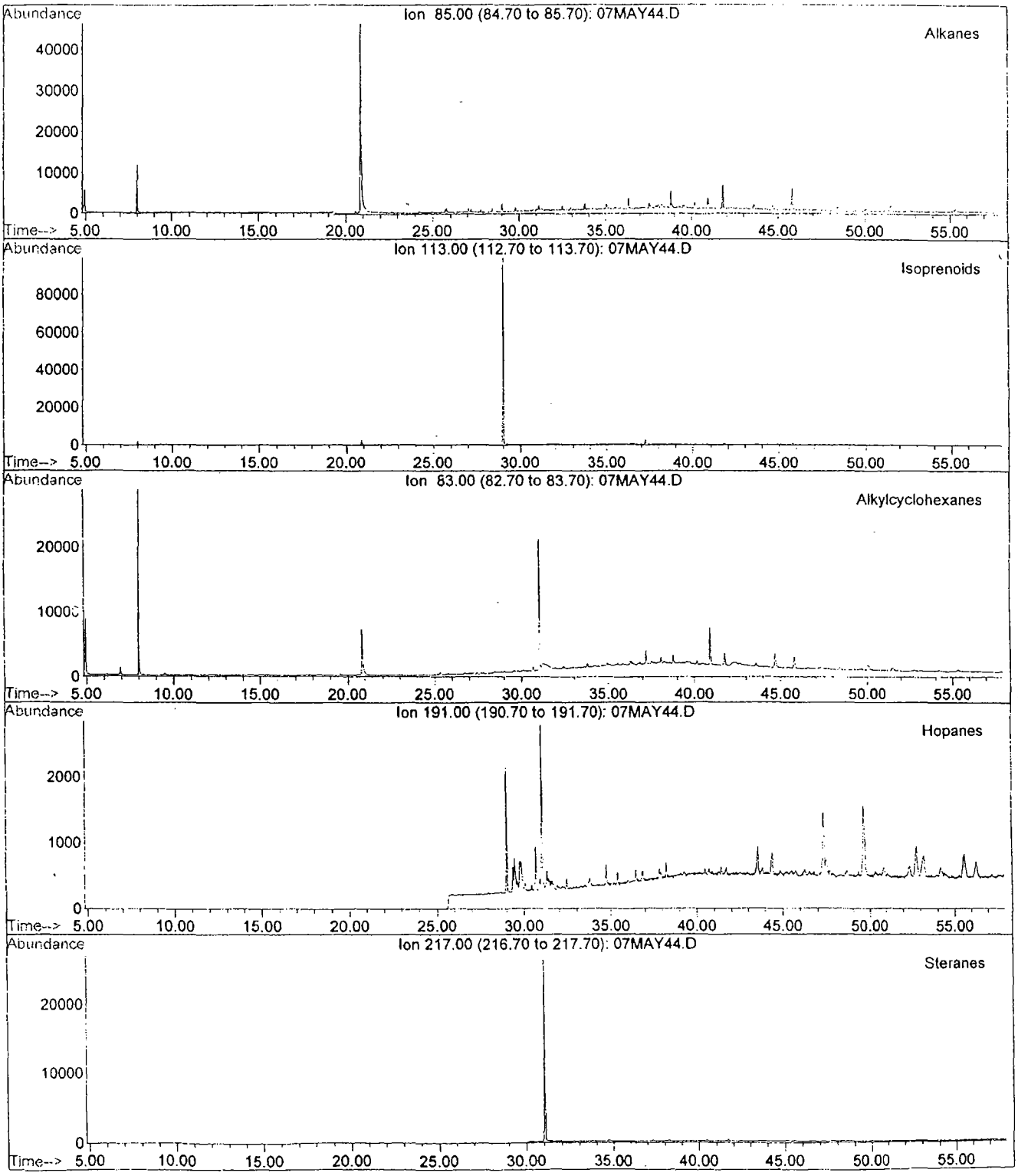
Instrument: GC2-MS_59 Operator: KP



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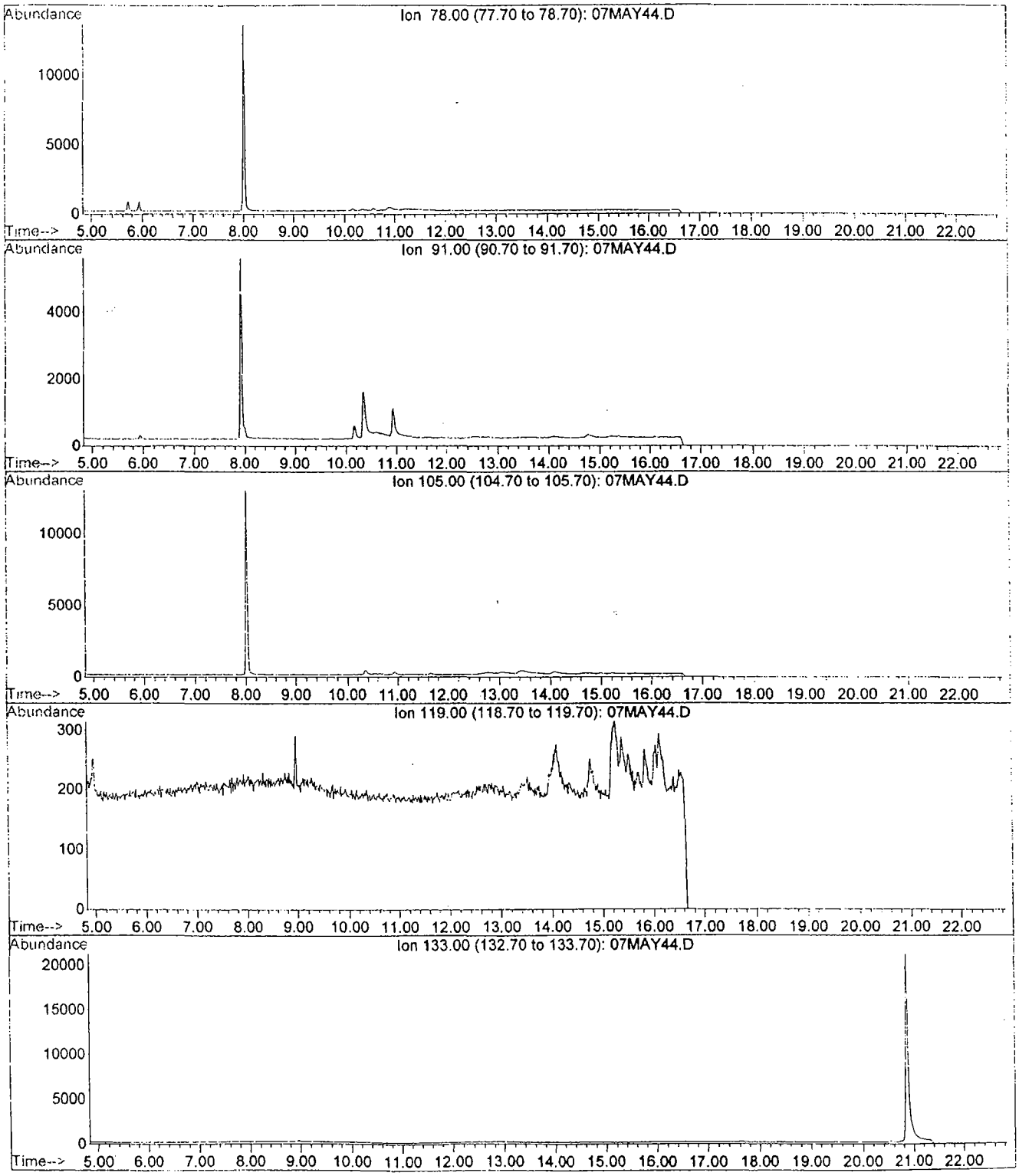
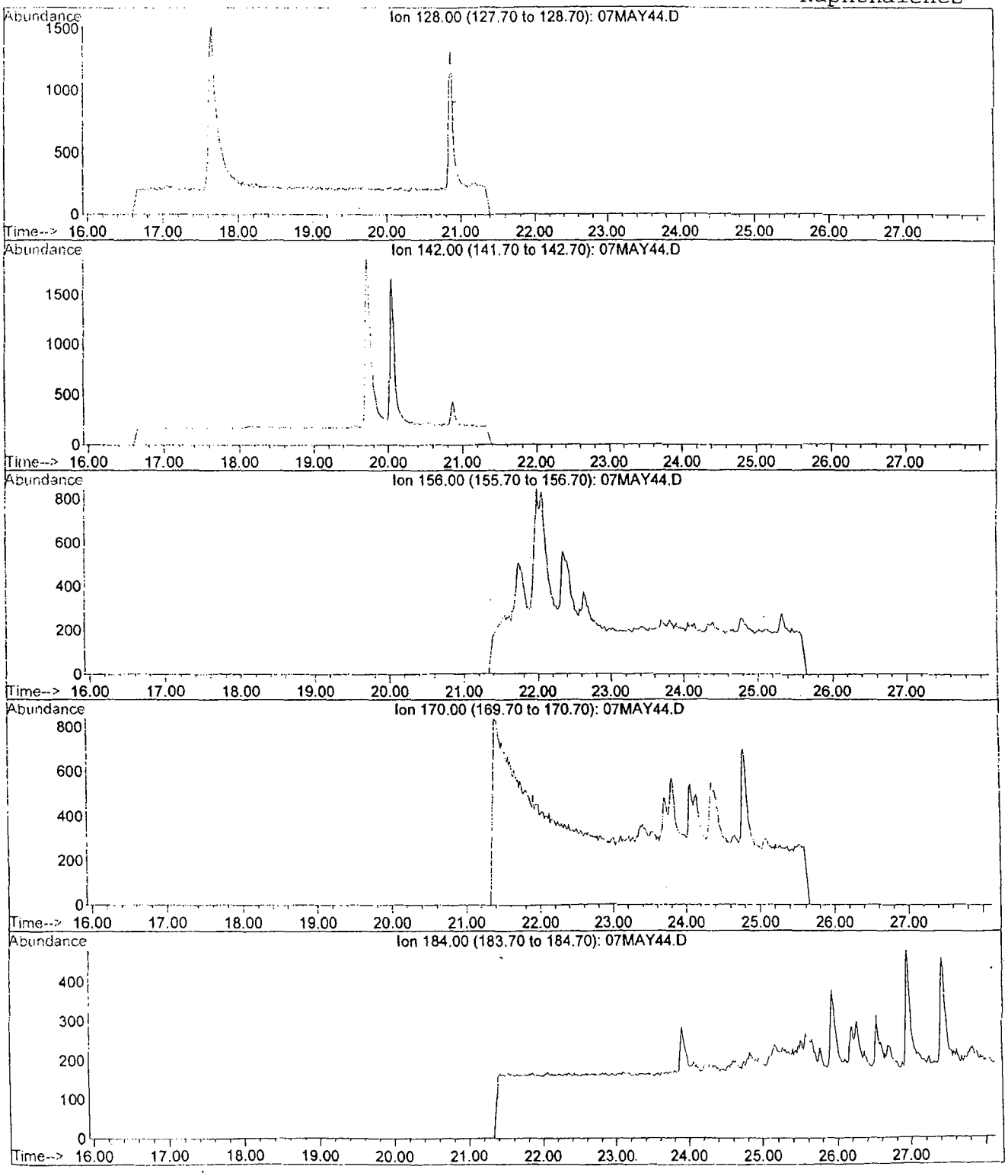
Instrument: GC2-MS_59 Operator: KP

Benzenes



Field ID:
Lab ID: GT030417-01
File: G:\2\DATA\030507\07MAY44.D
Acquired: 9 May 2003 11:54 am using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Naphthalenes



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File: G:\2\DATA\030507\07MAY44.D
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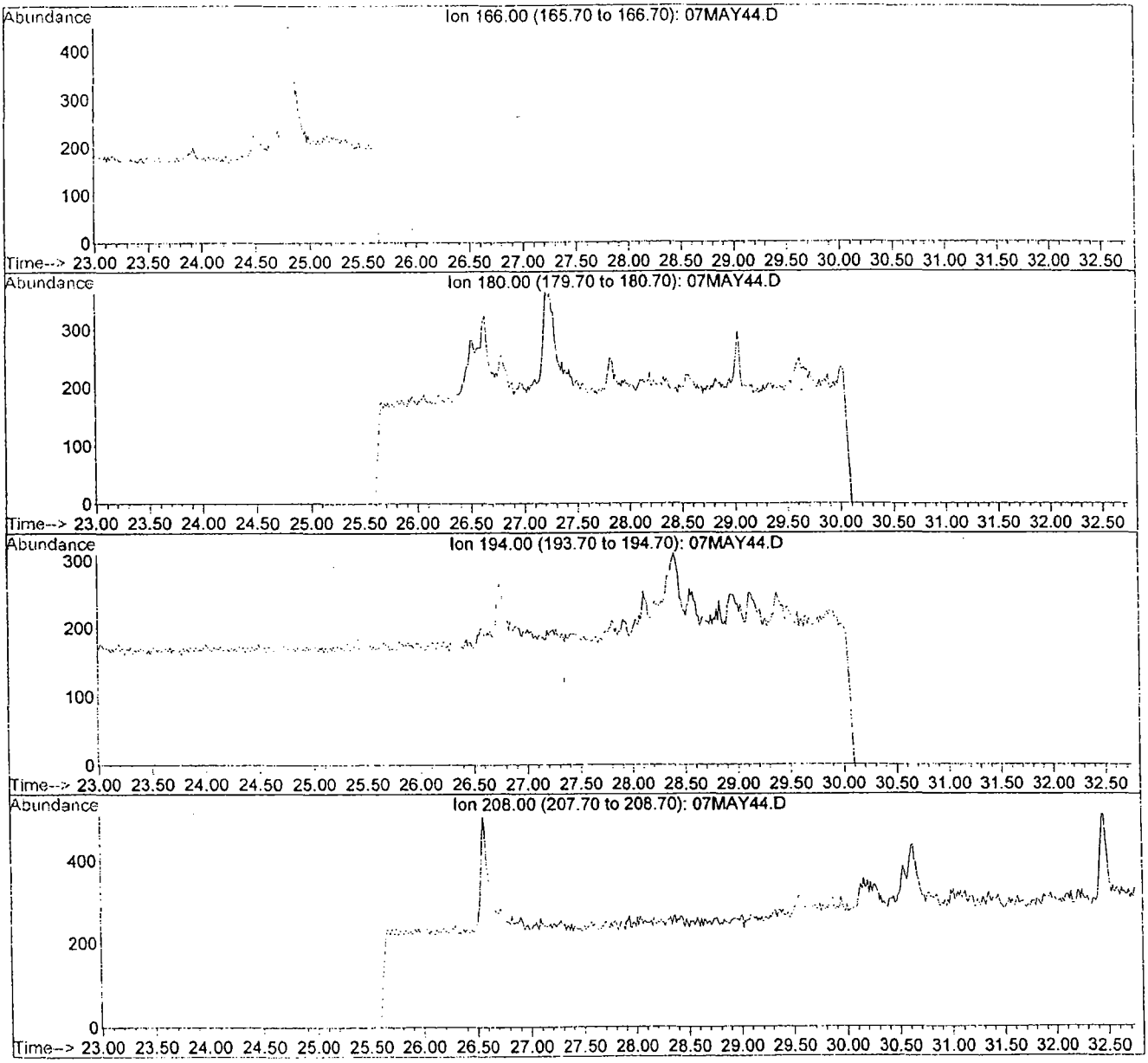
Instrument: GC2-MS_59 Operator: KP

Fluorenes



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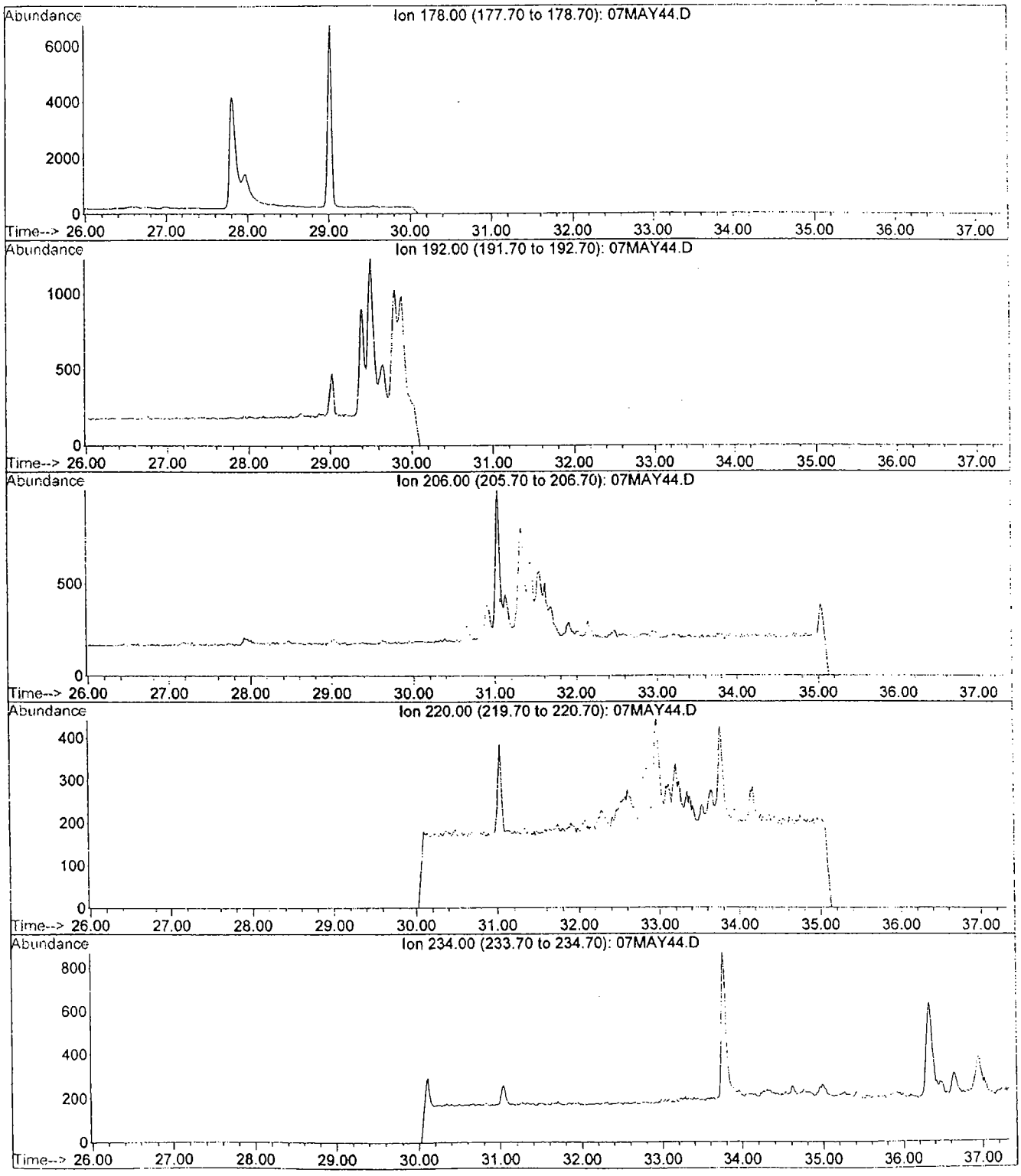
Lab ID: GT030417-01
File: G:\2\DATA\030507\07MAY44.D
Acquired: 9 May 2003 11:54 am using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Phenanthrenes/Anthracenes



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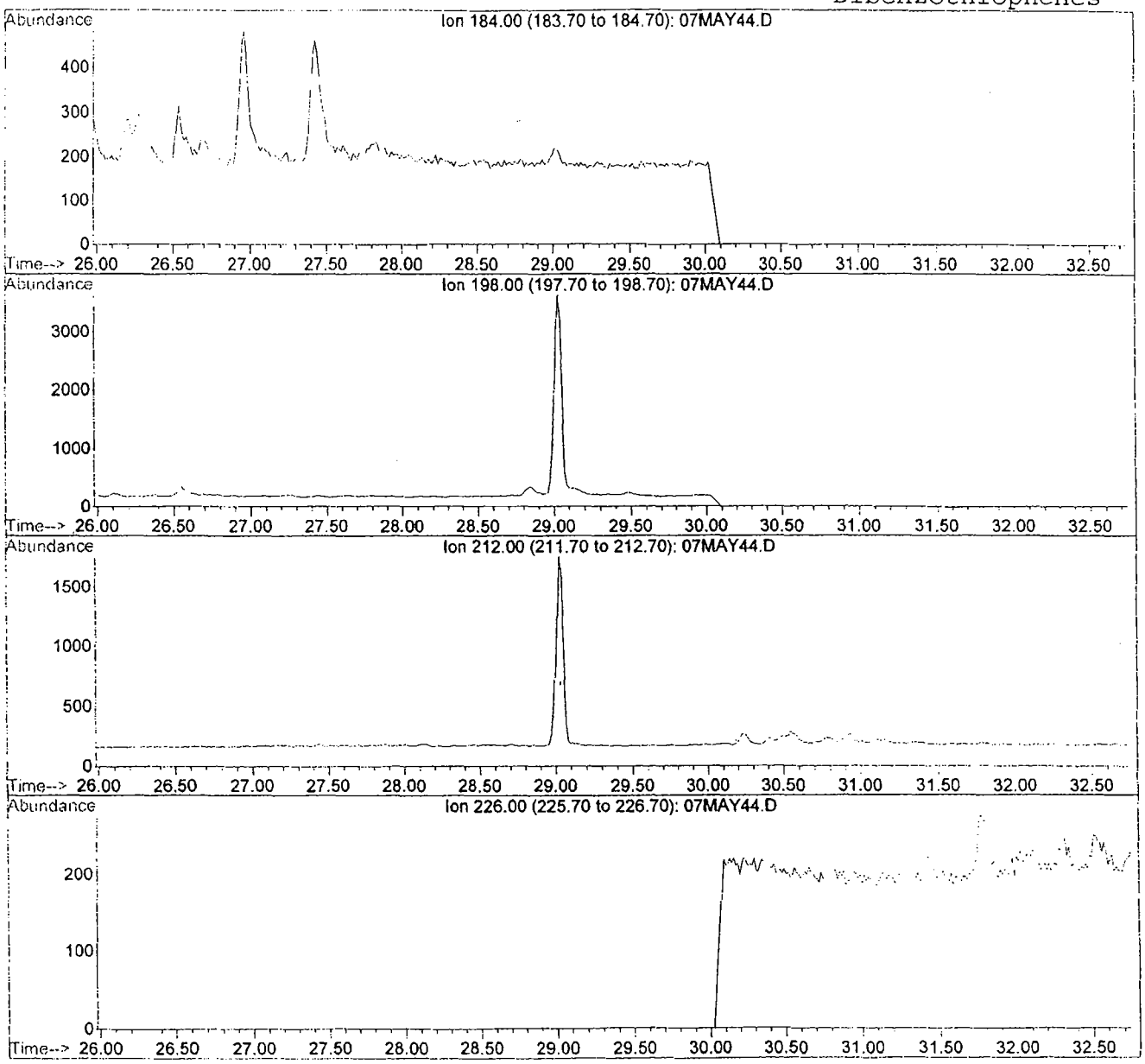
Instrument: GC2-MS_59 Operator: KP

Dibenzothiophenes



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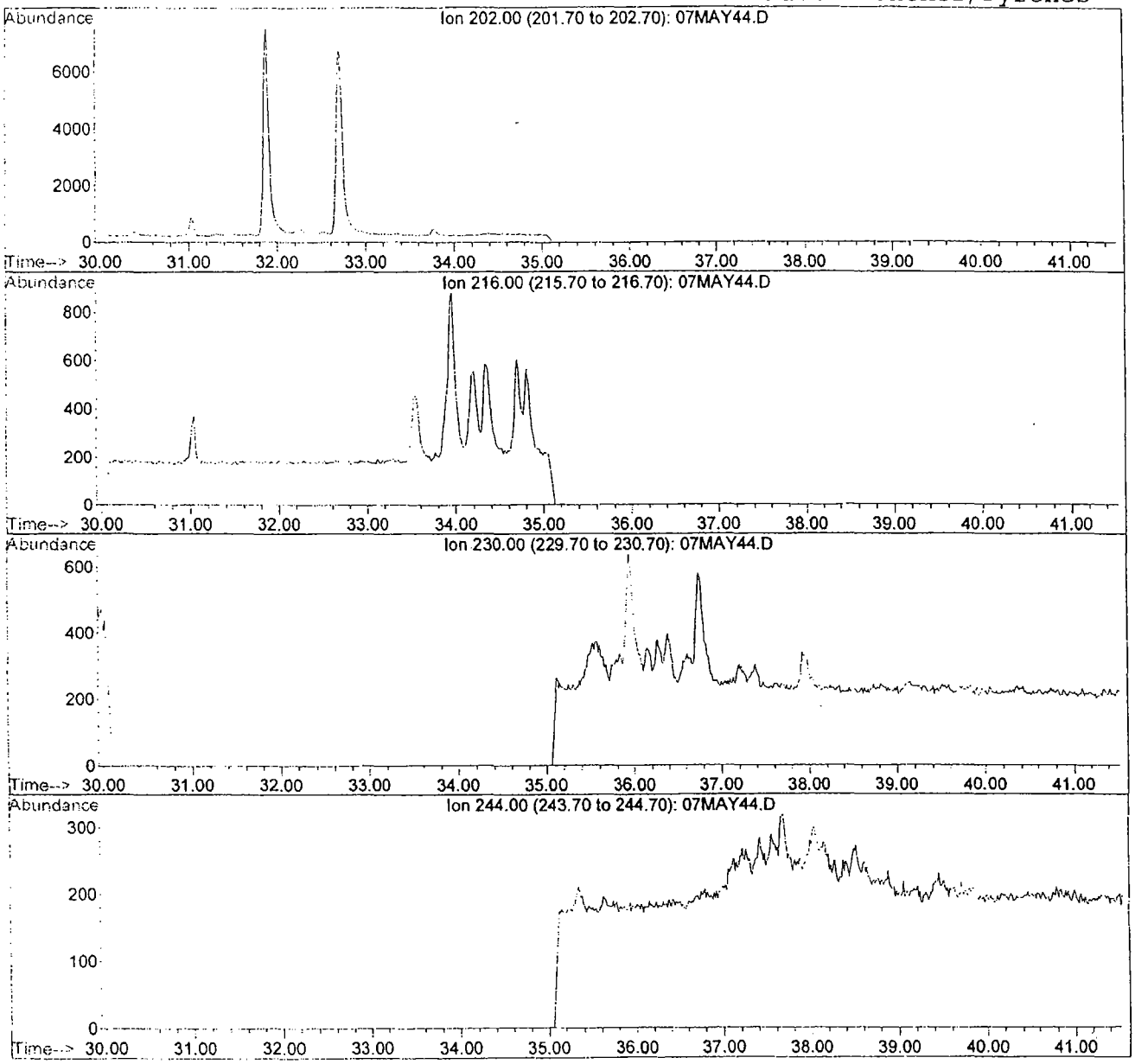
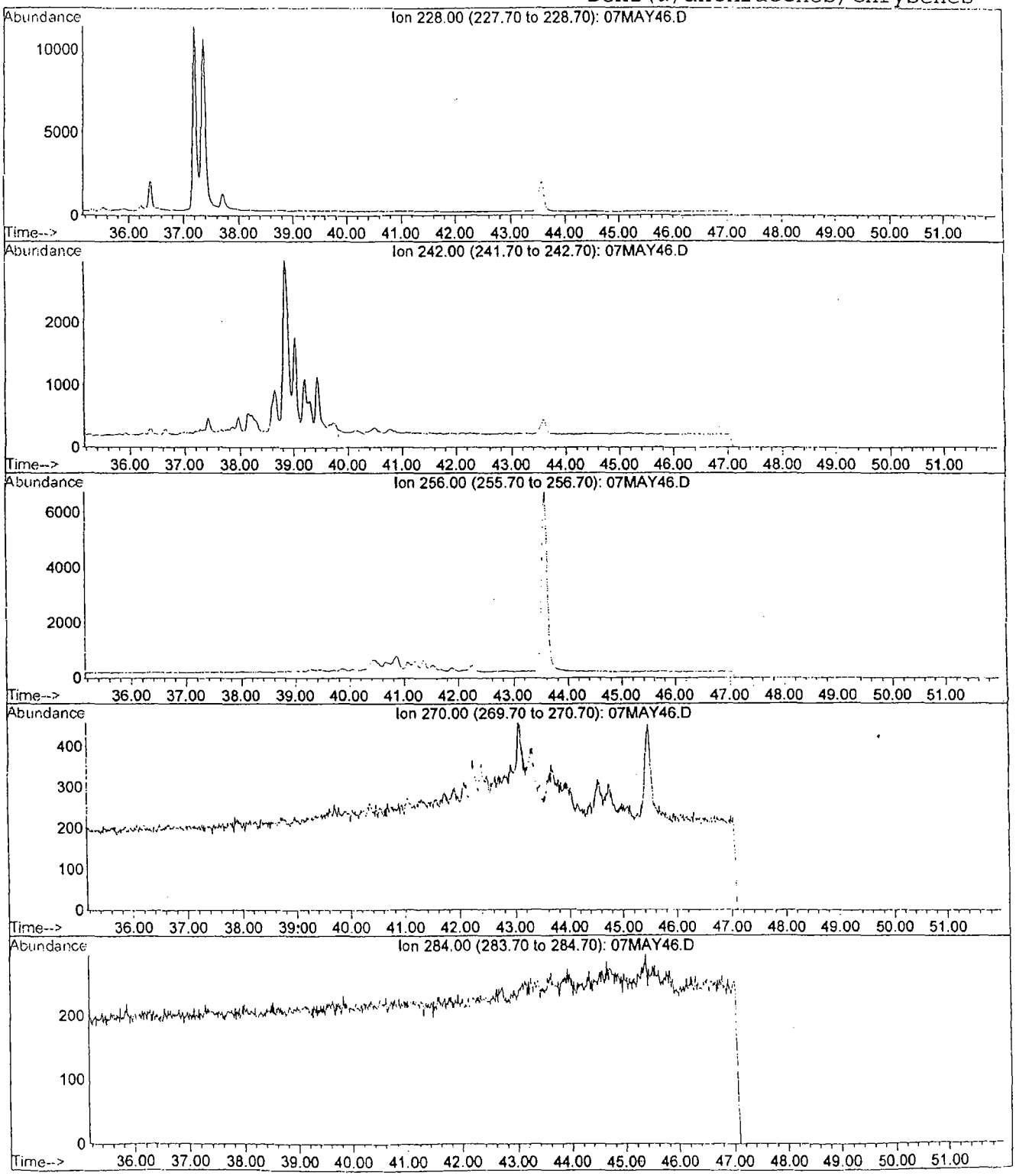
Lab ID: GT030417-01
File: G:\2\DATA\030507\07MAY44.D
Acquired: 9 May 2003 11:54 am using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Fluoranthenes/Pyrenes



Field ID:
Lab ID: GT030417-02
File: G:\2\DATA\030507\07MAY46.D
Acquired: 9 May 2003 2:25 pm using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Benz(a)anthracenes/Chrysenes



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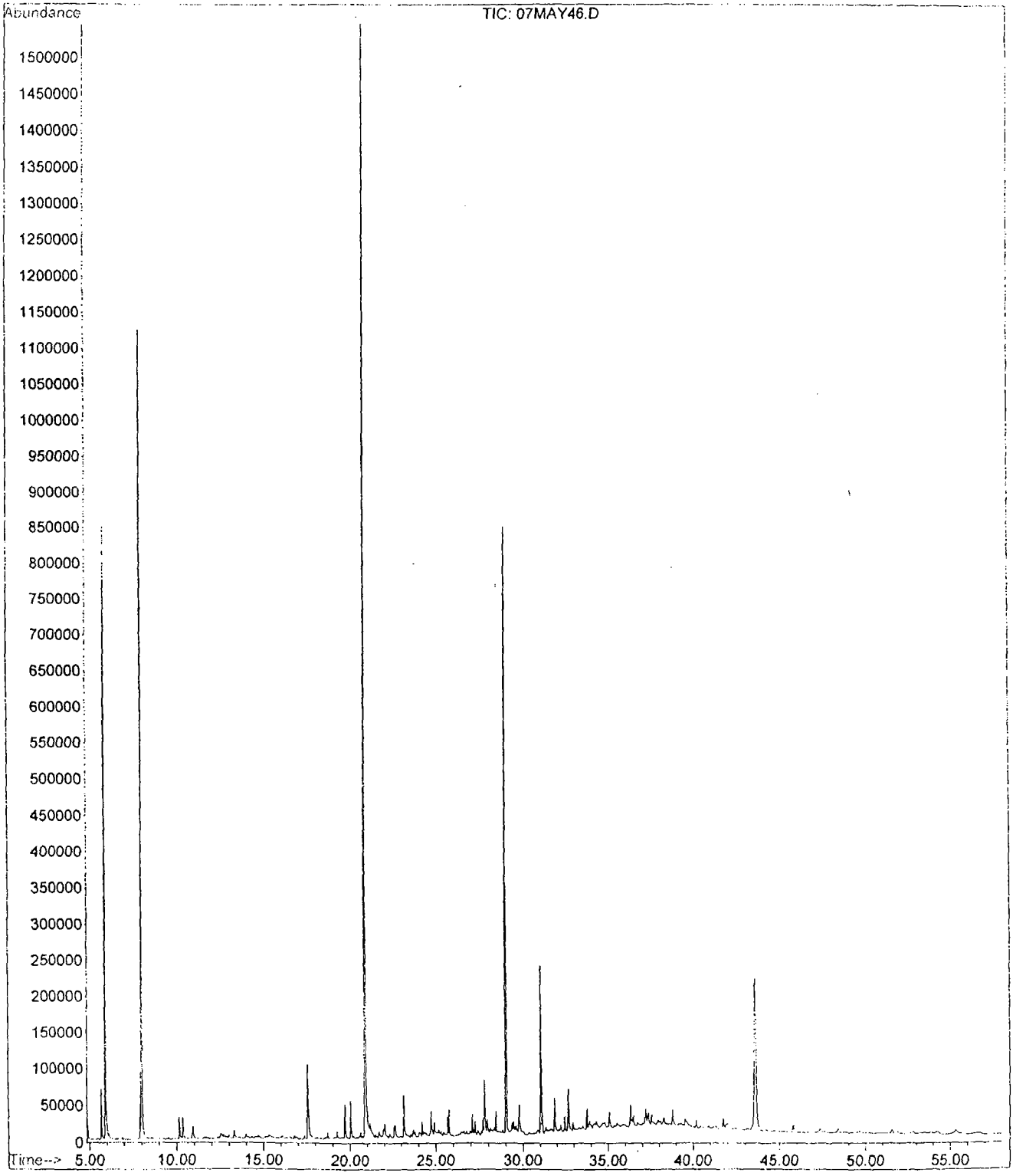
Instrument: GC2-MS_59 Operator: KP



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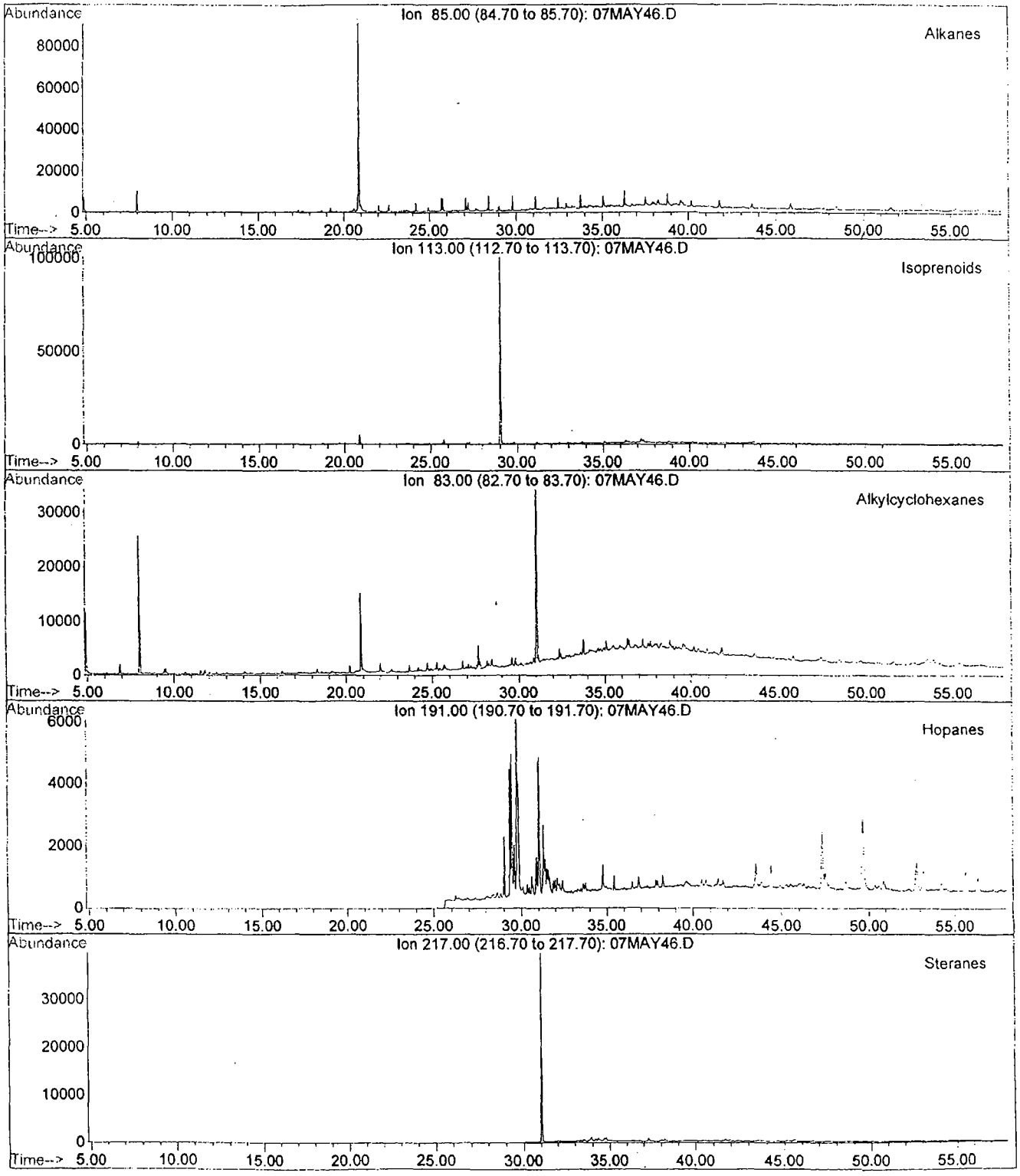
Instrument: GC2-MS_59 Operator: KP



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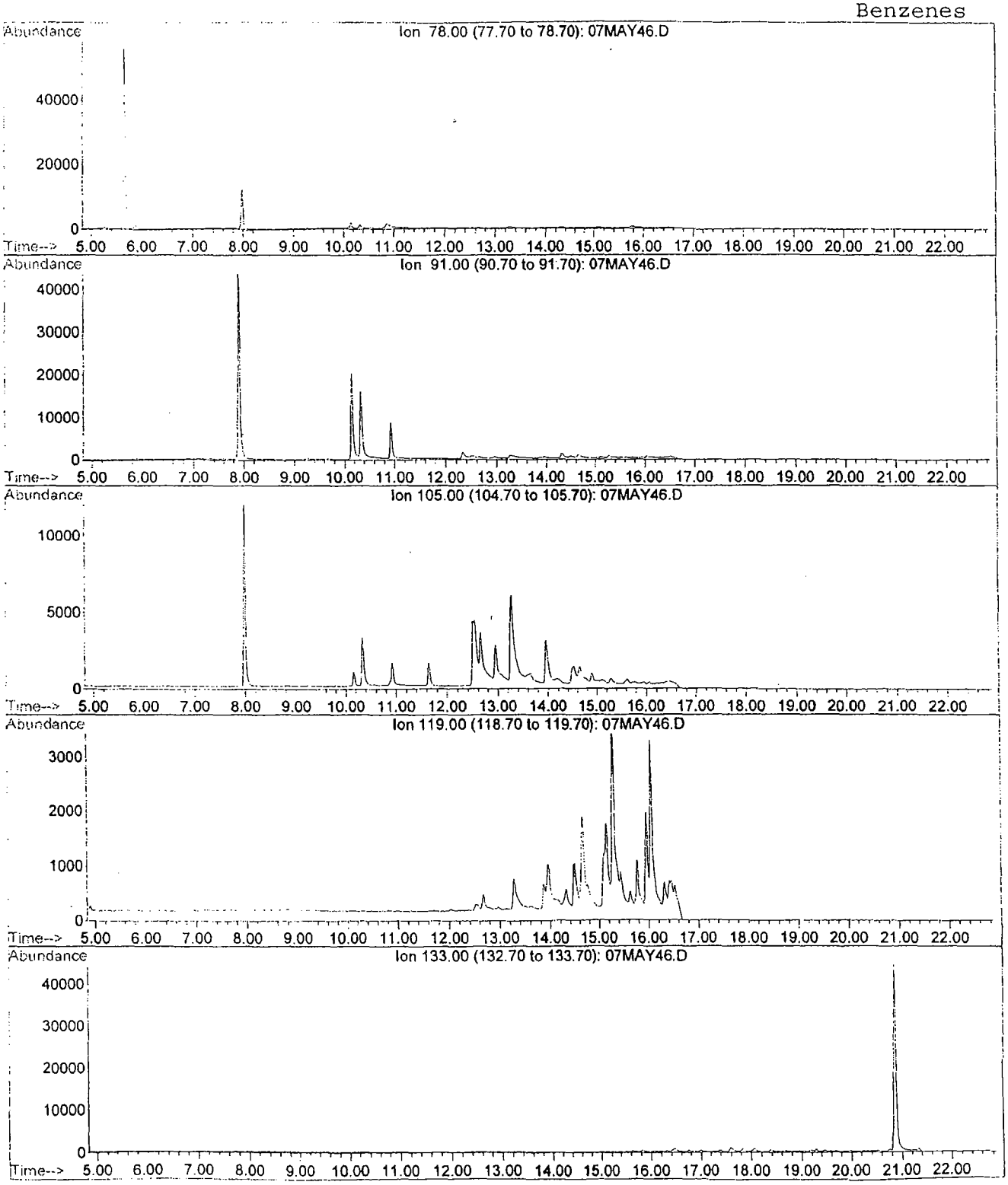
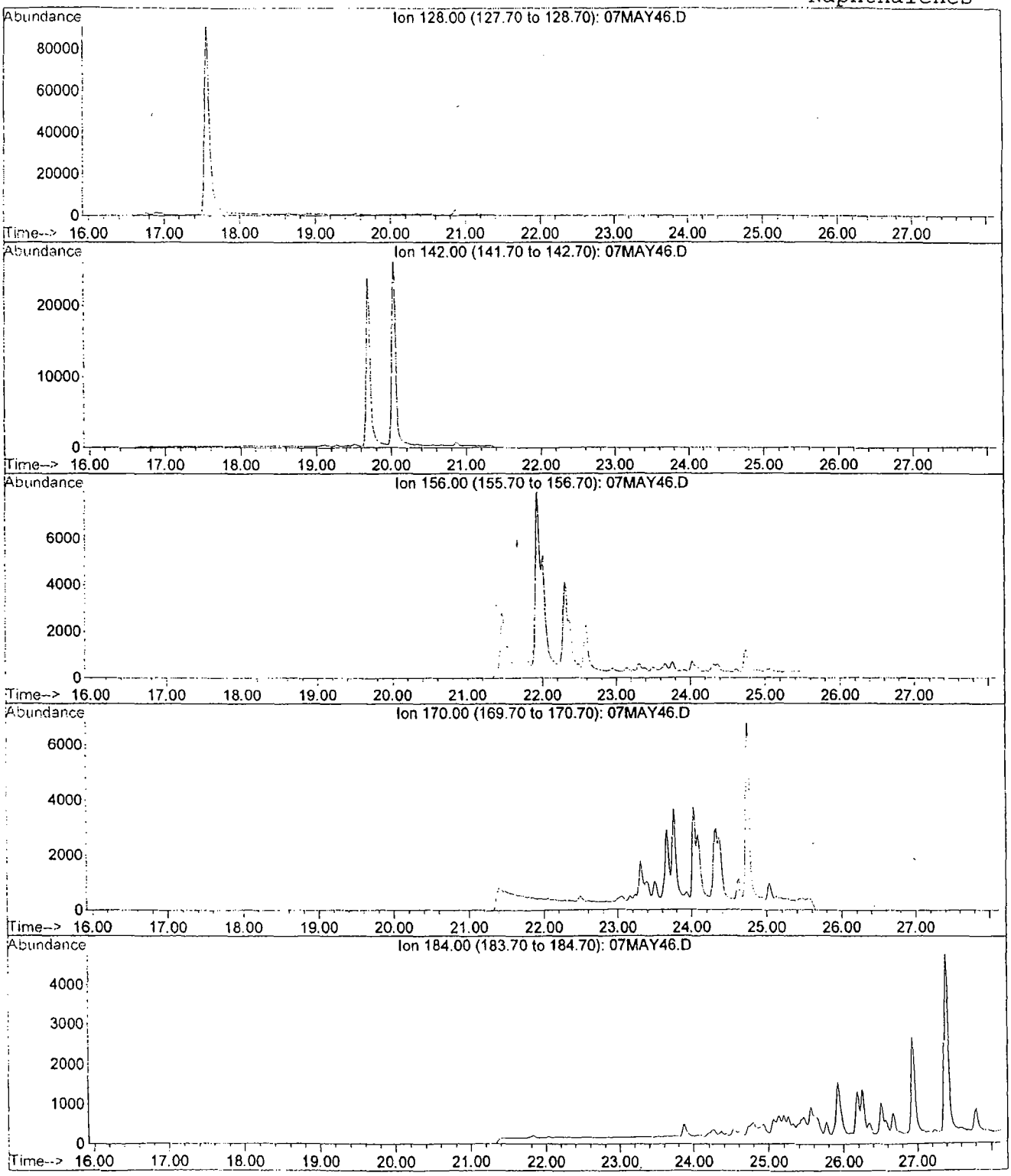
File: G:\2\DATA\030507\07MAY46.D
Acquired: 9 May 2003 2:25 pm using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Benzenes



Field ID:
Lab ID: GT030417-02
File: G:\2\DATA\030507\07MAY46.D
Acquired: 9 May 2003 2:25 pm using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Naphthalenes



Field ID:
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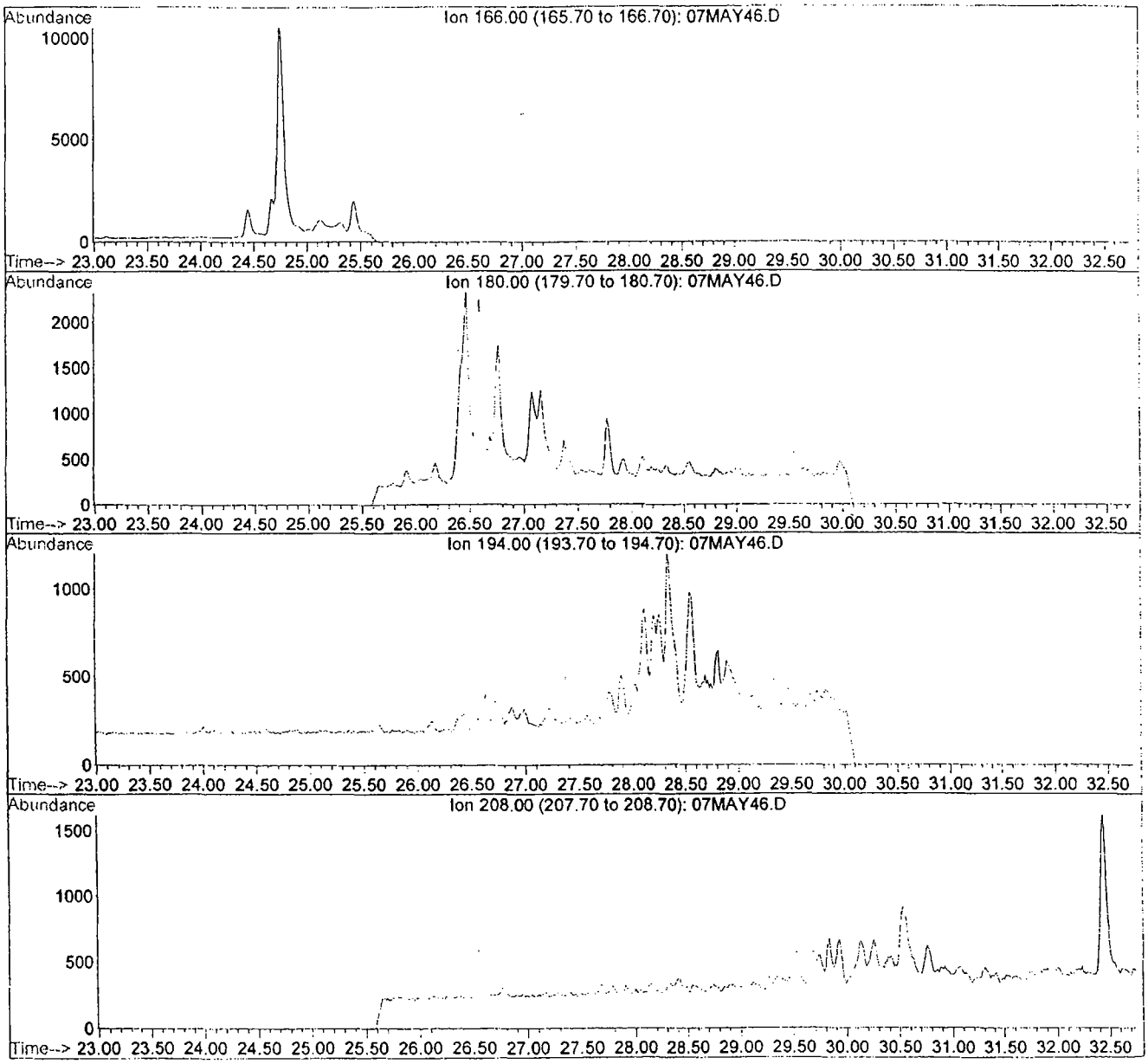
File: G:\2\DATA\030507\07MAY46.D
Acquired: 9 May 2003 2:25 pm using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Fluorenes



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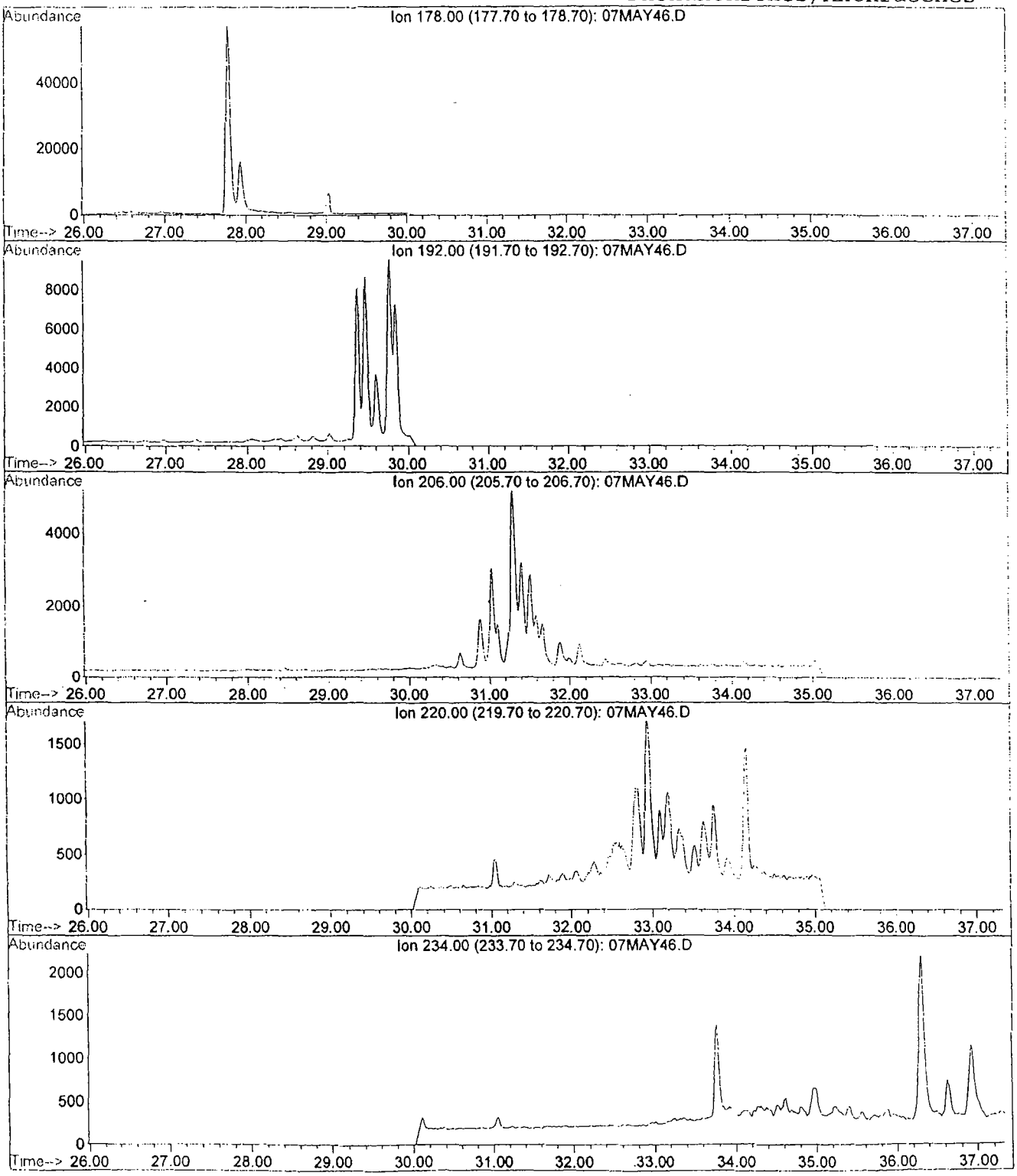
File: G:\2\DATA\030507\07MAY46.D
Acquired: 9 May 2003 2:25 pm using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Phenanthrenes/Anthracenes



Field ID:
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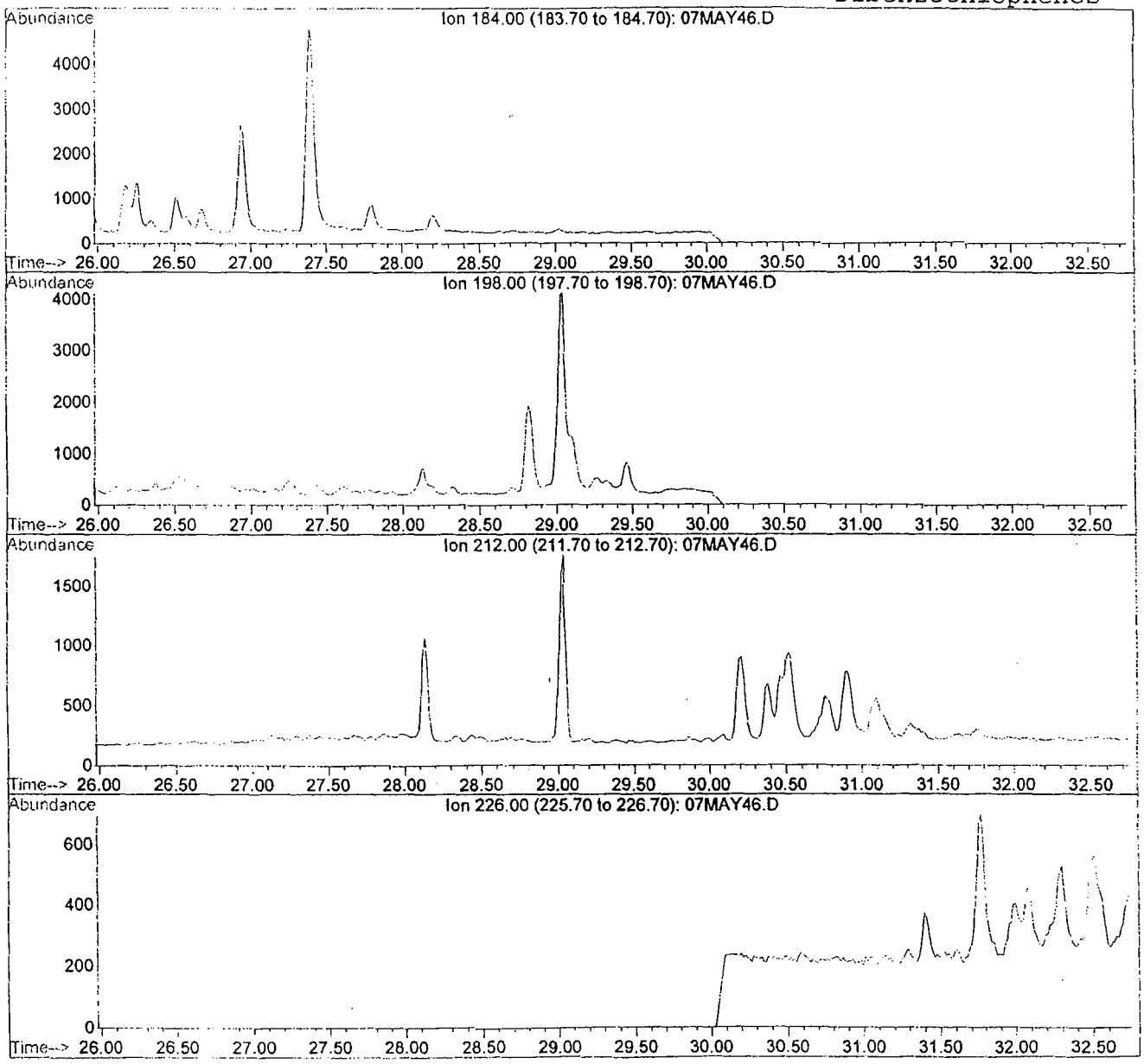
Instrument: GC2-MS_59 Operator: KP

Dibenzothiophenes



Field ID:
Lab ID: GT030417-02
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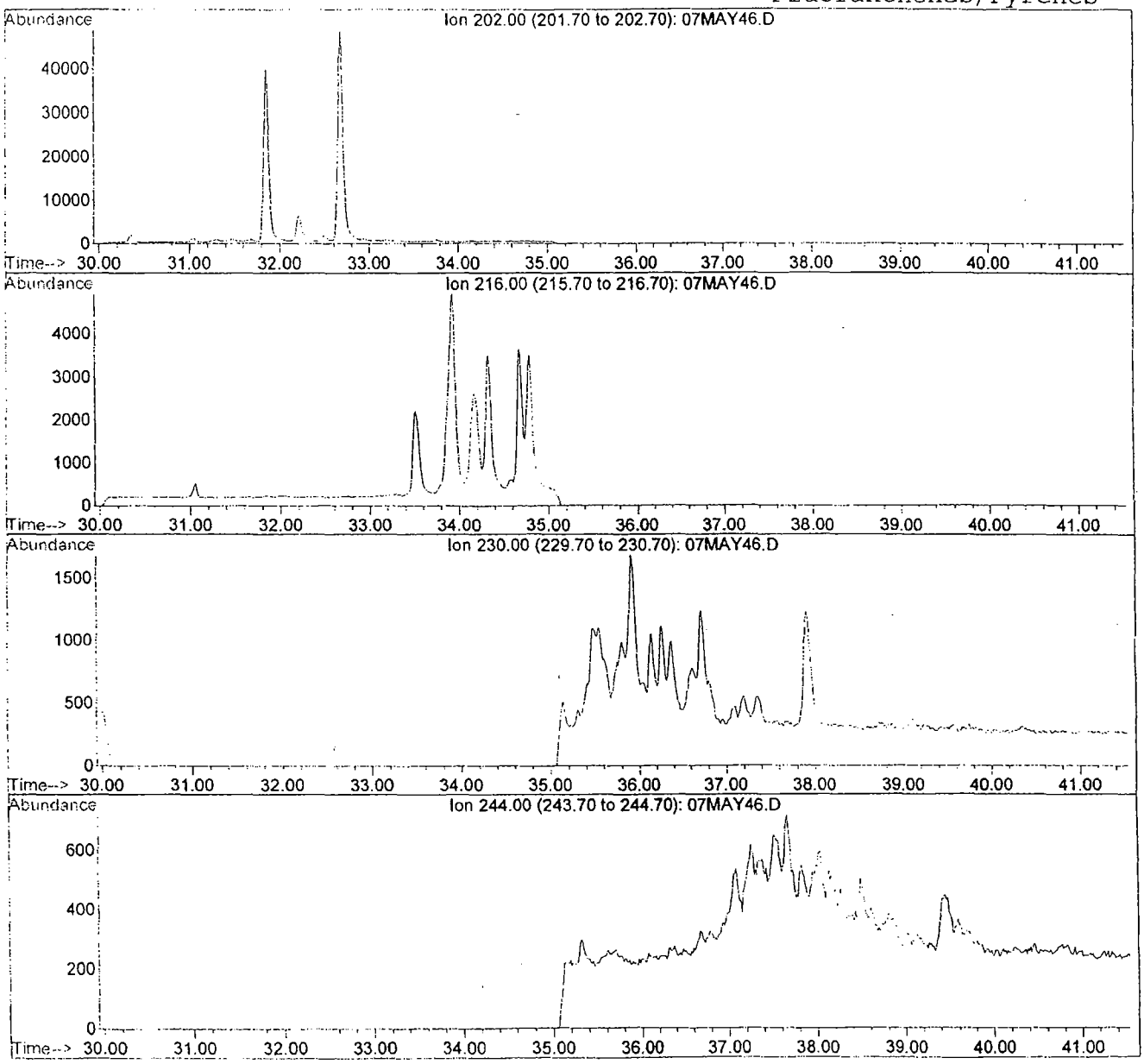
Instrument: GC2-MS_59 Operator: KP

Fluoranthenes/Pyrenes



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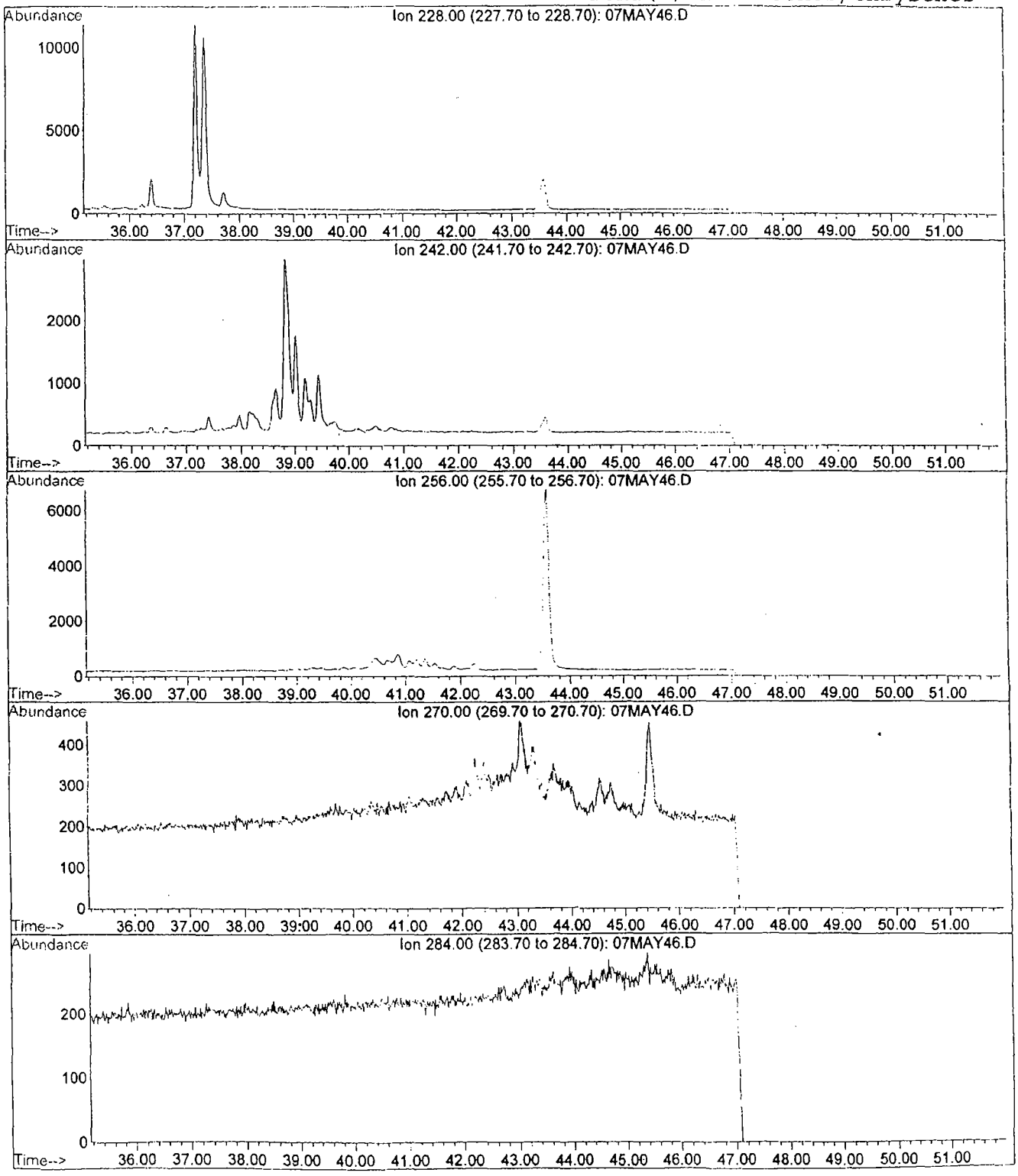
Lab ID: GT030417-02
File: G:\2\DATA\030507\07MAY46.D
Acquired: 9 May 2003 2:25 pm using AcqMethod MET4008
Instrument: GC2-MS_59 Operator: KP

Benz(a)anthracenes/Chrysenes



Field ID:
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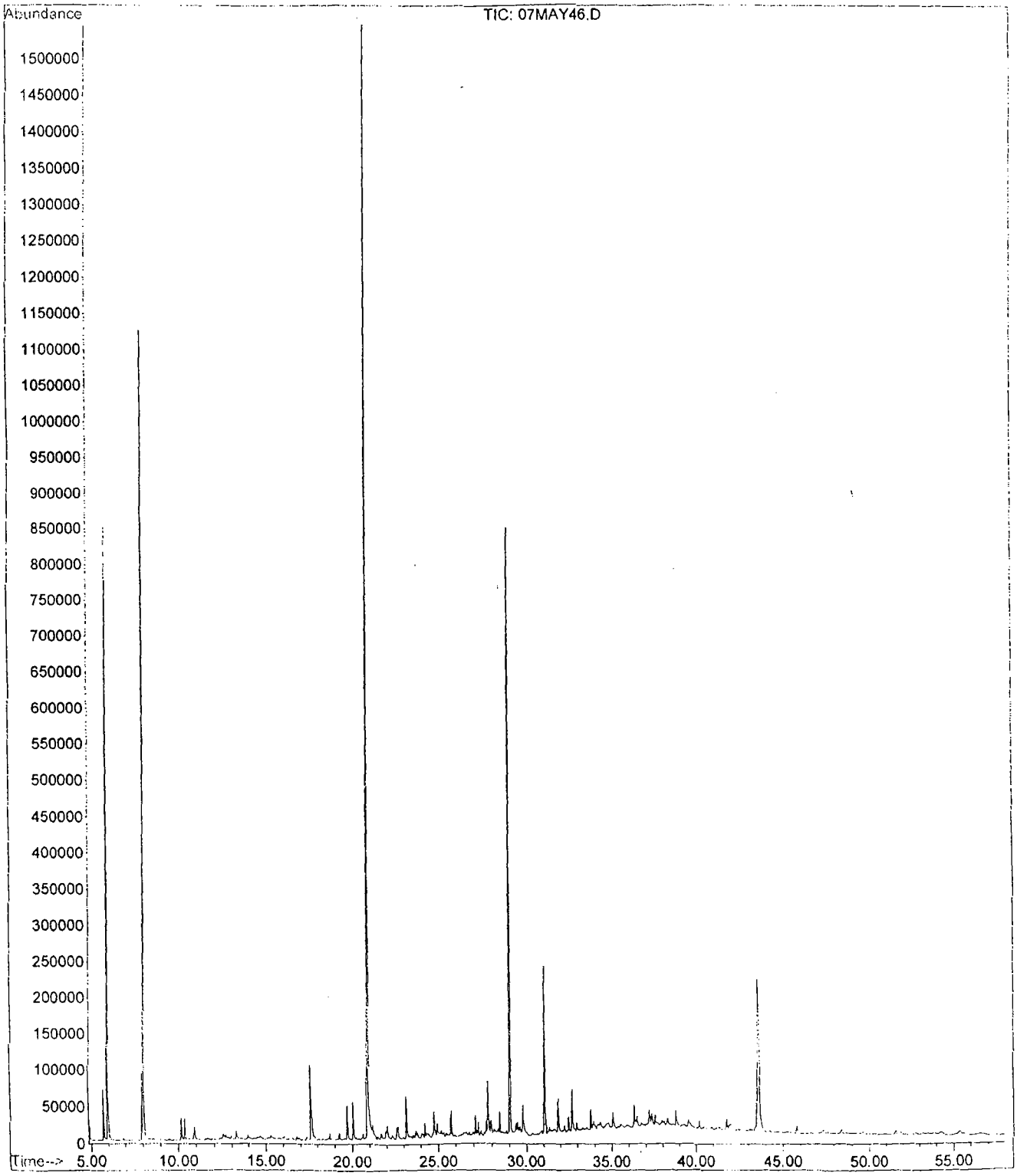
Instrument: GC2-MS_59 Operator: KP



Appendix F
Compound Specific Carbon Isotope Ratios (CSIRs)

Lab ID			GTO30314-01 DF	GTO30314-01 DF	Ave. GTO30314-01 DF	Stdevp. GTO30314-01 DF
Field ID			SD1-0-1	SD1-0-1	SD1-0-1	SD1-0-1
Compound	Peak#	Code				
Naphthalene	14	nap				
2-Methylnaphthalene	15	mn2				
1-Methylnaphthalene	16	mn1				
Acenaphthylene	17	acy				
Acenaphthene	18	ace				
Fluoranthene	20	flu				
Phenanthrene	21	phe	-26.35	-26.14	-26.24	0.11
Anthracene	22	ant	-26.52	-26.09	-26.30	0.21
Fluorene	23	fly	-25.69	-25.63	-25.66	0.03
Pyrene	24	pyr	-26.16	-26.06	-26.11	0.05
Benz(a)anthracene	25	baa	-25.84	-25.08	-25.46	0.38
Chrysene	26	chr	-25.91	-25.78	-25.84	0.07
Benzo(b,k)fluoranthene	27,28	bbkf	-26.03	-25.90	-25.97	0.07
Benz(a)pyrene	29	bap	-28.14	-28.35	-28.25	0.11
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene	30,31	ip_dba				
Benzo(g,h,i)perylene	32	bp				
	9D		-32.16	-31.80	-31.98	0.18
	10D		-33.10	-32.83	-32.97	0.14
	16D		-30.40	-30.90	-30.65	0.25
	19D		-27.06	-27.52	-27.29	0.23
	24D		-26.94	-26.35	-26.65	0.29
	32D		-29.89	-29.87	-29.88	0.01

Lab ID			GTO30314-02 DF	GTO30314-02 DF	Ave. GTO30314-02 DF	Stdevp. GTO30314-02 DF
Field ID			SD2-0-1	SD2-0-1	SD2-0-1	SD2-0-1
Compound	Peak#	Code				
Naphthalene	14	nap	-29.175	-29.156	-29.17	0.01
2-Methylnaphthalene	15	mn2	-27.9	-27.84	-27.87	0.03
1-Methylnaphthalene	16	mn1	-28.40	-27.655	-28.03	0.37
Acenaphthylene	17	acy	-27.40	-26.75	-27.08	0.32
Acenaphthene	18	ace	-26.53	-26.854	-26.69	0.16
Fluoranthene	20	flu	-24.76	-25.15	-24.96	0.20
Phenanthrene	21	phe	-26.18	-26.40	-26.29	0.11
Anthracene	22	ant	-26.90	-26.70	-26.80	0.10
Fluorene	23	fly	-26.25	-26.55	-26.40	0.15
Pyrene	24	pyr	-26.27	-26.71	-26.49	0.22
Benz(a)anthracene	25	baa	-26.29	-26.67	-26.48	0.19
Chrysene	26	chr	-25.76	-26.00	-25.88	0.12
Benzo(b,k)fluoranthene	27,28	bbkf	-25.83	-26.25	-26.04	0.21
Benz(a)pyrene	29	bap	-28.42	-29.08	-28.75	0.33
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene	30,31	ip_dba		-25.95	-25.95	0.00
Benzo(g,h,i)perylene	32	bp		-26.00	-26.00	0
	9D		-32.64	-33.60	-33.12	0.48
	10D		-33.10	-32.94	-33.02	0.08
	16D		-30.60	-31.44	-31.02	0.42
	19D		-26.35	-27.10	-26.73	0.38
	24D		-26.67	-26.47	-26.57	0.10
	32D		-30.22	-30.20	-30.21	0.01

Lab ID			GT030314-03 DF	GT030314-03 DF	Ave. GT030314-03 DF	Stdevp. GTO30314-03 DF
Field ID			SD3-0-1	SD3-0-1	SD3-0-1	SD3-0-1
Compound	Peak#	Code				
Naphthalene	14	nap	-28.43	-28.481	-28.46	0.03
2-Methylnaphthalene	15	mn2	-28.31	-27.56	-27.94	0.38
1-Methylnaphthalene	16	mn1	-27.77	-27.718	-27.74	0.03
Acenaphthylene	17	acy				
Acenaphthene	18	ace	-26.98	-27.66	-27.32	0.34
Fluoranthene	20	flu	-27.82		-27.82	0.00
Phenanthrene	21	phe	-28.37	-27.86	-28.12	0.25
Anthracene	22	ant	-27.16	-27.00	-27.08	0.08
Fluorene	23	fly	-28.63	-28.31	-28.47	0.16
Pyrene	24	pyr	-28.42	-28.43	-28.42	0.00
Benz(a)anthracene	25	baa	-27.70	-27.68	-27.69	0.01
Chrysene	26	chr	-27.96	-27.37	-27.67	0.30
Benzo(b,k)fluoranthene	27,28	bbkf	-27.96	-27.37	-27.67	0.30
Benz(a)pyrene	29	bap	-25.63	-25.52	-25.58	0.05
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene	30,31	ip_dba				
Benzo(g,h,i)perylene	32	bp				
	9D		-33.29	-33.02	-33.16	0.13
	10D		-32.70	-32.76	-32.73	0.03
	16D		-30.53	-31.06	-30.80	0.26
	19D		-27.04	-26.47	-26.76	0.28
	24D		-26.87	-27.06	-26.97	0.09
	32D		-29.89	-29.94	-29.92	0.03

Lab ID			GTO30417-01 DF	GTO30417-01 DF	Ave. GTO30417-01DF	Stdevp. GTO30417-01DF
Field ID			SS-Upstream	SS-Upstream	SS-Upstream	SS-Upstream
Compound	Peak#	Code				
Naphthalene	14	nap				
2-Methylnaphthalene	15	mn2				
1-Methylnaphthalene	16	mn1				
Acenaphthylene	17	acy				
Acenaphthene	18	ace				
Fluoranthene	20	flu				
Phenanthrene	21	phe	-25.31	-25.56	-25.43	0.12
Anthracene	22	ant				
Fluorene	23	fly	-25.76	-25.62	-25.69	0.07
Pyrene	24	pyr	-24.70	-24.66	-24.68	0.02
Benz(a)anthracene	25	baa	-26.77		-26.77	0.00
Chrysene	26	chr	-26.12		-26.12	0.00
Benzo(b,k)fluoranthene	27,28	bbkf	-27.65	-27.65	-27.65	0.00
Benz(a)pyrene	29	bap	-28.34		-28.34	0.00
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene	30,31	ip_dba	-29.62		-29.62	0.00
Benzo(g,h,i)perylene	32	bp				
	9D			-32.26	-32.26	0.00
	10D		-32.91	-32.81	-32.86	0.05
	16D		-30.96	-30.35	-30.66	0.30
	19D		-27.90	-27.33	-27.62	0.28
	24D		-26.86	-26.27	-26.56	0.30
	32D		-29.91	-30.56	-30.24	0.33

Lab ID			GTO30417-02 DF	GTO30417-02 DF	Ave. GTO30417-02 DF	Stdevp. GTO30417-02 DF
Field ID			SS-Outfall	SS-Outfall	SS-Outfall	SS-Outfall
Compound	Peak#	Code				
Naphthalene	14	nap	-29.661	-29.354	-29.51	0.15
2-Methylnaphthalene	15	mn2	-29.242	-29.84	-29.54	0.30
1-Methylnaphthalene	16	mn1	-28.41	-28.469	-28.44	0.03
Acenaphthylene	17	acy	-29.45	-30.721	-30.09	0.63
Acenaphthene	18	ace	-27.96	-27.82	-27.89	0.07
Fluoranthene	20	flu	-27.63	-27.69	-27.66	0.03
Phenanthrene	21	phe	-29.44	-29.25	-29.34	0.10
Anthracene	22	ant	-28.70	-28.70	-28.70	0.00
Fluorene	23	fly	-30.16	-30.19	-30.18	0.02
Pyrene	24	pyr	-30.10	-30.24	-30.17	0.07
Benz(a)anthracene	25	baa	-28.70	-28.60	-28.65	0.05
Chrysene	26	chr	-29.05	-29.04	-29.04	0.00
Benzo(b,k)fluoranthene	27,28	bbkf	-29.89	-29.37	-29.63	0.26
Benz(a)pyrene	29	bap	-30.67	-30.15	-30.41	0.26
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene	30,31	ip_dba	-29.24	-29.74	-29.49	0.25
Benzo(g,h,i)perylene	32	bp	-29.65	-29.96	-29.81	0.155
	9D		-32.47	-31.68	-32.08	0.39
	10D		-32.84	-32.85	-32.84	0.00
	16D		-29.98	-30.09	-30.04	0.06
	19D		-27.34	-27.43	-27.39	0.05
	24D		-26.09	-27.07	-26.58	0.49
	32D		-30.14	-29.75	-29.95	0.20

Lab ID			GTO21121-01 DF	GTO21121-01 DF	GTO21121-01 DF	Ave. GTO21121-01 DF	Stdevp. GTO21121-01 DF
Field ID			T-10-3	T-10-3	T-10-3	T-10-3	T-10-3
Compound	Peak#	Code					
Naphthalene	14	nap	OL	-28.677	-28.87	-28.78	0.098
2-Methylnaphthalene	15	mn2	-28.682	-28.709	-29.29	-28.89	0.2885
1-Methylnaphthalene	16	mn1	-28.35	-28.37	-29.08	-28.60	0.35
Acenaphthylene	17	acy	-26.22	-25.82	-26.88	-26.31	0.53
Acenaphthene	18	ace	-29.43	-29.24	-29.53	-29.40	0.15
Fluoranthene	20	flu	-27.69	-27.54	-27.71	-27.65	0.09
Phenanthrene	21	phe	OL	-29.90	-29.49	-29.70	0.20
Anthracene	22	ant	-29.65	-29.28	-29.43	-29.45	0.07
Fluorene	23	fly	-31.42	-31.09	-30.70	-31.07	0.20
Pyrene	24	pyr	-31.12	-30.84	-30.18	-30.71	0.33
Benz(a)anthracene	25	baa	-28.63	-29.05	-28.88	-28.85	0.09
Chrysene	26	chr	-29.34	-29.67	-29.25	-29.42	0.21
Benzo(b,k)fluoranthene	27,28	bbkf	-30.23	-30.29	-30.06	-30.19	0.11
Benz(a)pyrene	29	bap	-30.06	-30.95	-30.26	-30.42	0.34
Indeno(1,2,3-cd)pyrene							
Dibenz(a,h)anthracene	30,31	ip_dba	-29.77			-29.77	
Benzo(g,h,i)perylene	32	bp	-30.26			-30.26	
	9D		-31.90	-31.95	-31.89	-31.92	0.00
	10D		-31.85	-32.66	-32.85	-32.25	0.00
	16D		-30.85	-30.14	-30.72	-30.57	0.29
	19D		-27.39	-27.20	-27.66	-27.42	0.23
	24D		-27.11	-26.78	-26.55	-26.81	0.12
	32D		-29.34	-29.84	-30.10	-29.76	0.13

Lab ID			GT020924-02 DF	GT020924-02 DF	Ave. GTO20924-02 DF	Stdevp. GTO20924-02 DF
Field ID			T10-2	T10-2	T10-2	T10-2
Compound	Peak#	Code				
Naphthalene	14	nap	-28.019	-27.917	-27.97	0.05
2-Methylnaphthalene	15	mn2	-28.9	-28.28	-28.59	0.31
1-Methylnaphthalene	16	mn1	-28.14	-27.864	-28.00	0.14
Acenaphthylene	17	acy	-30.29	-30.858	-30.58	0.28
Acenaphthene	18	ace	-29.40	-29.913	-29.66	0.26
Fluoranthene	20	flu	-29.87	-29.90	-29.88	0.01
Phenanthrene	21	phe	-29.72	-29.78	-29.75	0.03
Anthracene	22	ant	-29.83	-29.50	-29.67	0.16
Fluorene	23	fly	-30.76	-30.56	-30.66	0.10
Pyrene	24	pyr	-30.71	-30.35	-30.53	0.18
Benz(a)anthracene	25	baa	-30.38	-29.32	-29.85	0.53
Chrysene	26	chr	-30.62	-29.77	-30.19	0.43
Benzo(b,k)fluoranthene	27,28	bbkf	-30.53	-29.92	-30.22	0.31
Benz(a)pyrene	29	bap	-30.46	-30.12	-30.29	0.17
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene	30,31	ip_dba	-30.63	-30.56	-30.60	0.04
Benzo(g,h,i)perylene	32	bp	-31.44	-30.44	-30.94	0.5
	9D		-31.34	-31.71	-31.53	0.18
	10D		-32.91	-32.66	-32.79	0.13
	16D		-31.19	-31.23	-31.21	0.02
	19D		-29.03	-28.99	-29.01	0.02
	24D		-27.59	-27.02	-27.31	0.28
	32D		-30.24	-29.78	-30.01	0.23

Lab ID Field ID			GT020294-03 DF B-11-12-13	GT020294-03 DF B-11-12-13	Ave. GT020294-03 DF B-11-12-13	Stdevp. GT020294-03 DF B-11-12-13
Compound	Peak#	Code				
Naphthalene	14	nap	-27.41	-27.252	-27.33	0.08
2-Methylnaphthalene	15	mn2	-28.874	-29.56	-29.22	0.34
1-Methylnaphthalene	16	mn1	-28.55	-29.27	-28.91	0.36
Acenaphthylene	17	acy	-29.04	-30.692	-29.87	0.83
Acenaphthene	18	ace	-29.87	-29.722	-29.79	0.07
Fluoranthene	20	flu	-30.13	-29.68	-29.91	0.23
Phenanthrene	21	phe	-29.91	-29.50	-29.70	0.21
Anthracene	22	ant	-29.11	-29.10	-29.11	0.01
Fluorene	23	fly	-30.89	-30.70	-30.79	0.09
Pyrene	24	pyr	-30.32	-30.36	-30.34	0.02
Benz(a)anthracene	25	baa	-29.65	-29.99	-29.82	0.17
Chrysene	26	chr	-29.12	-29.50	-29.31	0.19
Benzo(b,k)fluoranthene	27,28	bbkf	-29.91	-29.25	-29.58	0.33
Benz(a)pyrene	29	bap	-31.63	-31.34	-31.49	0.14
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene	30,31	ip_dba				
Benzo(g,h,i)perylene	32	bp				
	9D		-31.74	-31.25	-31.50	0.24
	10D		-33.01	-32.76	-32.89	0.12
	16D		-30.79	-30.25	-30.52	0.27
	19D		-28.91	-28.39	-28.65	0.26
	24D		-26.87	-26.28	-26.58	0.30
	32D		-29.93	-30.15	-30.04	0.11

Lab ID			GTO20924-04DF	GTO20924-04DF	Ave. GTO20924-04DF	Stdevp. GTO20924-04DF
Field ID			B-12-11-12	B-12-11-12	B-12-11-12	B-12-11-12
Compound	Peak#	Code				
Naphthalene	14	nap	-29.001	-29.458	-29.23	0.23
2-Methylnaphthalene	15	mn2	-29.585	-30.299	-29.94	0.36
1-Methylnaphthalene	16	mn1	-28.80	-28.454	-28.63	0.17
Acenaphthylene	17	acy	-29.12	-30.124	-29.62	0.50
Acenaphthene	18	ace	-29.98	-29.296	-29.64	0.34
Fluoranthene	20	flu	-28.73	-29.67	-29.20	0.47
Phenanthrene	21	phe	-29.29	-29.59	-29.44	0.15
Anthracene	22	ant	-28.67	-28.88	-28.77	0.11
Fluorene	23	fly	-30.70	-30.41	-30.56	0.14
Pyrene	24	pyr	-30.27	-30.23	-30.25	0.02
Benz(a)anthracene	25	baa	-28.86	-29.15	-29.00	0.15
Chrysene	26	chr	-29.27	-29.48	-29.38	0.11
Benzo(b,k)fluoranthene	27,28	bbkf	-29.87	-29.27	-29.57	0.30
Benz(a)pyrene	29	bap	-31.36	-31.14	-31.25	0.11
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene	30,31	ip_dba	-30.84		-30.84	0.00
Benzo(g,h,i)perylene	32	bp	-32.166		-32.17	0
	9D		-31.42	-31.51	-31.47	0.05
	10D		-33.09	-32.73	-32.91	0.18
	16D		-31.91	-31.84	-31.87	0.03
	19D		-27.88	-28.41	-28.15	0.26
	24D		-26.63	-26.68	-26.66	0.03
	32D		-29.90	-29.86	-29.88	0.02

Lab ID Field ID			GT020924-05 DF B-13-12-13	GT020924-05 DF B-13-12-13	Ave. GT020924-05 DF B-13-12-13	Stdevp. GT020924-05 DF B-13-12-13
Compound	Peak#	Code				
Naphthalene	14	nap	-29.207	-29.224	-29.22	0.01
2-Methylnaphthalene	15	mn2	-28.58	-28.6	-28.59	0.01
1-Methylnaphthalene	16	mn1	-28.48	-28.3	-28.39	0.09
Acenaphthylene	17	acy	-31.06		-31.06	0.00
Acenaphthene	18	ace	-29.00		-29.00	0.00
Fluoranthene	20	flu	-28.85	-29.65	-29.25	0.40
Phenanthrene	21	phe	-29.57	-29.92	-29.74	0.17
Anthracene	22	ant	-28.61	-28.28	-28.45	0.16
Fluorene	23	fly	-31.10	-31.10	-31.10	0.00
Pyrene	24	pyr	-30.84	-30.88	-30.86	0.02
Benz(a)anthracene	25	baa	-29.83	-28.95	-29.39	0.44
Chrysene	26	chr	-29.17	-29.56	-29.36	0.20
Benzo(b,k)fluoranthene	27,28	bbkf	-29.56	-29.71	-29.64	0.08
Benz(a)pyrene	29	bap	-30.33	-30.28	-30.30	0.02
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene	30,31	ip_dba				
Benzo(g,h,i)perylene	32	bp	-30.09		-30.09	0
	9D		-31.38	-31.63	-31.51	0.13
	10D		-32.93	-32.87	-32.90	0.03
	16D			-30.99	-30.99	0.00
	19D		-27.52	-26.75	-27.13	0.38
	24D		-26.49	-26.72	-26.60	0.12
	32D		-29.65	-29.69	-29.67	0.02