SITE ASSESSMENT FOR PROPOSED COKE POINT DREDGED MATERIAL CONTAINMENT FACILITY AT SPARROWS POINT

BALTIMORE COUNTY, MARYLAND

ATTACHMENT IV

Analytical Report – Environmental Forensics for Soil and Sediment Samples

Prepared for:

Maryland Port Administration
2310 Broening Highway
Baltimore, Maryland 21224

Under Contract to:

Maryland Environmental Service

Maryland Environmental Service
259 Najoles Road
Millersville, MD 21108

Prepared by:

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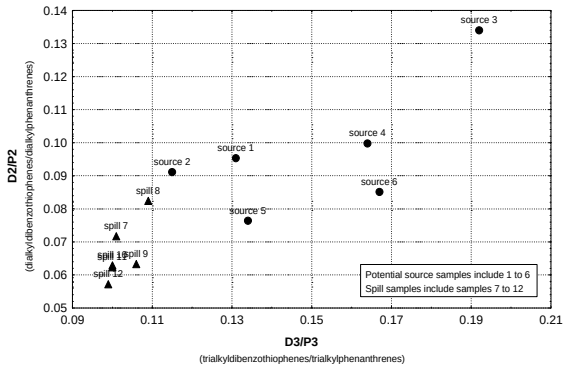
ONSHORE FORENSIC REPORT

Environmental Forensic Report

Sparrow's Point

SDGs: TA090520, TA090528
TA090529, TA090603
TA090610

Figure 1. Double Ratio Plot



Report To:

TestAmerica
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238

Report By:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472

July 17, 2009

Identifying and allocating sources of pollutants in complex environments.

META Environmental, Inc.
ENGINEERING & CHEMISTRY

Final Laboratory Report

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Certification

This certifies that this package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed herein. The results included in this data report relate only to the samples as received and analyzed by the laboratory.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager and Quality Assurance Officer, as verified by the following signatures.

James A. Roush — July 17, 2009
Environmental Scientist, Laboratory Manager

David M. Mauro — July 17, 2009
Senior Scientist, Quality Assurance Officer

Sample Delivery Group Narrative

Project:	Sparrow's Point
Client	TestAmerica 301 Alpha Drive RIDC Park Pittsburgh, PA 15238
Report Contact:	Carrie Gamber
Dates of Receipt:	May 20th, 28th, and 29th; and June 3rd, and 10th of 2009
Sample Summary:	The samples received for this project are summarized in the attached sample login forms.
META Project Number:	T06006
SDG No.:	TA090520, TA090528, TA090529, TA090603, TA090610
Total Pages in Report:	245

Chain of Custody

The samples were received in good condition. The internal temperatures of two of the shipping containers were slightly outside the recommended 2-6°C range and were as follows:

Samples received: 05/20/2009	0°C	Ice present
Samples received: 05/28/2009	0°C	Ice present
Samples received: 05/29/2009	0°C	Ice present
Samples received: 06/03/2009	0°C	Ice present
Samples received: 06/10/2009	0°C	Ice present

Internal chain of custody procedures were followed after sample receipt. Samples were stored in a locked refrigerator. A sample custody logbook contains the record of sample removal from the secure sample storage area to the sample preparation laboratory. The custody record for the sample extracts is present on the sample extraction logbook page.

The disposal of samples and extracts will be authorized one month after the release of this data report. Sample disposal will be documented.

Methods

The soil samples were prepared by solvent extraction (EPA 3570) using dichloromethane (DCM). The extracts were spiked with internal standard and analyzed by GC/FID (EPA 8100M) for fingerprinting and by GC/MS/SIM (EPA 8270M) for mono- and polycyclic aromatic hydrocarbons (MAHs and PAHs), alkyl PAH homologues and other selected compounds.

A portion of the extract was also sent to Oklahoma University for compound-specific stable carbon isotope ratios (CSIR) of PAHs.

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Results

Sample results are presented in several appendices which follow this narrative.

Appendix B: GC/FID Fingerprints
Appendix C: MAH/PAH Concentrations
Appendix D: Extended MAH/PAH Profiles - Histograms
Appendix E: Extracted Ion Current Profiles (EICPs)
Appendix F: Stable Carbon Compound Specific Isotope Ratios (CSIR) Results

Quality Control

Analyte Flags

The detection limits were determined as the sample equivalent of the lowest linear initial calibration standard. Analytes measured between 50% and 100% of the lowest standard were reported as "estimated" and flagged with the letter "J." Undetected analytes were reported as null and flagged with the letter, "U." Analytes marked with a "B" were detected in the associated blank and should be reviewed for a possible positive bias. No deviations were thought significant enough to compromise the integrity of the reported values.

Holding Times

The soil samples were extracted within holding times. The samples and extracts were stored at 4°C ± 2°C prior to extraction and analysis. The extracts were analyzed within 40 days of sample preparation.

Surrogate Spikes

Extraction surrogates were added to all samples prior to extraction. All surrogate compounds were recovered within the 50%-120% acceptable criterion.

Blanks

Various MAHs and/or PAHs were detected below or just above the reporting limit (RL) in soil blanks QC090522-SB, QC090601-SB, QC090609-SB, and QC090615-SB1. As these compounds were generally detected in the field samples at much higher relative concentrations (greater than 10x the blank levels) positive bias does not appear to be significant.

Blank Spikes

A blank spike sample was extracted with each soil batch. All spiked compounds were recovered within criteria with the following exceptions. Benzene was under-recovered in soil blank spike QC090601-SBS (65%).

Duplicates

Samples BP-SO-B03-18, BP-SO-B05-06, BP-SO-B025-8, CT-SO-B01-20, and CT-SO-B05-20 were extracted and analyzed in duplicate. Relative percent differences are reported with the sample results in Appendix C.

Internal Standards

Internal standards were recovered within acceptable QC limits (50%-200%) relative to the continuing calibration standards.

Interpretation

Introduction

Five samples of soil were received by META from the Sparrow's Point site in May and June of 2009. The samples was analyzed for hydrocarbon fingerprint, an expanded list of MAHs and PAHs, and CSIRs of PAHs

This report summarizes the findings and compares the samples.

Description of Chemical Fingerprinting Methodology

A detailed introduction and description of fingerprinting technology can be found in the Sparrow's Point report dated May 15th, 2009.

Sample-Specific Observations

BP-SO-B03-18

Sample BP-SO-B03-18 contained pyrogenic materials. The pyrogenic materials were indicated by a wide range distribution of low concentration monocyclic and unsubstituted polycyclic aromatic hydrocarbons (MAHs & PAHs) with benzene, toluene, and naphthalene most abundant.

The sample contained higher concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX) than the PAHs. This suggests the presence of either a product of the distillation of coal tar such as “light oil” which contains primarily the BTEX compounds; or dissolved phase impacts present in the porewater surrounding the soil/sediment. As BTEX compounds are more soluble than the higher molecular weight PAHs, the concentrations of the BTEX would be expected to be higher. The specific source of the MAHs could not be determined with the available data.

The total PAH value (1.47 ppm) was relatively low; however the pyrogenic pattern of PAHs present is consistent with many tar products. The ratio of fluoranthene to pyrene of about 1.2 indicates that the high molecular weight pyrogenic component of this sample is similar to coal tars in META’s library as well as many background (e.g., combustion) sources. Sources of coal tar include, but are not limited to, manufactured gas plants utilizing coal carbonization processes, byproduct coke ovens, wood treating operations, as well as products that contain creosote.

BP-SO-B05-06

Sample BP-SO-B05-06 contained a mixture of pyrogenic and petrogenic materials. The pyrogenic material was indicated by a wide range distribution of unsubstituted PAHs, with the naphthalene concentration much higher relative to other PAHs and the BTEX compounds. The composition suggests the presence of naphthalene oil (seen in other samples from the site analyzed by META), possbile lower relative amounts of the light oil discussed above, and ,low levels of high molecular weight PAHs indicative of coal tar residues.

The petrogenic material was indicated by an unresolved complex mixture (UCM) present from about 20 to 40 minutes in the GC/FID chromatogram. The presence of the sesquiterpane, triterpane, and sterane classes of petroleum biomarkers confirms the petrogenic nature of the material. The presence of normal alkane hydrocarbons atop the UCM indicate that the material has undergone little environmentally induced degradation or weathering. This material is consistent with high molecular weight blended petroleum products such as some No. 4 and No. 6 fuel oils.

BP-SO-B025-8

Sample BP-SO-B025-8 contained a pyrogenic pattern very similar to that seen in sample BP-SO-B03-18, but with substantially higher MAH & PAH concentrations. This pattern is consistent with a mixture of light oil and coal tar residues.

Sample BP-SO-B025-8 also contained a petrogenic pattern similar to the petrogenic pattern found in sample BP-SO-B05-06. The pattern appears to be a blended petroleum product such as some No. 4 and No. 6 fuel oils; however, the pattern displays a bimodal UCM and higher relative levels of triterpane biomarkers suggesting that the two fuels are not identical.

CT-SO-B01-20

Sample CT-SO-B01-20 contained a pyrogenic material. The pyrogenic material consisted of a wide range distribution of PAHs with a much higher relative concentration of naphthalene. BTEX compounds were present at low level. The fluoranthene to pyrene ratio (1.41) is consistent with coal tars and coke oven tars in META's reference library.

CT-SO-B05-20

Sample CT-SO-B05-20 contained a pyrogenic material very similar to the material identified in sample CT-SO-B01-20; however the overall concentrations were about 6 times lower. The fluoranthene to pyrene ratio (1.39) is also consistent with coal tars and coke oven tars in META's reference library.

Discussion

Selected source and weathering ratios are shown in Table 1 and discussed in the paragraphs that follow.

Five samples of soil or sediment were submitted to META for chemical characterization. Of those five samples, all five exhibited PAHs present in a pyrogenic pattern. Two of the five samples also displayed petrogenic components. These features are clearly seen in the GC/FID fingerprints presented in Appendix B.

In general, the pyrogenic pattern among the samples was indicated by a wide range distribution of MAHs and PAHs where the parent compound(s) was present at concentrations substantially greater than the various alkylated homologs. Three samples (BP-SO-B03-18, BP-SO-B05-06, BP-SO-B025-8) also exhibited high relative concentrations of BTEX compounds as compared to the PAHs suggesting the presence of light oil or the water soluble fraction of tar-like material.

Naphthalene was the most abundant compound in three of five samples including samples BP-SO-B05-06, CT-SO-B05-20, and CT-SO-B01-20. The high molecular weight PAHs in sample BP-SO-B05-06 were much lower relative to naphthalene, than would be expected in a tar residue sample. This sample appeared to contain naphthalene oil. Figure 1 shows a plot of the ratio of naphthalene/C1-naphthalenes verses fluoranthene/pyrene. Reference samples and site samples are separated along the x-axis as expected based on the petrogenic verses pyrogenic formation conditions. Along the y-axis, none of the reference samples exhibited naphthalene concentrations greater than three times the sum of 1- and 2-methylnaphthalenes. The reference samples included various petroleum products and tar samples from various sources and degrees of weathering. However, many of the site samples exhibited N/C1N ratios substantially higher, indicating an enrichment of naphthalene in those samples over common source materials.

Samples CT-SO-B05-20 and CT-SO-B01-20 had patterns consistent with coal tar or coke oven tar residues (Figure 2). However, the ratios of N/C1N were higher than expected for tars based on reference samples in META's library.

The five sample set displays a relatively consistent range of fluoranthene/pyrene values (Table 1) with all five exhibiting fluoranthene/pyrene values greater than 0.9 suggesting the PAHs are derived from pyrolysis of coal or from combustion.

Figure 3 shows a wide range of benzofluorene/methylpyrene ratios, suggesting multiple sources or source mixing. Samples BP-SO-B03-18, BP-SO-B025-8, and BP-SO-B05-06 exhibited BF/MP ratios similar to some petroleum products, MGP-derived tars, general urban background and mixtures of these. In contrast, samples CT-SO-B05-20 and CT-SO-B01-20 exhibited higher BF/MP ratios similar to coke oven tars and related substances. Work by META suggests that samples with benzofluorene/methylpyrenes (BF/MP) ratios greater than about 1 are indicative of coke tars and creosote, and some former MGP tars, and not from petroleum, CWG MGP tars, many CC MGP tars, and urban background.

The ratio of the sum of fluoranthene and pyrene to total HPAHs has been shown to be generally lower in urban soil than in TLM from any source (Mauro 2008). Figure 4 shows that samples BP-SO-B03-18 and BP-SO-B025-8 fall within or below the range expected for urban background PAHs. The data suggests the HPAHs in these samples are combustion derived; the source appears to be from processes other than coal tar or coking operations, or may indicate a mixture of background PAHs and PAHs derived from tar.

The petrogenic material identified in the Summer 2009 samples was generally characterized by middle to late-eluting UCMs as discussed in the sample specific comments. The first page for each sample in Appendix E displays the extracted ion current profiles of some selected petroleum related components including alkanes, alkyl-cyclohexanes and a few types of petroleum biomarkers. These signatures appear to be derived from No. 4 or No. 6 fuel oil, or similar product. The samples with substantial petrogenic material also contained high MAH content, suggesting that the petrogenic substance was associated with coke oven gas scrubbing and the recovery of light oil. Figure 5 shows a substantial difference in the C3D/C3PA ratios between samples BP-SO-B05-06 and BP-SO-B025-8 verses the other Summer 2009 samples suggesting multiple petroleum sources.

Compound-Specific Carbon Isotope Ratios

A detailed discussion on the background and quality control of CSIR results can be found in the Sparrow's Point report dated May 15th, 2009.

Results

The PAH CSIRs for the summer 2009 Sparrows Point samples are provided in Appendix F.

Precision of the two PAH standards ranged from 0.0 to 0.5 ‰ and was within the expected range of ±0.5 ‰. The sample-to-sample variations among the deuterated alkane internal standards was higher than expected for 10D and 19D, suggesting some interferences.

Figure 6 shows the CSIR profiles for the five summer 2009 Sparrows Point samples. The PAH CSIRs of all samples ranged from about -22 ‰ to -26 ‰ (omitting apparent outliers). This range is consistent with coal-derived pyrogenic PAHs reported previously (Mauro 2000). Three data points, i.e., acenaphthene and phenanthrene in sample BP-SO-B025-8 and fluoranthene in sample BP-SO-B05-06 exhibited isotope values substantially different from the average values for all other analytes in all other samples, and appeared to be outliers. All three compounds were present at relatively low levels and potentially subject to co-elutions and interference.

The isotope values for all analytes in the two tar-like samples, CT-SO-B01-20 and CT-SO-B05-20, were nearly identical.

Using ±0.5 ‰ as a rule of thumb to distinguish PAHs from different sources, the data indicated that all of the samples contained PAHs from the same source. The similarity in carbon isotope values was especially strong for the HPAHs which were less subject to interferences from the petrogenic matter found in some samples as discussed above.

Summary

Five soil or sediment samples were submitted to META for chemical characterization. Of those five samples, all exhibited PAHs present in a pyrogenic pattern. Two of the five samples also displayed one or more petrogenic components.

The petrogenic material appeared to be a mixture of relatively unweathered middle and severely weathered heavy fuel oils. Blended oils such as some No. 4 or No. 6 fuel oils have these characteristics.

The naphthalene present at elevated concentrations in the samples appeared to originate from a specific, unidentified naphthalene source, likely naphthalene oil.

The PAH ratio analysis indicated that the pyrogenic HPAHs present in the samples originated from two or more sources, including a high temperature source such as coal tar or coke oven tar and a combustion source such as urban background. The carbon isotope ratio analysis indicated that only one HPAH source was present.

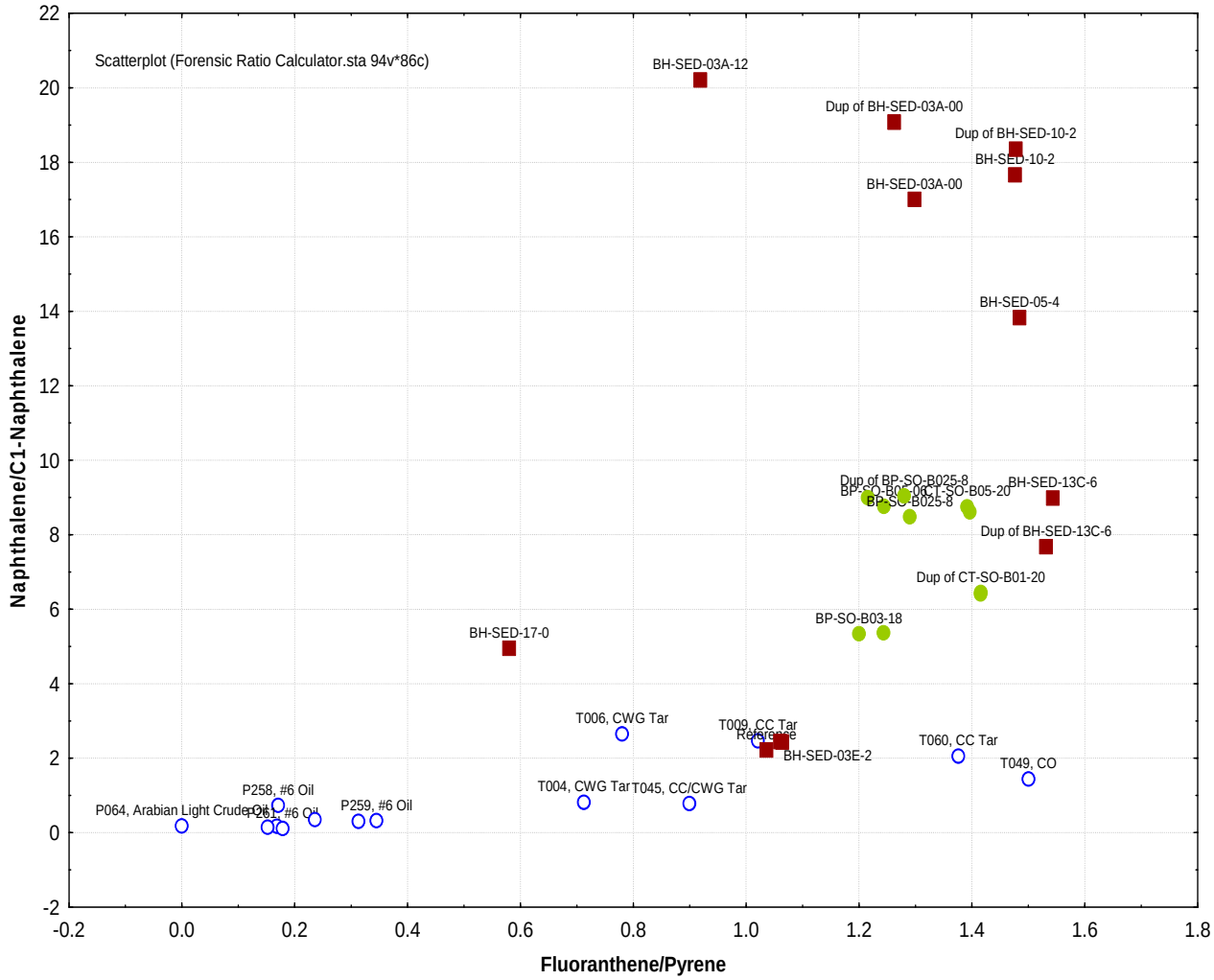
Table 1. Selected Source and Weathering Ratios

Field ID	Lab ID	Fl/Py	D/F	C17/Pri	C18/Phy	Pri/Phy	C3D/C3PA	C2D/C2PA	BF/MP	BaA/Chr	N/C1N	(Fl+Py)/ HPAHs	Total PP PAH (mg/kg)
BP-SO-B03-18	TA090520-01	1.200	1.237	0.638	1.531	1.813	0.273	0.170	0.625	1.667	5.343	0.219	1.47
Duplicate of BP-SO-B03-18	TA090520-01DUP	1.243	1.256	0.610	1.667	2.185	0.304	0.188	0.400	1.000	5.370	0.189	1.58
BP-SO-B05-06	TA090528-01	1.244	1.224	1.818	2.256	1.085	0.678	0.505	0.666	1.994	8.765	0.484	564
Duplicate of BP-SO-B05-06	TA090528-01DUP	1.216	1.209	1.896	2.269	1.055	0.707	0.514	0.659	1.961	9.000	0.477	584
BP-SO-B025-8	TA090529-01	1.290	0.154	1.125	1.335	0.862	0.681	0.481	0.204	0.465	8.482	0.312	60.3
Duplicate of BP-SO-B025-8	TA090529-01DUP	1.280	0.131	1.084	1.320	0.836	0.736	0.512	0.231	0.545	9.042	0.311	57.5
CT-SO-B01-20	TA090603-01-D	1.416	0.896	0.890	1.546	1.831	0.234	0.181	1.541	3.606	6.409	0.432	9880
Duplicate of CT-SO-B01-20	TA090603-01DUP-D	1.416	0.891	0.961	2.282	2.476	0.270	0.179	1.513	3.628	6.450	0.431	10400
CT-SO-B05-20	TA090610-01-D	1.392	0.924	NC	NC	NC	0.272	0.185	1.593	3.578	8.748	0.472	1790
Duplicate of CT-SO-B05-20	TA090610-01DUP-D	1.396	0.932	NC	NC	NC	0.259	0.172	1.545	3.477	8.615	0.469	2420
Winter 2009													
BH-SED-03A-00	TA090211-01-D	1.2982	1.267	0.480	1.820	4.125	0.452	0.305	0.666	0.984	17.005	0.330	243
Duplicate of BH-SED-03A-00	TA090211-01DUP-D	1.2624	1.485	0.613	1.355	2.394	0.416	0.256	1.268	1.043	19.082	0.378	315
Reference	TA090211-02	1.0359	0.815	6.830	1.516	0.828	0.619	0.406	0.576	0.911	2.221	0.293	5.98
BH-SED-10-2	TA090226-01-D	1.4765	0.966	0.824	0.552	0.832	0.482	0.443	0.769	1.301	17.663	0.354	199
Duplicate of BH-SED-10-2	TA090226-01DUP-D	1.4776	0.960	0.907	0.641	0.778	0.534	0.462	0.826	1.297	18.350	0.349	183
BH-SED-03A-12	TA090226-02	0.919	0.609	2.153	1.583	0.819	0.449	0.245	0.540	1.234	20.211	0.314	51.7
BH-SED-13C-6	TA090305-01-R	1.5432	0.720	0.560	0.480	0.942	0.422	0.261	1.565	1.091	8.979	0.390	155
Duplicate of BH-SED-13C-6	TA090305-01DUP-R	1.5315	0.597	0.330	0.370	1.013	0.230	0.152	1.563	1.120	7.670	0.386	660
BH-SED-05-4	TA090305-02-R	1.4845	0.747	0.891	1.113	1.009	0.436	0.226	1.471	1.265	13.831	0.472	383
BH-SED-03E-2	TA090311-01	1.060	0.885	3.643	1.170	0.625	0.758	0.457	1.166	1.184	2.448	0.270	48.4
Duplicate of BH-SED-03E-2	TA090311-01DUP	1.0641	0.887	2.894	0.976	0.672	0.733	0.463	1.148	1.160	2.434	0.260	45.8
BH-SED-17-0	TA090311-02	0.580	1.116	2.942	1.478	0.871	0.518	0.459	0.502	1.047	4.954	0.223	30.7

Ratios:

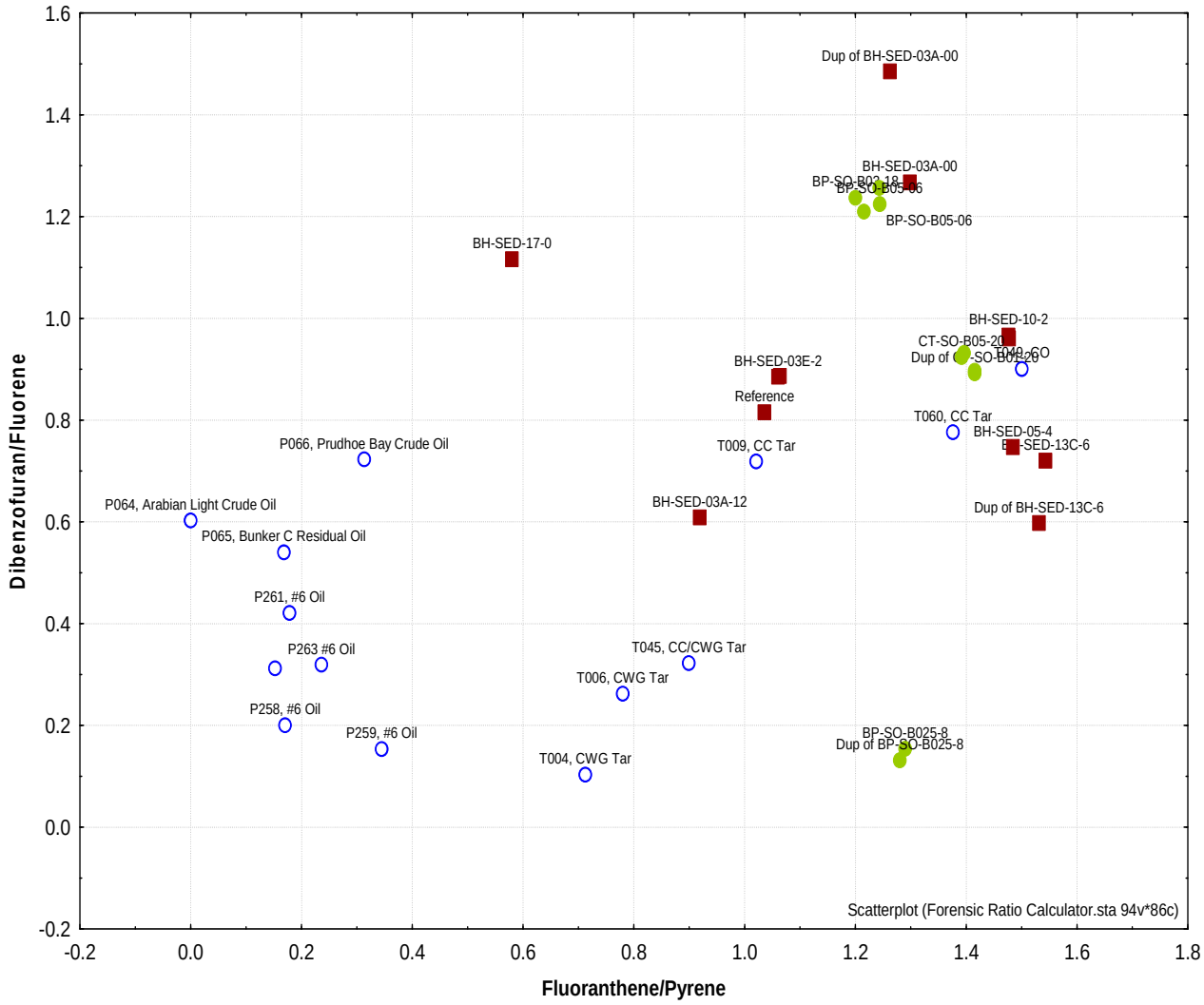
Fl/Py	fluoranthene/pyrene	HPAHs	high molecular weight PAHs
D/F	dibenzofuran/fluorene	PP PAHs	priority pollutant PAHs
C17/Pris	heptadecane/pristane		
C18/Phy	octadecane/phytane		
Pris/Phy	pristane/phytane		
C3D/C3PA	trialkyldibenzothiophenes/trialkylphenanthrenes/anthracenes		
C2D/C2PA	dialkyldibenzothiophenes/dialkylphenanthrenes/anthracenes		
BF/MP	benzofluorenes/methylpyrenes		
BaA/Chr	benz(a)anthracene/chrysene		
N/C1N	naphthalene/C1-naphthalenes		

Figure 1. Selected Diagnostic Ratios – Naphthalene/C1-Naphthalenes v. Fluoranthene/Pyrene



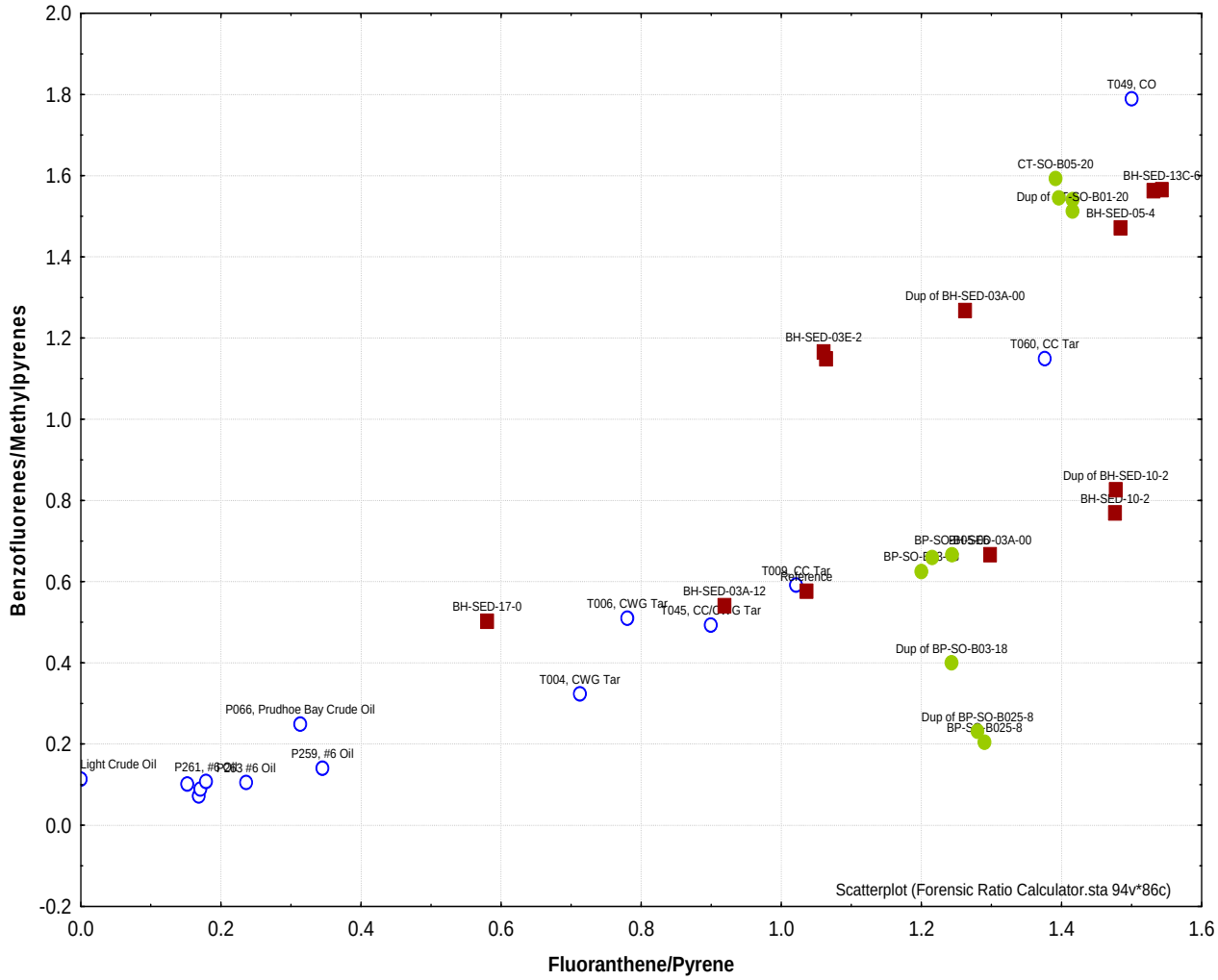
TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
Field Samples – Winter 2009
Field Samples – Current

Figure 2. Selected Diagnostic Ratios – Fluoranthene/Pyrene v. Dibenzofuran/Fluorene



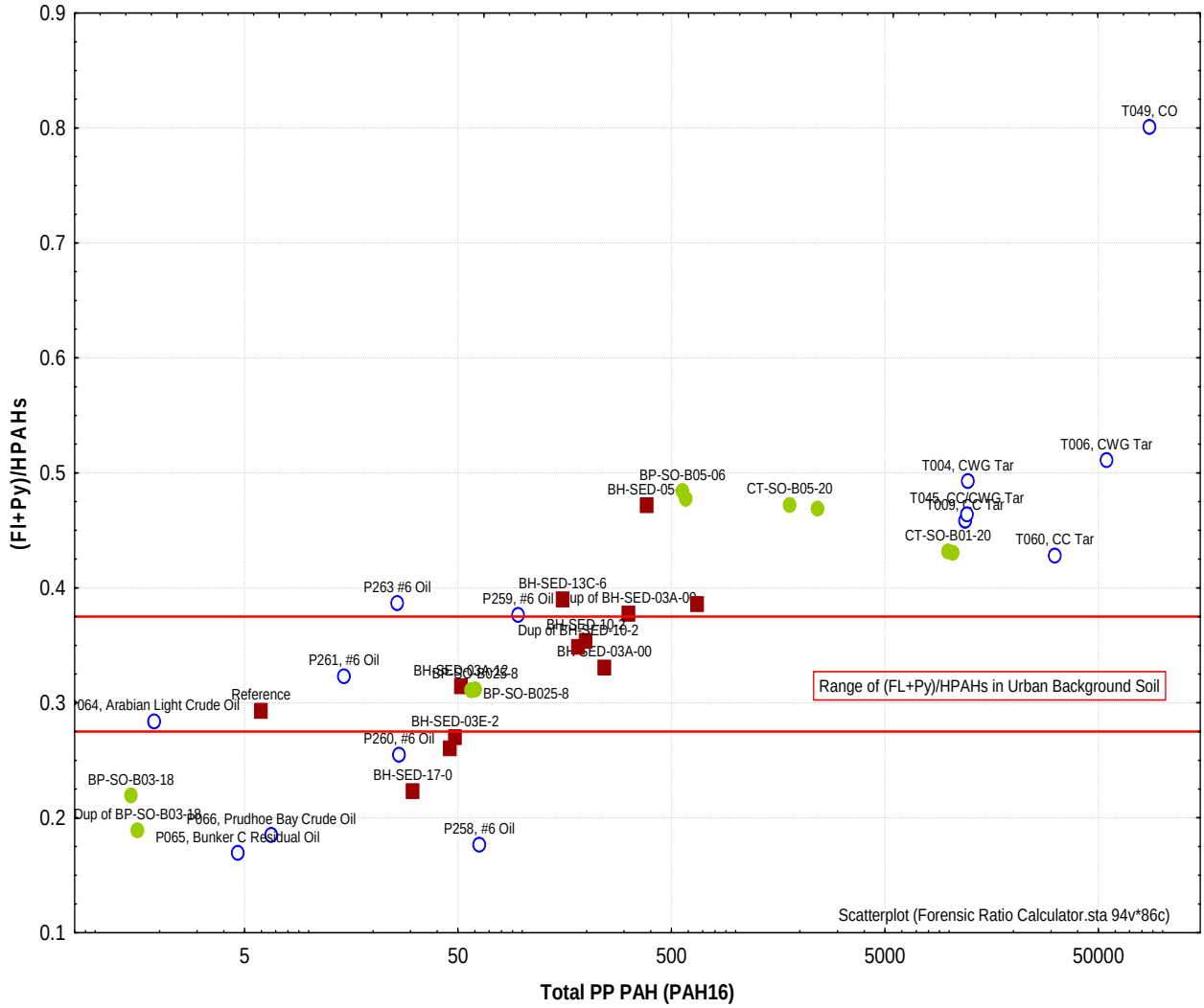
TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
Field Samples – Winter 2009
Field Samples – Current

Figure 3. Selected Diagnostic Ratios – Benzofluorenes/Methylpyrenes v. Fluoranthene/Pyrene



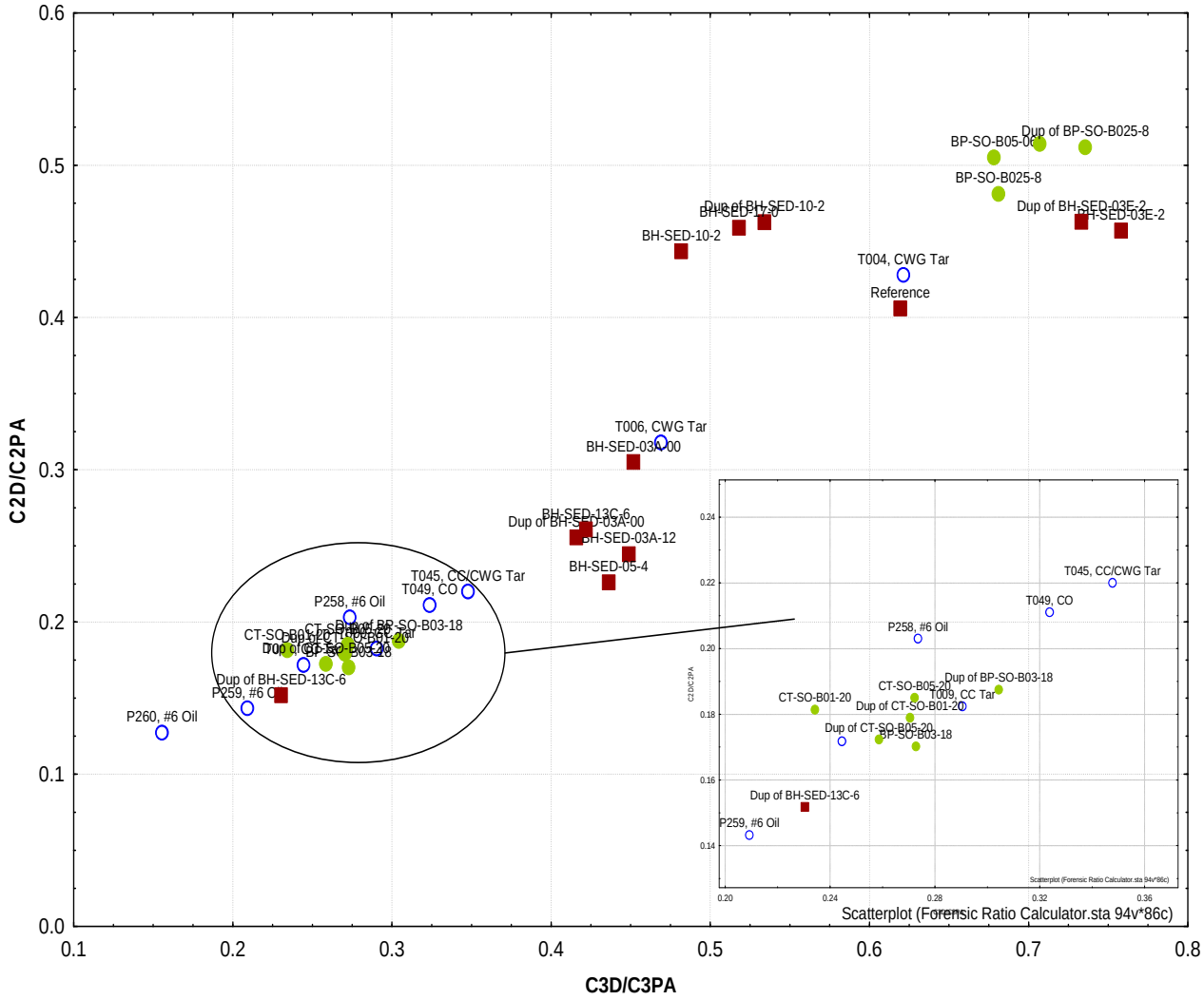
TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
Field Samples – Winter 2009
Field Samples – Current

Figure 4. Selected Diagnostic Ratios – (Fl+Py)/HPAHs v. Total Priority Pollutant PAHs



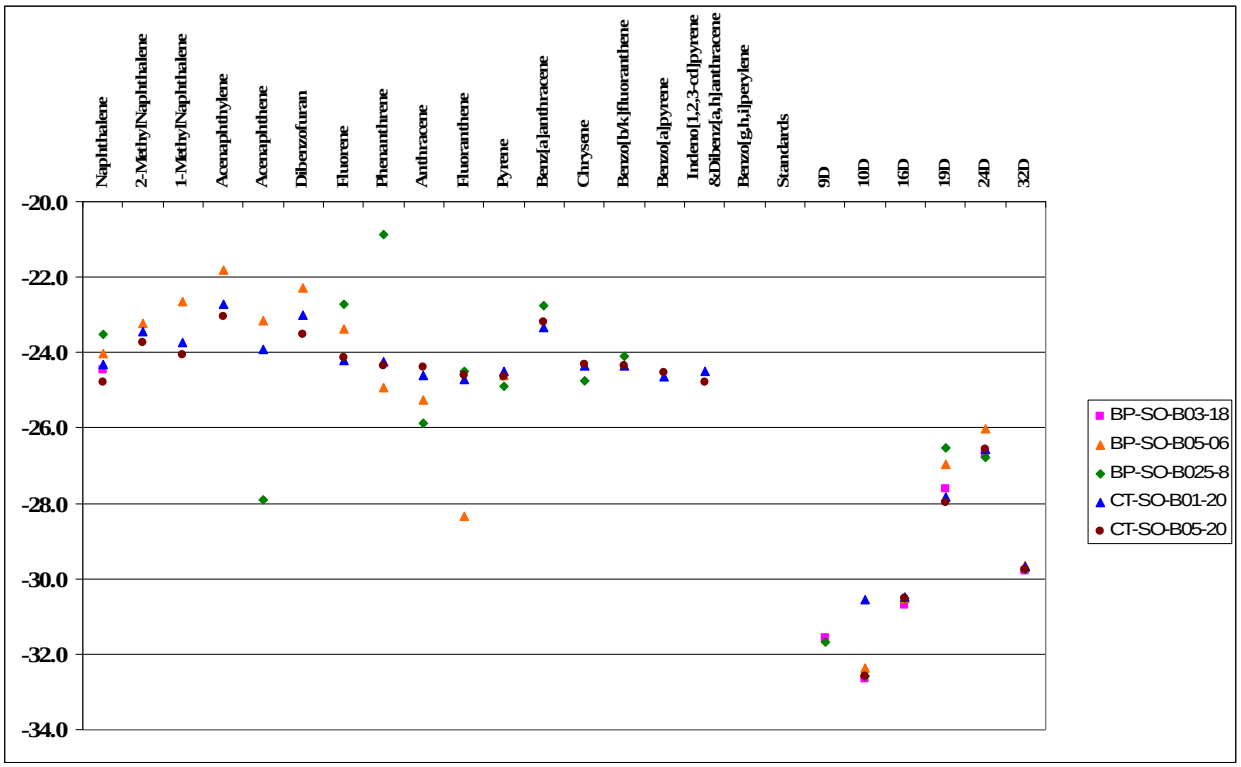
TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
■ Field Samples – Winter 2009
● Field Samples – Current

Figure 5. Selected Diagnostic Ratios – C2D/C2PA v. C3D/C3PA



TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
■ Field Samples – Winter 2009
● Field Samples – Current

Figure 6. CSIRs of Sparrows Point Samples (‰)



Definitions

Pyrogenic substances are complex mixtures of primarily hydrocarbons produced from organic matter subjected to high temperatures but with insufficient oxygen for complete combustion. Pyrogenic materials are produced by fires, internal combustion engines, and furnaces. They also are formed when coke or gas are produced from coal or oil. Coal-tar based products, such as roofing, pavement sealers, waterproofing, pesticides, and some shampoos contain pyrogenic materials.

Petrogenic substances include crude oil and crude oil derivatives such as gasoline, heating oil, and asphalt.

Pitch is the semi-solid or solid material consisting of high molecular weight hydrocarbons that remain following coal tar distillation.

References

1. Chemistry of Coal Utilization Second Supplementary Volume. John Wiley & Sons, New York, NY 1981.

2. "Chemical Fingerprinting of Hydrocarbons," in: Introduction to Environmental Forensics. B.L. Murphy and R.D. Morrison editors, Academic Press, San Diego, CA 2002.

3. Mauro, D.M., "Chemical Source Attribution at former MGP Sites," EPRI Report 1000728, December 2000.

4. Mauro, D.M., "Examination of the Sources of Polycyclic Aromatic Hydrocarbons (PAHs) in Urban Background Soil." EPRI, Palo Alto, CA: 2008. 1015558

Appendix A

Chain of Custody

CHAIN OF CUSTODY RECORD

PROJECT Sparrows Point RCRA Sampling - Onshore
CONTACT Tara Martz
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PHONE 412-963-2430 **FAX** 412-963-2468
SAMPLED BY
Print Name STEVEN YANKAY Sign
Print Name Sign

Turn Around Time	
Standard	✓
If Authorized *	
1 Week	
Other	

META Environmental, Inc.
49 Clarendon St. - Watertown, Massachusetts - 02472
Tel (617) 923-4662 - Fax (617) 923-4610 - www.metaenv.com

Samp #	Date	Time	Field Sample ID	Container Size	Container G/P	Grab	Composite	# of Containers	Matrix	Preserv.	Parameters: 8100M PAH Fingerprinting	Parameters: 8270M PAHs	Comments
1	5/19/09	1545	BP-SO-B03-18	4oz			X	2	Soil	—	X	X	TA090570-09

Relinquished by	Date & Time	Relinquished by	Date & Time	Relinquished by	Date & Time
	5/19/09 1613				
Received by	**Date & Time**	**Received by**	**Date & Time**	**Received by**	**Date & Time**
	5/20/09 10:30				

Shipping Info.

Remarks

Temp °C 0

* Surcharges may apply

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Prep Method	Cleanup Method	Analysis Method	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
TA090520-01	BP-SO-B03-18	Soil	2508		4007/4008	5/19/2009	5/20/2009	T06006-60	1 x 4oz jar		Test America	Sparrows Point

Logged By: RS

Date: 5/20/09

Reviewed By:

Date: 5/20/09

META Environmental, Inc.

Sample Receipt Checklist

Receipt date: 5/20/09

Login date: 5/20/09

Login personnel: RJ

Client Information:.

Company Name: EA Engineering ; Test America

Project Manager: Tara Mantz

Project Name: Sparrows Point RCRA Sampling - Onshore

Shipping Information:

How were samples received? UPS (FedEx) DHL Other:

Number of coolers: 1

Internal temperature of coolers: 0.0°C

Was ice present? (Yes) / No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? (Yes) / No

Was it signed? (Yes) / No

Was all project information present on the COC? (Yes) / No

Was a bill of lading or shipping label retained? (Yes) / No

Sample Information:

Number of sample containers: 2

Does this match the COC? (Yes) / No

Were all sample containers Intact? (Yes) / No

If no, list samples and problems:

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / (NA)

Comments:

Custodian: Rob Stutt

Project Manager:

CHAIN OF CUSTODY RECORD

META Environmental, Inc.
49 Clarendon St. - Watertown, Massachusetts - 02472
Tel (617) 923-4662 - Fax (617) 923-4610 - www.metaenv.com

PROJECT Sparrows Point RCRA Sampling - Onshore
CONTACT Tara Martz
COMPANY TestAmerica
ADDRESS 301 Alpha Drive, Pittsburgh, PA 15238
EMAIL tara.martz@testamericainc.com
PHONE 412-963-2430 **FAX** 412-963-2468
SAMPLED BY
Print Name Steve Yankay Sign
Print Name Sign

Turn Around Time	
Standard	X
If Authorized *	
1 Week	
Other	

Parameters: 8100m PAH Fingerprinting; 8270m PAHs

Samp #	Date	Time	Field Sample ID	Container Size	Container G/P	Grab	Composite	# of Containers	Matrix	Preserv.	8100m PAH Fingerprinting	8270m PAHs							Comments
	5/27/09	0920	BP-SO-B05-06	4oz	G		X	2	Soil	None	X	X							TA090528-07

Relinquished by	Date & Time	Relinquished by	Date & Time	Relinquished by	Date & Time
[signature]	5/27/09 1530				
Received by	**Date & Time**	**Received by**	**Date & Time**	**Received by**	**Date & Time**
[signature]	5/28/09 10:56				

Shipping Info.

Remarks

Temp °C 0°C

* Surcharges may apply

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Prep Method	Cleanup Method	Analysis Method	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
TA090528-01	BP-SO-B05-06	Soil	2508		4007/4008	5/27/2009	5/28/2009	T06006-60	2 x 4oz jar		Test America	Sparrows Point

Logged By: RS

Date: 5/28/09

Reviewed By: JHL

Date: 6/1/09

META Environmental, Inc.

Sample Receipt Checklist

Receipt date: 5/28/09

Login date: 5/28/09

Login personnel: RS

Client Information:.

Company Name: TestAmerica

Project Manager: Tara Martz

Project Name: Stevens Point RCRA Sampling - Onshore

Shipping Information:

How were samples received? UPS (FedEx) DHL Other:

Number of coolers: 1

Internal temperature of coolers: 0°C

Was ice present? (Yes) / No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? (Yes) / No

Was it signed? (Yes) / No

Was all project information present on the COC? (Yes) / No

Was a bill of lading or shipping label retained? (Yes) / No

Sample Information:

Number of sample containers: 2

Does this match the COC? (Yes) / No

Were all sample containers Intact? (Yes) / No

If no, list samples and problems:

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / (NA)

Comments:

Custodian: [signature]

Project Manager: [signature]

CHAIN OF CUSTODY RECORD

PROJECT Sparrows Point RCRA Sampling - Onshore
CONTACT Tara Martz
COMPANY TestAmerica
ADDRESS 301 Alpha Drive, Pittsburgh, PA 15238
EMAIL tara.martz@testamericainc.com
PHONE 412-963-2430 **FAX** 412-963-2468
SAMPLED BY
Print Name STEVEN YANKAY Sign
Print Name Sign

Turn Around Time
Standard ✓
If Authorized *
1 Week
Other

META Environmental, Inc.
49 Clarendon St. - Watertown, Massachusetts - 02472
Tel (617) 923-4662 - Fax (617) 923-4610 - www.metaenv.com

Samp #	Date	Time	Field Sample ID	Container Size	Container G/P	Grab	Composite	# of Containers	Matrix	Preserv.	Parameters: 8100 m PAH Fingerprinting	Parameters: 8270m PAHs	Comments
1	5/28/09	0930	BP-SO-B025-8	4 oz			X	2	SOIL	ICE	X	X	TA090529-01

Relinquished by: Date & Time 5/28/09 1630
Received by: Fed Ex Date & Time 5/28/09 1630
5/29/09 1560
Relinquished by / Date & Time / Received by / Date & Time / Relinquished by / Date & Time / Received by / Date & Time
Shipping Info.
Remarks
Temp °C 0°C
* Surcharges may apply

META Environmental, Inc.
Sample Receipt Log

Lab ID	Field ID	Matrix	Prep Method	Cleanup Method	Analysis Method	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
TA090529-01	BP-SO-B025-8	Soil	2508		4007/4008	5/28/2009	5/29/2009	T06006-60	1 x 4 oz jar		Test America	Sparrows Point RCRA Sampling - Onshore

Logged By: JO

Date: 5/29/09

Reviewed By: JW

Date: 6/1/09

META Environmental, Inc.

Sample Receipt Checklist

Receipt date: 5-29-09

Login date: 5-29-09

Login personnel: JC

Client Information:.

Company Name: Test America

Project Manager: Tara Martz

Project Name: Sparrows Point RCRA Sampling – Onshore

Shipping Information:

How were samples received? UPS (FedEx) DHL Other:

Number of coolers: 1

Internal temperature of coolers: 0°C

Was ice present? (Yes) / No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? (Yes) / No

Was it signed? (Yes) / No

Was all project information present on the COC? (Yes) / No

Was a bill of lading or shipping label retained? Yes / (No)

Sample Information:

Number of sample containers: 40 X 2

Does this match the COC? (Yes) / No

Were all sample containers Intact? (Yes) / No

If no, list samples and problems:

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / (NA)

Comments:

Custodian: [signature]

Project Manager: [signature]

CHAIN OF CUSTODY RECORD

META Environmental, Inc.
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CONTACT Tara Martz
COMPANY TestAmerica
ADDRESS 301 Alpha Drive, Pittsburgh, PA 15238
EMAIL tara.martz@testamericainc.com
PHONE 412-963-2430 **FAX** 412-963-2468

Turn Around Time
Standard [X]
If Authorized *
1 Week [ ]
Other [ ]

SAMPLED BY
Print Name Steve YanKay Sign
Print Name Sign

Samp #	Date	Time	Field Sample ID	Container Size	Container G/P	Grab	Composite	# of Containers	Matrix	Preserv.	Parameters: 8100m PAH fingerprinting	Parameters: 8270 m PAHs	Parameters	Parameters	Parameters	Parameters	Parameters	Parameters	Comments
~~5/28/09~~	~~0930~~	~~BP-SO-0025-8~~		~~4oz~~	G		X	2	SO	None	X	X	SCV						
	6/2/09	1030	CT-SO-B01-20	4oz	G		X	2	So:l	None	X	X							TA0910603-01

Relinquished by	Date & Time	Relinquished by	Date & Time	Relinquished by	Date & Time
~~John Sih~~	~~6/2/09 1630~~ SCV ~~5/28/09 1630~~				
Received by: FedEx	Date & Time 6/2/09 1630	Received by	Date & Time 6/3/09	Received by	Date & Time

Shipping Info.

Remarks
11:20

Temp °C 0

* Surcharges may apply

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Prep Method	Cleanup Method	Analysis Method	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
TA090603-01	CT-SO-B01-20	Soil	2508		4007/4008	6/2/2009	6/3/2009	T06006-60	2 x 4oz jar		Test America	Sparrows Point RCRA Sampling - Onshore

Logged By: RS

Date: 6/3/09

Page 1 of 1

Reviewed By: JM

Date: 6/4/09

META Environmental, Inc.

Sample Receipt Checklist

Receipt date: 6/3/09

Login date: 6/3/09

Login personnel: RS

Client Information:.

Company Name: Test America

Project Manager: Tara Mertz

Project Name: Sparrows Point RCRA Sampling - Onshore

Shipping Information:

How were samples received? UPS (FedEx) DHL Other:

Number of coolers: 1

Internal temperature of coolers: 0°C

Was ice present? (Yes) / No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? (Yes) / No

Was it signed? (Yes) / No

Was all project information present on the COC? (Yes) / No

Was a bill of lading or shipping label retained? (Yes) / No

Sample Information:

Number of sample containers: 2

Does this match the COC? (Yes) / No

Were all sample containers Intact? (Yes) / No

If no, list samples and problems:

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / (NA)

Comments:

Custodian: [signature]

Project Manager: [signature]

CHAIN OF CUSTODY RECORD

META Environmental, Inc.
49 Clarendon St. - Watertown, Massachusetts - 02472
Tel (617) 923-4662 - Fax (617) 923-4610 - www.metaenv.com

PROJECT Sparrows Point RCRA Sampling - Onshore
CONTACT Tara Martz
COMPANY TestAmerica
ADDRESS 301 Alpha Drive, Pittsburgh, PA 15238
EMAIL tara.martz@testamericainc.com
PHONE 412-963-2430 **FAX** 412-963-2468
SAMPLED BY
Print Name STEVEN YANKAY Sign [signature]
Print Name Sign

Turn Around Time	
Standard	✓
If Authorized *	
1 Week	☐
Other	☐

Samp #	Date	Time	Field Sample ID	Container Size	Container G/P	Grab	Composite	# of Containers	Matrix	Preserv.	8100M PAH Fingerprinting	8270M PAHs								Comments
1	6/9/09	1230	CT-SO-B05-20	4oz	G	X		2	SOIL	ICE	X	✓								TA090610-09

Relinquished by	Date & Time	Relinquished by	Date & Time	Relinquished by	Date & Time
[signature]	6/9/09 1300				
Received by	**Date & Time**	**Received by**	**Date & Time**	**Received by**	**Date & Time**
Rahel [signature]	6/10/09 12:00				

Shipping Info.

Remarks

* Surcharges may apply

Temp °C 0

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Prep Method	Cleanup Method	Analysis Method	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
TA090610-01	CT-SO-B05-20	Soil	2508		4007/4008	6/9/2009	6/10/2009	T06006-60	2 x 4oz jar		Test America	Sparrows Point RCRA Sampling - Onshore

Logged By: RS

Date: 6/10/09

Reviewed By: JM

Date: 6/10/09

META Environmental, Inc.

Sample Receipt Checklist

Receipt date: 6/10/09

Login date: 6/10/09

Login personnel: RS

Client Information:.

Company Name: Test America

Project Manager: Tara Martz

Project Name: Sparrows Point RCRA Sampling - Onshore

Shipping Information:

How were samples received? UPS (FedEx) DHL Other:

Number of coolers: 1

Internal temperature of coolers: 0°C

Was ice present? (Yes) / No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? (Yes) / No

Was it signed? (Yes) / No

Was all project information present on the COC? (Yes) / No

Was a bill of lading or shipping label retained? (Yes) / No

Sample Information:

Number of sample containers: 2

Does this match the COC? (Yes) / No

Were all sample containers Intact? (Yes) / No

If no, list samples and problems:

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / (NA)

Comments:

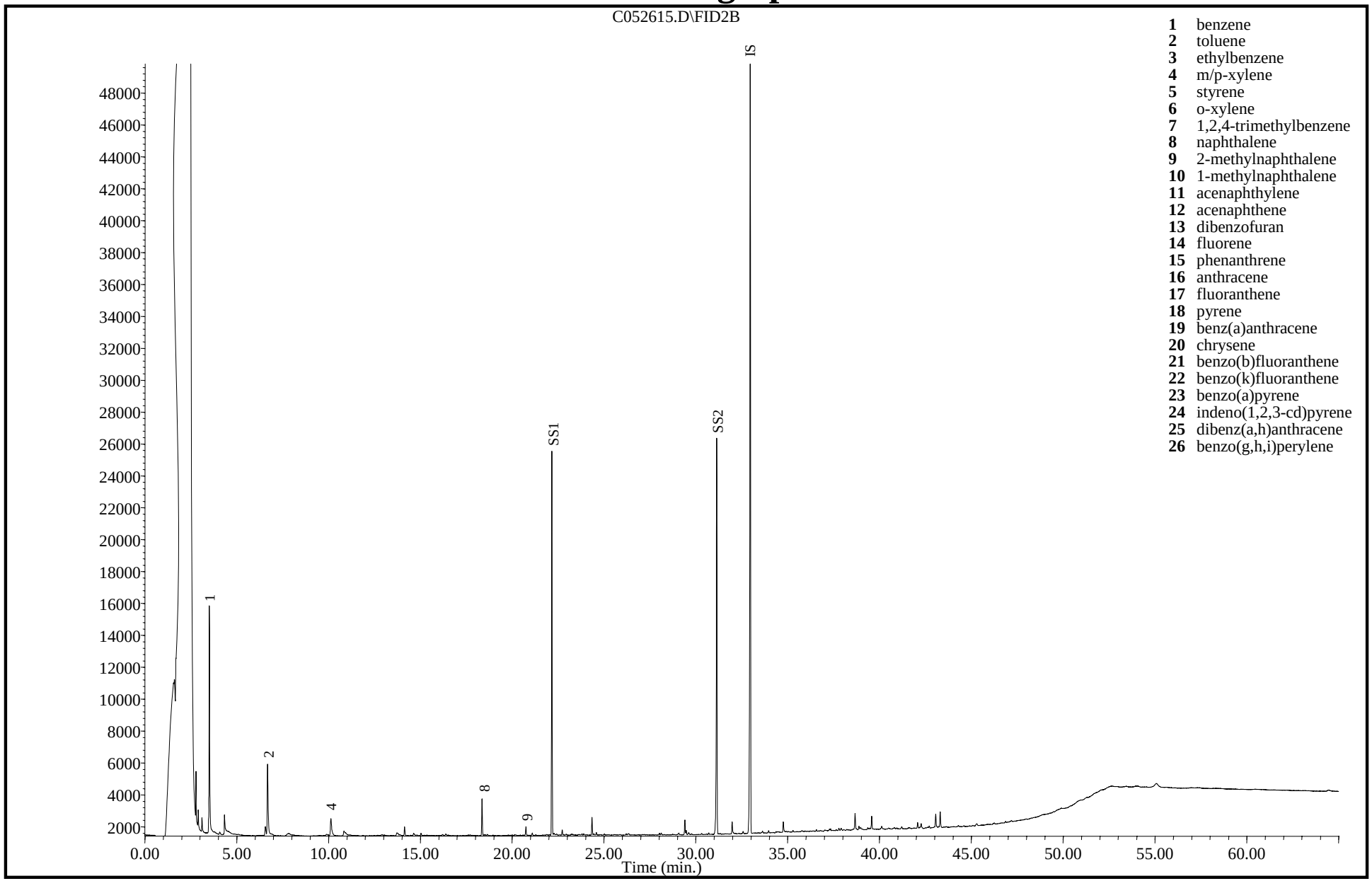
Custodian: Rachel Stultz

Project Manager: [signature]

Appendix B

GC/FID Fingerprints

GC/FID Fingerprint

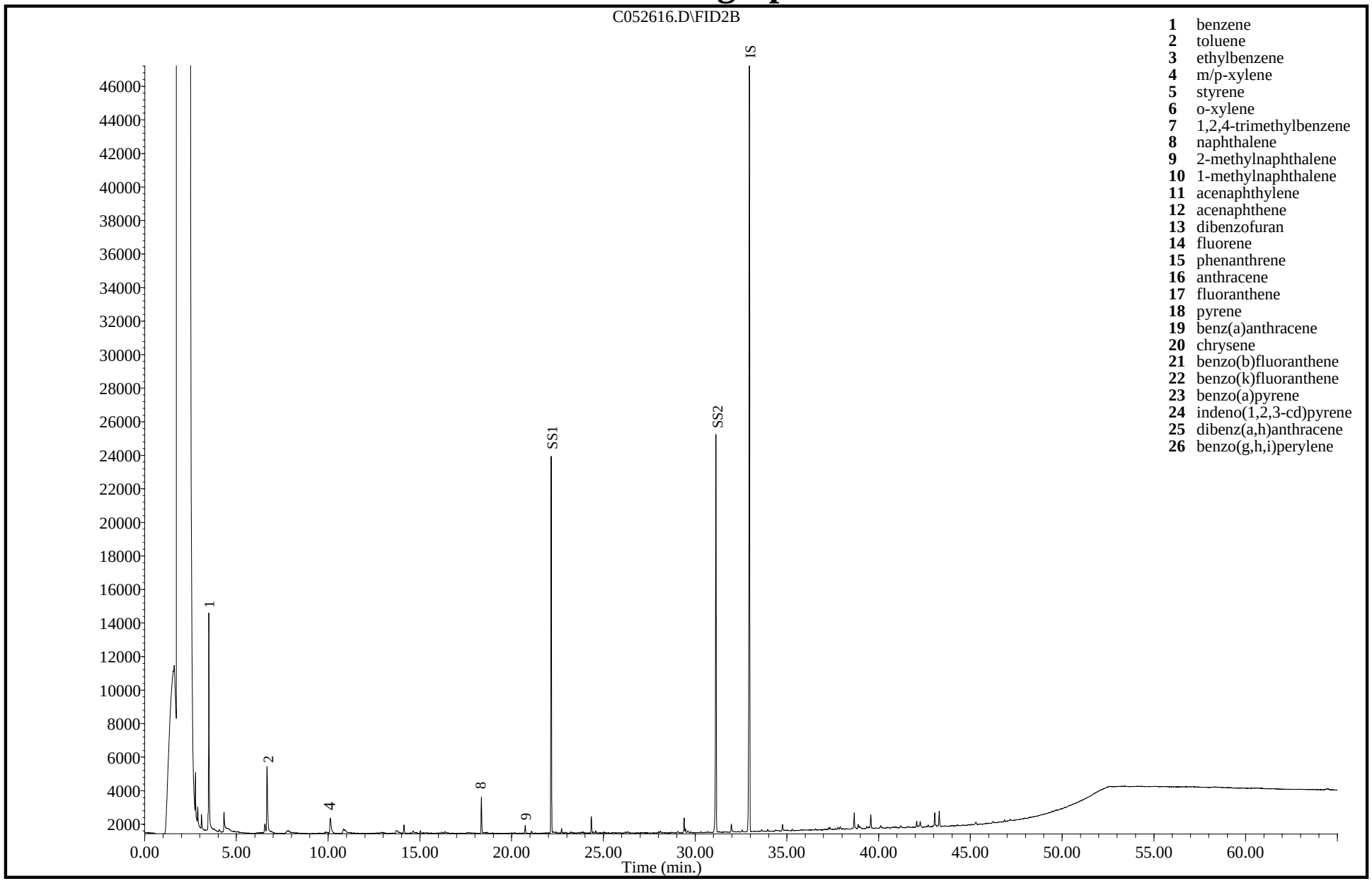


Extraction Date: 05/22/2009
Analysis Date: 05/27/2009

Field ID: **BP-SO-B03-18**
Laboratory ID: TA090520-01
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint

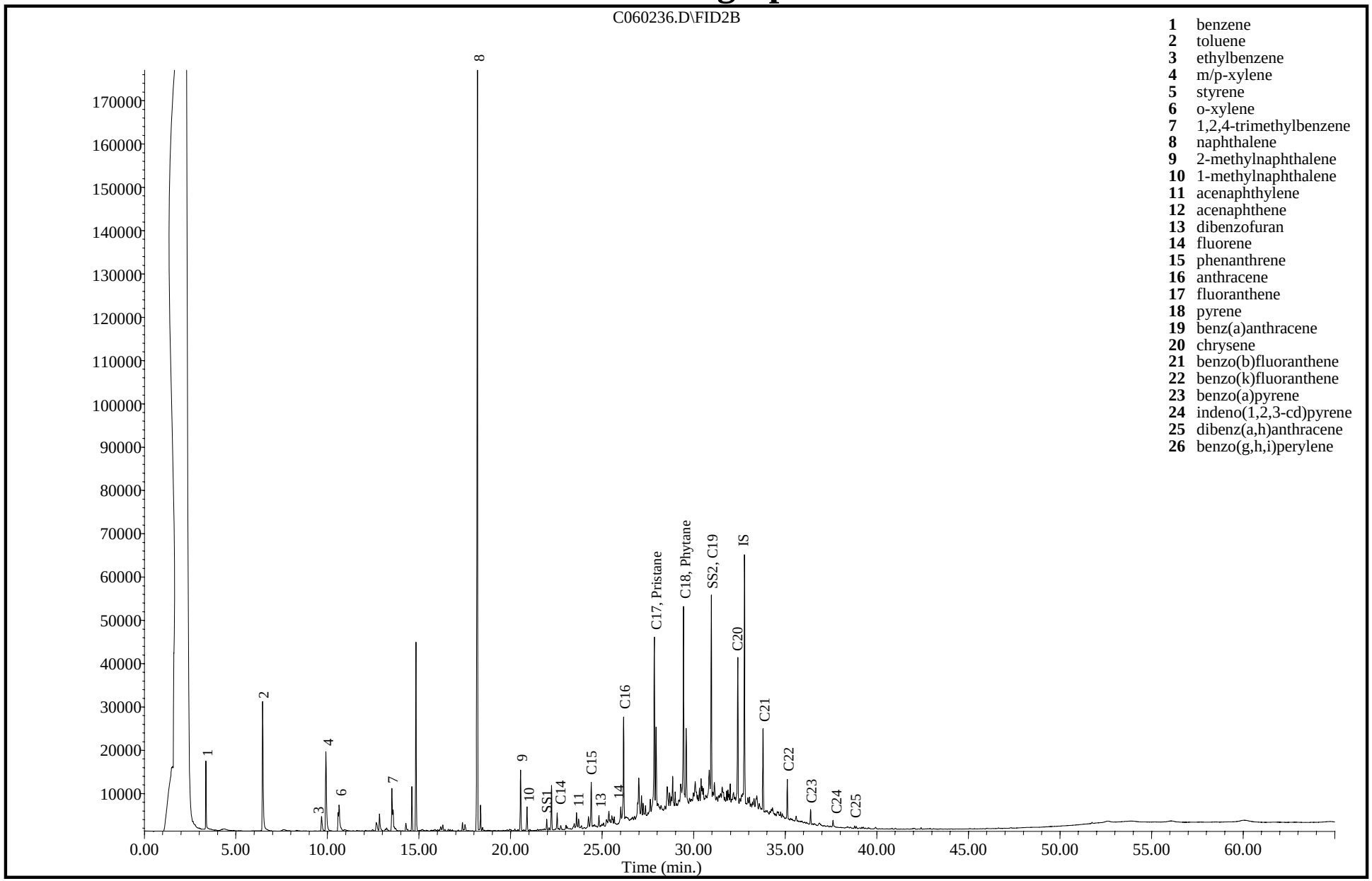


Extraction Date: 05/22/2009
Analysis Date: 05/27/2009

Field ID: **BP-SO-B03-18**
Laboratory ID: TA090520-01DUP
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint



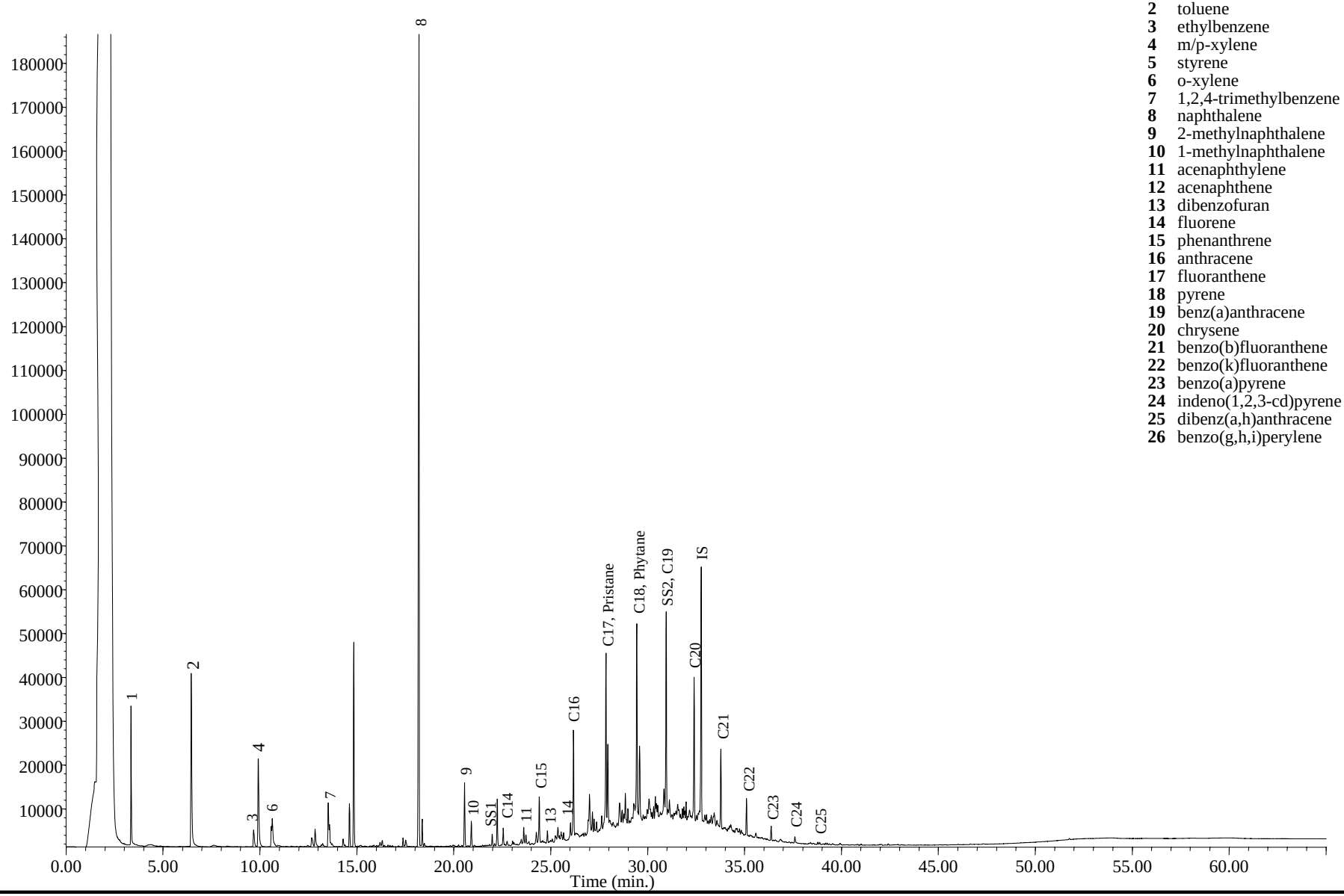
Extraction Date: 06/01/2009
Analysis Date: 06/04/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BP-SO-B05-06**
Laboratory ID: TA090528-01
Method: EPA 8100M

GC/FID Fingerprint

C060237.D\FID2B

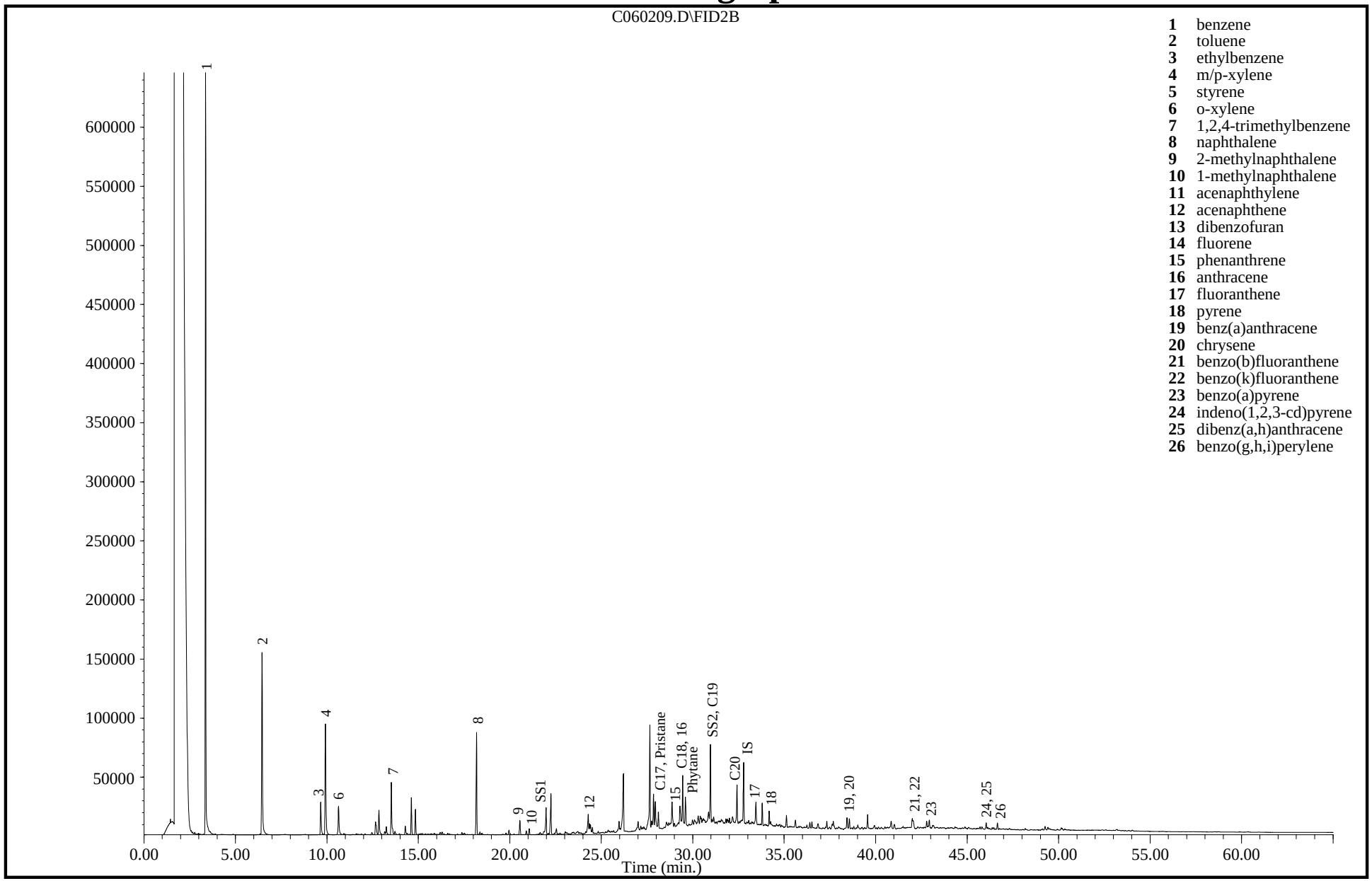


Extraction Date: 06/01/2009
Analysis Date: 06/04/2009

Field ID: **BP-SO-B05-06**
Laboratory ID: TA090528-01DUP
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint

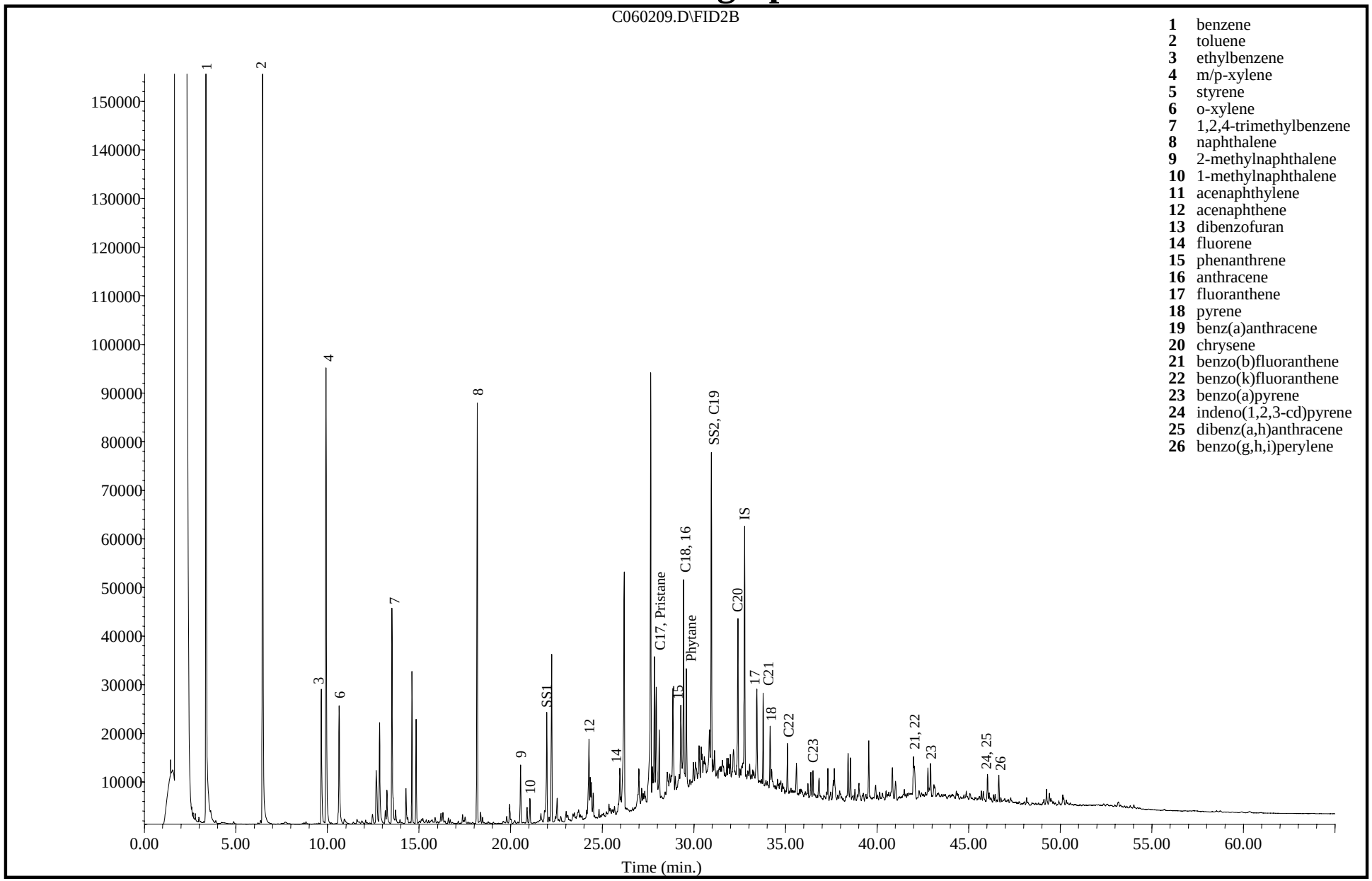


Extraction Date: 06/01/2009
Analysis Date: 06/02/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BP-SO-B025-8**
Laboratory ID: TA090529-01
Method: EPA 8100M

GC/FID Fingerprint



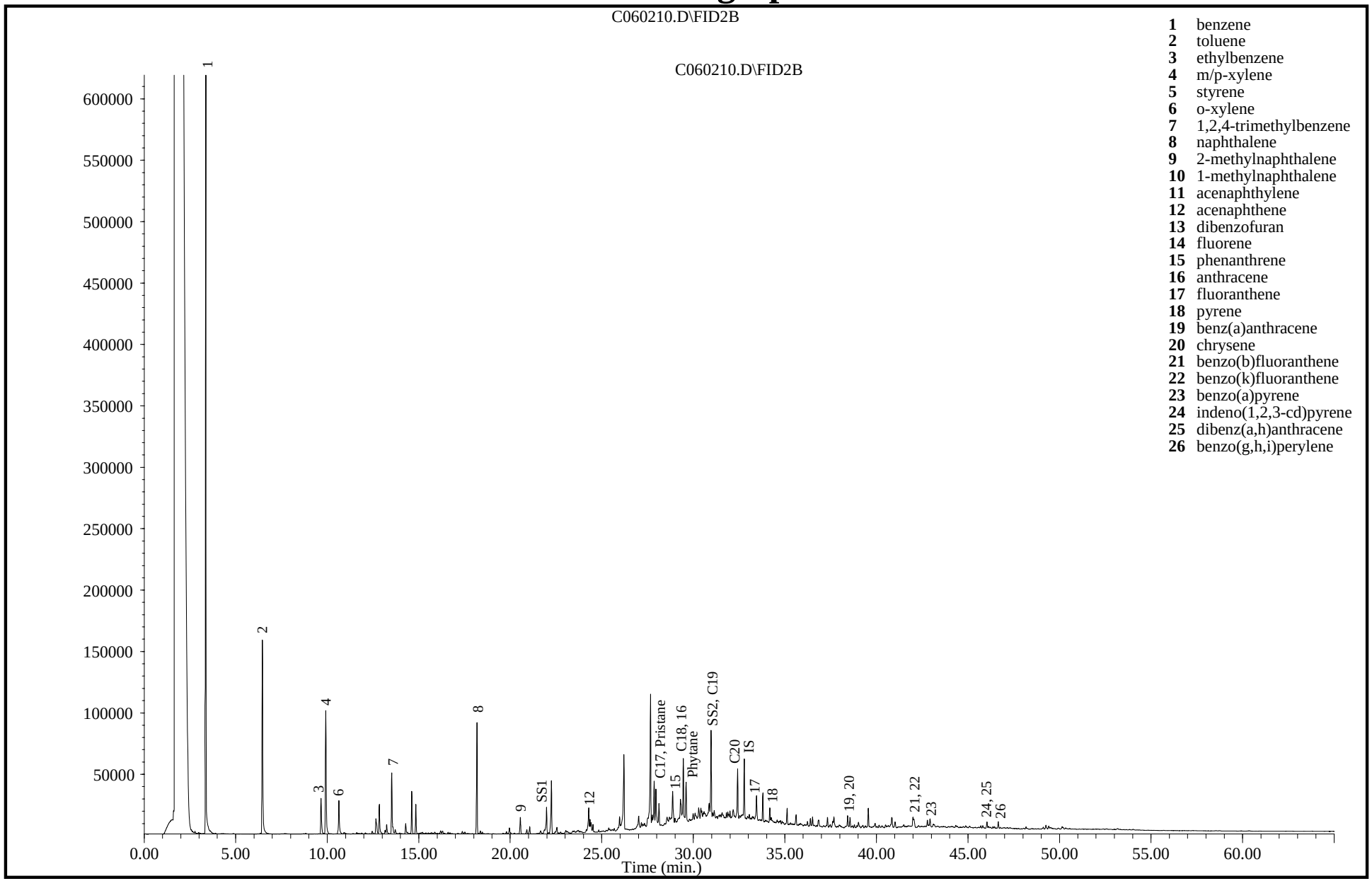
Extraction Date: 06/01/2009
Analysis Date: 06/02/2009

Enlarged

Field ID: **BP-SO-B025-8**
Laboratory ID: TA090529-01
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint



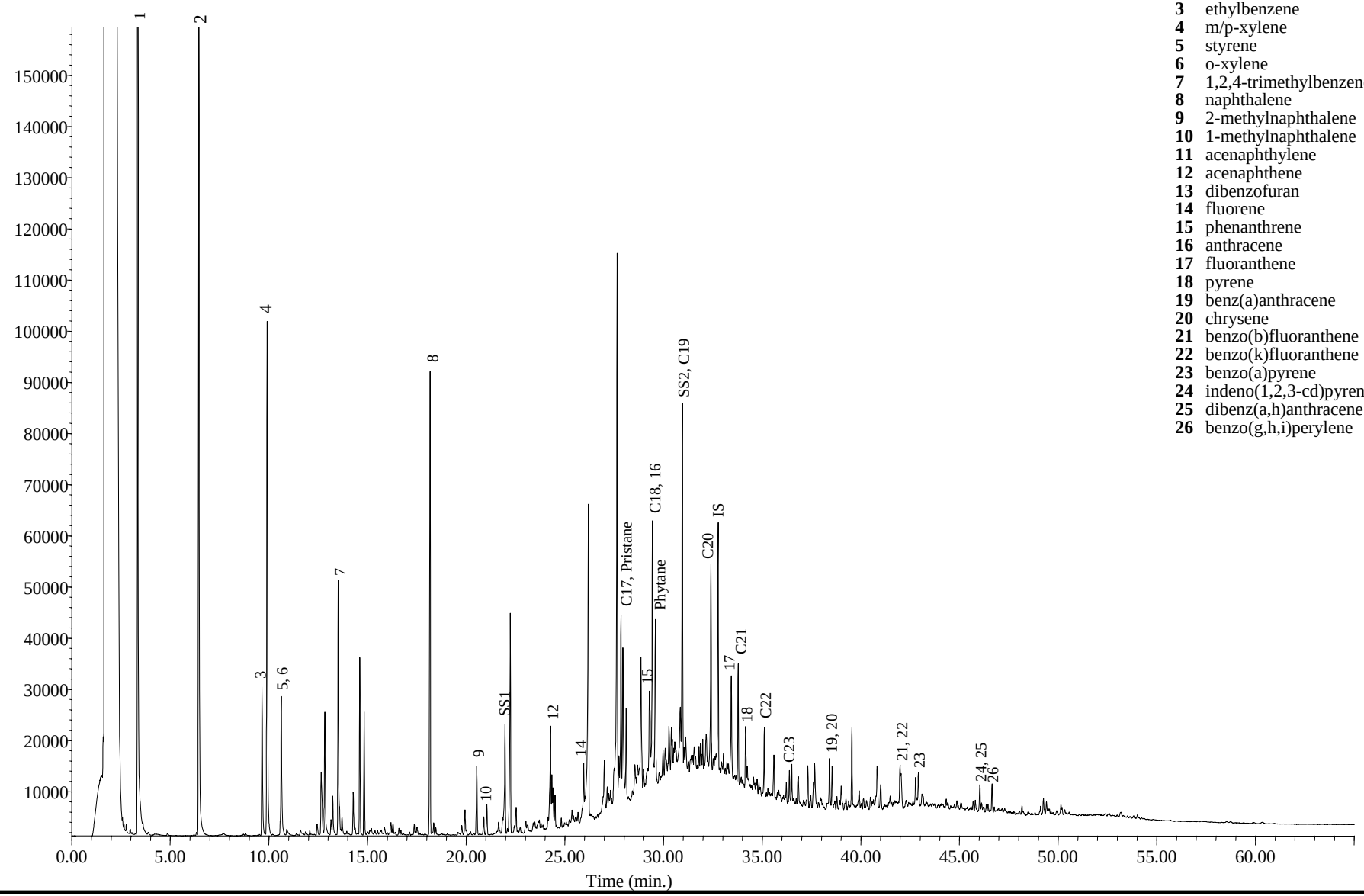
Extraction Date: 06/01/2009
Analysis Date: 06/02/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BP-SO-B025-8**
Laboratory ID: TA090529-01DUP
Method: EPA 8100M

GC/FID Fingerprint

C060210.D\FID2B



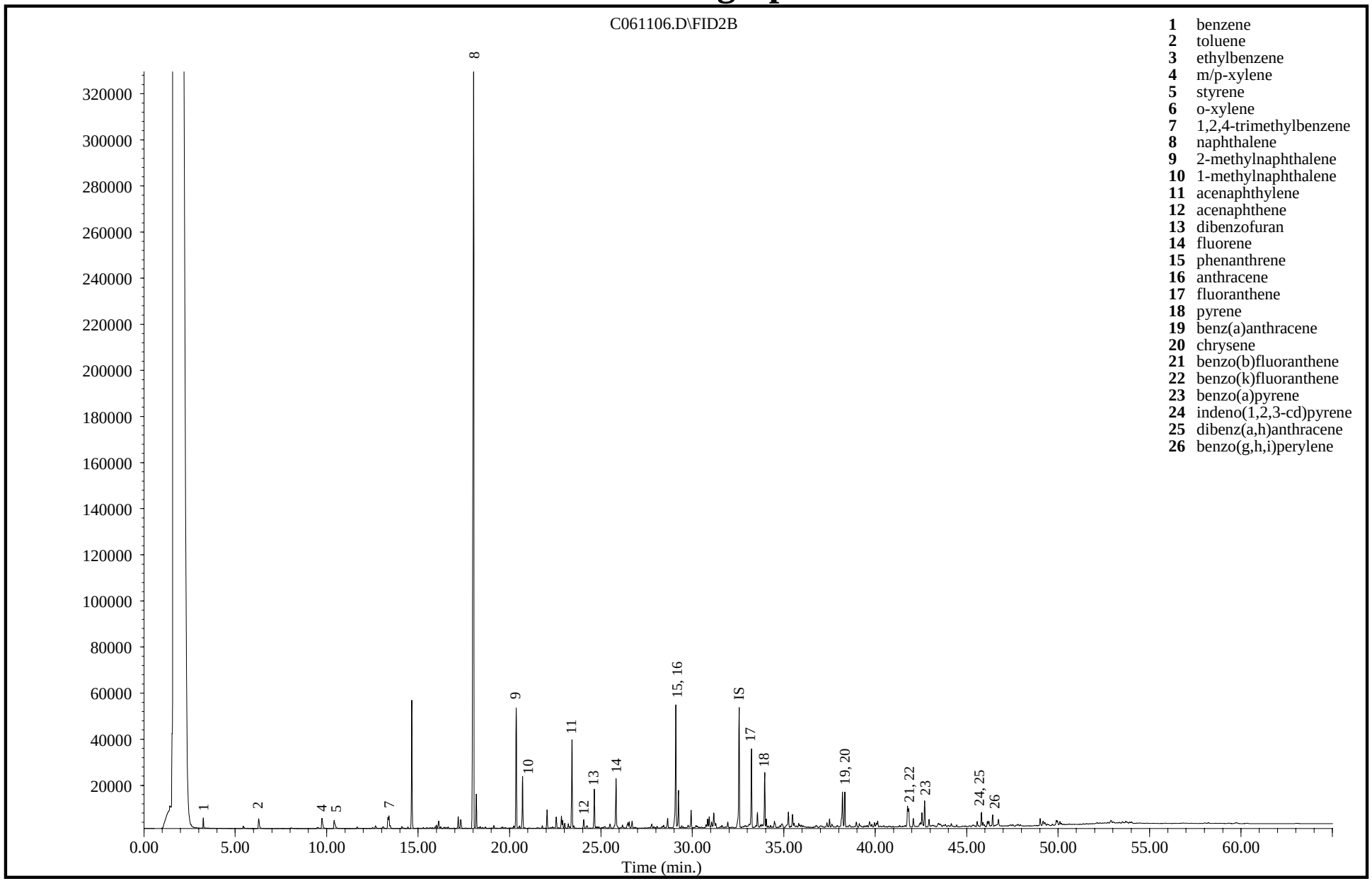
Extraction Date: 06/01/2009
Analysis Date: 06/02/2009

Enlarged

Field ID: **BP-SO-B025-8**
Laboratory ID: TA090529-01DUP
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint

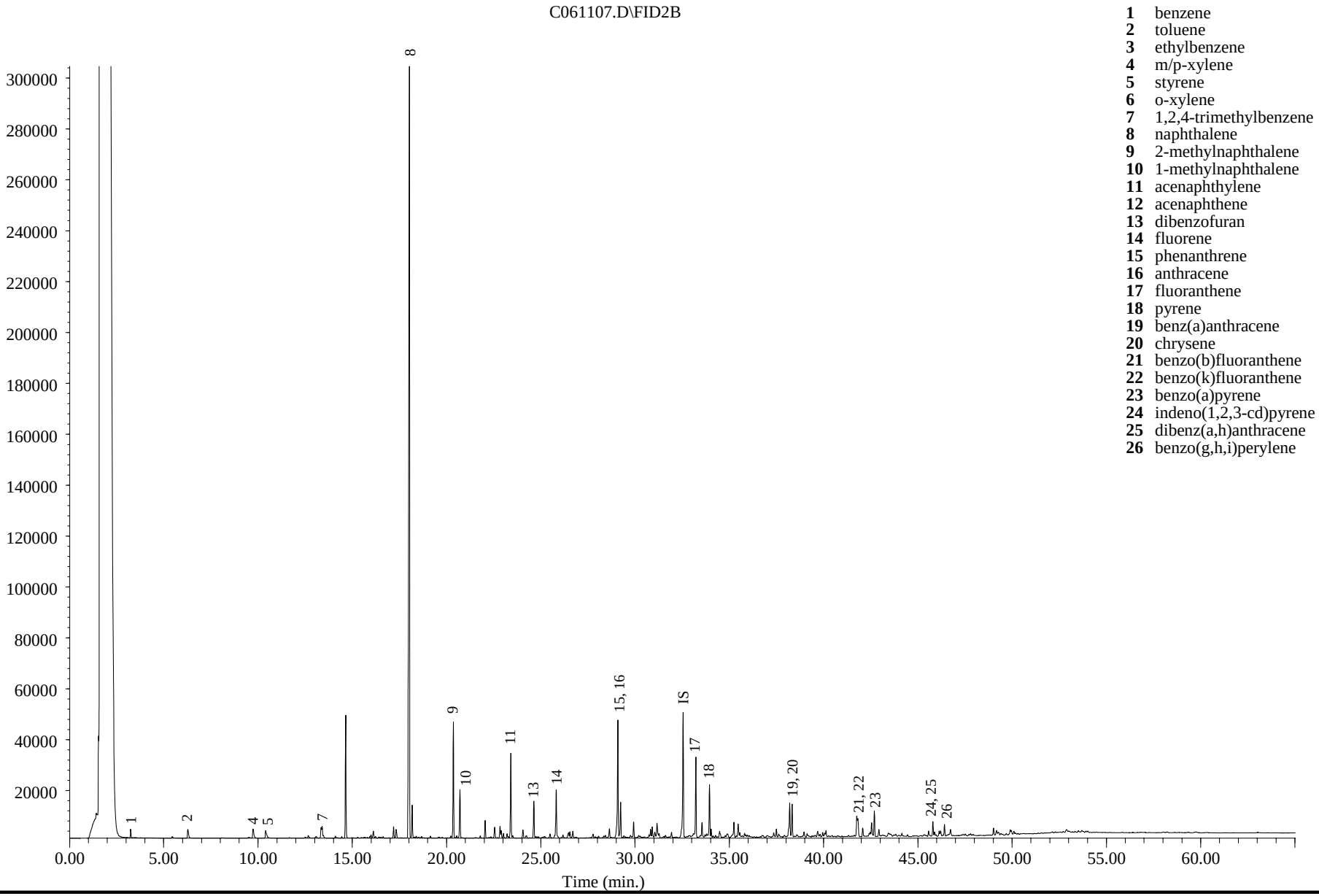


Extraction Date: 06/09/2009
Analysis Date: 06/11/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **CT-SO-B01-20**
Laboratory ID: TA090603-01-D
Method: EPA 8100M

GC/FID Fingerprint



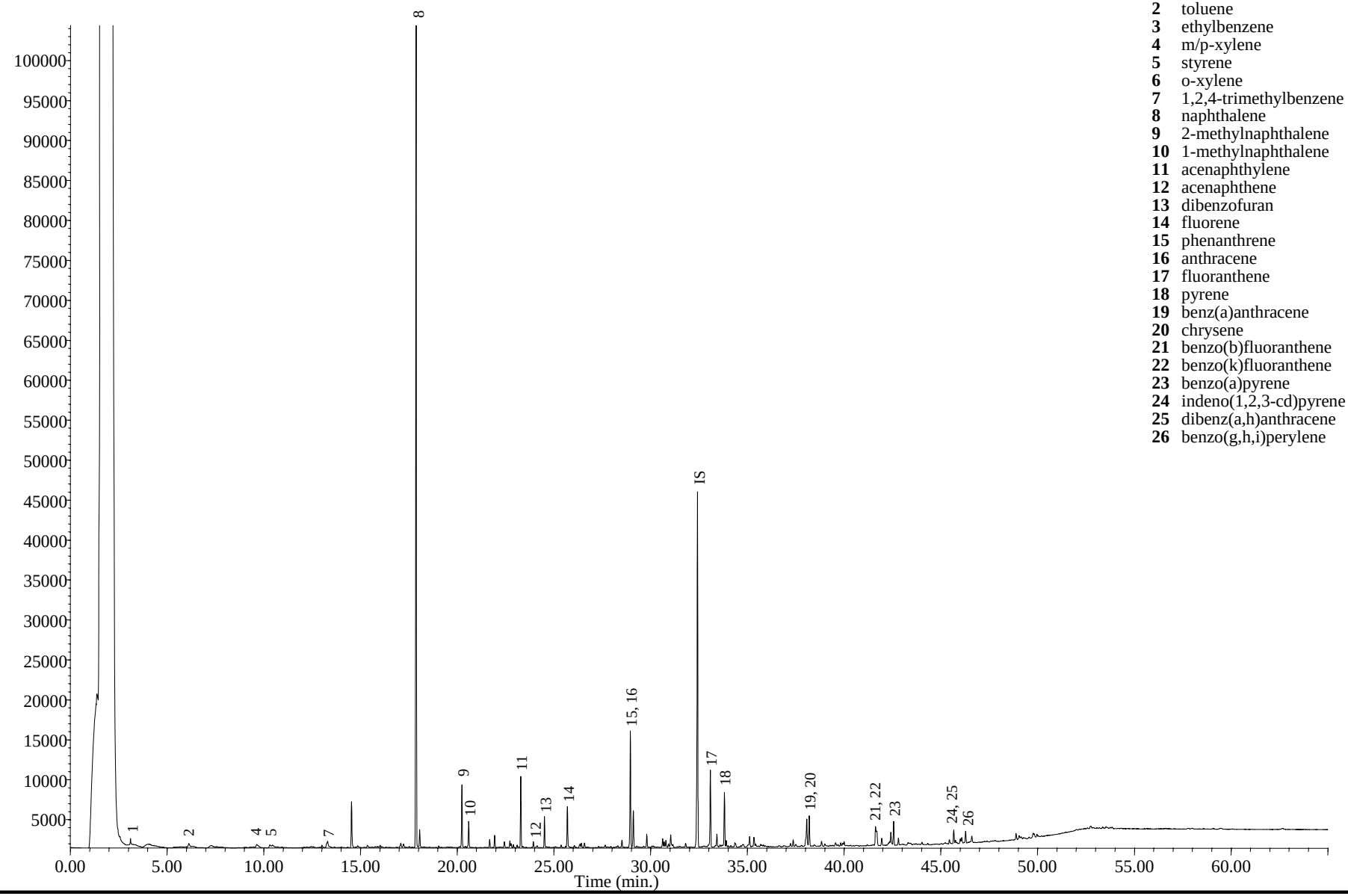
Extraction Date: 06/09/2009
Analysis Date: 06/11/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **CT-SO-B01-20**
Laboratory ID: TA090603-01DUP-D
Method: EPA 8100M

GC/FID Fingerprint

C061703.D\FID2B



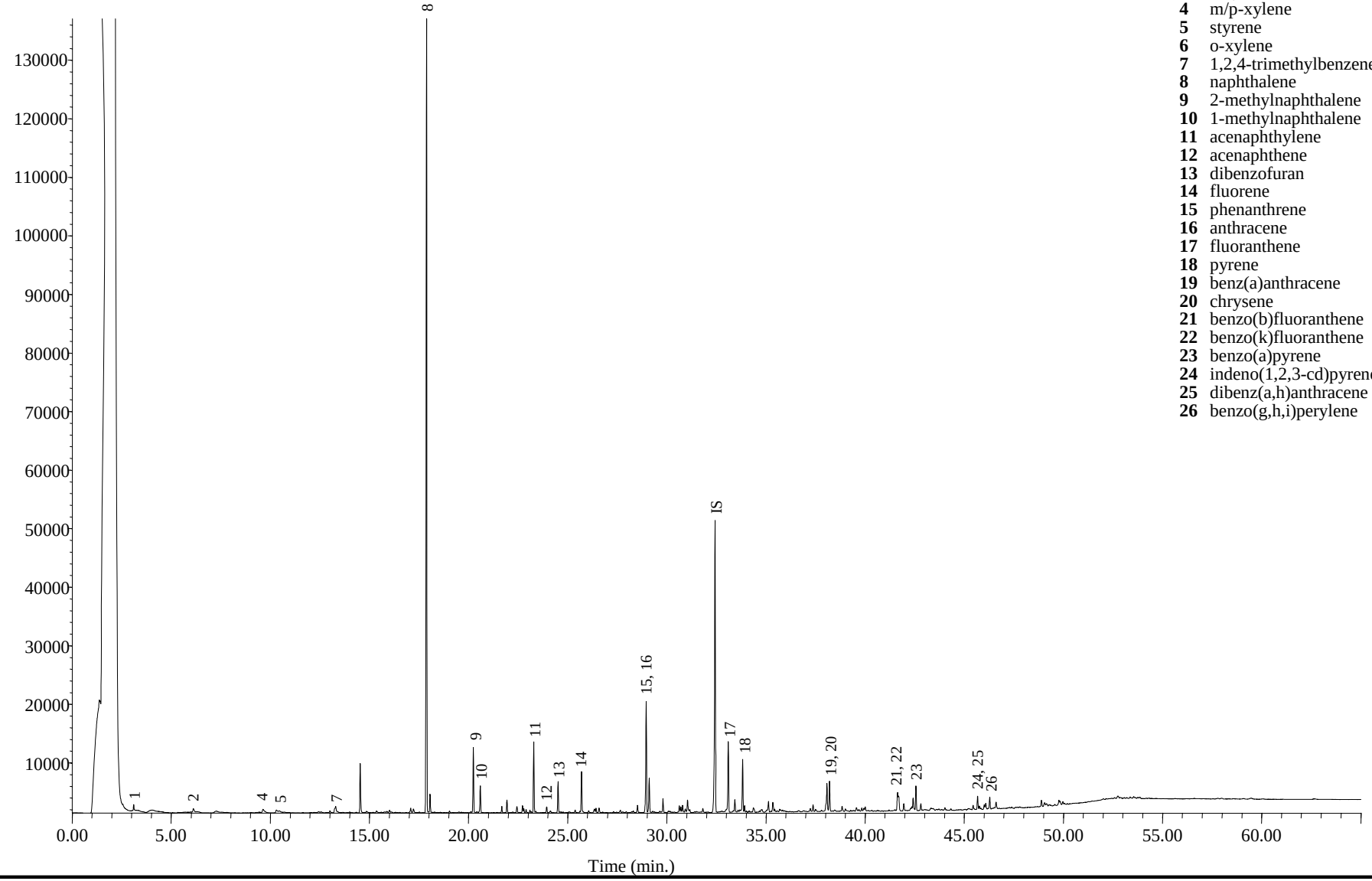
Extraction Date: 06/15/2009
Analysis Date: 06/17/2009

Field ID: **CT-SO-B05-20**
Laboratory ID: TA090610-01-D
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint

C061704.D\FID2B

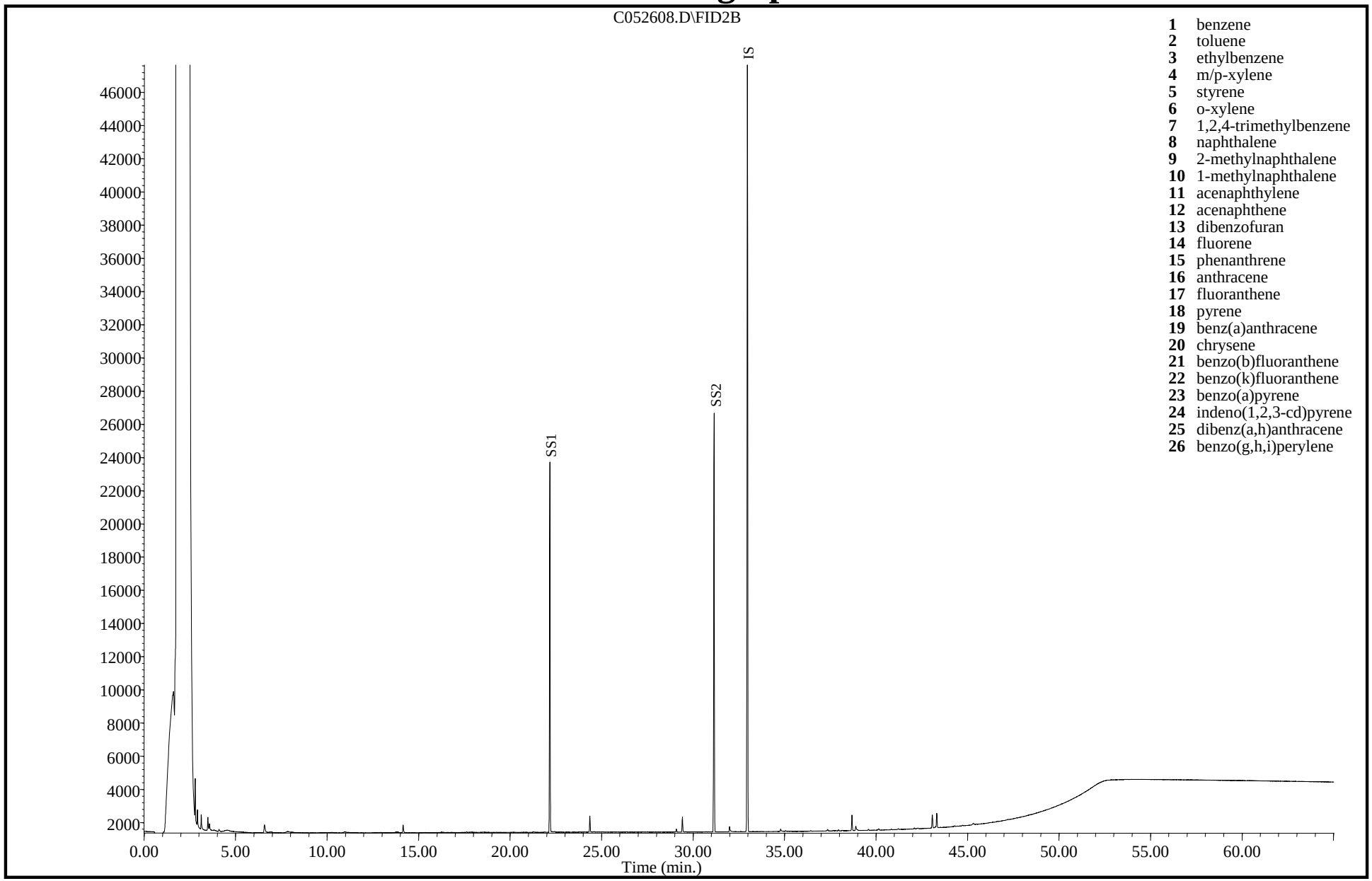


Extraction Date: 06/15/2009
Analysis Date: 06/17/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **CT-SO-B05-20**
Laboratory ID: TA090610-01DUP-D
Method: EPA 8100M

GC/FID Fingerprint

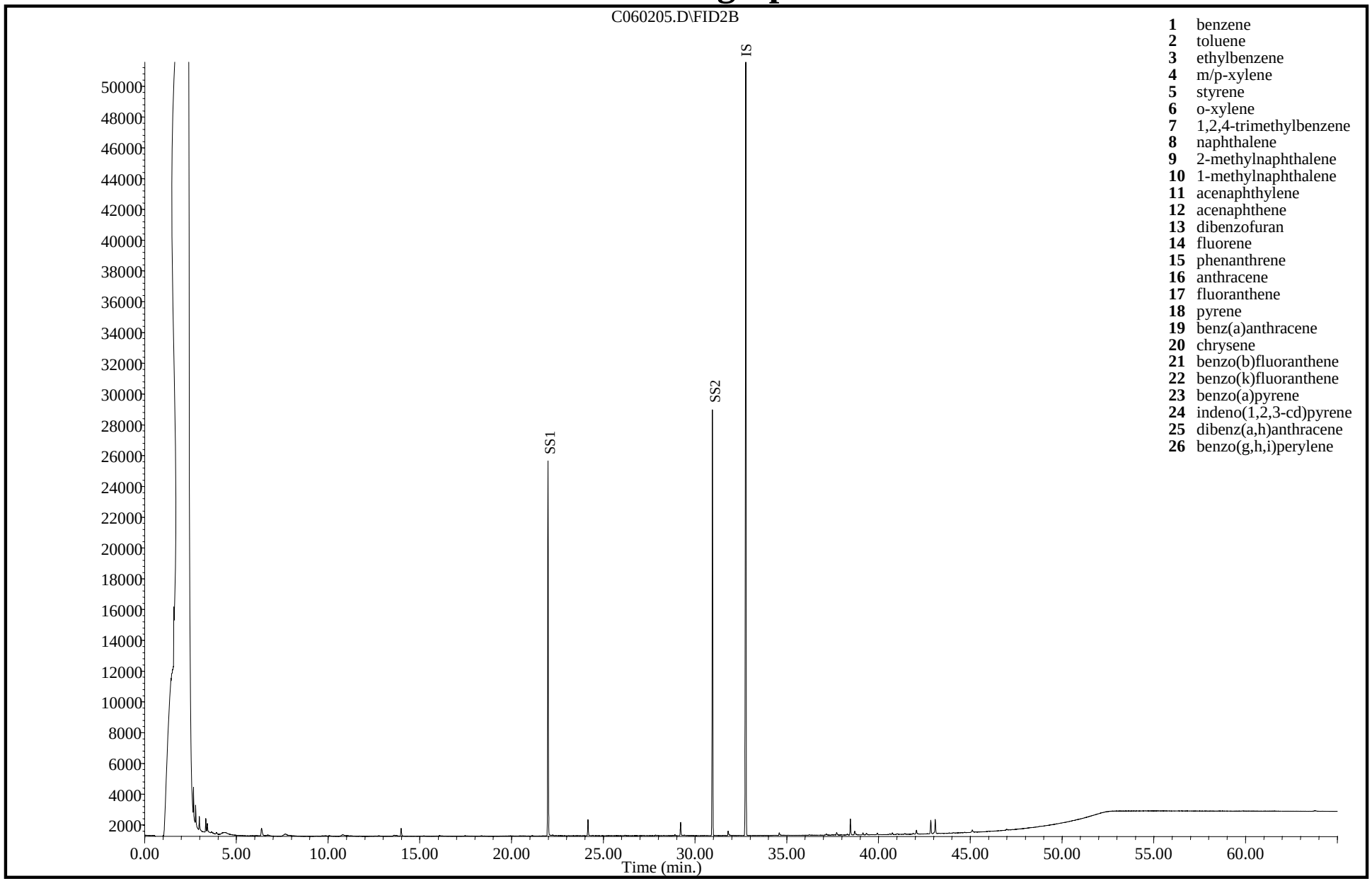


Extraction Date: 05/22/2009
Analysis Date: 05/26/2009

Field ID: **Soil Blank**
Laboratory ID: QC090522-SB
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint

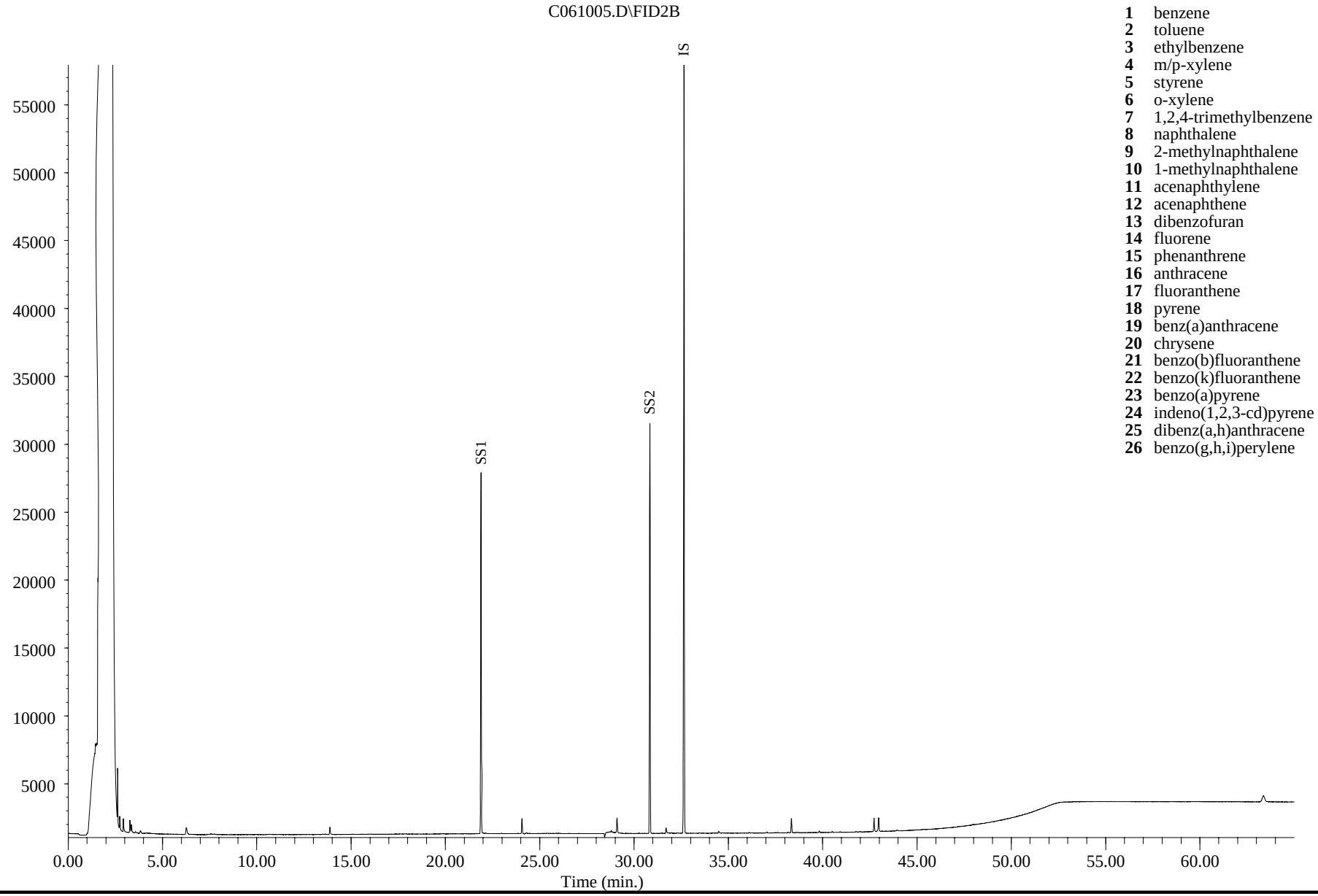


Extraction Date: 06/01/2009
Analysis Date: 06/02/2009

Field ID: **Soil Blank**
Laboratory ID: QC090601-SB
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint

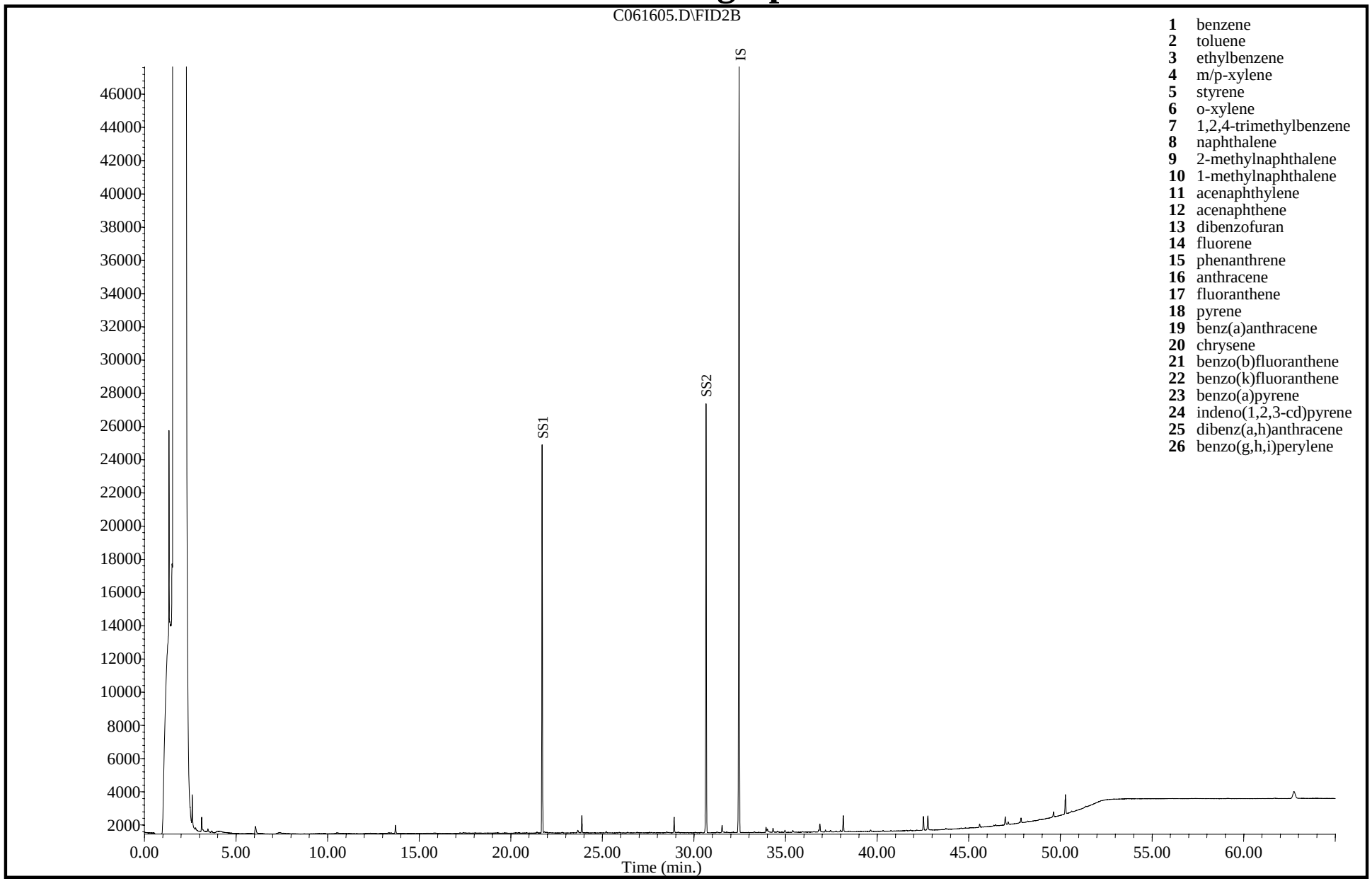


Extraction Date: 06/09/2009
Analysis Date: 06/10/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID:	**Soil Blank**
Laboratory ID:	QC090609-SB
Method:	EPA 8100M

GC/FID Fingerprint



Extraction Date: 06/15/2009
Analysis Date: 06/16/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **Soil Blank**
Laboratory ID: QC090615-SB1
Method: EPA 8100M

Appendix C

MAH/PAH Concentrations

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

Field ID: BP-SO-B03-18

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090520-01		
File ID:	E060417.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/19/2009	Decanted:	None
Date Received:	5/20/2009		
Date Prepared:	5/22/2009	Sample Size (g):	4.11
Date Cleanup:	NA	Percent Solid:	92.2%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	5.12	B	0.003	0.001	
Toluene	2.75	B	0.005	0.003	
Ethylbenzene	0.071	B	0.003	0.001	
m/p-Xylenes	0.888	B	0.003	0.001	
Styrene	0.020		0.005	0.003	
o-Xylene	0.245	B	0.003	0.001	
Isopropylbenzene	0.004		0.003	0.001	
n-Propylbenzene	0.005		0.003	0.001	
1,3,5-Trimethylbenzene	0.039		0.003	0.001	
1,2,4-Trimethylbenzene	0.073		0.003	0.001	
t-Butylbenzene		U	0.003	0.001	
sec-Butylbenzene	0.001	J	0.003	0.001	
p-Isopropyltoluene	0.006		0.003	0.001	
n-Butylbenzene	0.003		0.003	0.001	
C1 - Benzene	1.71	B	0.005	0.003	
C2 - Benzene	0.516	B	0.003	0.001	
C3 - Benzene	0.070		0.003	0.001	
C4 - Benzene	0.018		0.003	0.001	
C5 - Benzene	0.010		0.003	0.001	
trans-Decalin	0.003	J	0.003	0.001	
cis-Decalin		U	0.003	0.001	
Naphthalene	0.903	B	0.003	0.001	
2-Methylnaphthalene	0.111	B	0.003	0.001	
1-Methylnaphthalene	0.058	B	0.003	0.001	
C1 - Naphthalene	0.099	B	0.003	0.001	
C2 - Naphthalene	0.063		0.003	0.001	
C3- Naphthalene	0.045		0.003	0.001	
C4- Naphthalene	0.023		0.003	0.001	
Acenaphthylene	0.025		0.003	0.001	
Acenaphthene	0.024	B	0.003	0.001	
Dibenzofuran	0.047		0.003	0.001	
Fluorene	0.038	B	0.003	0.001	
C1 - Fluorene	0.014		0.003	0.001	
C2 - Fluorene	0.018		0.003	0.001	
C3 - Fluorene	0.018		0.003	0.001	
Phenanthrene	0.131	B	0.003	0.001	
Anthracene	0.027		0.003	0.001	

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

Field ID: BP-SO-B03-18

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090520-01		
File ID:	E060417.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/19/2009	Decanted:	None
Date Received:	5/20/2009		
Date Prepared:	5/22/2009	Sample Size (g):	4.11
Date Cleanup:	NA	Percent Solid:	92.2%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene	0.049		0.003	0.001	
C2 - Phenanthrene/Anthracene	0.047		0.003	0.001	
C3 - Phenanthrene/Anthracene	0.022		0.003	0.001	
C4 - Phenanthrene/Anthracene	0.010		0.003	0.001	
Dibenzothiophene	0.011		0.003	0.001	
C1 - Dibenzothiophene	0.007		0.003	0.001	
C2 - Dibenzothiophene	0.008		0.003	0.001	
C3 - Dibenzothiophene	0.006		0.003	0.001	
C4 - Dibenzothiophene		U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene	0.005		0.003	0.001	
Fluoranthene	0.042	B	0.003	0.001	
Pyrene	0.035	B	0.003	0.001	
C1 - Fluoranthene/Pyrene	0.027		0.003	0.001	
C2 - Fluoranthene/Pyrene	0.024		0.003	0.001	
C3 - Fluoranthene/Pyrene	0.017		0.003	0.001	
Benz[a]anthracene	0.023		0.003	0.001	
Chrysene*	0.026		0.003	0.001	
C1 - Benz(a)anthracene/Chrysene	0.021		0.003	0.001	
C2 - Benz(a)anthracene/Chrysene	0.016		0.003	0.001	
C3 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
Benzo[b]fluoranthene	0.034		0.003	0.001	
Benzo[j/k]fluoranthene	0.035		0.003	0.001	
Benzo(e)pyrene	0.027		0.003	0.001	
Benzo[a]pyrene	0.047		0.003	0.001	
Perylene	0.012		0.003	0.001	
Indeno[1,2,3-cd]pyrene	0.035		0.003	0.001	
Dibenz[a,h]anthracene	0.011		0.003	0.001	
Benzo[g,h,i]perylene	0.036		0.003	0.001	
Coronene	0.011		0.003	0.001	
Retene	0.008		0.003	0.001	
Benzo(b/c)fluorenes	0.005		0.003	0.001	
2-Methylpyrene	0.003		0.003	0.001	
4-Methylpyrene	0.003		0.003	0.001	
1-Methylpyrene	0.002	J	0.003	0.001	
Heptadecane	0.037		0.005	0.003	
Pristane	0.058		0.003	0.001	
Octadecane	0.049		0.005	0.003	
Phytane	0.032		0.003	0.001	

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

Field ID: BP-SO-B03-18

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090520-01		
File ID:	E060417.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/19/2009	Decanted:	None
Date Received:	5/20/2009		
Date Prepared:	5/22/2009	Sample Size (g):	4.11
Date Cleanup:	NA	Percent Solid:	92.2%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.023	0.003	0.001	
2,6,10-trimethyltridecane	0.028	0.003	0.001	
Norpristane	0.012	0.003	0.001	
Tetraethyl lead	U	0.005	0.003	
Total PAH (16)	1.47	0.003	0.001	
Total PAH (42)	2.1	0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	77	50 - 120
Phenanthrene-d10	98	50 - 120
Benzo[a]pyrene-d12	100	50 - 120
Perylene-d12	111	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: BP-SO-B05-06

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090528-01		
File ID:	E060411.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/27/2009	Decanted:	None
Date Received:	5/28/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.69
Date Cleanup:	NA	Percent Solid:	93.3%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	46.2	DB	0.002	0.001	
Toluene	133	DB	0.005	0.002	
Ethylbenzene	17.4	D	0.002	0.001	
m/p-Xylenes	88.5	DB	0.002	0.001	
Styrene	19.7	DB	0.005	0.002	
o-Xylene	28.6	D	0.002	0.001	
Isopropylbenzene	1.42		0.002	0.001	
n-Propylbenzene	0.998		0.002	0.001	
1,3,5-Trimethylbenzene	19.1	D	0.002	0.001	
1,2,4-Trimethylbenzene	34.3	D	0.002	0.001	
t-Butylbenzene		U	0.002	0.001	
sec-Butylbenzene	0.071		0.002	0.001	
p-Isopropyltoluene	0.831		0.002	0.001	
n-Butylbenzene	0.437		0.002	0.001	
C1 - Benzene	82.3	DB	0.005	0.002	
C2 - Benzene	57.4	DB	0.002	0.001	
C3 - Benzene	30.5	D	0.002	0.001	
C4 - Benzene	3.35		0.002	0.001	
C5 - Benzene	0.508		0.002	0.001	
trans-Decalin	0.152		0.002	0.001	
cis-Decalin		U	0.002	0.001	
Naphthalene	511	DB	0.002	0.001	
2-Methylnaphthalene	41.3	DB	0.002	0.001	
1-Methylnaphthalene	17.0	D	0.002	0.001	
C1 - Naphthalene	34.2	DB	0.002	0.001	
C2 - Naphthalene	4.74		0.002	0.001	
C3- Naphthalene	4.16		0.002	0.001	
C4- Naphthalene	5.3		0.002	0.001	
Acenaphthylene	15.5	D	0.002	0.001	
Acenaphthene	5.96		0.002	0.001	
Dibenzofuran	13.1	DB	0.002	0.001	
Fluorene	10.7	DB	0.002	0.001	
C1 - Fluorene	1.81		0.002	0.001	
C2 - Fluorene	5.39		0.002	0.001	
C3 - Fluorene	5.68		0.002	0.001	
Phenanthrene	7.82	B	0.002	0.001	
Anthracene	1.81		0.002	0.001	

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

Field ID: BP-SO-B05-06

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090528-01		
File ID:	E060411.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/27/2009	Decanted:	None
Date Received:	5/28/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.69
Date Cleanup:	NA	Percent Solid:	93.3%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene	7.13		0.002	0.001	
C2 - Phenanthrene/Anthracene	8.93		0.002	0.001	
C3 - Phenanthrene/Anthracene	4.63		0.002	0.001	
C4 - Phenanthrene/Anthracene	1.19		0.002	0.001	
Dibenzothiophene	0.846		0.002	0.001	
C1 - Dibenzothiophene	2.32		0.002	0.001	
C2 - Dibenzothiophene	4.51		0.002	0.001	
C3 - Dibenzothiophene	3.14		0.002	0.001	
C4 - Dibenzothiophene	1.16		0.002	0.001	
Benzo(b)naphtho(2,1-d)thiophene	0.196		0.002	0.001	
Fluoranthene	3.06		0.002	0.001	
Pyrene	2.46		0.002	0.001	
C1 - Fluoranthene/Pyrene	1.46		0.002	0.001	
C2 - Fluoranthene/Pyrene	0.762		0.002	0.001	
C3 - Fluoranthene/Pyrene	0.274		0.002	0.001	
Benz[a]anthracene	0.968		0.002	0.001	
Chrysene*	1.03		0.002	0.001	
C1 - Benz(a)anthracene/Chrysene	0.382		0.002	0.001	
C2 - Benz(a)anthracene/Chrysene	0.205		0.002	0.001	
C3 - Benz(a)anthracene/Chrysene	0.091		0.002	0.001	
C4 - Benz(a)anthracene/Chrysene	0.038		0.002	0.001	
Benzo[b]fluoranthene	0.749		0.002	0.001	
Benzo[j/k]fluoranthene	0.754		0.002	0.001	
Benzo(e)pyrene	0.522		0.002	0.001	
Benzo[a]pyrene	0.795		0.002	0.001	
Perylene	0.250		0.002	0.001	
Indeno[1,2,3-cd]pyrene	0.465		0.002	0.001	
Dibenz[a,h]anthracene	0.142		0.002	0.001	
Benzo[g,h,i]perylene	0.456		0.002	0.001	
Coronene	0.100		0.002	0.001	
Retene		U	0.002	0.001	
Benzo(b/c)fluorenes	0.321		0.002	0.001	
2-Methylpyrene	0.161		0.002	0.001	
4-Methylpyrene	0.190		0.002	0.001	
1-Methylpyrene	0.131		0.002	0.001	
Heptadecane	160	DB	0.005	0.002	
Pristane	88.0	DB	0.002	0.001	
Octadecane	183	DB	0.005	0.002	
Phytane	81.1	DB	0.002	0.001	

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

Field ID: BP-SO-B05-06

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090528-01		
File ID:	E060411.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/27/2009	Decanted:	None
Date Received:	5/28/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.69
Date Cleanup:	NA	Percent Solid:	93.3%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane	1.65	D	0.002	0.001	
2,6,10-trimethyltridecane	7.7	D	0.002	0.001	
Norpristane	33.8	D	0.002	0.001	
Tetraethyl lead		U	0.005	0.002	
Total PAH (16)	564		0.002	0.001	
Total PAH (42)	676		0.002	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	76	50 - 120
Phenanthrene-d10	76	50 - 120
Benzo[a]pyrene-d12	105	50 - 120
Perylene-d12	117	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: BP-SO-B025-8

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090529-01		
File ID:	E060413.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/28/2009	Decanted:	None
Date Received:	5/29/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.56
Date Cleanup:	NA	Percent Solid:	89.5%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	170	DB	0.002	0.001	
Toluene	58.2	DB	0.005	0.002	
Ethylbenzene	10.5	D	0.002	0.001	
m/p-Xylenes	36.7	DB	0.002	0.001	
Styrene	0.995	DB	0.005	0.002	
o-Xylene	9.64	D	0.002	0.001	
Isopropylbenzene	0.570		0.002	0.001	
n-Propylbenzene	0.541		0.002	0.001	
1,3,5-Trimethylbenzene	6.66		0.002	0.001	
1,2,4-Trimethylbenzene	13.5	D	0.002	0.001	
t-Butylbenzene		U	0.002	0.001	
sec-Butylbenzene	0.041		0.002	0.001	
p-Isopropyltoluene	0.292		0.002	0.001	
n-Butylbenzene	0.149		0.002	0.001	
C1 - Benzene	35.5	DB	0.005	0.002	
C2 - Benzene	23.9	DB	0.002	0.001	
C3 - Benzene	12.2	D	0.002	0.001	
C4 - Benzene	0.827		0.002	0.001	
C5 - Benzene	0.142		0.002	0.001	
trans-Decalin	0.057		0.002	0.001	
cis-Decalin		U	0.002	0.001	
Naphthalene	24.2	DB	0.002	0.001	
2-Methylnaphthalene	1.94	B	0.002	0.001	
1-Methylnaphthalene	0.913		0.002	0.001	
C1 - Naphthalene	1.67	B	0.002	0.001	
C2 - Naphthalene	0.659		0.002	0.001	
C3- Naphthalene	0.616		0.002	0.001	
C4- Naphthalene	0.689		0.002	0.001	
Acenaphthylene	0.331		0.002	0.001	
Acenaphthene	0.280		0.002	0.001	
Dibenzofuran	0.873	B	0.002	0.001	
Fluorene	5.68	B	0.002	0.001	
C1 - Fluorene	0.322		0.002	0.001	
C2 - Fluorene	0.928		0.002	0.001	
C3 - Fluorene	0.921		0.002	0.001	
Phenanthrene	4.18	B	0.002	0.001	
Anthracene	0.806		0.002	0.001	

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

Field ID: BP-SO-B025-8

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090529-01		
File ID:	E060413.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/28/2009	Decanted:	None
Date Received:	5/29/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.56
Date Cleanup:	NA	Percent Solid:	89.5%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene	2.21		0.002	0.001	
C2 - Phenanthrene/Anthracene	1.8		0.002	0.001	
C3 - Phenanthrene/Anthracene	0.856		0.002	0.001	
C4 - Phenanthrene/Anthracene	0.289		0.002	0.001	
Dibenzothiophene	0.398		0.002	0.001	
C1 - Dibenzothiophene	0.614		0.002	0.001	
C2 - Dibenzothiophene	0.866		0.002	0.001	
C3 - Dibenzothiophene	0.583		0.002	0.001	
C4 - Dibenzothiophene	0.231		0.002	0.001	
Benzo(b)naphtho(2,1-d)thiophene	0.439		0.002	0.001	
Fluoranthene	4.67		0.002	0.001	
Pyrene	3.62		0.002	0.001	
C1 - Fluoranthene/Pyrene	1.19		0.002	0.001	
C2 - Fluoranthene/Pyrene	1.18		0.002	0.001	
C3 - Fluoranthene/Pyrene	0.479		0.002	0.001	
Benz[a]anthracene	2.54		0.002	0.001	
Chrysene*	2.74		0.002	0.001	
C1 - Benz(a)anthracene/Chrysene	0.956		0.002	0.001	
C2 - Benz(a)anthracene/Chrysene	0.472		0.002	0.001	
C3 - Benz(a)anthracene/Chrysene	0.275		0.002	0.001	
C4 - Benz(a)anthracene/Chrysene	0.196		0.002	0.001	
Benzo[b]fluoranthene	2.55		0.002	0.001	
Benzo[j/k]fluoranthene	2.37		0.002	0.001	
Benzo(e)pyrene	1.81		0.002	0.001	
Benzo[a]pyrene	2.21		0.002	0.001	
Perylene	0.667		0.002	0.001	
Indeno[1,2,3-cd]pyrene	1.72		0.002	0.001	
Dibenz[a,h]anthracene	0.663		0.002	0.001	
Benzo[g,h,i]perylene	1.71		0.002	0.001	
Coronene	0.423		0.002	0.001	
Retene	0.308		0.002	0.001	
Benzo(b/c)fluorenes	0.100		0.002	0.001	
2-Methylpyrene	0.215		0.002	0.001	
4-Methylpyrene	0.165		0.002	0.001	
1-Methylpyrene	0.109		0.002	0.001	
Heptadecane	9.3	DB	0.005	0.002	
Pristane	8.27	DB	0.002	0.001	
Octadecane	12.8	DB	0.005	0.002	
Phytane	9.59	DB	0.002	0.001	

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

Field ID: BP-SO-B025-8

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090529-01		
File ID:	E060413.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/28/2009	Decanted:	None
Date Received:	5/29/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.56
Date Cleanup:	NA	Percent Solid:	89.5%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.195	0.002	0.001	
2,6,10-trimethyltridecane	0.648	0.002	0.001	
Norpristane	2.5	0.002	0.001	
Tetraethyl lead	U	0.005	0.002	
Total PAH (16)	60.3	0.002	0.001	
Total PAH (42)	82.0	0.002	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	64	50 - 120
Phenanthrene-d10	78	50 - 120
Benzo[a]pyrene-d12	88	50 - 120
Perylene-d12	98	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: CT-SO-B01-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090603-01-D		
File ID:	E061281.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/2/2009	Decanted:	None
Date Received:	6/3/2009		
Date Prepared:	6/9/2009	Sample Size (g):	3.08
Date Cleanup:	NA	Percent Solid:	77.7%
Date Analyzed:	6/17/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	56.7	B	0.209	0.105	
Toluene	100	B	0.418	0.209	
Ethylbenzene	5.42		0.209	0.105	
m/p-Xylenes	113	B	0.209	0.105	
Styrene	63.4		0.418	0.209	
o-Xylene	37.7	B	0.209	0.105	
Isopropylbenzene	0.292		0.209	0.105	
n-Propylbenzene	0.651		0.209	0.105	
1,3,5-Trimethylbenzene	30.1		0.209	0.105	
1,2,4-Trimethylbenzene	69.8	B	0.209	0.105	
t-Butylbenzene		U	0.209	0.105	
sec-Butylbenzene		U	0.209	0.105	
p-Isopropyltoluene	2.23		0.209	0.105	
n-Butylbenzene	1.26		0.209	0.105	
C1 - Benzene	63.1		0.418	0.209	
C2 - Benzene	69.0	B	0.209	0.105	
C3 - Benzene	56.1	B	0.209	0.105	
C4 - Benzene	15.2		0.209	0.105	
C5 - Benzene	2.39		0.209	0.105	
trans-Decalin	0.198	J	0.209	0.105	
cis-Decalin		U	0.209	0.105	
Naphthalene	6,050	DB	0.209	0.105	
2-Methylnaphthalene	649	B	0.209	0.105	
1-Methylnaphthalene	295		0.209	0.105	
C1 - Naphthalene	572	B	0.209	0.105	
C2 - Naphthalene	130		0.209	0.105	
C3- Naphthalene	26.6		0.209	0.105	
C4- Naphthalene	5.36		0.209	0.105	
Acenaphthylene	520	B	0.209	0.105	
Acenaphthene	31.9		0.209	0.105	
Dibenzofuran	303		0.209	0.105	
Fluorene	338		0.209	0.105	
C1 - Fluorene	35.0		0.209	0.105	
C2 - Fluorene	10.6		0.209	0.105	
C3 - Fluorene	4.82		0.209	0.105	
Phenanthrene	762	B	0.209	0.105	
Anthracene	277		0.209	0.105	

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

Field ID: CT-SO-B01-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090603-01-D		
File ID:	E061281.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/2/2009	Decanted:	None
Date Received:	6/3/2009		
Date Prepared:	6/9/2009	Sample Size (g):	3.08
Date Cleanup:	NA	Percent Solid:	77.7%
Date Analyzed:	6/17/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	159	0.209	0.105	
C2 - Phenanthrene/Anthracene	40.9	0.209	0.105	
C3 - Phenanthrene/Anthracene	11.4	0.209	0.105	
C4 - Phenanthrene/Anthracene	3.5	0.209	0.105	
Dibenzothiophene	78.4	0.209	0.105	
C1 - Dibenzothiophene	18.2	0.209	0.105	
C2 - Dibenzothiophene	7.42	0.209	0.105	
C3 - Dibenzothiophene	2.67	0.209	0.105	
C4 - Dibenzothiophene	0.990	0.209	0.105	
Benzo(b)naphtho(2,1-d)thiophene	33.5	0.209	0.105	
Fluoranthene	504	0.209	0.105	
Pyrene	356	0.209	0.105	
C1 - Fluoranthene/Pyrene	220	0.209	0.105	
C2 - Fluoranthene/Pyrene	43.4	0.209	0.105	
C3 - Fluoranthene/Pyrene	9.51	0.209	0.105	
Benz[a]anthracene	217	0.209	0.105	
Chrysene*	188	0.209	0.105	
C1 - Benz(a)anthracene/Chrysene	59.3	0.209	0.105	
C2 - Benz(a)anthracene/Chrysene	16.7	0.209	0.105	
C3 - Benz(a)anthracene/Chrysene	5.95	0.209	0.105	
C4 - Benz(a)anthracene/Chrysene	4.41	0.209	0.105	
Benzo[b]fluoranthene	134	0.209	0.105	
Benzo[j/k]fluoranthene	149	0.209	0.105	
Benzo(e)pyrene	94.1	0.209	0.105	
Benzo[a]pyrene	172	0.209	0.105	
Perylene	44.2	0.209	0.105	
Indeno[1,2,3-cd]pyrene	79.4	0.209	0.105	
Dibenz[a,h]anthracene	26.5	0.209	0.105	
Benzo[g,h,i]perylene	72.7	0.209	0.105	
Coronene	18.2	0.209	0.105	
Retene	1.23	0.209	0.105	
Benzo(b/c)fluorenes	67.8	0.209	0.105	
2-Methylpyrene	18.8	0.209	0.105	
4-Methylpyrene	10.6	0.209	0.105	
1-Methylpyrene	14.6	0.209	0.105	
Heptadecane	1.37	0.418	0.209	
Pristane	1.54	0.209	0.105	
Octadecane	1.3	0.418	0.209	
Phytane	0.841	0.209	0.105	

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

Field ID: CT-SO-B01-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090603-01-D		
File ID:	E061281.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/2/2009	Decanted:	None
Date Received:	6/3/2009		
Date Prepared:	6/9/2009	Sample Size (g):	3.08
Date Cleanup:	NA	Percent Solid:	77.7%
Date Analyzed:	6/17/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.644	0.209	0.105	
2,6,10-trimethyltridecane	0.886	0.209	0.105	
Norpristane	0.516	0.209	0.105	
Tetraethyl lead	U	0.418	0.209	
Total PAH (16)	9,880	0.209	0.105	
Total PAH (42)	11,800	0.209	0.105	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	67	50 - 120
Phenanthrene-d10	82	50 - 120
Benzo[a]pyrene-d12	85	50 - 120
Perylene-d12	82	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: CT-SO-B05-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090610-01-D		
File ID:	E061303.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/9/2009	Decanted:	None
Date Received:	6/10/2009		
Date Prepared:	6/15/2009	Sample Size (g):	4.72
Date Cleanup:	NA	Percent Solid:	78.7%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	7.78	B	0.135	0.067	
Toluene	9.92	B	0.269	0.135	
Ethylbenzene	0.571	B	0.135	0.067	
m/p-Xylenes	9.25	B	0.135	0.067	
Styrene	5.17		0.269	0.135	
o-Xylene	3.16	B	0.135	0.067	
Isopropylbenzene		BU	0.135	0.067	
n-Propylbenzene		BU	0.135	0.067	
1,3,5-Trimethylbenzene	2.27	B	0.135	0.067	
1,2,4-Trimethylbenzene	5.22	B	0.135	0.067	
t-Butylbenzene		U	0.135	0.067	
sec-Butylbenzene		BU	0.135	0.067	
p-Isopropyltoluene		BU	0.135	0.067	
n-Butylbenzene	0.110	JB	0.135	0.067	
C1 - Benzene	6.23	B	0.269	0.135	
C2 - Benzene	5.82	B	0.135	0.067	
C3 - Benzene	4.55	B	0.135	0.067	
C4 - Benzene	1.28		0.135	0.067	
C5 - Benzene	0.344		0.135	0.067	
trans-Decalin		U	0.135	0.067	
cis-Decalin		U	0.135	0.067	
Naphthalene	1,020	DB	0.135	0.067	
2-Methylnaphthalene	81.2	B	0.135	0.067	
1-Methylnaphthalene	35.4	B	0.135	0.067	
C1 - Naphthalene	71.1	B	0.135	0.067	
C2 - Naphthalene	14.1		0.135	0.067	
C3- Naphthalene	2.96		0.135	0.067	
C4- Naphthalene	0.635		0.135	0.067	
Acenaphthylene	93.3	B	0.135	0.067	
Acenaphthene	4.34	B	0.135	0.067	
Dibenzofuran	51.2	B	0.135	0.067	
Fluorene	55.4	B	0.135	0.067	
C1 - Fluorene	3.94		0.135	0.067	
C2 - Fluorene	1.07		0.135	0.067	
C3 - Fluorene	0.711		0.135	0.067	
Phenanthrene	165	B	0.135	0.067	
Anthracene	60.3	B	0.135	0.067	

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

Field ID: CT-SO-B05-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090610-01-D		
File ID:	E061303.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/9/2009	Decanted:	None
Date Received:	6/10/2009		
Date Prepared:	6/15/2009	Sample Size (g):	4.72
Date Cleanup:	NA	Percent Solid:	78.7%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene	20.6		0.135	0.067	
C2 - Phenanthrene/Anthracene	4.27		0.135	0.067	
C3 - Phenanthrene/Anthracene	1.26		0.135	0.067	
C4 - Phenanthrene/Anthracene		U	0.135	0.067	
Dibenzothiophene	12.3	B	0.135	0.067	
C1 - Dibenzothiophene	2.15		0.135	0.067	
C2 - Dibenzothiophene	0.790		0.135	0.067	
C3 - Dibenzothiophene	0.343		0.135	0.067	
C4 - Dibenzothiophene	0.171		0.135	0.067	
Benzo(b)naphtho(2,1-d)thiophene	4.9		0.135	0.067	
Fluoranthene	113	B	0.135	0.067	
Pyrene	81.2	B	0.135	0.067	
C1 - Fluoranthene/Pyrene	29.2		0.135	0.067	
C2 - Fluoranthene/Pyrene	4.37		0.135	0.067	
C3 - Fluoranthene/Pyrene	0.875		0.135	0.067	
Benz[a]anthracene	38.7		0.135	0.067	
Chrysene*	40.3	B	0.135	0.067	
C1 - Benz(a)anthracene/Chrysene	6.97		0.135	0.067	
C2 - Benz(a)anthracene/Chrysene	1.7		0.135	0.067	
C3 - Benz(a)anthracene/Chrysene	0.870		0.135	0.067	
C4 - Benz(a)anthracene/Chrysene	0.527		0.135	0.067	
Benzo[b]fluoranthene	23.8	B	0.135	0.067	
Benzo[j/k]fluoranthene	28.4		0.135	0.067	
Benzo(e)pyrene	18.4	B	0.135	0.067	
Benzo[a]pyrene	32.2		0.135	0.067	
Perylene	8.32		0.135	0.067	
Indeno[1,2,3-cd]pyrene	15.0		0.135	0.067	
Dibenz[a,h]anthracene	4.68		0.135	0.067	
Benzo[g,h,i]perylene	15.8		0.135	0.067	
Coronene	3.58		0.135	0.067	
Retene		U	0.135	0.067	
Benzo(b/c)fluorenes	9.16		0.135	0.067	
2-Methylpyrene	2.56		0.135	0.067	
4-Methylpyrene	1.48		0.135	0.067	
1-Methylpyrene	1.71		0.135	0.067	
Heptadecane		BU	0.269	0.135	
Pristane		BU	0.135	0.067	
Octadecane		BU	0.269	0.135	
Phytane		BU	0.135	0.067	

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

Field ID: CT-SO-B05-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090610-01-D		
File ID:	E061303.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/9/2009	Decanted:	None
Date Received:	6/10/2009		
Date Prepared:	6/15/2009	Sample Size (g):	4.72
Date Cleanup:	NA	Percent Solid:	78.7%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.135	0.067	
2,6,10-trimethyltridecane		U	0.135	0.067	
Norpristane		U	0.135	0.067	
Tetraethyl lead		U	0.269	0.135	
Total PAH (16)	1,790		0.135	0.067	
Total PAH (42)	2,050		0.135	0.067	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	82	50 - 120
Phenanthrene-d10	91	50 - 120
Benzo[a]pyrene-d12	75	50 - 120
Perylene-d12	91	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090522-SB		
File ID:	E060230.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	5/22/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/4/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				
Benzene	0.003 J	0.003	0.001	
Toluene	0.014	0.005	0.003	
Ethylbenzene	0.001 J	0.003	0.001	
m/p-Xylenes	0.003 J	0.003	0.001	
Styrene	U	0.005	0.003	
o-Xylene	0.001 J	0.003	0.001	
Isopropylbenzene	U	0.003	0.001	
n-Propylbenzene	U	0.003	0.001	
1,3,5-Trimethylbenzene	U	0.003	0.001	
1,2,4-Trimethylbenzene	U	0.003	0.001	
t-Butylbenzene	U	0.003	0.001	
sec-Butylbenzene	U	0.003	0.001	
p-Isopropyltoluene	U	0.003	0.001	
n-Butylbenzene	U	0.003	0.001	
C1 - Benzene	0.008	0.005	0.003	
C2 - Benzene	0.002 J	0.003	0.001	
C3 - Benzene	U	0.003	0.001	
C4 - Benzene	U	0.003	0.001	
C5 - Benzene	U	0.003	0.001	
trans-Decalin	U	0.003	0.001	
cis-Decalin	U	0.003	0.001	
Naphthalene	0.002 J	0.003	0.001	
2-Methylnaphthalene	0.001 J	0.003	0.001	
1-Methylnaphthalene	0.001 J	0.003	0.001	
C1 - Naphthalene	0.002 J	0.003	0.001	
C2 - Naphthalene	U	0.003	0.001	
C3- Naphthalene	U	0.003	0.001	
C4- Naphthalene	U	0.003	0.001	
Acenaphthylene	U	0.003	0.001	
Acenaphthene	0.002 J	0.003	0.001	
Dibenzofuran	U	0.003	0.001	
Fluorene	0.001 J	0.003	0.001	
C1 - Fluorene	U	0.003	0.001	
C2 - Fluorene	U	0.003	0.001	
C3 - Fluorene	U	0.003	0.001	
Phenanthrene	0.002 J	0.003	0.001	
Anthracene	U	0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090522-SB		
File ID:	E060230.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	5/22/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/4/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	U	0.003	0.001	
C2 - Phenanthrene/Anthracene	U	0.003	0.001	
C3 - Phenanthrene/Anthracene	U	0.003	0.001	
C4 - Phenanthrene/Anthracene	U	0.003	0.001	
Dibenzothiophene	U	0.003	0.001	
C1 - Dibenzothiophene	U	0.003	0.001	
C2 - Dibenzothiophene	U	0.003	0.001	
C3 - Dibenzothiophene	U	0.003	0.001	
C4 - Dibenzothiophene	U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene	U	0.003	0.001	
Fluoranthene	0.001 J	0.003	0.001	
Pyrene	0.001 J	0.003	0.001	
C1 - Fluoranthene/Pyrene	U	0.003	0.001	
C2 - Fluoranthene/Pyrene	U	0.003	0.001	
C3 - Fluoranthene/Pyrene	U	0.003	0.001	
Benz[a]anthracene	U	0.003	0.001	
Chrysene*	U	0.003	0.001	
C1 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
Benzo[b]fluoranthene	U	0.003	0.001	
Benzo[j/k]fluoranthene	U	0.003	0.001	
Benzo(e)pyrene	U	0.003	0.001	
Benzo[a]pyrene	U	0.003	0.001	
Perylene	U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	U	0.003	0.001	
Dibenz[a,h]anthracene	U	0.003	0.001	
Benzo[g,h,i]perylene	U	0.003	0.001	
Coronene	U	0.003	0.001	
Retene	U	0.003	0.001	
Benzo(b/c)fluorenes	U	0.003	0.001	
2-Methylpyrene	U	0.003	0.001	
4-Methylpyrene	U	0.003	0.001	
1-Methylpyrene	U	0.003	0.001	
Heptadecane	U	0.005	0.003	
Pristane	U	0.003	0.001	
Octadecane	U	0.005	0.003	
Phytane	U	0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090522-SB		
File ID:	E060230.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	5/22/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/4/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.003	0.001	
2,6,10-trimethyltridecane		U	0.003	0.001	
Norpristane		U	0.003	0.001	
Tetraethyl lead		U	0.005	0.003	
Total PAH (16)	0.009		0.003	0.001	
Total PAH (42)	0.011		0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	99	50 - 120
Phenanthrene-d10	92	50 - 120
Benzo[a]pyrene-d12	79	50 - 120
Perylene-d12	103	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090522-SBS		
File ID:	E060232.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	5/22/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/4/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount					% Recovery
Benzene	2.50	2.04	B	0.003	0.001	82
Toluene	2.50	2.22	B	0.005	0.003	89
Ethylbenzene	2.50	2.25	B	0.003	0.001	90
m/p-Xylenes	2.50	2.23	B	0.003	0.001	89
Styrene	2.50	2.23		0.005	0.003	89
o-Xylene	2.50	2.22	B	0.003	0.001	89
Isopropylbenzene	2.50	2.26		0.003	0.001	90
n-Propylbenzene	2.50	2.25		0.003	0.001	90
1,3,5-Trimethylbenzene	2.50	2.18		0.003	0.001	87
1,2,4-Trimethylbenzene	2.50	2.22		0.003	0.001	89
t-Butylbenzene			U	0.003	0.001	
sec-Butylbenzene	2.50	1.99		0.003	0.001	80
p-Isopropyltoluene	2.50	2.06		0.003	0.001	82
n-Butylbenzene	2.50	2.06		0.003	0.001	82
C1 - Benzene			BU	0.005	0.003	
C2 - Benzene			BU	0.003	0.001	
C3 - Benzene			U	0.003	0.001	
C4 - Benzene			U	0.003	0.001	
C5 - Benzene			U	0.003	0.001	
trans-Decalin			U	0.003	0.001	
cis-Decalin			U	0.003	0.001	
Naphthalene	2.50	2.06	B	0.003	0.001	82
2-Methylnaphthalene	2.50	2.05	B	0.003	0.001	82
1-Methylnaphthalene	2.50	2.06	B	0.003	0.001	82
C1 - Naphthalene			BU	0.003	0.001	
C2 - Naphthalene			U	0.003	0.001	
C3- Naphthalene			U	0.003	0.001	
C4- Naphthalene			U	0.003	0.001	
Acenaphthylene	2.50	2.46		0.003	0.001	98
Acenaphthene	2.50	2.37	B	0.003	0.001	95
Dibenzofuran	2.50	2.75		0.003	0.001	110
Fluorene	2.50	2.68	B	0.003	0.001	107
C1 - Fluorene			U	0.003	0.001	
C2 - Fluorene			U	0.003	0.001	
C3 - Fluorene			U	0.003	0.001	
Phenanthrene	2.50	2.38	B	0.003	0.001	95
Anthracene	2.50	2.14		0.003	0.001	86

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090522-SBS		
File ID:	E060232.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	5/22/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/4/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
C1 - Phenanthrene/Anthracene			U	0.003	0.001	
C2 - Phenanthrene/Anthracene			U	0.003	0.001	
C3 - Phenanthrene/Anthracene			U	0.003	0.001	
C4 - Phenanthrene/Anthracene			U	0.003	0.001	
Dibenzothiophene	2.50	2.35		0.003	0.001	94
C1 - Dibenzothiophene			U	0.003	0.001	
C2 - Dibenzothiophene			U	0.003	0.001	
C3 - Dibenzothiophene			U	0.003	0.001	
C4 - Dibenzothiophene			U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene			U	0.003	0.001	
Fluoranthene	2.50	2.33	B	0.003	0.001	93
Pyrene	2.50	2.29	B	0.003	0.001	92
C1 - Fluoranthene/Pyrene			U	0.003	0.001	
C2 - Fluoranthene/Pyrene			U	0.003	0.001	
C3 - Fluoranthene/Pyrene			U	0.003	0.001	
Benz[a]anthracene	2.50	2.29		0.003	0.001	92
Chrysene*	2.50	2.32		0.003	0.001	93
C1 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
Benzo[b]fluoranthene	2.50	2.34		0.003	0.001	94
Benzo[j/k]fluoranthene	2.50	2.48		0.003	0.001	99
Benzo(e)pyrene	2.50	2.21		0.003	0.001	88
Benzo[a]pyrene	2.50	2.44		0.003	0.001	98
Perylene			U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	2.50	2.3		0.003	0.001	92
Dibenz[a,h]anthracene	2.50	2.35		0.003	0.001	94
Benzo[g,h,i]perylene	2.50	2.22		0.003	0.001	89
Coronene			U	0.003	0.001	
Retene			U	0.003	0.001	
Benzo(b/c)fluorenes			U	0.003	0.001	
2-Methylpyrene			U	0.003	0.001	
4-Methylpyrene			U	0.003	0.001	
1-Methylpyrene			U	0.003	0.001	
Heptadecane			U	0.005	0.003	
Pristane			U	0.003	0.001	
Octadecane			U	0.005	0.003	
Phytane			U	0.003	0.001	

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090522-SBS		
File ID:	E060232.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	5/22/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/4/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.003	0.001	
2,6,10-trimethyltridecane		U	0.003	0.001	
Norpristane		U	0.003	0.001	
Tetraethyl lead		U	0.005	0.003	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	90	50 - 120
Phenanthrene-d10	101	50 - 120
Benzo[a]pyrene-d12	91	50 - 120
Perylene-d12	105	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Duplicate of BP-SO-B03-18

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090520-01DUP		
File ID:	E060418.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/19/2009	Decanted:	None
Date Received:	5/20/2009		
Date Prepared:	5/22/2009	Sample Size (g):	4.04
Date Cleanup:	NA	Percent Solid:	92.2%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					RPD
Benzene	4.95	B	0.003	0.001	3.4
Toluene	2.48	B	0.005	0.003	10.3
Ethylbenzene	0.064	B	0.003	0.001	10.4
m/p-Xylenes	0.822	B	0.003	0.001	7.7
Styrene	0.019		0.005	0.003	5.1
o-Xylene	0.231	B	0.003	0.001	5.9
Isopropylbenzene	0.004		0.003	0.001	0
n-Propylbenzene	0.005		0.003	0.001	0
1,3,5-Trimethylbenzene	0.038		0.003	0.001	2.6
1,2,4-Trimethylbenzene	0.071		0.003	0.001	2.8
t-Butylbenzene		U	0.003	0.001	NA
sec-Butylbenzene	0.001	J	0.003	0.001	0
p-Isopropyltoluene	0.006		0.003	0.001	0
n-Butylbenzene	0.003		0.003	0.001	0
C1 - Benzene	1.54	B	0.005	0.003	10.5
C2 - Benzene	0.482	B	0.003	0.001	6.8
C3 - Benzene	0.069		0.003	0.001	1.4
C4 - Benzene	0.020		0.003	0.001	10.5
C5 - Benzene	0.011		0.003	0.001	9.5
trans-Decalin	0.003	J	0.003	0.001	0
cis-Decalin		U	0.003	0.001	NA
Naphthalene	0.929	B	0.003	0.001	2.8
2-Methylnaphthalene	0.114	B	0.003	0.001	2.7
1-Methylnaphthalene	0.059	B	0.003	0.001	1.7
C1 - Naphthalene	0.101	B	0.003	0.001	2
C2 - Naphthalene	0.062		0.003	0.001	1.6
C3- Naphthalene	0.045		0.003	0.001	0
C4- Naphthalene	0.024		0.003	0.001	4.3
Acenaphthylene	0.026		0.003	0.001	3.9
Acenaphthene	0.028	B	0.003	0.001	15.4
Dibenzofuran	0.049		0.003	0.001	4.2
Fluorene	0.039	B	0.003	0.001	2.6
C1 - Fluorene	0.014		0.003	0.001	0
C2 - Fluorene	0.020		0.003	0.001	10.5
C3 - Fluorene	0.018		0.003	0.001	0
Phenanthrene	0.125	B	0.003	0.001	4.7
Anthracene	0.026		0.003	0.001	3.8

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

Field ID: Duplicate of BP-SO-B03-18

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090520-01DUP		
File ID:	E060418.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/19/2009	Decanted:	None
Date Received:	5/20/2009		
Date Prepared:	5/22/2009	Sample Size (g):	4.04
Date Cleanup:	NA	Percent Solid:	92.2%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene	0.049		0.003	0.001	0
C2 - Phenanthrene/Anthracene	0.048		0.003	0.001	2.1
C3 - Phenanthrene/Anthracene	0.023		0.003	0.001	4.4
C4 - Phenanthrene/Anthracene	0.012		0.003	0.001	18.2
Dibenzothiophene	0.011		0.003	0.001	0
C1 - Dibenzothiophene	0.006		0.003	0.001	15.4
C2 - Dibenzothiophene	0.009		0.003	0.001	11.8
C3 - Dibenzothiophene	0.007		0.003	0.001	15.4
C4 - Dibenzothiophene		U	0.003	0.001	NA
Benzo(b)naphtho(2,1-d)thiophene	0.006		0.003	0.001	18.2
Fluoranthene	0.046	B	0.003	0.001	9.1
Pyrene	0.037	B	0.003	0.001	5.6
C1 - Fluoranthene/Pyrene	0.030		0.003	0.001	10.5
C2 - Fluoranthene/Pyrene	0.025		0.003	0.001	4.1
C3 - Fluoranthene/Pyrene	0.018		0.003	0.001	5.7
Benz[a]anthracene	0.029		0.003	0.001	23.1
Chrysene*	0.032		0.003	0.001	20.7
C1 - Benz(a)anthracene/Chrysene	0.024		0.003	0.001	13.3
C2 - Benz(a)anthracene/Chrysene	0.018		0.003	0.001	11.8
C3 - Benz(a)anthracene/Chrysene		U	0.003	0.001	NA
C4 - Benz(a)anthracene/Chrysene		U	0.003	0.001	NA
Benzo[b]fluoranthene	0.044		0.003	0.001	25.6
Benzo[j/k]fluoranthene	0.045		0.003	0.001	25
Benzo(e)pyrene	0.034		0.003	0.001	23
Benzo[a]pyrene	0.063		0.003	0.001	29.1
Perylene	0.017		0.003	0.001	34.5
Indeno[1,2,3-cd]pyrene	0.047		0.003	0.001	29.3
Dibenz[a,h]anthracene	0.015		0.003	0.001	30.8
Benzo[g,h,i]perylene	0.047		0.003	0.001	26.5
Coronene	0.016		0.003	0.001	37
Retene	0.008		0.003	0.001	0
Benzo(b/c)fluorenes	0.004		0.003	0.001	22.2
2-Methylpyrene	0.004		0.003	0.001	28.6
4-Methylpyrene	0.003		0.003	0.001	0
1-Methylpyrene	0.003	J	0.003	0.001	40
Heptadecane	0.036		0.005	0.003	2.7
Pristane	0.059		0.003	0.001	1.7
Octadecane	0.045		0.005	0.003	8.5
Phytane	0.027		0.003	0.001	16.9

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

Field ID: Duplicate of BP-SO-B03-18

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090520-01DUP		
File ID:	E060418.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/19/2009	Decanted:	None
Date Received:	5/20/2009		
Date Prepared:	5/22/2009	Sample Size (g):	4.04
Date Cleanup:	NA	Percent Solid:	92.2%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090522-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.020	0.003	0.001	14
2,6,10-trimethyltridecane	0.028	0.003	0.001	0
Norpristane	0.012	0.003	0.001	0
Tetraethyl lead	U	0.005	0.003	NA
Total PAH (16)	1.58	0.003	0.001	7.2
Total PAH (42)	2.24	0.003	0.001	6.5

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	74	50 - 120
Phenanthrene-d10	99	50 - 120
Benzo[a]pyrene-d12	101	50 - 120
Perylene-d12	112	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090601-SB		
File ID:	E060409.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/1/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	0.006		0.003	0.001	
Toluene	0.009		0.005	0.003	
Ethylbenzene		U	0.003	0.001	
m/p-Xylenes	0.002	J	0.003	0.001	
Styrene	0.008		0.005	0.003	
o-Xylene		U	0.003	0.001	
Isopropylbenzene		U	0.003	0.001	
n-Propylbenzene		U	0.003	0.001	
1,3,5-Trimethylbenzene		U	0.003	0.001	
1,2,4-Trimethylbenzene		U	0.003	0.001	
t-Butylbenzene		U	0.003	0.001	
sec-Butylbenzene		U	0.003	0.001	
p-Isopropyltoluene		U	0.003	0.001	
n-Butylbenzene		U	0.003	0.001	
C1 - Benzene	0.005		0.005	0.003	
C2 - Benzene	0.002	J	0.003	0.001	
C3 - Benzene		U	0.003	0.001	
C4 - Benzene		U	0.003	0.001	
C5 - Benzene		U	0.003	0.001	
trans-Decalin		U	0.003	0.001	
cis-Decalin		U	0.003	0.001	
Naphthalene	0.001	J	0.003	0.001	
2-Methylnaphthalene	0.001	J	0.003	0.001	
1-Methylnaphthalene		U	0.003	0.001	
C1 - Naphthalene	0.001	J	0.003	0.001	
C2 - Naphthalene		U	0.003	0.001	
C3- Naphthalene		U	0.003	0.001	
C4- Naphthalene		U	0.003	0.001	
Acenaphthylene		U	0.003	0.001	
Acenaphthene		U	0.003	0.001	
Dibenzofuran	0.001	J	0.003	0.001	
Fluorene	0.001	J	0.003	0.001	
C1 - Fluorene		U	0.003	0.001	
C2 - Fluorene		U	0.003	0.001	
C3 - Fluorene		U	0.003	0.001	
Phenanthrene	0.001	J	0.003	0.001	
Anthracene		U	0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090601-SB		
File ID:	E060409.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/1/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	U	0.003	0.001	
C2 - Phenanthrene/Anthracene	U	0.003	0.001	
C3 - Phenanthrene/Anthracene	U	0.003	0.001	
C4 - Phenanthrene/Anthracene	U	0.003	0.001	
Dibenzothiophene	U	0.003	0.001	
C1 - Dibenzothiophene	U	0.003	0.001	
C2 - Dibenzothiophene	U	0.003	0.001	
C3 - Dibenzothiophene	U	0.003	0.001	
C4 - Dibenzothiophene	U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene	U	0.003	0.001	
Fluoranthene	U	0.003	0.001	
Pyrene	U	0.003	0.001	
C1 - Fluoranthene/Pyrene	U	0.003	0.001	
C2 - Fluoranthene/Pyrene	U	0.003	0.001	
C3 - Fluoranthene/Pyrene	U	0.003	0.001	
Benz[a]anthracene	U	0.003	0.001	
Chrysene*	U	0.003	0.001	
C1 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
Benzo[b]fluoranthene	U	0.003	0.001	
Benzo[j/k]fluoranthene	U	0.003	0.001	
Benzo(e)pyrene	U	0.003	0.001	
Benzo[a]pyrene	U	0.003	0.001	
Perylene	U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	U	0.003	0.001	
Dibenz[a,h]anthracene	U	0.003	0.001	
Benzo[g,h,i]perylene	U	0.003	0.001	
Coronene	U	0.003	0.001	
Retene	U	0.003	0.001	
Benzo(b/c)fluorenes	U	0.003	0.001	
2-Methylpyrene	U	0.003	0.001	
4-Methylpyrene	U	0.003	0.001	
1-Methylpyrene	U	0.003	0.001	
Heptadecane	0.017	0.005	0.003	
Pristane	0.010	0.003	0.001	
Octadecane	0.009	0.005	0.003	
Phytane	0.004	0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090601-SB		
File ID:	E060409.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/1/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	U	0.003	0.001	
2,6,10-trimethyltridecane	U	0.003	0.001	
Norpristane	U	0.003	0.001	
Tetraethyl lead	U	0.005	0.003	
Total PAH (16)	0.003	0.003	0.001	
Total PAH (42)	0.005	0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	84	50 - 120
Phenanthrene-d10	100	50 - 120
Benzo[a]pyrene-d12	93	50 - 120
Perylene-d12	102	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090601-SBS		
File ID:	E060410.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/1/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount					% Recovery
Benzene	2.50	1.62	B	0.003	0.001	65
Toluene	2.50	1.9	B	0.005	0.003	76
Ethylbenzene	2.50	1.98		0.003	0.001	79
m/p-Xylenes	2.50	1.98	B	0.003	0.001	79
Styrene	2.50	2.04	B	0.005	0.003	82
o-Xylene	2.50	1.99		0.003	0.001	80
Isopropylbenzene	2.50	2.06		0.003	0.001	82
n-Propylbenzene	2.50	2.06		0.003	0.001	82
1,3,5-Trimethylbenzene	2.50	2.1		0.003	0.001	84
1,2,4-Trimethylbenzene	2.50	2.1		0.003	0.001	84
t-Butylbenzene			U	0.003	0.001	
sec-Butylbenzene	2.50	1.89		0.003	0.001	76
p-Isopropyltoluene	2.50	1.98		0.003	0.001	79
n-Butylbenzene	2.50	1.94		0.003	0.001	78
C1 - Benzene			BU	0.005	0.003	
C2 - Benzene			BU	0.003	0.001	
C3 - Benzene			U	0.003	0.001	
C4 - Benzene			U	0.003	0.001	
C5 - Benzene			U	0.003	0.001	
trans-Decalin			U	0.003	0.001	
cis-Decalin			U	0.003	0.001	
Naphthalene	2.50	1.94	B	0.003	0.001	78
2-Methylnaphthalene	2.50	1.95	B	0.003	0.001	78
1-Methylnaphthalene	2.50	1.97		0.003	0.001	79
C1 - Naphthalene			BU	0.003	0.001	
C2 - Naphthalene			U	0.003	0.001	
C3- Naphthalene			U	0.003	0.001	
C4- Naphthalene			U	0.003	0.001	
Acenaphthylene	2.50	2.35		0.003	0.001	94
Acenaphthene	2.50	2.28		0.003	0.001	91
Dibenzofuran	2.50	2.65	B	0.003	0.001	106
Fluorene	2.50	2.61	B	0.003	0.001	104
C1 - Fluorene			U	0.003	0.001	
C2 - Fluorene			U	0.003	0.001	
C3 - Fluorene			U	0.003	0.001	
Phenanthrene	2.50	2.31	B	0.003	0.001	92
Anthracene	2.50	2.16		0.003	0.001	86

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090601-SBS		
File ID:	E060410.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/1/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene		U	0.003	0.001	
C2 - Phenanthrene/Anthracene		U	0.003	0.001	
C3 - Phenanthrene/Anthracene		U	0.003	0.001	
C4 - Phenanthrene/Anthracene		U	0.003	0.001	
Dibenzothiophene	2.50	2.26	0.003	0.001	90
C1 - Dibenzothiophene		U	0.003	0.001	
C2 - Dibenzothiophene		U	0.003	0.001	
C3 - Dibenzothiophene		U	0.003	0.001	
C4 - Dibenzothiophene		U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene		U	0.003	0.001	
Fluoranthene	2.50	2.22	0.003	0.001	89
Pyrene	2.50	2.17	0.003	0.001	87
C1 - Fluoranthene/Pyrene		U	0.003	0.001	
C2 - Fluoranthene/Pyrene		U	0.003	0.001	
C3 - Fluoranthene/Pyrene		U	0.003	0.001	
Benz[a]anthracene	2.50	2.24	0.003	0.001	90
Chrysene*	2.50	2.16	0.003	0.001	86
C1 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
Benzo[b]fluoranthene	2.50	2.29	0.003	0.001	92
Benzo[j/k]fluoranthene	2.50	2.29	0.003	0.001	92
Benzo(e)pyrene	2.50	2.08	0.003	0.001	83
Benzo[a]pyrene	2.50	2.38	0.003	0.001	95
Perylene		U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	2.50	2.03	0.003	0.001	81
Dibenz[a,h]anthracene	2.50	2.41	0.003	0.001	96
Benzo[g,h,i]perylene	2.50	2.2	0.003	0.001	88
Coronene		U	0.003	0.001	
Retene		U	0.003	0.001	
Benzo(b/c)fluorenes		U	0.003	0.001	
2-Methylpyrene		U	0.003	0.001	
4-Methylpyrene		U	0.003	0.001	
1-Methylpyrene		U	0.003	0.001	
Heptadecane		BU	0.005	0.003	
Pristane		BU	0.003	0.001	
Octadecane		BU	0.005	0.003	
Phytane		BU	0.003	0.001	

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090601-SBS		
File ID:	E060410.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/1/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.003	0.001	
2,6,10-trimethyltridecane		U	0.003	0.001	
Norpristane		U	0.003	0.001	
Tetraethyl lead		U	0.005	0.003	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	81	50 - 120
Phenanthrene-d10	98	50 - 120
Benzo[a]pyrene-d12	95	50 - 120
Perylene-d12	101	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Duplicate of BP-SO-B05-06

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090528-01DUP		
File ID:	E060412.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/27/2009	Decanted:	None
Date Received:	5/28/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.62
Date Cleanup:	NA	Percent Solid:	93.3%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					RPD
Benzene	85.6	DB	0.002	0.001	59.8
Toluene	166	DB	0.005	0.002	22.1
Ethylbenzene	19.2	D	0.002	0.001	9.8
m/p-Xylenes	95.8	DB	0.002	0.001	7.9
Styrene	20.0	DB	0.005	0.002	1.5
o-Xylene	30.6	D	0.002	0.001	6.8
Isopropylbenzene	1.63		0.002	0.001	13.8
n-Propylbenzene	1.07		0.002	0.001	7
1,3,5-Trimethylbenzene	19.5	D	0.002	0.001	2.1
1,2,4-Trimethylbenzene	35.1	D	0.002	0.001	2.3
t-Butylbenzene		U	0.002	0.001	NA
sec-Butylbenzene	0.074		0.002	0.001	4.1
p-Isopropyltoluene	0.872		0.002	0.001	4.8
n-Butylbenzene	0.458		0.002	0.001	4.7
C1 - Benzene	103	DB	0.005	0.002	22.3
C2 - Benzene	62.4	DB	0.002	0.001	8.3
C3 - Benzene	31.1	D	0.002	0.001	1.9
C4 - Benzene	3.47		0.002	0.001	3.5
C5 - Benzene	0.527		0.002	0.001	3.7
trans-Decalin	0.159		0.002	0.001	4.5
cis-Decalin		U	0.002	0.001	NA
Naphthalene	531	DB	0.002	0.001	3.8
2-Methylnaphthalene	42.0	DB	0.002	0.001	1.7
1-Methylnaphthalene	17.0	D	0.002	0.001	0
C1 - Naphthalene	34.8	DB	0.002	0.001	1.7
C2 - Naphthalene	4.98		0.002	0.001	4.9
C3- Naphthalene	4.33		0.002	0.001	4
C4- Naphthalene	5.24		0.002	0.001	1.1
Acenaphthylene	15.5	D	0.002	0.001	0
Acenaphthene	6.13		0.002	0.001	2.8
Dibenzofuran	13.3	DB	0.002	0.001	1.5
Fluorene	11.0	DB	0.002	0.001	2.8
C1 - Fluorene	1.84		0.002	0.001	1.6
C2 - Fluorene	5.07		0.002	0.001	6.1
C3 - Fluorene	5.26		0.002	0.001	7.7
Phenanthrene	7.98	B	0.002	0.001	2
Anthracene	1.86		0.002	0.001	2.7

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

Field ID: Duplicate of BP-SO-B05-06

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090528-01DUP		
File ID:	E060412.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/27/2009	Decanted:	None
Date Received:	5/28/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.62
Date Cleanup:	NA	Percent Solid:	93.3%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene	6.84		0.002	0.001	4.2
C2 - Phenanthrene/Anthracene	8.56		0.002	0.001	4.2
C3 - Phenanthrene/Anthracene	4.3		0.002	0.001	7.4
C4 - Phenanthrene/Anthracene	1.1		0.002	0.001	7.9
Dibenzothiophene	0.862		0.002	0.001	1.9
C1 - Dibenzothiophene	2.29		0.002	0.001	1.3
C2 - Dibenzothiophene	4.4		0.002	0.001	2.5
C3 - Dibenzothiophene	3.04		0.002	0.001	3.2
C4 - Dibenzothiophene	1.08		0.002	0.001	7.1
Benzo(b)naphtho(2,1-d)thiophene	0.186		0.002	0.001	5.2
Fluoranthene	2.82		0.002	0.001	8.2
Pyrene	2.32		0.002	0.001	5.9
C1 - Fluoranthene/Pyrene	1.4		0.002	0.001	4.2
C2 - Fluoranthene/Pyrene	0.742		0.002	0.001	2.7
C3 - Fluoranthene/Pyrene	0.287		0.002	0.001	4.6
Benz[a]anthracene	0.921		0.002	0.001	5
Chrysene*	0.988		0.002	0.001	4.2
C1 - Benz(a)anthracene/Chrysene	0.360		0.002	0.001	5.9
C2 - Benz(a)anthracene/Chrysene	0.196		0.002	0.001	4.5
C3 - Benz(a)anthracene/Chrysene	0.090		0.002	0.001	1.1
C4 - Benz(a)anthracene/Chrysene	0.021		0.002	0.001	57.6
Benzo[b]fluoranthene	0.711		0.002	0.001	5.2
Benzo[j/k]fluoranthene	0.728		0.002	0.001	3.5
Benzo(e)pyrene	0.499		0.002	0.001	4.5
Benzo[a]pyrene	0.764		0.002	0.001	4
Perylene	0.242		0.002	0.001	3.3
Indeno[1,2,3-cd]pyrene	0.446		0.002	0.001	4.2
Dibenz[a,h]anthracene	0.133		0.002	0.001	6.5
Benzo[g,h,i]perylene	0.436		0.002	0.001	4.5
Coronene	0.093		0.002	0.001	7.3
Retene		U	0.002	0.001	NA
Benzo(b/c)fluorenes	0.302		0.002	0.001	6.1
2-Methylpyrene	0.154		0.002	0.001	4.4
4-Methylpyrene	0.177		0.002	0.001	7.1
1-Methylpyrene	0.127		0.002	0.001	3.1
Heptadecane	156	DB	0.005	0.002	2.5
Pristane	82.3	DB	0.002	0.001	6.7
Octadecane	177	DB	0.005	0.002	3.3
Phytane	78.0	DB	0.002	0.001	3.9

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

Field ID: Duplicate of BP-SO-B05-06

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090528-01DUP		
File ID:	E060412.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/27/2009	Decanted:	None
Date Received:	5/28/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.62
Date Cleanup:	NA	Percent Solid:	93.3%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane	1.56	D	0.002	0.001	5.6
2,6,10-trimethyltridecane	7.04	D	0.002	0.001	9
Norpristane	37.8	D	0.002	0.001	11.2
Tetraethyl lead		U	0.005	0.002	NA
Total PAH (16)	584		0.002	0.001	3.5
Total PAH (42)	695		0.002	0.001	2.8

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	74	50 - 120
Phenanthrene-d10	81	50 - 120
Benzo[a]pyrene-d12	108	50 - 120
Perylene-d12	120	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Duplicate of BP-SO-B025-8

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090529-01DUP		
File ID:	E060414.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/28/2009	Decanted:	None
Date Received:	5/29/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.99
Date Cleanup:	NA	Percent Solid:	89.5%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					RPD
Benzene	160	DB	0.002	0.001	6.1
Toluene	58.9	DB	0.004	0.002	1.2
Ethylbenzene	10.6	D	0.002	0.001	0.9
m/p-Xylenes	37.9	DB	0.002	0.001	3.2
Styrene	1.13	DB	0.004	0.002	12.7
o-Xylene	10.0	D	0.002	0.001	3.7
Isopropylbenzene	0.566		0.002	0.001	0.7
n-Propylbenzene	0.526		0.002	0.001	2.8
1,3,5-Trimethylbenzene	6.64		0.002	0.001	0.3
1,2,4-Trimethylbenzene	14.4	D	0.002	0.001	6.5
t-Butylbenzene		U	0.002	0.001	NA
sec-Butylbenzene	0.041		0.002	0.001	0
p-Isopropyltoluene	0.295		0.002	0.001	1
n-Butylbenzene	0.151		0.002	0.001	1.3
C1 - Benzene	36.0	DB	0.004	0.002	1.4
C2 - Benzene	24.8	DB	0.002	0.001	3.7
C3 - Benzene	13.1	D	0.002	0.001	7.1
C4 - Benzene	0.848		0.002	0.001	2.5
C5 - Benzene	0.141		0.002	0.001	0.7
trans-Decalin	0.061		0.002	0.001	6.8
cis-Decalin		U	0.002	0.001	NA
Naphthalene	25.3	DB	0.002	0.001	4.4
2-Methylnaphthalene	1.9	B	0.002	0.001	2.1
1-Methylnaphthalene	0.898		0.002	0.001	1.7
C1 - Naphthalene	1.64	B	0.002	0.001	1.8
C2 - Naphthalene	0.611		0.002	0.001	7.6
C3- Naphthalene	0.617		0.002	0.001	0.2
C4- Naphthalene	0.774		0.002	0.001	11.6
Acenaphthylene	0.412		0.002	0.001	21.8
Acenaphthene	0.285		0.002	0.001	1.8
Dibenzofuran	0.809	B	0.002	0.001	7.6
Fluorene	6.17	B	0.002	0.001	8.3
C1 - Fluorene	0.355		0.002	0.001	9.7
C2 - Fluorene	0.993		0.002	0.001	6.8
C3 - Fluorene	1.04		0.002	0.001	12.1
Phenanthrene	3.65	B	0.002	0.001	13.5
Anthracene	0.711		0.002	0.001	12.5

Analytical Results for Volatile and Semivolatile Organics
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Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090529-01DUP		
File ID:	E060414.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/28/2009	Decanted:	None
Date Received:	5/29/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.99
Date Cleanup:	NA	Percent Solid:	89.5%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	2.15	0.002	0.001	2.8
C2 - Phenanthrene/Anthracene	1.95	0.002	0.001	8
C3 - Phenanthrene/Anthracene	0.915	0.002	0.001	6.7
C4 - Phenanthrene/Anthracene	0.308	0.002	0.001	6.4
Dibenzothiophene	0.364	0.002	0.001	8.9
C1 - Dibenzothiophene	0.654	0.002	0.001	6.3
C2 - Dibenzothiophene	0.998	0.002	0.001	14.2
C3 - Dibenzothiophene	0.673	0.002	0.001	14.3
C4 - Dibenzothiophene	0.260	0.002	0.001	11.8
Benzo(b)naphtho(2,1-d)thiophene	0.374	0.002	0.001	16
Fluoranthene	3.93	0.002	0.001	17.2
Pyrene	3.07	0.002	0.001	16.4
C1 - Fluoranthene/Pyrene	1.09	0.002	0.001	8.8
C2 - Fluoranthene/Pyrene	0.994	0.002	0.001	17.1
C3 - Fluoranthene/Pyrene	0.425	0.002	0.001	11.9
Benz[a]anthracene	2.16	0.002	0.001	16.2
Chrysene*	2.32	0.002	0.001	16.6
C1 - Benz(a)anthracene/Chrysene	0.847	0.002	0.001	12.1
C2 - Benz(a)anthracene/Chrysene	0.413	0.002	0.001	13.3
C3 - Benz(a)anthracene/Chrysene	0.258	0.002	0.001	6.4
C4 - Benz(a)anthracene/Chrysene	0.173	0.002	0.001	12.5
Benzo[b]fluoranthene	2.18	0.002	0.001	15.6
Benzo[j/k]fluoranthene	2.05	0.002	0.001	14.5
Benzo(e)pyrene	1.53	0.002	0.001	16.8
Benzo[a]pyrene	1.82	0.002	0.001	19.4
Perylene	0.555	0.002	0.001	18.3
Indeno[1,2,3-cd]pyrene	1.45	0.002	0.001	17
Dibenz[a,h]anthracene	0.558	0.002	0.001	17.2
Benzo[g,h,i]perylene	1.45	0.002	0.001	16.5
Coronene	0.372	0.002	0.001	12.8
Retene	0.305	0.002	0.001	1
Benzo(b/c)fluorenes	0.102	0.002	0.001	2
2-Methylpyrene	0.187	0.002	0.001	13.9
4-Methylpyrene	0.154	0.002	0.001	6.9
1-Methylpyrene	0.100	0.002	0.001	8.6
Heptadecane	11.6 DB	0.004	0.002	22
Pristane	10.7 DB	0.002	0.001	25.6
Octadecane	16.9 DB	0.004	0.002	27.6
Phytane	12.8 DB	0.002	0.001	28.7

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

Field ID: Duplicate of BP-SO-B025-8

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090529-01DUP		
File ID:	E060414.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	5/28/2009	Decanted:	None
Date Received:	5/29/2009		
Date Prepared:	6/1/2009	Sample Size (g):	4.99
Date Cleanup:	NA	Percent Solid:	89.5%
Date Analyzed:	6/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090601-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.142	0.002	0.001	31.5
2,6,10-trimethyltridecane	0.559	0.002	0.001	14.7
Norpristane	2.87	0.002	0.001	13.8
Tetraethyl lead	U	0.004	0.002	NA
Total PAH (16)	57.5	0.002	0.001	4.8
Total PAH (42)	78.9	0.002	0.001	3.9

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	59	50 - 120
Phenanthrene-d10	71	50 - 120
Benzo[a]pyrene-d12	81	50 - 120
Perylene-d12	92	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090609-SB		
File ID:	E061273.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/9/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/16/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	0.003	J	0.003	0.001	
Toluene	0.005	J	0.005	0.003	
Ethylbenzene		U	0.003	0.001	
m/p-Xylenes	0.003		0.003	0.001	
Styrene		U	0.005	0.003	
o-Xylene	0.001	J	0.003	0.001	
Isopropylbenzene		U	0.003	0.001	
n-Propylbenzene		U	0.003	0.001	
1,3,5-Trimethylbenzene		U	0.003	0.001	
1,2,4-Trimethylbenzene	0.003	J	0.003	0.001	
t-Butylbenzene		U	0.003	0.001	
sec-Butylbenzene		U	0.003	0.001	
p-Isopropyltoluene		U	0.003	0.001	
n-Butylbenzene		U	0.003	0.001	
C1 - Benzene		U	0.005	0.003	
C2 - Benzene	0.003		0.003	0.001	
C3 - Benzene	0.005		0.003	0.001	
C4 - Benzene		U	0.003	0.001	
C5 - Benzene		U	0.003	0.001	
trans-Decalin		U	0.003	0.001	
cis-Decalin		U	0.003	0.001	
Naphthalene	0.003	J	0.003	0.001	
2-Methylnaphthalene	0.002	J	0.003	0.001	
1-Methylnaphthalene		U	0.003	0.001	
C1 - Naphthalene	0.002	J	0.003	0.001	
C2 - Naphthalene		U	0.003	0.001	
C3- Naphthalene		U	0.003	0.001	
C4- Naphthalene		U	0.003	0.001	
Acenaphthylene	0.001	J	0.003	0.001	
Acenaphthene		U	0.003	0.001	
Dibenzofuran		U	0.003	0.001	
Fluorene		U	0.003	0.001	
C1 - Fluorene		U	0.003	0.001	
C2 - Fluorene		U	0.003	0.001	
C3 - Fluorene		U	0.003	0.001	
Phenanthrene	0.001	J	0.003	0.001	
Anthracene		U	0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090609-SB		
File ID:	E061273.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/9/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/16/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene		U	0.003	0.001	
C2 - Phenanthrene/Anthracene		U	0.003	0.001	
C3 - Phenanthrene/Anthracene		U	0.003	0.001	
C4 - Phenanthrene/Anthracene		U	0.003	0.001	
Dibenzothiophene		U	0.003	0.001	
C1 - Dibenzothiophene		U	0.003	0.001	
C2 - Dibenzothiophene		U	0.003	0.001	
C3 - Dibenzothiophene		U	0.003	0.001	
C4 - Dibenzothiophene		U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene		U	0.003	0.001	
Fluoranthene		U	0.003	0.001	
Pyrene		U	0.003	0.001	
C1 - Fluoranthene/Pyrene		U	0.003	0.001	
C2 - Fluoranthene/Pyrene		U	0.003	0.001	
C3 - Fluoranthene/Pyrene		U	0.003	0.001	
Benz[a]anthracene		U	0.003	0.001	
Chrysene*		U	0.003	0.001	
C1 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
Benzo[b]fluoranthene		U	0.003	0.001	
Benzo[j/k]fluoranthene		U	0.003	0.001	
Benzo(e)pyrene		U	0.003	0.001	
Benzo[a]pyrene		U	0.003	0.001	
Perylene		U	0.003	0.001	
Indeno[1,2,3-cd]pyrene		U	0.003	0.001	
Dibenz[a,h]anthracene		U	0.003	0.001	
Benzo[g,h,i]perylene		U	0.003	0.001	
Coronene		U	0.003	0.001	
Retene		U	0.003	0.001	
Benzo(b/c)fluorenes		U	0.003	0.001	
2-Methylpyrene		U	0.003	0.001	
4-Methylpyrene		U	0.003	0.001	
1-Methylpyrene		U	0.003	0.001	
Heptadecane		U	0.005	0.003	
Pristane		U	0.003	0.001	
Octadecane		U	0.005	0.003	
Phytane		U	0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090609-SB		
File ID:	E061273.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/9/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/16/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	U	0.003	0.001	
2,6,10-trimethyltridecane	U	0.003	0.001	
Norpristane	U	0.003	0.001	
Tetraethyl lead	U	0.005	0.003	
Total PAH (16)	0.005	0.003	0.001	
Total PAH (42)	0.007	0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	107	50 - 120
Phenanthrene-d10	112	50 - 120
Benzo[a]pyrene-d12	83	50 - 120
Perylene-d12	98	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090609-SBS		
File ID:	E061276.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/9/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/17/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount					% Recovery
Benzene	2.50	2.08	B	0.003	0.001	83
Toluene	2.50	2.45	B	0.005	0.003	98
Ethylbenzene	2.50	2.49		0.003	0.001	100
m/p-Xylenes	2.50	2.49	B	0.003	0.001	100
Styrene	2.50	2.48		0.005	0.003	99
o-Xylene	2.50	2.51	B	0.003	0.001	100
Isopropylbenzene	2.50	2.46		0.003	0.001	98
n-Propylbenzene	2.50	2.41		0.003	0.001	96
1,3,5-Trimethylbenzene	2.50	2.42		0.003	0.001	97
1,2,4-Trimethylbenzene	2.50	2.41	B	0.003	0.001	96
t-Butylbenzene			U	0.003	0.001	
sec-Butylbenzene	2.50	2.46		0.003	0.001	98
p-Isopropyltoluene	2.50	2.48		0.003	0.001	99
n-Butylbenzene	2.50	2.46		0.003	0.001	98
C1 - Benzene			U	0.005	0.003	
C2 - Benzene			BU	0.003	0.001	
C3 - Benzene			BU	0.003	0.001	
C4 - Benzene			U	0.003	0.001	
C5 - Benzene			U	0.003	0.001	
trans-Decalin			U	0.003	0.001	
cis-Decalin			U	0.003	0.001	
Naphthalene	2.50	2.47	B	0.003	0.001	99
2-Methylnaphthalene	2.50	2.44	B	0.003	0.001	98
1-Methylnaphthalene	2.50	2.46		0.003	0.001	98
C1 - Naphthalene			BU	0.003	0.001	
C2 - Naphthalene			U	0.003	0.001	
C3- Naphthalene			U	0.003	0.001	
C4- Naphthalene			U	0.003	0.001	
Acenaphthylene	2.50	2.33	B	0.003	0.001	93
Acenaphthene	2.50	2.54		0.003	0.001	102
Dibenzofuran	2.50	2.62		0.003	0.001	105
Fluorene	2.50	2.63		0.003	0.001	105
C1 - Fluorene			U	0.003	0.001	
C2 - Fluorene			U	0.003	0.001	
C3 - Fluorene			U	0.003	0.001	
Phenanthrene	2.50	2.64	B	0.003	0.001	106
Anthracene	2.50	2.64		0.003	0.001	106

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090609-SBS		
File ID:	E061276.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/9/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/17/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene		U	0.003	0.001	
C2 - Phenanthrene/Anthracene		U	0.003	0.001	
C3 - Phenanthrene/Anthracene		U	0.003	0.001	
C4 - Phenanthrene/Anthracene		U	0.003	0.001	
Dibenzothiophene	2.50	2.79	0.003	0.001	112
C1 - Dibenzothiophene		U	0.003	0.001	
C2 - Dibenzothiophene		U	0.003	0.001	
C3 - Dibenzothiophene		U	0.003	0.001	
C4 - Dibenzothiophene		U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene		U	0.003	0.001	
Fluoranthene	2.50	2.54	0.003	0.001	102
Pyrene	2.50	2.56	0.003	0.001	102
C1 - Fluoranthene/Pyrene		U	0.003	0.001	
C2 - Fluoranthene/Pyrene		U	0.003	0.001	
C3 - Fluoranthene/Pyrene		U	0.003	0.001	
Benz[a]anthracene	2.50	2.44	0.003	0.001	98
Chrysene*	2.50	2.46	0.003	0.001	98
C1 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
Benzo[b]fluoranthene	2.50	2.39	0.003	0.001	96
Benzo[j/k]fluoranthene	2.50	2.46	0.003	0.001	98
Benzo(e)pyrene	2.50	2.38	0.003	0.001	95
Benzo[a]pyrene	2.50	2.39	0.003	0.001	96
Perylene		U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	2.50	2.16	0.003	0.001	86
Dibenz[a,h]anthracene	2.50	2.18	0.003	0.001	87
Benzo[g,h,i]perylene	2.50	2.11	0.003	0.001	84
Coronene		U	0.003	0.001	
Retene		U	0.003	0.001	
Benzo(b/c)fluorenes		U	0.003	0.001	
2-Methylpyrene		U	0.003	0.001	
4-Methylpyrene		U	0.003	0.001	
1-Methylpyrene		U	0.003	0.001	
Heptadecane		U	0.005	0.003	
Pristane		U	0.003	0.001	
Octadecane		U	0.005	0.003	
Phytane		U	0.003	0.001	

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090609-SBS		
File ID:	E061276.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/9/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/17/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.003	0.001	
2,6,10-trimethyltridecane		U	0.003	0.001	
Norpristane		U	0.003	0.001	
Tetraethyl lead		U	0.005	0.003	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	99	50 - 120
Phenanthrene-d10	111	50 - 120
Benzo[a]pyrene-d12	89	50 - 120
Perylene-d12	99	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Duplicate of CT-SO-B01-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090603-01DUP-D		
File ID:	E061283.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/2/2009	Decanted:	None
Date Received:	6/3/2009		
Date Prepared:	6/9/2009	Sample Size (g):	2.67
Date Cleanup:	NA	Percent Solid:	77.7%
Date Analyzed:	6/17/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					RPD
Benzene	50.5	B	0.241	0.121	11.6
Toluene	96.6	B	0.483	0.241	3.5
Ethylbenzene	5.34		0.241	0.121	1.5
m/p-Xylenes	113	B	0.241	0.121	0
Styrene	62.6		0.483	0.241	1.3
o-Xylene	38.1	B	0.241	0.121	1.1
Isopropylbenzene	0.291		0.241	0.121	0.3
n-Propylbenzene	0.653		0.241	0.121	0.3
1,3,5-Trimethylbenzene	30.8		0.241	0.121	2.3
1,2,4-Trimethylbenzene	71.4	B	0.241	0.121	2.3
t-Butylbenzene		U	0.241	0.121	NA
sec-Butylbenzene		U	0.241	0.121	NA
p-Isopropyltoluene	2.25		0.241	0.121	0.9
n-Butylbenzene	1.3		0.241	0.121	3.1
C1 - Benzene	60.9		0.483	0.241	3.5
C2 - Benzene	69.6	B	0.241	0.121	0.9
C3 - Benzene	57.1	B	0.241	0.121	1.8
C4 - Benzene	15.5		0.241	0.121	2
C5 - Benzene	2.46		0.241	0.121	2.9
trans-Decalin	0.215	J	0.241	0.121	8.2
cis-Decalin		U	0.241	0.121	NA
Naphthalene	6,340	DB	0.241	0.121	4.7
2-Methylnaphthalene	676	B	0.241	0.121	4.1
1-Methylnaphthalene	307		0.241	0.121	4
C1 - Naphthalene	596	B	0.241	0.121	4.1
C2 - Naphthalene	135		0.241	0.121	3.8
C3- Naphthalene	27.5		0.241	0.121	3.3
C4- Naphthalene	5.33		0.241	0.121	0.6
Acenaphthylene	548	B	0.241	0.121	5.2
Acenaphthene	33.0		0.241	0.121	3.4
Dibenzofuran	312		0.241	0.121	2.9
Fluorene	350		0.241	0.121	3.5
C1 - Fluorene	36.2		0.241	0.121	3.4
C2 - Fluorene	11.0		0.241	0.121	3.7
C3 - Fluorene	5.77		0.241	0.121	17.9
Phenanthrene	804	B	0.241	0.121	5.4
Anthracene	293		0.241	0.121	5.6

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

Field ID: Duplicate of CT-SO-B01-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090603-01DUP-D		
File ID:	E061283.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/2/2009	Decanted:	None
Date Received:	6/3/2009		
Date Prepared:	6/9/2009	Sample Size (g):	2.67
Date Cleanup:	NA	Percent Solid:	77.7%
Date Analyzed:	6/17/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	167	0.241	0.121	4.9
C2 - Phenanthrene/Anthracene	44.2	0.241	0.121	7.8
C3 - Phenanthrene/Anthracene	11.5	0.241	0.121	0.9
C4 - Phenanthrene/Anthracene	3.38	0.241	0.121	3.5
Dibenzothiophene	82.0	0.241	0.121	4.5
C1 - Dibenzothiophene	18.8	0.241	0.121	3.2
C2 - Dibenzothiophene	7.91	0.241	0.121	6.4
C3 - Dibenzothiophene	3.11	0.241	0.121	15.2
C4 - Dibenzothiophene	0.968	0.241	0.121	2.2
Benzo(b)naphtho(2,1-d)thiophene	35.5	0.241	0.121	5.8
Fluoranthene	538	0.241	0.121	6.5
Pyrene	380	0.241	0.121	6.5
C1 - Fluoranthene/Pyrene	230	0.241	0.121	4.4
C2 - Fluoranthene/Pyrene	44.9	0.241	0.121	3.4
C3 - Fluoranthene/Pyrene	10.5	0.241	0.121	9.9
Benz[a]anthracene	230	0.241	0.121	5.8
Chrysene*	200	0.241	0.121	6.2
C1 - Benz(a)anthracene/Chrysene	62.7	0.241	0.121	5.6
C2 - Benz(a)anthracene/Chrysene	17.5	0.241	0.121	4.7
C3 - Benz(a)anthracene/Chrysene	5.81	0.241	0.121	2.4
C4 - Benz(a)anthracene/Chrysene	4.98	0.241	0.121	12.1
Benzo[b]fluoranthene	138	0.241	0.121	2.9
Benzo[j/k]fluoranthene	168	0.241	0.121	12
Benzo(e)pyrene	101	0.241	0.121	7.1
Benzo[a]pyrene	186	0.241	0.121	7.8
Perylene	47.6	0.241	0.121	7.4
Indeno[1,2,3-cd]pyrene	85.0	0.241	0.121	6.8
Dibenz[a,h]anthracene	28.0	0.241	0.121	5.5
Benzo[g,h,i]perylene	78.2	0.241	0.121	7.3
Coronene	21.4	0.241	0.121	16.2
Retene	1.1	0.241	0.121	11.2
Benzo(b/c)fluorenes	71.1	0.241	0.121	4.8
2-Methylpyrene	19.6	0.241	0.121	4.2
4-Methylpyrene	11.3	0.241	0.121	6.4
1-Methylpyrene	16.1	0.241	0.121	9.8
Heptadecane	1.23	0.483	0.241	10.8
Pristane	1.28	0.241	0.121	18.4
Octadecane	1.18	0.483	0.241	9.7
Phytane	0.517	0.241	0.121	47.7

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

Field ID: Duplicate of CT-SO-B01-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090603-01DUP-D		
File ID:	E061283.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/2/2009	Decanted:	None
Date Received:	6/3/2009		
Date Prepared:	6/9/2009	Sample Size (g):	2.67
Date Cleanup:	NA	Percent Solid:	77.7%
Date Analyzed:	6/17/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090609-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.595	0.241	0.121	7.9
2,6,10-trimethyltridecane	0.799	0.241	0.121	10.3
Norpristane	0.342	0.241	0.121	40.6
Tetraethyl lead	U	0.483	0.241	NA
Total PAH (16)	10,400	0.241	0.121	5.1
Total PAH (42)	12,400	0.241	0.121	5

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	60	50 - 120
Phenanthrene-d10	69	50 - 120
Benzo[a]pyrene-d12	73	50 - 120
Perylene-d12	103	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090615-SB1		
File ID:	E061301.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/15/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	0.007		0.003	0.001	
Toluene	0.005		0.005	0.003	
Ethylbenzene	0.002	J	0.003	0.001	
m/p-Xylenes	0.008		0.003	0.001	
Styrene		U	0.005	0.003	
o-Xylene	0.002	J	0.003	0.001	
Isopropylbenzene	0.002	J	0.003	0.001	
n-Propylbenzene	0.002	J	0.003	0.001	
1,3,5-Trimethylbenzene	0.002	J	0.003	0.001	
1,2,4-Trimethylbenzene	0.002	J	0.003	0.001	
t-Butylbenzene		U	0.003	0.001	
sec-Butylbenzene	0.002	J	0.003	0.001	
p-Isopropyltoluene	0.002	J	0.003	0.001	
n-Butylbenzene	0.004		0.003	0.001	
C1 - Benzene	0.003	J	0.005	0.003	
C2 - Benzene	0.007		0.003	0.001	
C3 - Benzene	0.006		0.003	0.001	
C4 - Benzene		U	0.003	0.001	
C5 - Benzene		U	0.003	0.001	
trans-Decalin		U	0.003	0.001	
cis-Decalin		U	0.003	0.001	
Naphthalene	0.003		0.003	0.001	
2-Methylnaphthalene	0.002	J	0.003	0.001	
1-Methylnaphthalene	0.002	J	0.003	0.001	
C1 - Naphthalene	0.003	J	0.003	0.001	
C2 - Naphthalene		U	0.003	0.001	
C3- Naphthalene		U	0.003	0.001	
C4- Naphthalene		U	0.003	0.001	
Acenaphthylene	0.002	J	0.003	0.001	
Acenaphthene	0.002	J	0.003	0.001	
Dibenzofuran	0.002	J	0.003	0.001	
Fluorene	0.002	J	0.003	0.001	
C1 - Fluorene		U	0.003	0.001	
C2 - Fluorene		U	0.003	0.001	
C3 - Fluorene		U	0.003	0.001	
Phenanthrene	0.002	J	0.003	0.001	
Anthracene	0.001	J	0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090615-SB1		
File ID:	E061301.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/15/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene		U	0.003	0.001	
C2 - Phenanthrene/Anthracene		U	0.003	0.001	
C3 - Phenanthrene/Anthracene		U	0.003	0.001	
C4 - Phenanthrene/Anthracene		U	0.003	0.001	
Dibenzothiophene	0.002	J	0.003	0.001	
C1 - Dibenzothiophene		U	0.003	0.001	
C2 - Dibenzothiophene		U	0.003	0.001	
C3 - Dibenzothiophene		U	0.003	0.001	
C4 - Dibenzothiophene		U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene		U	0.003	0.001	
Fluoranthene	0.002	J	0.003	0.001	
Pyrene	0.001	J	0.003	0.001	
C1 - Fluoranthene/Pyrene		U	0.003	0.001	
C2 - Fluoranthene/Pyrene		U	0.003	0.001	
C3 - Fluoranthene/Pyrene		U	0.003	0.001	
Benz[a]anthracene		U	0.003	0.001	
Chrysene*	0.001	J	0.003	0.001	
C1 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
Benzo[b]fluoranthene	0.001	J	0.003	0.001	
Benzo[j/k]fluoranthene		U	0.003	0.001	
Benzo(e)pyrene	0.001	J	0.003	0.001	
Benzo[a]pyrene		U	0.003	0.001	
Perylene		U	0.003	0.001	
Indeno[1,2,3-cd]pyrene		U	0.003	0.001	
Dibenz[a,h]anthracene		U	0.003	0.001	
Benzo[g,h,i]perylene		U	0.003	0.001	
Coronene		U	0.003	0.001	
Retene		U	0.003	0.001	
Benzo(b/c)fluorenes		U	0.003	0.001	
2-Methylpyrene		U	0.003	0.001	
4-Methylpyrene		U	0.003	0.001	
1-Methylpyrene		U	0.003	0.001	
Heptadecane	0.019		0.005	0.003	
Pristane	0.013		0.003	0.001	
Octadecane	0.013		0.005	0.003	
Phytane	0.011		0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090615-SB1		
File ID:	E061301.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/15/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	U	0.003	0.001	
2,6,10-trimethyltridecane	U	0.003	0.001	
Norpristane	U	0.003	0.001	
Tetraethyl lead	U	0.005	0.003	
Total PAH (16)	0.017	0.003	0.001	
Total PAH (42)	0.025	0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	101	50 - 120
Phenanthrene-d10	108	50 - 120
Benzo[a]pyrene-d12	72	50 - 120
Perylene-d12	92	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090615-SBS1		
File ID:	E061302.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/15/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount					% Recovery
Benzene	2.50	2.13	B	0.003	0.001	85
Toluene	2.50	2.34	B	0.005	0.003	94
Ethylbenzene	2.50	2.41	B	0.003	0.001	96
m/p-Xylenes	2.50	2.41	B	0.003	0.001	96
Styrene	2.50	2.41		0.005	0.003	96
o-Xylene	2.50	2.44	B	0.003	0.001	98
Isopropylbenzene	2.50	2.4	B	0.003	0.001	96
n-Propylbenzene	2.50	2.35	B	0.003	0.001	94
1,3,5-Trimethylbenzene	2.50	2.37	B	0.003	0.001	95
1,2,4-Trimethylbenzene	2.50	2.37	B	0.003	0.001	95
t-Butylbenzene			U	0.003	0.001	
sec-Butylbenzene	2.50	2.43	B	0.003	0.001	97
p-Isopropyltoluene	2.50	2.45	B	0.003	0.001	98
n-Butylbenzene	2.50	2.43	B	0.003	0.001	97
C1 - Benzene			BU	0.005	0.003	
C2 - Benzene			BU	0.003	0.001	
C3 - Benzene			BU	0.003	0.001	
C4 - Benzene			U	0.003	0.001	
C5 - Benzene			U	0.003	0.001	
trans-Decalin			U	0.003	0.001	
cis-Decalin			U	0.003	0.001	
Naphthalene	2.50	2.44	B	0.003	0.001	98
2-Methylnaphthalene	2.50	2.41	B	0.003	0.001	96
1-Methylnaphthalene	2.50	2.45	B	0.003	0.001	98
C1 - Naphthalene			BU	0.003	0.001	
C2 - Naphthalene			U	0.003	0.001	
C3- Naphthalene			U	0.003	0.001	
C4- Naphthalene			U	0.003	0.001	
Acenaphthylene	2.50	2.31	B	0.003	0.001	92
Acenaphthene	2.50	2.53	B	0.003	0.001	101
Dibenzofuran	2.50	2.57	B	0.003	0.001	103
Fluorene	2.50	2.61	B	0.003	0.001	104
C1 - Fluorene			U	0.003	0.001	
C2 - Fluorene			U	0.003	0.001	
C3 - Fluorene			U	0.003	0.001	
Phenanthrene	2.50	2.61	B	0.003	0.001	104
Anthracene	2.50	2.64	B	0.003	0.001	106

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090615-SBS1		
File ID:	E061302.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/15/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
C1 - Phenanthrene/Anthracene			U	0.003	0.001	
C2 - Phenanthrene/Anthracene			U	0.003	0.001	
C3 - Phenanthrene/Anthracene			U	0.003	0.001	
C4 - Phenanthrene/Anthracene			U	0.003	0.001	
Dibenzothiophene	2.50	2.75	B	0.003	0.001	110
C1 - Dibenzothiophene			U	0.003	0.001	
C2 - Dibenzothiophene			U	0.003	0.001	
C3 - Dibenzothiophene			U	0.003	0.001	
C4 - Dibenzothiophene			U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene			U	0.003	0.001	
Fluoranthene	2.50	2.53	B	0.003	0.001	101
Pyrene	2.50	2.54	B	0.003	0.001	102
C1 - Fluoranthene/Pyrene			U	0.003	0.001	
C2 - Fluoranthene/Pyrene			U	0.003	0.001	
C3 - Fluoranthene/Pyrene			U	0.003	0.001	
Benz[a]anthracene	2.50	2.4		0.003	0.001	96
Chrysene*	2.50	2.46	B	0.003	0.001	98
C1 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
Benzo[b]fluoranthene	2.50	2.37	B	0.003	0.001	95
Benzo[j/k]fluoranthene	2.50	2.48		0.003	0.001	99
Benzo(e)pyrene	2.50	2.41	B	0.003	0.001	96
Benzo[a]pyrene	2.50	2.41		0.003	0.001	96
Perylene			U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	2.50	2.22		0.003	0.001	89
Dibenz[a,h]anthracene	2.50	2.21		0.003	0.001	88
Benzo[g,h,i]perylene	2.50	2.21		0.003	0.001	88
Coronene			U	0.003	0.001	
Retene			U	0.003	0.001	
Benzo(b/c)fluorenes			U	0.003	0.001	
2-Methylpyrene			U	0.003	0.001	
4-Methylpyrene			U	0.003	0.001	
1-Methylpyrene			U	0.003	0.001	
Heptadecane			BU	0.005	0.003	
Pristane			BU	0.003	0.001	
Octadecane			BU	0.005	0.003	
Phytane			BU	0.003	0.001	

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090615-SBS1		
File ID:	E061302.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	6/15/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.003	0.001	
2,6,10-trimethyltridecane		U	0.003	0.001	
Norpristane		U	0.003	0.001	
Tetraethyl lead		U	0.005	0.003	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	91	50 - 120
Phenanthrene-d10	104	50 - 120
Benzo[a]pyrene-d12	82	50 - 120
Perylene-d12	97	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Duplicate of CT-SO-B05-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090610-01DUP-D		
File ID:	E061305.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/9/2009	Decanted:	None
Date Received:	6/10/2009		
Date Prepared:	6/15/2009	Sample Size (g):	4.19
Date Cleanup:	NA	Percent Solid:	78.7%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					RPD
Benzene	9.66	B	0.152	0.076	21.6
Toluene	13.3	B	0.303	0.152	29.1
Ethylbenzene	0.807	B	0.152	0.076	34.3
m/p-Xylenes	13.0	B	0.152	0.076	33.7
Styrene	7.04		0.303	0.152	30.6
o-Xylene	4.38	B	0.152	0.076	32.4
Isopropylbenzene		BU	0.152	0.076	NA
n-Propylbenzene		BU	0.152	0.076	NA
1,3,5-Trimethylbenzene	3.23	B	0.152	0.076	34.9
1,2,4-Trimethylbenzene	7.34	B	0.152	0.076	33.8
t-Butylbenzene		U	0.152	0.076	NA
sec-Butylbenzene		BU	0.152	0.076	NA
p-Isopropyltoluene		BU	0.152	0.076	NA
n-Butylbenzene	0.138	JB	0.152	0.076	22.6
C1 - Benzene	8.36	B	0.303	0.152	29.2
C2 - Benzene	8.09	B	0.152	0.076	32.6
C3 - Benzene	6.36	B	0.152	0.076	33.2
C4 - Benzene	1.66		0.152	0.076	25.9
C5 - Benzene	0.406		0.152	0.076	16.5
trans-Decalin		U	0.152	0.076	NA
cis-Decalin		U	0.152	0.076	NA
Naphthalene	1,400	DB	0.152	0.076	31.4
2-Methylnaphthalene	113	B	0.152	0.076	32.7
1-Methylnaphthalene	49.5	B	0.152	0.076	33.2
C1 - Naphthalene	98.8	B	0.152	0.076	32.6
C2 - Naphthalene	19.4		0.152	0.076	31.6
C3- Naphthalene	3.98		0.152	0.076	29.4
C4- Naphthalene	0.773		0.152	0.076	19.6
Acenaphthylene	126	B	0.152	0.076	29.8
Acenaphthene	5.76	B	0.152	0.076	28.1
Dibenzofuran	69.6	B	0.152	0.076	30.5
Fluorene	74.7	B	0.152	0.076	29.7
C1 - Fluorene	5.35		0.152	0.076	30.4
C2 - Fluorene	1.35		0.152	0.076	23.1
C3 - Fluorene	0.779		0.152	0.076	9.1
Phenanthrene	217	B	0.152	0.076	27.2
Anthracene	78.1	B	0.152	0.076	25.7

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

Field ID: Duplicate of CT-SO-B05-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090610-01DUP-D		
File ID:	E061305.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/9/2009	Decanted:	None
Date Received:	6/10/2009		
Date Prepared:	6/15/2009	Sample Size (g):	4.19
Date Cleanup:	NA	Percent Solid:	78.7%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene	27.9		0.152	0.076	30.1
C2 - Phenanthrene/Anthracene	5.86		0.152	0.076	31.4
C3 - Phenanthrene/Anthracene	1.69		0.152	0.076	29.2
C4 - Phenanthrene/Anthracene	0.559		0.152	0.076	NA
Dibenzothiophene	16.3	B	0.152	0.076	28
C1 - Dibenzothiophene	2.84		0.152	0.076	27.7
C2 - Dibenzothiophene	1.01		0.152	0.076	24.4
C3 - Dibenzothiophene	0.437		0.152	0.076	24.1
C4 - Dibenzothiophene	0.205		0.152	0.076	18.1
Benzo(b)naphtho(2,1-d)thiophene	6.61		0.152	0.076	29.7
Fluoranthene	148	B	0.152	0.076	26.8
Pyrene	106	B	0.152	0.076	26.5
C1 - Fluoranthene/Pyrene	39.9		0.152	0.076	31
C2 - Fluoranthene/Pyrene	6.0		0.152	0.076	31.4
C3 - Fluoranthene/Pyrene	1.24		0.152	0.076	34.5
Benz[a]anthracene	52.2		0.152	0.076	29.7
Chrysene*	53.3	B	0.152	0.076	27.8
C1 - Benz(a)anthracene/Chrysene	10.1		0.152	0.076	36.7
C2 - Benz(a)anthracene/Chrysene	2.3		0.152	0.076	30
C3 - Benz(a)anthracene/Chrysene	1.06		0.152	0.076	19.7
C4 - Benz(a)anthracene/Chrysene	0.970		0.152	0.076	59.2
Benzo[b]fluoranthene	31.8	B	0.152	0.076	28.8
Benzo[j/k]fluoranthene	38.0		0.152	0.076	28.9
Benzo(e)pyrene	24.4	B	0.152	0.076	28
Benzo[a]pyrene	43.2		0.152	0.076	29.2
Perylene	11.1		0.152	0.076	28.6
Indeno[1,2,3-cd]pyrene	19.4		0.152	0.076	25.6
Dibenz[a,h]anthracene	5.36		0.152	0.076	13.5
Benzo[g,h,i]perylene	20.2		0.152	0.076	24.4
Coronene	4.69		0.152	0.076	26.8
Retene		U	0.152	0.076	NA
Benzo(b/c)fluorenes	12.1		0.152	0.076	27.7
2-Methylpyrene	3.48		0.152	0.076	30.5
4-Methylpyrene	1.93		0.152	0.076	26.4
1-Methylpyrene	2.42		0.152	0.076	34.4
Heptadecane		BU	0.303	0.152	NA
Pristane		BU	0.152	0.076	NA
Octadecane		BU	0.303	0.152	NA
Phytane		BU	0.152	0.076	NA

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

Field ID: Duplicate of CT-SO-B05-20

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090610-01DUP-D		
File ID:	E061305.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	6/9/2009	Decanted:	None
Date Received:	6/10/2009		
Date Prepared:	6/15/2009	Sample Size (g):	4.19
Date Cleanup:	NA	Percent Solid:	78.7%
Date Analyzed:	6/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	50
		Injection Volume (µl):	1.00
Batch QC:	QC090615-SB1		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.152	0.076	NA
2,6,10-trimethyltridecane		U	0.152	0.076	NA
Norpristane		U	0.152	0.076	NA
Tetraethyl lead		U	0.303	0.152	NA
Total PAH (16)	2,420		0.152	0.076	29.9
Total PAH (42)	2,770		0.152	0.076	29.9

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	78	50 - 120
Phenanthrene-d10	77	50 - 120
Benzo[a]pyrene-d12	64	50 - 120
Perylene-d12	85	50 - 120

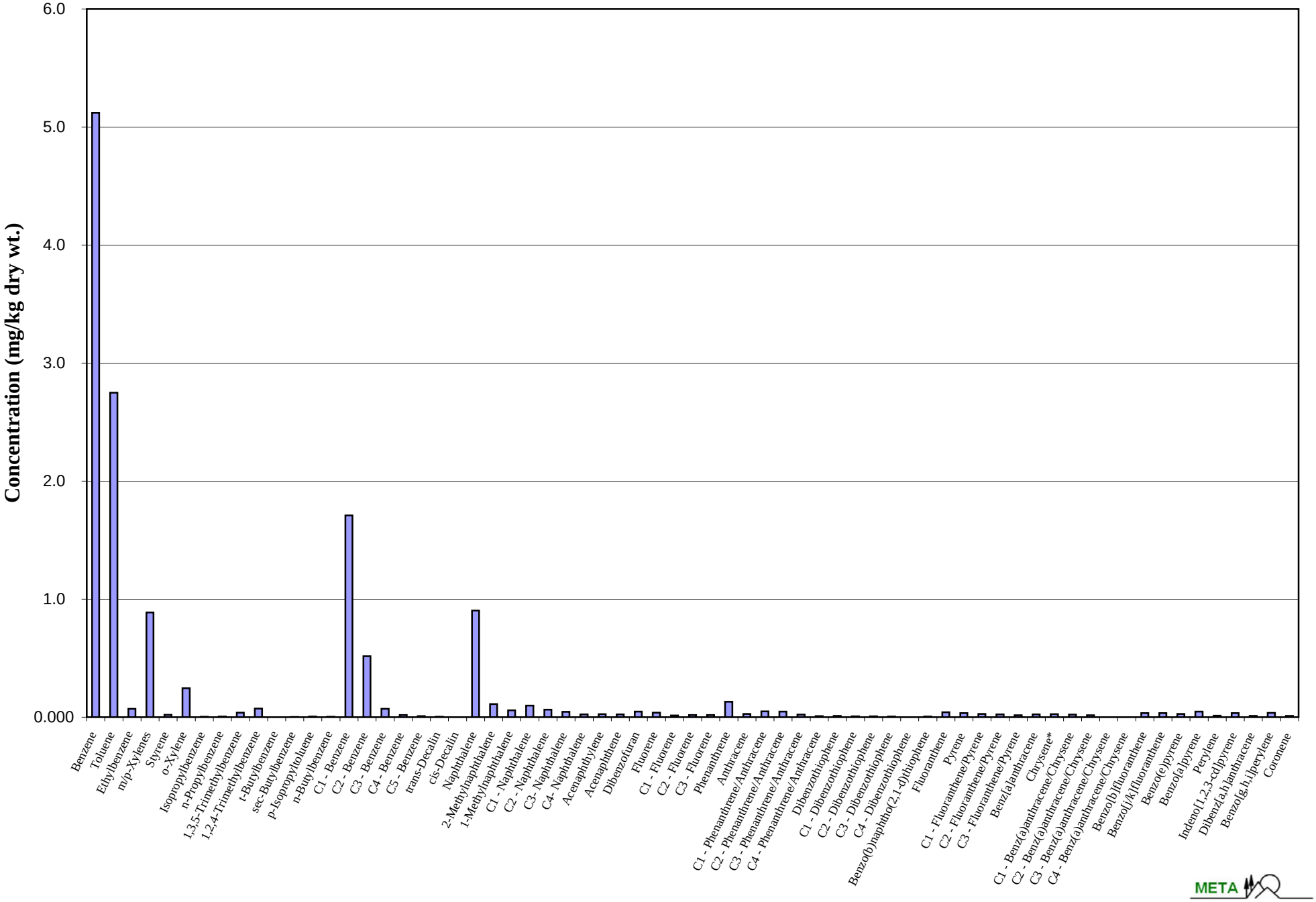
NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

Appendix D

Extended MAH/PAH Profiles – Histograms

BP-SO-B03-18

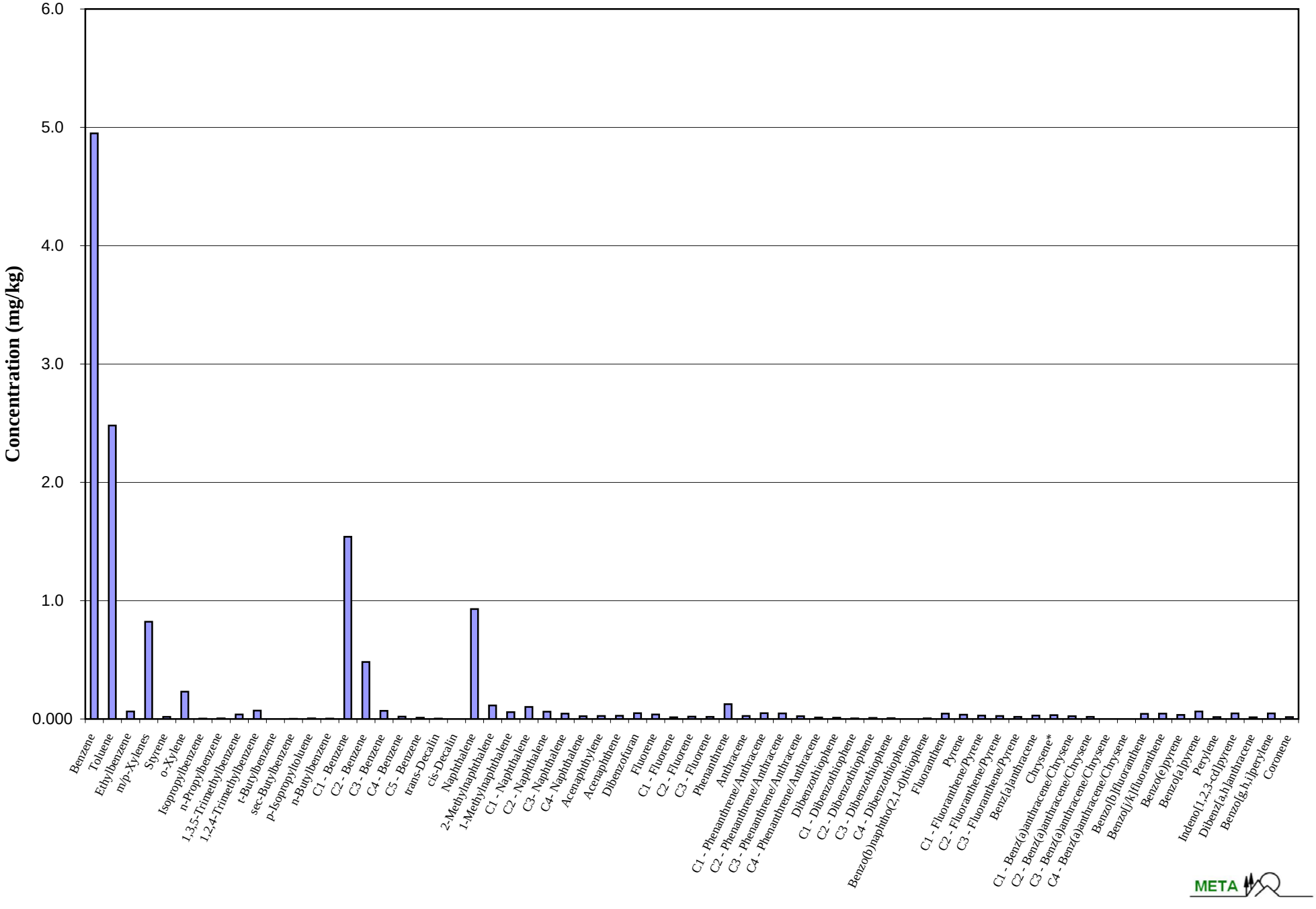
TA090520-01



META

Duplicate of BP-SO-B03-18

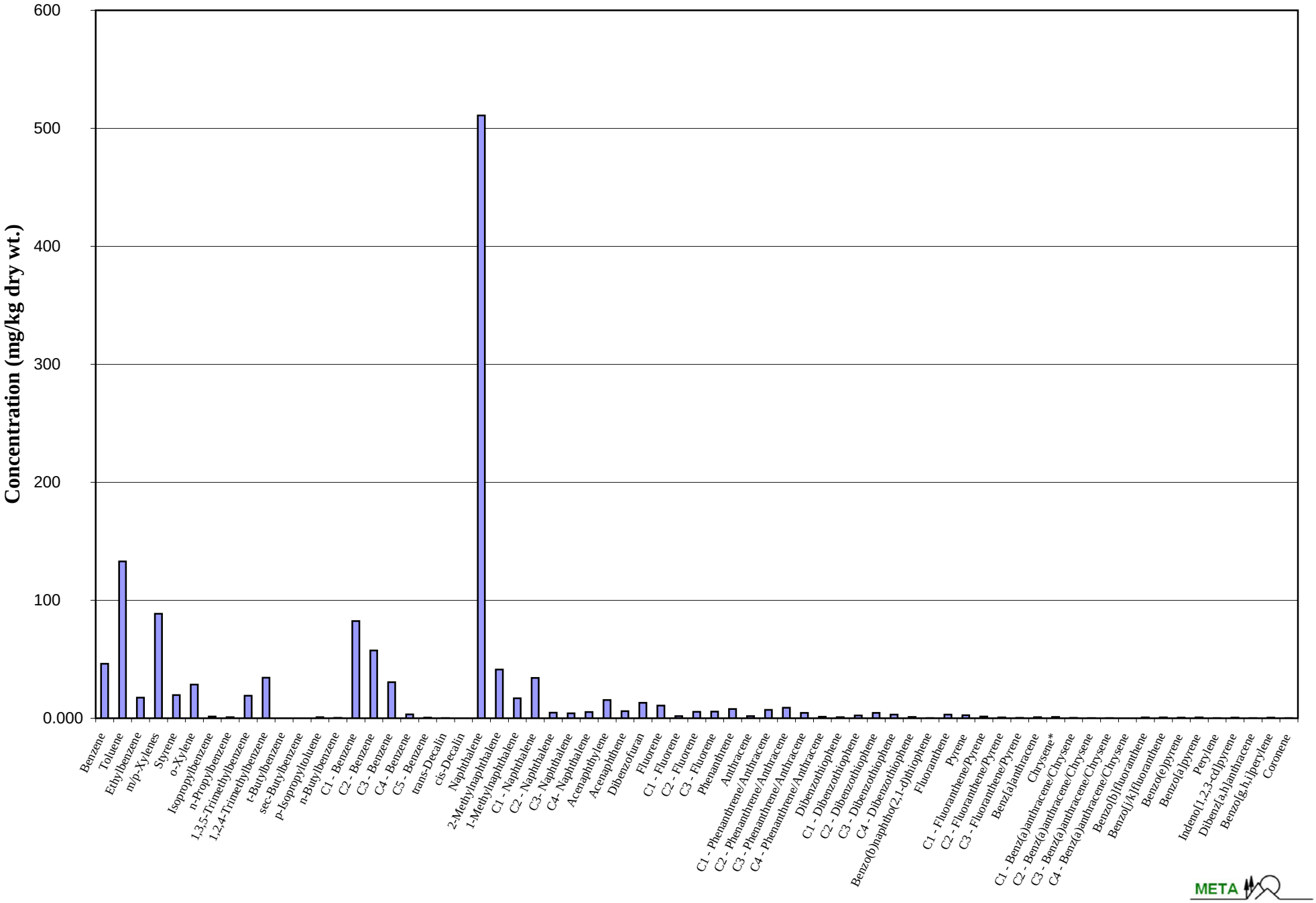
TA090520-01DUP



META

BP-SO-B05-06

TA090528-01



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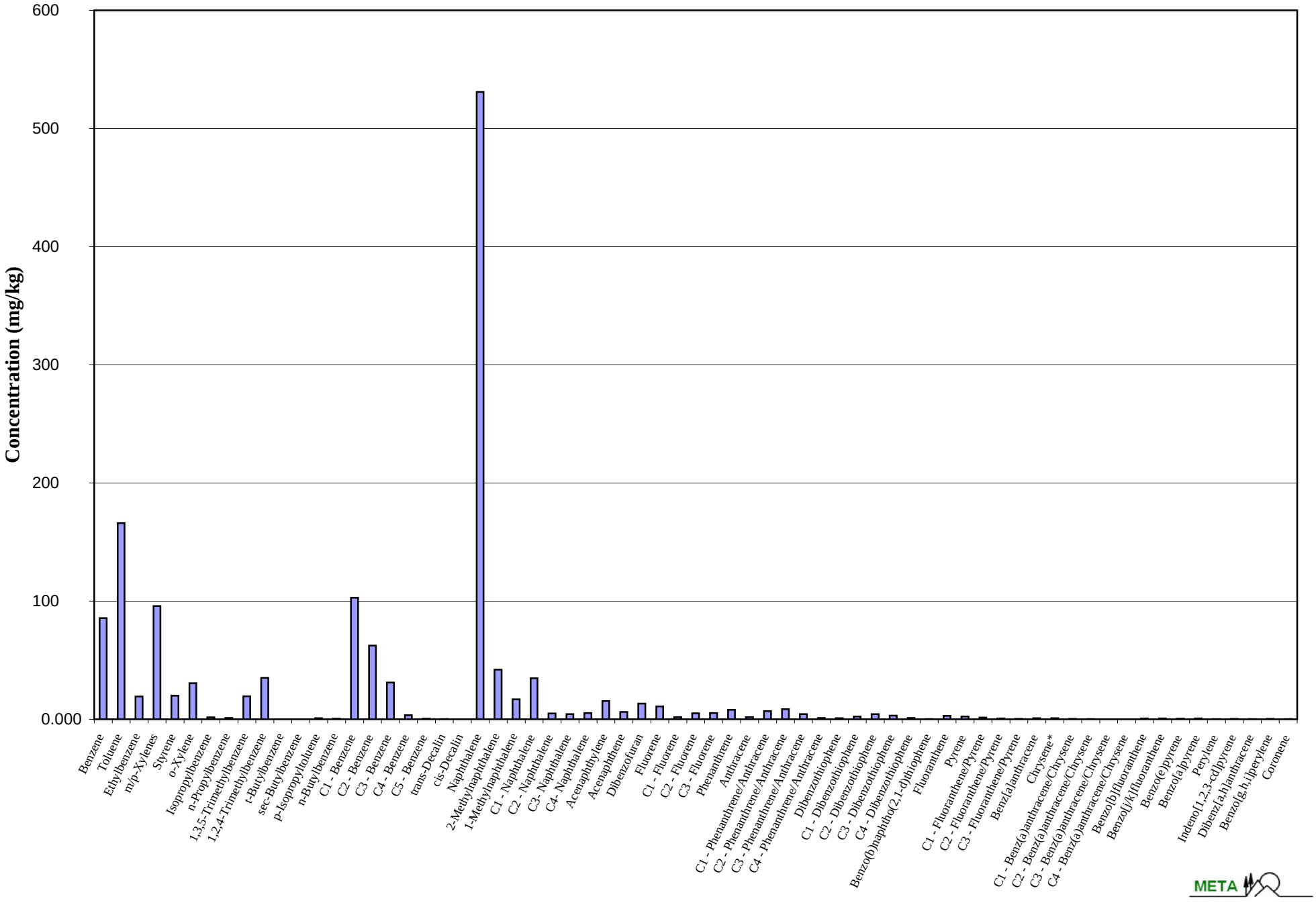
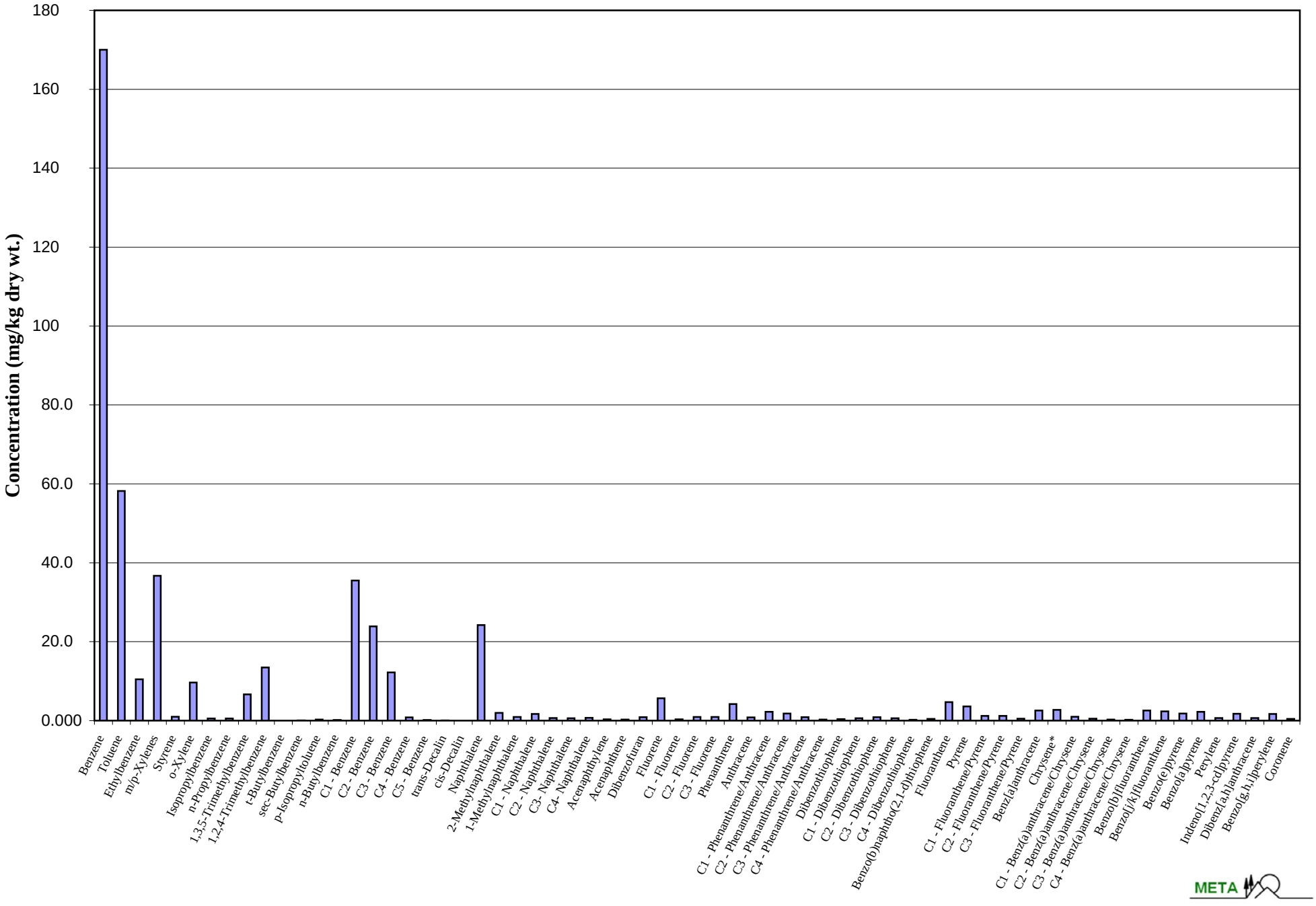
TA090528-01DUP



META

BP-SO-B025-8

TA090529-01



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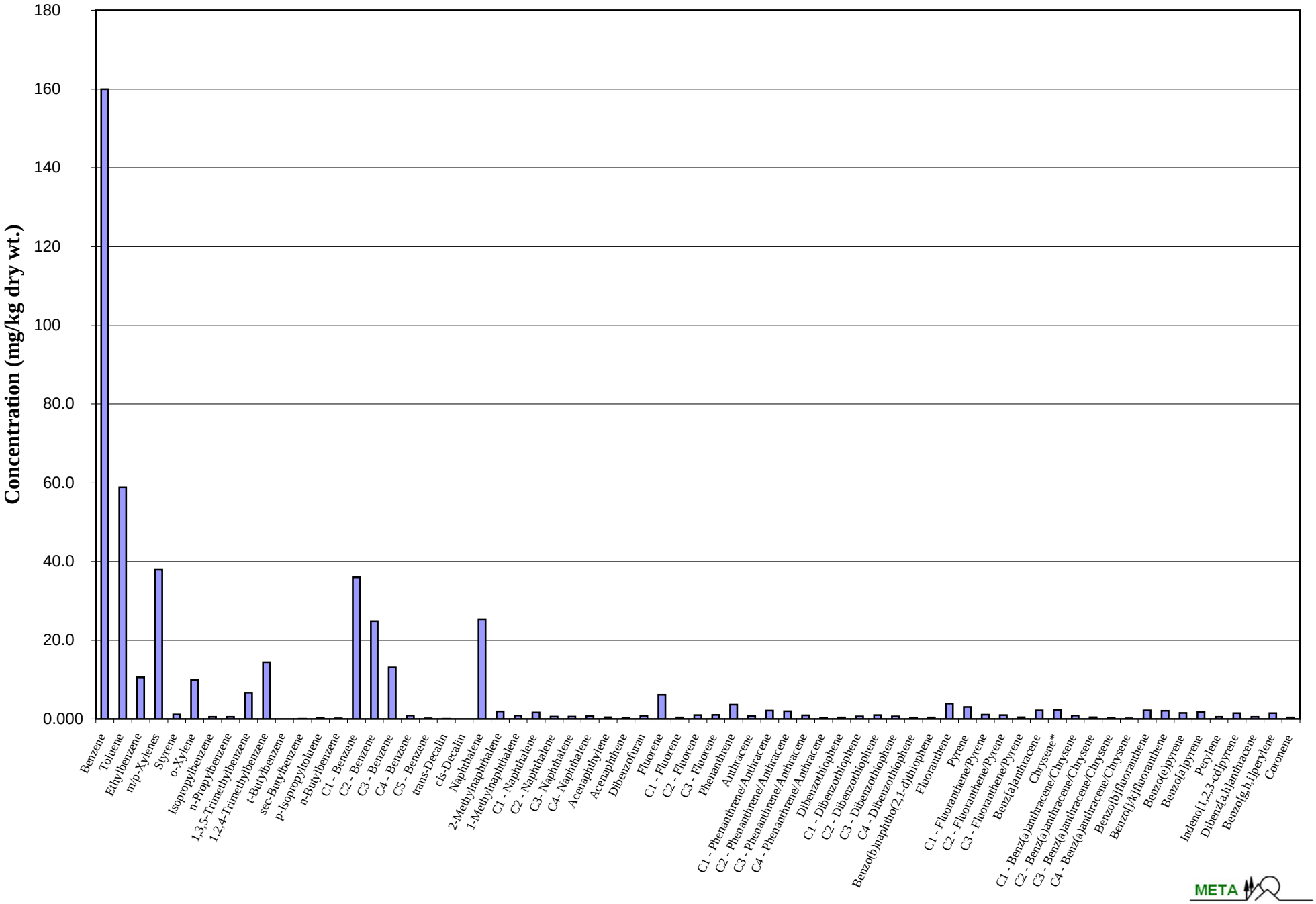
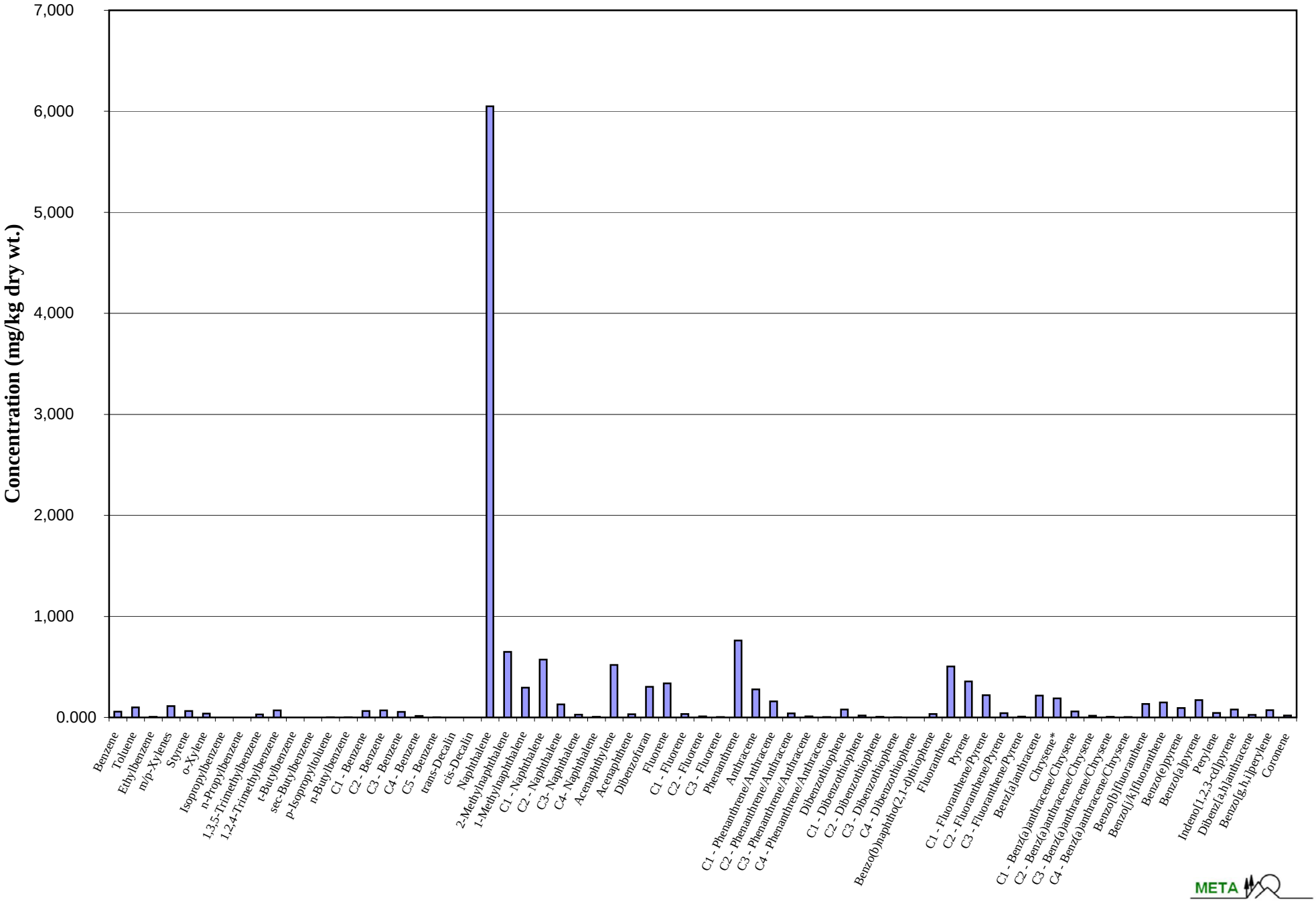
TA090529-01DUP



META

CT-SO-B01-20

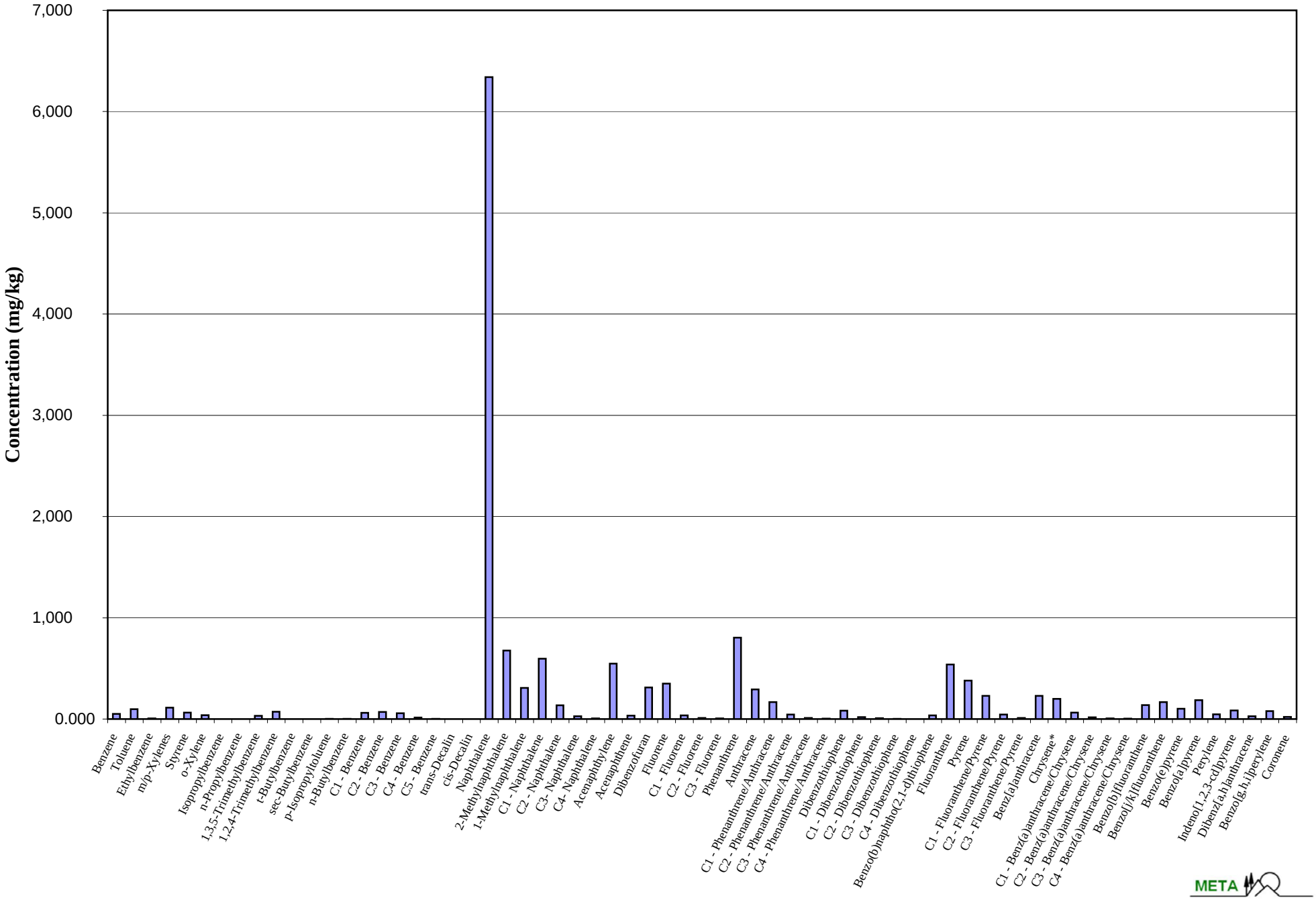
TA090603-01-D



META

Duplicate of CT-SO-B01-20

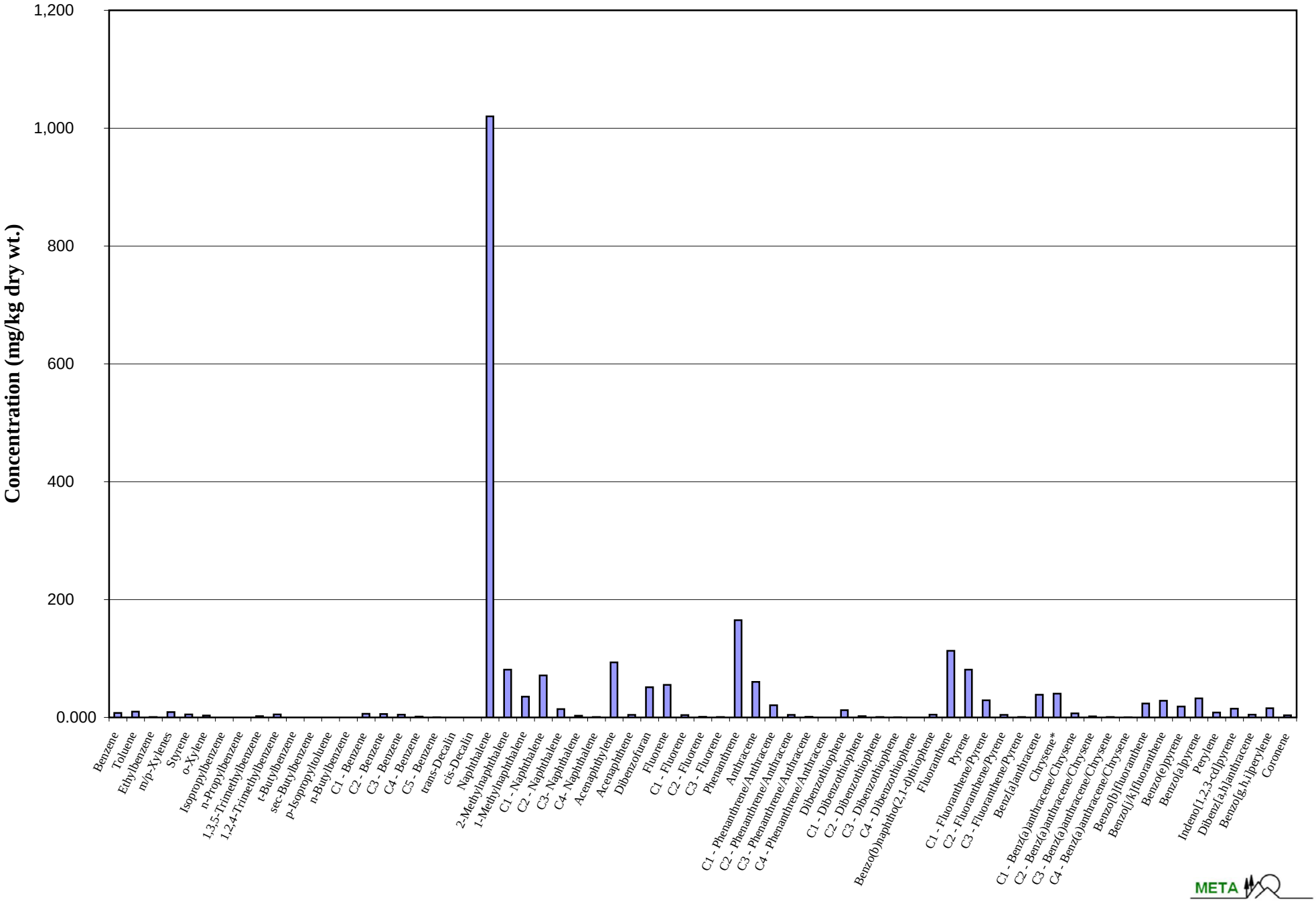
TA090603-01DUP-D



META

CT-SO-B05-20

TA090610-01-D



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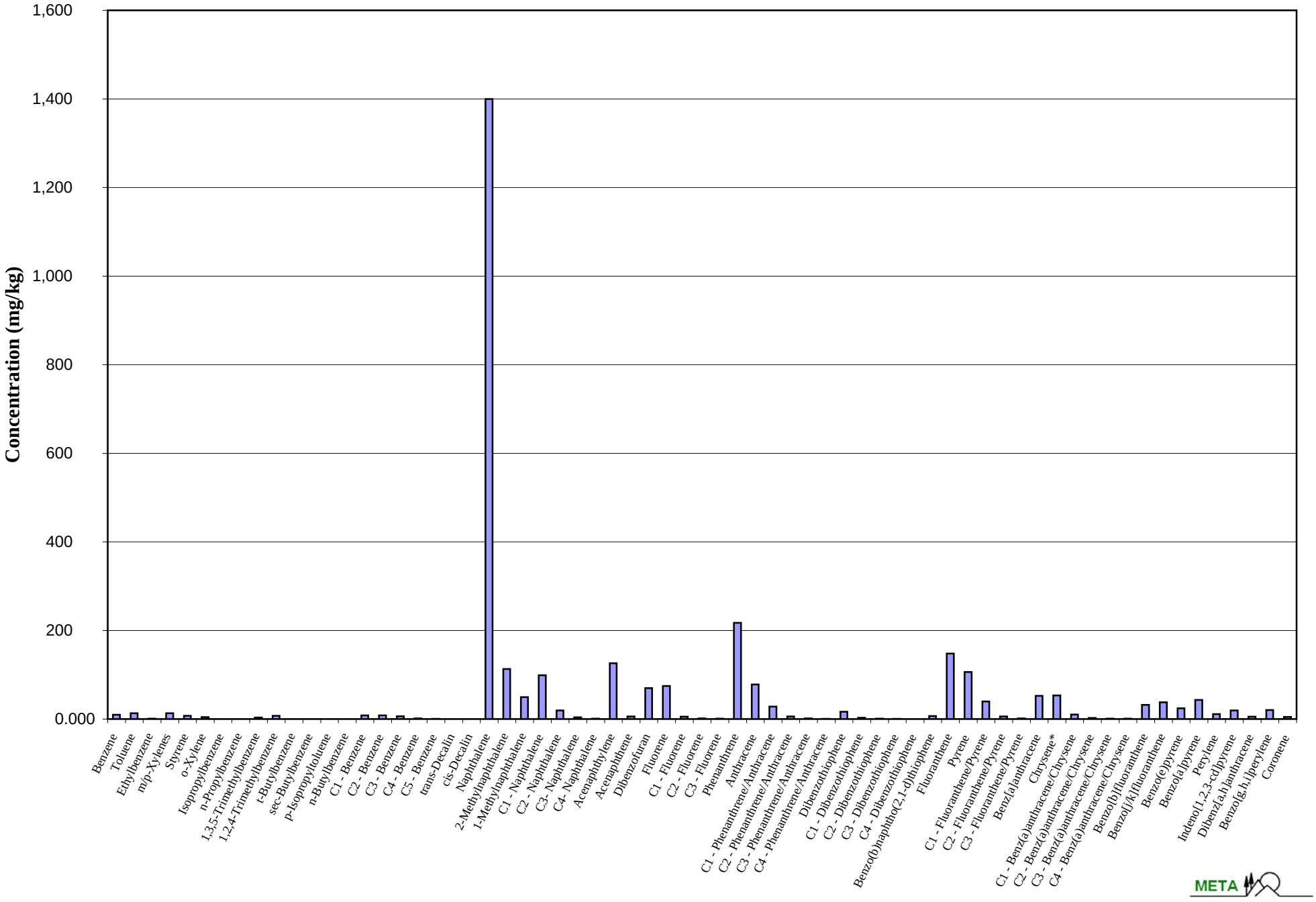
Duplicate of CT-SO-B05-20

TA090610-01DUP-D



META

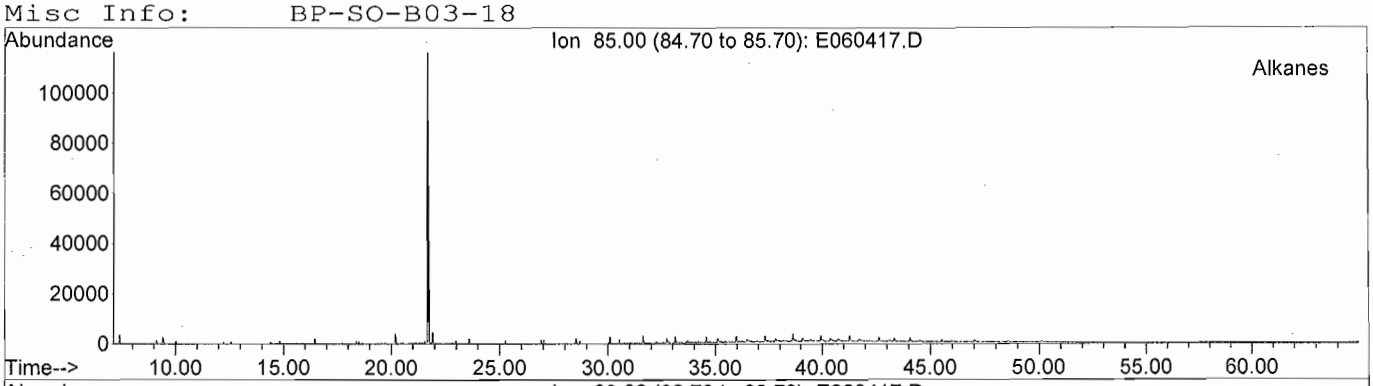
Appendix E

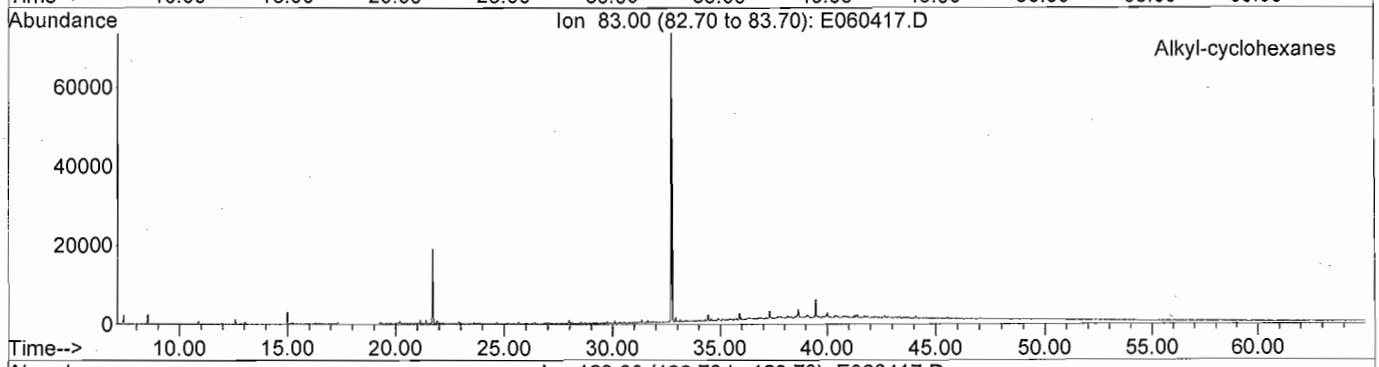
Extracted Ion Current Profiles (EICPs)

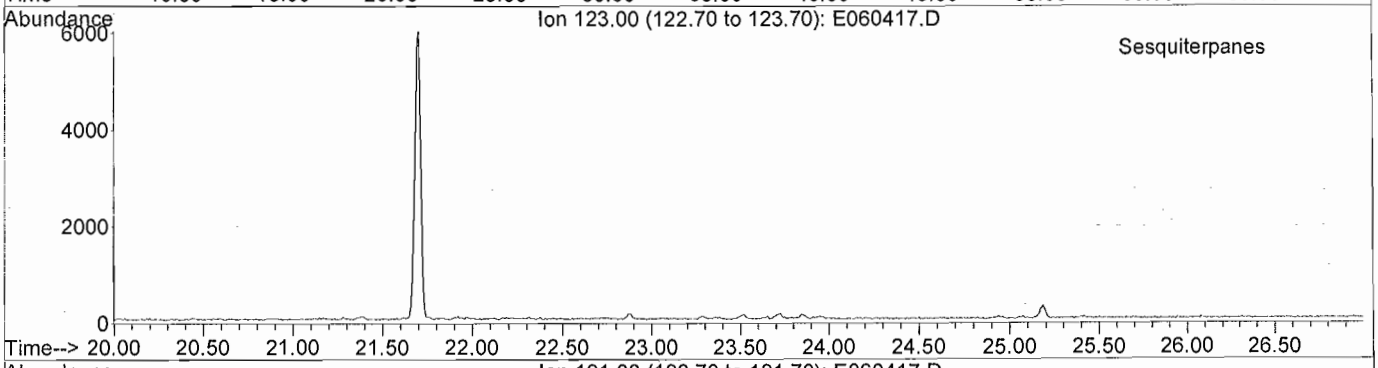
META Environmental, Inc.

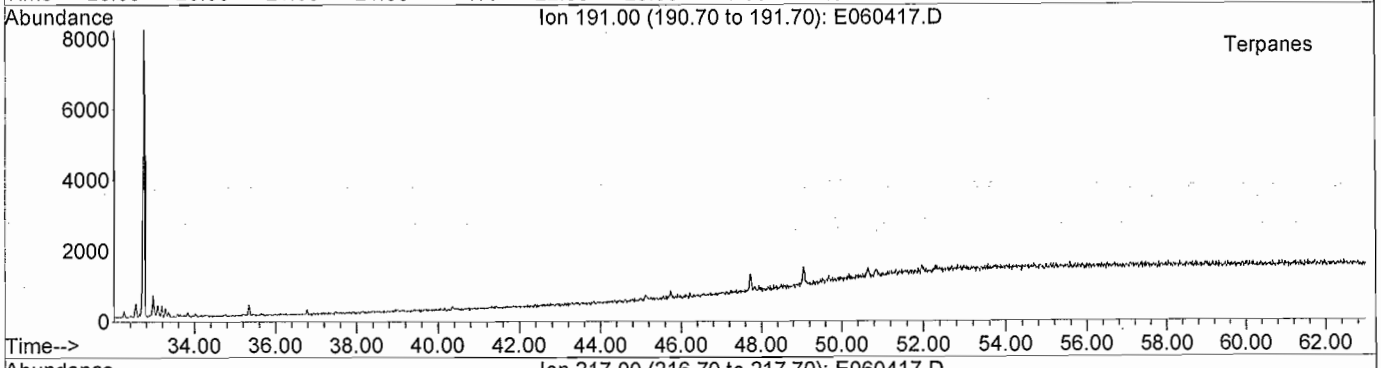
GC/MS EXTRACTED ION CHROMATOGRAM

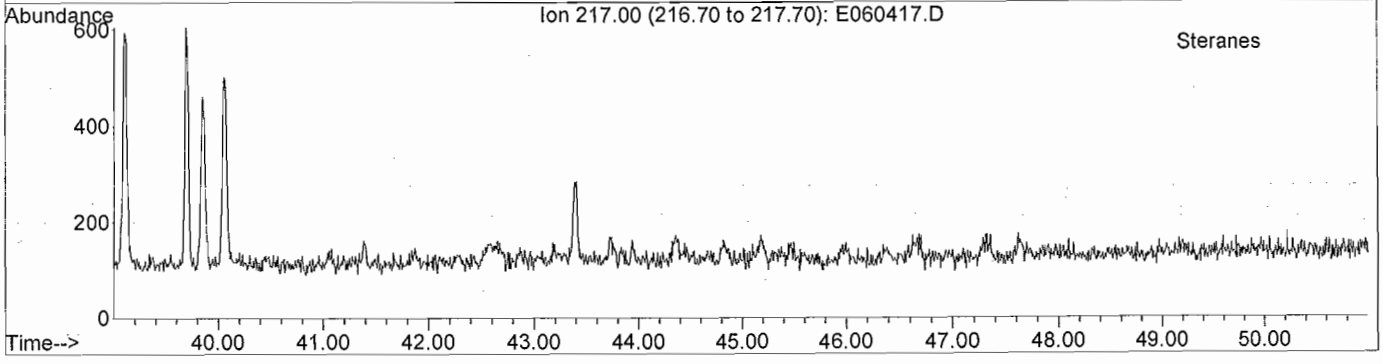
File: J:\1\DATA\E090604\E060417.D
Date Acquired: 5 Jun 2009 12:45 pm
Sample Name: TA090520-01
Misc Info: BP-SO-B03-18







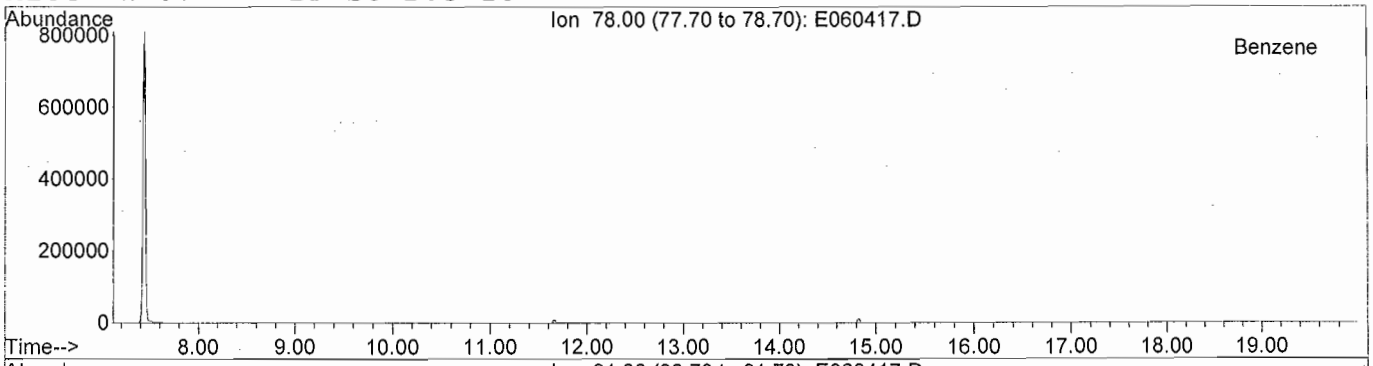


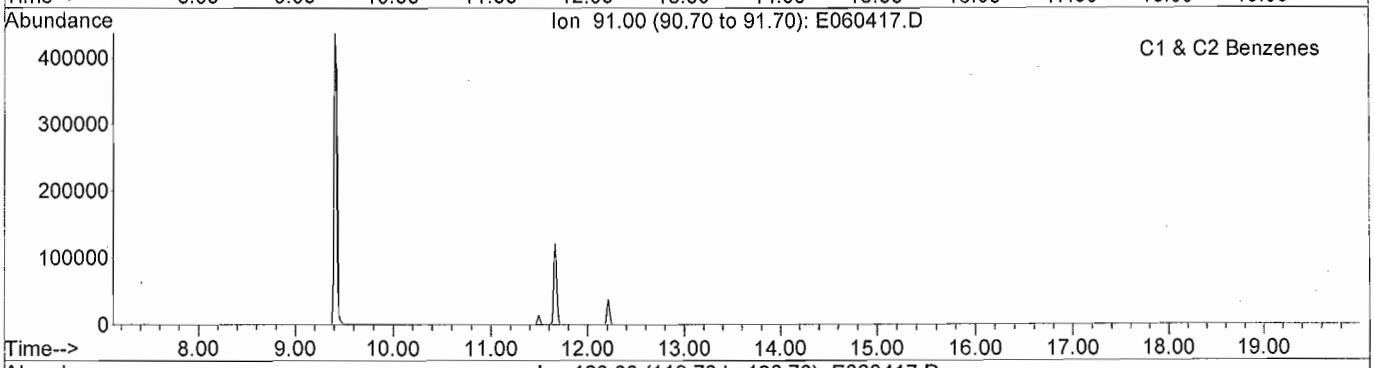


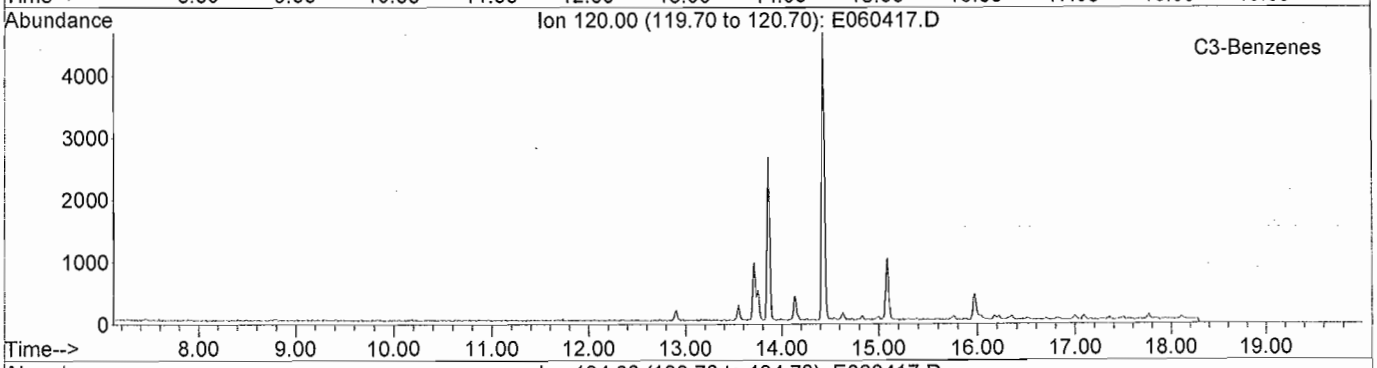
META Environmental, Inc.

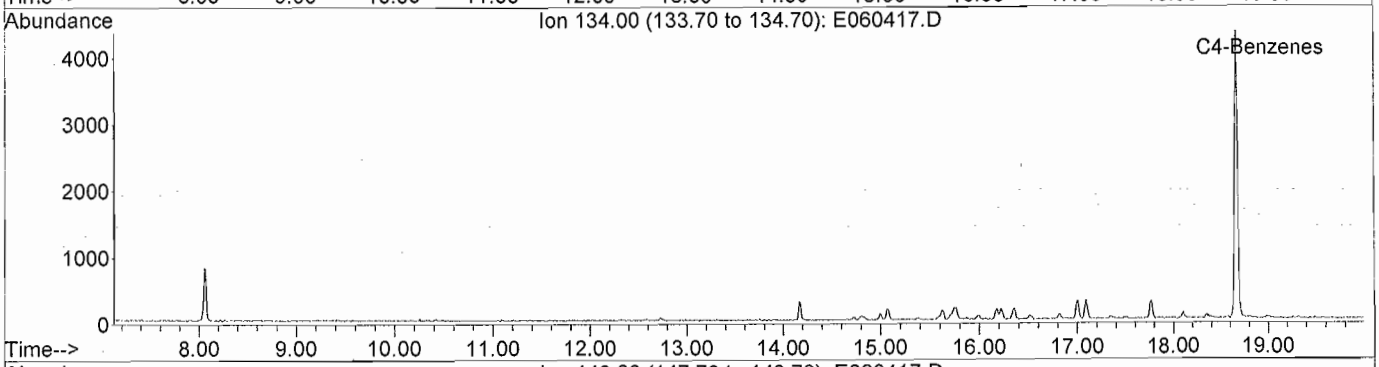
GC/MS EXTRACTED ION CHROMATOGRAM

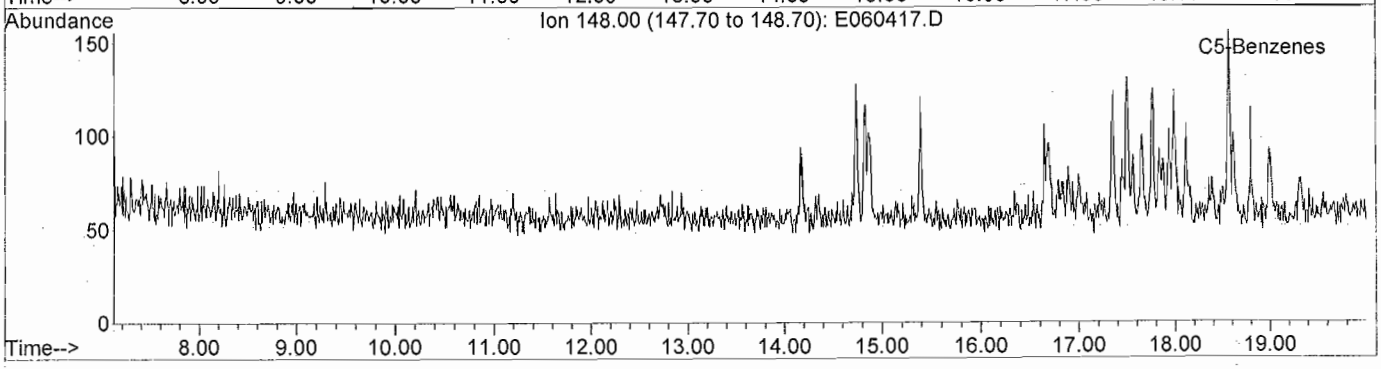
File: J:\1\DATA\E090604\E060417.D
Date Acquired: 5 Jun 2009 12:45 pm
Sample Name: TA090520-01
Misc Info: BP-SO-B03-18







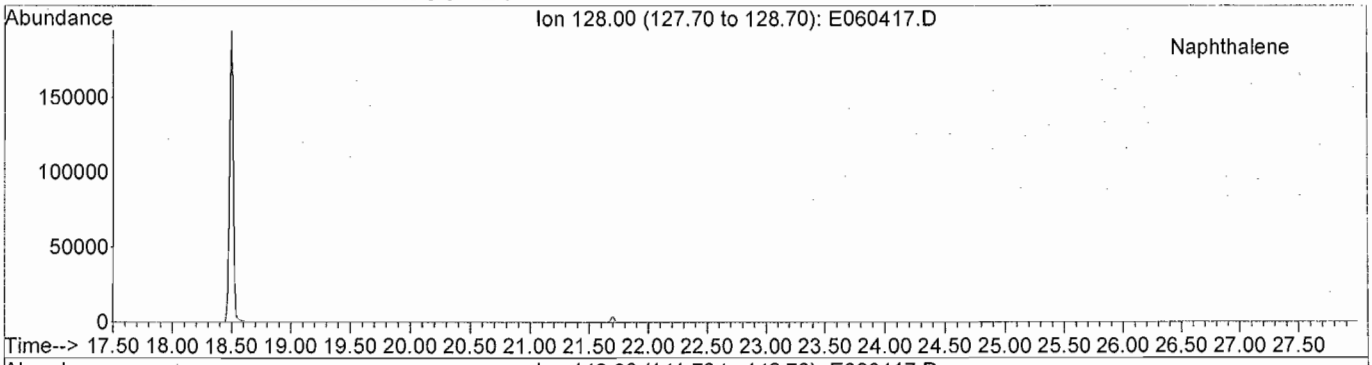


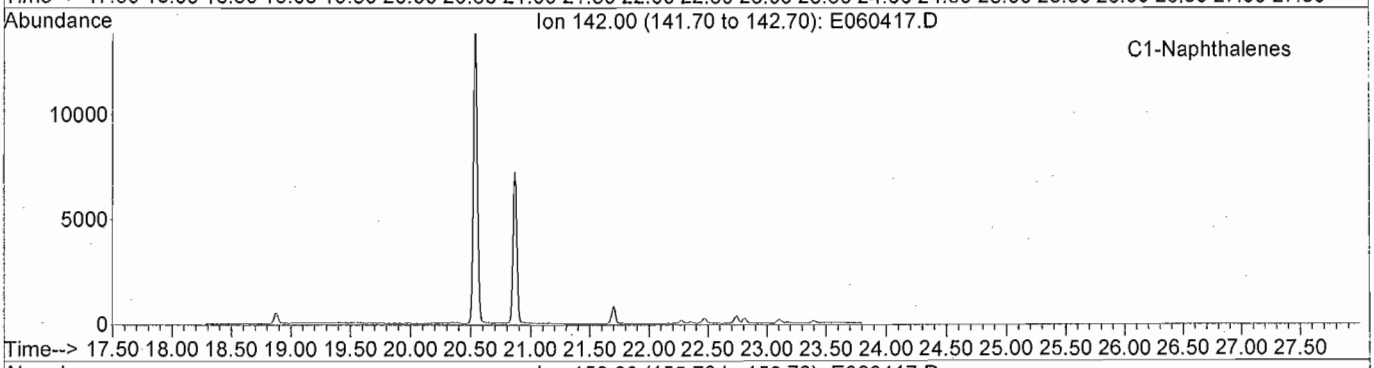


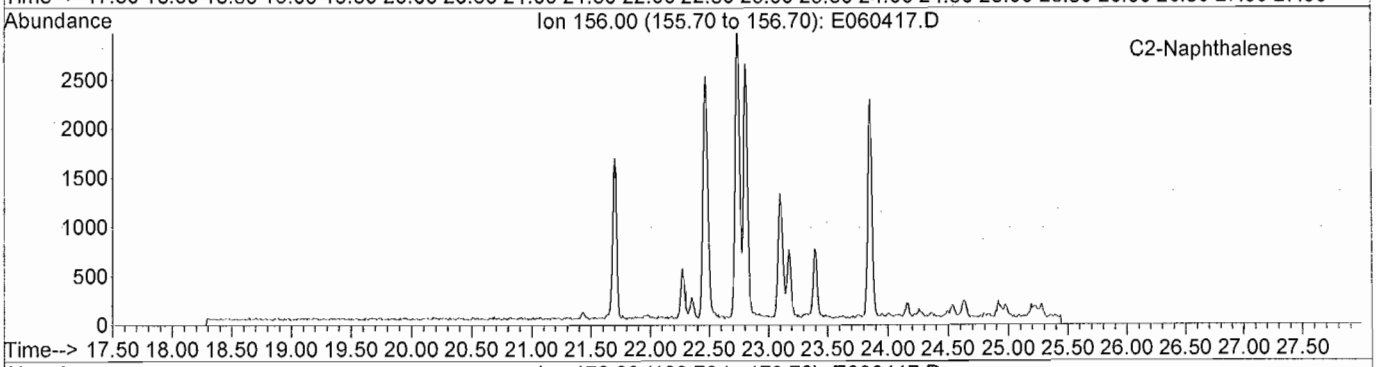
META Environmental, Inc.

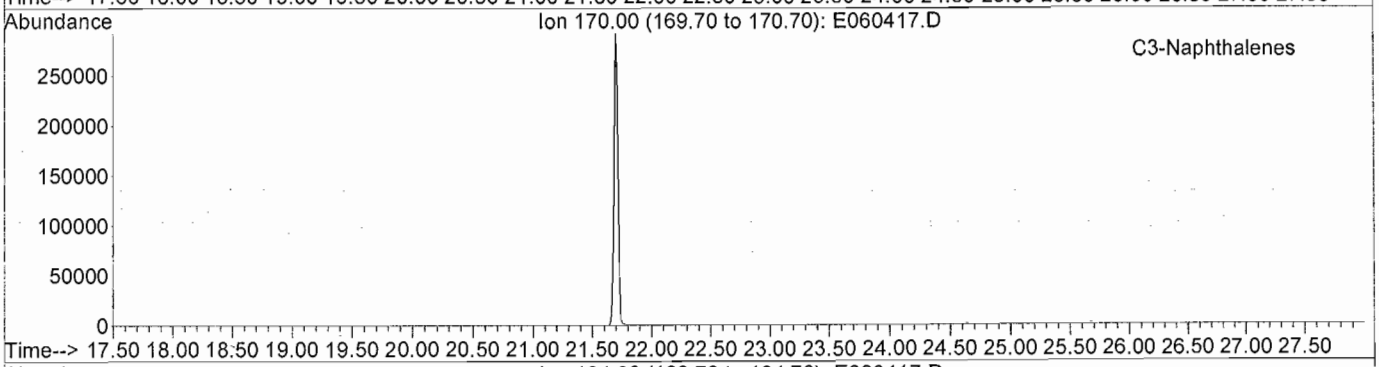
GC/MS EXTRACTED ION CHROMATOGRAM

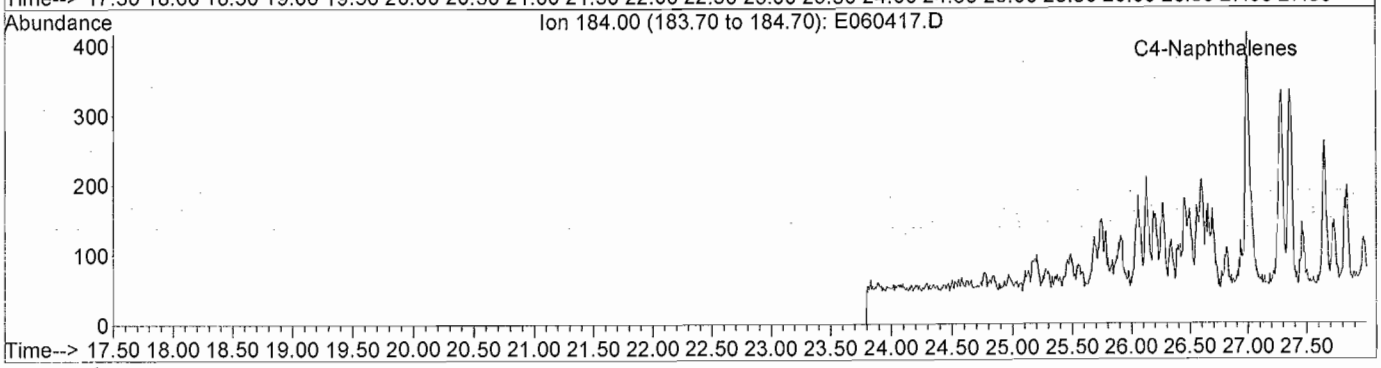
File: J:\1\DATA\E090604\E060417.D
Date Acquired: 5 Jun 2009 12:45 pm
Sample Name: TA090520-01
Misc Info: BP-SO-B03-18







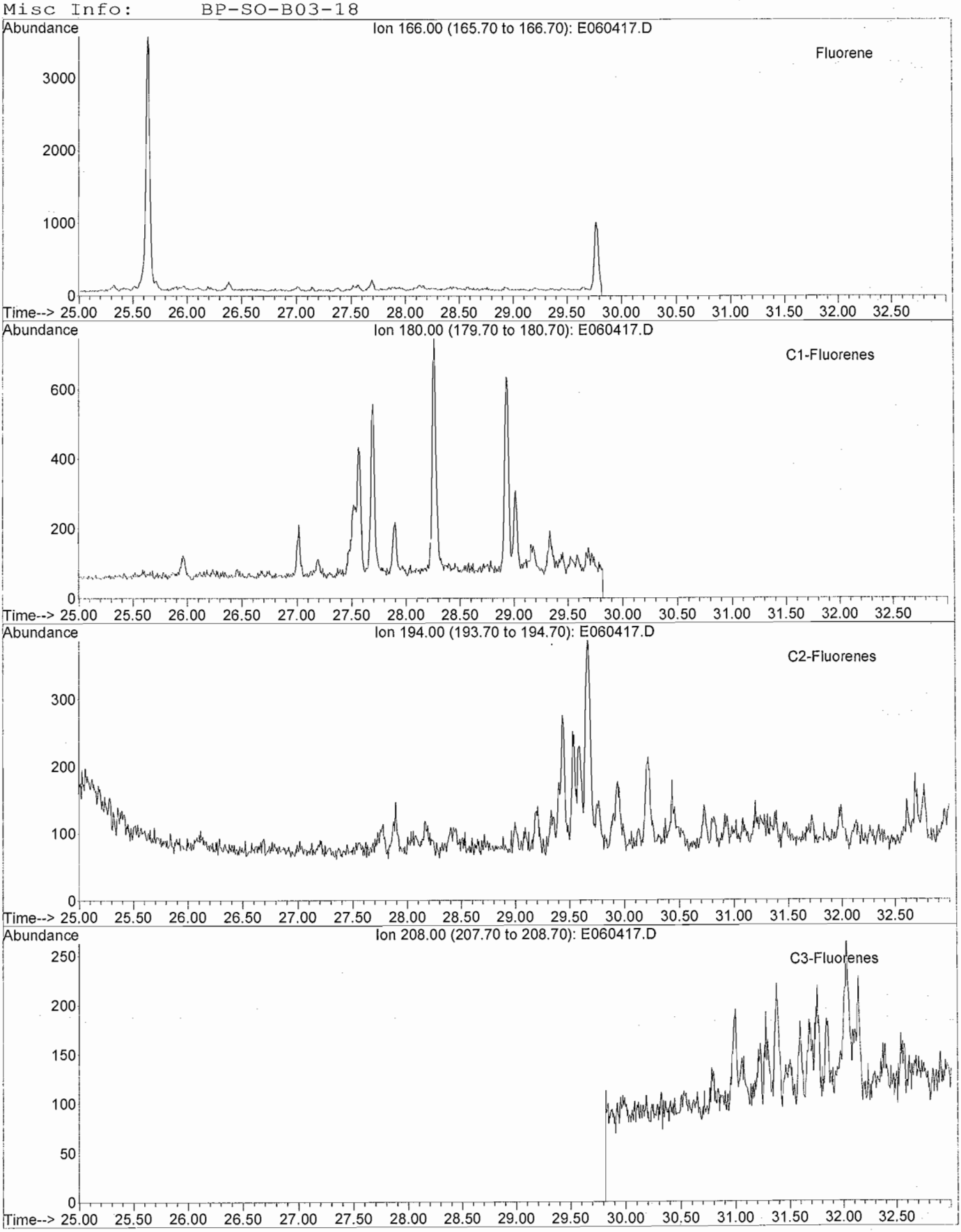




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060417.D
Date Acquired: 5 Jun 2009 12:45 pm
Sample Name: TA090520-01
Misc Info: BP-SO-B03-18



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060417.D
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Sample Name: TA090520-01
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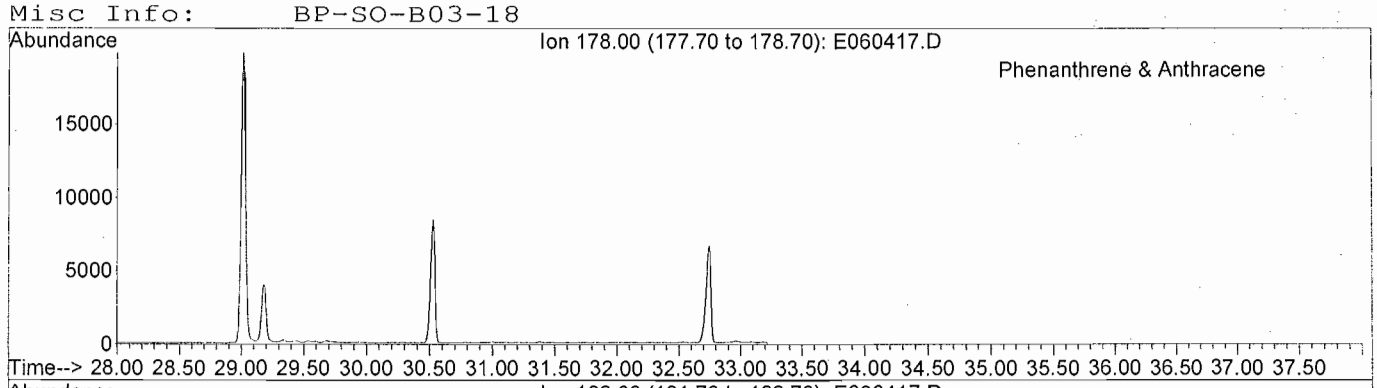

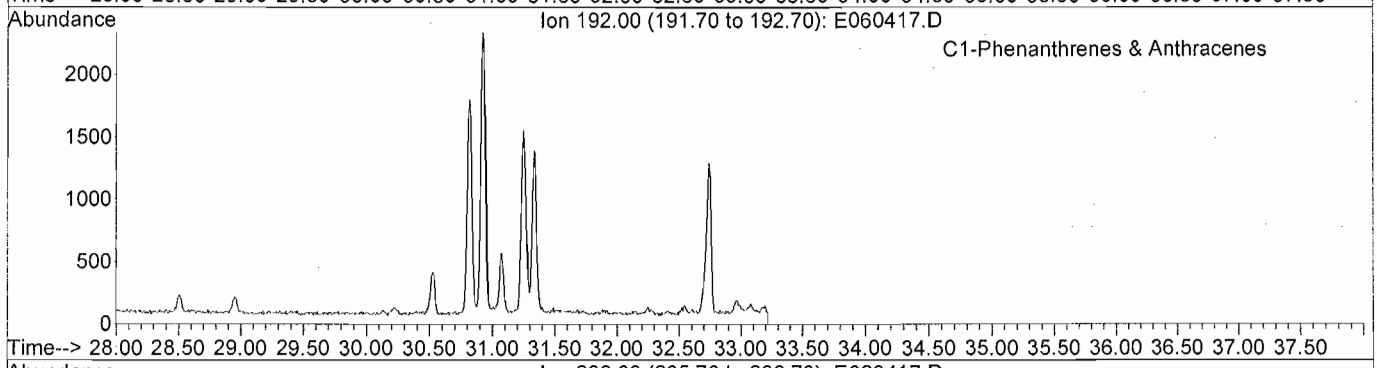

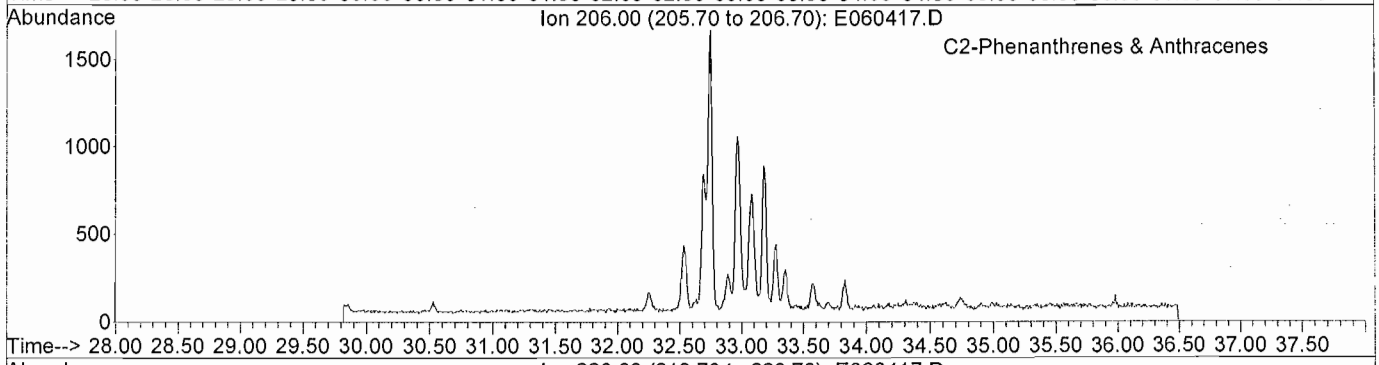

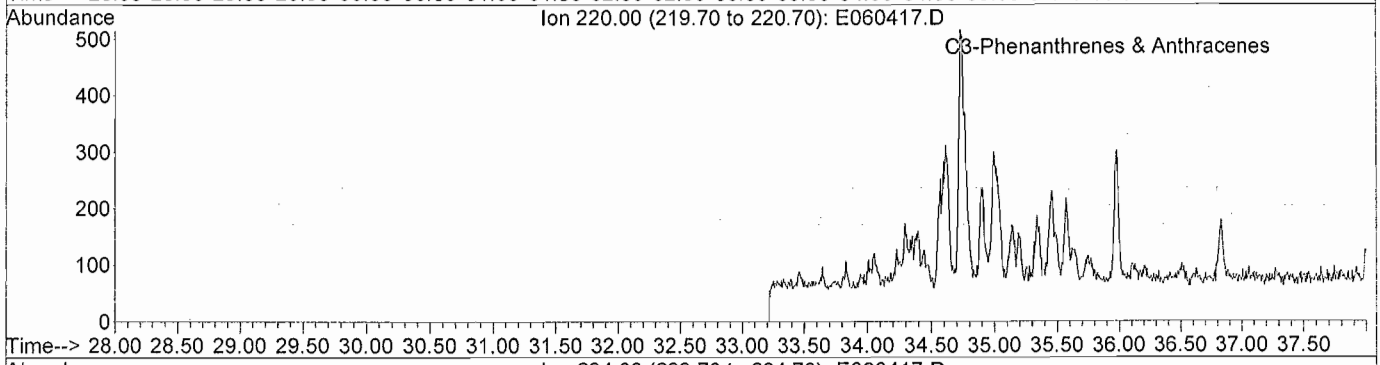

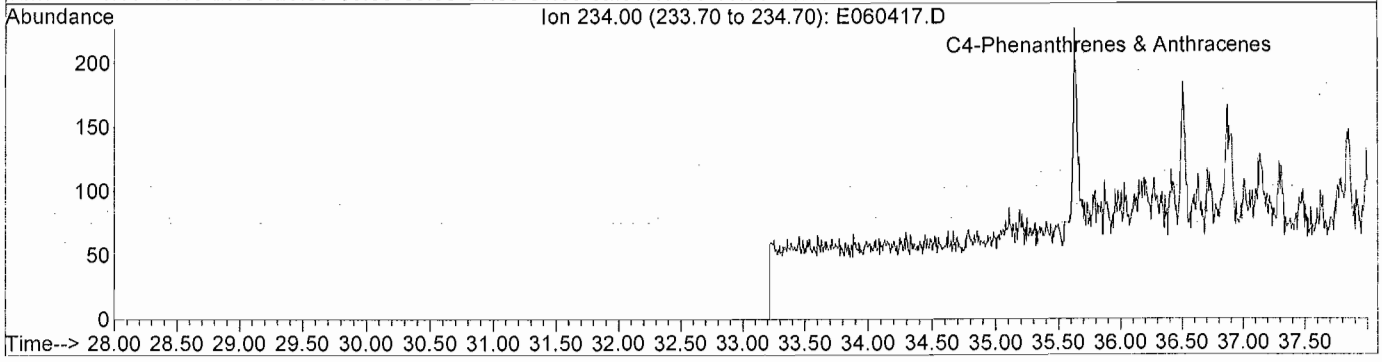

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060417.D
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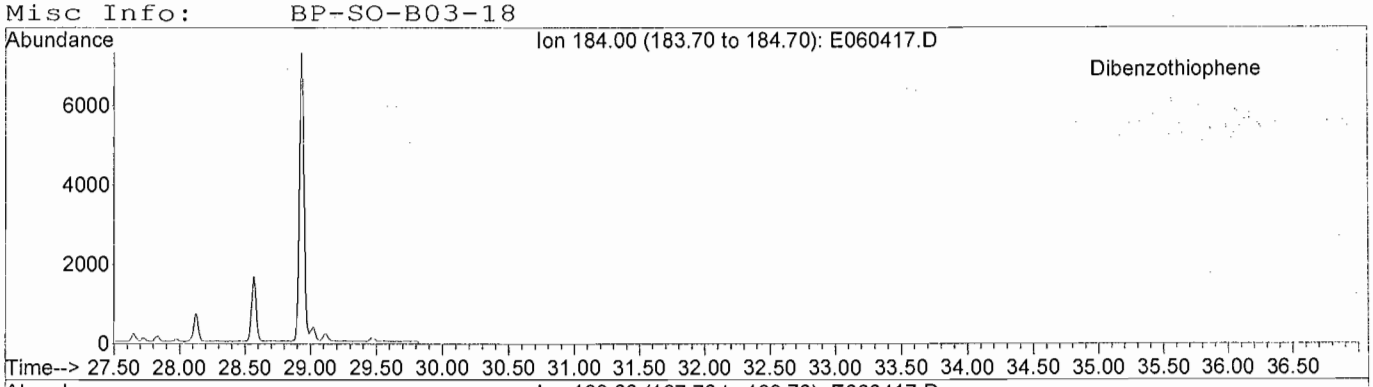
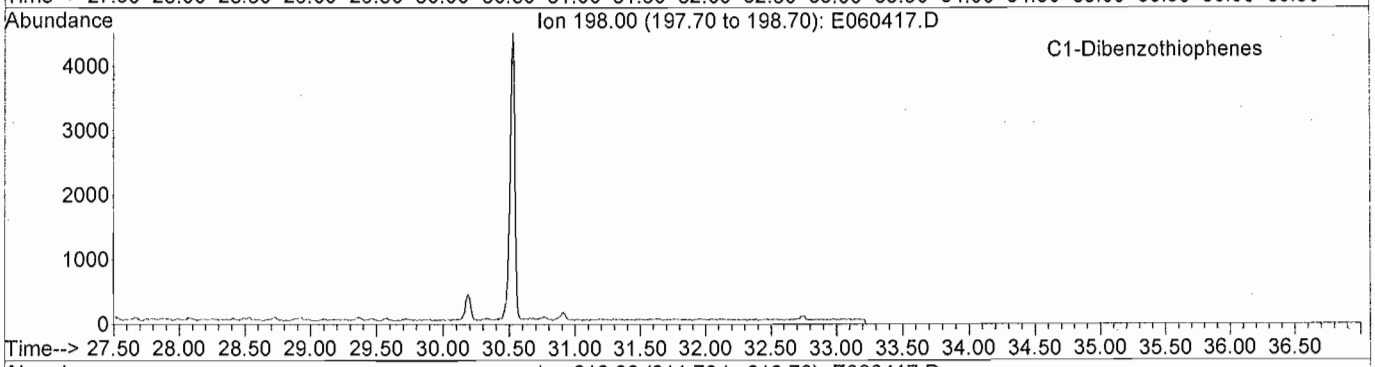
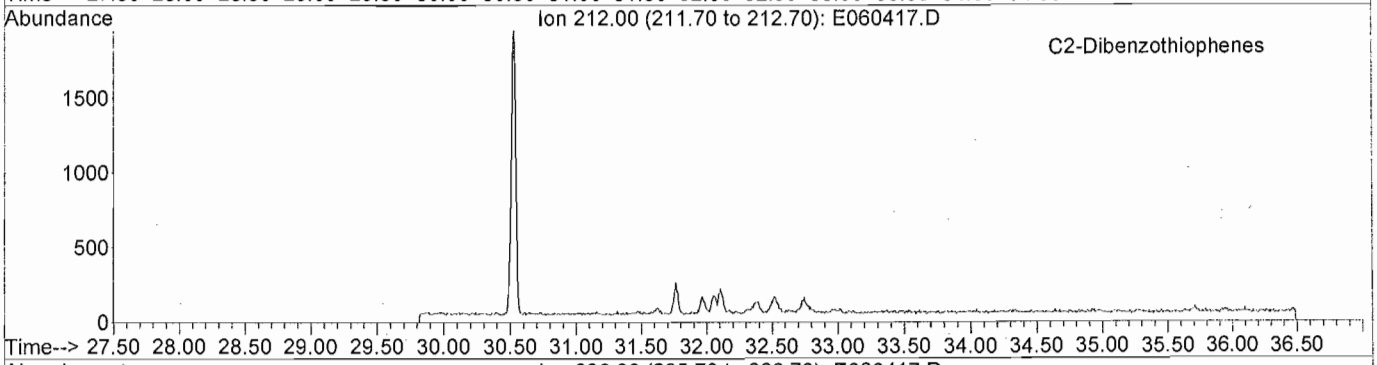
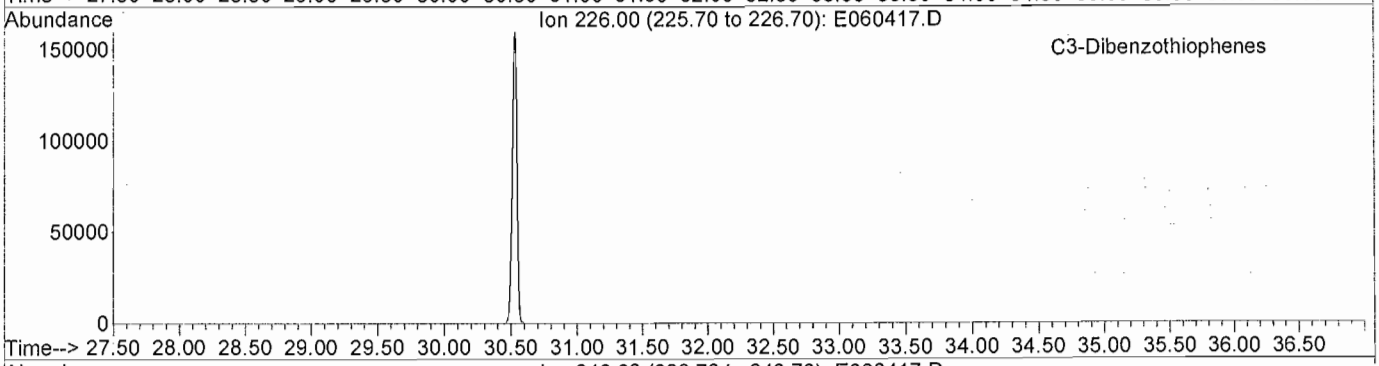
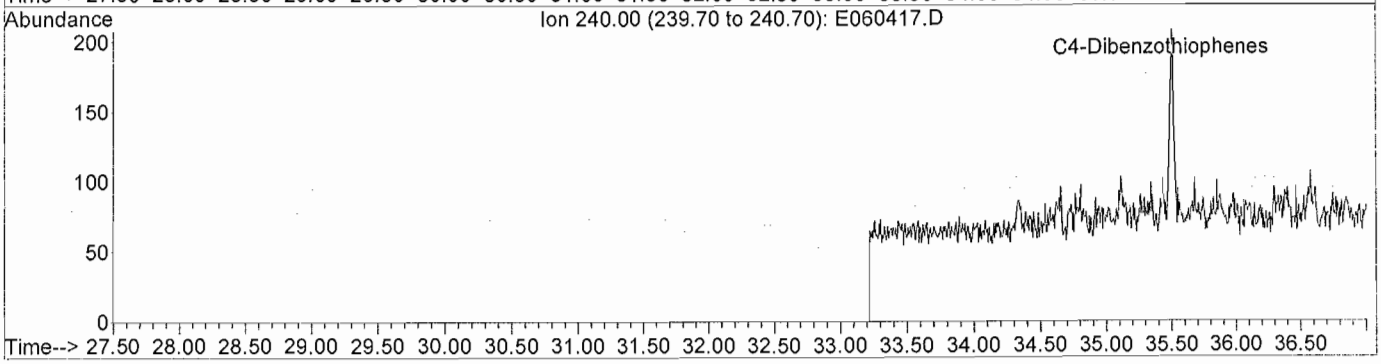
Sample Name: TA090520-01
Misc Info: BP-SO-B03-18











META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060417.D
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Sample Name: TA090520-01
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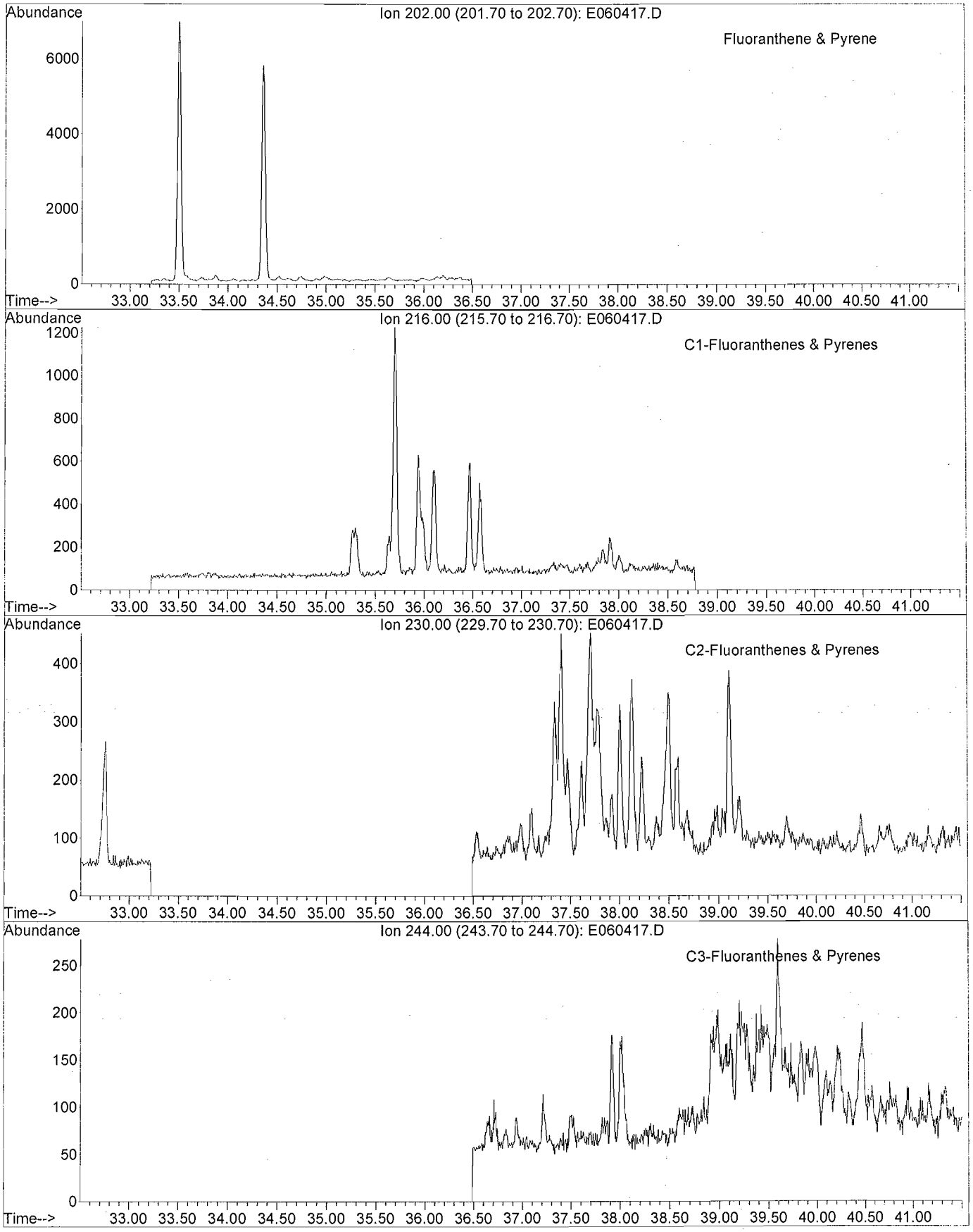

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060417.D
Date Acquired: 5 Jun 2009 12:45 pm
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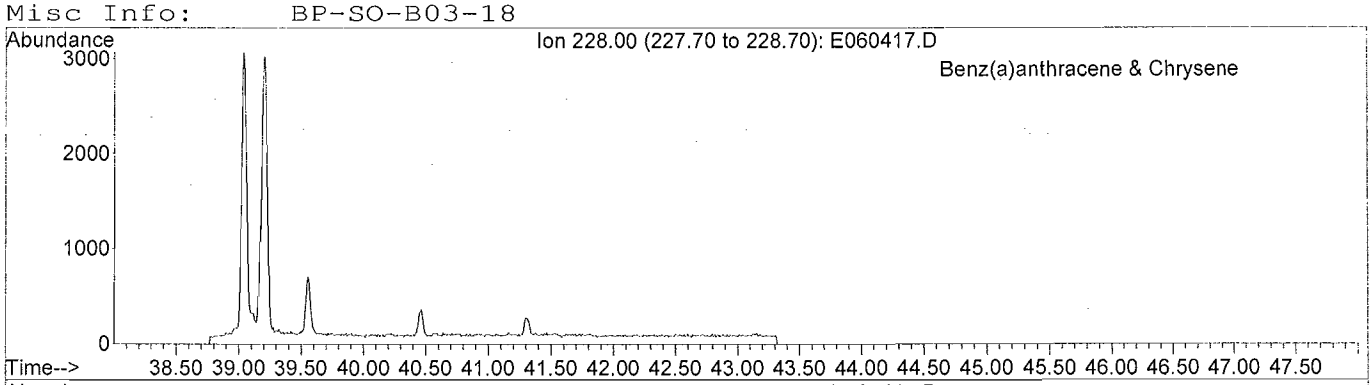
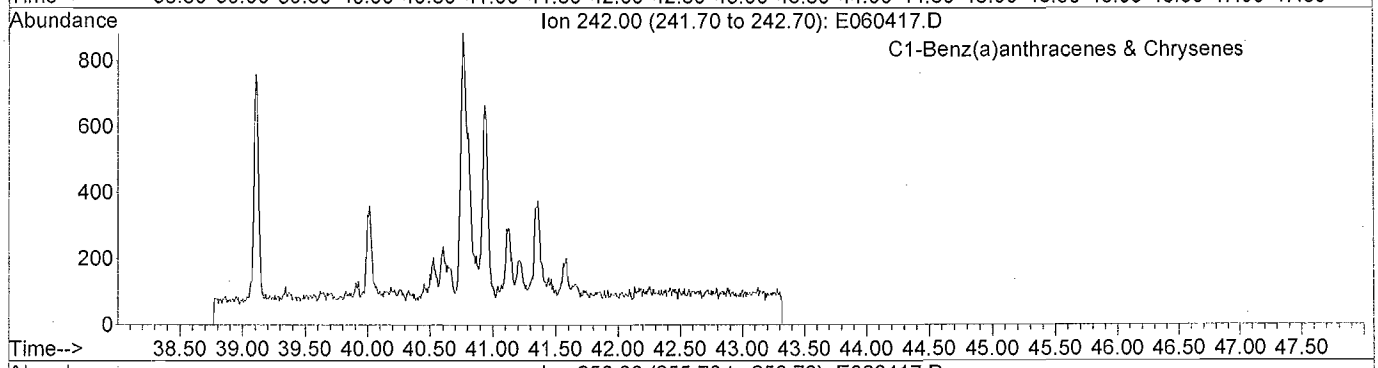
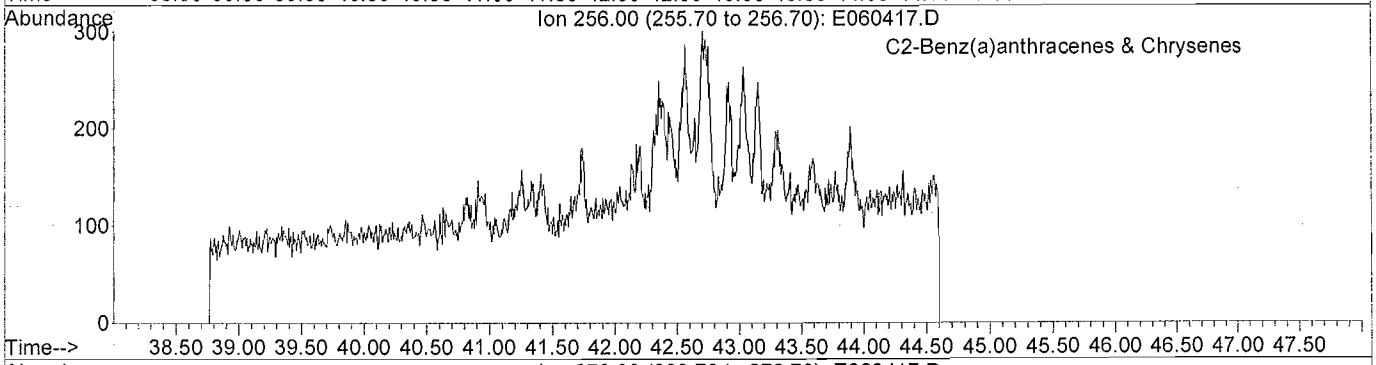
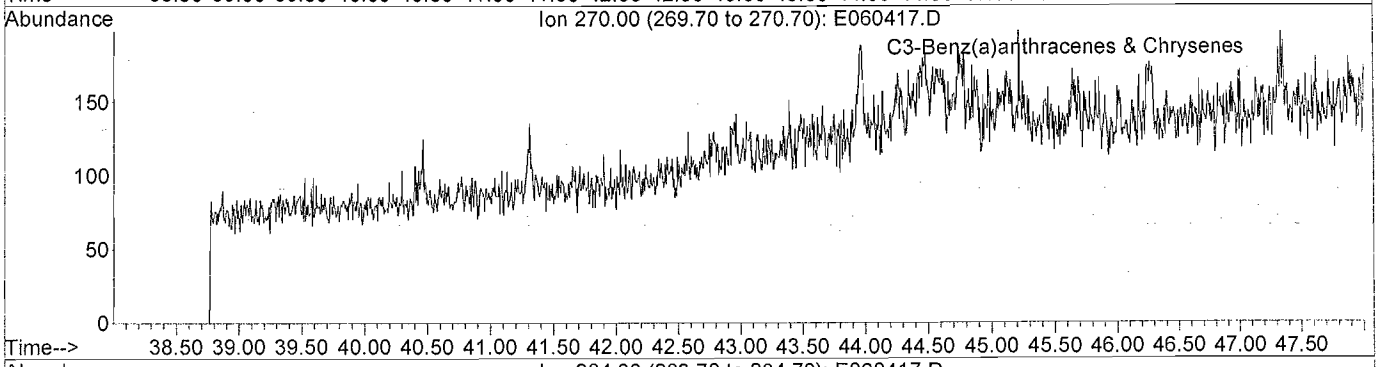
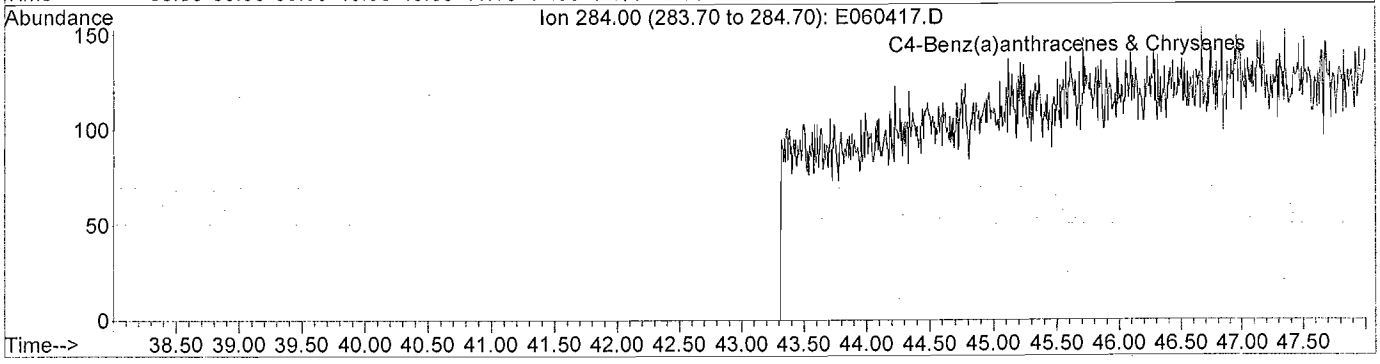
Misc Info: BP-SO-B03-18







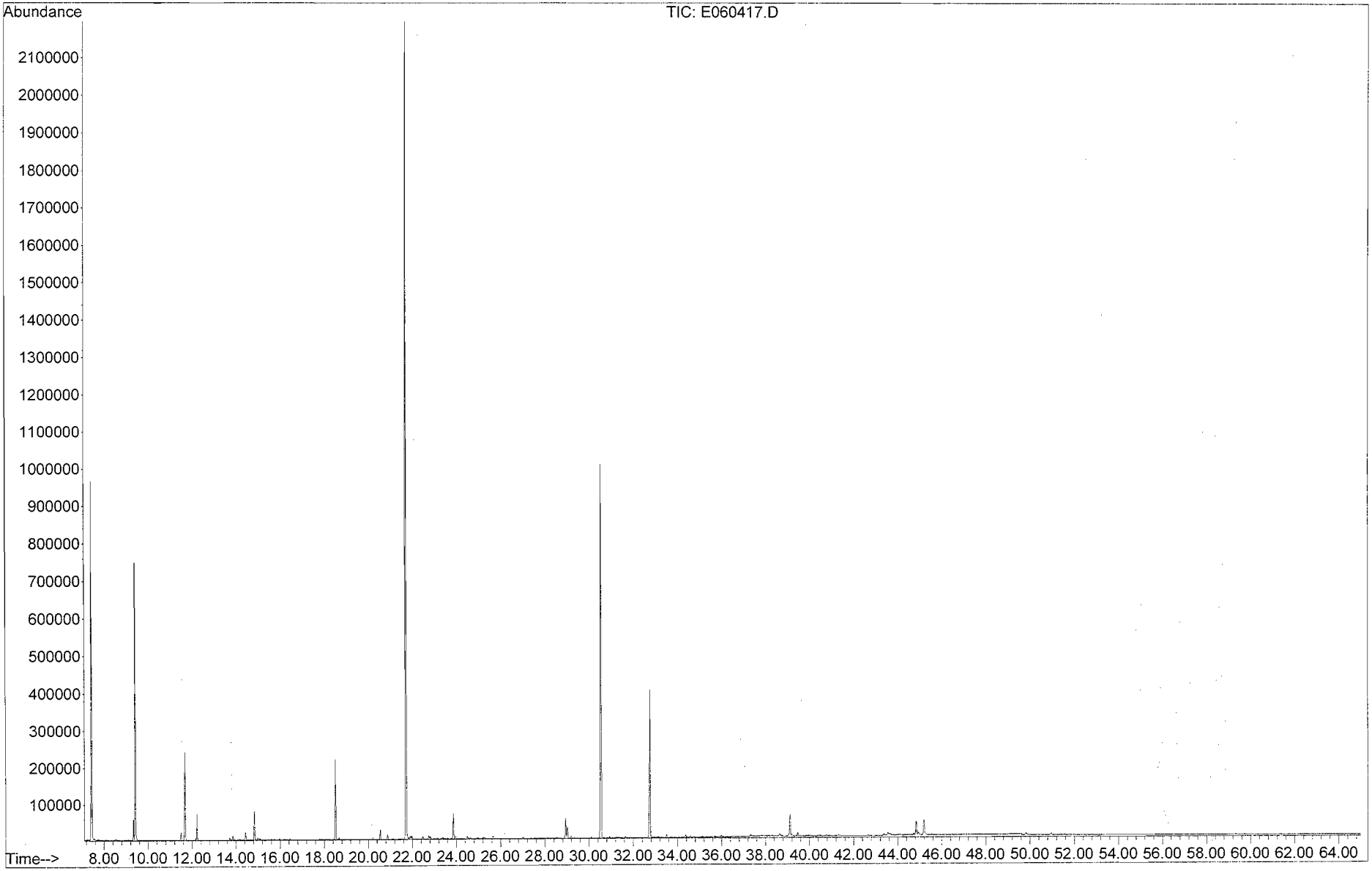




META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

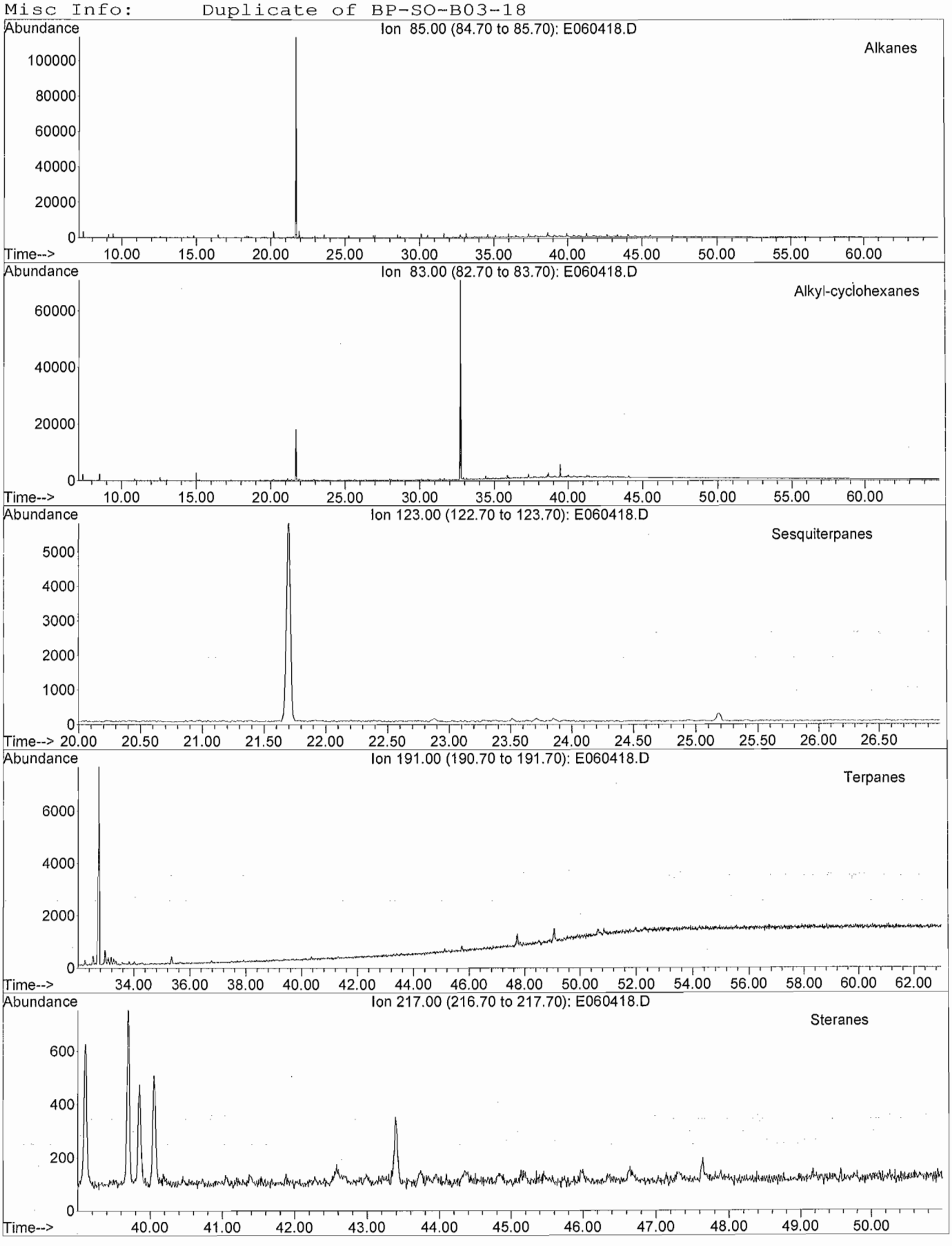
File: J:\1\DATA\E090604\E060417.D
Date Acquired: 5 Jun 2009 12:45 pm
Sample Name: TA090520-01
Misc Info: BP-SO-B03-18



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

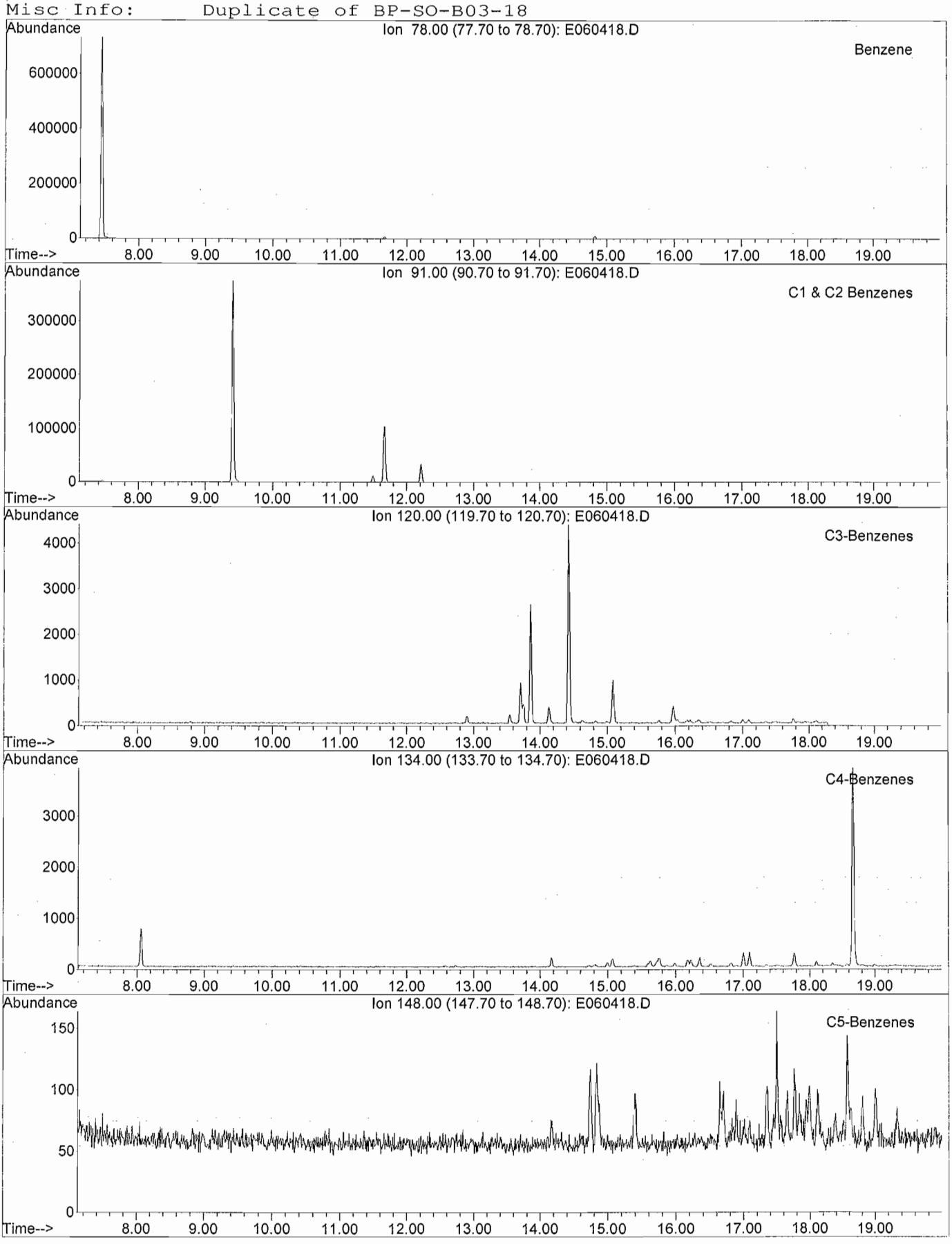
File: J:\1\DATA\E090604\E060418.D
Date Acquired: 5 Jun 2009 2:03 pm
Sample Name: TA090520-01DUP
Misc Info: Duplicate of BP-SO-B03-18



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060418.D
Date Acquired: 5 Jun 2009 2:03 pm
Sample Name: TA090520-01DUP
Misc Info: Duplicate of BP-SO-B03-18



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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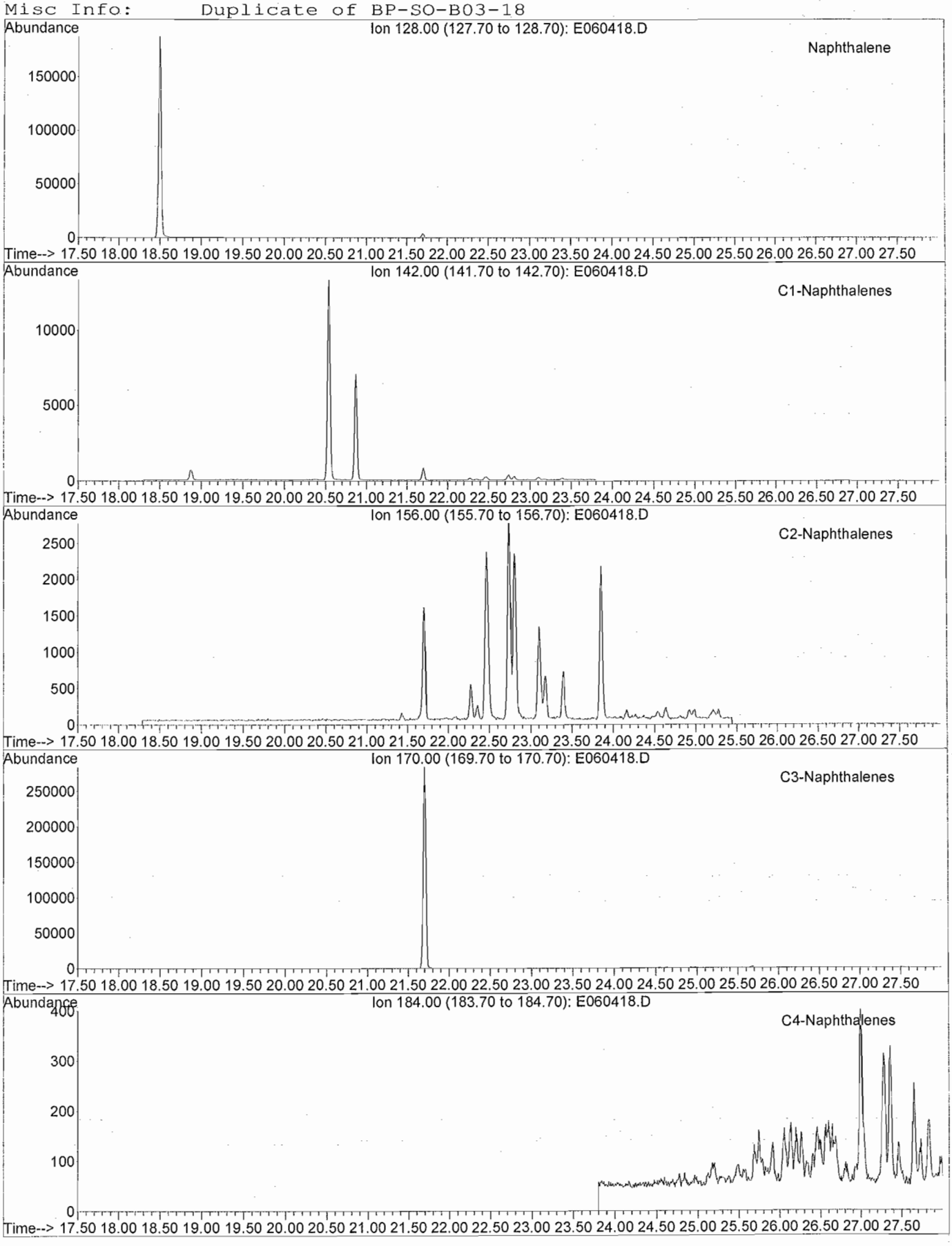

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Date Acquired: 5 Jun 2009 2:03 pm
Sample Name: TA090520-01DUP
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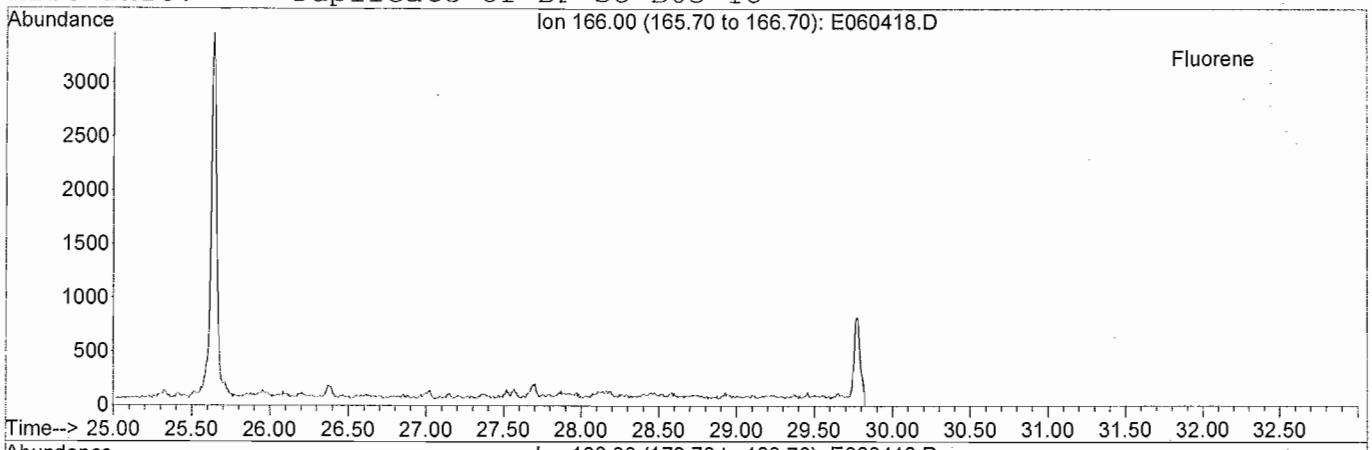

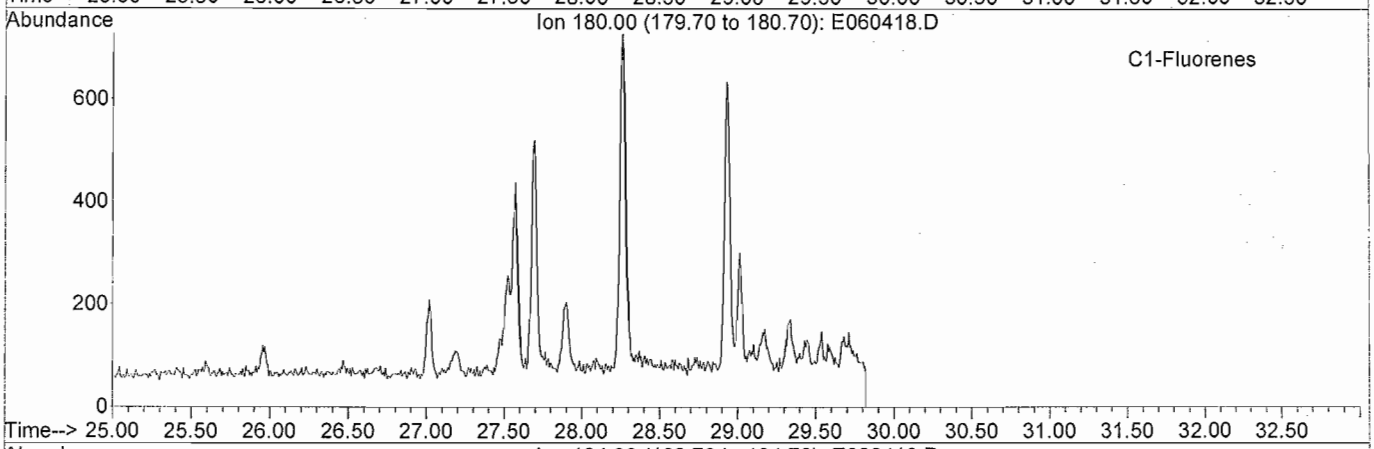

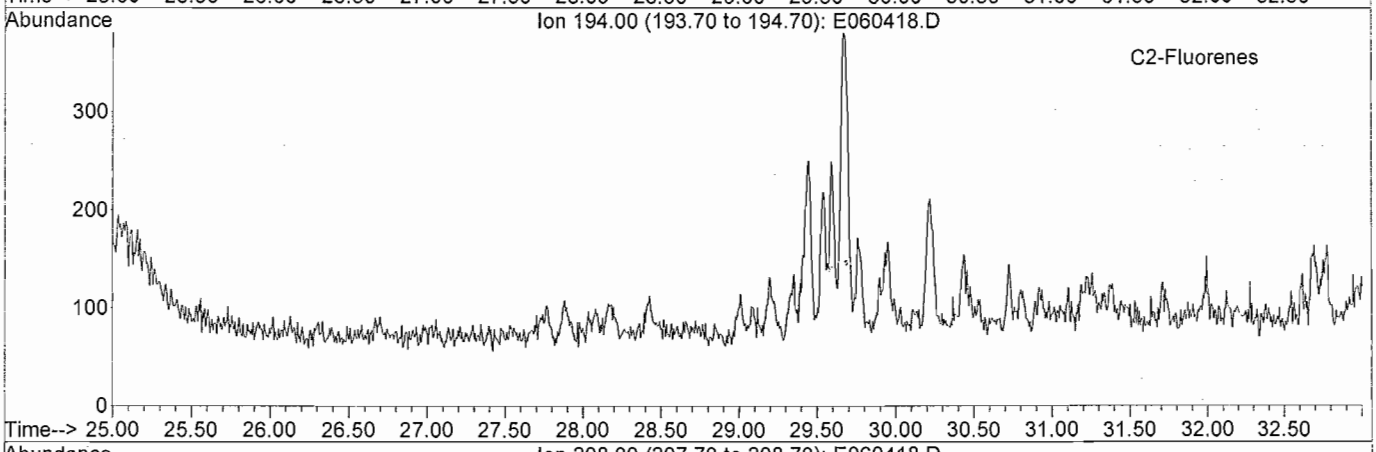

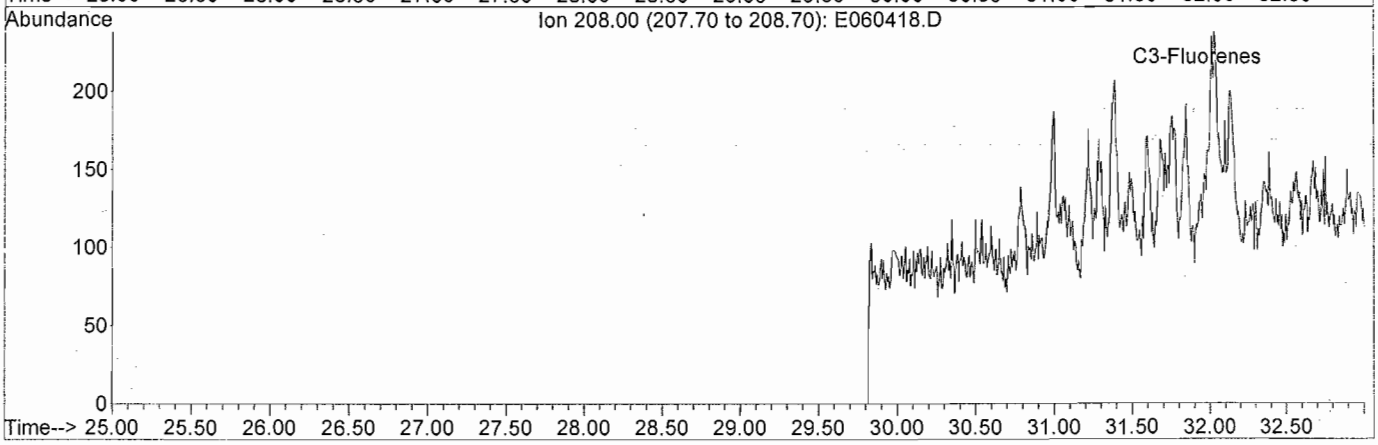

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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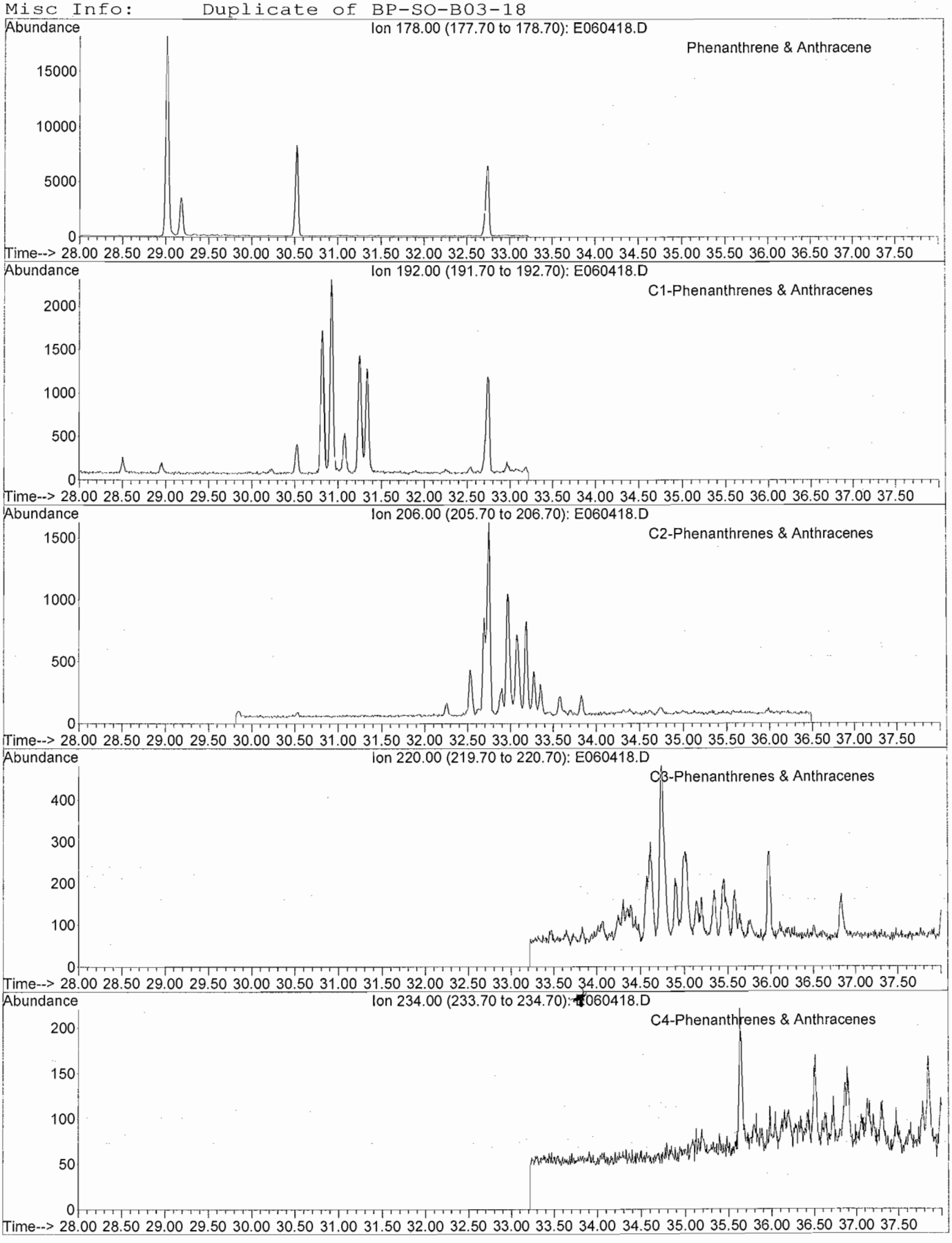

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060418.D
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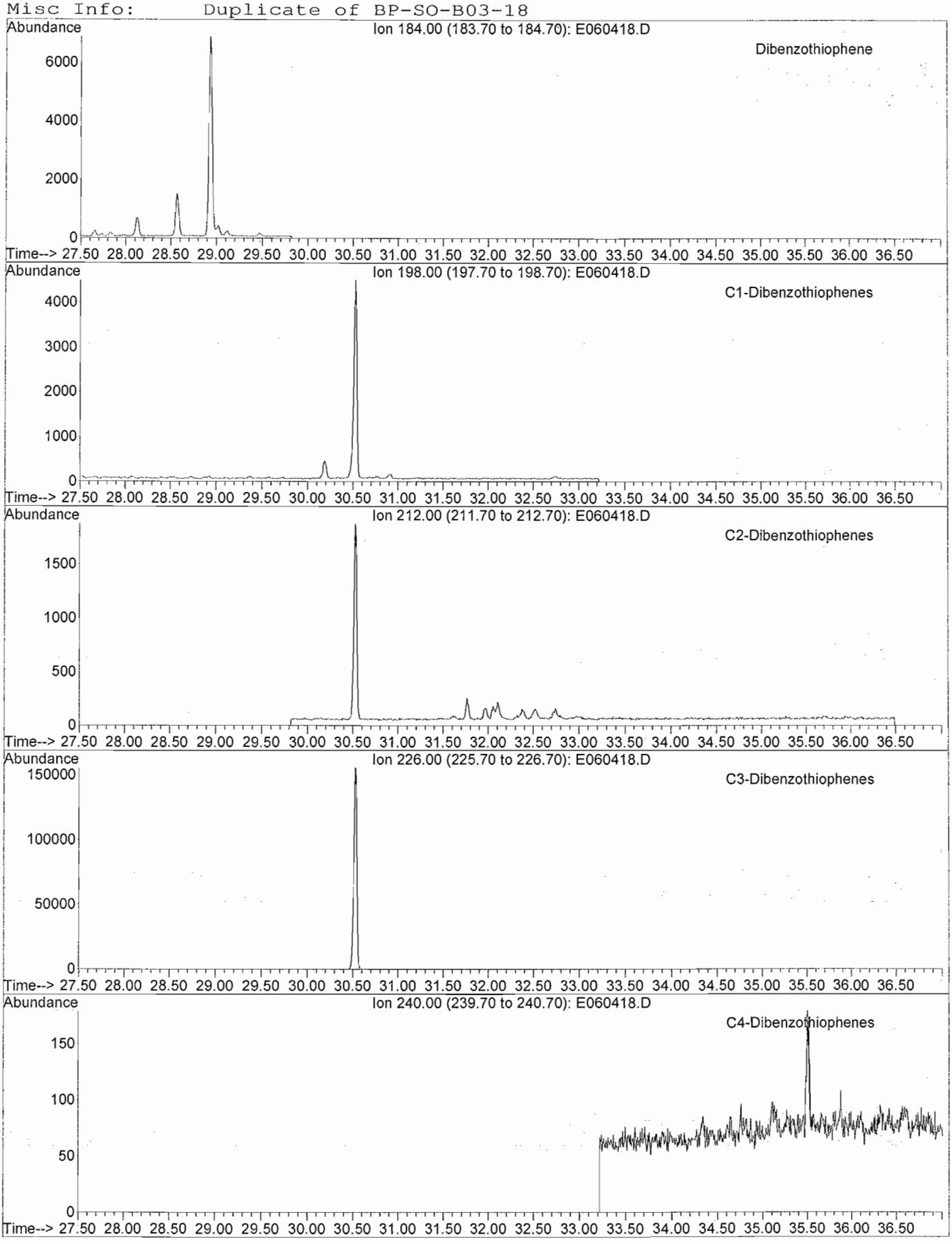

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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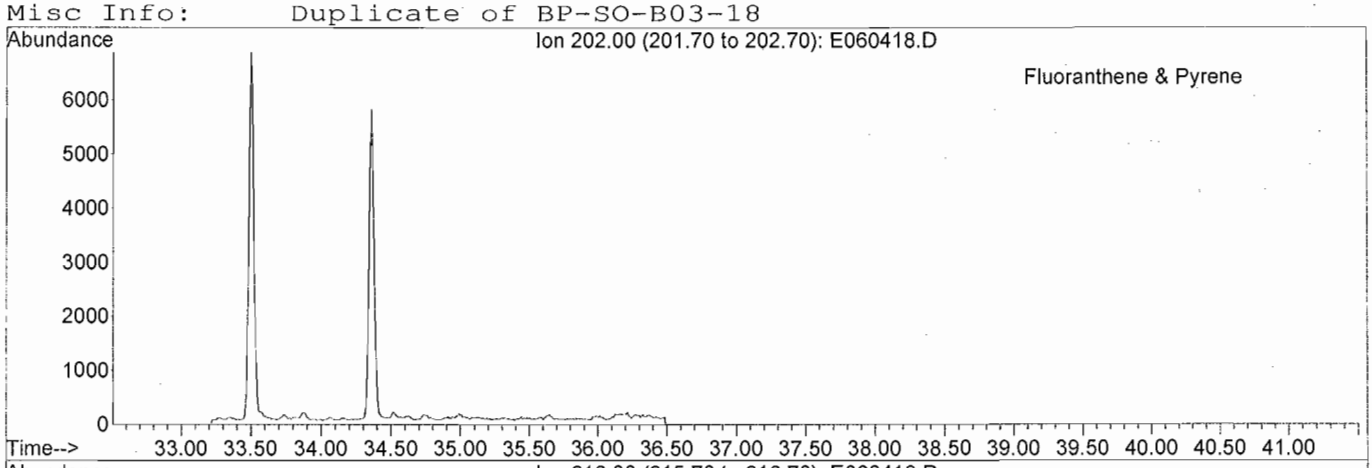

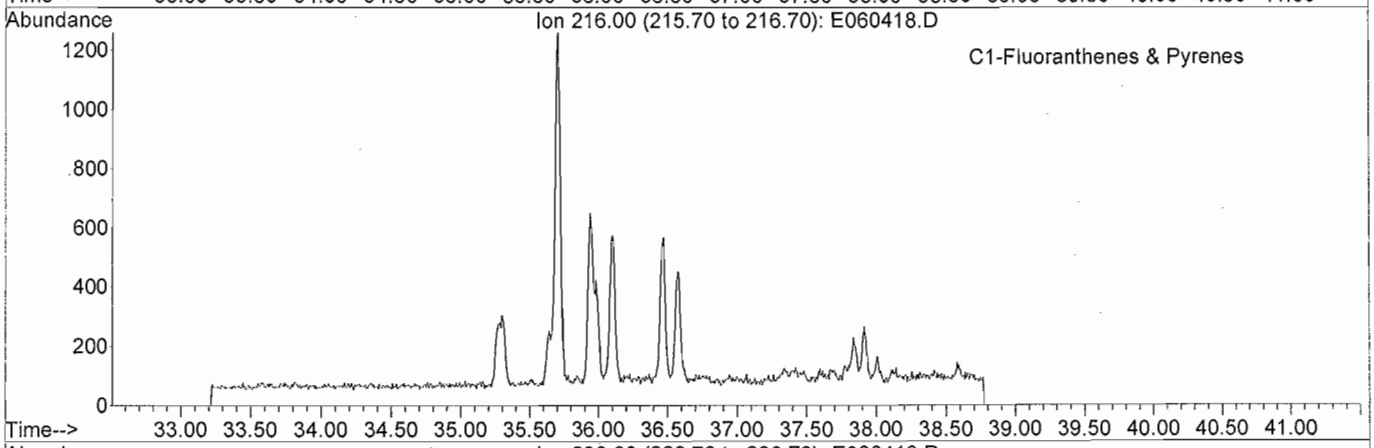

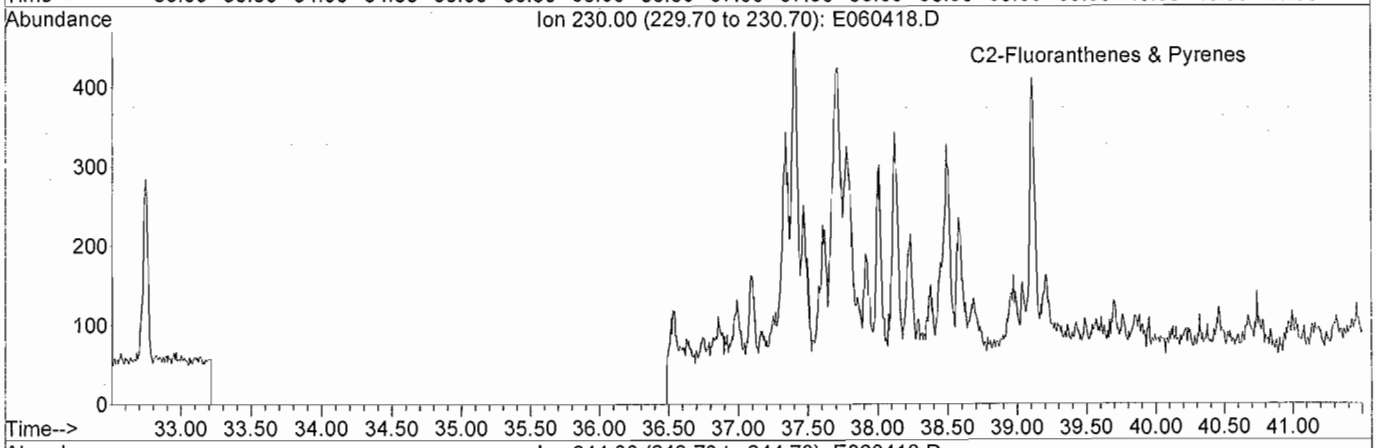

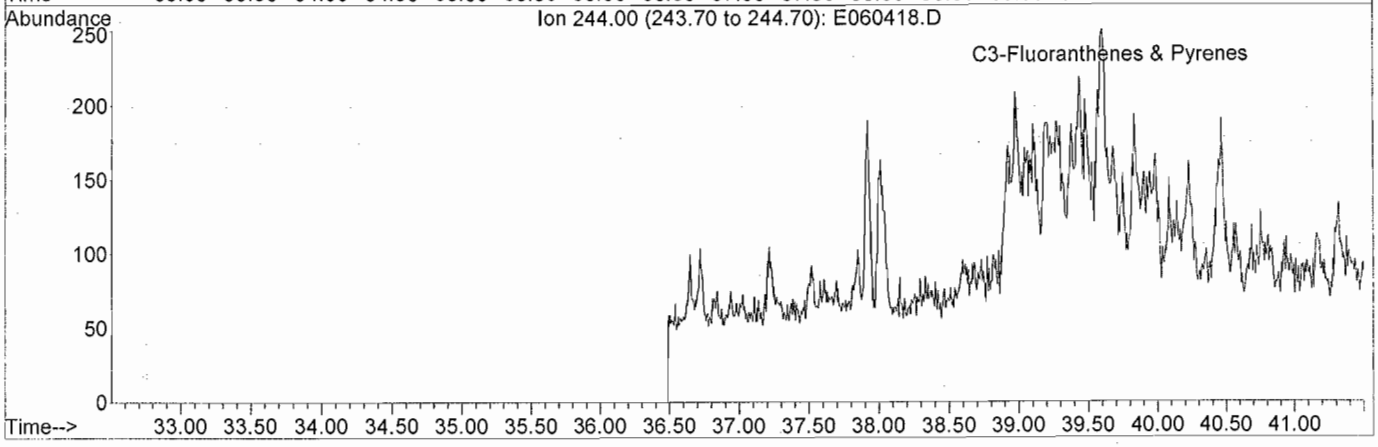

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Sample Name: TA090520-01DUP
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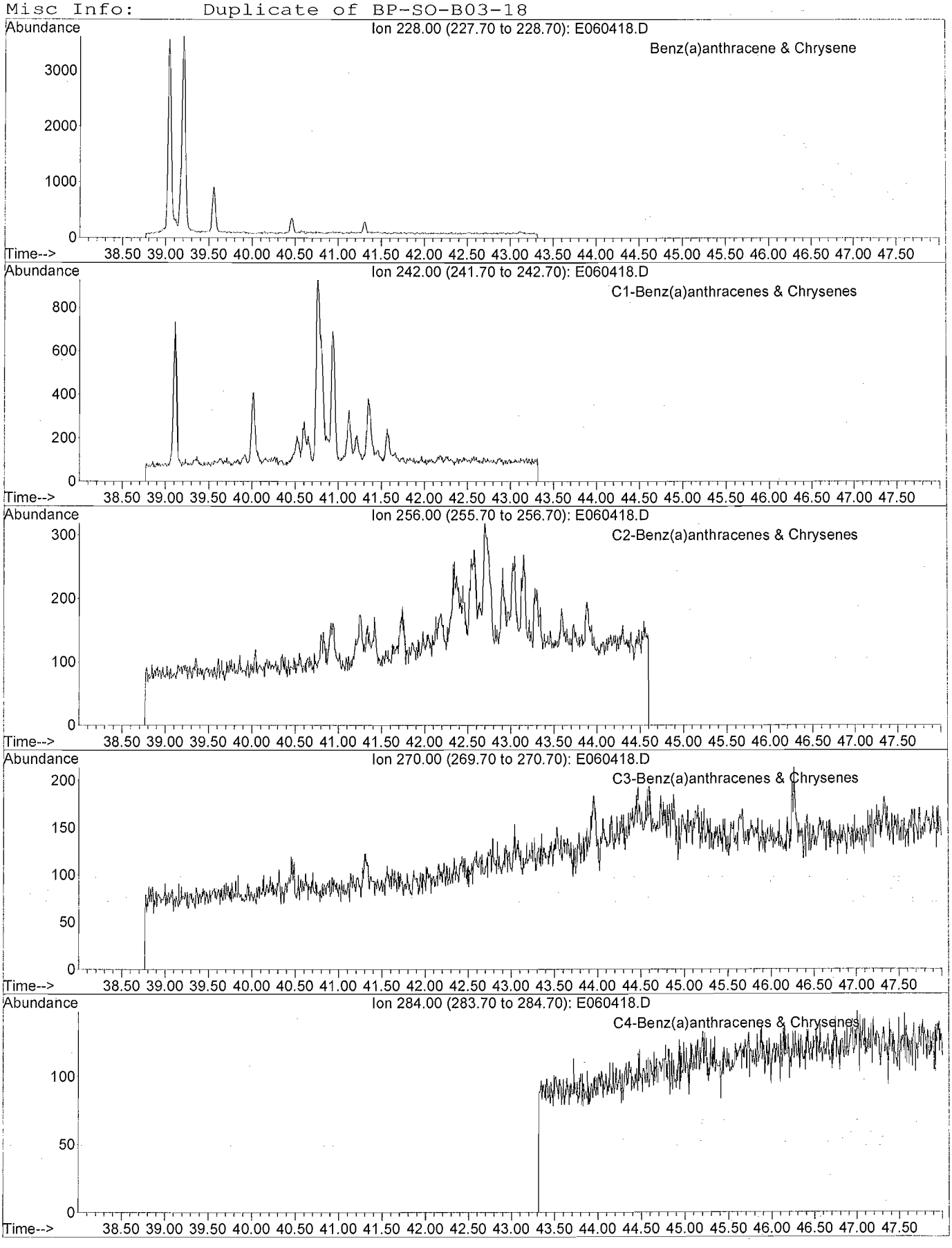

META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

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Sample Name: TA090520-01DUP
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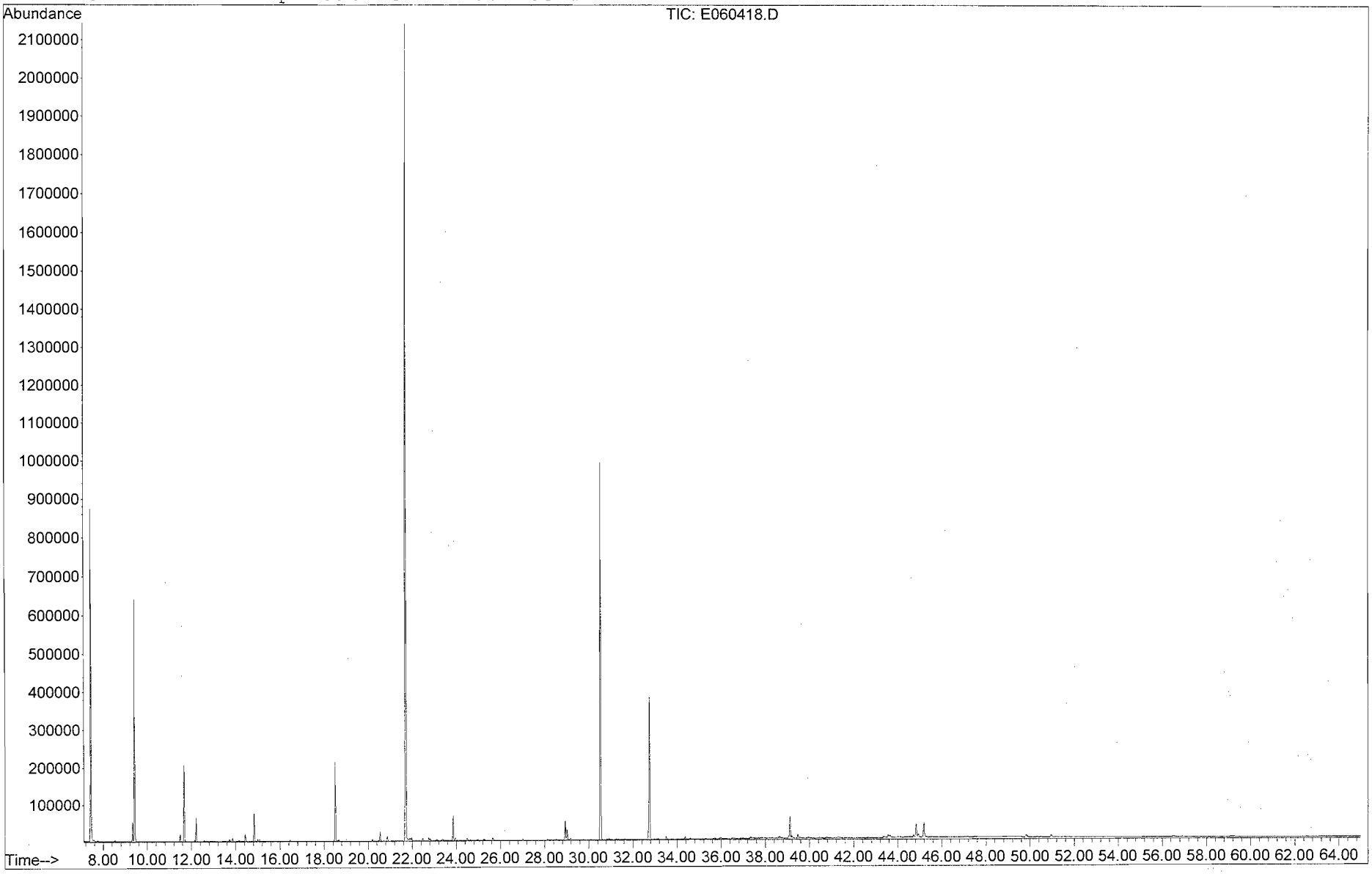
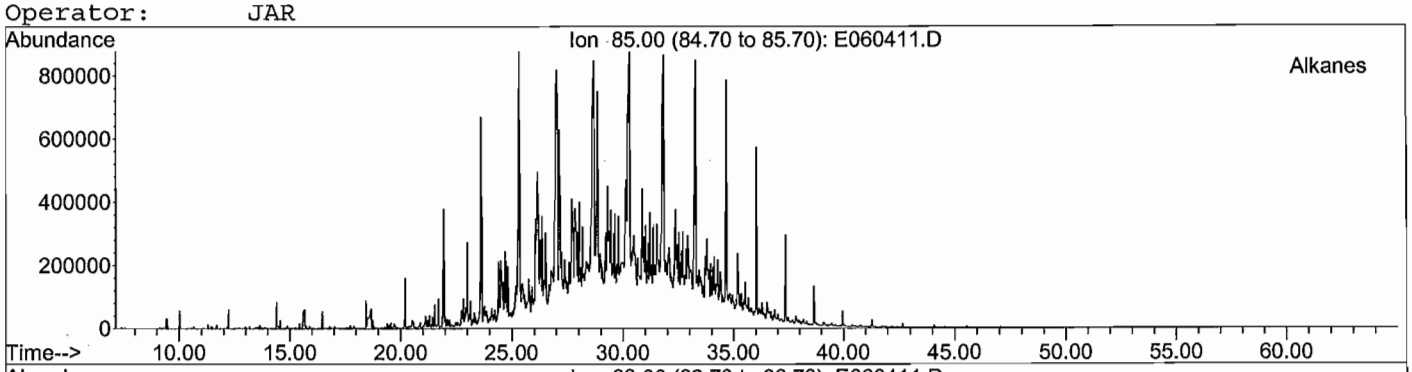
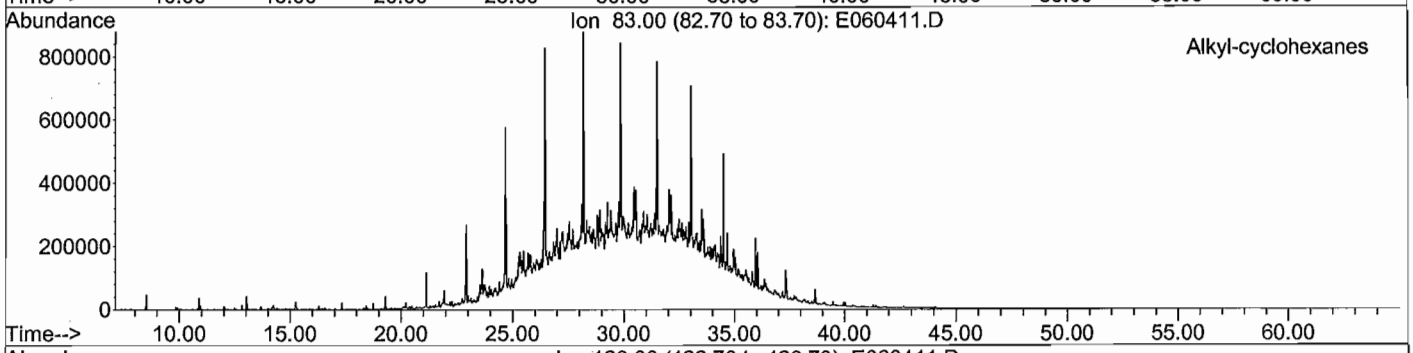


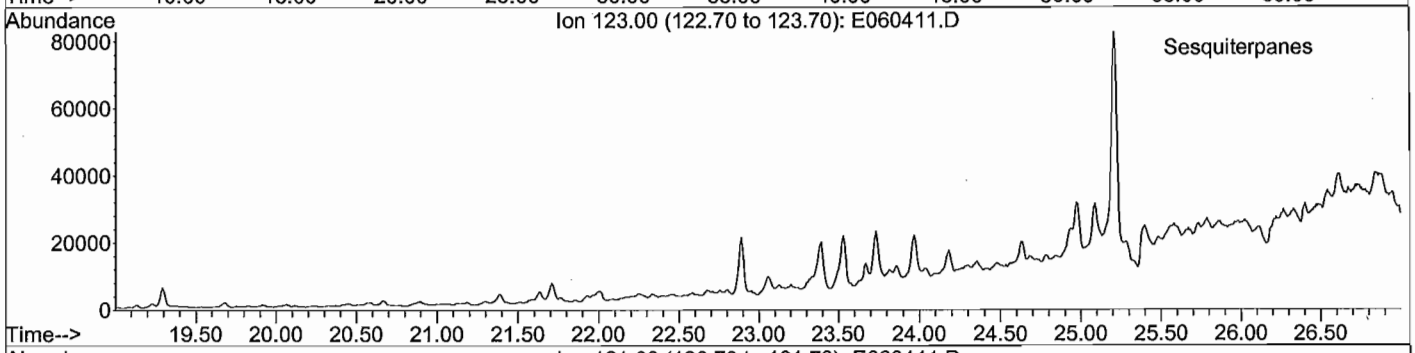
META Environmental, Inc.

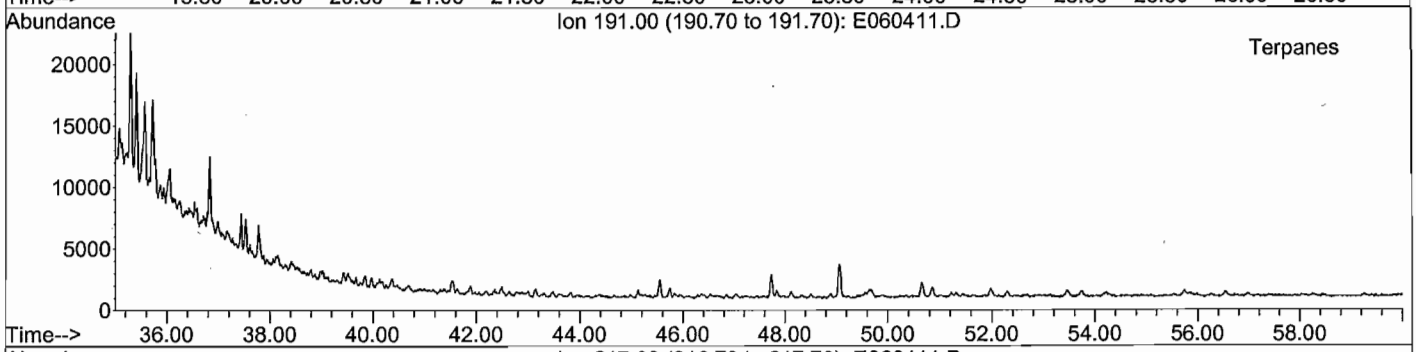
GC/MS EXTRACTED ION CHROMATOGRAM

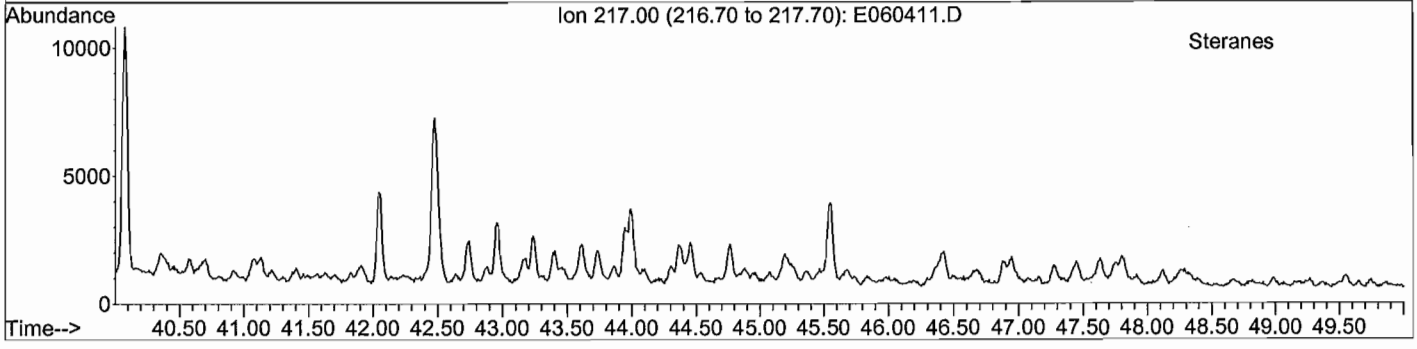
File: J:\1\DATA\E090604\E060411.D
Date Acquired: 5 Jun 2009 4:58 am
Method File: 4008SIMD.M
Sample Name: TA090528-01
Misc Info: BP-SO-B05-06
Operator: JAR











META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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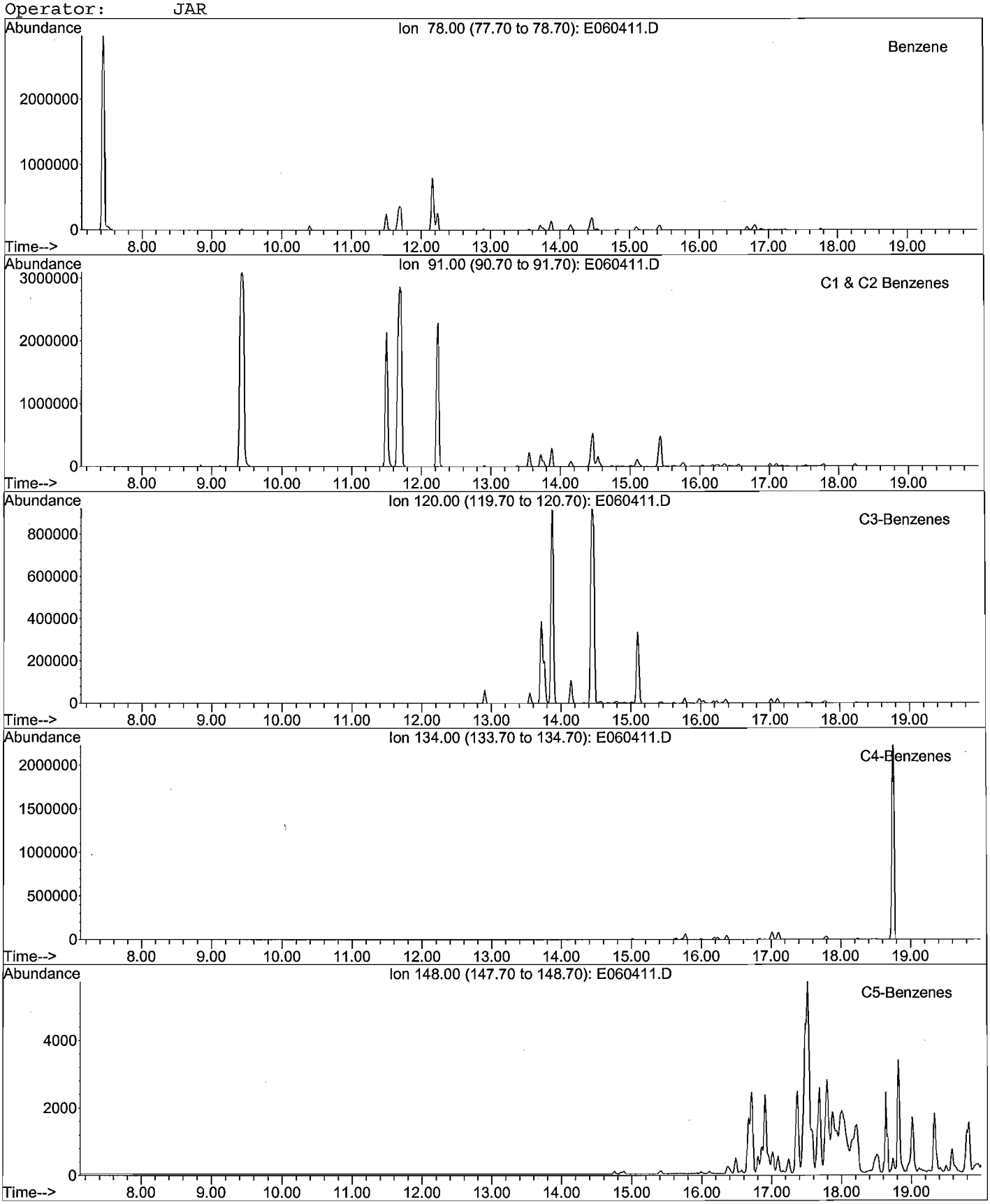
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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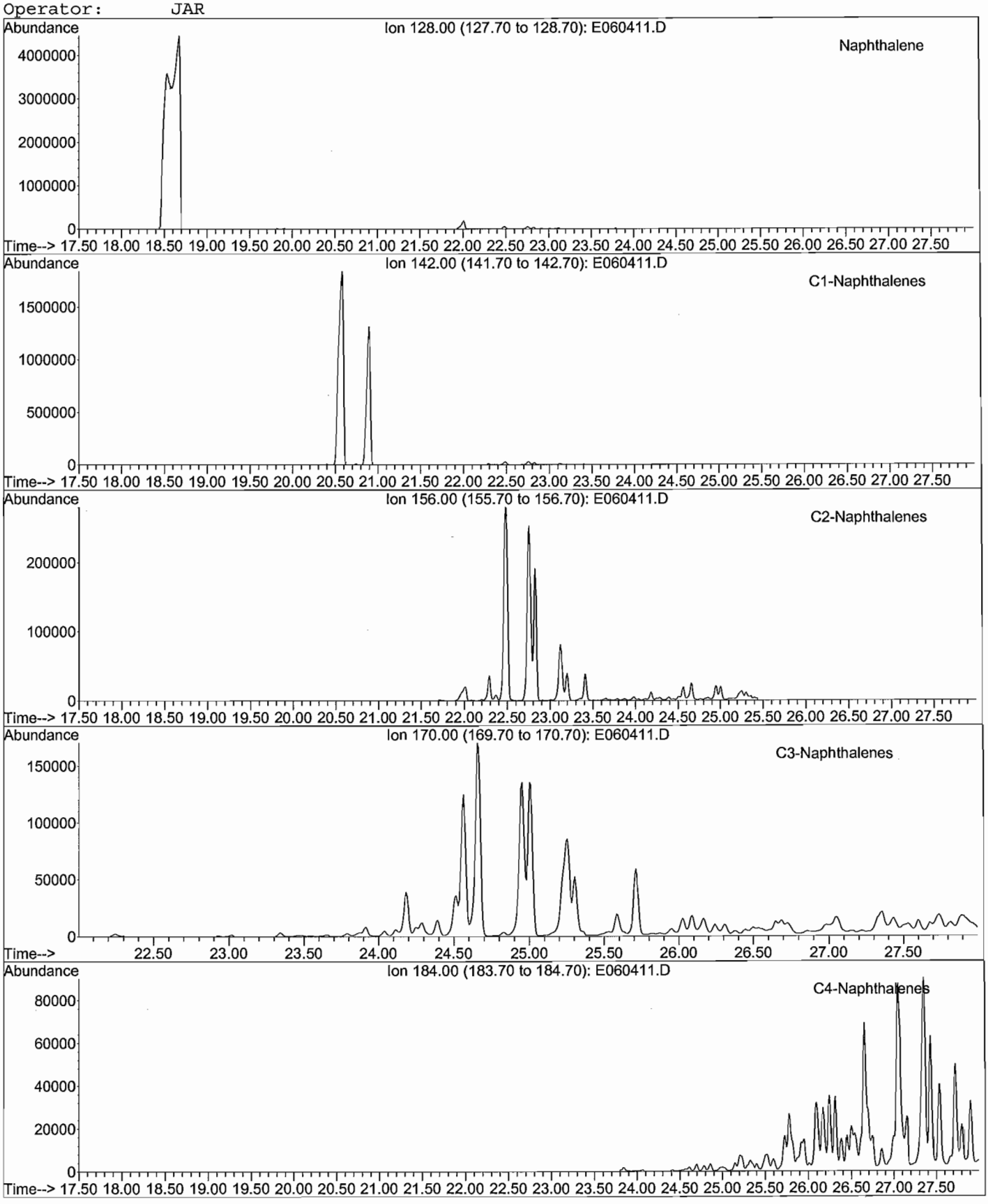
Date Acquired: 5 Jun 2009 4:58 am
Method File: 4008SIMD.M
Sample Name: TA090528-01
Misc Info: BP-SO-B05-06
Operator: JAR



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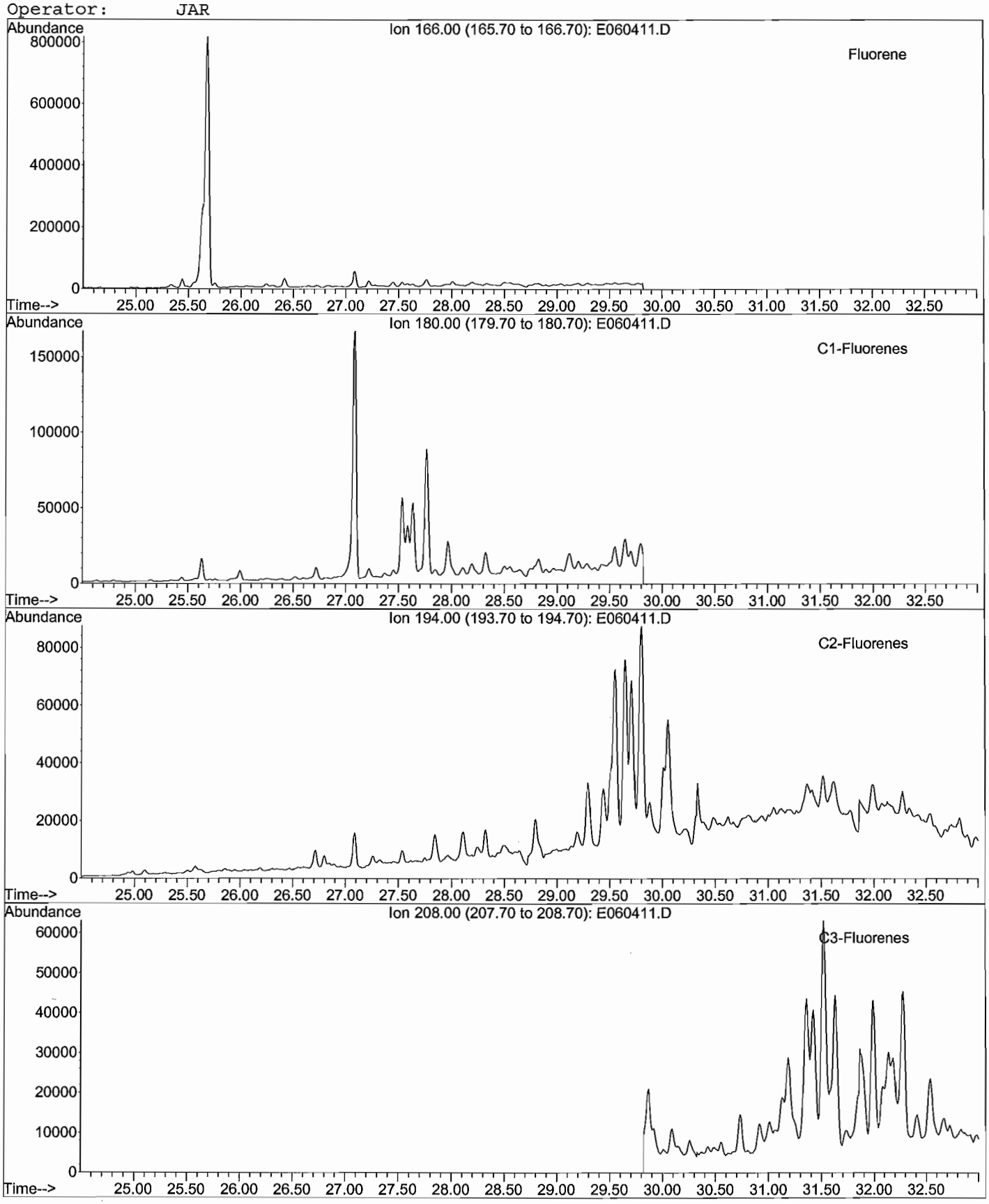
Date Acquired: 5 Jun 2009 4:58 am
Method File: 4008SIMD.M
Sample Name: TA090528-01
Misc Info: BP-SO-B05-06
Operator: JAR



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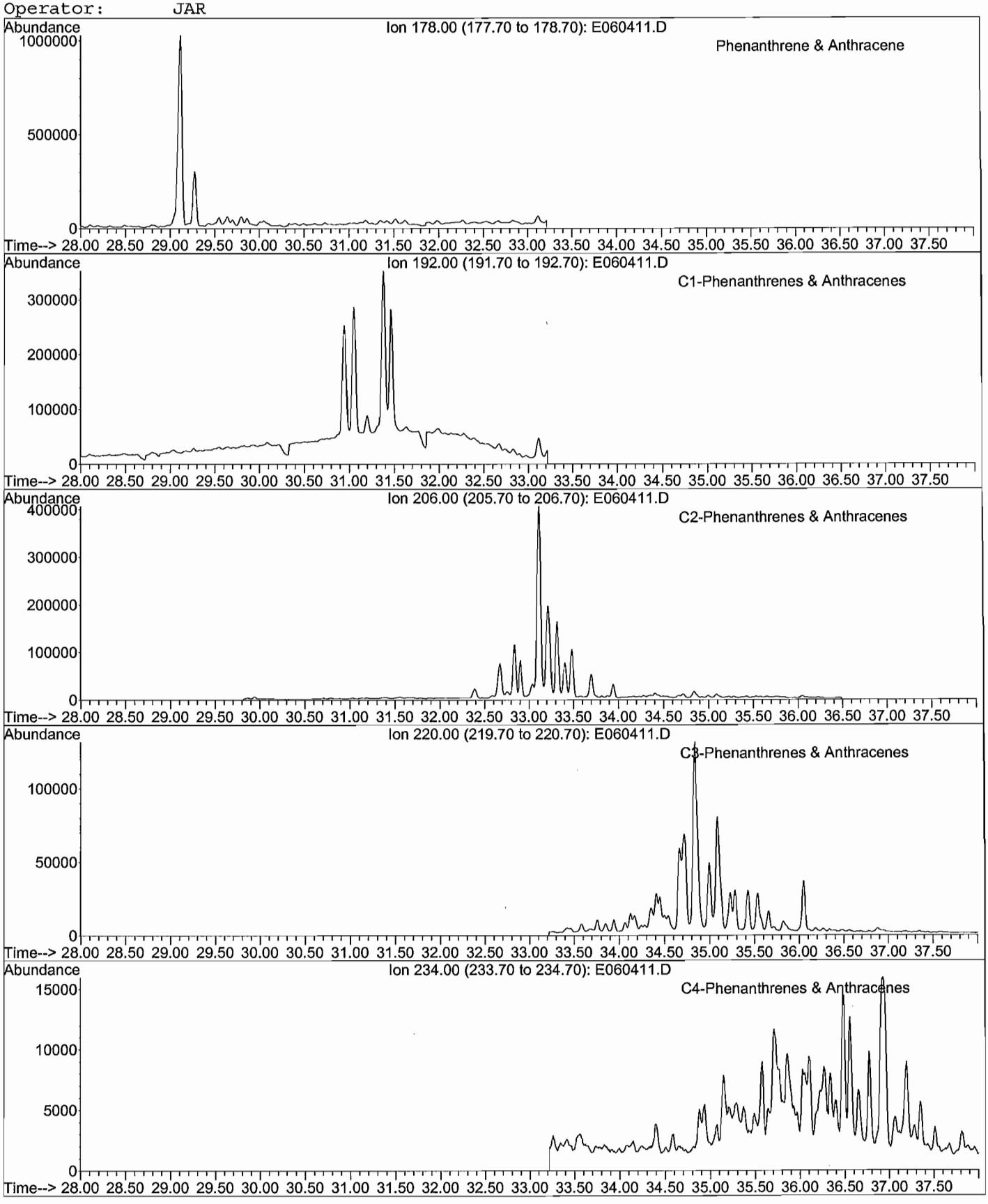
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060411.D
Date Acquired: 5 Jun 2009 4:58 am
Method File: 4008SIMD.M
Sample Name: TA090528-01
Misc Info: BP-SO-B05-06
Operator: JAR



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GC/MS EXTRACTED ION CHROMATOGRAM

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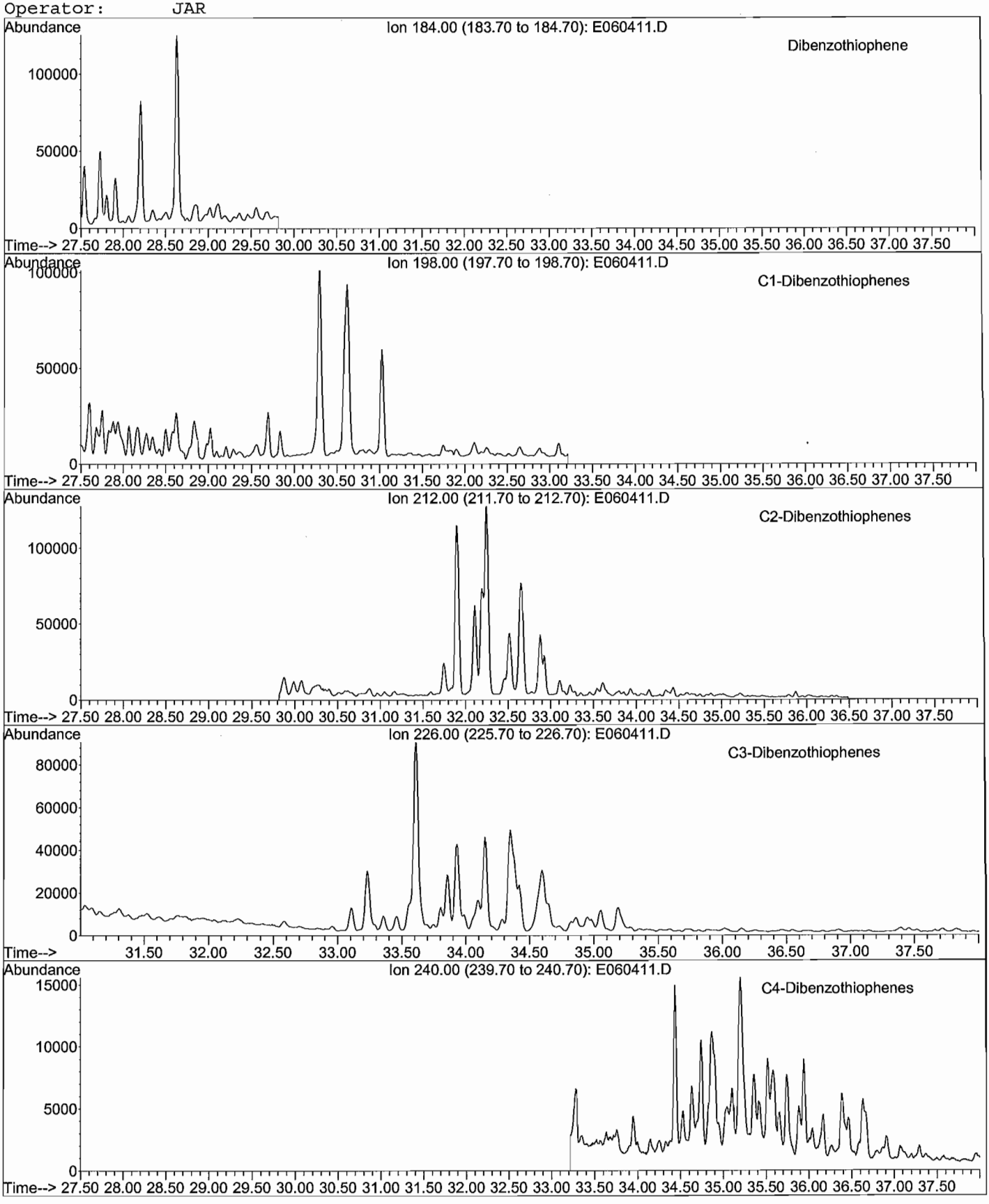
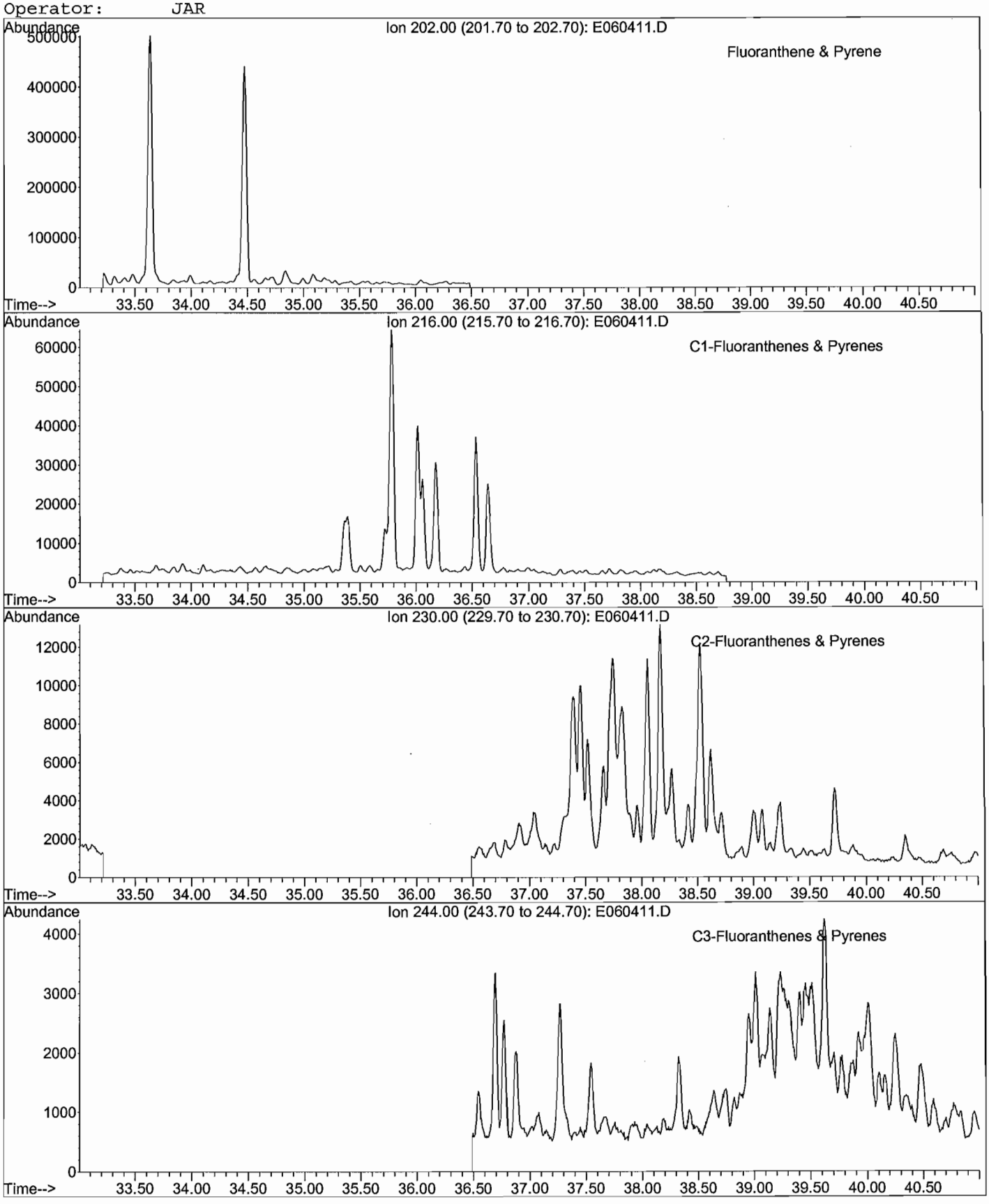
Misc Info: BP-SO-B05-06
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

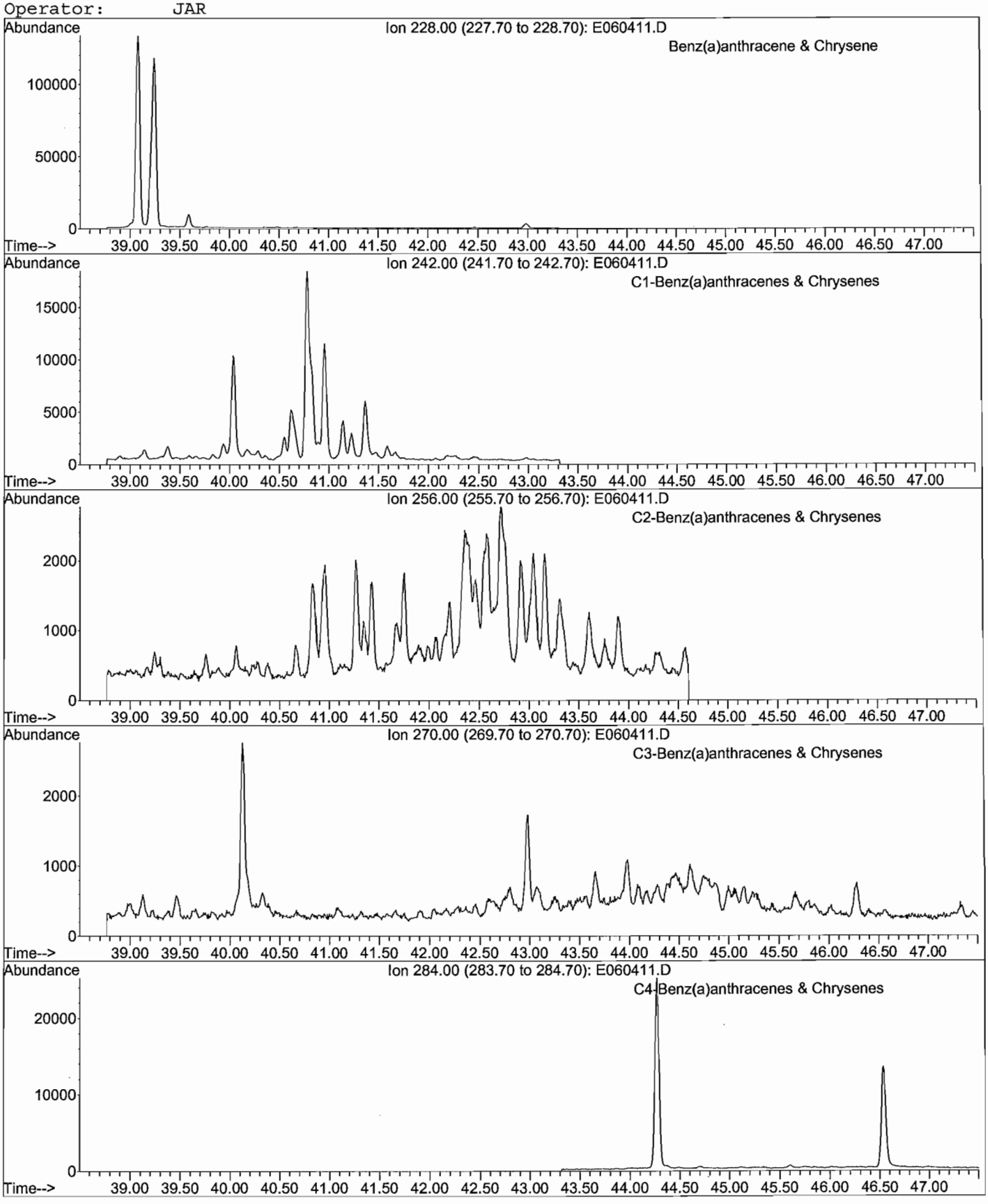
File: J:\1\DATA\E090604\E060411.D
Date Acquired: 5 Jun 2009 4:58 am
Method File: 4008SIMD.M
Sample Name: TA090528-01
Misc Info: BP-SO-B05-06
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

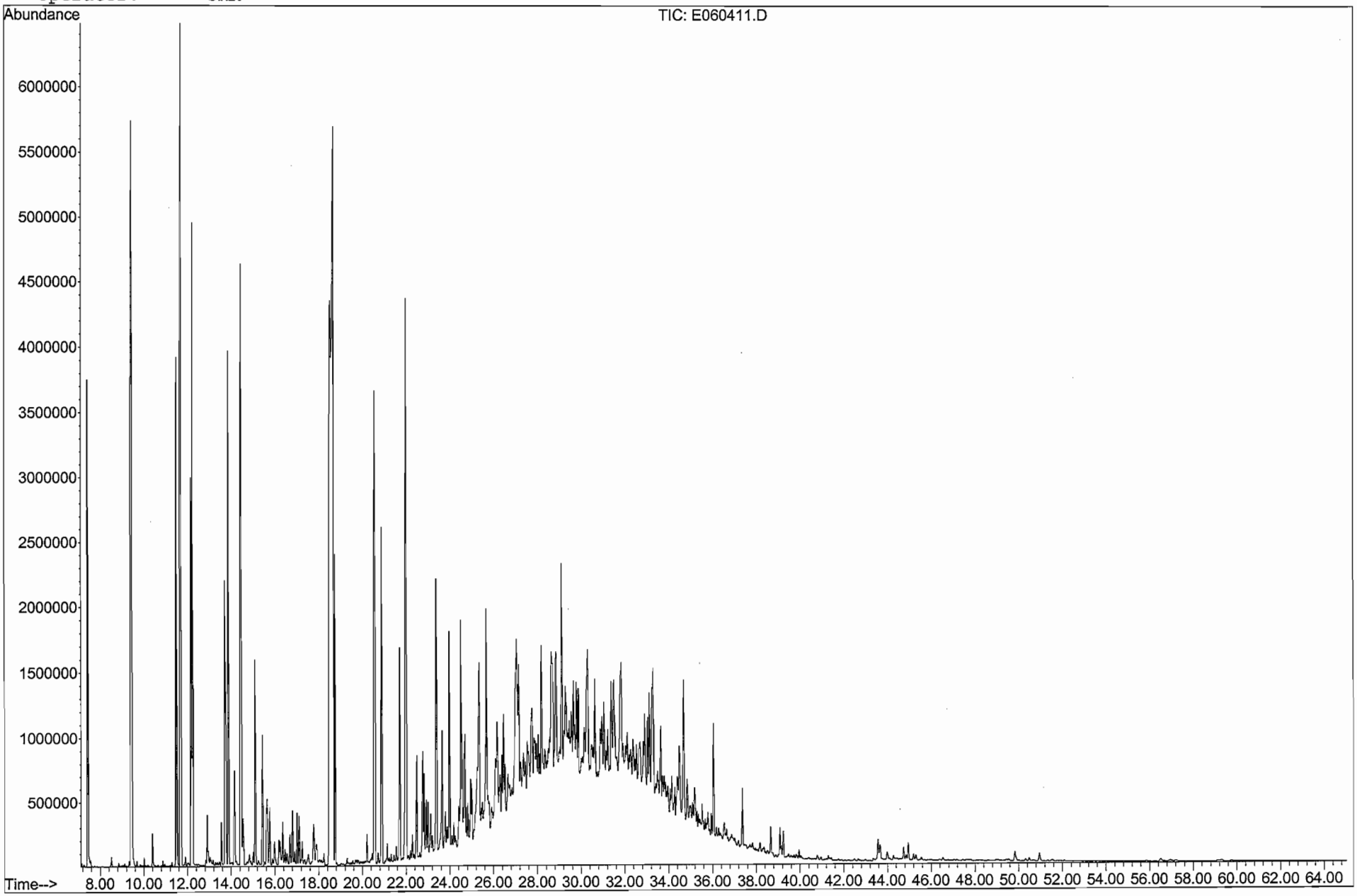
File: J:\1\DATA\E090604\E060411.D
Date Acquired: 5 Jun 2009 4:58 am
Method File: 4008SIMD.M
Sample Name: TA090528-01
Misc Info: BP-SO-B05-06
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

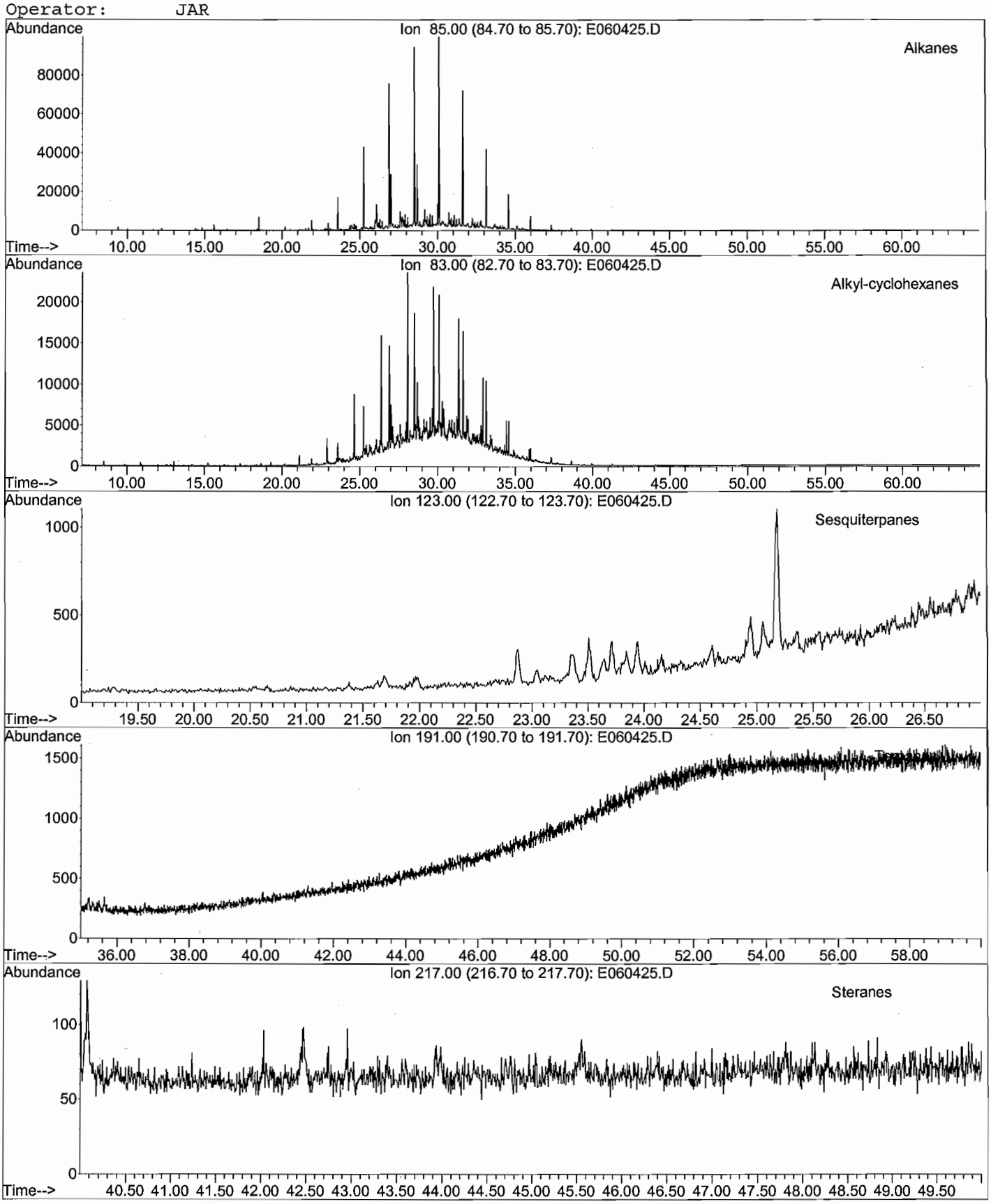
File: J:\1\DATA\E090604\E060411.D
Date Acquired: 5 Jun 2009 4:58 am
Method File: 4008SIMD.M
Sample Name: TA090528-01
Misc Info: BP-SO-B05-06
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

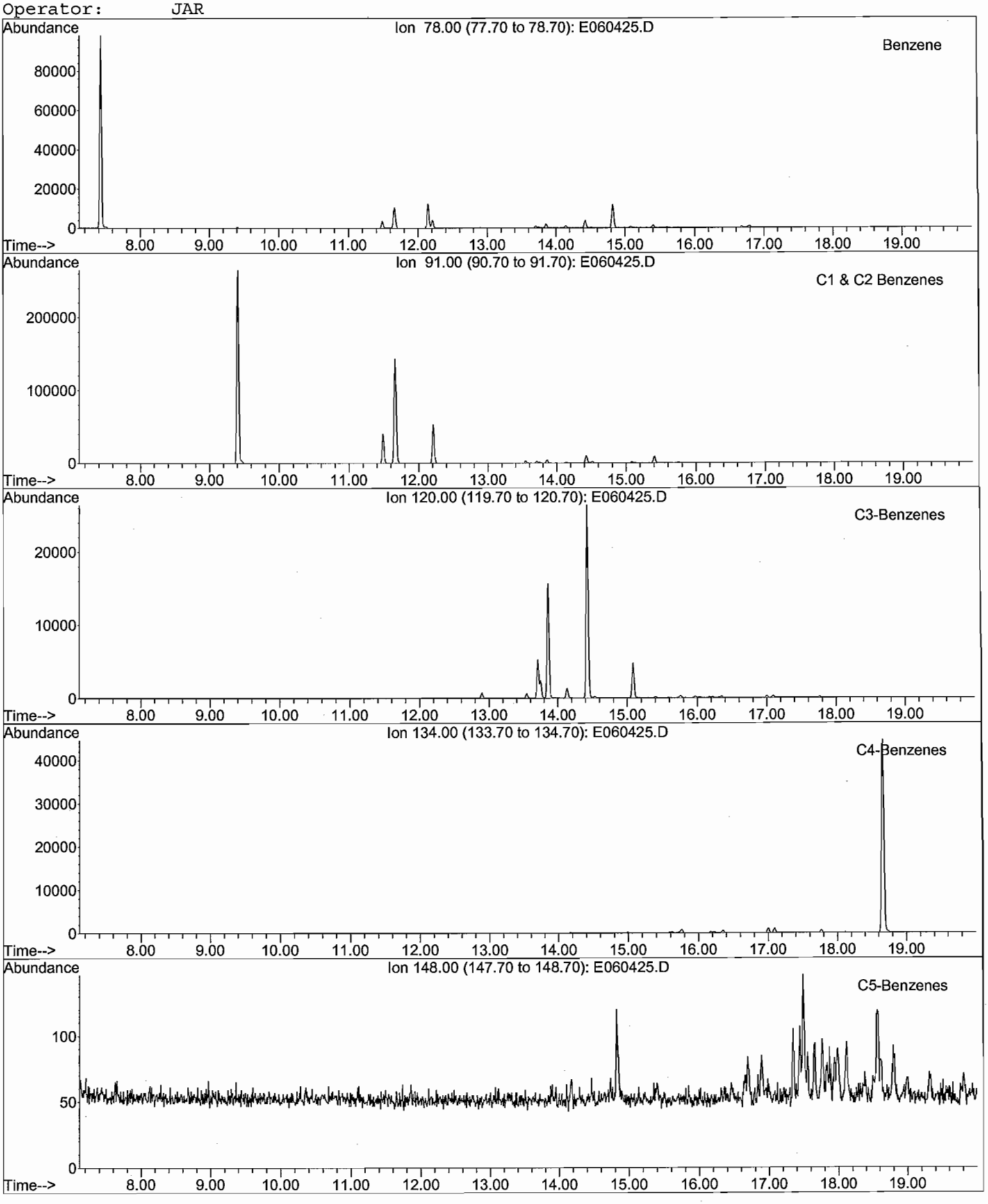
File: J:\1\DATA\E090604\E060425.D
Date Acquired: 6 Jun 2009 12:22 am
Method File: 4008SIMD.M
Sample Name: TA090528-01-D
Misc Info: BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

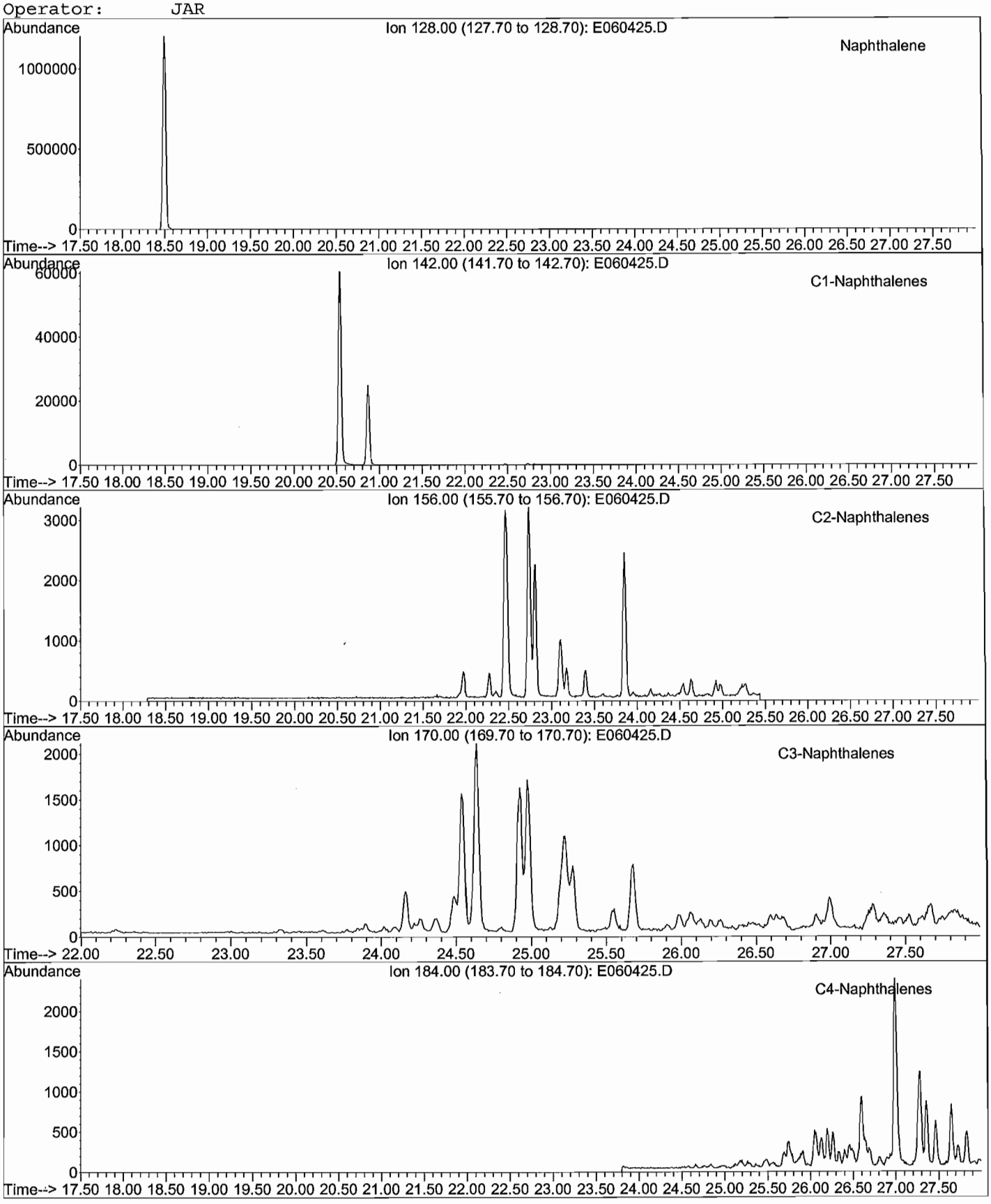
File: J:\1\DATA\E090604\E060425.D
Date Acquired: 6 Jun 2009 12:22 am
Method File: 4008SIMD.M
Sample Name: TA090528-01-D
Misc Info: BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

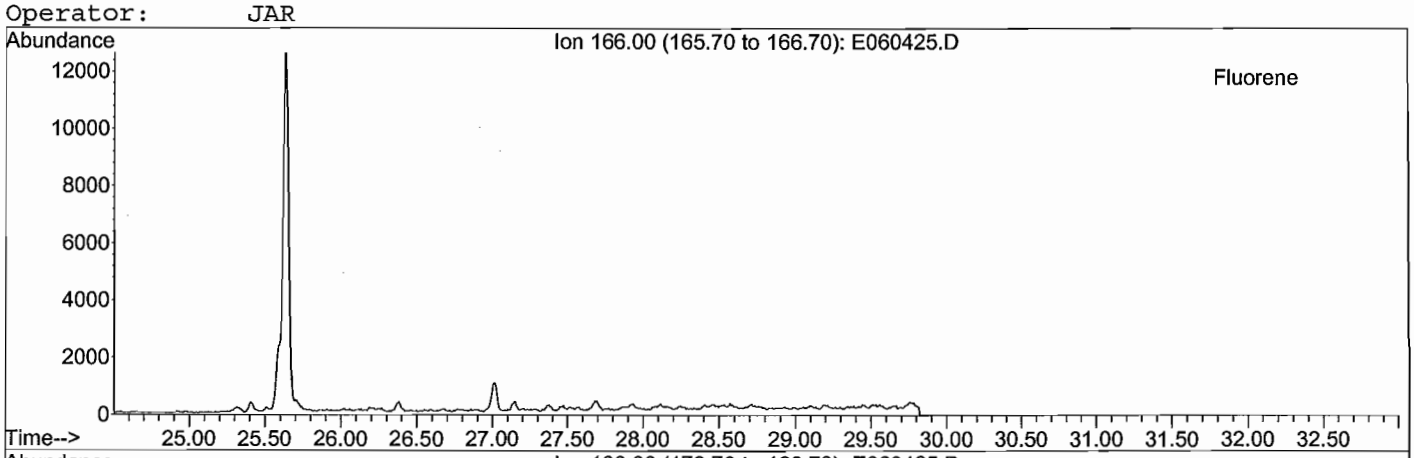
File: J:\1\DATA\E090604\E060425.D
Date Acquired: 6 Jun 2009 12:22 am
Method File: 4008SIMD.M
Sample Name: TA090528-01-D
Misc Info: BP-SO-B05-06 - 100x
Operator: JAR

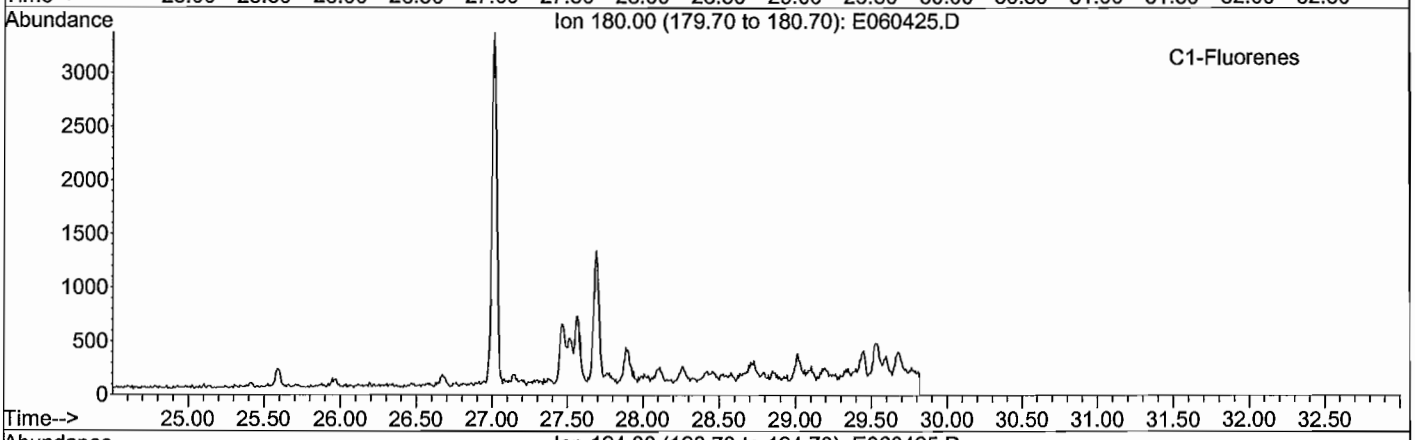


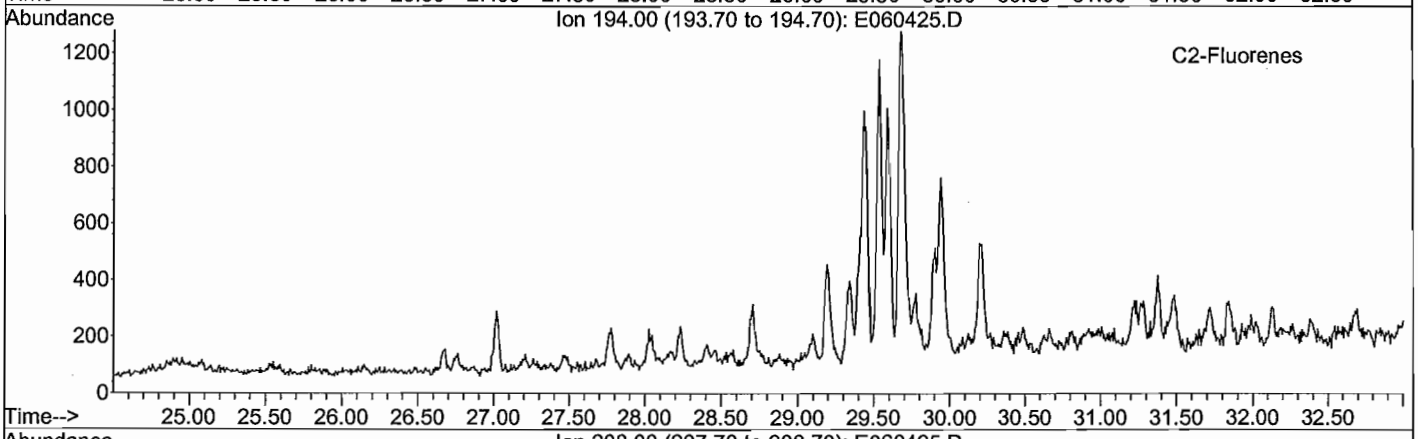
META Environmental, Inc.

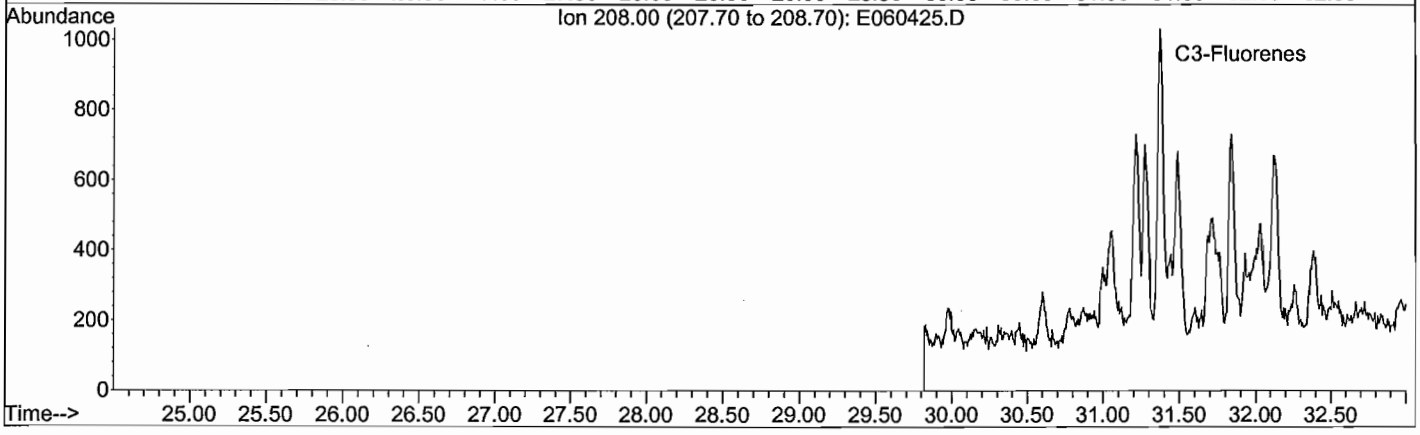
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060425.D
Date Acquired: 6 Jun 2009 12:22 am
Method File: 4008SIMD.M
Sample Name: TA090528-01-D
Misc Info: BP-SO-B05-06 - 100x
Operator: JAR





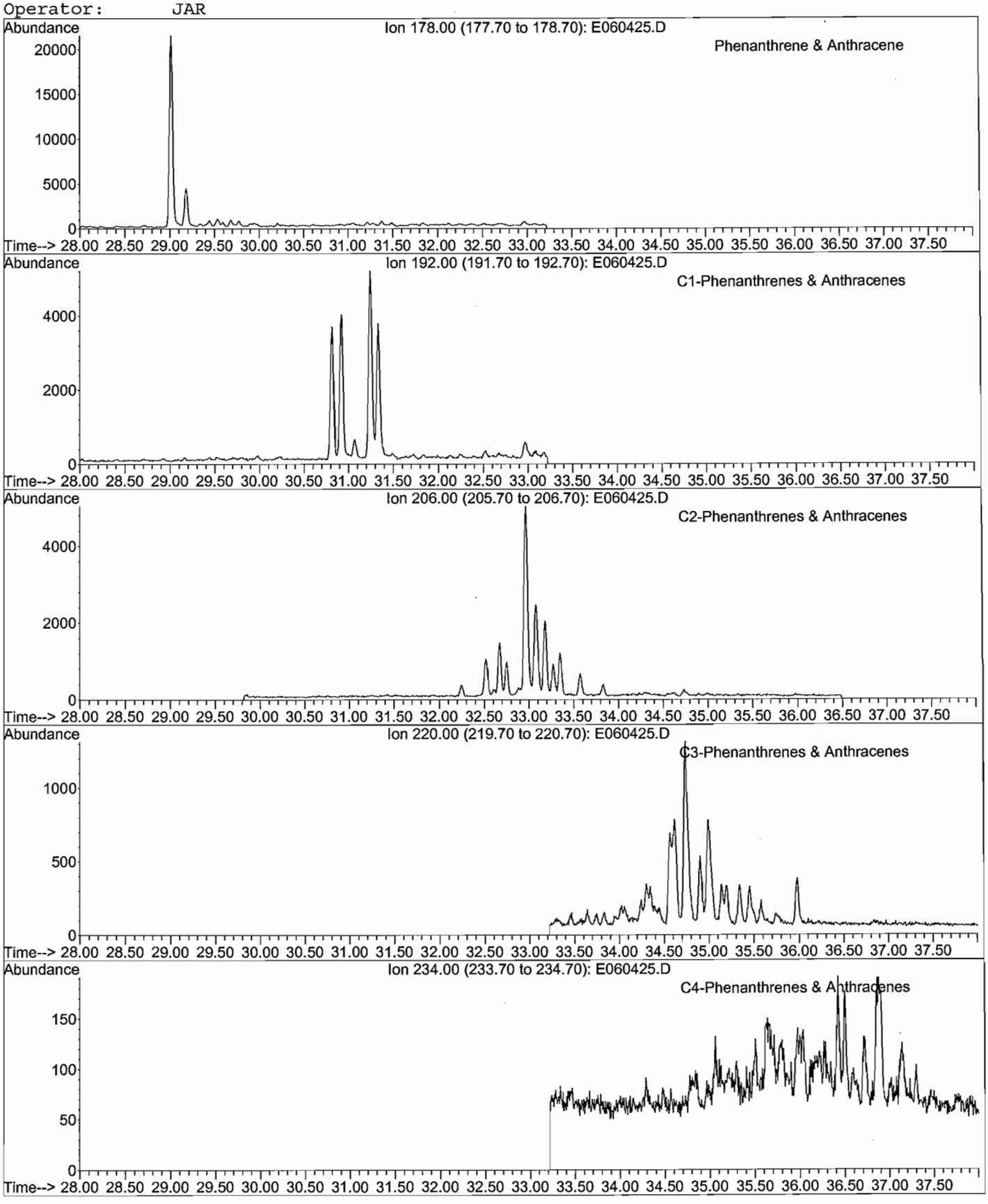




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

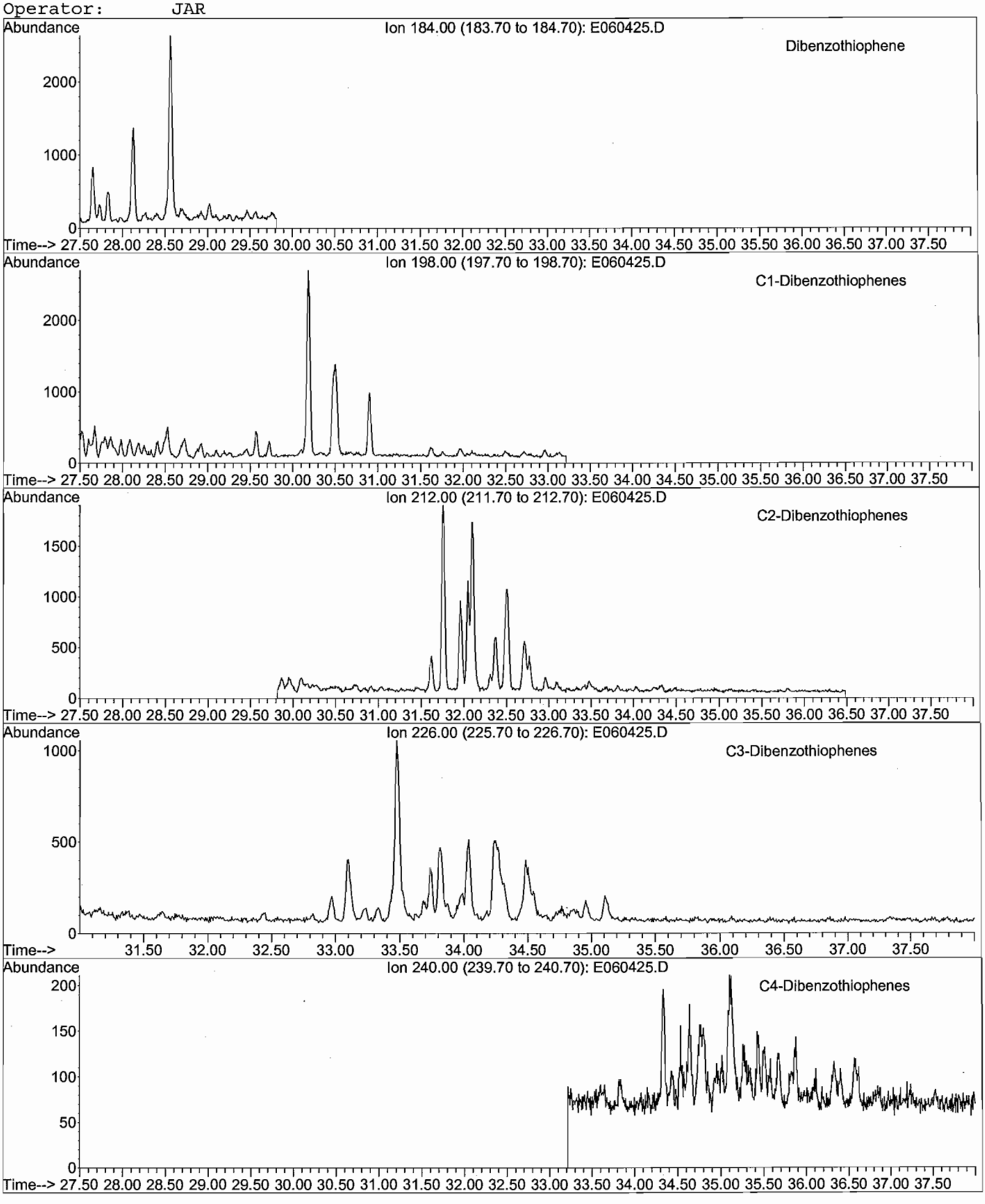
File: J:\1\DATA\E090604\E060425.D
Date Acquired: 6 Jun 2009 12:22 am
Method File: 4008SIMD.M
Sample Name: TA090528-01-D
Misc Info: BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

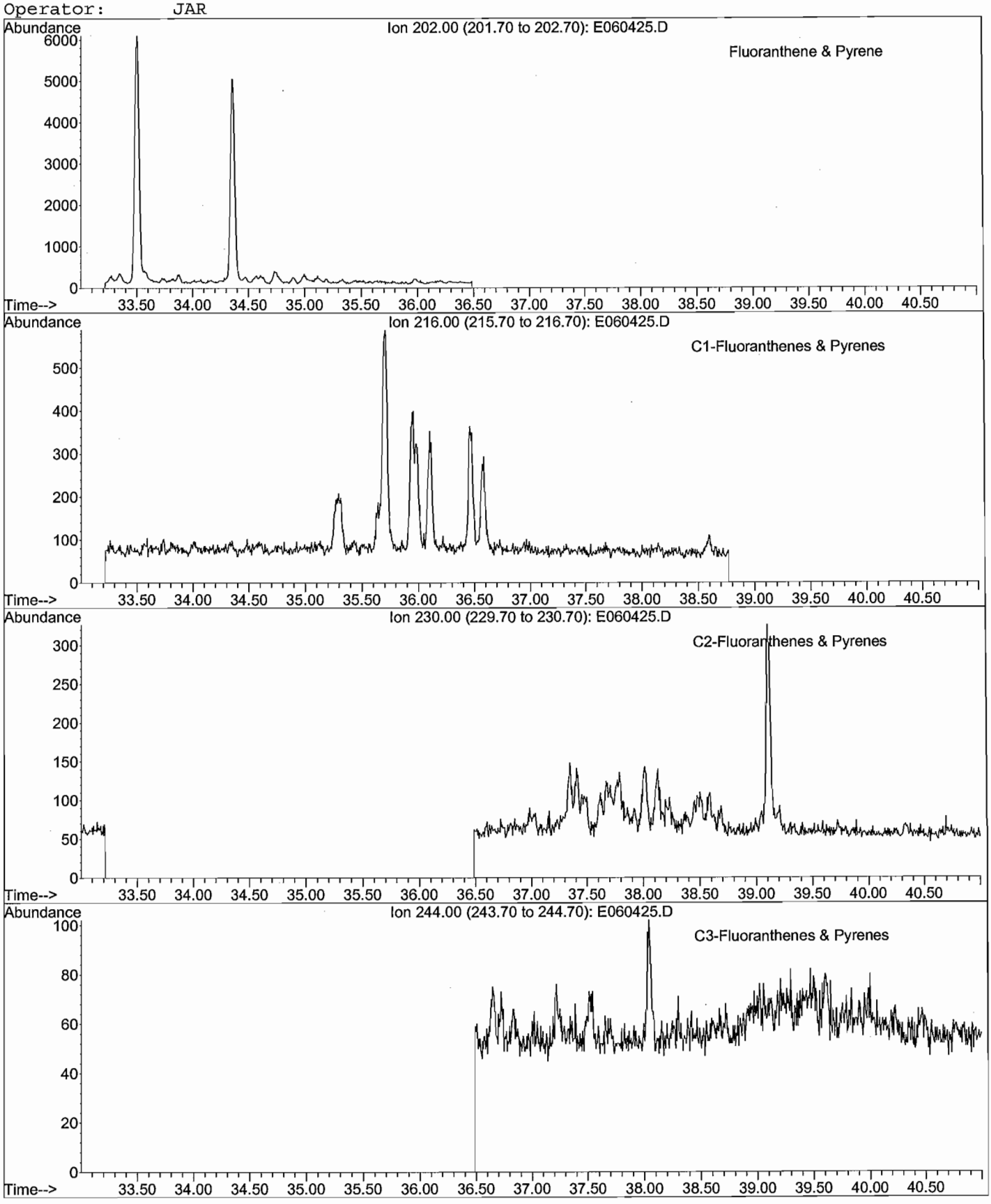
File: J:\1\DATA\E090604\E060425.D
Date Acquired: 6 Jun 2009 12:22 am
Method File: 4008SIMD.M
Sample Name: TA090528-01-D
Misc Info: BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

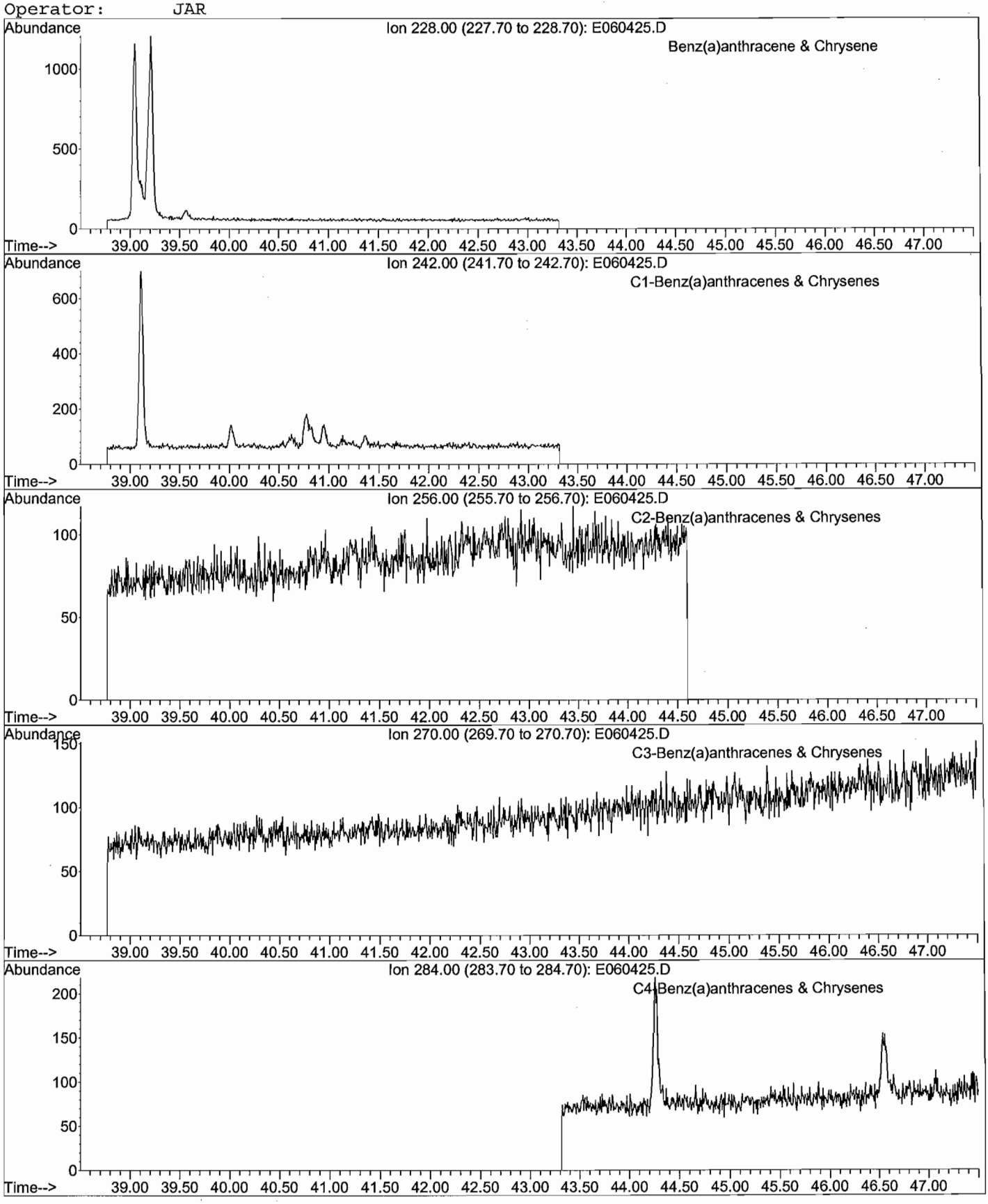
File: J:\1\DATA\E090604\E060425.D
Date Acquired: 6 Jun 2009 12:22 am
Method File: 4008SIMD.M
Sample Name: TA090528-01-D
Misc Info: BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

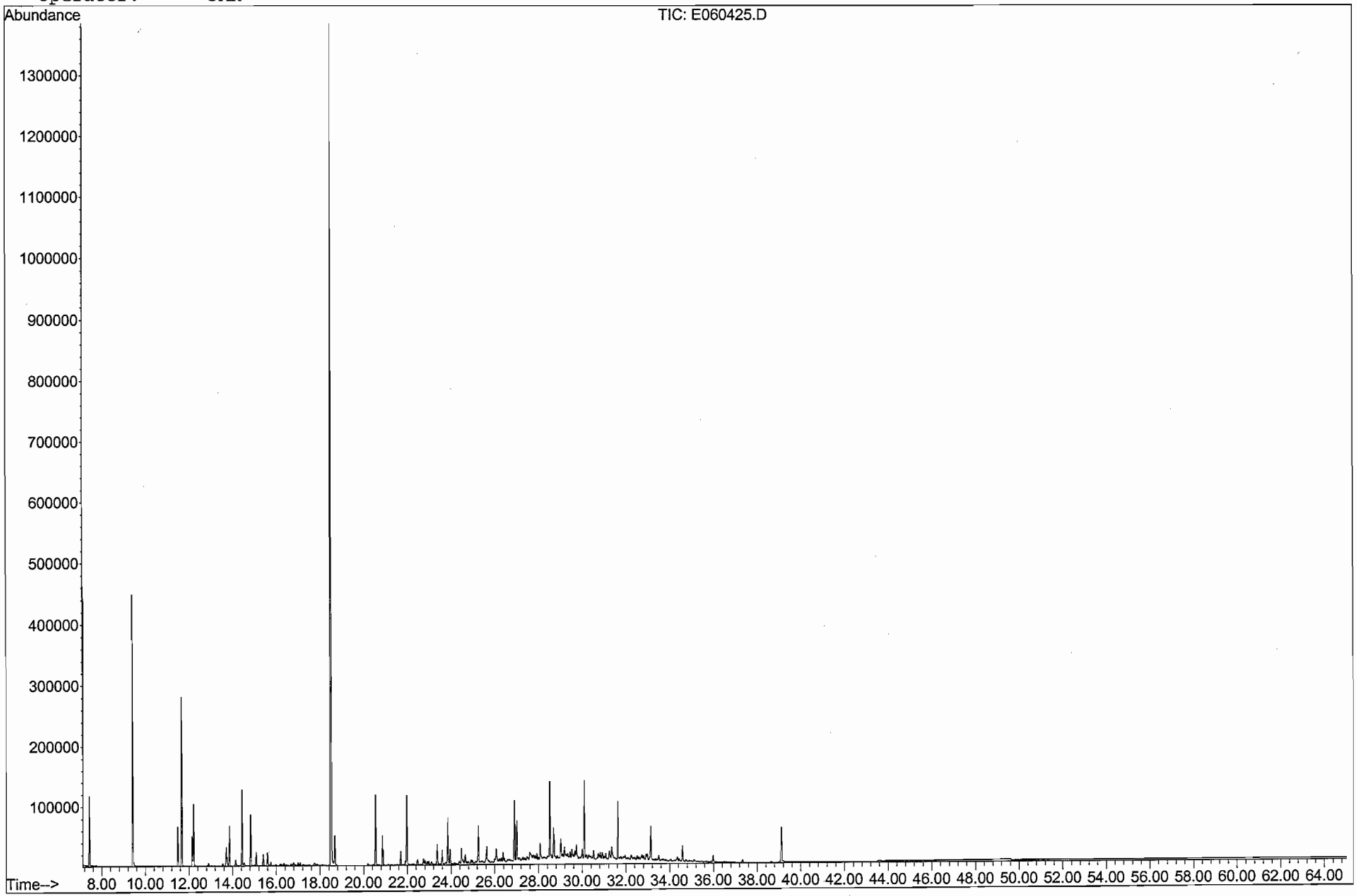
File: J:\1\DATA\E090604\E060425.D
Date Acquired: 6 Jun 2009 12:22 am
Method File: 4008SIMD.M
Sample Name: TA090528-01-D
Misc Info: BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

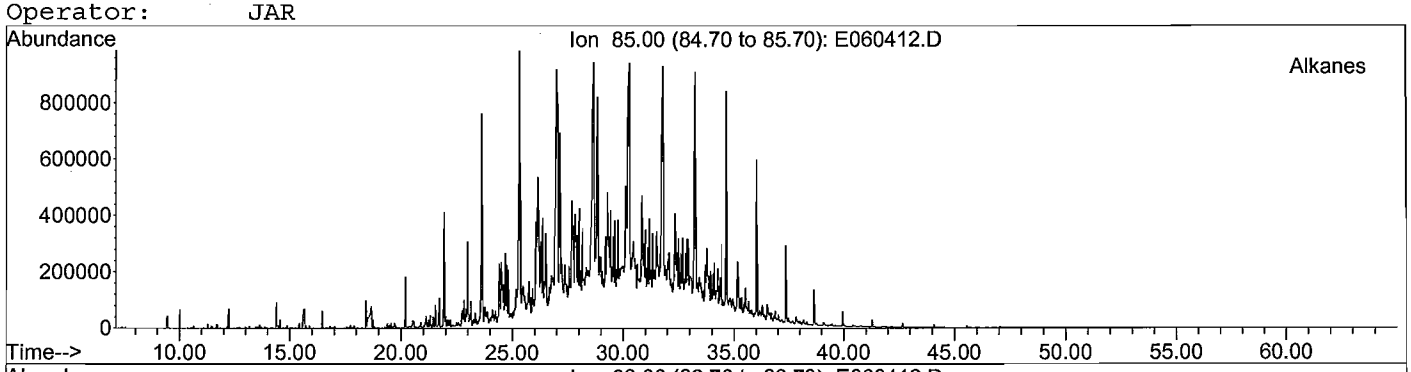
File: J:\1\DATA\E090604\E060425.D
Date Acquired: 6 Jun 2009 12:22 am
Method File: 4008SIMD.M
Sample Name: TA090528-01-D
Misc Info: BP-SO-B05-06 - 100x
Operator: JAR

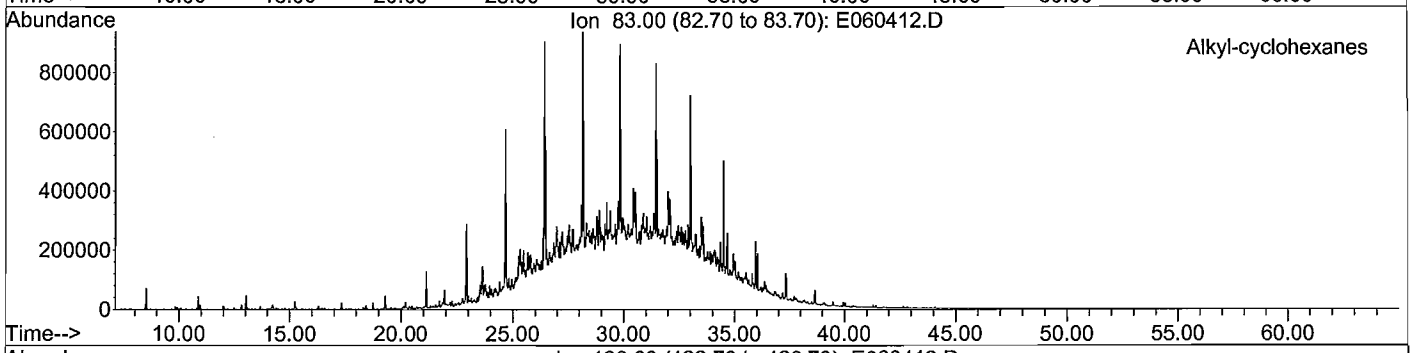


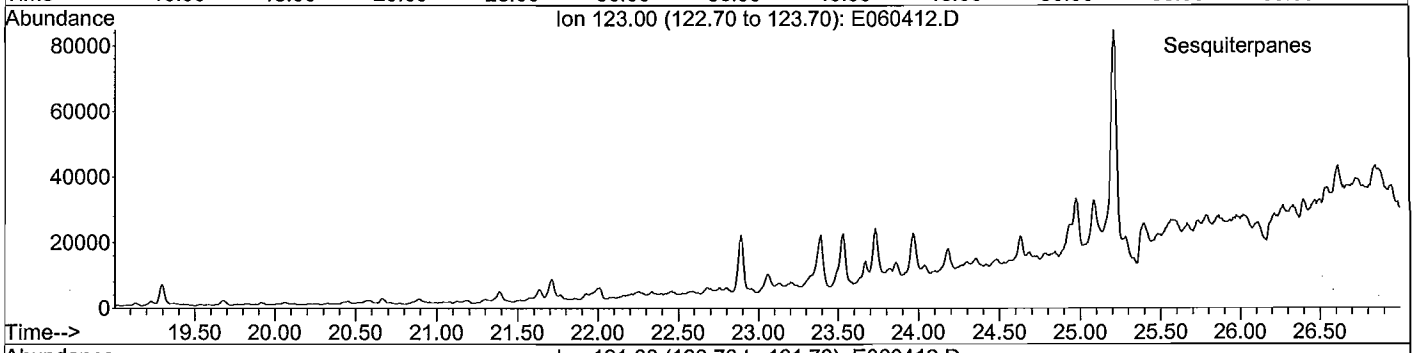
META Environmental, Inc.

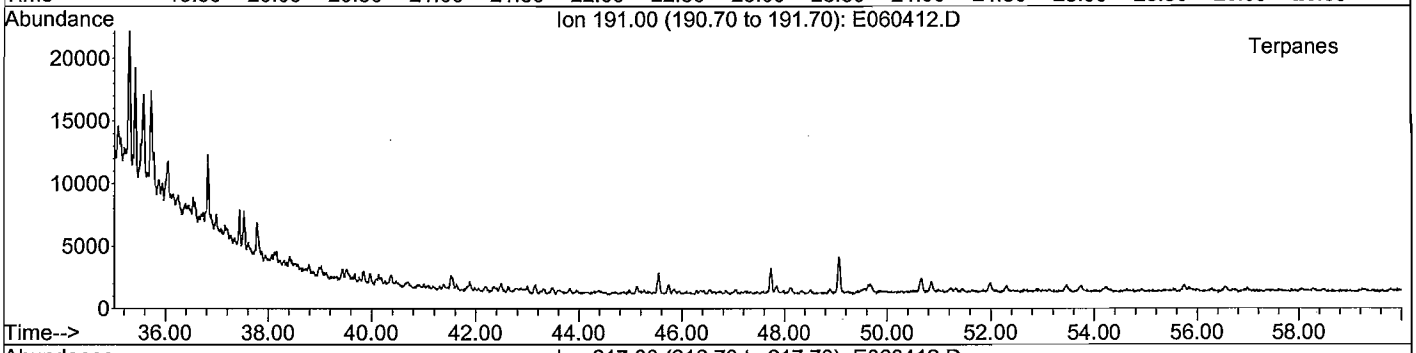
GC/MS EXTRACTED ION CHROMATOGRAM

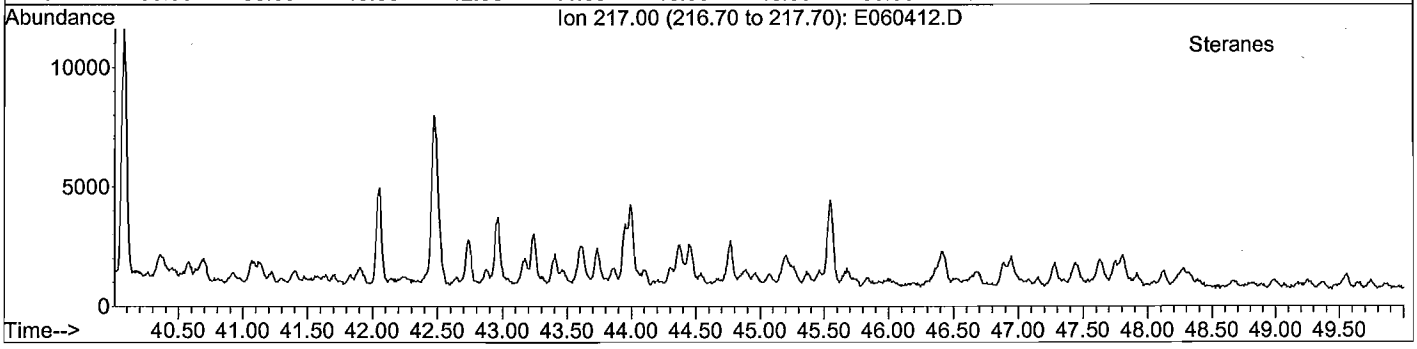
File: J:\1\DATA\E090604\E060412.D
Date Acquired: 5 Jun 2009 6:16 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP
Misc Info: Duplicate of BP-SO-B05-06
Operator: JAR







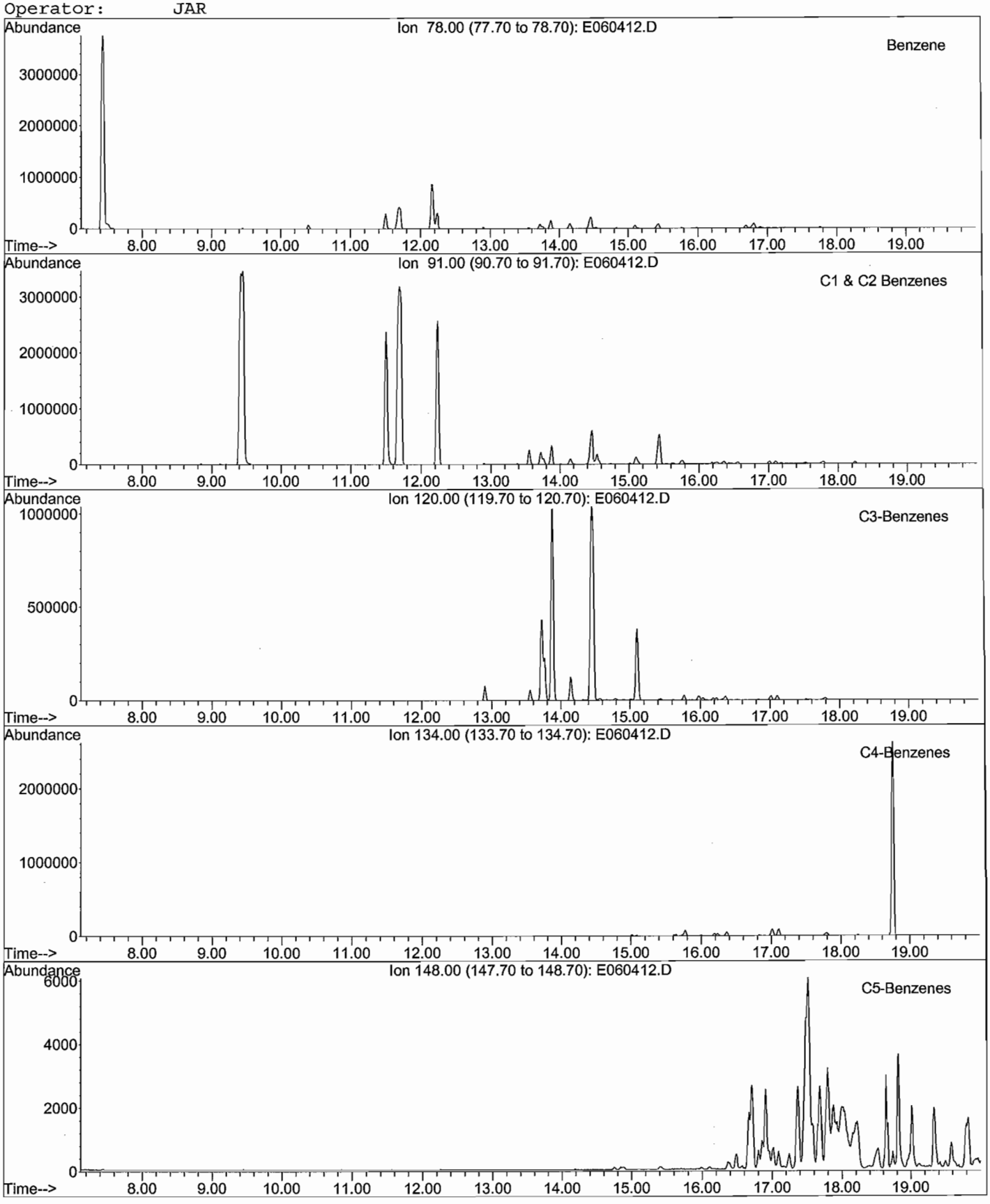




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

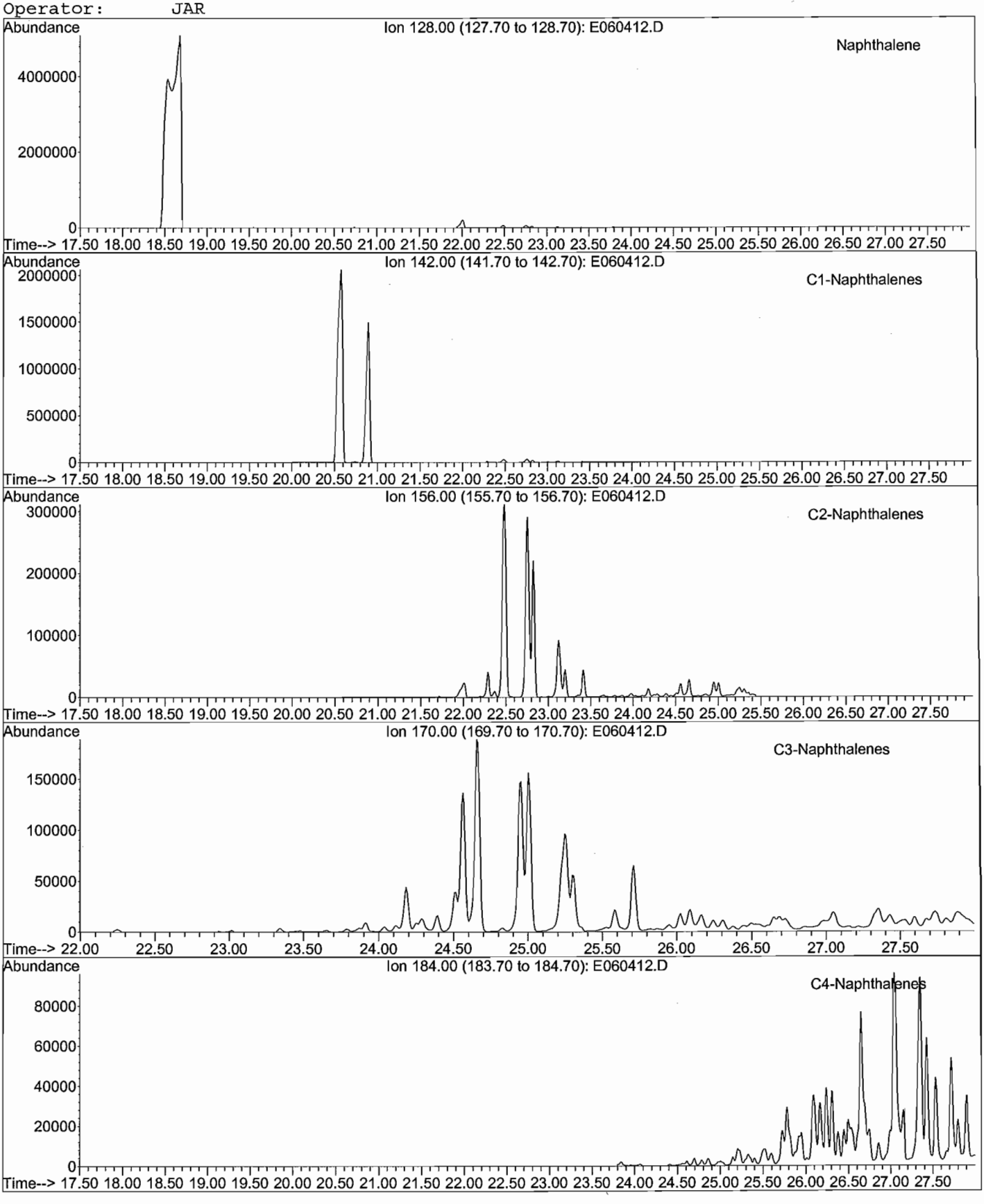
File: J:\1\DATA\E090604\E060412.D
Date Acquired: 5 Jun 2009 6:16 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP
Misc Info: Duplicate of BP-SO-B05-06
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

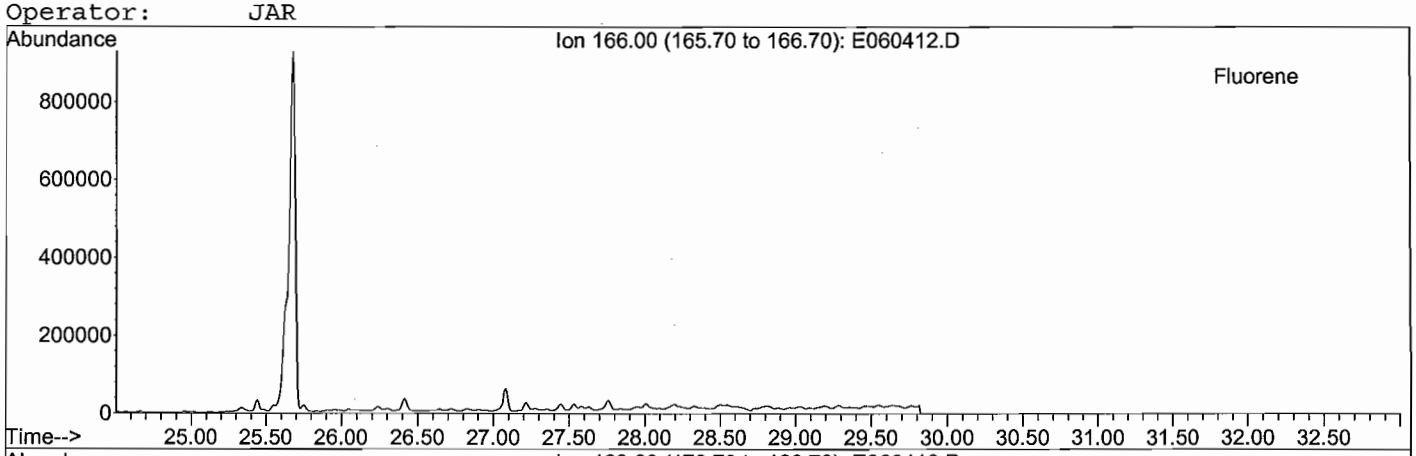
File: J:\1\DATA\E090604\E060412.D
Date Acquired: 5 Jun 2009 6:16 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP
Misc Info: Duplicate of BP-SO-B05-06
Operator: JAR

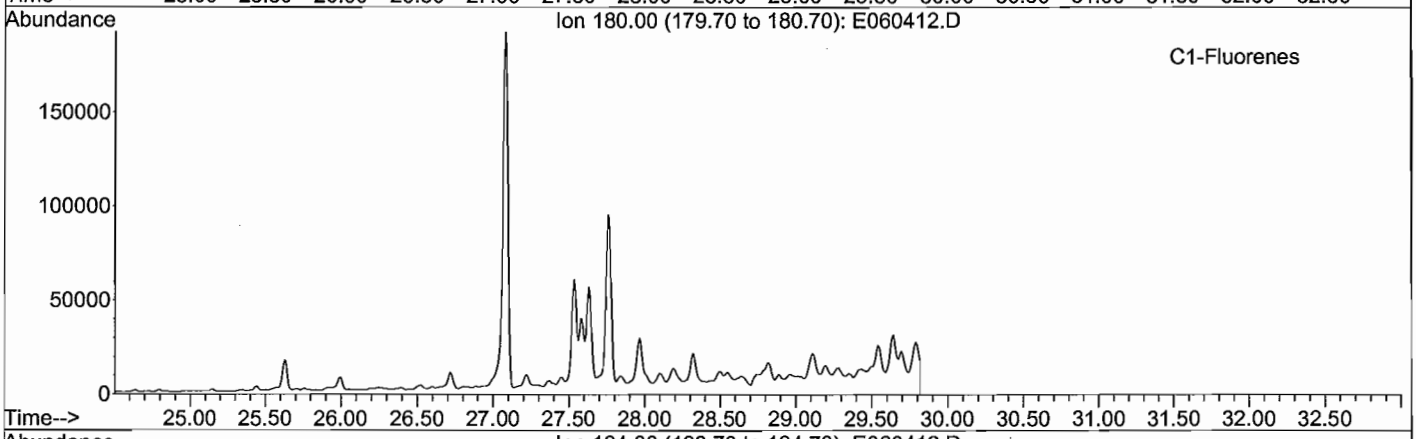


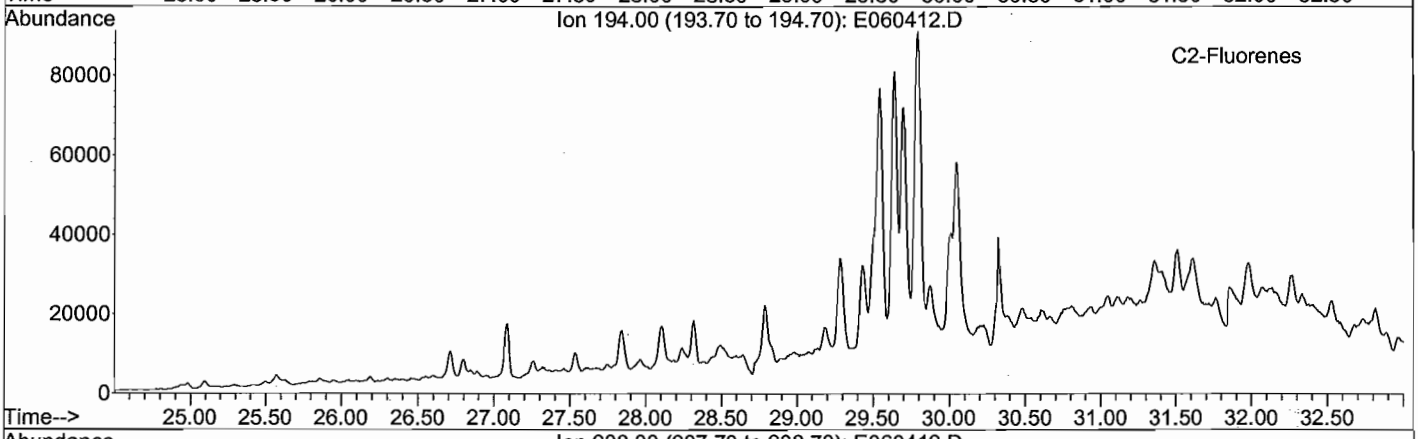
META Environmental, Inc.

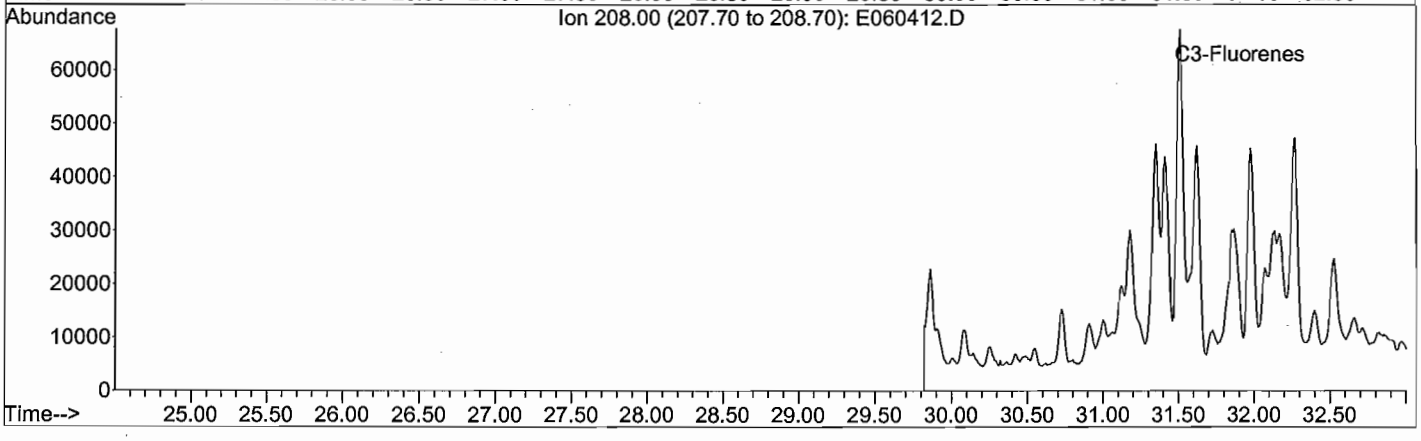
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060412.D
Date Acquired: 5 Jun 2009 6:16 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP
Misc Info: Duplicate of BP-SO-B05-06
Operator: JAR





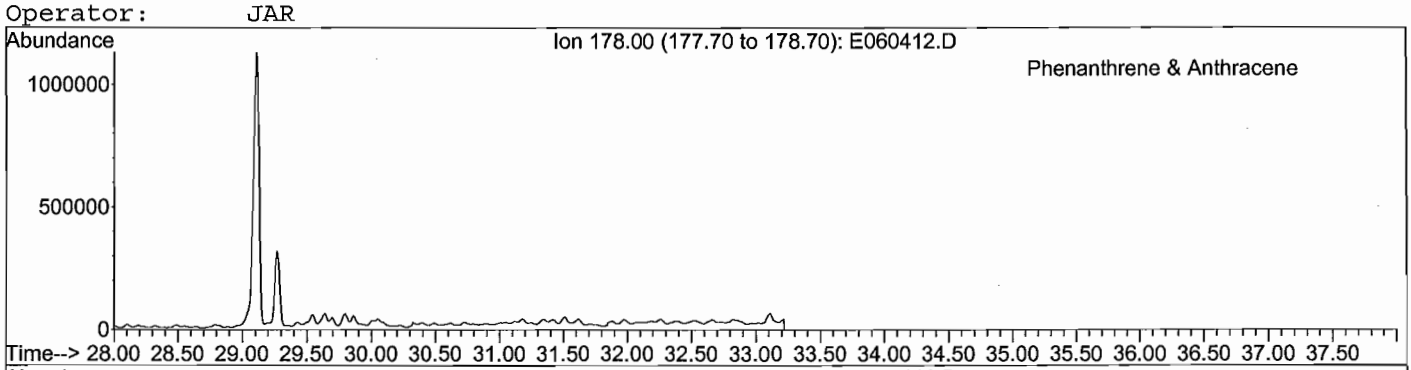


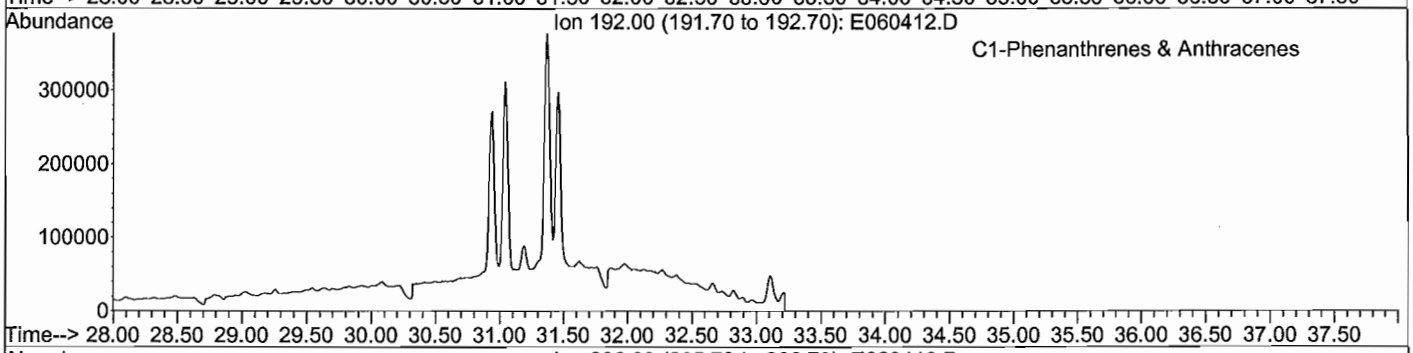


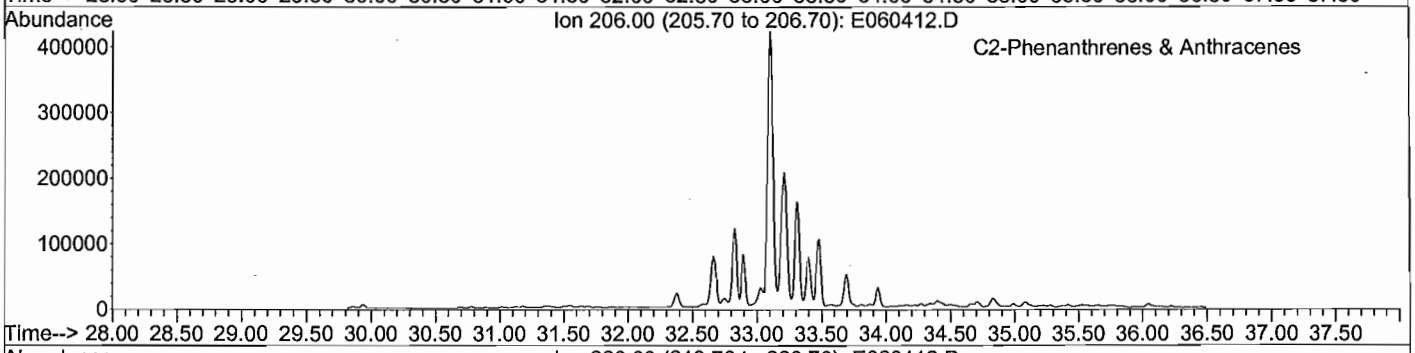
META Environmental, Inc.

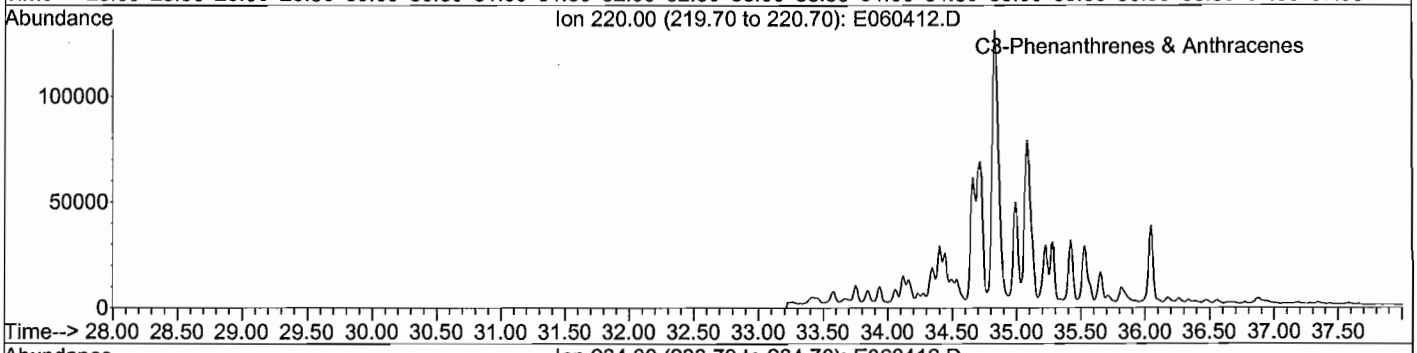
GC/MS EXTRACTED ION CHROMATOGRAM

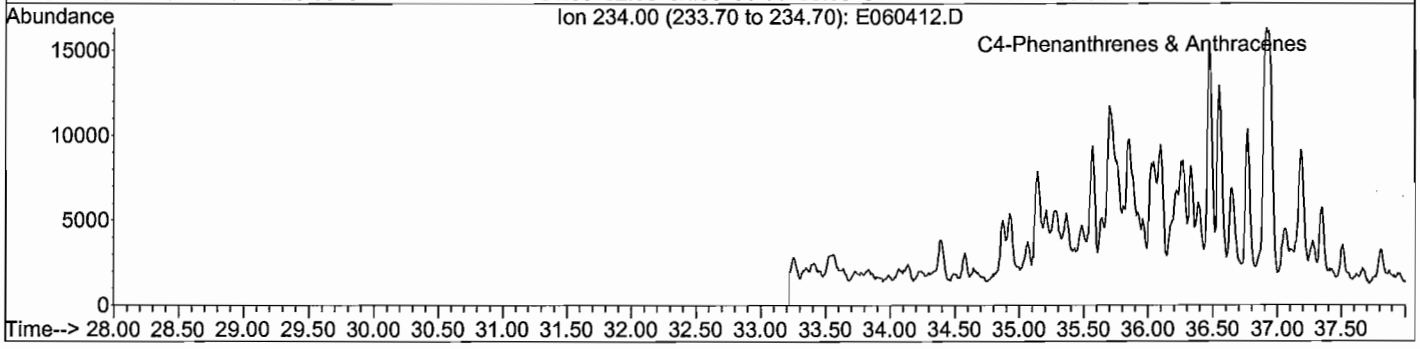
File: J:\1\DATA\E090604\E060412.D
Date Acquired: 5 Jun 2009 6:16 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP
Misc Info: Duplicate of BP-SO-B05-06
Operator: JAR







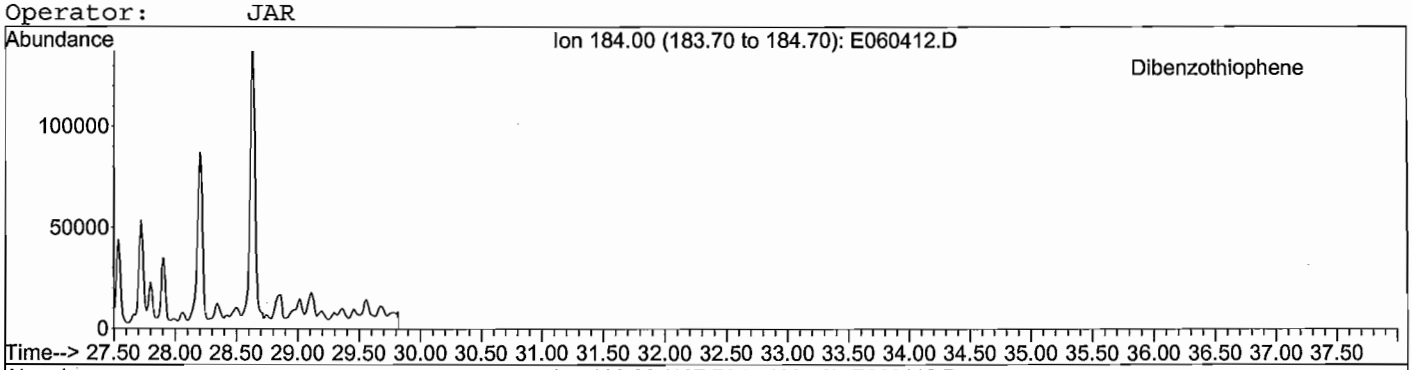


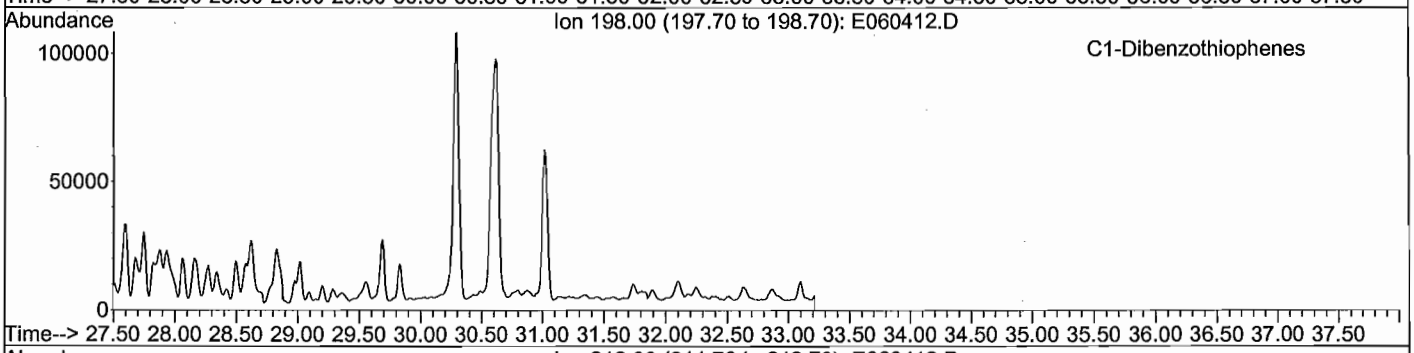


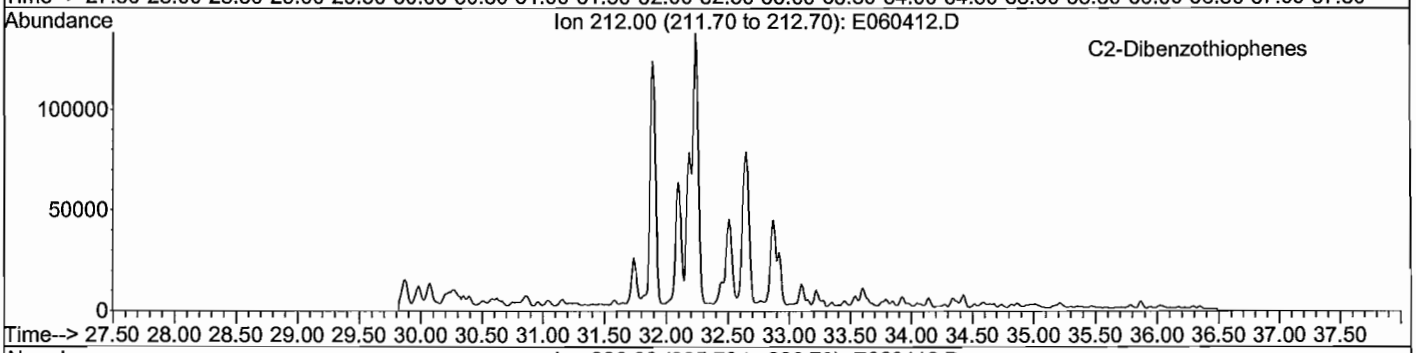
META Environmental, Inc.

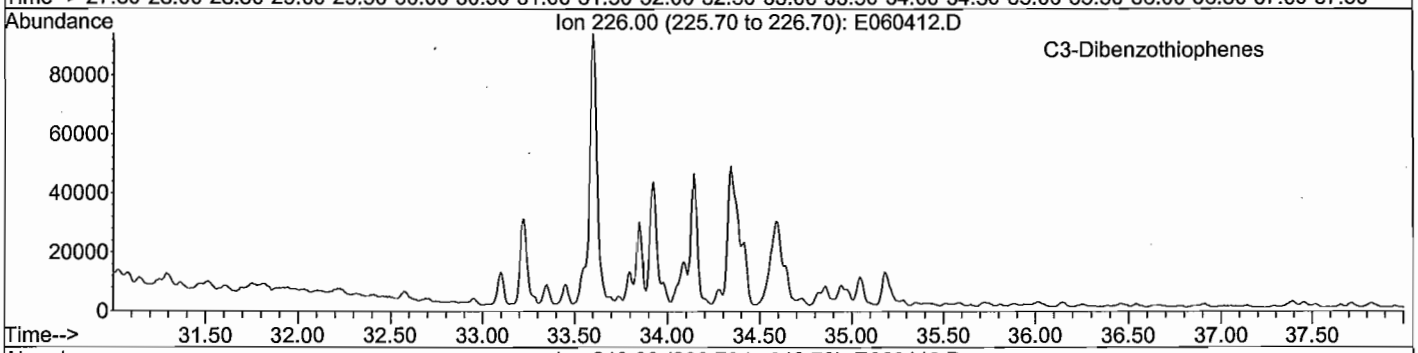
GC/MS EXTRACTED ION CHROMATOGRAM

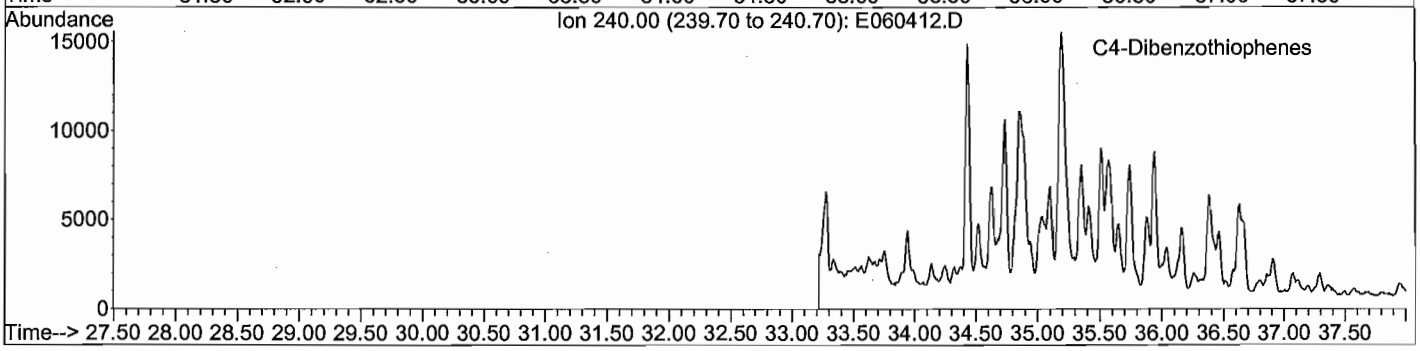
File: J:\1\DATA\E090604\E060412.D
Date Acquired: 5 Jun 2009 6:16 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP
Misc Info: Duplicate of BP-SO-B05-06
Operator: JAR







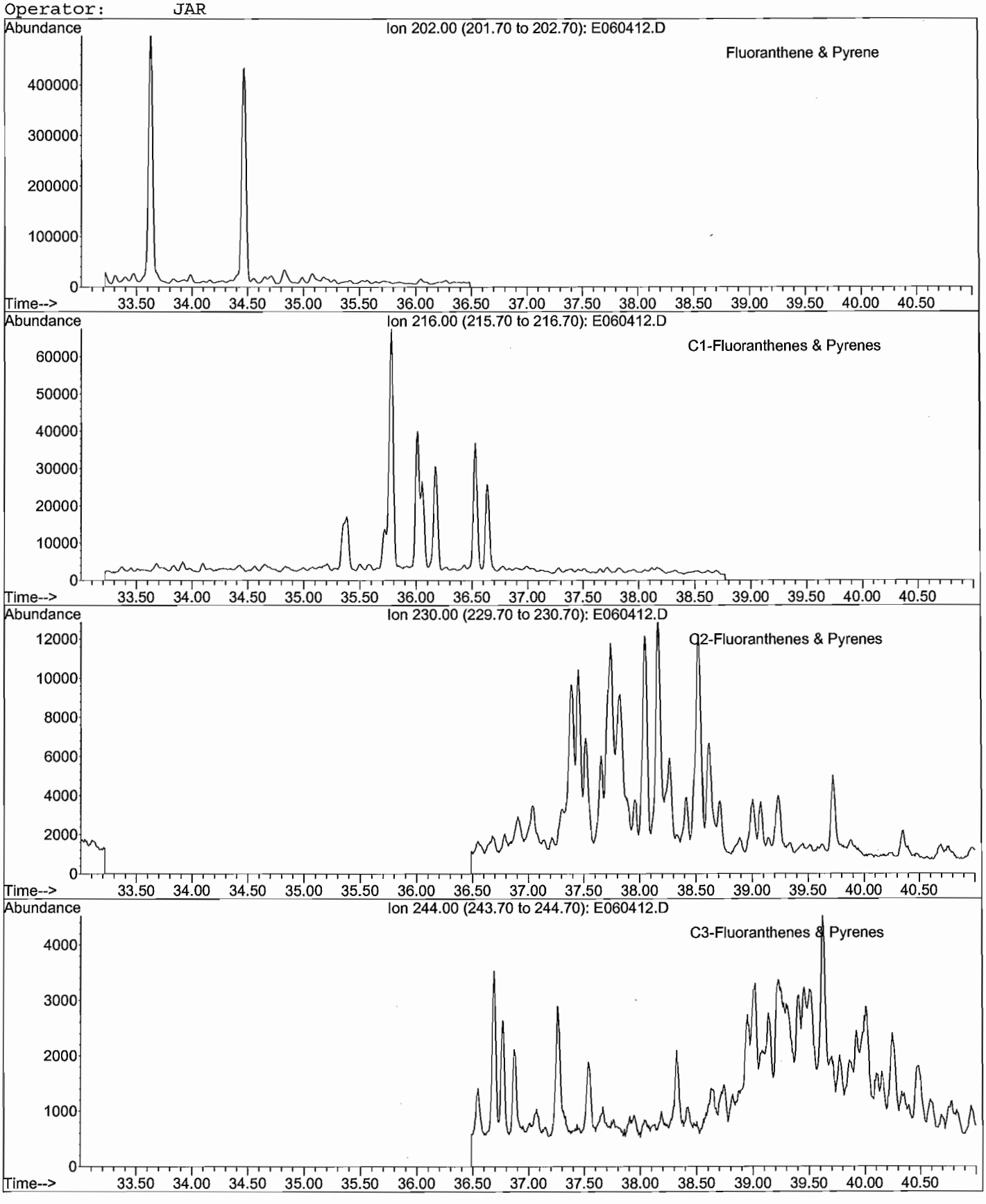




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

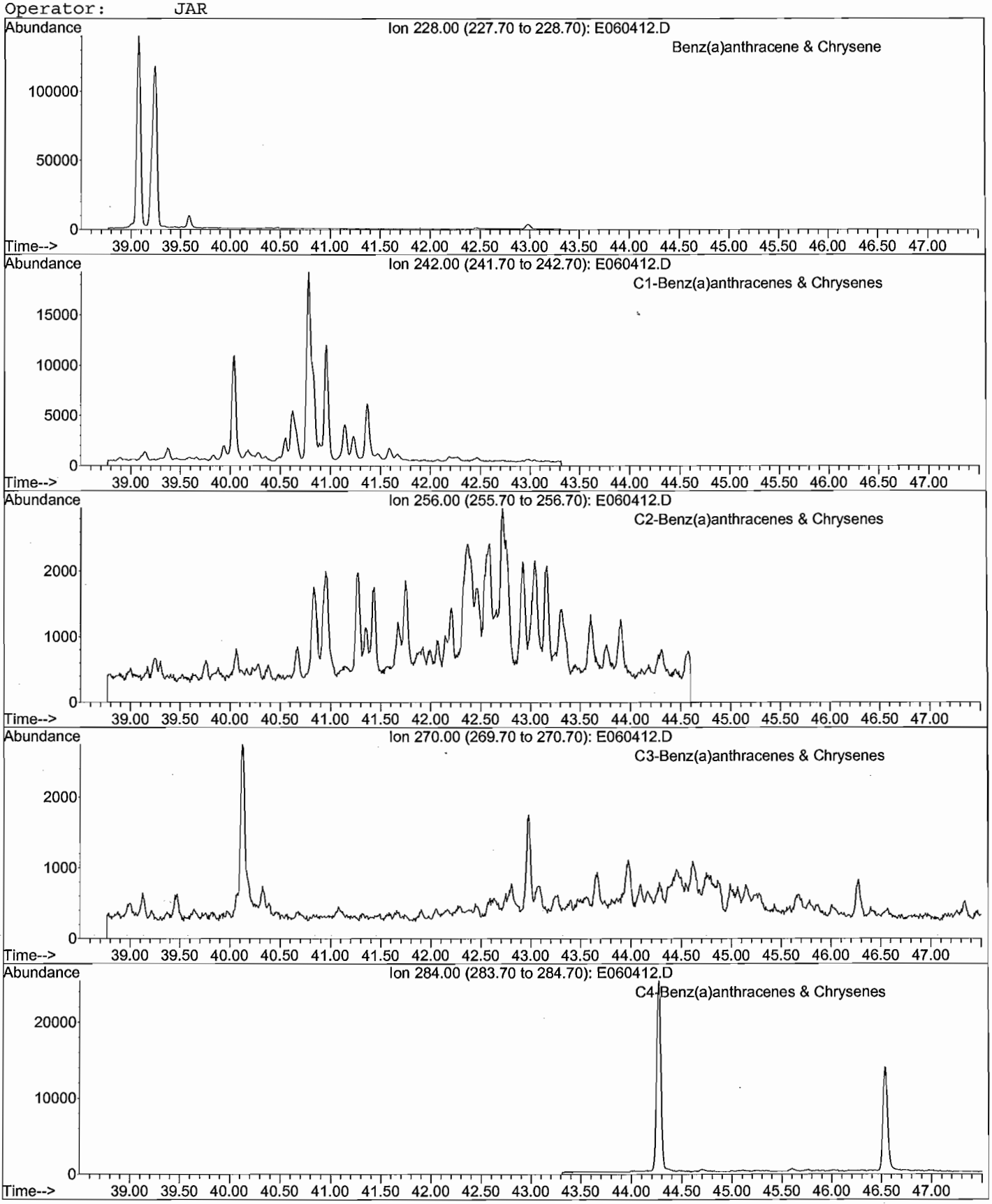
File: J:\1\DATA\E090604\E060412.D
Date Acquired: 5 Jun 2009 6:16 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP
Misc Info: Duplicate of BP-SO-B05-06
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

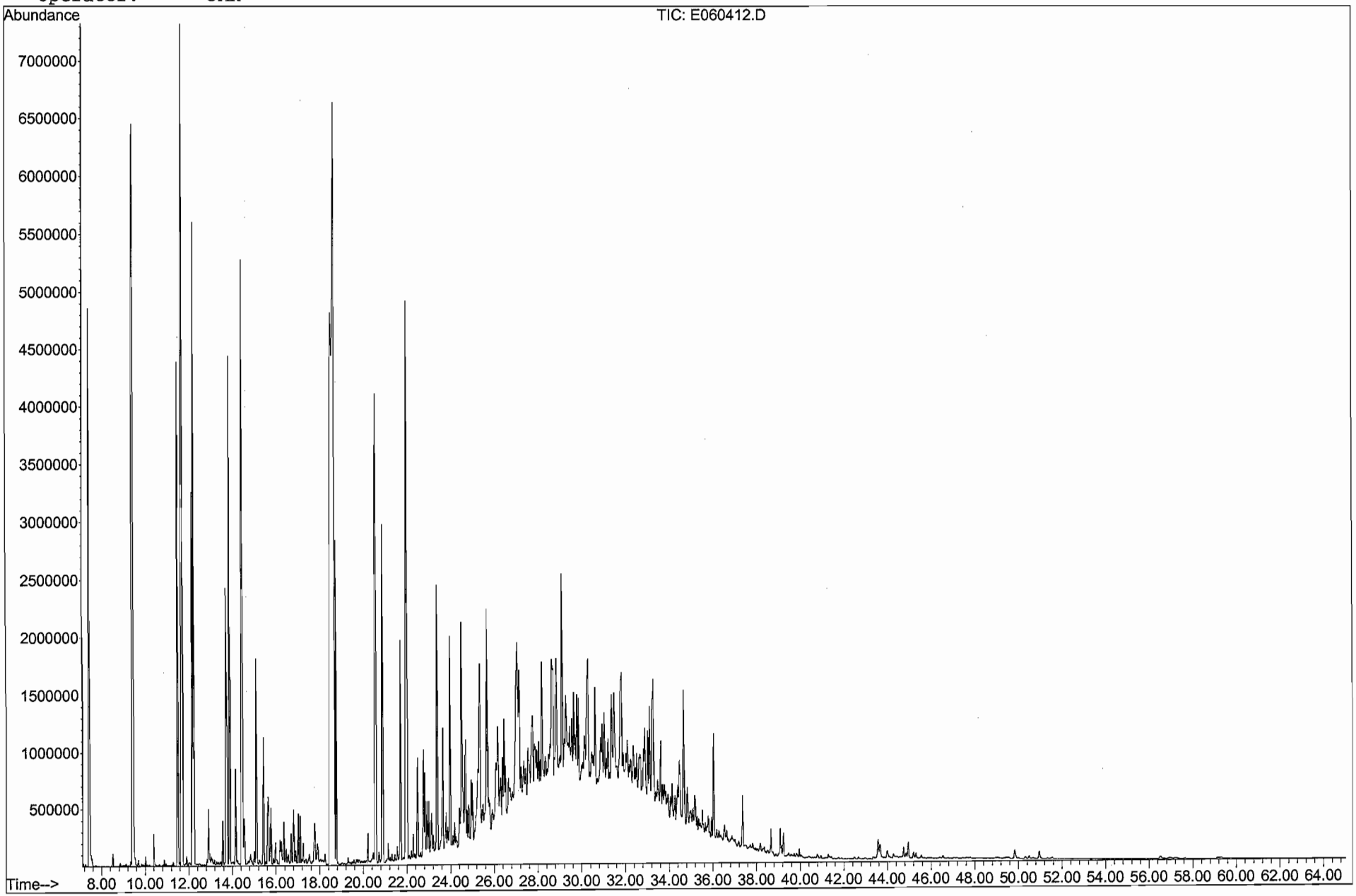
File: J:\1\DATA\E090604\E060412.D
Date Acquired: 5 Jun 2009 6:16 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP
Misc Info: Duplicate of BP-SO-B05-06
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

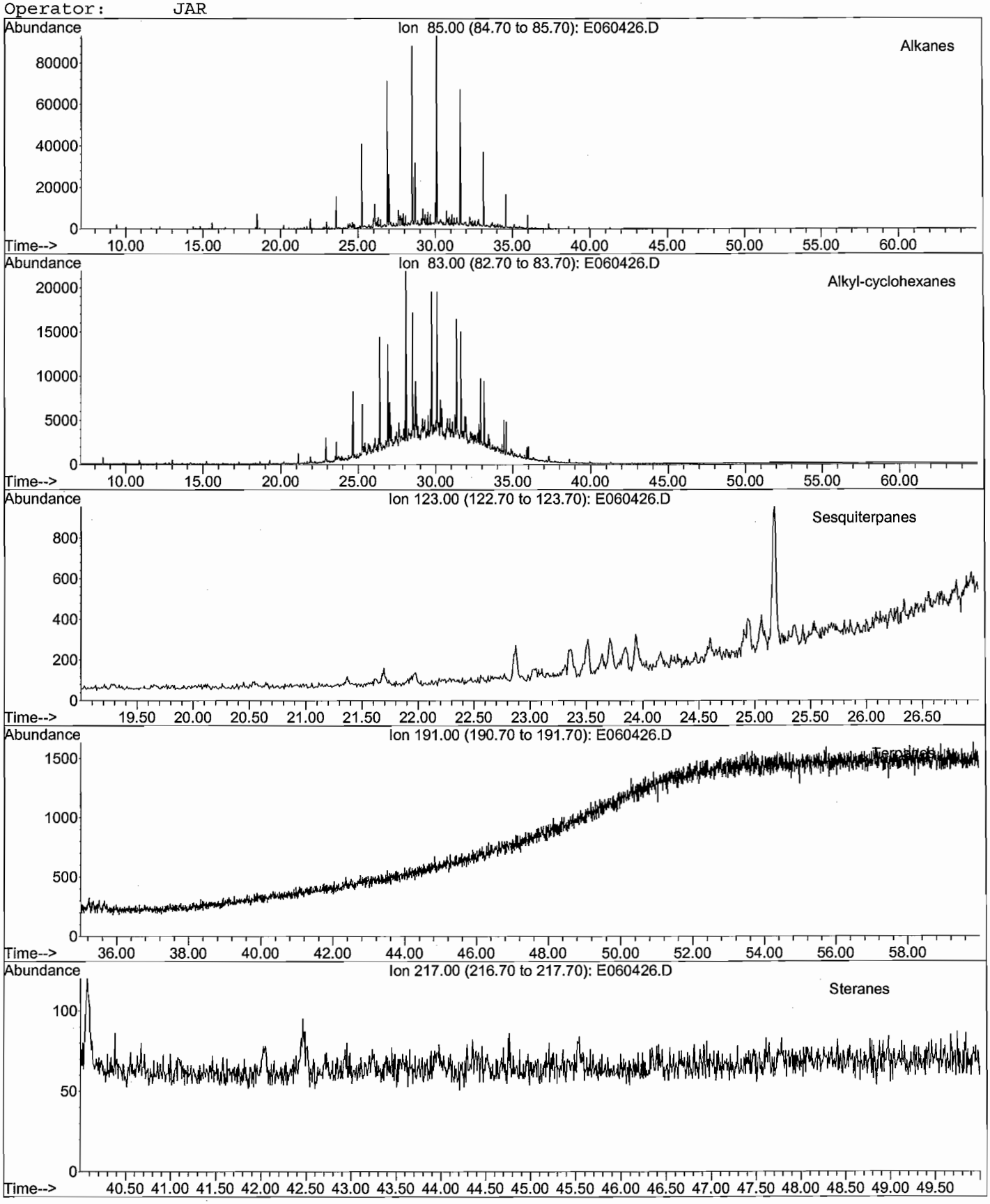
File: J:\1\DATA\E090604\E060412.D
Date Acquired: 5 Jun 2009 6:16 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP
Misc Info: Duplicate of BP-SO-B05-06
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

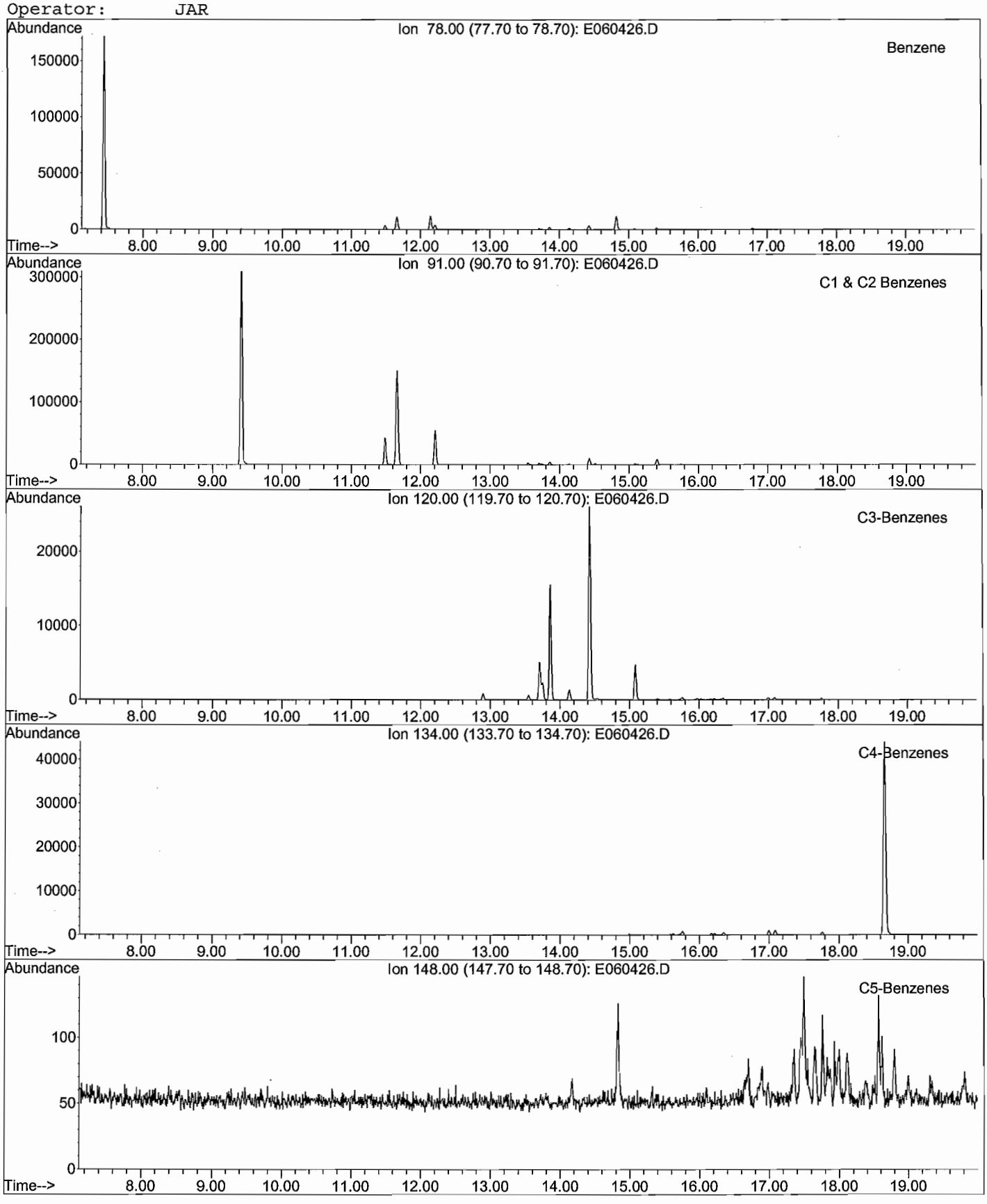
File: J:\1\DATA\E090604\E060426.D
Date Acquired: 6 Jun 2009 1:39 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP-D
Misc Info: Duplicate of BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

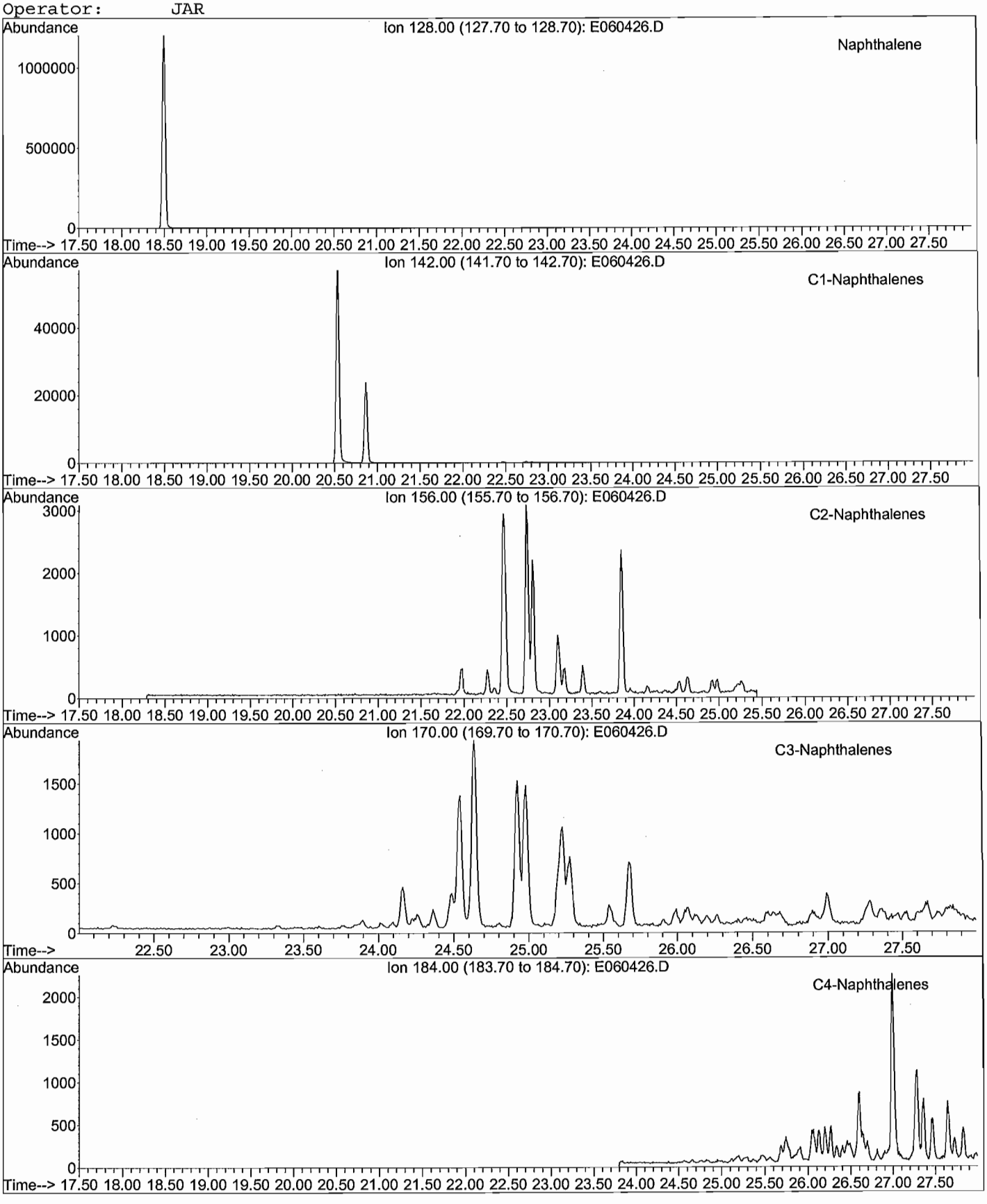
File: J:\1\DATA\E090604\E060426.D
Date Acquired: 6 Jun 2009 1:39 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP-D
Misc Info: Duplicate of BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

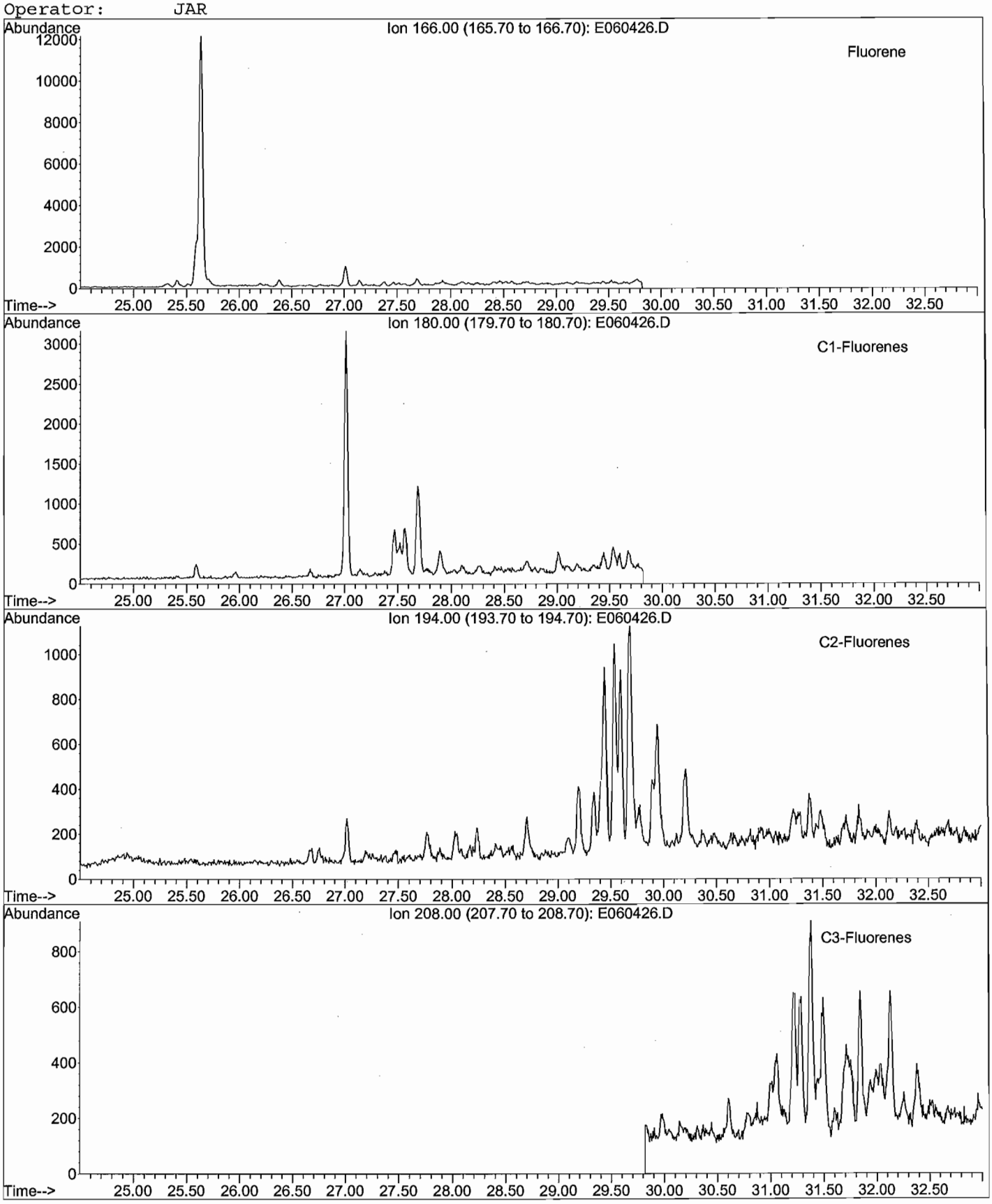
File: J:\1\DATA\E090604\E060426.D
Date Acquired: 6 Jun 2009 1:39 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP-D
Misc Info: Duplicate of BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

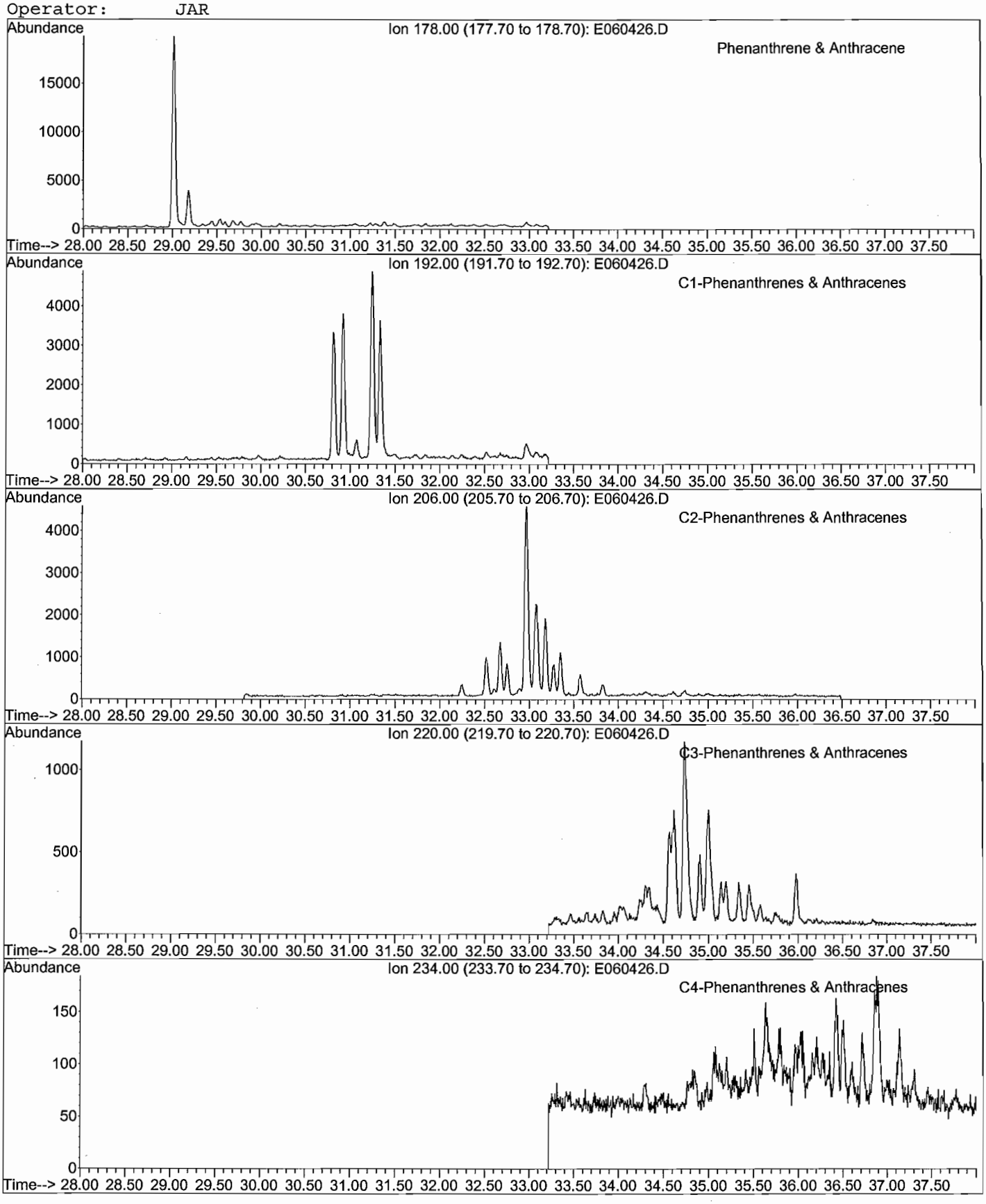
File: J:\1\DATA\E090604\E060426.D
Date Acquired: 6 Jun 2009 1:39 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP-D
Misc Info: Duplicate of BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

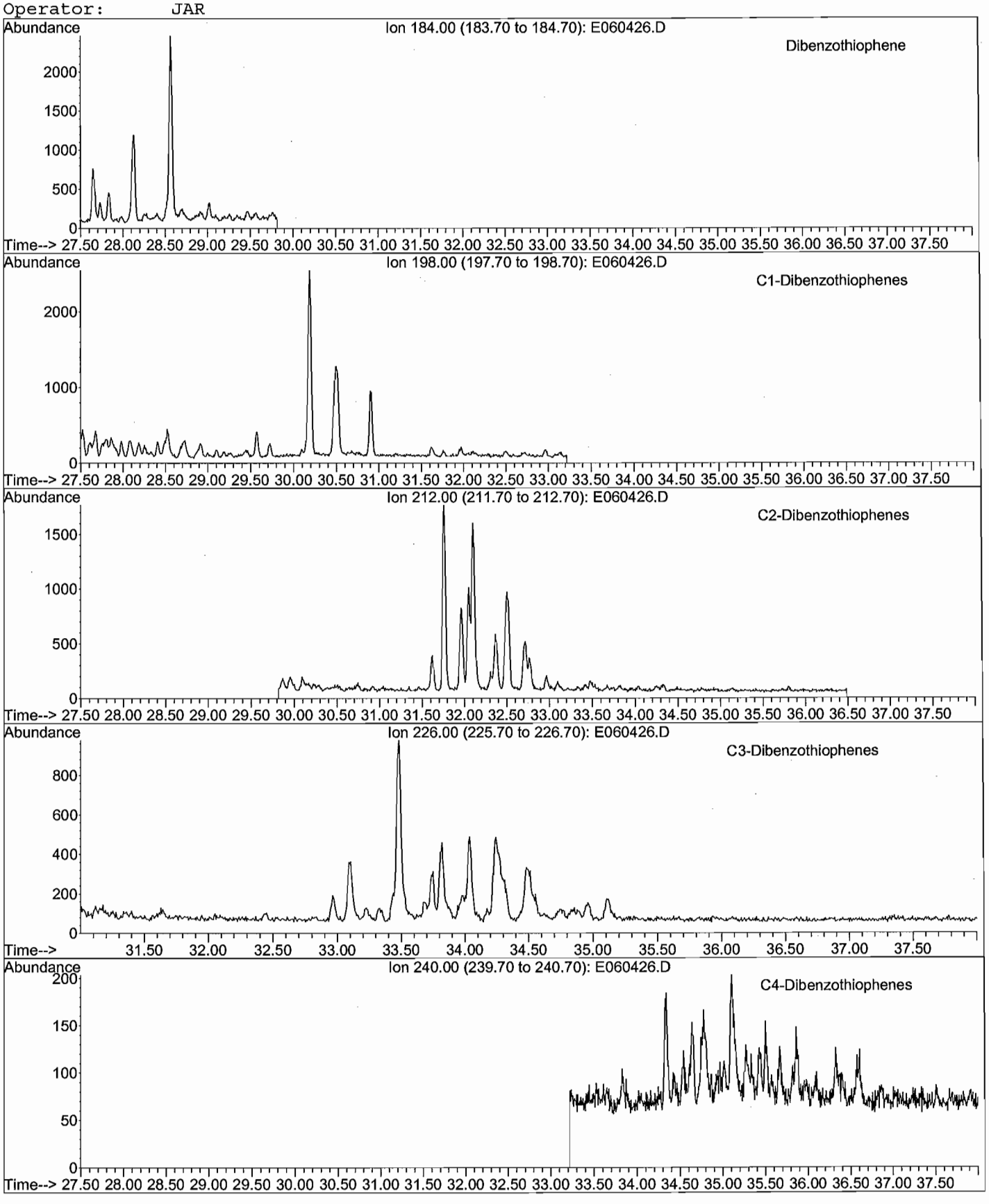
File: J:\1\DATA\E090604\E060426.D
Date Acquired: 6 Jun 2009 1:39 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP-D
Misc Info: Duplicate of BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

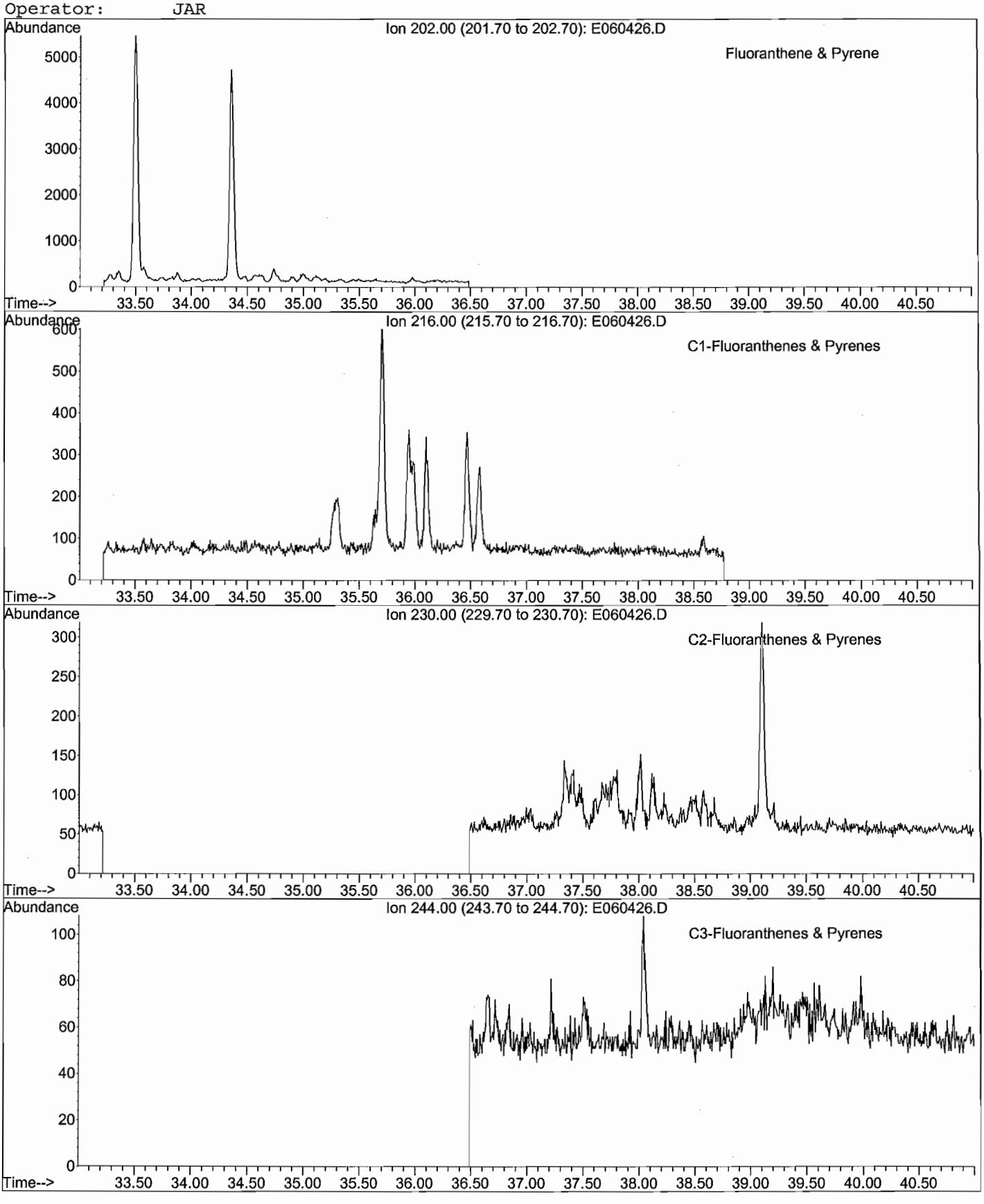
File: J:\1\DATA\E090604\E060426.D
Date Acquired: 6 Jun 2009 1:39 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP-D
Misc Info: Duplicate of BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

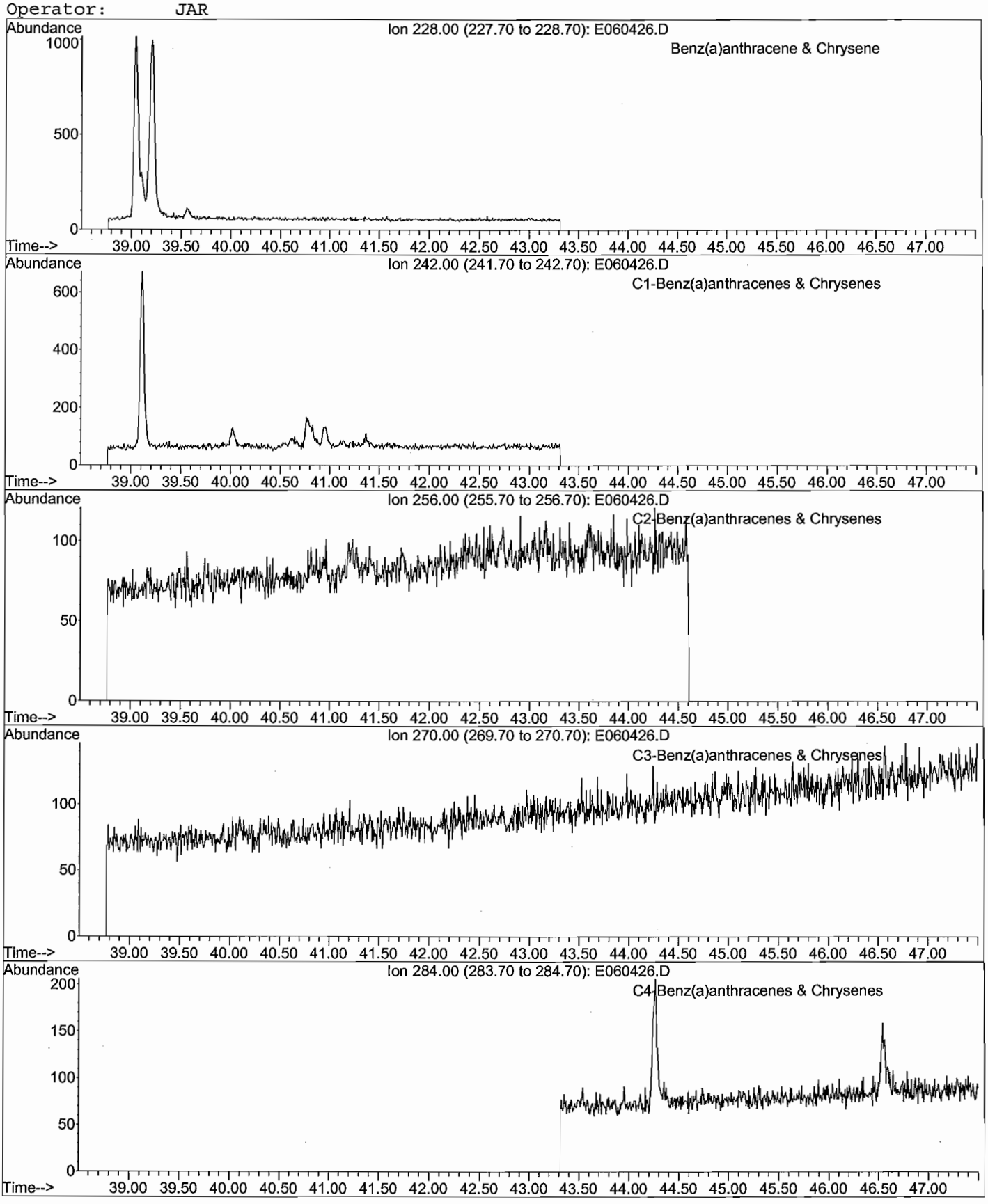
File: J:\1\DATA\E090604\E060426.D
Date Acquired: 6 Jun 2009 1:39 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP-D
Misc Info: Duplicate of BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

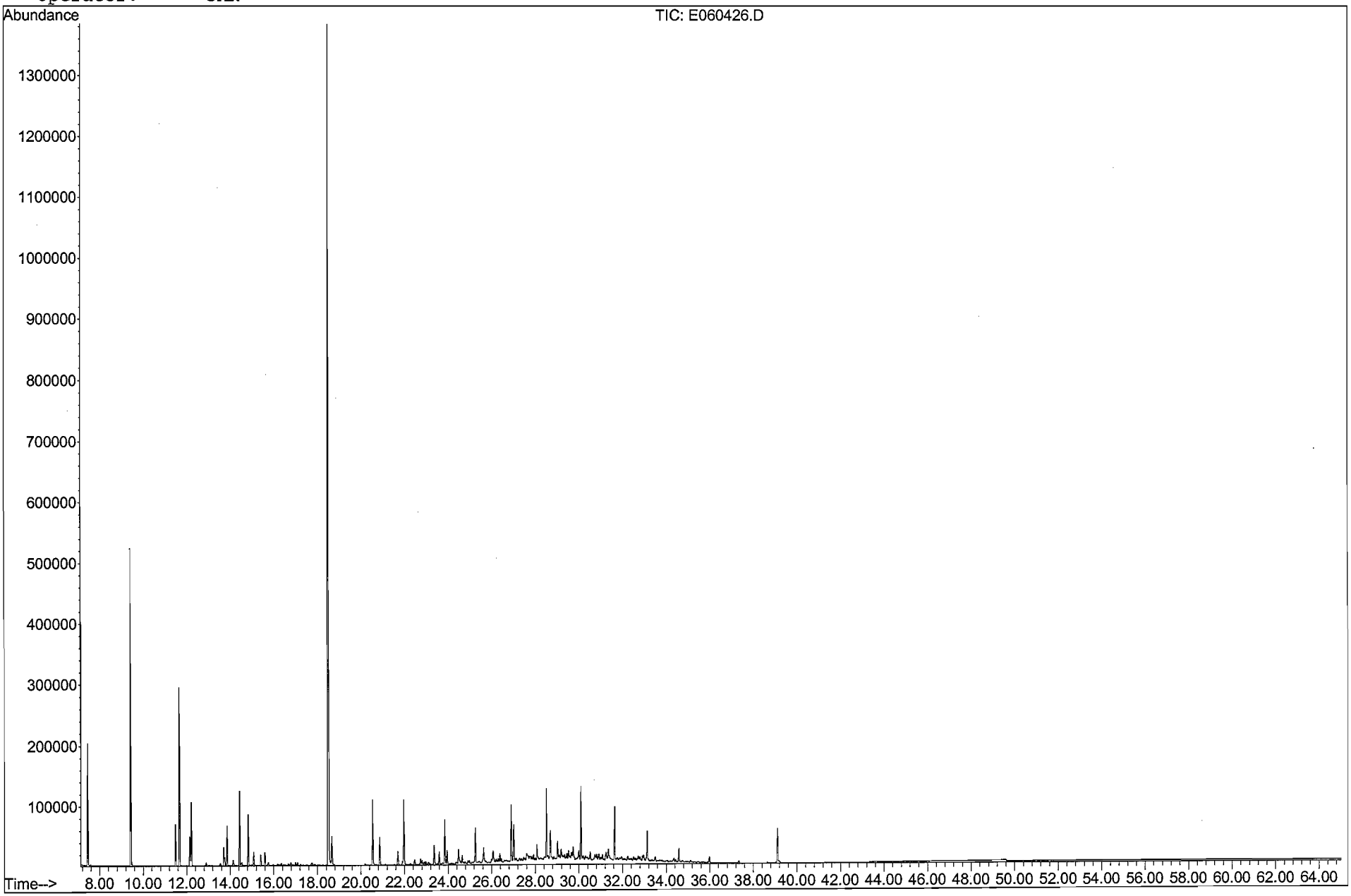
File: J:\1\DATA\E090604\E060426.D
Date Acquired: 6 Jun 2009 1:39 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP-D
Misc Info: Duplicate of BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

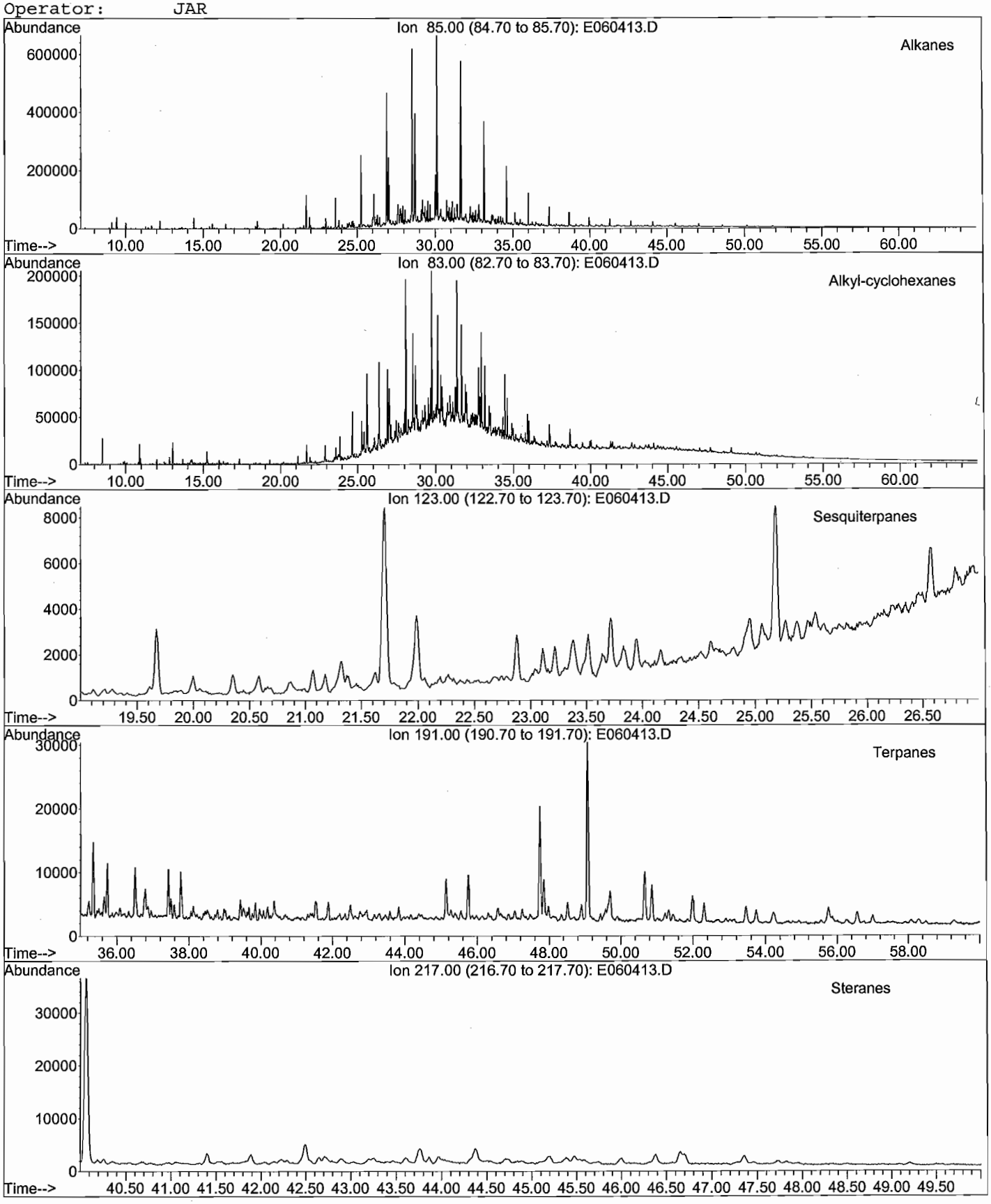
File: J:\1\DATA\E090604\E060426.D
Date Acquired: 6 Jun 2009 1:39 am
Method File: 4008SIMD.M
Sample Name: TA090528-01DUP-D
Misc Info: Duplicate of BP-SO-B05-06 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

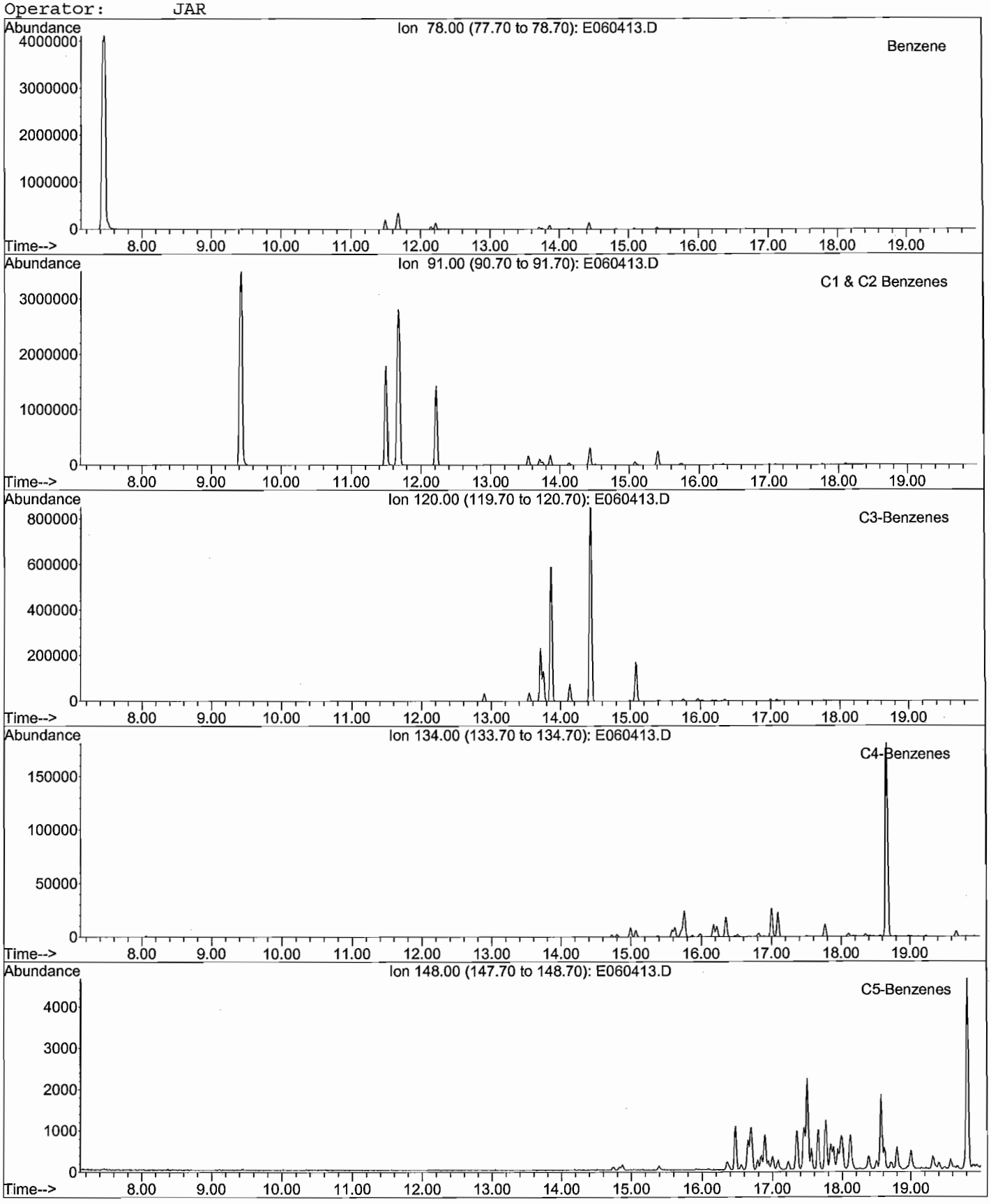
File: J:\1\DATA\E090604\E060413.D
Date Acquired: 5 Jun 2009 7:33 am
Method File: 4008SIMD.M
Sample Name: TA090529-01
Misc Info: BP-SO-B025-8
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

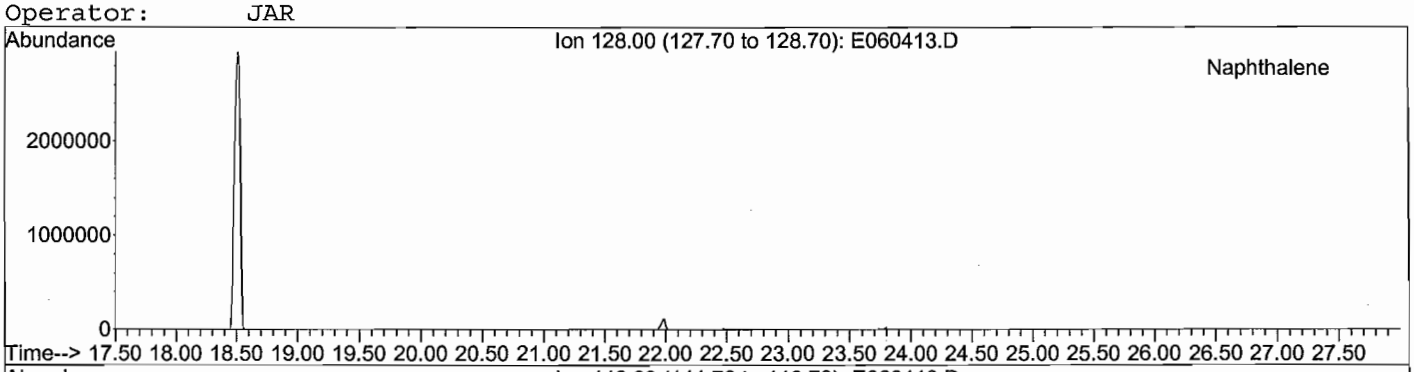
File: J:\1\DATA\E090604\E060413.D
Date Acquired: 5 Jun 2009 7:33 am
Method File: 4008SIMD.M
Sample Name: TA090529-01
Misc Info: BP-SO-B025-8
Operator: JAR

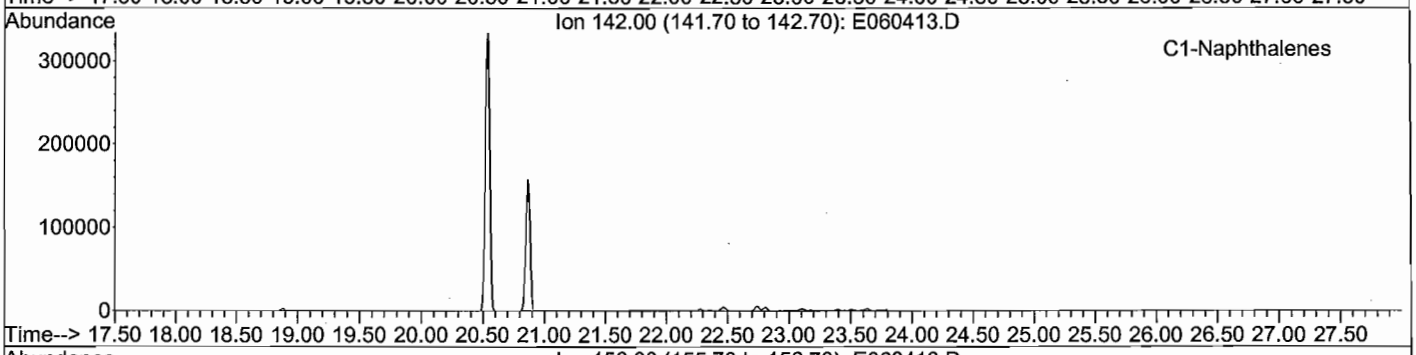


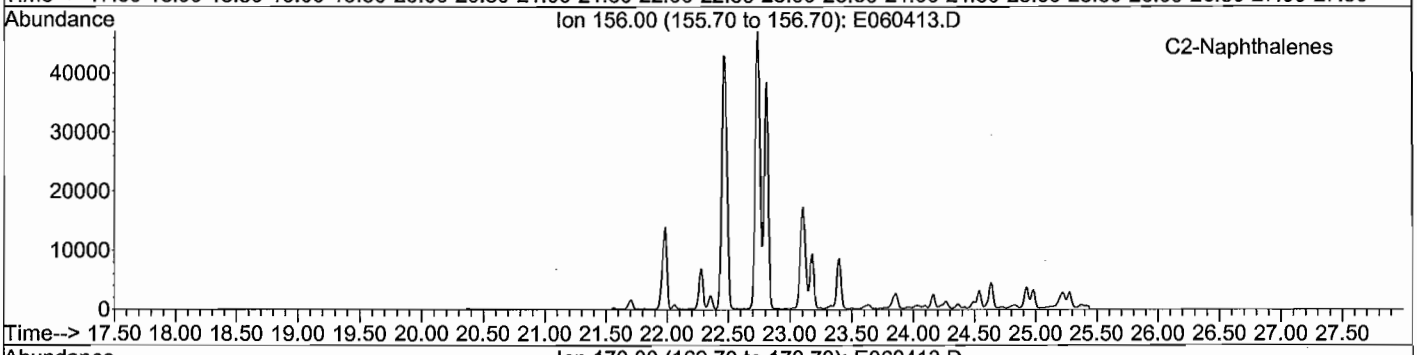
META Environmental, Inc.

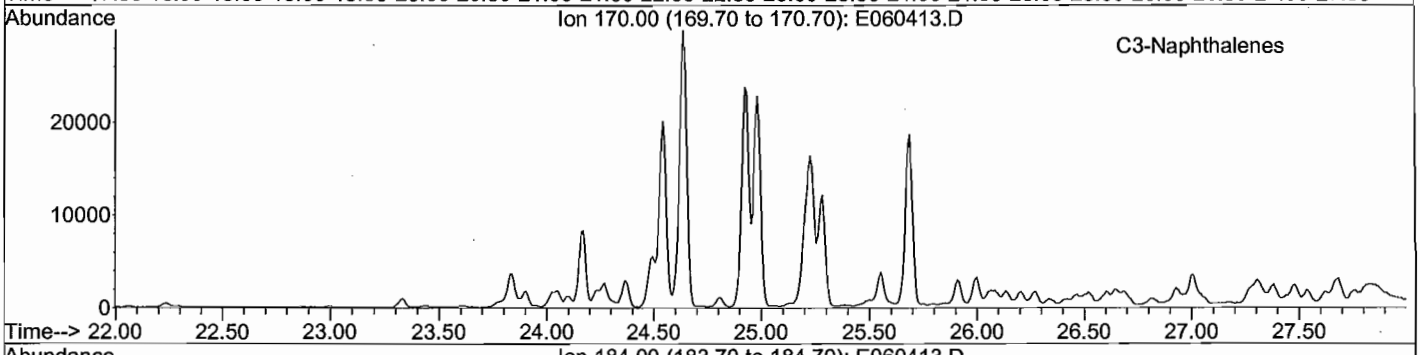
GC/MS EXTRACTED ION CHROMATOGRAM

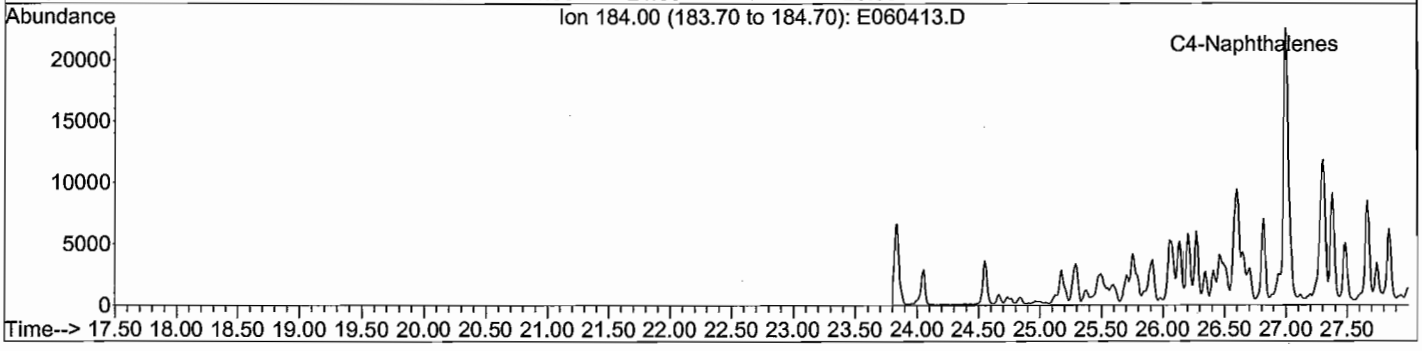
File: J:\1\DATA\E090604\E060413.D
Date Acquired: 5 Jun 2009 7:33 am
Method File: 4008SIMD.M
Sample Name: TA090529-01
Misc Info: BP-SO-B025-8
Operator: JAR







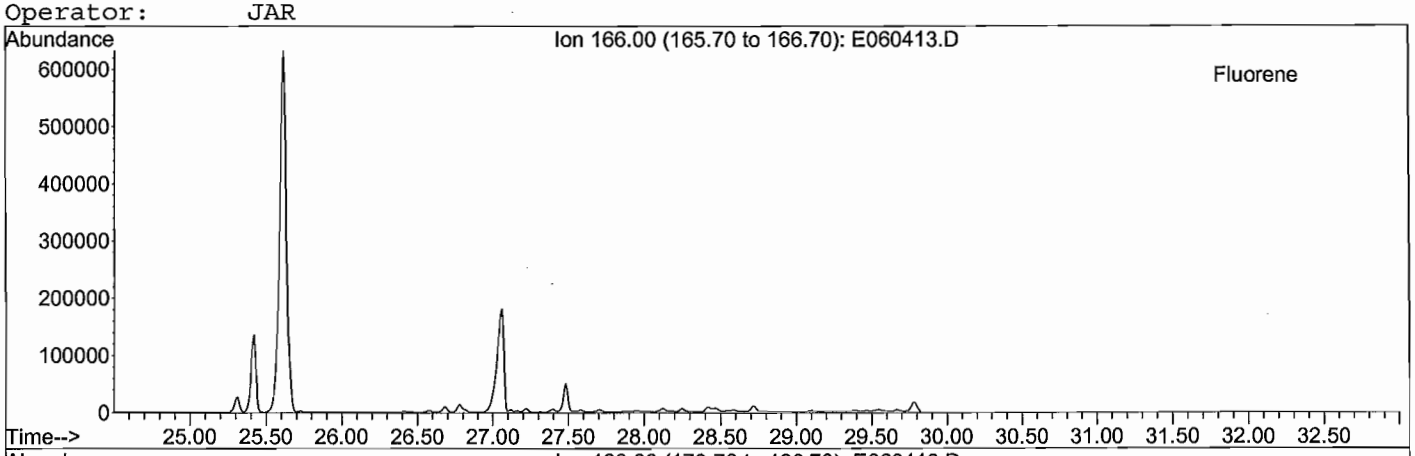


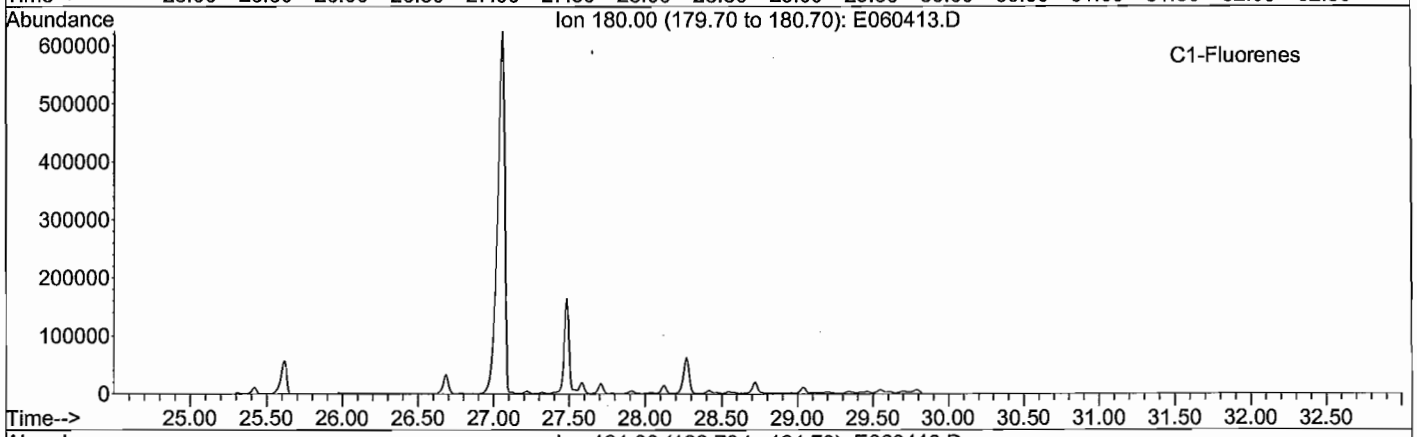


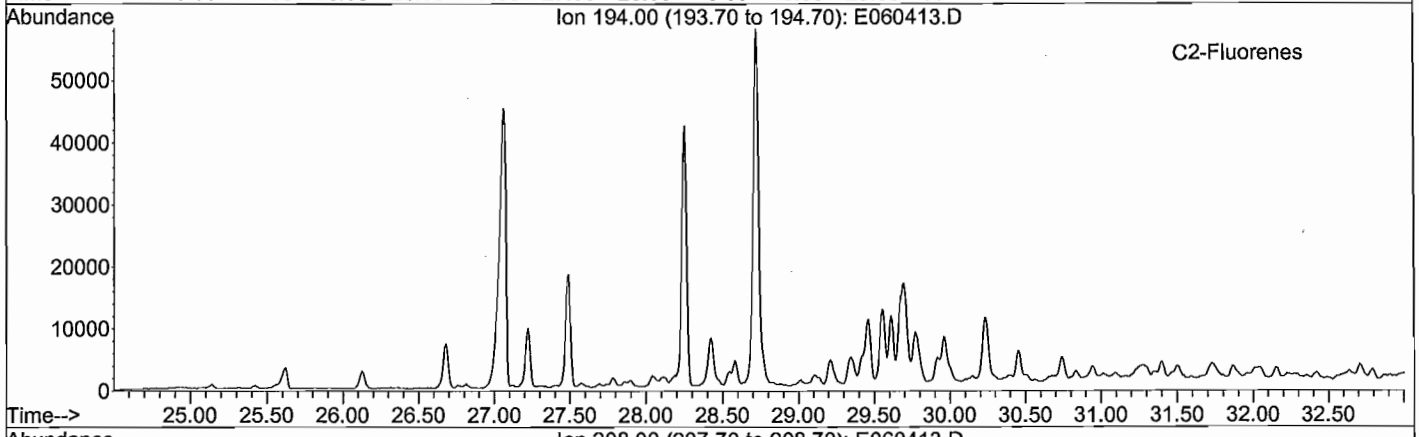
META Environmental, Inc.

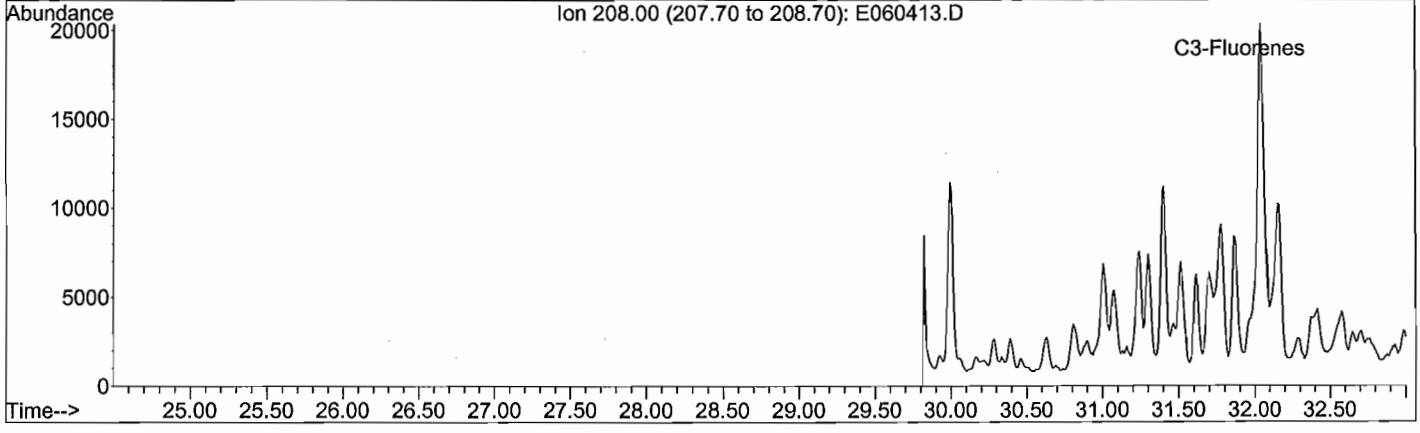
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060413.D
Date Acquired: 5 Jun 2009 7:33 am
Method File: 4008SIMD.M
Sample Name: TA090529-01
Misc Info: BP-SO-B025-8
Operator: JAR





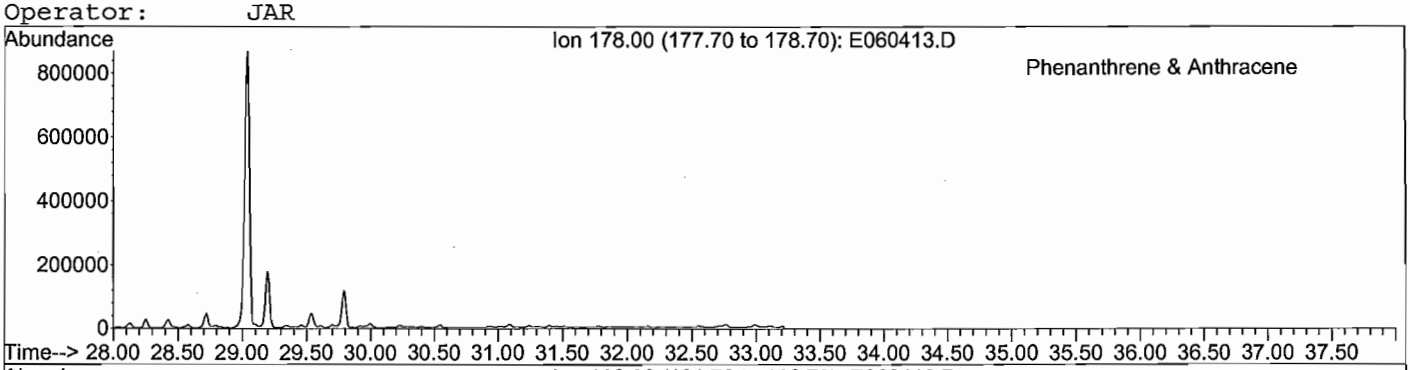


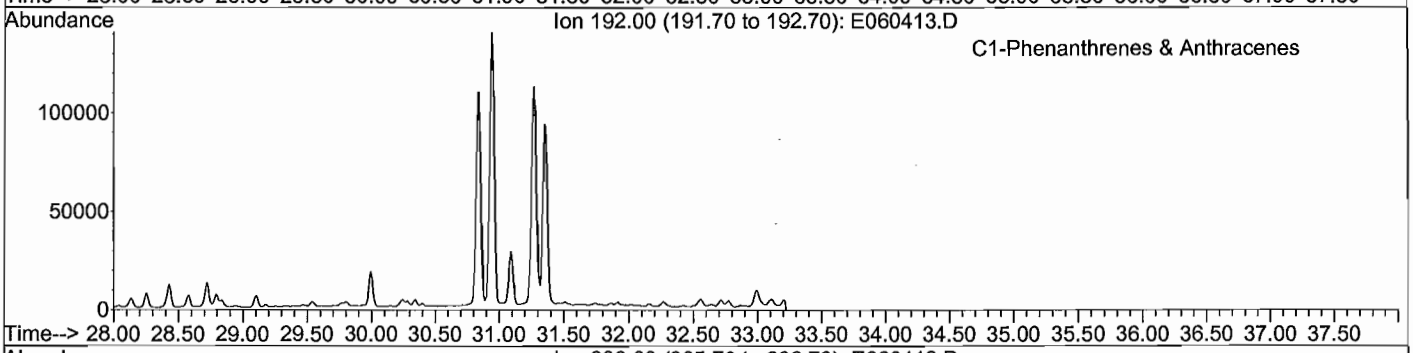


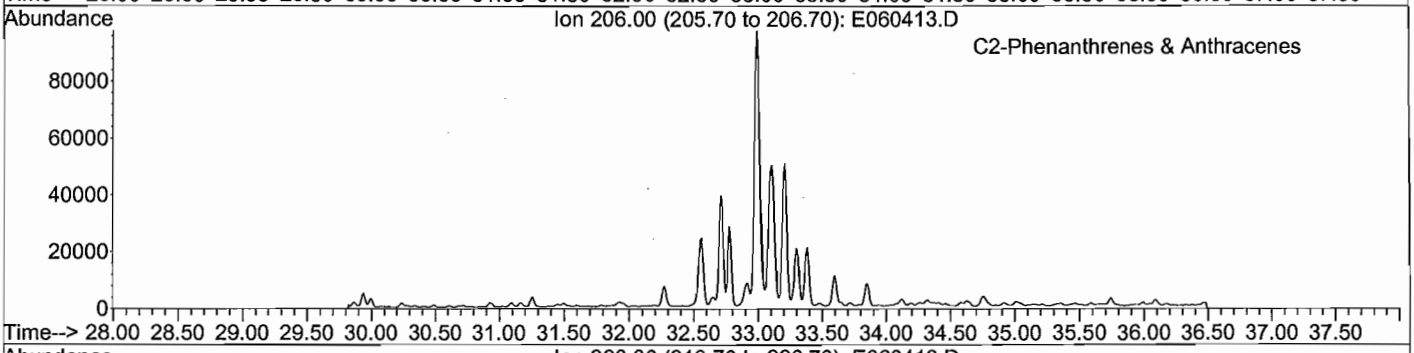
META Environmental, Inc.

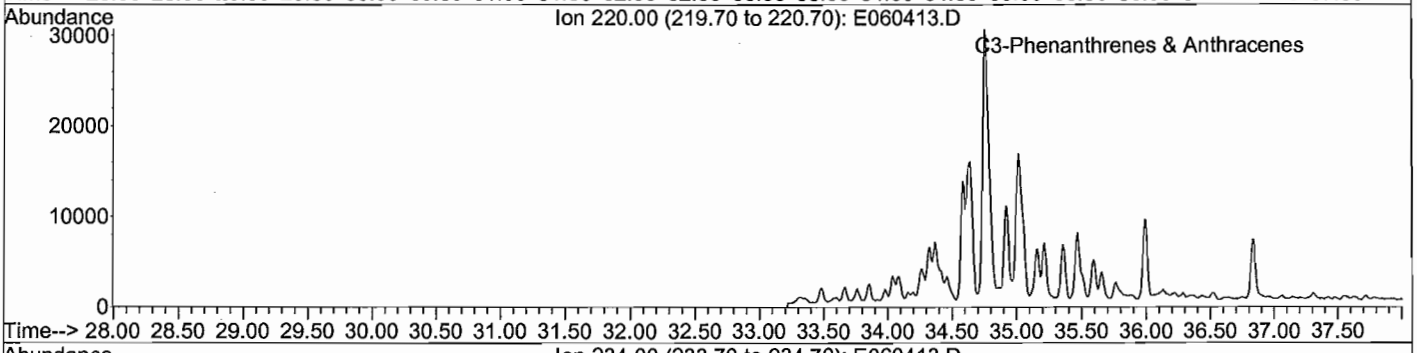
GC/MS EXTRACTED ION CHROMATOGRAM

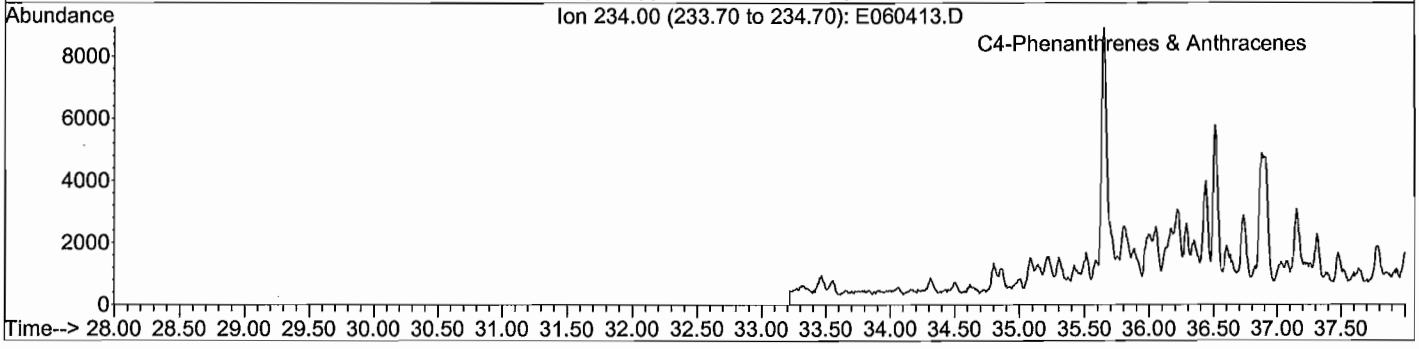
File: J:\1\DATA\E090604\E060413.D
Date Acquired: 5 Jun 2009 7:33 am
Method File: 4008SIMD.M
Sample Name: TA090529-01
Misc Info: BP-SO-B025-8
Operator: JAR







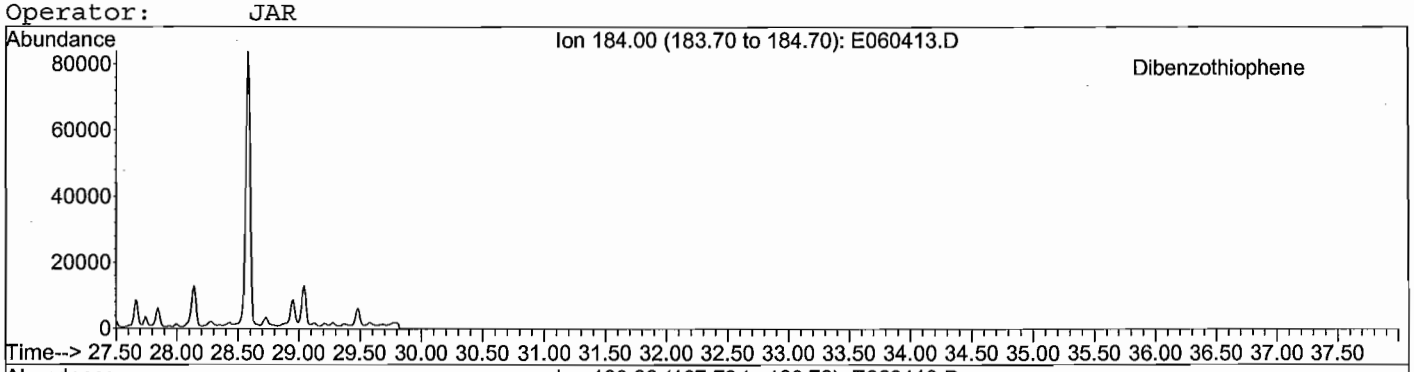


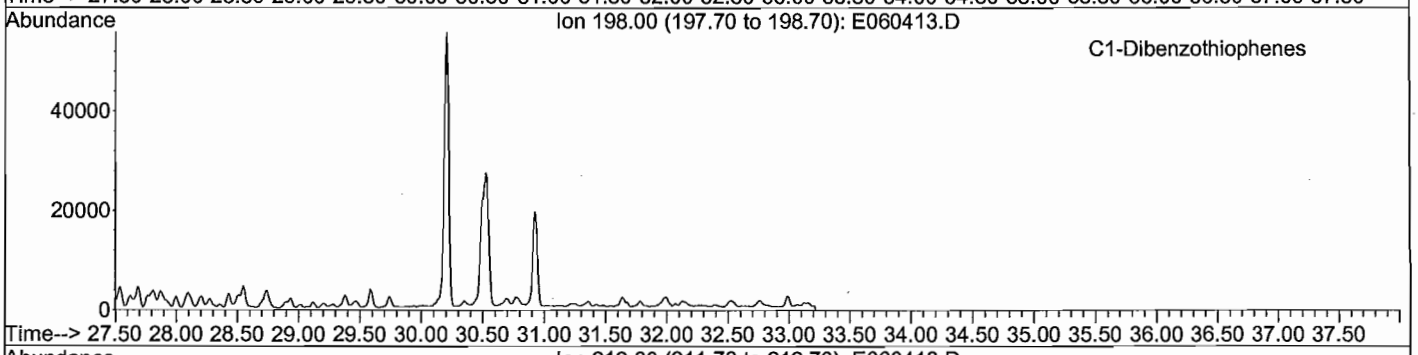


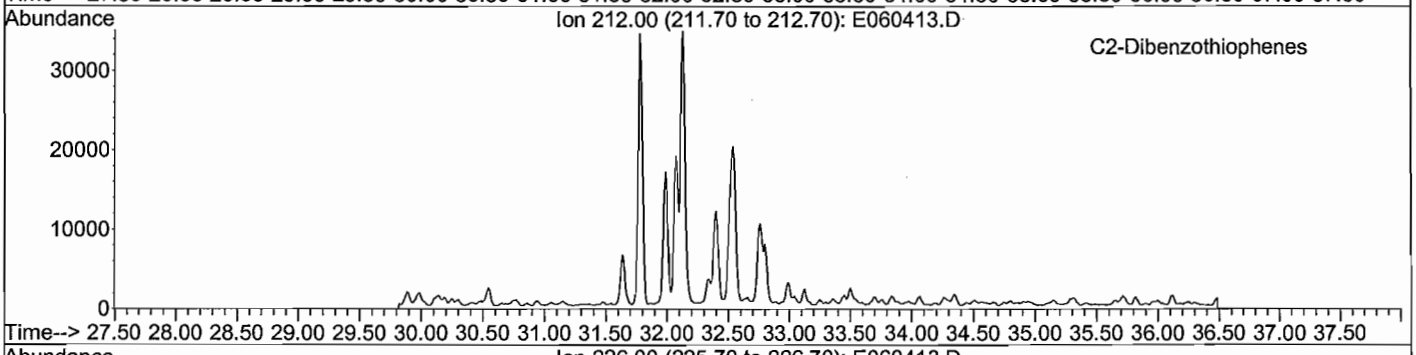
META Environmental, Inc.

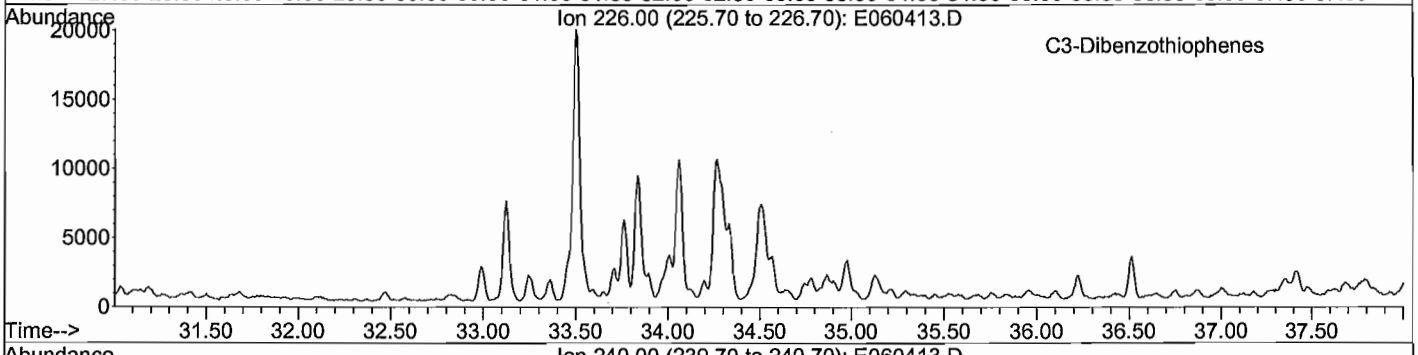
GC/MS EXTRACTED ION CHROMATOGRAM

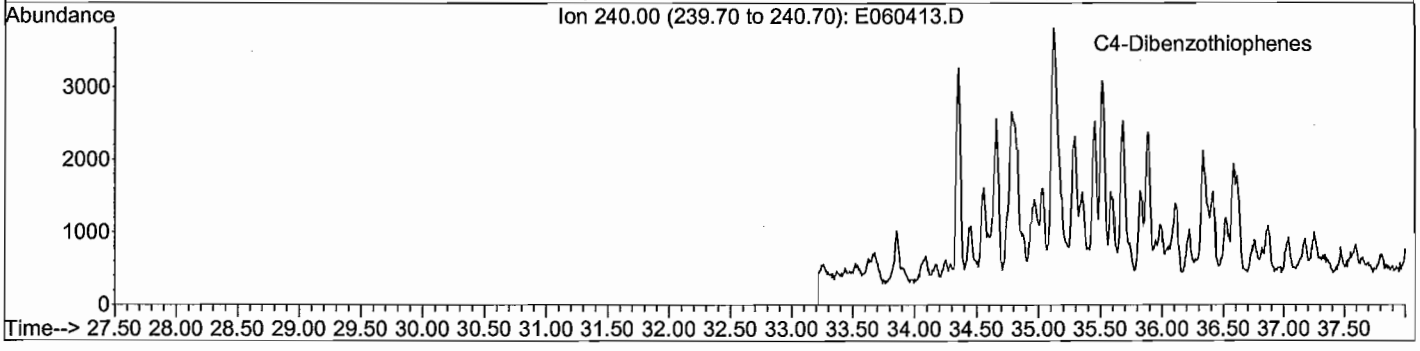
File: J:\1\DATA\E090604\E060413.D
Date Acquired: 5 Jun 2009 7:33 am
Method File: 4008SIMD.M
Sample Name: TA090529-01
Misc Info: BP-SO-B025-8
Operator: JAR











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GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060413.D
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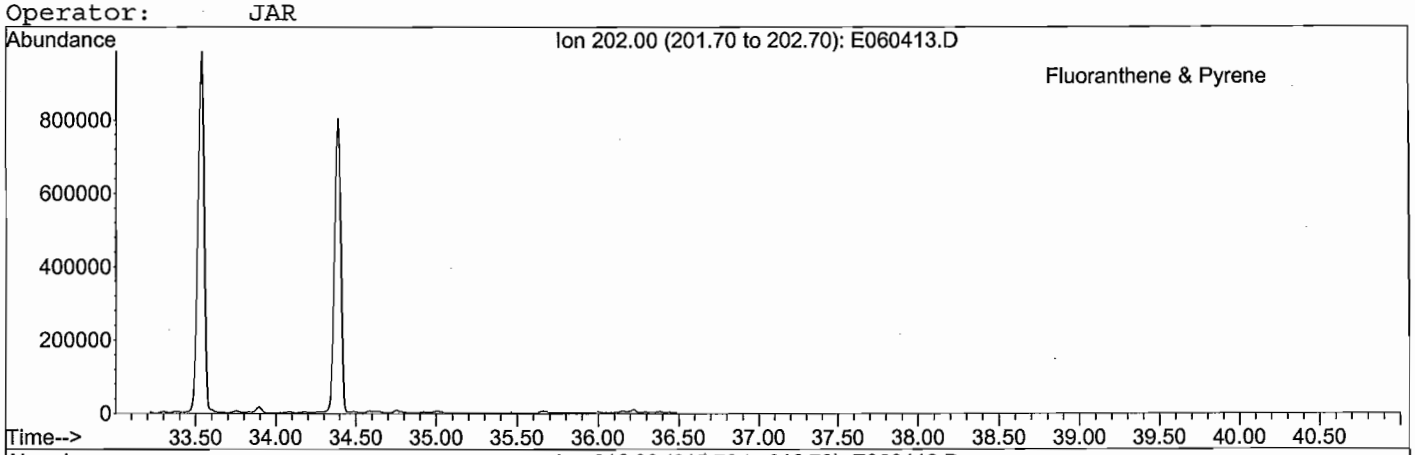
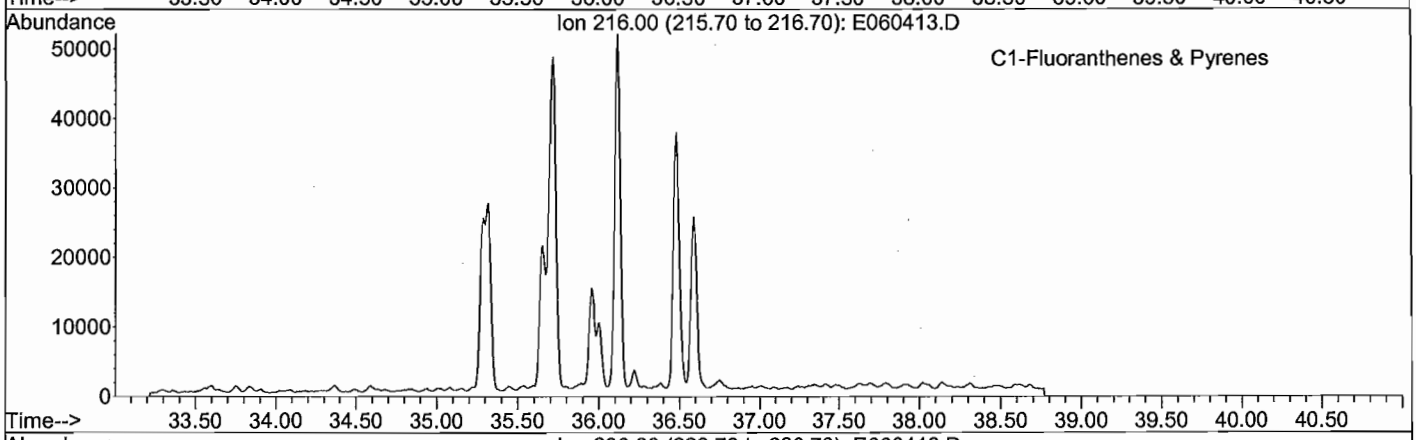
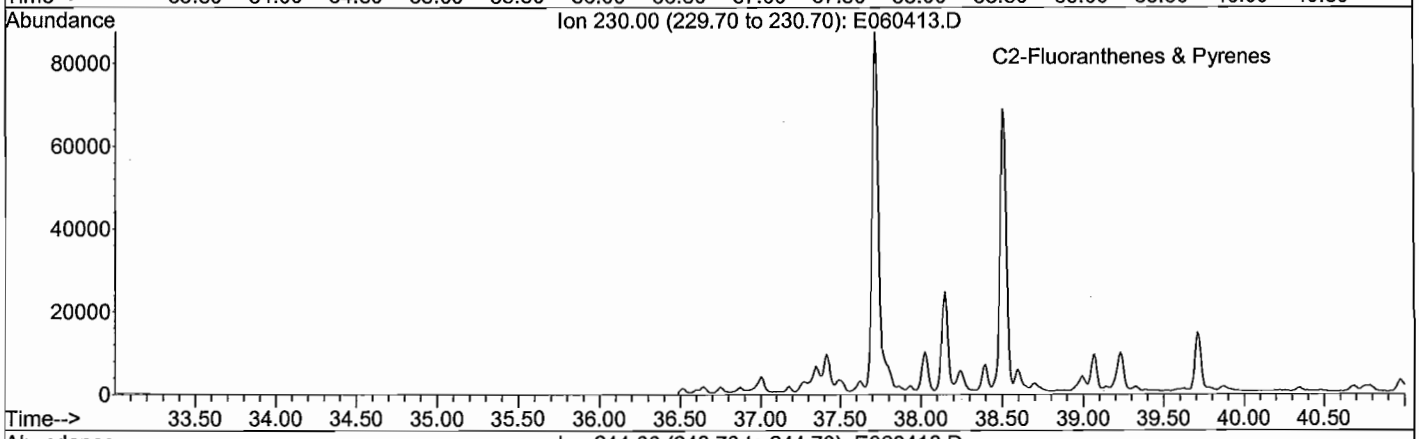
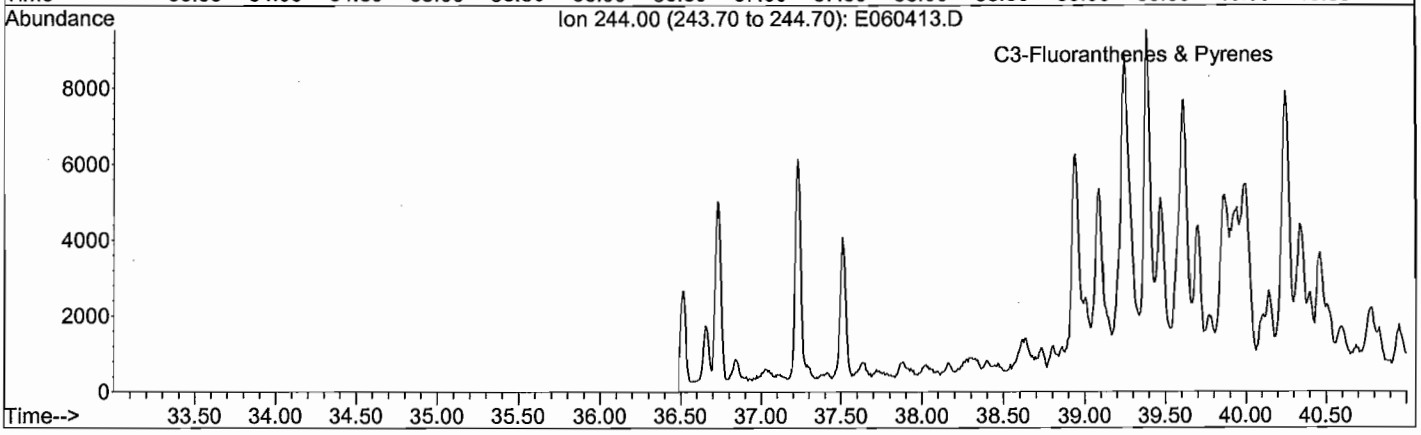
Operator: JAR





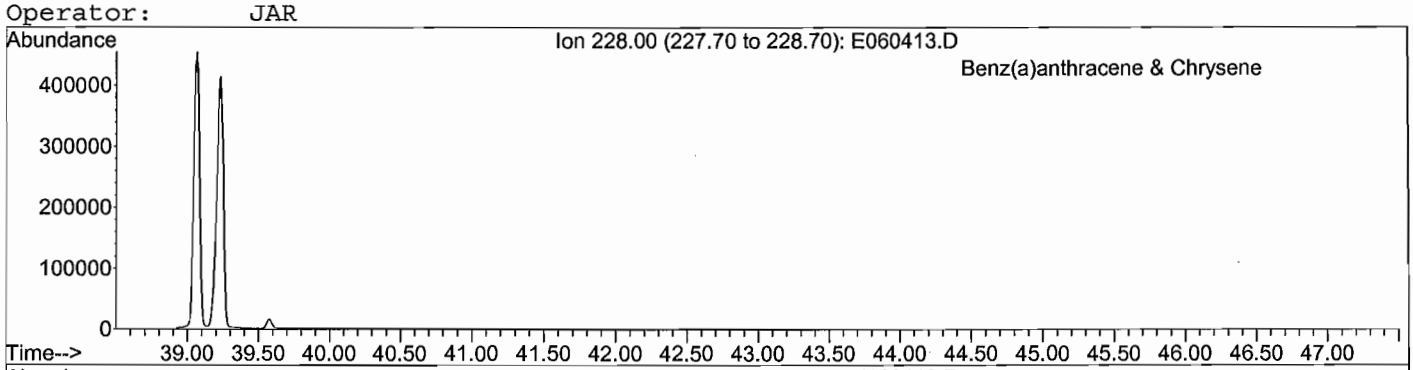


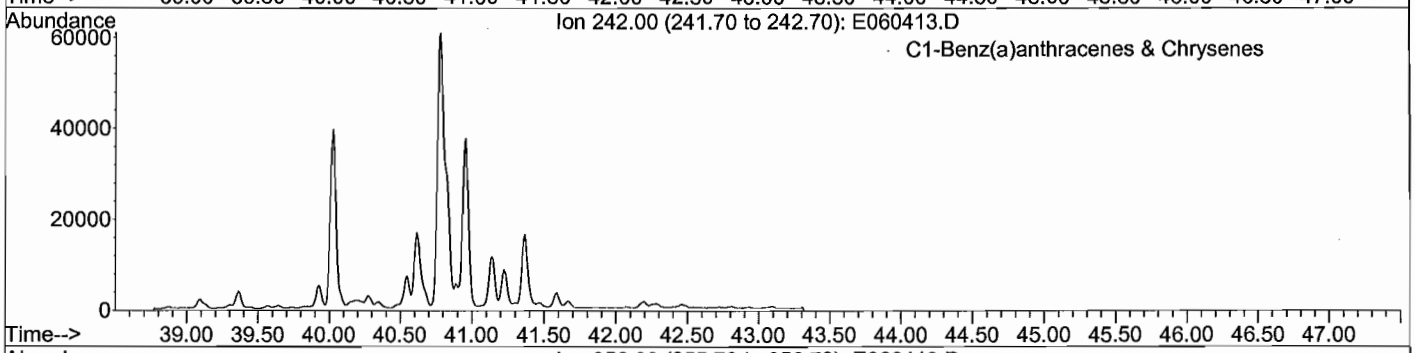


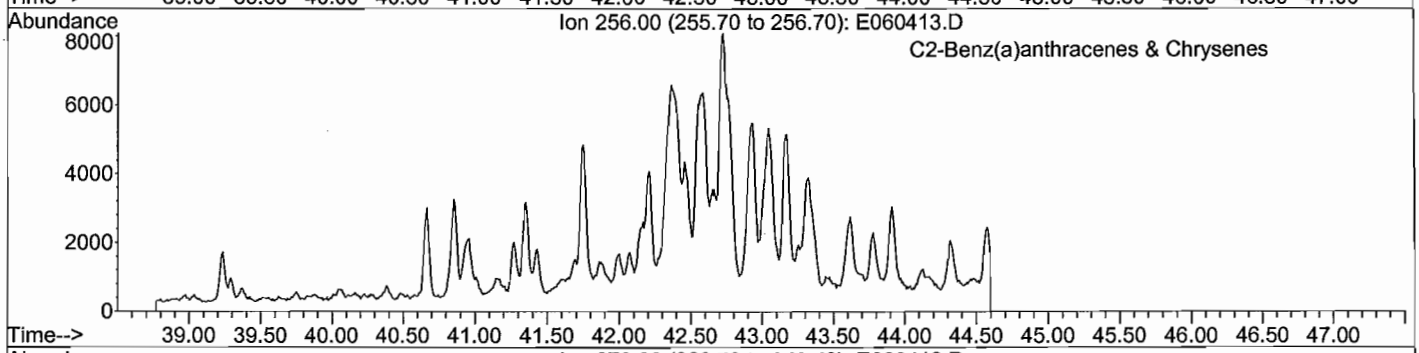
META Environmental, Inc.

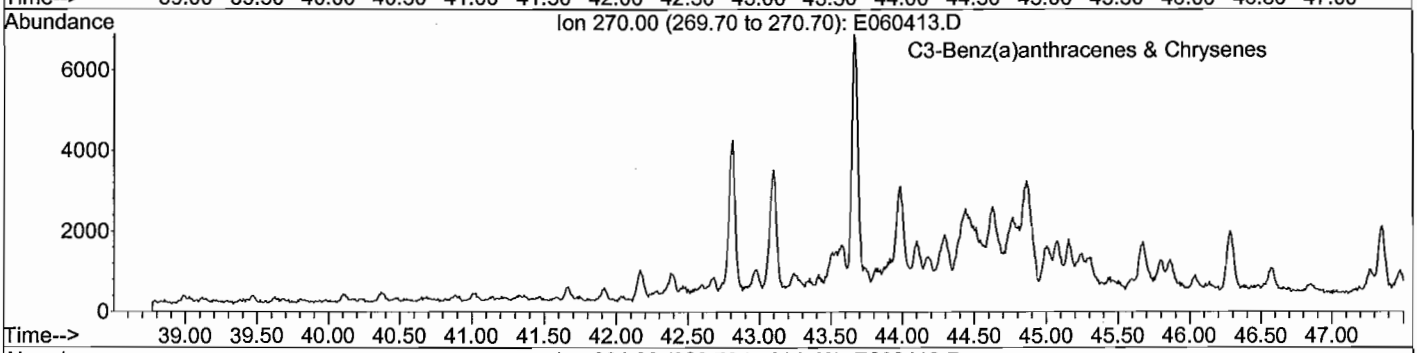
GC/MS EXTRACTED ION CHROMATOGRAM

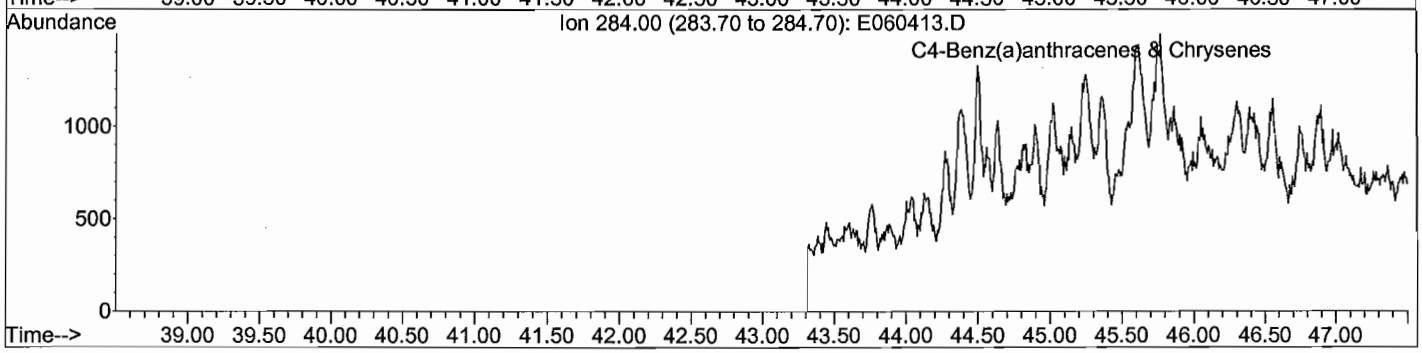
File: J:\1\DATA\E090604\E060413.D
Date Acquired: 5 Jun 2009 7:33 am
Method File: 4008SIMD.M
Sample Name: TA090529-01
Misc Info: BP-SO-B025-8
Operator: JAR







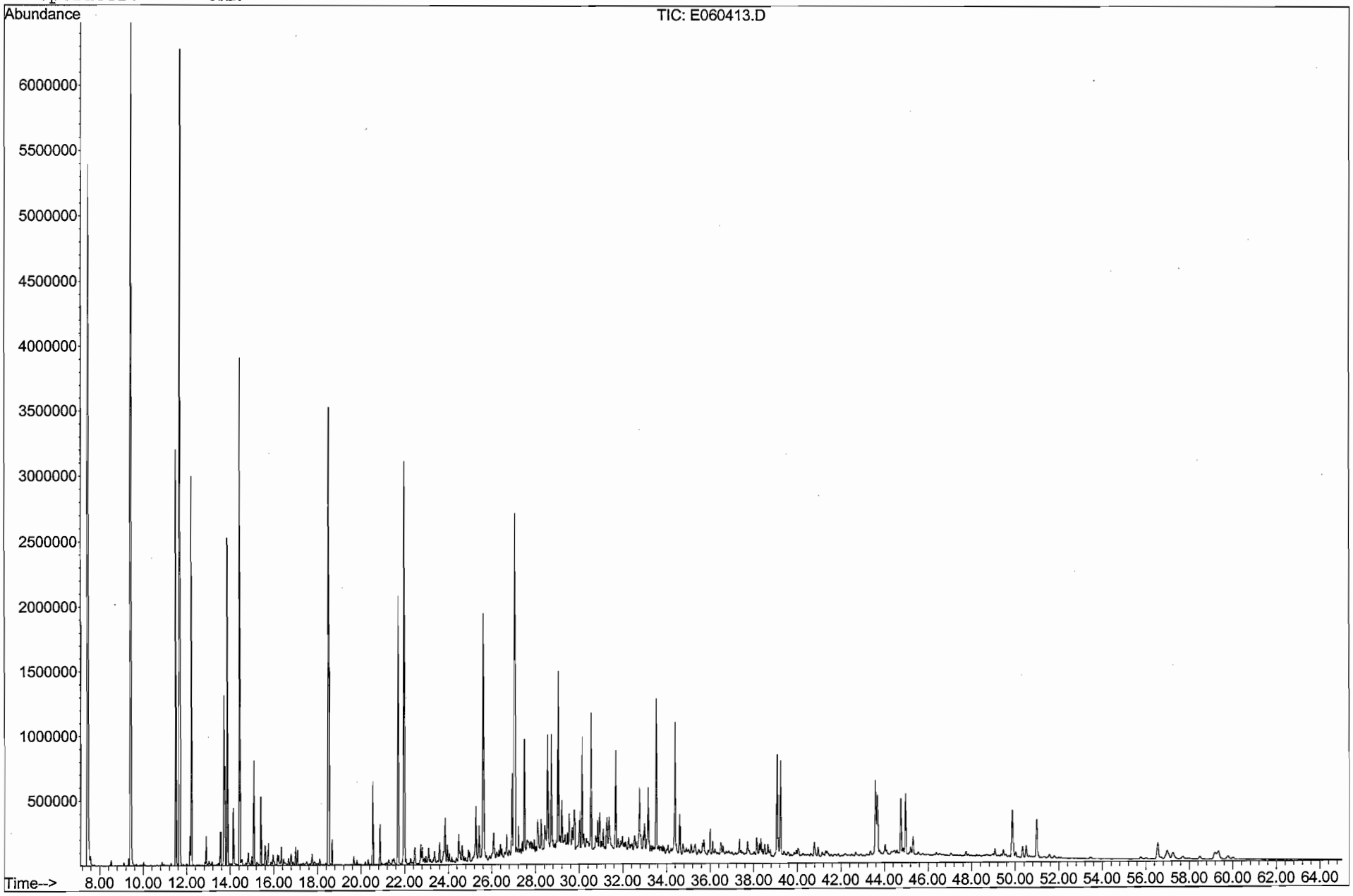




META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

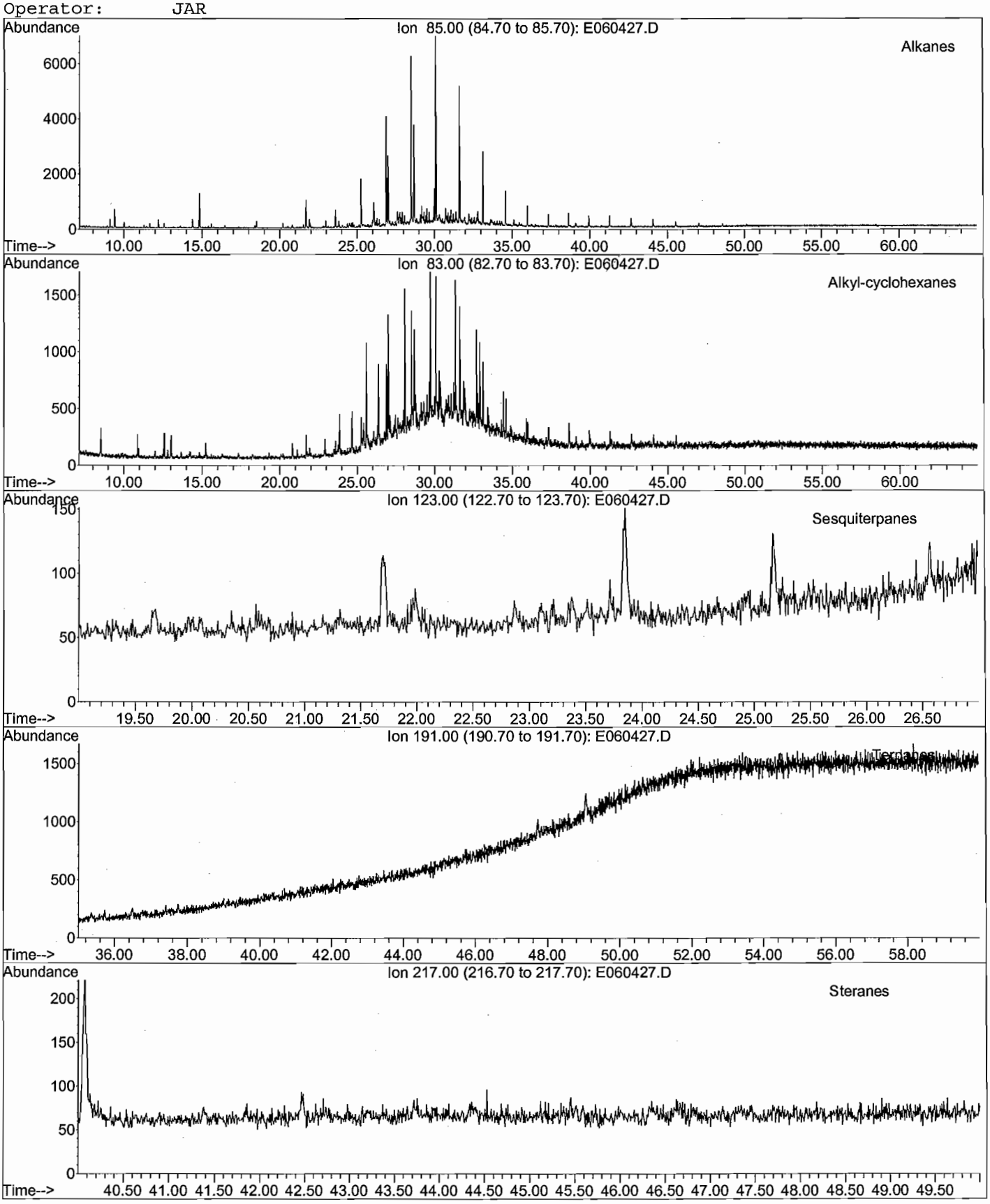
File: J:\1\DATA\E090604\E060413.D
Date Acquired: 5 Jun 2009 7:33 am
Method File: 4008SIMD.M
Sample Name: TA090529-01
Misc Info: BP-SO-B025-8
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

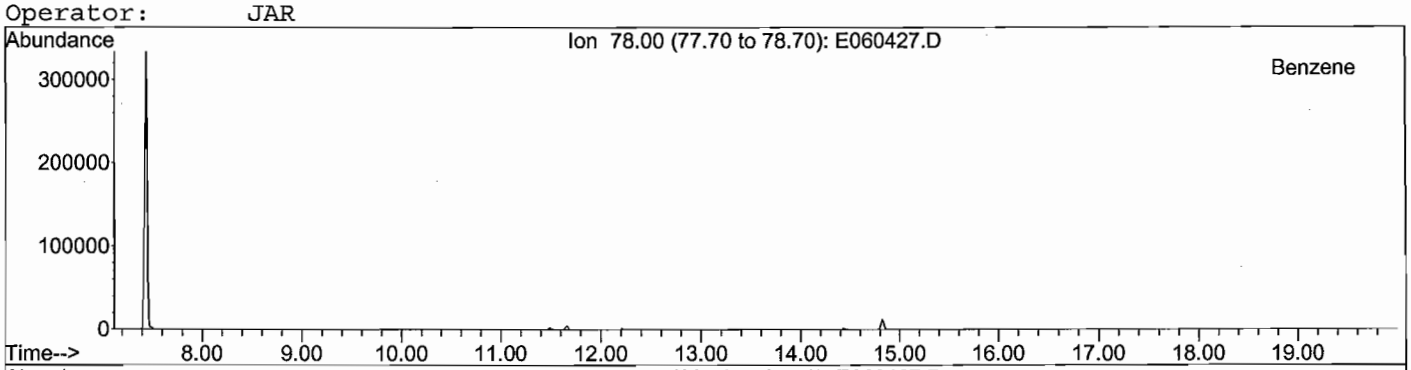
File: J:\1\DATA\E090604\E060427.D
Date Acquired: 6 Jun 2009 2:56 am
Method File: 4008SIMD.M
Sample Name: TA090529-01-D
Misc Info: BP-SO-B025-8 - 100x
Operator: JAR

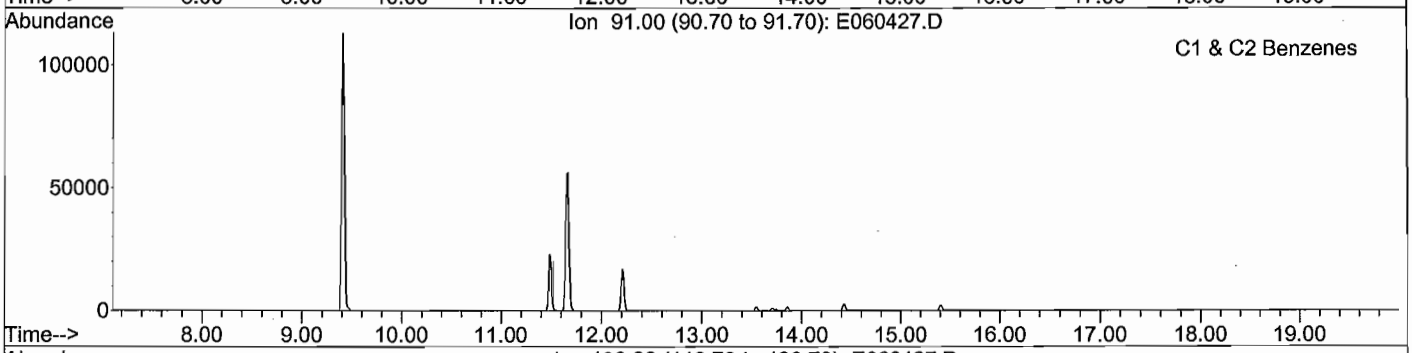


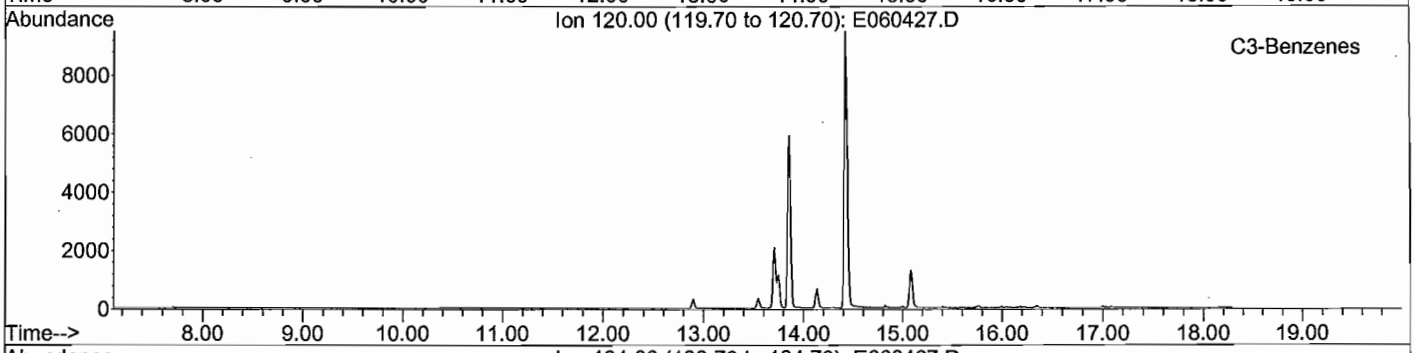
META Environmental, Inc.

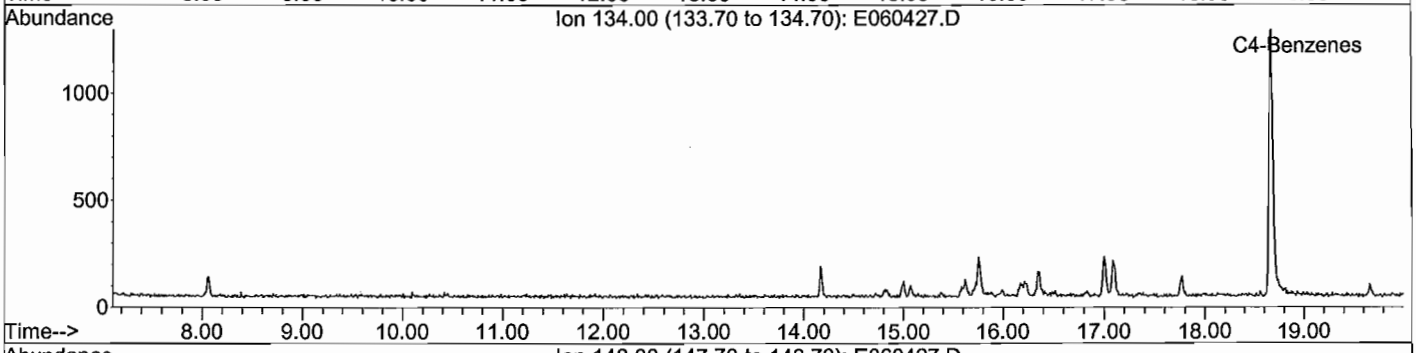
GC/MS EXTRACTED ION CHROMATOGRAM

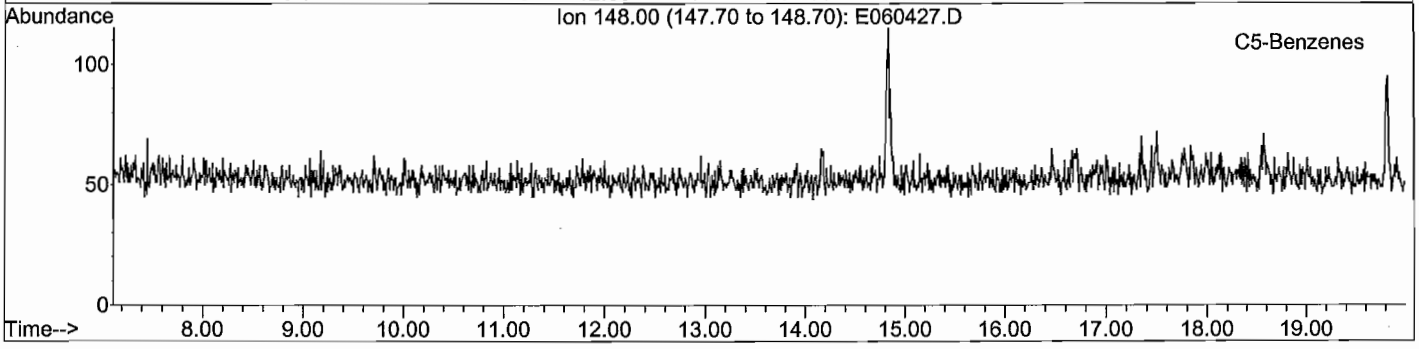
File: J:\1\DATA\E090604\E060427.D
Date Acquired: 6 Jun 2009 2:56 am
Method File: 4008SIMD.M
Sample Name: TA090529-01-D
Misc Info: BP-SO-B025-8 - 100x
Operator: JAR







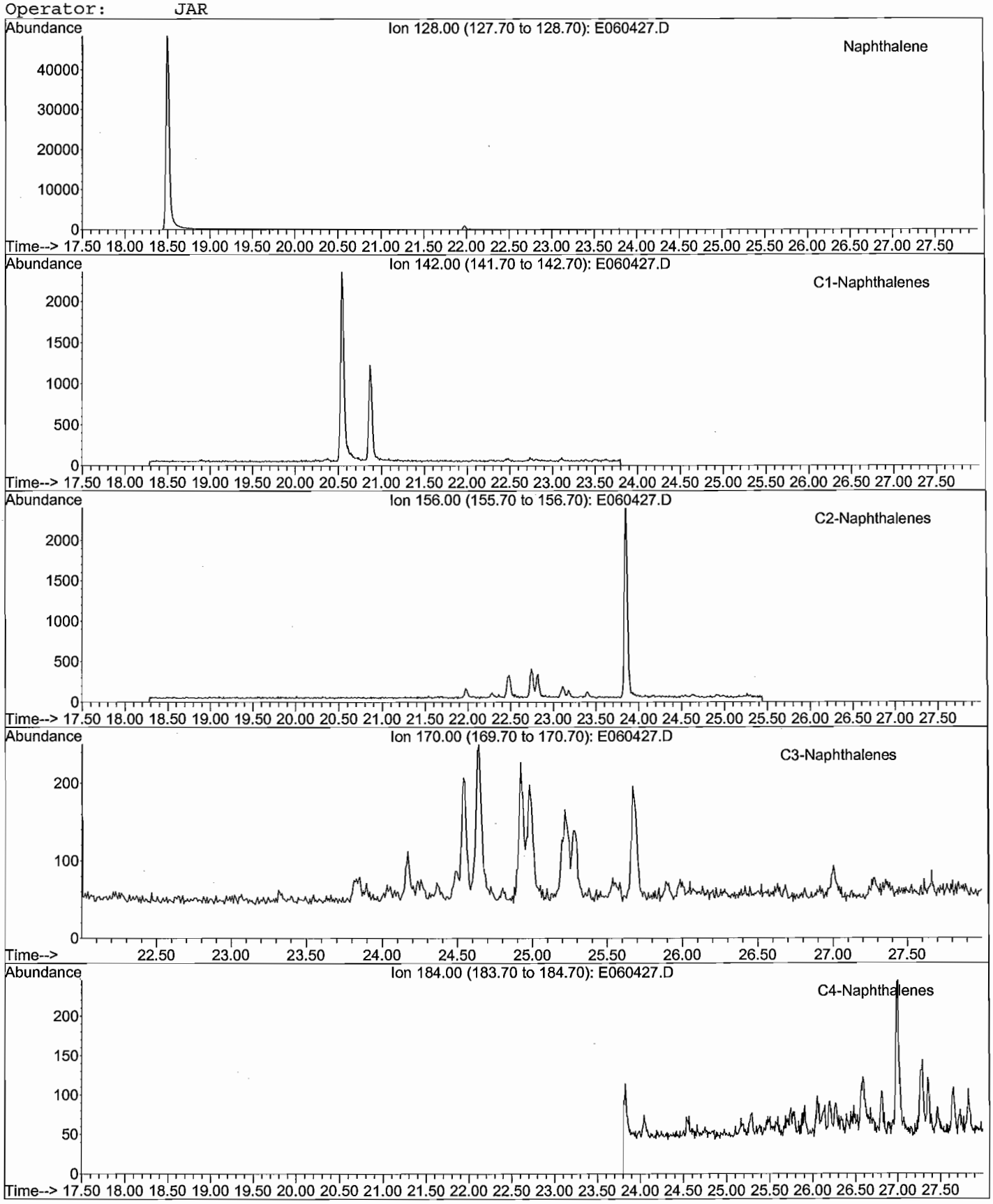




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060427.D
Date Acquired: 6 Jun 2009 2:56 am
Method File: 4008SIMD.M
Sample Name: TA090529-01-D
Misc Info: BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090604\E060427.D
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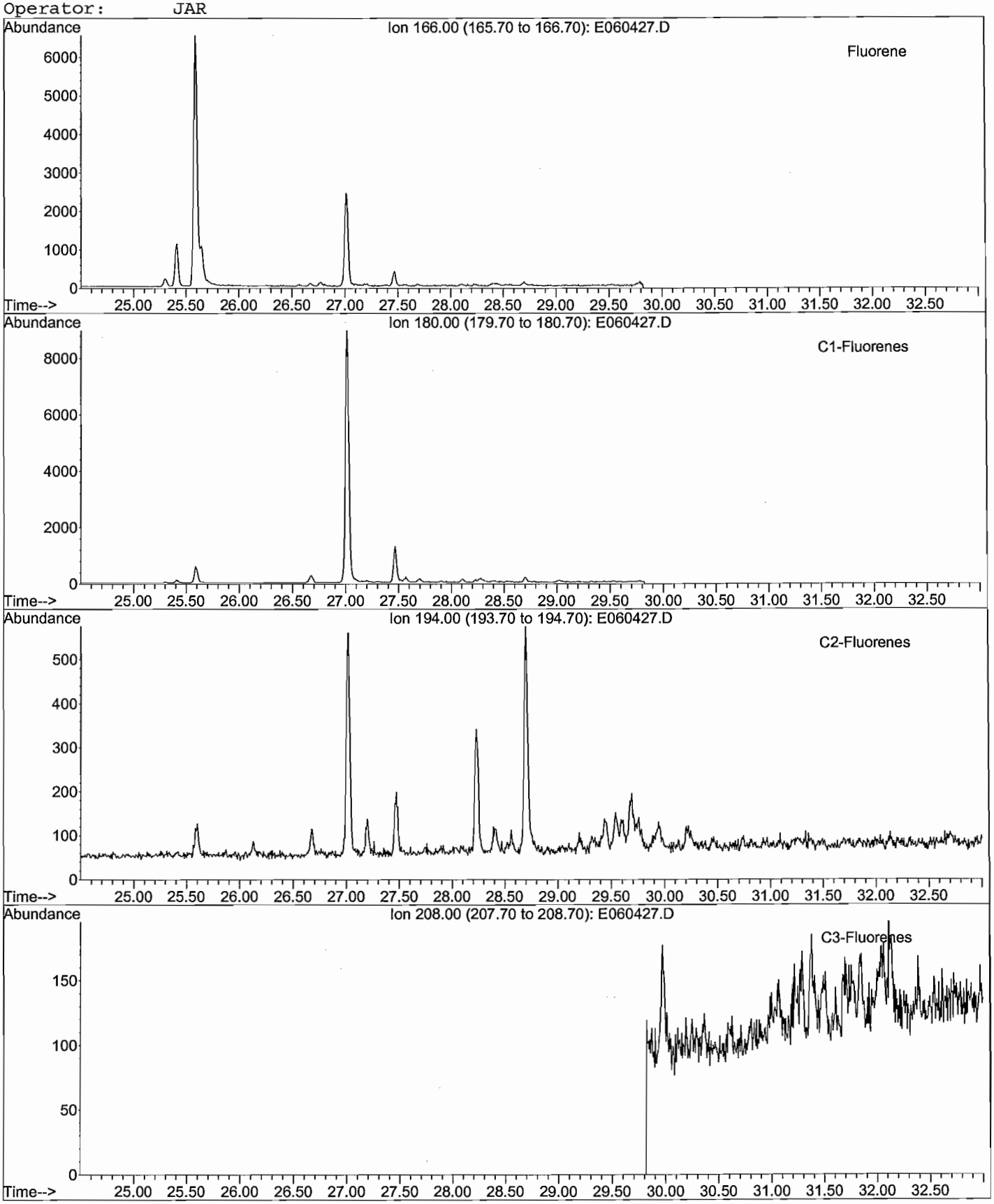

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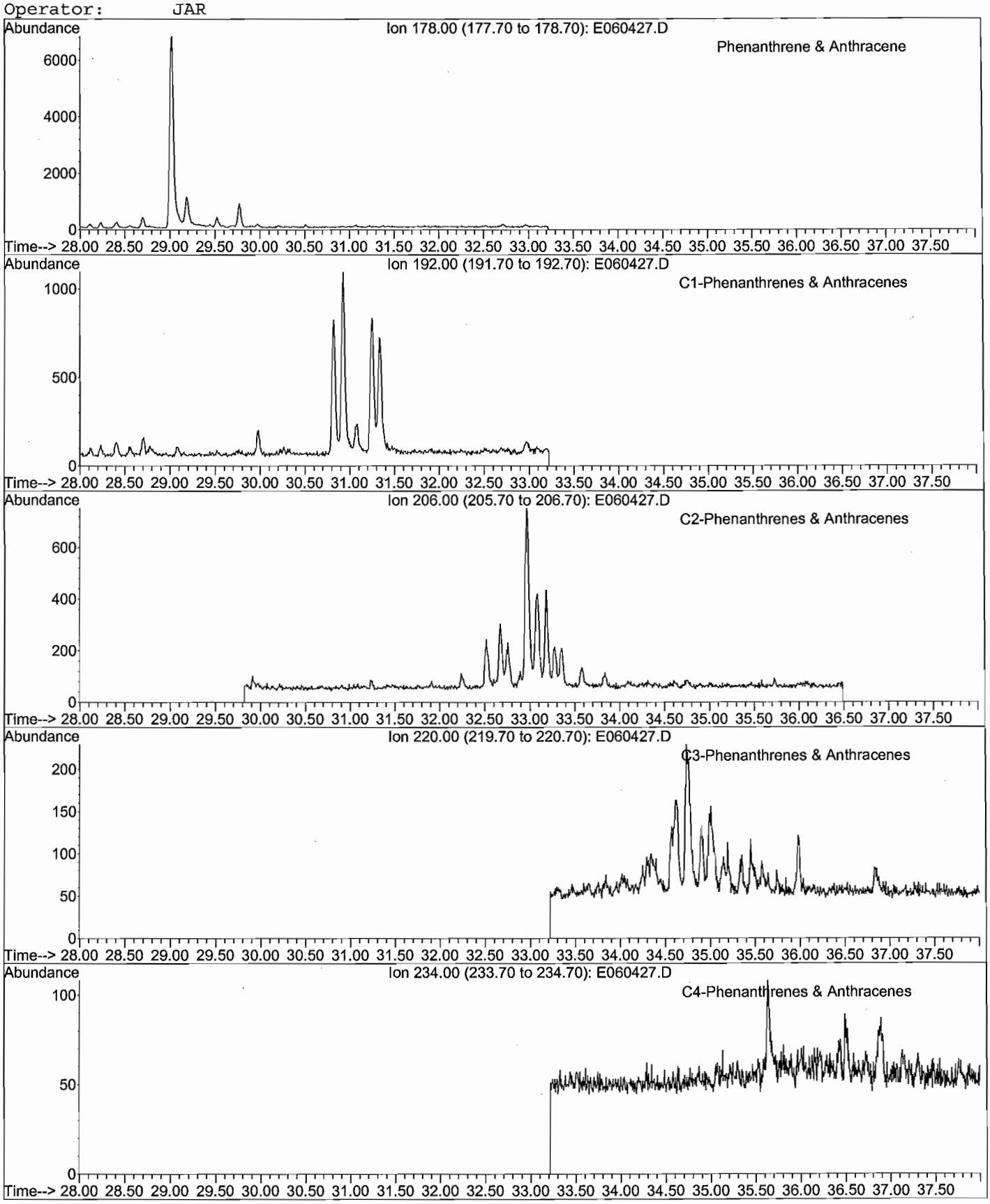

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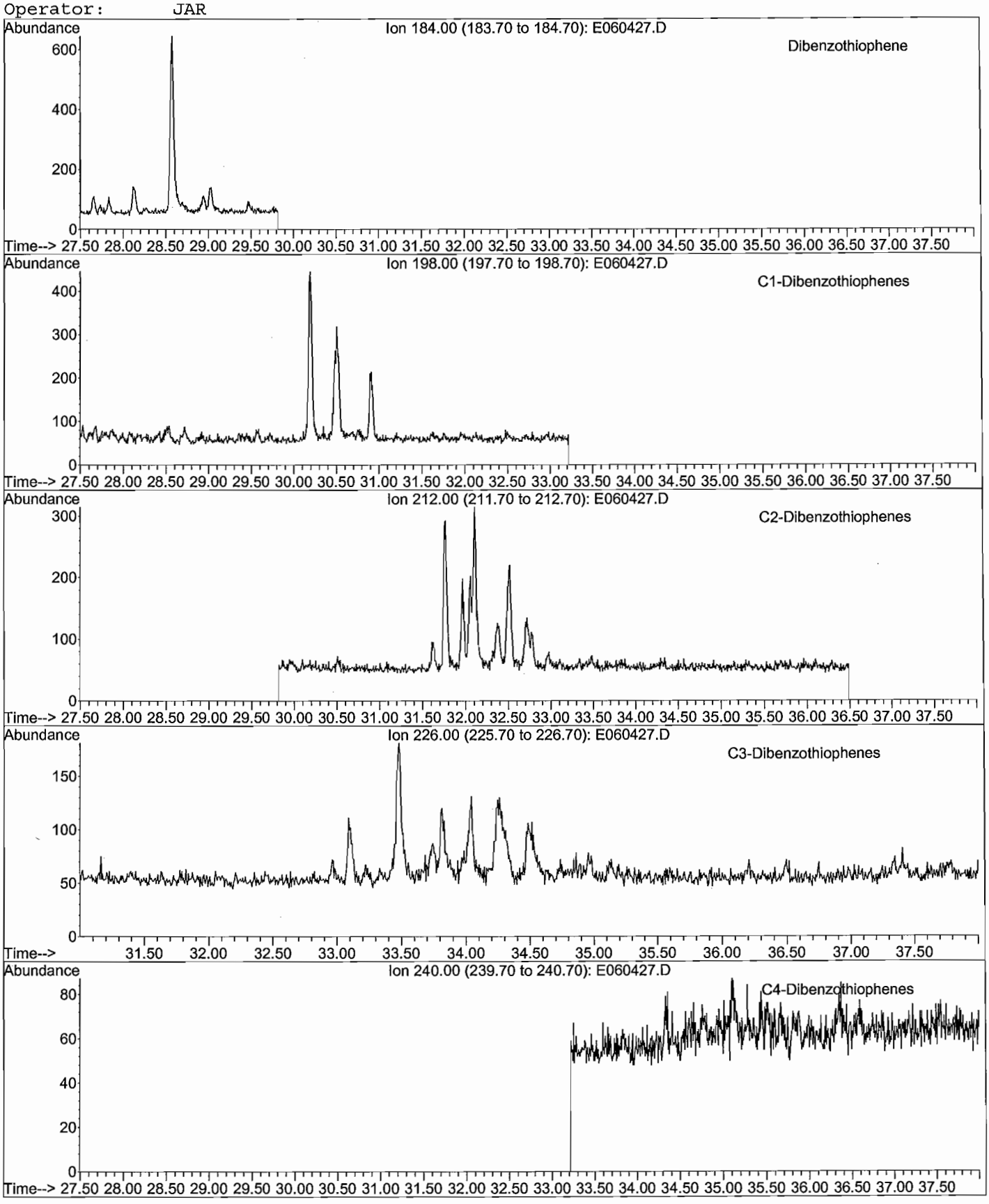
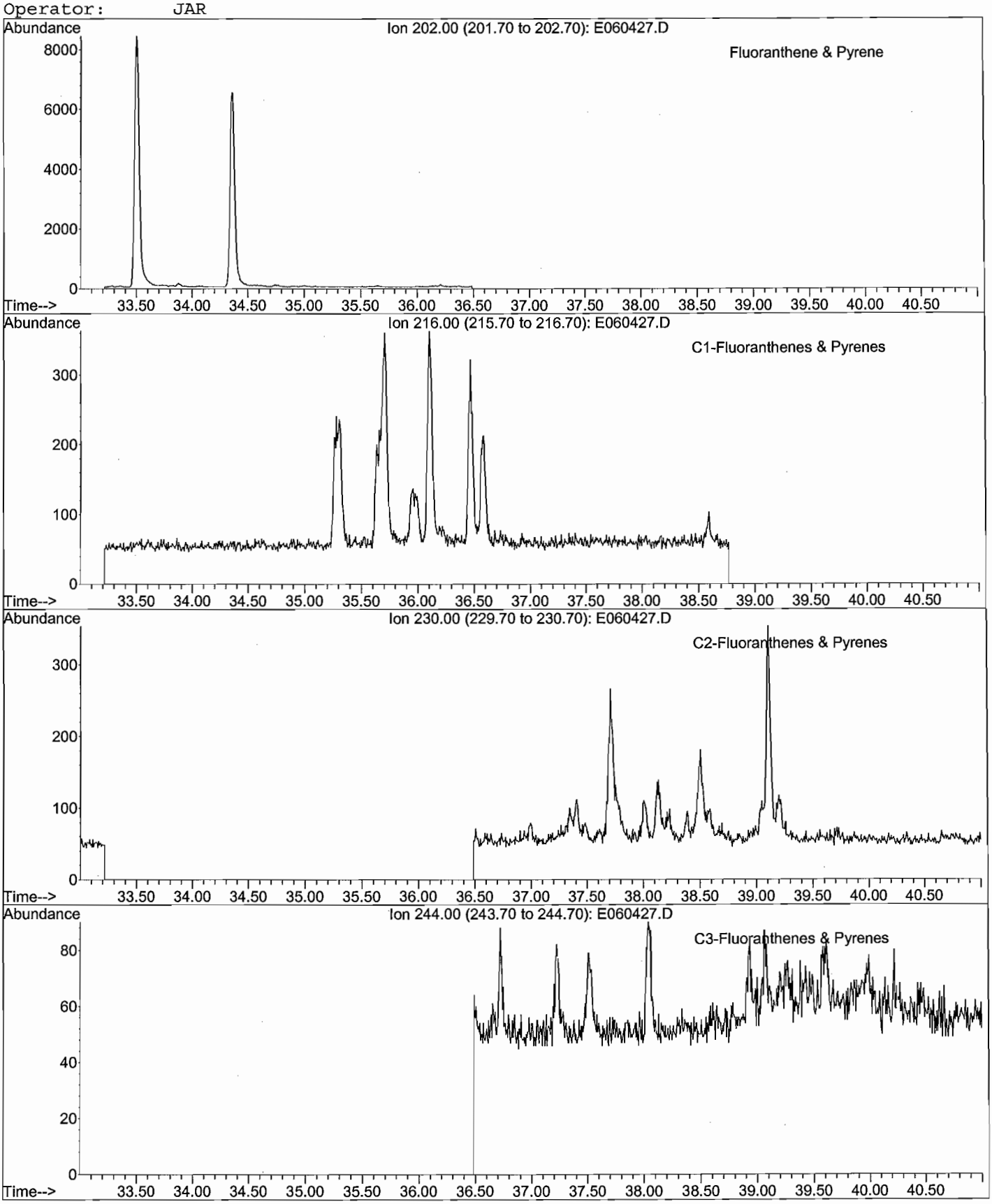
Method File: 4008SIMD.M
Sample Name: TA090529-01-D
Misc Info: BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

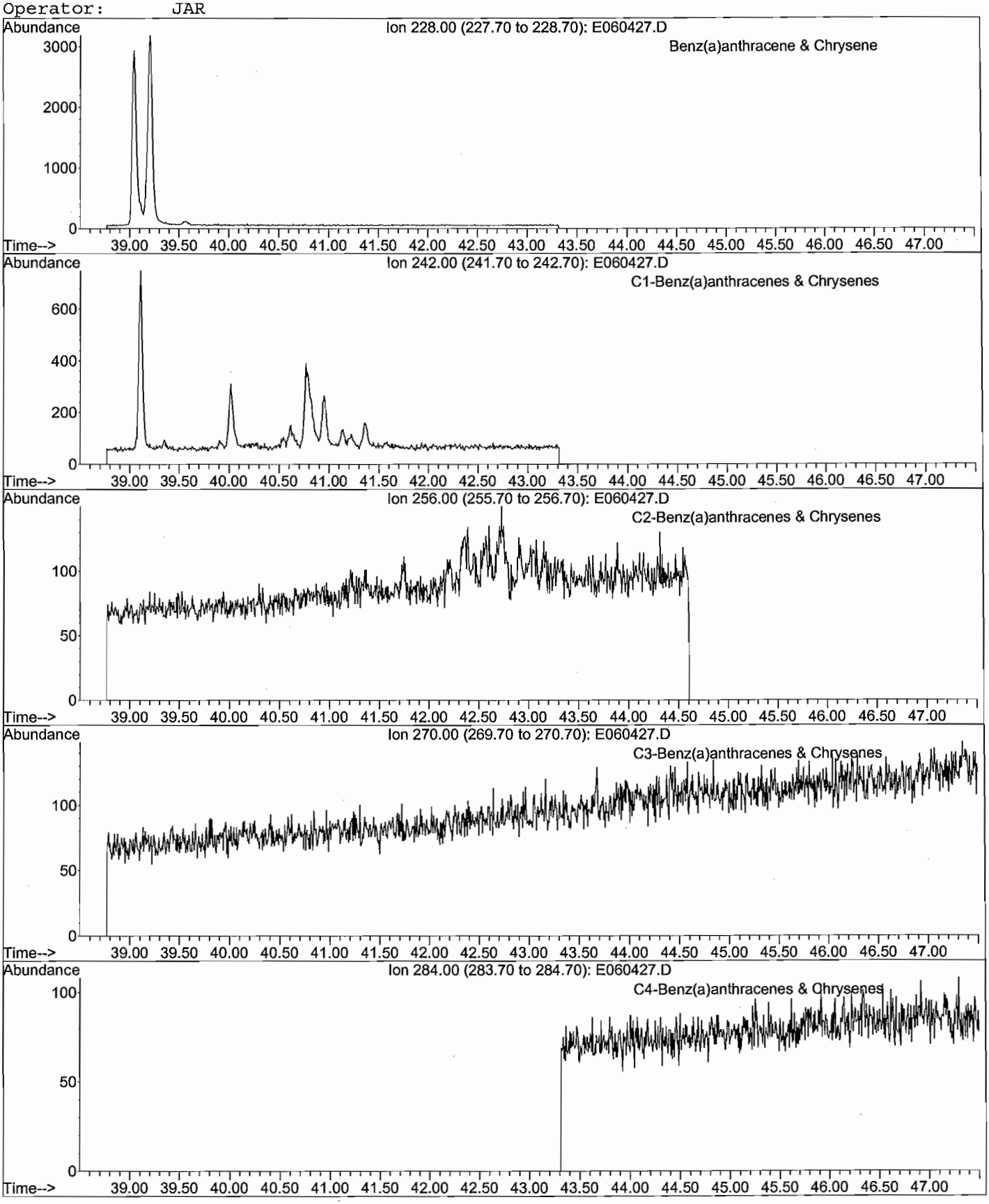
File: J:\1\DATA\E090604\E060427.D
Date Acquired: 6 Jun 2009 2:56 am
Method File: 4008SIMD.M
Sample Name: TA090529-01-D
Misc Info: BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

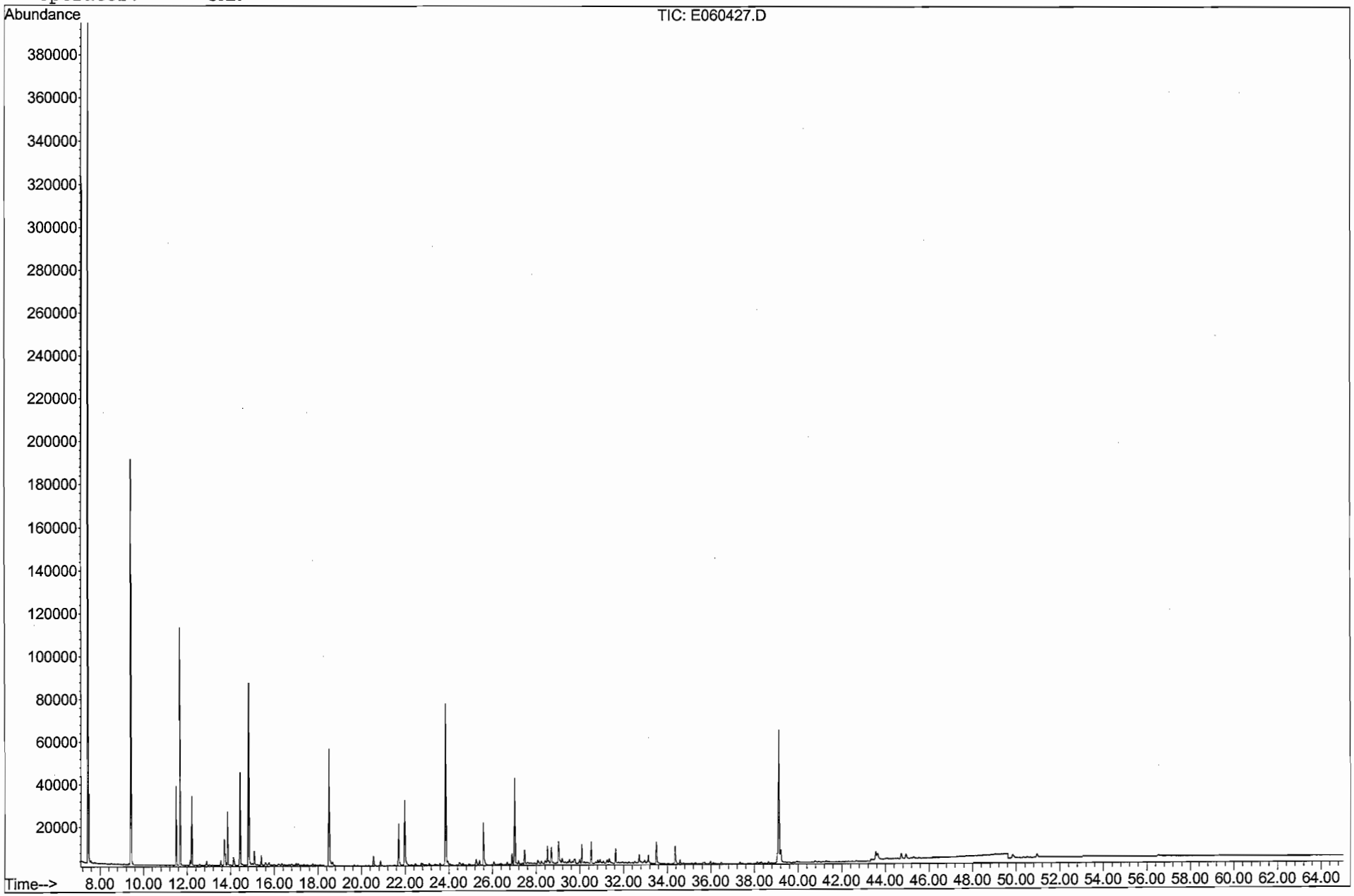
File: J:\1\DATA\E090604\E060427.D
Date Acquired: 6 Jun 2009 2:56 am
Method File: 4008SIMD.M
Sample Name: TA090529-01-D
Misc Info: BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

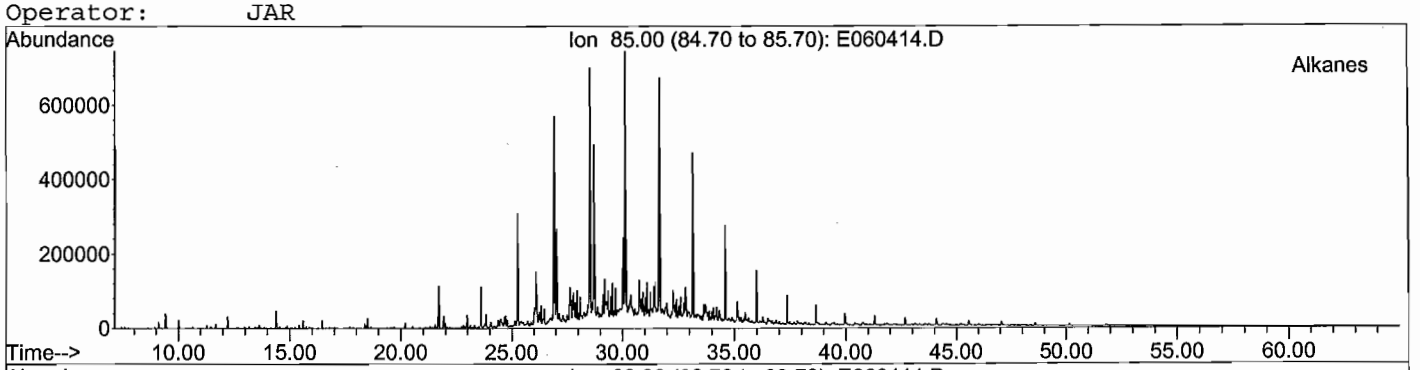
File: J:\1\DATA\E090604\E060427.D
Date Acquired: 6 Jun 2009 2:56 am
Method File: 4008SIMD.M
Sample Name: TA090529-01-D
Misc Info: BP-SO-B025-8 - 100x
Operator: JAR

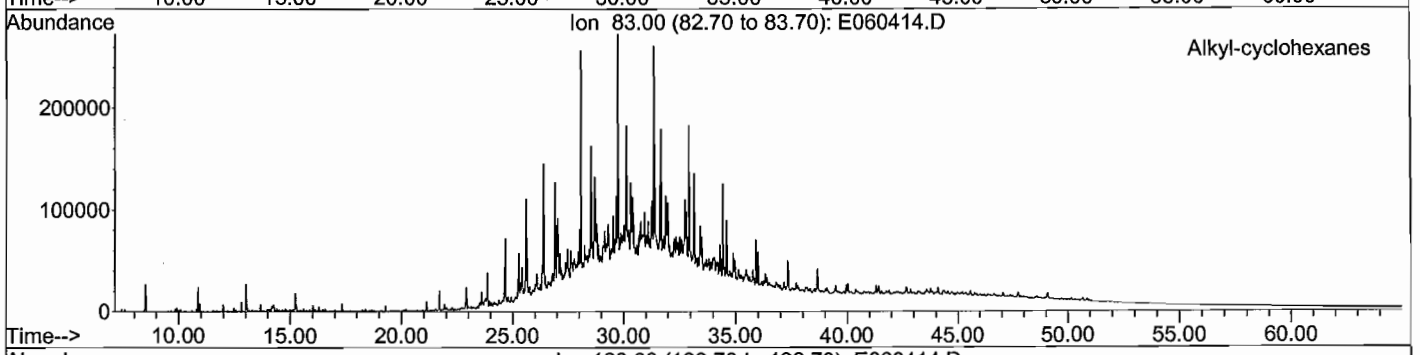


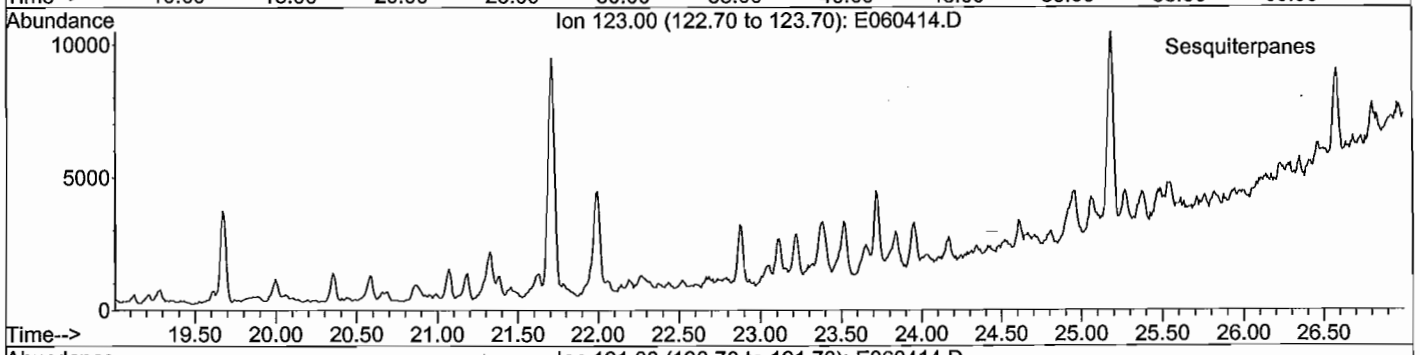
META Environmental, Inc.

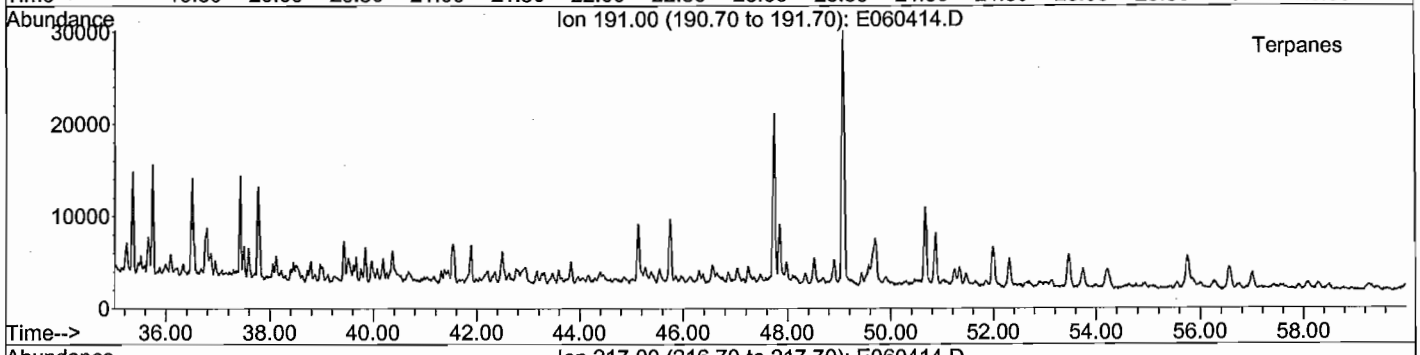
GC/MS EXTRACTED ION CHROMATOGRAM

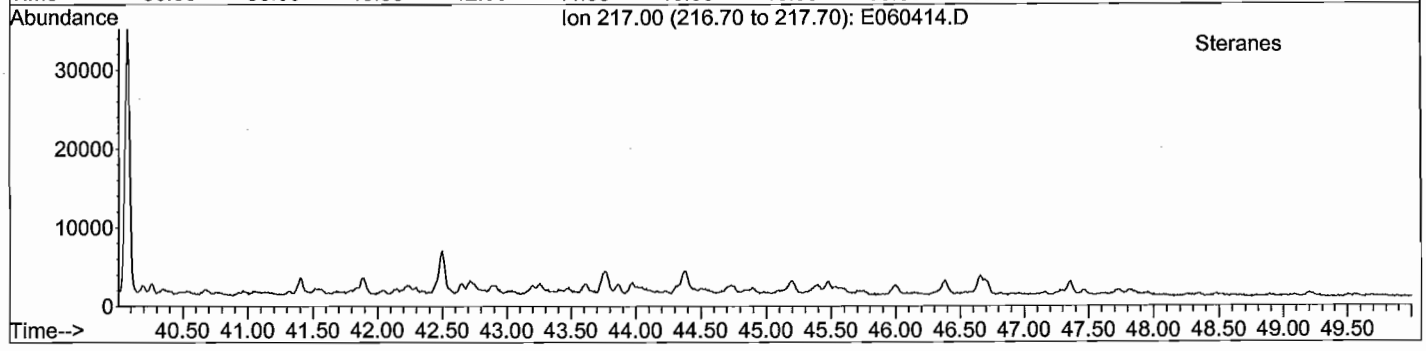
File: J:\1\DATA\E090604\E060414.D
Date Acquired: 5 Jun 2009 8:51 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP
Misc Info: Duplicate of BP-SO-B025-8
Operator: JAR







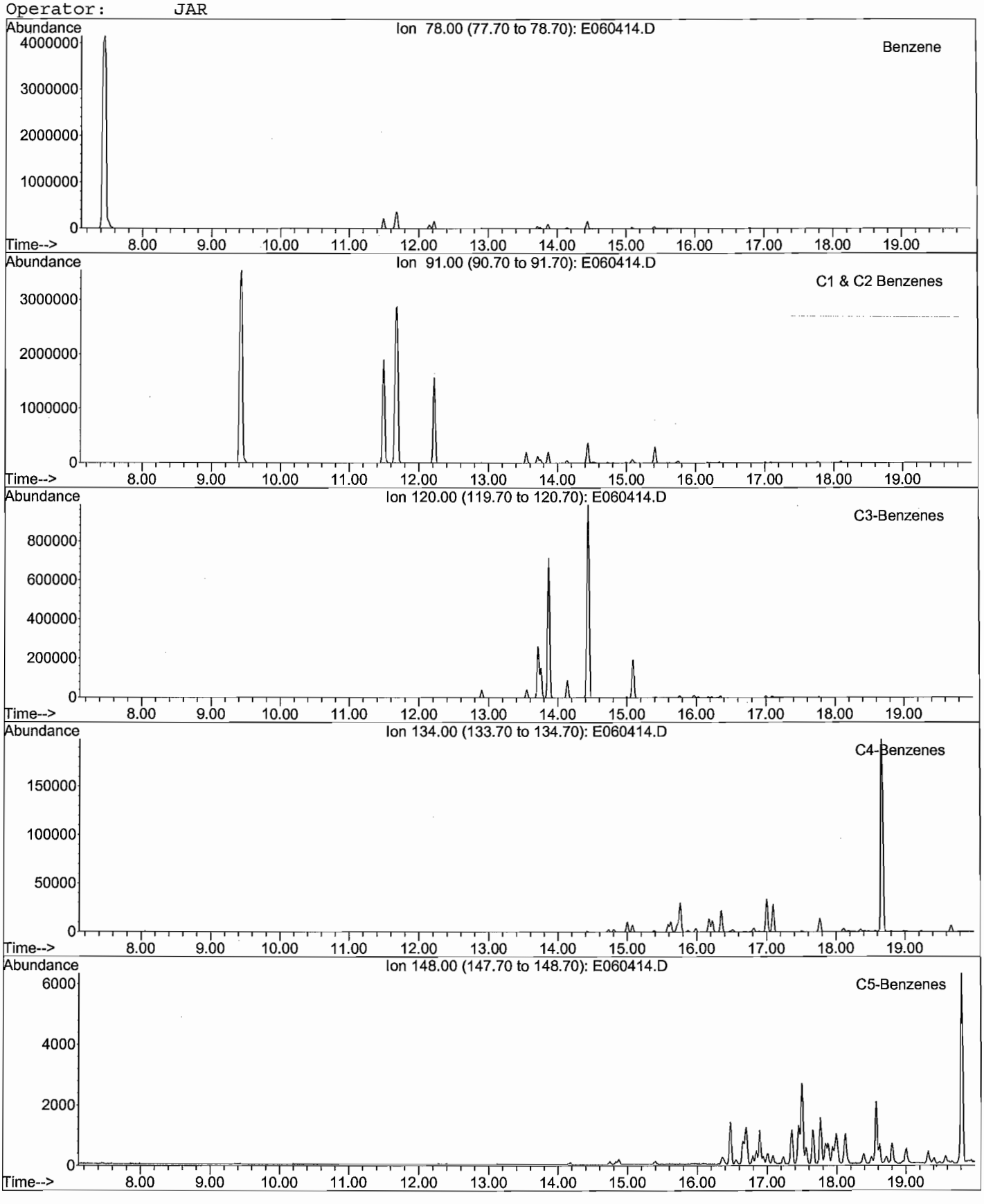




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

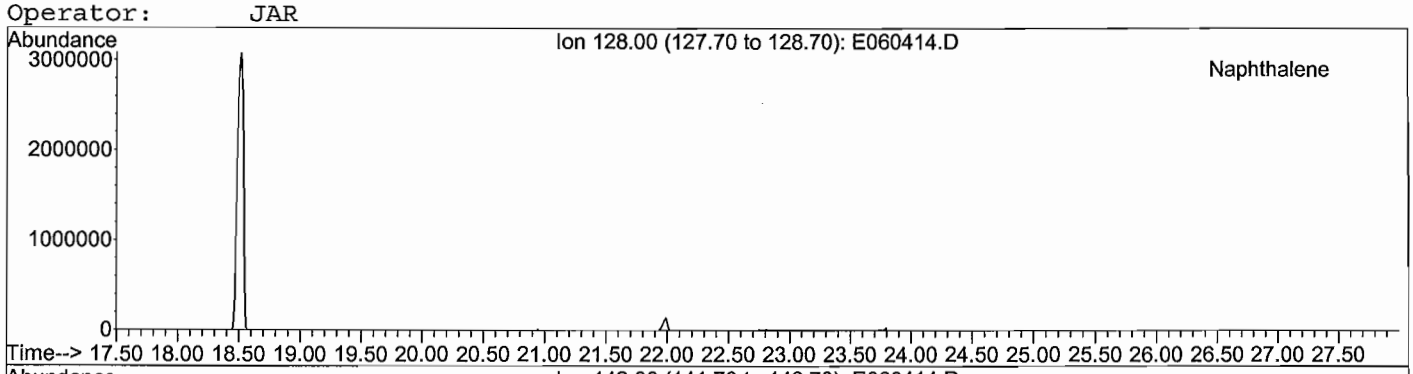
File: J:\1\DATA\E090604\E060414.D
Date Acquired: 5 Jun 2009 8:51 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP
Misc Info: Duplicate of BP-SO-B025-8
Operator: JAR

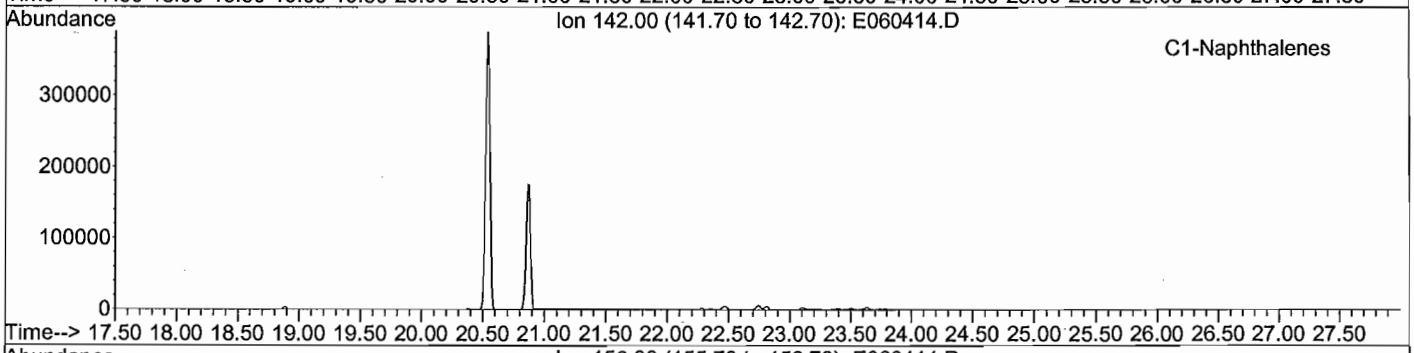


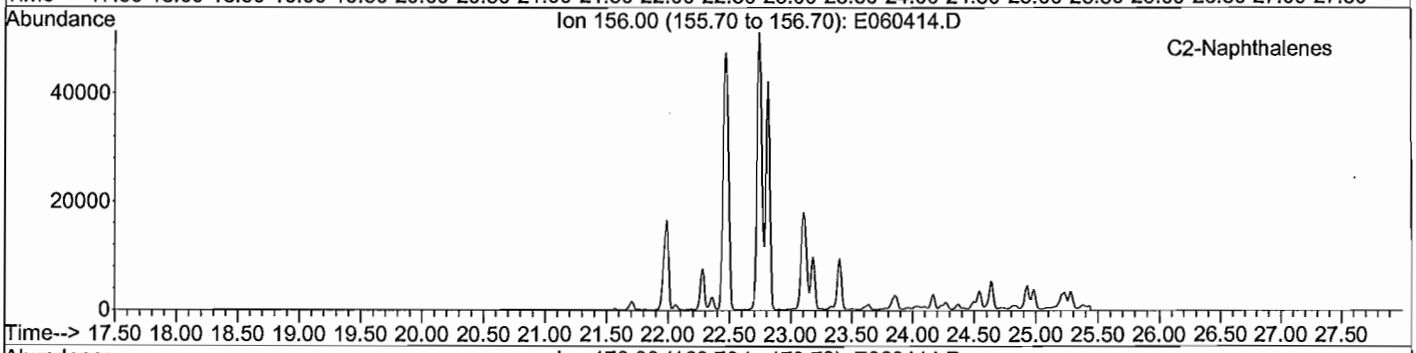
META Environmental, Inc.

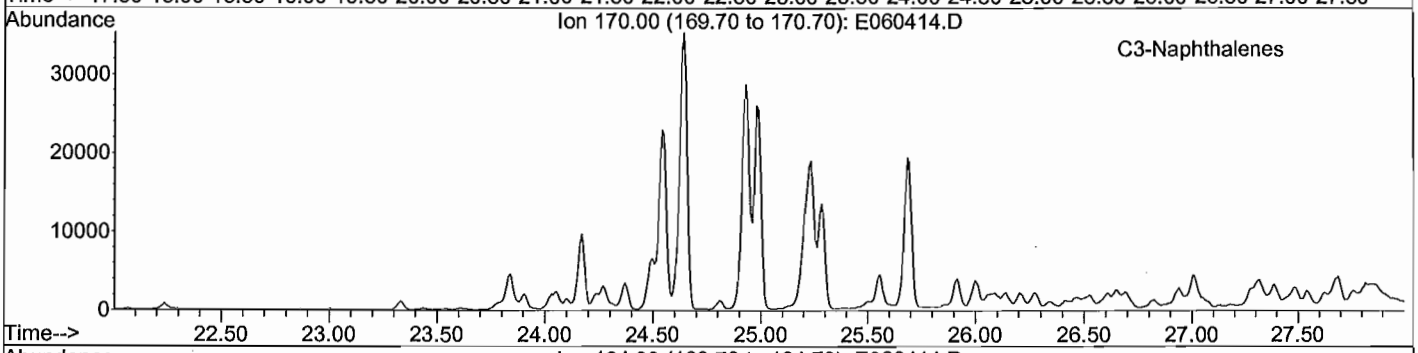
GC/MS EXTRACTED ION CHROMATOGRAM

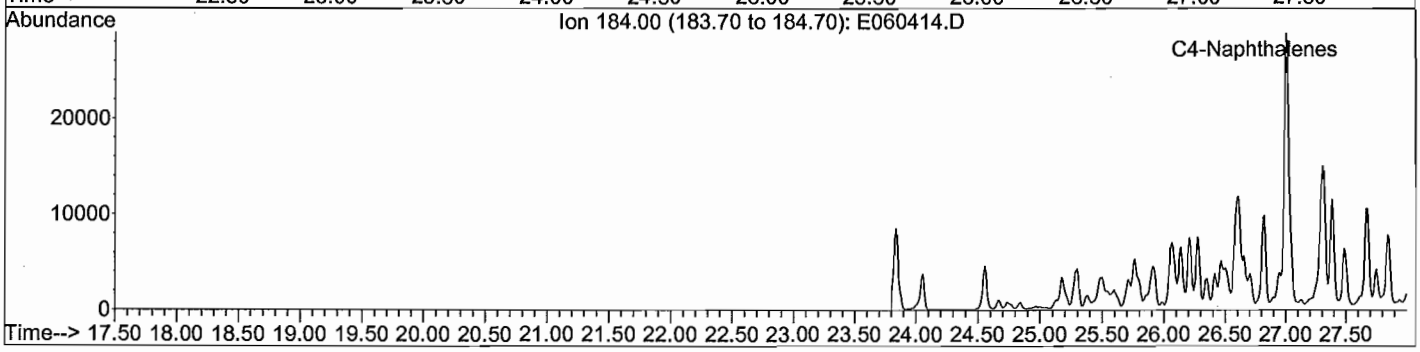
File: J:\1\DATA\E090604\E060414.D
Date Acquired: 5 Jun 2009 8:51 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP
Misc Info: Duplicate of BP-SO-B025-8
Operator: JAR







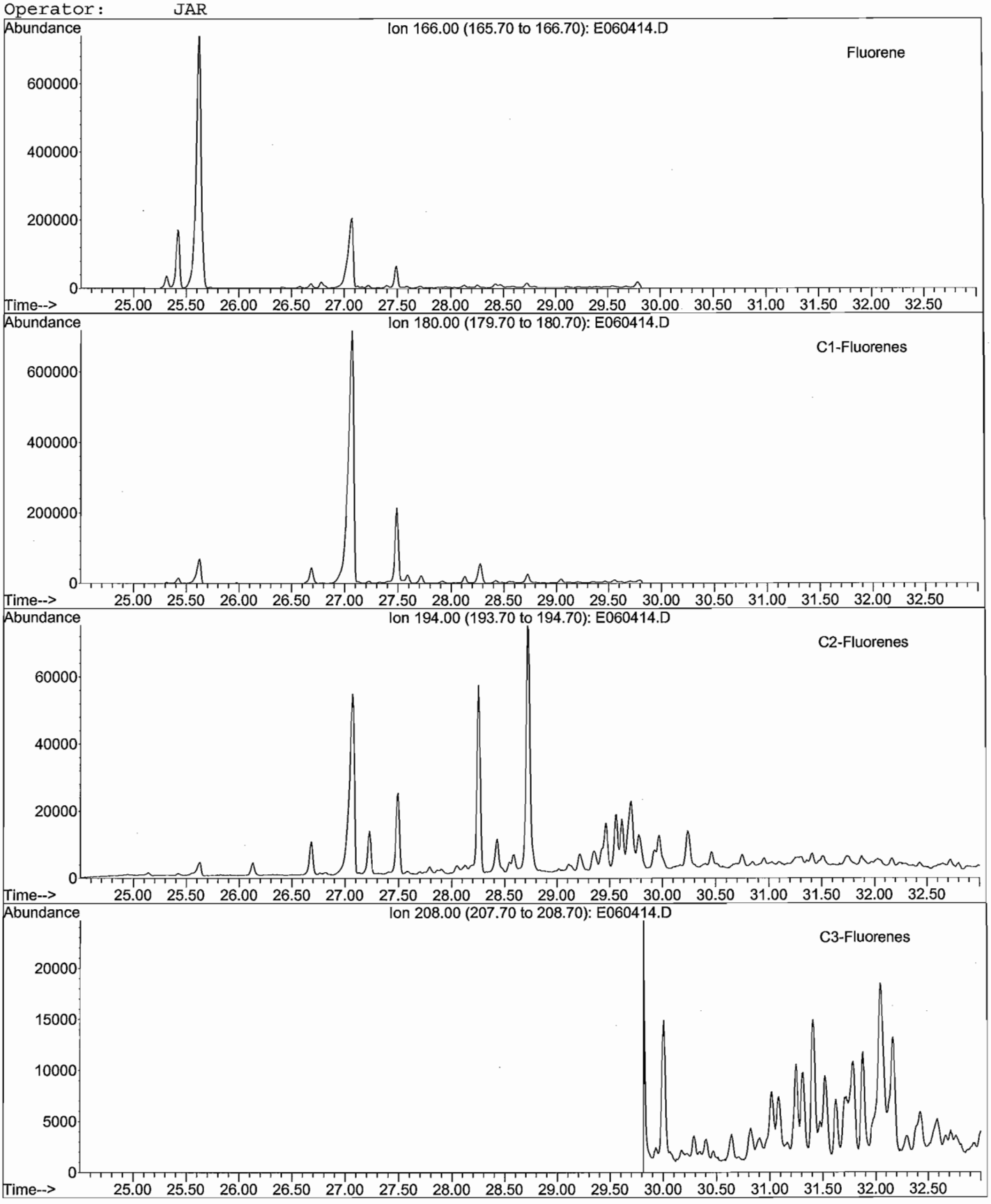




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

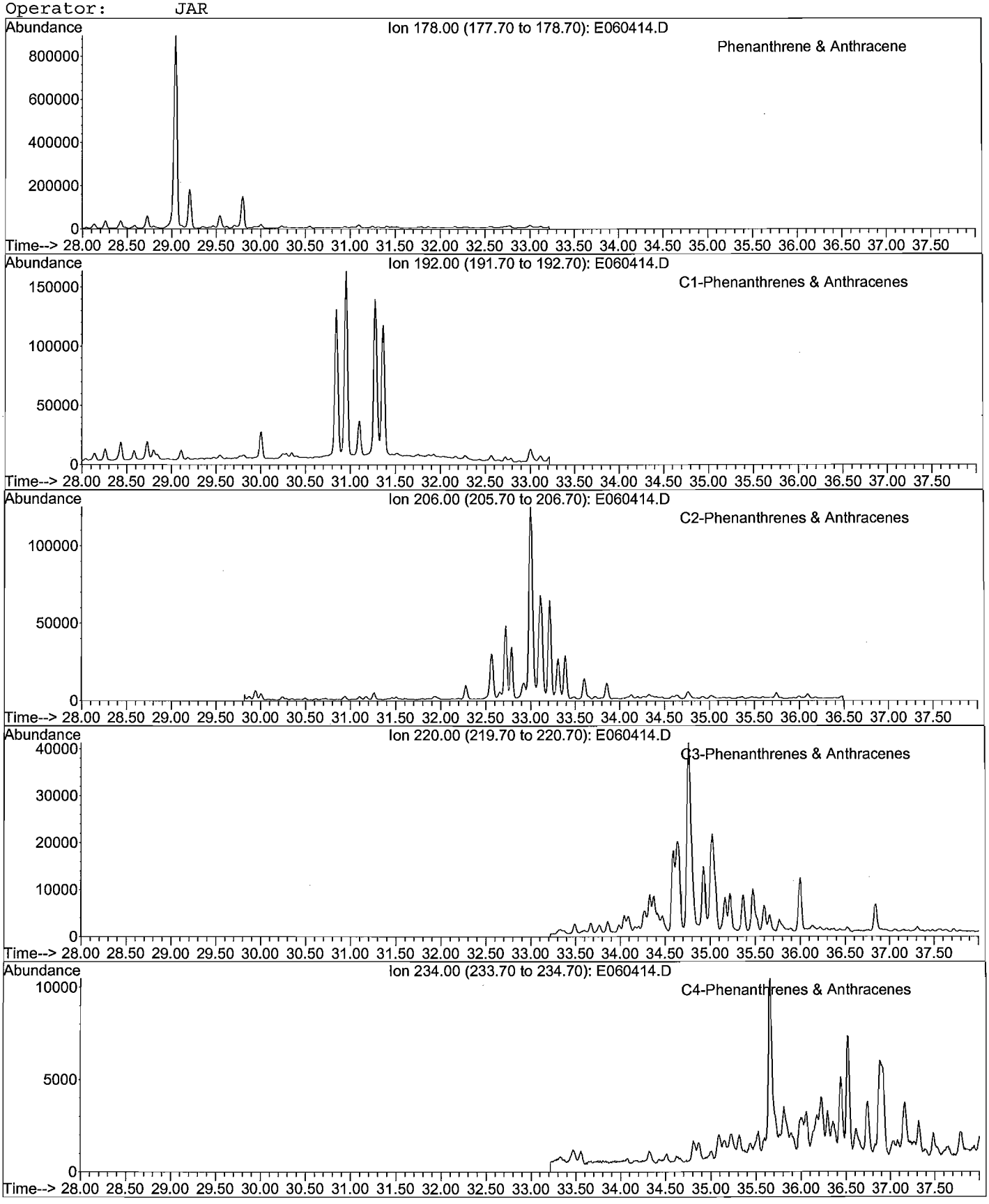
File: J:\1\DATA\E090604\E060414.D
Date Acquired: 5 Jun 2009 8:51 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP
Misc Info: Duplicate of BP-SO-B025-8
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

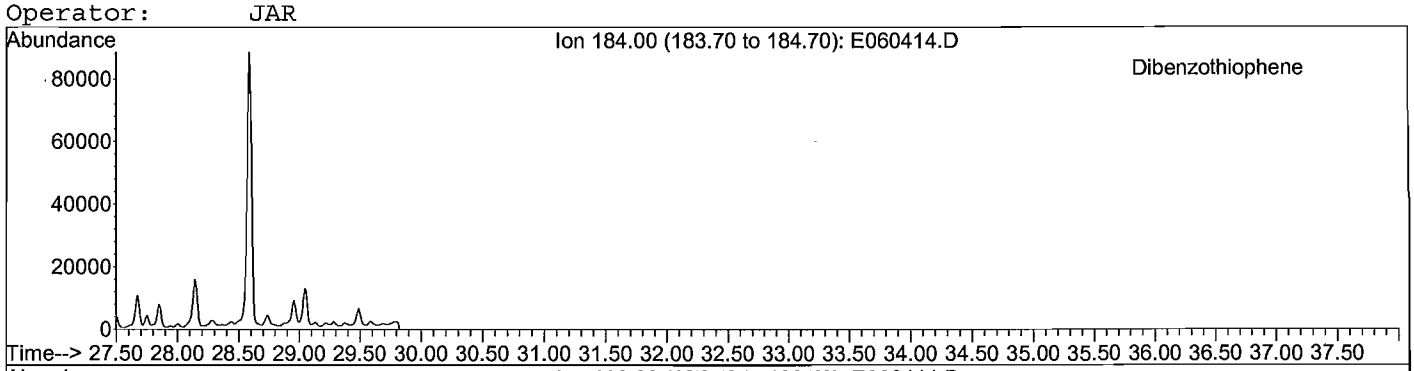
File: J:\1\DATA\E090604\E060414.D
Date Acquired: 5 Jun 2009 8:51 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP
Misc Info: Duplicate of BP-SO-B025-8
Operator: JAR

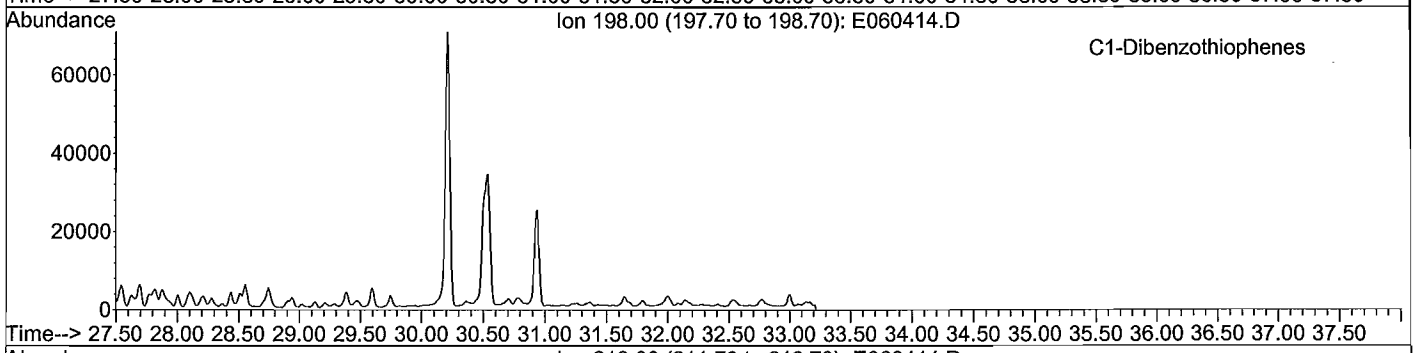


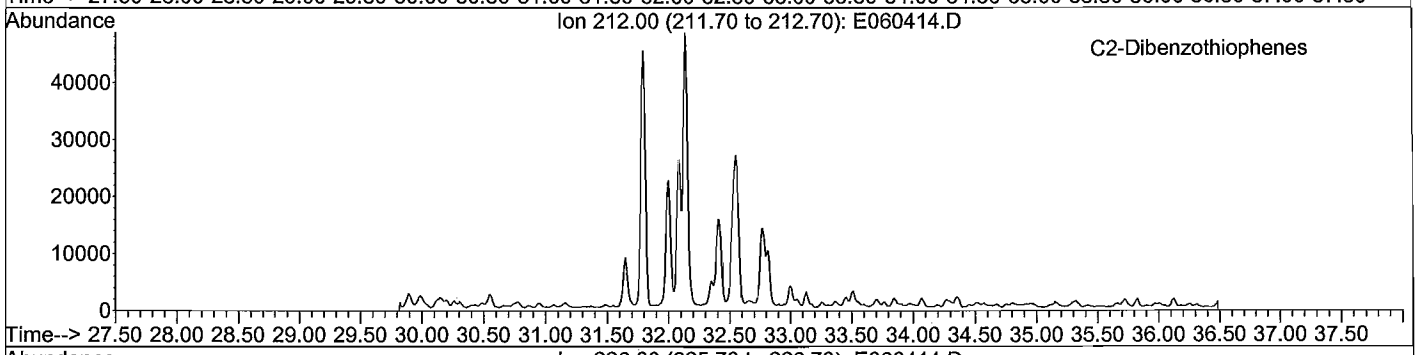
META Environmental, Inc.

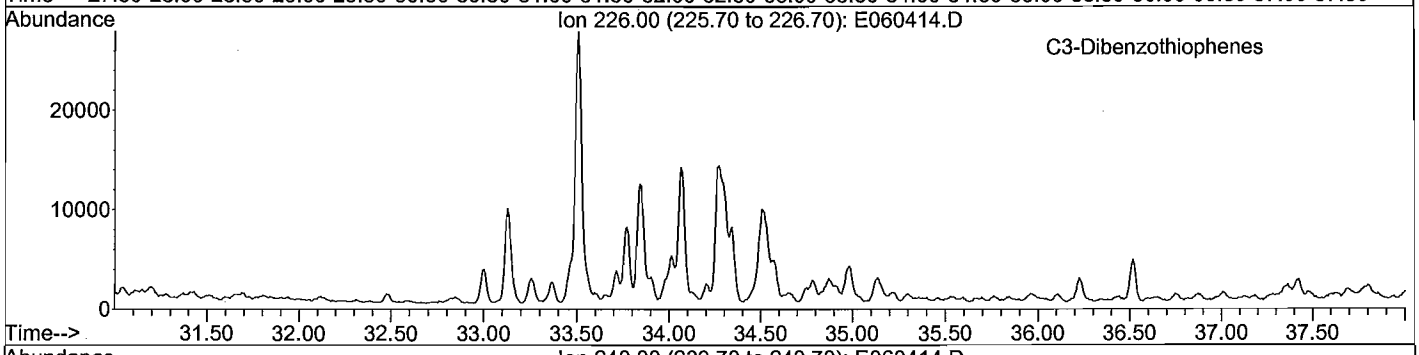
GC/MS EXTRACTED ION CHROMATOGRAM

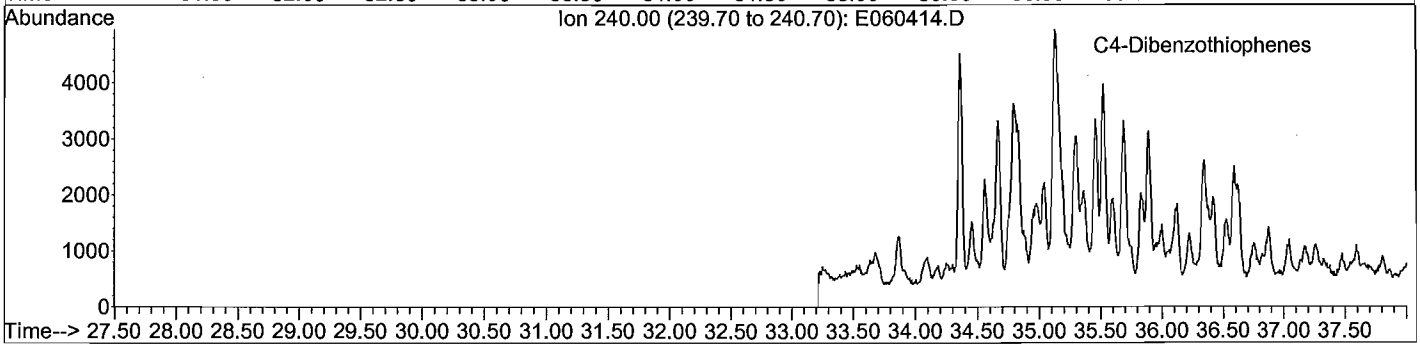
File: J:\1\DATA\E090604\E060414.D
Date Acquired: 5 Jun 2009 8:51 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP
Misc Info: Duplicate of BP-SO-B025-8
Operator: JAR







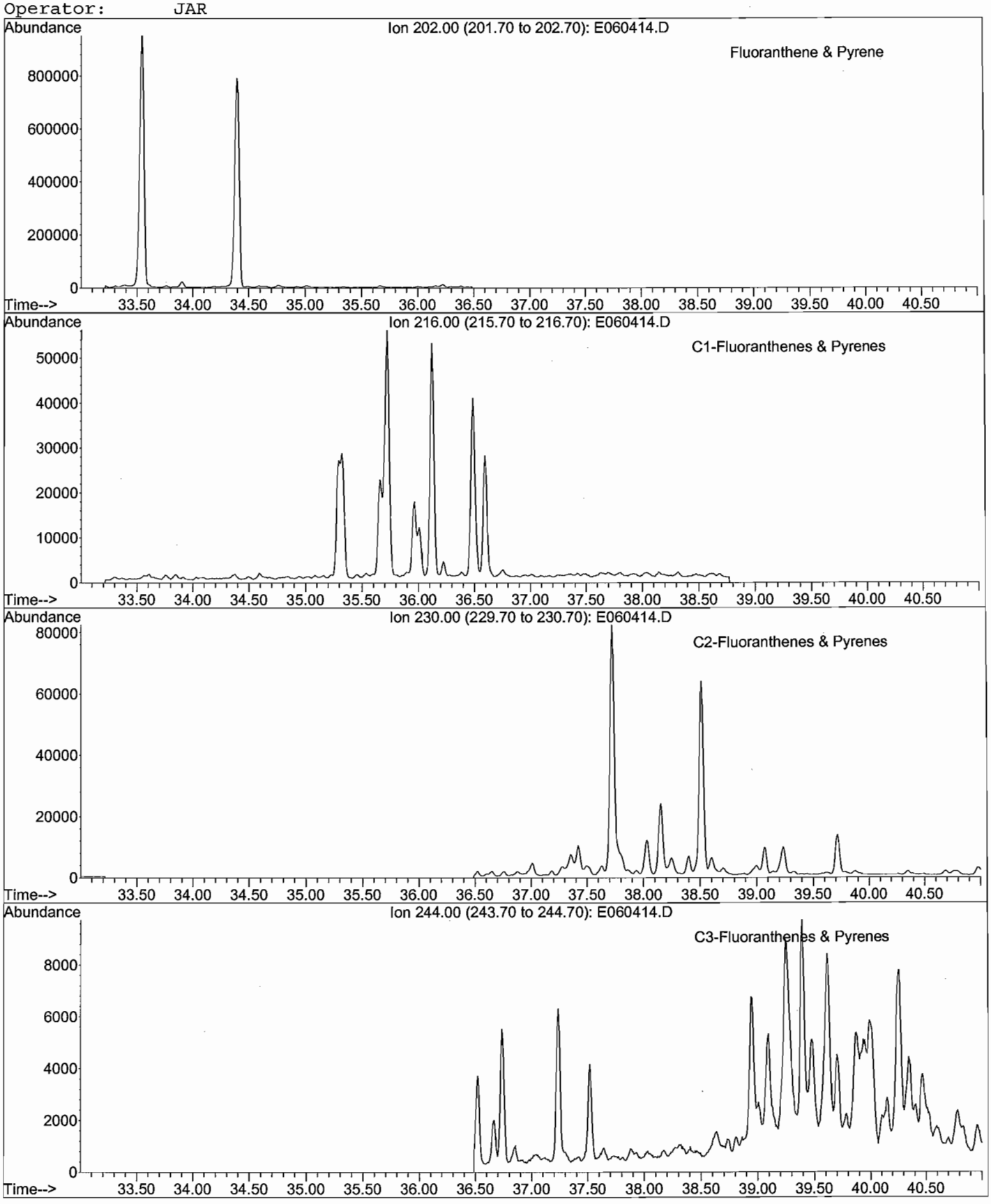




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

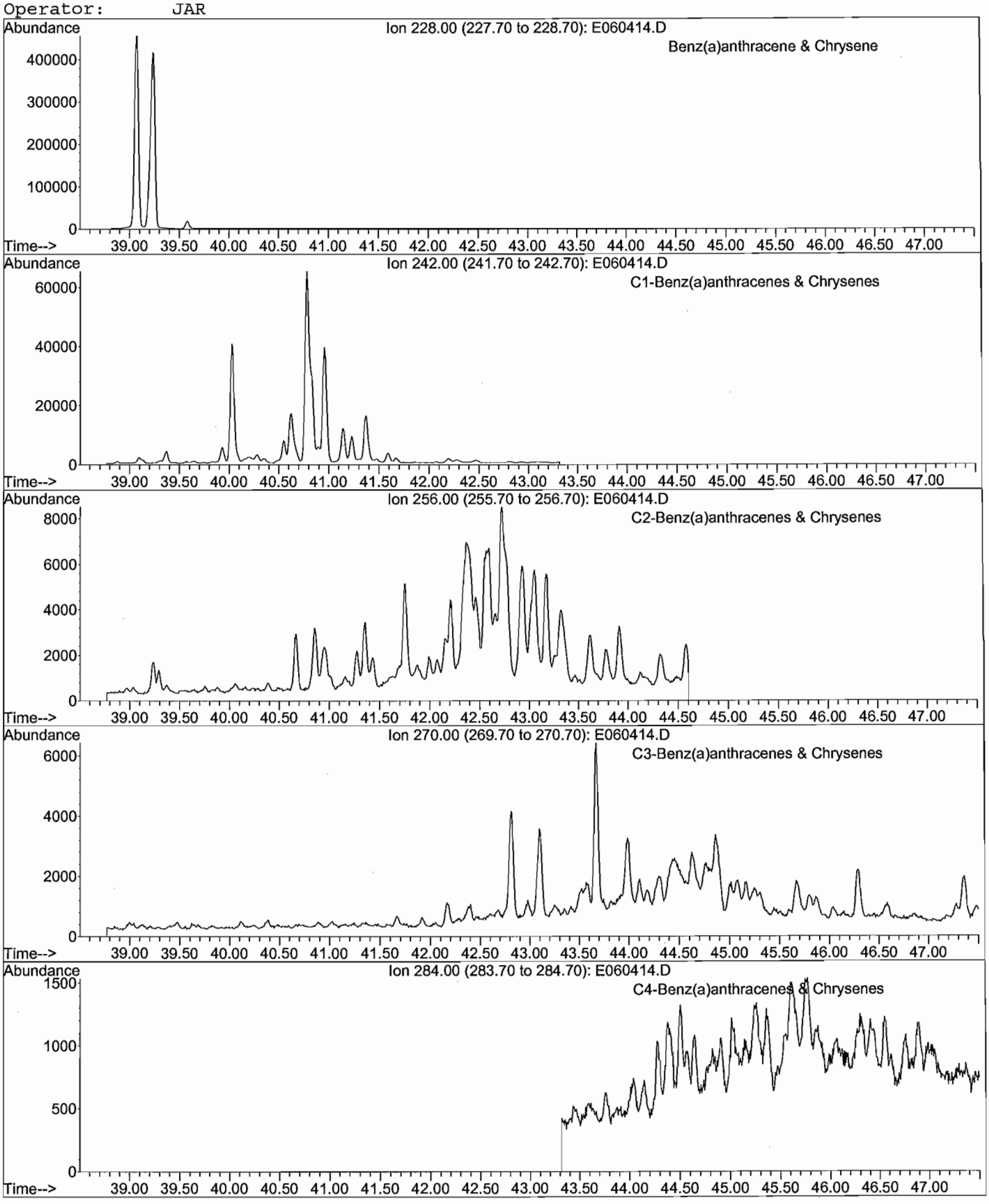
File: J:\1\DATA\E090604\E060414.D
Date Acquired: 5 Jun 2009 8:51 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP
Misc Info: Duplicate of BP-SO-B025-8
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

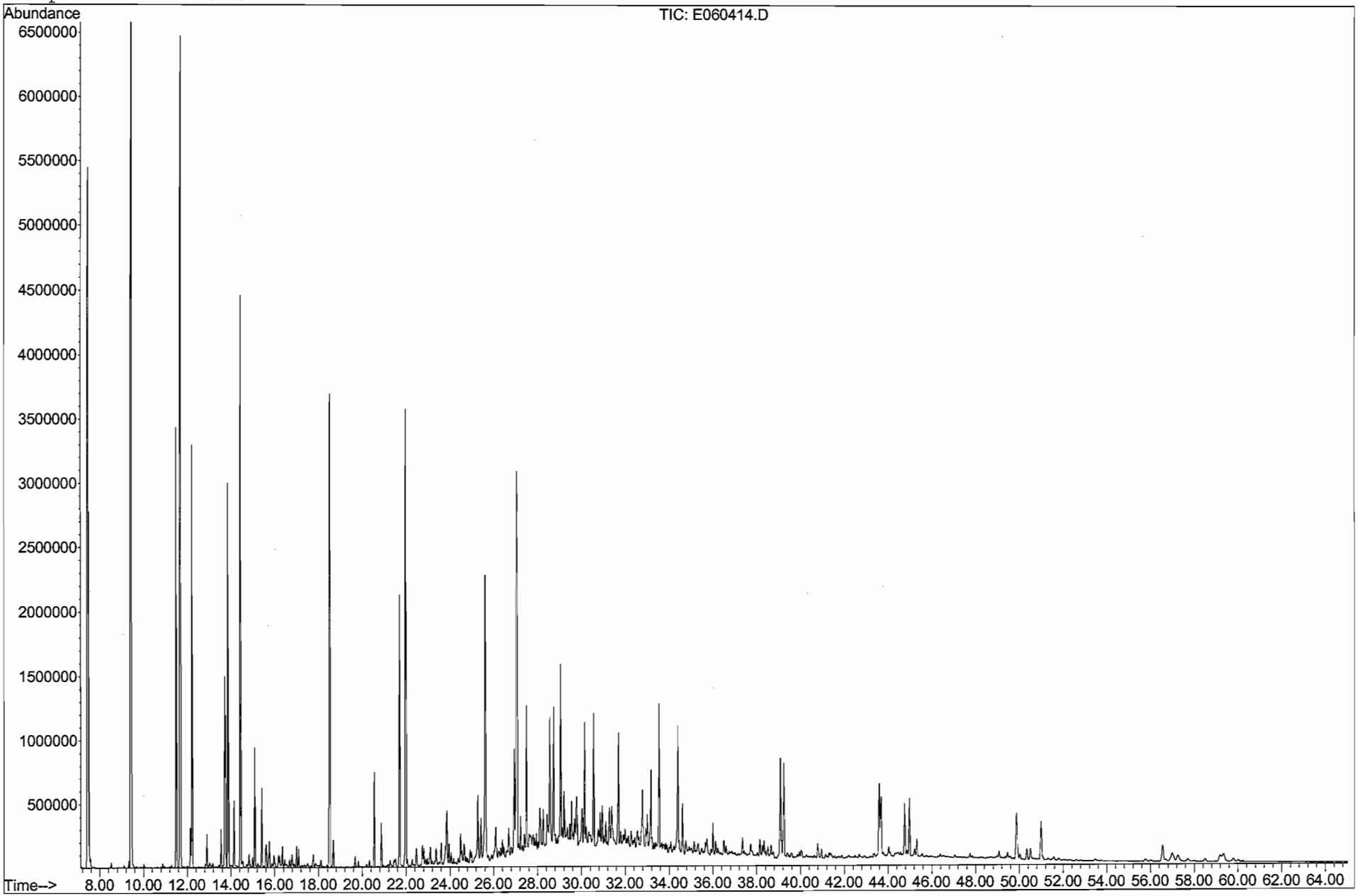
File: J:\1\DATA\E090604\E060414.D
Date Acquired: 5 Jun 2009 8:51 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP
Misc Info: Duplicate of BP-SO-B025-8
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

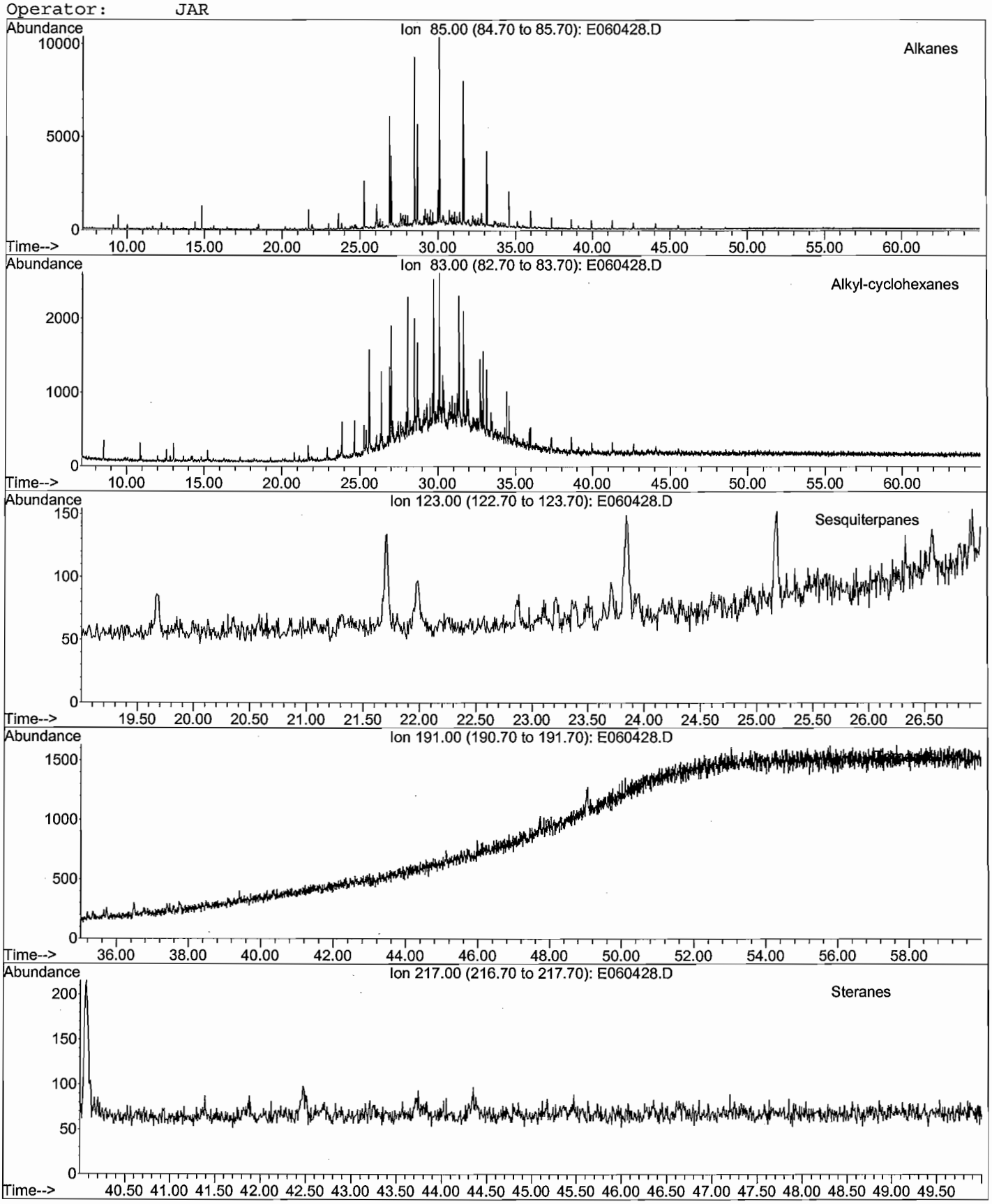
File: J:\1\DATA\E090604\E060414.D
Date Acquired: 5 Jun 2009 8:51 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP
Misc Info: Duplicate of BP-SO-B025-8
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

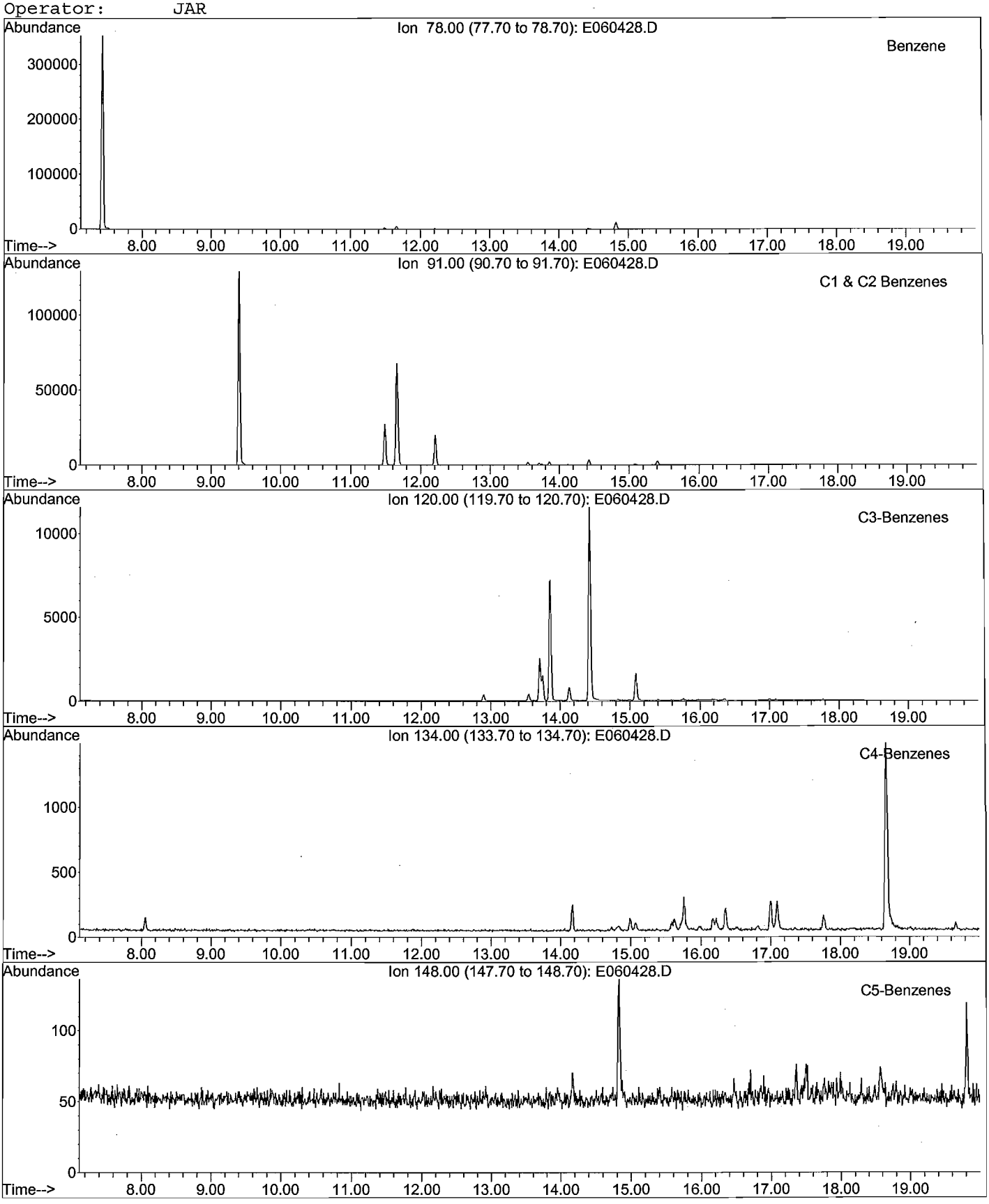
File: J:\1\DATA\E090604\E060428.D
Date Acquired: 6 Jun 2009 4:12 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP-D
Misc Info: Duplicate of BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

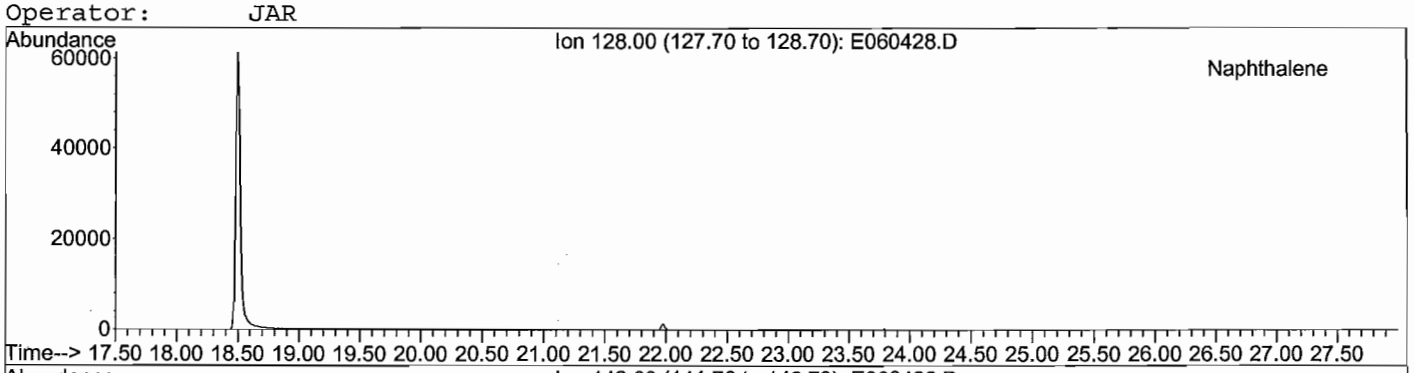
File: J:\1\DATA\E090604\E060428.D
Date Acquired: 6 Jun 2009 4:12 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP-D
Misc Info: Duplicate of BP-SO-B025-8 - 100x
Operator: JAR

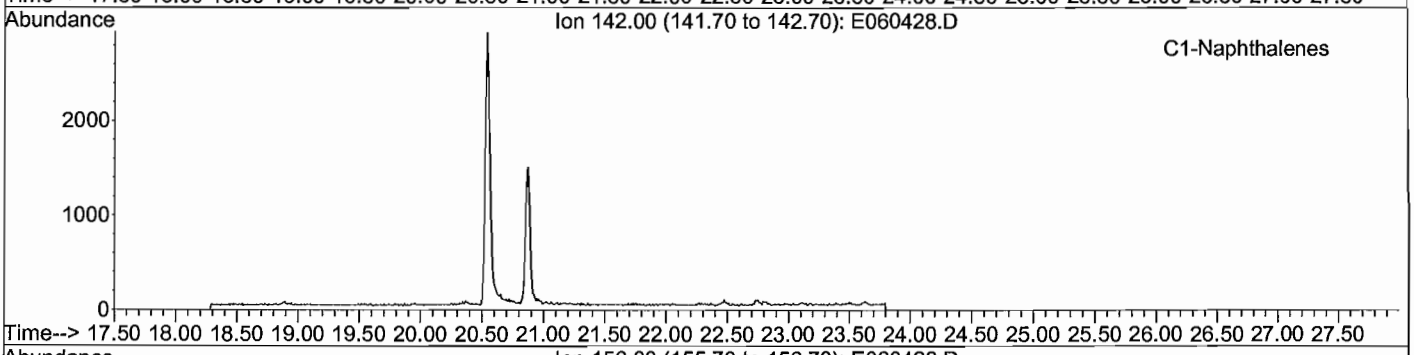


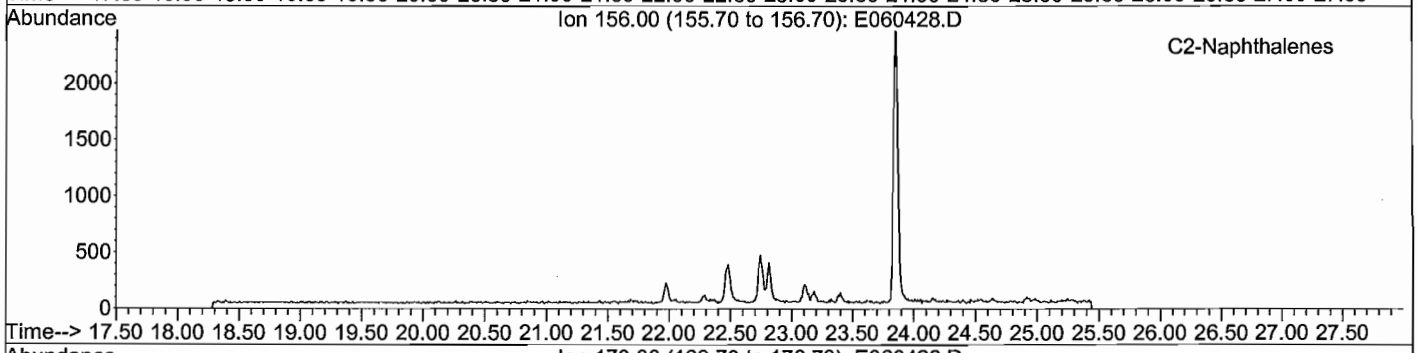
META Environmental, Inc.

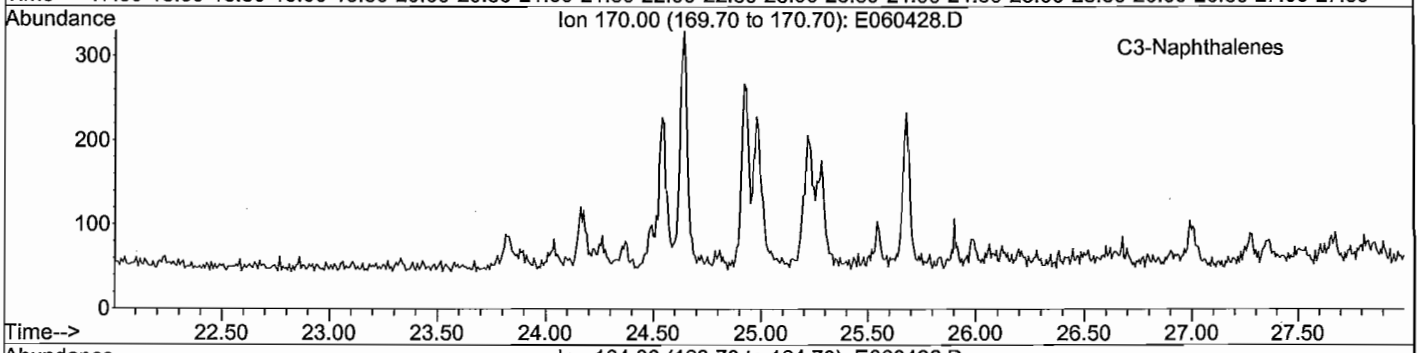
GC/MS EXTRACTED ION CHROMATOGRAM

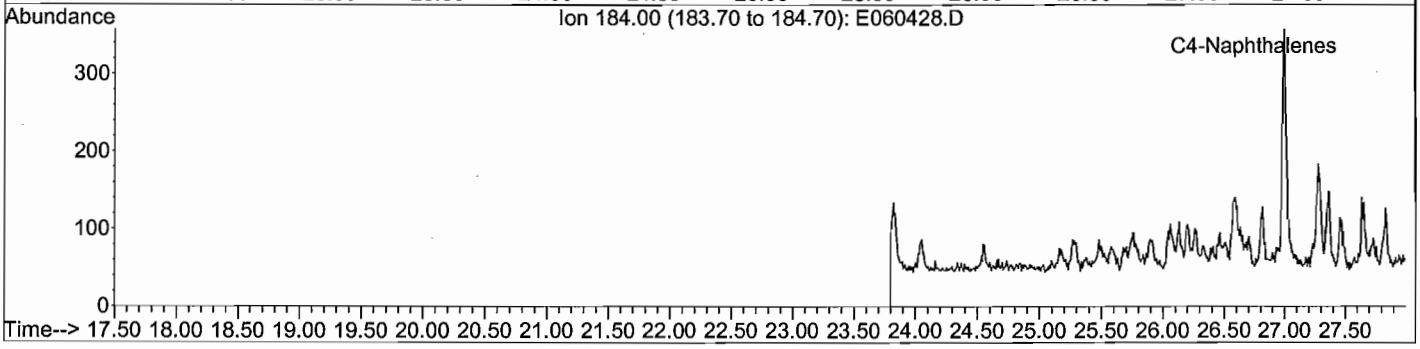
File: J:\1\DATA\E090604\E060428.D
Date Acquired: 6 Jun 2009 4:12 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP-D
Misc Info: Duplicate of BP-SO-B025-8 - 100x
Operator: JAR







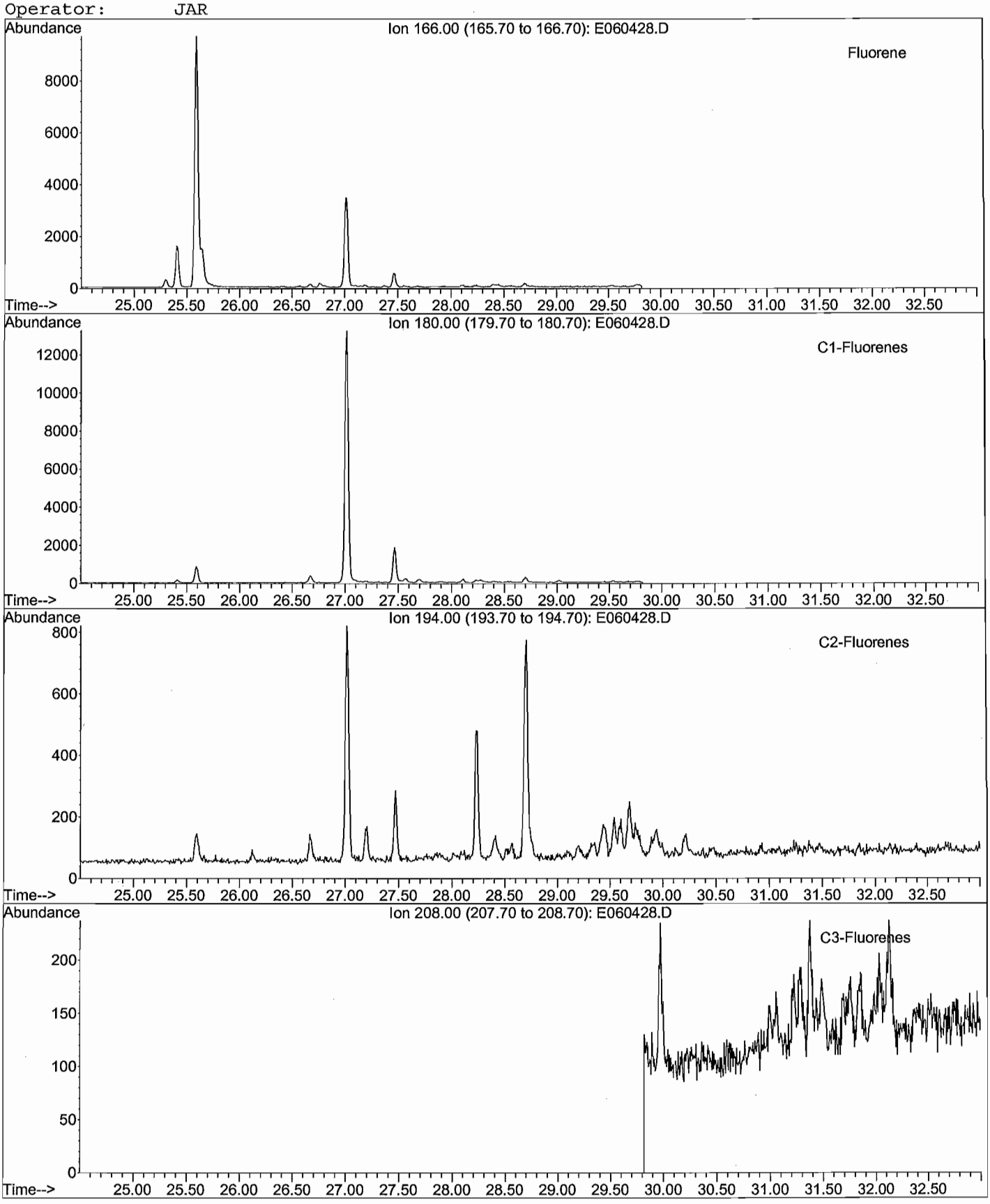




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

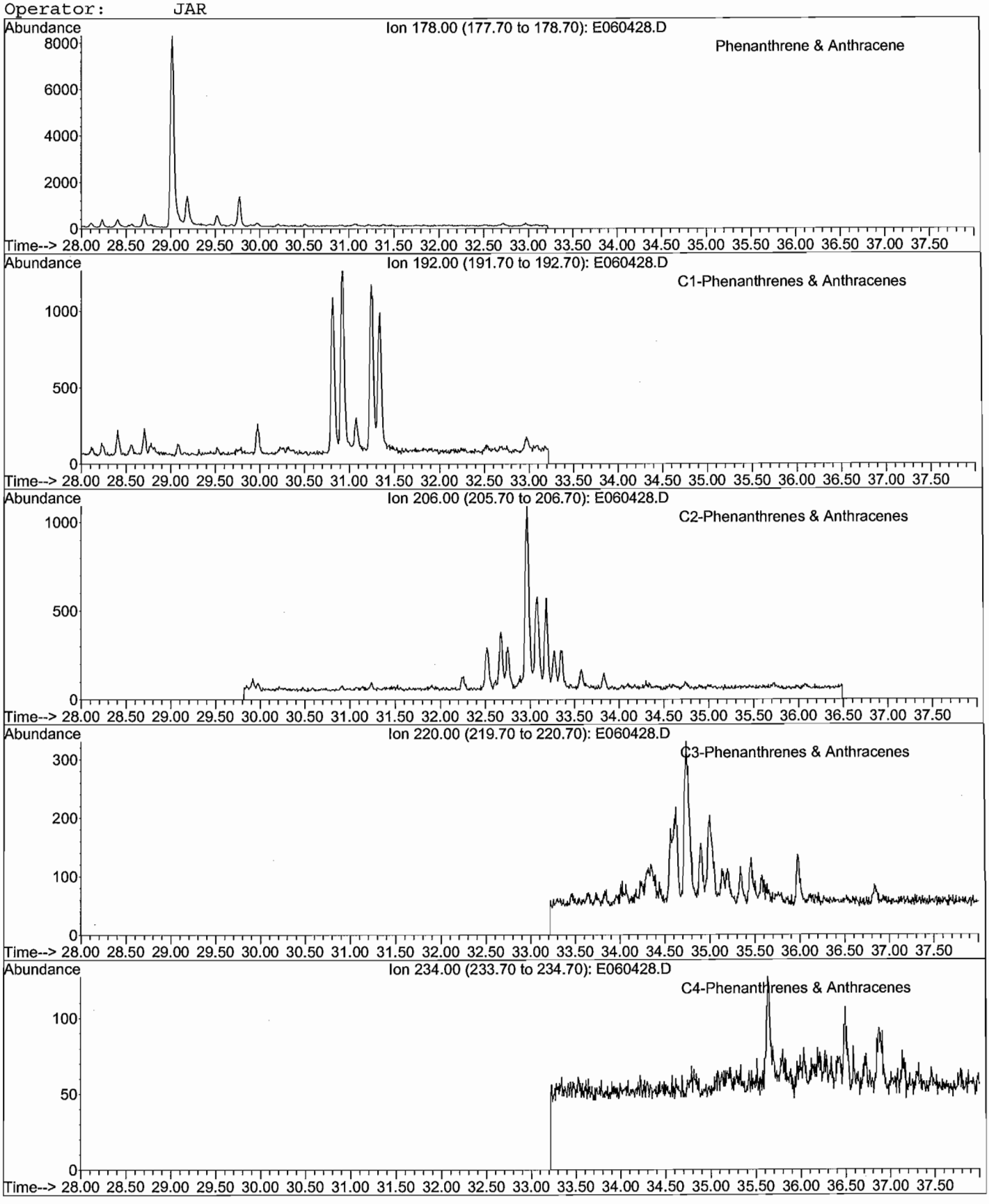
File: J:\1\DATA\E090604\E060428.D
Date Acquired: 6 Jun 2009 4:12 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP-D
Misc Info: Duplicate of BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

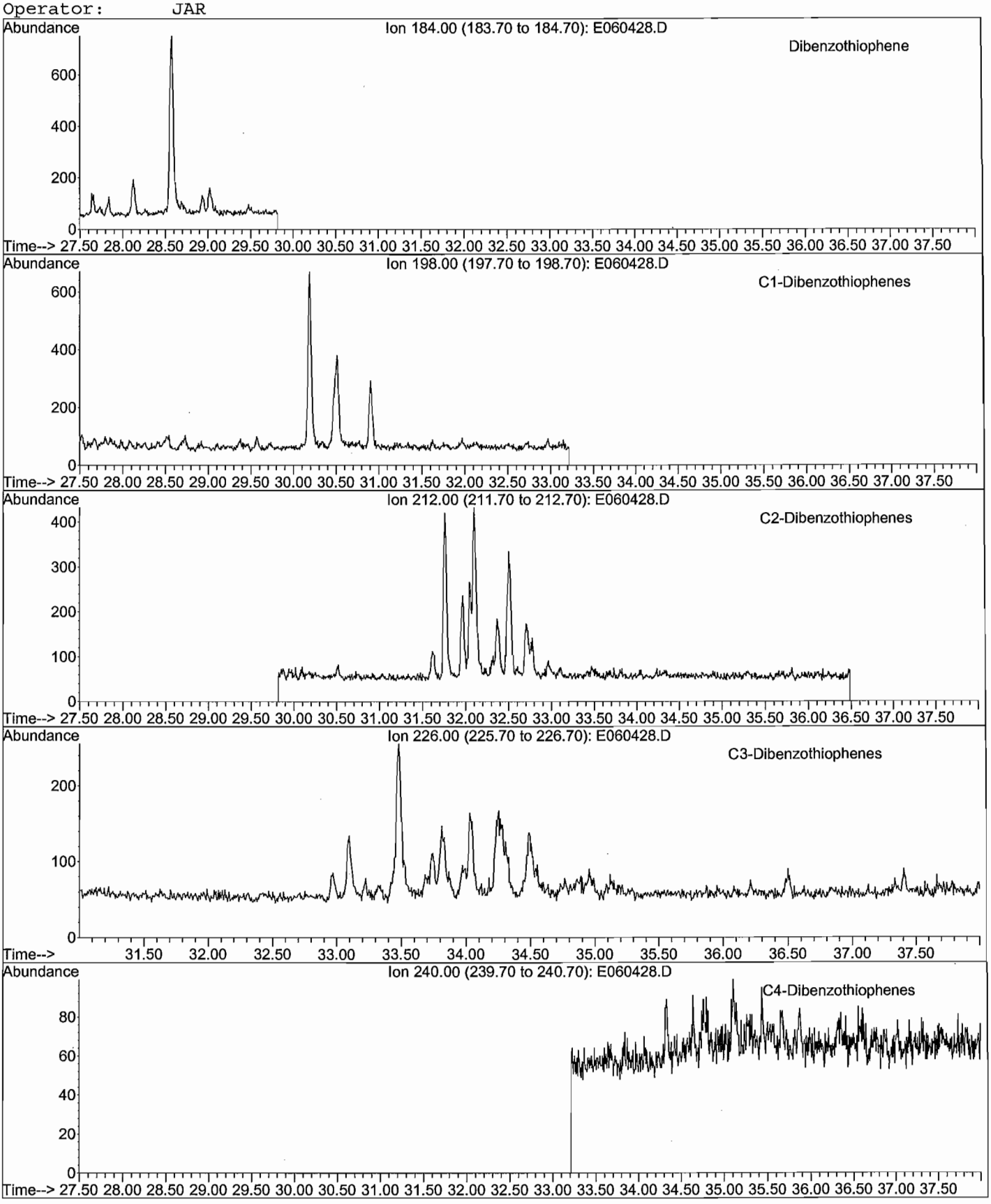
File: J:\1\DATA\E090604\E060428.D
Date Acquired: 6 Jun 2009 4:12 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP-D
Misc Info: Duplicate of BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

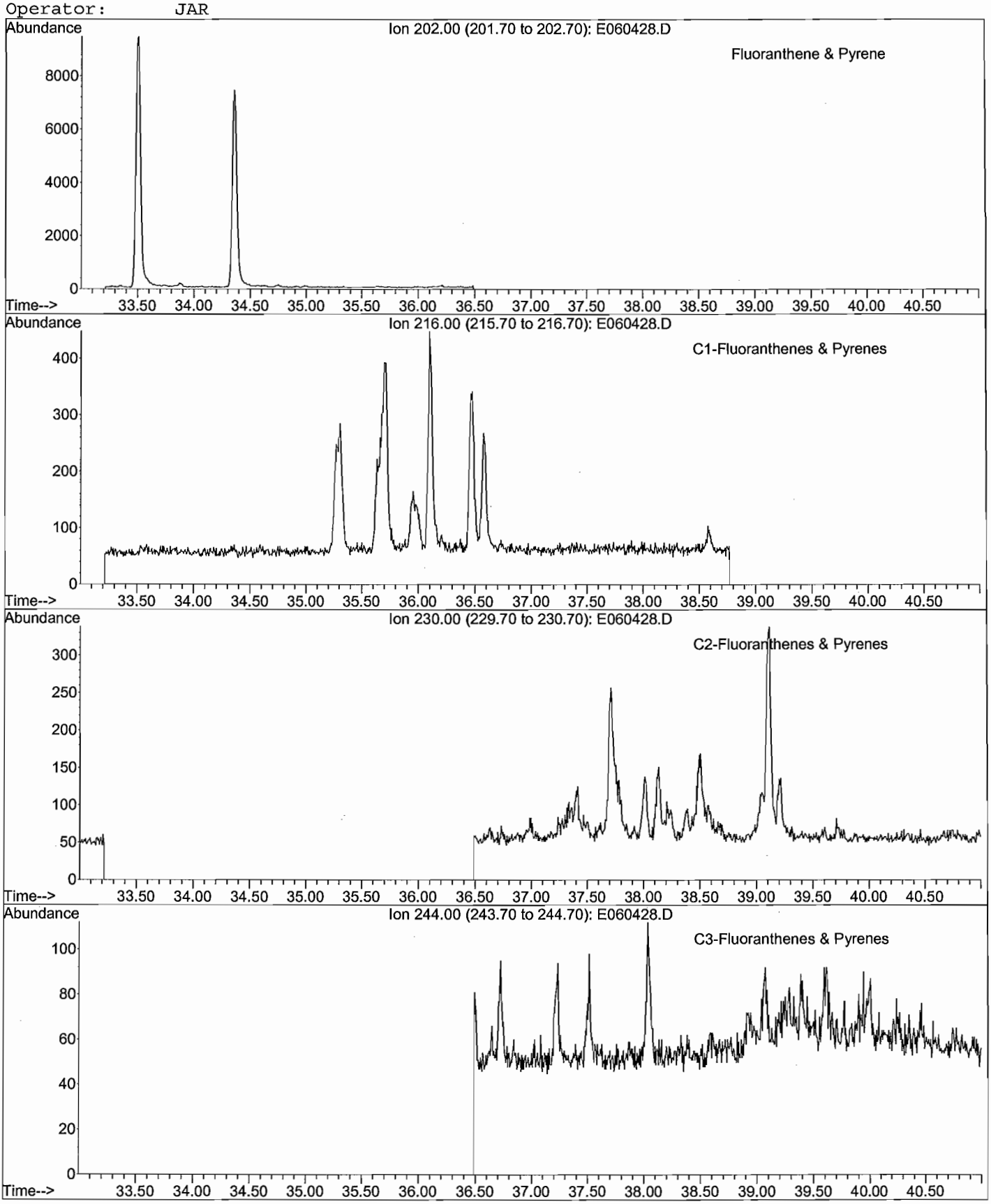
File: J:\1\DATA\E090604\E060428.D
Date Acquired: 6 Jun 2009 4:12 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP-D
Misc Info: Duplicate of BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

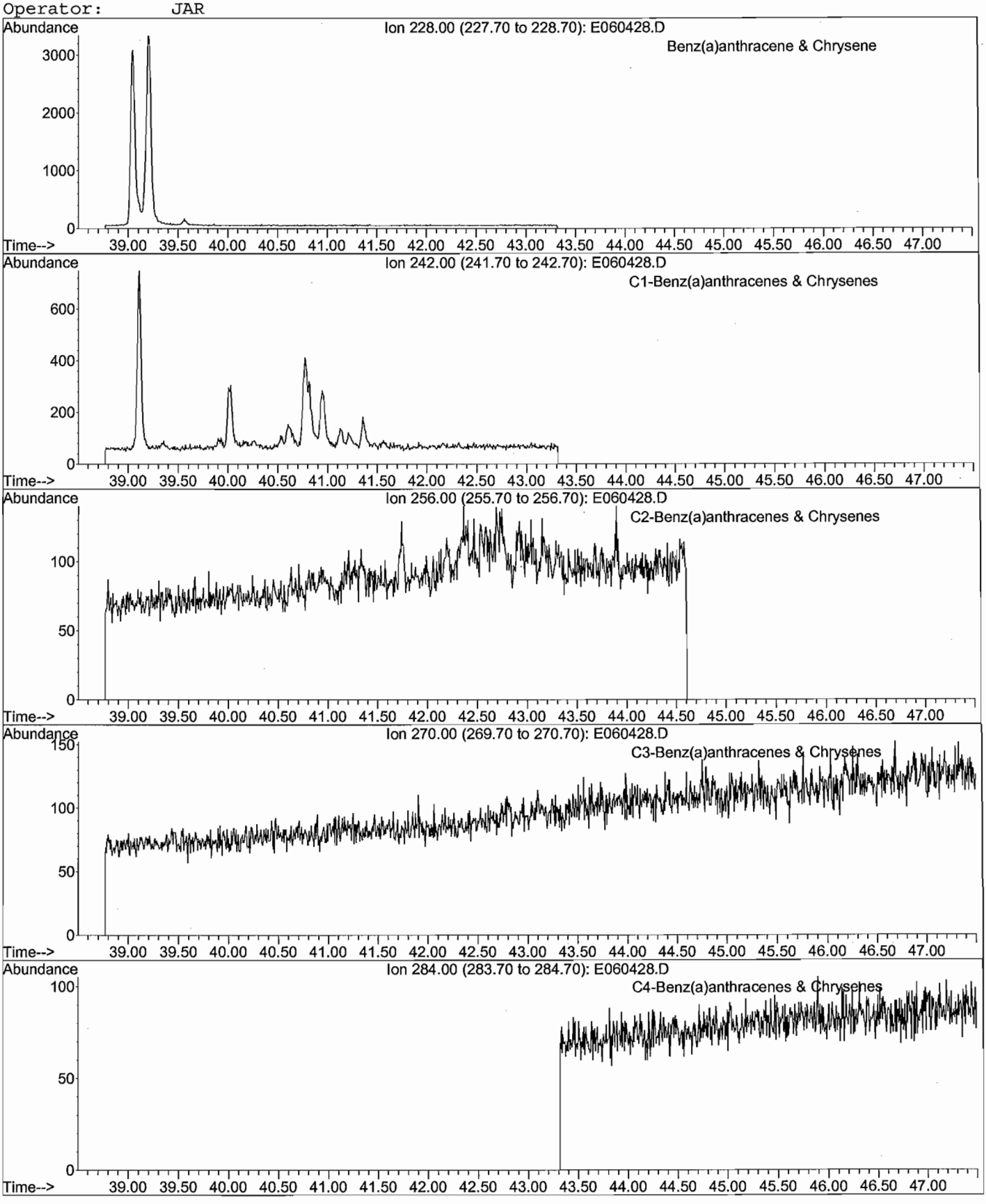
File: J:\1\DATA\E090604\E060428.D
Date Acquired: 6 Jun 2009 4:12 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP-D
Misc Info: Duplicate of BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

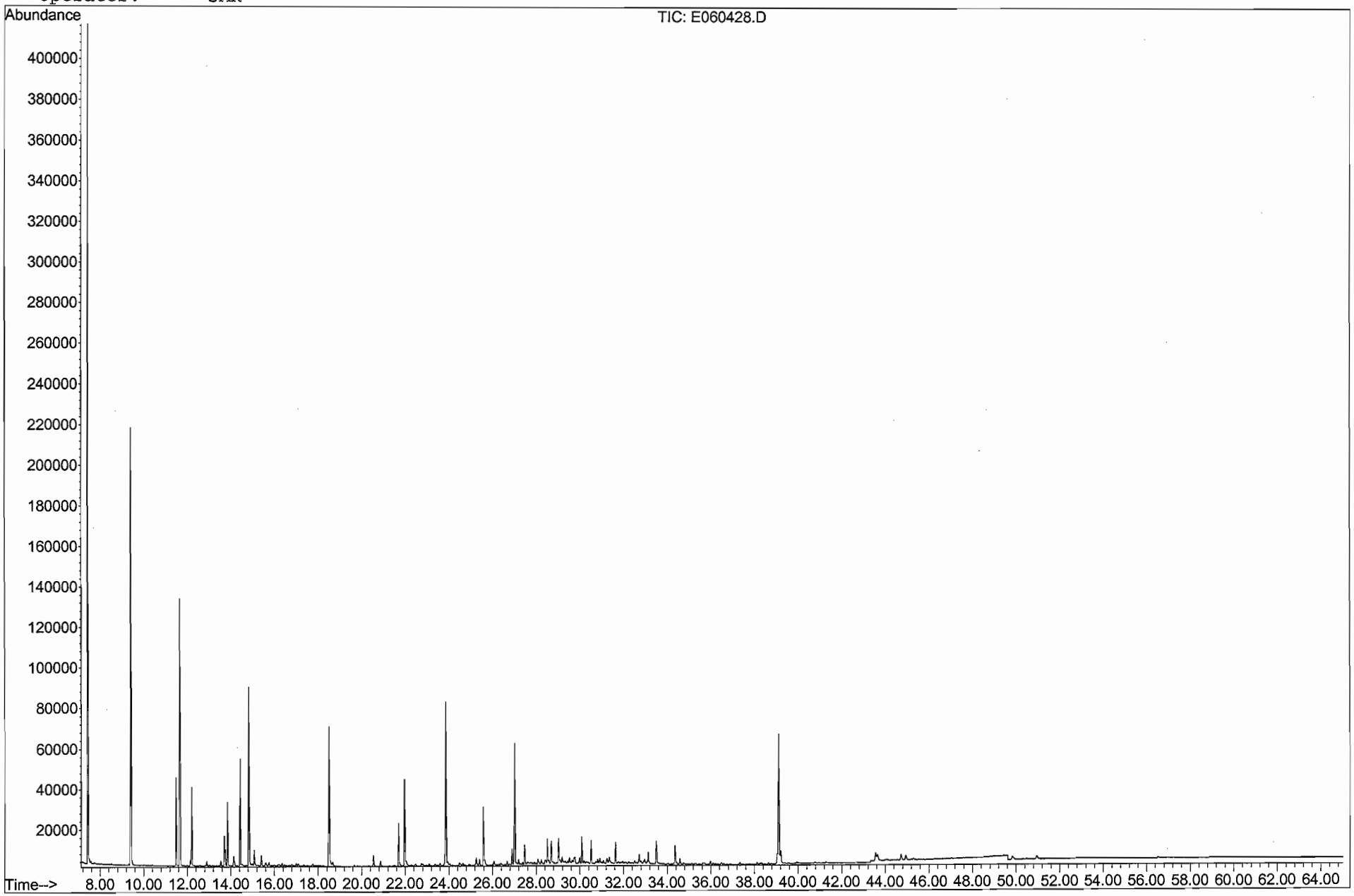
File: J:\1\DATA\E090604\E060428.D
Date Acquired: 6 Jun 2009 4:12 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP-D
Misc Info: Duplicate of BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

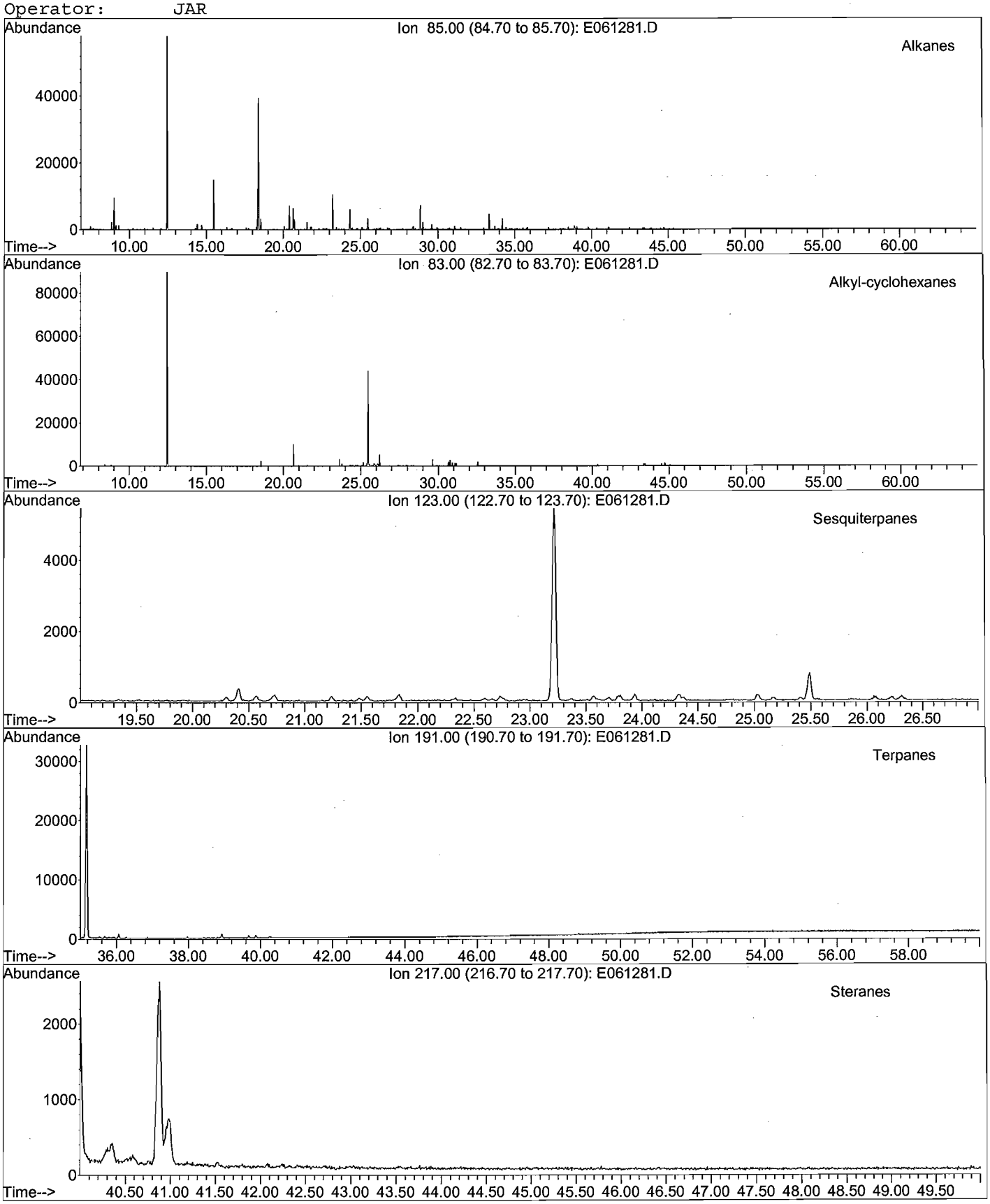
File: J:\1\DATA\E090604\E060428.D
Date Acquired: 6 Jun 2009 4:12 am
Method File: 4008SIMD.M
Sample Name: TA090529-01DUP-D
Misc Info: Duplicate of BP-SO-B025-8 - 100x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

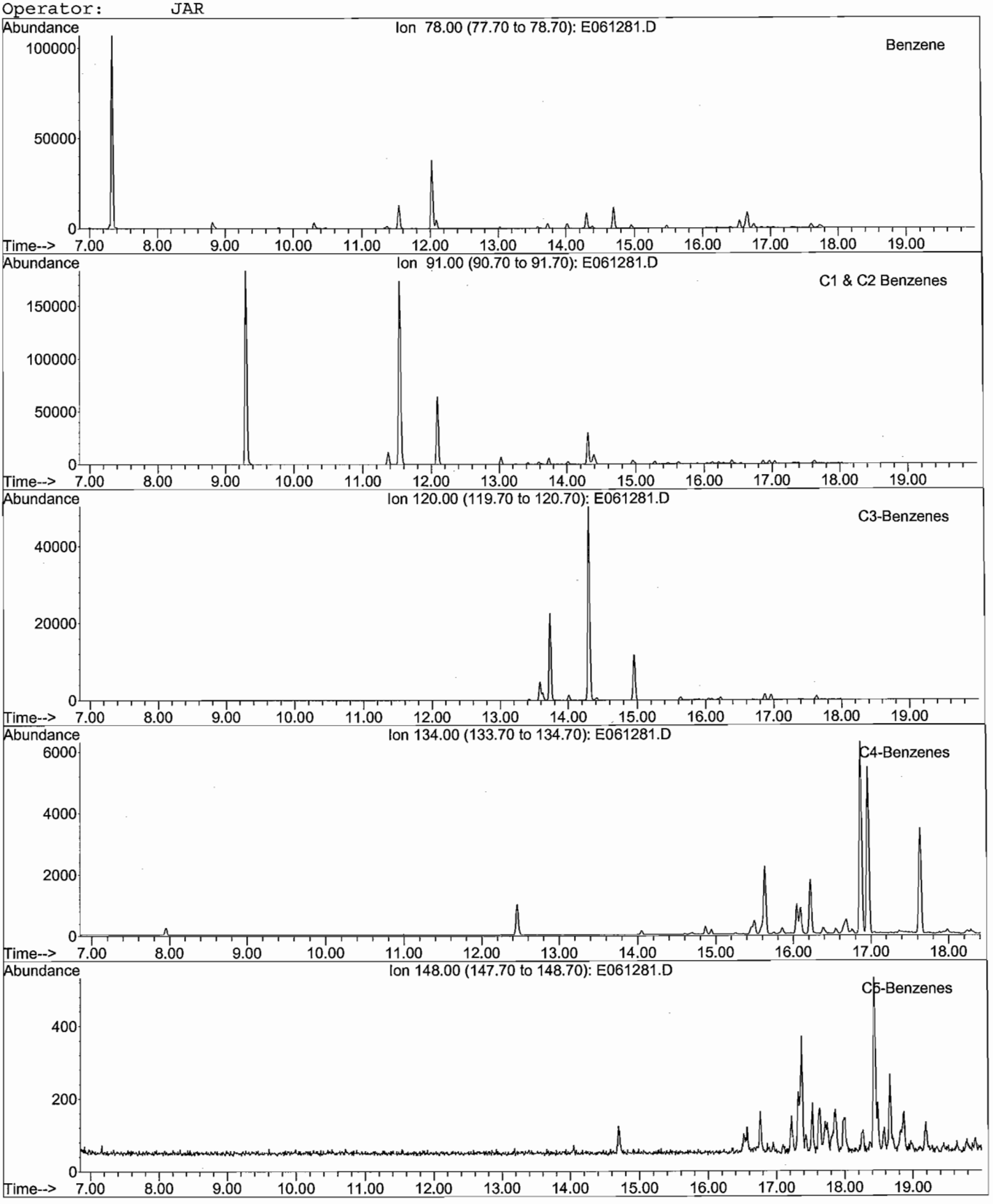
File: J:\1\DATA\E090612\E061281.D
Date Acquired: 17 Jun 2009 8:31 am
Method File: 4008SIMD.M
Sample Name: TA090603-01-D
Misc Info: CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

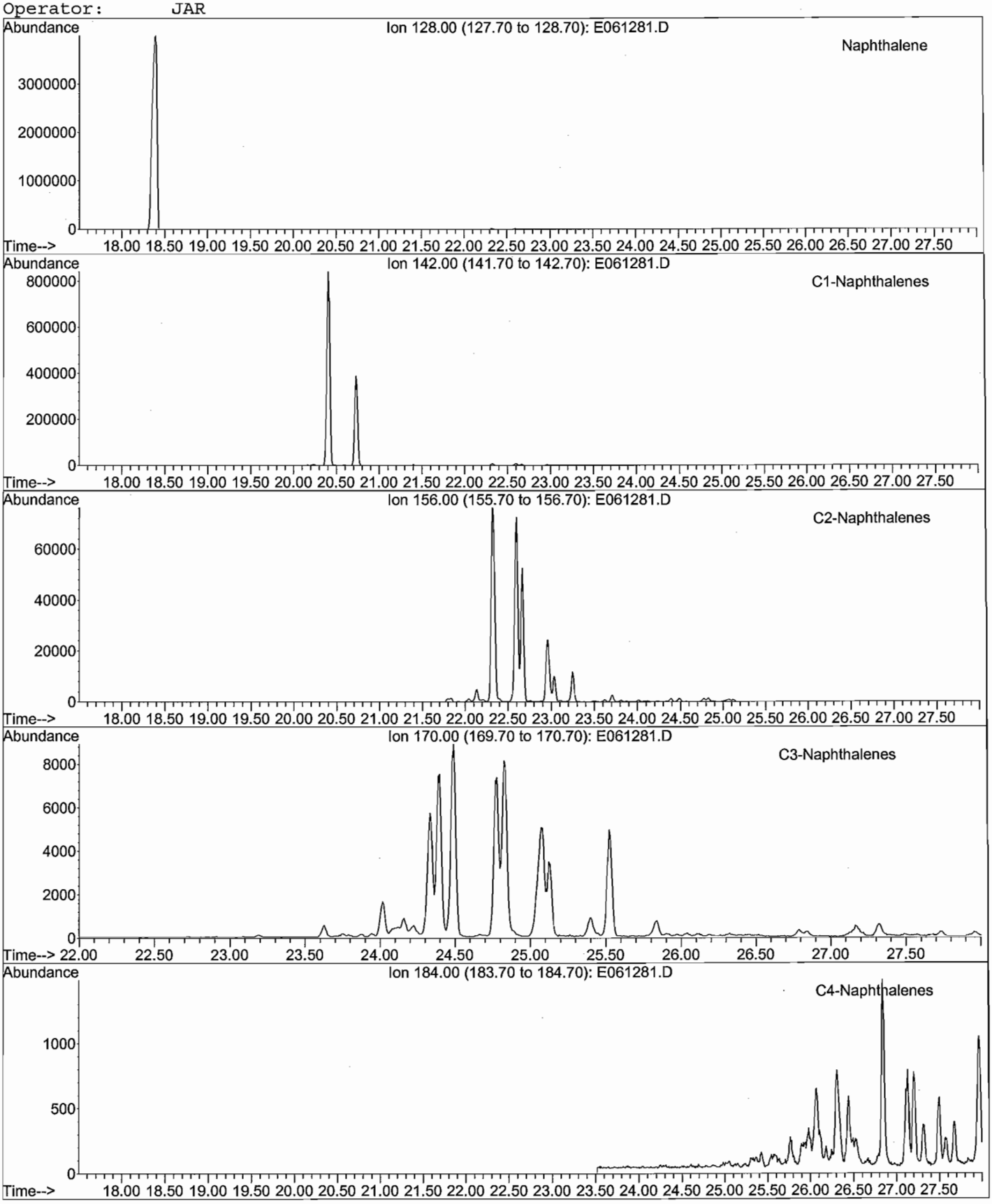
File: J:\1\DATA\E090612\E061281.D
Date Acquired: 17 Jun 2009 8:31 am
Method File: 4008SIMD.M
Sample Name: TA090603-01-D
Misc Info: CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

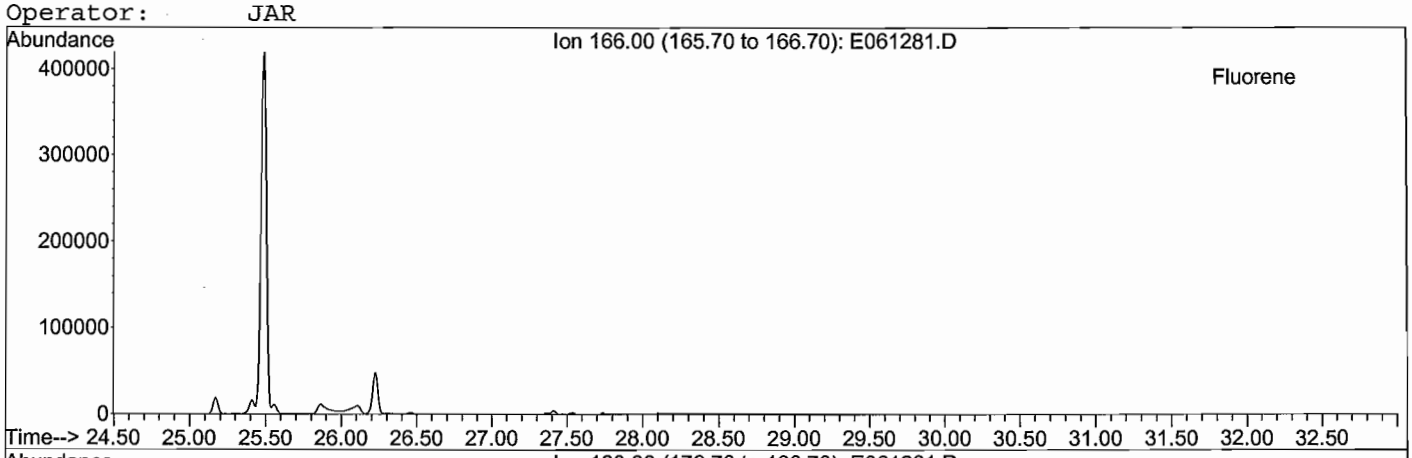
File: J:\1\DATA\E090612\E061281.D
Date Acquired: 17 Jun 2009 8:31 am
Method File: 4008SIMD.M
Sample Name: TA090603-01-D
Misc Info: CT-SO-B01-20 - 50x
Operator: JAR

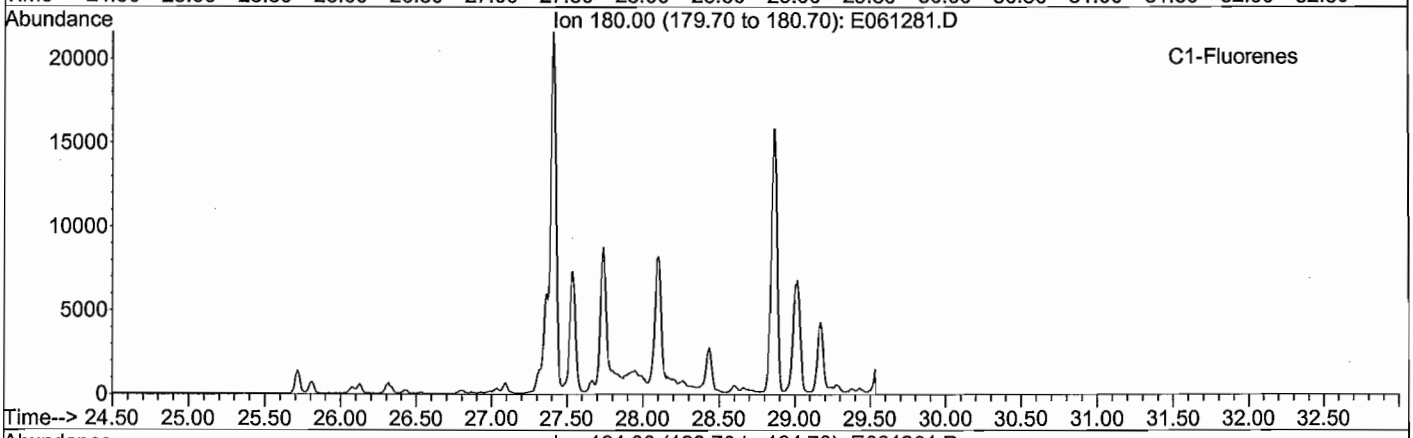


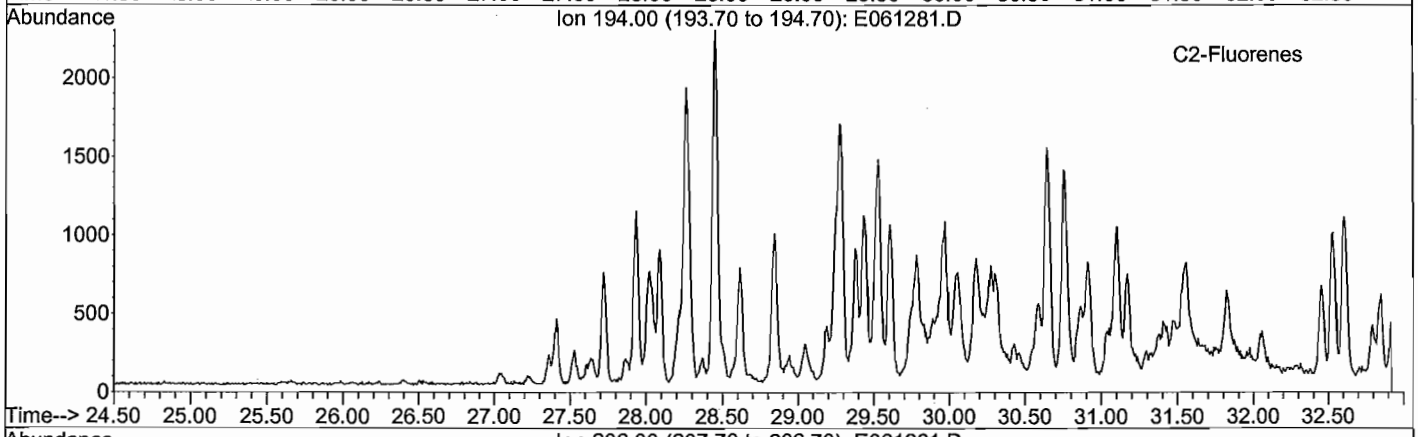
META Environmental, Inc.

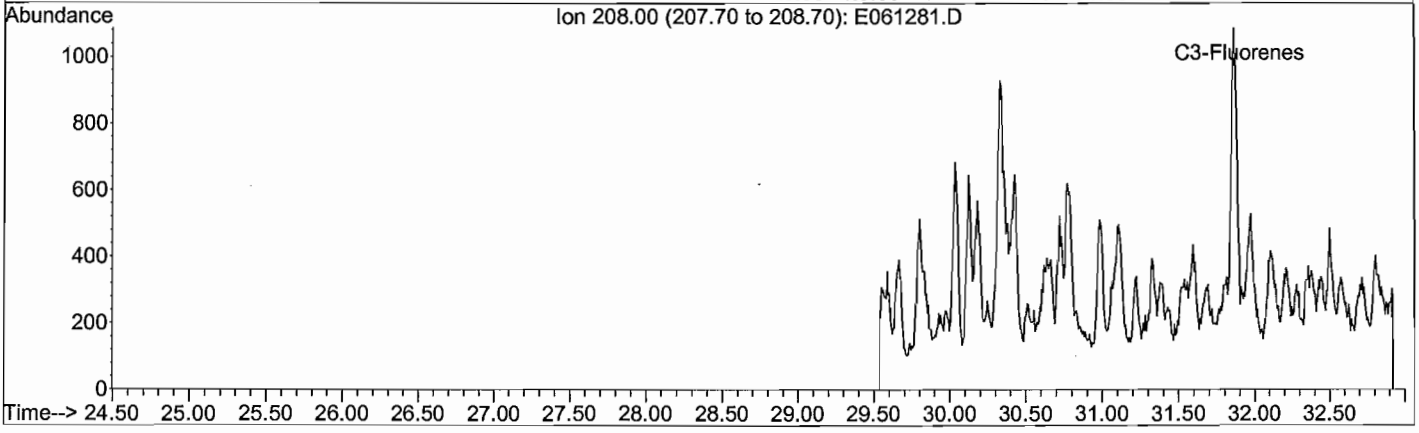
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061281.D
Date Acquired: 17 Jun 2009 8:31 am
Method File: 4008SIMD.M
Sample Name: TA090603-01-D
Misc Info: CT-SO-B01-20 - 50x
Operator: JAR





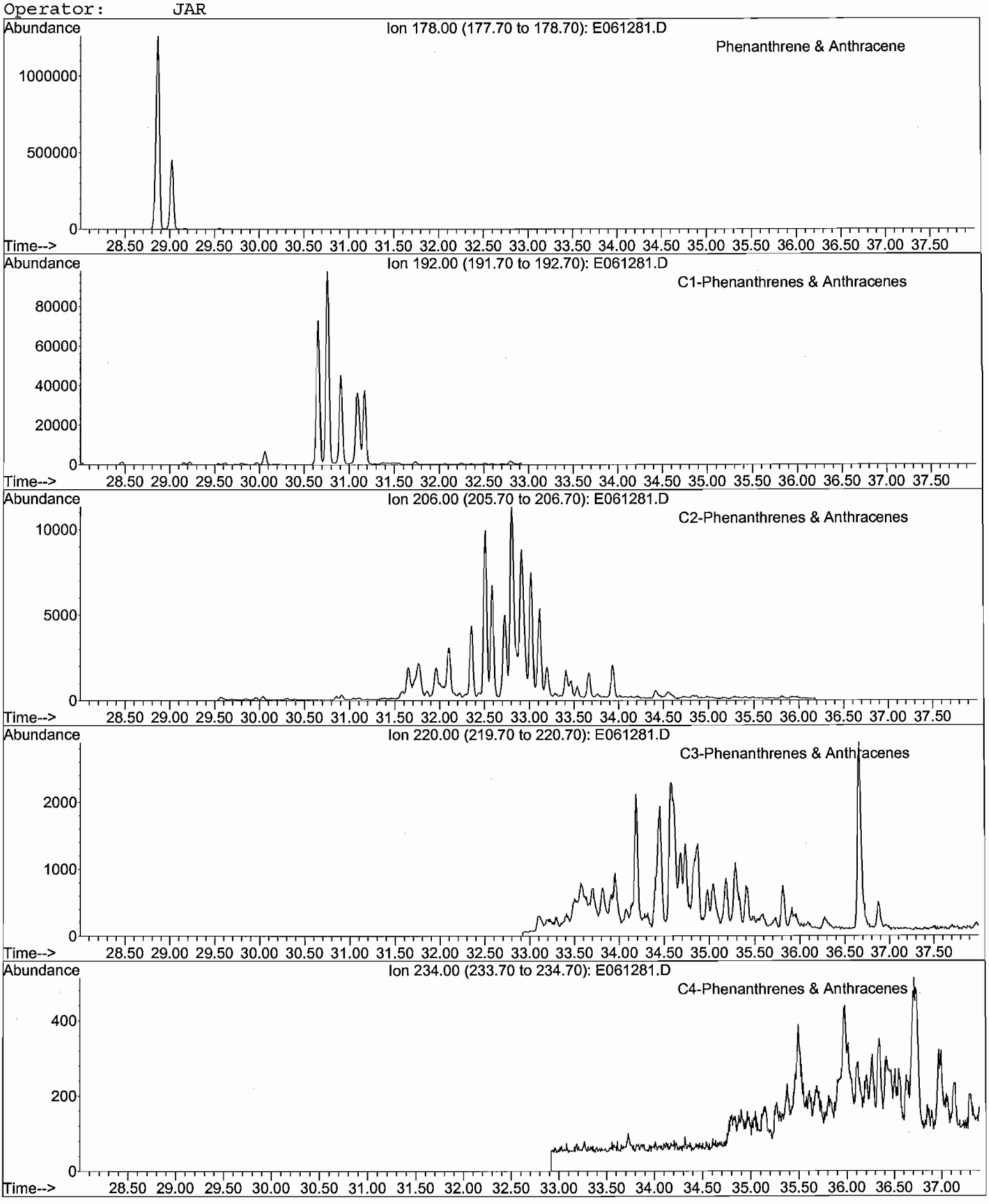




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

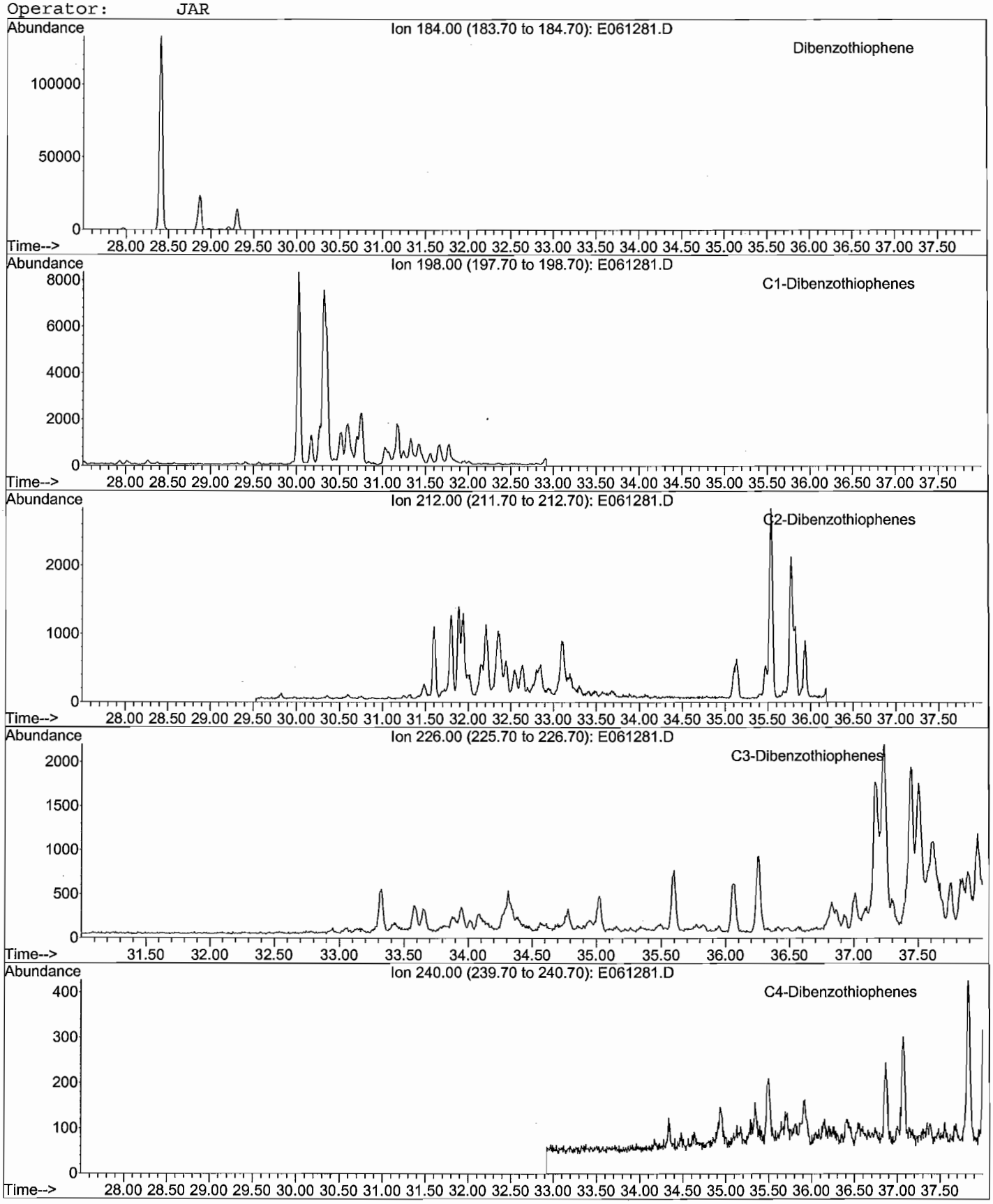
File: J:\1\DATA\E090612\E061281.D
Date Acquired: 17 Jun 2009 8:31 am
Method File: 4008SIMD.M
Sample Name: TA090603-01-D
Misc Info: CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061281.D
Date Acquired: 17 Jun 2009 8:31 am
Method File: 4008SIMD.M
Sample Name: TA090603-01-D
Misc Info: CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061281.D
Date Acquired: 17 Jun 2009 8:31 am
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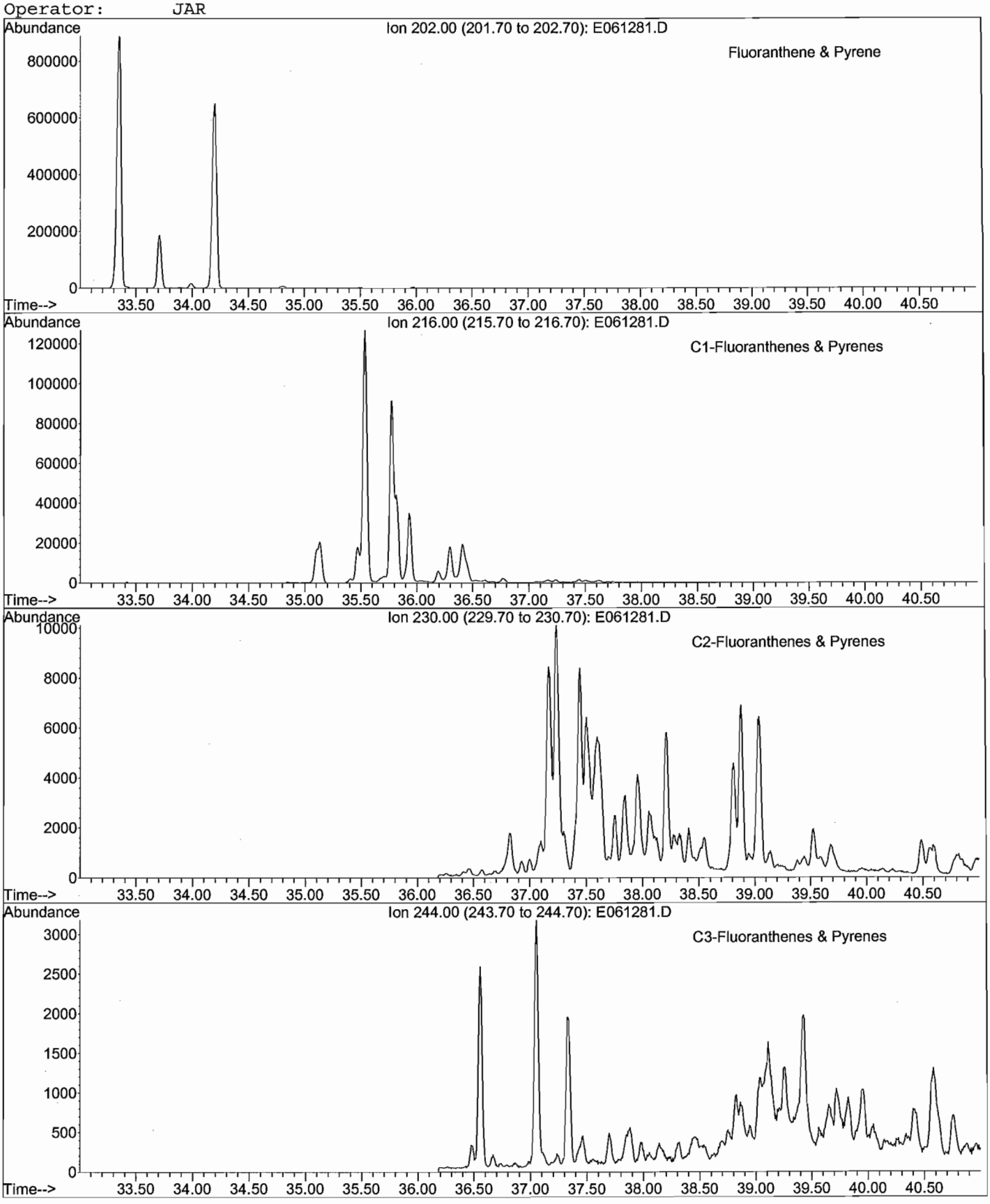
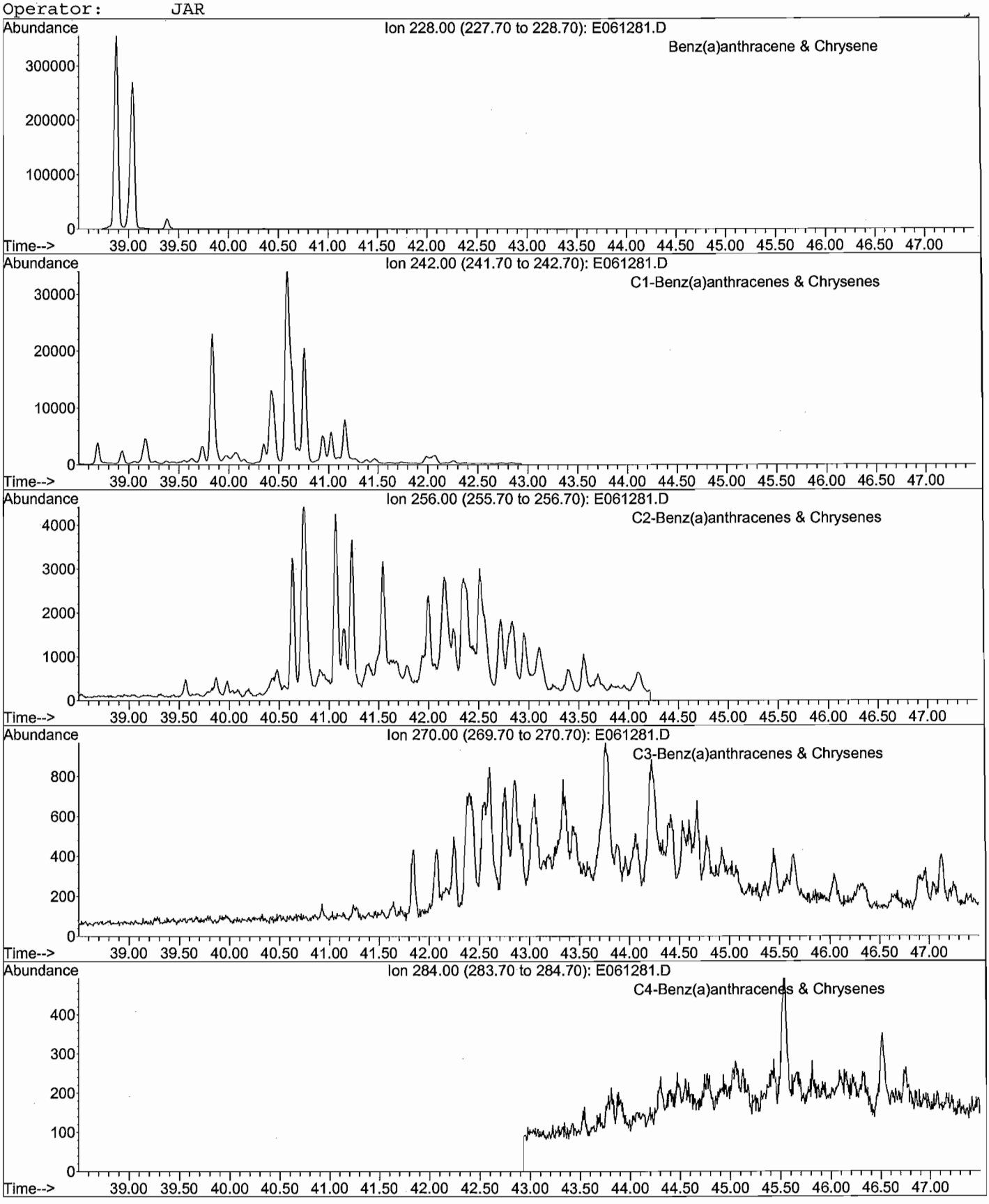
Sample Name: TA090603-01-D
Misc Info: CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

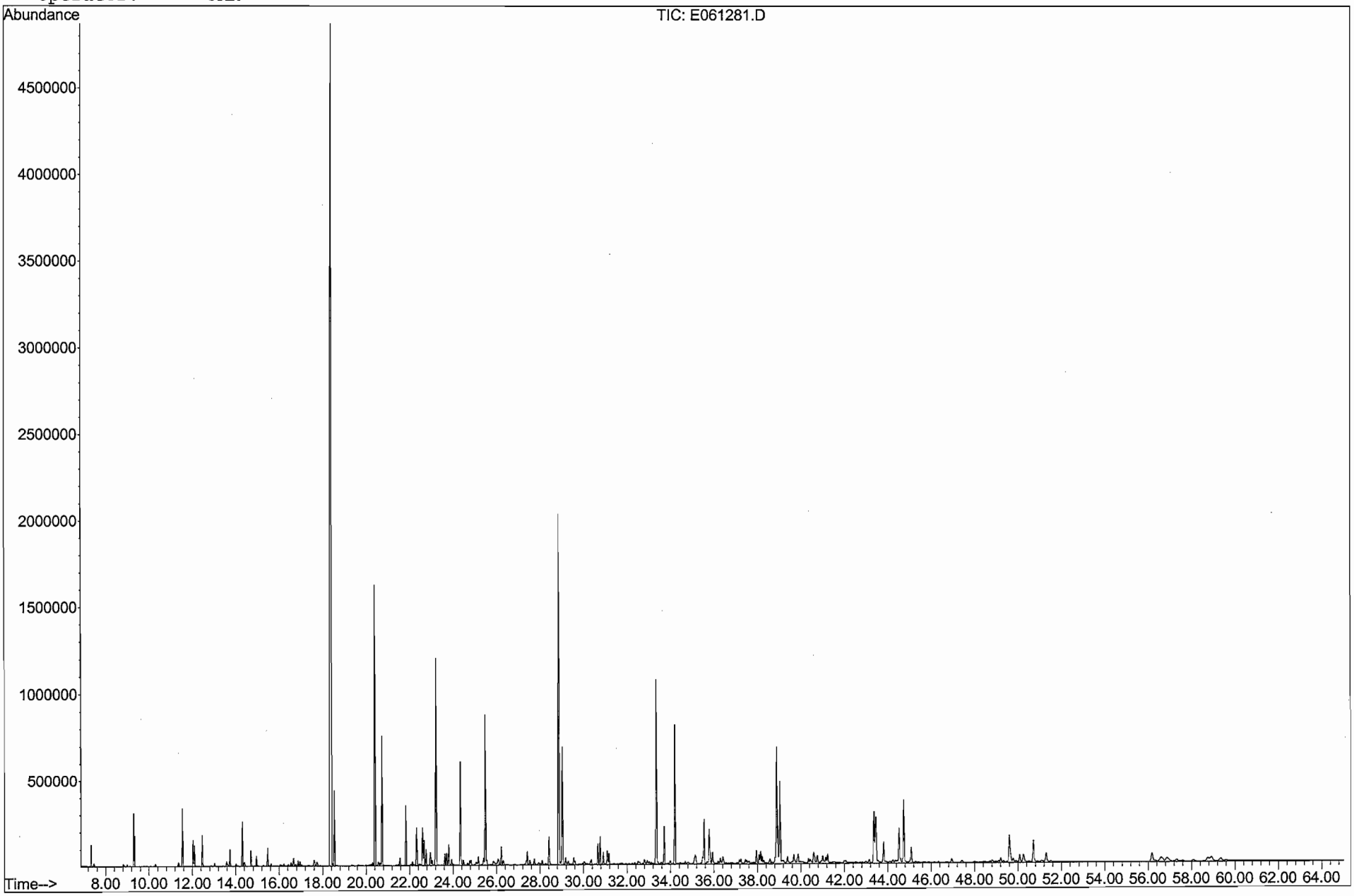
File: J:\1\DATA\E090612\E061281.D
Date Acquired: 17 Jun 2009 8:31 am
Method File: 4008SIMD.M
Sample Name: TA090603-01-D
Misc Info: CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

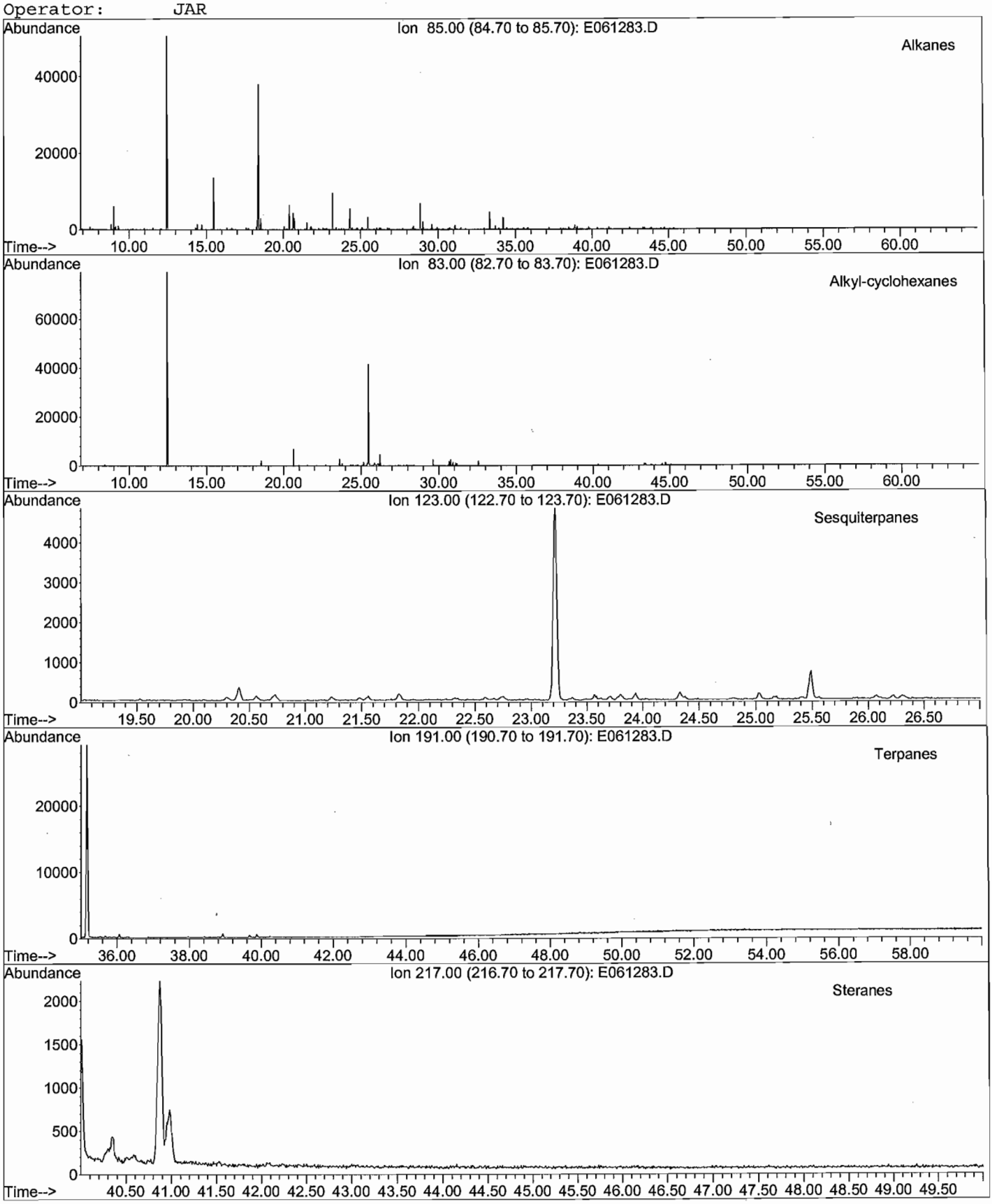
File: J:\1\DATA\E090612\E061281.D
Date Acquired: 17 Jun 2009 8:31 am
Method File: 4008SIMD.M
Sample Name: TA090603-01-D
Misc Info: CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

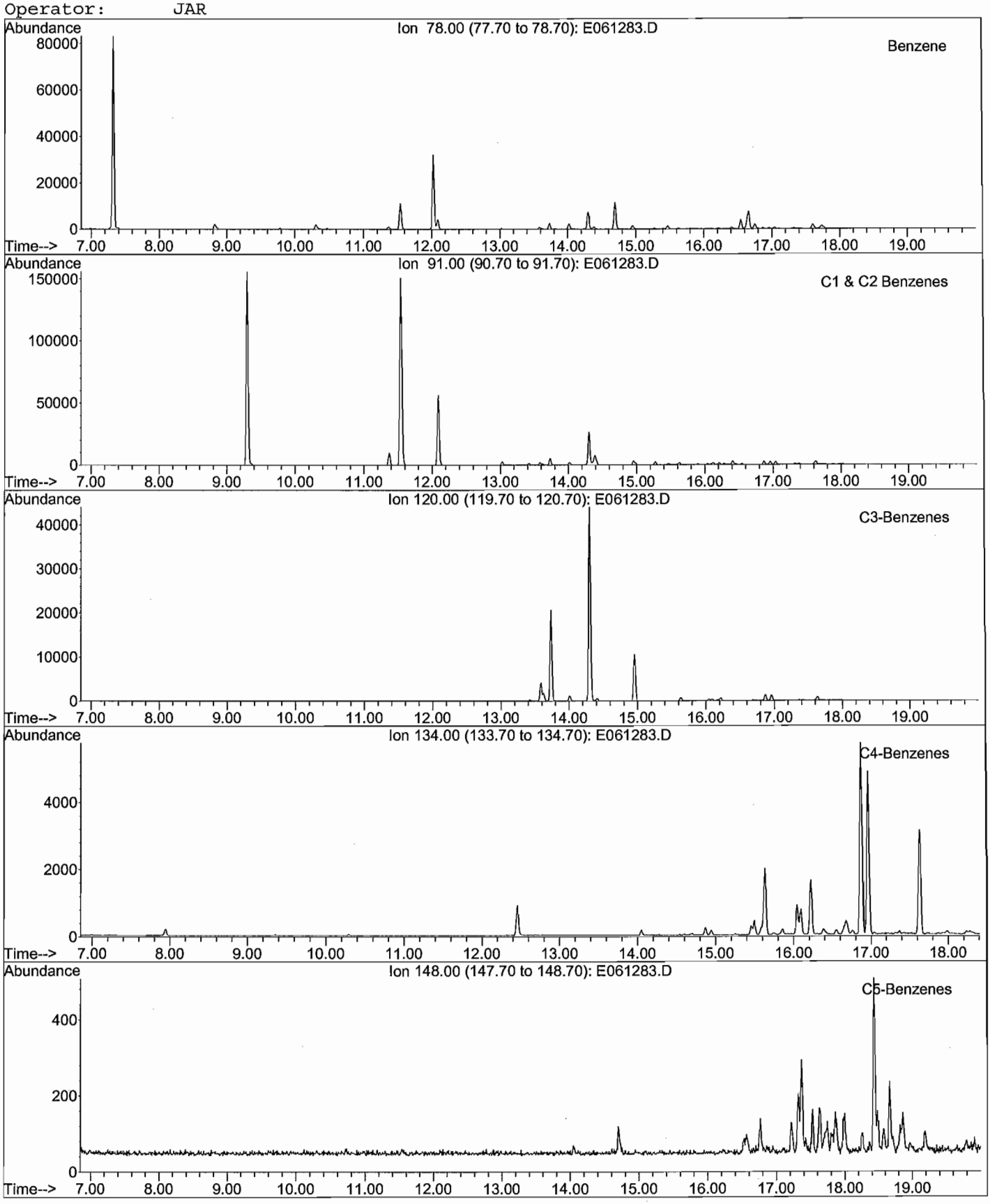
File: J:\1\DATA\E090612\E061283.D
Date Acquired: 17 Jun 2009 11:04 am
Method File: 4008SIMD.M
Sample Name: TA090603-01DUP-D
Misc Info: Duplicate of CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

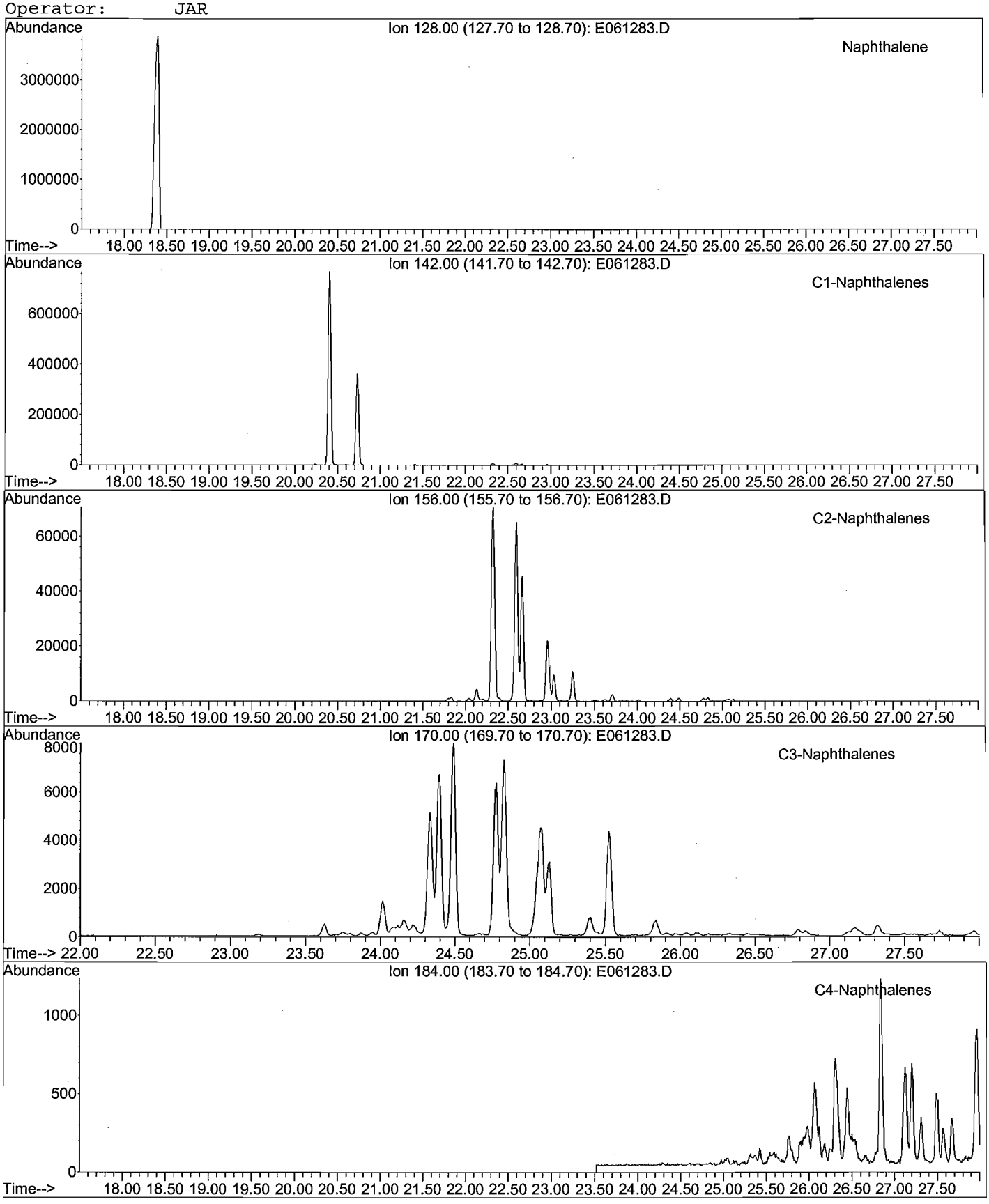
File: J:\1\DATA\E090612\E061283.D
Date Acquired: 17 Jun 2009 11:04 am
Method File: 4008SIMD.M
Sample Name: TA090603-01DUP-D
Misc Info: Duplicate of CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061283.D
Date Acquired: 17 Jun 2009 11:04 am
Method File: 4008SIMD.M
Sample Name: TA090603-01DUP-D
Misc Info: Duplicate of CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061283.D
Date Acquired: 17 Jun 2009 11:04 am
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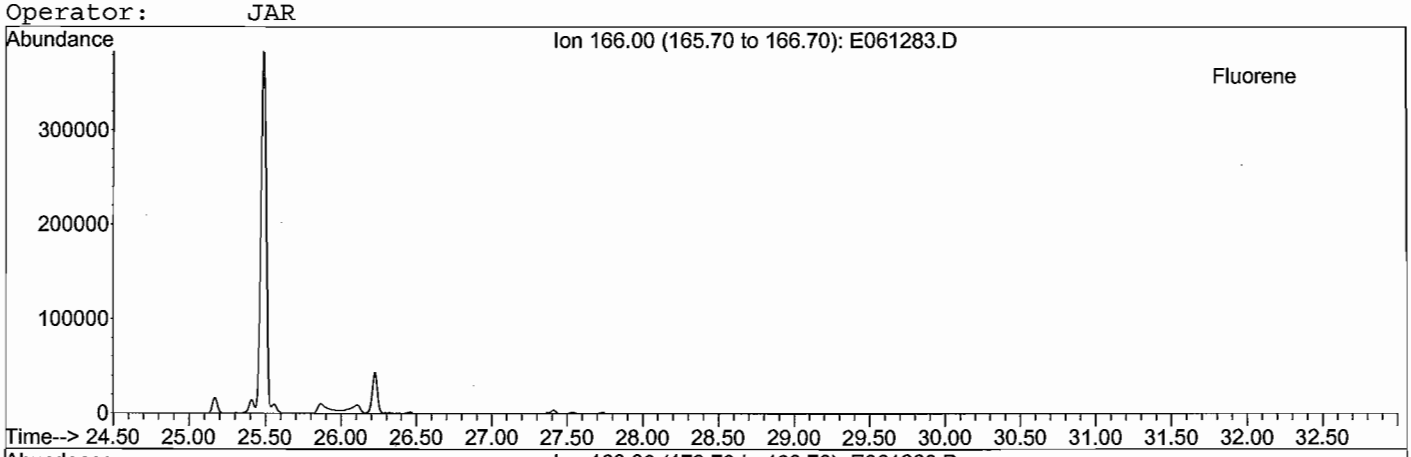
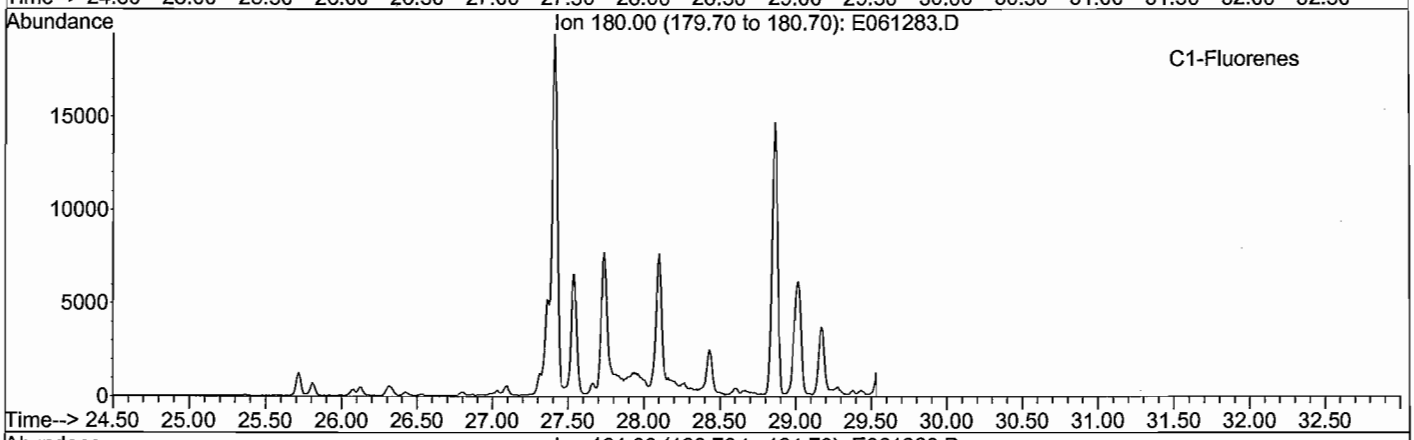
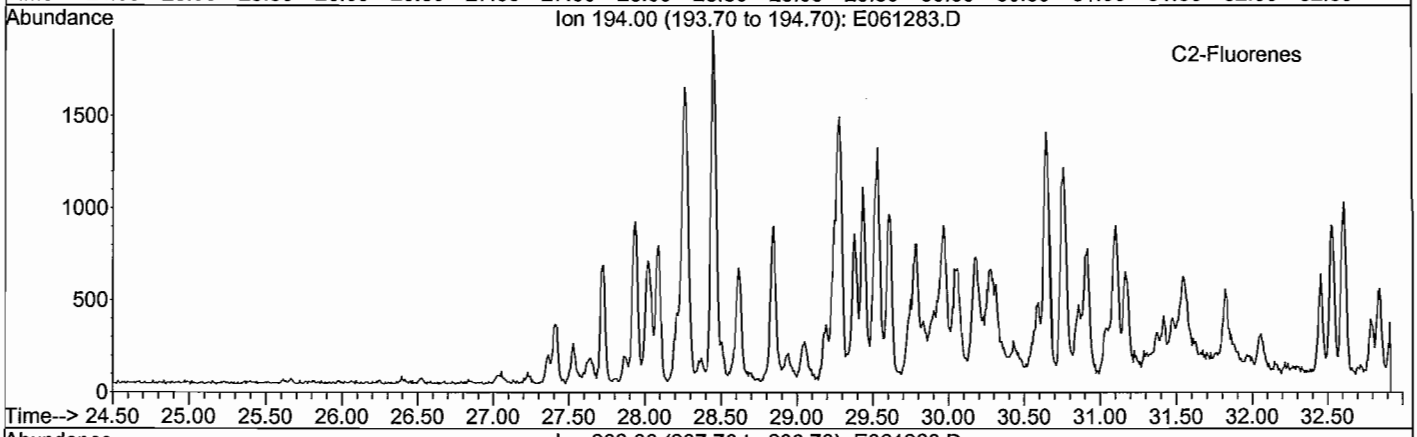
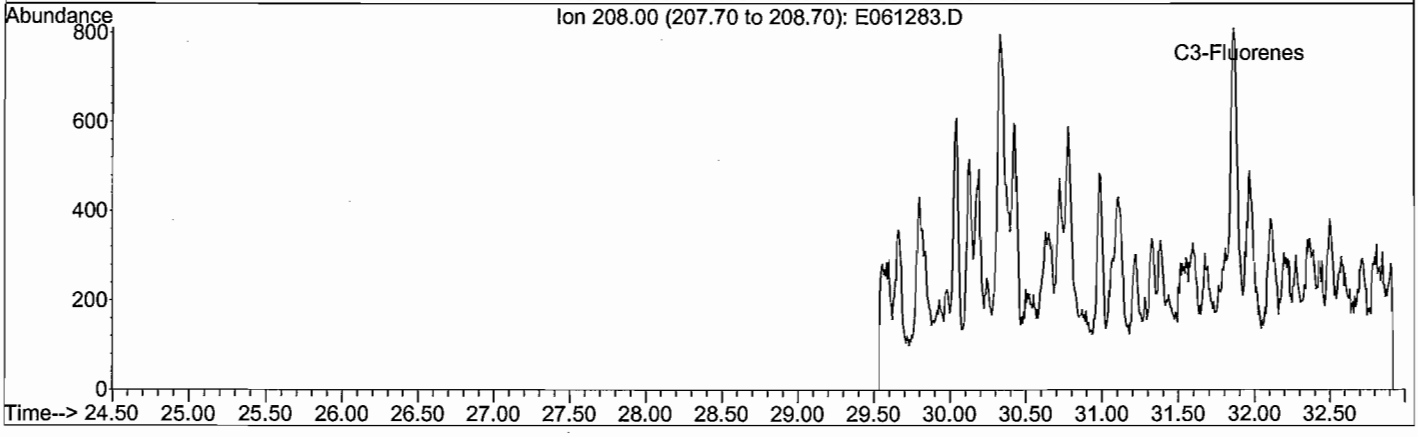
Sample Name: TA090603-01DUP-D
Misc Info: Duplicate of CT-SO-B01-20 - 50x
Operator: JAR





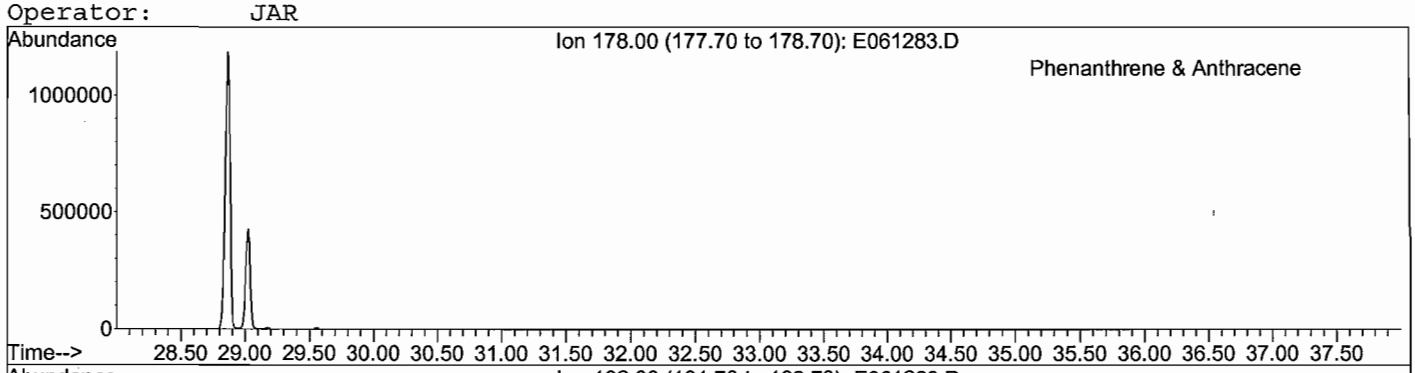


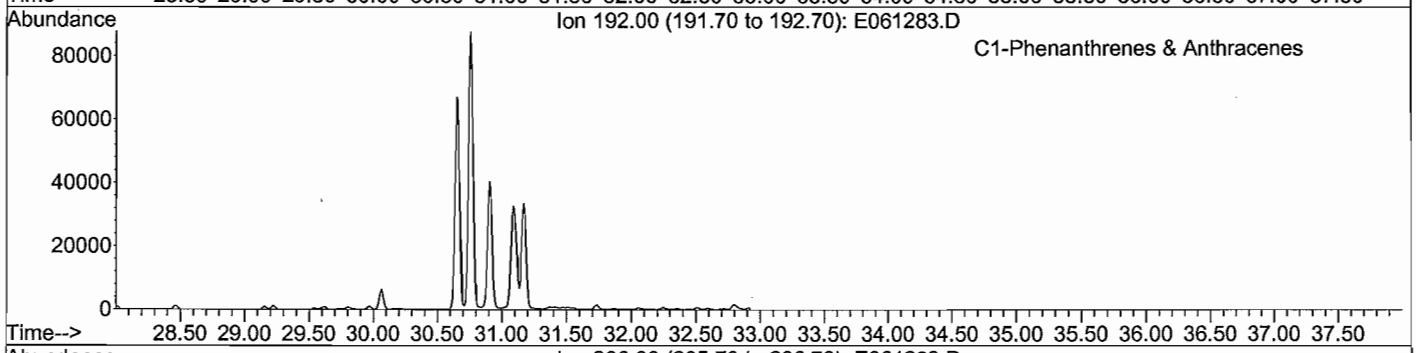


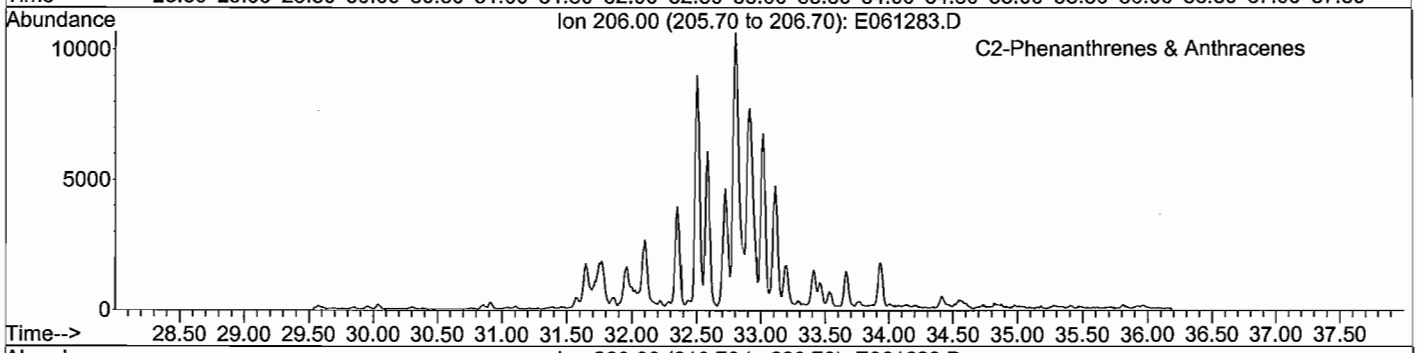
META Environmental, Inc.

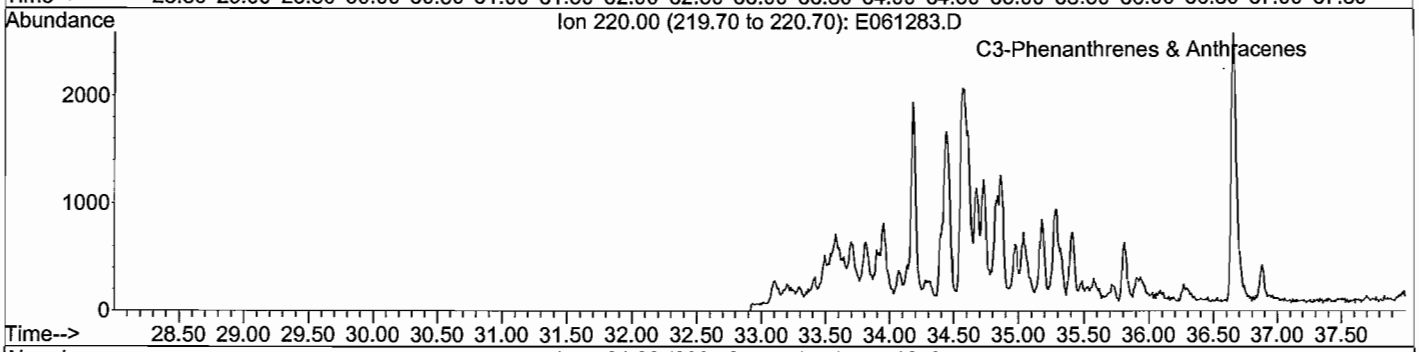
GC/MS EXTRACTED ION CHROMATOGRAM

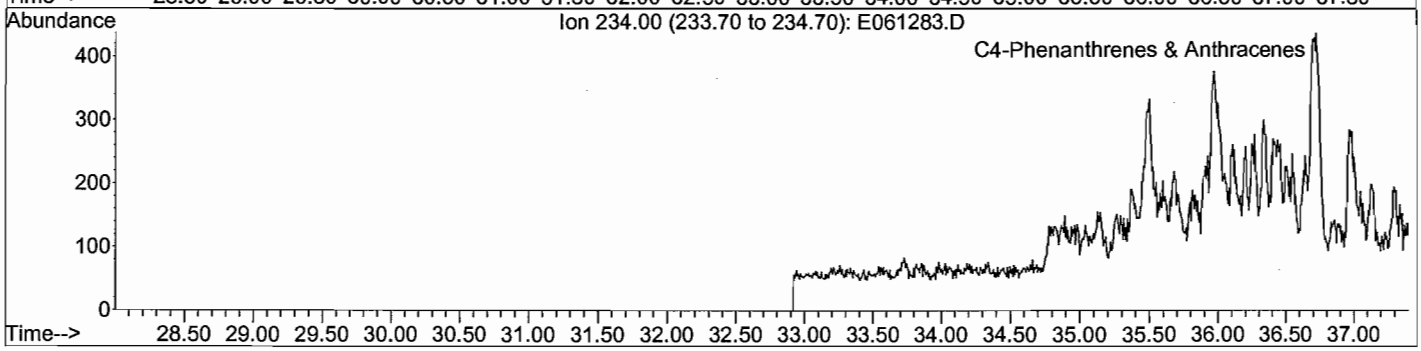
File: J:\1\DATA\E090612\E061283.D
Date Acquired: 17 Jun 2009 11:04 am
Method File: 4008SIMD.M
Sample Name: TA090603-01DUP-D
Misc Info: Duplicate of CT-SO-B01-20 - 50x
Operator: JAR











META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061283.D
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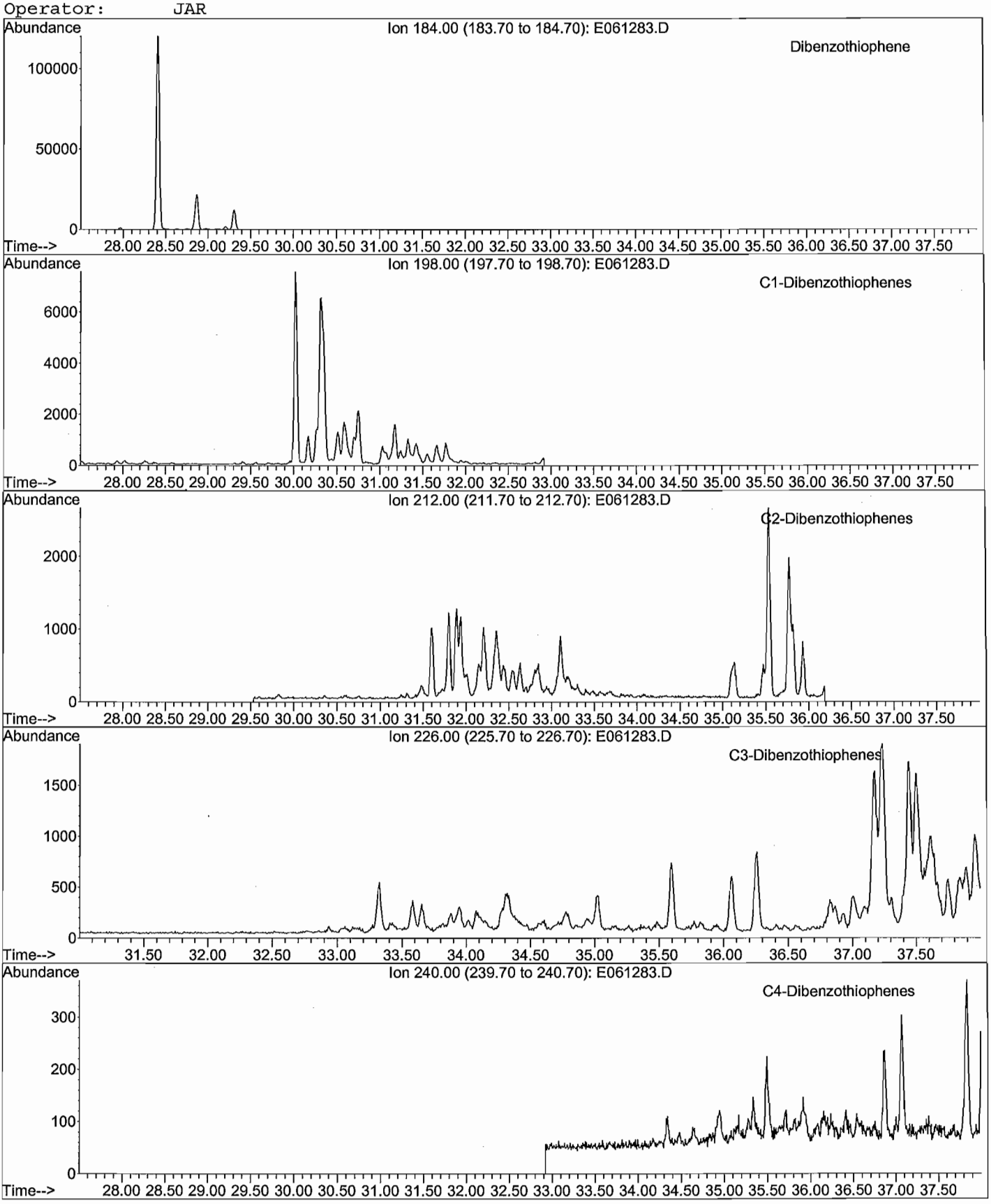
Sample Name: TA090603-01DUP-D
Misc Info: Duplicate of CT-SO-B01-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061283.D
Date Acquired: 17 Jun 2009 11:04 am
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Sample Name: TA090603-01DUP-D
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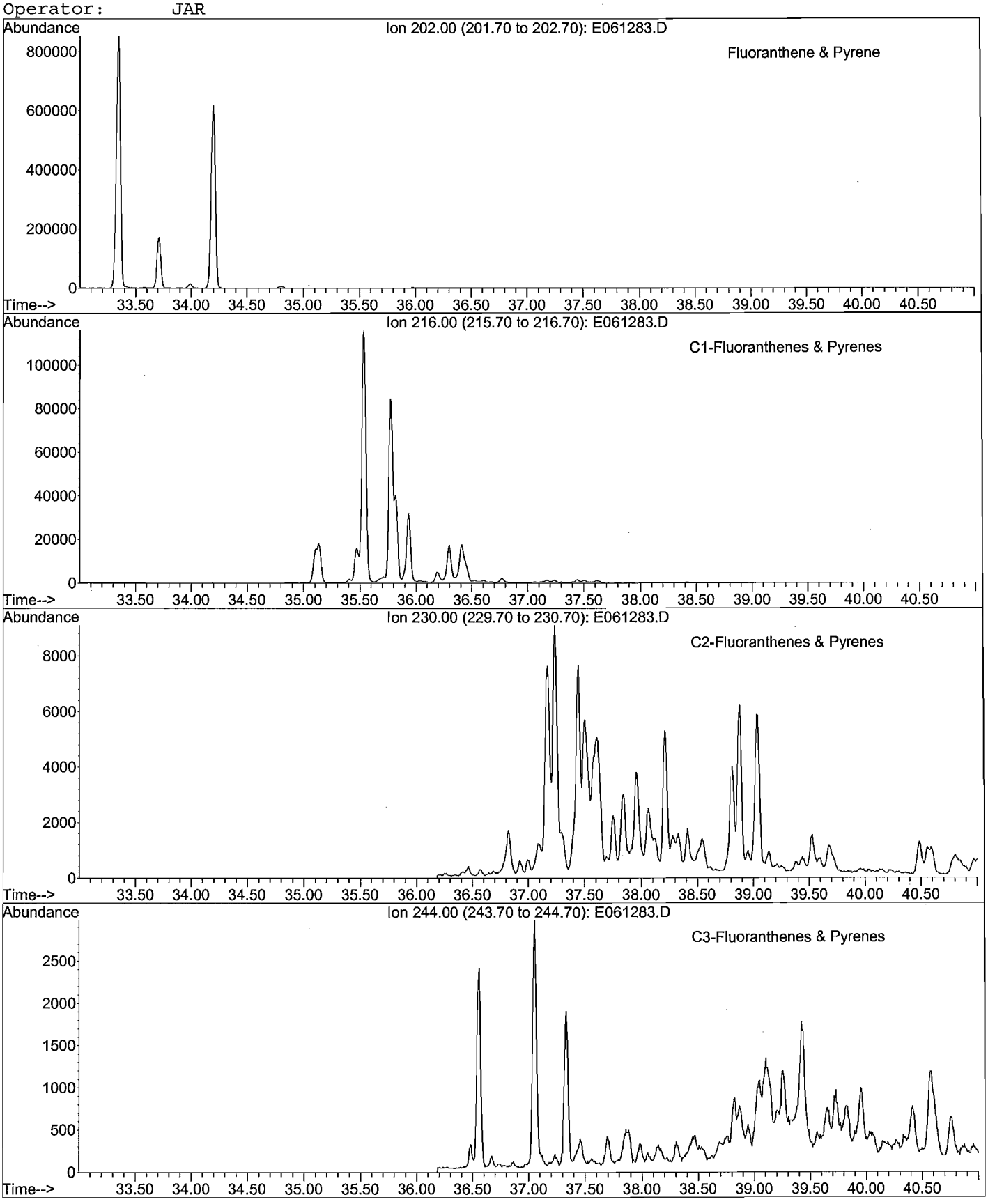
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061283.D
Date Acquired: 17 Jun 2009 11:04 am
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Sample Name: TA090603-01DUP-D
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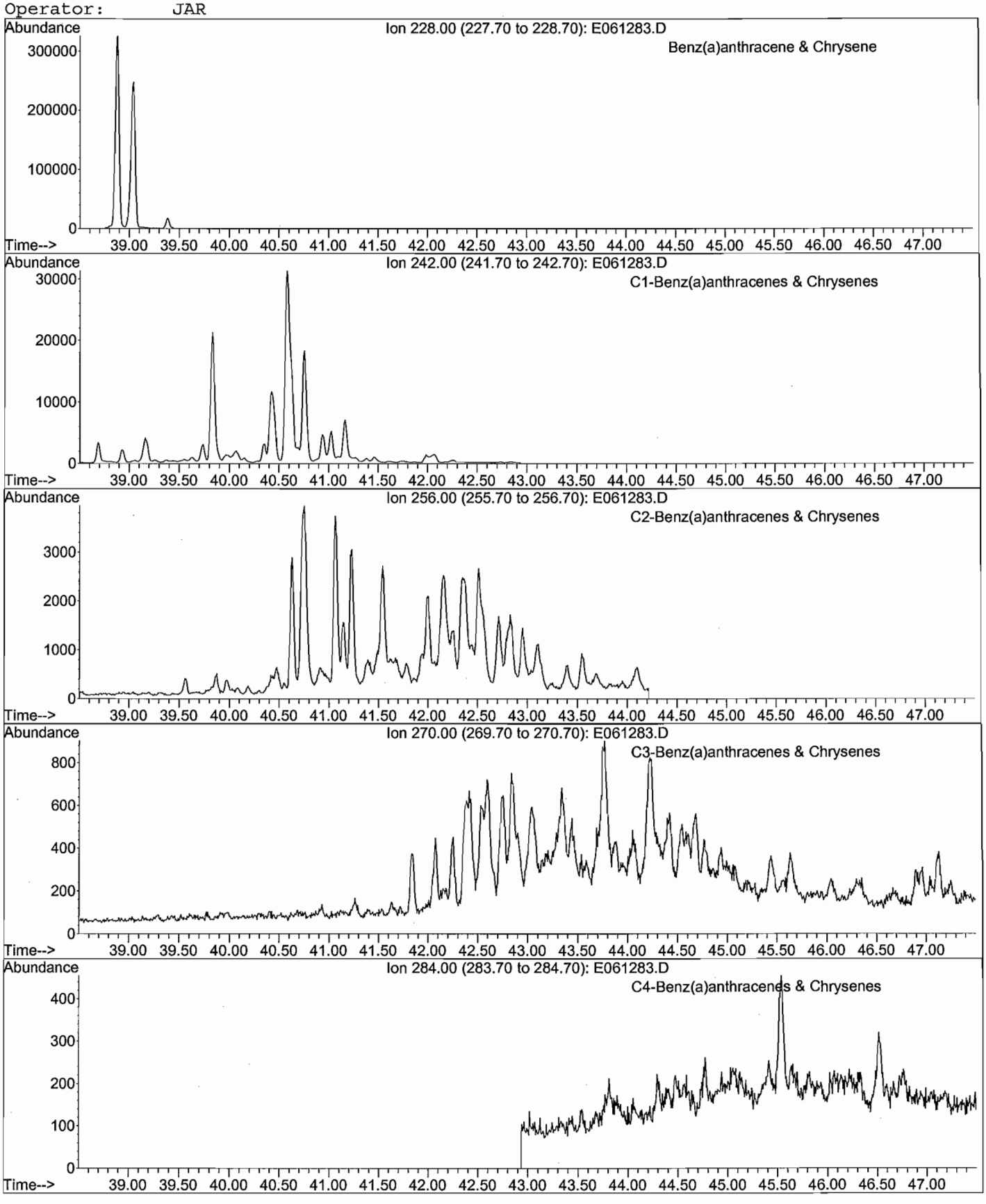
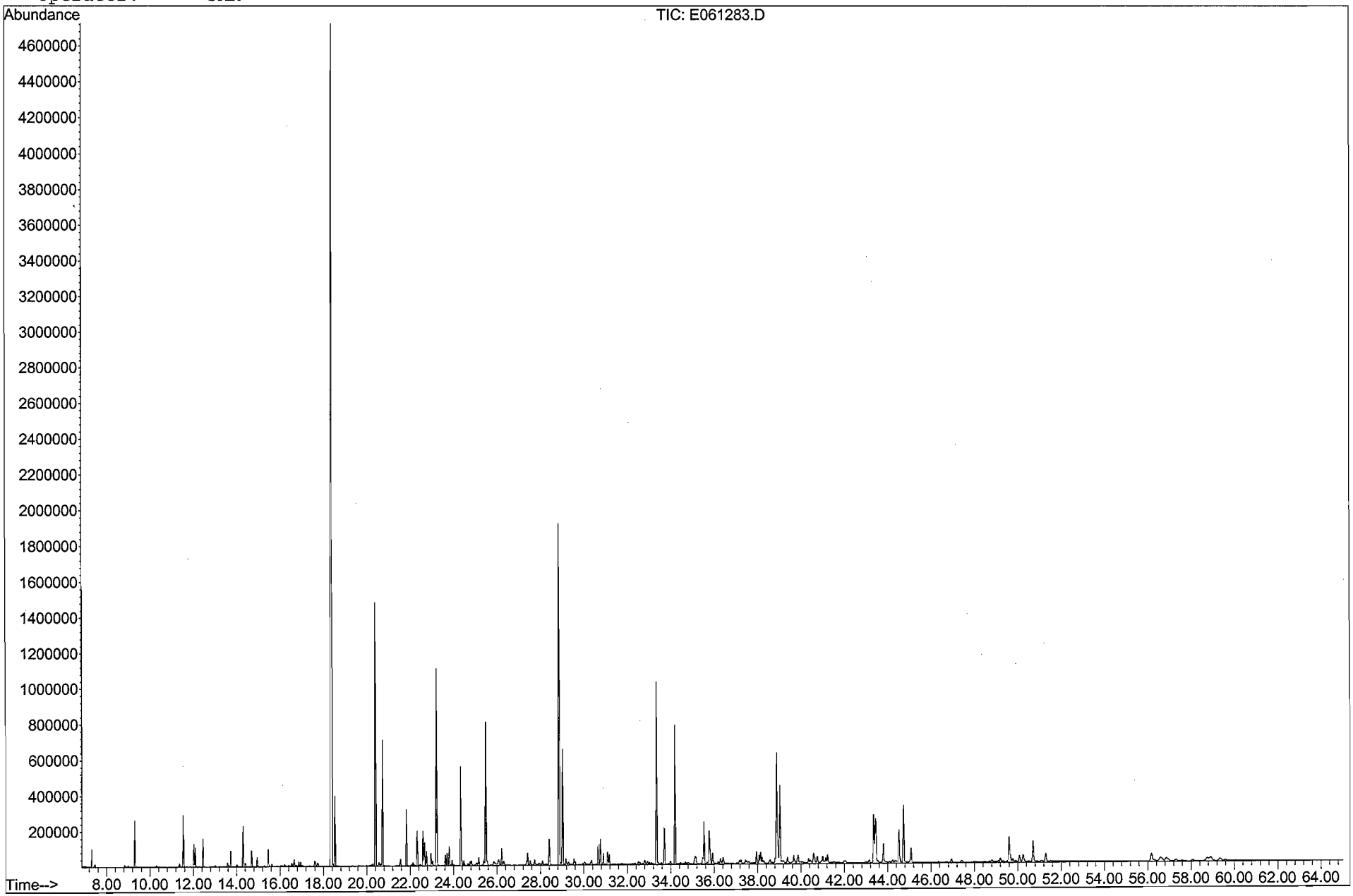
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

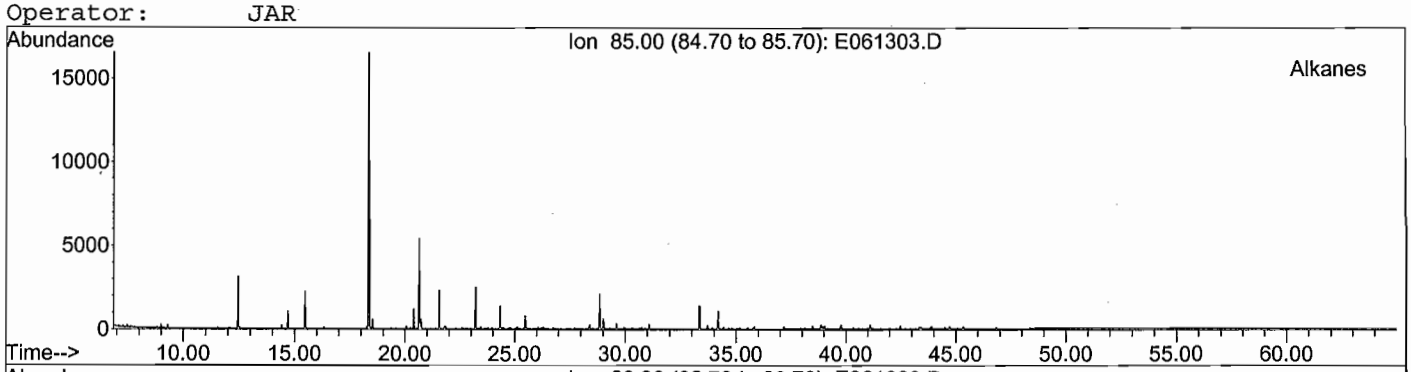
File: J:\1\DATA\E090612\E061283.D
Date Acquired: 17 Jun 2009 11:04 am
Method File: 4008SIMD.M
Sample Name: TA090603-01DUP-D
Misc Info: Duplicate of CT-SO-B01-20 - 50x
Operator: JAR

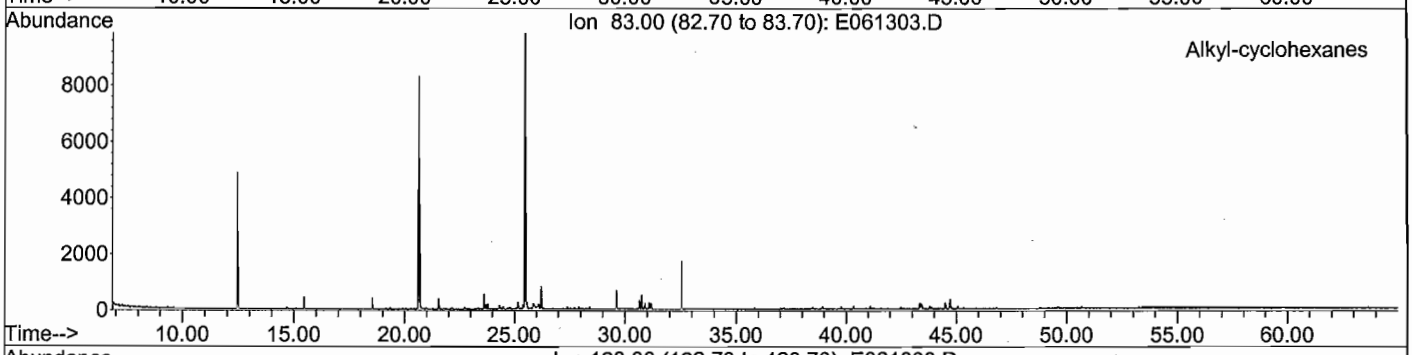


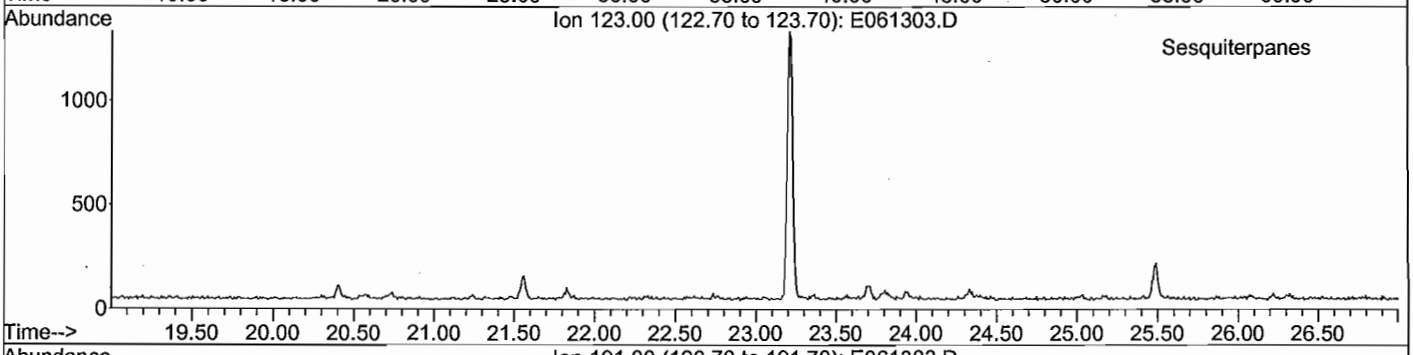
META Environmental, Inc.

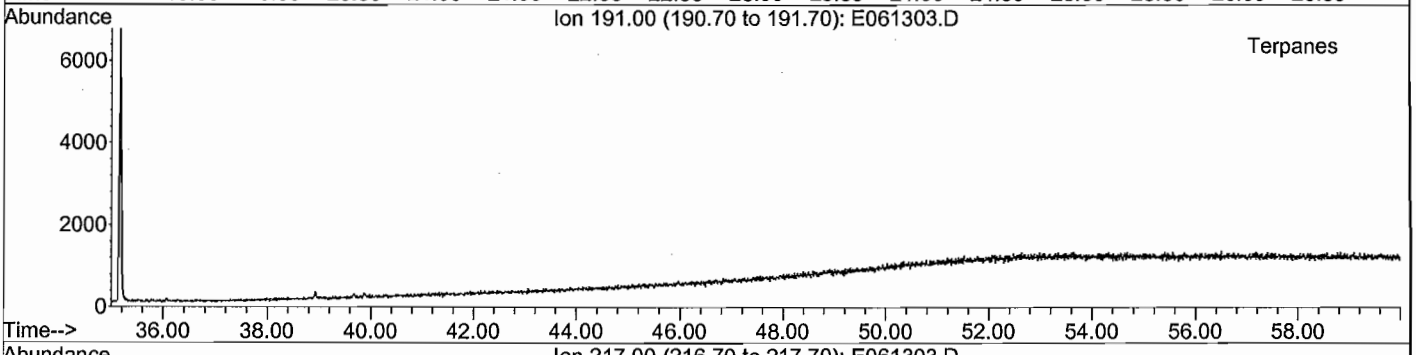
GC/MS EXTRACTED ION CHROMATOGRAM

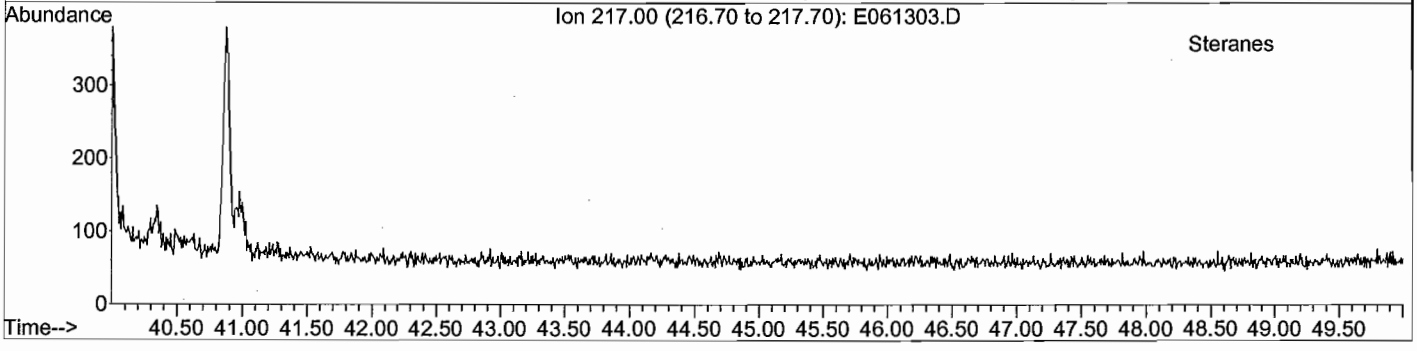
File: J:\1\DATA\E090612\E061303.D
Date Acquired: 18 Jun 2009 12:36 pm
Method File: 4008SIMD.M
Sample Name: TA090610-01-D
Misc Info: CT-SO-B05-20 - 50x
Operator: JAR







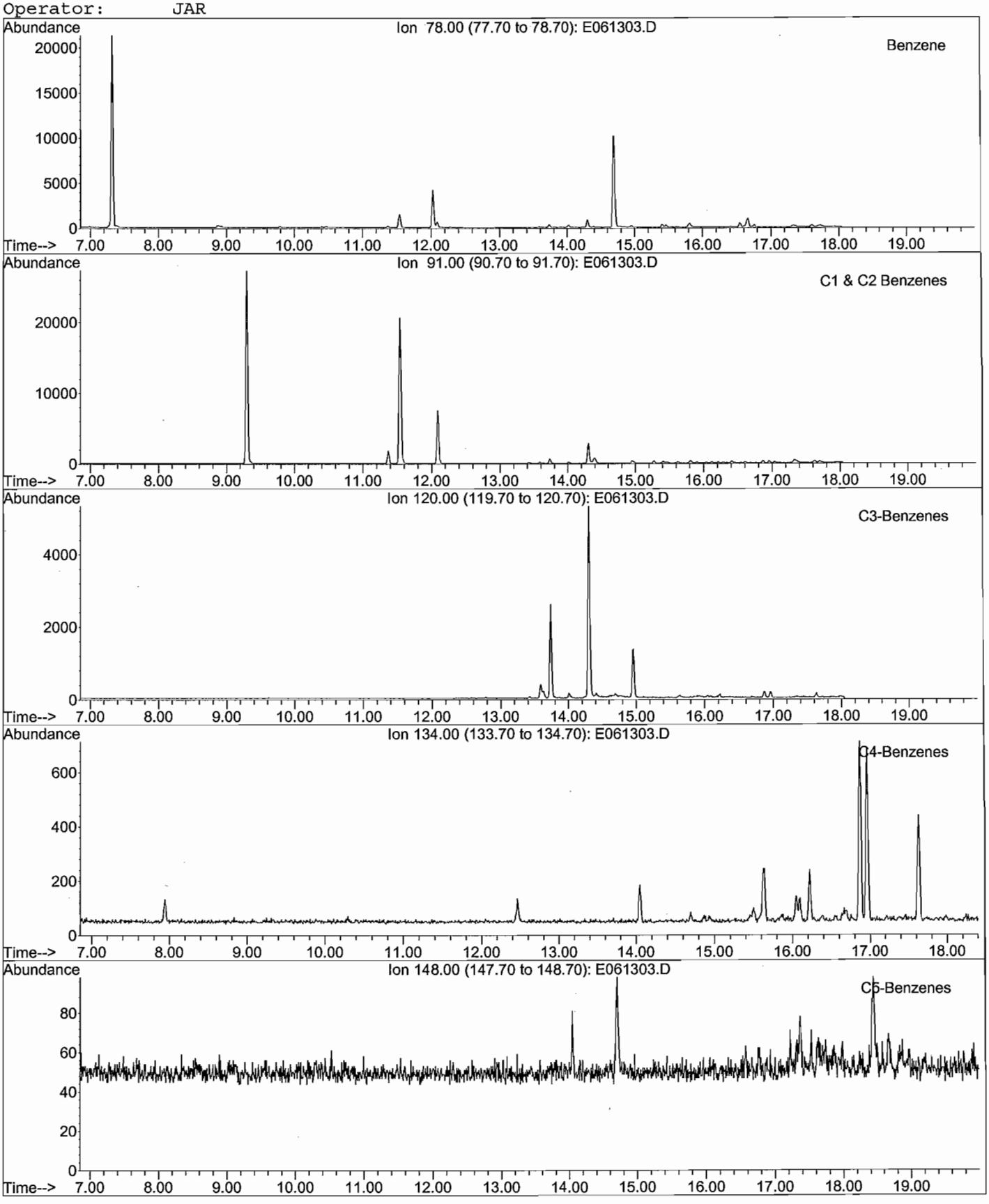




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061303.D
Date Acquired: 18 Jun 2009 12:36 pm
Method File: 4008SIMD.M
Sample Name: TA090610-01-D
Misc Info: CT-SO-B05-20 - 50x
Operator: JAR



META Environmental, Inc.

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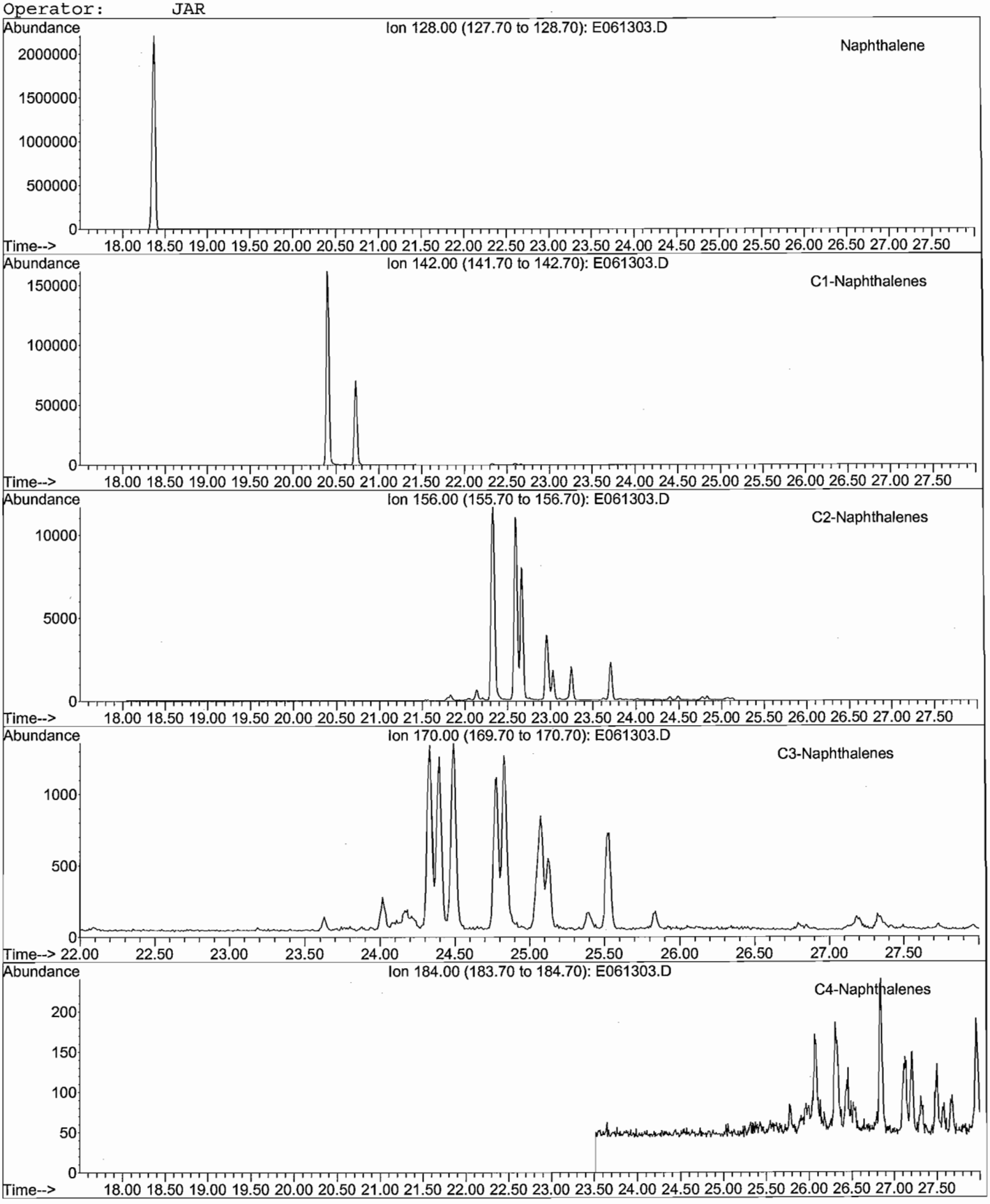

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061303.D
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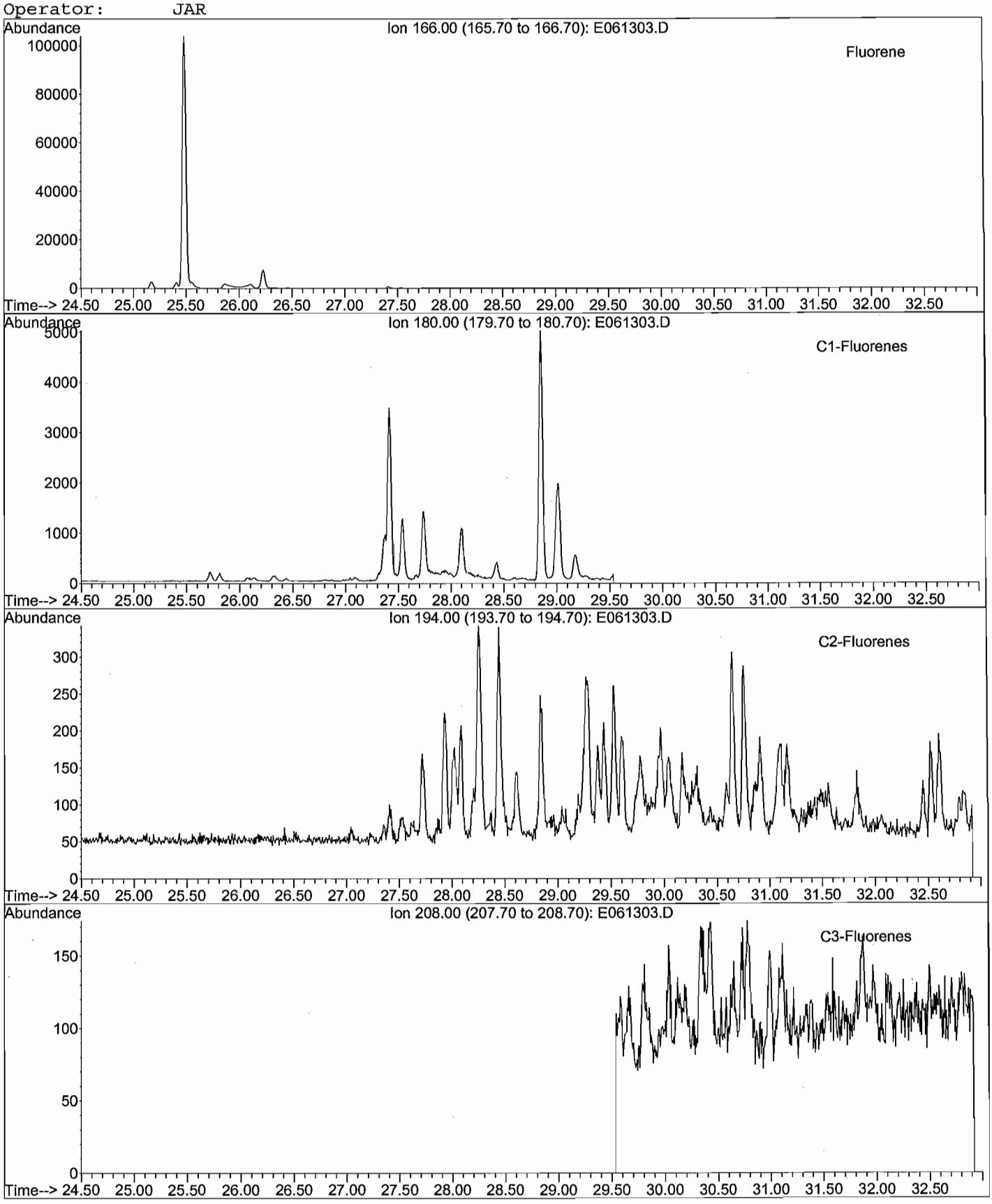
Sample Name: TA090610-01-D
Misc Info: CT-SO-B05-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061303.D
Date Acquired: 18 Jun 2009 12:36 pm
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Sample Name: TA090610-01-D
Misc Info: CT-SO-B05-20 - 50x
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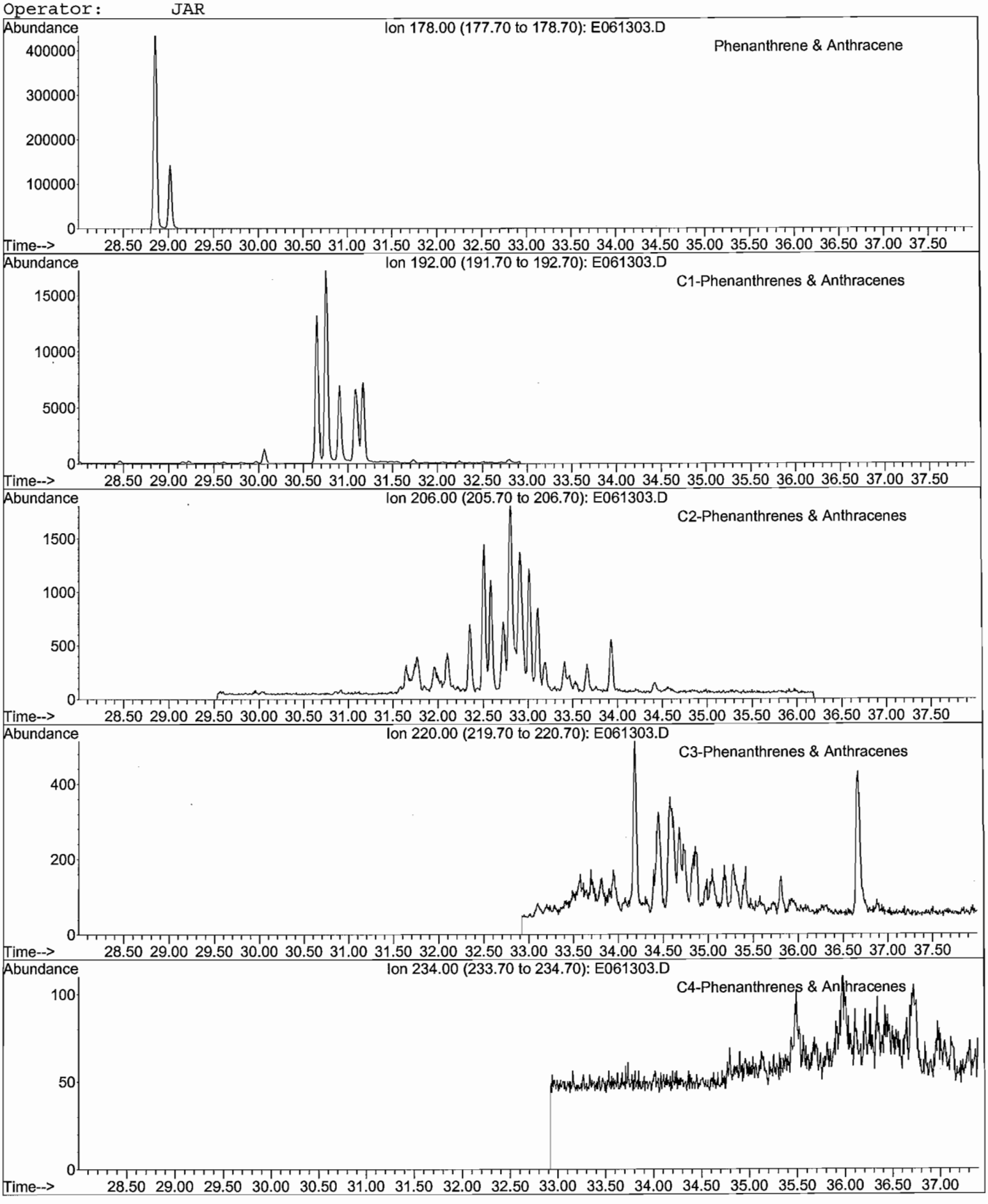

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061303.D
Date Acquired: 18 Jun 2009 12:36 pm
Method File: 4008SIMD.M
Sample Name: TA090610-01-D
Misc Info: CT-SO-B05-20 - 50x
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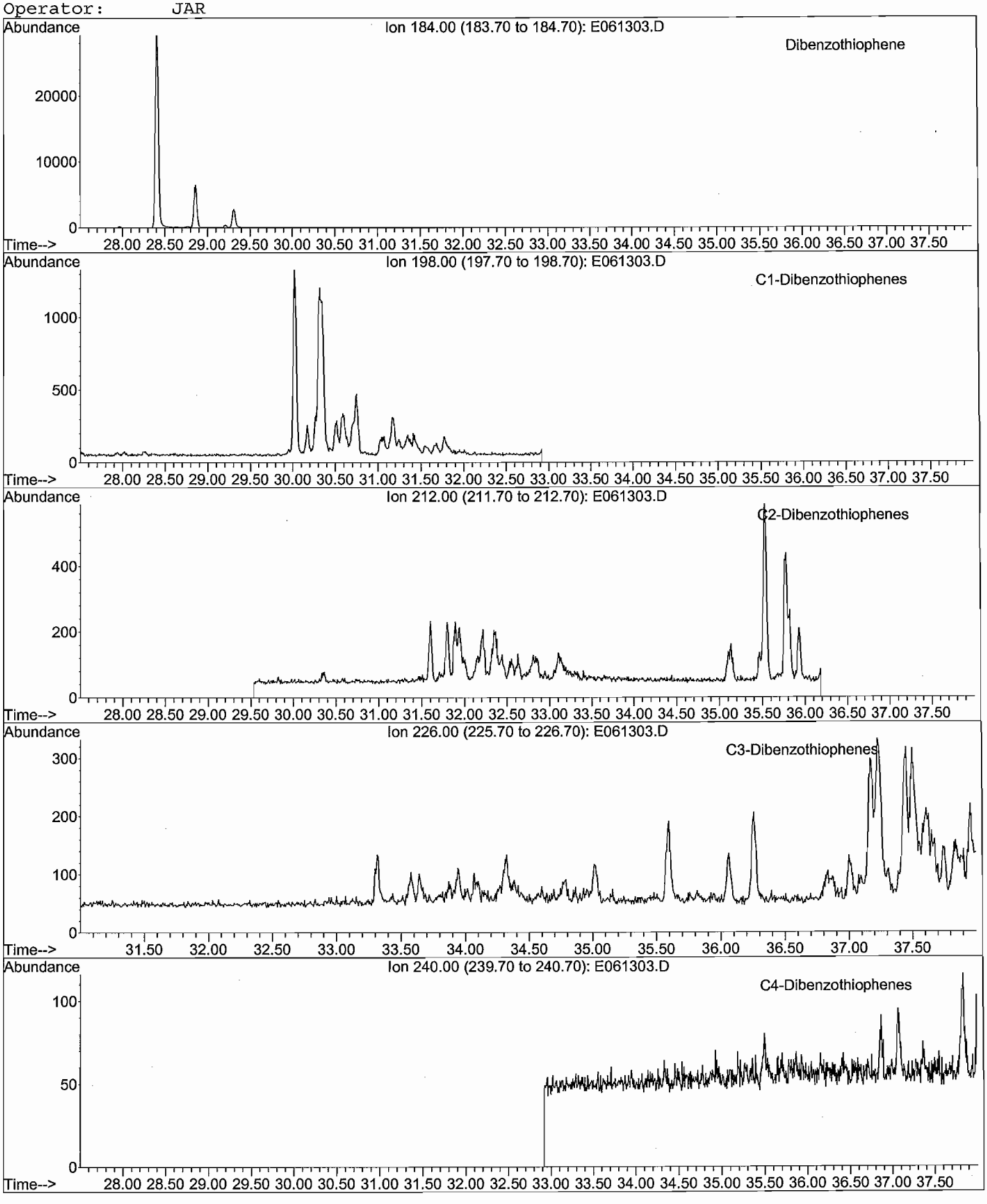

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061303.D
Date Acquired: 18 Jun 2009 12:36 pm
Method File: 4008SIMD.M
Sample Name: TA090610-01-D
Misc Info: CT-SO-B05-20 - 50x
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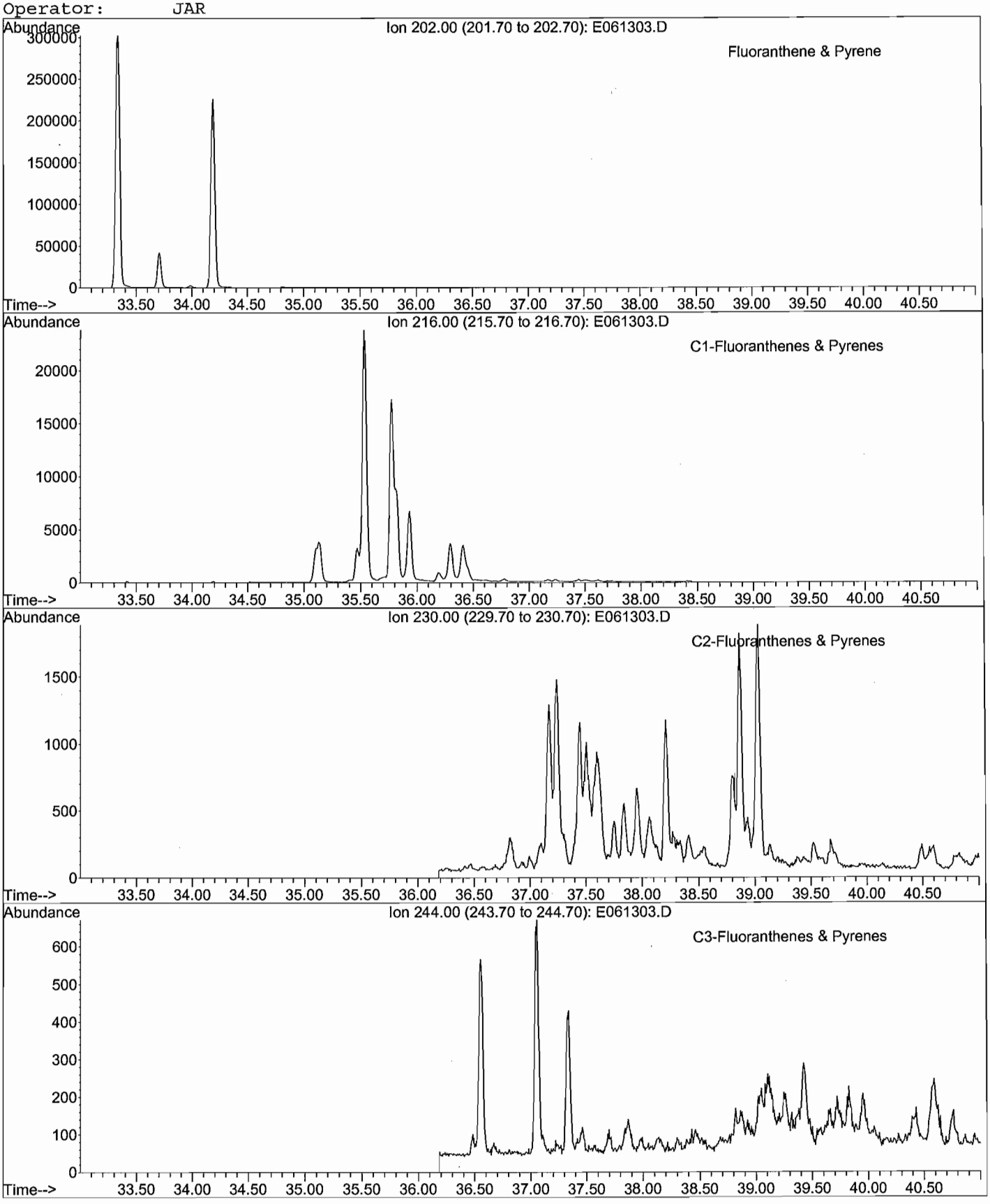

META Environmental, Inc.

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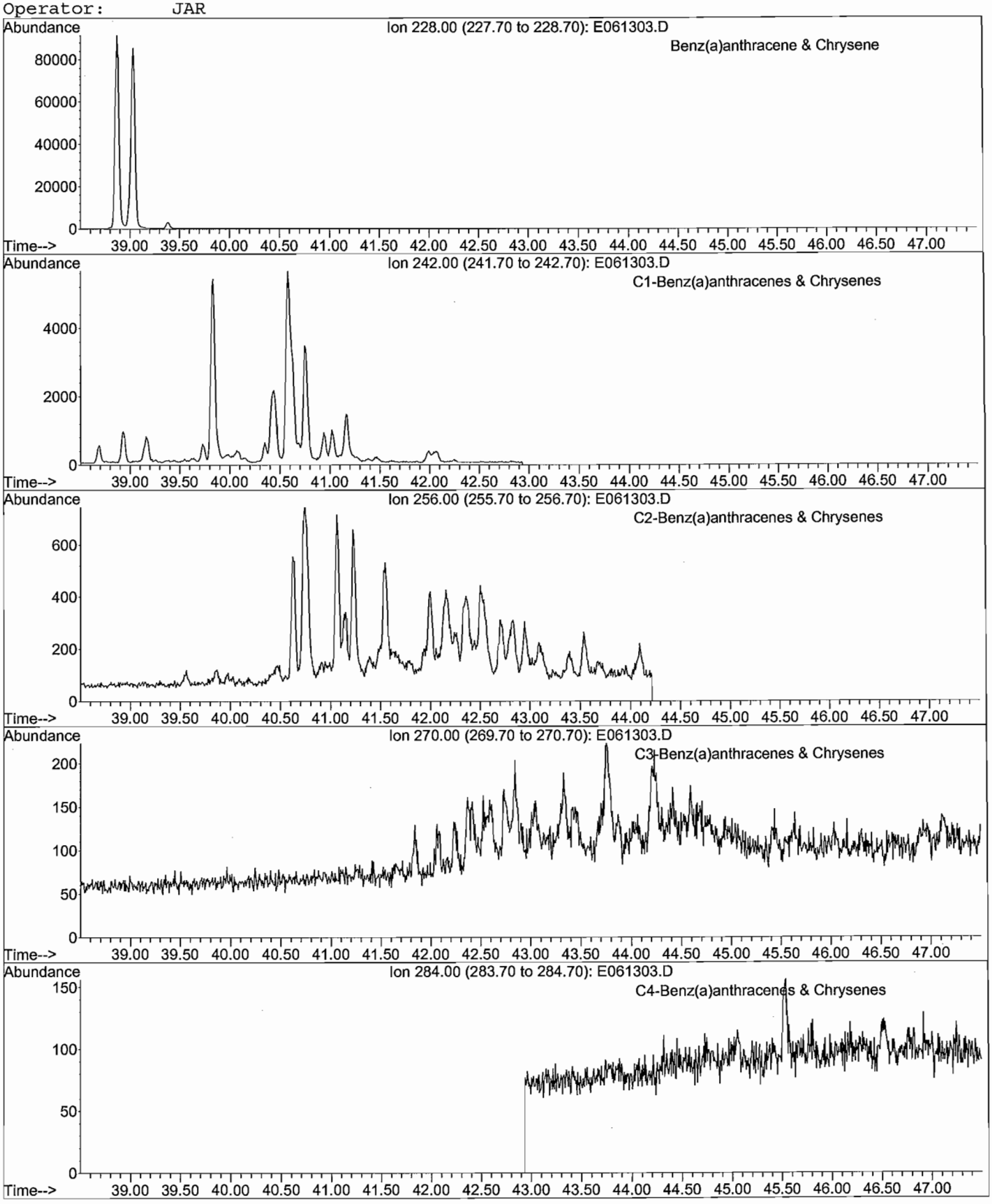
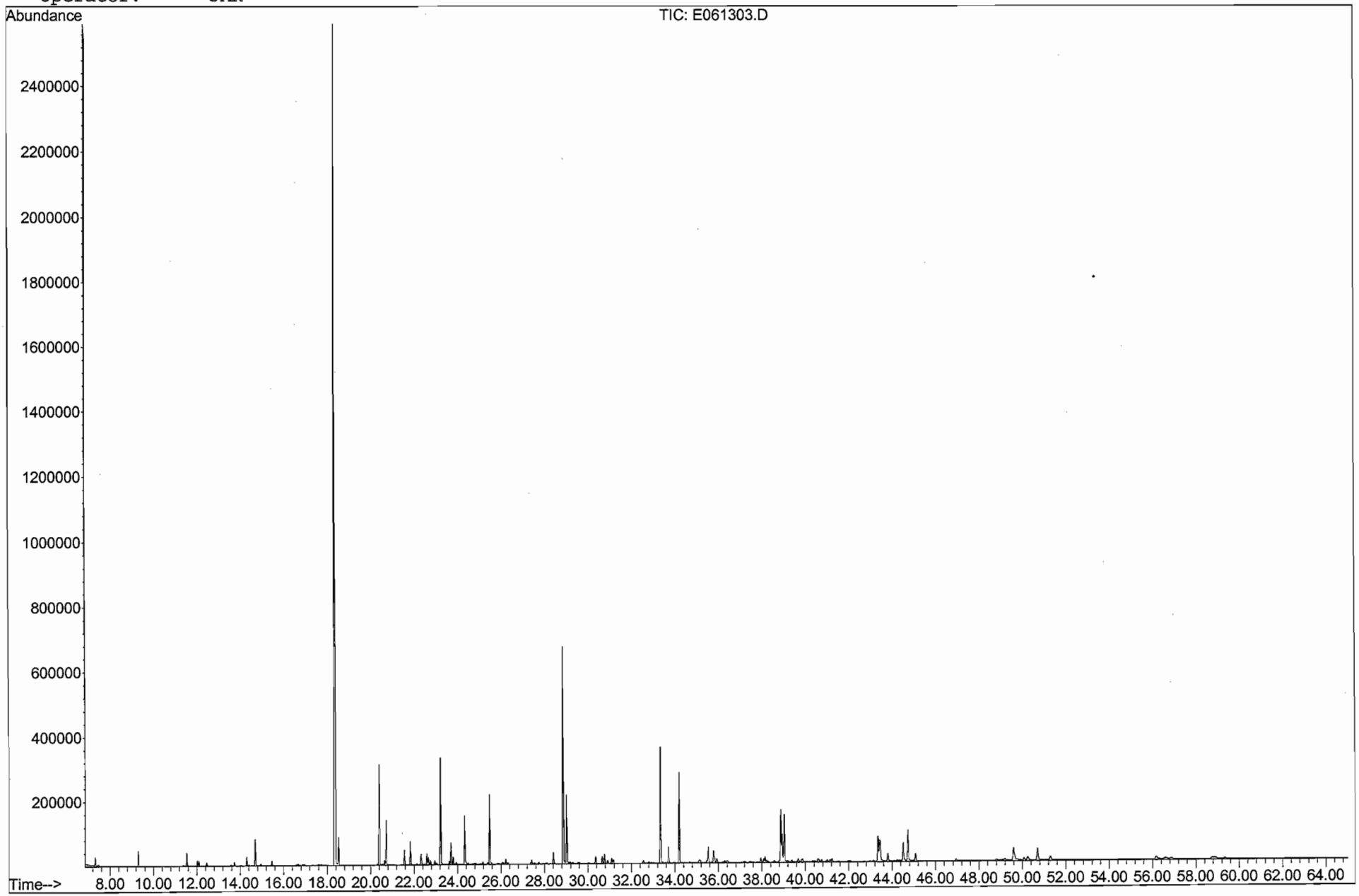


META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061303.D
Date Acquired: 18 Jun 2009 12:36 pm
Method File: 4008SIMD.M
Sample Name: TA090610-01-D
Misc Info: CT-SO-B05-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061305.D
Date Acquired: 18 Jun 2009 3:11 pm
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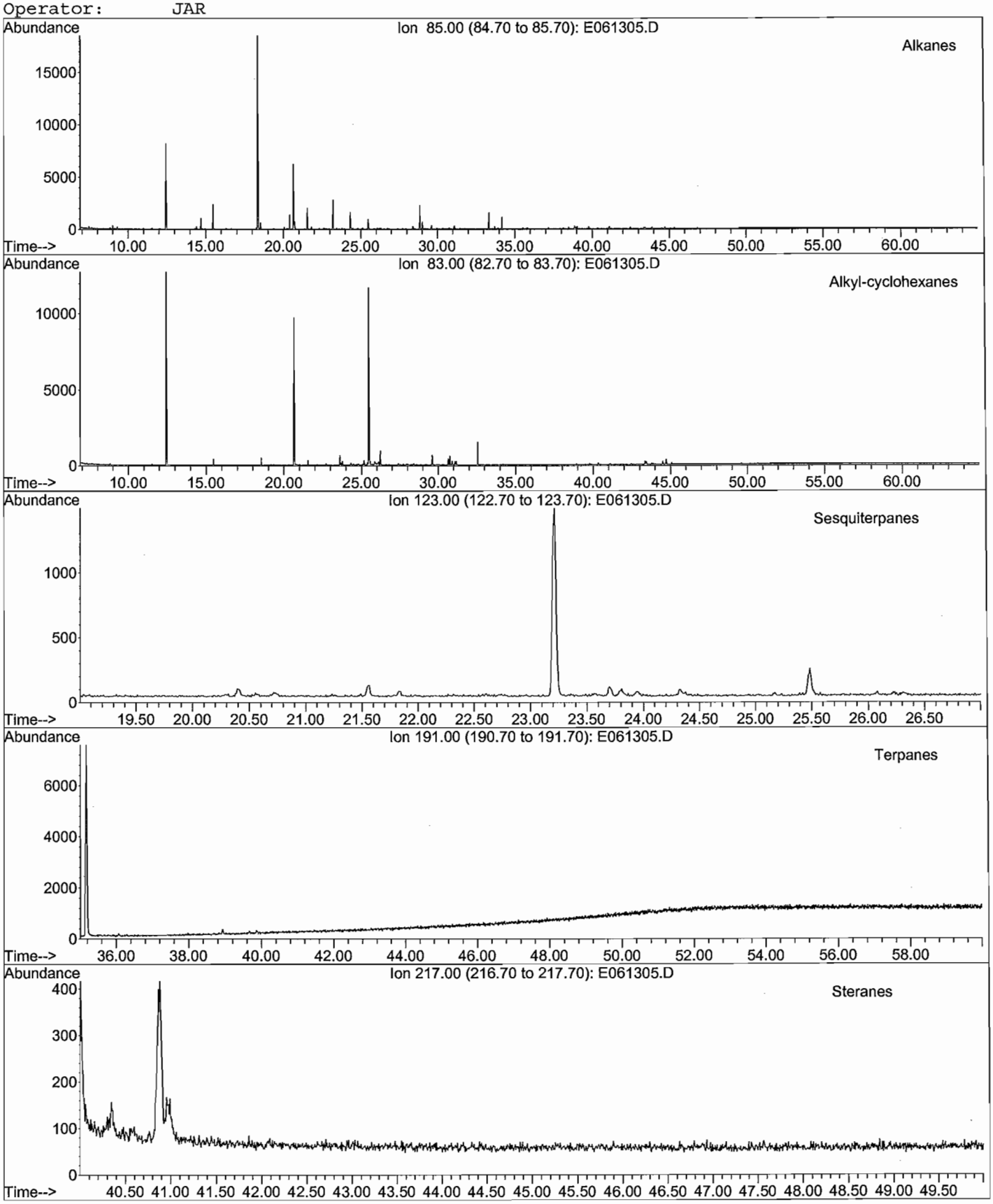
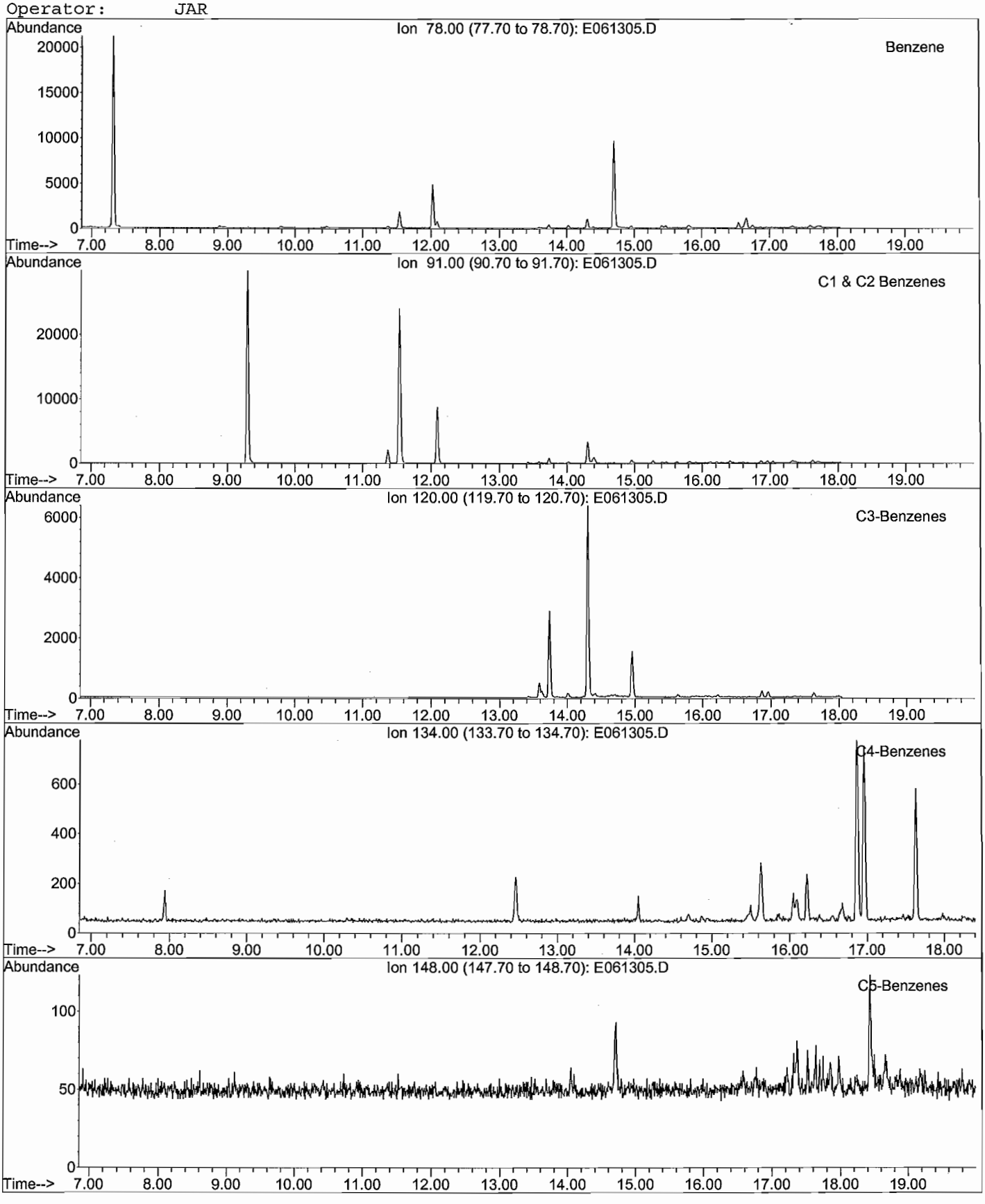
Sample Name: TA090610-01DUP-D
Misc Info: Duplicate of CT-SO-B05-20 - 50x
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

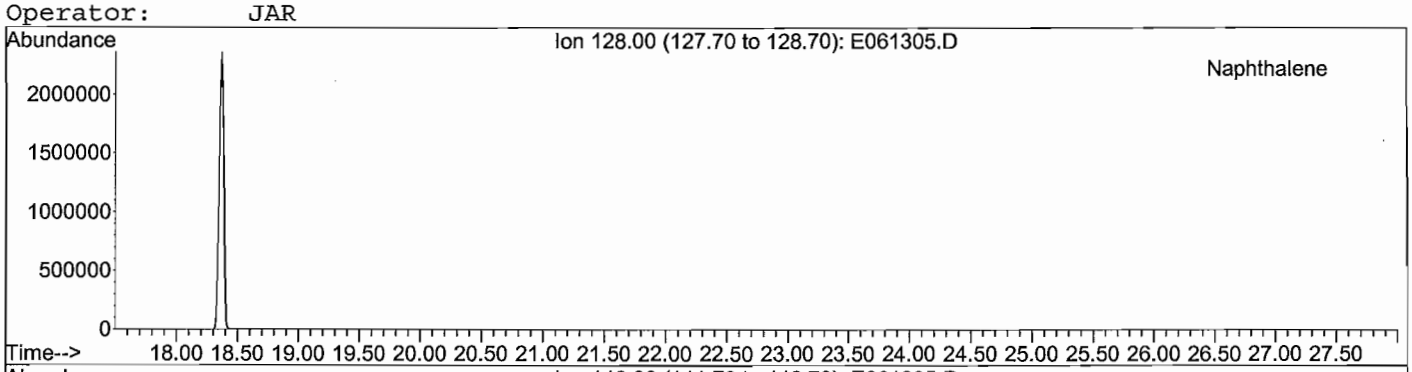
File: J:\1\DATA\E090612\E061305.D
Date Acquired: 18 Jun 2009 3:11 pm
Method File: 4008SIMD.M
Sample Name: TA090610-01DUP-D
Misc Info: Duplicate of CT-SO-B05-20 - 50x
Operator: JAR

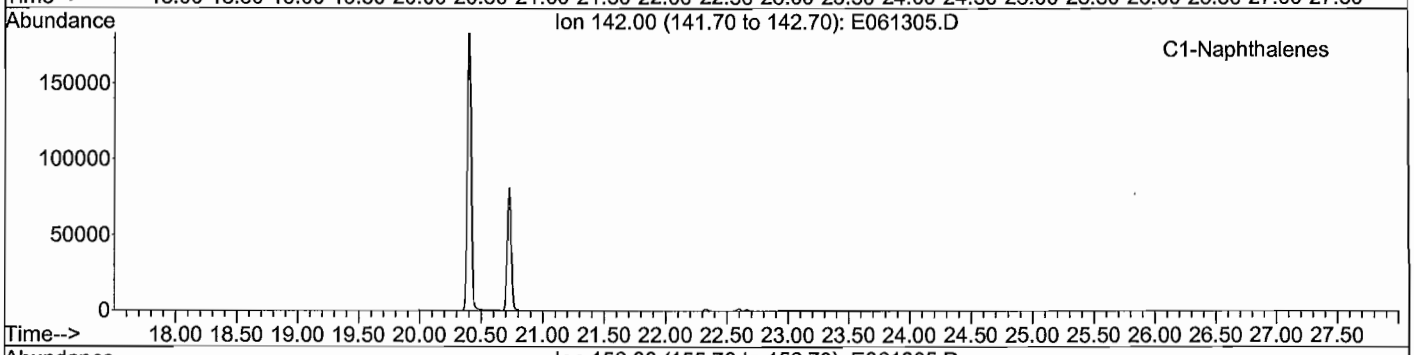


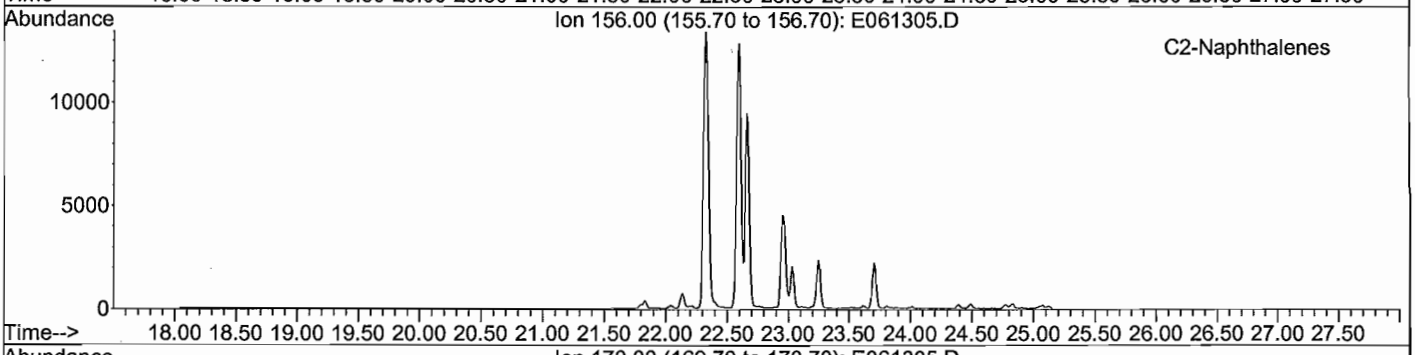
META Environmental, Inc.

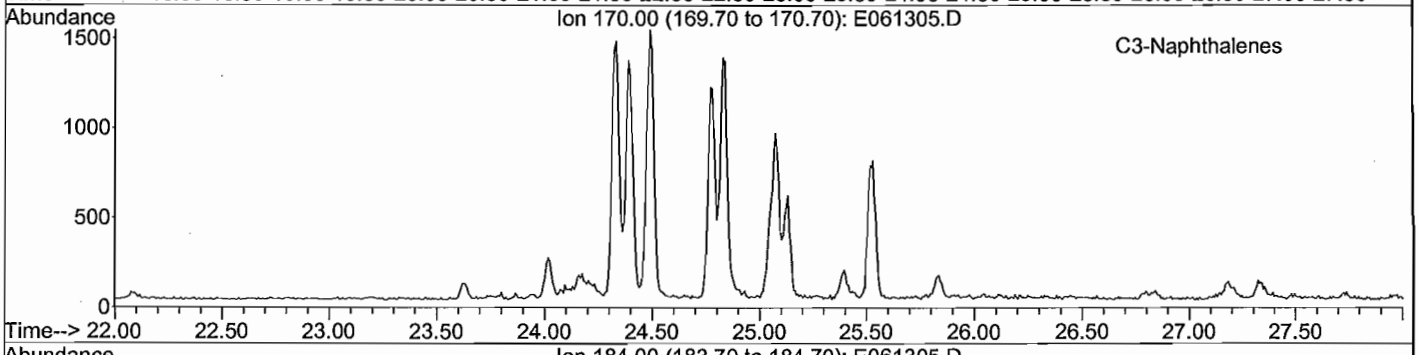
GC/MS EXTRACTED ION CHROMATOGRAM

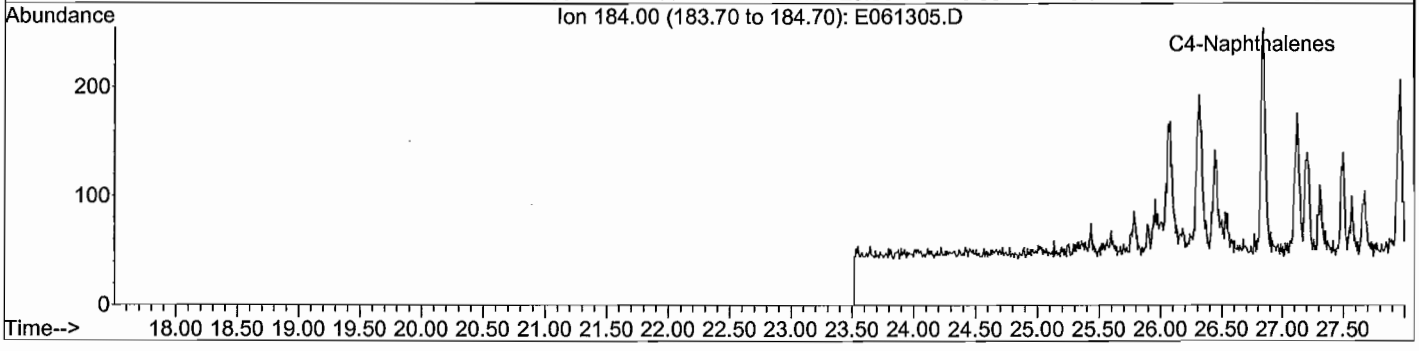
File: J:\1\DATA\E090612\E061305.D
Date Acquired: 18 Jun 2009 3:11 pm
Method File: 4008SIMD.M
Sample Name: TA090610-01DUP-D
Misc Info: Duplicate of CT-SO-B05-20 - 50x
Operator: JAR











META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Date Acquired: 18 Jun 2009 3:11 pm
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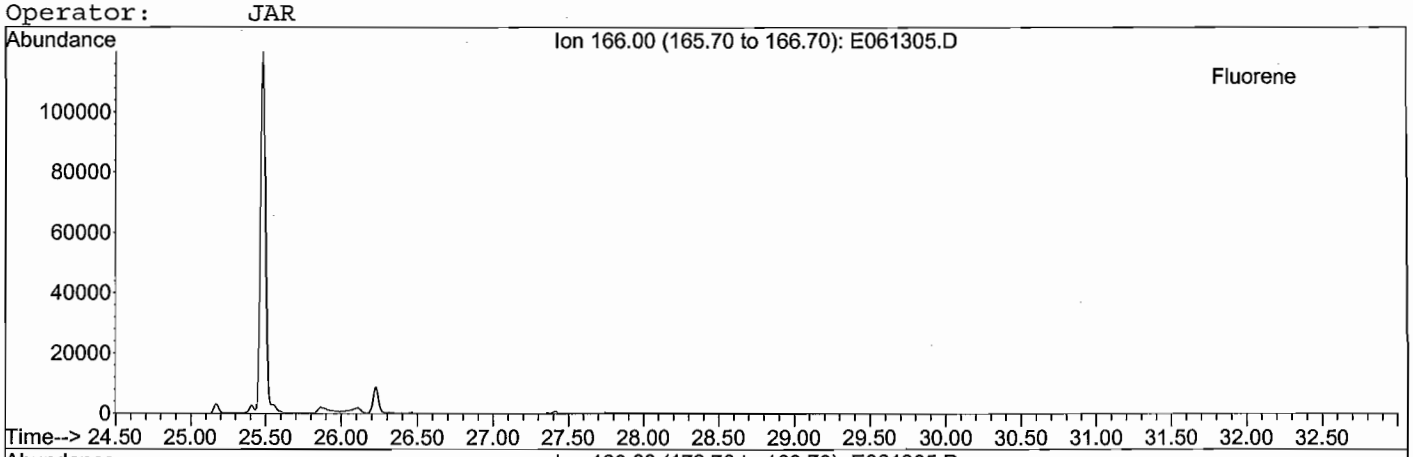
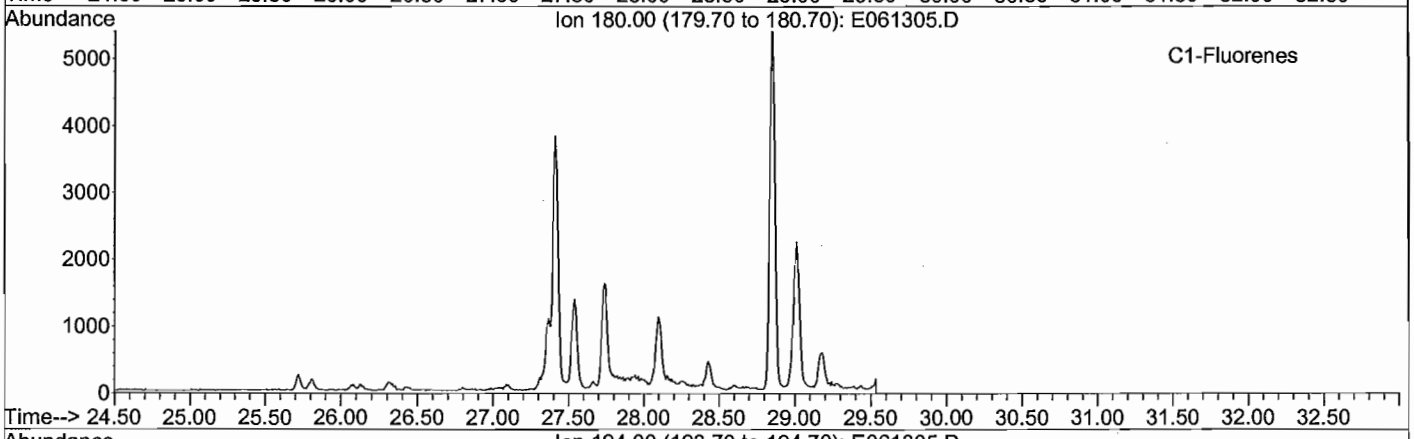
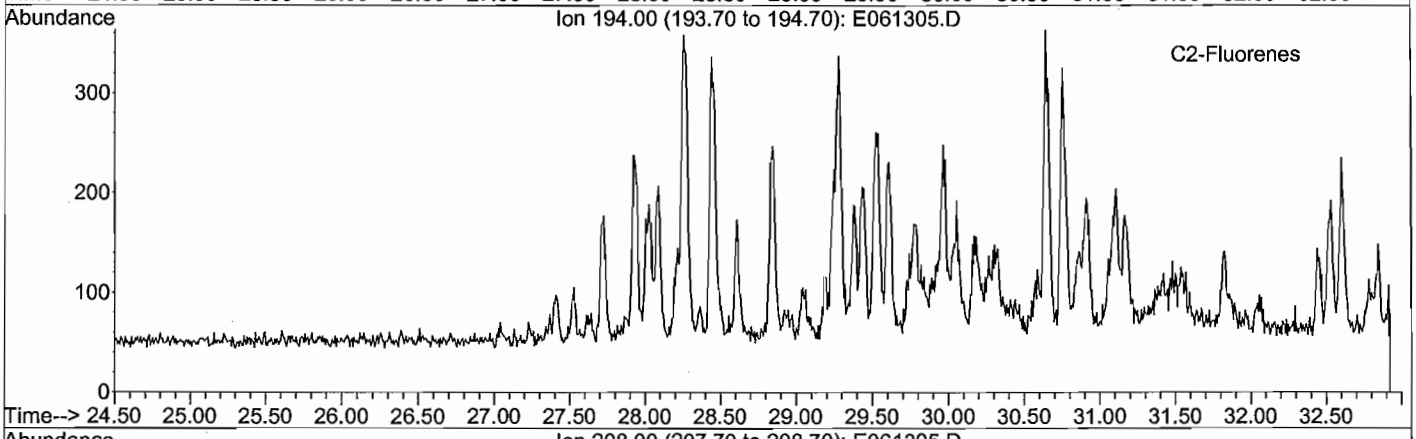
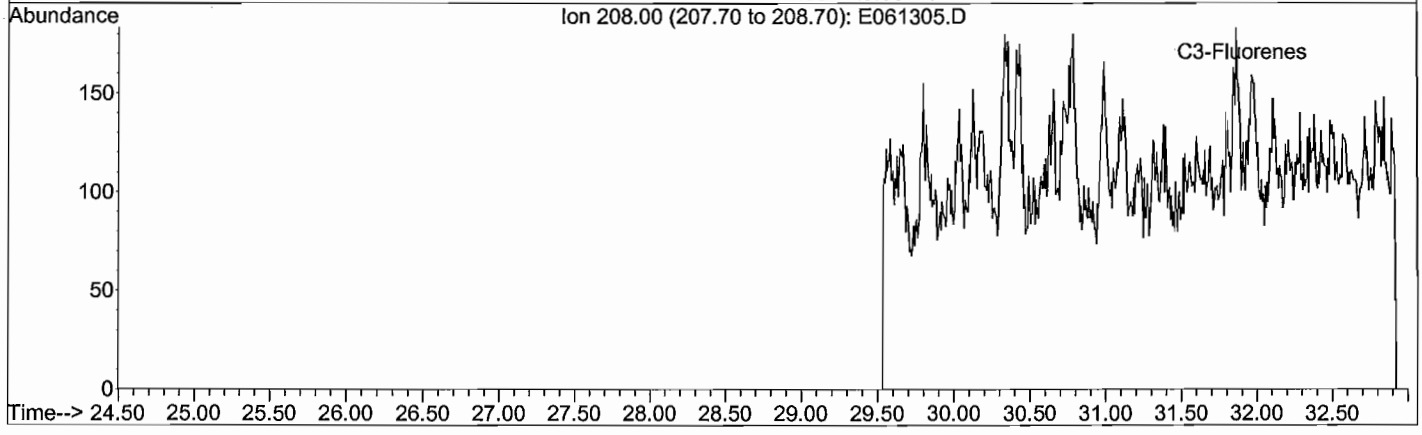
Sample Name: TA090610-01DUP-D
Misc Info: Duplicate of CT-SO-B05-20 - 50x
Operator: JAR









META Environmental, Inc.

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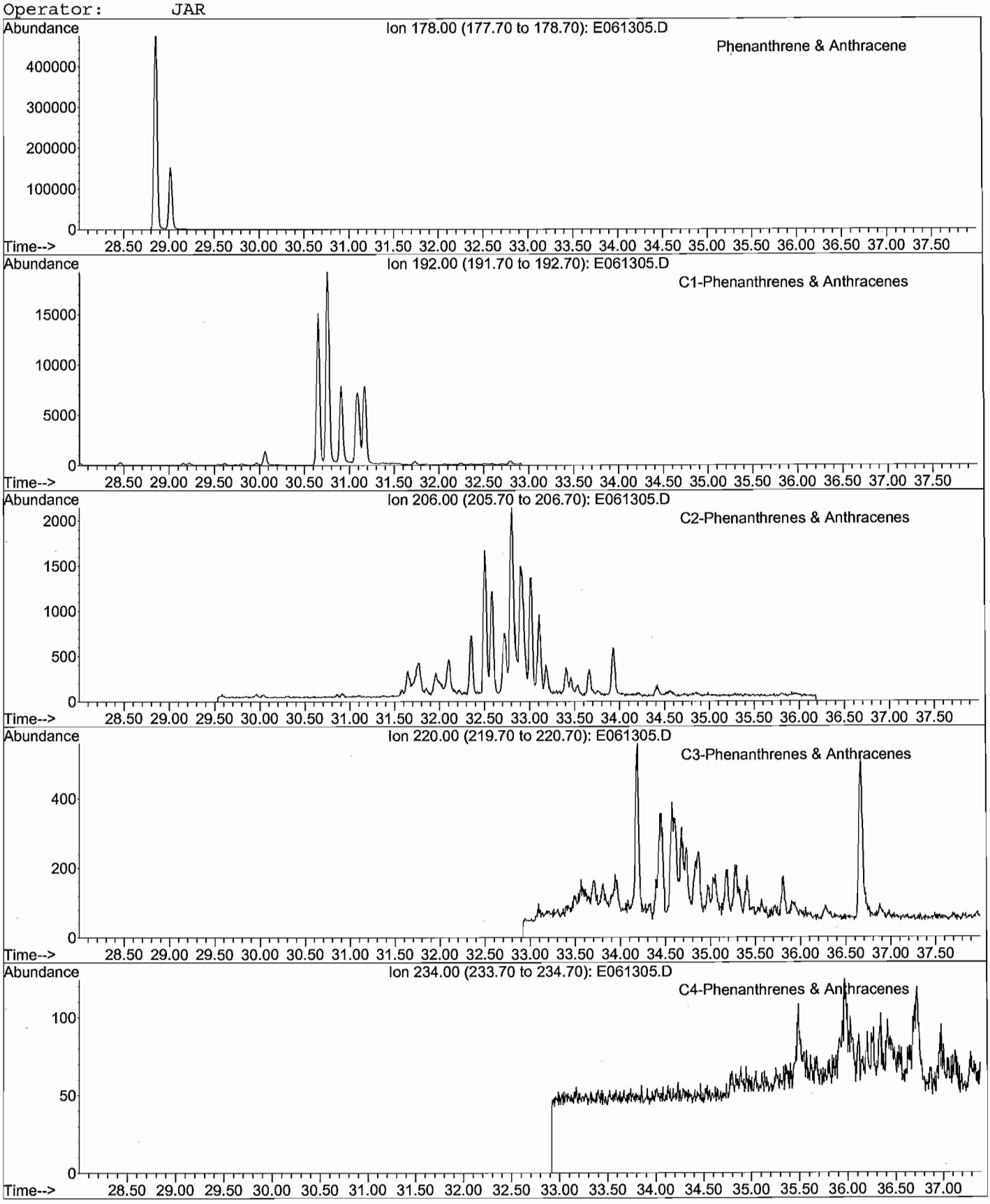

META Environmental, Inc.

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Misc Info: Duplicate of CT-SO-B05-20 - 50x
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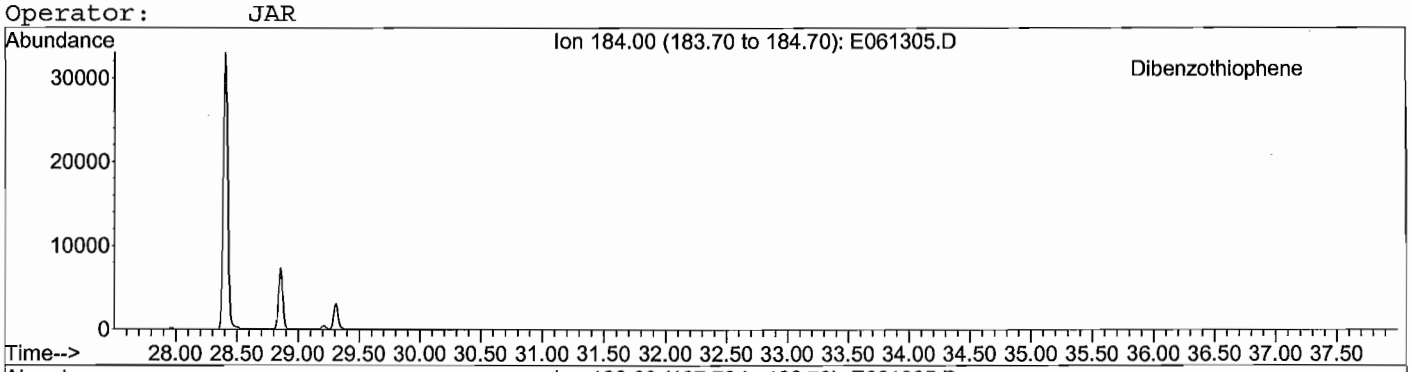

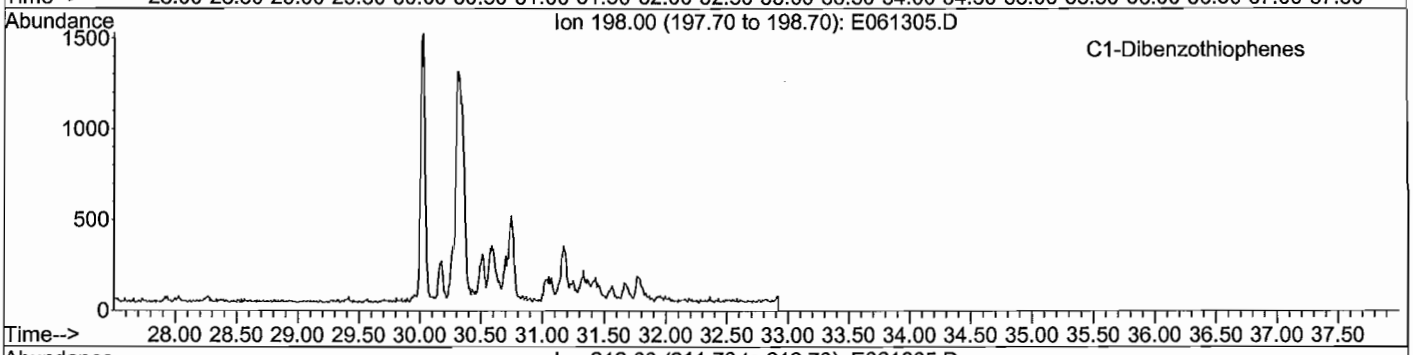

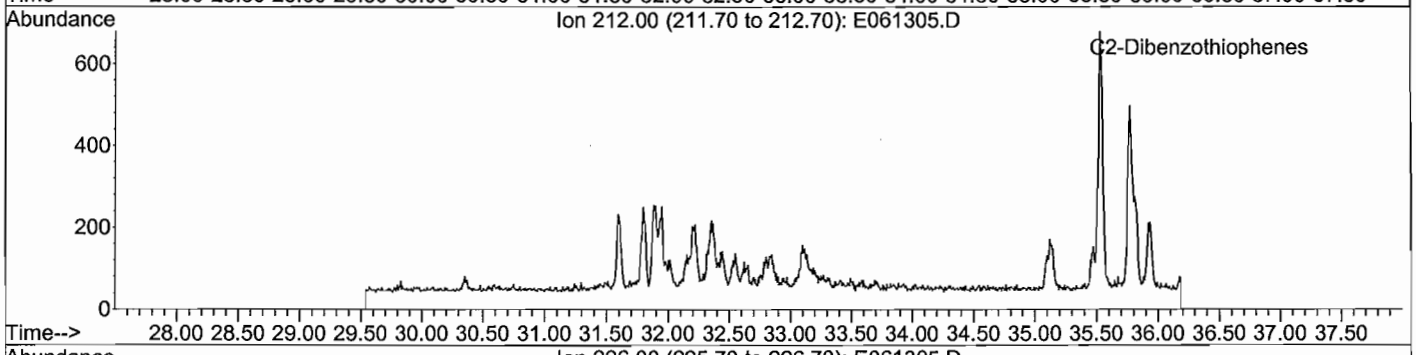

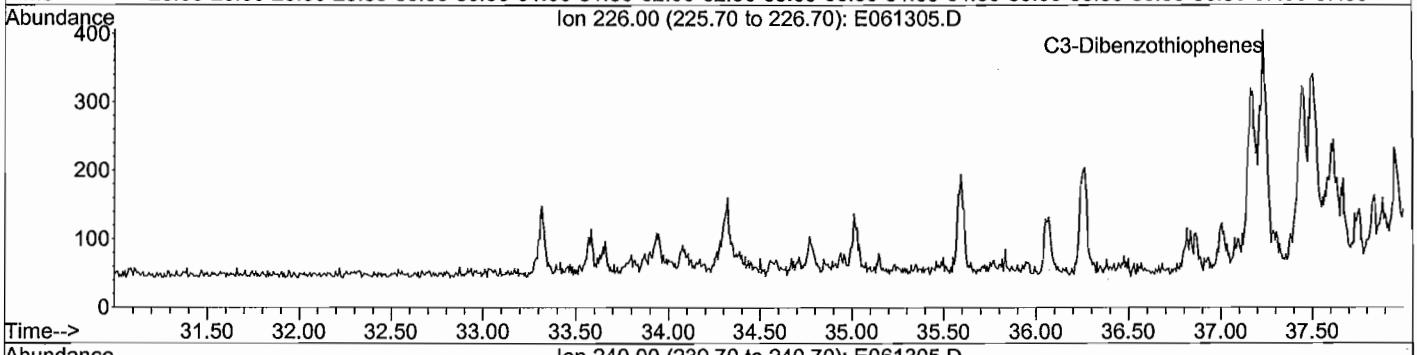

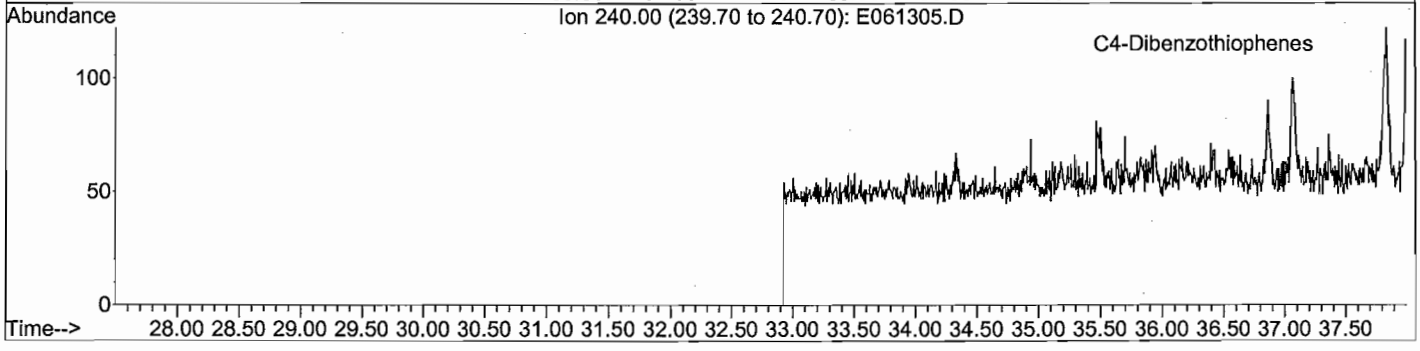

META Environmental, Inc.

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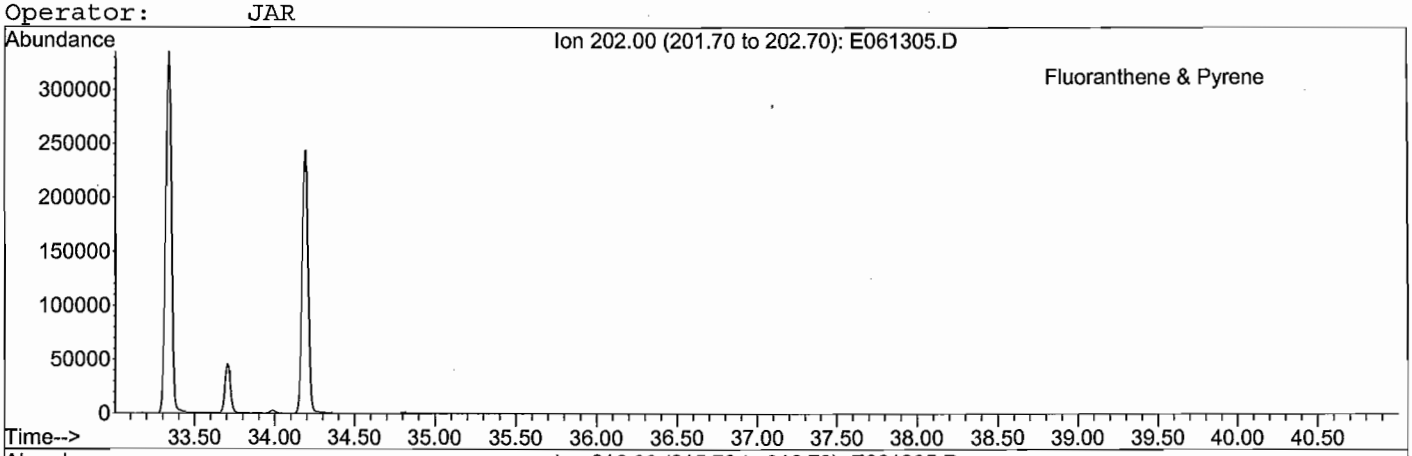

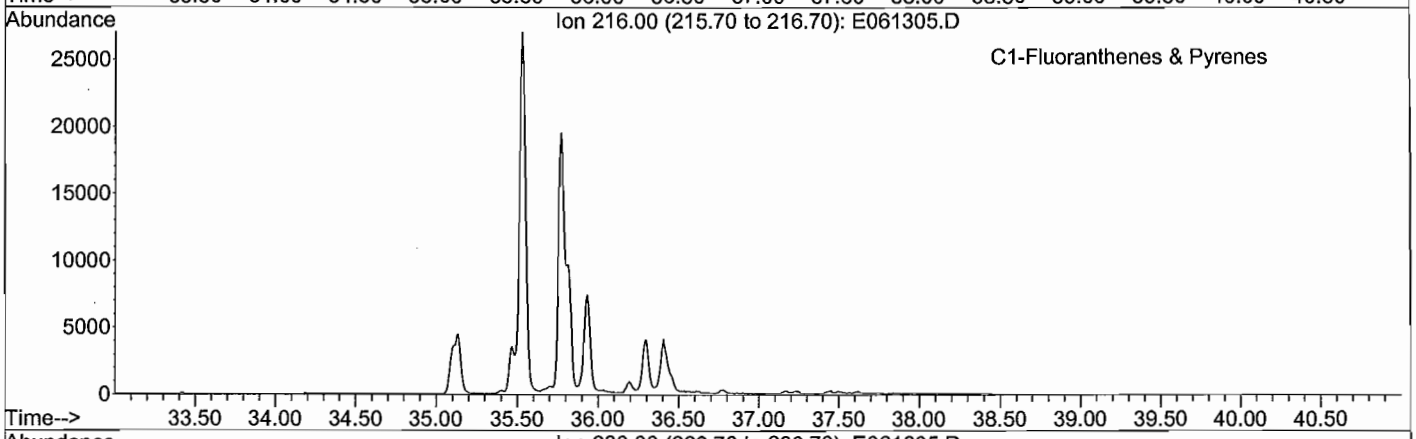

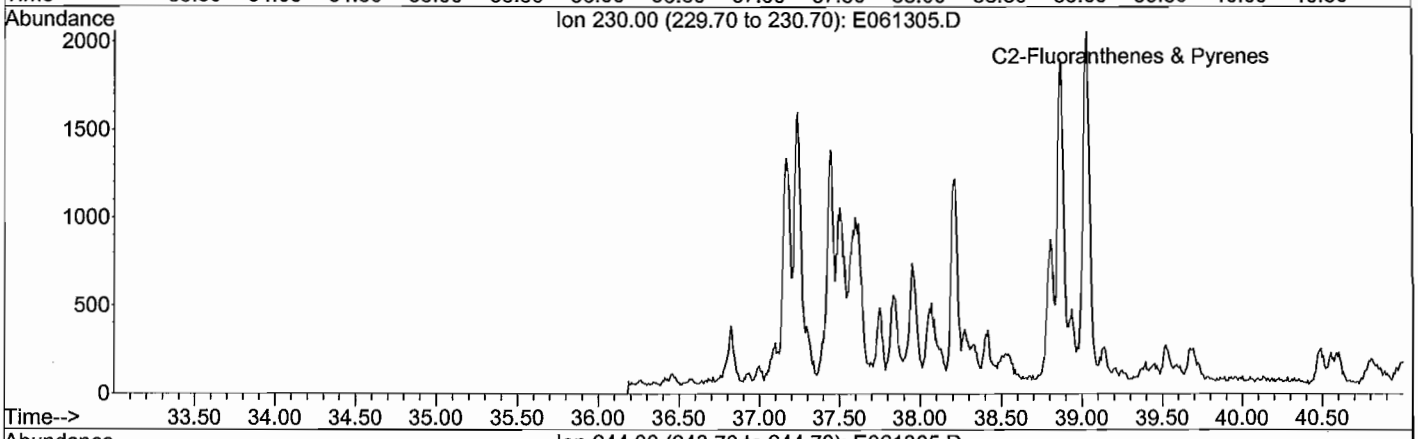

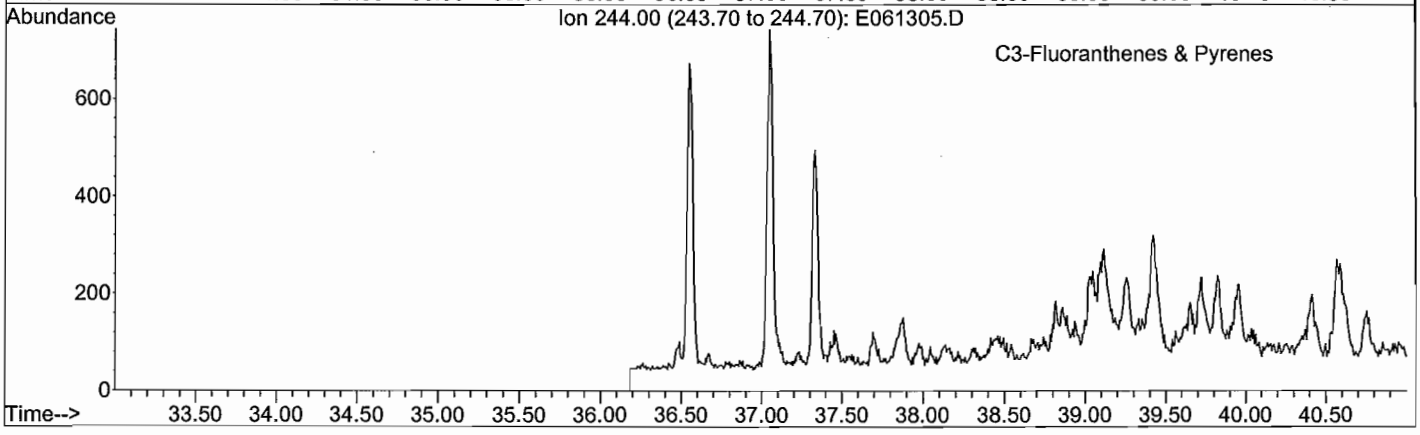

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090612\E061305.D
Date Acquired: 18 Jun 2009 3:11 pm
Method File: 4008SIMD.M
Sample Name: TA090610-01DUP-D
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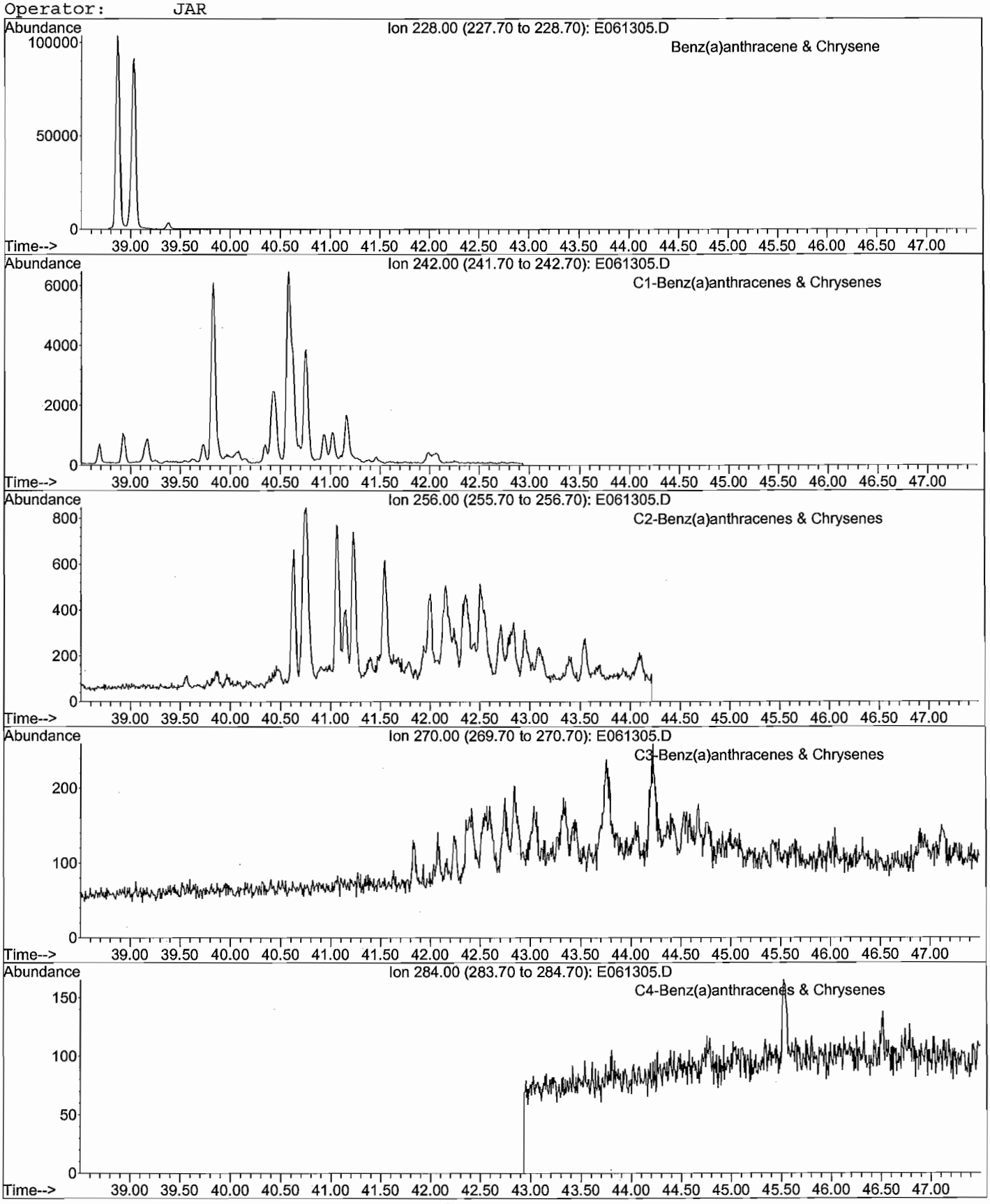
Operator: JAR



META Environmental, Inc.

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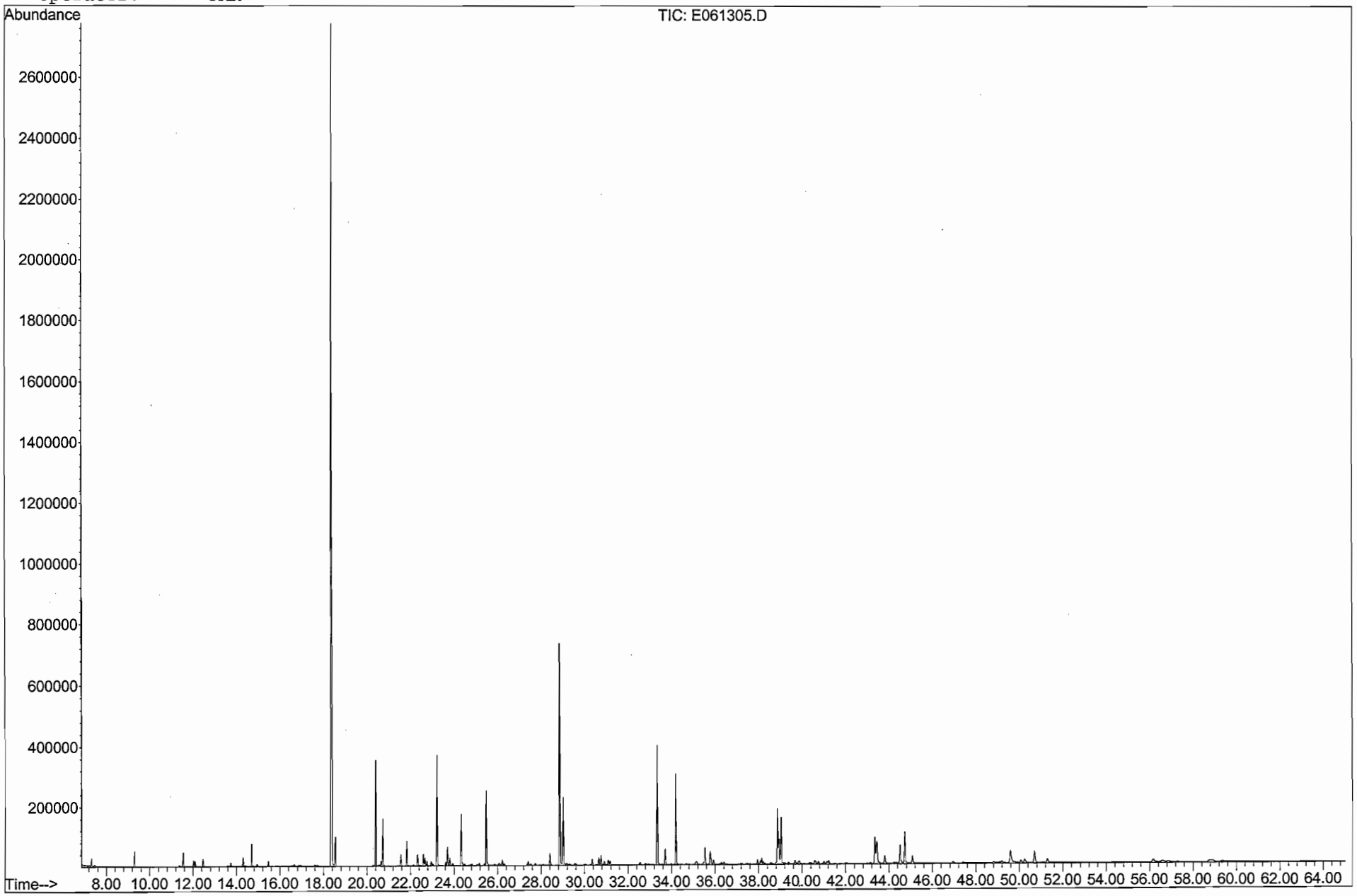


Appendix F

Stable Carbon Compound-Specific Isotope Ratio (CSIRs) Results

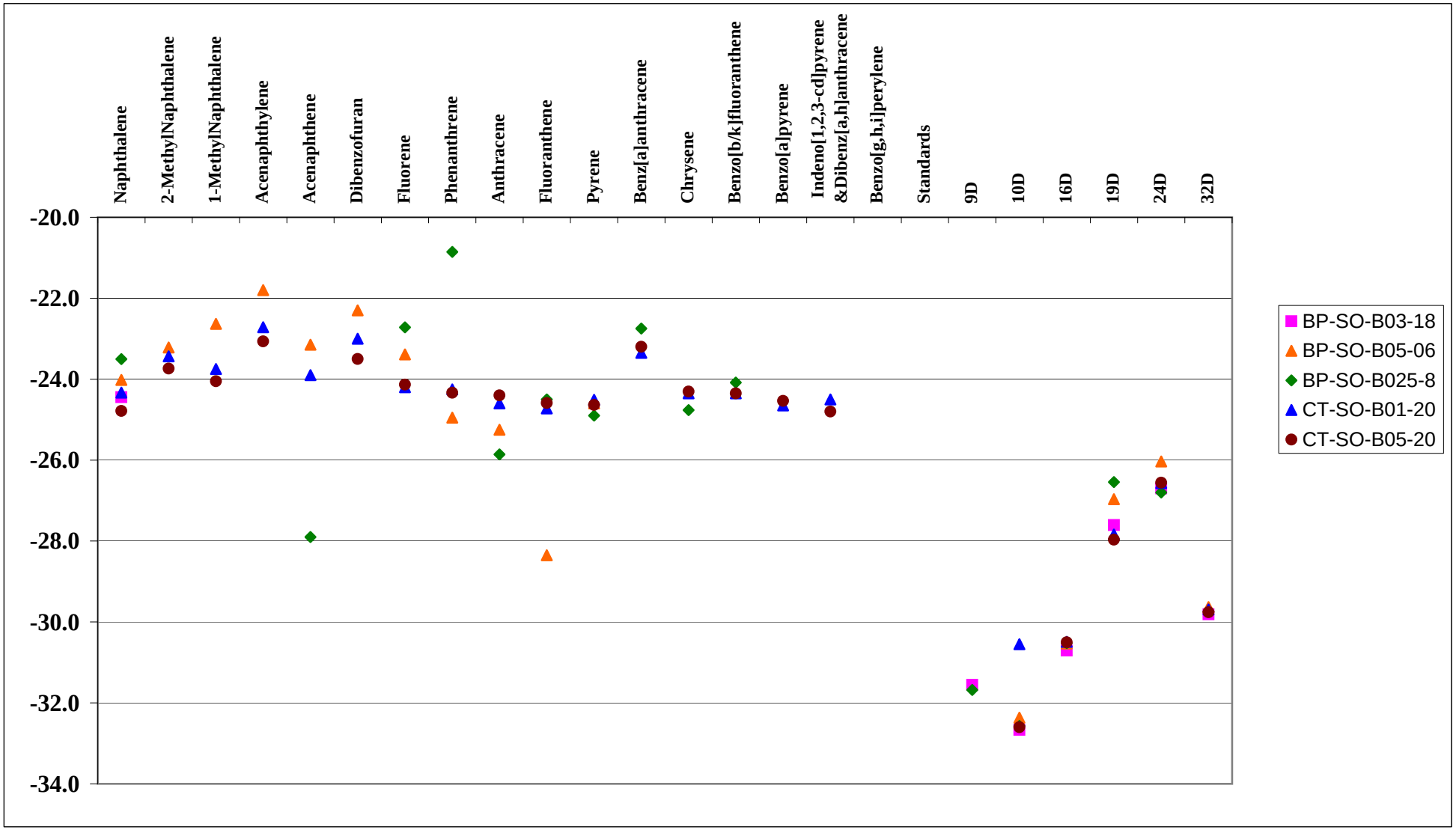
META Environmental, Inc.

Stable Carbon Compound Specific Isotope Ratios of PAHs (‰)

Lab ID:	TA090520-01	TA090528-01	TA090529-01	TA090603-01	TA090610-01
Field ID:	BP-SO-B03-18	BP-SO-B05-06	BP-SO-B025-8	CT-SO-B01-20	CT-SO-B05-20
PAH Compounds					
Naphthalene	-24.4	-24.0	-23.5	-24.3	-24.8
2-MethylNaphthalene		-23.2		-23.4	-23.7
1-MethylNaphthalene		-22.6		-23.8	-24.1
Acenaphthylene		-21.8		-22.7	-23.1
Acenaphthene		-23.2	-27.9	-23.9	
Dibenzofuran		-22.3		-23.0	-23.5
Fluorene		-23.4	-22.7	-24.2	-24.1
Phenanthrene		-25.0	-20.9	-24.3	-24.3
Anthracene		-25.3	-25.9	-24.6	-24.4
Fluoranthene		-28.4	-24.5	-24.7	-24.6
Pyrene		-24.6	-24.9	-24.5	-24.6
Benz[a]anthracene			-22.8	-23.4	-23.2
Chrysene			-24.8	-24.4	-24.3
Benzo[b/k]fluoranthene			-24.1	-24.4	-24.4
Benzo[a]pyrene				-24.7	-24.5
Indeno[1,2,3-cd]pyrene &Dibenz[a,h]anthracene				-24.5	-24.8
Benzo[g,h,i]perylene					
Standards					
9D	-31.6		-31.7		
10D	-32.7	-32.4	-32.6	-30.6	-32.6
16D	-30.7	-30.5	-30.5	-30.5	-30.5
19D	-27.6	-27.0	-26.5	-27.8	-28.0
24D	-26.7	-26.0	-26.8	-26.6	-26.6
32D	-29.8	-29.6	-29.7	-29.7	-29.8

META Environmental, Inc.

Stable Carbon Compound Specific Isotope Ratios of PAHs (‰)



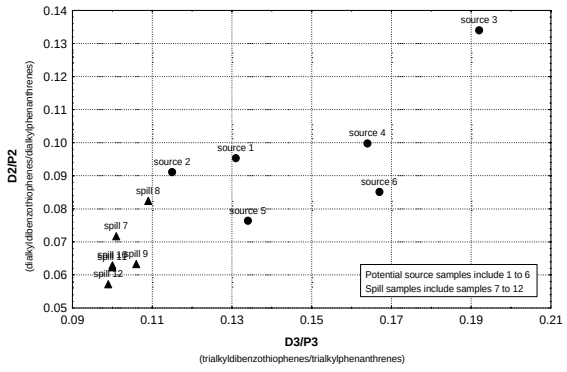
OFFSHORE FORENSIC REPORT

Environmental Forensic Report

Sparrow's Point

SDGs: TA090211, TA090226
TA090305, TA090311

Figure 1. Double Ratio Plot



Report To:

TestAmerica
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238

Report By:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472

May 15, 2009

Identifying and allocating sources of pollutants in complex environments.

META Environmental, Inc.
ENGINEERING & CHEMISTRY

Final Laboratory Report

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472
Phone: 617-923-4662
Fax: 617-923-4610
E-Mail meta@metaenv.com

Certification

This certifies that this package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed herein. The results included in this data report relate only to the samples as received and analyzed by the laboratory.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager and Quality Assurance Officer, as verified by the following signatures.

James A. Roush — May 15, 2009
Environmental Scientist, Laboratory Manager

David M. Mauro — May 15, 2009
Senior Scientist, Quality Assurance Officer

Sample Delivery Group Narrative

Project:	Sparrow's Point
Client	TestAmerica 301 Alpha Drive RIDC Park Pittsburgh, PA 15238
Report Contact:	Carrie Gamber
Dates of Receipt:	February 11th and 26th, and March 5th and 11th of 2009
Sample Summary:	The samples received for this project are summarized in the attached sample login forms.
META Project Number:	T06006
SDG No.:	TA090211, TA090226, TA090305, TA090311
Total Pages in Report:	241

Chain of Custody

The samples were received in good condition. The internal temperatures of two of the shipping containers were slightly outside the recommended 2-6°C range and were as follows:

Samples received: 02/11/2009	1.4°C	Ice present
Samples received: 02/26/2009	6.5°C	Ice present
Samples received: 03/05/2009	3.3°C	Ice present
Samples received: 03/11/2009	0°C	Ice present

Internal chain of custody procedures were followed after sample receipt. Samples were stored in a locked refrigerator. A sample custody logbook contains the record of sample removal from the secure sample storage area to the sample preparation laboratory. The custody record for the sample extracts is present on the sample extraction logbook page.

The disposal of samples and extracts will be authorized one month after the release of this data report. Sample disposal will be documented.

Methods

The sediment samples were prepared by solvent extraction (EPA 3570) using dichloromethane (DCM). The extracts were spiked with internal standard and analyzed by GC/FID (EPA 8100M) for fingerprinting and by GC/MS/SIM (EPA 8270M) for mono- and polycyclic aromatic hydrocarbons (MAHs and PAHs), alkyl PAH homologues and other selected compounds.

A portion of the extract was also sent to Oklahoma University for compound-specific stable carbon isotope ratios (CSIR) of PAHs.

Paul Philp
Oklahoma University
810 Sarkeys Energy Center
100 E. Boyd
Norman, OK 73019
(405) 325-4469

Results

Sample results are presented in several appendices which follow this narrative.

Appendix B: GC/FID Fingerprints
Appendix C: MAH/PAH Concentrations
Appendix D: Extended MAH/PAH Profiles - Histograms
Appendix E: Extracted Ion Current Profiles (EICPs)
Appendix F: Stable Carbon Compound Specific Isotope Ratios (CSIR) Results

Quality Control

Analyte Flags

The detection limits were determined as the sample equivalent of the lowest linear initial calibration standard. Analytes measured between 50% and 100% of the lowest standard were reported as "estimated" and flagged with the letter "J." Undetected analytes were reported as null and flagged with the letter, "U." Analytes marked with a "B" were detected in the associated blank and should be reviewed for a possible positive bias. No deviations were thought significant enough to compromise the integrity of the reported values.

Holding Times

The sediment samples were extracted within holding times with two exceptions. Samples TA090305-01 and TA090305-02 were originally extracted within holding time, however, a QC failure (blank contamination) required re-extraction. The re-extraction occurred outside the

recommended holding time. Concentration results between the two extractions were consistent suggesting minimal bias.

The samples and extracts were stored at 4°C ± 2°C prior to extraction and analysis. The extracts were analyzed within 40 days of sample preparation.

Surrogate Spikes

Extraction surrogates were added to all samples prior to extraction. All surrogate compounds were recovered within the 50%-120% acceptable criterion.

Blanks

Various MAHs and PAHs were detected below or just above the reporting limit (RL) in soil blanks QC090212-SB, QC090303-SB, QC090312-SB, and QC090324-SB. As these compounds were generally detected in the field samples at much higher relative concentrations (greater than 10x the blank levels) positive bias does not appear to be significant.

Blank Spikes

A blank spike sample was extracted with each soil batch. All spiked compounds were recovered within criteria with the following exceptions. Benzene was under-recovered in soil blank spike QC090212-SBS (63%), and soil blank spike QC090303-SBS (59%).

Duplicates

Samples BH-SED-03A-00, BH-SED-10-2, BH-SED-13C-6, and BH-SED-03E-2 were extracted and analyzed in duplicate. Relative percent differences are reported with the sample results in Appendix C.

Internal Standards

Internal standards were recovered within acceptable QC limits (50%-200%) relative to the continuing calibration standards.

Interpretation

Introduction

Eight samples of sediment were received by META from the Sparrow's Point site in February and March of 2009. The samples was analyzed for hydrocarbon fingerprint, an expanded list of MAHs and PAHs, and CSIRs of PAHs

This report summarizes the findings and compares the samples.

Sources of MAHs and PAHs in the Environment

Aromatic hydrocarbons include MAHs such as benzene, toluene, xylenes, and alkylated benzenes, and PAHs such as naphthalene, phenanthrene, and pyrene. MAHs and PAHs originate from many sources and exist at many sites. This section briefly reviews the sources of MAHs and PAHs in urban soils and sediment.

Crude petroleum, many of its refined products, coal, coal tar, and many coal tar products consist primarily of hydrocarbons. Hydrocarbons are organic molecules that are made up of only carbon and hydrogen atoms. Some simple hydrocarbons include hexane and benzene. There are several types of hydrocarbons that are commonly grouped by similar chemical structures, such as alkanes, cyclic alkanes, and aromatic hydrocarbons.

MAHs and PAHs are one group of hydrocarbons that are present at high relative amounts in crude oil, coal, coal tar, and many of their products. In environmental forensic chemistry and geochemistry, MAHs and PAHs are placed in subgroups according to their origins. These groups include diagenic, or recently produced, petrogenic, produced at relatively low temperatures over long periods of time, and pyrogenic, produced at high temperatures with a shortage of oxygen. Petrogenic PAHs are those found in crude oil and similar materials. Pyrogenic PAHs are those found in coal tar and related substances, and from the incomplete combustion of organic matter.

Some PAHs can be formed by natural biological and chemical processes at ambient temperatures. When present, these PAHs are found at very low concentrations. Further, these PAHs are rarely the subjects of environmental investigations and few, if any, are regulated.

PAHs also can be formed at relatively low temperatures. In particular, crude oils contain MAHs and PAHs that formed over millions of years at temperatures as low as 100oC to 150oC. MAHs and PAHs formed during crude oil maturation and similar processes are called petrogenic. Similarly, coal was formed at low temperatures over long periods of time and therefore is included in the petrogenic group. Both crude oil and coal contain hundreds of different MAH and PAH compounds, including many that are the subject of environmental investigations and are regulated.

Petrogenic MAHs and PAHs have been released into urban environments from numerous anthropogenic sources over the past two centuries. For example, it has been a common practice to spray roads with oil to manage dust. Asphalt is produced from petroleum and the small particles that are created as roads wear away contain PAHs. Cars and trucks drip fuels and lubricating oils that contain petrogenic MAHs and PAHs. Many industries have stored and ultimately spilled petroleum products that range from gasoline to heavy oils. Further, the potential impacts from coal cannot be ignored. For many years, residential and commercial buildings were heated with coal and small amounts of coal and coal dust accumulated wherever coal was handled. All of these sources of petrogenic PAHs, and many others, contributed to a pervasive background of PAHs in urban settings. Because many releases occurred years ago at unanticipated locations and because soil was moved around as the urban environment expanded and was modified for various uses, it is difficult to predict where and at what levels MAHs and PAHs might be found.

Finally, MAHs and PAHs are formed whenever organic substances are exposed to high temperatures under low oxygen or no oxygen conditions in a process called pyrolysis. Pyrolytic processes occur intentionally, such as in the destructive distillation of coal into coke and coal tar, or the thermal cracking of petroleum residuals into lighter hydrocarbons and oil tar. Similar processes occur unintentionally, such as the incomplete combustion of motor fuels in cars and trucks, the incomplete combustion of wood in forest fires and fireplaces, and the incomplete combustion of fuel oils in heating systems. These processes occur at temperatures that range from about 350oC to more than 1200oC, and their products are called pyrogenic.

Like petrogenic MAHs and PAHs, pyrogenic MAHs and PAHs have been released into urban environments from numerous sources. These include some obvious sources, such as building fires and industrial smoke stacks. They also include less obvious sources, such as debris from coal tar-treated roofing and building materials. The incomplete combustion of gasoline and diesel fuel in cars, trucks, and buses produces substantial amounts of pyrogenic PAHs that attach to small particles and accumulate along roadsides. Any industry that utilized high temperatures in their operation probably produced PAHs. These included such industries as foundries, steel mills, coke plants, smelters, and others. Similar to petrogenic MAHs and PAHs, pyrogenic MAHs and PAHs accumulated in soil and are found throughout all urban areas.

Much modern gasoline is unusual in that it contains both petrogenic substances (the light distillate of crude oil) and pyrogenic substances (the light hydrocarbons from thermal cracking of oil). For the purposes of this report, all motor gasoline is considered petrogenic.

Composition of Pyrogenic and Petrogenic Materials

Both pyrogenic and petrogenic sources of PAHs have been found to contain hundreds of individual MAHs and PAH compounds in generally predictable patterns. For example, it is known that the temperature of formation of MAHs and PAHs largely determines the distribution of the various parent and alkylated PAHs. Variations in these MAH and PAH distributions are measured using gas chromatography (GC) methods, particularly GC/MS. The visual interpretation of the results from GC/MS testing is a chromatogram. Variations in chromatograms are used to identify the sources of those MAH and PAHs.

Of particular importance to environmental forensic chemistry is the fact that petrogenic and pyrogenic substances from different sources can have measurably different amounts of MAHs and PAHs. For example, crude oils from different reservoirs can exhibit notably different ratios of trialkylated dibenzothiophenes to trialkylated phenanthrenes. Similarly, the ratio of dialkylated chrysene to chrysene varies among certain pyrogenic sources. Consequently, the determination of PAH profiles forms an important component of environmental forensic studies where hydrocarbon releases, either petrogenic or pyrogenic, are known or suspected to be involved.

In addition to MAHs and PAHs, pyrogenic and petrogenic substances can contain paraffinic hydrocarbons, olefinic hydrocarbons, naphthenic hydrocarbons, and other types of compounds. The presence and relative amounts of these compounds also is used to identify the nature and source of hydrocarbon-based materials in environmental samples.

Description of Chemical Fingerprinting Methodology

PAHs commonly form the basis for source attribution and allocation at sites involving petrogenic or pyrogenic materials. Studies have shown that the pattern of PAHs clearly distinguishes petrogenic from pyrogenic substances and can be used to identify and classify petrogenic or pyrogenic substances of different origins. For example, ASTM Method D 5739-95 is the method used extensively by the U.S. Coast Guard to determine the source of oil spilled in public waterways. That method relies on the determination of selected PAHs in oil, soil, or water samples by gas chromatography with mass spectrometric detection (GC/MS) and the use of the qualitative patterns and quantitative ratios of those PAHs to determine which oil samples have a common origin. Similarly, work by META Environmental, Inc. (META) has shown that the same methodology can be used to identify the sources of PAHs at former MGP sites, coke plants, tar refineries and wood treating facilities. Further, META has modified the typical sample preparation and analysis procedures for hydrocarbon fingerprinting to include MAHs as well as PAHs.

An approach based on MAH/PAH profiling has been used to investigate the sources of hydrocarbons at the Sparrow's Point site, which is the topic of this report. Therefore, a more detailed discussion of the forensic methods used is presented in the next subsection as background.

GC/FID Fingerprinting

All sediment samples in this study were analyzed by gas chromatography with flame ionization detection (GC/FID). With GC/FID, organic compounds in a sample are vaporized and then separated in a long, narrow fused silica capillary column. Separation follows boiling point approximately with the most volatile compounds exiting the column first followed by increasingly less volatile compounds. Therefore, certain refined petroleum products, generated by the distillation of crude oil and which differ in their boiling point ranges, are distinguishable by where they appear on a chromatogram. Once they exit the column, the compounds are detected using the flame ionization technique. As the compounds exit and are detected, their responses are recorded and shown as peaks on a continuous plot. The height and area of a peak are proportional to the concentration of that compound in the sample. When done in a controlled and reproducible manner, the GC/FID method produces a "fingerprint" of a sample where the presence and relative amounts of the compounds are immediately visible as peaks of varying height appearing at different times. GC/FID fingerprints for the samples analyzed are provided in Appendix B.

GC/FID methods are commonly used for fingerprinting in a number of forensic fields. The patterns of individual peaks and the sizes and shapes of any baseline features are examined qualitatively for similarities and differences among samples.

The instrumental conditions for the GC/FID analyses in this study were adjusted so that compounds with boiling points between about hexane (C6) and n-tetracontane (C40) were detectable in one analytical run. This range includes most of the VOCs and all of the SVOCs commonly measured in environmental investigations. In particular, it includes benzene, toluene,

ethylbenzene, xylenes, and the 16 priority pollutant PAHs that comprise a major portion of MGP tars and other pyrogenic substances. It also includes the range of compounds that are measurable in pyrogenic substances by gas chromatographic methods. Finally, META's GC/FID conditions detect most of the constituents of gasoline, as well as all of the constituents of higher boiling petroleum products (e.g., kerosene, diesel, refined oils).

Source identification using GC/FID is mostly qualitatively applied. An experienced chemist examines the chromatograms, compares them to those of reference materials, and makes a judgment regarding the nature and source of the contamination in the sample. The chemist might go "peak-by-peak" looking for similarities and differences, comparing peak ratios, and looking for indicator compounds.

For some samples, GC/FID fingerprinting is accurate and sufficient. However, the reliability of GC/FID fingerprinting decreases when multiple sources are present in a sample and when the sample composition becomes extensively altered by environmental weathering processes. Other testing methods, such as GC/MS, are complementary for source identification under these conditions.

Extended PAH Profiles (EPPs) by GC/MS

Samples from the Sparrow's Point site also were analyzed by GC/MS for an expanded list of MAHs and PAHs (EPPs). Separation was accomplished with gas chromatography using a method similar to the GC/FID method discussed previously. However, in GC/MS, once compounds exit the column, they are detected using a mass spectrometer. In the mass spectrometer, the molecules of each compound are ionized at high temperature and vacuum. The ionic fragments are unstable and fragment into smaller ions. The ions are then counted and the mass spectrum recorded. Thus, the mass spectrum for a compound is the pattern of ionic fragments that forms when that compound is ionized. Mass spectra vary widely and are characteristic of their source compound. For example, the mass spectrum of hexane is very different from the mass spectrum of benzene even though both compounds contain six carbon atoms plus hydrogen atoms.

In GC/MS, one obtains both a chromatogram of peaks and additional compound-specific information in the mass spectrum. When executed in a controlled and reproducible manner, the GC/MS method produces multiple "fingerprints" of a sample when specific fragment ions are isolated.

GC/MS is utilized in two general ways in environmental forensic chemistry. First, samples are analyzed under the conditions required by various standard methods, particularly EPA Methods 8260 and 8270 (U.S. EPA SW-846). The concentrations of certain target compounds are determined and the mass spectrum of each peak in the chromatogram is generated and stored. These mass spectra can be used to identify non-target compounds or to generate extracted ion current profiles (EICPs). Second, various specialty methods are utilized where the GC/MS operating conditions are setup to measure only certain groups of compounds. For example, the method described in 40 CFR Subchapter J Part 300 Subpart L Appendix C for PAHs, alkylated PAHs, and biomarkers is used extensively in oil spill and UST release analyses. This method is

similar to ASTM Method D 5739-95, "Standard Practice for Oil Spill Source Identification by Gas Chromatography and Positive Ion Electron Impact Low Resolution Mass Spectrometry."

GC/MS data are used both qualitatively and quantitatively. An experienced chemist examines the chromatograms, compares them to those of reference materials, and makes judgments regarding the nature and source of the contamination in the sample. The chemist might go "peak-by-peak" looking for similarities and differences, comparing peak ratios, and looking for indicator compounds. This process is described in detail in ASTM Method D 5739-95.

GC/MS data are more commonly used quantitatively by calculating the concentrations of selected compounds, by comparing peak area ratios, or by applying chemometric or pattern recognition techniques to the raw or adjusted data. These data analysis methods are used extensively with extended PAH profiles (MAHs, PAHs and alkylated PAHs) and with biomarker compound data. Various degrees of statistical confidence can be achieved by examining chemical concentrations and compound ratios or patterns from multiple samples and replicate samples. This characteristic of GC/MS quantitative data is particularly valuable when assessing the degree of similarity or difference between samples, particularly when multiple sources of hydrocarbons are present in the sample or when environmental weathering has altered the original distributions of hydrocarbons.

Finally, the mass spectra of selected compounds also can be examined to determine whether any diagnostic or indicator chemicals are present in the sample. For example, the PAH retene (1-methyl-7-isopropylphenanthrene) is present in significant concentrations in coal, but at much lower concentrations in coal tar or petroleum products. Thus, the ratio of retene to chrysene can be used to determine whether coal fines are present in a soil sample and to explain some of the hydrocarbon patterns observed at sites where coal was used extensively. Further, unknown compounds can be identified and their presence used as clues to the source(s) of the chemicals.

The GC/MS data in this study were reported and utilized both qualitatively and quantitatively. First, the concentrations of MAHs, PAHs and alkylated PAHs were calculated and included in Appendix C. These concentrations were utilized to estimate contaminant levels in samples, to generate bar graphs (Appendix D) and compare compound ratios. The ratios were used to generate plots for identifying samples with similar compositions.

The GC/MS data also were used qualitatively by generating extracted ion current profiles (EICPs) for selected compounds and compound groups of forensic value (Appendix E). For example, the EICPs for selected "biomarker" compounds including normal alkanes, isoprenoid hydrocarbons, alkylcyclohexanes, triterpanes and steranes are shown on the first page of the EICP report for each sample. These compound groups are commonly used in hydrocarbon source identifications and weathering evaluations. For example, the estimated boiling point range of a refined petroleum product, as indicated by the location of the alkanes and unresolved complex mixture (UCM) on the chromatogram, can be used to determine whether the material is kerosene, diesel, No. 6 fuel oil, or some other product. Similarly, triterpanes and steranes are known to be present in crude oils and some refined petroleum products, but not found in coke oven tars and rarely found in MGP tars. Therefore, the triterpanes and steranes are monitored to confirm the petrogenic versus pyrogenic assessment conducted with the PAH profiles.

Sample-Specific Observations

BH-SED-03A-00

Sample *BH-SED-03A-00* contained primarily pyrogenic material. The pyrogenic material was indicated by a wide range distribution of relatively high concentration unsubstituted polycyclic aromatic hydrocarbons (PAHs) with the 2 ring PAHs dominant.

The ratio of fluoranthene to pyrene of about 1.3 in conjunction with a total priority pollutant PAH value of 243 ppm indicates that the pyrogenic component of this sample is very similar to coal tars in META's library. Sources of coal tar include, but are not limited to, manufactured gas plants utilizing coal carbonization processes, byproduct coke ovens, wood treating operations, as well as products that contain creosote.

The sample contained substantial concentrations of naphthalene relative to other PAHs. Most notably, there was nearly no 2-ring and 3-ring PAHs other than naphthalene. This pattern is atypical for tar-like materials (TLM), and weathered TLM, and suggests a source of naphthalene separate or in addition to the other pyrogenic PAHs. For example, naphthalene oil or "front end" oil is a product of the distillation of coal tar, and consists principally of naphthalene. Similarly, naphthalene scrubbers frequently were components of coal gas plants and light oil recovery plants. The naphthalene scrubbers removed much of the naphthalene from the gas stream prior to recovery of light oil chemicals[1]. The waste naphthalene was either recycled to the bulk tar or disposed of. Finally, naphthalene was reported to precipitate out of coal gas as it cooled in tanks and piping and had to be removed by scrapping or collection as drips. The specific source of the elevated naphthalene in the Sparrows Point samples could not be identified with the available data.

In addition to the pyrogenic PAHs, a low level of petrogenic material was also present. This material is indicated by the presence of alkane and isoprenoid hydrocarbons (heptadecane, octadecane, pristine, phytane) and the sesquiterpane and triterpane classes of petroleum biomarkers. This petrogenic material could not be specifically characterized, however, is typical of backround in urban sediments.

Background

Sample *Background* contained a mixture of low level pyrogenic and petrogenic materials. The pyrogenic material was indicated by a low level distribution of unsubstituted and substituted polycyclic aromatic hydrocarbons (PAHs) with the 2-, 3-, 4-, and 5-ring ring PAHs at similar levels.

The ratio of fluoranthene to pyrene of about 1.0 in conjunction with a low total priority pollutant PAH value of about 6 ppm is consistent with PAH background in urban sediments, however, the presence of elevated naphthalene suggests that impacts from another pyrogenic source are likely.

Sample *Background* also showed a very low level of petrogenic material consistent with background in urban sediments.

BH-SED-10-2

Sample *BH-SED-10-2* contained both petrogenic and pyrogenic materials. The pyrogenic material was indicated by a wide range distribution of unsubstituted polycyclic aromatic hydrocarbons (PAHs) with 2-, & 3-ring and 4, 5, & 6-ring PAHs present. The ratio of fluoranthene to pyrene of about 1.48 is in the range consistent with coal tars.

The sample contained much higher concentrations of naphthalene relative to other low molecular weight 2-, and 3-ring PAHs. This is atypical for tar-like materials (TLM), and weathered TLM, and suggests a source of naphthalene separate or in addition to the other pyrogenic PAHs, such as was discussed for sample *BH-SED-03A-00*.

The petrogenic material was indicated by a late eluting bimodal UCM beginning at about 21 minutes, peaking once at about 32 minutes, again at about 44 minutes, and ending at about 60 minutes. The high molecular weight petrogenic material also contained alkane and alkyl-cyclohexane compounds, in addition to the sesquiterpane, triterpane and sterane classes of petroleum biomarkers. This pattern is consistent with some severely weathered crude oils, No. 6 or bunker C oils and petroleum background in urban sediments.

BH-SED-03A-12

Sample *BH-SED-03A-12* contained pyrogenic material. . The pyrogenic material consisted of low relative concentrations of 3, 4, and 5-ring PAHs with a much higher relative concentration of naphthalene. The fluoranthene to pyrene ratio (0.92) was substantially lower than in sample *BH-SED-10-2*, and was similar to those found in urban background and some coal tars. The amount of naphthalene relative to the other PAHs was similar to sample *BH-SED-10-2*.

BH-SED-13C-6

Sample *BH-SED-13C-6* contained both petrogenic and pyrogenic materials (see definitions). The pyrogenic material was indicated by a wide range distribution of unsubstituted polycyclic aromatic hydrocarbons (PAHs) with the 3- and 4-ring PAHs dominant. The ratio of fluoranthene to pyrene of about 1.5 is in the range consistent with coal tars.

The petrogenic material was indicated by a late eluting wide range unresolved complex mixture (UCM) beginning at about 21 minutes, peaking at about 32 minutes, again at about 44 minutes, and ending at about 50 minutes. The high molecular weight petrogenic material also contained alkane and alkyl-cyclohexane hydrocarbons, in addition to the sesquiterpane, triterpane and sterane classes of petroleum biomarkers. This pattern is consistent with some severely weathered crude oils, No. 6 or bunker C oils and petroleum background in urban sediments.

BH-SED-05-4

Sample *BH-SED-05-4* contained a pyrogenic material. The pyrogenic material was indicated by a wide range distribution of unsubstituted polycyclic aromatic hydrocarbons (PAHs) with the 2-ring PAH, naphthalene, dominant. Again, the ratio of fluoranthene to pyrene of about 1.5 is in the range consistent with coal tars.

The sample contained much higher concentrations of naphthalene relative to other low molecular weight 2-, and 3-ring PAHs.

BH-SED-03E-2

Sample *BH-SED-03E-2* contained both petrogenic and pyrogenic materials. The pyrogenic material was indicated by a wide range distribution of unsubstituted polycyclic aromatic hydrocarbons (PAHs) with the 4-ring PAHs dominant. The ratio of fluoranthene to pyrene of about 1.0 is in the range consistent with some tars in META's library that were formed from manufactured gas plants utilizing coal carbonization processes, some coal tar products, and urban background from combustion sources.

The petrogenic material was indicated by a late eluting wide range unresolved complex mixture (UCM) beginning at about 20 minutes, peaking at about 44 minutes, and ending at about 60 minutes. The presence of alkane and alkyl-cyclohexane hydrocarbons in addition to the sesquiterpane, triterpane and sterane classes of petroleum biomarkers confirms the presence of petroleum. This pattern is consistent with some severely weathered crude oils, No. 6 or bunker C oils and petroleum background in urban sediments.

BH-SED-17-0

Sample *BH-SED-17-0* contained petrogenic and pyrogenic materials similar to those seen in sample *BH-SED-03E-2*, however, the petrogenic component was more abundant relative to the pyrogenic component.

Discussion

Eight sediment samples were submitted to META for chemical characterization. Of those eight samples, seven exhibited PAHs present in a pyrogenic pattern. The remaining sample, *Reference*, was submitted to represent offsite background conditions; it contained relatively low concentrations of MAHs and PAHs in a mixed pyrogenic/petrogenic pattern. All eight samples also displayed one or more petrogenic components.

In general, the pyrogenic pattern among the samples was indicated by a wide range distribution of MAHs and PAHs where the parent compound(s) was present at concentrations substantially greater than the various alkylated homologs. Most Sparrows Points samples also exhibited very high concentrations of naphthalene relative to the higher molecular weight PAHs (HPAHs); this pattern is uncharacteristic of most TLMs (Figure 1). However, two samples, *BH-SED-13C-6* and *BH-SED-03E-2*, contained naphthalene at similar levels to the HPAHs.

As indicated in the sample specific comments, this pattern of high relative concentrations of naphthalene is atypical of most pyrogenic sources. An examination of the GC/FID chromatograms and other data suggest that the naphthalene and HPAHs were released separately and have comingled in the sediment. This conceptual model is supported by the results of the duplicate set of samples for BH-SED-03A-00 which displays a low relative percent difference (RPD) for naphthalene (12.7%) suggesting similarity between samples; in contrast the RPDs for the HPAHs were in the 60-80% range. Assuming that the variability (i.e., RPD) for each

compound should be about the same if all the compounds originated with the same source, the substantial difference in variability between naphthalene and HPAHs suggests that they originated with separate sources (or were released from the same source at different times).

The fluoranthene/pyrene (fl/py) ratio of pyrogenic materials can be used to determine sources of PAHs. For example, the coal carbonization process of gas generation as well as coke oven operations generally produced tar material with fl/py ratios of about 1.0 or greater, while the carbureted water gas generation process generally produced tar material with fl/py ratios less than about 0.8. Also, the fl/py ratio of many combustion sources (a major contributor to background PAHs) is about 1.0 to 1.2. The Sparrows Point sample set displays a range of fl/py values (Table 1) with seven of eight samples, including the *Background* sample, exhibiting fl/py values greater than 0.9 suggesting the PAHs are derived from pyrolysis of coal or from combustion. Sample *BH-SED-17-0* displayed a fl/py value of 0.58. The low fl/py value in sample *BH-SED-17-0* appears quite different from the remaining sample set. This sample also contains a substantial petrogenic component; however the petrogenic component is not likely the cause of the low ratio. A source of the low fl/py ratio PAHs in this sample could not be determined with the available data.

Additionally, PAHs from general urban sources have been shown to accumulate in urban sediments from runoff pathways. Urban sources of PAHs include transportation (e.g., automobile exhaust), furnace and boiler exhaust, asphalt, and coal tar pavement sealers to name a few. Urban runoff creates a distribution of low to moderate concentrations of PAHs that accumulate around outfall pipes. Ultimately, these PAHs from urban runoff are redistributed by currents, prop wash, and other forces and forms a ubiquitous distribution in urban waterways.

The double ratio plots in Figures 2 and 3 display the groupings of Sparrow's Point samples as compared to some known petroleum and tar samples in META's reference library. Samples *BH-SED-03A-00*, *BH-SED-10-2*, *BH-SED-05-4*, and *BH-SED-13C-6* are consistent with samples containing PAHs derived from coal gasification and coking operations. *Samples BH-SED-03E-2*, *BH-SED-03A-12*, and *Reference* are also within this range, however urban background PAHs can display fl/py values of about 1-1.3.

Figure 3 indicates that the HPAHs in samples *BH-SED-17-0*, *BH-SED-03A-12*, *BH-SED-03A-00*, *BH-SED-10-2*, and Reference were lower than the remaining samples. Work by META suggests that samples with benzofluorene/methylpyrenes (BF/MP) ratios greater than about 1 are indicative of coke tars and creosote, and some former MGP tars, and not from petroleum, CWG MGP tars, many CC MGP tars, and urban background.

The ratio of the sum of fluoranthene and pyrene to total HPAHs has been shown to be generally lower in urban soil than in TLM from any source (Mauro 2008). Figure 4 shows that samples *BH-SED-03E-2*, *BH-SED-03A-12*, *BH-SED-17-0*, *BH-SED-03A-00*, *BH-SED-10-2*, and *Reference* fall within or just below the range expected for urban background PAHs. The data suggests the HPAHs in these samples are combustion derived; the source appears to be from processes other than coal tar or coking operations, or may indicate a mixture of background PAHs and PAHs derived from tar.

The petrogenic material identified in the samples was generally characterized by late eluting UCMs as discussed in the sample specific comments. The UCMs seen are generally not of uniform shape, and are of a high average molecular weight. The first page for each sample in Appendix E displays the extracted ion current profiles of some selected petroleum related components including alkanes, alkyl-cyclohexanes and a few types of petroleum biomarkers. All eight samples contain various distributions of petroleum related compounds. These signatures appear to be derived from urban petroleum background in sediments as opposed to a discrete petroleum source. Urban petroleum background in sediment, like urban PAHs in soil and sediment, comes from multiple sources including terrestrial runoff from roadways and parking lots, direct marine fuel spills and discharges, and other direct discharges to the waterbody. Figure 5 shows a substantial variability in the C3D/C3PA ratios in the samples suggesting multiple petroleum imputs.

Compound-Specific Carbon Isotope Ratios

Background

Carbon is a mixture of two stable isotopes, ^{12}C and ^{13}C with an approximate $^{12}C/^{13}C$ ratio of 99:1. Various organic and biochemical processes produce organic matter (plants and animal tissues, oil, coal) slightly enriched in one or the other isotope. These variations in the isotopic composition of organic matter can provide information on the source of the organic material.

A wide range of volatile and semivolatile organic compounds can be measured using modern GC/IRMS instruments. The instrument conditions will depend on the target compounds.

Samples analyzed by GC/IRMS for stable carbon isotope ratios of PAHs and other semivolatile compounds are prepared by an appropriate extraction and concentration technique, such as EPA Methods 3510, 3540C, and 3545. The extracts are analyzed using a GC coupled with an isotope ratio mass spectrometer via a combustion furnace heated at 1050 ^{o}C and a water trap. A 30 meter by 0.25 mm, 5% phenylmethylsilicone capillary GC column is typically used so that the GC/IRMS chromatography conditions are similar to standard GC/MS conditions.

The isotopic composition of carbon is 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). The standard parameter is:

$$\delta^{13}C = \frac{[\ (^{13}C/^{12}C)spl - (^{13}C/^{12}C)std\ ]}{(^{13}C/^{12}C)std} \times 1000$$

The results are expressed in parts per thousand (‰). For fossil fuels, typical carbon isotope ratios fall in the 0 to -40 ‰ range. Less negative values indicate compounds with higher relative amounts of ^{13}C.

Quality Control

There are no standardized methods for GC/IRMS. The accuracy and reproducibility of GC/IRMS data are mainly affected by chromatographic resolution (coeluting compounds mask the true

isotope ratio of a target compound) and background material from column bleed and any unresolved complex mixture of the sample.

Standard mixtures at known concentrations and with known isotope ratios can be analyzed prior to sample analysis and periodically after that to demonstrate the chromatographic performance and the stability of the IRMS. For example, META typically uses a mixture of PAHs to monitor instrument performance. If sample analyses occur over several days, then the precision of the isotope values in the standard mix is used to estimate the variability in the analyses due to instrumental parameters.

The accuracy of the data also is monitored with a set of standard compounds of known isotopic composition. Internal standards (fully deuterated n-alkanes C9, C10, C16, C19, C24, and C32) are commonly added to the SVOC samples to provide a second control of data. Each sample is analyzed at least two times, and standard deviations (1 σ) of the replicates were calculated for each internal standard and each PAH compound to estimate reproducibility. Analytes that show unexpectedly high standard deviations (typically greater than 0.5) are examined for coelutions and their isotopic values determined from a portion of the peak with minimum interference.

Once the isotopic composition of each target compound is determined the data are tabulated and given a second review. Compounds with unexpectedly high standard deviations are noted and reviewed for proper integration and transcription.

Results

The PAH CSIRs for the Sparrows Point samples are provided in Appendix F.

Precision among the five PAH standards ranged from 0.1 to 0.5 ‰ and was within the expected range of ±0.5 ‰.

Figure 6 shows the CSIR profiles for the eight Sparrows Point samples. The Reference sample had no PAHs detectable by the GC/IRMS instrument, so it did not plot. Using ±0.5 ‰ as a rule of thumb to distinguish PAHs from different sources, the data indicated that there was a potential for PAHs from several sources. Of particular note, the PAH CSIR profiles of samples BH-SED-10-2 and BH-SED-03E-2 were very similar and were consistently lower than those of the other samples. However, the data exhibited substantial variability for each compound (except 2-methylnaphthalene acenaphthene, and anthracene) and with few exceptions none of the differences were large and/or consistent.

The PAH CSIRs of all samples ranged from about -22 ‰ to -26 ‰. This range is consistent with coal-derived pyrogenic PAHs reported previously (Mauro 2000).

Some degradation-induced isotopic fractionation may have contributed to the observed isotopic variability among the samples.

Summary

Eight sediment samples were submitted to META for chemical characterization. Of those eight samples, seven exhibited PAHs present in a pyrogenic pattern. The remaining sample, *Reference*, was submitted to represent offsite background conditions; it contained relatively low concentrations of MAHs and PAHs in a mixed pyrogenic/petrogenic pattern. All eight samples also displayed one or more petrogenic components.

The petrogenic material was a mixture of severely weathered middle and heavy fuel oils and other products.

The naphthalene present at elevated concentrations in the samples appeared to originate from a specific, unidentified naphthalene source.

The pyrogenic HPAHs present in all the samples, originated from two or more sources, including a high temperature source such as coal tar and a combustion source such as urban background.

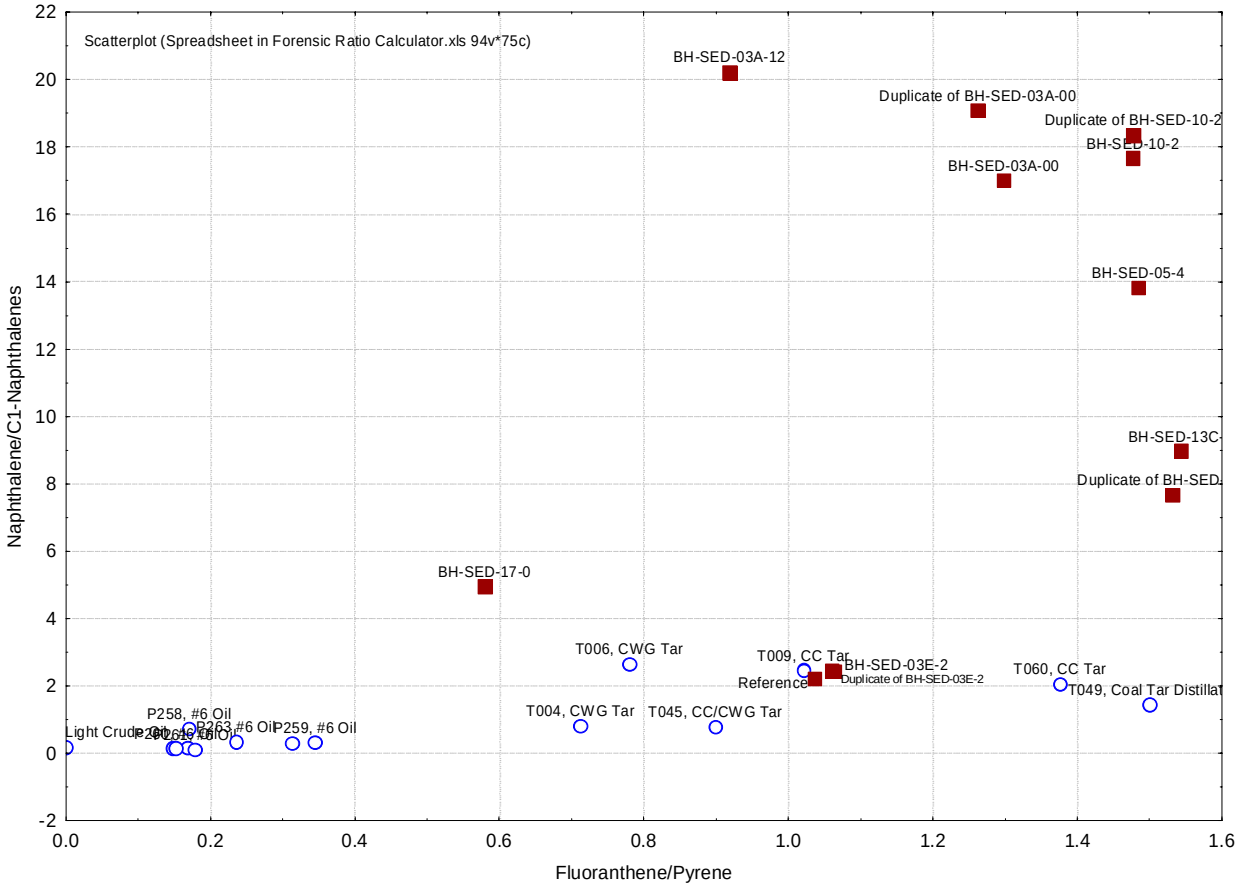
Table 1. Selected Source and Weathering Ratios

Field ID	Lab ID	Fl/Py	D/F	C17/Pri	C18/Phy	Pri/Phy	C3D/C3PA	C2D/C2PA	BF/MP	BaA/Chr	BeP/BaP	(Fl+Py)/ HPAHs	Total PP PAH (mg/kg)
BH-SED-03A-00	TA090211-01-D	1.2982	1.267	0.480	1.820	4.125	0.452	0.305	0.666	0.984	0.631	0.330	243
Duplicate of BH-SED-03A-00	TA090211-01DUP-D	1.2624	1.485	0.613	1.355	2.394	0.416	0.256	1.268	1.043	0.587	0.378	315
Reference	TA090211-02	1.0359	0.815	6.830	1.516	0.828	0.619	0.406	0.576	0.911	0.786	0.293	5.98
BH-SED-10-2	TA090226-01-D	1.4765	0.966	0.824	0.552	0.832	0.482	0.443	0.769	1.301	0.659	0.354	199
Duplicate of BH-SED-10-2	TA090226-01DUP-D	1.4776	0.960	0.907	0.641	0.778	0.534	0.462	0.826	1.297	0.653	0.349	183
BH-SED-03A-12	TA090226-02	0.919	0.609	2.153	1.583	0.819	0.449	0.245	0.540	1.234	0.684	0.314	51.7
BH-SED-13C-6	TA090305-01-R	1.5432	0.720	0.560	0.480	0.942	0.422	0.261	1.565	1.091	0.603	0.390	155
Duplicate of BH-SED-13C-6	TA090305-01DUP-R	1.5315	0.597	0.330	0.370	1.013	0.230	0.152	1.563	1.120	0.575	0.386	660
BH-SED-05-4	TA090305-02-R	1.4845	0.747	0.891	1.113	1.009	0.436	0.226	1.471	1.265	0.564	0.472	383
BH-SED-03E-2	TA090311-01	1.060	0.885	3.643	1.170	0.625	0.758	0.457	1.166	1.184	0.674	0.270	48.4
Duplicate of BH-SED-03E-2	TA090311-01DUP	1.0641	0.887	2.894	0.976	0.672	0.733	0.463	1.148	1.160	0.675	0.260	45.8
BH-SED-17-0	TA090311-02	0.580	1.116	2.942	1.478	0.871	0.518	0.459	0.502	1.047	0.686	0.223	30.7

Ratios:

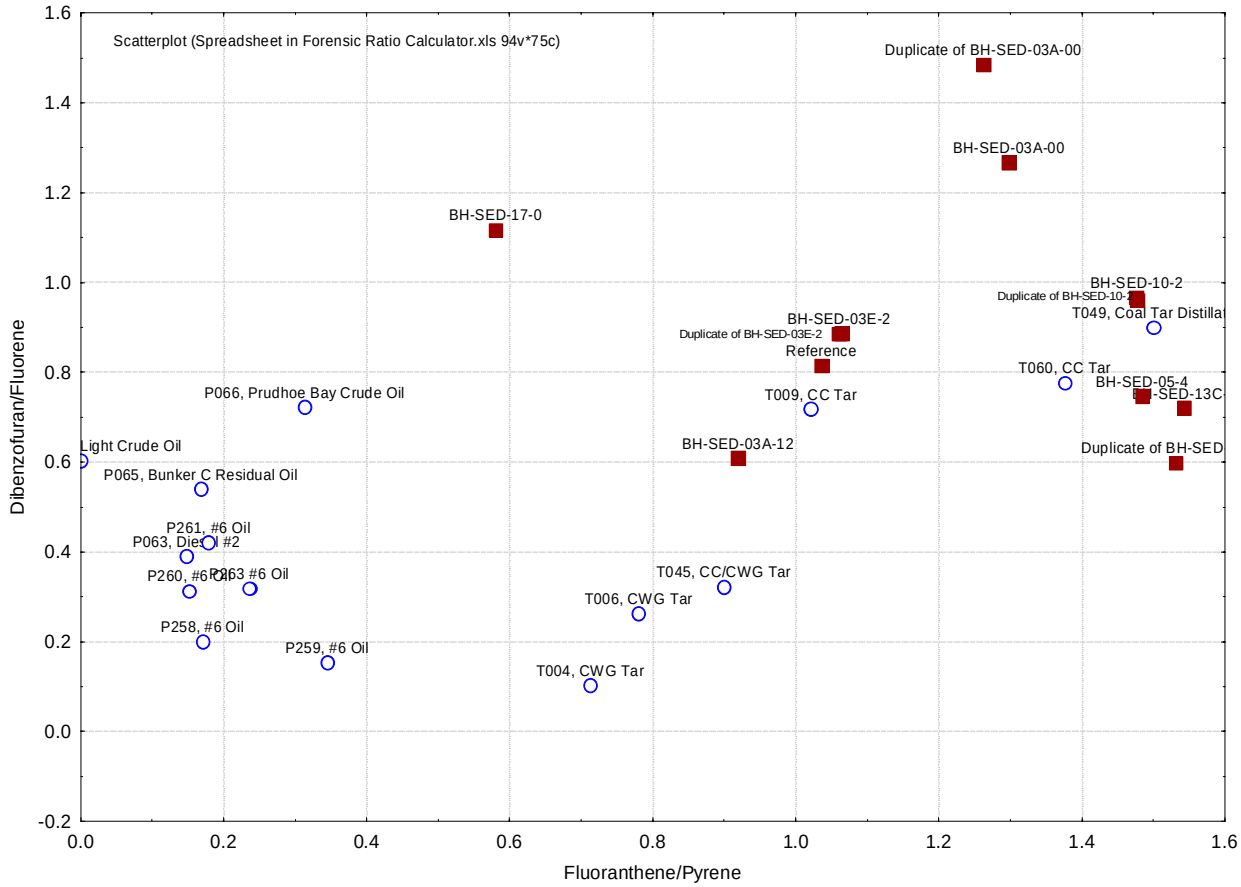
Fl/Py	fluoranthene/pyrene
D/F	dibenzofuran/fluorene
C17/Pris	heptadecane/pristane
C18/Phy	octadecane/phytane
Pris/Phy	pristane/phytane
C3D/C3PA	trialkyldibenzothiophenes/trialkylphenanthrenes/anthracenes
C2D/C2PA	dialkyldibenzothiophenes/dialkylphenanthrenes/anthracenes
BF/MP	benzofluorenes/methylpyrenes

Figure 1. Selected Diagnostic Ratios – Naphthalene/C1-Naphthalenes v. Fluoranthene/Pyrene



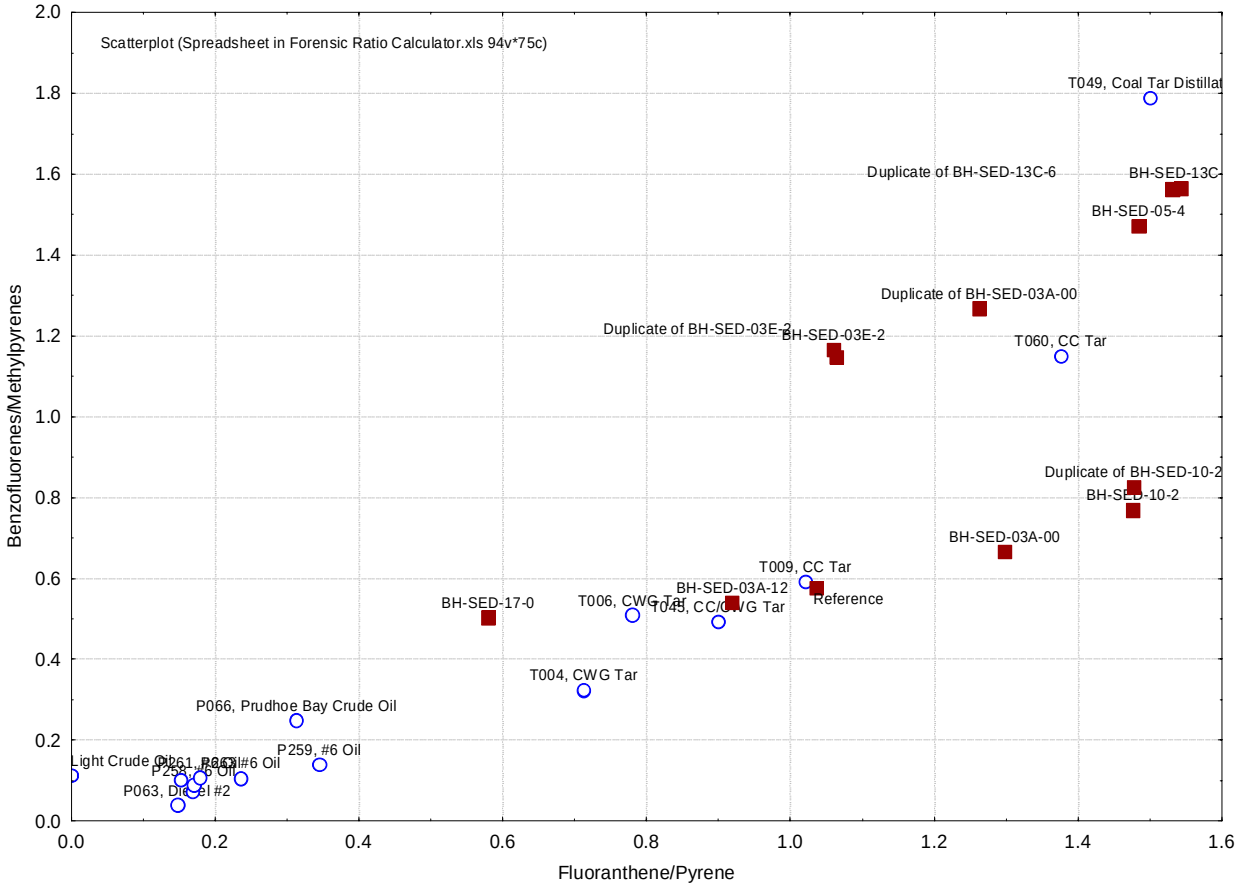
TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
■ Field Samples

Figure 2. Selected Diagnostic Ratios – Fluoranthene/Pyrene v. Dibenzofuran/Fluorene



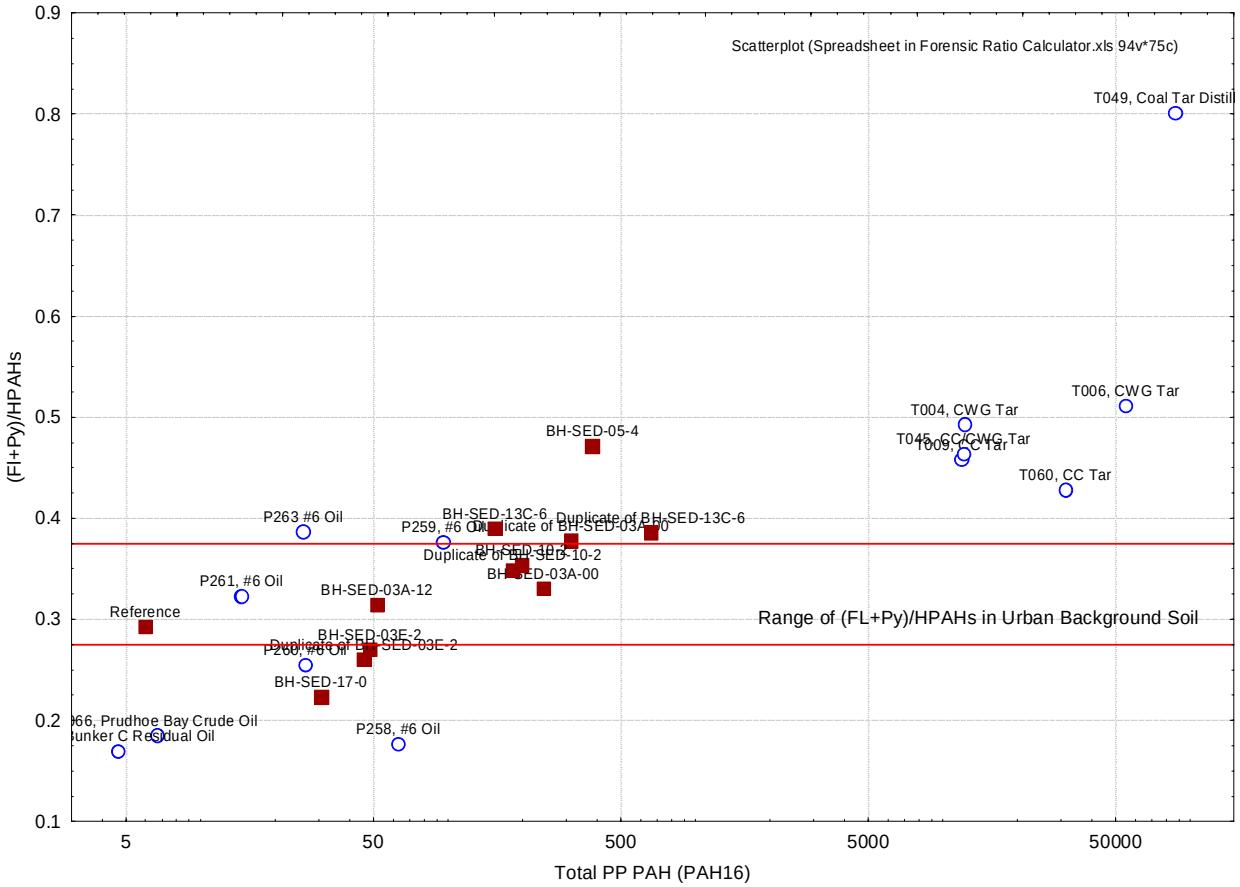
TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
■ Field Samples

Figure 3. Selected Diagnostic Ratios – Benzofluorenes/Methylpyrenes v. Fluoranthene/Pyrene



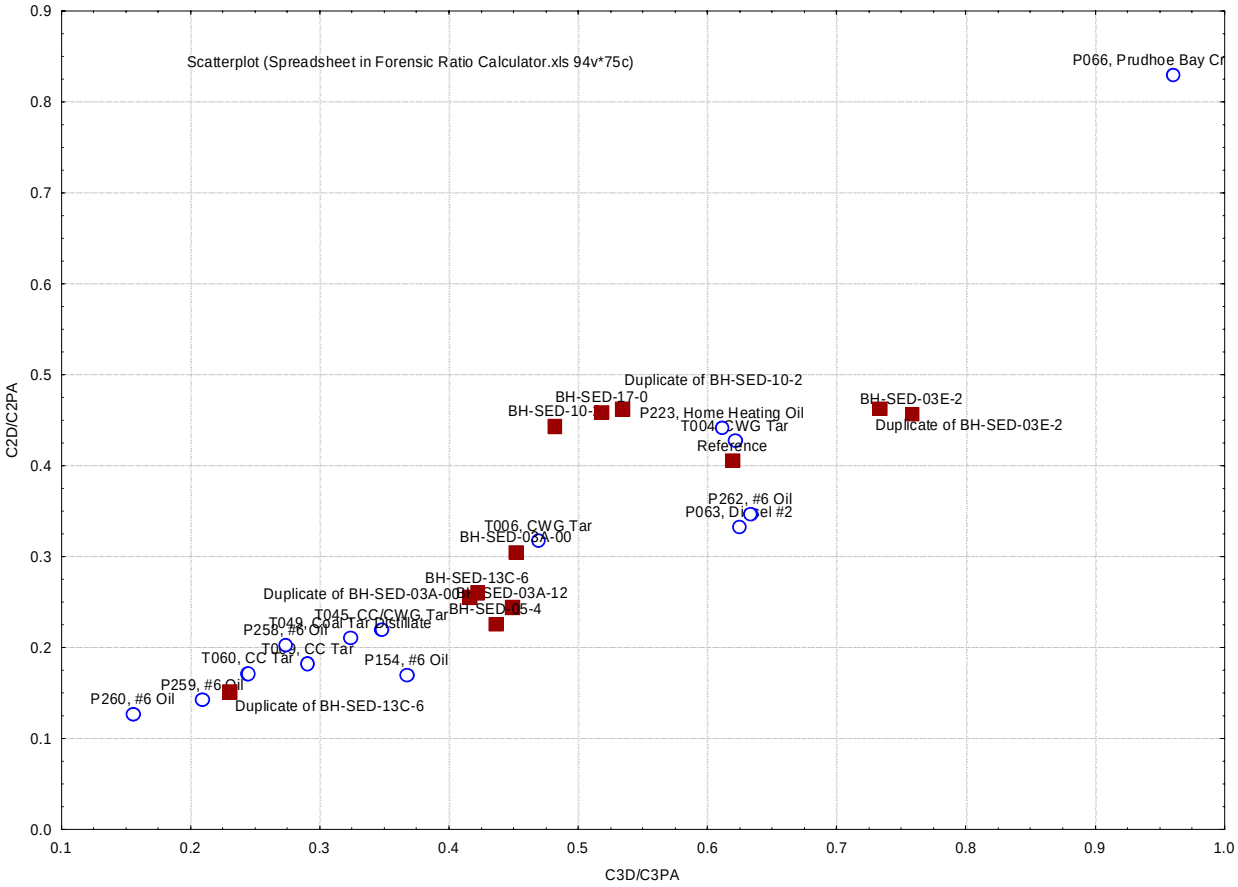
TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
■ Field Samples

Figure 4. Selected Diagnostic Ratios – (Fl+Py)/HPAHs v. Total Priority Pollutant PAHs



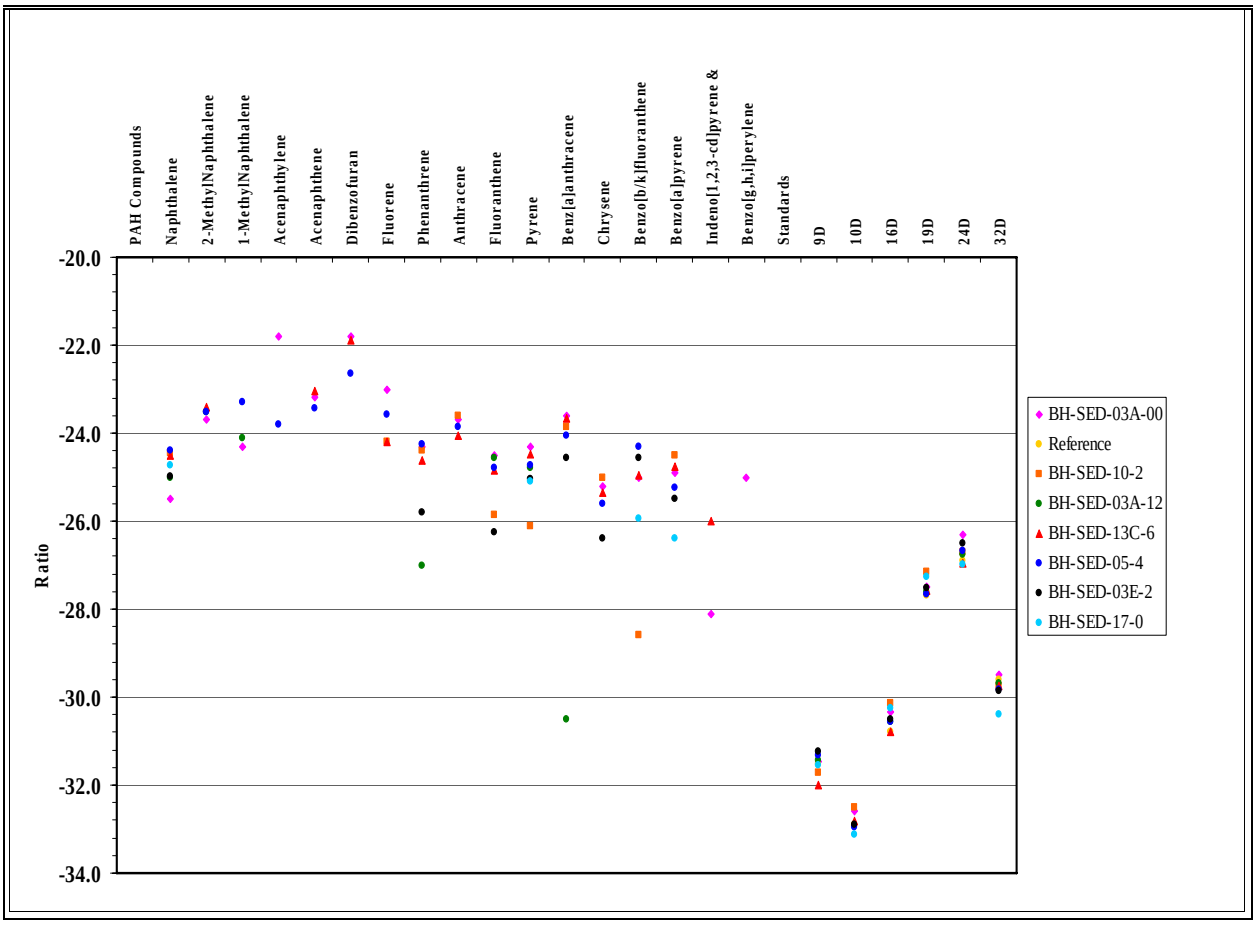
TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
■ Field Samples

Figure 5. Selected Diagnostic Ratios – C2D/C2PA v. C3D/C3PA



TXXX Tar Sample from META's in house source library
CC Coal Carbonization Tar
CO Coke Oven Tar
CR Creosote
CWG Carbureted Water Gas Tar
■ Field Samples

Figure 6. CSIRs of Sparrows Point Samples (‰)



Definitions

Pyrogenic substances are complex mixtures of primarily hydrocarbons produced from organic matter subjected to high temperatures but with insufficient oxygen for complete combustion. Pyrogenic materials are produced by fires, internal combustion engines, and furnaces. They also are formed when coke or gas are produced from coal or oil. Coal-tar based products, such as roofing, pavement sealers, waterproofing, pesticides, and some shampoos contain pyrogenic materials.

Petrogenic substances include crude oil and crude oil derivatives such as gasoline, heating oil, and asphalt.

Pitch is the semi-solid or solid material consisting of high molecular weight hydrocarbons that remain following coal tar distillation.

References

1. Chemistry of Coal Utilization Second Supplementary Volume. John Wiley & Sons, New York, NY 1981.

2. "Chemical Fingerprinting of Hydrocarbons," in: Introduction to Environmental Forensics. B.L. Murphy and R.D. Morrison editors, Academic Press, San Diego, CA 2002.

3. Mauro, D.M., "Chemical Source Attribution at former MGP Sites," EPRI Report 1000728, December 2000.

4. Mauro, D.M., "Examination of the Sources of Polycyclic Aromatic Hydrocarbons (PAHs) in Urban Background Soil." EPRI, Palo Alto, CA: 2008. 1015558

Appendix A

Chain of Custody

CHAIN OF CUSTODY RECORD

PROJECT SPARROWS POINT
CONTACT DR. FRANK BARRANCO
COMPANY EA ENGINEERING
ADDRESS 15 LOVETON CIRCLE, SPARKS, MD 21152
EMAIL fbarranco@eacst.com
PHONE 410-329-5137 **FAX** 410-771-4204

SAMPLED BY
Print Name TODD WARD Sign Todd Ward
Print Name _____ Sign _____

Turn Around Time
Standard ☒
If Authorized *
1 Week ☐
Other ☐ _____

META Environmental, Inc.
49 Clarendon St. - Watertown, Massachusetts - 02472
Tel (617) 923-4662 - Fax (617) 923-4610 - www.metaenv.com

Samp #	Date	Time	Field Sample ID	Container Size	Container G/P	Grab	Composite	# of Containers	Matrix	Preserv.	Parameters: EPA 8100M - GC/FID	EPA 8270M GC/MS	EPA 8270M CARBON CLNUP PAHS							Comments
1	2/6/09	1200	BH-SED-03A-00	4oz			X	1	SED.	NONE	X	X	X						TA ~~EA~~ 090211-01	BS 2/12/09
2	2/9/09	1610	REFERENCE	↓			X	1	SED.	NONE	X	X	X						TA ~~EA~~ 090211-02	BS 2/12/09

Relinquished by	Date & Time	Relinquished by	Date & Time	Relinquished by	Date & Time
Todd Ward	2/9/09 1820				
Received by	**Date & Time**	**Received by**	**Date & Time**	**Received by**	**Date & Time**
	2/11/09 10:50				

Shipping Info.

Remarks

Temp °C 1.4°2

* Surcharges may apply

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Prep Method	Cleanup Method	Analysis Method	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
TA090211-01	BH-SED-03A-00	Sediment	2508		4007/4008	2/6/2009	2/11/2009	T06006-60	1 x 4oz jar	Sub CSIR PAHs	Test America	Sparrows Point
TA090211-02	Reference	Sediment	2508		4007/4008	2/9/2009	2/11/2009	T06006-60	1 x 4 oz jar	Sub CSIR PAHs	Test America	Sparrows Point

Logged By: PG

Date: 2/12/09

Reviewed By: JM

Date: 2/12/09

META Environmental, Inc.

Sample Receipt Checklist

Receipt date: 2/11/09

Login date: 2/11/09

Login personnel: RS

Client Information:.

Company Name: EA Engineering / KG America

Project Manager: Dr. Frank Barranco

Project Name: sparrows point

Shipping Information:

How were samples received? UPS (FedEx) DHL Other:

Number of coolers: 1

Internal temperature of coolers: 1.4°C

Was ice present? (Yes) / No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? (Yes) / No

Was it signed? (Yes) / No

Was all project information present on the COC? (Yes) / No

Was a bill of lading or shipping label retained? Yes / (No)

Sample Information:

Number of sample containers: 2

Does this match the COC? (Yes) / No

Were all sample containers Intact? (Yes) / No

If no, list samples and problems:

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / (NA)

Comments:

Custodian: [signature]

Project Manager: [signature]

CHAIN OF CUSTODY RECORD

PROJECT SPARROWS POINT RCRA INVESTIGATION
CONTACT FRANK BARRANCO
COMPANY EA ENGINEERING
ADDRESS 15 LOVETON CIRCLE, SPARKS, MD 21152
EMAIL
PHONE 410-329-5137 **FAX** 410-771-4204
SAMPLED BY
Print Name TODD WARD Sign Todd Ward
Print Name Sign

Turn Around Time
Standard ☒
If Authorized *
1 Week ☐
Other ☐ ____

META Environmental, Inc.
49 Clarendon St. - Watertown, Massachusetts - 02472
Tel (617) 923-4662 - Fax (617) 923-4610 - www.metaenv.com

Samp #	Date	Time	Field Sample ID	Container Size	Container G/P	Grab	Composite	# of Containers	Matrix	Preserv.	Parameters: EPA 8100M - GC/FID	Parameters: EPA 8270M	Comments
1	2/24/09	1320	BH-SED-10-2	4oz	G		X	2	SED.	-	X	X	TA ~~EA-09~~ ~~EA090226-09~~
2	2/25/09	1100	BH-SED-03A-12	4oz	G		X	2	SED.	-	X	X	↓ -02

Relinquished by	Date & Time	Relinquished by	Date & Time	Relinquished by	Date & Time
Todd Ward	2/25/09 1700				
Received by	**Date & Time**	**Received by**	**Date & Time**	**Received by**	**Date & Time**
Rafael Flores	2/26/09 11:50				

Shipping Info.

Remarks

Temp °C 6.5

* Surcharges may apply

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Prep Method	Cleanup Method	Analysis Method	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
TA090226-01	BH-SED-10-2	Sediment	2508		4007/4008	2/24/2009	2/26/2009	T06006-60	2 x 4oz jar		Test America	Sparrows Point
TA090226-02	BH-SED-03A-12	Sediment	2508		4007/4008	2/25/2009	2/26/2009	T06006-60	2 x 4oz jar		Test America	Sparrows Point

Logged By: PS

Date: 3/2/26/09

Reviewed By:

Date: 3/3/09

META Environmental, Inc.
Sample Receipt Checklist

Receipt date: 2/26/09
Login date: 2/26/09
Login personnel: PS

Client Information:.

Company Name: EA Engineering / Test America
Project Manager: Frank Barranco
Project Name: Spawn Spoit Point Test America

Shipping Information:

How were samples received? UPS (FedEx) DHL Other:
Number of coolers: 1
Internal temperature of coolers: 6.5°C
Was ice present? (Yes) / No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? (Yes) / No
Was it signed? (Yes) / No
Was all project information present on the COC? (Yes) / No
Was a bill of lading or shipping label retained? (Yes) / No

Sample Information:

Number of sample containers: 4
Does this match the COC? (Yes) / No
Were all sample containers Intact? (Yes) / No
If no, list samples and problems:

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / (NA)

Comments:

Custodian: [signature]
Project Manager: [signature]

CHAIN OF CUSTODY RECORD

PROJECT SPARROWS POINT RCRA INVESTIGATION
CONTACT FRANK BARRANCO
COMPANY EA ENGINEERING
ADDRESS 15 LOVETON CIRCLE, SPARKS, MD 21152
EMAIL fbarranco@eaest.com
PHONE 410-329-5130 (?) **FAX** 410-771-4204

SAMPLED BY
Print Name TODD WARD Sign Todd Ward
Print Name _____ Sign _____

Turn Around Time
Standard ☒
If Authorized *
1 Week ☐
Other ☐ _____

META Environmental, Inc.
49 Clarendon St. - Watertown, Massachusetts - 02472
Tel (617) 923-4662 - Fax (617) 923-4610 - www.metaenv.com

Samp #	Date	Time	Field Sample ID	Container Size	Container G/P	Grab	Composite	# of Containers	Matrix	Preserv.	Parameters: EPA 8100M - GC/FID	Parameters: EPA 8270M	Comments
1	3/4/09	1045	BH-SED-13C-6	4oz	G		X	1	SED	–	X	X	TA090305-01
2	3/4/09	1340	BH-SED-05-6	4oz	G		X	2	SED	–	X	X	-02a,b

Relinquished by	Date & Time	Relinquished by	Date & Time	Relinquished by	Date & Time
Todd Ward	3/4/09 1815				
Received by	**Date & Time**	**Received by**	**Date & Time**	**Received by**	**Date & Time**
[illegible]	3/5/09 10:45				

Shipping Info. _____
Remarks _____
Temp °C 3.3
* Surcharges may apply

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Prep Method	Cleanup Method	Analysis Method	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
TA090305-01	BH-SED-13C-6	Soil	2508		4007/4008	3/4/2009	3/5/2009	T06006-60	1 x 4 oz jar		Test America	Sparrows Point
TA090305-02a,b	BH-SED-05-4	Soil	2508		4007/4008	3/4/2009	3/5/2009	T06006-60	2 x 4 oz jar		Test America	Sparrows Point

Logged By: JO

Date: 3/5/09

Reviewed By: JL

Date: 3/6/09

META Environmental, Inc.
Sample Receipt Checklist

Receipt date: 3-5-09
Login date: 3-5-09
Login personnel: JO

Client Information:.

Company Name: Test America
Project Manager: Frank Barranco
Project Name: Sparrows Point

Shipping Information:

How were samples received? UPS (FedEx) DHL Other:
Number of coolers: 1
Internal temperature of coolers: 3.3°C
Was ice present? (Yes) / No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? (Yes) / No
Was it signed? (Yes) / No
Was all project information present on the COC? (Yes) / No
Was a bill of lading or shipping label retained? Yes / (No)

Sample Information:

Number of sample containers: 3
Does this match the COC? (Yes) No
Were all sample containers Intact? (Yes) / No
If no, list samples and problems:

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / (NA)

Comments:

Custodian: [signature]
Project Manager: [signature]

CHAIN OF CUSTODY RECORD

PROJECT SPARROWS POINT RCRA INVESTIGATION
CONTACT FRANK BARRANCO
COMPANY EA ENGINEERING
ADDRESS 15 LOVETON CIRCLE, SPARKS, MD 21152
EMAIL fbarranco@eaest.com
PHONE 410-329-5137 **FAX** 410-771-4204

SAMPLED BY
Print Name TODD WARD Sign Todd Ward
Print Name _____ Sign _____

Turn Around Time
Standard ☒
If Authorized *
1 Week ☐
Other ☐ _____

META Environmental, Inc.
49 Clarendon St. - Watertown, Massachusetts - 02472
Tel (617) 923-4662 - Fax (617) 923-4610 - www.metaenv.com

Samp #	Date	Time	Field Sample ID	Container Size	Container G/P	Grab	Composite	# of Containers	Matrix	Preserv.	Parameters: EPA 8100M - GC/FID	EPA 8270M	CSIA PAHs by GC/IRMS							Comments
1	3/9/09	1030	BH-SED-03E-2	4oz	G		X	2	Sed.	—	X	X	X							TA0903[illegible]-01a
2	3/10/09	1020	BH-SED-17-0	4oz	G		X	2	Sed.	—	X	X	X							-02a

Relinquished by	Date & Time	Relinquished by	Date & Time	Relinquished by	Date & Time
Todd Ward	3/10/09 1700				
Received by	**Date & Time**	**Received by**	**Date & Time**	**Received by**	**Date & Time**
Julie O'Reilly	3/11/09 9:50				

Shipping Info.

Remarks

Temp °C 0

* Surcharges may apply

META Environmental, Inc.

Sample Receipt Log

Lab ID	Field ID	Matrix	Prep Method	Cleanup Method	Analysis Method	Date Sampled	Date Received	Project #	Container	Comments	Client Name	Project Name
TA090311-01a.b	BH-SED-03E-2	Soil	2508		4007/4008	3/9/2009	3/11/2009	T06006-60	2 x 4 oz jar	Sub for CSIR PAHs by GC/IRMs	Test America	Sparrows Point
TA090311-02a.b	BH-SED-17-0	Soil	2508		4007/4008	3/10/2009	3/11/2009	T06006-60	2 x 4 oz jar	Sub for CSIR PAHs by GC/IRMs	Test America	Sparrows Point

Logged By: _____

Date: 3/11/09

Reviewed By: _____

Date: 3/13/09

META Environmental, Inc.

Sample Receipt Checklist

Receipt date: 3-11-09

Login date: 3-11-09

Login personnel: SO

Client Information:.

Company Name: Test America

Project Manager: Frank Baranco

Project Name: Sparrow's point

Shipping Information:

How were samples received? UPS (FedEx) DHL Other:

Number of coolers: 1

Internal temperature of coolers: 0°C

Was ice present? (Yes) / No

Note: if cooler is outside the 2-6° range, META's project manager should be notified.

Documentation:

Was a Chain of Custody present? (Yes) / No

Was it signed? Yes / No

Was all project information present on the COC? (Yes) / No

Was a bill of lading or shipping label retained? Yes / (No)

Sample Information:

Number of sample containers: 4

Does this match the COC? (Yes) / No

Were all sample containers Intact? (Yes) / No

If no, list samples and problems:

Note: if samples are damaged, META's project manager should be notified.

For aqueous 40ml Voas; was headspace present? Yes / No / (NA)

Comments:

Custodian: Jacklyn O'Riley

Project Manager: [signature]

James Roush

From: Olsen, Karin [kolsen@eaest.com]
Sent: Thursday, March 05, 2009 9:36 AM
To: James Roush
Subject: Sparrows Point sample ID

James -

Todd submitted a sample yesterday that he labeled BH-SED-05-6. However, the correct ID should be BH-SED-05-4. Can you guys log the sample in correctly?

Let me know if I need to submit a revised COC to document the sample ID change.

Thanks!

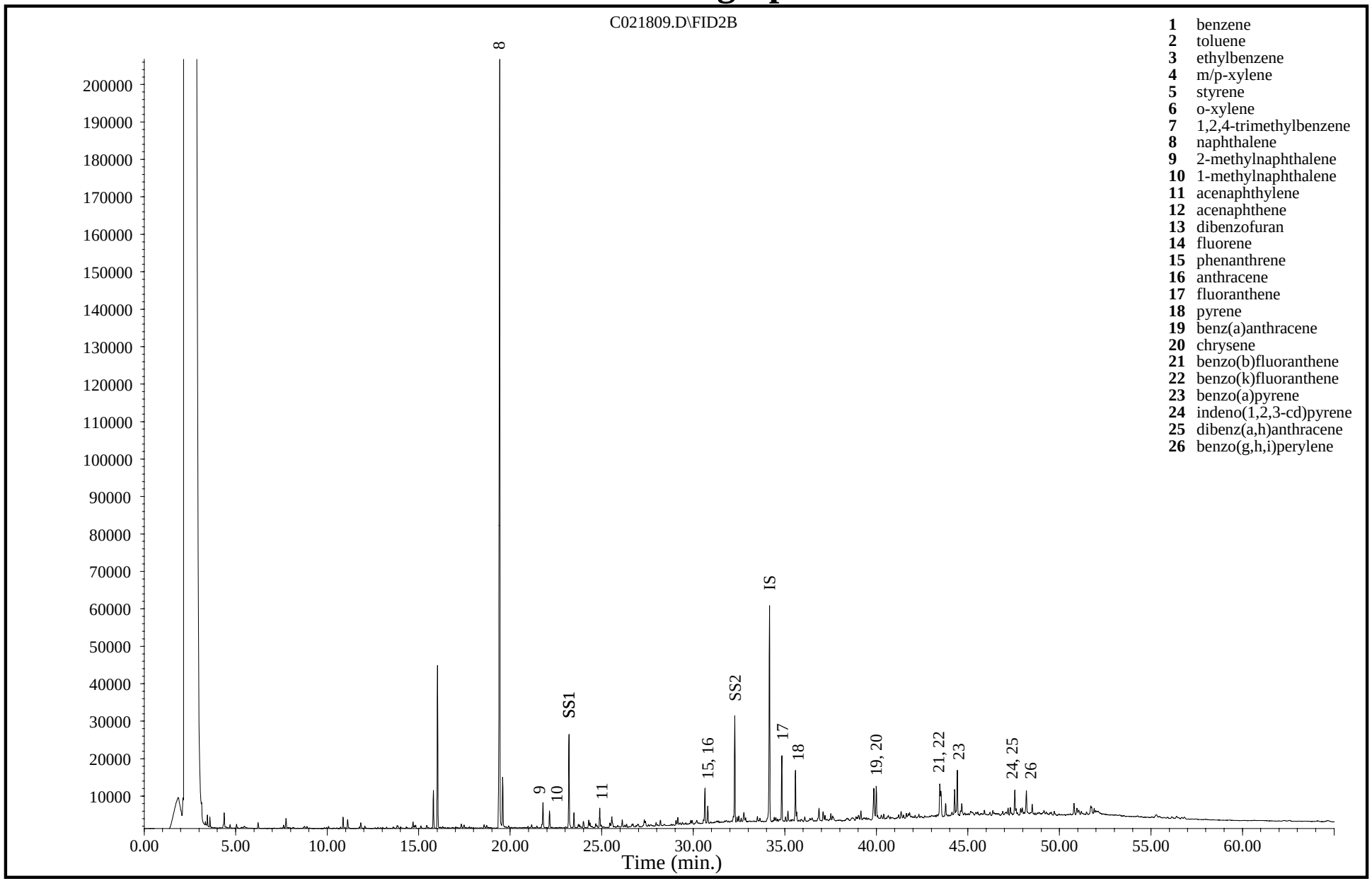
Karin

Karin Olsen, Senior Env Scientist
EA Engineering, Science, and Technology
15 Loveton Circle.....Sparks, MD 21152
office: 410.329.5112.....cell: 443.465.9783

Appendix B

GC/FID Fingerprints

GC/FID Fingerprint

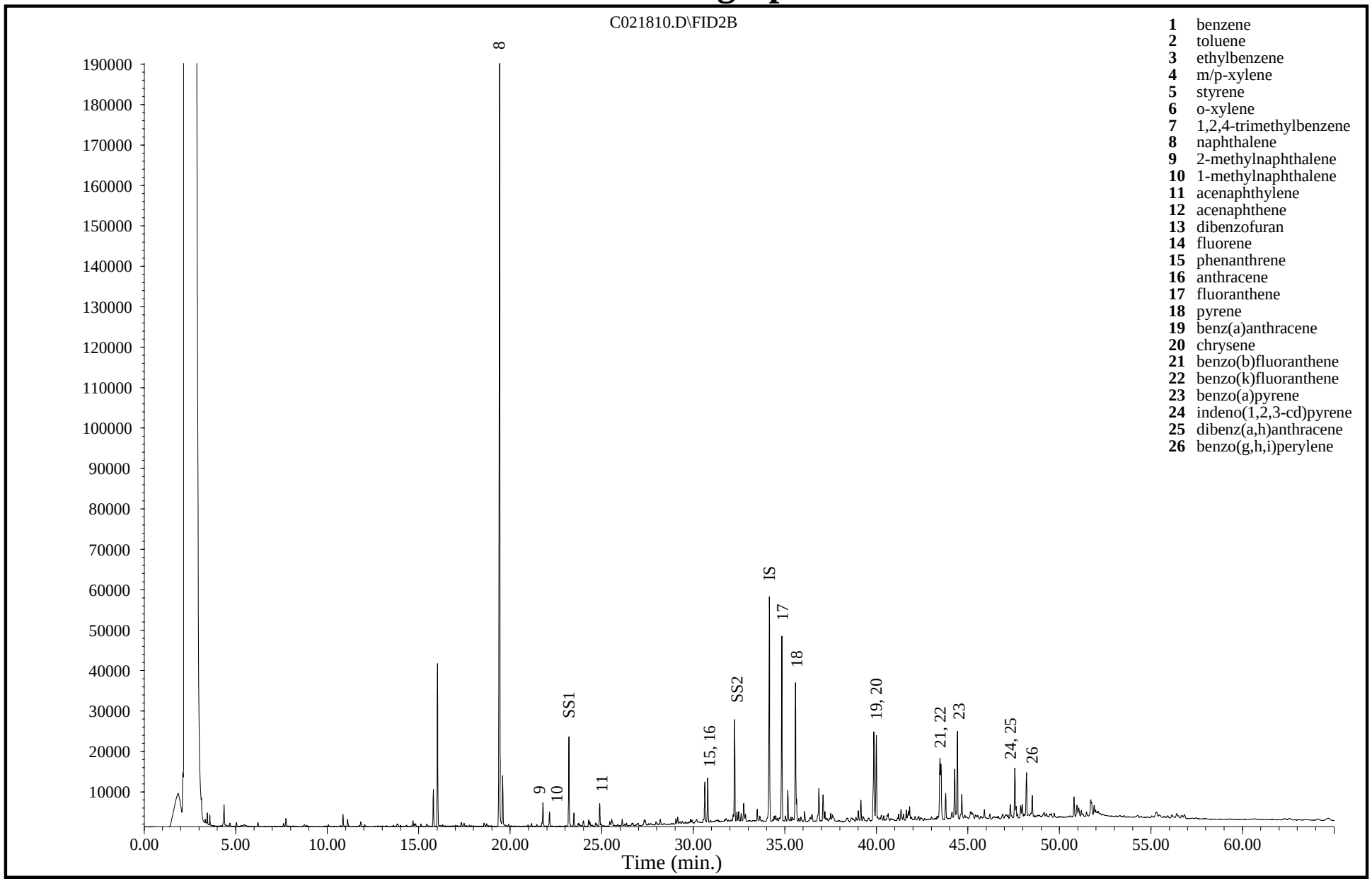


Extraction Date: 02/12/2009
Analysis Date: 02/19/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-03A-00**
Laboratory ID: TA090211-01
Method: EPA 8100M

GC/FID Fingerprint

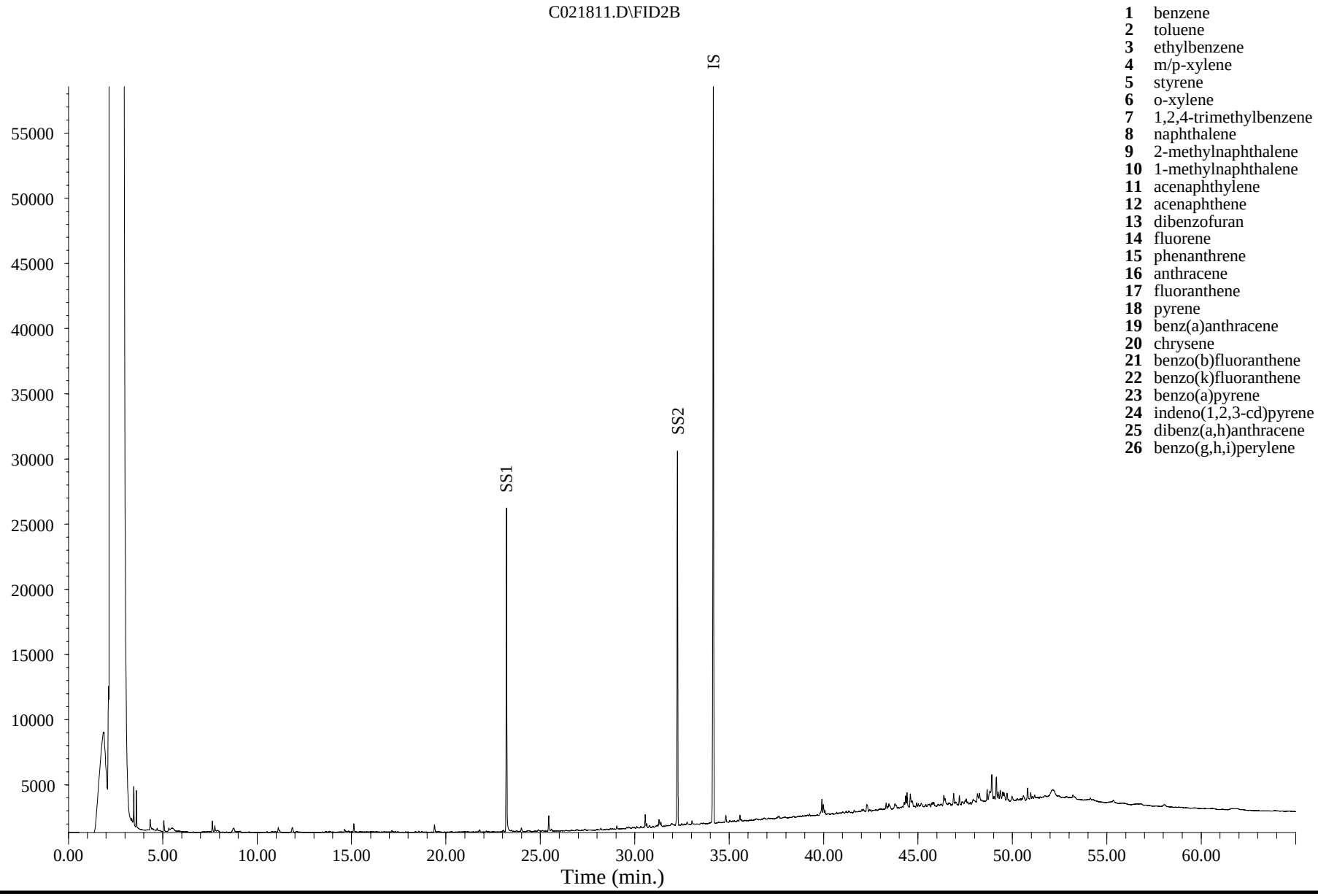


Extraction Date: 02/12/2009
Analysis Date: 02/19/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-03A-00**
Laboratory ID: TA090211-01DUP
Method: EPA 8100M

GC/FID Fingerprint

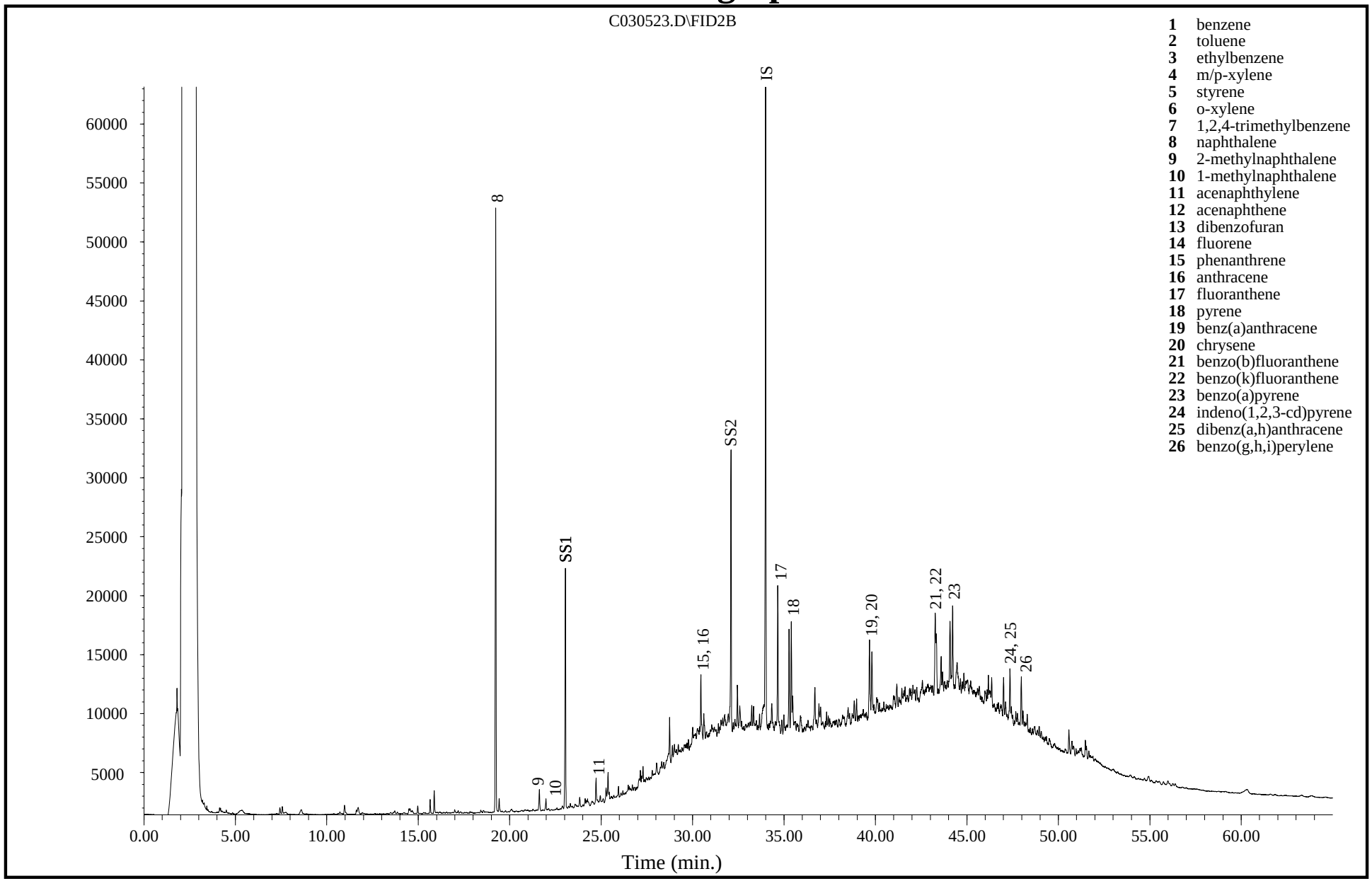


Extraction Date: 02/12/2009
Analysis Date: 02/19/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID:	**Reference**
Laboratory ID:	TA090211-02
Method:	EPA 8100M

GC/FID Fingerprint

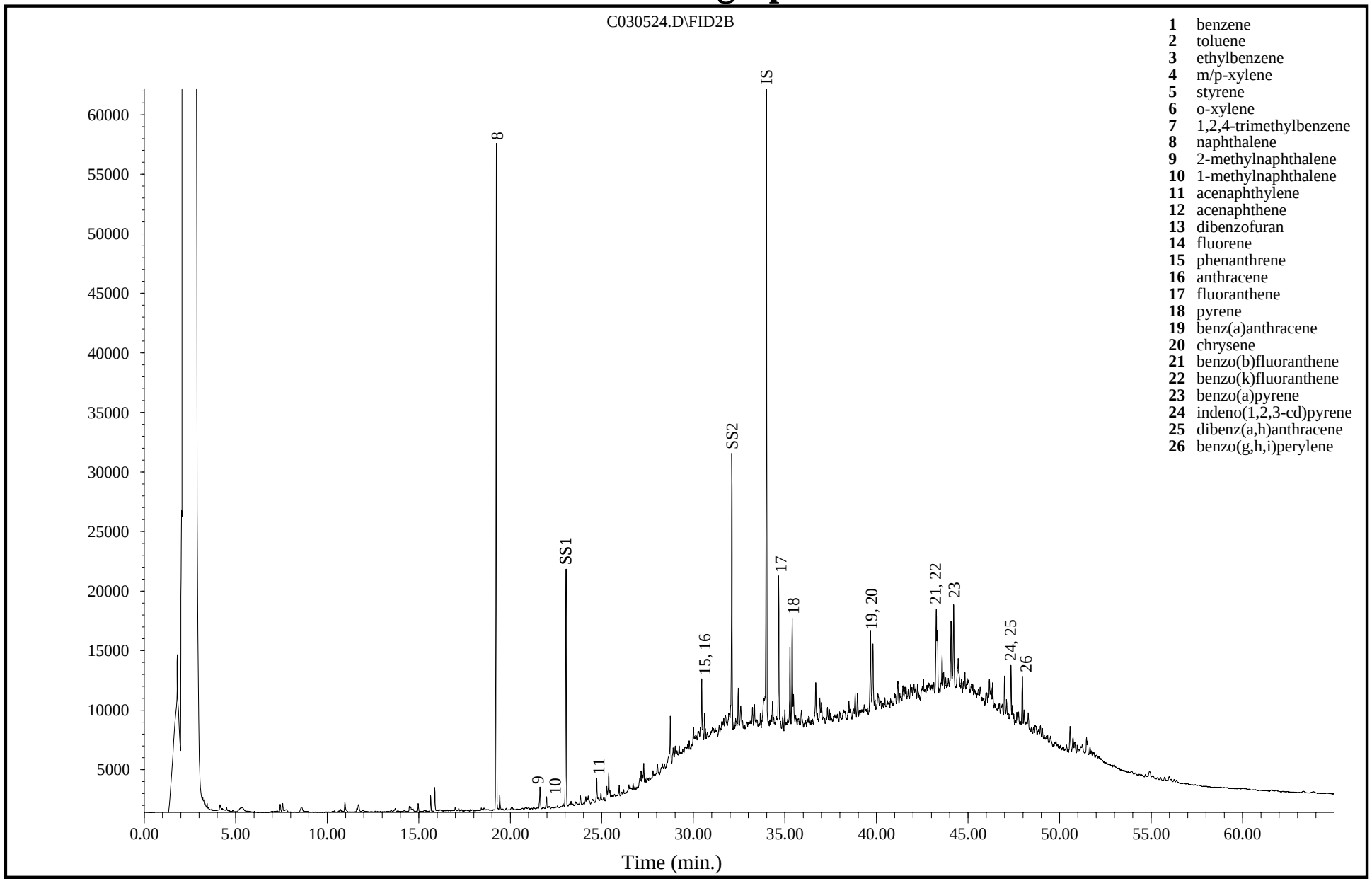


Extraction Date: 03/03/2009
Analysis Date: 03/06/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-10-2**
Laboratory ID: TA090226-01
Method: EPA 8100M

GC/FID Fingerprint



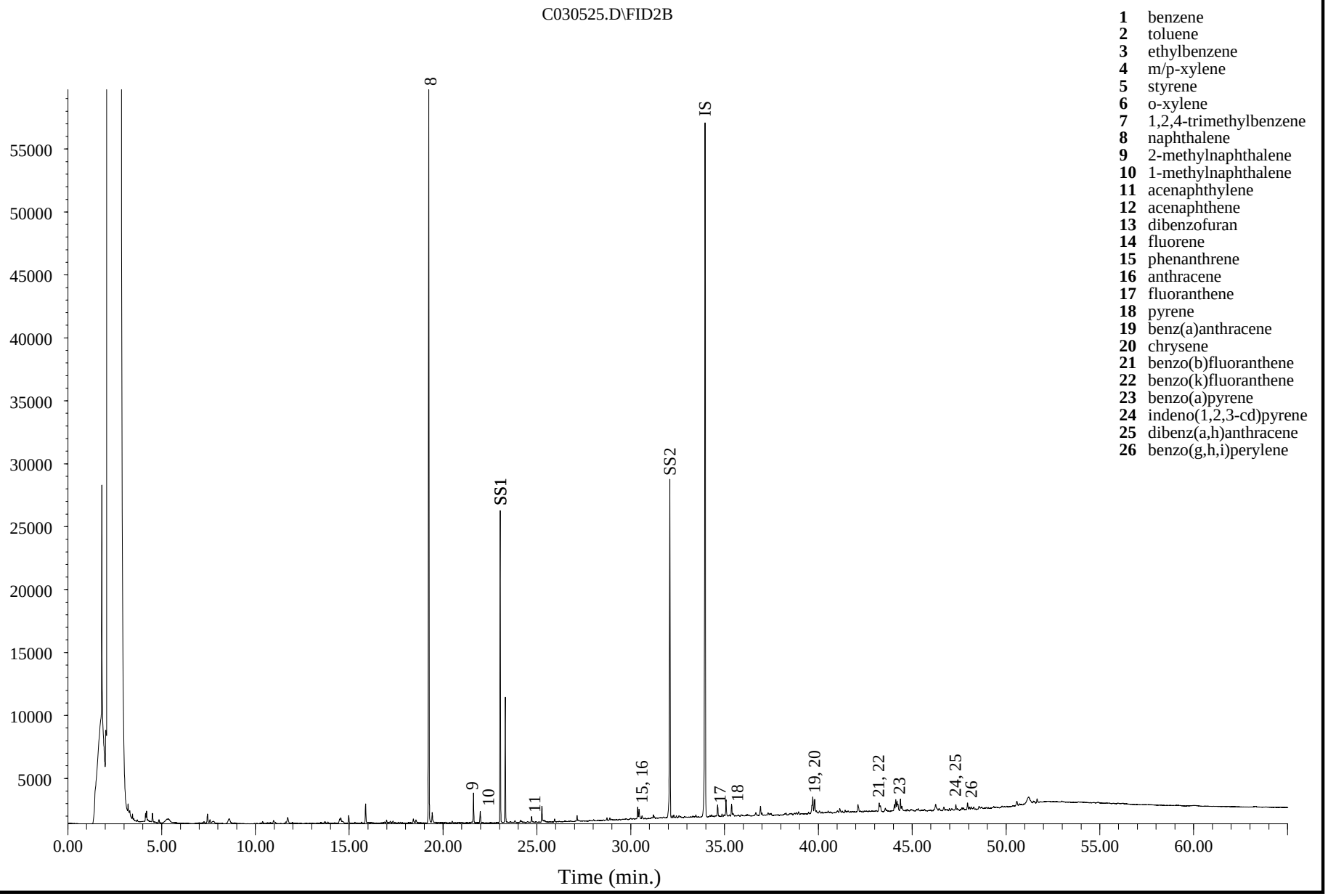
Extraction Date: 03/03/2009
Analysis Date: 03/06/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-10-2**
Laboratory ID: TA090226-01DUP
Method: EPA 8100M

META

GC/FID Fingerprint

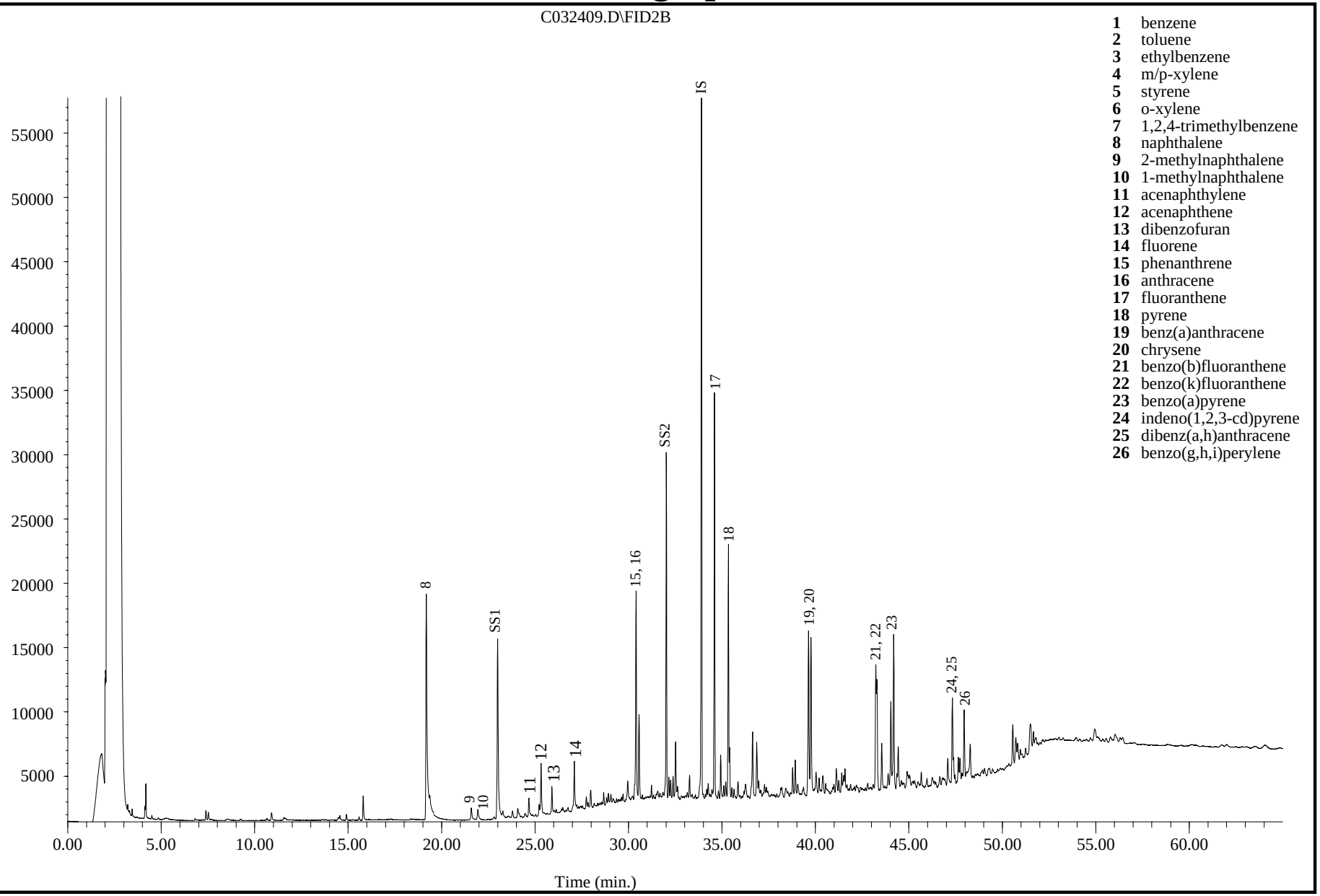


Extraction Date: 03/03/2009
Analysis Date: 03/06/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-03A-12**
Laboratory ID: TA090226-02
Method: EPA 8100M

GC/FID Fingerprint



Extraction Date: 03/24/2009
Analysis Date: 03/24/2009

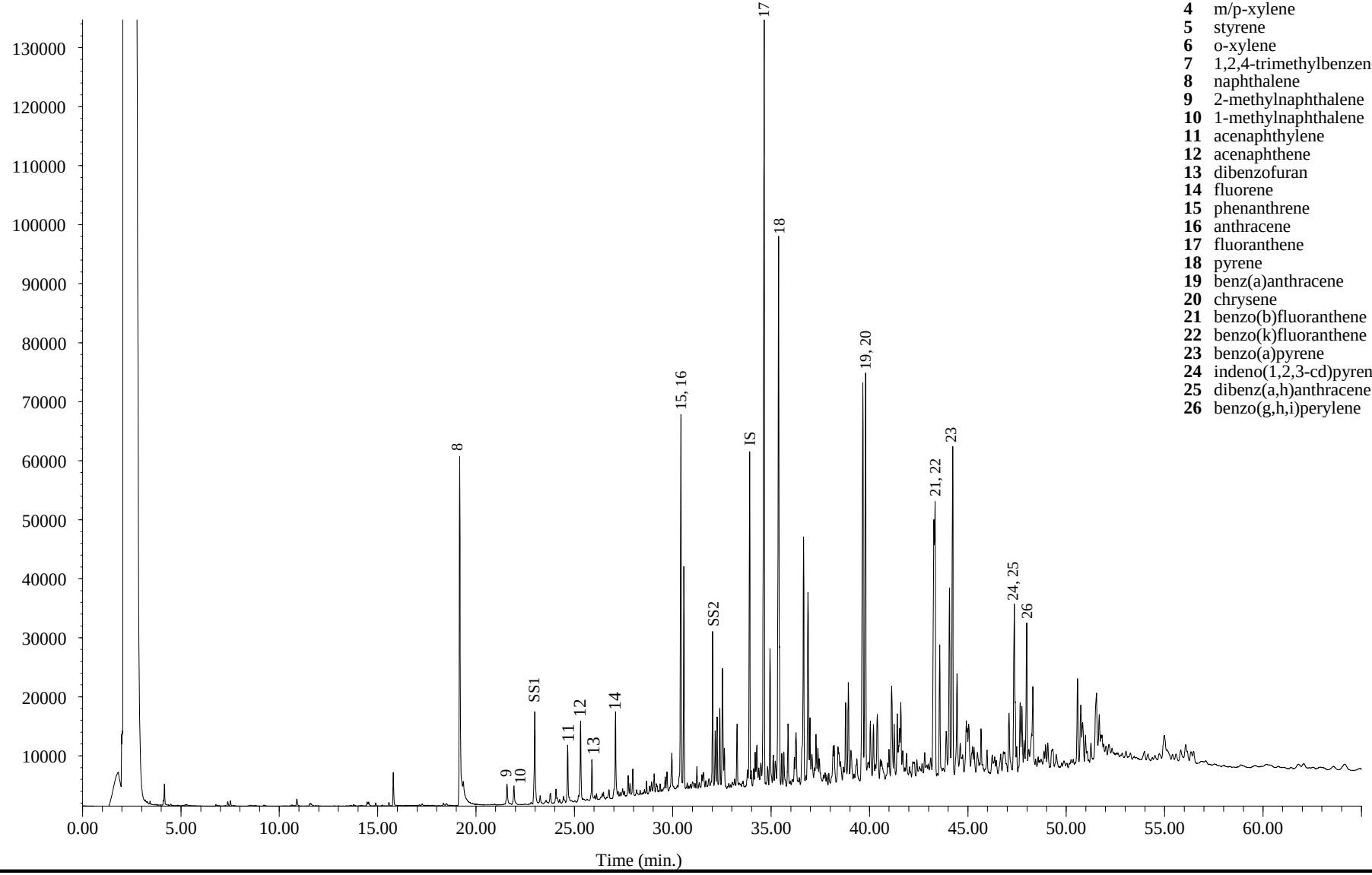
IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-13C-6**
Laboratory ID: TA090305-01-R
Method: EPA 8100M

META

GC/FID Fingerprint

C032410.D\FID2B



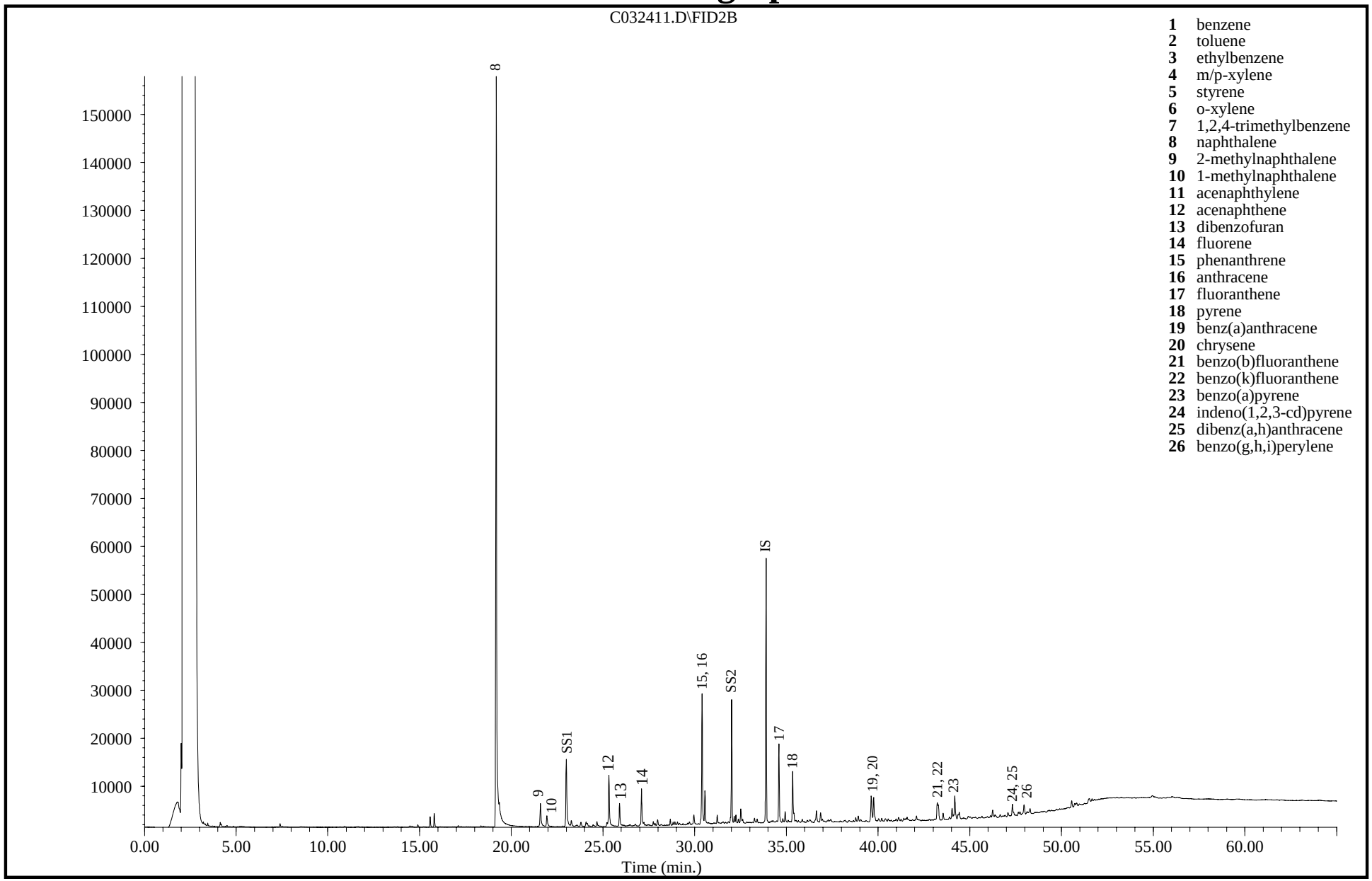
Extraction Date: 03/24/2009
Analysis Date: 03/24/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-13C-6**
Laboratory ID: TA090305-01DUP-R
Method: EPA 8100M

META

GC/FID Fingerprint



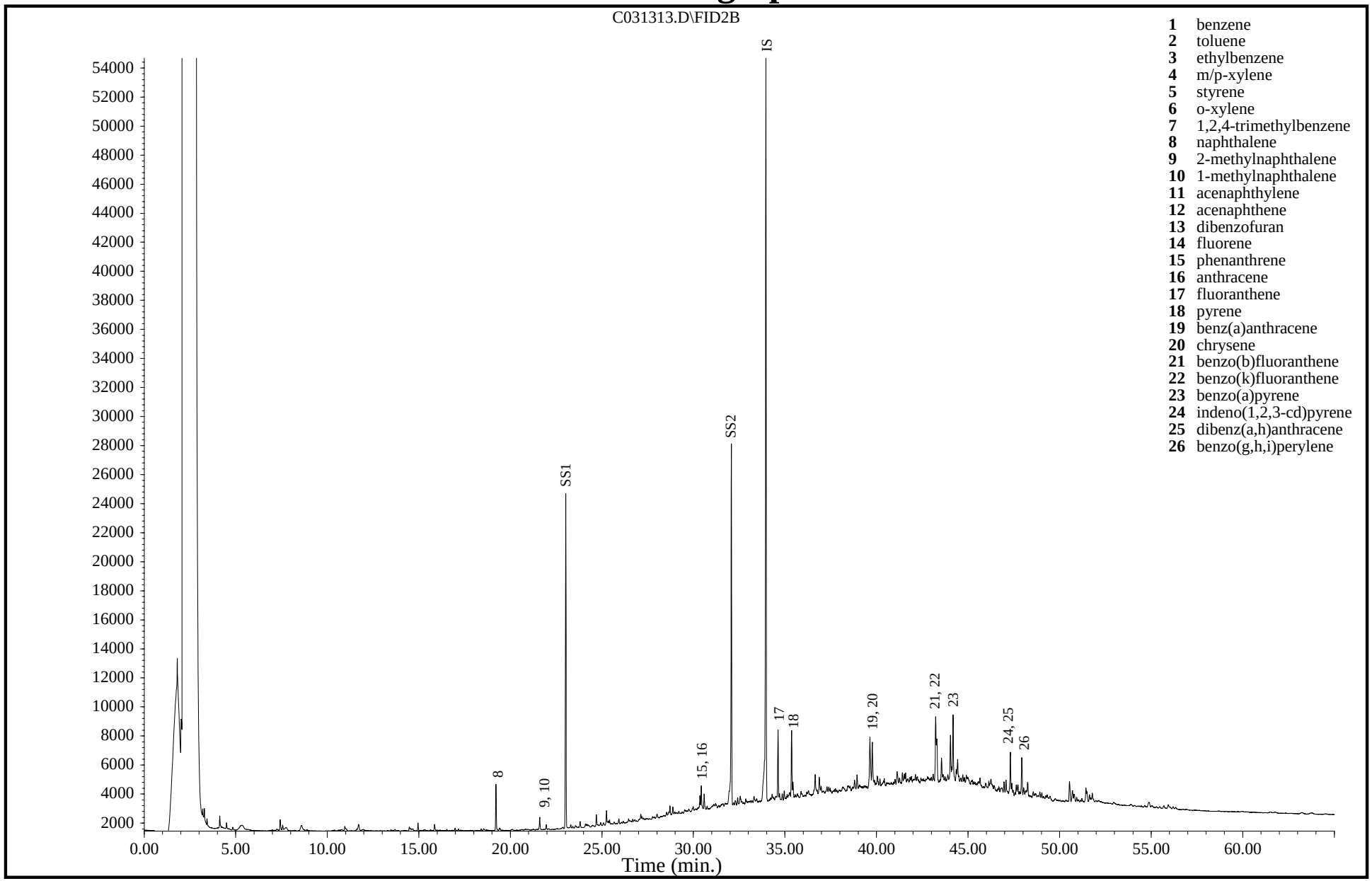
Extraction Date: 03/24/2009
Analysis Date: 03/24/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-05-4**
Laboratory ID: TA090305-02-R
Method: EPA 8100M

META

GC/FID Fingerprint

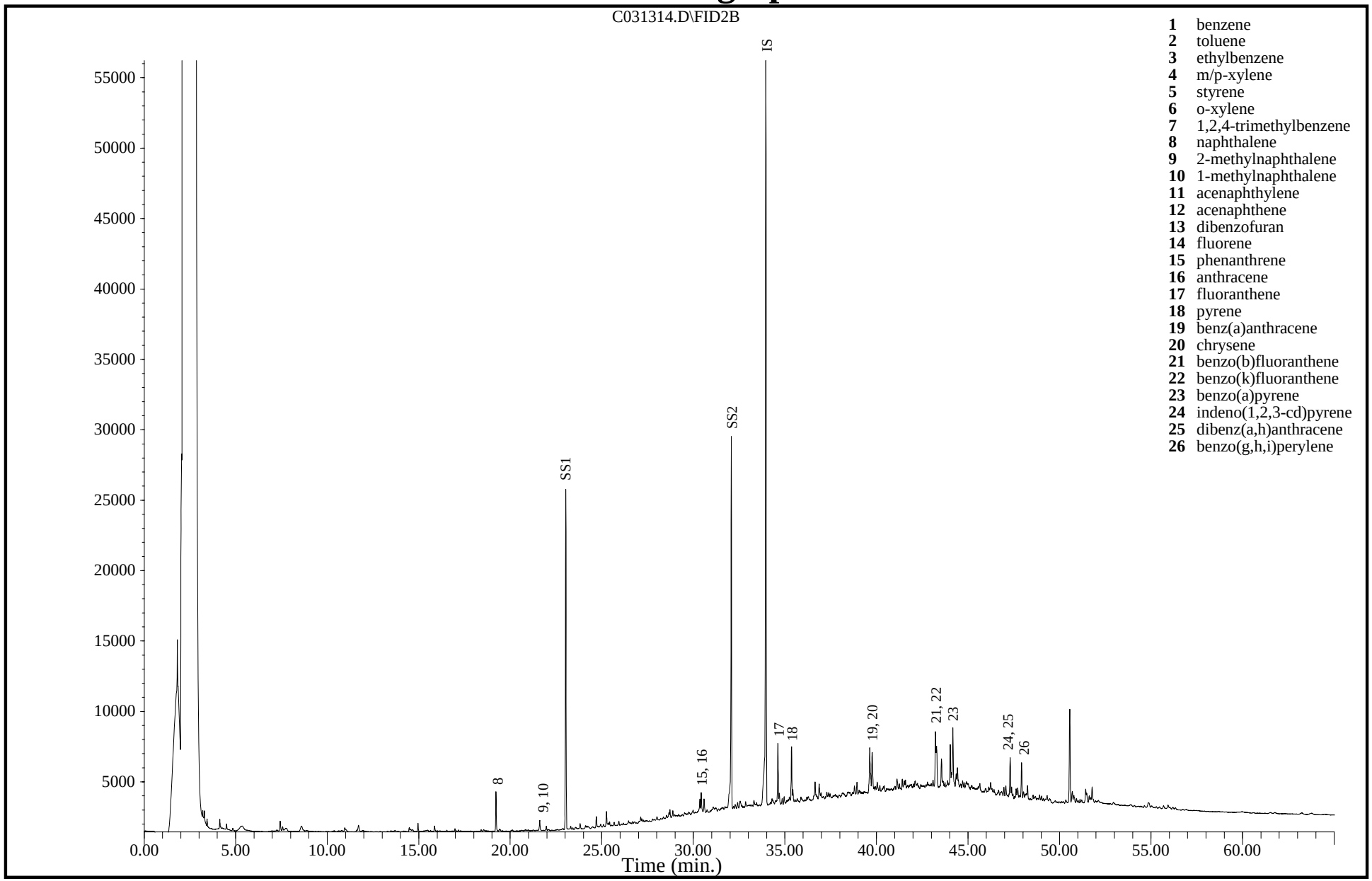


Extraction Date: 03/12/2009
Analysis Date: 03/14/2009

Field ID: **BH-SED-03E-2**
Laboratory ID: TA090311-01
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint



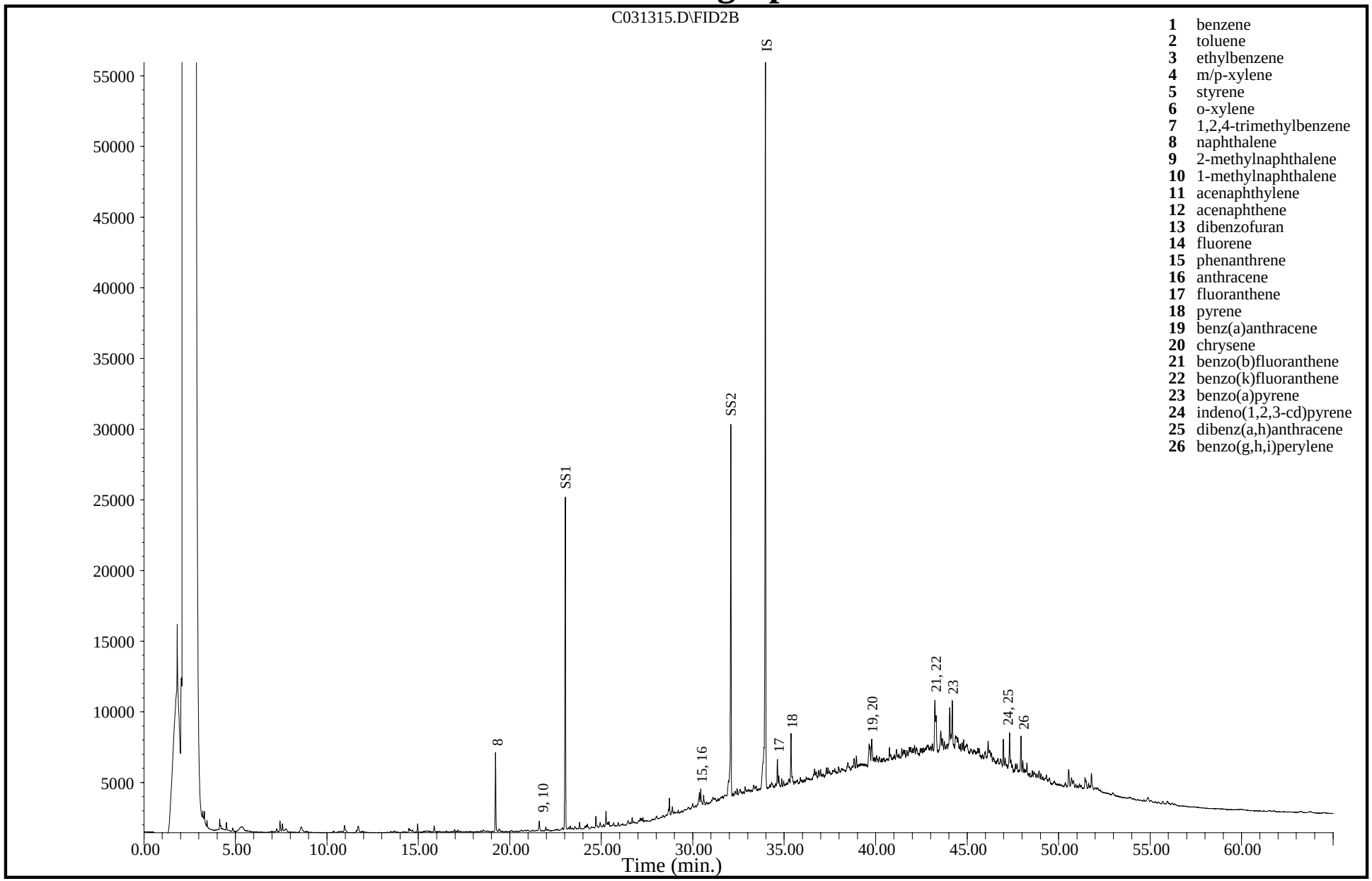
Extraction Date: 03/12/2009
Analysis Date: 03/14/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-03E-2**
Laboratory ID: TA090311-01DUP
Method: EPA 8100M

META

GC/FID Fingerprint



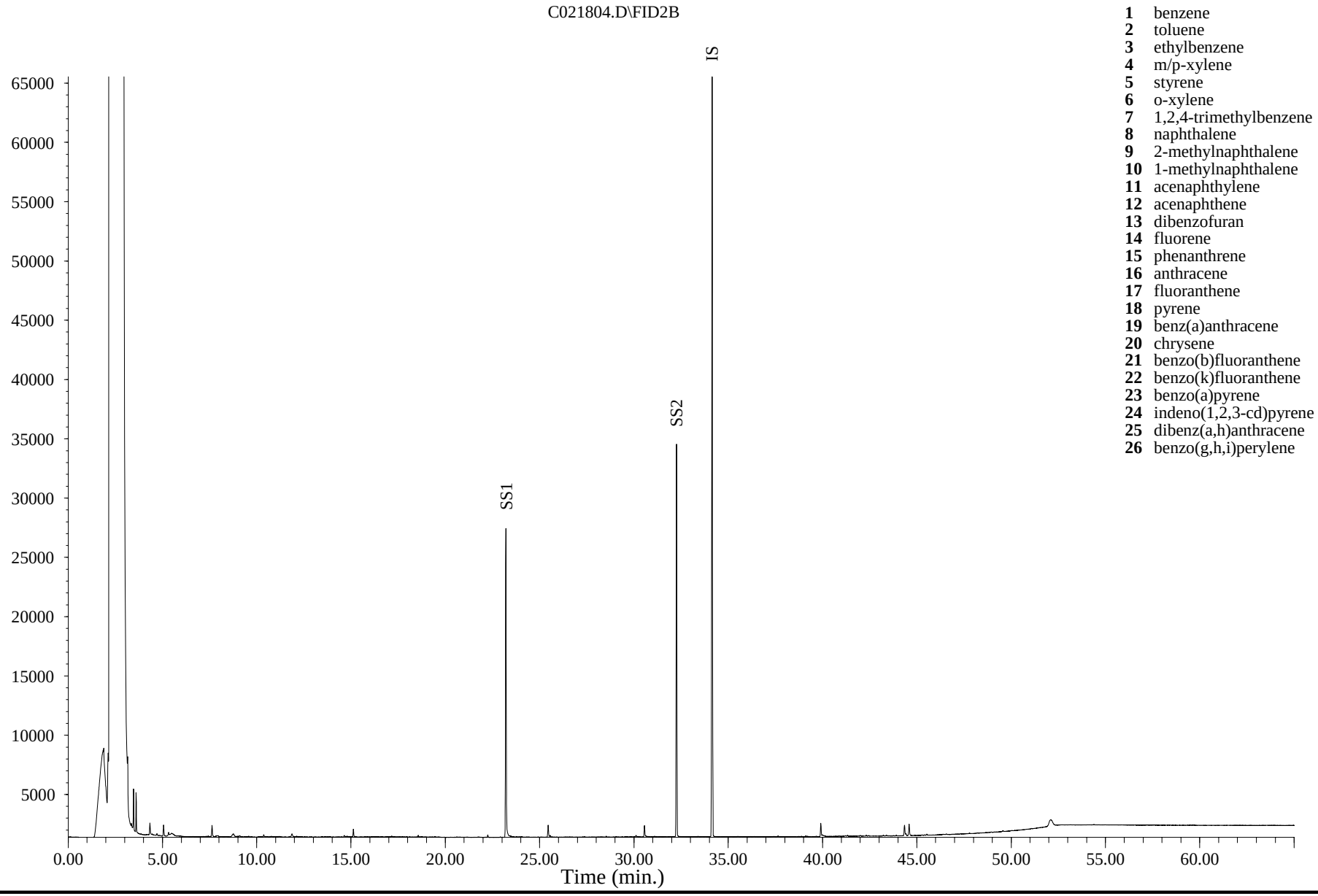
Extraction Date: 03/12/2009
Analysis Date: 03/14/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **BH-SED-17-0**
Laboratory ID: TA090311-02
Method: EPA 8100M

META

GC/FID Fingerprint

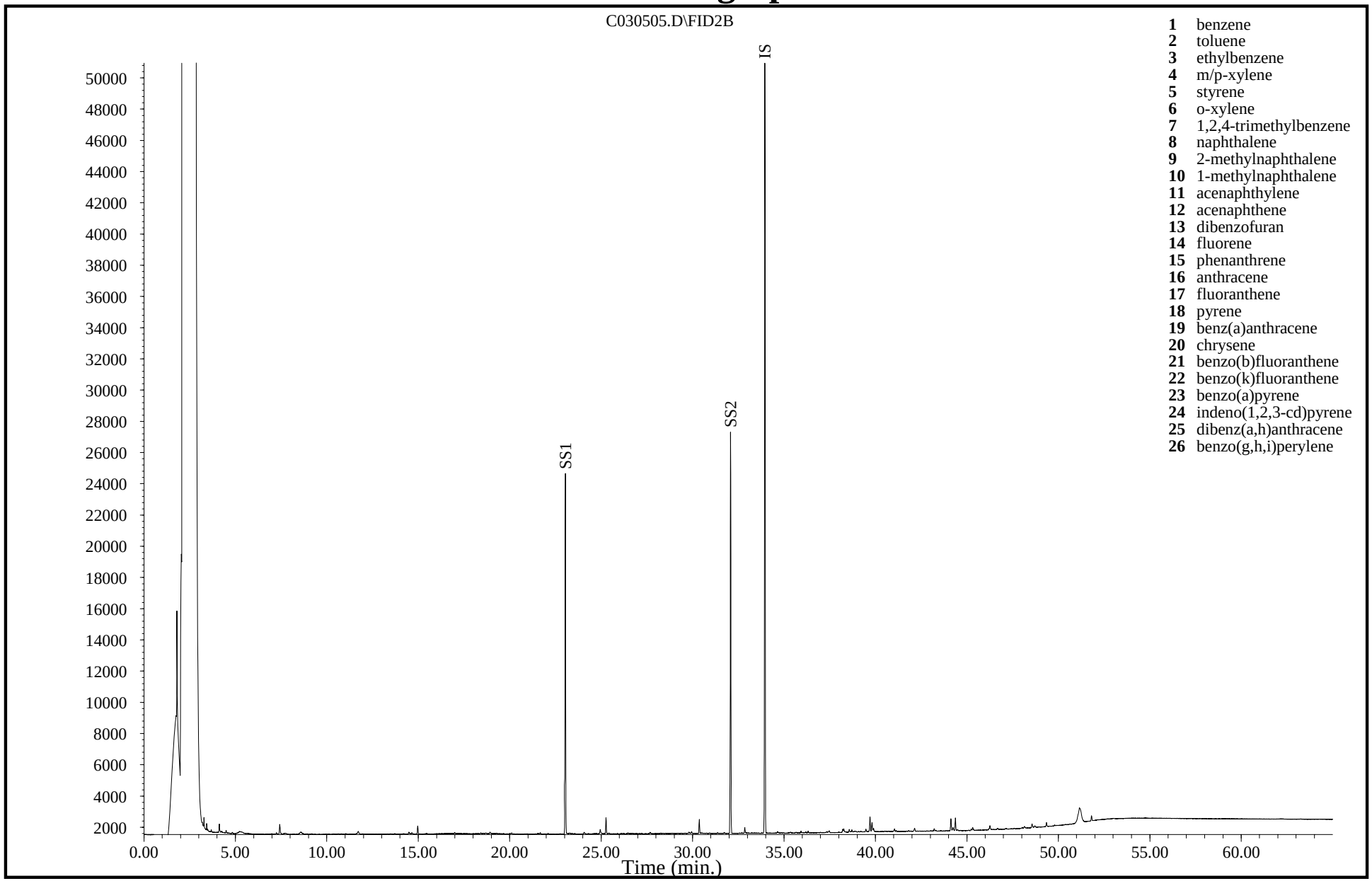


Extraction Date: 02/12/2009
Analysis Date: 02/18/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID:	**Soil Blank**
Laboratory ID:	QC090212-SB
Method:	EPA 8100M

GC/FID Fingerprint

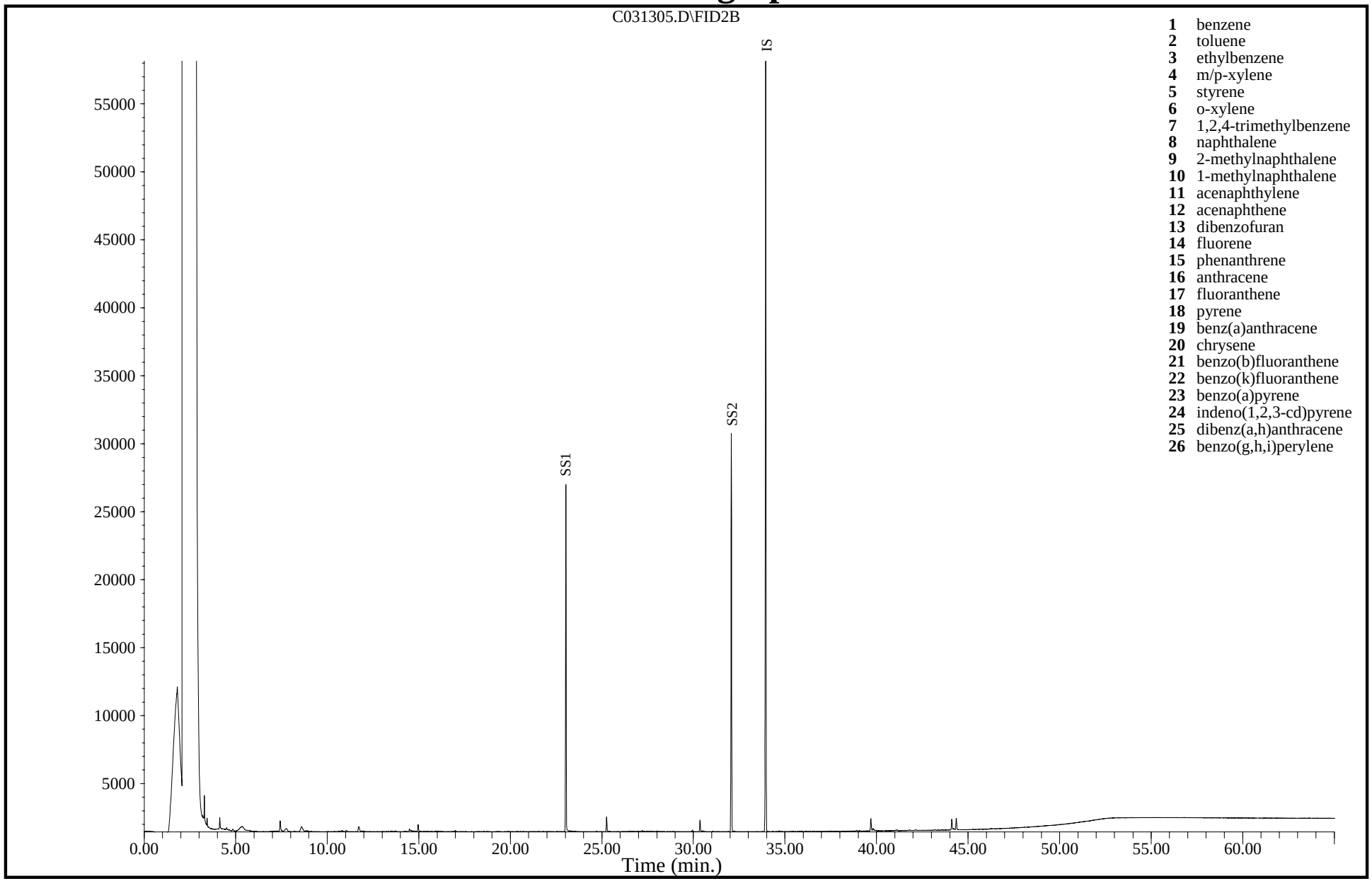


Extraction Date: 03/03/2009
Analysis Date: 03/05/2009

Field ID: **Soil Blank**
Laboratory ID: QC090303-SB
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

GC/FID Fingerprint

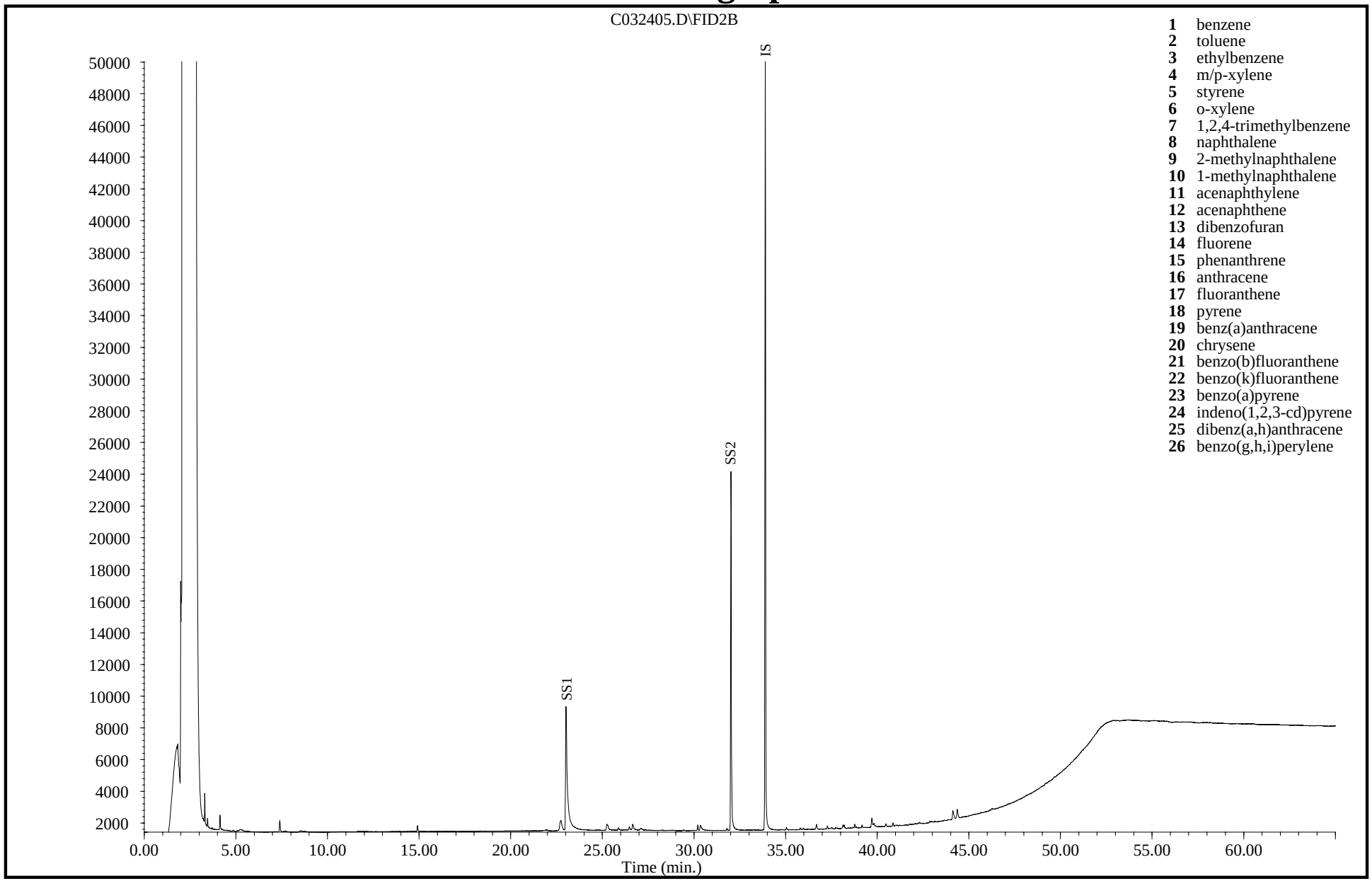


Extraction Date: 03/12/2009
Analysis Date: 03/13/2009

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Field ID: **Soil Blank**
Laboratory ID: QC090312-SB
Method: EPA 8100M

GC/FID Fingerprint



Extraction Date: 03/24/2009
Analysis Date: 03/24/2009

Field ID: **Soil Blank**
Laboratory ID: QC090324-SB
Method: EPA 8100M

IS – 5a-androstane
SS1 – 2-fluorobiphenyl
SS2 – o-terphenyl

Appendix C

MAH/PAH Concentrations

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

Field ID: BH-SED-03A-00

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090211-01-D		
File ID:	E021812.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	1/0/1900	Decanted:	None
Date Received:	2/9/2009		
Date Prepared:	2/12/2009	Sample Size (g):	3.48
Date Cleanup:	NA	Percent Solid:	58.0%
Date Analyzed:	2/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	3.0	B	0.050	0.025	
Toluene	2.18		0.099	0.050	
Ethylbenzene	2.13		0.050	0.025	
m/p-Xylenes	1.88		0.050	0.025	
Styrene	0.404		0.099	0.050	
o-Xylene	0.931		0.050	0.025	
Isopropylbenzene	0.210		0.050	0.025	
n-Propylbenzene	0.196		0.050	0.025	
1,3,5-Trimethylbenzene	0.326		0.050	0.025	
1,2,4-Trimethylbenzene	1.11		0.050	0.025	
t-Butylbenzene		U	0.050	0.025	
sec-Butylbenzene	0.033	J	0.050	0.025	
p-Isopropyltoluene	0.121		0.050	0.025	
n-Butylbenzene	0.151		0.050	0.025	
C1 - Benzene	1.34		0.099	0.050	
C2 - Benzene	2.26		0.050	0.025	
C3 - Benzene	1.39		0.050	0.025	
C4 - Benzene	0.835		0.050	0.025	
C5 - Benzene	0.375		0.050	0.025	
trans-Decalin	0.100		0.050	0.025	
cis-Decalin		U	0.050	0.025	
Naphthalene	151	B	0.050	0.025	
2-Methylnaphthalene	5.38	B	0.050	0.025	
1-Methylnaphthalene	3.5	B	0.050	0.025	
C1 - Naphthalene	5.48	B	0.050	0.025	
C2 - Naphthalene	3.25	B	0.050	0.025	
C3- Naphthalene	2.32	B	0.050	0.025	
C4- Naphthalene	1.5		0.050	0.025	
Acenaphthylene	3.86		0.050	0.025	
Acenaphthene	1.92		0.050	0.025	
Dibenzofuran	1.85		0.050	0.025	
Fluorene	1.46		0.050	0.025	
C1 - Fluorene	0.814		0.050	0.025	
C2 - Fluorene	1.3		0.050	0.025	
C3 - Fluorene	1.13		0.050	0.025	
Phenanthrene	7.01	B	0.050	0.025	
Anthracene	3.72		0.050	0.025	

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

Field ID: BH-SED-03A-00

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090211-01-D		
File ID:	E021812.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	1/0/1900	Decanted:	None
Date Received:	2/9/2009		
Date Prepared:	2/12/2009	Sample Size (g):	3.48
Date Cleanup:	NA	Percent Solid:	58.0%
Date Analyzed:	2/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	3.51	0.050	0.025	
C2 - Phenanthrene/Anthracene	2.77	0.050	0.025	
C3 - Phenanthrene/Anthracene	1.66	0.050	0.025	
C4 - Phenanthrene/Anthracene	1.01	0.050	0.025	
Dibenzothiophene	0.698	0.050	0.025	
C1 - Dibenzothiophene	0.712	0.050	0.025	
C2 - Dibenzothiophene	0.845	0.050	0.025	
C3 - Dibenzothiophene	0.750	0.050	0.025	
C4 - Dibenzothiophene	0.470	0.050	0.025	
Benzo(b)naphtho(2,1-d)thiophene	1.01	0.050	0.025	
Fluoranthene	14.8 B	0.050	0.025	
Pyrene	11.4 B	0.050	0.025	
C1 - Fluoranthene/Pyrene	7.44	0.050	0.025	
C2 - Fluoranthene/Pyrene	4.52	0.050	0.025	
C3 - Fluoranthene/Pyrene	2.76	0.050	0.025	
Benz[a]anthracene	6.93 B	0.050	0.025	
Chrysene*	7.04 B	0.050	0.025	
C1 - Benz(a)anthracene/Chrysene	3.01	0.050	0.025	
C2 - Benz(a)anthracene/Chrysene	2.2	0.050	0.025	
C3 - Benz(a)anthracene/Chrysene	1.82	0.050	0.025	
C4 - Benz(a)anthracene/Chrysene	1.45	0.050	0.025	
Benzo[b]fluoranthene	6.65 B	0.050	0.025	
Benzo[j/k]fluoranthene	6.82 B	0.050	0.025	
Benzo(e)pyrene	5.5 B	0.050	0.025	
Benzo[a]pyrene	8.72 B	0.050	0.025	
Perylene	2.3 B	0.050	0.025	
Indeno[1,2,3-cd]pyrene	5.16 B	0.050	0.025	
Dibenz[a,h]anthracene	1.21 B	0.050	0.025	
Benzo[g,h,i]perylene	5.05 B	0.050	0.025	
Coronene	1.19	0.050	0.025	
Retene	0.353	0.050	0.025	
Benzo(b/c)fluorenes	1.68	0.050	0.025	
2-Methylpyrene	0.837	0.050	0.025	
4-Methylpyrene	0.954	0.050	0.025	
1-Methylpyrene	0.731	0.050	0.025	
Heptadecane	0.758 B	0.099	0.050	
Pristane	1.58 B	0.050	0.025	
Octadecane	0.697 B	0.099	0.050	
Phytane	0.383 B	0.050	0.025	

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

Field ID: BH-SED-03A-00

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090211-01-D		
File ID:	E021812.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	1/0/1900	Decanted:	None
Date Received:	2/9/2009		
Date Prepared:	2/12/2009	Sample Size (g):	3.48
Date Cleanup:	NA	Percent Solid:	58.0%
Date Analyzed:	2/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.268	0.050	0.025	
2,6,10-trimethyltridecane	0.516	0.050	0.025	
Norpristane	0.265	0.050	0.025	
Tetraethyl lead	U	0.099	0.050	
Total PAH (16)	243	0.050	0.025	
Total PAH (42)	304	0.050	0.025	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	70	50 - 120
Phenanthrene-d10	82	50 - 120
Benzo[a]pyrene-d12	66	50 - 120
Perylene-d12	79	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Reference

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090211-02		
File ID:	E021814.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	1/0/1900	Decanted:	None
Date Received:	2/9/2009		
Date Prepared:	2/12/2009	Sample Size (g):	3.73
Date Cleanup:	NA	Percent Solid:	30.6%
Date Analyzed:	2/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	0.333	B	0.009	0.004	
Toluene	0.841		0.018	0.009	
Ethylbenzene	0.043		0.009	0.004	
m/p-Xylenes	0.611		0.009	0.004	
Styrene	0.026		0.018	0.009	
o-Xylene	0.051		0.009	0.004	
Isopropylbenzene	0.006	J	0.009	0.004	
n-Propylbenzene	0.022		0.009	0.004	
1,3,5-Trimethylbenzene	0.018		0.009	0.004	
1,2,4-Trimethylbenzene	0.048		0.009	0.004	
t-Butylbenzene		U	0.009	0.004	
sec-Butylbenzene		U	0.009	0.004	
p-Isopropyltoluene	0.016		0.009	0.004	
n-Butylbenzene	0.023		0.009	0.004	
C1 - Benzene	0.511		0.018	0.009	
C2 - Benzene	0.349		0.009	0.004	
C3 - Benzene	0.070		0.009	0.004	
C4 - Benzene	0.051		0.009	0.004	
C5 - Benzene	0.040		0.009	0.004	
trans-Decalin	0.009	J	0.009	0.004	
cis-Decalin		U	0.009	0.004	
Naphthalene	0.873	B	0.009	0.004	
2-Methylnaphthalene	0.270	B	0.009	0.004	
1-Methylnaphthalene	0.123	B	0.009	0.004	
C1 - Naphthalene	0.247	B	0.009	0.004	
C2 - Naphthalene	0.390	B	0.009	0.004	
C3- Naphthalene	0.140	B	0.009	0.004	
C4- Naphthalene	0.094		0.009	0.004	
Acenaphthylene	0.110		0.009	0.004	
Acenaphthene	0.055		0.009	0.004	
Dibenzofuran	0.075		0.009	0.004	
Fluorene	0.092		0.009	0.004	
C1 - Fluorene	0.066		0.009	0.004	
C2 - Fluorene	0.217		0.009	0.004	
C3 - Fluorene	0.157		0.009	0.004	
Phenanthrene	0.370	B	0.009	0.004	
Anthracene	0.196		0.009	0.004	

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

Field ID: Reference

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090211-02		
File ID:	E021814.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	1/0/1900	Decanted:	None
Date Received:	2/9/2009		
Date Prepared:	2/12/2009	Sample Size (g):	3.73
Date Cleanup:	NA	Percent Solid:	30.6%
Date Analyzed:	2/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	0.662	0.009	0.004	
C2 - Phenanthrene/Anthracene	0.276	0.009	0.004	
C3 - Phenanthrene/Anthracene	0.155	0.009	0.004	
C4 - Phenanthrene/Anthracene	0.081	0.009	0.004	
Dibenzothiophene	0.055	0.009	0.004	
C1 - Dibenzothiophene	0.074	0.009	0.004	
C2 - Dibenzothiophene	0.112	0.009	0.004	
C3 - Dibenzothiophene	0.096	0.009	0.004	
C4 - Dibenzothiophene	0.070	0.009	0.004	
Benzo(b)naphtho(2,1-d)thiophene	0.065	0.009	0.004	
Fluoranthene	0.693 B	0.009	0.004	
Pyrene	0.669 B	0.009	0.004	
C1 - Fluoranthene/Pyrene	0.450	0.009	0.004	
C2 - Fluoranthene/Pyrene	0.281	0.009	0.004	
C3 - Fluoranthene/Pyrene	0.145	0.009	0.004	
Benz[a]anthracene	0.337 B	0.009	0.004	
Chrysene*	0.370 B	0.009	0.004	
C1 - Benz(a)anthracene/Chrysene	0.245	0.009	0.004	
C2 - Benz(a)anthracene/Chrysene	0.170	0.009	0.004	
C3 - Benz(a)anthracene/Chrysene	0.093	0.009	0.004	
C4 - Benz(a)anthracene/Chrysene	0.096	0.009	0.004	
Benzo[b]fluoranthene	0.516 B	0.009	0.004	
Benzo[j/k]fluoranthene	0.442 B	0.009	0.004	
Benzo(e)pyrene	0.368 B	0.009	0.004	
Benzo[a]pyrene	0.468 B	0.009	0.004	
Perylene	0.271 B	0.009	0.004	
Indeno[1,2,3-cd]pyrene	0.344 B	0.009	0.004	
Dibenz[a,h]anthracene	0.082 B	0.009	0.004	
Benzo[g,h,i]perylene	0.360 B	0.009	0.004	
Coronene	0.096	0.009	0.004	
Retene	0.040	0.009	0.004	
Benzo(b/c)fluorenes	0.087	0.009	0.004	
2-Methylpyrene	0.058	0.009	0.004	
4-Methylpyrene	0.050	0.009	0.004	
1-Methylpyrene	0.043	0.009	0.004	
Heptadecane	0.362 B	0.018	0.009	
Pristane	0.053 B	0.009	0.004	
Octadecane	0.097 B	0.018	0.009	
Phytane	0.064 B	0.009	0.004	

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

Field ID: Reference

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090211-02		
File ID:	E021814.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	1/0/1900	Decanted:	None
Date Received:	2/9/2009		
Date Prepared:	2/12/2009	Sample Size (g):	3.73
Date Cleanup:	NA	Percent Solid:	30.6%
Date Analyzed:	2/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.025	0.009	0.004	
2,6,10-trimethyltridecane	0.040	0.009	0.004	
Norpristane	0.020	0.009	0.004	
Tetraethyl lead	U	0.018	0.009	
Total PAH (16)	5.98	0.009	0.004	
Total PAH (42)	11.1	0.009	0.004	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	67	50 - 120
Phenanthrene-d10	85	50 - 120
Benzo[a]pyrene-d12	63	50 - 120
Perylene-d12	72	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: BH-SED-10-2

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090226-01-D		
File ID:	E030516.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	2/24/2009	Decanted:	None
Date Received:	2/26/2009		
Date Prepared:	3/3/2009	Sample Size (g):	2.62
Date Cleanup:	NA	Percent Solid:	41.4%
Date Analyzed:	3/6/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	0.933	B	0.092	0.046	
Toluene	1.69	B	0.092	0.046	
Ethylbenzene	0.394		0.092	0.046	
m/p-Xylenes	1.72	B	0.092	0.046	
Styrene	1.36	B	0.092	0.046	
o-Xylene	0.323		0.092	0.046	
Isopropylbenzene	0.135		0.092	0.046	
n-Propylbenzene	0.067	J	0.092	0.046	
1,3,5-Trimethylbenzene	0.234	B	0.092	0.046	
1,2,4-Trimethylbenzene	0.445		0.092	0.046	
t-Butylbenzene	0.072	J	0.092	0.046	
sec-Butylbenzene	0.065	J	0.092	0.046	
p-Isopropyltoluene	0.055	J	0.092	0.046	
n-Butylbenzene	0.088	J	0.092	0.046	
C1 - Benzene	1.01	B	0.092	0.046	
C2 - Benzene	1.24		0.092	0.046	
C3 - Benzene	0.690		0.092	0.046	
C4 - Benzene	0.390		0.092	0.046	
C5 - Benzene	0.353		0.092	0.046	
trans-Decalin		U	0.092	0.046	
cis-Decalin		U	0.092	0.046	
Naphthalene	78.6	B	0.092	0.046	
2-Methylnaphthalene	2.84	B	0.092	0.046	
1-Methylnaphthalene	1.61	B	0.092	0.046	
C1 - Naphthalene	2.78	B	0.092	0.046	
C2 - Naphthalene	2.28		0.092	0.046	
C3- Naphthalene	1.73		0.092	0.046	
C4- Naphthalene	2.61		0.092	0.046	
Acenaphthylene	4.39	B	0.092	0.046	
Acenaphthene	3.28		0.092	0.046	
Dibenzofuran	1.99		0.092	0.046	
Fluorene	2.06	B	0.092	0.046	
C1 - Fluorene	1.48		0.092	0.046	
C2 - Fluorene	3.19		0.092	0.046	
C3 - Fluorene	3.93		0.092	0.046	
Phenanthrene	8.2	B	0.092	0.046	
Anthracene	4.53	B	0.092	0.046	

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

Field ID: BH-SED-10-2

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090226-01-D		
File ID:	E030516.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	2/24/2009	Decanted:	None
Date Received:	2/26/2009		
Date Prepared:	3/3/2009	Sample Size (g):	2.62
Date Cleanup:	NA	Percent Solid:	41.4%
Date Analyzed:	3/6/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	4.81 B	0.092	0.046	
C2 - Phenanthrene/Anthracene	5.84	0.092	0.046	
C3 - Phenanthrene/Anthracene	7.16	0.092	0.046	
C4 - Phenanthrene/Anthracene	3.75	0.092	0.046	
Dibenzothiophene	0.962 B	0.092	0.046	
C1 - Dibenzothiophene	1.36	0.092	0.046	
C2 - Dibenzothiophene	2.59	0.092	0.046	
C3 - Dibenzothiophene	3.45	0.092	0.046	
C4 - Dibenzothiophene	2.17	0.092	0.046	
Benzo(b)naphtho(2,1-d)thiophene	1.94	0.092	0.046	
Fluoranthene	22.0 B	0.092	0.046	
Pyrene	14.9 B	0.092	0.046	
C1 - Fluoranthene/Pyrene	13.1	0.092	0.046	
C2 - Fluoranthene/Pyrene	7.24	0.092	0.046	
C3 - Fluoranthene/Pyrene	5.2	0.092	0.046	
Benz[a]anthracene	10.3 B	0.092	0.046	
Chrysene*	7.92 B	0.092	0.046	
C1 - Benz(a)anthracene/Chrysene	6.58	0.092	0.046	
C2 - Benz(a)anthracene/Chrysene	5.21	0.092	0.046	
C3 - Benz(a)anthracene/Chrysene	3.5	0.092	0.046	
C4 - Benz(a)anthracene/Chrysene	3.12	0.092	0.046	
Benzo[b]fluoranthene	9.45 B	0.092	0.046	
Benzo[j/k]fluoranthene	9.09 B	0.092	0.046	
Benzo(e)pyrene	6.79 B	0.092	0.046	
Benzo[a]pyrene	10.3 B	0.092	0.046	
Perylene	2.82	0.092	0.046	
Indeno[1,2,3-cd]pyrene	6.17 B	0.092	0.046	
Dibenz[a,h]anthracene	1.8 B	0.092	0.046	
Benzo[g,h,i]perylene	5.58 B	0.092	0.046	
Coronene	1.19	0.092	0.046	
Retene	1.79	0.092	0.046	
Benzo(b/c)fluorenes	2.96	0.092	0.046	
2-Methylpyrene	1.38	0.092	0.046	
4-Methylpyrene	1.35	0.092	0.046	
1-Methylpyrene	1.12	0.092	0.046	
Heptadecane	2.25 B	0.092	0.046	
Pristane	2.73	0.092	0.046	
Octadecane	1.81 B	0.092	0.046	
Phytane	3.28	0.092	0.046	

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

Field ID: BH-SED-10-2

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090226-01-D		
File ID:	E030516.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	2/24/2009	Decanted:	None
Date Received:	2/26/2009		
Date Prepared:	3/3/2009	Sample Size (g):	2.62
Date Cleanup:	NA	Percent Solid:	41.4%
Date Analyzed:	3/6/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.090 J	0.092	0.046	
2,6,10-trimethyltridecane	0.511	0.092	0.046	
Norpristane	1.45	0.092	0.046	
Tetraethyl lead	U	0.092	0.046	
Total PAH (16)	198	0.092	0.046	
Total PAH (42)	304	0.092	0.046	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	60	50 - 120
Phenanthrene-d10	89	50 - 120
Benzo[a]pyrene-d12	65	50 - 120
Perylene-d12	77	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: BH-SED-03A-12

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090226-02		
File ID:	E030518.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	2/25/2009	Decanted:	None
Date Received:	2/26/2009		
Date Prepared:	3/3/2009	Sample Size (g):	2.88
Date Cleanup:	NA	Percent Solid:	76.6%
Date Analyzed:	3/7/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	0.534	B	0.005	0.002	
Toluene	0.247	B	0.005	0.002	
Ethylbenzene	0.037		0.005	0.002	
m/p-Xylenes	0.235	B	0.005	0.002	
Styrene	0.139	B	0.005	0.002	
o-Xylene	0.047		0.005	0.002	
Isopropylbenzene	0.003	J	0.005	0.002	
n-Propylbenzene	0.008		0.005	0.002	
1,3,5-Trimethylbenzene	0.094	B	0.005	0.002	
1,2,4-Trimethylbenzene	0.239		0.005	0.002	
t-Butylbenzene		U	0.005	0.002	
sec-Butylbenzene		U	0.005	0.002	
p-Isopropyltoluene	0.012		0.005	0.002	
n-Butylbenzene	0.017		0.005	0.002	
C1 - Benzene	0.150	B	0.005	0.002	
C2 - Benzene	0.155		0.005	0.002	
C3 - Benzene	0.219		0.005	0.002	
C4 - Benzene	0.130		0.005	0.002	
C5 - Benzene	0.039		0.005	0.002	
trans-Decalin	0.005	J	0.005	0.002	
cis-Decalin		U	0.005	0.002	
Naphthalene	46.0	DB	0.005	0.002	
2-Methylnaphthalene	1.66	B	0.005	0.002	
1-Methylnaphthalene	0.616	B	0.005	0.002	
C1 - Naphthalene	1.4	B	0.005	0.002	
C2 - Naphthalene	0.238		0.005	0.002	
C3- Naphthalene	0.093		0.005	0.002	
C4- Naphthalene	0.067		0.005	0.002	
Acenaphthylene	0.342	B	0.005	0.002	
Acenaphthene	0.075		0.005	0.002	
Dibenzofuran	0.207		0.005	0.002	
Fluorene	0.340	B	0.005	0.002	
C1 - Fluorene	0.052		0.005	0.002	
C2 - Fluorene	0.088		0.005	0.002	
C3 - Fluorene	0.106		0.005	0.002	
Phenanthrene	0.529	B	0.005	0.002	
Anthracene	0.199	B	0.005	0.002	

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

Field ID: BH-SED-03A-12

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090226-02		
File ID:	E030518.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	2/25/2009	Decanted:	None
Date Received:	2/26/2009		
Date Prepared:	3/3/2009	Sample Size (g):	2.88
Date Cleanup:	NA	Percent Solid:	76.6%
Date Analyzed:	3/7/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	0.345 B	0.005	0.002	
C2 - Phenanthrene/Anthracene	0.364	0.005	0.002	
C3 - Phenanthrene/Anthracene	0.254	0.005	0.002	
C4 - Phenanthrene/Anthracene	0.136	0.005	0.002	
Dibenzothiophene	0.049 B	0.005	0.002	
C1 - Dibenzothiophene	0.100	0.005	0.002	
C2 - Dibenzothiophene	0.089	0.005	0.002	
C3 - Dibenzothiophene	0.114	0.005	0.002	
C4 - Dibenzothiophene	0.077	0.005	0.002	
Benzo(b)naphtho(2,1-d)thiophene	0.084	0.005	0.002	
Fluoranthene	0.681 B	0.005	0.002	
Pyrene	0.741 B	0.005	0.002	
C1 - Fluoranthene/Pyrene	0.601	0.005	0.002	
C2 - Fluoranthene/Pyrene	0.380	0.005	0.002	
C3 - Fluoranthene/Pyrene	0.258	0.005	0.002	
Benz[a]anthracene	0.464 B	0.005	0.002	
Chrysene*	0.376 B	0.005	0.002	
C1 - Benz(a)anthracene/Chrysene	0.429	0.005	0.002	
C2 - Benz(a)anthracene/Chrysene	0.378	0.005	0.002	
C3 - Benz(a)anthracene/Chrysene	0.224	0.005	0.002	
C4 - Benz(a)anthracene/Chrysene	0.150	0.005	0.002	
Benzo[b]fluoranthene	0.415 B	0.005	0.002	
Benzo[j/k]fluoranthene	0.409 B	0.005	0.002	
Benzo(e)pyrene	0.321 B	0.005	0.002	
Benzo[a]pyrene	0.469 B	0.005	0.002	
Perylene	0.142	0.005	0.002	
Indeno[1,2,3-cd]pyrene	0.290 B	0.005	0.002	
Dibenz[a,h]anthracene	0.085 B	0.005	0.002	
Benzo[g,h,i]perylene	0.273 B	0.005	0.002	
Coronene	0.066	0.005	0.002	
Retene	0.042	0.005	0.002	
Benzo(b/c)fluorenes	0.127	0.005	0.002	
2-Methylpyrene	0.107	0.005	0.002	
4-Methylpyrene	0.073	0.005	0.002	
1-Methylpyrene	0.055	0.005	0.002	
Heptadecane	0.127 B	0.005	0.002	
Pristane	0.059	0.005	0.002	
Octadecane	0.114 B	0.005	0.002	
Phytane	0.072	0.005	0.002	

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

Field ID: BH-SED-03A-12

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090226-02		
File ID:	E030518.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	2/25/2009	Decanted:	None
Date Received:	2/26/2009		
Date Prepared:	3/3/2009	Sample Size (g):	2.88
Date Cleanup:	NA	Percent Solid:	76.6%
Date Analyzed:	3/7/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.010	0.005	0.002	
2,6,10-trimethyltridecane	0.015	0.005	0.002	
Norpristane	0.020	0.005	0.002	
Tetraethyl lead	U	0.005	0.002	
Total PAH (16)	51.7	0.005	0.002	
Total PAH (42)	58.4	0.005	0.002	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	65	50 - 120
Phenanthrene-d10	80	50 - 120
Benzo[a]pyrene-d12	63	50 - 120
Perylene-d12	71	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: BH-SED-13C-6

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090305-01-R		
File ID:	E032408.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/4/2009	Decanted:	None
Date Received:	3/5/2009		
Date Prepared:	3/24/2009	Sample Size (g):	2.68
Date Cleanup:	NA	Percent Solid:	77.0%
Date Analyzed:	3/25/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	1.76	B	0.005	0.002	
Toluene	0.652		0.010	0.005	
Ethylbenzene	0.143		0.005	0.002	
m/p-Xylenes	0.728		0.005	0.002	
Styrene	0.316		0.010	0.005	
o-Xylene	0.156		0.005	0.002	
Isopropylbenzene	0.010		0.005	0.002	
n-Propylbenzene	0.009		0.005	0.002	
1,3,5-Trimethylbenzene	0.091		0.005	0.002	
1,2,4-Trimethylbenzene	0.206		0.005	0.002	
t-Butylbenzene		U	0.005	0.002	
sec-Butylbenzene	0.004	J	0.005	0.002	
p-Isopropyltoluene	0.015		0.005	0.002	
n-Butylbenzene	0.012		0.005	0.002	
C1 - Benzene	0.396		0.010	0.005	
C2 - Benzene	0.496		0.005	0.002	
C3 - Benzene	0.201		0.005	0.002	
C4 - Benzene	0.086		0.005	0.002	
C5 - Benzene	0.034		0.005	0.002	
trans-Decalin	0.008		0.005	0.002	
cis-Decalin		U	0.005	0.002	
Naphthalene	25.5	D	0.005	0.002	
2-Methylnaphthalene	1.63		0.005	0.002	
1-Methylnaphthalene	1.21		0.005	0.002	
C1 - Naphthalene	1.76		0.005	0.002	
C2 - Naphthalene	1.46		0.005	0.002	
C3- Naphthalene	0.849		0.005	0.002	
C4- Naphthalene	0.613		0.005	0.002	
Acenaphthylene	2.02		0.005	0.002	
Acenaphthene	3.86		0.005	0.002	
Dibenzofuran	2.88		0.005	0.002	
Fluorene	4.0		0.005	0.002	
C1 - Fluorene	0.958		0.005	0.002	
C2 - Fluorene	0.467		0.005	0.002	
C3 - Fluorene	0.523		0.005	0.002	
Phenanthrene	12.7		0.005	0.002	
Anthracene	6.59		0.005	0.002	

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

Field ID: BH-SED-13C-6

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090305-01-R		
File ID:	E032408.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/4/2009	Decanted:	None
Date Received:	3/5/2009		
Date Prepared:	3/24/2009	Sample Size (g):	2.68
Date Cleanup:	NA	Percent Solid:	77.0%
Date Analyzed:	3/25/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	4.22	0.005	0.002	
C2 - Phenanthrene/Anthracene	2.21	0.005	0.002	
C3 - Phenanthrene/Anthracene	1.05	0.005	0.002	
C4 - Phenanthrene/Anthracene	0.393	0.005	0.002	
Dibenzothiophene	1.58	0.005	0.002	
C1 - Dibenzothiophene	0.683	0.005	0.002	
C2 - Dibenzothiophene	0.576	0.005	0.002	
C3 - Dibenzothiophene	0.443	0.005	0.002	
C4 - Dibenzothiophene	0.266	0.005	0.002	
Benzo(b)naphtho(2,1-d)thiophene	2.09	0.005	0.002	
Fluoranthene	25.0 D	0.005	0.002	
Pyrene	16.2 D	0.005	0.002	
C1 - Fluoranthene/Pyrene	10.2	0.005	0.002	
C2 - Fluoranthene/Pyrene	2.46	0.005	0.002	
C3 - Fluoranthene/Pyrene	0.848	0.005	0.002	
Benz[a]anthracene	10.6	0.005	0.002	
Chrysene*	9.72	0.005	0.002	
C1 - Benz(a)anthracene/Chrysene	3.1	0.005	0.002	
C2 - Benz(a)anthracene/Chrysene	1.01	0.005	0.002	
C3 - Benz(a)anthracene/Chrysene	0.410	0.005	0.002	
C4 - Benz(a)anthracene/Chrysene	0.346	0.005	0.002	
Benzo[b]fluoranthene	8.33	0.005	0.002	
Benzo[j/k]fluoranthene	7.96	0.005	0.002	
Benzo(e)pyrene	5.58	0.005	0.002	
Benzo[a]pyrene	9.25	0.005	0.002	
Perylene	2.79	0.005	0.002	
Indeno[1,2,3-cd]pyrene	5.96	0.005	0.002	
Dibenz[a,h]anthracene	1.93	0.005	0.002	
Benzo[g,h,i]perylene	5.15	0.005	0.002	
Coronene	1.61	0.005	0.002	
Retene	0.258	0.005	0.002	
Benzo(b/c)fluorenes	3.27	0.005	0.002	
2-Methylpyrene	0.878	0.005	0.002	
4-Methylpyrene	0.566	0.005	0.002	
1-Methylpyrene	0.645	0.005	0.002	
Heptadecane	0.418 B	0.010	0.005	
Pristane	0.746 B	0.005	0.002	
Octadecane	0.380 B	0.010	0.005	
Phytane	0.792 B	0.005	0.002	

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

Field ID: BH-SED-13C-6

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090305-01-R		
File ID:	E032408.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/4/2009	Decanted:	None
Date Received:	3/5/2009		
Date Prepared:	3/24/2009	Sample Size (g):	2.68
Date Cleanup:	NA	Percent Solid:	77.0%
Date Analyzed:	3/25/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.041	0.005	0.002	
2,6,10-trimethyltridecane	0.135	0.005	0.002	
Norpristane	0.272	0.005	0.002	
Tetraethyl lead	U	0.010	0.005	
Total PAH (16)	155	0.005	0.002	
Total PAH (42)	202	0.005	0.002	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	81	50 - 120
Phenanthrene-d10	92	50 - 120
Benzo[a]pyrene-d12	82	50 - 120
Perylene-d12	94	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: BH-SED-05-4

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090305-02-R		
File ID:	E032410.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/4/2009	Decanted:	None
Date Received:	3/5/2009		
Date Prepared:	3/24/2009	Sample Size (g):	2.67
Date Cleanup:	NA	Percent Solid:	50.7%
Date Analyzed:	3/25/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	0.478	B	0.007	0.004	
Toluene	0.291		0.015	0.007	
Ethylbenzene	0.120		0.007	0.004	
m/p-Xylenes	0.434		0.007	0.004	
Styrene	0.213		0.015	0.007	
o-Xylene	0.140		0.007	0.004	
Isopropylbenzene	0.013		0.007	0.004	
n-Propylbenzene	0.013		0.007	0.004	
1,3,5-Trimethylbenzene	0.227		0.007	0.004	
1,2,4-Trimethylbenzene	0.457		0.007	0.004	
t-Butylbenzene		U	0.007	0.004	
sec-Butylbenzene		U	0.007	0.004	
p-Isopropyltoluene	0.040		0.007	0.004	
n-Butylbenzene	0.037		0.007	0.004	
C1 - Benzene	0.179		0.015	0.007	
C2 - Benzene	0.331		0.007	0.004	
C3 - Benzene	0.455		0.007	0.004	
C4 - Benzene	0.327		0.007	0.004	
C5 - Benzene	0.122		0.007	0.004	
trans-Decalin	0.024		0.007	0.004	
cis-Decalin		U	0.007	0.004	
Naphthalene	226	D	0.007	0.004	
2-Methylnaphthalene	11.3		0.007	0.004	
1-Methylnaphthalene	5.04		0.007	0.004	
C1 - Naphthalene	10.1		0.007	0.004	
C2 - Naphthalene	3.64		0.007	0.004	
C3- Naphthalene	1.28		0.007	0.004	
C4- Naphthalene	0.626		0.007	0.004	
Acenaphthylene	2.02		0.007	0.004	
Acenaphthene	16.7		0.007	0.004	
Dibenzofuran	9.56		0.007	0.004	
Fluorene	12.8		0.007	0.004	
C1 - Fluorene	1.36		0.007	0.004	
C2 - Fluorene	0.773		0.007	0.004	
C3 - Fluorene	0.540		0.007	0.004	
Phenanthrene	35.4	D	0.007	0.004	
Anthracene	9.03	D	0.007	0.004	

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

Field ID: BH-SED-05-4

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090305-02-R		
File ID:	E032410.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/4/2009	Decanted:	None
Date Received:	3/5/2009		
Date Prepared:	3/24/2009	Sample Size (g):	2.67
Date Cleanup:	NA	Percent Solid:	50.7%
Date Analyzed:	3/25/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	5.86	0.007	0.004	
C2 - Phenanthrene/Anthracene	2.23	0.007	0.004	
C3 - Phenanthrene/Anthracene	0.924	0.007	0.004	
C4 - Phenanthrene/Anthracene	0.347	0.007	0.004	
Dibenzothiophene	3.0	0.007	0.004	
C1 - Dibenzothiophene	0.836	0.007	0.004	
C2 - Dibenzothiophene	0.504	0.007	0.004	
C3 - Dibenzothiophene	0.403	0.007	0.004	
C4 - Dibenzothiophene	0.219	0.007	0.004	
Benzo(b)naphtho(2,1-d)thiophene	1.36	0.007	0.004	
Fluoranthene	23.9	0.007	0.004	
Pyrene	16.1	0.007	0.004	
C1 - Fluoranthene/Pyrene	8.7	0.007	0.004	
C2 - Fluoranthene/Pyrene	1.97	0.007	0.004	
C3 - Fluoranthene/Pyrene	0.648	0.007	0.004	
Benz[a]anthracene	8.49	0.007	0.004	
Chrysene*	6.71	0.007	0.004	
C1 - Benz(a)anthracene/Chrysene	2.17	0.007	0.004	
C2 - Benz(a)anthracene/Chrysene	0.701	0.007	0.004	
C3 - Benz(a)anthracene/Chrysene	0.350	0.007	0.004	
C4 - Benz(a)anthracene/Chrysene	0.261	0.007	0.004	
Benzo[b]fluoranthene	5.55	0.007	0.004	
Benzo[j/k]fluoranthene	5.56	0.007	0.004	
Benzo(e)pyrene	3.64	0.007	0.004	
Benzo[a]pyrene	6.45	0.007	0.004	
Perylene	1.93	0.007	0.004	
Indeno[1,2,3-cd]pyrene	3.92	0.007	0.004	
Dibenz[a,h]anthracene	1.23	0.007	0.004	
Benzo[g,h,i]perylene	3.26	0.007	0.004	
Coronene	1.0	0.007	0.004	
Retene	0.204	0.007	0.004	
Benzo(b/c)fluorenes	2.7	0.007	0.004	
2-Methylpyrene	0.716	0.007	0.004	
4-Methylpyrene	0.518	0.007	0.004	
1-Methylpyrene	0.601	0.007	0.004	
Heptadecane	0.953 B	0.015	0.007	
Pristane	1.07 B	0.007	0.004	
Octadecane	1.18 B	0.015	0.007	
Phytane	1.06 B	0.007	0.004	

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

Field ID: BH-SED-05-4

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090305-02-R		
File ID:	E032410.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/4/2009	Decanted:	None
Date Received:	3/5/2009		
Date Prepared:	3/24/2009	Sample Size (g):	2.67
Date Cleanup:	NA	Percent Solid:	50.7%
Date Analyzed:	3/25/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.105	0.007	0.004	
2,6,10-trimethyltridecane	0.172	0.007	0.004	
Norpristane	0.260	0.007	0.004	
Tetraethyl lead	U	0.015	0.007	
Total PAH (16)	383	0.007	0.004	
Total PAH (42)	446	0.007	0.004	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	80	50 - 120
Phenanthrene-d10	93	50 - 120
Benzo[a]pyrene-d12	88	50 - 120
Perylene-d12	101	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: BH-SED-03E-2

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090311-01		
File ID:	E031812.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/9/2009	Decanted:	None
Date Received:	3/11/2009		
Date Prepared:	3/12/2009	Sample Size (g):	3.97
Date Cleanup:	NA	Percent Solid:	40.4%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	0.190	B	0.006	0.003	
Toluene	0.569	B	0.012	0.006	
Ethylbenzene	0.064		0.006	0.003	
m/p-Xylenes	0.457		0.006	0.003	
Styrene	0.385		0.012	0.006	
o-Xylene	0.057		0.006	0.003	
Isopropylbenzene	0.008		0.006	0.003	
n-Propylbenzene	0.018		0.006	0.003	
1,3,5-Trimethylbenzene	0.030		0.006	0.003	
1,2,4-Trimethylbenzene	0.082		0.006	0.003	
t-Butylbenzene		U	0.006	0.003	
sec-Butylbenzene	0.007		0.006	0.003	
p-Isopropyltoluene	0.027		0.006	0.003	
n-Butylbenzene	0.022		0.006	0.003	
C1 - Benzene	0.346		0.012	0.006	
C2 - Benzene	0.283		0.006	0.003	
C3 - Benzene	0.114		0.006	0.003	
C4 - Benzene	0.075		0.006	0.003	
C5 - Benzene	0.057		0.006	0.003	
trans-Decalin	0.009		0.006	0.003	
cis-Decalin		U	0.006	0.003	
Naphthalene	3.4	B	0.006	0.003	
2-Methylnaphthalene	0.994	B	0.006	0.003	
1-Methylnaphthalene	0.395		0.006	0.003	
C1 - Naphthalene	0.858	B	0.006	0.003	
C2 - Naphthalene	0.708	B	0.006	0.003	
C3- Naphthalene	0.360	B	0.006	0.003	
C4- Naphthalene	0.315		0.006	0.003	
Acenaphthylene	0.993		0.006	0.003	
Acenaphthene	0.151		0.006	0.003	
Dibenzofuran	0.539		0.006	0.003	
Fluorene	0.609		0.006	0.003	
C1 - Fluorene	0.321		0.006	0.003	
C2 - Fluorene	0.551		0.006	0.003	
C3 - Fluorene	0.593		0.006	0.003	
Phenanthrene	1.92	B	0.006	0.003	
Anthracene	1.65		0.006	0.003	

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

Field ID: BH-SED-03E-2

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090311-01		
File ID:	E031812.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/9/2009	Decanted:	None
Date Received:	3/11/2009		
Date Prepared:	3/12/2009	Sample Size (g):	3.97
Date Cleanup:	NA	Percent Solid:	40.4%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	1.53 B	0.006	0.003	
C2 - Phenanthrene/Anthracene	0.954	0.006	0.003	
C3 - Phenanthrene/Anthracene	0.678	0.006	0.003	
C4 - Phenanthrene/Anthracene	0.403	0.006	0.003	
Dibenzothiophene	0.304	0.006	0.003	
C1 - Dibenzothiophene	0.383	0.006	0.003	
C2 - Dibenzothiophene	0.436	0.006	0.003	
C3 - Dibenzothiophene	0.514	0.006	0.003	
C4 - Dibenzothiophene	0.394	0.006	0.003	
Benzo(b)naphtho(2,1-d)thiophene	0.730	0.006	0.003	
Fluoranthene	5.96 B	0.006	0.003	
Pyrene	5.62 B	0.006	0.003	
C1 - Fluoranthene/Pyrene	4.24	0.006	0.003	
C2 - Fluoranthene/Pyrene	1.65	0.006	0.003	
C3 - Fluoranthene/Pyrene	0.953	0.006	0.003	
Benz[a]anthracene	4.25	0.006	0.003	
Chrysene*	3.59	0.006	0.003	
C1 - Benz(a)anthracene/Chrysene	2.05	0.006	0.003	
C2 - Benz(a)anthracene/Chrysene	1.09	0.006	0.003	
C3 - Benz(a)anthracene/Chrysene	0.589	0.006	0.003	
C4 - Benz(a)anthracene/Chrysene	0.532	0.006	0.003	
Benzo[b]fluoranthene	4.8	0.006	0.003	
Benzo[j/k]fluoranthene	3.85	0.006	0.003	
Benzo(e)pyrene	3.18	0.006	0.003	
Benzo[a]pyrene	4.72	0.006	0.003	
Perylene	1.41	0.006	0.003	
Indeno[1,2,3-cd]pyrene	3.12	0.006	0.003	
Dibenz[a,h]anthracene	1.03 B	0.006	0.003	
Benzo[g,h,i]perylene	2.75	0.006	0.003	
Coronene	0.699	0.006	0.003	
Retene	0.168	0.006	0.003	
Benzo(b/c)fluorenes	1.21	0.006	0.003	
2-Methylpyrene	0.413	0.006	0.003	
4-Methylpyrene	0.339	0.006	0.003	
1-Methylpyrene	0.286	0.006	0.003	
Heptadecane	0.776 B	0.012	0.006	
Pristane	0.213 B	0.006	0.003	
Octadecane	0.399 B	0.012	0.006	
Phytane	0.341 B	0.006	0.003	

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

Field ID: BH-SED-03E-2

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090311-01		
File ID:	E031812.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/9/2009	Decanted:	None
Date Received:	3/11/2009		
Date Prepared:	3/12/2009	Sample Size (g):	3.97
Date Cleanup:	NA	Percent Solid:	40.4%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.038 B	0.006	0.003	
2,6,10-trimethyltridecane	0.080 B	0.006	0.003	
Norpristane	0.154 B	0.006	0.003	
Tetraethyl lead	U	0.012	0.006	
Total PAH (16)	48.4	0.006	0.003	
Total PAH (42)	73.9	0.006	0.003	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	83	50 - 120
Phenanthrene-d10	103	50 - 120
Benzo[a]pyrene-d12	86	50 - 120
Perylene-d12	98	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: BH-SED-17-0

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090311-02		
File ID:	E031814.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/10/2009	Decanted:	None
Date Received:	3/11/2009		
Date Prepared:	3/12/2009	Sample Size (g):	3.87
Date Cleanup:	NA	Percent Solid:	42.4%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					
Benzene	0.289	B	0.006	0.003	
Toluene	0.761	B	0.012	0.006	
Ethylbenzene	0.075		0.006	0.003	
m/p-Xylenes	0.649		0.006	0.003	
Styrene	0.294		0.012	0.006	
o-Xylene	0.076		0.006	0.003	
Isopropylbenzene	0.008		0.006	0.003	
n-Propylbenzene	0.022		0.006	0.003	
1,3,5-Trimethylbenzene	0.036		0.006	0.003	
1,2,4-Trimethylbenzene	0.093		0.006	0.003	
t-Butylbenzene		U	0.006	0.003	
sec-Butylbenzene	0.004	J	0.006	0.003	
p-Isopropyltoluene	0.020		0.006	0.003	
n-Butylbenzene	0.028		0.006	0.003	
C1 - Benzene	0.464		0.012	0.006	
C2 - Benzene	0.391		0.006	0.003	
C3 - Benzene	0.122		0.006	0.003	
C4 - Benzene	0.076		0.006	0.003	
C5 - Benzene	0.057		0.006	0.003	
trans-Decalin	0.011		0.006	0.003	
cis-Decalin		U	0.006	0.003	
Naphthalene	4.9	B	0.006	0.003	
2-Methylnaphthalene	0.711	B	0.006	0.003	
1-Methylnaphthalene	0.278		0.006	0.003	
C1 - Naphthalene	0.611	B	0.006	0.003	
C2 - Naphthalene	0.559	B	0.006	0.003	
C3- Naphthalene	0.305	B	0.006	0.003	
C4- Naphthalene	0.277		0.006	0.003	
Acenaphthylene	0.888		0.006	0.003	
Acenaphthene	0.082		0.006	0.003	
Dibenzofuran	0.337		0.006	0.003	
Fluorene	0.302		0.006	0.003	
C1 - Fluorene	0.212		0.006	0.003	
C2 - Fluorene	0.618		0.006	0.003	
C3 - Fluorene	0.421		0.006	0.003	
Phenanthrene	1.1	B	0.006	0.003	
Anthracene	0.866		0.006	0.003	

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

Field ID: BH-SED-17-0

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090311-02		
File ID:	E031814.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/10/2009	Decanted:	None
Date Received:	3/11/2009		
Date Prepared:	3/12/2009	Sample Size (g):	3.87
Date Cleanup:	NA	Percent Solid:	42.4%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	1.27 B	0.006	0.003	
C2 - Phenanthrene/Anthracene	0.680	0.006	0.003	
C3 - Phenanthrene/Anthracene	0.583	0.006	0.003	
C4 - Phenanthrene/Anthracene	0.476	0.006	0.003	
Dibenzothiophene	0.166	0.006	0.003	
C1 - Dibenzothiophene	0.271	0.006	0.003	
C2 - Dibenzothiophene	0.312	0.006	0.003	
C3 - Dibenzothiophene	0.302	0.006	0.003	
C4 - Dibenzothiophene	0.278	0.006	0.003	
Benzo(b)naphtho(2,1-d)thiophene	0.274	0.006	0.003	
Fluoranthene	2.03 B	0.006	0.003	
Pyrene	3.5 B	0.006	0.003	
C1 - Fluoranthene/Pyrene	2.23	0.006	0.003	
C2 - Fluoranthene/Pyrene	1.42	0.006	0.003	
C3 - Fluoranthene/Pyrene	0.986	0.006	0.003	
Benz[a]anthracene	1.57	0.006	0.003	
Chrysene*	1.5	0.006	0.003	
C1 - Benz(a)anthracene/Chrysene	1.18	0.006	0.003	
C2 - Benz(a)anthracene/Chrysene	1.14	0.006	0.003	
C3 - Benz(a)anthracene/Chrysene	0.779	0.006	0.003	
C4 - Benz(a)anthracene/Chrysene	0.682	0.006	0.003	
Benzo[b]fluoranthene	3.22	0.006	0.003	
Benzo[j/k]fluoranthene	2.7	0.006	0.003	
Benzo(e)pyrene	2.21	0.006	0.003	
Benzo[a]pyrene	3.22	0.006	0.003	
Perylene	0.567	0.006	0.003	
Indeno[1,2,3-cd]pyrene	2.21	0.006	0.003	
Dibenz[a,h]anthracene	0.626 B	0.006	0.003	
Benzo[g,h,i]perylene	1.99	0.006	0.003	
Coronene	0.492	0.006	0.003	
Retene	0.115	0.006	0.003	
Benzo(b/c)fluorenes	0.437	0.006	0.003	
2-Methylpyrene	0.317	0.006	0.003	
4-Methylpyrene	0.336	0.006	0.003	
1-Methylpyrene	0.217	0.006	0.003	
Heptadecane	0.712 B	0.012	0.006	
Pristane	0.242 B	0.006	0.003	
Octadecane	0.411 B	0.012	0.006	
Phytane	0.278 B	0.006	0.003	

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

Field ID: BH-SED-17-0

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090311-02		
File ID:	E031814.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/10/2009	Decanted:	None
Date Received:	3/11/2009		
Date Prepared:	3/12/2009	Sample Size (g):	3.87
Date Cleanup:	NA	Percent Solid:	42.4%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.024 B	0.006	0.003	
2,6,10-trimethyltridecane	0.051 B	0.006	0.003	
Norpristane	0.079 B	0.006	0.003	
Tetraethyl lead	U	0.012	0.006	
Total PAH (16)	30.7	0.006	0.003	
Total PAH (42)	49.6	0.006	0.003	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	79	50 - 120
Phenanthrene-d10	94	50 - 120
Benzo[a]pyrene-d12	80	50 - 120
Perylene-d12	91	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090212-SB		
File ID:	E021804.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	2/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	2/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				
Benzene	0.003	0.003	0.001	
Toluene	U	0.005	0.003	
Ethylbenzene	U	0.003	0.001	
m/p-Xylenes	U	0.003	0.001	
Styrene	U	0.005	0.003	
o-Xylene	U	0.003	0.001	
Isopropylbenzene	U	0.003	0.001	
n-Propylbenzene	U	0.003	0.001	
1,3,5-Trimethylbenzene	U	0.003	0.001	
1,2,4-Trimethylbenzene	U	0.003	0.001	
t-Butylbenzene	U	0.003	0.001	
sec-Butylbenzene	U	0.003	0.001	
p-Isopropyltoluene	U	0.003	0.001	
n-Butylbenzene	U	0.003	0.001	
C1 - Benzene	U	0.005	0.003	
C2 - Benzene	U	0.003	0.001	
C3 - Benzene	U	0.003	0.001	
C4 - Benzene	U	0.003	0.001	
C5 - Benzene	U	0.003	0.001	
trans-Decalin	U	0.003	0.001	
cis-Decalin	U	0.003	0.001	
Naphthalene	0.003 J	0.003	0.001	
2-Methylnaphthalene	0.007	0.003	0.001	
1-Methylnaphthalene	0.004	0.003	0.001	
C1 - Naphthalene	0.006	0.003	0.001	
C2 - Naphthalene	0.009	0.003	0.001	
C3- Naphthalene	0.006	0.003	0.001	
C4- Naphthalene	U	0.003	0.001	
Acenaphthylene	U	0.003	0.001	
Acenaphthene	U	0.003	0.001	
Dibenzofuran	U	0.003	0.001	
Fluorene	U	0.003	0.001	
C1 - Fluorene	U	0.003	0.001	
C2 - Fluorene	U	0.003	0.001	
C3 - Fluorene	U	0.003	0.001	
Phenanthrene	0.003 J	0.003	0.001	
Anthracene	U	0.003	0.001	

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

Field ID: Soil Blank

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090212-SB		
File ID:	E021804.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	2/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	2/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	U	0.003	0.001	
C2 - Phenanthrene/Anthracene	U	0.003	0.001	
C3 - Phenanthrene/Anthracene	U	0.003	0.001	
C4 - Phenanthrene/Anthracene	U	0.003	0.001	
Dibenzothiophene	U	0.003	0.001	
C1 - Dibenzothiophene	U	0.003	0.001	
C2 - Dibenzothiophene	U	0.003	0.001	
C3 - Dibenzothiophene	U	0.003	0.001	
C4 - Dibenzothiophene	U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene	U	0.003	0.001	
Fluoranthene	0.002 J	0.003	0.001	
Pyrene	0.002 J	0.003	0.001	
C1 - Fluoranthene/Pyrene	U	0.003	0.001	
C2 - Fluoranthene/Pyrene	U	0.003	0.001	
C3 - Fluoranthene/Pyrene	U	0.003	0.001	
Benz[a]anthracene	0.002 J	0.003	0.001	
Chrysene*	0.002 J	0.003	0.001	
C1 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
Benzo[b]fluoranthene	0.002 J	0.003	0.001	
Benzo[j/k]fluoranthene	0.002 J	0.003	0.001	
Benzo(e)pyrene	0.002 J	0.003	0.001	
Benzo[a]pyrene	0.002 J	0.003	0.001	
Perylene	0.002 J	0.003	0.001	
Indeno[1,2,3-cd]pyrene	0.002 J	0.003	0.001	
Dibenz[a,h]anthracene	0.001 J	0.003	0.001	
Benzo[g,h,i]perylene	0.002 J	0.003	0.001	
Coronene	U	0.003	0.001	
Retene	U	0.003	0.001	
Benzo(b/c)fluorenes	U	0.003	0.001	
2-Methylpyrene	U	0.003	0.001	
4-Methylpyrene	U	0.003	0.001	
1-Methylpyrene	U	0.003	0.001	
Heptadecane	0.007	0.005	0.003	
Pristane	0.004	0.003	0.001	
Octadecane	0.006	0.005	0.003	
Phytane	0.003	0.003	0.001	

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

Field ID: Soil Blank

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090212-SB		
File ID:	E021804.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	2/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	2/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	U	0.003	0.001	
2,6,10-trimethyltridecane	U	0.003	0.001	
Norpristane	U	0.003	0.001	
Tetraethyl lead	U	0.005	0.003	
Total PAH (16)	0.025	0.003	0.001	
Total PAH (42)	0.050	0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	79	50 - 120
Phenanthrene-d10	87	50 - 120
Benzo[a]pyrene-d12	74	50 - 120
Perylene-d12	86	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank Spike

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090212-SBS		
File ID:	E021805.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	2/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	2/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount					% Recovery
Benzene	2.50	1.57	B	0.003	0.001	63
Toluene	2.50	1.99		0.005	0.003	80
Ethylbenzene	2.50	1.87		0.003	0.001	75
m/p-Xylenes	2.50	1.88		0.003	0.001	75
Styrene	2.50	2.07		0.005	0.003	83
o-Xylene	2.50	1.93		0.003	0.001	77
Isopropylbenzene	2.50	1.98		0.003	0.001	79
n-Propylbenzene	2.50	1.97		0.003	0.001	79
1,3,5-Trimethylbenzene	2.50	2.0		0.003	0.001	80
1,2,4-Trimethylbenzene	2.50	1.98		0.003	0.001	79
t-Butylbenzene			U	0.003	0.001	
sec-Butylbenzene	2.50	1.97		0.003	0.001	79
p-Isopropyltoluene	2.50	2.06		0.003	0.001	82
n-Butylbenzene	2.50	2.01		0.003	0.001	80
C1 - Benzene			U	0.005	0.003	
C2 - Benzene			U	0.003	0.001	
C3 - Benzene			U	0.003	0.001	
C4 - Benzene			U	0.003	0.001	
C5 - Benzene			U	0.003	0.001	
trans-Decalin			U	0.003	0.001	
cis-Decalin			U	0.003	0.001	
Naphthalene	2.50	2.05	B	0.003	0.001	82
2-Methylnaphthalene	2.50	2.13	B	0.003	0.001	85
1-Methylnaphthalene	2.50	2.12	B	0.003	0.001	85
C1 - Naphthalene			BU	0.003	0.001	
C2 - Naphthalene			BU	0.003	0.001	
C3- Naphthalene			BU	0.003	0.001	
C4- Naphthalene			U	0.003	0.001	
Acenaphthylene	2.50	2.5		0.003	0.001	100
Acenaphthene	2.50	2.15		0.003	0.001	86
Dibenzofuran	2.50	2.1		0.003	0.001	84
Fluorene	2.50	2.24		0.003	0.001	90
C1 - Fluorene			U	0.003	0.001	
C2 - Fluorene			U	0.003	0.001	
C3 - Fluorene			U	0.003	0.001	
Phenanthrene	2.50	2.05	B	0.003	0.001	82
Anthracene	2.50	2.16		0.003	0.001	86

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

Field ID: Soil Blank Spike

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090212-SBS		
File ID:	E021805.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	2/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	2/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
C1 - Phenanthrene/Anthracene			U	0.003	0.001	
C2 - Phenanthrene/Anthracene			U	0.003	0.001	
C3 - Phenanthrene/Anthracene			U	0.003	0.001	
C4 - Phenanthrene/Anthracene			U	0.003	0.001	
Dibenzothiophene	2.50	2.04		0.003	0.001	82
C1 - Dibenzothiophene			U	0.003	0.001	
C2 - Dibenzothiophene			U	0.003	0.001	
C3 - Dibenzothiophene			U	0.003	0.001	
C4 - Dibenzothiophene			U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene			U	0.003	0.001	
Fluoranthene	2.50	2.22	B	0.003	0.001	89
Pyrene	2.50	2.23	B	0.003	0.001	89
C1 - Fluoranthene/Pyrene			U	0.003	0.001	
C2 - Fluoranthene/Pyrene			U	0.003	0.001	
C3 - Fluoranthene/Pyrene			U	0.003	0.001	
Benz[a]anthracene	2.50	2.16	B	0.003	0.001	86
Chrysene*	2.50	2.1	B	0.003	0.001	84
C1 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
Benzo[b]fluoranthene	2.50	2.12	B	0.003	0.001	85
Benzo[j/k]fluoranthene	2.50	2.2	B	0.003	0.001	88
Benzo(e)pyrene	2.50	2.04	B	0.003	0.001	82
Benzo[a]pyrene	2.50	2.15	B	0.003	0.001	86
Perylene			BU	0.003	0.001	
Indeno[1,2,3-cd]pyrene	2.50	1.98	B	0.003	0.001	79
Dibenz[a,h]anthracene	2.50	2.16	B	0.003	0.001	86
Benzo[g,h,i]perylene	2.50	2.05	B	0.003	0.001	82
Coronene			U	0.003	0.001	
Retene			U	0.003	0.001	
Benzo(b/c)fluorenes			U	0.003	0.001	
2-Methylpyrene			U	0.003	0.001	
4-Methylpyrene			U	0.003	0.001	
1-Methylpyrene			U	0.003	0.001	
Heptadecane			BU	0.005	0.003	
Pristane			BU	0.003	0.001	
Octadecane			BU	0.005	0.003	
Phytane			BU	0.003	0.001	

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

Field ID: Soil Blank Spike

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090212-SBS		
File ID:	E021805.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	2/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	2/18/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.003	0.001	
2,6,10-trimethyltridecane		U	0.003	0.001	
Norpristane		U	0.003	0.001	
Tetraethyl lead		U	0.005	0.003	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	72	50 - 120
Phenanthrene-d10	85	50 - 120
Benzo[a]pyrene-d12	71	50 - 120
Perylene-d12	80	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Duplicate of BH-SED-03A-00

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090211-01DUP-D		
File ID:	E021813.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	1/0/1900	Decanted:	None
Date Received:	2/9/2009		
Date Prepared:	2/12/2009	Sample Size (g):	3.66
Date Cleanup:	NA	Percent Solid:	58.0%
Date Analyzed:	2/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					RPD
Benzene	3.96	B	0.047	0.024	27.6
Toluene	1.66		0.094	0.047	27.1
Ethylbenzene	2.11		0.047	0.024	0.9
m/p-Xylenes	1.47		0.047	0.024	24.5
Styrene	0.320		0.094	0.047	23.2
o-Xylene	0.679		0.047	0.024	31.3
Isopropylbenzene	0.165		0.047	0.024	24
n-Propylbenzene	0.159		0.047	0.024	20.8
1,3,5-Trimethylbenzene	0.251		0.047	0.024	26
1,2,4-Trimethylbenzene	0.863		0.047	0.024	25
t-Butylbenzene		U	0.047	0.024	NA
sec-Butylbenzene		U	0.047	0.024	NA
p-Isopropyltoluene	0.091		0.047	0.024	28.3
n-Butylbenzene	0.120		0.047	0.024	22.9
C1 - Benzene	1.01		0.094	0.047	28.1
C2 - Benzene	1.9		0.047	0.024	17.3
C3 - Benzene	1.15		0.047	0.024	18.9
C4 - Benzene	0.665		0.047	0.024	22.7
C5 - Benzene	0.301		0.047	0.024	21.9
trans-Decalin	0.087		0.047	0.024	13.9
cis-Decalin		U	0.047	0.024	NA
Naphthalene	133	B	0.047	0.024	12.7
2-Methylnaphthalene	4.38	B	0.047	0.024	20.5
1-Methylnaphthalene	2.59	B	0.047	0.024	29.9
C1 - Naphthalene	4.51	B	0.047	0.024	19.4
C2 - Naphthalene	2.48	B	0.047	0.024	26.9
C3- Naphthalene	1.8	B	0.047	0.024	25.2
C4- Naphthalene	1.14		0.047	0.024	27.3
Acenaphthylene	4.36		0.047	0.024	12.2
Acenaphthene	1.06		0.047	0.024	57.7
Dibenzofuran	1.47		0.047	0.024	22.9
Fluorene	0.990		0.047	0.024	38.4
C1 - Fluorene	0.808		0.047	0.024	0.7
C2 - Fluorene	1.33		0.047	0.024	2.3
C3 - Fluorene	0.968		0.047	0.024	15.4
Phenanthrene	6.62	B	0.047	0.024	5.7
Anthracene	9.14		0.047	0.024	84.3

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

Field ID: Duplicate of BH-SED-03A-00

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090211-01DUP-D		
File ID:	E021813.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	1/0/1900	Decanted:	None
Date Received:	2/9/2009		
Date Prepared:	2/12/2009	Sample Size (g):	3.66
Date Cleanup:	NA	Percent Solid:	58.0%
Date Analyzed:	2/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene	5.58		0.047	0.024	45.5
C2 - Phenanthrene/Anthracene	3.51		0.047	0.024	23.6
C3 - Phenanthrene/Anthracene	1.51		0.047	0.024	9.5
C4 - Phenanthrene/Anthracene	0.560		0.047	0.024	57.3
Dibenzothiophene	0.619		0.047	0.024	12
C1 - Dibenzothiophene	0.837		0.047	0.024	16.1
C2 - Dibenzothiophene	0.897		0.047	0.024	6
C3 - Dibenzothiophene	0.628		0.047	0.024	17.7
C4 - Dibenzothiophene	0.311		0.047	0.024	40.7
Benzo(b)naphtho(2,1-d)thiophene	2.2		0.047	0.024	74.1
Fluoranthene	35.6	B	0.047	0.024	82.5
Pyrene	28.2	B	0.047	0.024	84.8
C1 - Fluoranthene/Pyrene	14.7		0.047	0.024	65.6
C2 - Fluoranthene/Pyrene	3.35		0.047	0.024	29.7
C3 - Fluoranthene/Pyrene	1.33		0.047	0.024	69.9
Benz[a]anthracene	17.0	B	0.047	0.024	84.2
Chrysene*	16.3	B	0.047	0.024	79.3
C1 - Benz(a)anthracene/Chrysene	4.18		0.047	0.024	32.5
C2 - Benz(a)anthracene/Chrysene	1.46		0.047	0.024	40.4
C3 - Benz(a)anthracene/Chrysene	0.633		0.047	0.024	96.8
C4 - Benz(a)anthracene/Chrysene	0.534		0.047	0.024	92.3
Benzo[b]fluoranthene	12.8	B	0.047	0.024	63.2
Benzo[j/k]fluoranthene	13.1	B	0.047	0.024	63.1
Benzo(e)pyrene	9.62	B	0.047	0.024	54.5
Benzo[a]pyrene	16.4	B	0.047	0.024	61.1
Perylene	4.43	B	0.047	0.024	63.3
Indeno[1,2,3-cd]pyrene	9.08	B	0.047	0.024	55.1
Dibenz[a,h]anthracene	2.06	B	0.047	0.024	52
Benzo[g,h,i]perylene	8.84	B	0.047	0.024	54.6
Coronene	2.13		0.047	0.024	56.6
Retene	0.275		0.047	0.024	24.8
Benzo(b/c)fluorenes	4.3		0.047	0.024	87.6
2-Methylpyrene	1.3		0.047	0.024	43.3
4-Methylpyrene	0.992		0.047	0.024	3.9
1-Methylpyrene	1.1		0.047	0.024	40.3
Heptadecane	0.865	B	0.094	0.047	13.2
Pristane	1.41	B	0.047	0.024	11.4
Octadecane	0.798	B	0.094	0.047	13.5
Phytane	0.589	B	0.047	0.024	42.4

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

Field ID: Duplicate of BH-SED-03A-00

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090211-01DUP-D		
File ID:	E021813.D	Matrix:	Sediment
		Preservation:	None
Date Sampled:	1/0/1900	Decanted:	None
Date Received:	2/9/2009		
Date Prepared:	2/12/2009	Sample Size (g):	3.66
Date Cleanup:	NA	Percent Solid:	58.0%
Date Analyzed:	2/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090212-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.195	0.047	0.024	31.5
2,6,10-trimethyltridecane	0.356	0.047	0.024	36.7
Norpristane	0.232	0.047	0.024	13.3
Tetraethyl lead	U	0.094	0.047	NA
Total PAH (16)	314	0.047	0.024	25.5
Total PAH (42)	384	0.047	0.024	23.3

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	63	50 - 120
Phenanthrene-d10	74	50 - 120
Benzo[a]pyrene-d12	61	50 - 120
Perylene-d12	72	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090303-SB		
File ID:	E030504.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/3/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				
Benzene	0.006	0.003	0.001	
Toluene	0.007	0.003	0.001	
Ethylbenzene	U	0.003	0.001	
m/p-Xylenes	0.002 J	0.003	0.001	
Styrene	0.035	0.003	0.001	
o-Xylene	U	0.003	0.001	
Isopropylbenzene	U	0.003	0.001	
n-Propylbenzene	U	0.003	0.001	
1,3,5-Trimethylbenzene	0.002 J	0.003	0.001	
1,2,4-Trimethylbenzene	U	0.003	0.001	
t-Butylbenzene	U	0.003	0.001	
sec-Butylbenzene	U	0.003	0.001	
p-Isopropyltoluene	U	0.003	0.001	
n-Butylbenzene	U	0.003	0.001	
C1 - Benzene	0.004	0.003	0.001	
C2 - Benzene	U	0.003	0.001	
C3 - Benzene	U	0.003	0.001	
C4 - Benzene	U	0.003	0.001	
C5 - Benzene	U	0.003	0.001	
trans-Decalin	U	0.003	0.001	
cis-Decalin	U	0.003	0.001	
Naphthalene	0.001 J	0.003	0.001	
2-Methylnaphthalene	0.002 J	0.003	0.001	
1-Methylnaphthalene	0.002 J	0.003	0.001	
C1 - Naphthalene	0.003	0.003	0.001	
C2 - Naphthalene	U	0.003	0.001	
C3- Naphthalene	U	0.003	0.001	
C4- Naphthalene	U	0.003	0.001	
Acenaphthylene	0.002 J	0.003	0.001	
Acenaphthene	U	0.003	0.001	
Dibenzofuran	U	0.003	0.001	
Fluorene	0.003 J	0.003	0.001	
C1 - Fluorene	U	0.003	0.001	
C2 - Fluorene	U	0.003	0.001	
C3 - Fluorene	U	0.003	0.001	
Phenanthrene	0.007	0.003	0.001	
Anthracene	0.002 J	0.003	0.001	

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

Field ID: Soil Blank

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090303-SB		
File ID:	E030504.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/3/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	0.004	0.003	0.001	
C2 - Phenanthrene/Anthracene	U	0.003	0.001	
C3 - Phenanthrene/Anthracene	U	0.003	0.001	
C4 - Phenanthrene/Anthracene	U	0.003	0.001	
Dibenzothiophene	0.001 J	0.003	0.001	
C1 - Dibenzothiophene	U	0.003	0.001	
C2 - Dibenzothiophene	U	0.003	0.001	
C3 - Dibenzothiophene	U	0.003	0.001	
C4 - Dibenzothiophene	U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene	U	0.003	0.001	
Fluoranthene	0.004	0.003	0.001	
Pyrene	0.005	0.003	0.001	
C1 - Fluoranthene/Pyrene	U	0.003	0.001	
C2 - Fluoranthene/Pyrene	U	0.003	0.001	
C3 - Fluoranthene/Pyrene	U	0.003	0.001	
Benz[a]anthracene	0.003	0.003	0.001	
Chrysene*	0.003	0.003	0.001	
C1 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
Benzo[b]fluoranthene	0.002 J	0.003	0.001	
Benzo[j/k]fluoranthene	0.003 J	0.003	0.001	
Benzo(e)pyrene	0.002 J	0.003	0.001	
Benzo[a]pyrene	0.003 J	0.003	0.001	
Perylene	U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	0.002 J	0.003	0.001	
Dibenz[a,h]anthracene	0.002 J	0.003	0.001	
Benzo[g,h,i]perylene	0.003 J	0.003	0.001	
Coronene	U	0.003	0.001	
Retene	U	0.003	0.001	
Benzo(b/c)fluorenes	U	0.003	0.001	
2-Methylpyrene	U	0.003	0.001	
4-Methylpyrene	U	0.003	0.001	
1-Methylpyrene	U	0.003	0.001	
Heptadecane	0.015	0.003	0.001	
Pristane	U	0.003	0.001	
Octadecane	0.012	0.003	0.001	
Phytane	U	0.003	0.001	

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

Field ID: Soil Blank

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090303-SB		
File ID:	E030504.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/3/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	U	0.003	0.001	
2,6,10-trimethyltridecane	U	0.003	0.001	
Norpristane	U	0.003	0.001	
Tetraethyl lead	U	0.003	0.001	
Total PAH (16)	0.045	0.003	0.001	
Total PAH (42)	0.055	0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	76	50 - 120
Phenanthrene-d10	88	50 - 120
Benzo[a]pyrene-d12	76	50 - 120
Perylene-d12	87	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank Spike

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090303-SBS		
File ID:	E030505.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/3/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount				% Recovery
Benzene	2.50	1.47 B	0.003	0.001	59
Toluene	2.50	1.93 B	0.003	0.001	77
Ethylbenzene	2.50	1.84	0.003	0.001	74
m/p-Xylenes	2.50	1.95 B	0.003	0.001	78
Styrene	2.50	2.17 B	0.003	0.001	87
o-Xylene	2.50	1.91	0.003	0.001	76
Isopropylbenzene	2.50	1.97	0.003	0.001	79
n-Propylbenzene	2.50	1.96	0.003	0.001	78
1,3,5-Trimethylbenzene	2.50	2.0 B	0.003	0.001	80
1,2,4-Trimethylbenzene	2.50	2.0	0.003	0.001	80
t-Butylbenzene		U	0.003	0.001	
sec-Butylbenzene	2.50	2.0	0.003	0.001	80
p-Isopropyltoluene	2.50	2.08	0.003	0.001	83
n-Butylbenzene	2.50	2.04	0.003	0.001	82
C1 - Benzene		BU	0.003	0.001	
C2 - Benzene		U	0.003	0.001	
C3 - Benzene		U	0.003	0.001	
C4 - Benzene		U	0.003	0.001	
C5 - Benzene		U	0.003	0.001	
trans-Decalin		U	0.003	0.001	
cis-Decalin		U	0.003	0.001	
Naphthalene	2.50	2.12 B	0.003	0.001	85
2-Methylnaphthalene	2.50	2.22 B	0.003	0.001	89
1-Methylnaphthalene	2.50	2.21 B	0.003	0.001	88
C1 - Naphthalene		BU	0.003	0.001	
C2 - Naphthalene		U	0.003	0.001	
C3- Naphthalene		U	0.003	0.001	
C4- Naphthalene		U	0.003	0.001	
Acenaphthylene	2.50	2.6 B	0.003	0.001	104
Acenaphthene	2.50	2.25	0.003	0.001	90
Dibenzofuran	2.50	2.19	0.003	0.001	88
Fluorene	2.50	2.35 B	0.003	0.001	94
C1 - Fluorene		U	0.003	0.001	
C2 - Fluorene		U	0.003	0.001	
C3 - Fluorene		U	0.003	0.001	
Phenanthrene	2.50	2.12 B	0.003	0.001	85
Anthracene	2.50	2.19 B	0.003	0.001	88

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

Field ID: Soil Blank Spike

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090303-SBS		
File ID:	E030505.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/3/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene		BU	0.003	0.001	
C2 - Phenanthrene/Anthracene		U	0.003	0.001	
C3 - Phenanthrene/Anthracene		U	0.003	0.001	
C4 - Phenanthrene/Anthracene		U	0.003	0.001	
Dibenzothiophene	2.50	2.12 B	0.003	0.001	85
C1 - Dibenzothiophene		U	0.003	0.001	
C2 - Dibenzothiophene		U	0.003	0.001	
C3 - Dibenzothiophene		U	0.003	0.001	
C4 - Dibenzothiophene		U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene		U	0.003	0.001	
Fluoranthene	2.50	2.33 B	0.003	0.001	93
Pyrene	2.50	2.33 B	0.003	0.001	93
C1 - Fluoranthene/Pyrene		U	0.003	0.001	
C2 - Fluoranthene/Pyrene		U	0.003	0.001	
C3 - Fluoranthene/Pyrene		U	0.003	0.001	
Benz[a]anthracene	2.50	2.31 B	0.003	0.001	92
Chrysene*	2.50	2.18 B	0.003	0.001	87
C1 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene		U	0.003	0.001	
Benzo[b]fluoranthene	2.50	2.22 B	0.003	0.001	89
Benzo[j/k]fluoranthene	2.50	2.31 B	0.003	0.001	92
Benzo(e)pyrene	2.50	2.14 B	0.003	0.001	86
Benzo[a]pyrene	2.50	2.25 B	0.003	0.001	90
Perylene		U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	2.50	2.11 B	0.003	0.001	84
Dibenz[a,h]anthracene	2.50	2.31 B	0.003	0.001	92
Benzo[g,h,i]perylene	2.50	2.17 B	0.003	0.001	87
Coronene		U	0.003	0.001	
Retene		U	0.003	0.001	
Benzo(b/c)fluorenes		U	0.003	0.001	
2-Methylpyrene		U	0.003	0.001	
4-Methylpyrene		U	0.003	0.001	
1-Methylpyrene		U	0.003	0.001	
Heptadecane		BU	0.003	0.001	
Pristane		U	0.003	0.001	
Octadecane		BU	0.003	0.001	
Phytane		U	0.003	0.001	

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

Field ID: Soil Blank Spike

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090303-SBS		
File ID:	E030505.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/3/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/5/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.003	0.001	
2,6,10-trimethyltridecane		U	0.003	0.001	
Norpristane		U	0.003	0.001	
Tetraethyl lead		U	0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	69	50 - 120
Phenanthrene-d10	85	50 - 120
Benzo[a]pyrene-d12	73	50 - 120
Perylene-d12	82	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Duplicate of BH-SED-10-2

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090226-01DUP-D		
File ID:	E030517.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	2/24/2009	Decanted:	None
Date Received:	2/26/2009		
Date Prepared:	3/3/2009	Sample Size (g):	2.98
Date Cleanup:	NA	Percent Solid:	41.4%
Date Analyzed:	3/6/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				RPD
Benzene	1.01 B	0.081	0.041	7.9
Toluene	1.58 B	0.081	0.041	6.7
Ethylbenzene	0.378	0.081	0.041	4.1
m/p-Xylenes	1.61 B	0.081	0.041	6.6
Styrene	1.36 B	0.081	0.041	0
o-Xylene	0.305	0.081	0.041	5.7
Isopropylbenzene	0.130	0.081	0.041	3.8
n-Propylbenzene	0.057 J	0.081	0.041	16.1
1,3,5-Trimethylbenzene	0.207 B	0.081	0.041	12.2
1,2,4-Trimethylbenzene	0.396	0.081	0.041	11.7
t-Butylbenzene	0.061 J	0.081	0.041	16.5
sec-Butylbenzene	0.044 J	0.081	0.041	38.5
p-Isopropyltoluene	0.050 J	0.081	0.041	9.5
n-Butylbenzene	0.085	0.081	0.041	3.5
C1 - Benzene	0.961 B	0.081	0.041	5
C2 - Benzene	1.19	0.081	0.041	4.1
C3 - Benzene	0.640	0.081	0.041	7.5
C4 - Benzene	0.382	0.081	0.041	2.1
C5 - Benzene	0.337	0.081	0.041	4.6
trans-Decalin	0.067 J	0.081	0.041	NA
cis-Decalin	U	0.081	0.041	NA
Naphthalene	74.5 B	0.081	0.041	5.4
2-Methylnaphthalene	2.64 B	0.081	0.041	7.3
1-Methylnaphthalene	1.42 B	0.081	0.041	12.5
C1 - Naphthalene	2.46 B	0.081	0.041	12.2
C2 - Naphthalene	2.1	0.081	0.041	8.2
C3- Naphthalene	1.48	0.081	0.041	15.6
C4- Naphthalene	2.33	0.081	0.041	11.3
Acenaphthylene	3.76 B	0.081	0.041	15.5
Acenaphthene	2.56	0.081	0.041	24.7
Dibenzofuran	1.7	0.081	0.041	15.7
Fluorene	1.77 B	0.081	0.041	15.1
C1 - Fluorene	1.21	0.081	0.041	20.1
C2 - Fluorene	3.0	0.081	0.041	6.1
C3 - Fluorene	3.34	0.081	0.041	16.2
Phenanthrene	6.9 B	0.081	0.041	17.2
Anthracene	4.03 B	0.081	0.041	11.7

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

Field ID: Duplicate of BH-SED-10-2

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090226-01DUP-D		
File ID:	E030517.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	2/24/2009	Decanted:	None
Date Received:	2/26/2009		
Date Prepared:	3/3/2009	Sample Size (g):	2.98
Date Cleanup:	NA	Percent Solid:	41.4%
Date Analyzed:	3/6/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	4.15 B	0.081	0.041	14.7
C2 - Phenanthrene/Anthracene	5.06	0.081	0.041	14.3
C3 - Phenanthrene/Anthracene	5.73	0.081	0.041	22.2
C4 - Phenanthrene/Anthracene	3.29	0.081	0.041	13.1
Dibenzothiophene	0.838 B	0.081	0.041	13.8
C1 - Dibenzothiophene	1.23	0.081	0.041	10
C2 - Dibenzothiophene	2.34	0.081	0.041	10.1
C3 - Dibenzothiophene	3.06	0.081	0.041	12
C4 - Dibenzothiophene	1.92	0.081	0.041	12.2
Benzo(b)naphtho(2,1-d)thiophene	1.83	0.081	0.041	5.8
Fluoranthene	19.8 B	0.081	0.041	10.5
Pyrene	13.4 B	0.081	0.041	10.6
C1 - Fluoranthene/Pyrene	11.6	0.081	0.041	12.1
C2 - Fluoranthene/Pyrene	6.29	0.081	0.041	14
C3 - Fluoranthene/Pyrene	4.34	0.081	0.041	18
Benz[a]anthracene	9.88 B	0.081	0.041	4.2
Chrysene*	7.62 B	0.081	0.041	3.9
C1 - Benz(a)anthracene/Chrysene	5.67	0.081	0.041	14.9
C2 - Benz(a)anthracene/Chrysene	3.99	0.081	0.041	26.5
C3 - Benz(a)anthracene/Chrysene	2.73	0.081	0.041	24.7
C4 - Benz(a)anthracene/Chrysene	2.38	0.081	0.041	26.9
Benzo[b]fluoranthene	8.42 B	0.081	0.041	11.5
Benzo[j/k]fluoranthene	8.68 B	0.081	0.041	4.6
Benzo(e)pyrene	6.06 B	0.081	0.041	11.4
Benzo[a]pyrene	9.28 B	0.081	0.041	10.4
Perylene	2.71	0.081	0.041	4
Indeno[1,2,3-cd]pyrene	5.61 B	0.081	0.041	9.5
Dibenz[a,h]anthracene	1.51 B	0.081	0.041	17.5
Benzo[g,h,i]perylene	5.0 B	0.081	0.041	11
Coronene	1.17	0.081	0.041	1.7
Retene	1.53	0.081	0.041	15.7
Benzo(b/c)fluorenes	2.7	0.081	0.041	9.2
2-Methylpyrene	1.18	0.081	0.041	15.6
4-Methylpyrene	1.14	0.081	0.041	16.9
1-Methylpyrene	0.949	0.081	0.041	16.5
Heptadecane	1.75 B	0.081	0.041	25
Pristane	1.93	0.081	0.041	34.3
Octadecane	1.59 B	0.081	0.041	12.9
Phytane	2.48	0.081	0.041	27.8

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

Field ID: Duplicate of BH-SED-10-2

Client:	Test America	Preparation Method:	EPA 3570M
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090226-01DUP-D		
File ID:	E030517.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	2/24/2009	Decanted:	None
Date Received:	2/26/2009		
Date Prepared:	3/3/2009	Sample Size (g):	2.98
Date Cleanup:	NA	Percent Solid:	41.4%
Date Analyzed:	3/6/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL/JAR	Analysis DF:	10
		Injection Volume (µl):	1.00
Batch QC:	QC090303-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.131	0.081	0.041	37.1
2,6,10-trimethyltridecane	0.373	0.081	0.041	31.2
Norpristane	0.884	0.081	0.041	48.5
Tetraethyl lead	U	0.081	0.041	NA
Total PAH (16)	183	0.081	0.041	7.9
Total PAH (42)	274	0.081	0.041	10.4

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	68	50 - 120
Phenanthrene-d10	86	50 - 120
Benzo[a]pyrene-d12	65	50 - 120
Perylene-d12	75	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090324-SB		
File ID:	E032404.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/24/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/24/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				
Benzene	0.005	0.003	0.001	
Toluene	U	0.005	0.003	
Ethylbenzene	U	0.003	0.001	
m/p-Xylenes	U	0.003	0.001	
Styrene	U	0.005	0.003	
o-Xylene	U	0.003	0.001	
Isopropylbenzene	U	0.003	0.001	
n-Propylbenzene	U	0.003	0.001	
1,3,5-Trimethylbenzene	U	0.003	0.001	
1,2,4-Trimethylbenzene	U	0.003	0.001	
t-Butylbenzene	U	0.003	0.001	
sec-Butylbenzene	U	0.003	0.001	
p-Isopropyltoluene	U	0.003	0.001	
n-Butylbenzene	U	0.003	0.001	
C1 - Benzene	U	0.005	0.003	
C2 - Benzene	U	0.003	0.001	
C3 - Benzene	U	0.003	0.001	
C4 - Benzene	U	0.003	0.001	
C5 - Benzene	U	0.003	0.001	
trans-Decalin	U	0.003	0.001	
cis-Decalin	U	0.003	0.001	
Naphthalene	U	0.003	0.001	
2-Methylnaphthalene	U	0.003	0.001	
1-Methylnaphthalene	U	0.003	0.001	
C1 - Naphthalene	U	0.003	0.001	
C2 - Naphthalene	U	0.003	0.001	
C3- Naphthalene	U	0.003	0.001	
C4- Naphthalene	U	0.003	0.001	
Acenaphthylene	U	0.003	0.001	
Acenaphthene	U	0.003	0.001	
Dibenzofuran	U	0.003	0.001	
Fluorene	U	0.003	0.001	
C1 - Fluorene	U	0.003	0.001	
C2 - Fluorene	U	0.003	0.001	
C3 - Fluorene	U	0.003	0.001	
Phenanthrene	U	0.003	0.001	
Anthracene	U	0.003	0.001	

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

Field ID: Soil Blank

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090324-SB		
File ID:	E032404.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/24/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/24/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	U	0.003	0.001	
C2 - Phenanthrene/Anthracene	U	0.003	0.001	
C3 - Phenanthrene/Anthracene	U	0.003	0.001	
C4 - Phenanthrene/Anthracene	U	0.003	0.001	
Dibenzothiophene	U	0.003	0.001	
C1 - Dibenzothiophene	U	0.003	0.001	
C2 - Dibenzothiophene	U	0.003	0.001	
C3 - Dibenzothiophene	U	0.003	0.001	
C4 - Dibenzothiophene	U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene	U	0.003	0.001	
Fluoranthene	U	0.003	0.001	
Pyrene	U	0.003	0.001	
C1 - Fluoranthene/Pyrene	U	0.003	0.001	
C2 - Fluoranthene/Pyrene	U	0.003	0.001	
C3 - Fluoranthene/Pyrene	U	0.003	0.001	
Benz[a]anthracene	U	0.003	0.001	
Chrysene*	U	0.003	0.001	
C1 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
Benzo[b]fluoranthene	U	0.003	0.001	
Benzo[j/k]fluoranthene	U	0.003	0.001	
Benzo(e)pyrene	U	0.003	0.001	
Benzo[a]pyrene	U	0.003	0.001	
Perylene	U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	U	0.003	0.001	
Dibenz[a,h]anthracene	U	0.003	0.001	
Benzo[g,h,i]perylene	U	0.003	0.001	
Coronene	U	0.003	0.001	
Retene	U	0.003	0.001	
Benzo(b/c)fluorenes	U	0.003	0.001	
2-Methylpyrene	U	0.003	0.001	
4-Methylpyrene	U	0.003	0.001	
1-Methylpyrene	U	0.003	0.001	
Heptadecane	0.005 J	0.005	0.003	
Pristane	0.001 J	0.003	0.001	
Octadecane	0.005 J	0.005	0.003	
Phytane	0.001 J	0.003	0.001	

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

Field ID: Soil Blank

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090324-SB		
File ID:	E032404.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/24/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/24/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.003	0.001	
2,6,10-trimethyltridecane		U	0.003	0.001	
Norpristane		U	0.003	0.001	
Tetraethyl lead		U	0.005	0.003	
Total PAH (16)		U	0.003	0.001	
Total PAH (42)		U	0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	83	50 - 120
Phenanthrene-d10	92	50 - 120
Benzo[a]pyrene-d12	90	50 - 120
Perylene-d12	103	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank Spike

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090324-SBS		
File ID:	E032405.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/24/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/24/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount				% Recovery
Benzene	2.50	1.8 B	0.003	0.001	72
Toluene	2.50	2.08	0.005	0.003	83
Ethylbenzene	2.50	1.93	0.003	0.001	77
m/p-Xylenes	2.50	1.95	0.003	0.001	78
Styrene	2.50	2.13	0.005	0.003	85
o-Xylene	2.50	1.98	0.003	0.001	79
Isopropylbenzene	2.50	2.05	0.003	0.001	82
n-Propylbenzene	2.50	2.02	0.003	0.001	81
1,3,5-Trimethylbenzene	2.50	2.06	0.003	0.001	82
1,2,4-Trimethylbenzene	2.50	2.06	0.003	0.001	82
t-Butylbenzene		U	0.003	0.001	
sec-Butylbenzene	2.50	2.05	0.003	0.001	82
p-Isopropyltoluene	2.50	2.14	0.003	0.001	86
n-Butylbenzene	2.50	2.1	0.003	0.001	84
C1 - Benzene		U	0.005	0.003	
C2 - Benzene		U	0.003	0.001	
C3 - Benzene		U	0.003	0.001	
C4 - Benzene		U	0.003	0.001	
C5 - Benzene		U	0.003	0.001	
trans-Decalin		U	0.003	0.001	
cis-Decalin		U	0.003	0.001	
Naphthalene	2.50	2.22	0.003	0.001	89
2-Methylnaphthalene	2.50	2.37	0.003	0.001	95
1-Methylnaphthalene	2.50	2.35	0.003	0.001	94
C1 - Naphthalene		U	0.003	0.001	
C2 - Naphthalene		U	0.003	0.001	
C3- Naphthalene		U	0.003	0.001	
C4- Naphthalene		U	0.003	0.001	
Acenaphthylene	2.50	2.73	0.003	0.001	109
Acenaphthene	2.50	2.38	0.003	0.001	95
Dibenzofuran	2.50	2.35	0.003	0.001	94
Fluorene	2.50	2.54	0.003	0.001	102
C1 - Fluorene		U	0.003	0.001	
C2 - Fluorene		U	0.003	0.001	
C3 - Fluorene		U	0.003	0.001	
Phenanthrene	2.50	2.29	0.003	0.001	92
Anthracene	2.50	2.42	0.003	0.001	97

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

Field ID: Soil Blank Spike

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090324-SBS		
File ID:	E032405.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/24/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/24/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
C1 - Phenanthrene/Anthracene			U	0.003	0.001	
C2 - Phenanthrene/Anthracene			U	0.003	0.001	
C3 - Phenanthrene/Anthracene			U	0.003	0.001	
C4 - Phenanthrene/Anthracene			U	0.003	0.001	
Dibenzothiophene	2.50	2.3		0.003	0.001	92
C1 - Dibenzothiophene			U	0.003	0.001	
C2 - Dibenzothiophene			U	0.003	0.001	
C3 - Dibenzothiophene			U	0.003	0.001	
C4 - Dibenzothiophene			U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene			U	0.003	0.001	
Fluoranthene	2.50	2.46		0.003	0.001	98
Pyrene	2.50	2.45		0.003	0.001	98
C1 - Fluoranthene/Pyrene			U	0.003	0.001	
C2 - Fluoranthene/Pyrene			U	0.003	0.001	
C3 - Fluoranthene/Pyrene			U	0.003	0.001	
Benz[a]anthracene	2.50	2.46		0.003	0.001	98
Chrysene*	2.50	2.34		0.003	0.001	94
C1 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
Benzo[b]fluoranthene	2.50	2.4		0.003	0.001	96
Benzo[j/k]fluoranthene	2.50	2.48		0.003	0.001	99
Benzo(e)pyrene	2.50	2.28		0.003	0.001	91
Benzo[a]pyrene	2.50	2.37		0.003	0.001	95
Perylene			U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	2.50	2.64		0.003	0.001	106
Dibenz[a,h]anthracene	2.50	2.41		0.003	0.001	96
Benzo[g,h,i]perylene	2.50	2.28		0.003	0.001	91
Coronene			U	0.003	0.001	
Retene			U	0.003	0.001	
Benzo(b/c)fluorenes			U	0.003	0.001	
2-Methylpyrene			U	0.003	0.001	
4-Methylpyrene			U	0.003	0.001	
1-Methylpyrene			U	0.003	0.001	
Heptadecane			BU	0.005	0.003	
Pristane			BU	0.003	0.001	
Octadecane			BU	0.005	0.003	
Phytane			BU	0.003	0.001	

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

Field ID: Soil Blank Spike

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090324-SBS		
File ID:	E032405.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/24/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/24/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		U	0.003	0.001	
2,6,10-trimethyltridecane		U	0.003	0.001	
Norpristane		U	0.003	0.001	
Tetraethyl lead		U	0.005	0.003	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	88	50 - 120
Phenanthrene-d10	99	50 - 120
Benzo[a]pyrene-d12	93	50 - 120
Perylene-d12	104	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Duplicate of BH-SED-13C-6

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090305-01DUP-R		
File ID:	E032409.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/4/2009	Decanted:	None
Date Received:	3/5/2009		
Date Prepared:	3/24/2009	Sample Size (g):	2.85
Date Cleanup:	NA	Percent Solid:	77.0%
Date Analyzed:	3/25/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					RPD
Benzene	2.18	B	0.005	0.002	21.3
Toluene	0.870		0.009	0.005	28.6
Ethylbenzene	0.222		0.005	0.002	43.3
m/p-Xylenes	1.25		0.005	0.002	52.8
Styrene	0.697		0.009	0.005	75.2
o-Xylene	0.382		0.005	0.002	84
Isopropylbenzene	0.018		0.005	0.002	57.1
n-Propylbenzene	0.014		0.005	0.002	43.5
1,3,5-Trimethylbenzene	0.276		0.005	0.002	100.8
1,2,4-Trimethylbenzene	0.597		0.005	0.002	97.4
t-Butylbenzene		U	0.005	0.002	NA
sec-Butylbenzene	0.008		0.005	0.002	66.7
p-Isopropyltoluene	0.038		0.005	0.002	86.8
n-Butylbenzene	0.020		0.005	0.002	50
C1 - Benzene	0.536		0.009	0.005	30
C2 - Benzene	0.895		0.005	0.002	57.4
C3 - Benzene	0.552		0.005	0.002	93.2
C4 - Benzene	0.204		0.005	0.002	81.4
C5 - Benzene	0.056		0.005	0.002	48.9
trans-Decalin	0.013		0.005	0.002	47.6
cis-Decalin		U	0.005	0.002	NA
Naphthalene	64.2	D	0.005	0.002	86.3
2-Methylnaphthalene	4.66		0.005	0.002	96.3
1-Methylnaphthalene	3.71		0.005	0.002	101.6
C1 - Naphthalene	5.15		0.005	0.002	98.1
C2 - Naphthalene	3.9		0.005	0.002	91
C3- Naphthalene	2.48		0.005	0.002	98
C4- Naphthalene	1.95		0.005	0.002	104.3
Acenaphthylene	10.7		0.005	0.002	136.5
Acenaphthene	10.7		0.005	0.002	94
Dibenzofuran	7.11		0.005	0.002	84.7
Fluorene	11.9		0.005	0.002	99.4
C1 - Fluorene	3.61		0.005	0.002	116.1
C2 - Fluorene	2.43		0.005	0.002	135.5
C3 - Fluorene	1.6		0.005	0.002	101.5
Phenanthrene	47.4	D	0.005	0.002	115.5
Anthracene	31.0	D	0.005	0.002	129.9

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

Field ID: Duplicate of BH-SED-13C-6

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090305-01DUP-R		
File ID:	E032409.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/4/2009	Decanted:	None
Date Received:	3/5/2009		
Date Prepared:	3/24/2009	Sample Size (g):	2.85
Date Cleanup:	NA	Percent Solid:	77.0%
Date Analyzed:	3/25/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
C1 - Phenanthrene/Anthracene	26.0		0.005	0.002	144.1
C2 - Phenanthrene/Anthracene	16.8		0.005	0.002	153.5
C3 - Phenanthrene/Anthracene	5.99		0.005	0.002	140.3
C4 - Phenanthrene/Anthracene	1.23		0.005	0.002	103.1
Dibenzothiophene	4.95		0.005	0.002	103.2
C1 - Dibenzothiophene	2.85		0.005	0.002	122.7
C2 - Dibenzothiophene	2.55		0.005	0.002	126.3
C3 - Dibenzothiophene	1.38		0.005	0.002	102.8
C4 - Dibenzothiophene	0.606		0.005	0.002	78
Benzo(b)naphtho(2,1-d)thiophene	10.2		0.005	0.002	132
Fluoranthene	119	D	0.005	0.002	130.6
Pyrene	77.7	D	0.005	0.002	131
C1 - Fluoranthene/Pyrene	66.2		0.005	0.002	146.6
C2 - Fluoranthene/Pyrene	19.4		0.005	0.002	155
C3 - Fluoranthene/Pyrene	5.83		0.005	0.002	149.2
Benz[a]anthracene	60.7	D	0.005	0.002	140.5
Chrysene*	54.2	D	0.005	0.002	139.2
C1 - Benz(a)anthracene/Chrysene	22.0		0.005	0.002	150.6
C2 - Benz(a)anthracene/Chrysene	8.06		0.005	0.002	155.5
C3 - Benz(a)anthracene/Chrysene	2.28		0.005	0.002	139
C4 - Benz(a)anthracene/Chrysene	2.11		0.005	0.002	143.6
Benzo[b]fluoranthene	38.1	D	0.005	0.002	128.2
Benzo[j/k]fluoranthene	40.8	D	0.005	0.002	134.7
Benzo(e)pyrene	25.4	D	0.005	0.002	128
Benzo[a]pyrene	44.2	D	0.005	0.002	130.8
Perylene	10.3		0.005	0.002	114.7
Indeno[1,2,3-cd]pyrene	24.0	D	0.005	0.002	120.4
Dibenz[a,h]anthracene	8.26		0.005	0.002	124.2
Benzo[g,h,i]perylene	17.5		0.005	0.002	109.1
Coronene	5.68		0.005	0.002	111.7
Retene		U	0.005	0.002	NA
Benzo(b/c)fluorenes	21.1	D	0.005	0.002	146.3
2-Methylpyrene	5.66		0.005	0.002	146.3
4-Methylpyrene	3.43		0.005	0.002	143.3
1-Methylpyrene	4.41		0.005	0.002	149
Heptadecane	0.512	B	0.009	0.005	20.2
Pristane	1.55	B	0.005	0.002	70
Octadecane	0.566	B	0.009	0.005	39.3
Phytane	1.53	B	0.005	0.002	63.6

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

Field ID: Duplicate of BH-SED-13C-6

Client:	Test America	Preparation Method:	EPA 3570
Project:	Sparrows Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090305-01DUP-R		
File ID:	E032409.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/4/2009	Decanted:	None
Date Received:	3/5/2009		
Date Prepared:	3/24/2009	Sample Size (g):	2.85
Date Cleanup:	NA	Percent Solid:	77.0%
Date Analyzed:	3/25/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	ERL	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090324-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.116	0.005	0.002	95.5
2,6,10-trimethyltridecane	0.293	0.005	0.002	73.8
Norpristane	0.570	0.005	0.002	70.8
Tetraethyl lead	U	0.009	0.005	NA
Total PAH (16)	660	0.005	0.002	123.9
Total PAH (42)	912	0.005	0.002	127.5

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	76	50 - 120
Phenanthrene-d10	86	50 - 120
Benzo[a]pyrene-d12	81	50 - 120
Perylene-d12	108	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090312-SB		
File ID:	E031807.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
MAH & PAH COMPOUNDS:				
Benzene	0.002 J	0.003	0.001	
Toluene	0.003 J	0.005	0.003	
Ethylbenzene	U	0.003	0.001	
m/p-Xylenes	U	0.003	0.001	
Styrene	U	0.005	0.003	
o-Xylene	U	0.003	0.001	
Isopropylbenzene	U	0.003	0.001	
n-Propylbenzene	U	0.003	0.001	
1,3,5-Trimethylbenzene	U	0.003	0.001	
1,2,4-Trimethylbenzene	U	0.003	0.001	
t-Butylbenzene	U	0.003	0.001	
sec-Butylbenzene	U	0.003	0.001	
p-Isopropyltoluene	U	0.003	0.001	
n-Butylbenzene	U	0.003	0.001	
C1 - Benzene	U	0.005	0.003	
C2 - Benzene	U	0.003	0.001	
C3 - Benzene	U	0.003	0.001	
C4 - Benzene	U	0.003	0.001	
C5 - Benzene	U	0.003	0.001	
trans-Decalin	U	0.003	0.001	
cis-Decalin	U	0.003	0.001	
Naphthalene	0.001 J	0.003	0.001	
2-Methylnaphthalene	0.001 J	0.003	0.001	
1-Methylnaphthalene	U	0.003	0.001	
C1 - Naphthalene	0.001 J	0.003	0.001	
C2 - Naphthalene	0.006	0.003	0.001	
C3- Naphthalene	0.007	0.003	0.001	
C4- Naphthalene	U	0.003	0.001	
Acenaphthylene	U	0.003	0.001	
Acenaphthene	U	0.003	0.001	
Dibenzofuran	U	0.003	0.001	
Fluorene	U	0.003	0.001	
C1 - Fluorene	U	0.003	0.001	
C2 - Fluorene	U	0.003	0.001	
C3 - Fluorene	U	0.003	0.001	
Phenanthrene	0.003 J	0.003	0.001	
Anthracene	U	0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090312-SB		
File ID:	E031807.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	0.004	0.003	0.001	
C2 - Phenanthrene/Anthracene	U	0.003	0.001	
C3 - Phenanthrene/Anthracene	U	0.003	0.001	
C4 - Phenanthrene/Anthracene	U	0.003	0.001	
Dibenzothiophene	U	0.003	0.001	
C1 - Dibenzothiophene	U	0.003	0.001	
C2 - Dibenzothiophene	U	0.003	0.001	
C3 - Dibenzothiophene	U	0.003	0.001	
C4 - Dibenzothiophene	U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene	U	0.003	0.001	
Fluoranthene	0.001 J	0.003	0.001	
Pyrene	0.001 J	0.003	0.001	
C1 - Fluoranthene/Pyrene	U	0.003	0.001	
C2 - Fluoranthene/Pyrene	U	0.003	0.001	
C3 - Fluoranthene/Pyrene	U	0.003	0.001	
Benz[a]anthracene	U	0.003	0.001	
Chrysene*	U	0.003	0.001	
C1 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene	U	0.003	0.001	
Benzo[b]fluoranthene	U	0.003	0.001	
Benzo[j/k]fluoranthene	U	0.003	0.001	
Benzo(e)pyrene	U	0.003	0.001	
Benzo[a]pyrene	U	0.003	0.001	
Perylene	U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	U	0.003	0.001	
Dibenz[a,h]anthracene	0.001 J	0.003	0.001	
Benzo[g,h,i]perylene	U	0.003	0.001	
Coronene	U	0.003	0.001	
Retene	U	0.003	0.001	
Benzo(b/c)fluorenes	U	0.003	0.001	
2-Methylpyrene	U	0.003	0.001	
4-Methylpyrene	U	0.003	0.001	
1-Methylpyrene	U	0.003	0.001	
Heptadecane	0.006	0.005	0.003	
Pristane	0.007	0.003	0.001	
Octadecane	0.005	0.005	0.003	
Phytane	0.004	0.003	0.001	

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

Field ID: Soil Blank

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090312-SB		
File ID:	E031807.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
2,6,10-trimethyldodecane	0.004	0.003	0.001	
2,6,10-trimethyltridecane	0.005	0.003	0.001	
Norpristane	0.005	0.003	0.001	
Tetraethyl lead	U	0.005	0.003	
Total PAH (16)	0.007	0.003	0.001	
Total PAH (42)	0.025	0.003	0.001	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	83	50 - 120
Phenanthrene-d10	95	50 - 120
Benzo[a]pyrene-d12	85	50 - 120
Perylene-d12	101	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090312-SBS		
File ID:	E031808.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
MAH & PAH COMPOUNDS:	Spike Amount					% Recovery
Benzene	2.50	1.75	B	0.003	0.001	70
Toluene	2.50	2.21	B	0.005	0.003	88
Ethylbenzene	2.50	2.07		0.003	0.001	83
m/p-Xylenes	2.50	2.09		0.003	0.001	84
Styrene	2.50	2.31		0.005	0.003	92
o-Xylene	2.50	2.14		0.003	0.001	86
Isopropylbenzene	2.50	2.2		0.003	0.001	88
n-Propylbenzene	2.50	2.19		0.003	0.001	88
1,3,5-Trimethylbenzene	2.50	2.24		0.003	0.001	90
1,2,4-Trimethylbenzene	2.50	2.25		0.003	0.001	90
t-Butylbenzene			U	0.003	0.001	
sec-Butylbenzene	2.50	2.23		0.003	0.001	89
p-Isopropyltoluene	2.50	2.32		0.003	0.001	93
n-Butylbenzene	2.50	2.27		0.003	0.001	91
C1 - Benzene			U	0.005	0.003	
C2 - Benzene			U	0.003	0.001	
C3 - Benzene			U	0.003	0.001	
C4 - Benzene			U	0.003	0.001	
C5 - Benzene			U	0.003	0.001	
trans-Decalin			U	0.003	0.001	
cis-Decalin			U	0.003	0.001	
Naphthalene	2.50	2.33	B	0.003	0.001	93
2-Methylnaphthalene	2.50	2.46	B	0.003	0.001	98
1-Methylnaphthalene	2.50	2.43		0.003	0.001	97
C1 - Naphthalene			BU	0.003	0.001	
C2 - Naphthalene			BU	0.003	0.001	
C3- Naphthalene			BU	0.003	0.001	
C4- Naphthalene			U	0.003	0.001	
Acenaphthylene	2.50	2.76		0.003	0.001	110
Acenaphthene	2.50	2.44		0.003	0.001	98
Dibenzofuran	2.50	2.4		0.003	0.001	96
Fluorene	2.50	2.58		0.003	0.001	103
C1 - Fluorene			U	0.003	0.001	
C2 - Fluorene			U	0.003	0.001	
C3 - Fluorene			U	0.003	0.001	
Phenanthrene	2.50	2.36	B	0.003	0.001	94
Anthracene	2.50	2.45		0.003	0.001	98

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090312-SBS		
File ID:	E031808.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)			RL	EDL	Comments
C1 - Phenanthrene/Anthracene			BU	0.003	0.001	
C2 - Phenanthrene/Anthracene			U	0.003	0.001	
C3 - Phenanthrene/Anthracene			U	0.003	0.001	
C4 - Phenanthrene/Anthracene			U	0.003	0.001	
Dibenzothiophene	2.50	2.36		0.003	0.001	94
C1 - Dibenzothiophene			U	0.003	0.001	
C2 - Dibenzothiophene			U	0.003	0.001	
C3 - Dibenzothiophene			U	0.003	0.001	
C4 - Dibenzothiophene			U	0.003	0.001	
Benzo(b)naphtho(2,1-d)thiophene			U	0.003	0.001	
Fluoranthene	2.50	2.56	B	0.003	0.001	102
Pyrene	2.50	2.56	B	0.003	0.001	102
C1 - Fluoranthene/Pyrene			U	0.003	0.001	
C2 - Fluoranthene/Pyrene			U	0.003	0.001	
C3 - Fluoranthene/Pyrene			U	0.003	0.001	
Benz[a]anthracene	2.50	2.52		0.003	0.001	101
Chrysene*	2.50	2.42		0.003	0.001	97
C1 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C2 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C3 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
C4 - Benz(a)anthracene/Chrysene			U	0.003	0.001	
Benzo[b]fluoranthene	2.50	2.41		0.003	0.001	96
Benzo[j/k]fluoranthene	2.50	2.58		0.003	0.001	103
Benzo(e)pyrene	2.50	2.35		0.003	0.001	94
Benzo[a]pyrene	2.50	2.42		0.003	0.001	97
Perylene			U	0.003	0.001	
Indeno[1,2,3-cd]pyrene	2.50	2.34		0.003	0.001	94
Dibenz[a,h]anthracene	2.50	2.43	B	0.003	0.001	97
Benzo[g,h,i]perylene	2.50	2.33		0.003	0.001	93
Coronene			U	0.003	0.001	
Retene			U	0.003	0.001	
Benzo(b/c)fluorenes			U	0.003	0.001	
2-Methylpyrene			U	0.003	0.001	
4-Methylpyrene			U	0.003	0.001	
1-Methylpyrene			U	0.003	0.001	
Heptadecane			BU	0.005	0.003	
Pristane			BU	0.003	0.001	
Octadecane			BU	0.005	0.003	
Phytane			BU	0.003	0.001	

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

Field ID: Soil Blank Spike

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	QC090312-SBS		
File ID:	E031808.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	NA	Decanted:	None
Date Received:	NA		
Date Prepared:	3/12/2009	Sample Size (g):	4.00
Date Cleanup:	NA	Percent Solid:	100.0%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane		BU	0.003	0.001	
2,6,10-trimethyltridecane		BU	0.003	0.001	
Norpristane		BU	0.003	0.001	
Tetraethyl lead		U	0.005	0.003	

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	88	50 - 120
Phenanthrene-d10	102	50 - 120
Benzo[a]pyrene-d12	95	50 - 120
Perylene-d12	106	50 - 120

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

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

Field ID: Duplicate of BH-SED-03E-2

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090311-01DUP		
File ID:	E031813.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/9/2009	Decanted:	None
Date Received:	3/11/2009		
Date Prepared:	3/12/2009	Sample Size (g):	3.50
Date Cleanup:	NA	Percent Solid:	40.4%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
MAH & PAH COMPOUNDS:					RPD
Benzene	0.170	B	0.007	0.004	11.1
Toluene	0.507	B	0.014	0.007	11.5
Ethylbenzene	0.056		0.007	0.004	13.3
m/p-Xylenes	0.433		0.007	0.004	5.4
Styrene	0.336		0.014	0.007	13.6
o-Xylene	0.050		0.007	0.004	13.1
Isopropylbenzene	0.008		0.007	0.004	0
n-Propylbenzene	0.017		0.007	0.004	5.7
1,3,5-Trimethylbenzene	0.028		0.007	0.004	6.9
1,2,4-Trimethylbenzene	0.074		0.007	0.004	10.3
t-Butylbenzene		U	0.007	0.004	NA
sec-Butylbenzene	0.006	J	0.007	0.004	15.4
p-Isopropyltoluene	0.023		0.007	0.004	16
n-Butylbenzene	0.023		0.007	0.004	4.4
C1 - Benzene	0.304		0.014	0.007	12.9
C2 - Benzene	0.269		0.007	0.004	5.1
C3 - Benzene	0.105		0.007	0.004	8.2
C4 - Benzene	0.069		0.007	0.004	8.3
C5 - Benzene	0.053		0.007	0.004	7.3
trans-Decalin	0.008		0.007	0.004	11.8
cis-Decalin		U	0.007	0.004	NA
Naphthalene	3.05	B	0.007	0.004	10.9
2-Methylnaphthalene	0.894	B	0.007	0.004	10.6
1-Methylnaphthalene	0.359		0.007	0.004	9.5
C1 - Naphthalene	0.771	B	0.007	0.004	10.7
C2 - Naphthalene	0.649	B	0.007	0.004	8.7
C3- Naphthalene	0.345	B	0.007	0.004	4.3
C4- Naphthalene	0.310		0.007	0.004	1.6
Acenaphthylene	0.994		0.007	0.004	0.1
Acenaphthene	0.141		0.007	0.004	6.8
Dibenzofuran	0.493		0.007	0.004	8.9
Fluorene	0.556		0.007	0.004	9.1
C1 - Fluorene	0.289		0.007	0.004	10.5
C2 - Fluorene	0.624		0.007	0.004	12.4
C3 - Fluorene	0.507		0.007	0.004	15.6
Phenanthrene	1.74	B	0.007	0.004	9.8
Anthracene	1.54		0.007	0.004	6.9

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

Field ID: Duplicate of BH-SED-03E-2

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090311-01DUP		
File ID:	E031813.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/9/2009	Decanted:	None
Date Received:	3/11/2009		
Date Prepared:	3/12/2009	Sample Size (g):	3.50
Date Cleanup:	NA	Percent Solid:	40.4%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)	RL	EDL	Comments
C1 - Phenanthrene/Anthracene	1.64 B	0.007	0.004	6.9
C2 - Phenanthrene/Anthracene	0.899	0.007	0.004	5.9
C3 - Phenanthrene/Anthracene	0.656	0.007	0.004	3.3
C4 - Phenanthrene/Anthracene	0.407	0.007	0.004	1
Dibenzothiophene	0.277	0.007	0.004	9.3
C1 - Dibenzothiophene	0.351	0.007	0.004	8.7
C2 - Dibenzothiophene	0.416	0.007	0.004	4.7
C3 - Dibenzothiophene	0.481	0.007	0.004	6.6
C4 - Dibenzothiophene	0.371	0.007	0.004	6
Benzo(b)naphtho(2,1-d)thiophene	0.683	0.007	0.004	6.7
Fluoranthene	5.48 B	0.007	0.004	8.4
Pyrene	5.15 B	0.007	0.004	8.7
C1 - Fluoranthene/Pyrene	3.84	0.007	0.004	9.9
C2 - Fluoranthene/Pyrene	1.52	0.007	0.004	8.2
C3 - Fluoranthene/Pyrene	0.869	0.007	0.004	9.2
Benz[a]anthracene	3.98	0.007	0.004	6.6
Chrysene*	3.43	0.007	0.004	4.6
C1 - Benz(a)anthracene/Chrysene	1.85	0.007	0.004	10.3
C2 - Benz(a)anthracene/Chrysene	0.965	0.007	0.004	12.2
C3 - Benz(a)anthracene/Chrysene	0.541	0.007	0.004	8.5
C4 - Benz(a)anthracene/Chrysene	0.480	0.007	0.004	10.3
Benzo[b]fluoranthene	4.6	0.007	0.004	4.3
Benzo[j/k]fluoranthene	3.76	0.007	0.004	2.4
Benzo(e)pyrene	3.08	0.007	0.004	3.2
Benzo[a]pyrene	4.56	0.007	0.004	3.4
Perylene	1.43	0.007	0.004	1.4
Indeno[1,2,3-cd]pyrene	3.14	0.007	0.004	0.6
Dibenz[a,h]anthracene	0.901 B	0.007	0.004	13.4
Benzo[g,h,i]perylene	2.77	0.007	0.004	0.7
Coronene	0.705	0.007	0.004	0.9
Retene	0.155	0.007	0.004	8
Benzo(b/c)fluorenes	1.1	0.007	0.004	9.5
2-Methylpyrene	0.376	0.007	0.004	9.4
4-Methylpyrene	0.321	0.007	0.004	5.5
1-Methylpyrene	0.261	0.007	0.004	9.1
Heptadecane	0.735 B	0.014	0.007	5.4
Pristane	0.254 B	0.007	0.004	17.6
Octadecane	0.369 B	0.014	0.007	7.8
Phytane	0.378 B	0.007	0.004	10.3

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

Field ID: Duplicate of BH-SED-03E-2

Client:	TestAmerica	Preparation Method:	EPA 3570
Project:	Sparrow's Point	Cleanup Method(s):	NA
		Analysis Method:	EPA 8270M
Lab ID	TA090311-01DUP		
File ID:	E031813.D	Matrix:	Soil
		Preservation:	None
Date Sampled:	3/9/2009	Decanted:	None
Date Received:	3/11/2009		
Date Prepared:	3/12/2009	Sample Size (g):	3.50
Date Cleanup:	NA	Percent Solid:	40.4%
Date Analyzed:	3/19/2009	Extract Volume (µl):	2000
Instrument:	El Camino	Prep DF:	1
Operator:	JAR	Analysis DF:	1
		Injection Volume (µl):	1.00
Batch QC:	QC090312-SB		

Analyte	Concentration (mg/kg dry wt.)		RL	EDL	Comments
2,6,10-trimethyldodecane	0.027	B	0.007	0.004	33.8
2,6,10-trimethyltridecane	0.082	B	0.007	0.004	2.5
Norpristane	0.131	B	0.007	0.004	16.1
Tetraethyl lead		U	0.014	0.007	NA
Total PAH (16)	45.8		0.007	0.004	5.5
Total PAH (42)	69.8		0.007	0.004	5.7

Extraction Surrogate Recoveries (%)		Limits
Toluene-d8	73	50 - 120
Phenanthrene-d10	99	50 - 120
Benzo[a]pyrene-d12	84	50 - 120
Perylene-d12	96	50 - 120

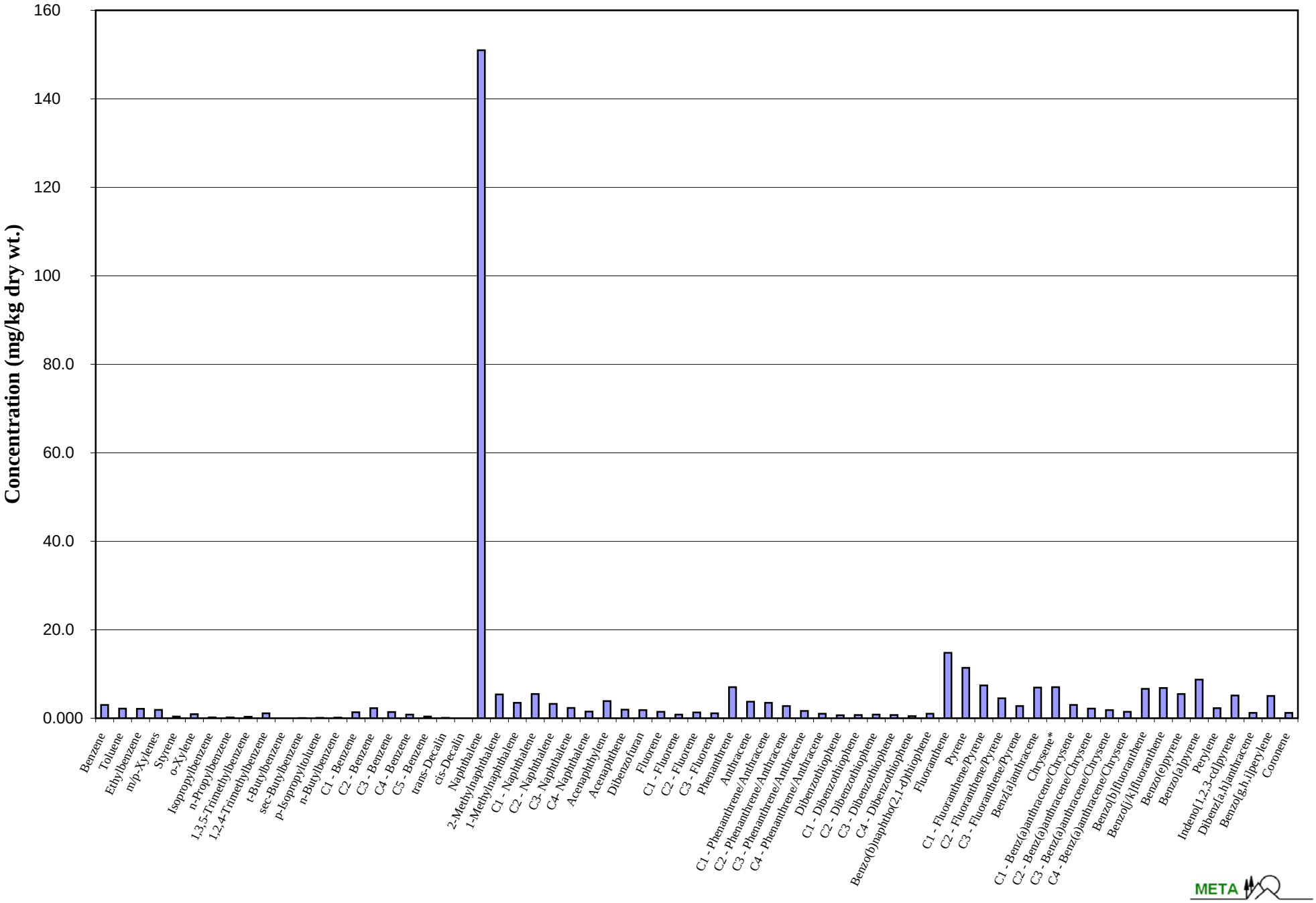
NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

Appendix D

Extended MAH/PAH Profiles – Histograms

BH-SED-03A-00

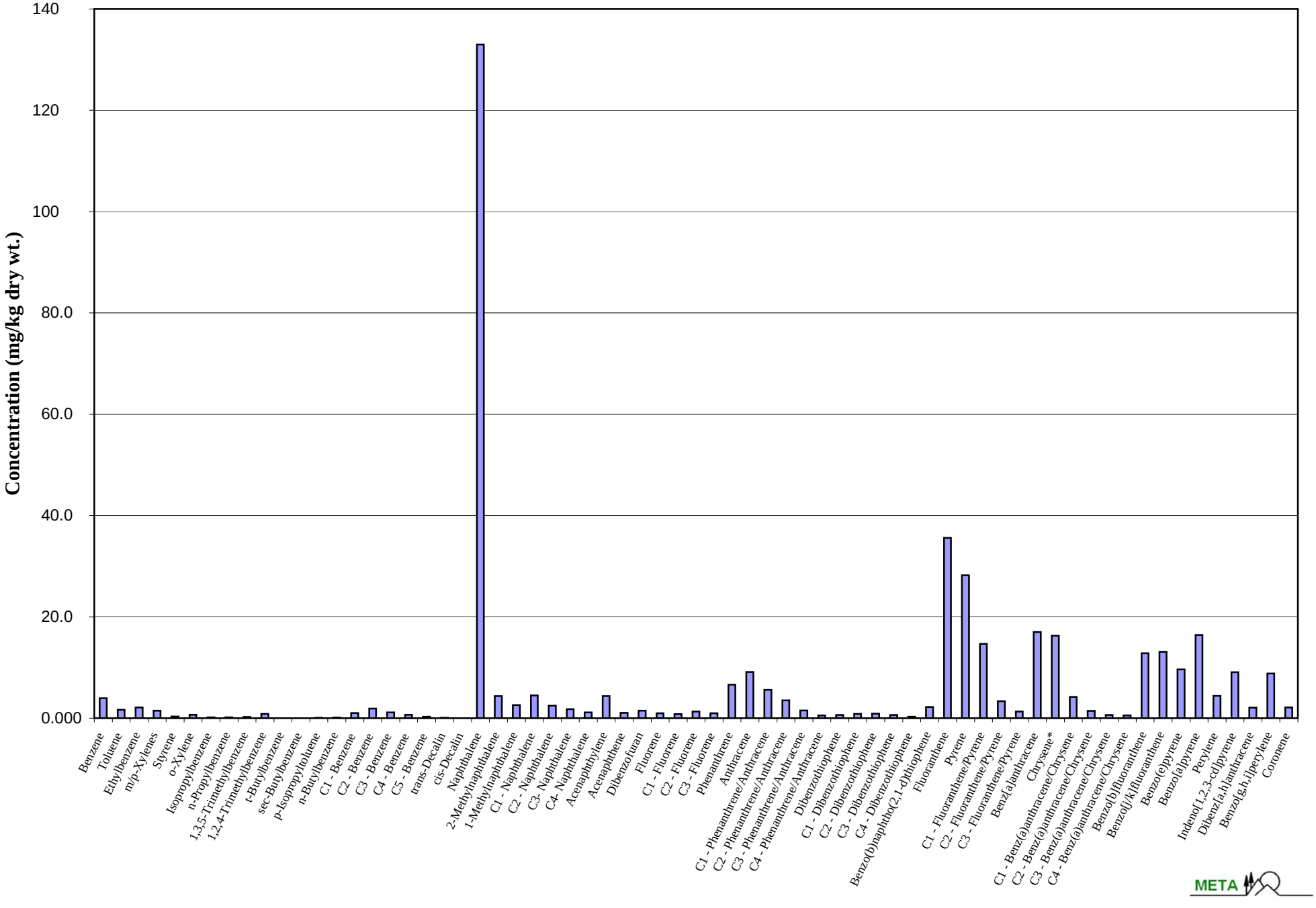
TA090211-01-D



META

Duplicate of BH-SED-03A-00

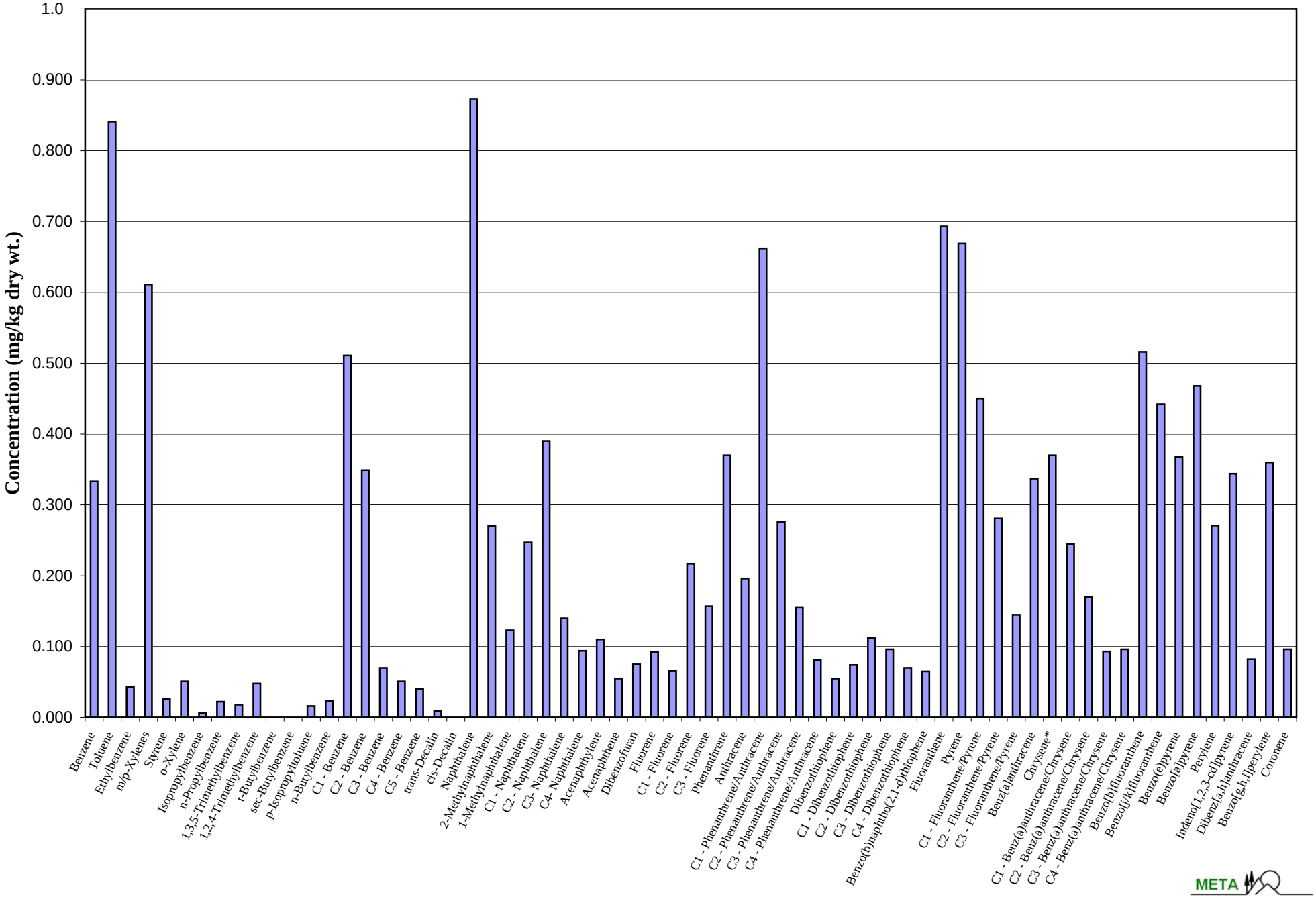
TA090211-01DUP-D



META

Reference

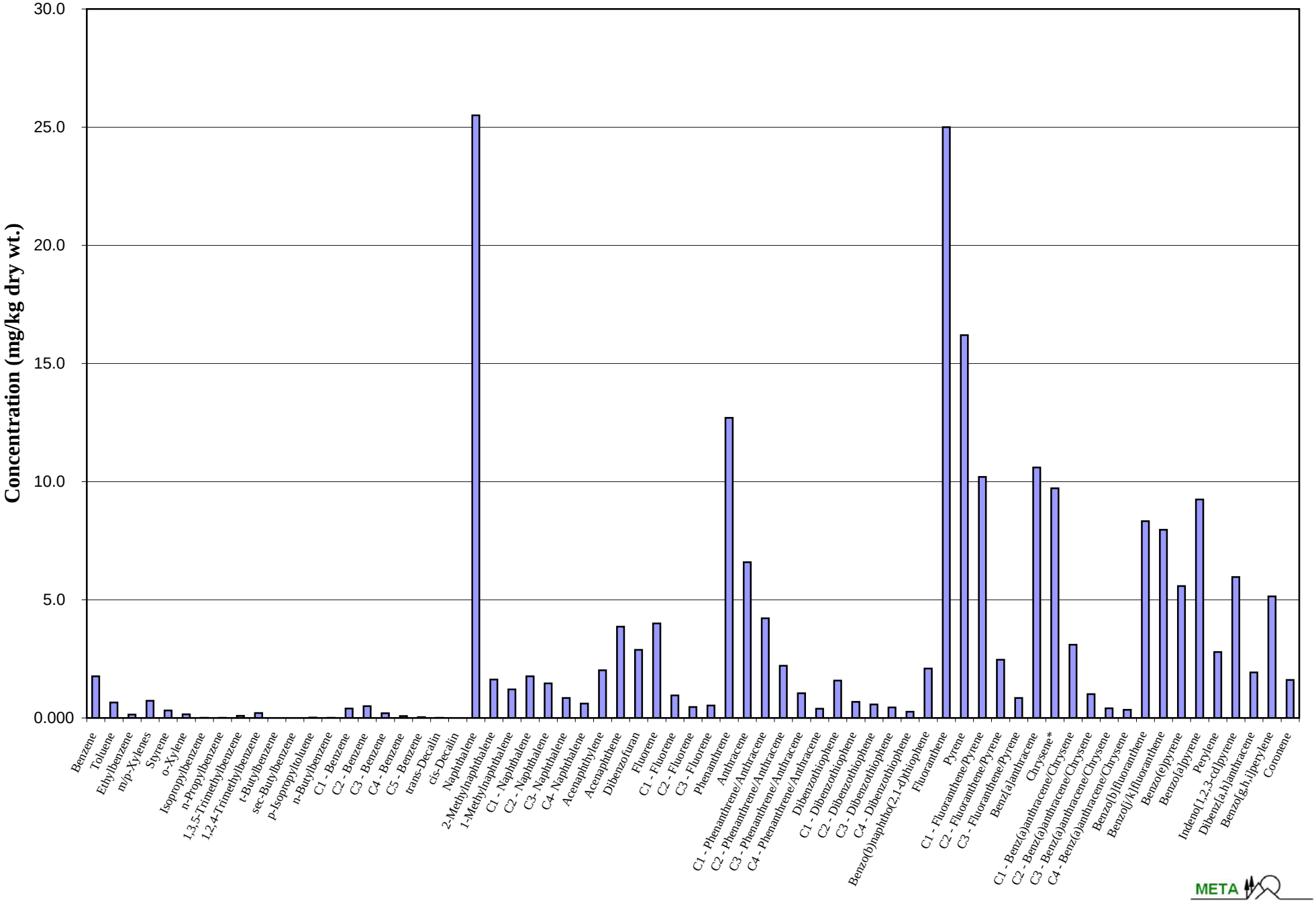
TA090211-02



META

BH-SED-13C-6

TA090305-01-R



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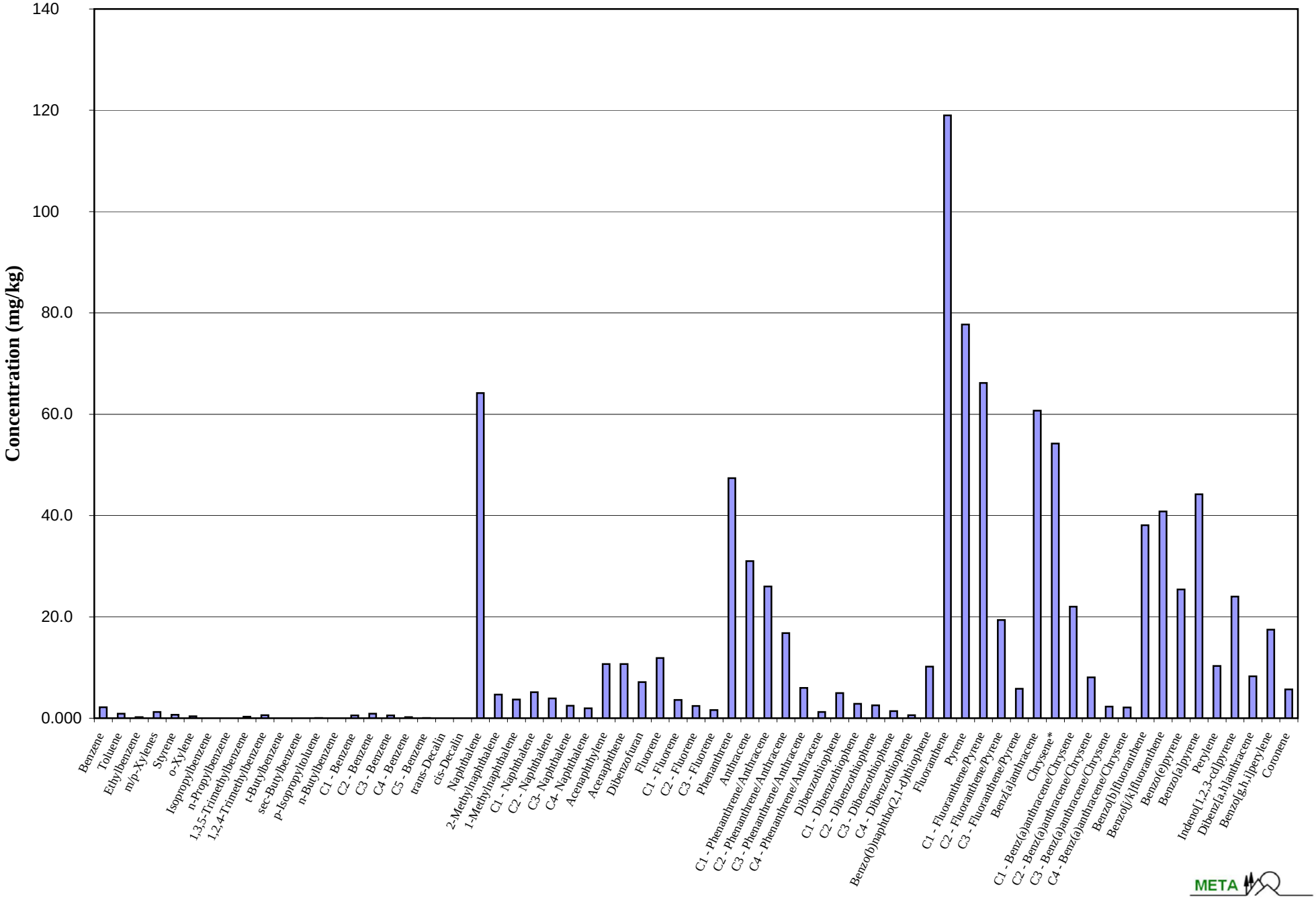
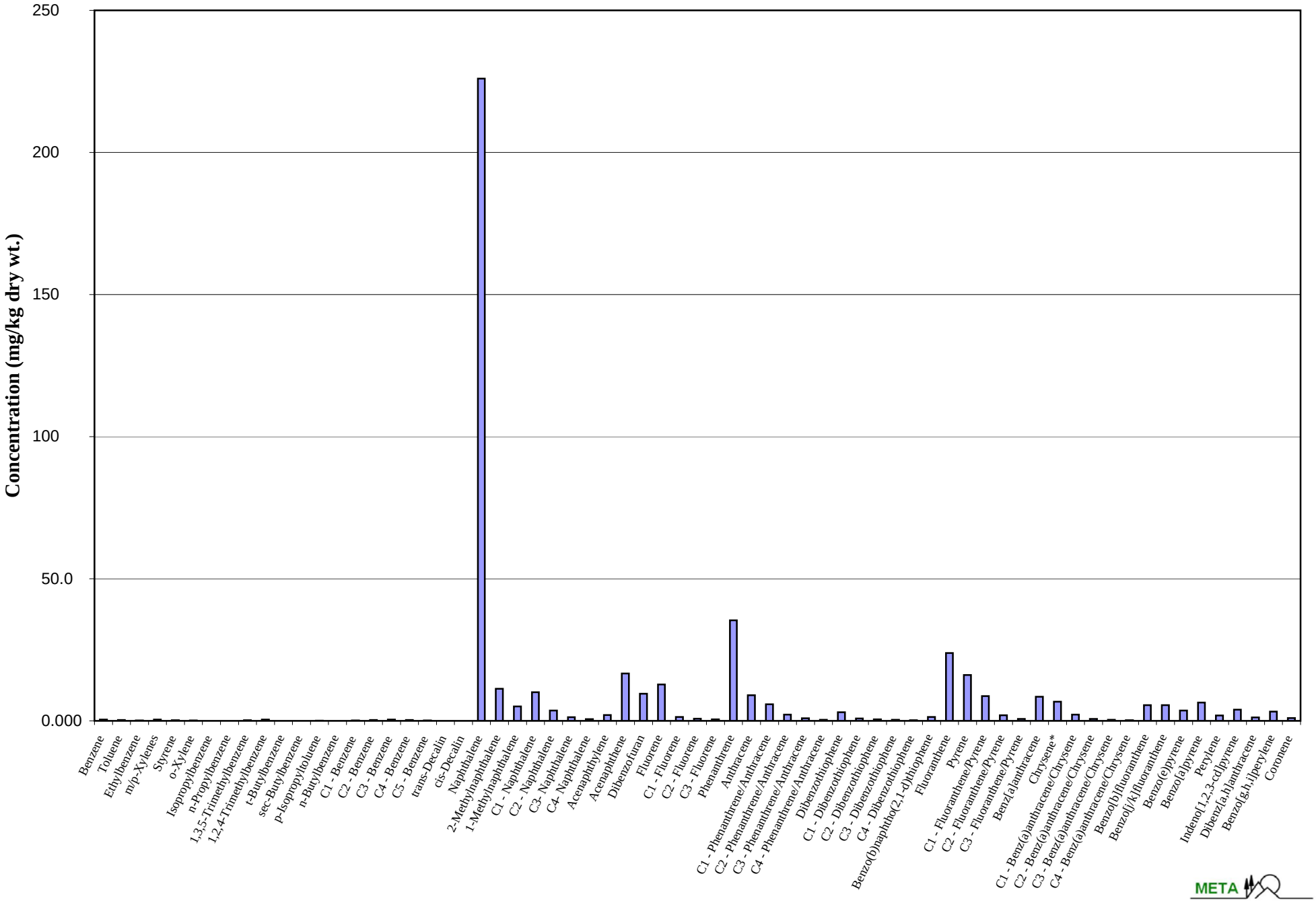


BH-SED-05-4

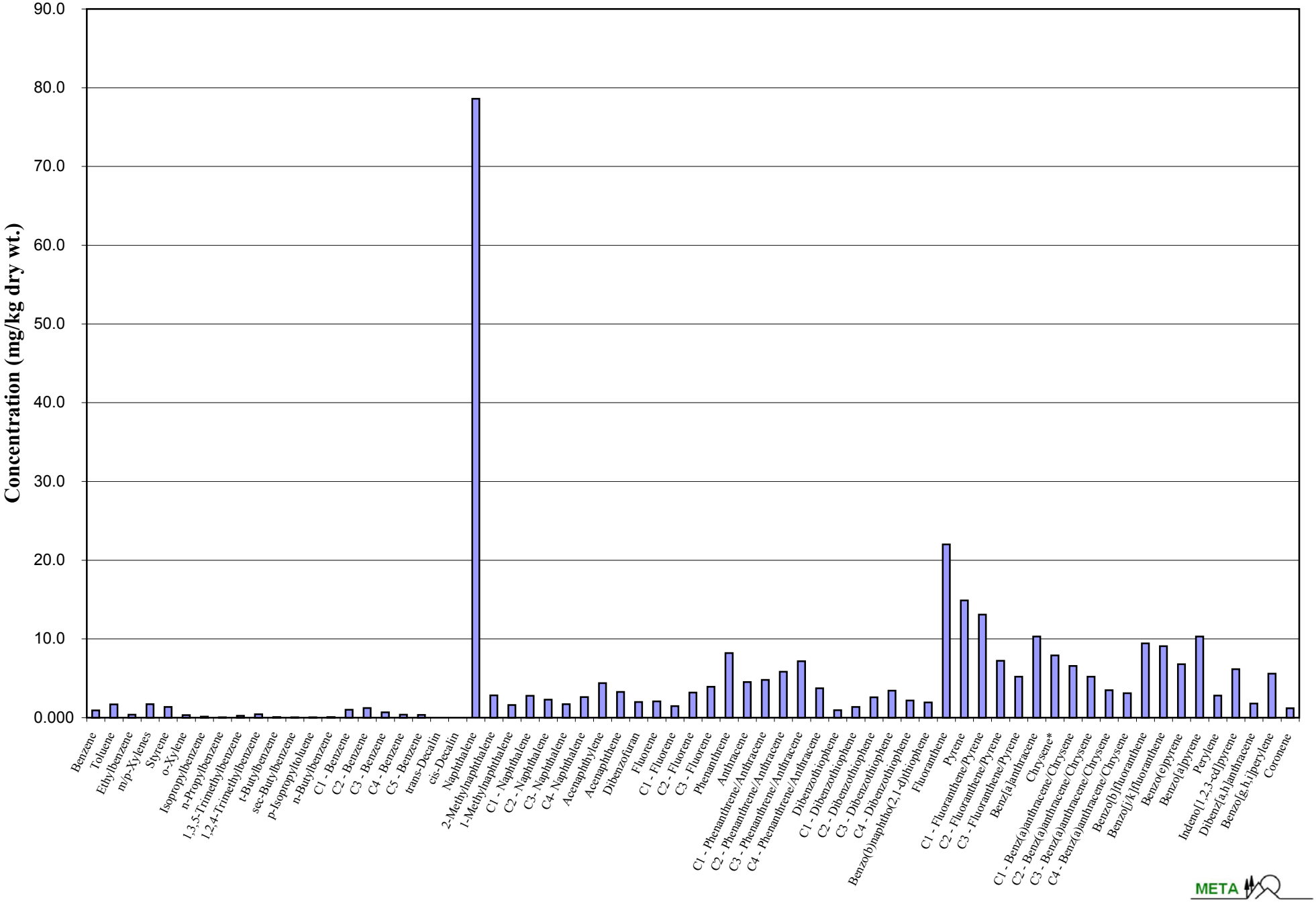
TA090305-02-R



META

BH-SED-10-2

TA090226-01-D



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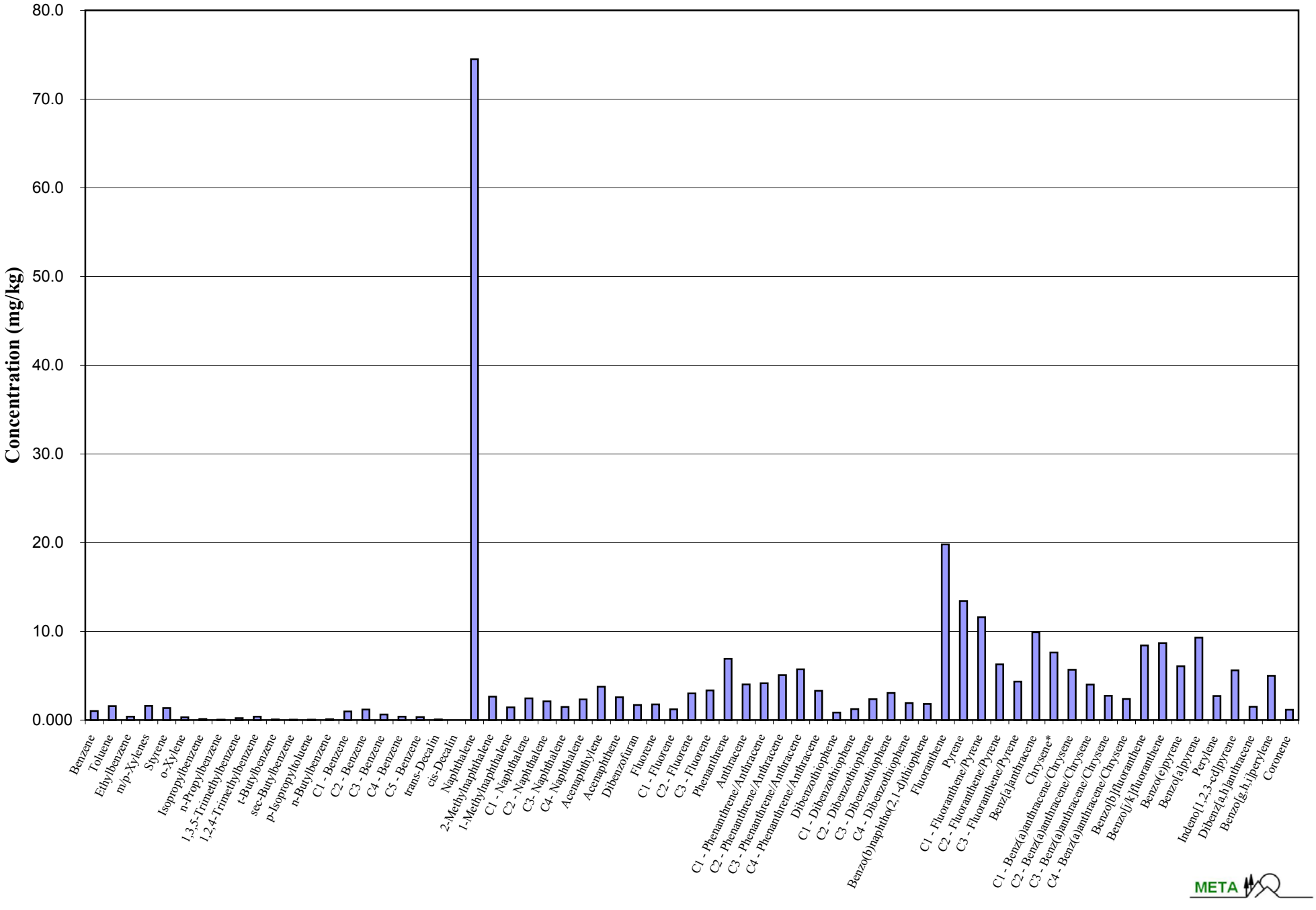
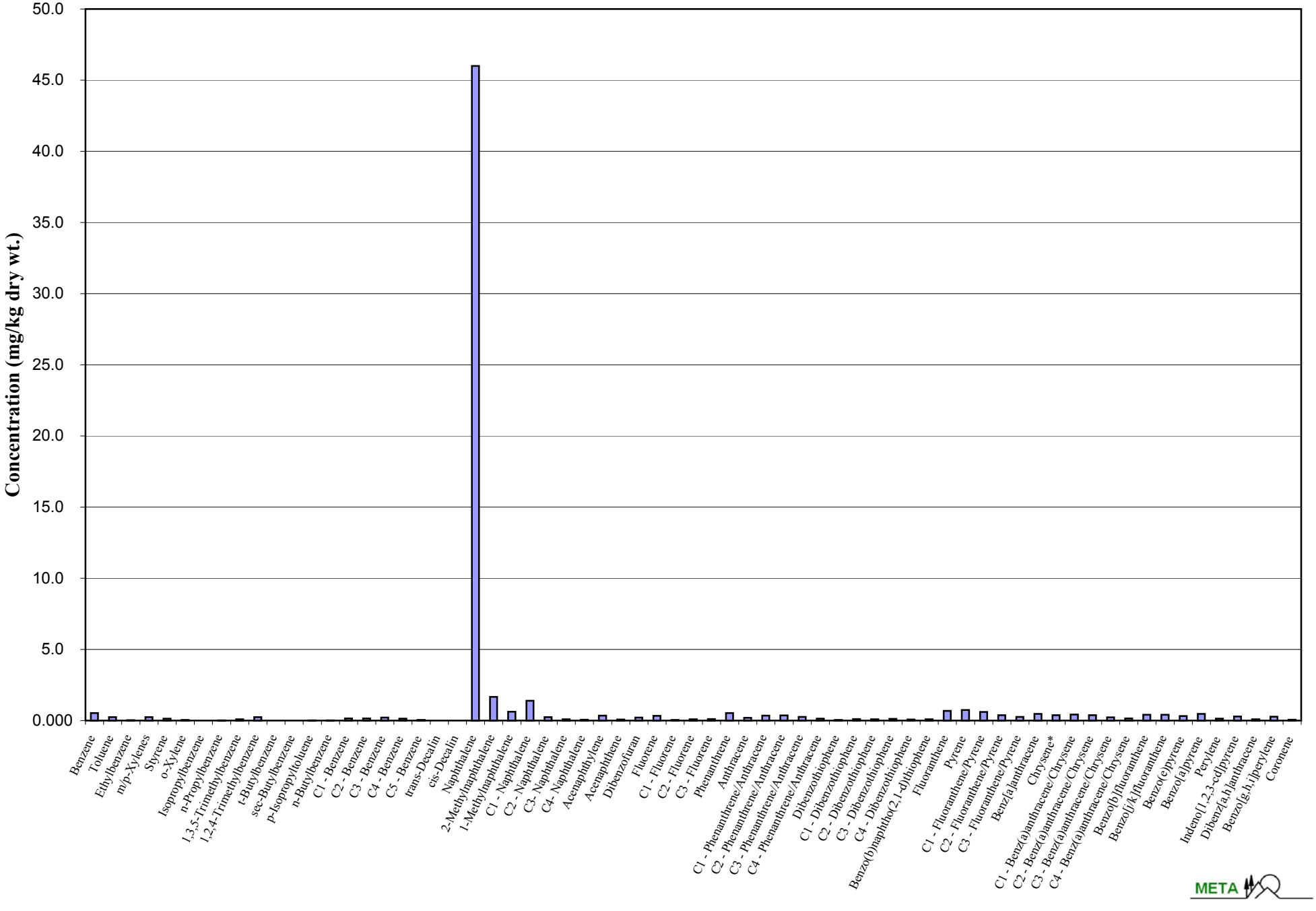


BH-SED-03A-12

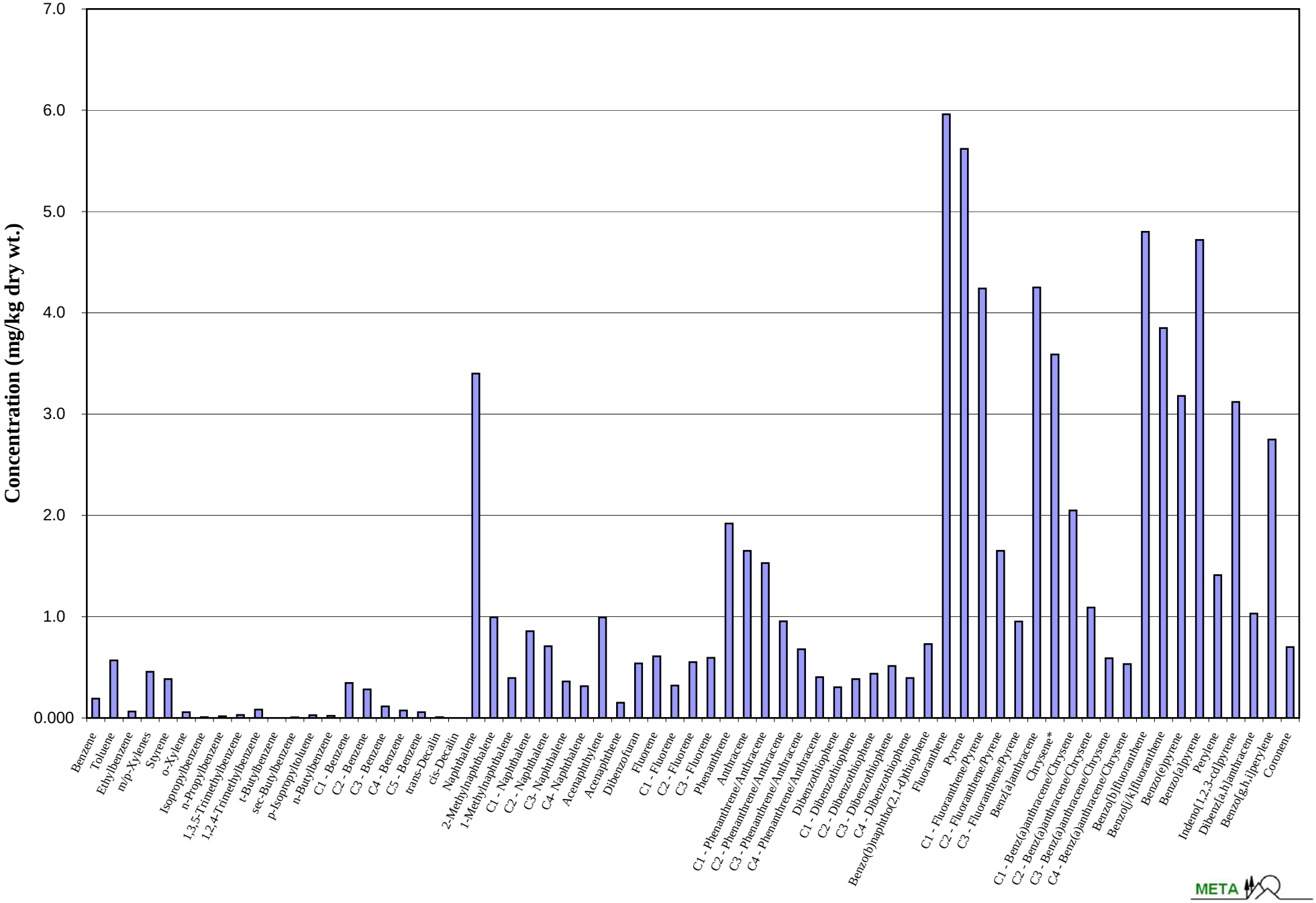
TA090226-02



META

BH-SED-03E-2

TA090311-01



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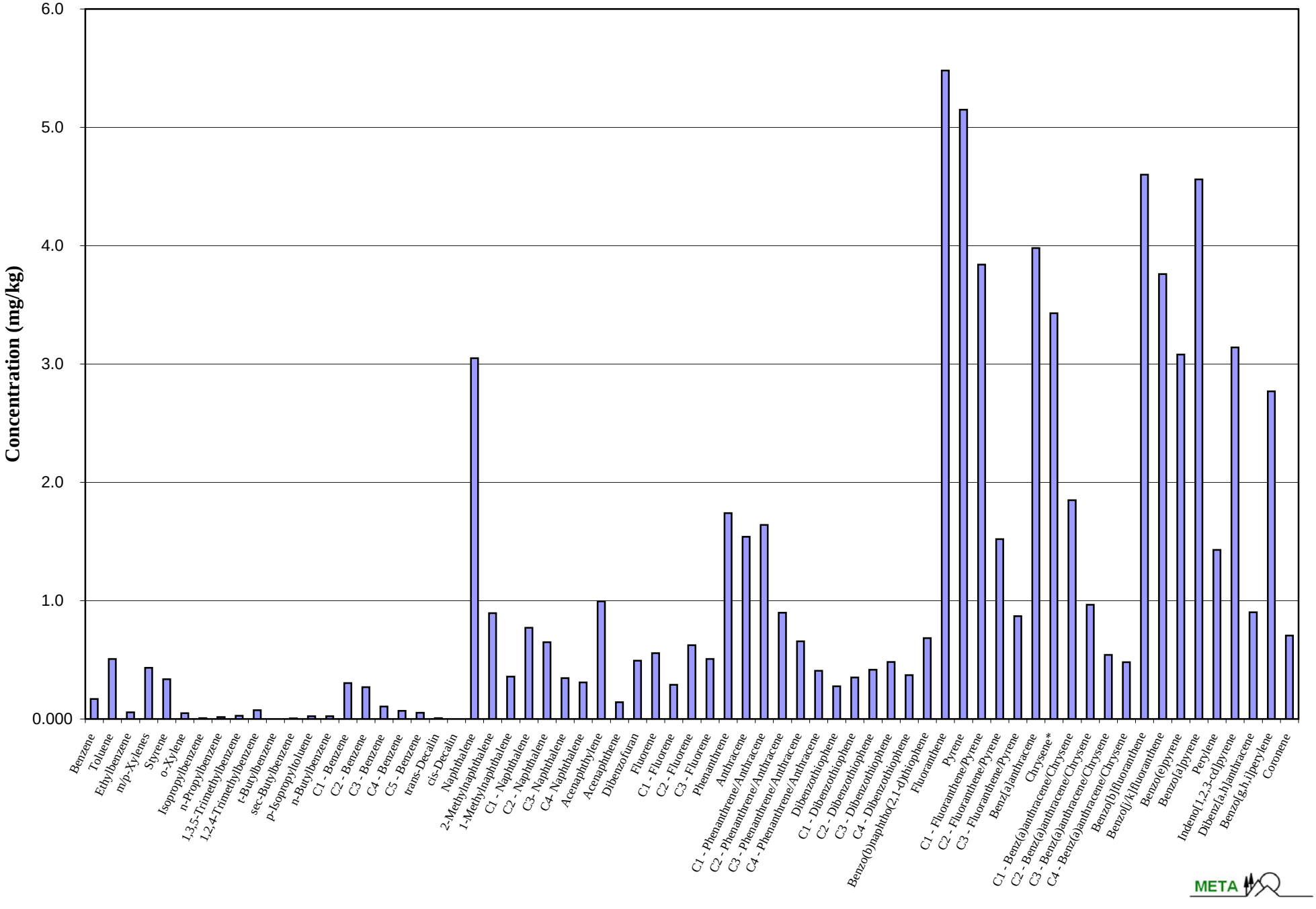
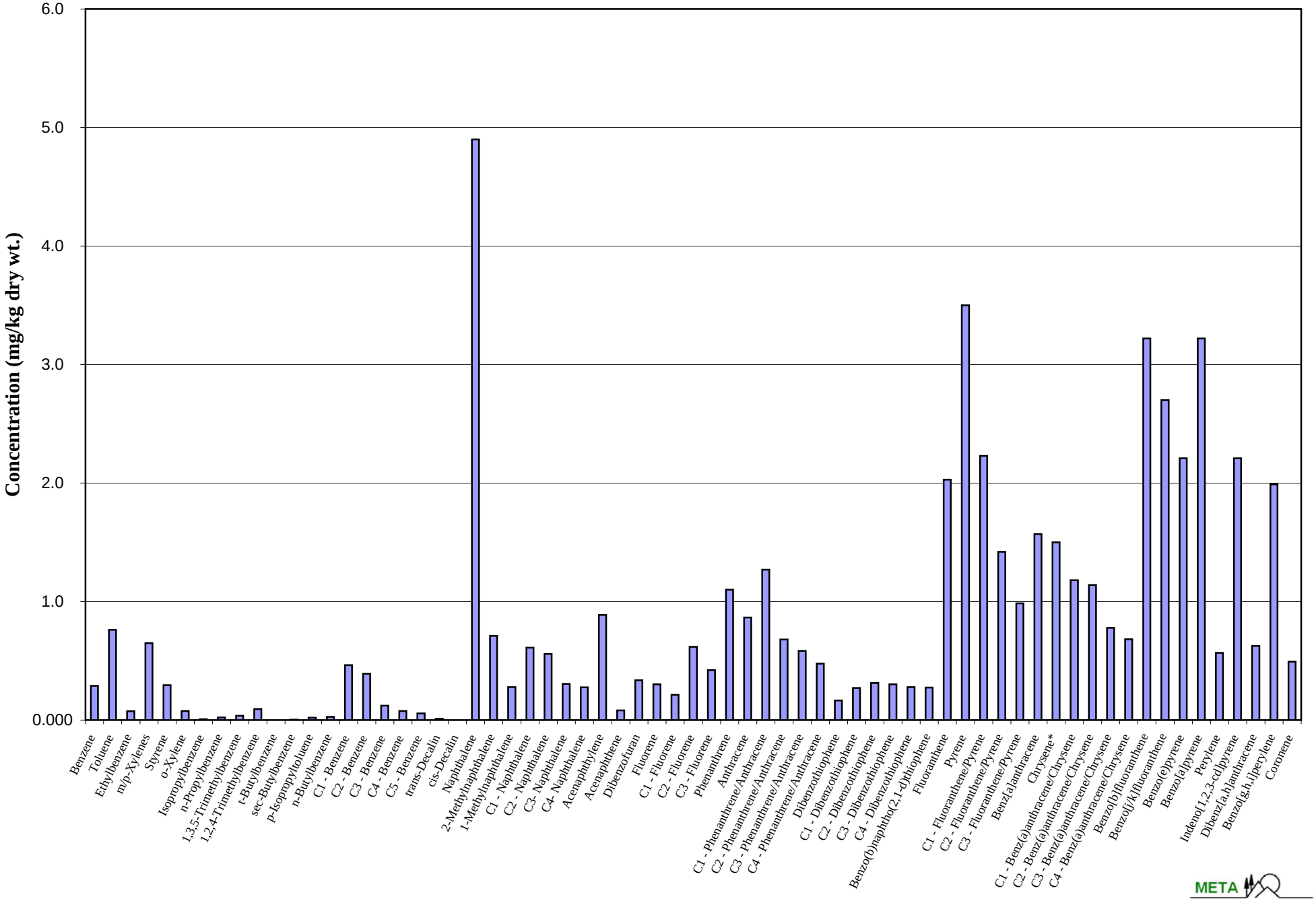


META

BH-SED-17-0

TA090311-02



META

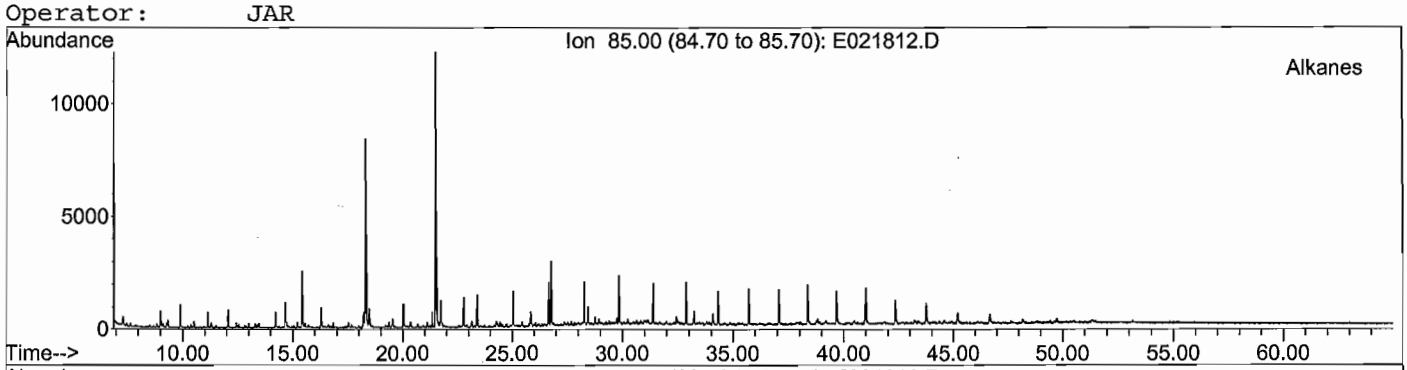
Appendix E

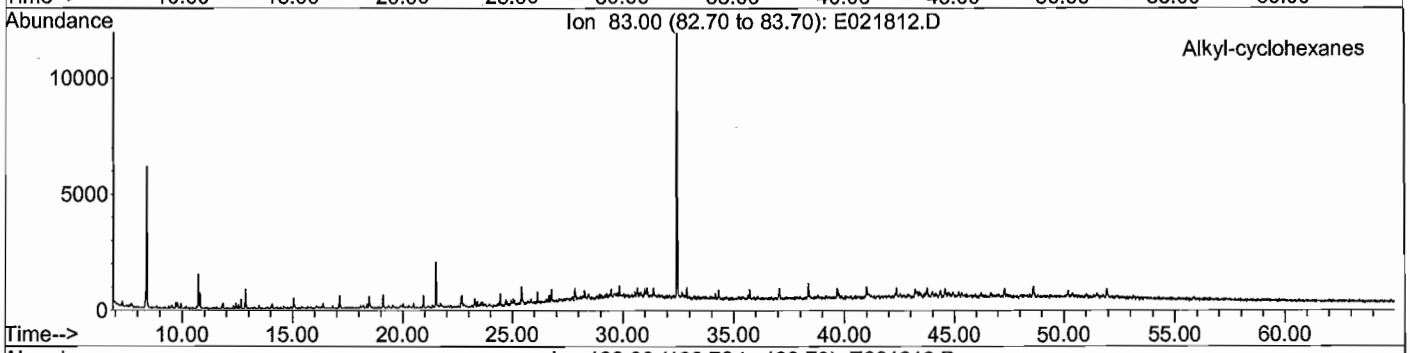
Extracted Ion Current Profiles (EICPs)

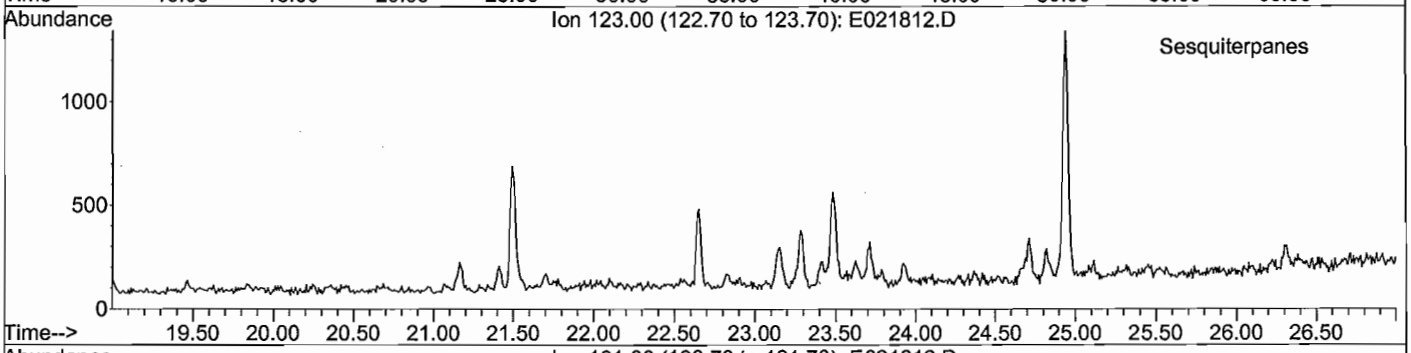
META Environmental, Inc.

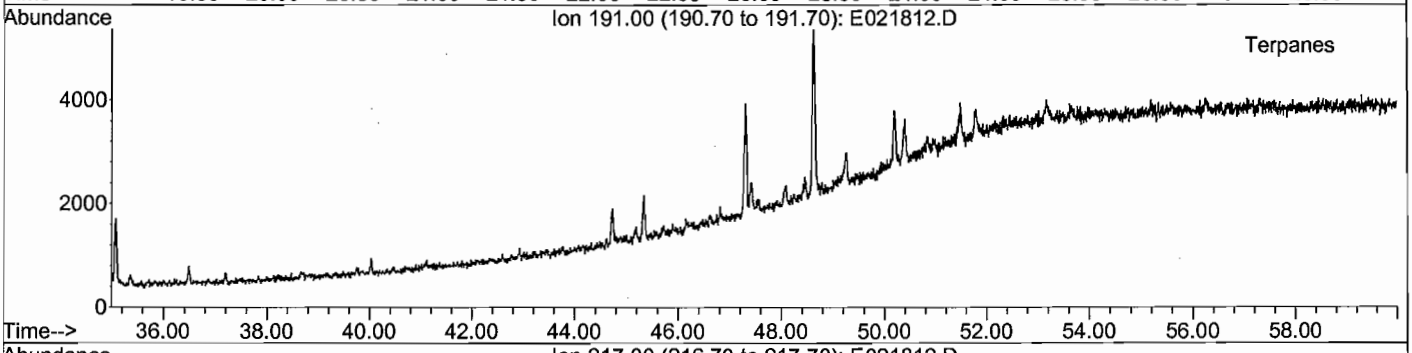
GC/MS EXTRACTED ION CHROMATOGRAM

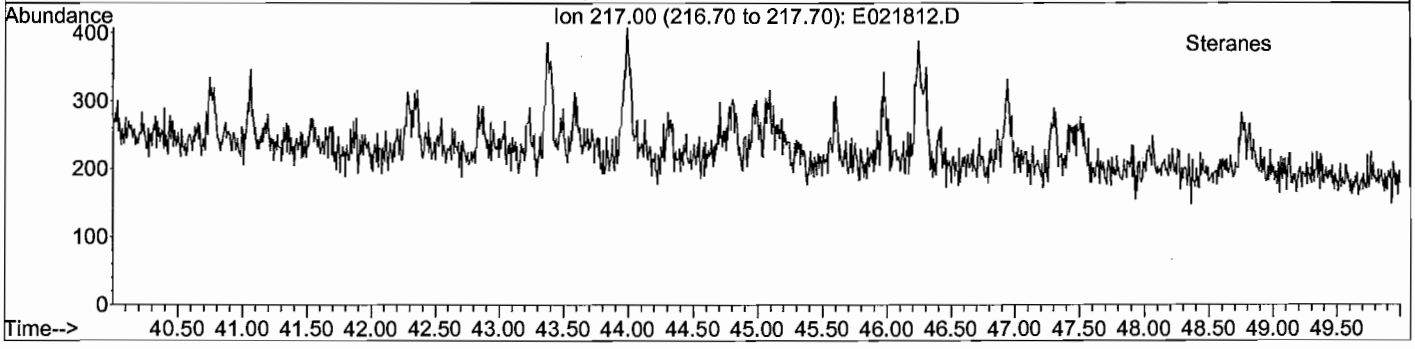
File: J:\1\DATA\E090218\E021812.D
Date Acquired: 19 Feb 2009 5:50 am
Method File: 4008SIMD.M
Sample Name: TA090211-01-D
Misc Info: BH-SED-03A-00 - 10X
Operator: JAR







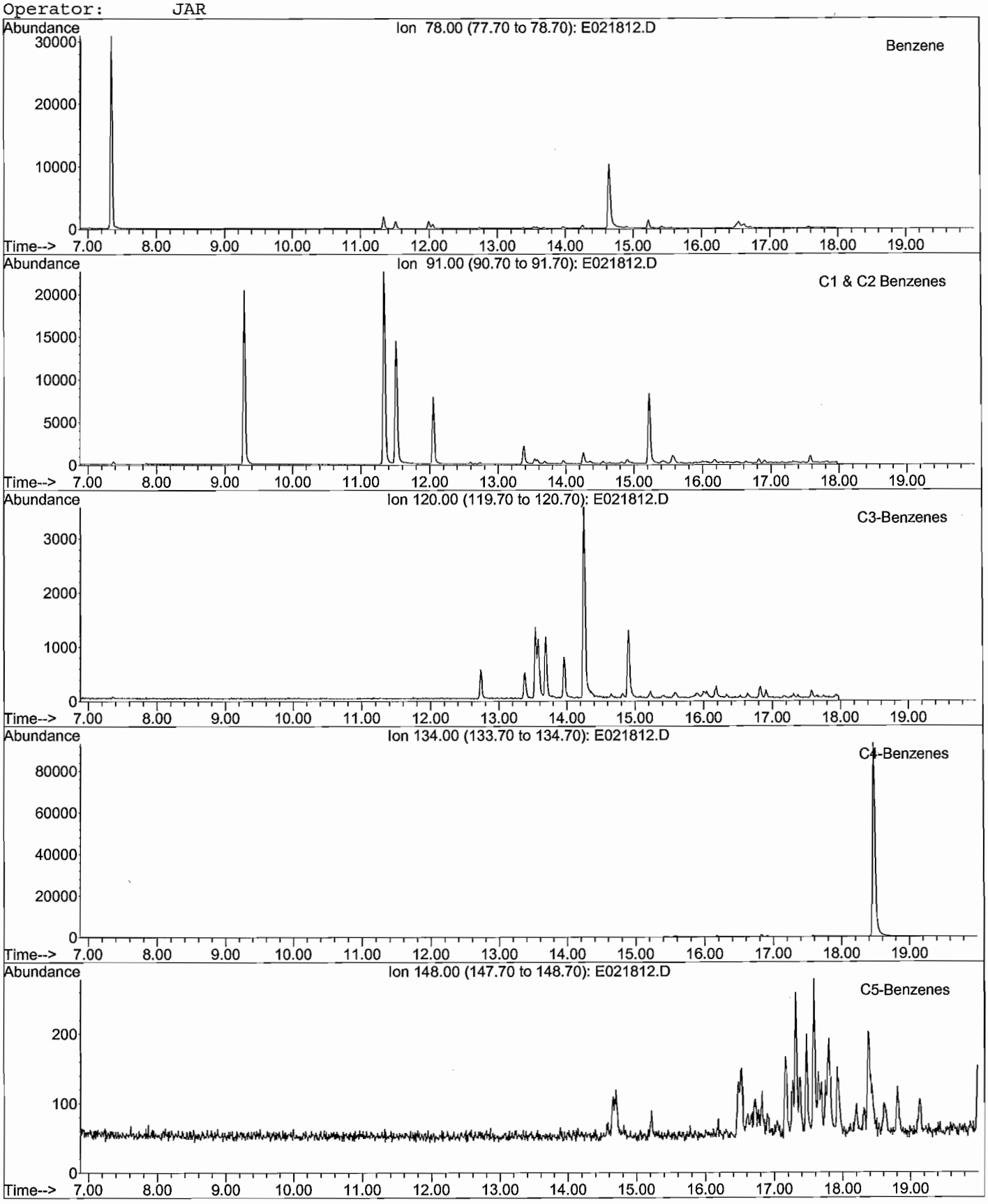




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

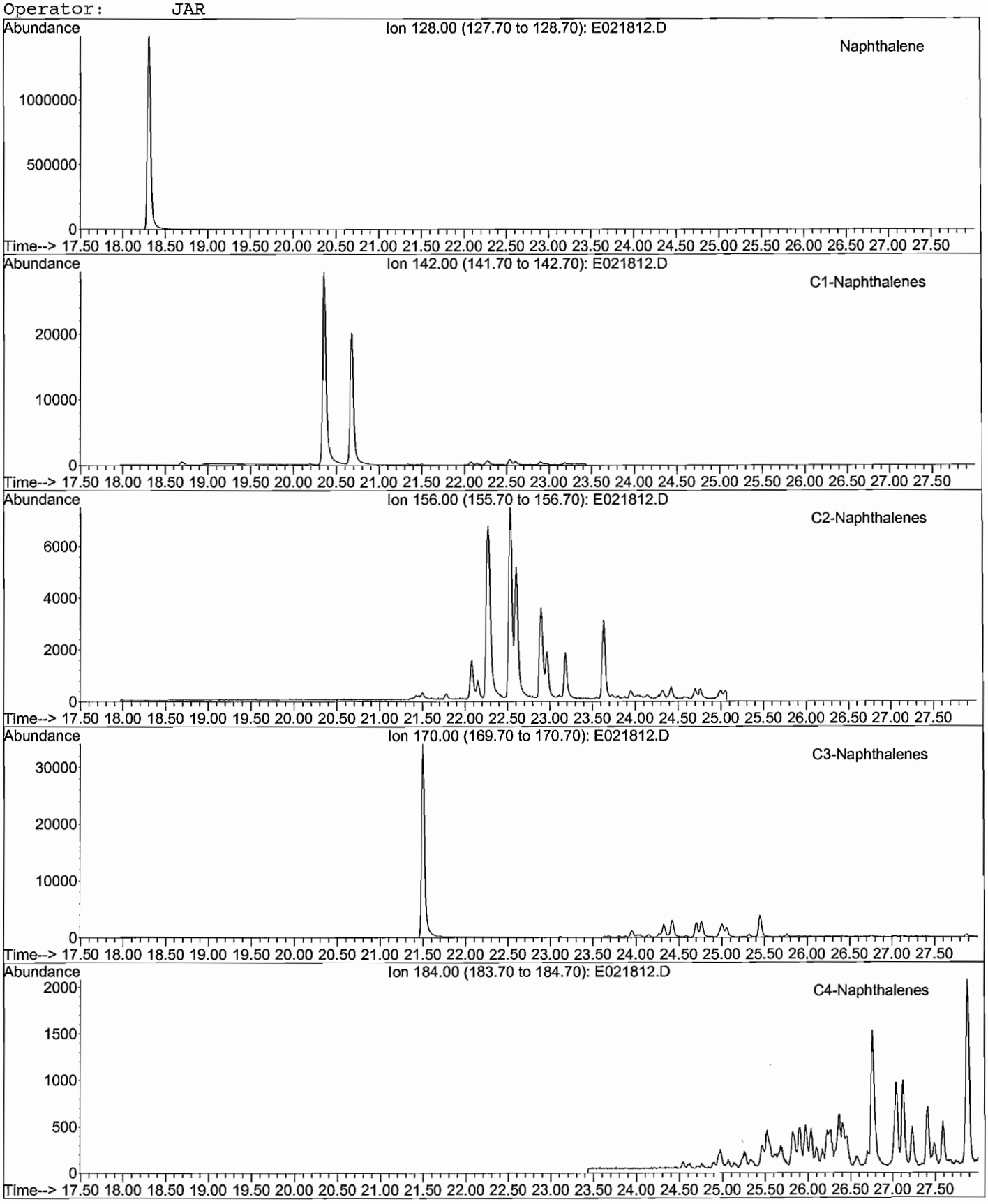
File: J:\1\DATA\E090218\E021812.D
Date Acquired: 19 Feb 2009 5:50 am
Method File: 4008SIMD.M
Sample Name: TA090211-01-D
Misc Info: BH-SED-03A-00 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

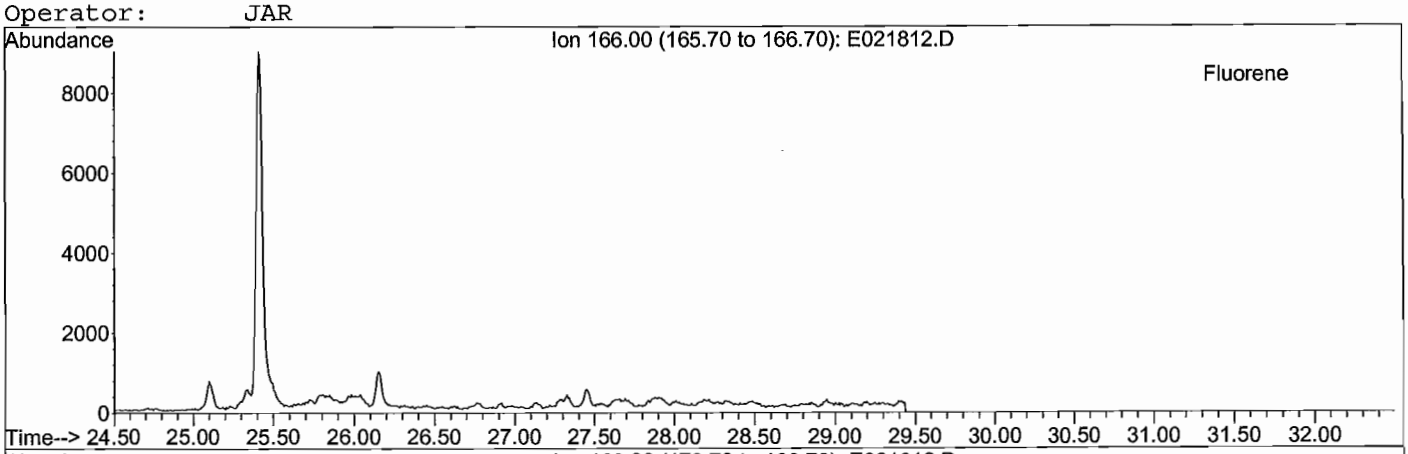
File: J:\1\DATA\E090218\E021812.D
Date Acquired: 19 Feb 2009 5:50 am
Method File: 4008SIMD.M
Sample Name: TA090211-01-D
Misc Info: BH-SED-03A-00 - 10X
Operator: JAR

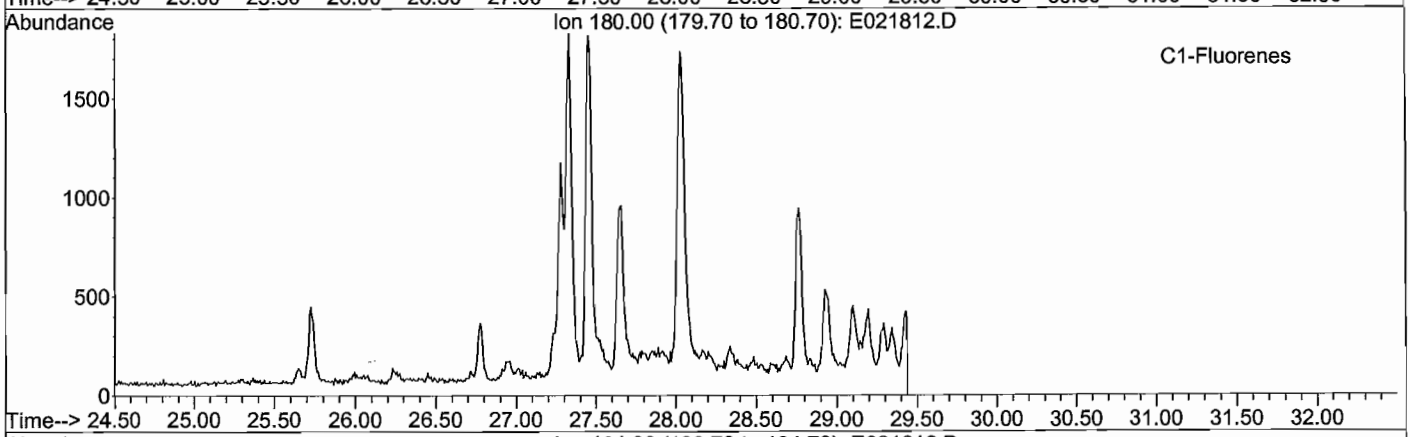


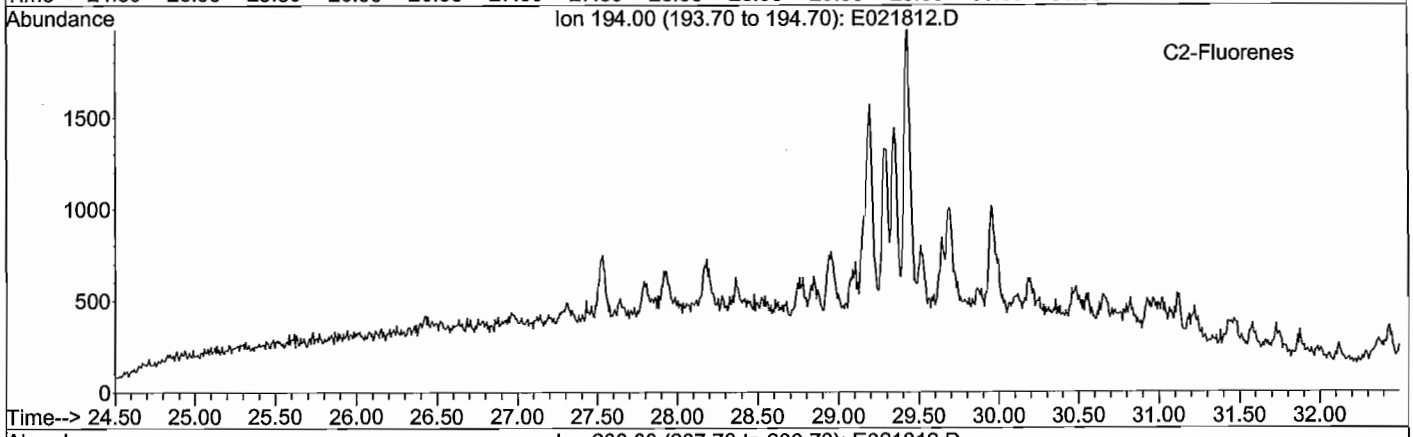
META Environmental, Inc.

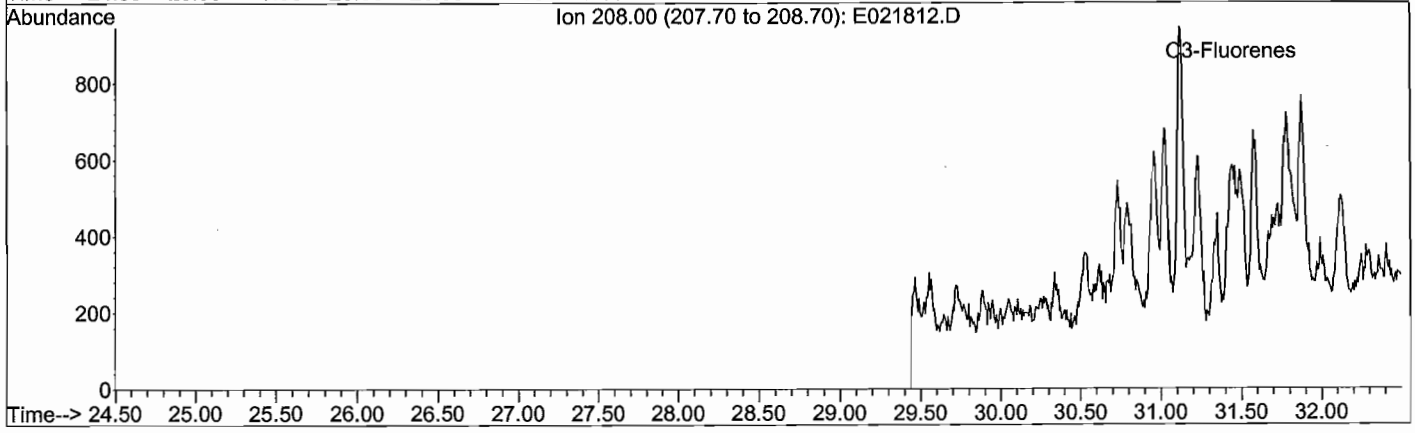
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021812.D
Date Acquired: 19 Feb 2009 5:50 am
Method File: 4008SIMD.M
Sample Name: TA090211-01-D
Misc Info: BH-SED-03A-00 - 10X
Operator: JAR





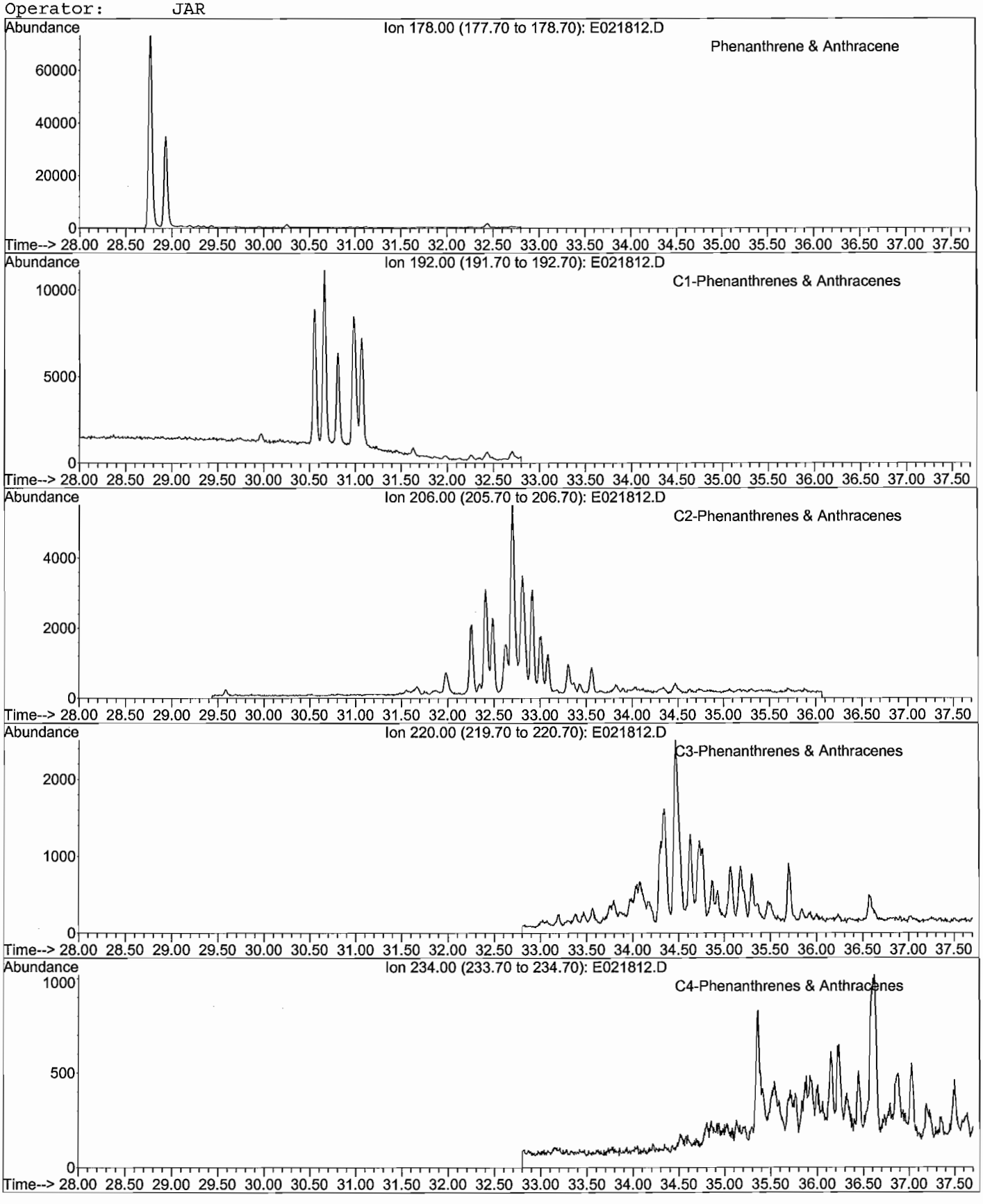




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

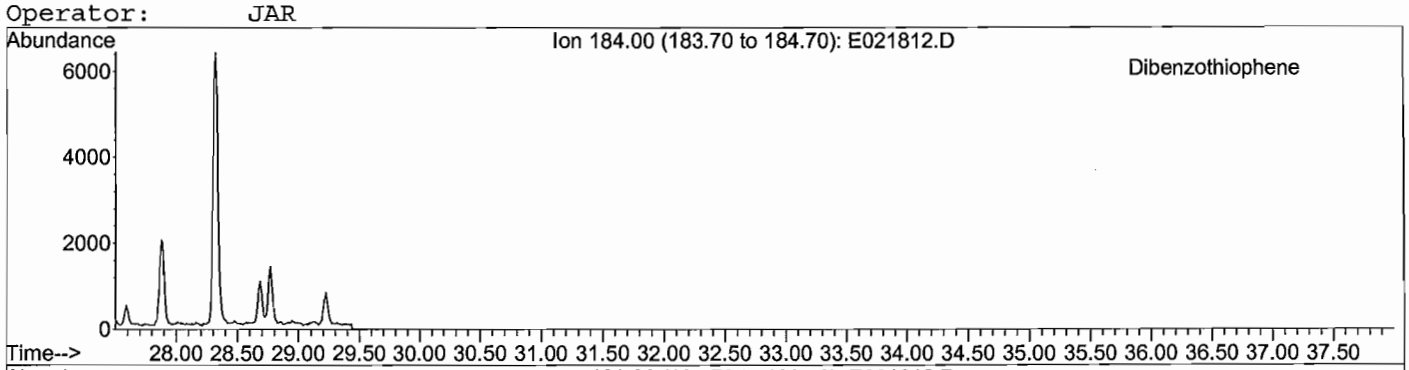
File: J:\1\DATA\E090218\E021812.D
Date Acquired: 19 Feb 2009 5:50 am
Method File: 4008SIMD.M
Sample Name: TA090211-01-D
Misc Info: BH-SED-03A-00 - 10X
Operator: JAR

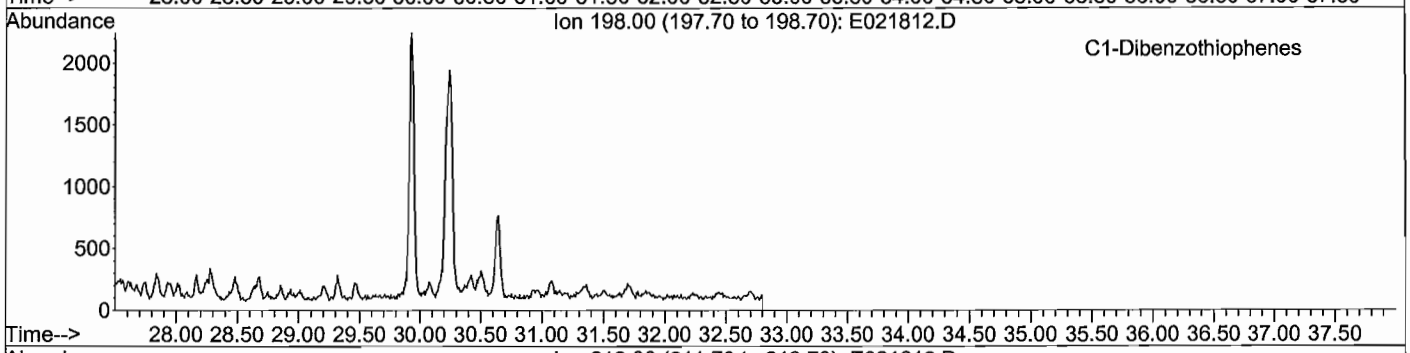


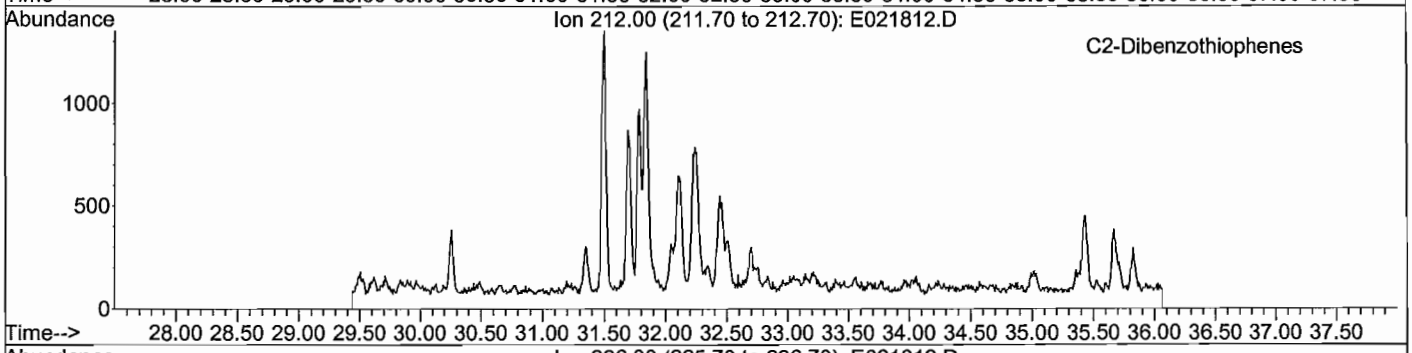
META Environmental, Inc.

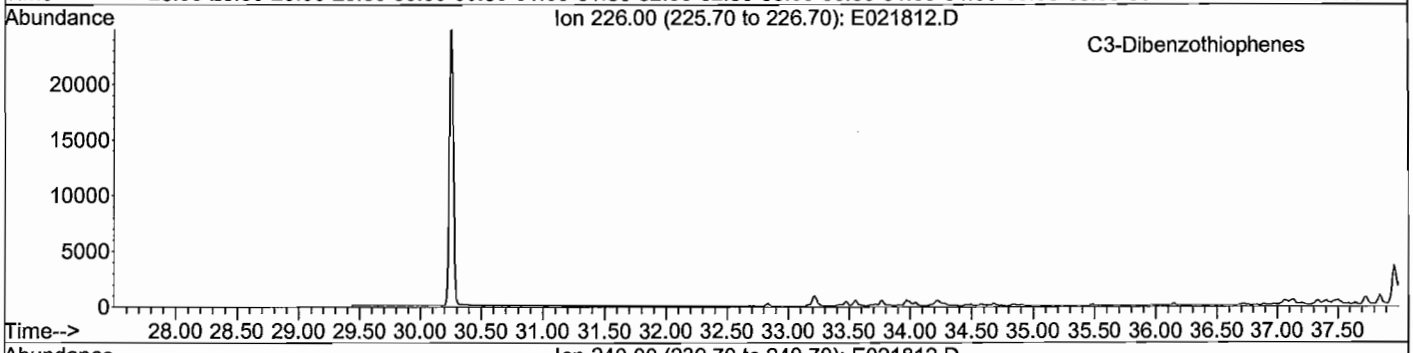
GC/MS EXTRACTED ION CHROMATOGRAM

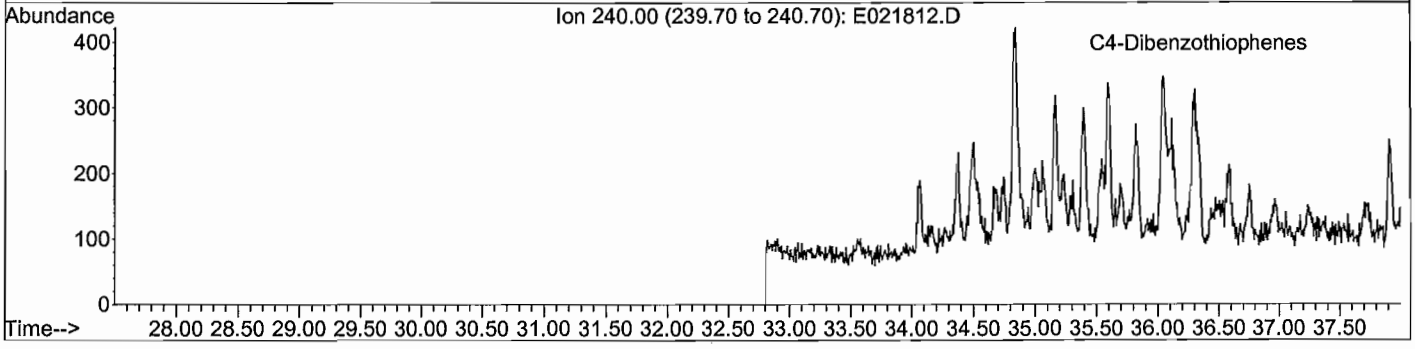
File: J:\1\DATA\E090218\E021812.D
Date Acquired: 19 Feb 2009 5:50 am
Method File: 4008SIMD.M
Sample Name: TA090211-01-D
Misc Info: BH-SED-03A-00 - 10X
Operator: JAR







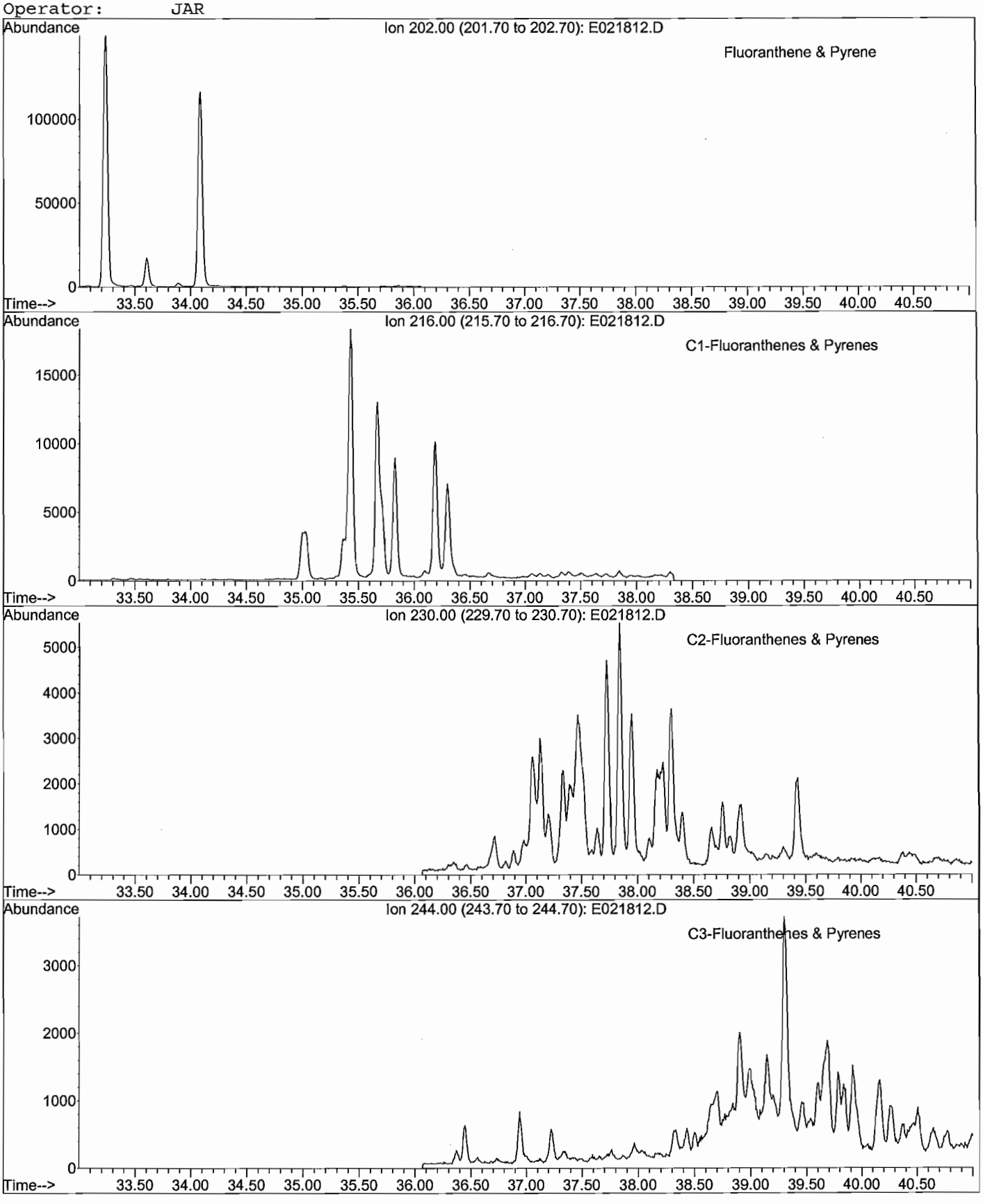




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

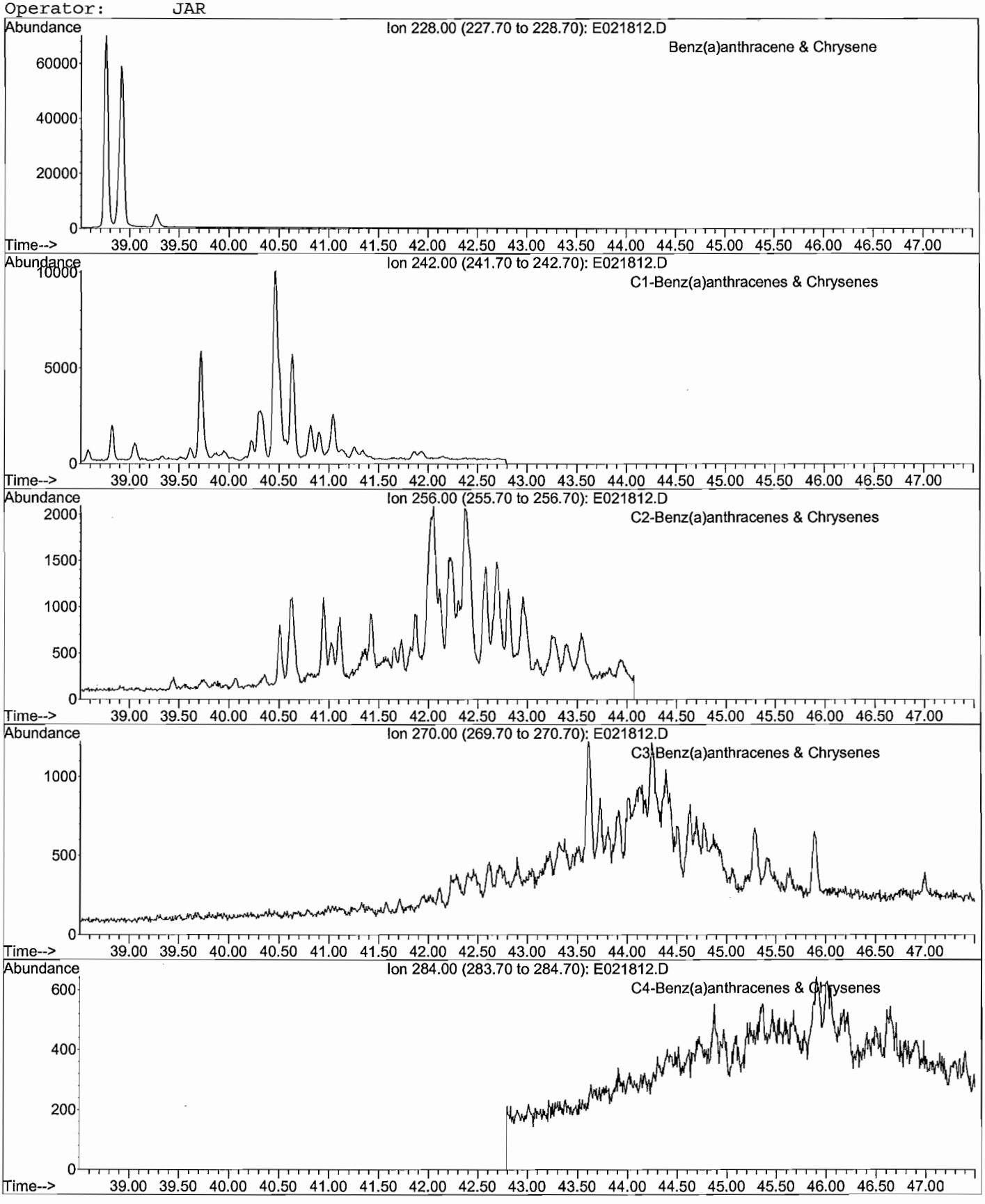
File: J:\1\DATA\E090218\E021812.D
Date Acquired: 19 Feb 2009 5:50 am
Method File: 4008SIMD.M
Sample Name: TA090211-01-D
Misc Info: BH-SED-03A-00 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021812.D
Date Acquired: 19 Feb 2009 5:50 am
Method File: 4008SIMD.M
Sample Name: TA090211-01-D
Misc Info: BH-SED-03A-00 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

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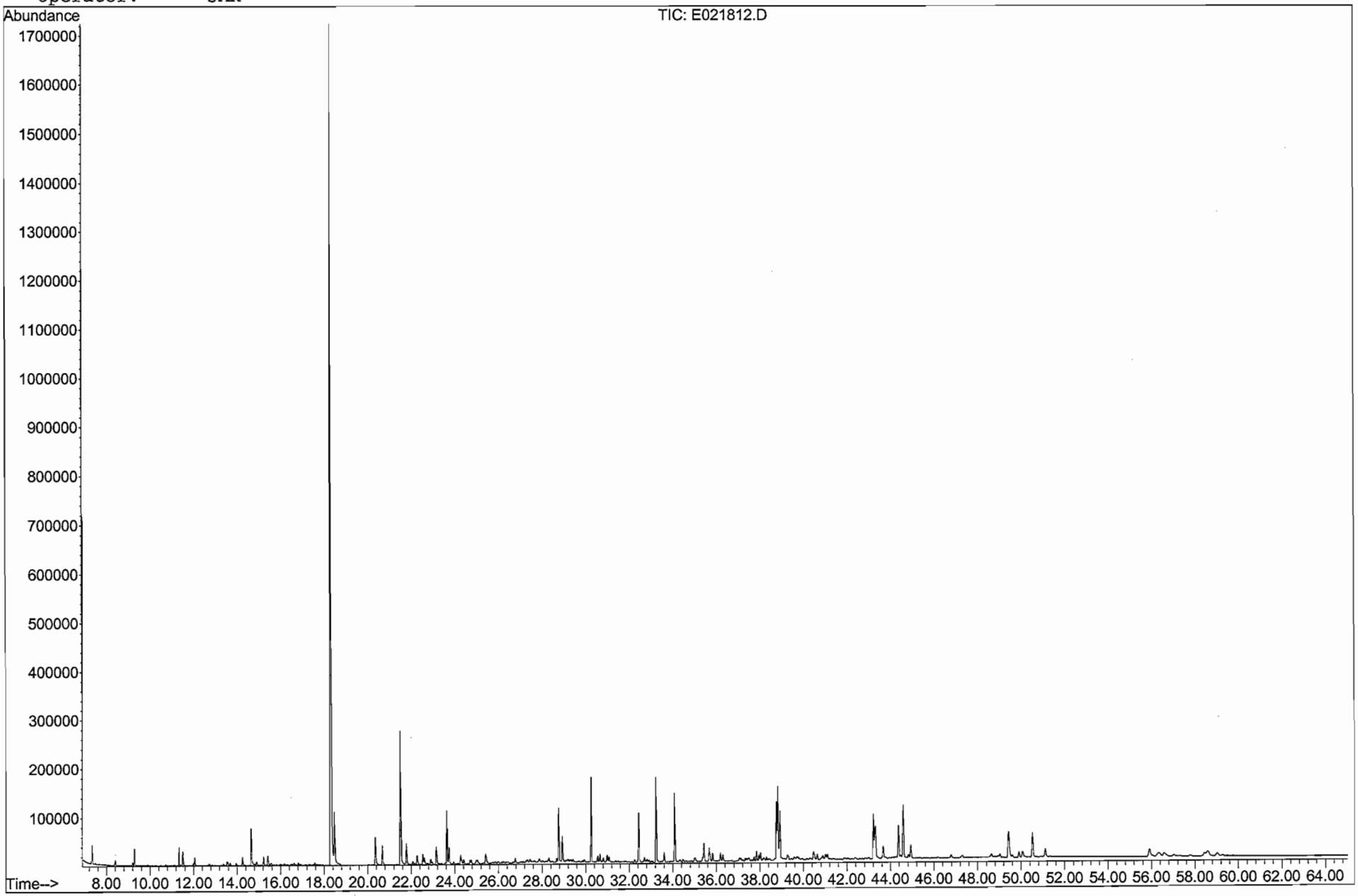
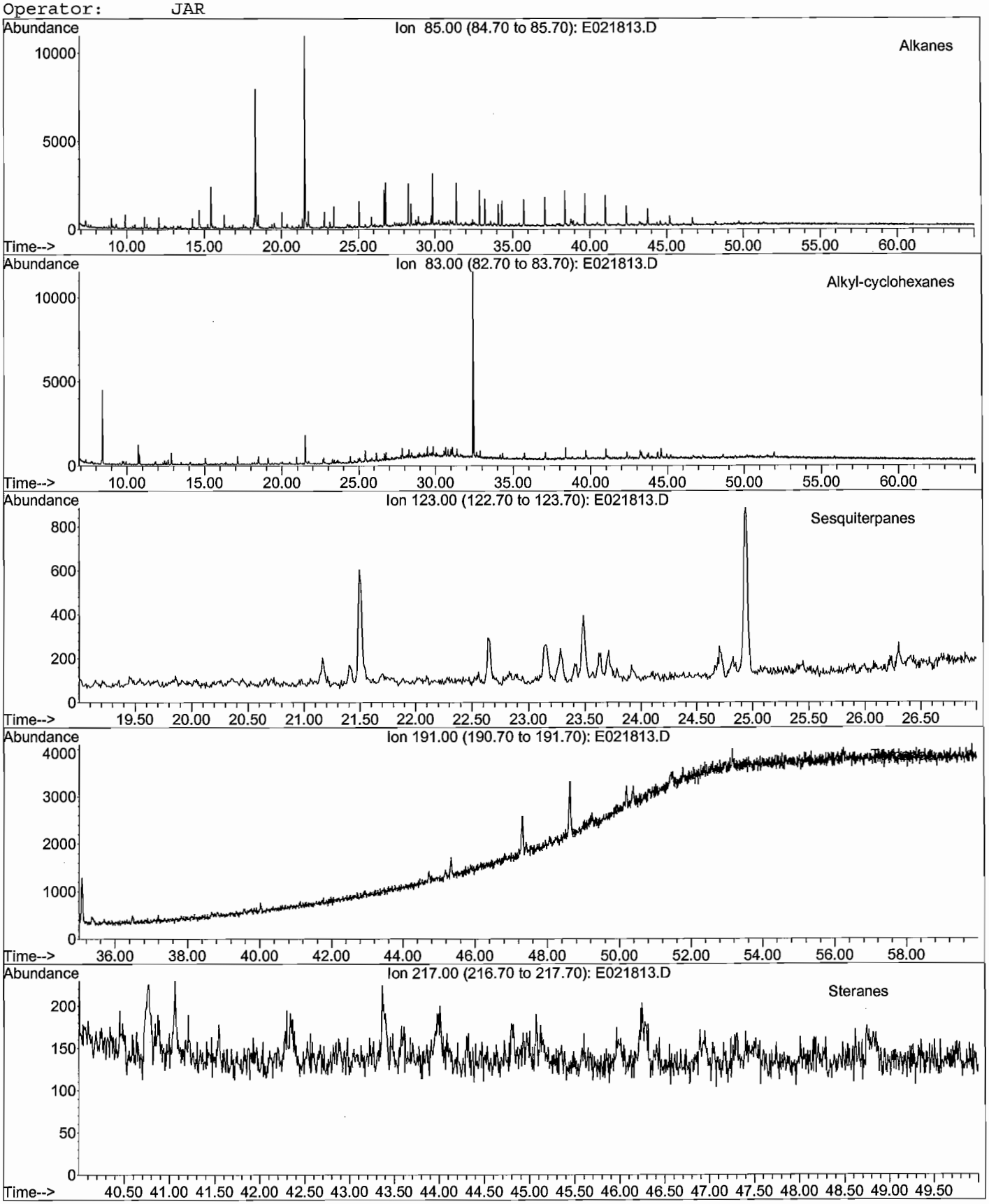
Date Acquired: 19 Feb 2009 5:50 am
Method File: 4008SIMD.M
Sample Name: TA090211-01-D
Misc Info: BH-SED-03A-00 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021813.D
Date Acquired: 19 Feb 2009 7:05 am
Method File: 4008SIMD.M
Sample Name: TA090211-01DUP-D
Misc Info: Duplicate of BH-SED-03A-00 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021813.D
Date Acquired: 19 Feb 2009 7:05 am
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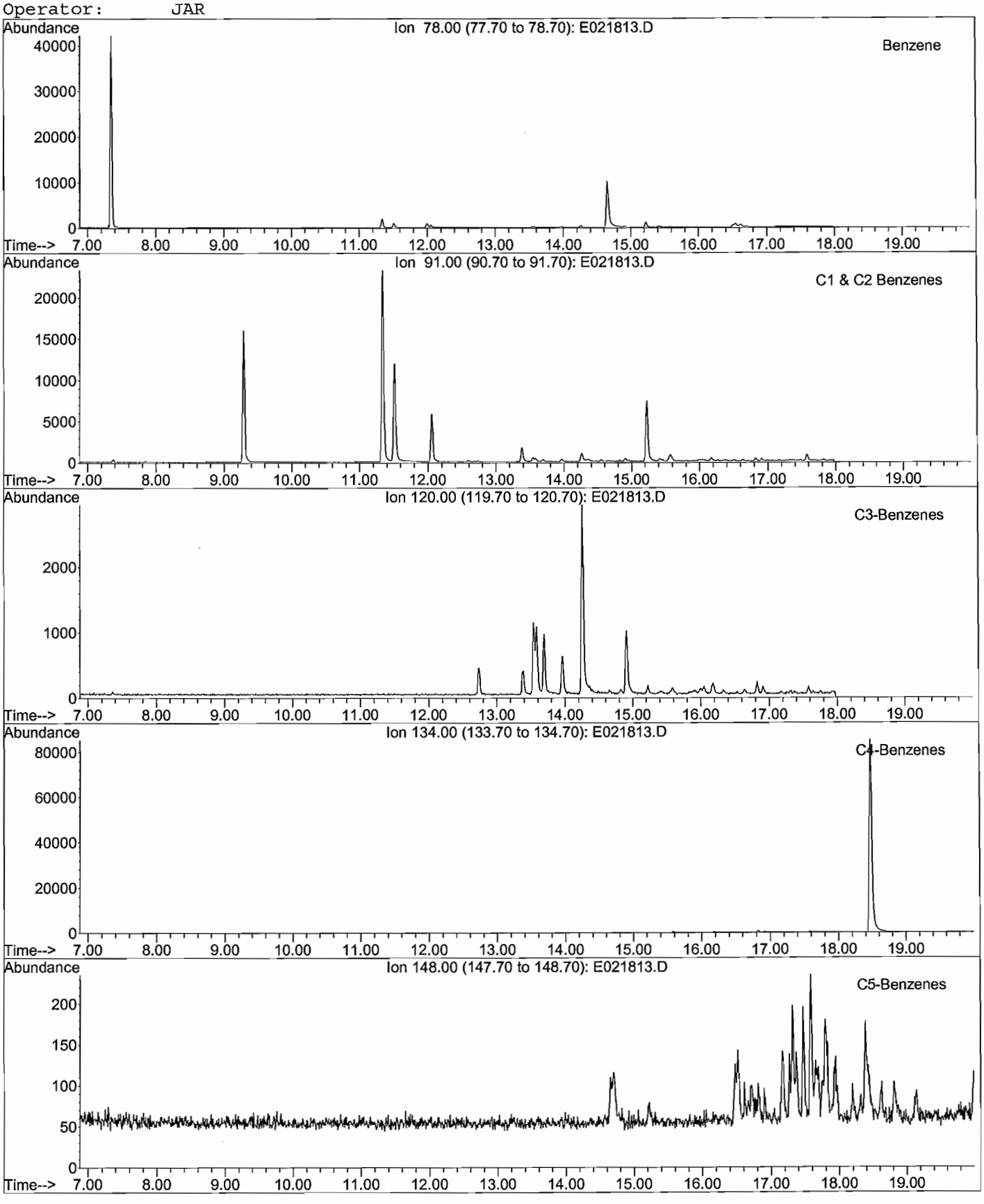
Sample Name: TA090211-01DUP-D
Misc Info: Duplicate of BH-SED-03A-00 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021813.D
Date Acquired: 19 Feb 2009 7:05 am
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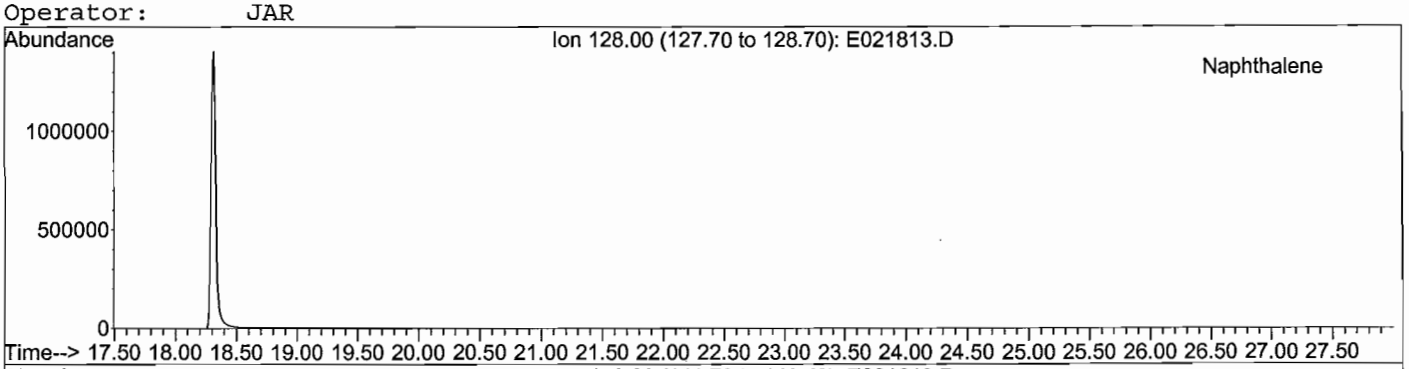
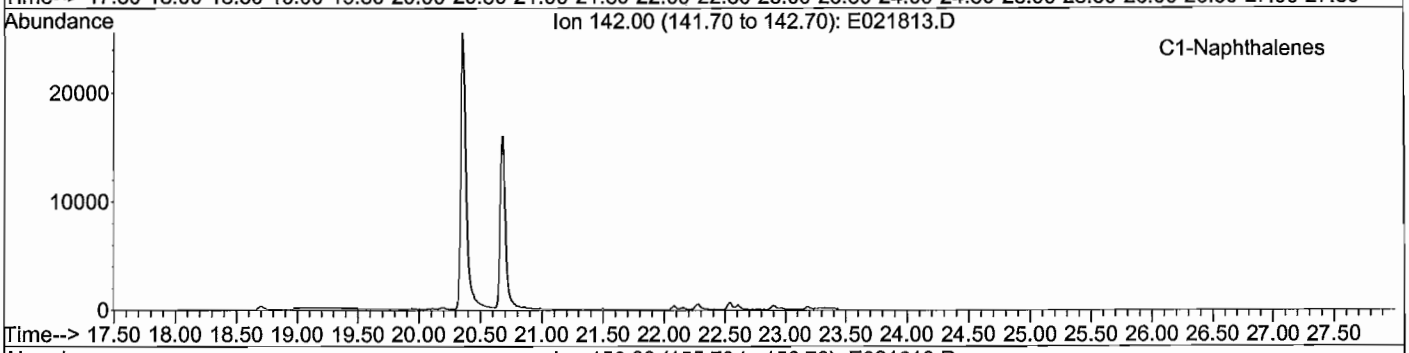
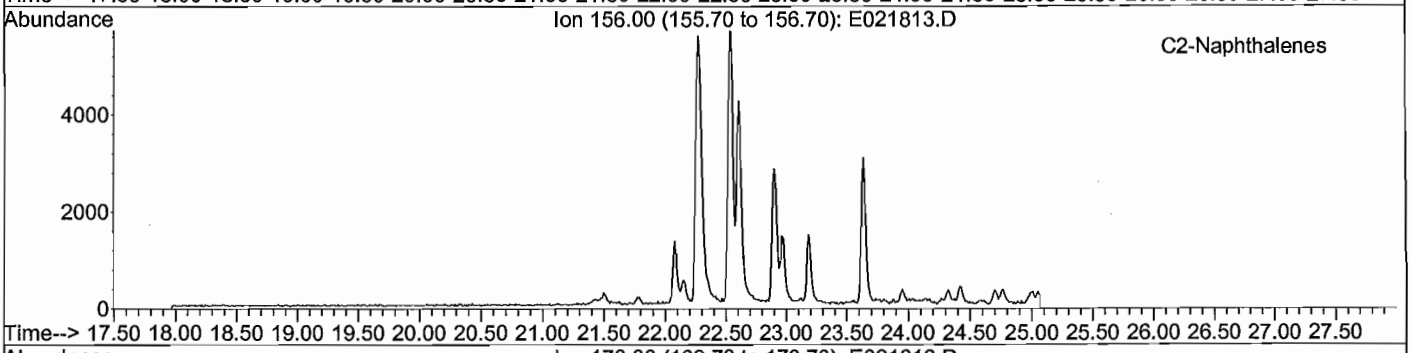
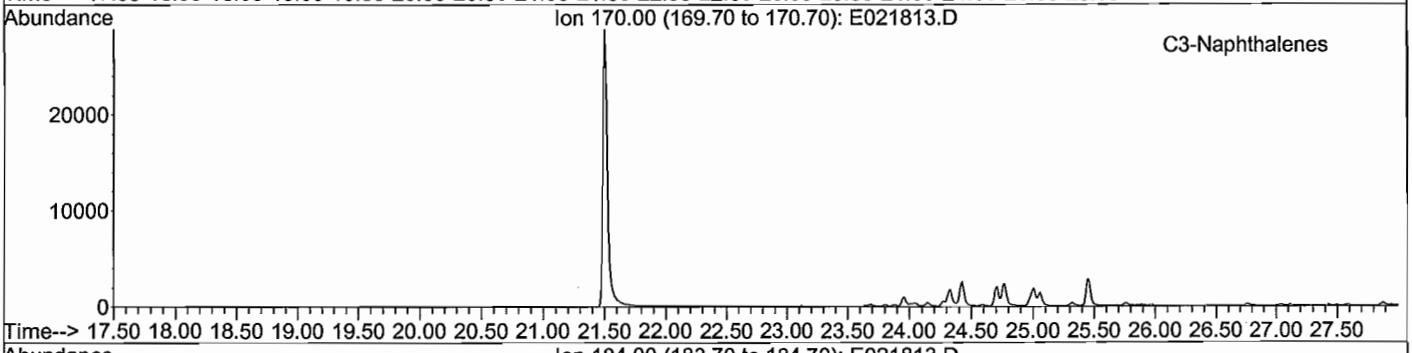
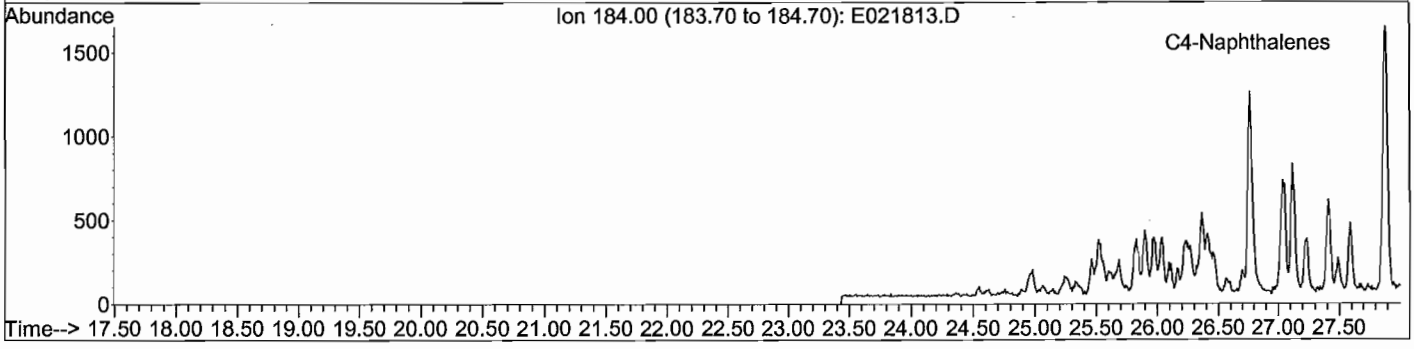
Sample Name: TA090211-01DUP-D
Misc Info: Duplicate of BH-SED-03A-00 - 10X
Operator: JAR











META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021813.D
Date Acquired: 19 Feb 2009 7:05 am
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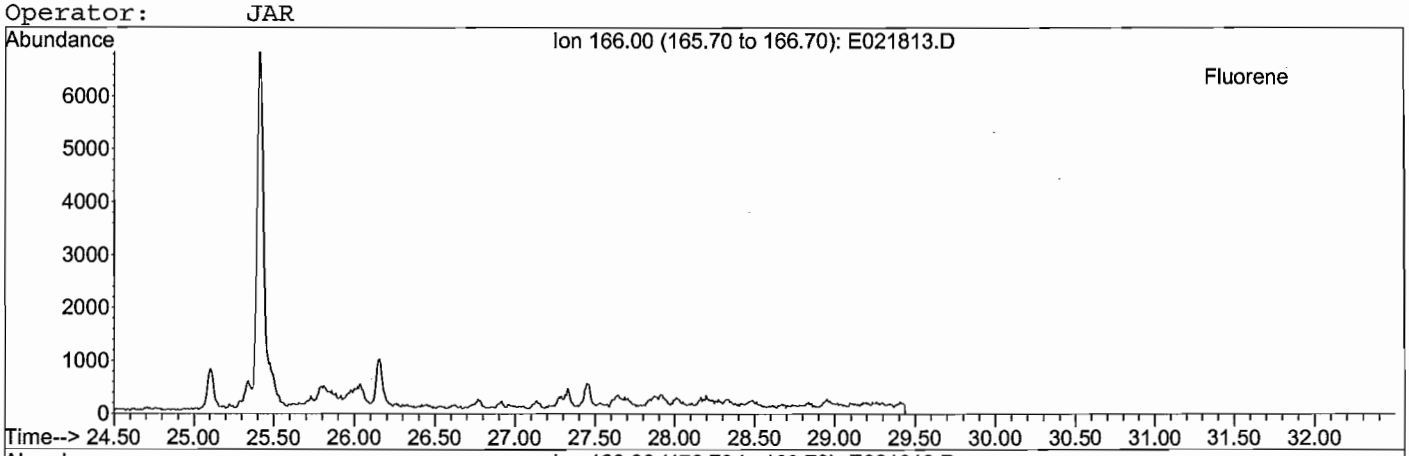
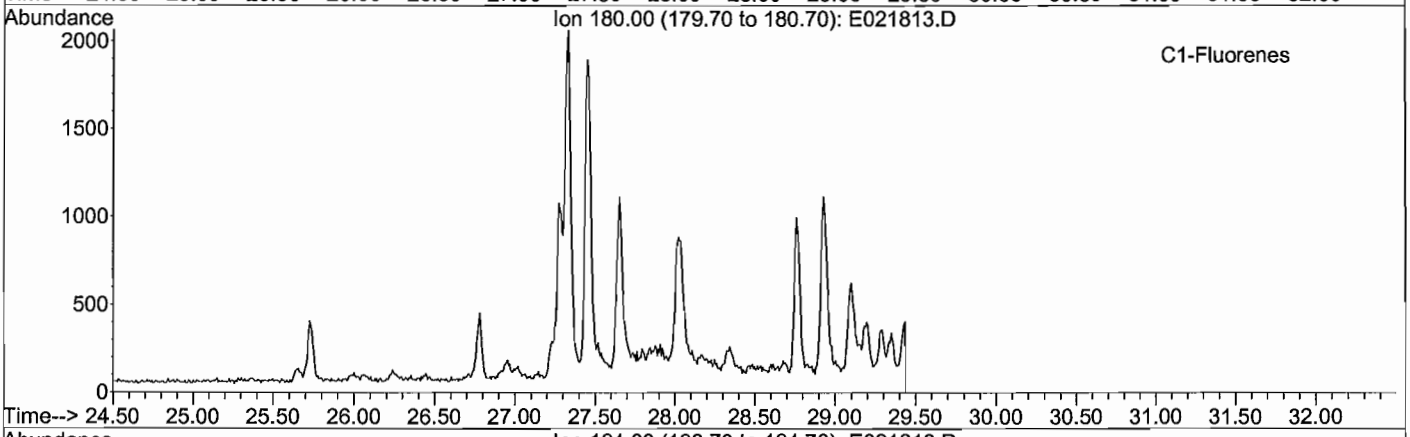
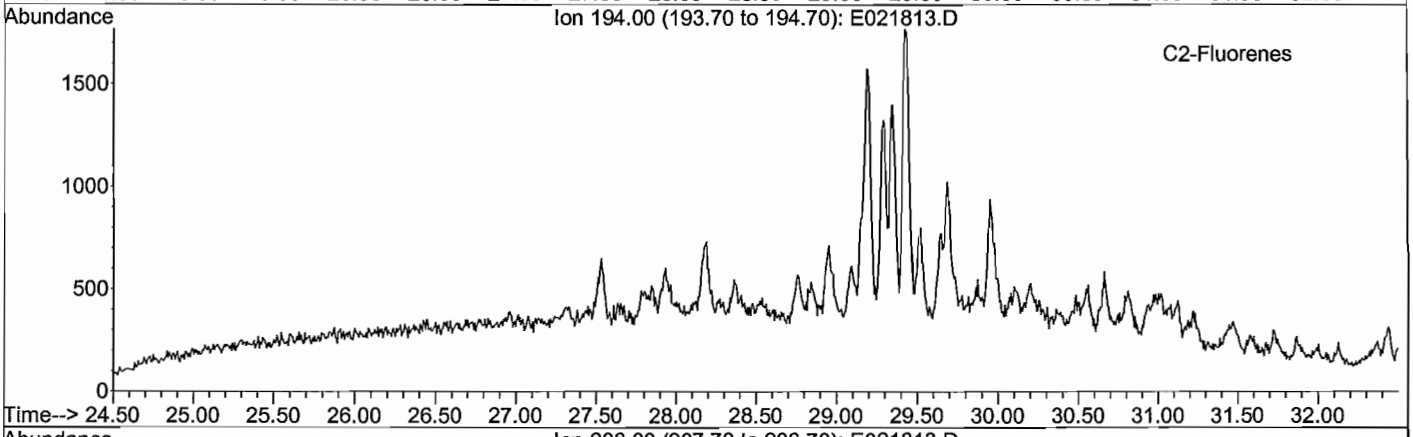
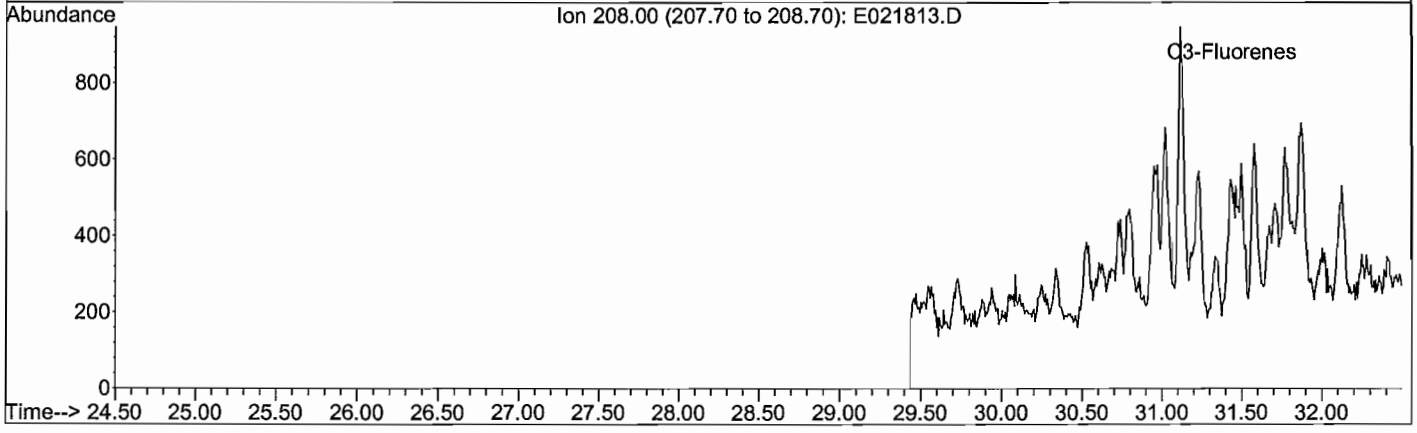
Sample Name: TA090211-01DUP-D
Misc Info: Duplicate of BH-SED-03A-00 - 10X
Operator: JAR









META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021813.D
Date Acquired: 19 Feb 2009 7:05 am
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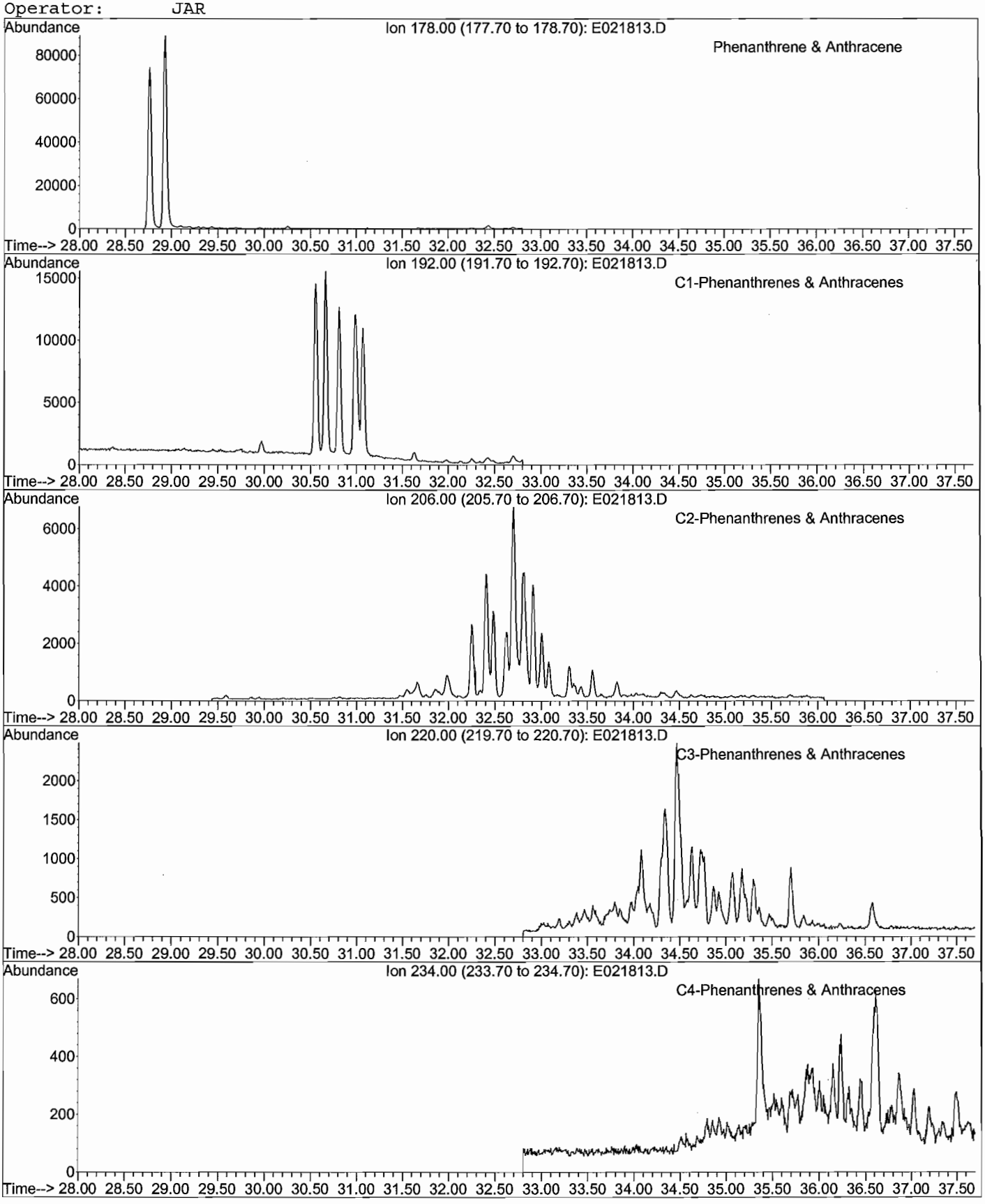
Sample Name: TA090211-01DUP-D
Misc Info: Duplicate of BH-SED-03A-00 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021813.D
Date Acquired: 19 Feb 2009 7:05 am
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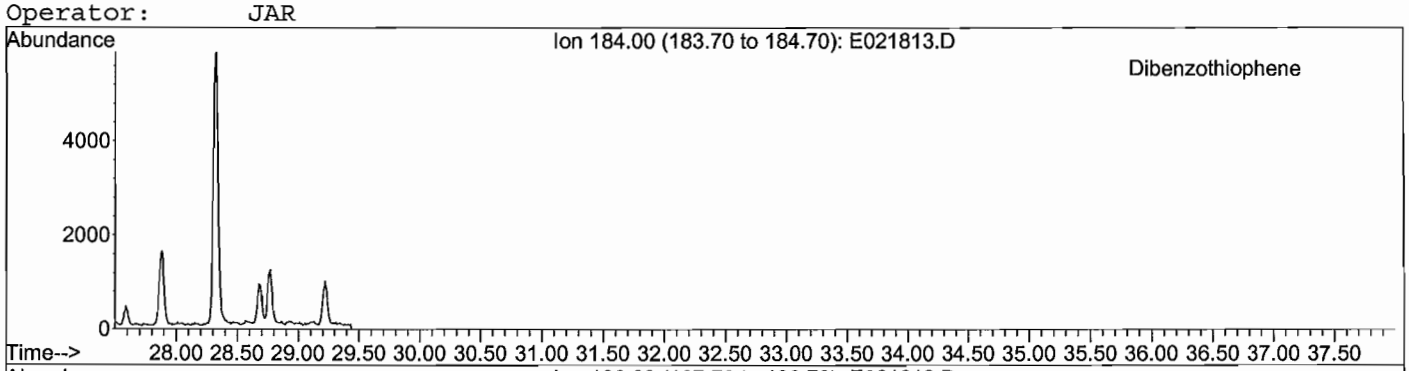
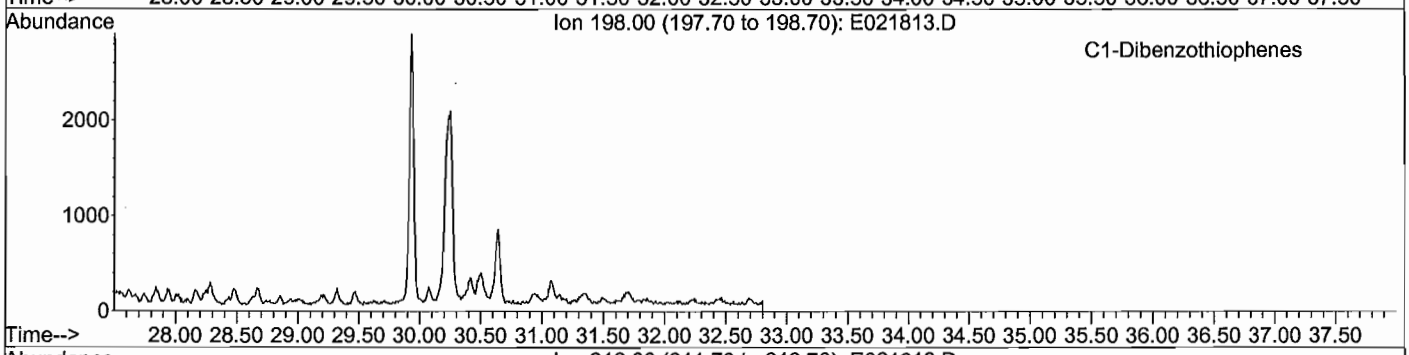
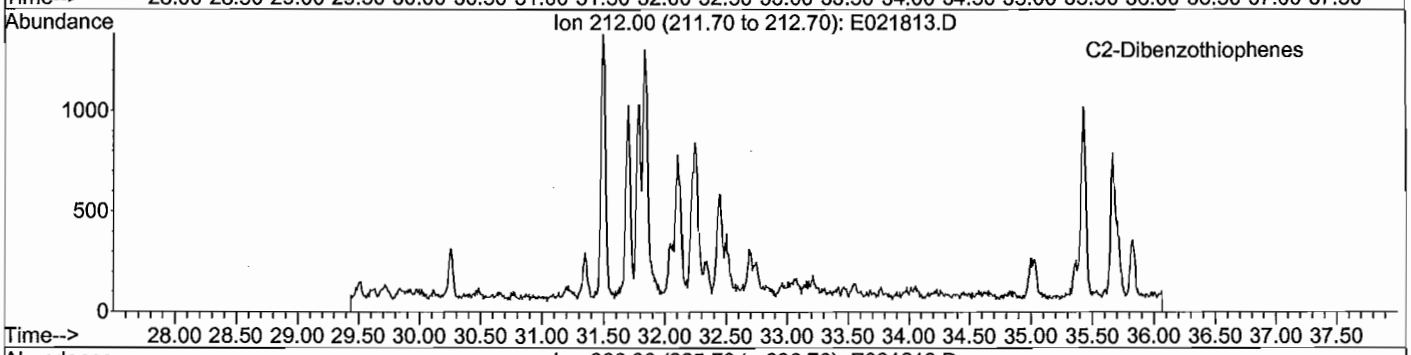
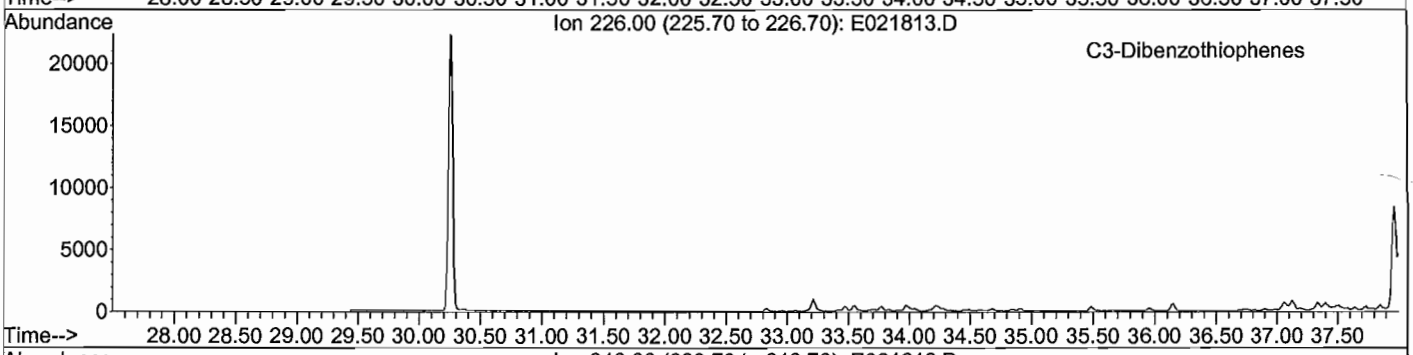
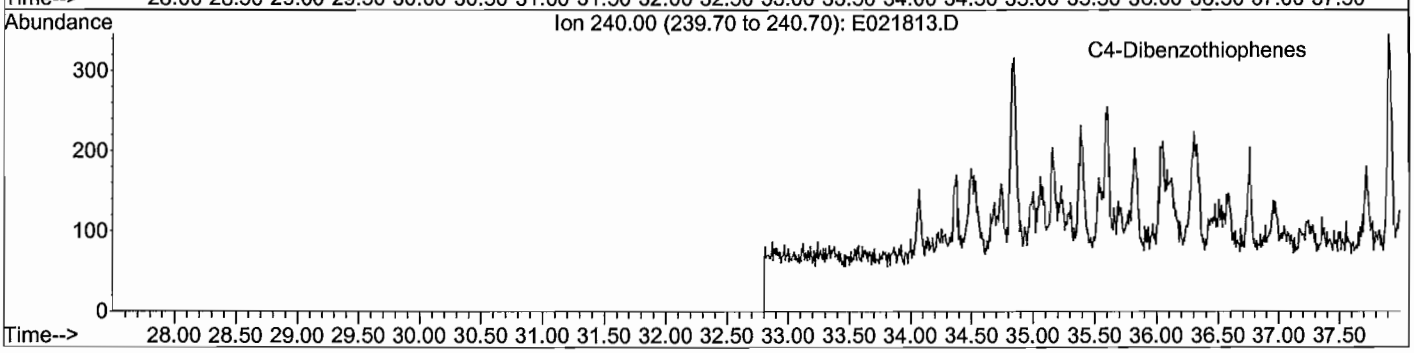
Sample Name: TA090211-01DUP-D
Misc Info: Duplicate of BH-SED-03A-00 - 10X
Operator: JAR











META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021813.D
Date Acquired: 19 Feb 2009 7:05 am
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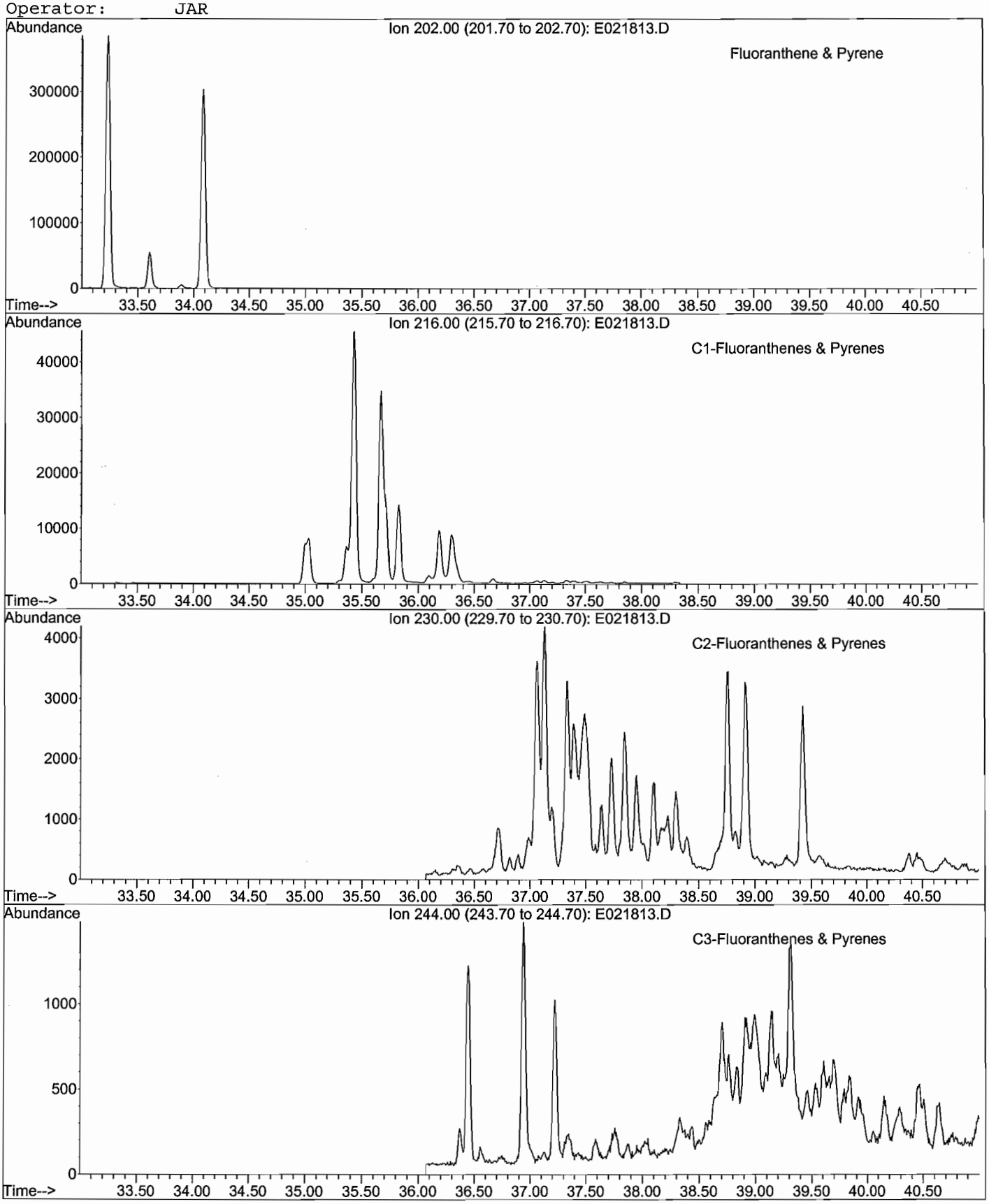
Sample Name: TA090211-01DUP-D
Misc Info: Duplicate of BH-SED-03A-00 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021813.D
Date Acquired: 19 Feb 2009 7:05 am
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Sample Name: TA090211-01DUP-D
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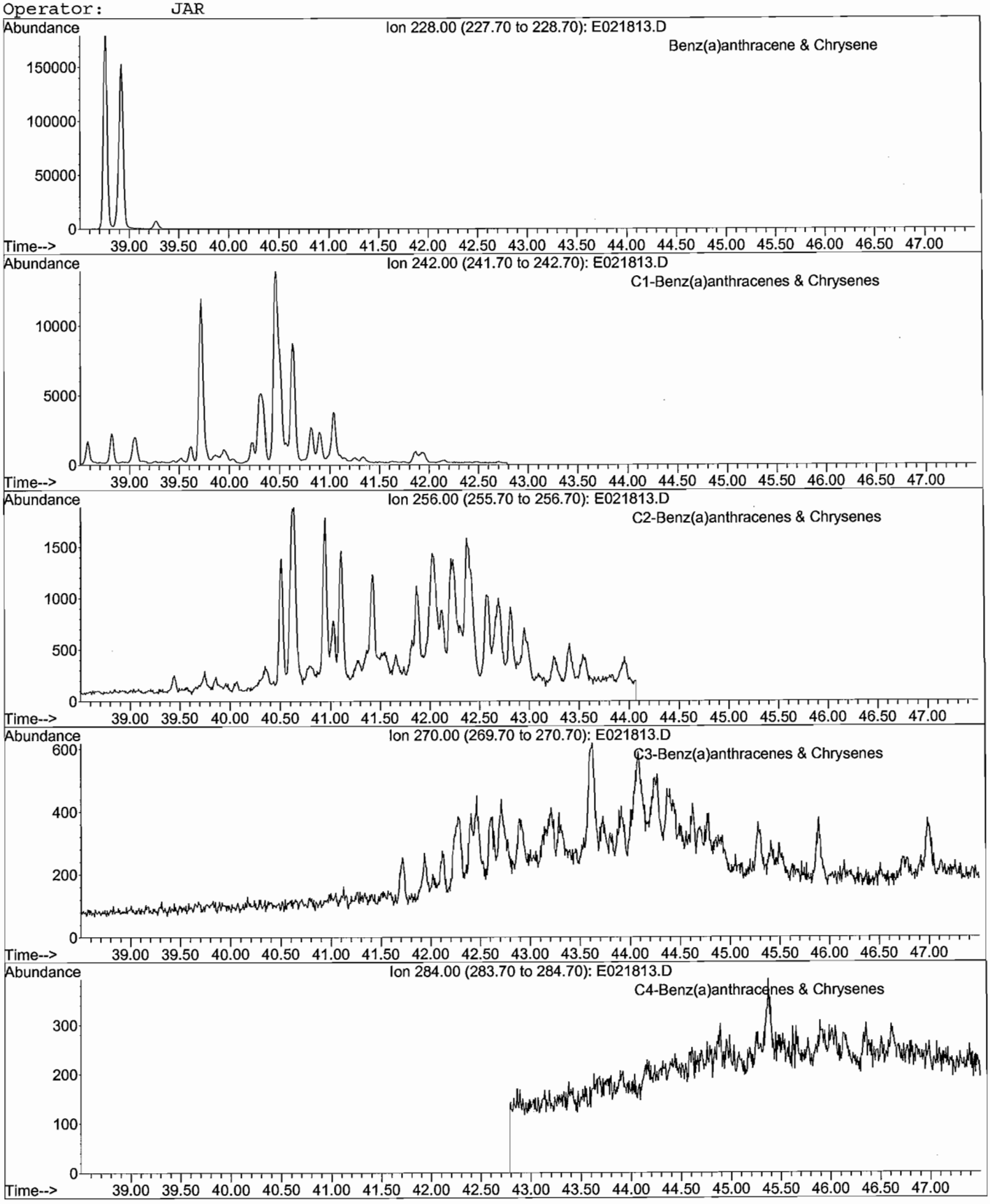
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021813.D
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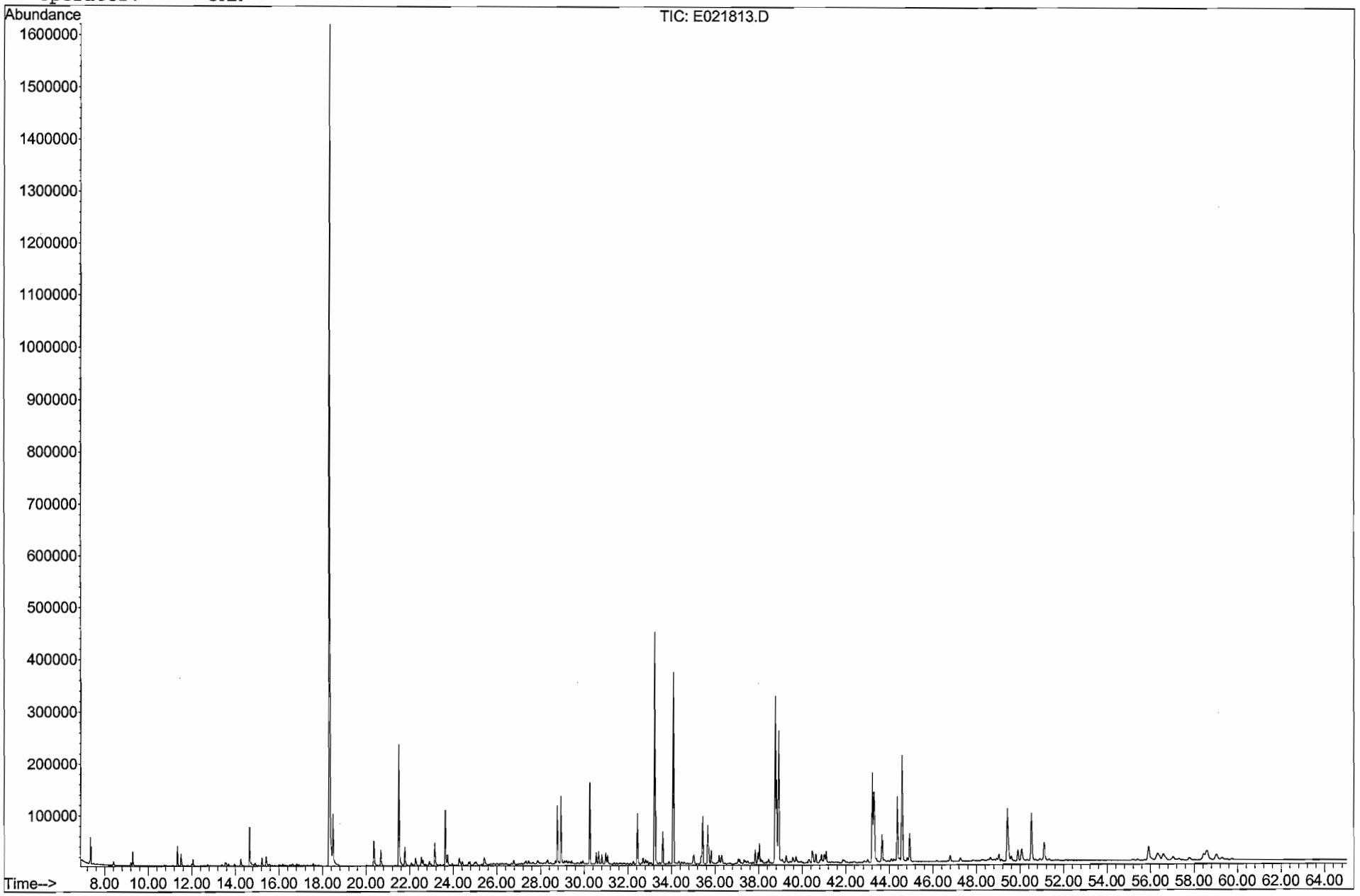
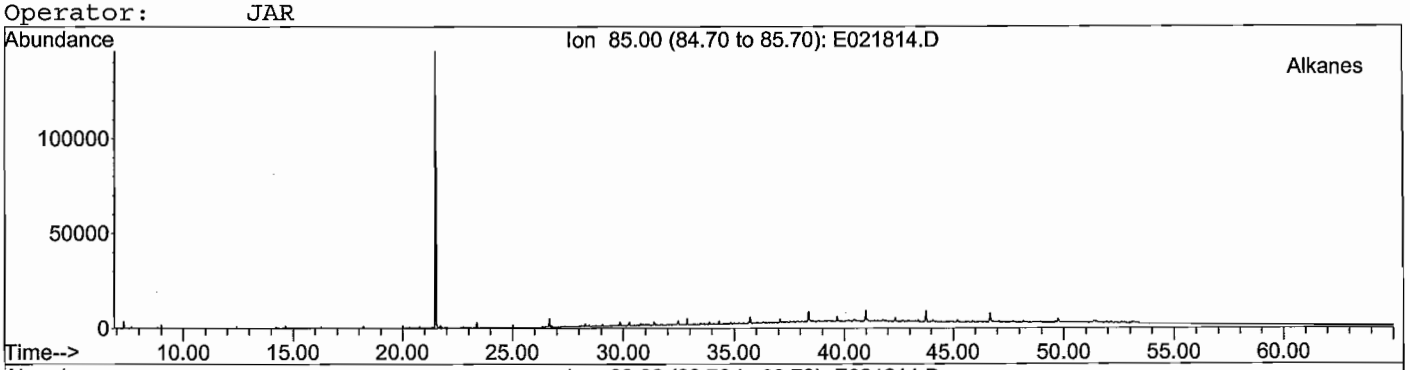
Sample Name: TA090211-01DUP-D
Misc Info: Duplicate of BH-SED-03A-00 - 10X
Operator: JAR

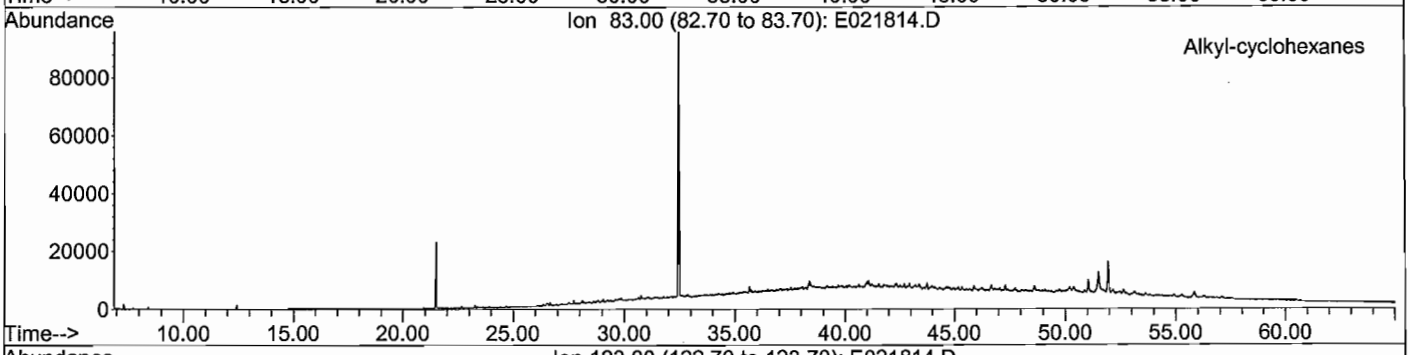


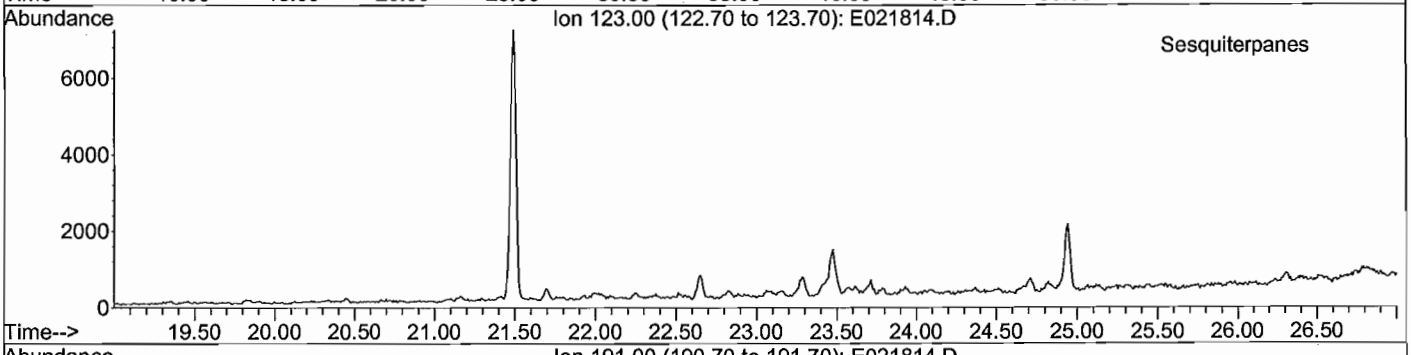
META Environmental, Inc.

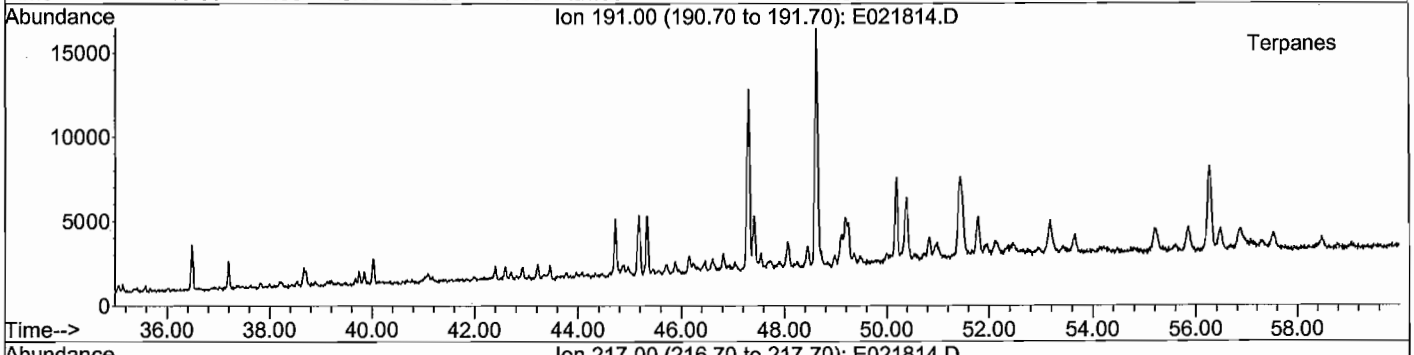
GC/MS EXTRACTED ION CHROMATOGRAM

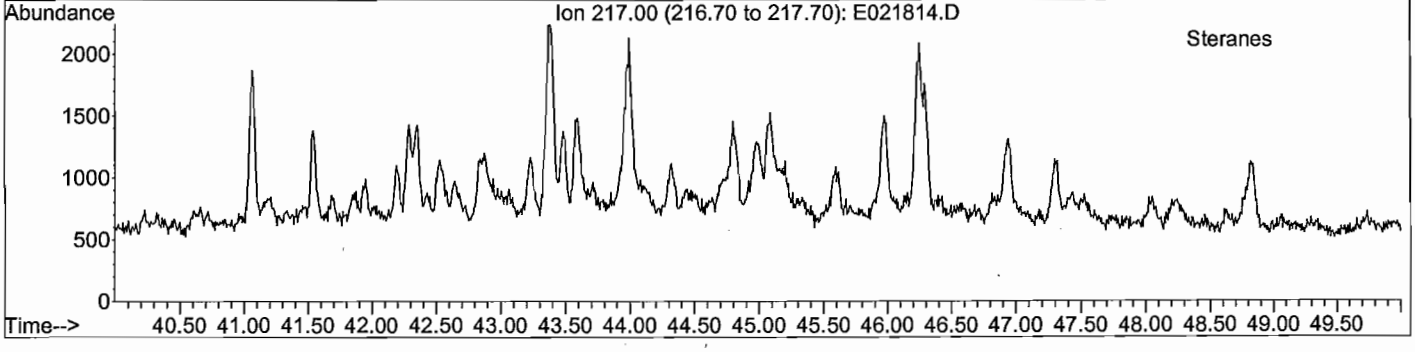
File: J:\1\DATA\E090218\E021814.D
Date Acquired: 19 Feb 2009 8:21 am
Method File: 4008SIMD.M
Sample Name: TA090211-02
Misc Info: Reference
Operator: JAR











META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021814.D
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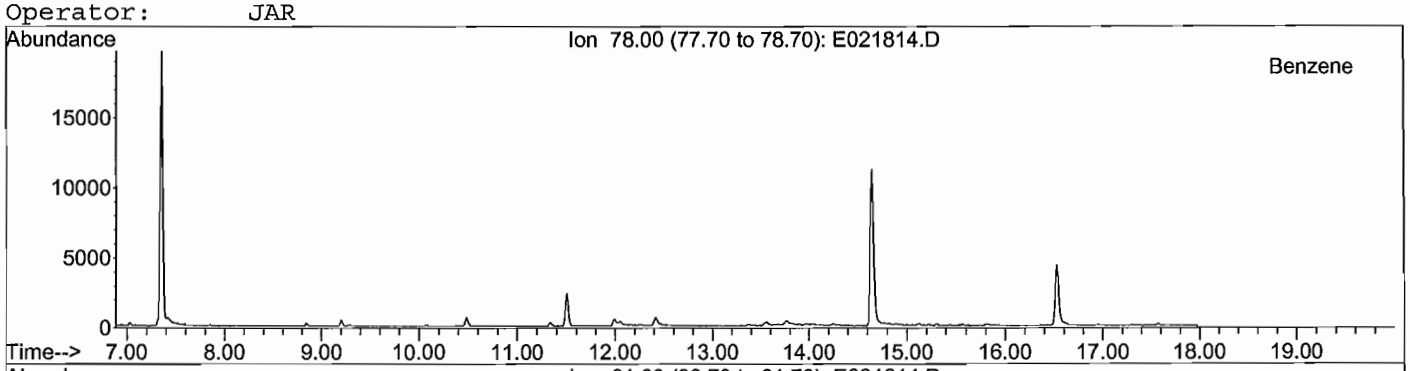

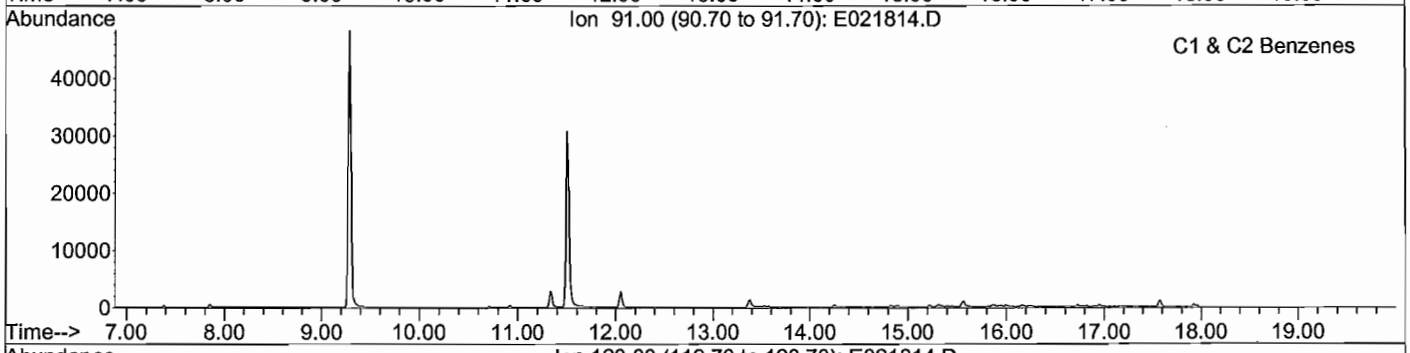

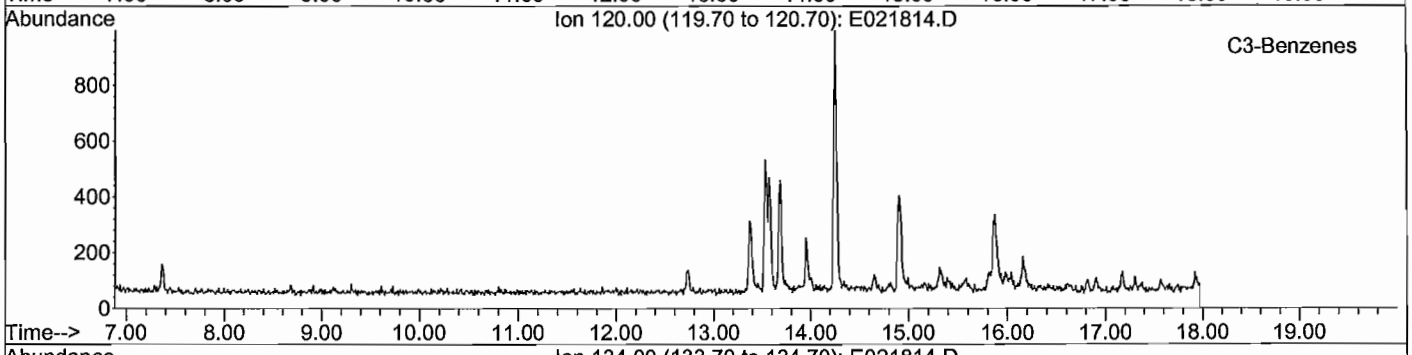

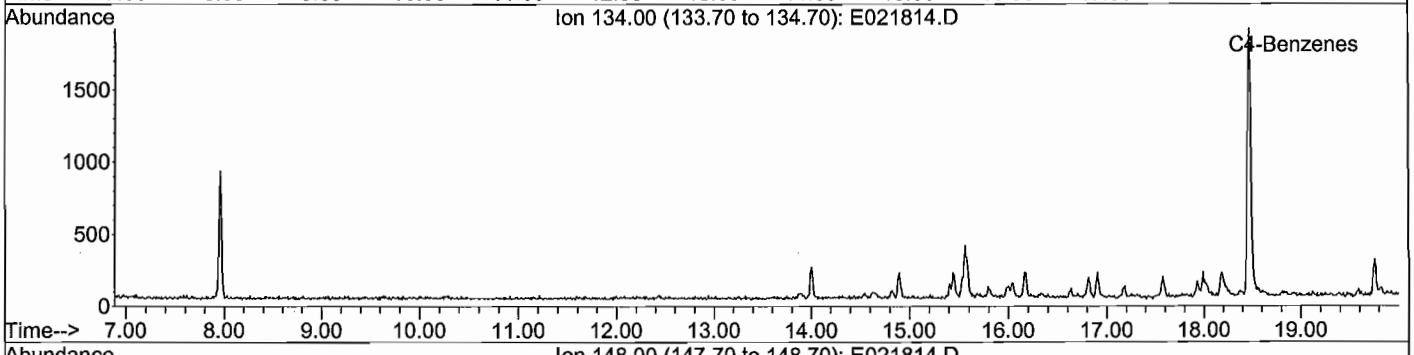

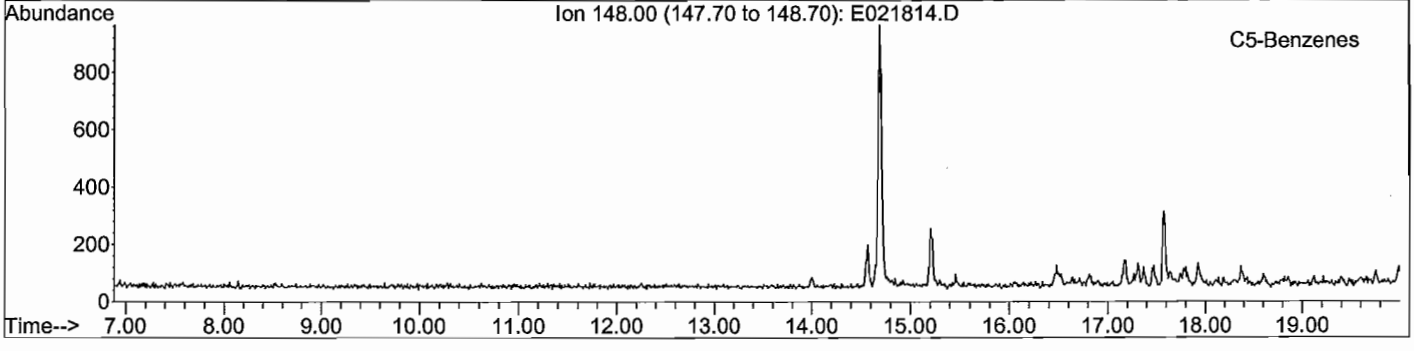

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021814.D
Date Acquired: 19 Feb 2009 8:21 am
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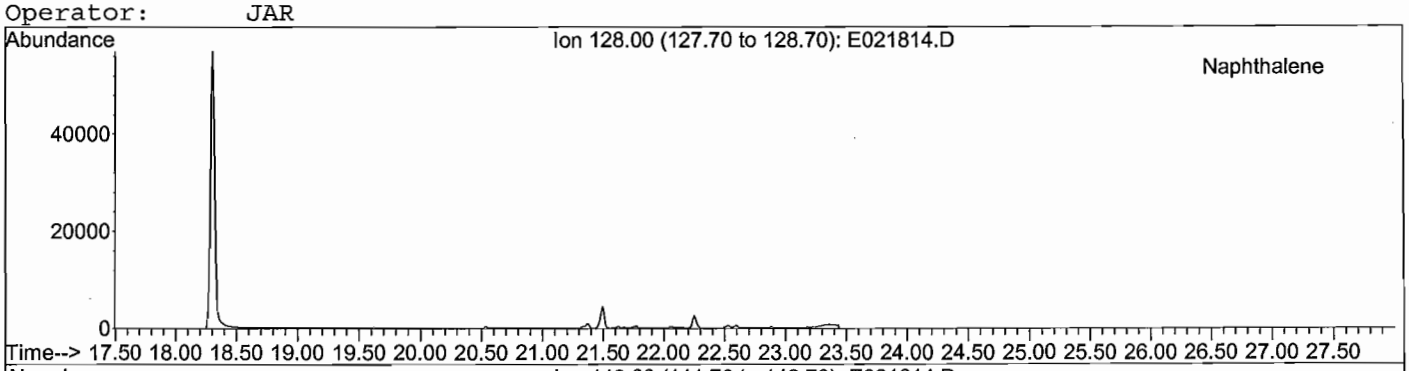

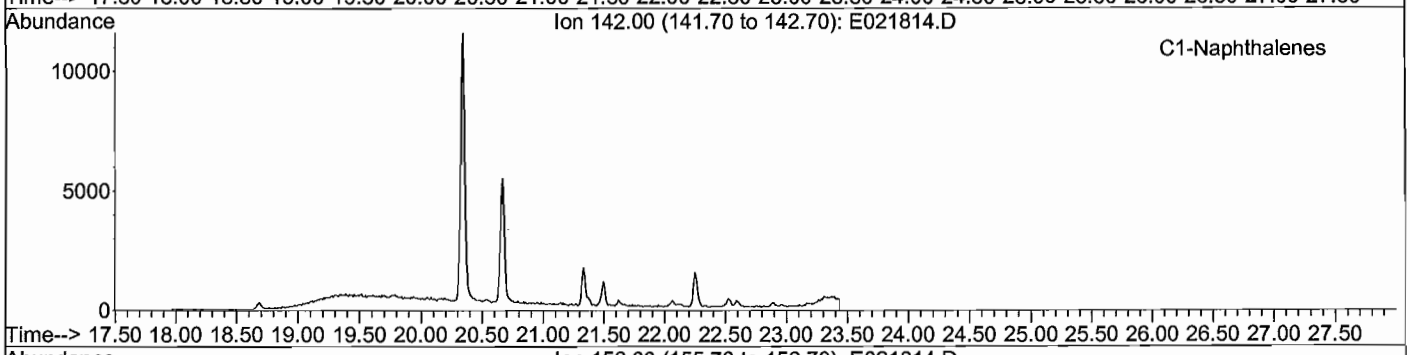

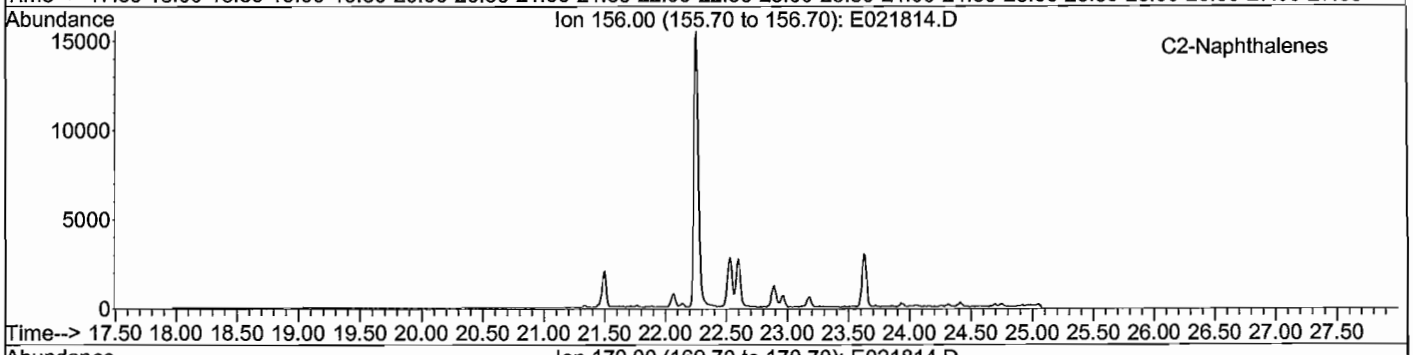

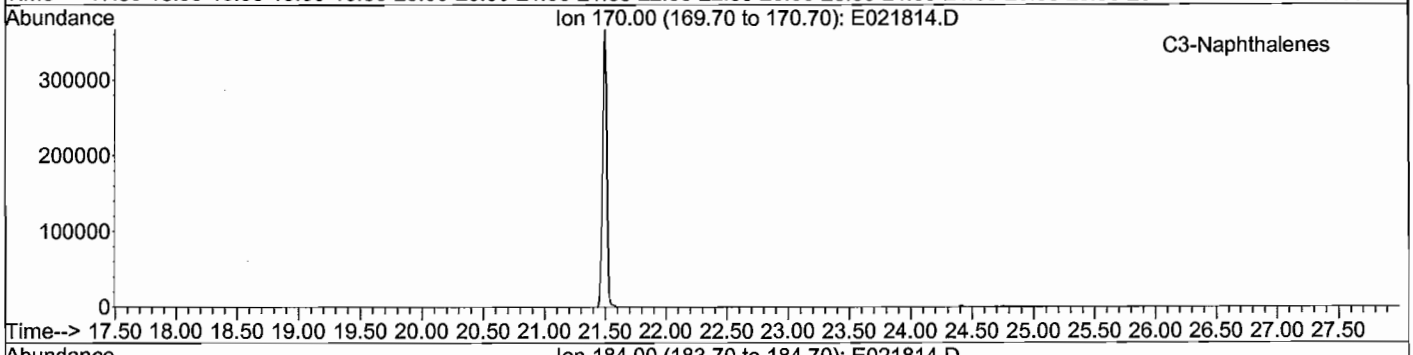

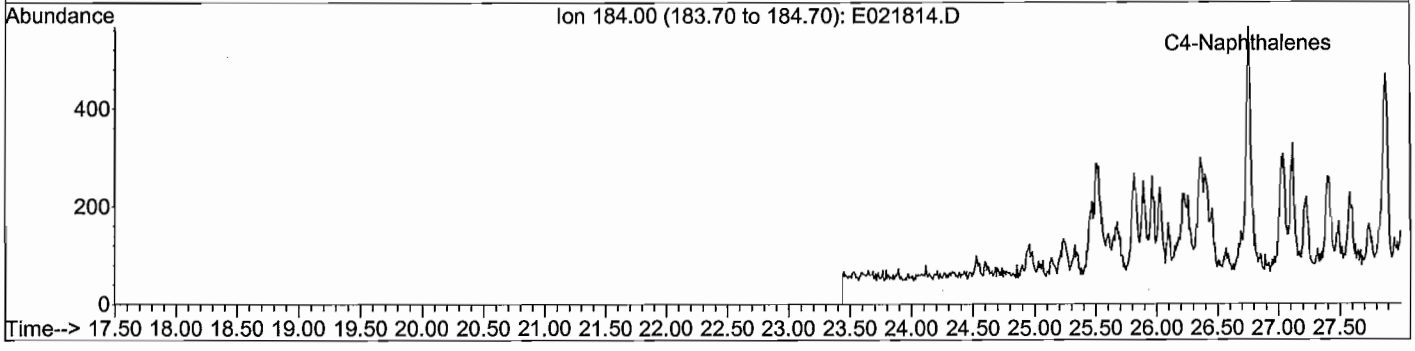

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021814.D
Date Acquired: 19 Feb 2009 8:21 am
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Sample Name: TA090211-02
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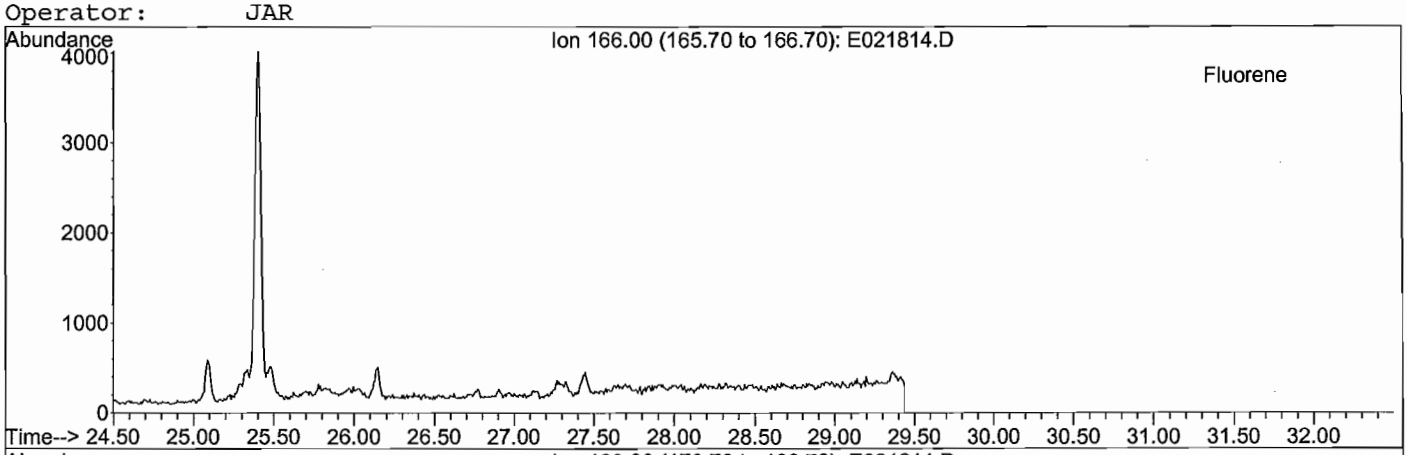
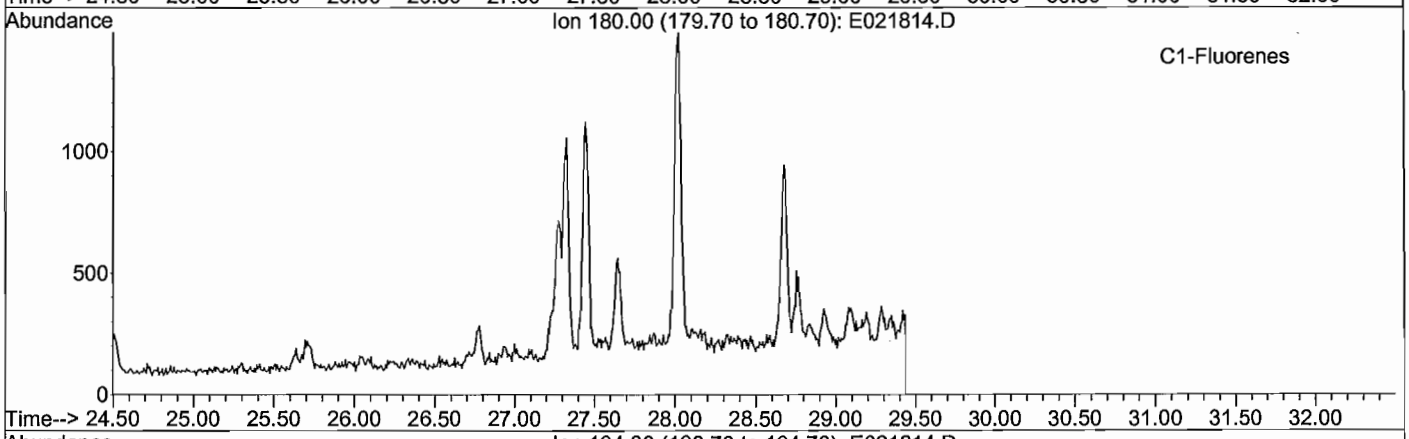
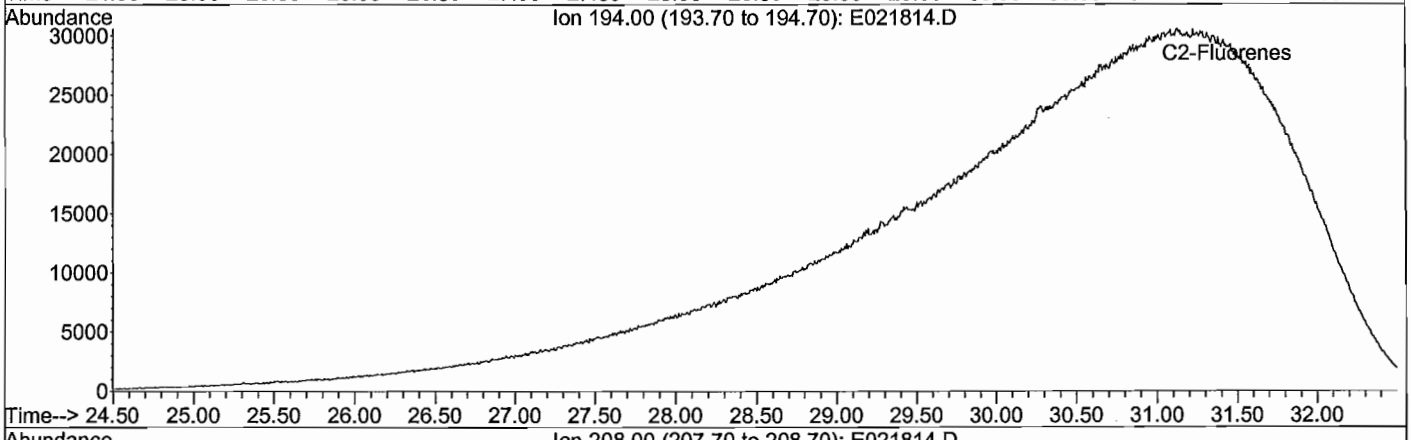
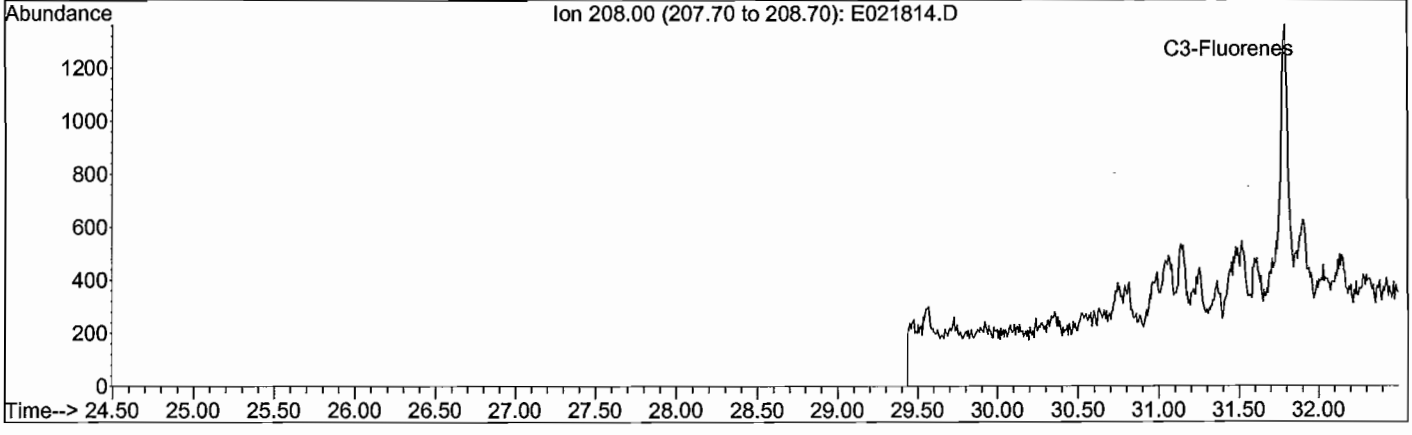




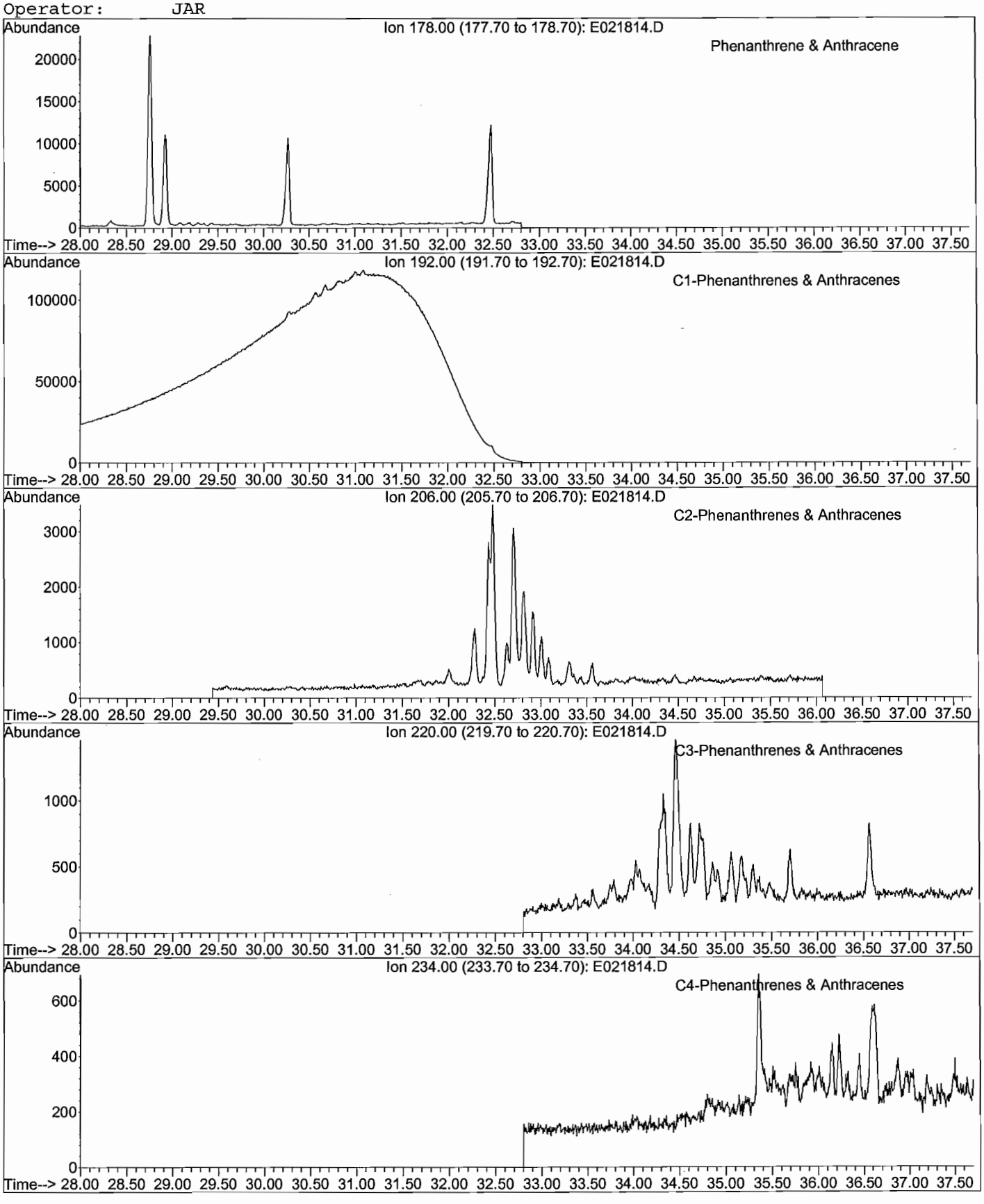




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021814.D
Date Acquired: 19 Feb 2009 8:21 am
Method File: 4008SIMD.M
Sample Name: TA090211-02
Misc Info: Reference
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021814.D
Date Acquired: 19 Feb 2009 8:21 am
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Sample Name: TA090211-02
Misc Info: Reference
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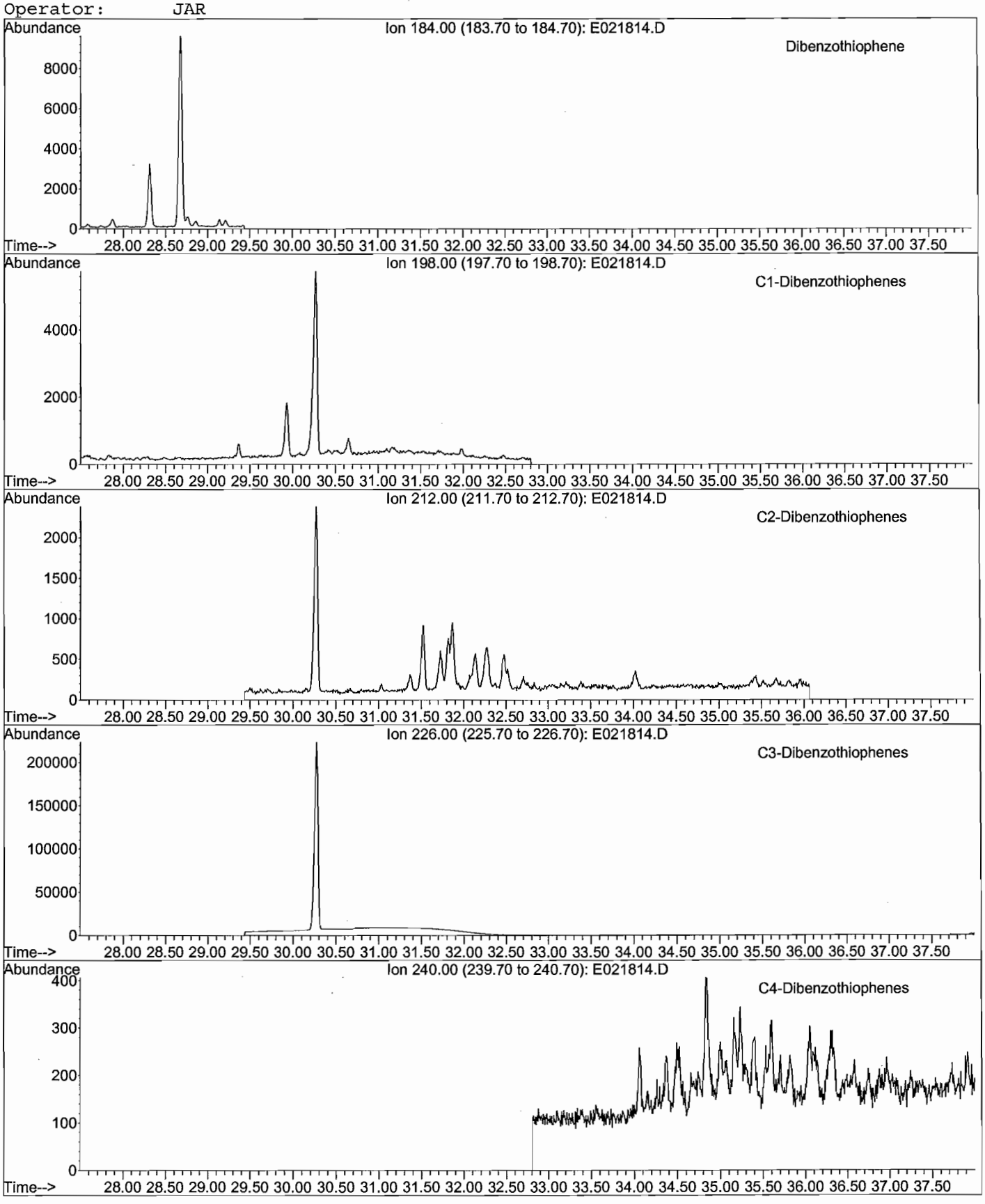

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090218\E021814.D
Date Acquired: 19 Feb 2009 8:21 am
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Sample Name: TA090211-02
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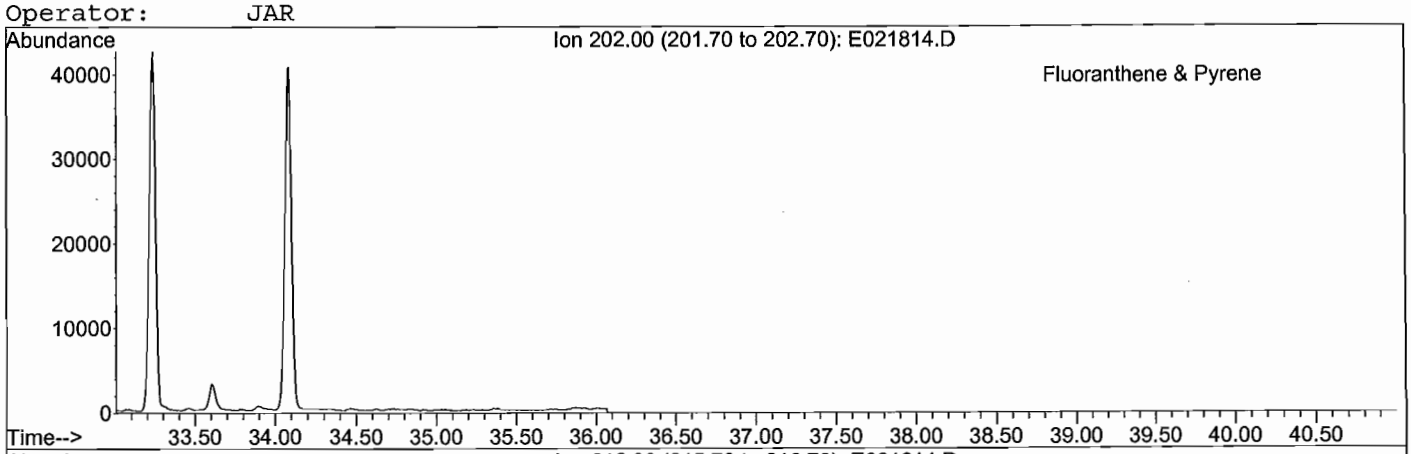

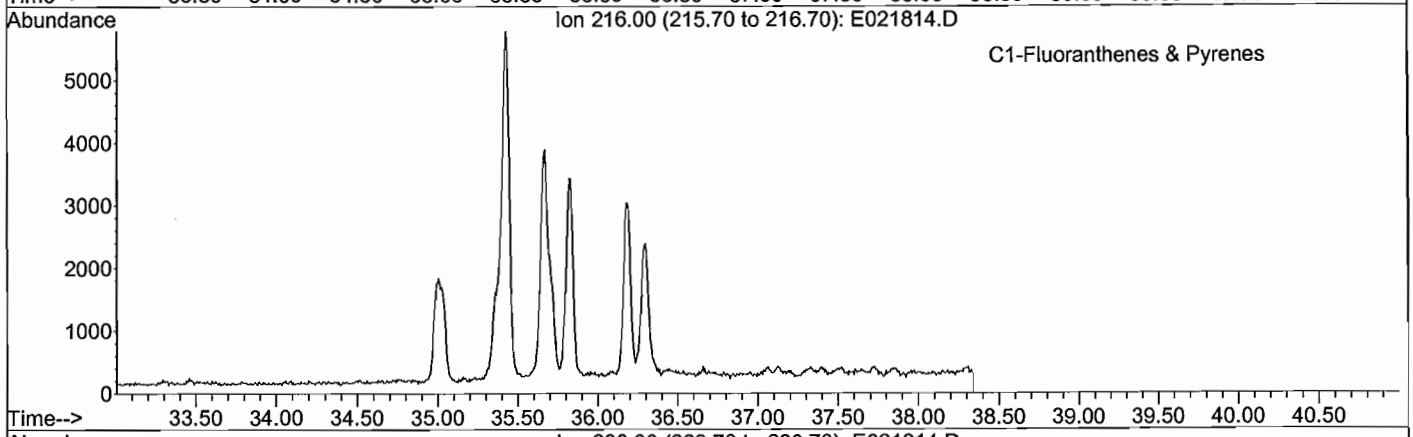

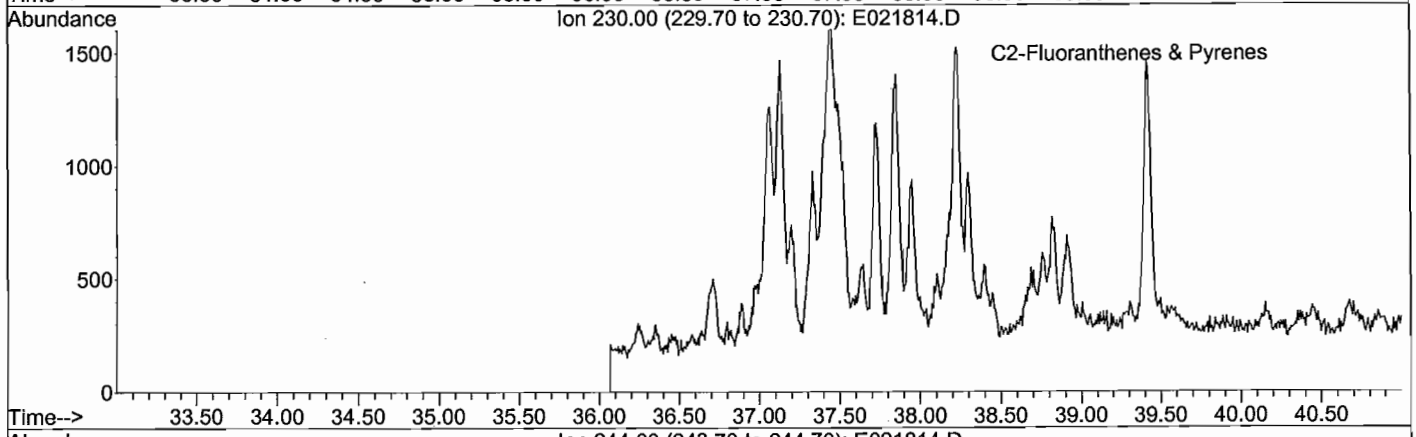

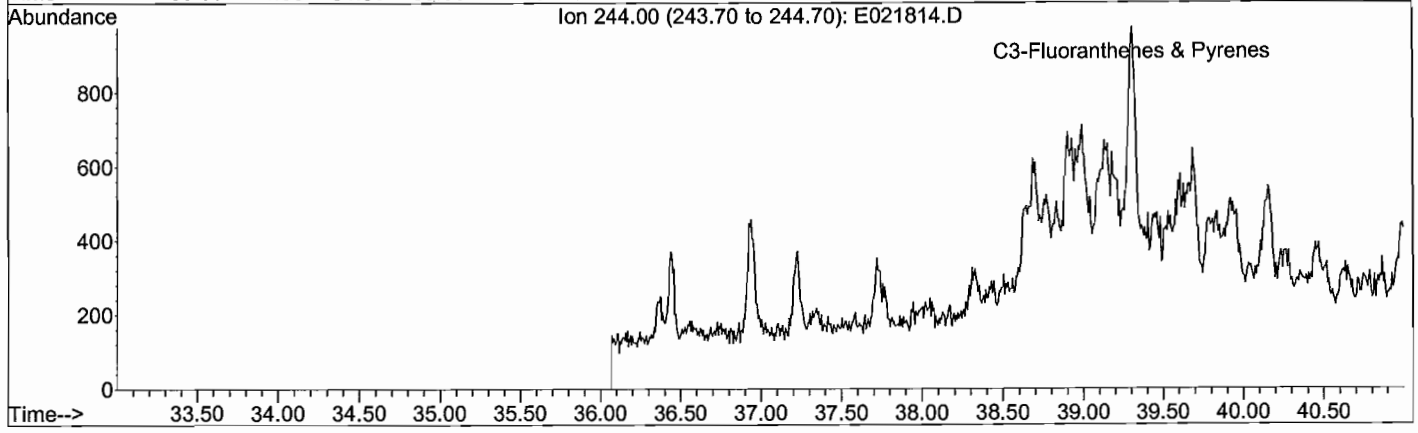

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Sample Name: TA090211-02
Misc Info: Reference
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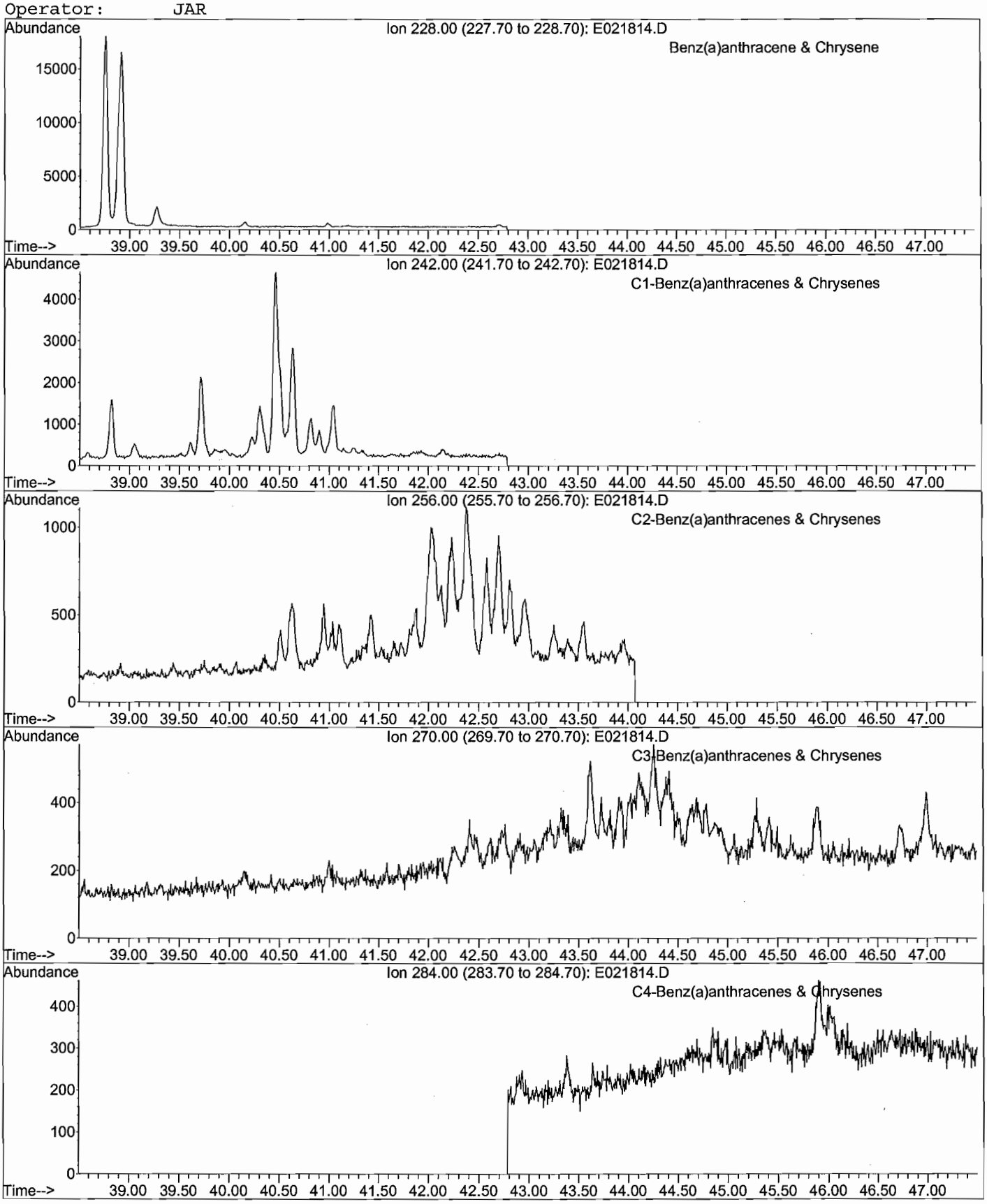
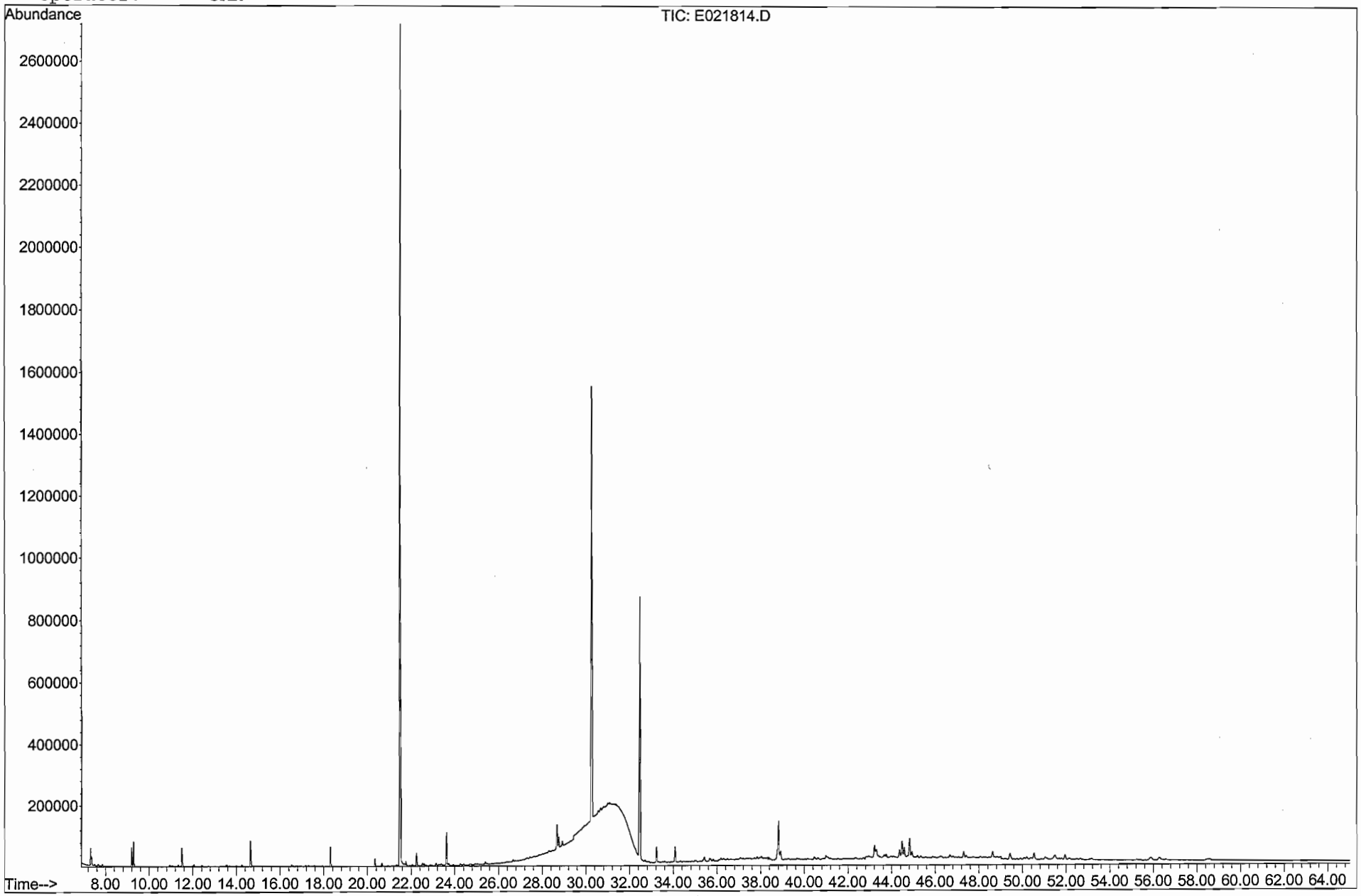


META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

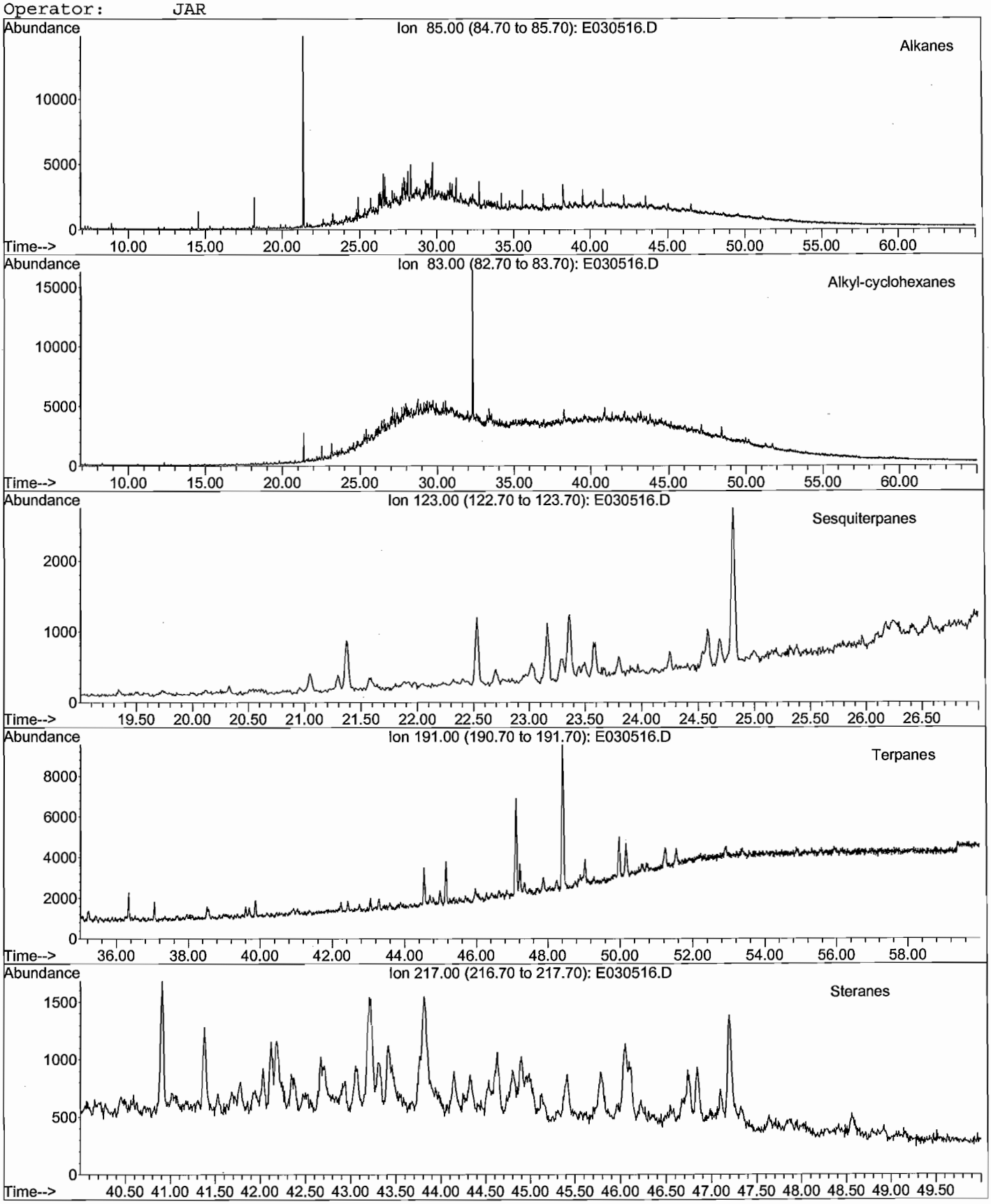
File: J:\1\DATA\E090218\E021814.D
Date Acquired: 19 Feb 2009 8:21 am
Method File: 4008SIMD.M
Sample Name: TA090211-02
Misc Info: Reference
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

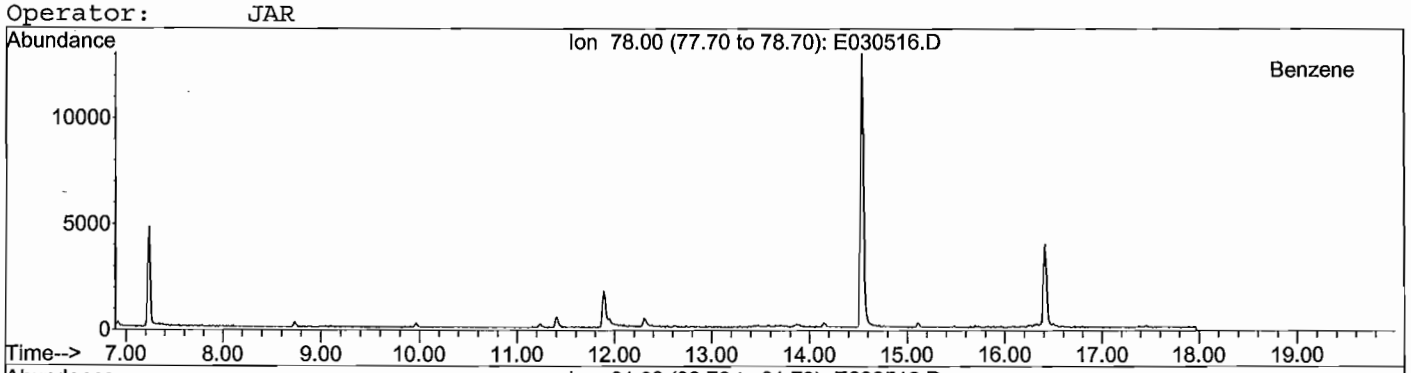
File: J:\1\DATA\E090305\E030516.D
Date Acquired: 6 Mar 2009 9:33 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01-D
Misc Info: BH-SED-10-2 - 10X
Operator: JAR

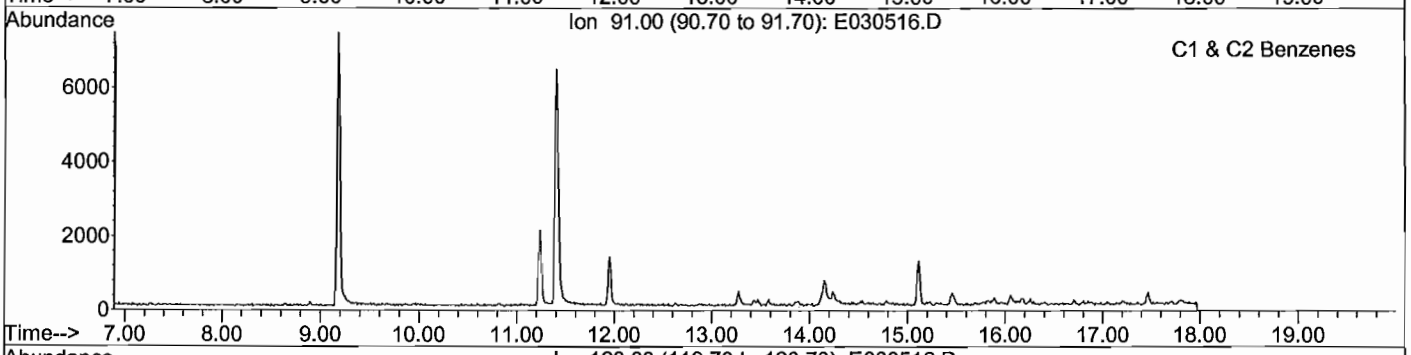


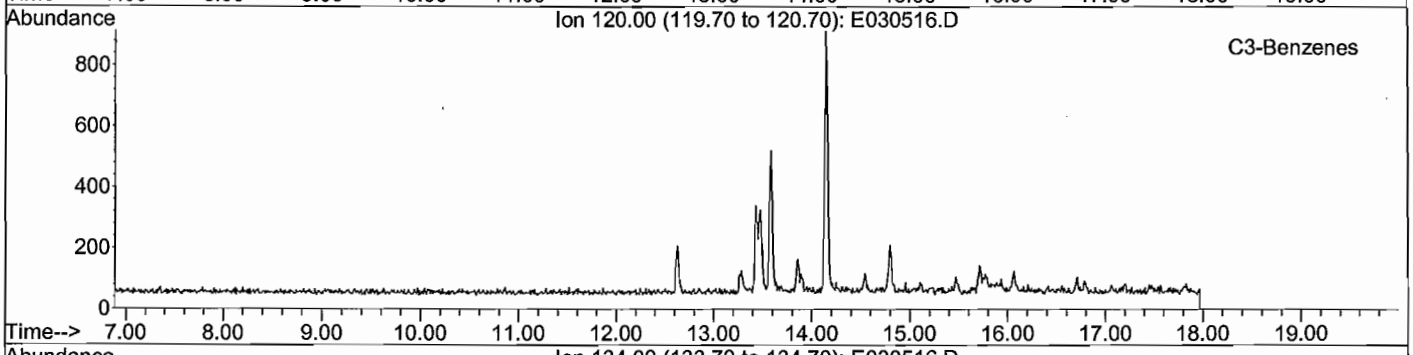
META Environmental, Inc.

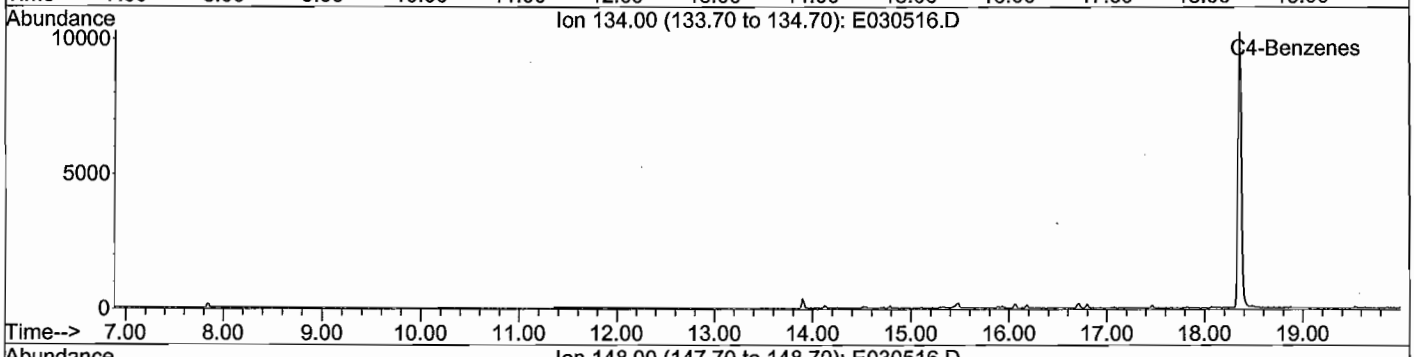
GC/MS EXTRACTED ION CHROMATOGRAM

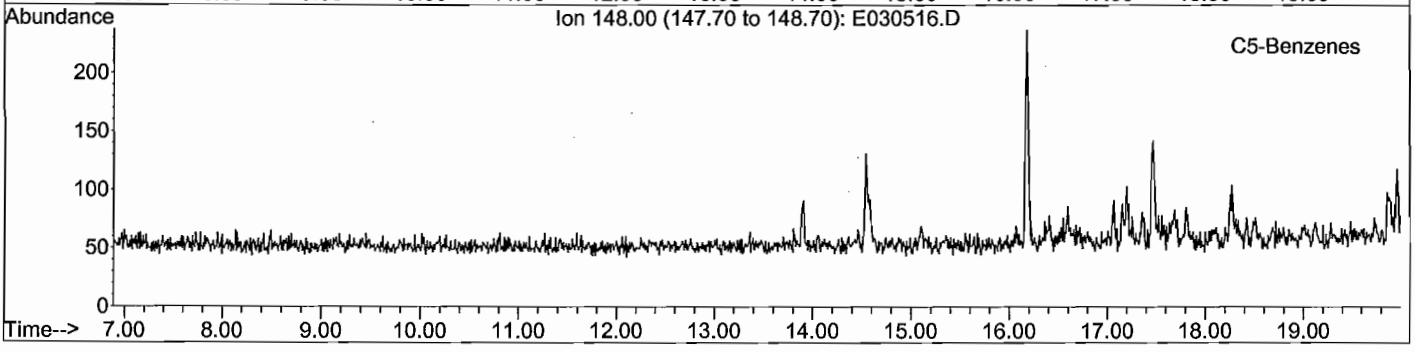
File: J:\1\DATA\E090305\E030516.D
Date Acquired: 6 Mar 2009 9:33 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01-D
Misc Info: BH-SED-10-2 - 10X
Operator: JAR







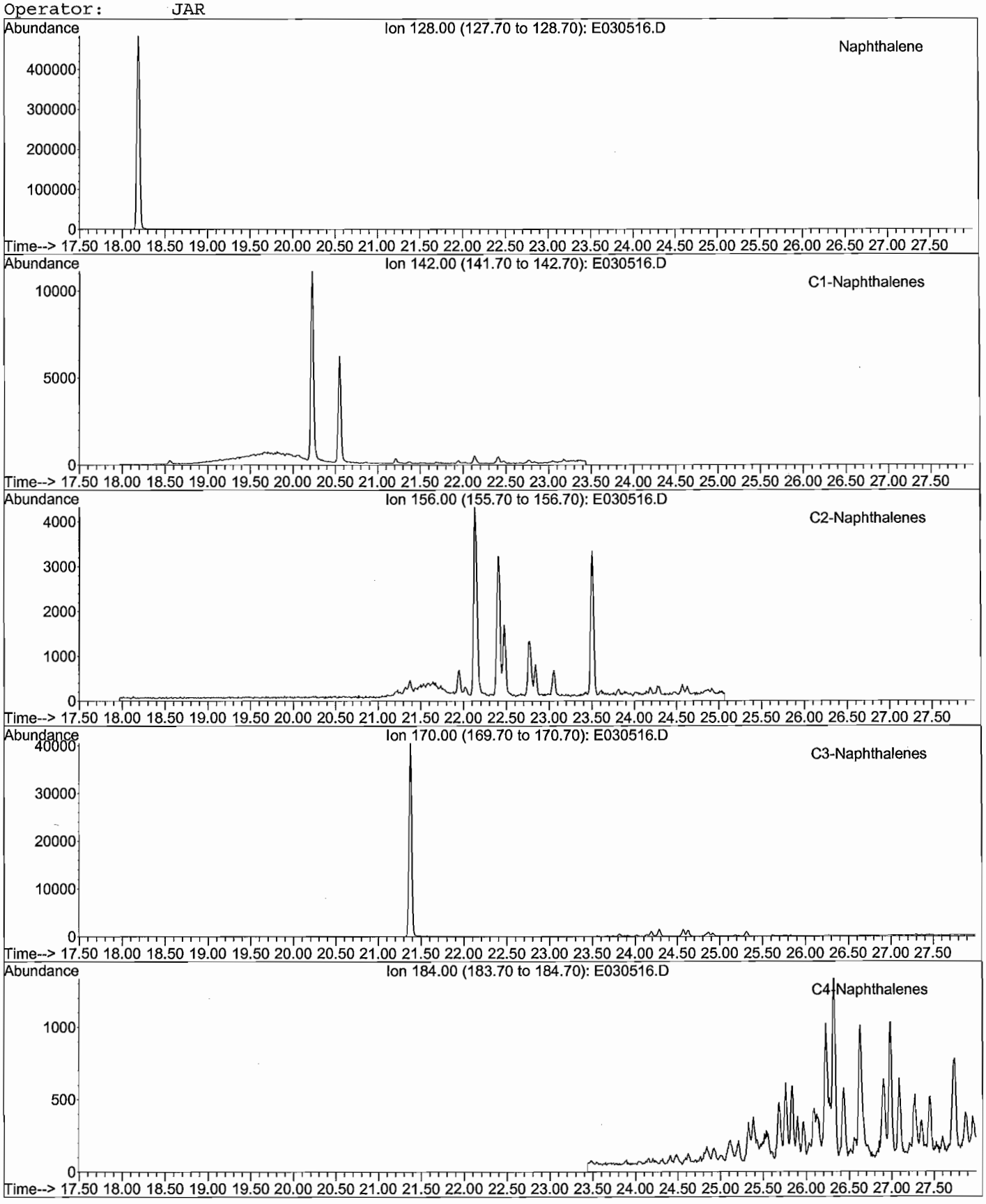




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

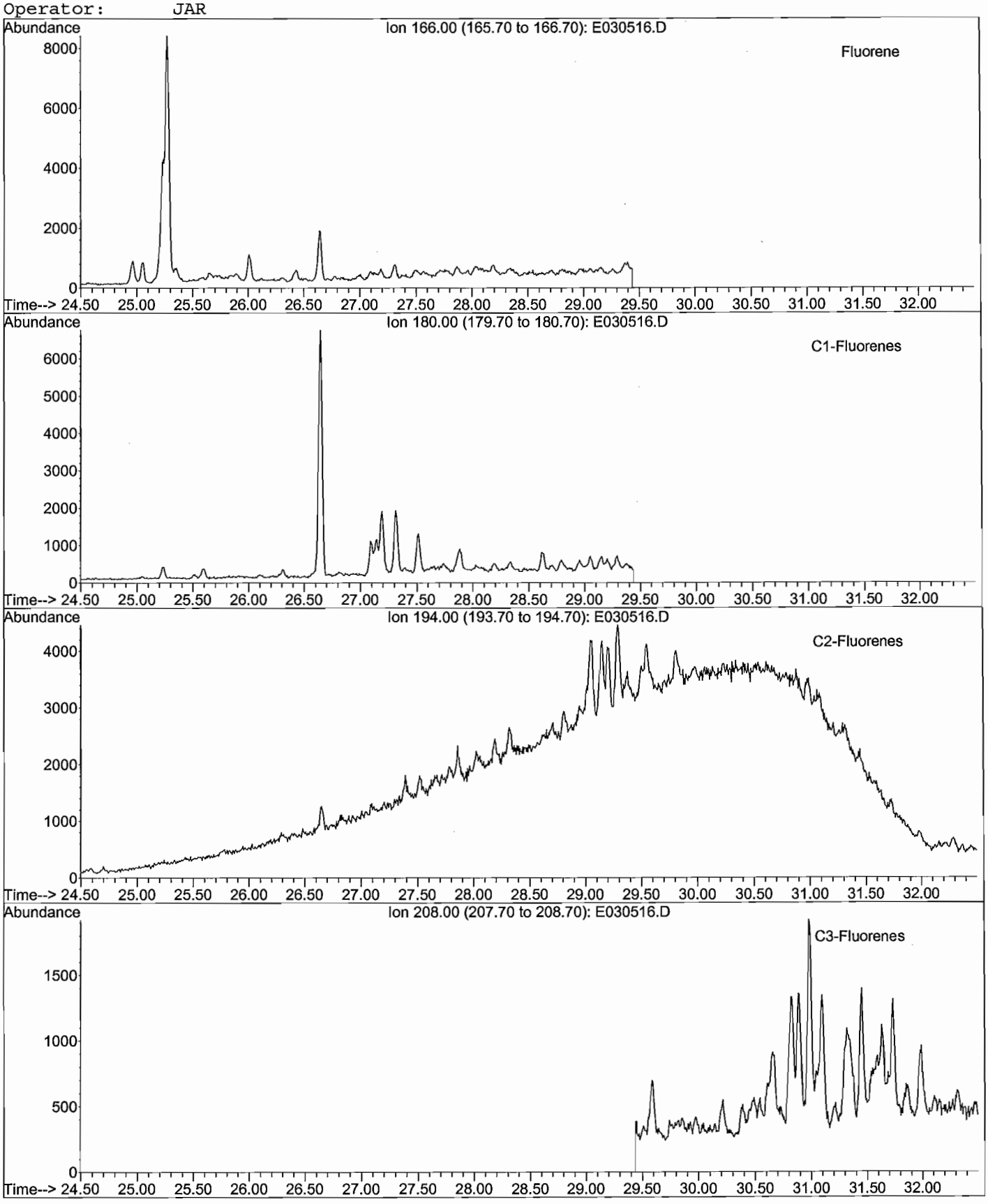
File: J:\1\DATA\E090305\E030516.D
Date Acquired: 6 Mar 2009 9:33 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01-D
Misc Info: BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

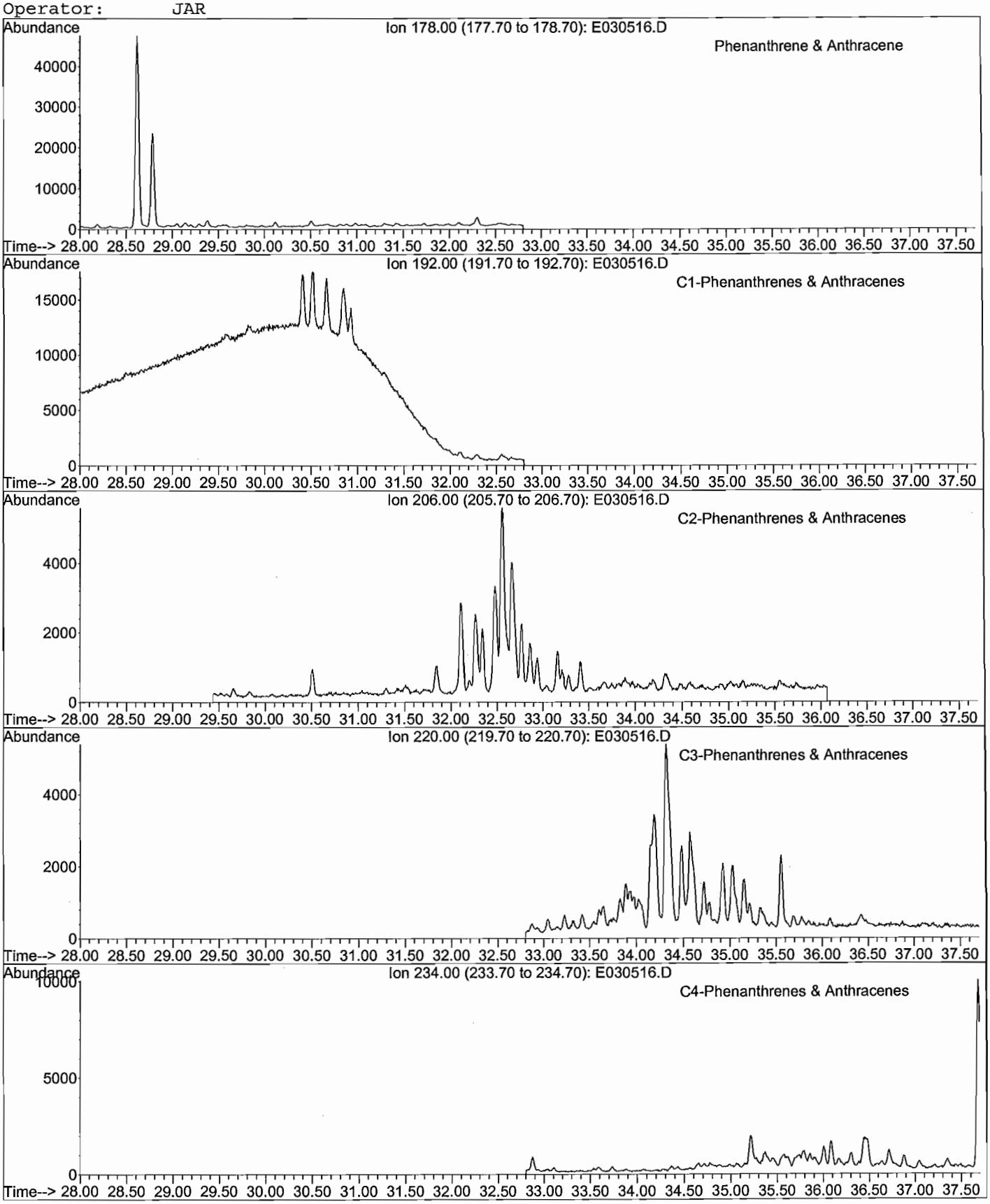
File: J:\1\DATA\E090305\E030516.D
Date Acquired: 6 Mar 2009 9:33 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01-D
Misc Info: BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

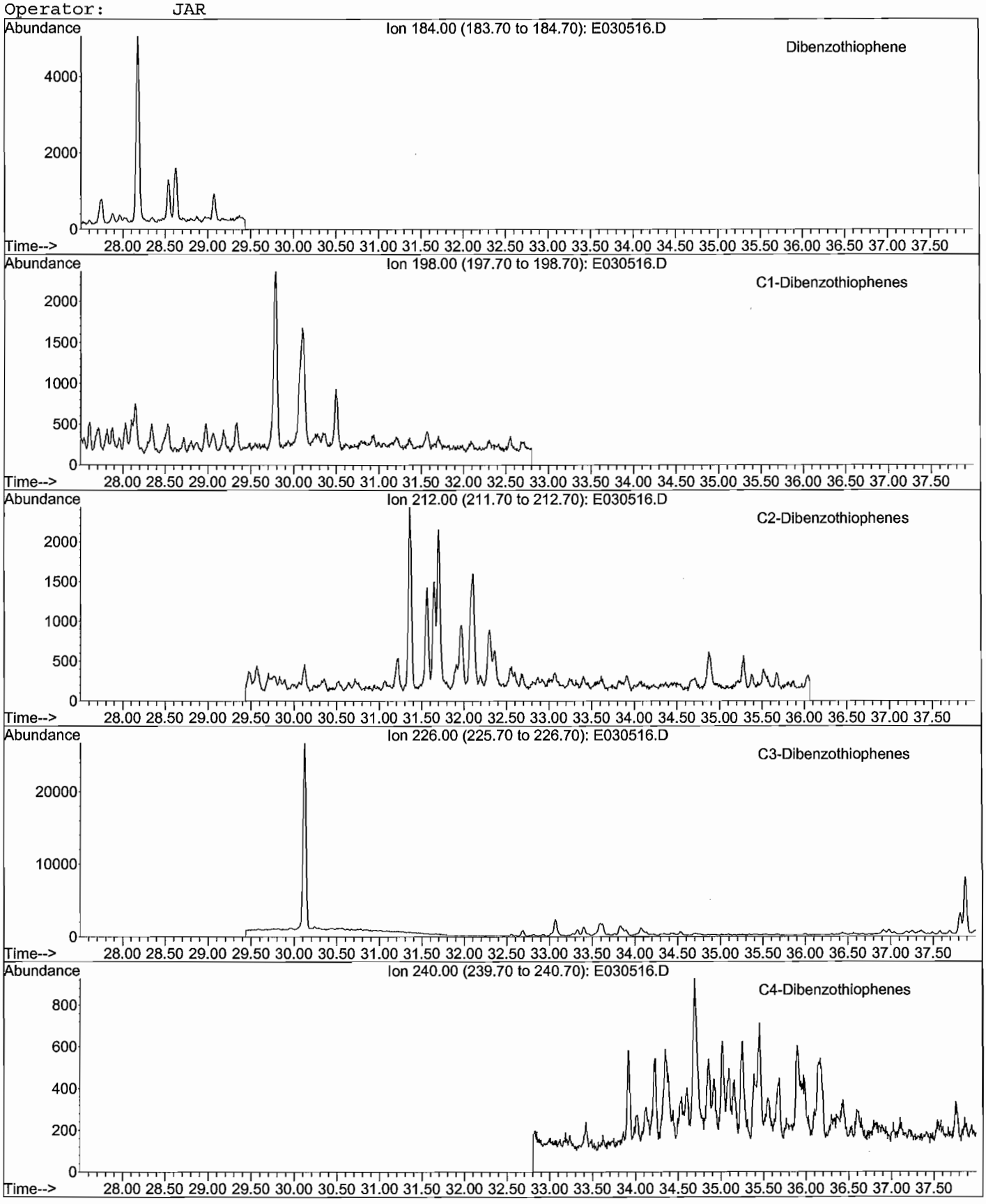
File: J:\1\DATA\E090305\E030516.D
Date Acquired: 6 Mar 2009 9:33 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01-D
Misc Info: BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

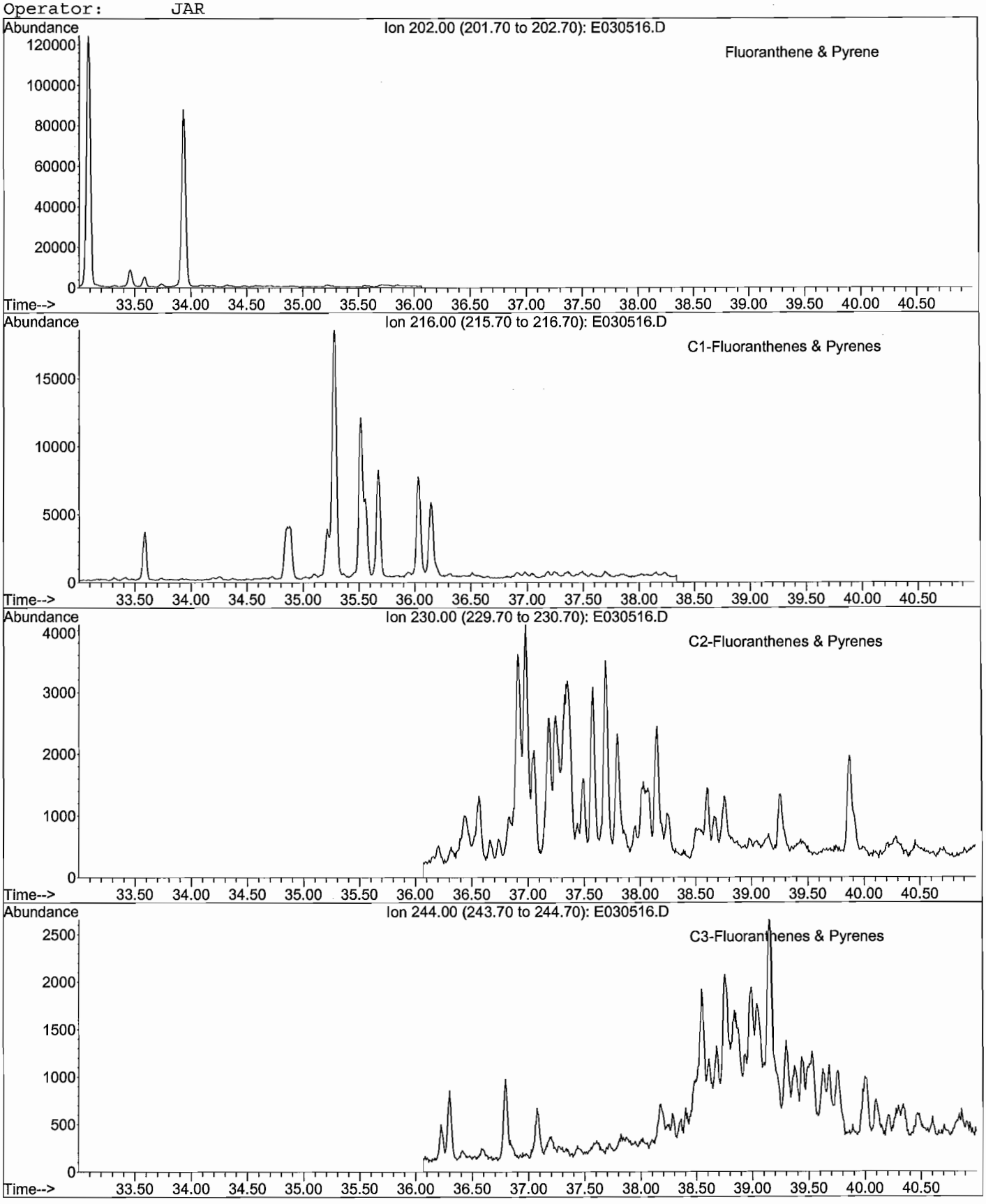
File: J:\1\DATA\E090305\E030516.D
Date Acquired: 6 Mar 2009 9:33 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01-D
Misc Info: BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030516.D
Date Acquired: 6 Mar 2009 9:33 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01-D
Misc Info: BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030516.D
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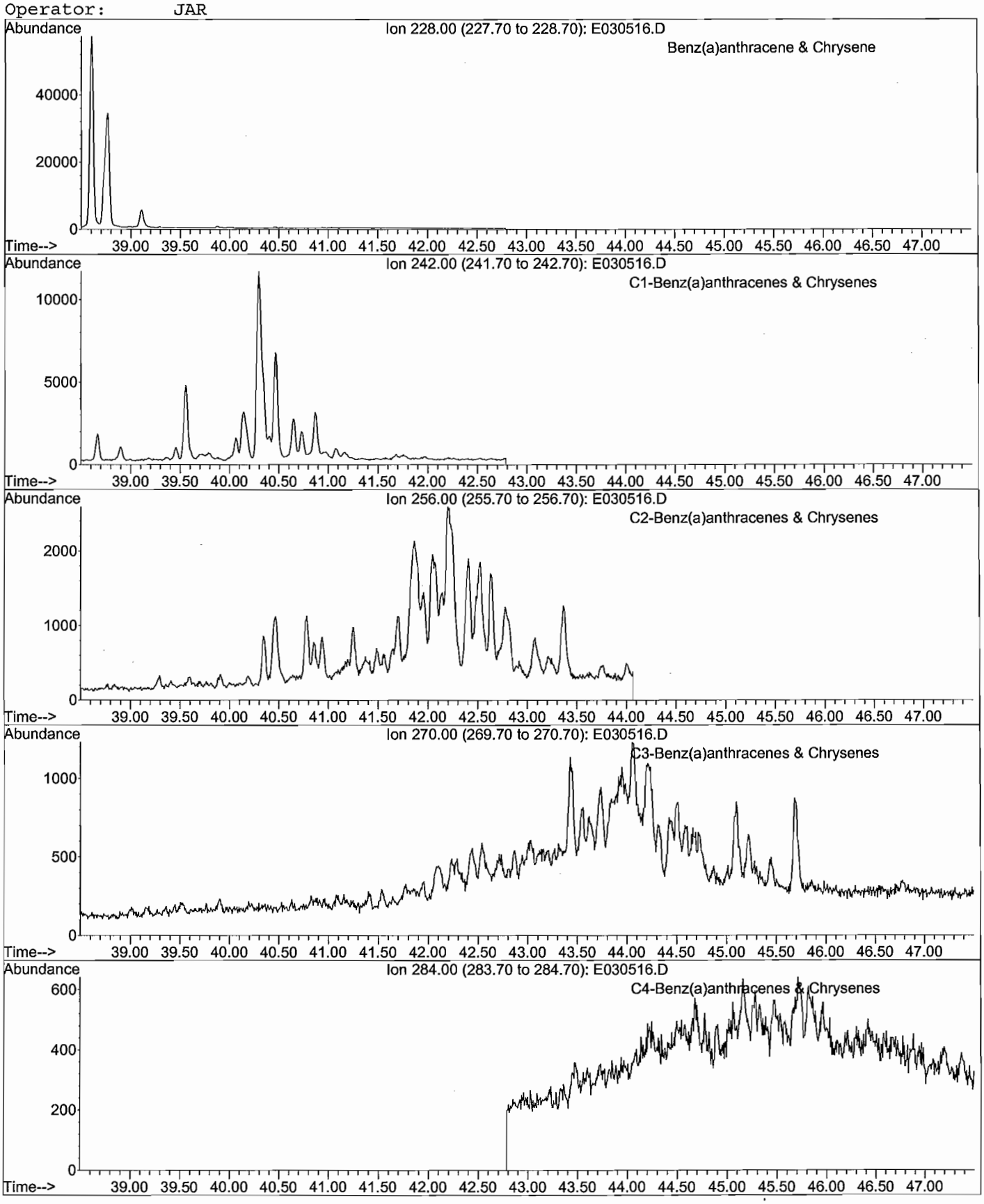
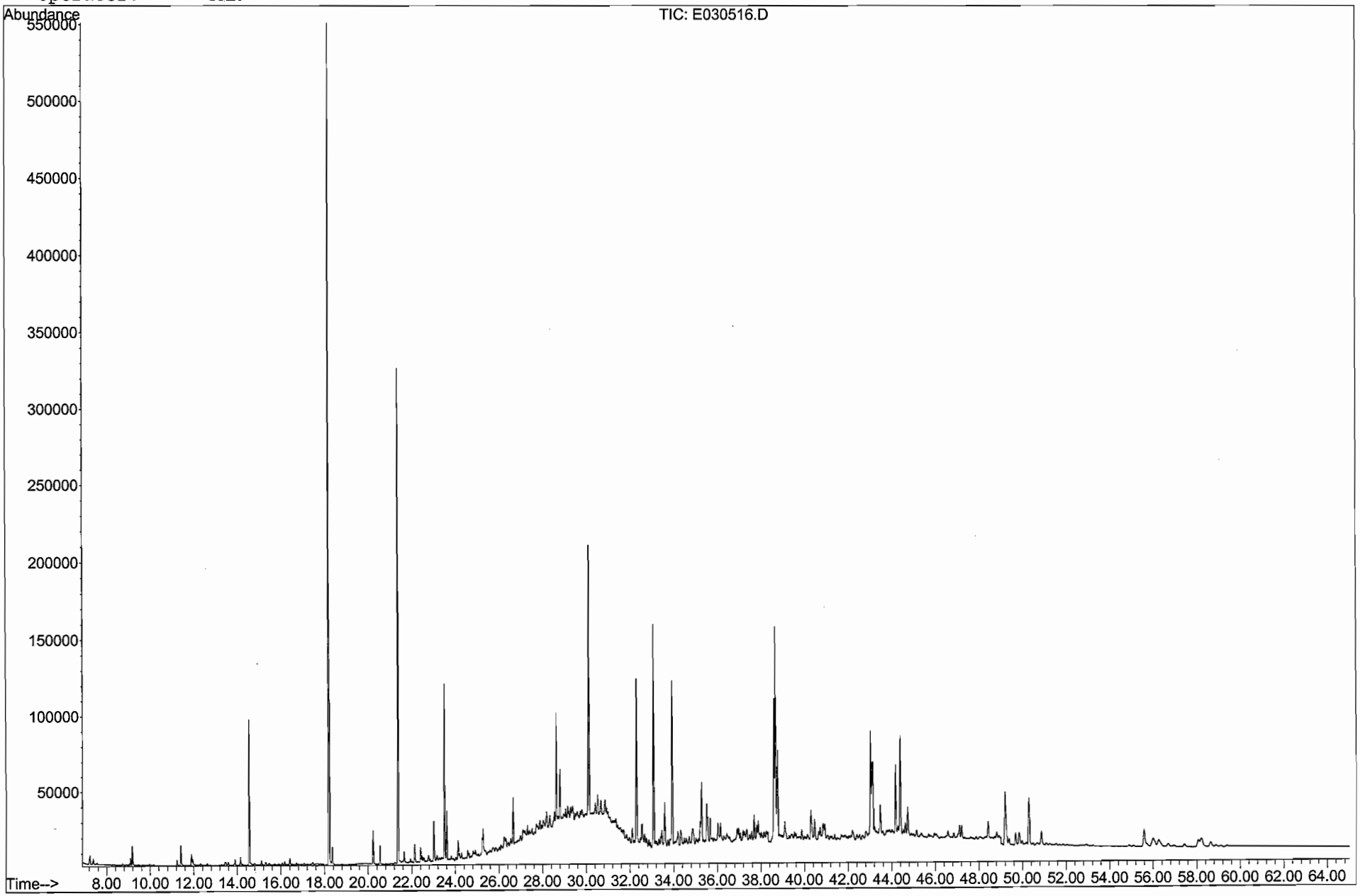
Method File: 4008SIMD.M
Sample Name: TA090226-01-D
Misc Info: BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

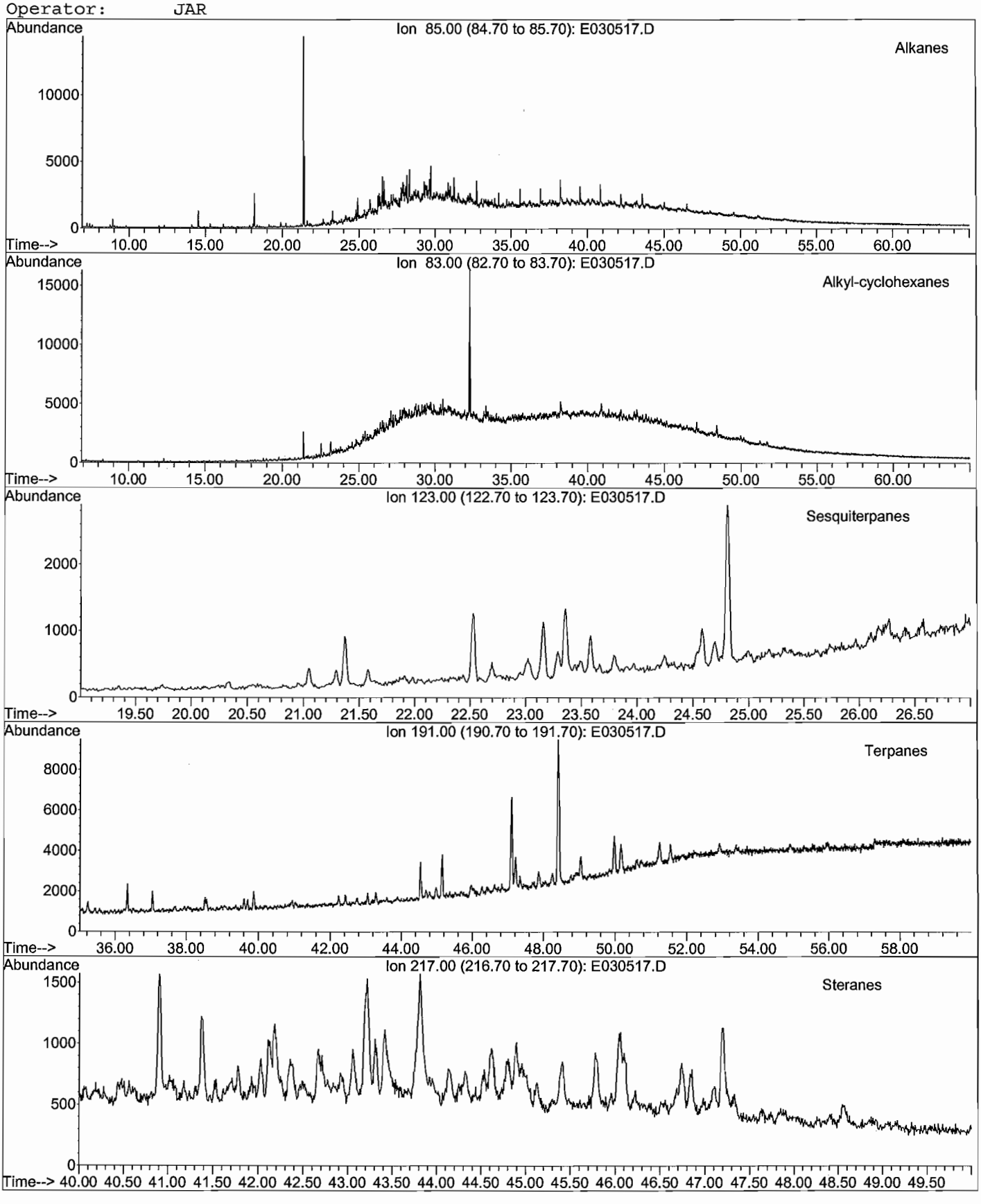
File: J:\1\DATA\E090305\E030516.D
Date Acquired: 6 Mar 2009 9:33 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01-D
Misc Info: BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030517.D
Date Acquired: 6 Mar 2009 10:48 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01DUP-D
Misc Info: Duplicate of BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030517.D
Date Acquired: 6 Mar 2009 10:48 pm
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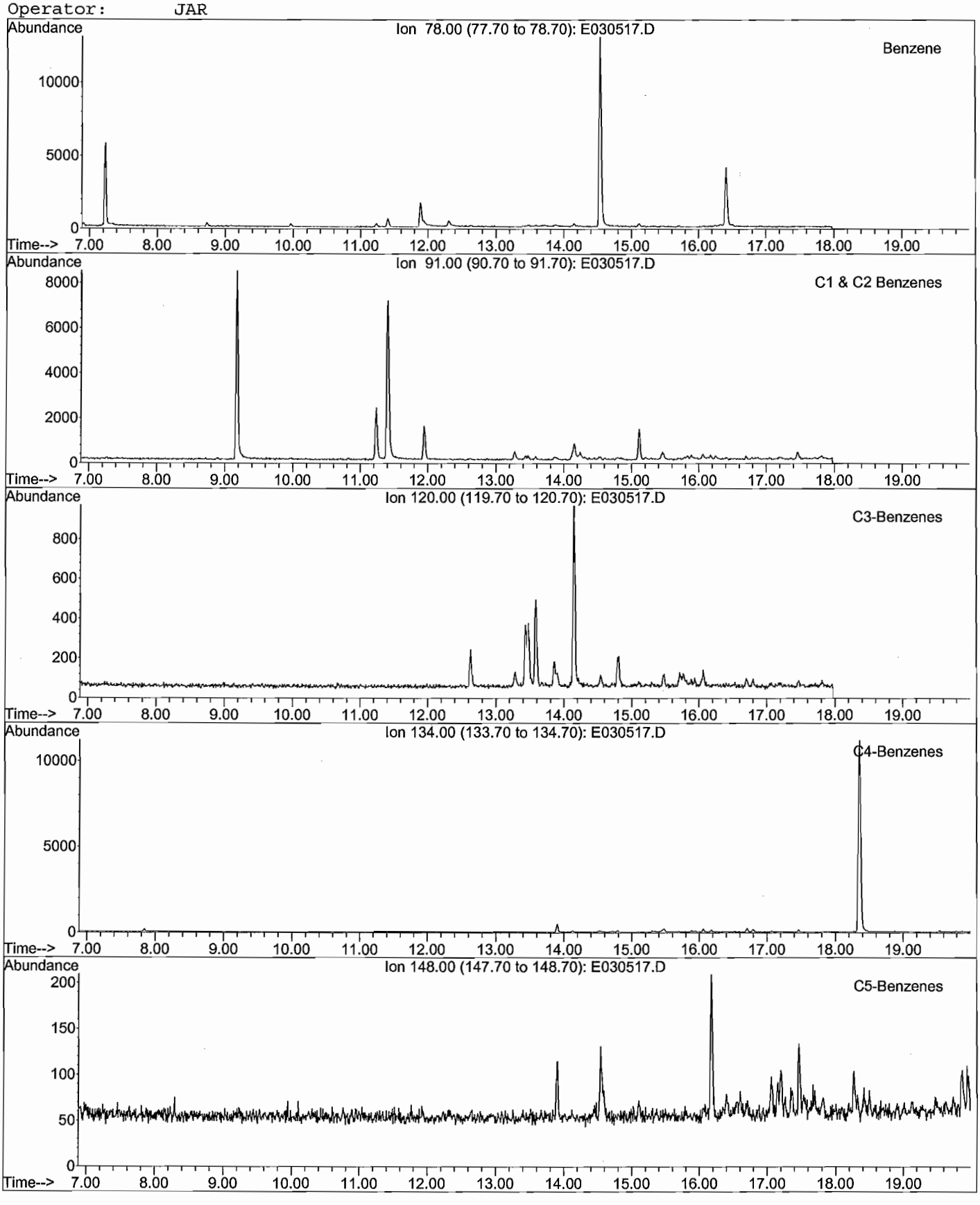
Sample Name: TA090226-01DUP-D
Misc Info: Duplicate of BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030517.D
Date Acquired: 6 Mar 2009 10:48 pm
Method File: 4008SIMD.M
Sample Name: TA090226-01DUP-D
Misc Info: Duplicate of BH-SED-10-2 - 10X
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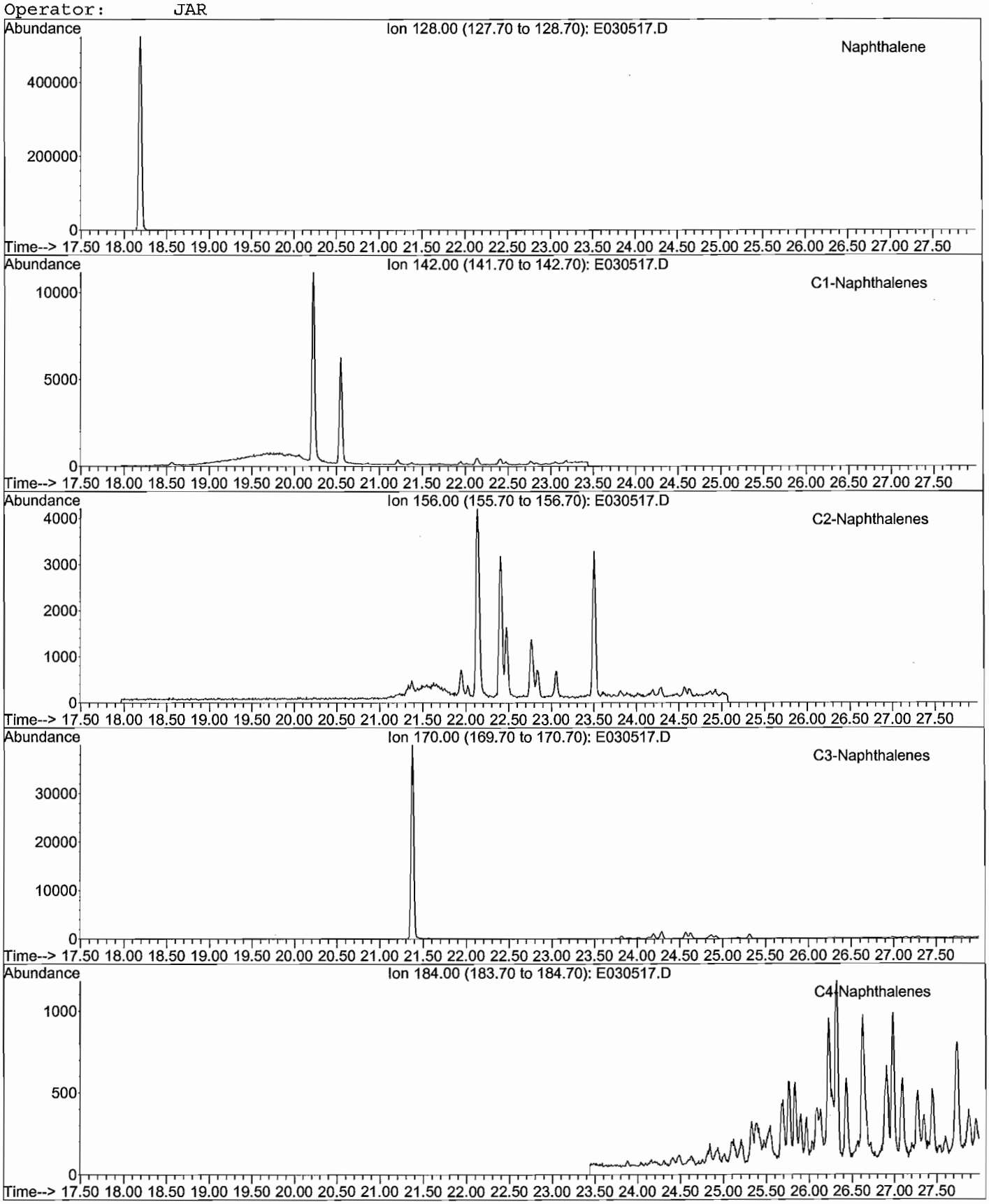

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030517.D
Date Acquired: 6 Mar 2009 10:48 pm
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Sample Name: TA090226-01DUP-D
Misc Info: Duplicate of BH-SED-10-2 - 10X
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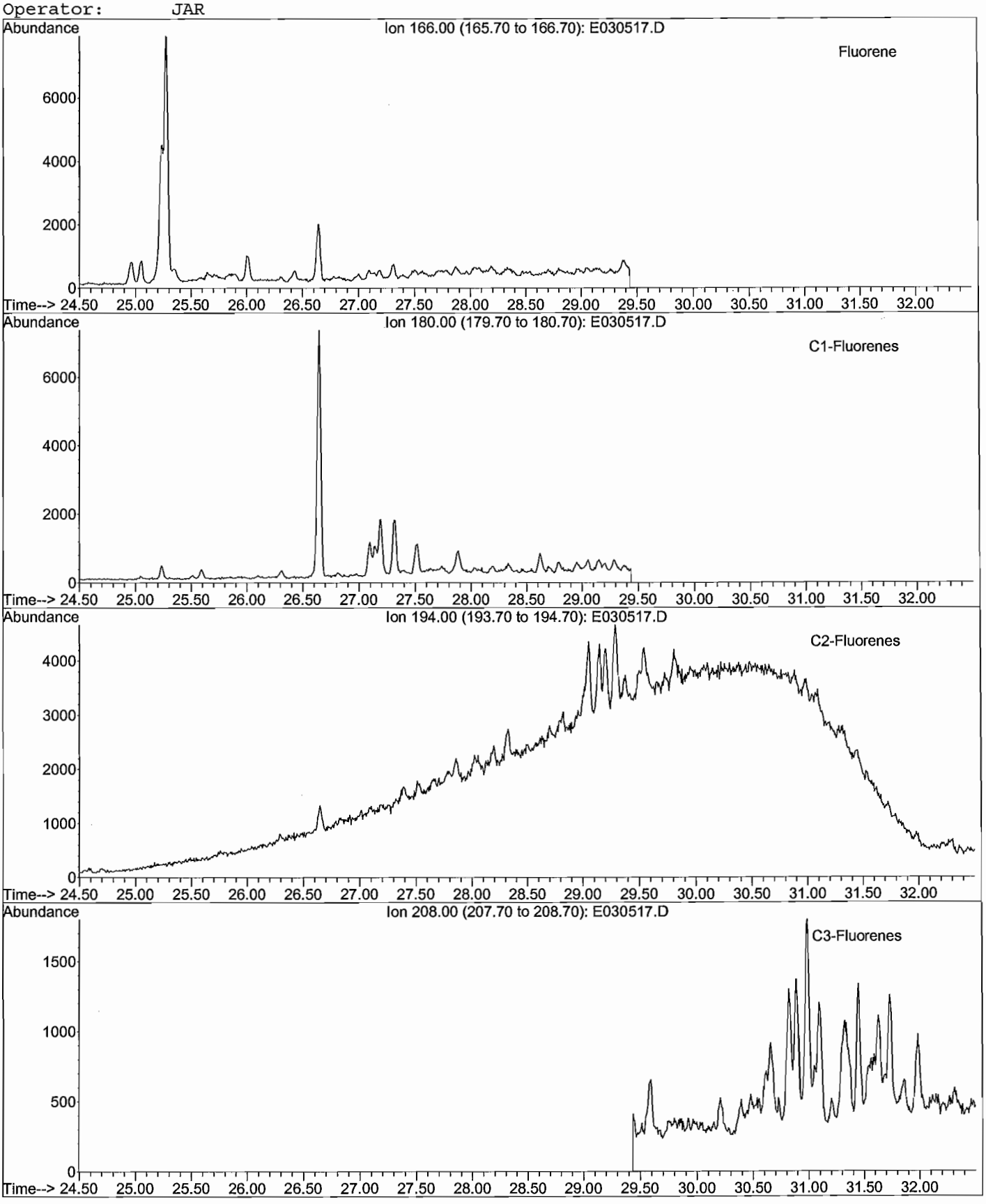

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030517.D
Date Acquired: 6 Mar 2009 10:48 pm
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Sample Name: TA090226-01DUP-D
Misc Info: Duplicate of BH-SED-10-2 - 10X
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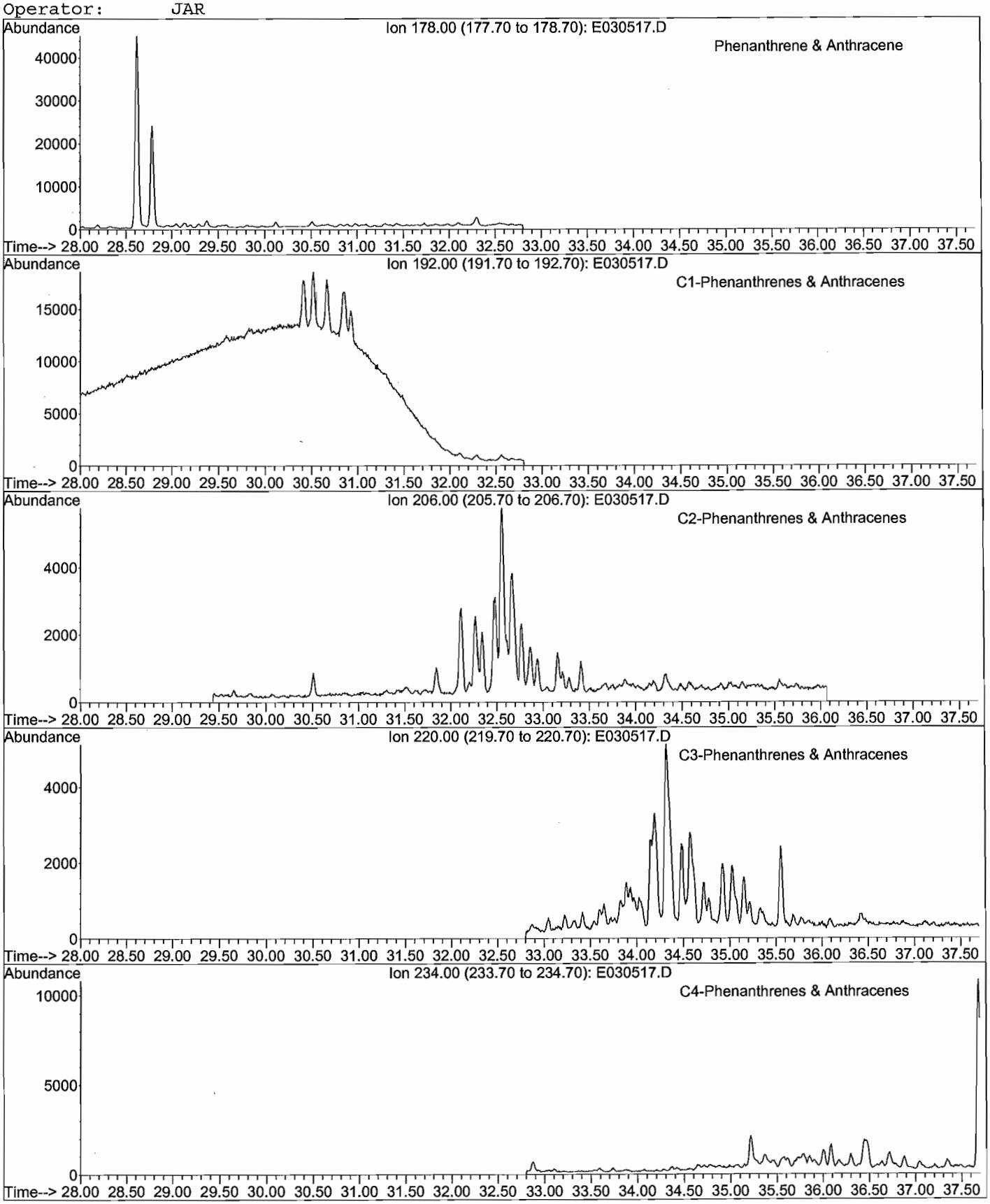

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030517.D
Date Acquired: 6 Mar 2009 10:48 pm
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Sample Name: TA090226-01DUP-D
Misc Info: Duplicate of BH-SED-10-2 - 10X
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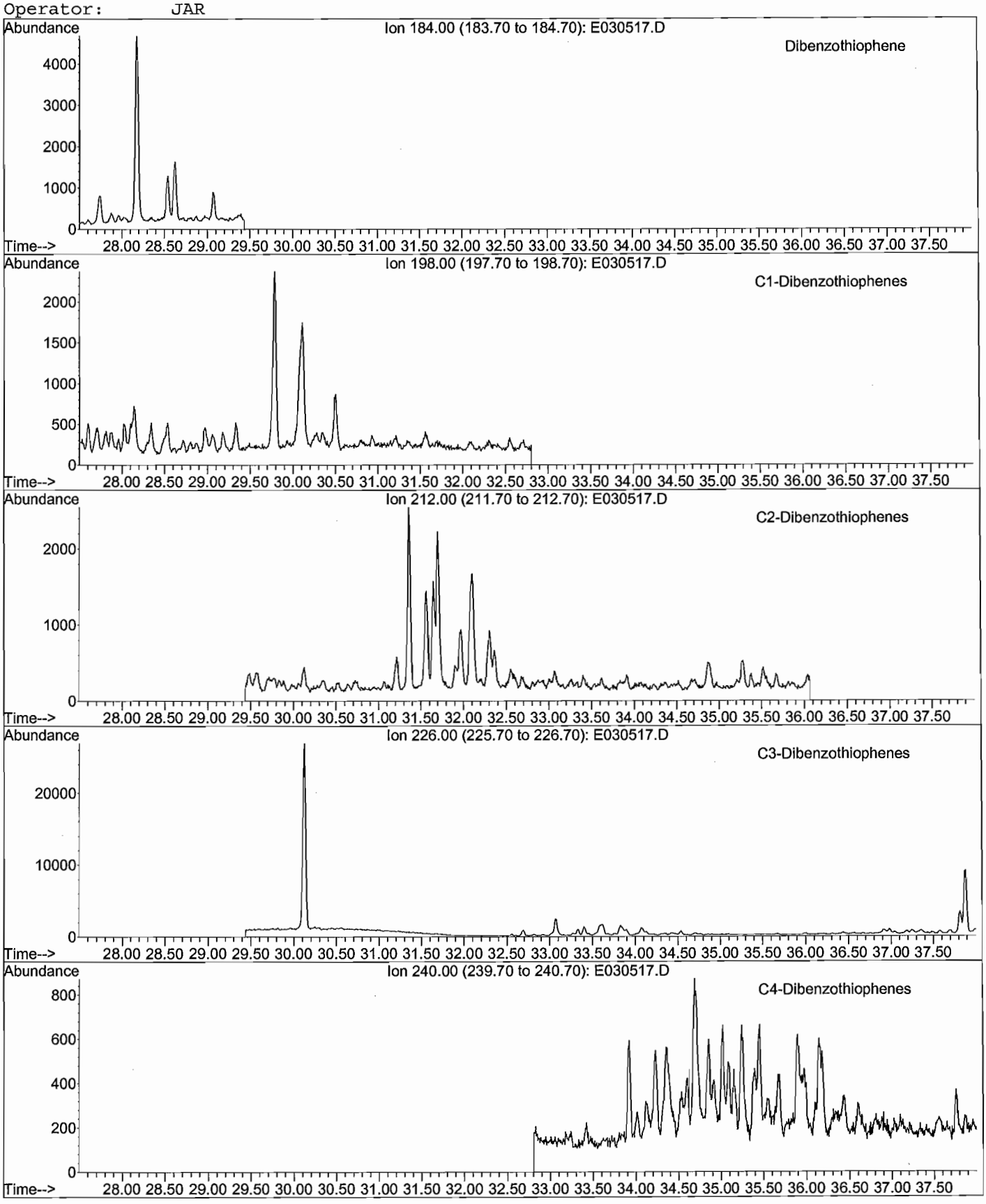

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030517.D
Date Acquired: 6 Mar 2009 10:48 pm
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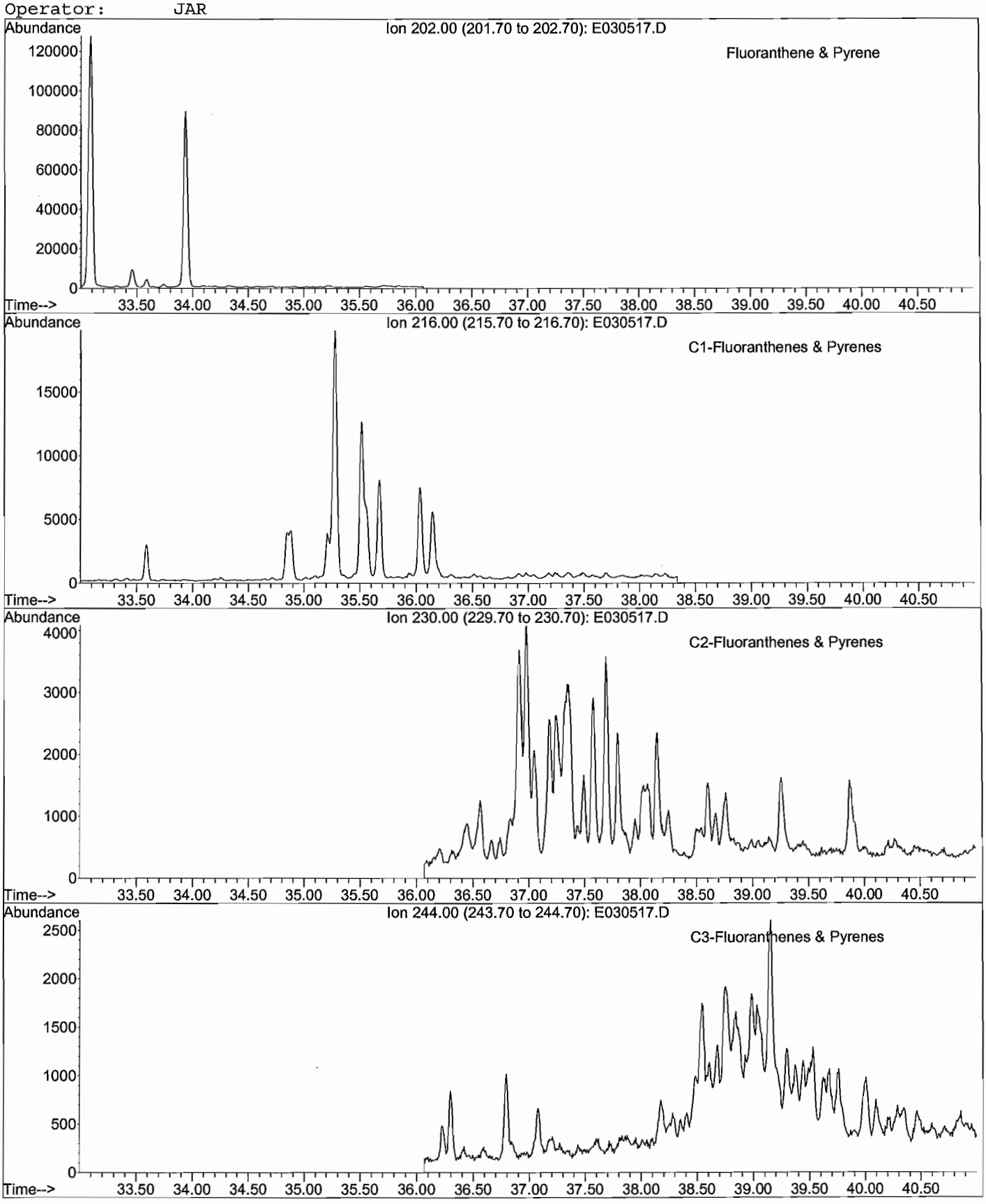
Sample Name: TA090226-01DUP-D
Misc Info: Duplicate of BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030517.D
Date Acquired: 6 Mar 2009 10:48 pm
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Sample Name: TA090226-01DUP-D
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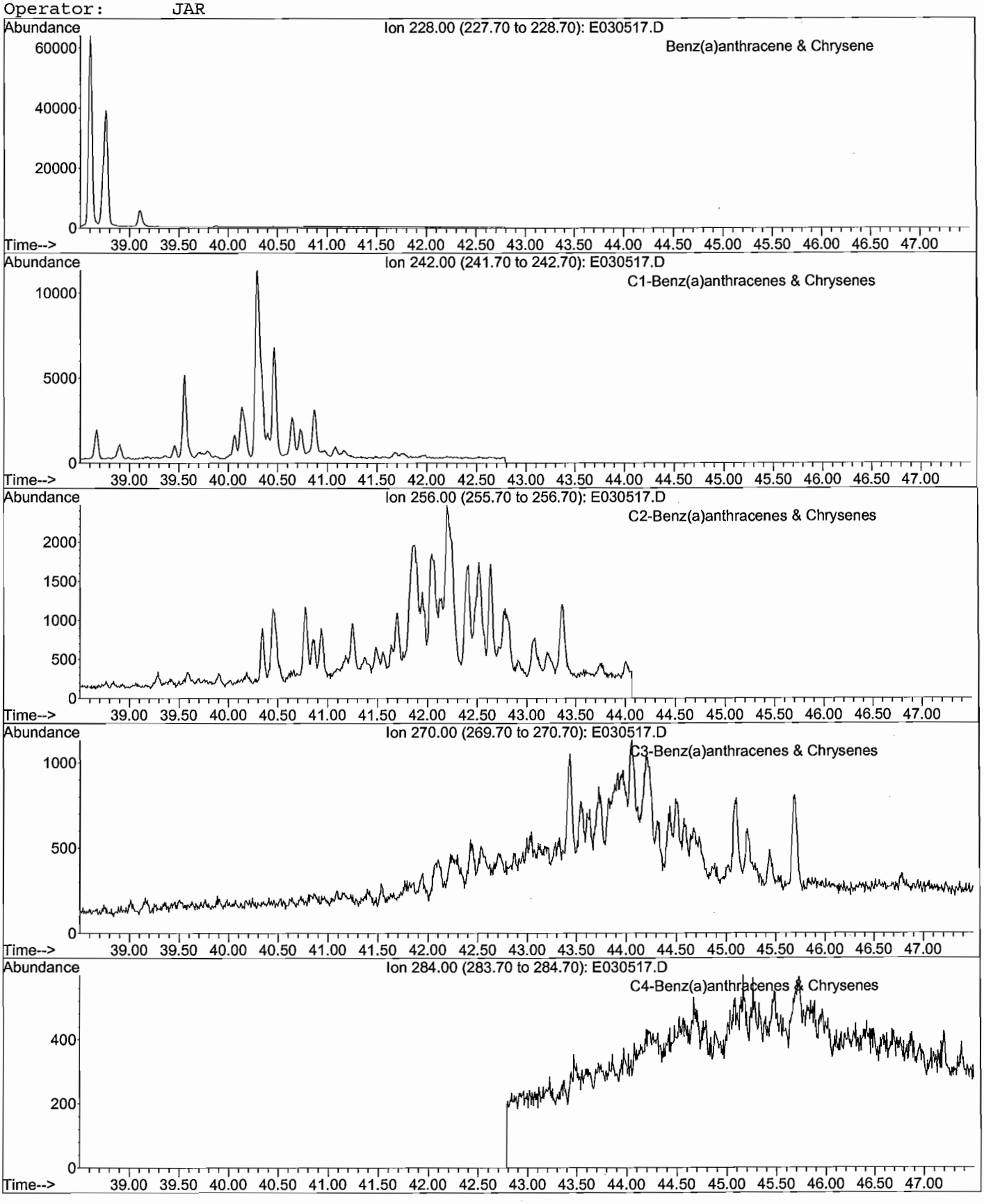
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030517.D
Date Acquired: 6 Mar 2009 10:48 pm
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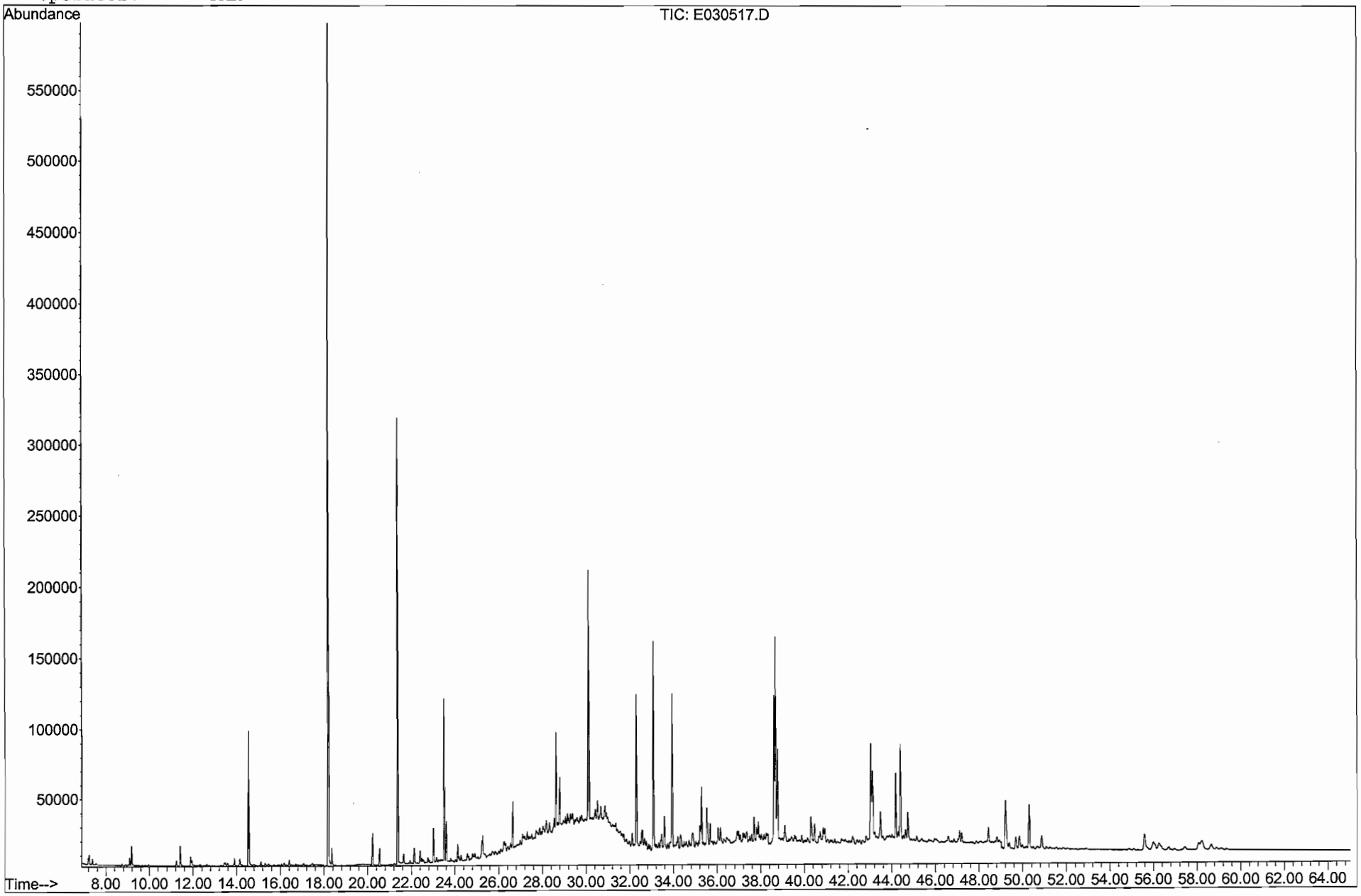
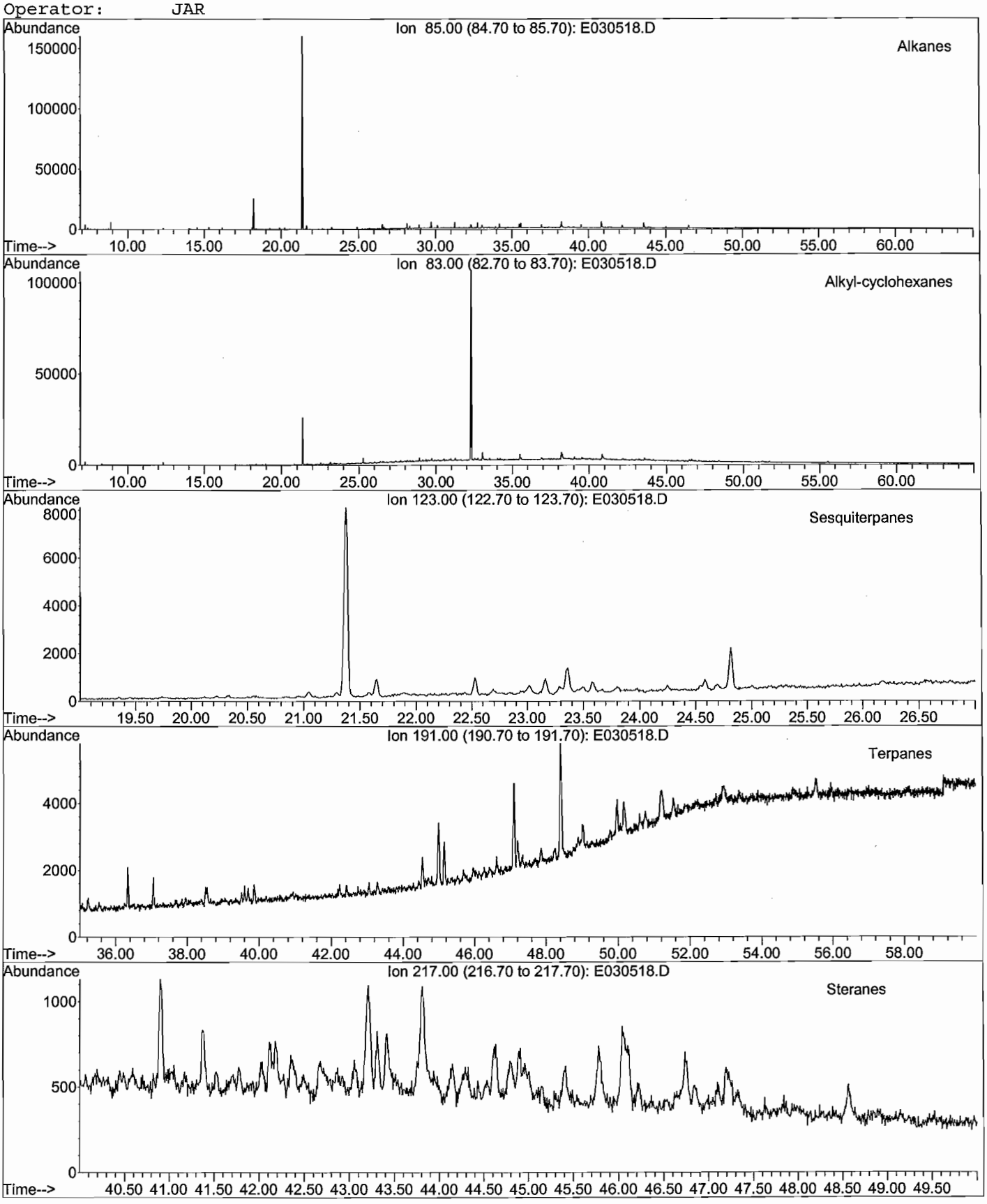
Sample Name: TA090226-01DUP-D
Misc Info: Duplicate of BH-SED-10-2 - 10X
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

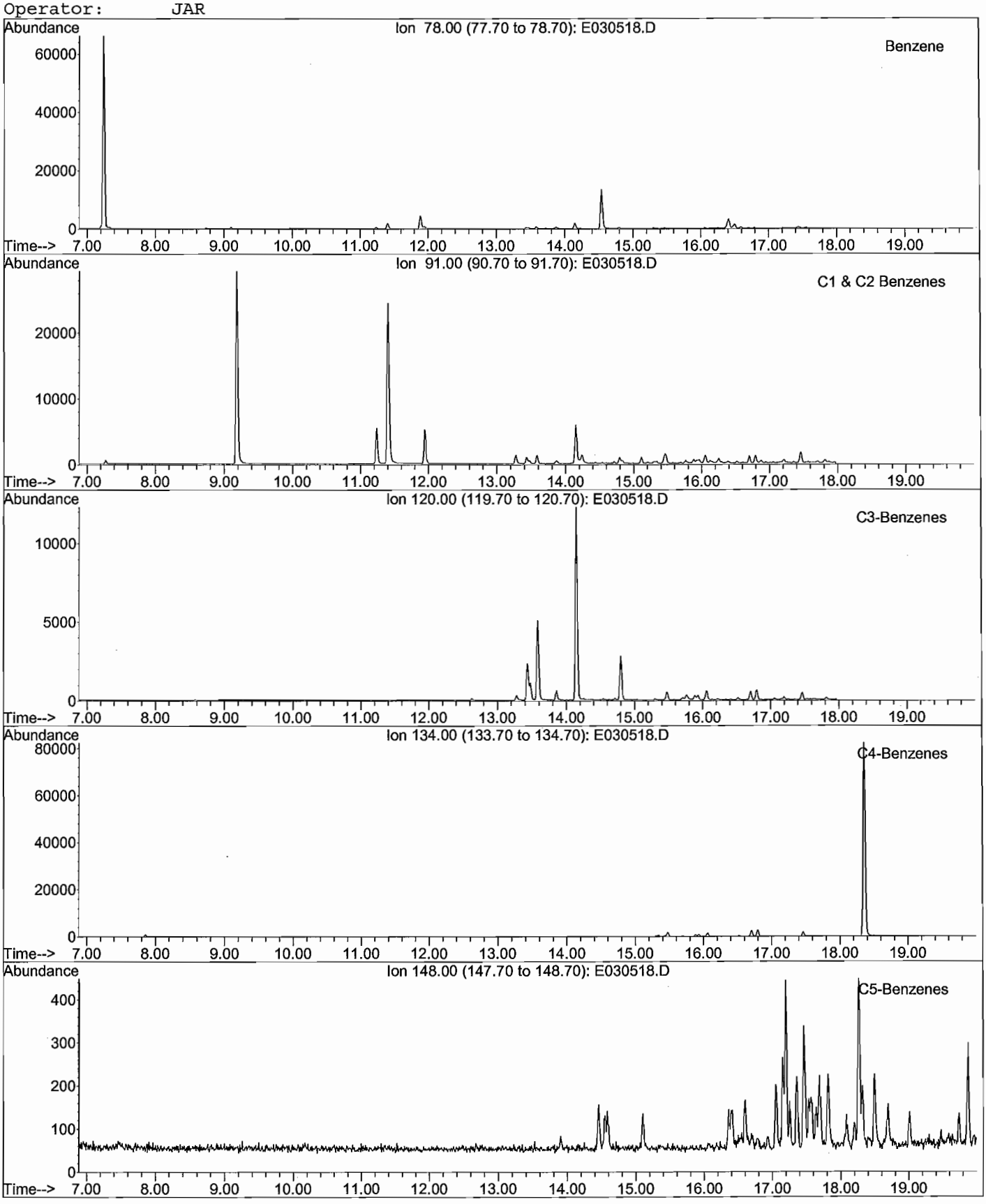
File: J:\1\DATA\E090305\E030518.D
Date Acquired: 7 Mar 2009 12:03 am
Method File: 4008SIMD.M
Sample Name: TA090226-02
Misc Info: BH-SED-03A-12
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

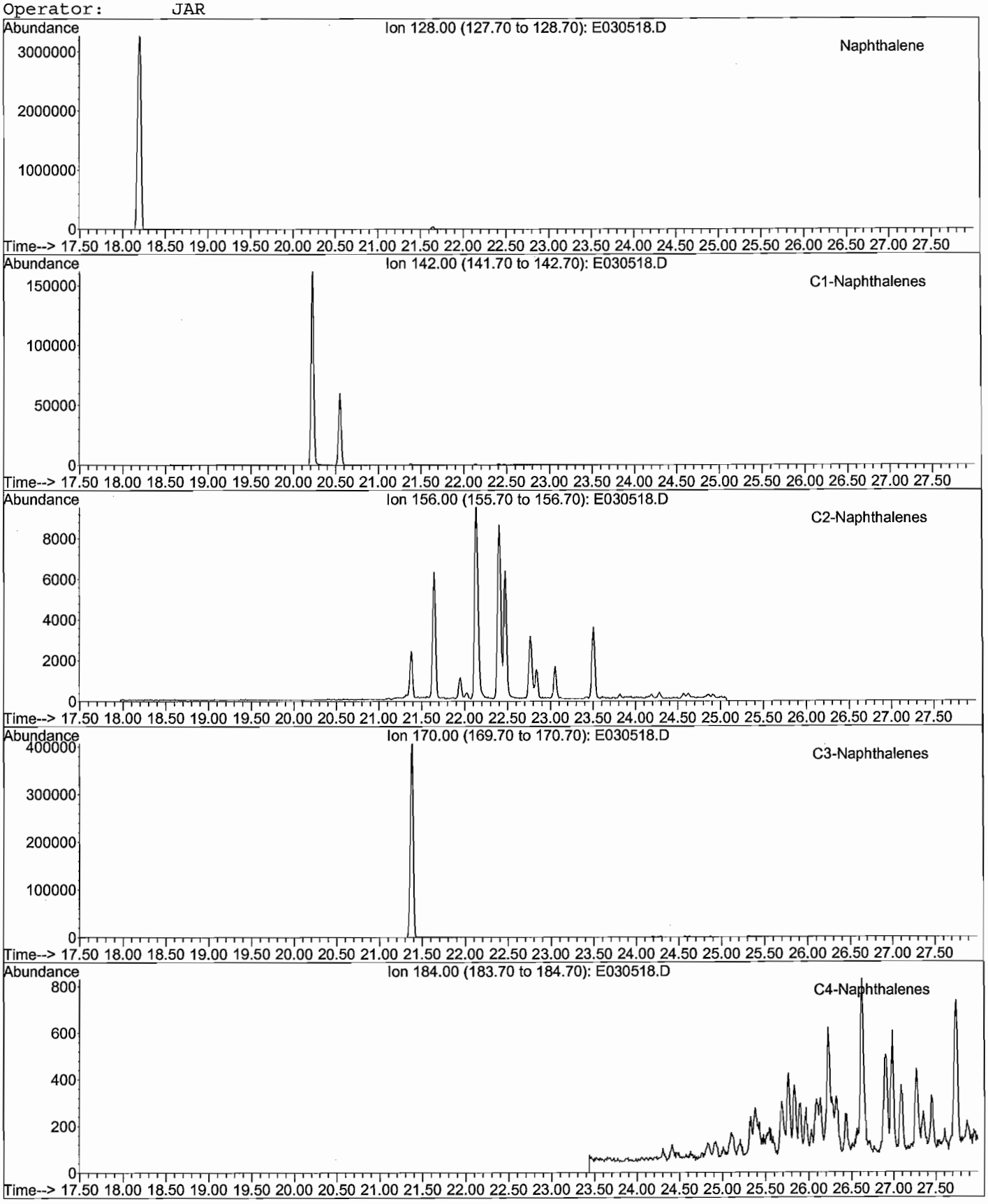
File: J:\1\DATA\E090305\E030518.D
Date Acquired: 7 Mar 2009 12:03 am
Method File: 4008SIMD.M
Sample Name: TA090226-02
Misc Info: BH-SED-03A-12
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

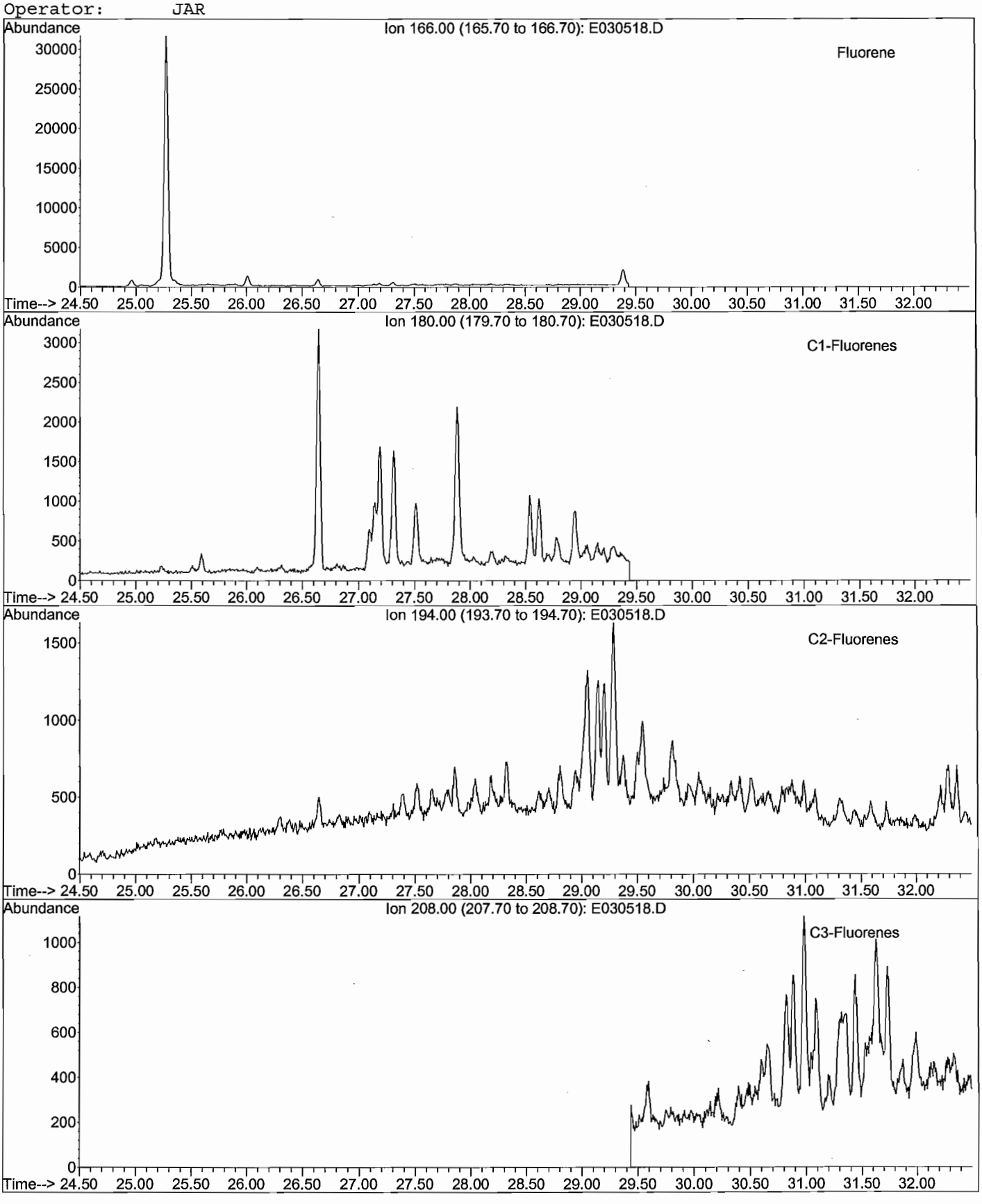
File: J:\1\DATA\E090305\E030518.D
Date Acquired: 7 Mar 2009 12:03 am
Method File: 4008SIMD.M
Sample Name: TA090226-02
Misc Info: BH-SED-03A-12
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

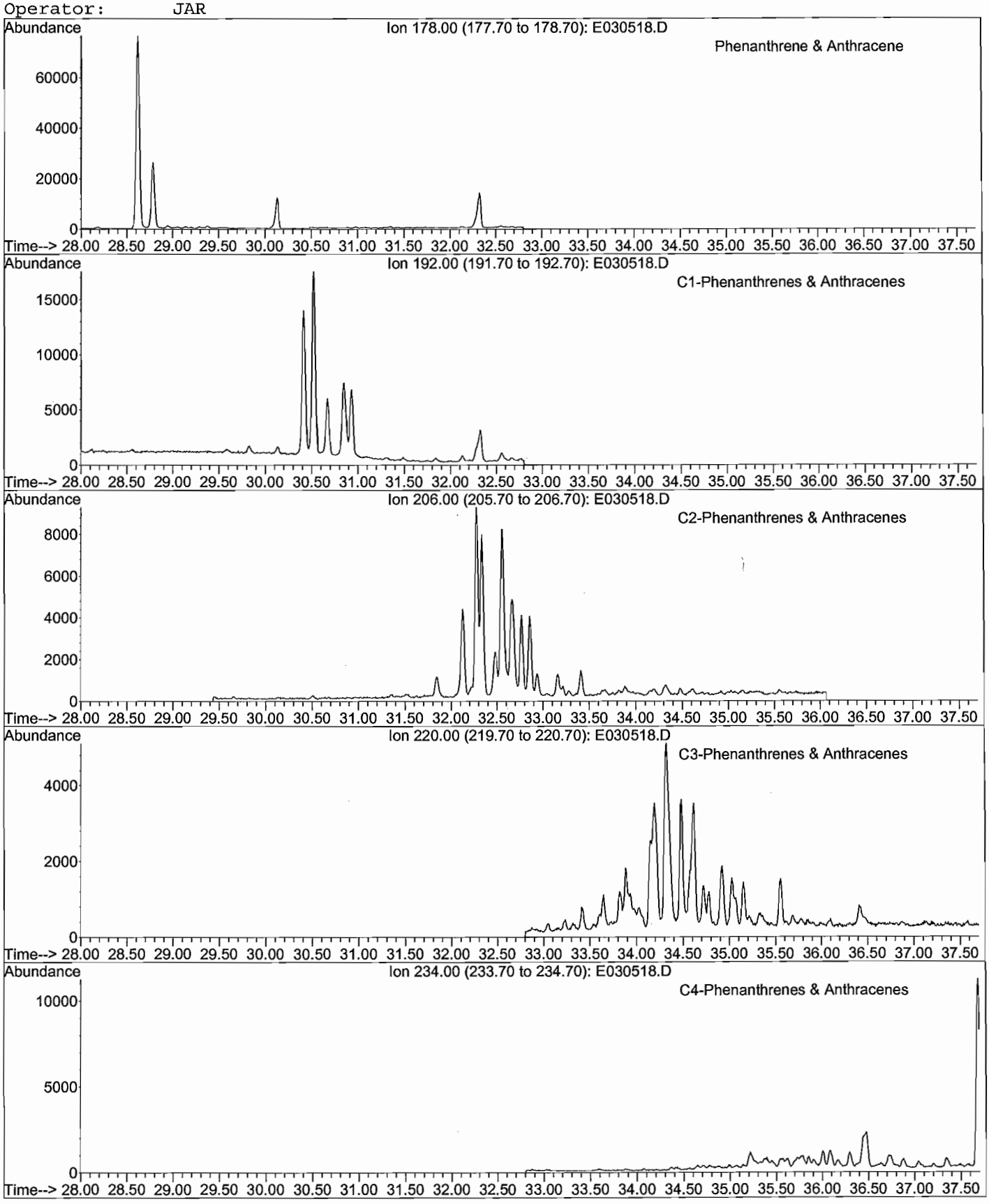
File: J:\1\DATA\E090305\E030518.D
Date Acquired: 7 Mar 2009 12:03 am
Method File: 4008SIMD.M
Sample Name: TA090226-02
Misc Info: BH-SED-03A-12
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

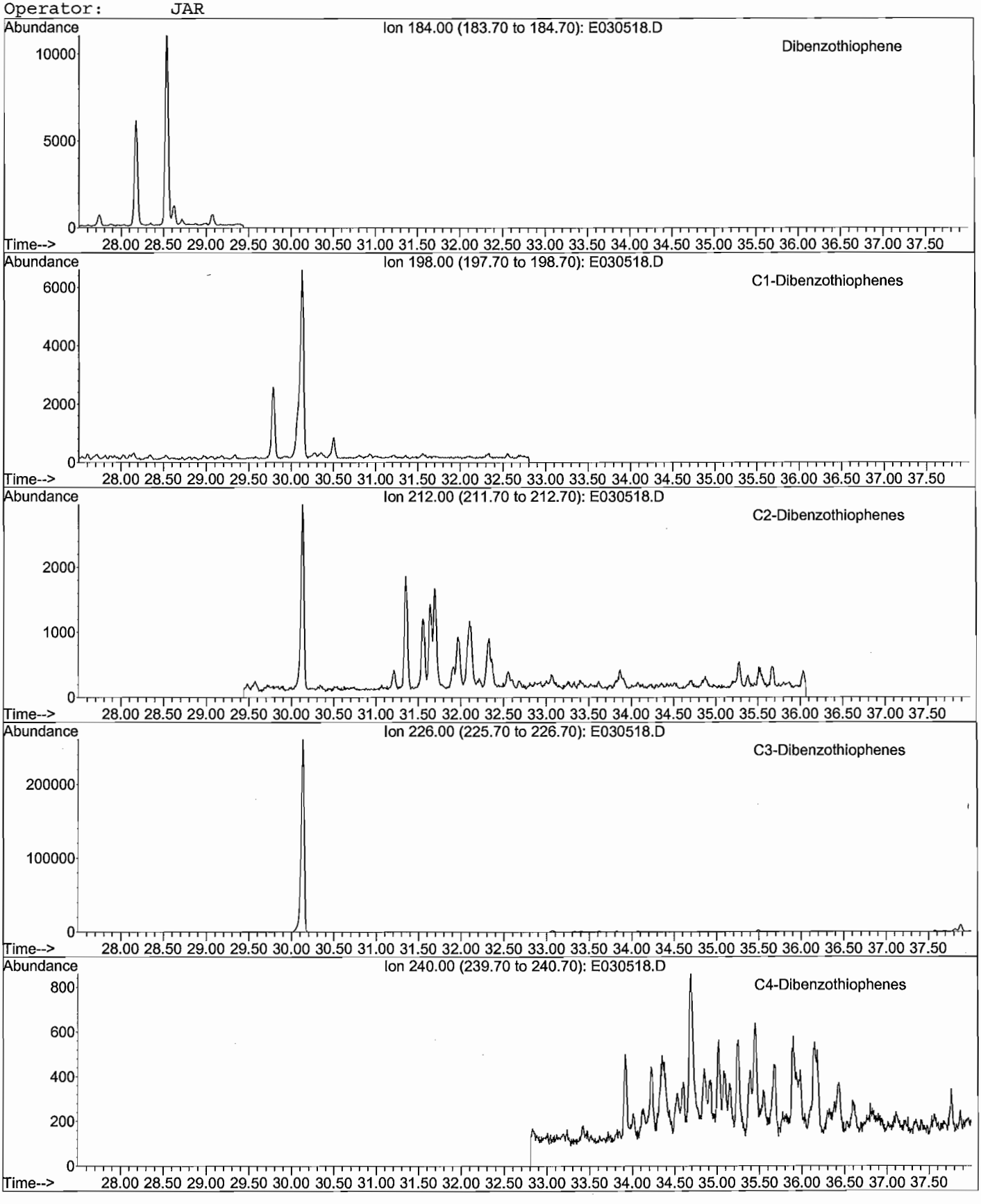
File: J:\1\DATA\E090305\E030518.D
Date Acquired: 7 Mar 2009 12:03 am
Method File: 4008SIMD.M
Sample Name: TA090226-02
Misc Info: BH-SED-03A-12
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

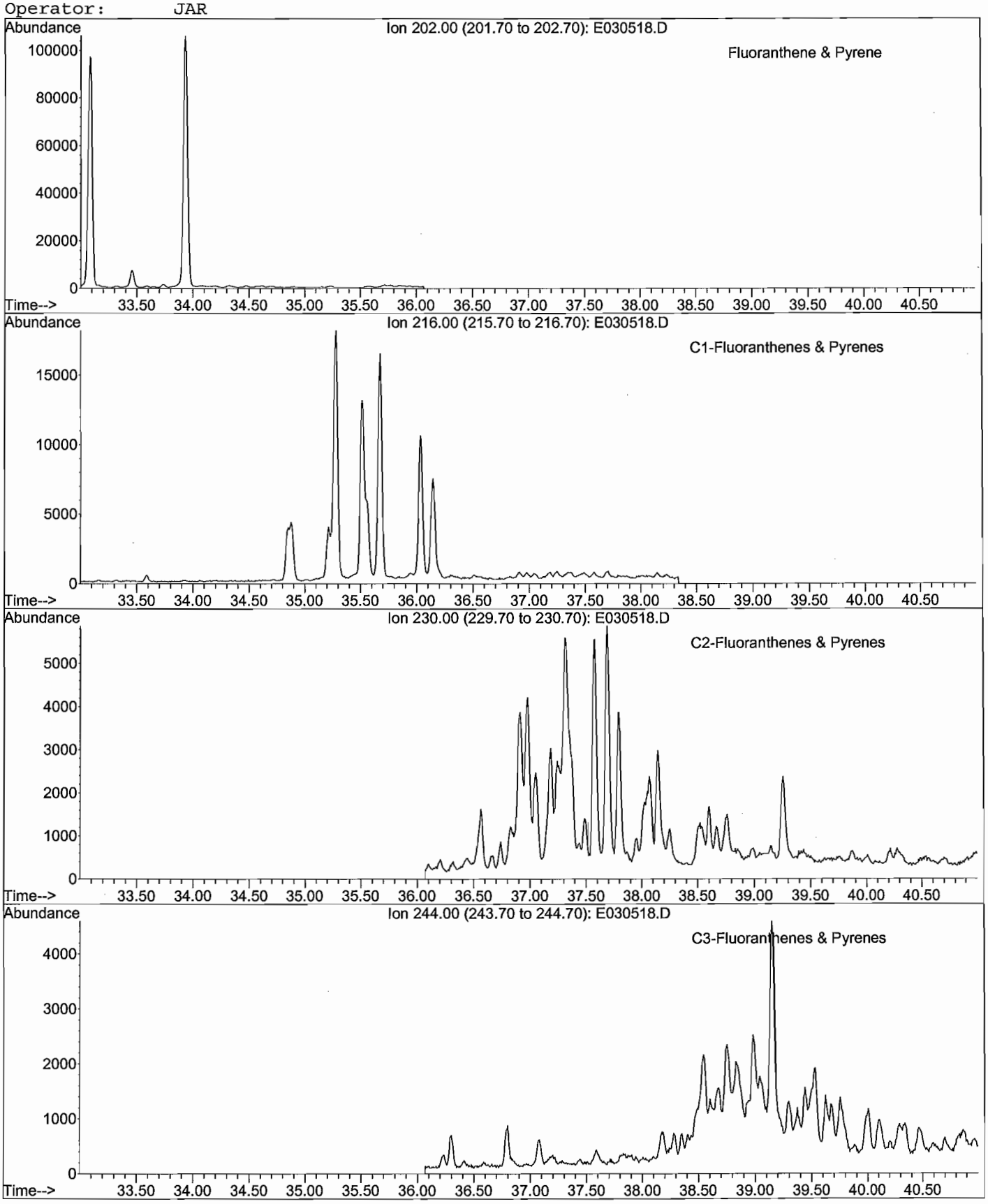
File: J:\1\DATA\E090305\E030518.D
Date Acquired: 7 Mar 2009 12:03 am
Method File: 4008SIMD.M
Sample Name: TA090226-02
Misc Info: BH-SED-03A-12
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030518.D
Date Acquired: 7 Mar 2009 12:03 am
Method File: 4008SIMD.M
Sample Name: TA090226-02
Misc Info: BH-SED-03A-12
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090305\E030518.D
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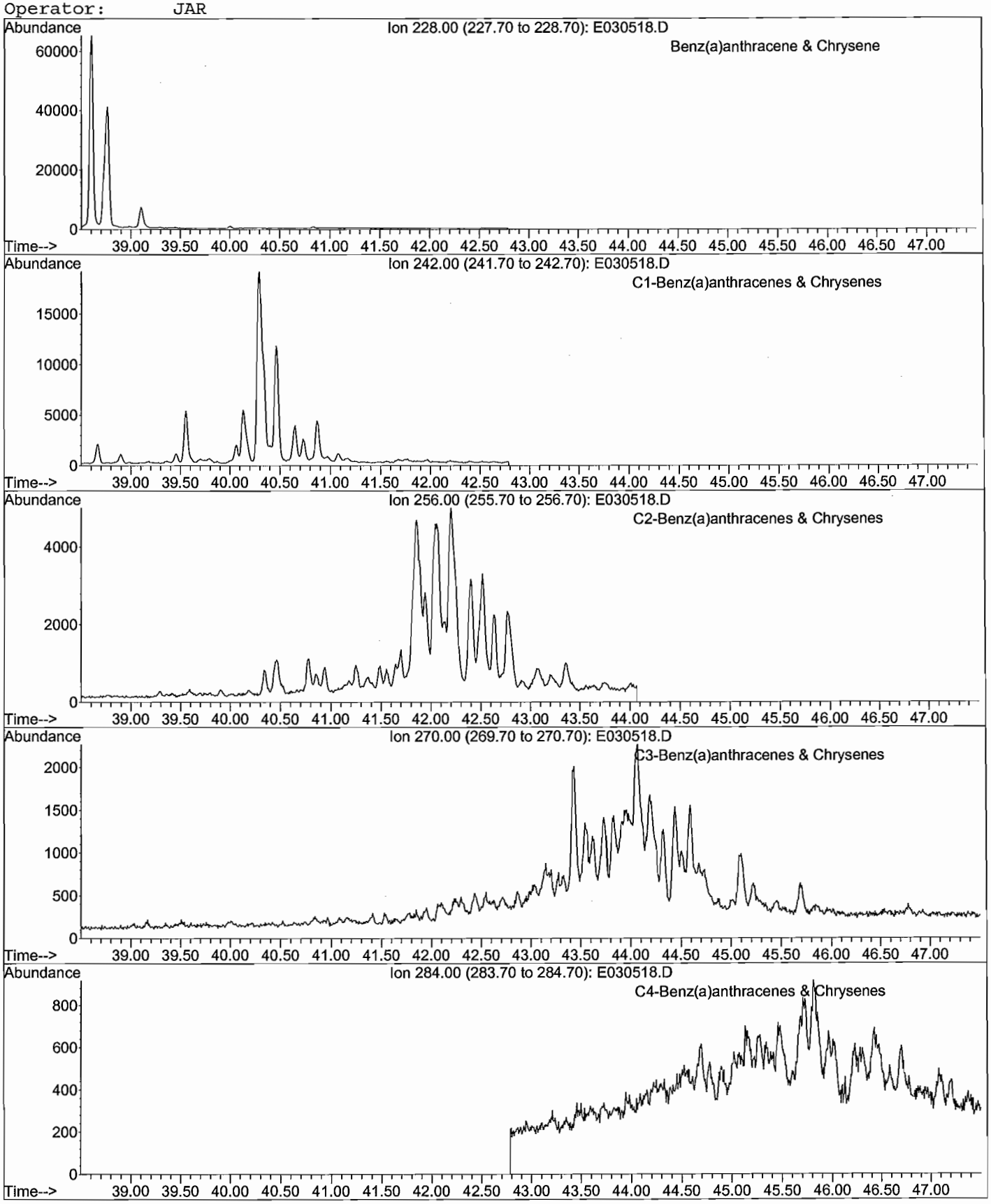
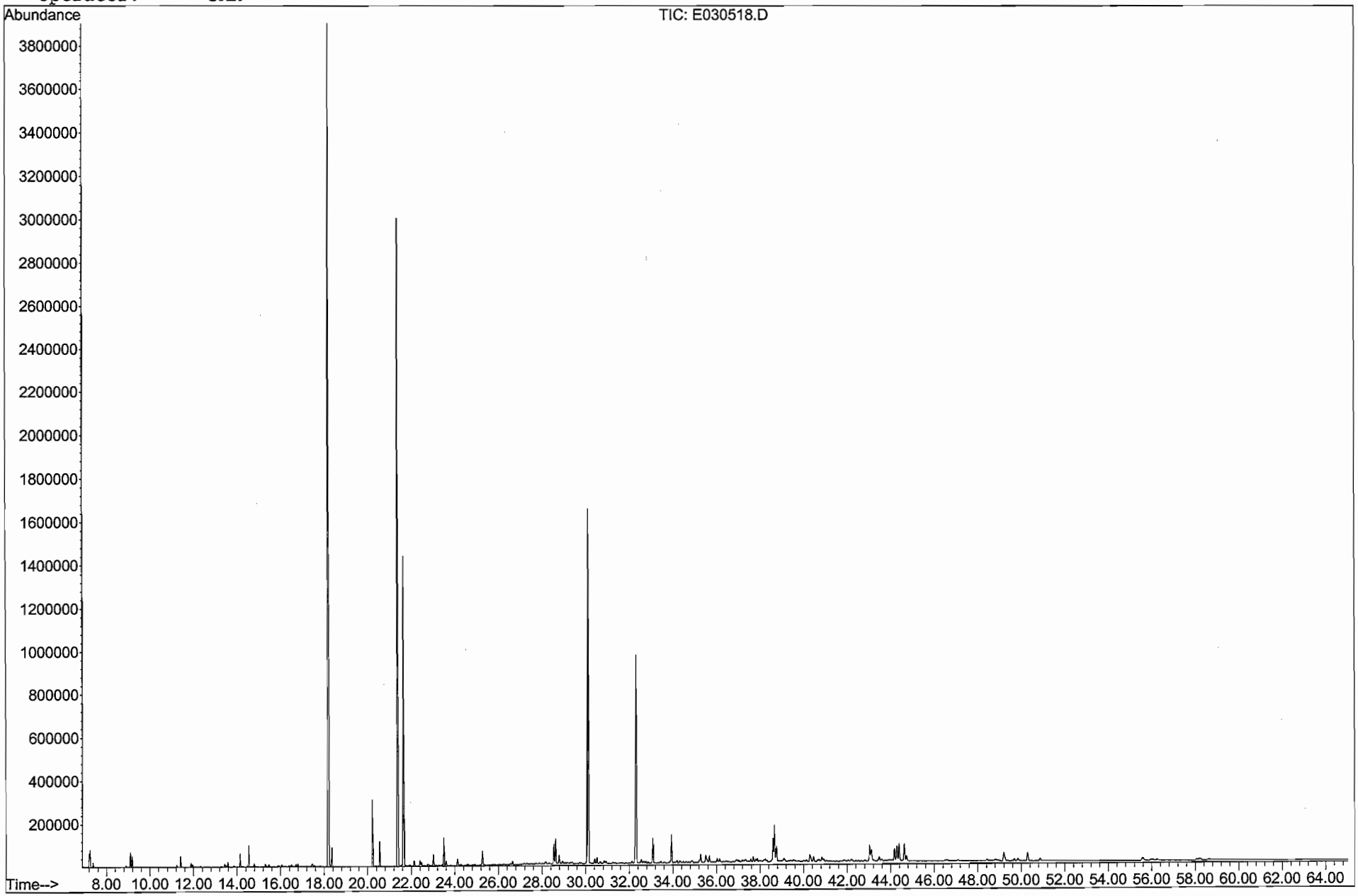
Method File: 4008SIMD.M
Sample Name: TA090226-02
Misc Info: BH-SED-03A-12
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

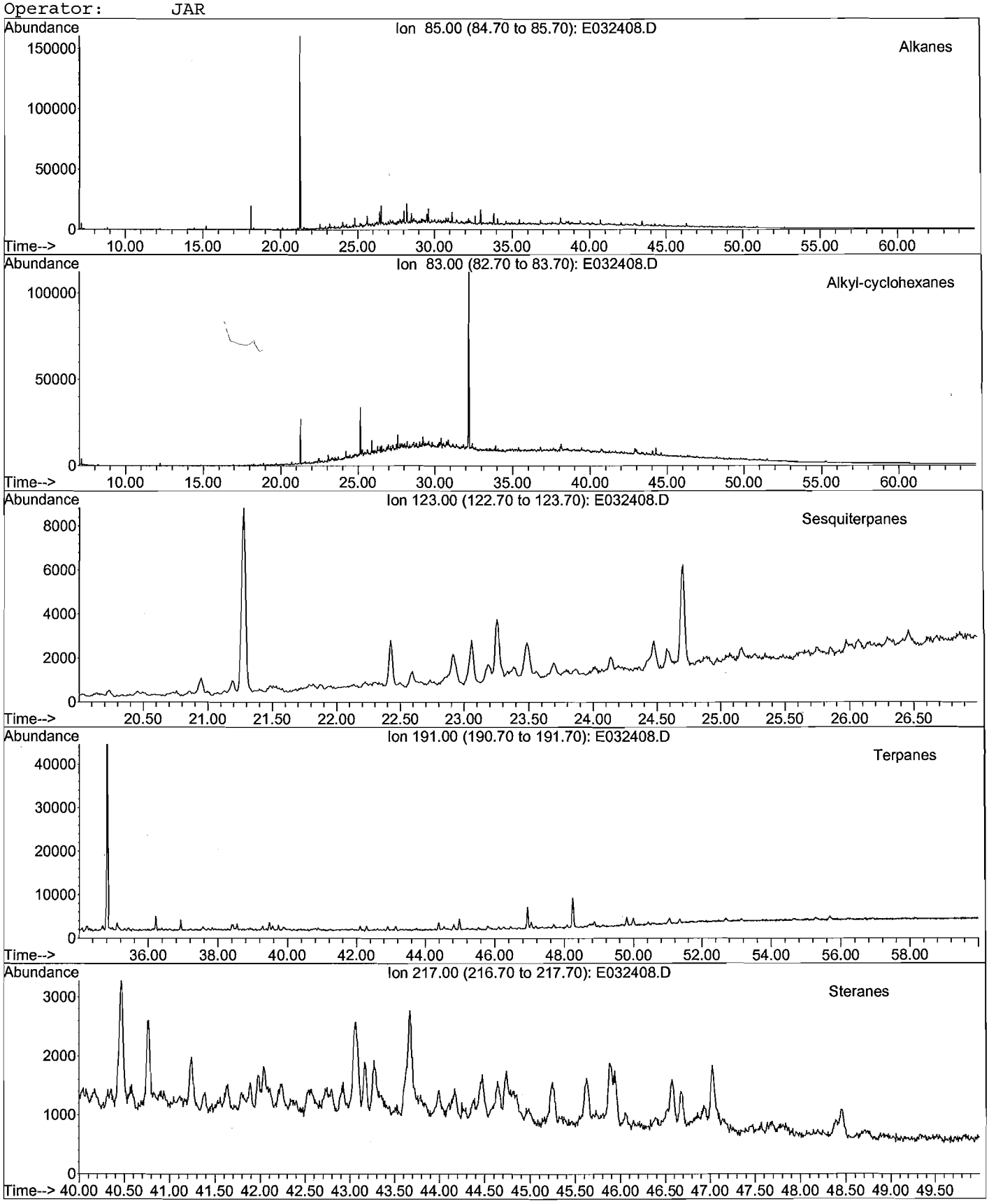
File: J:\1\DATA\E090305\E030518.D
Date Acquired: 7 Mar 2009 12:03 am
Method File: 4008SIMD.M
Sample Name: TA090226-02
Misc Info: BH-SED-03A-12
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

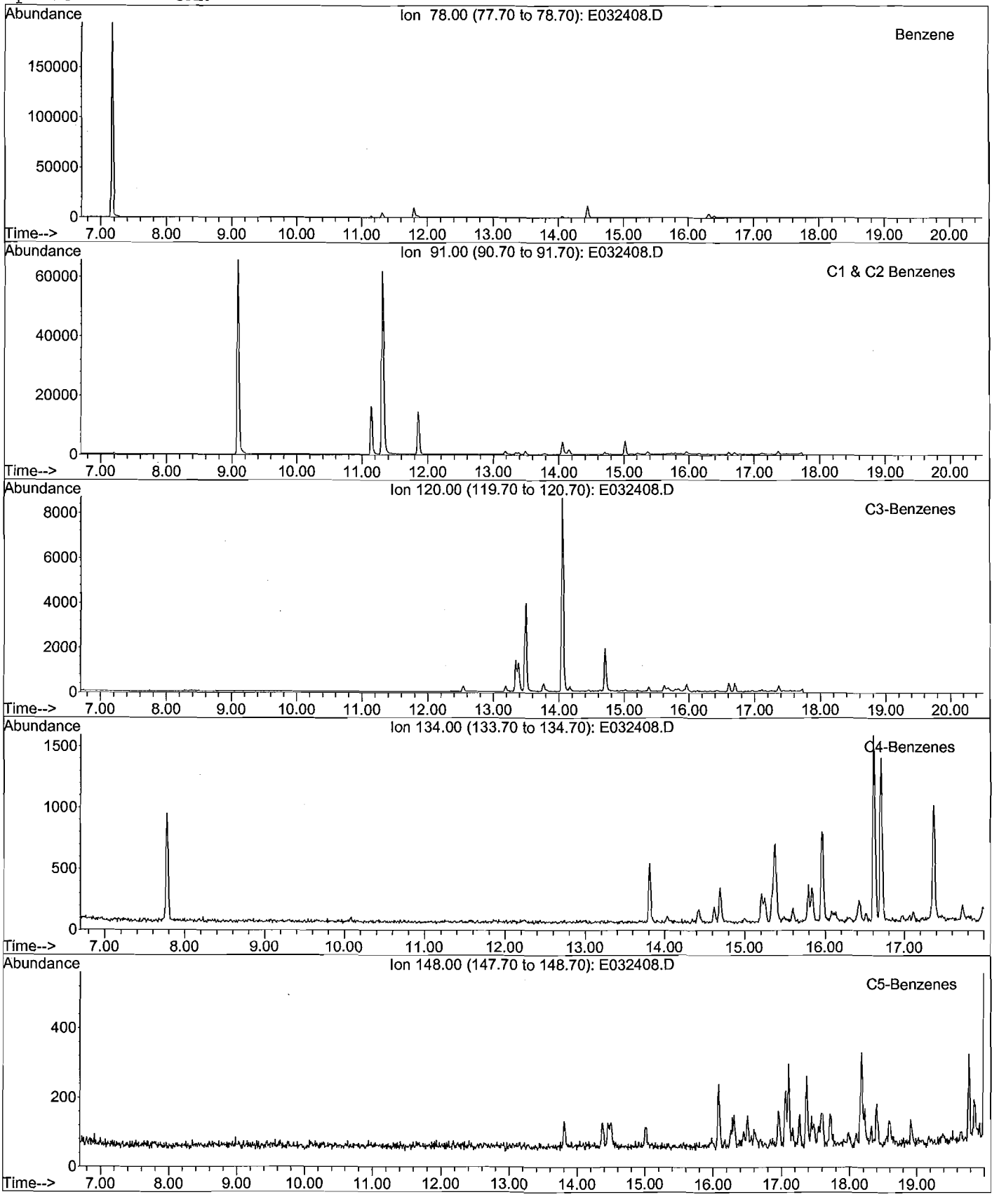
File: J:\1\DATA\E090324\E032408.D
Date Acquired: 25 Mar 2009 12:50 am
Method File: 4008SIMD.M
Sample Name: TA090305-01-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

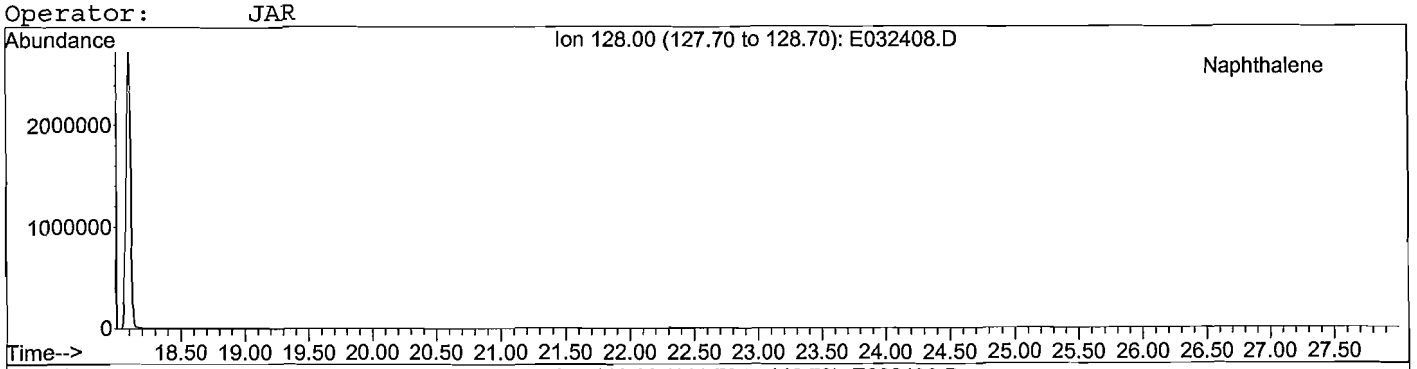
File: J:\1\DATA\E090324\E032408.D
Date Acquired: 25 Mar 2009 12:50 am
Method File: 4008SIMD.M
Sample Name: TA090305-01-R
Misc Info: BH-SED-13C-6
Operator: JAR

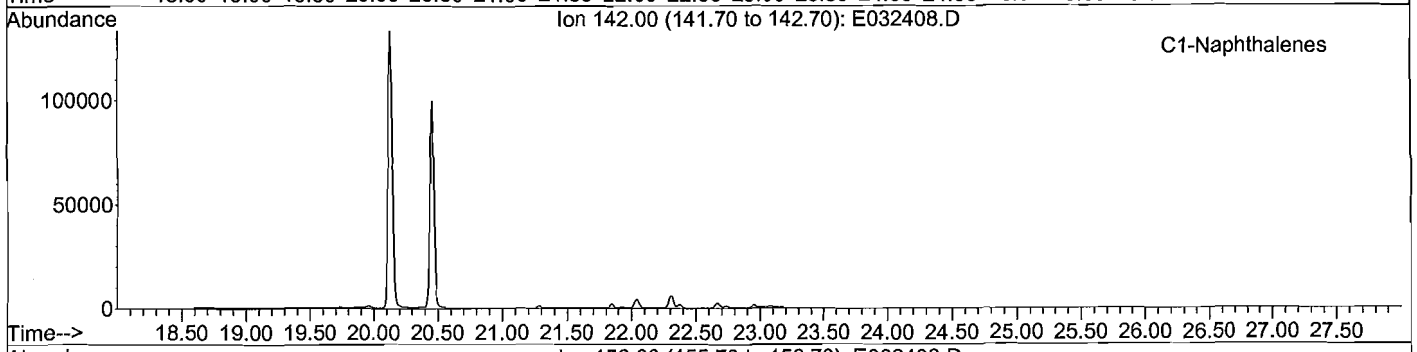


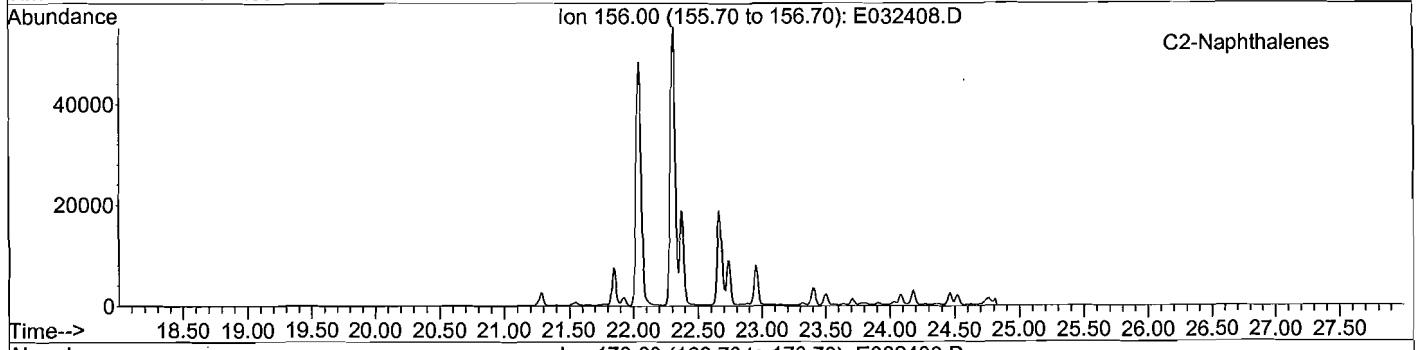
META Environmental, Inc.

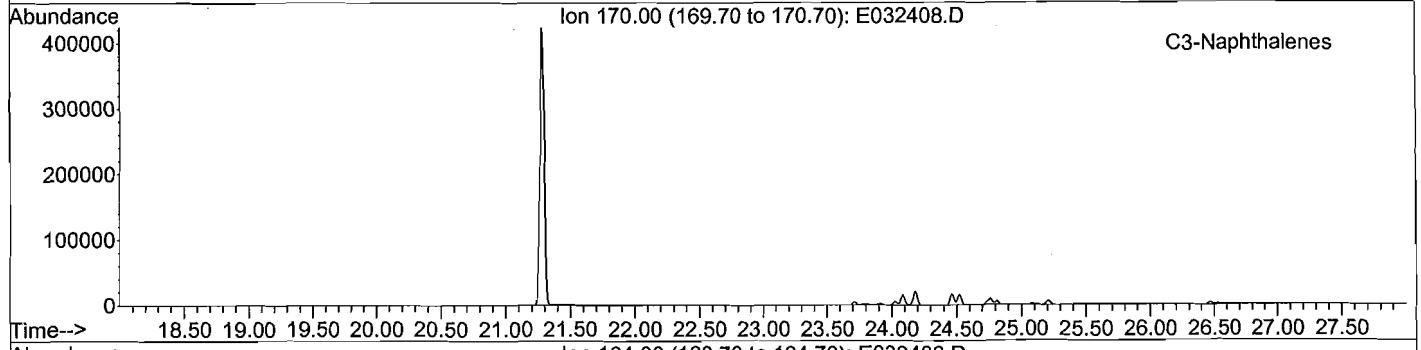
GC/MS EXTRACTED ION CHROMATOGRAM

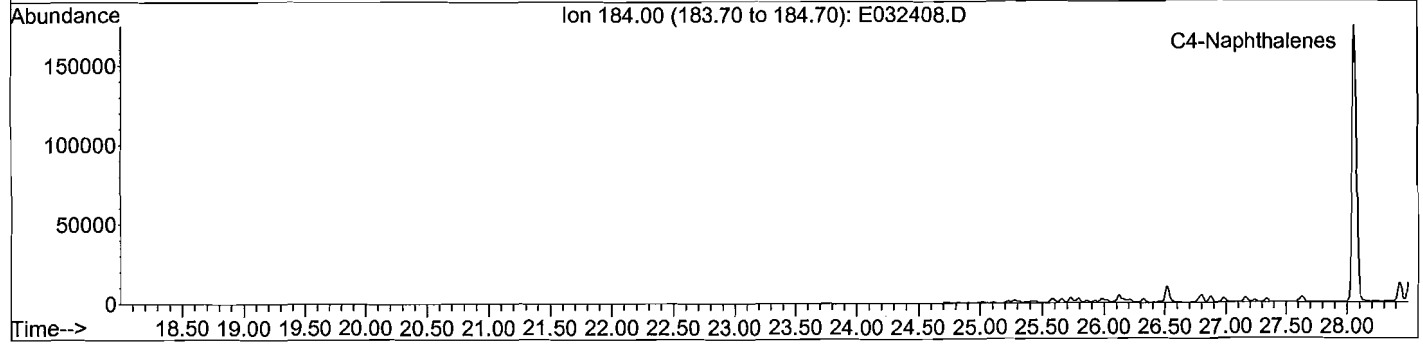
File: J:\1\DATA\E090324\E032408.D
Date Acquired: 25 Mar 2009 12:50 am
Method File: 4008SIMD.M
Sample Name: TA090305-01-R
Misc Info: BH-SED-13C-6
Operator: JAR







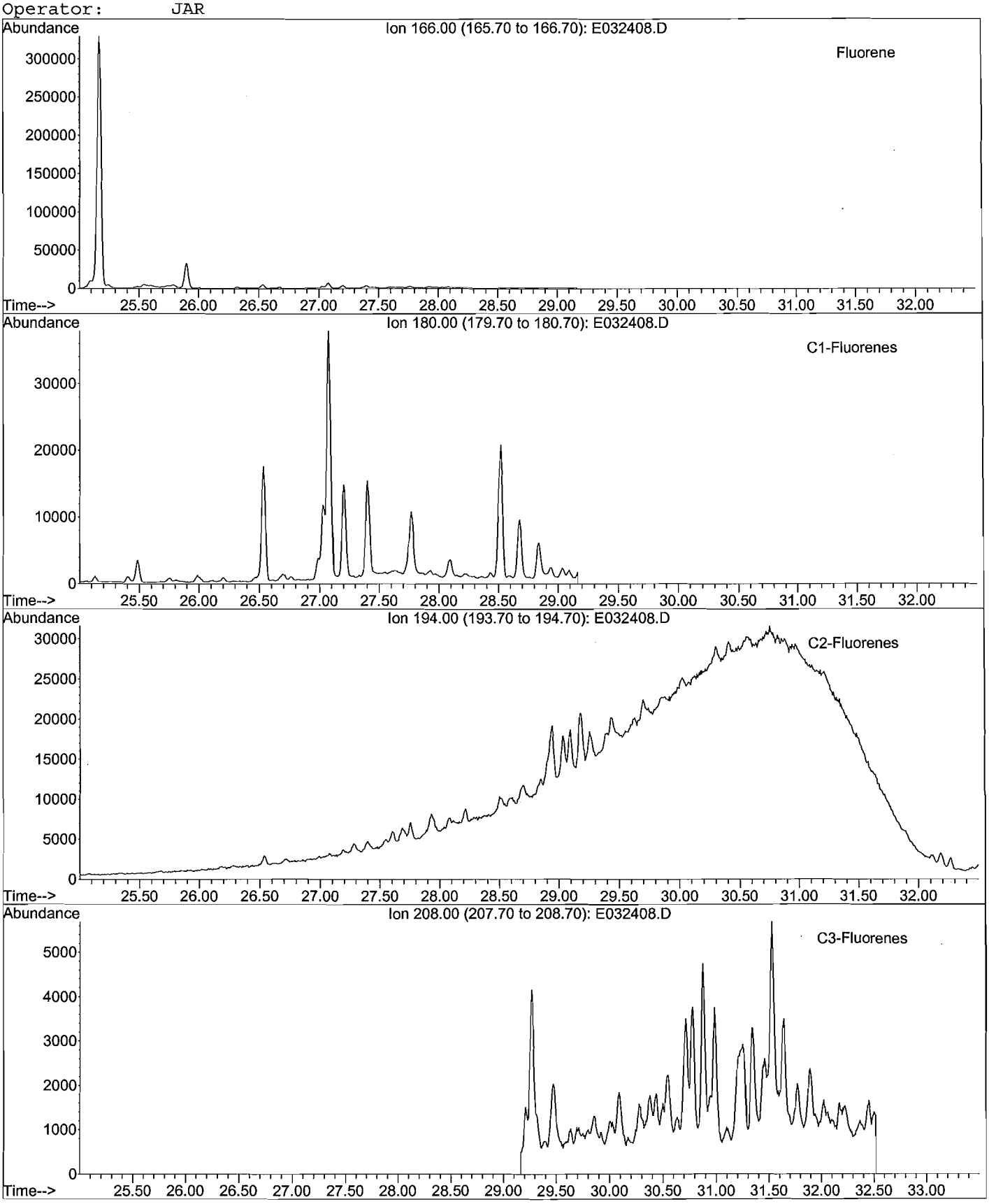




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

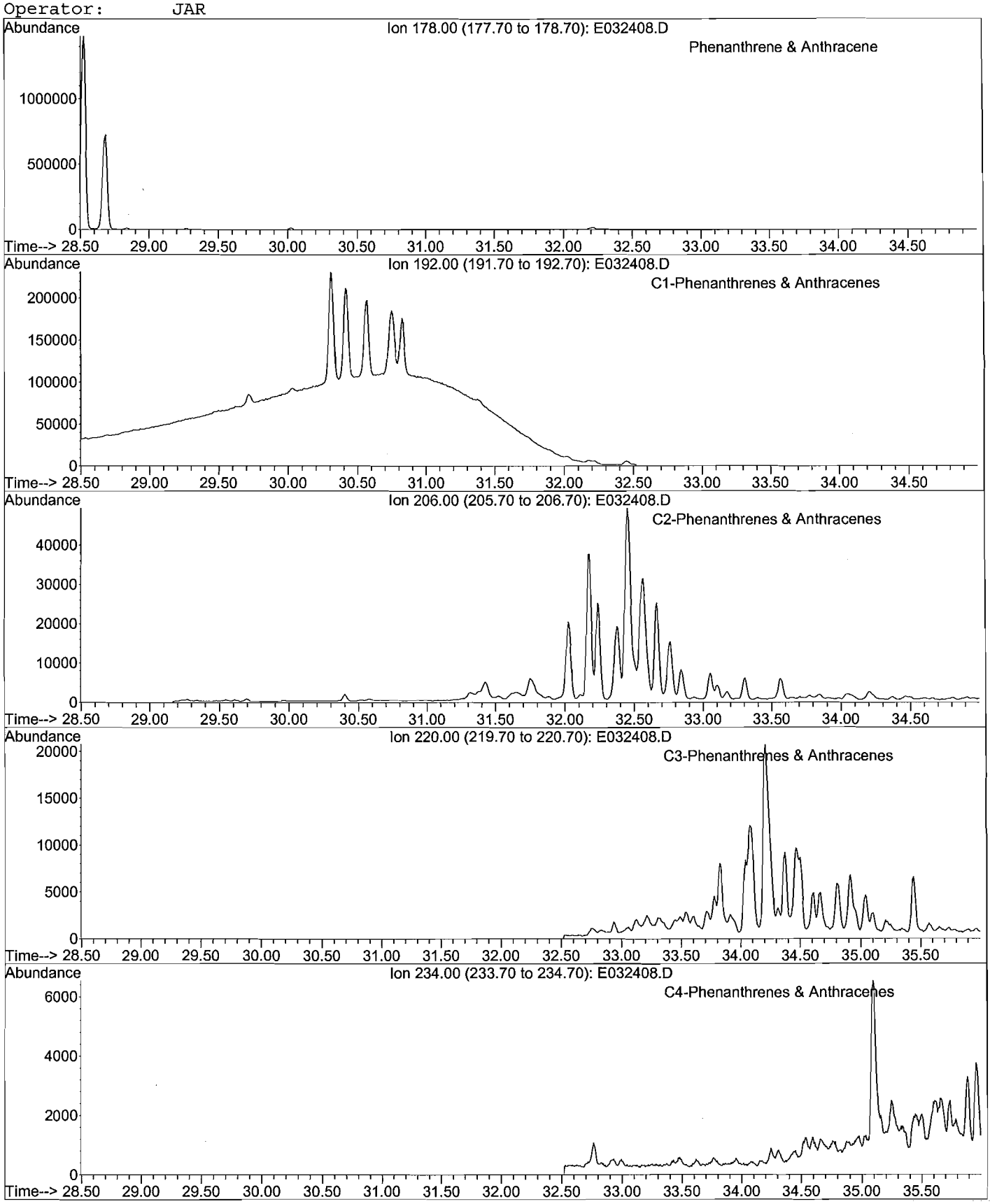
File: J:\1\DATA\E090324\E032408.D
Date Acquired: 25 Mar 2009 12:50 am
Method File: 4008SIMD.M
Sample Name: TA090305-01-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

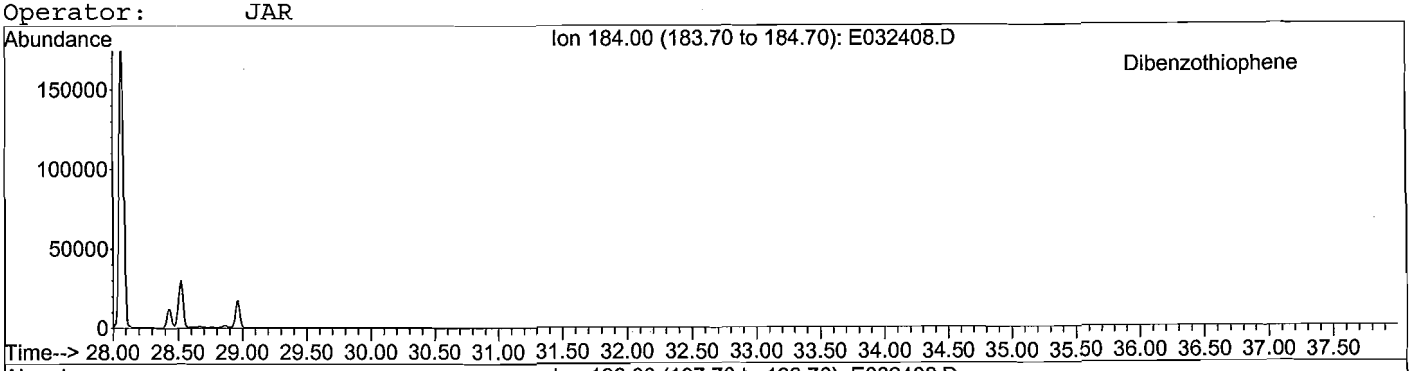
File: J:\1\DATA\E090324\E032408.D
Date Acquired: 25 Mar 2009 12:50 am
Method File: 4008SIMD.M
Sample Name: TA090305-01-R
Misc Info: BH-SED-13C-6
Operator: JAR

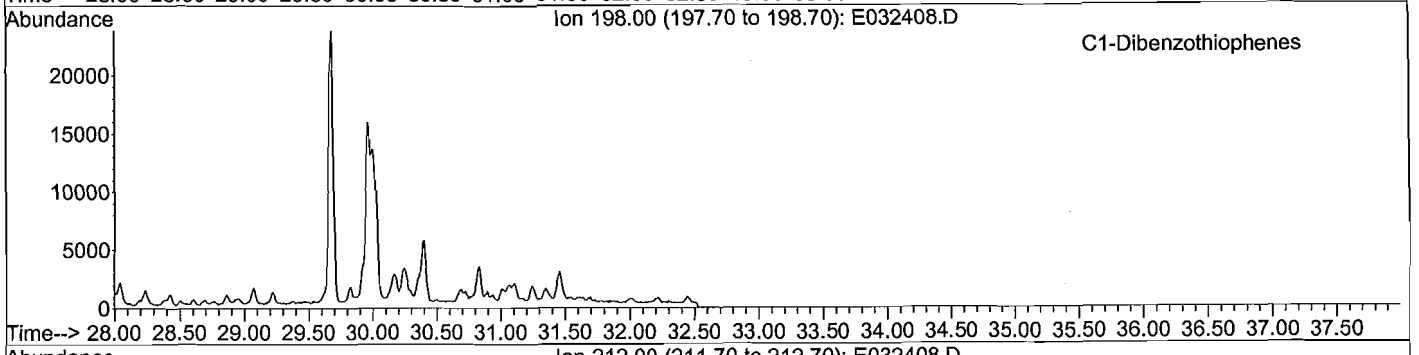


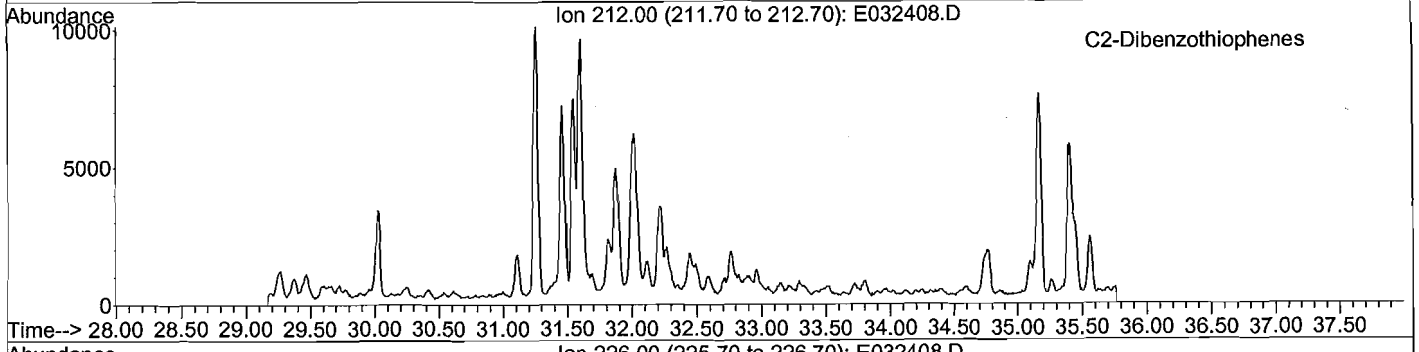
META Environmental, Inc.

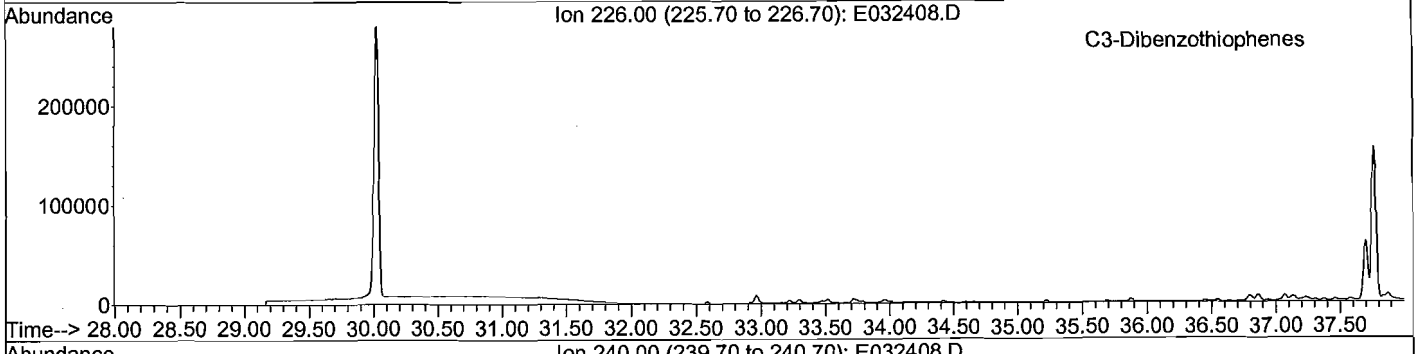
GC/MS EXTRACTED ION CHROMATOGRAM

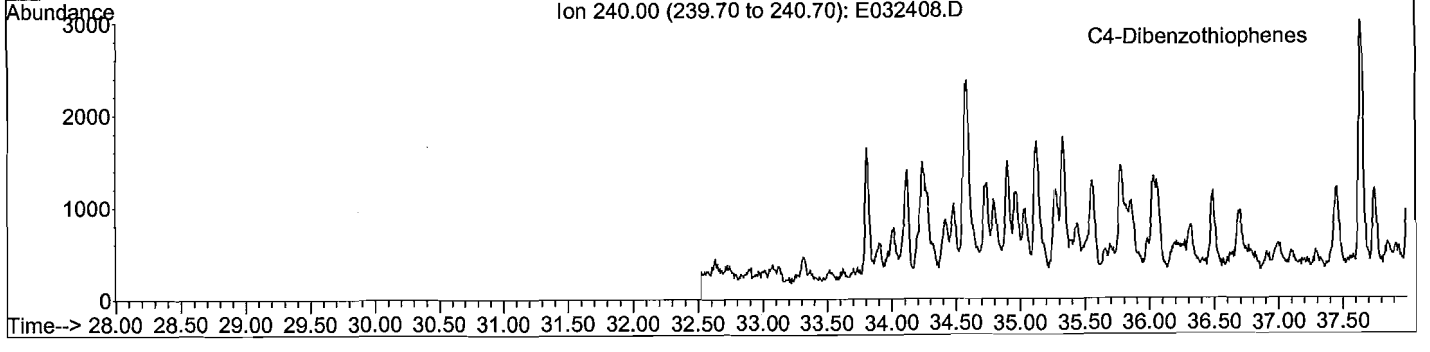
File: J:\1\DATA\E090324\E032408.D
Date Acquired: 25 Mar 2009 12:50 am
Method File: 4008SIMD.M
Sample Name: TA090305-01-R
Misc Info: BH-SED-13C-6
Operator: JAR







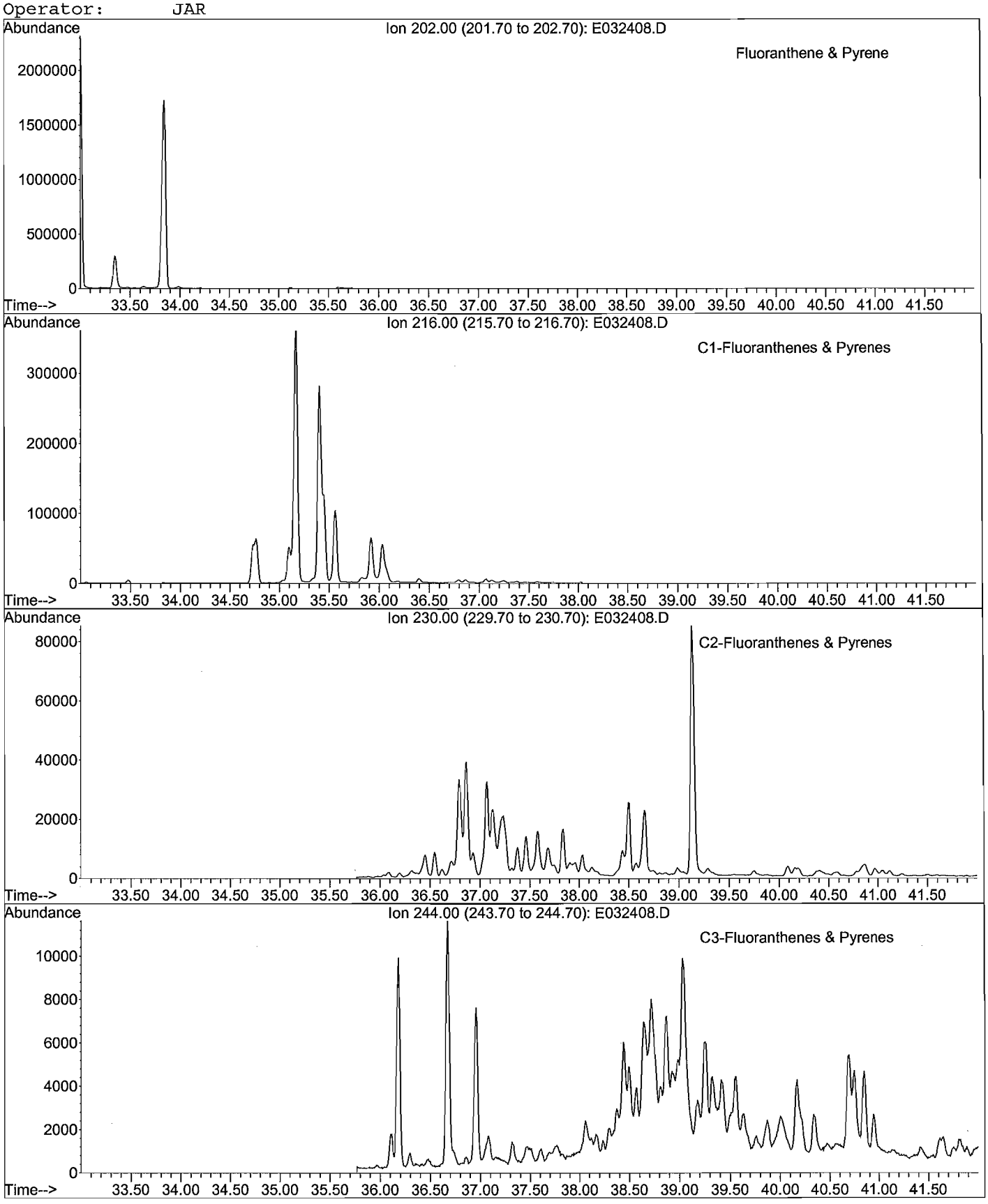




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

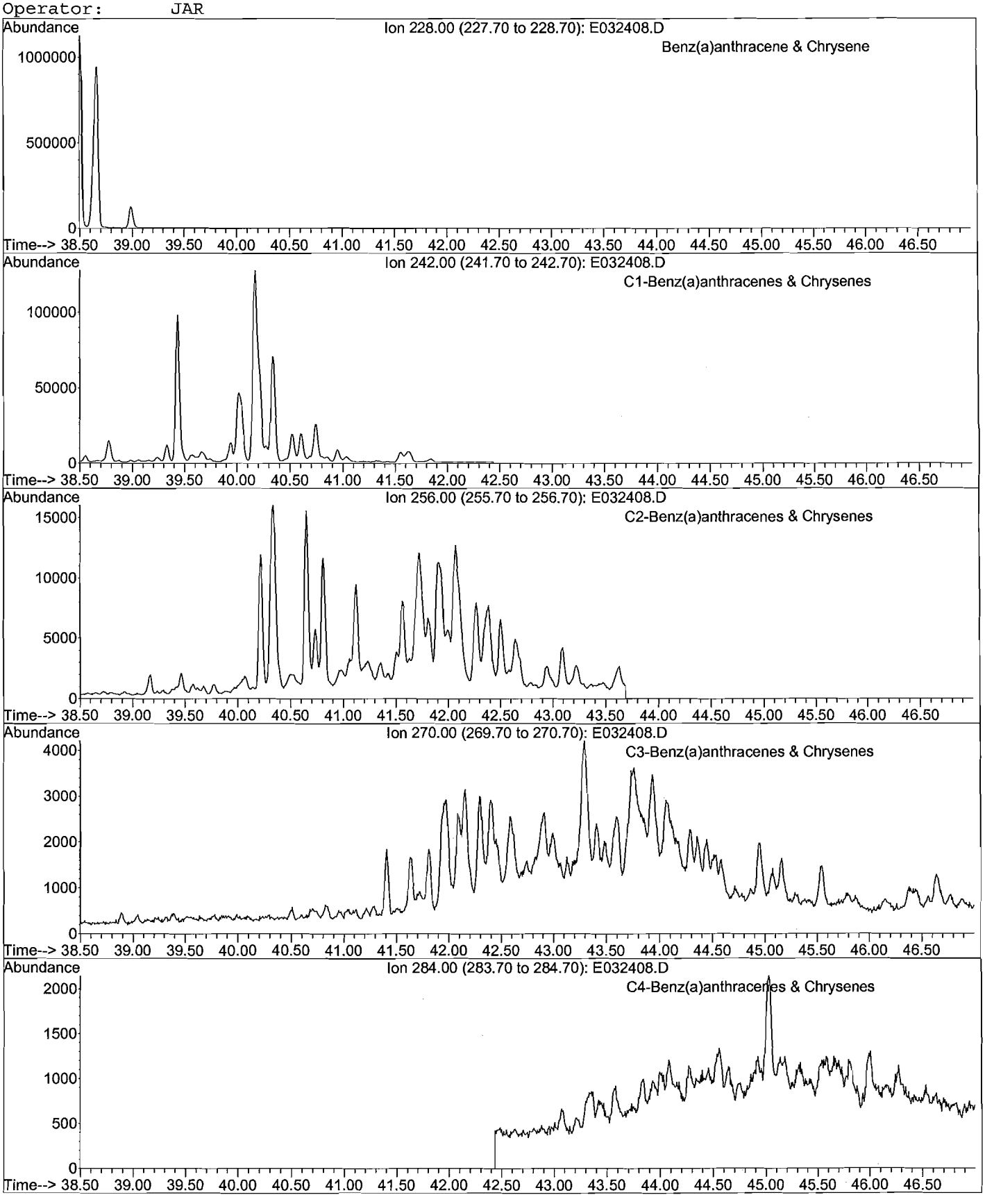
File: J:\1\DATA\E090324\E032408.D
Date Acquired: 25 Mar 2009 12:50 am
Method File: 4008SIMD.M
Sample Name: TA090305-01-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

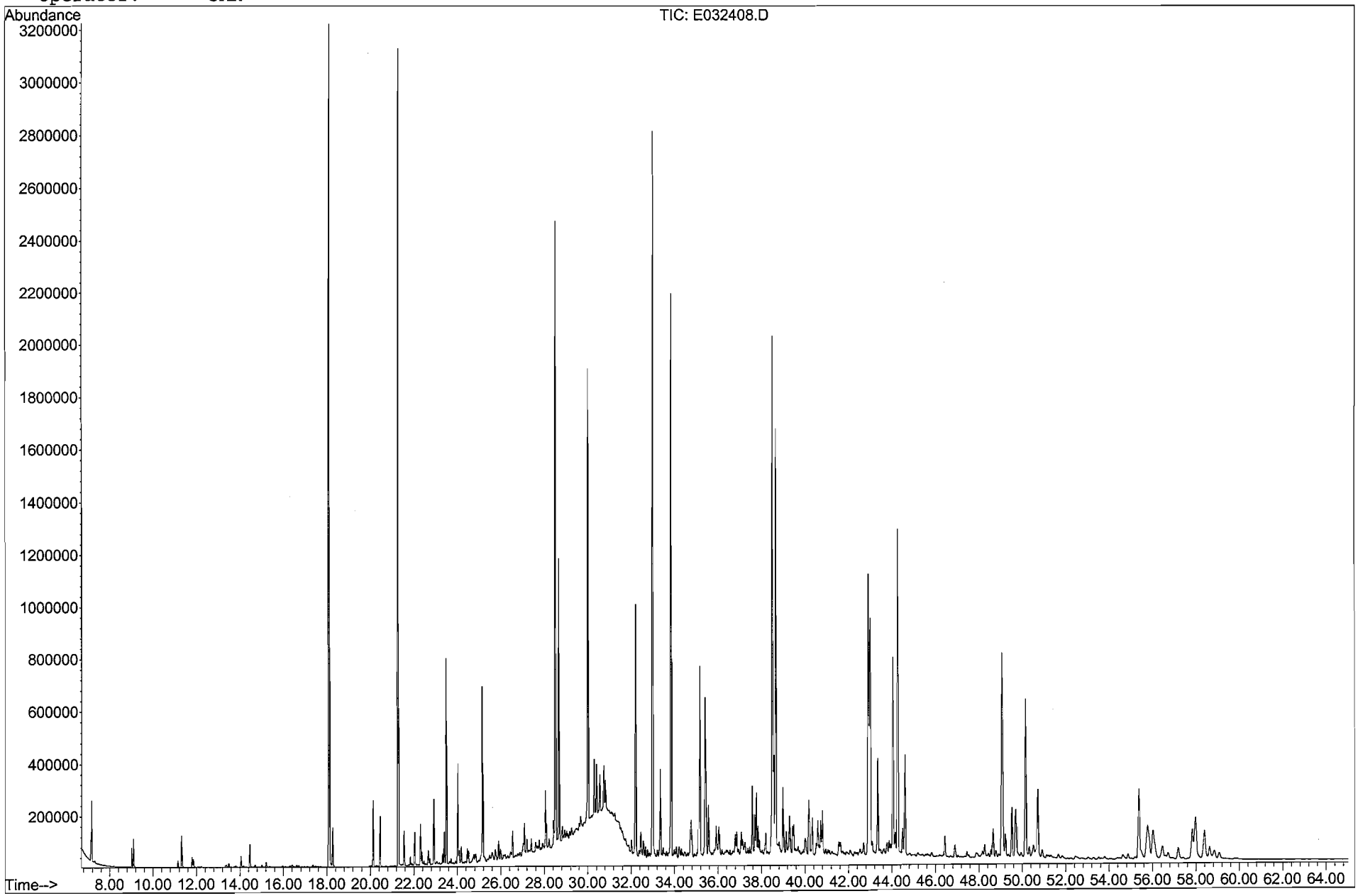
File: J:\1\DATA\E090324\E032408.D
Date Acquired: 25 Mar 2009 12:50 am
Method File: 4008SIMD.M
Sample Name: TA090305-01-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

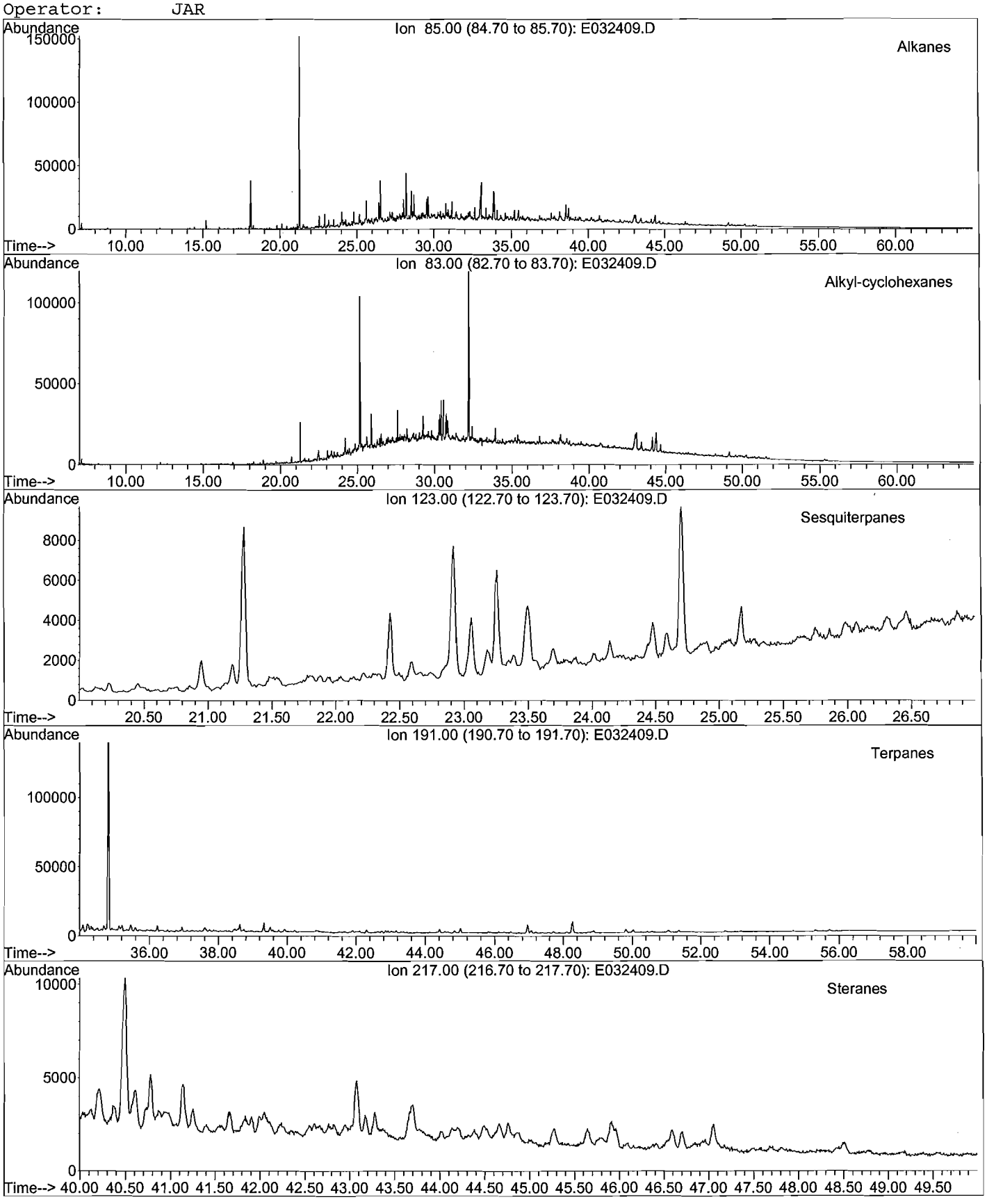
File: J:\1\DATA\E090324\E032408.D
Date Acquired: 25 Mar 2009 12:50 am
Method File: 4008SIMD.M
Sample Name: TA090305-01-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

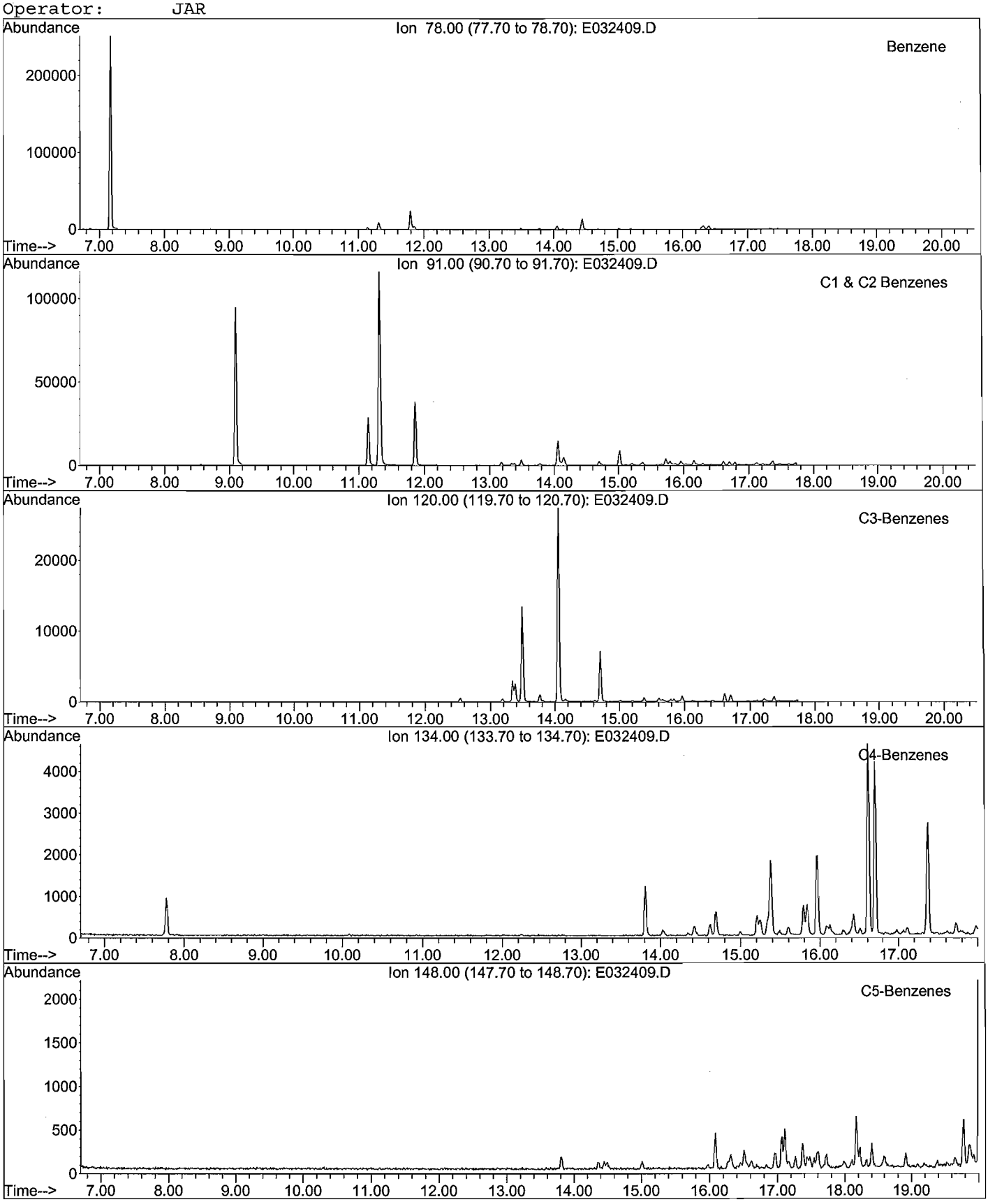
File: J:\1\DATA\E090324\E032409.D
Date Acquired: 25 Mar 2009 2:04 am
Method File: 4008SIMD.M
Sample Name: TA090305-01DUP-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

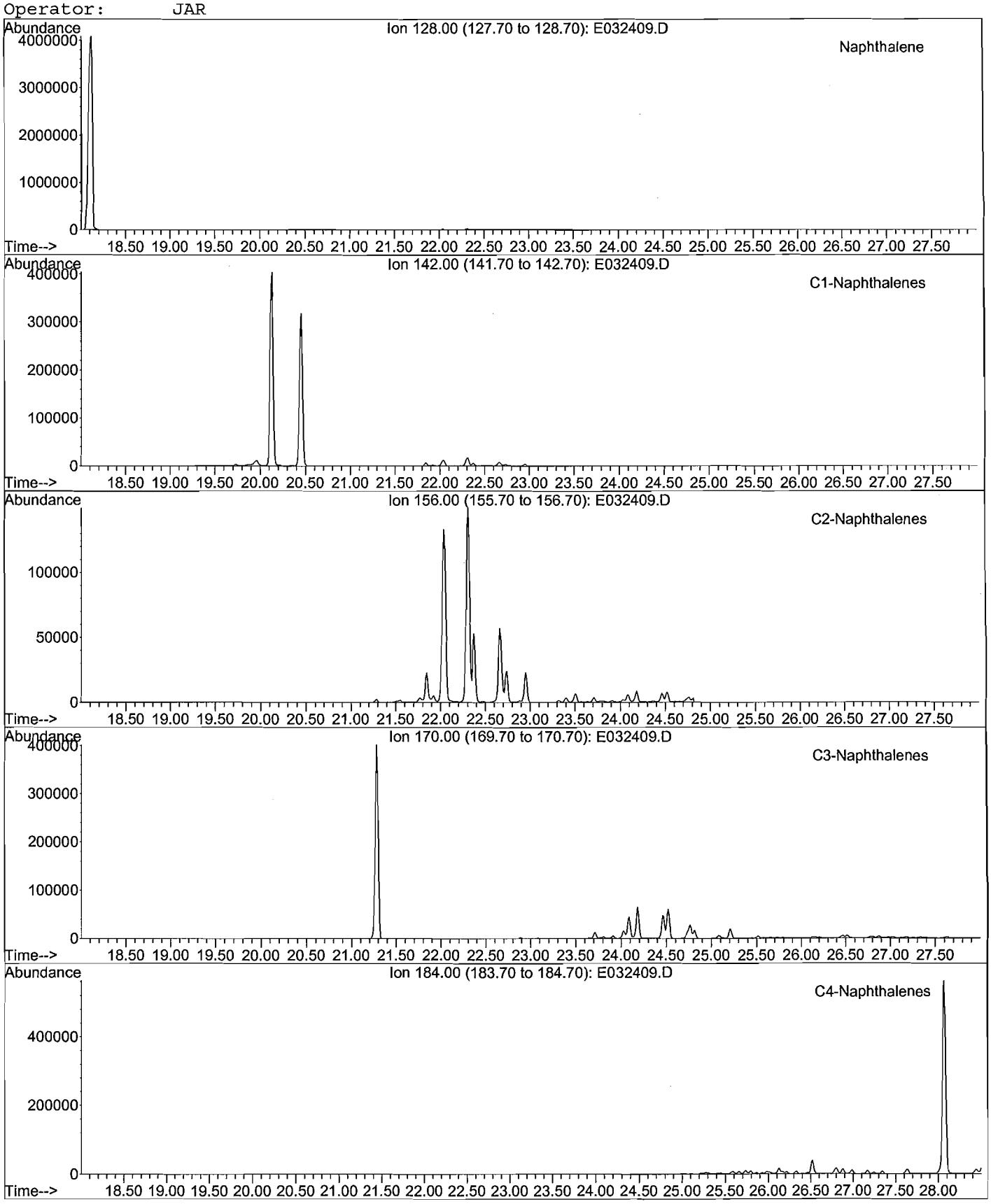
File: J:\1\DATA\E090324\E032409.D
Date Acquired: 25 Mar 2009 2:04 am
Method File: 4008SIMD.M
Sample Name: TA090305-01DUP-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

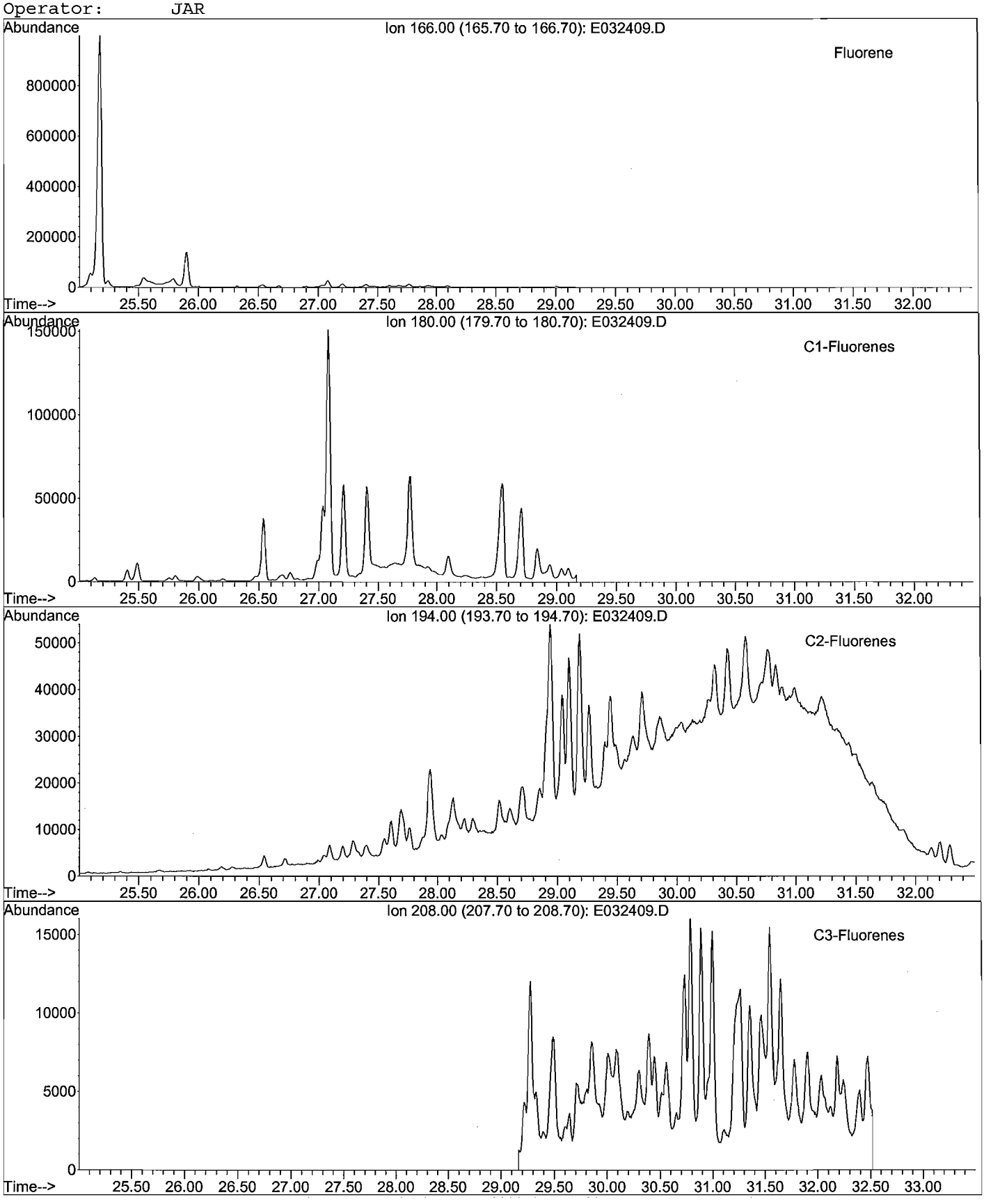
File: J:\1\DATA\E090324\E032409.D
Date Acquired: 25 Mar 2009 2:04 am
Method File: 4008SIMD.M
Sample Name: TA090305-01DUP-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

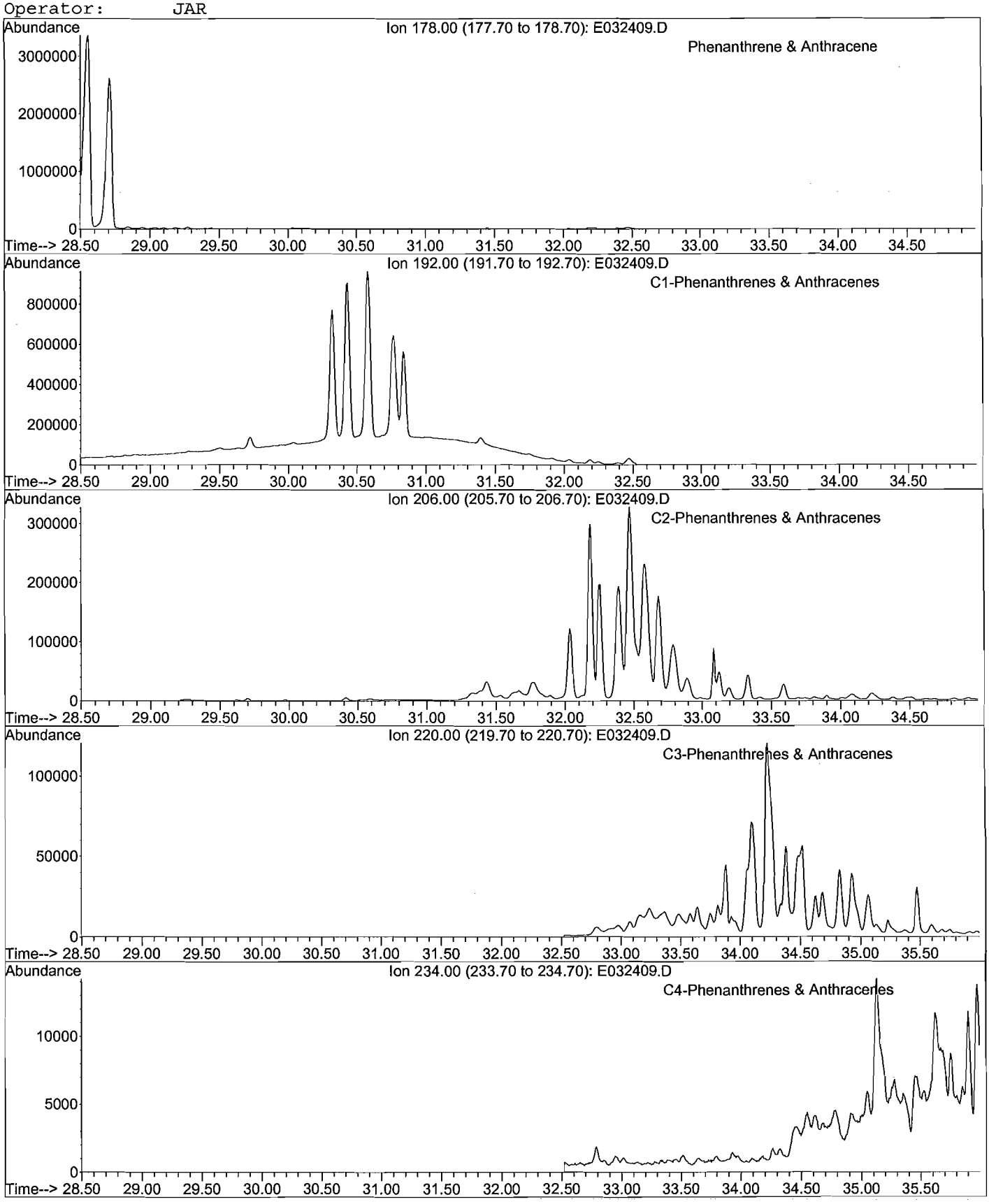
File: J:\1\DATA\E090324\E032409.D
Date Acquired: 25 Mar 2009 2:04 am
Method File: 4008SIMD.M
Sample Name: TA090305-01DUP-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

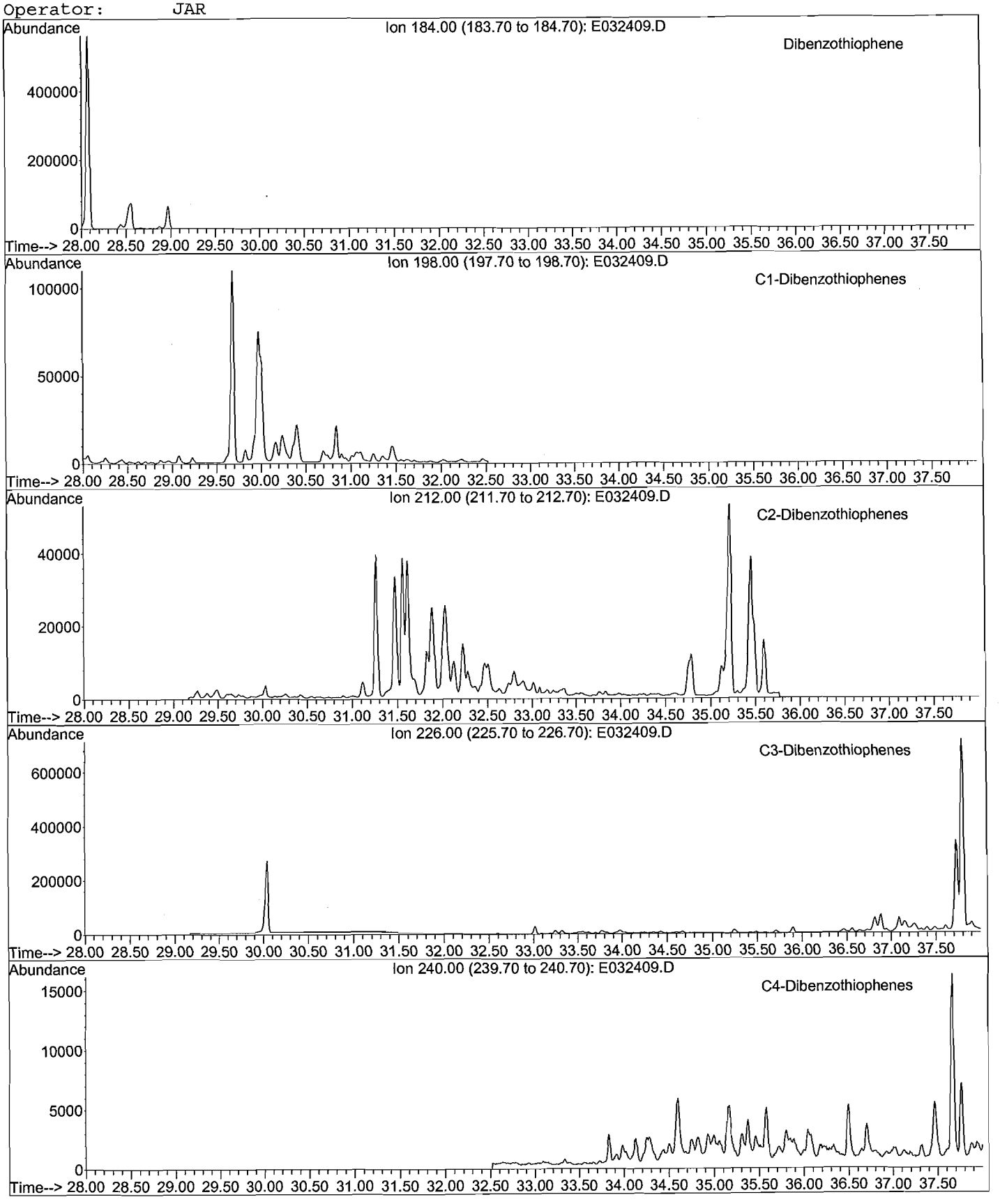
File: J:\1\DATA\E090324\E032409.D
Date Acquired: 25 Mar 2009 2:04 am
Method File: 4008SIMD.M
Sample Name: TA090305-01DUP-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

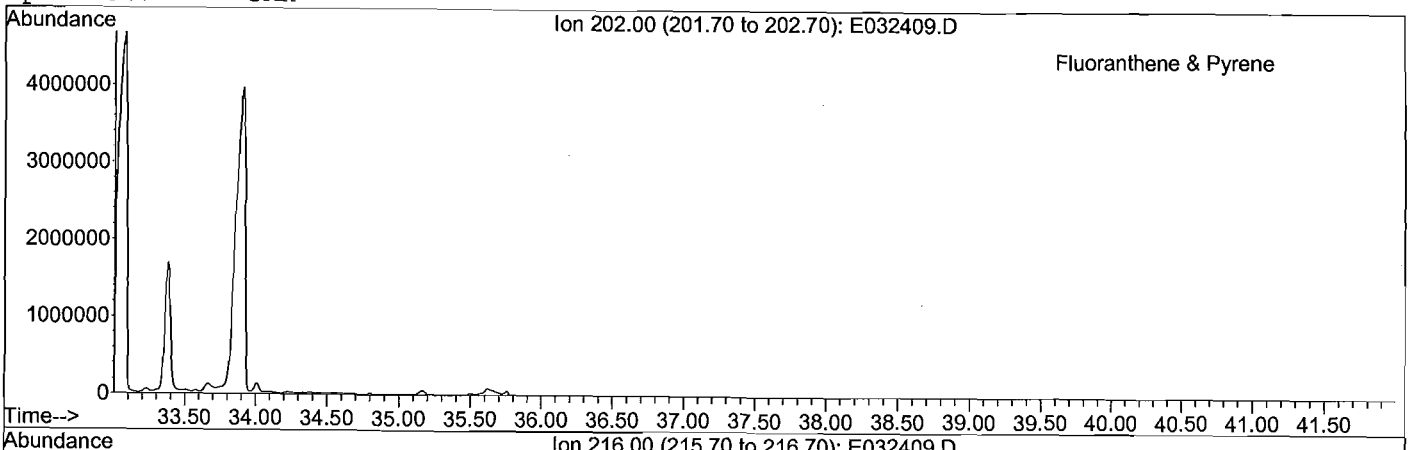
File: J:\1\DATA\E090324\E032409.D
Date Acquired: 25 Mar 2009 2:04 am
Method File: 4008SIMD.M
Sample Name: TA090305-01DUP-R
Misc Info: BH-SED-13C-6
Operator: JAR

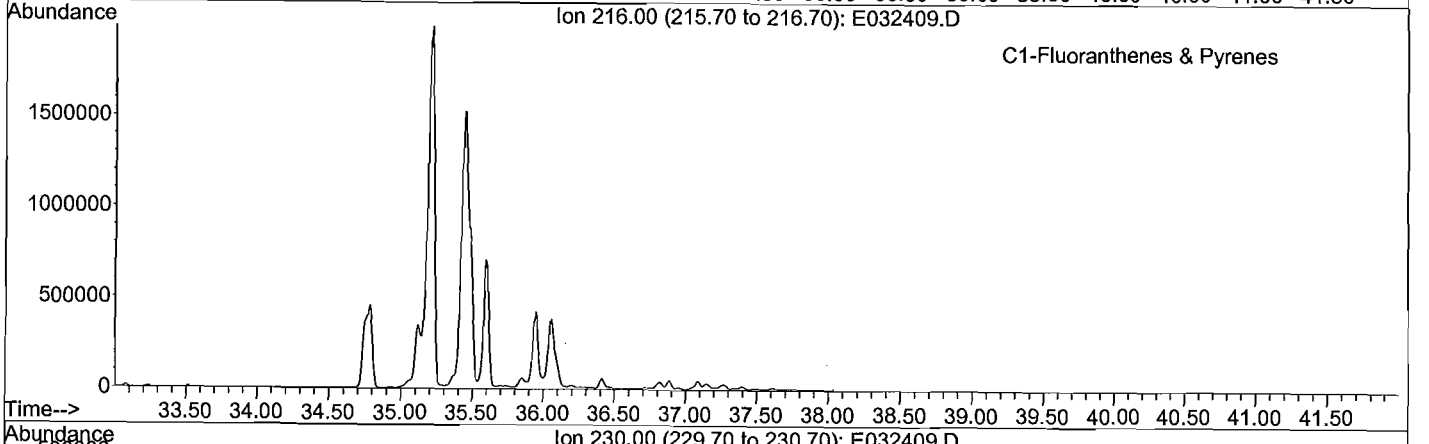


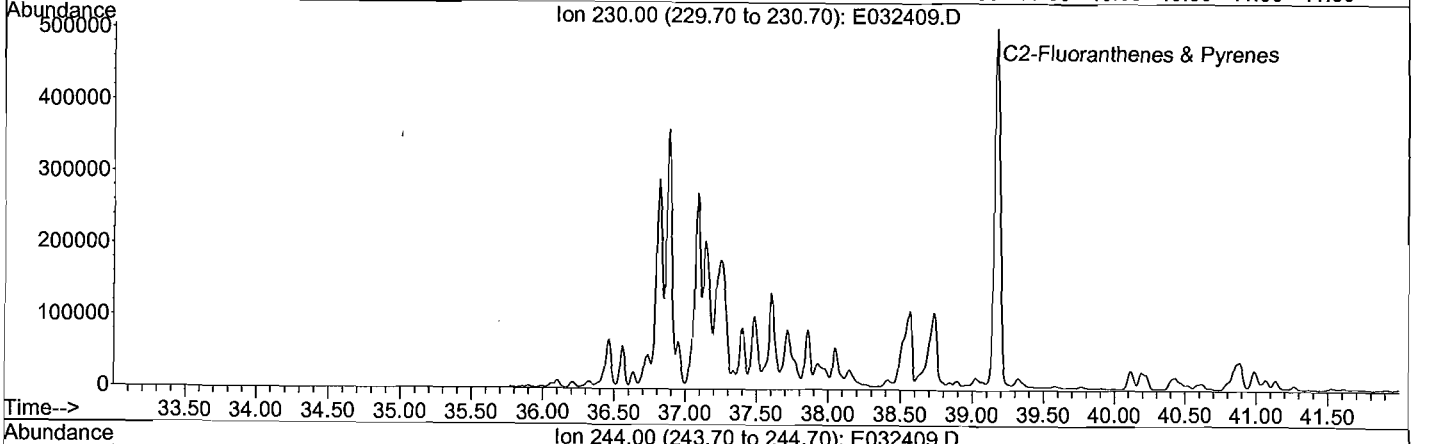
META Environmental, Inc.

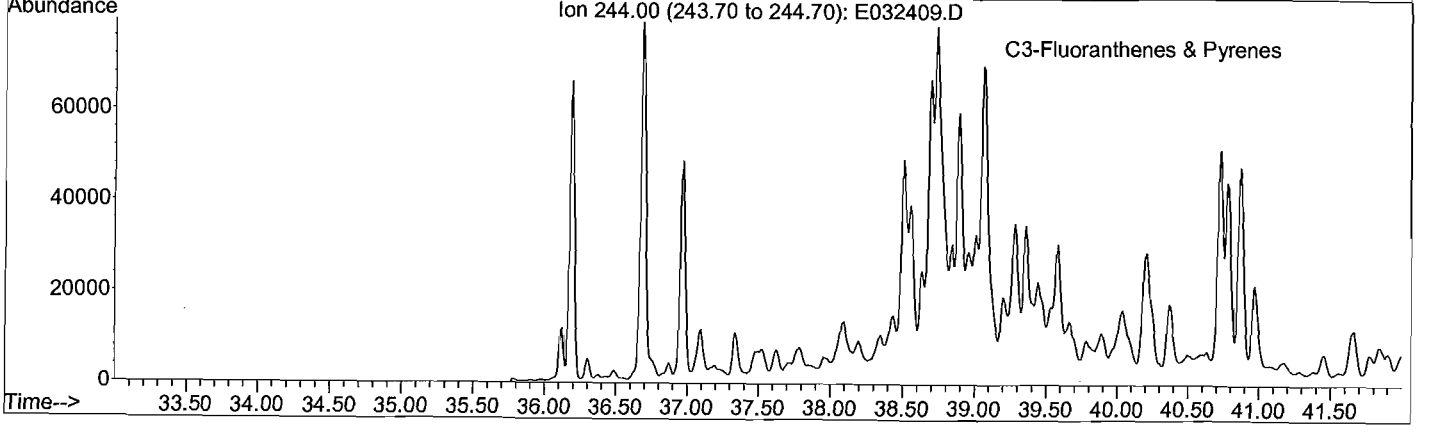
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090324\E032409.D
Date Acquired: 25 Mar 2009 2:04 am
Method File: 4008SIMD.M
Sample Name: TA090305-01DUP-R
Misc Info: BH-SED-13C-6
Operator: JAR





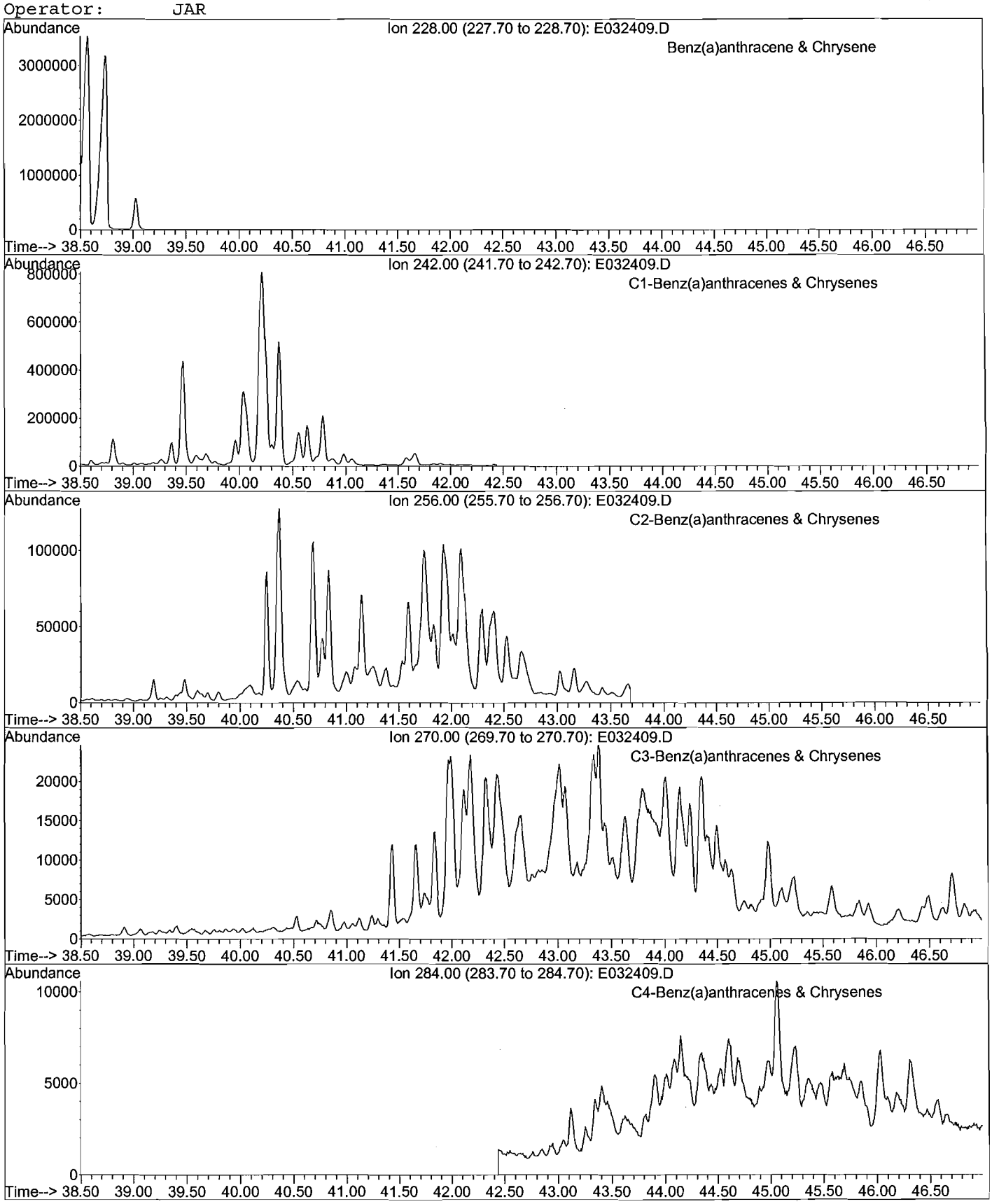




META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

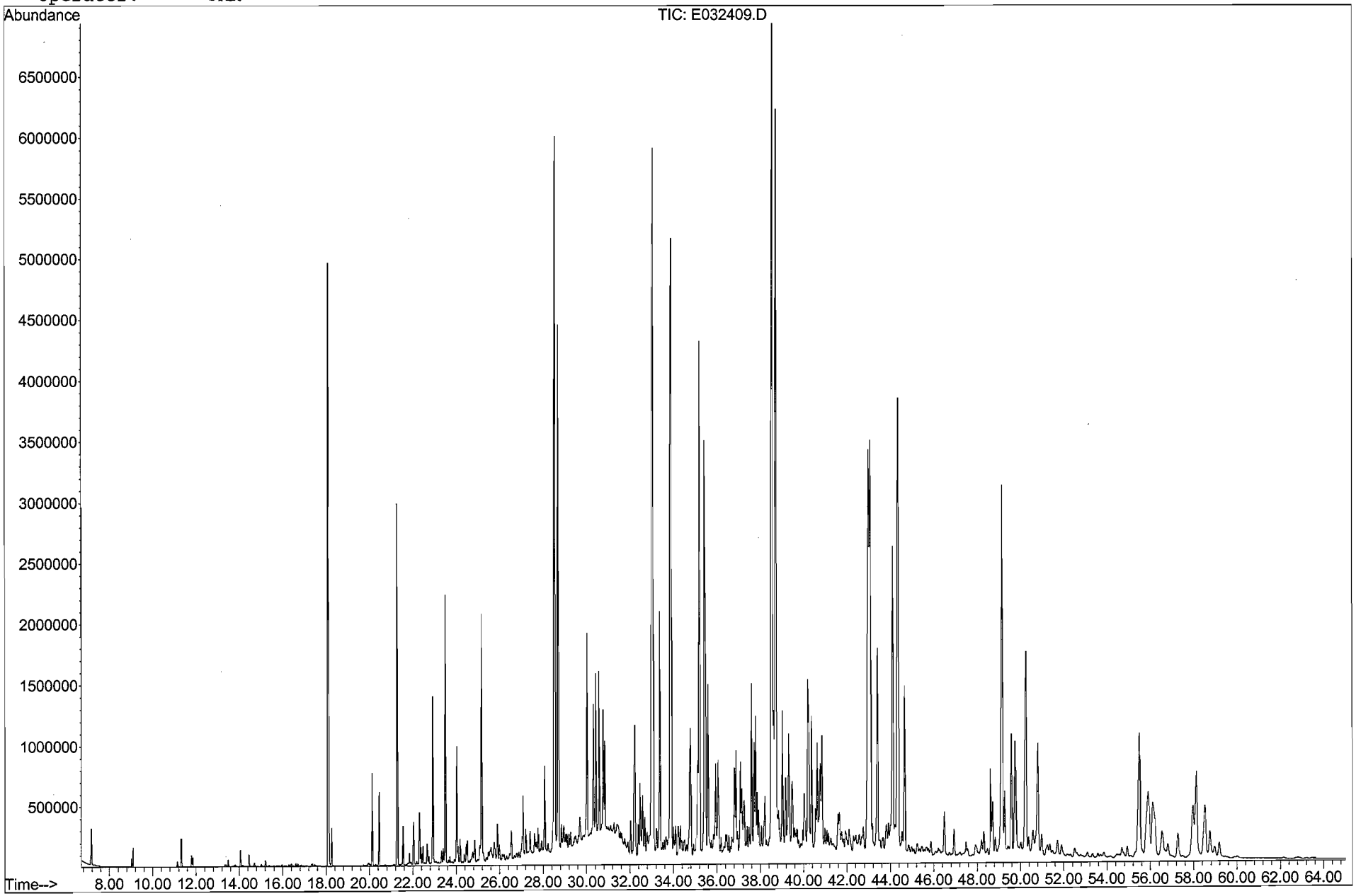
File: J:\1\DATA\E090324\E032409.D
Date Acquired: 25 Mar 2009 2:04 am
Method File: 4008SIMD.M
Sample Name: TA090305-01DUP-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

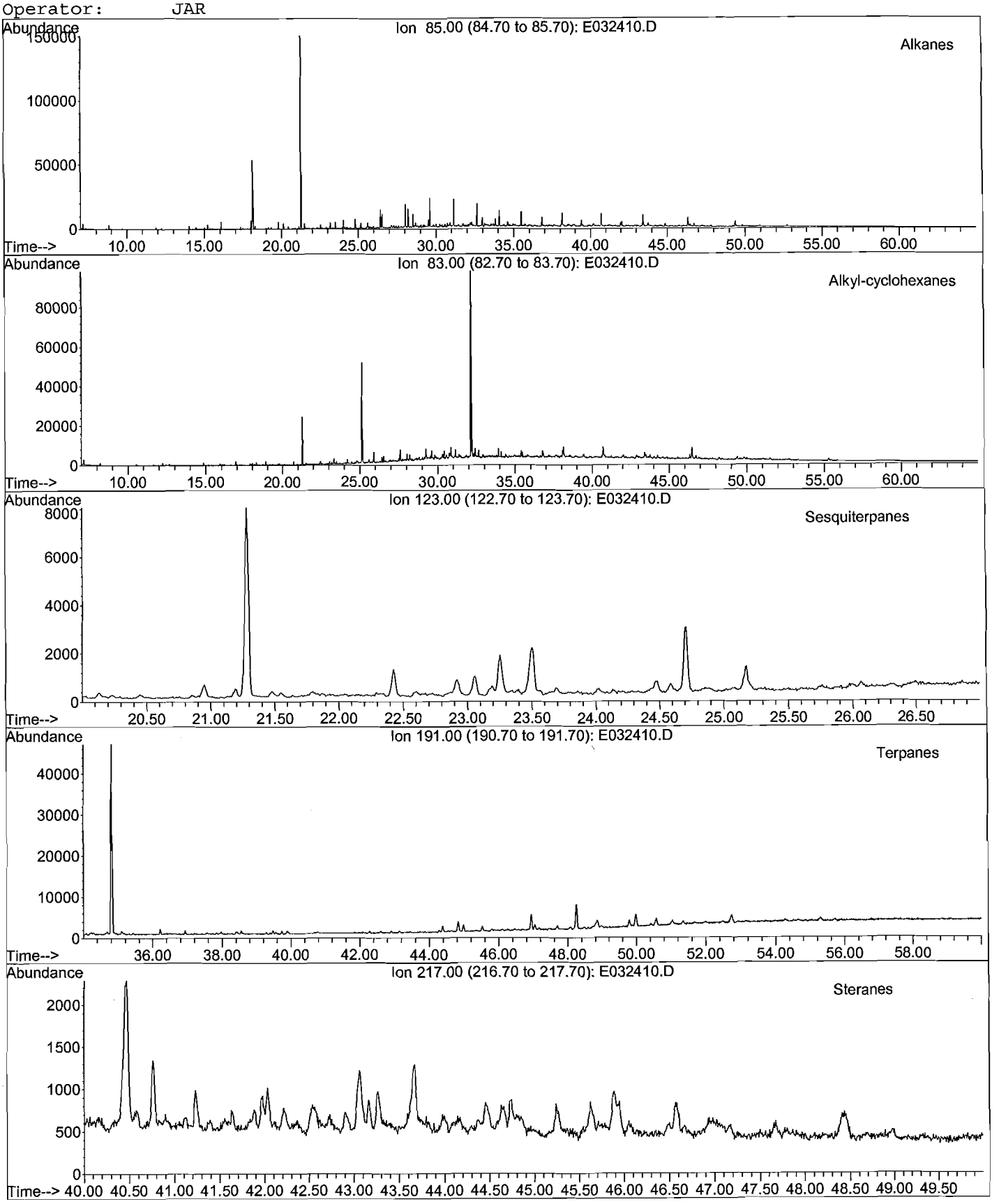
File: J:\1\DATA\E090324\E032409.D
Date Acquired: 25 Mar 2009 2:04 am
Method File: 4008SIMD.M
Sample Name: TA090305-01DUP-R
Misc Info: BH-SED-13C-6
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

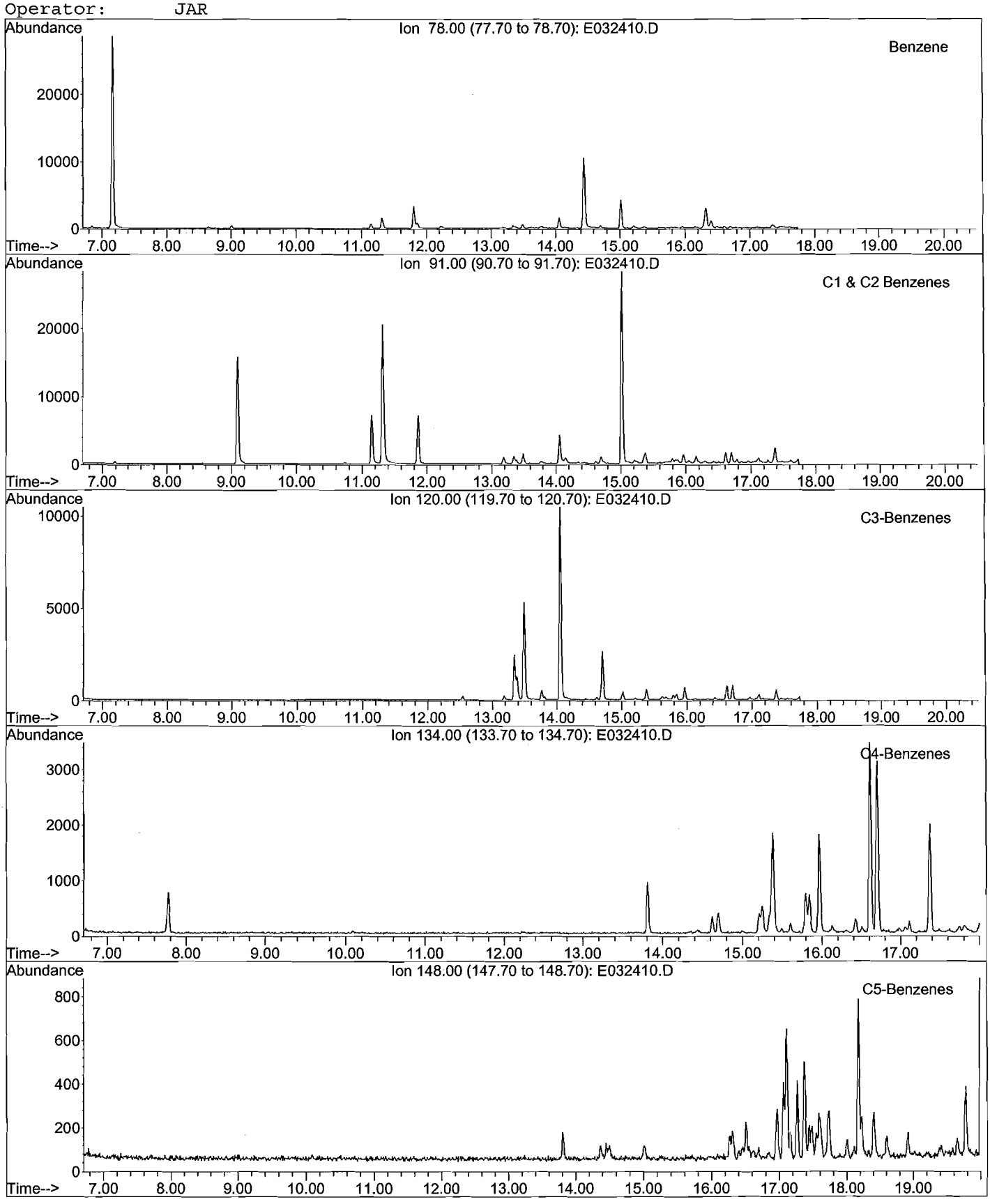
File: J:\1\DATA\E090324\E032410.D
Date Acquired: 25 Mar 2009 3:18 am
Method File: 4008SIMD.M
Sample Name: TA090305-02-R
Misc Info: BH-SED-05-4
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

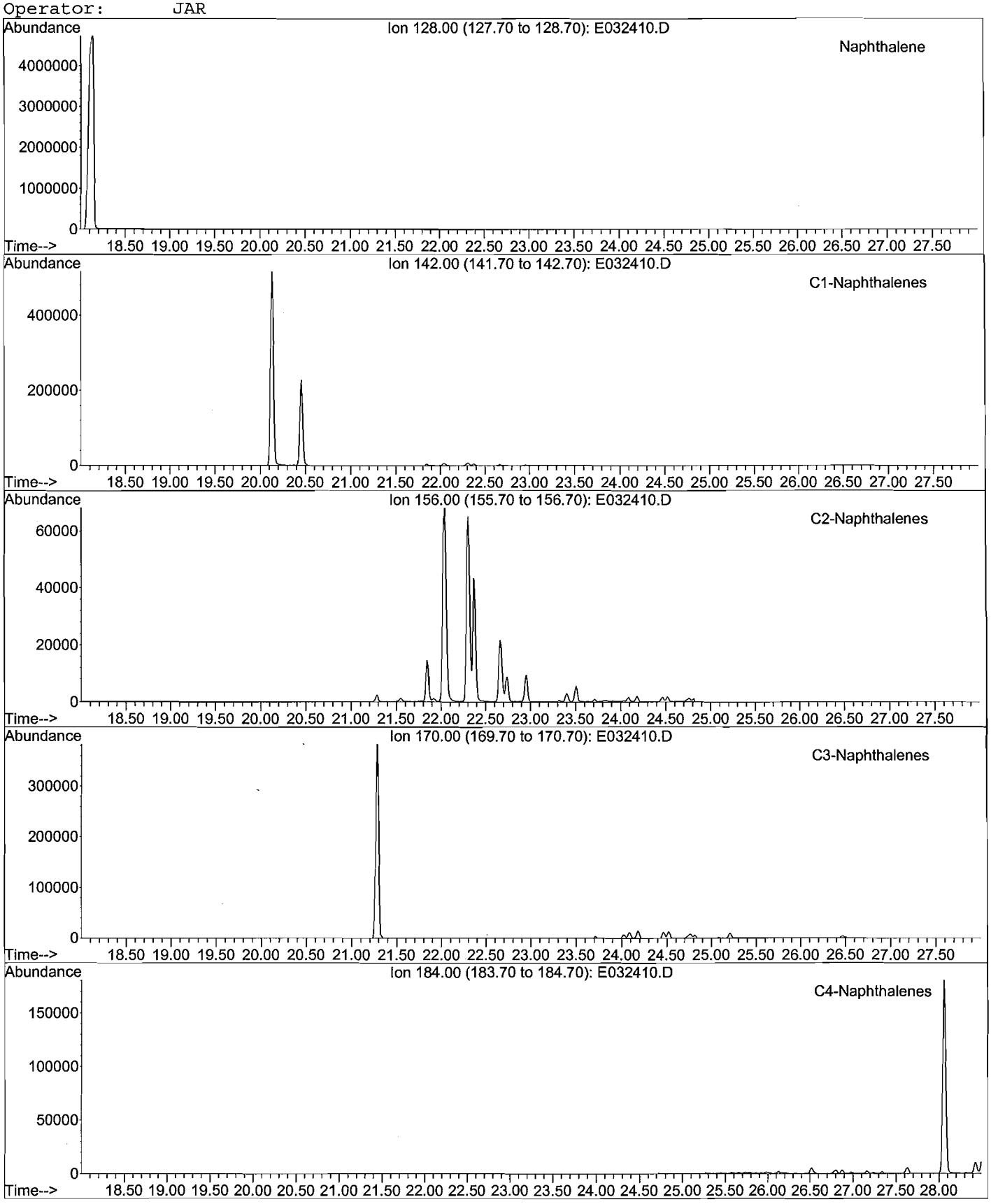
File: J:\1\DATA\E090324\E032410.D
Date Acquired: 25 Mar 2009 3:18 am
Method File: 4008SIMD.M
Sample Name: TA090305-02-R
Misc Info: BH-SED-05-4
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

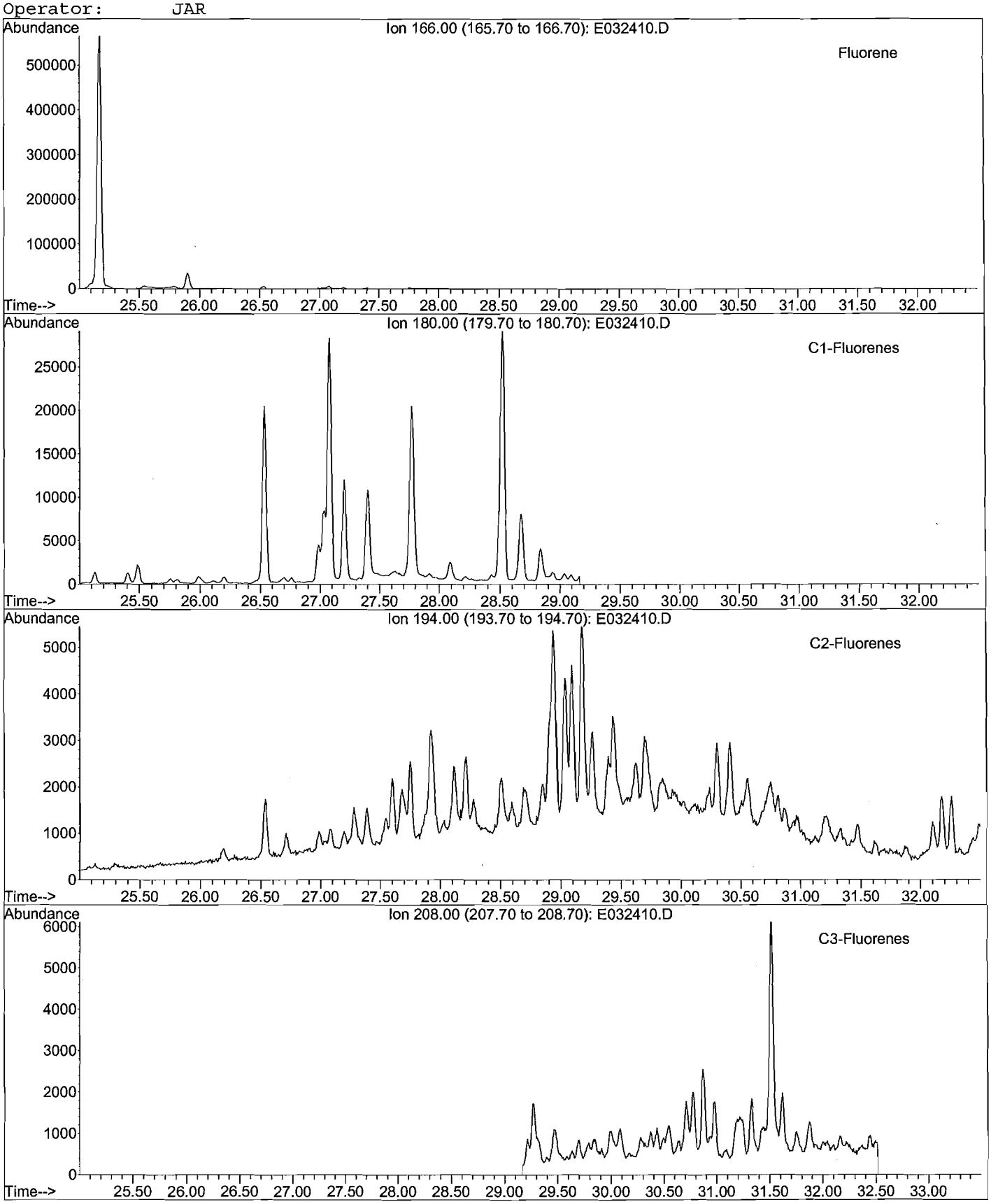
File: J:\1\DATA\E090324\E032410.D
Date Acquired: 25 Mar 2009 3:18 am
Method File: 4008SIMD.M
Sample Name: TA090305-02-R
Misc Info: BH-SED-05-4
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

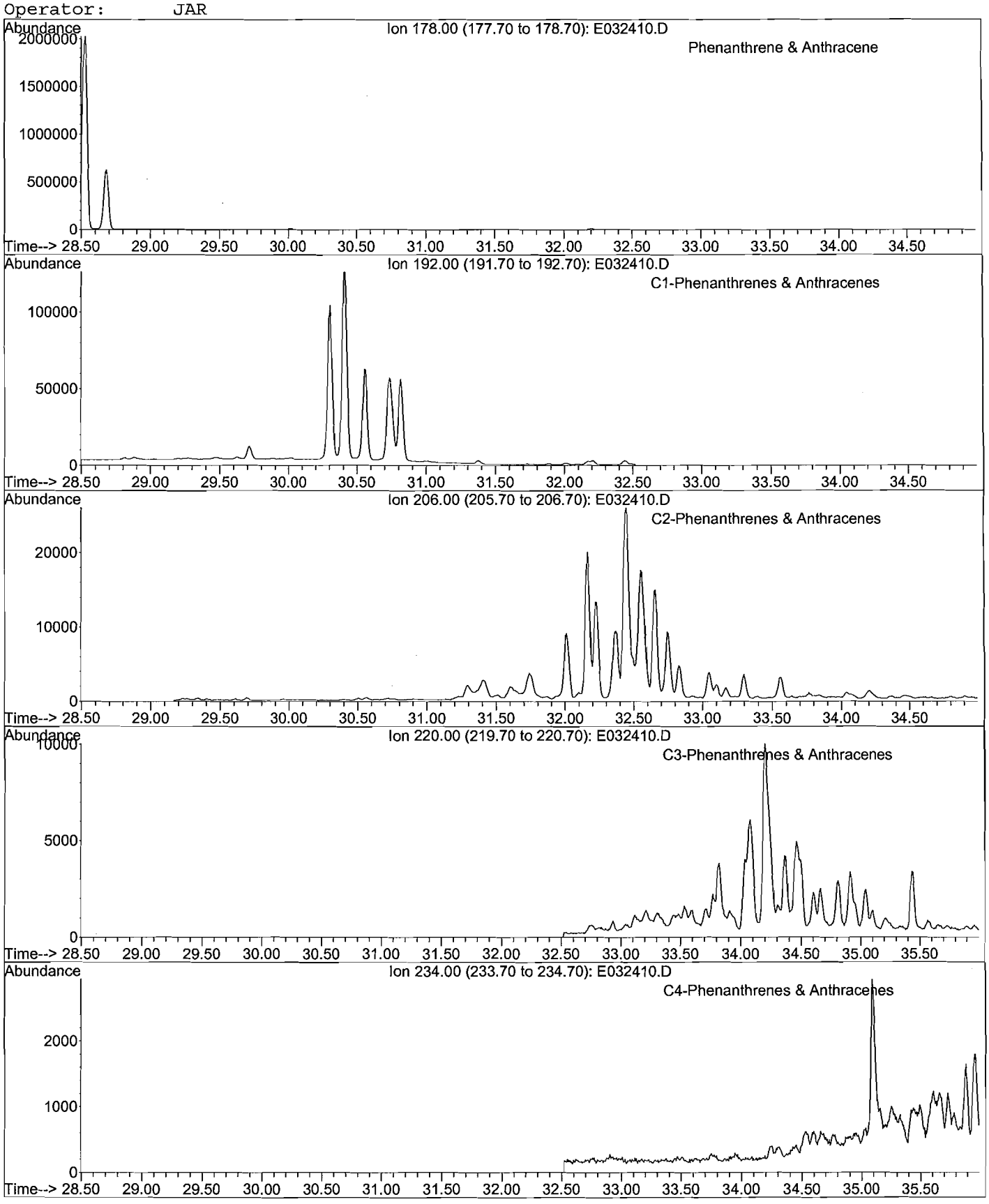
File: J:\1\DATA\E090324\E032410.D
Date Acquired: 25 Mar 2009 3:18 am
Method File: 4008SIMD.M
Sample Name: TA090305-02-R
Misc Info: BH-SED-05-4
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

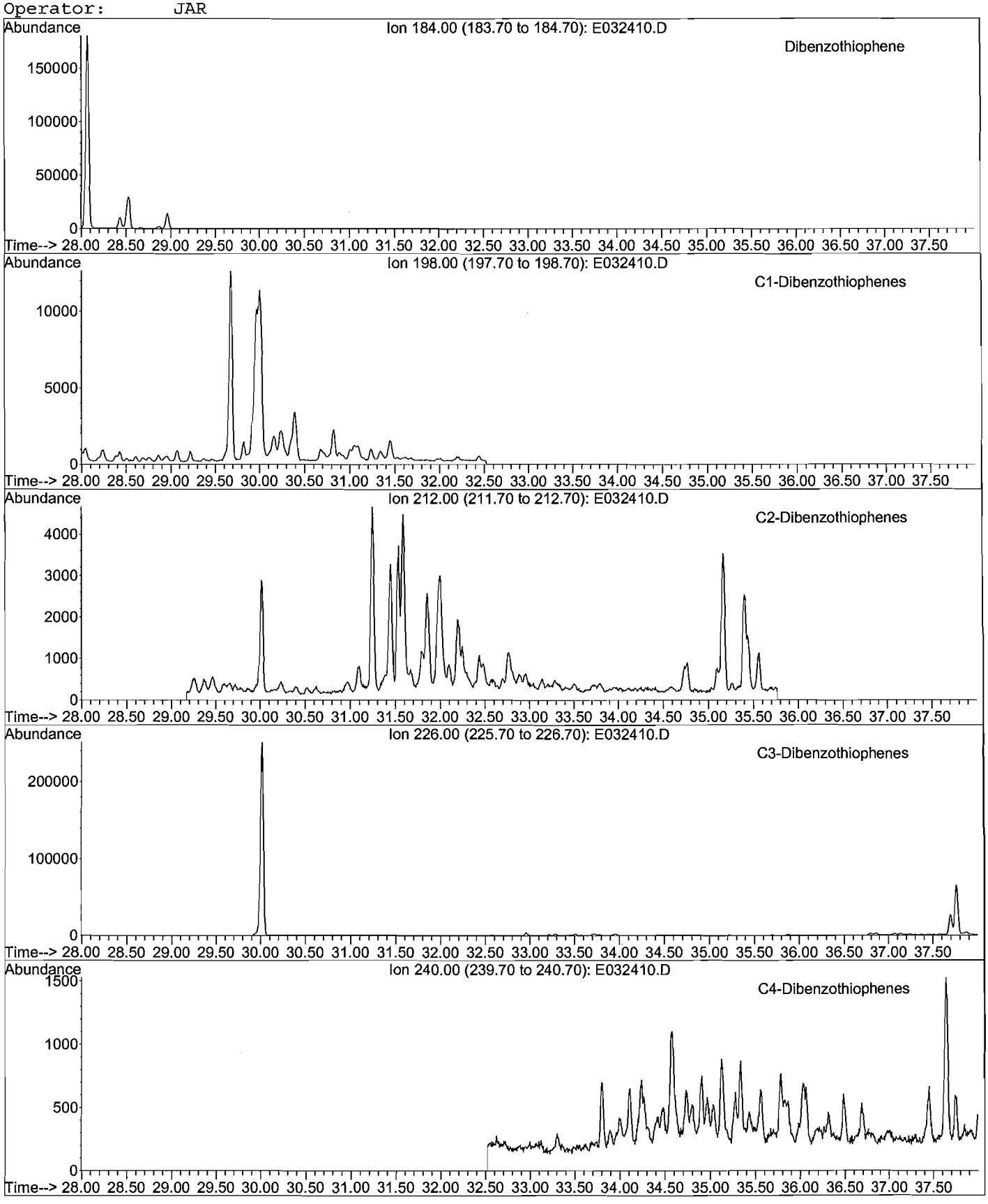
File: J:\1\DATA\E090324\E032410.D
Date Acquired: 25 Mar 2009 3:18 am
Method File: 4008SIMD.M
Sample Name: TA090305-02-R
Misc Info: BH-SED-05-4
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

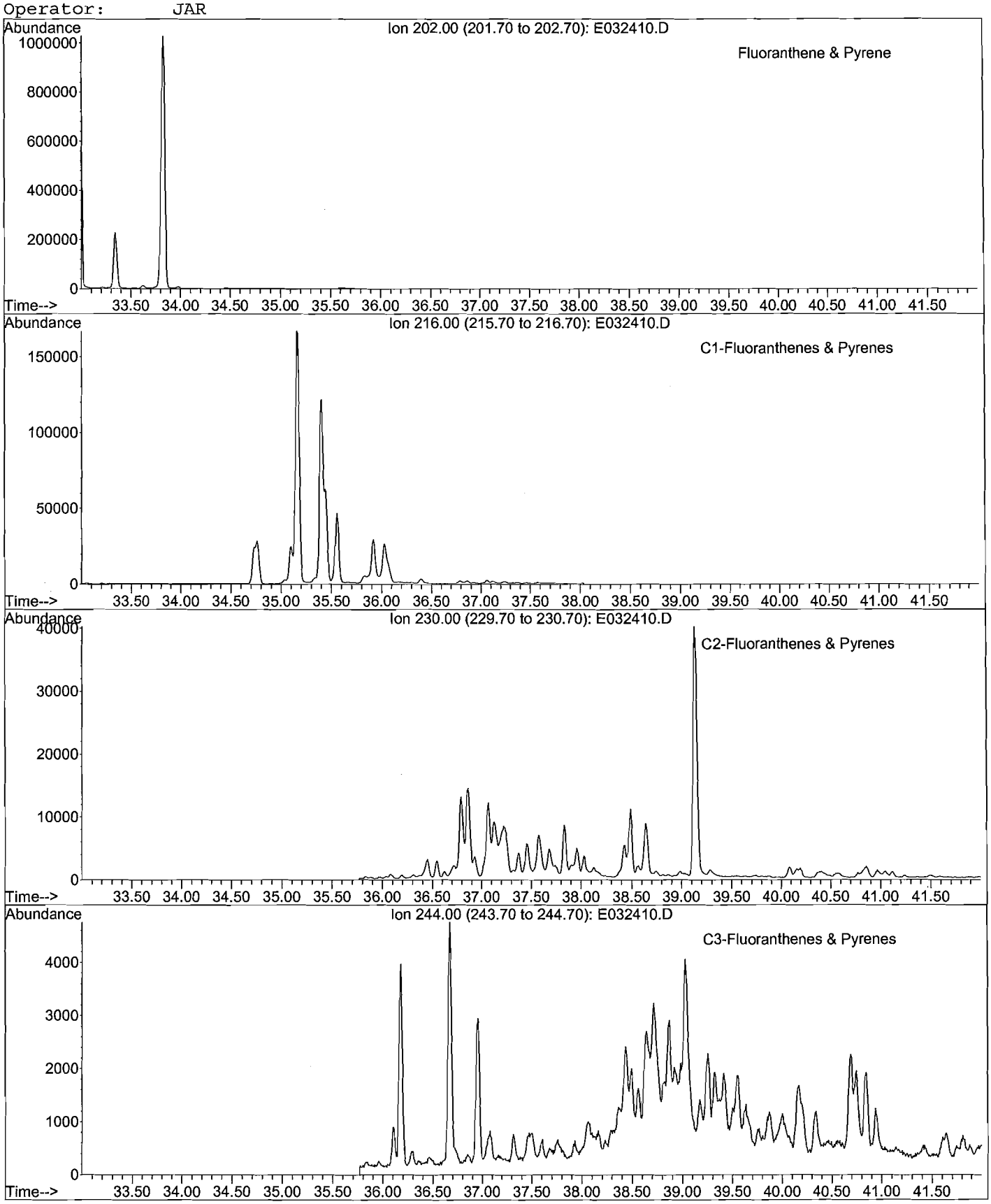
File: J:\1\DATA\E090324\E032410.D
Date Acquired: 25 Mar 2009 3:18 am
Method File: 4008SIMD.M
Sample Name: TA090305-02-R
Misc Info: BH-SED-05-4
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

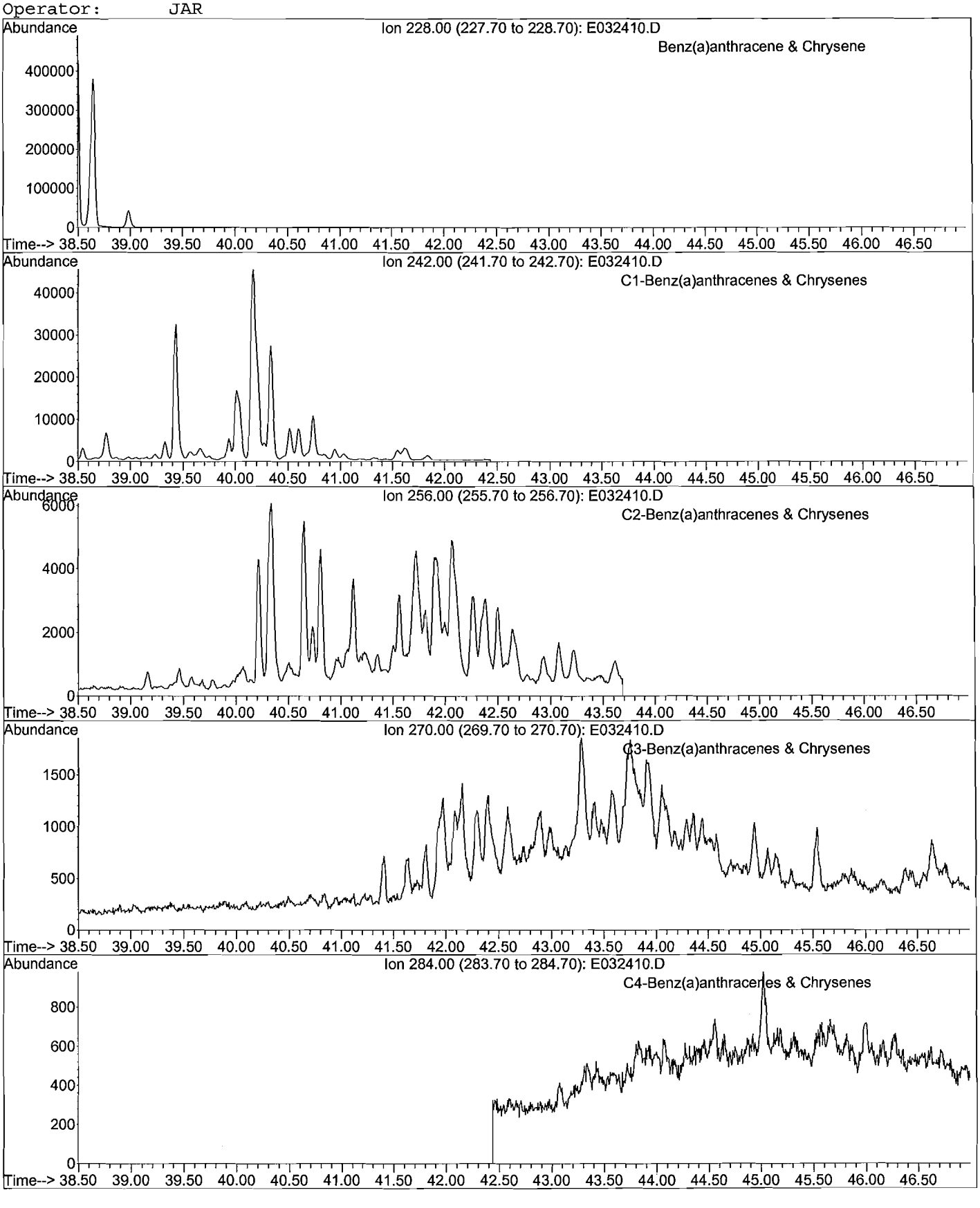
File: J:\1\DATA\E090324\E032410.D
Date Acquired: 25 Mar 2009 3:18 am
Method File: 4008SIMD.M
Sample Name: TA090305-02-R
Misc Info: BH-SED-05-4
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

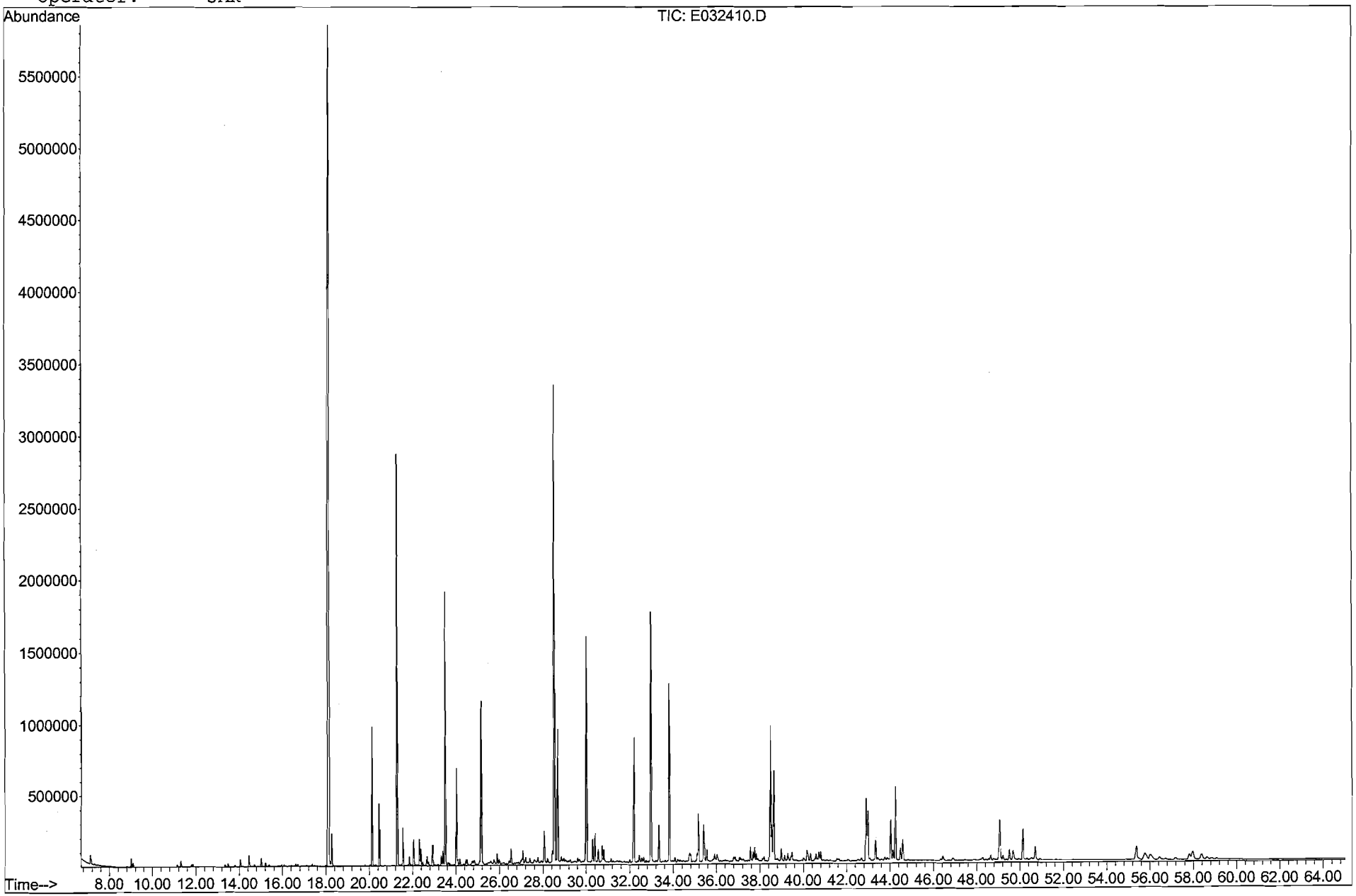
File: J:\1\DATA\E090324\E032410.D
Date Acquired: 25 Mar 2009 3:18 am
Method File: 4008SIMD.M
Sample Name: TA090305-02-R
Misc Info: BH-SED-05-4
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

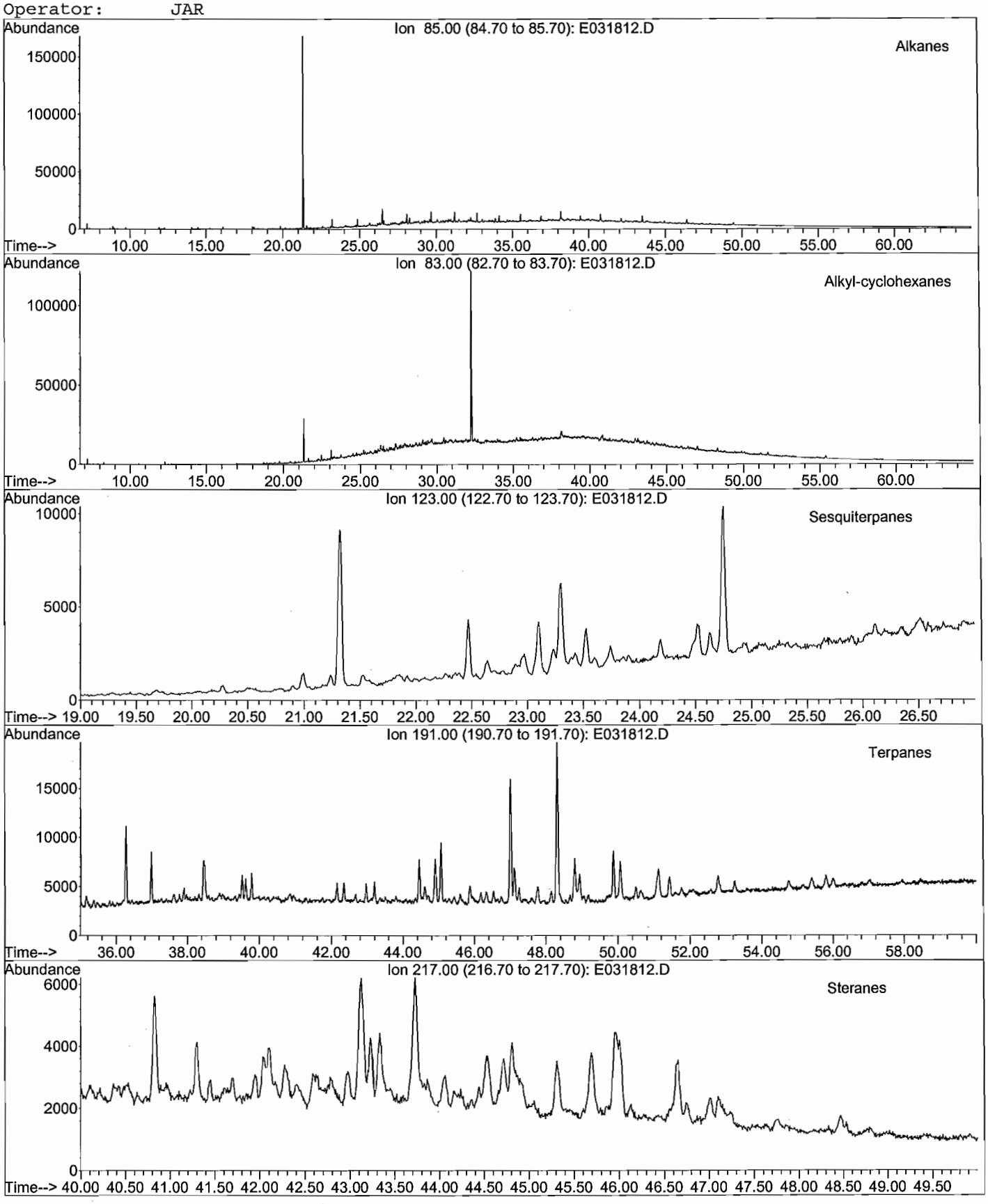
File: J:\1\DATA\E090324\E032410.D
Date Acquired: 25 Mar 2009 3:18 am
Method File: 4008SIMD.M
Sample Name: TA090305-02-R
Misc Info: BH-SED-05-4
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

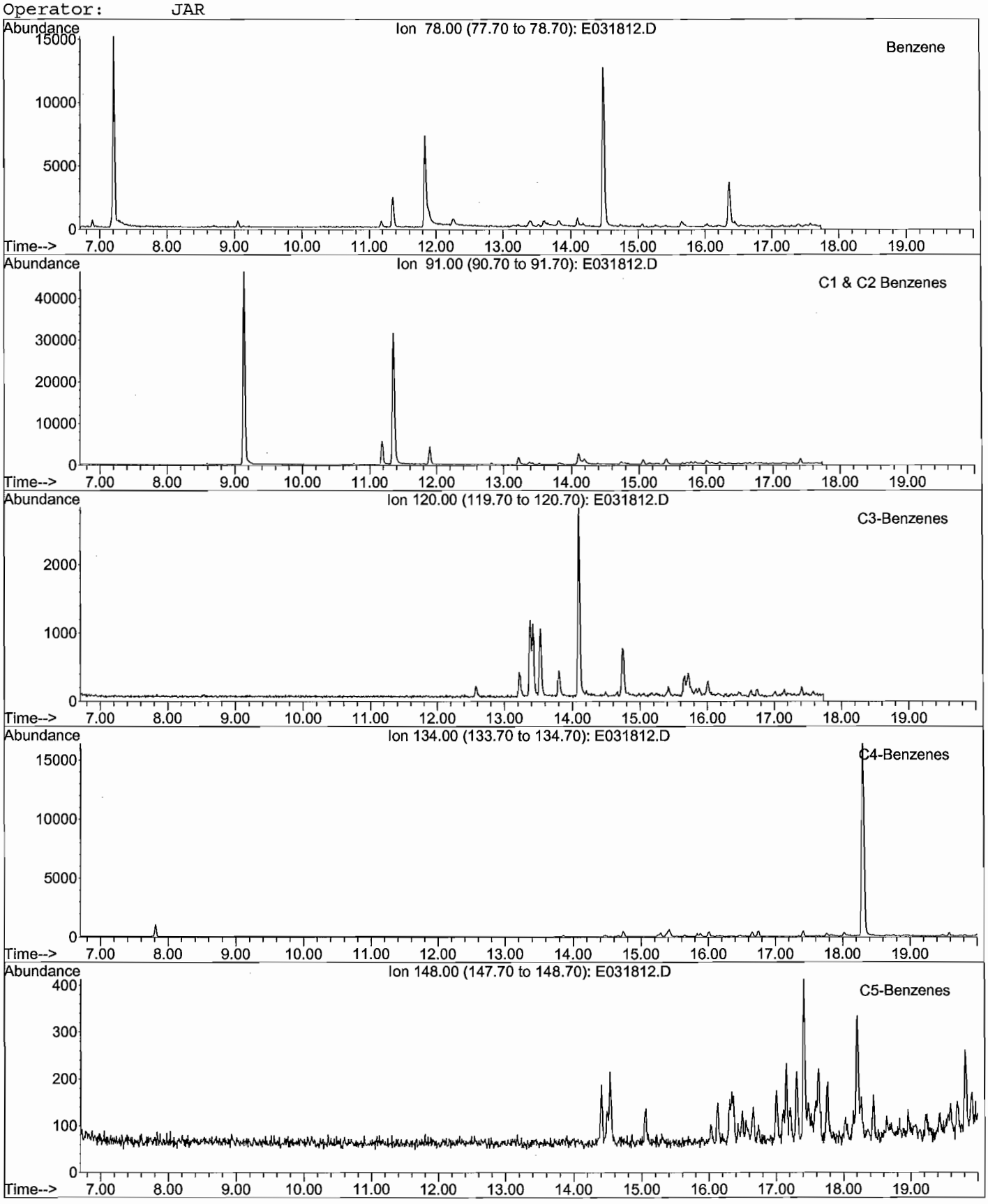
File: J:\1\DATA\E090318\E031812.D
Date Acquired: 19 Mar 2009 7:23 am
Method File: 4008SIMD.M
Sample Name: TA090311-01
Misc Info: BH-SED-03E-2
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

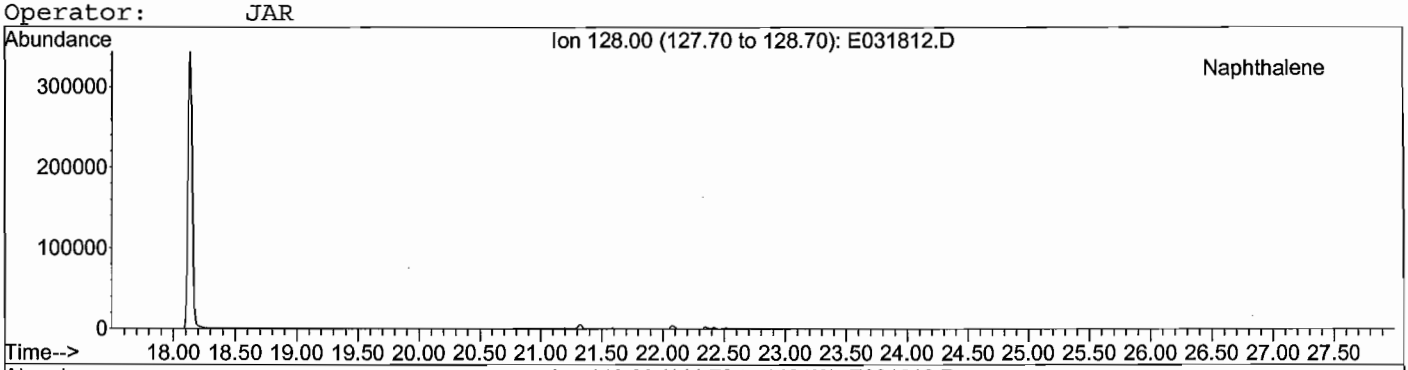
File: J:\1\DATA\E090318\E031812.D
Date Acquired: 19 Mar 2009 7:23 am
Method File: 4008SIMD.M
Sample Name: TA090311-01
Misc Info: BH-SED-03E-2
Operator: JAR

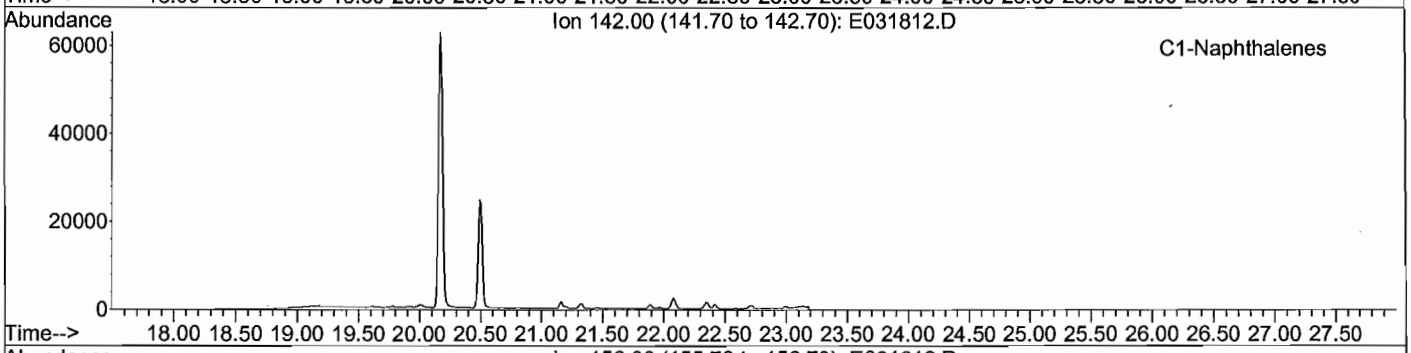


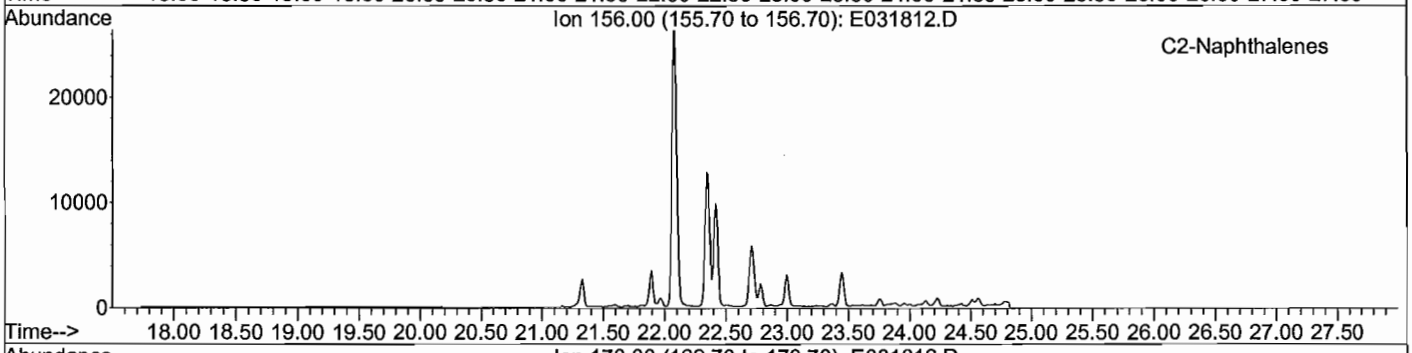
META Environmental, Inc.

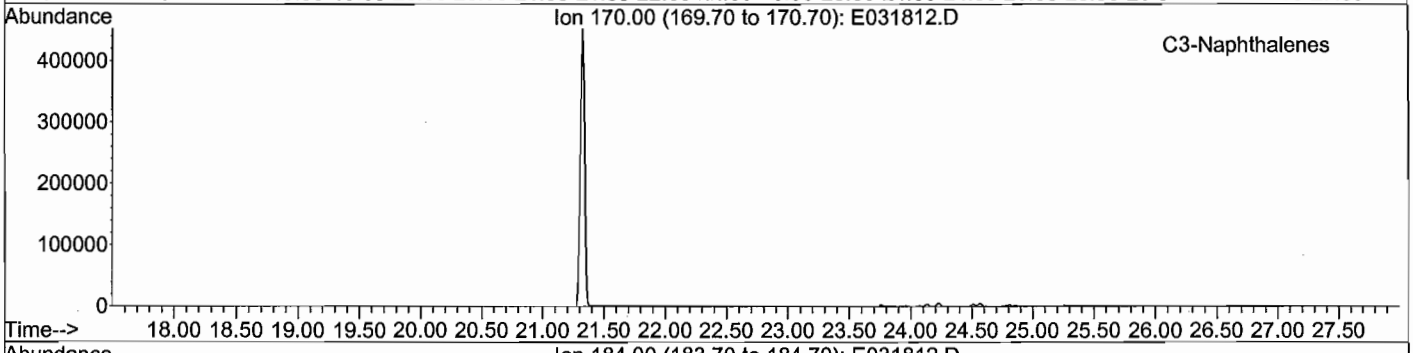
GC/MS EXTRACTED ION CHROMATOGRAM

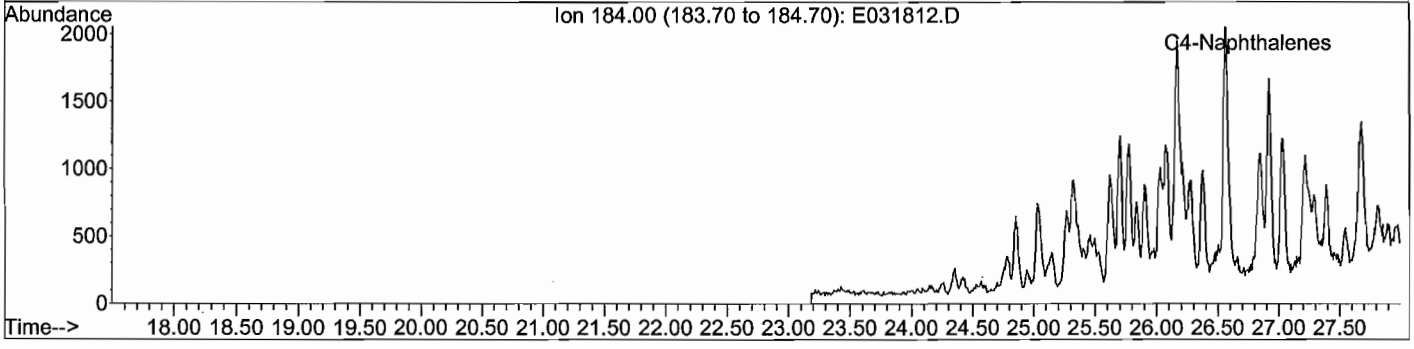
File: J:\1\DATA\E090318\E031812.D
Date Acquired: 19 Mar 2009 7:23 am
Method File: 4008SIMD.M
Sample Name: TA090311-01
Misc Info: BH-SED-03E-2
Operator: JAR







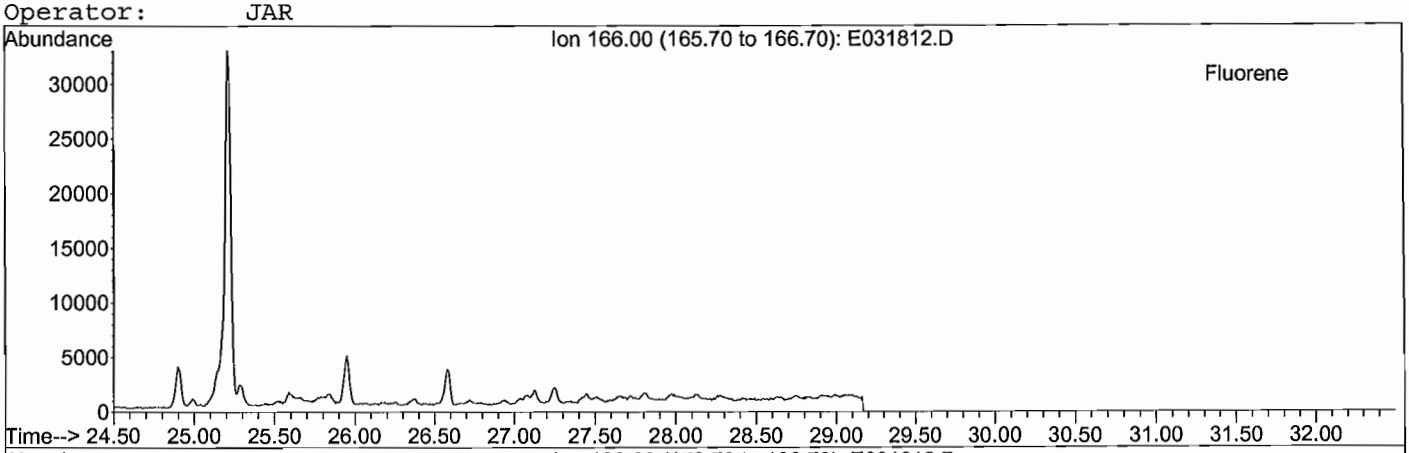


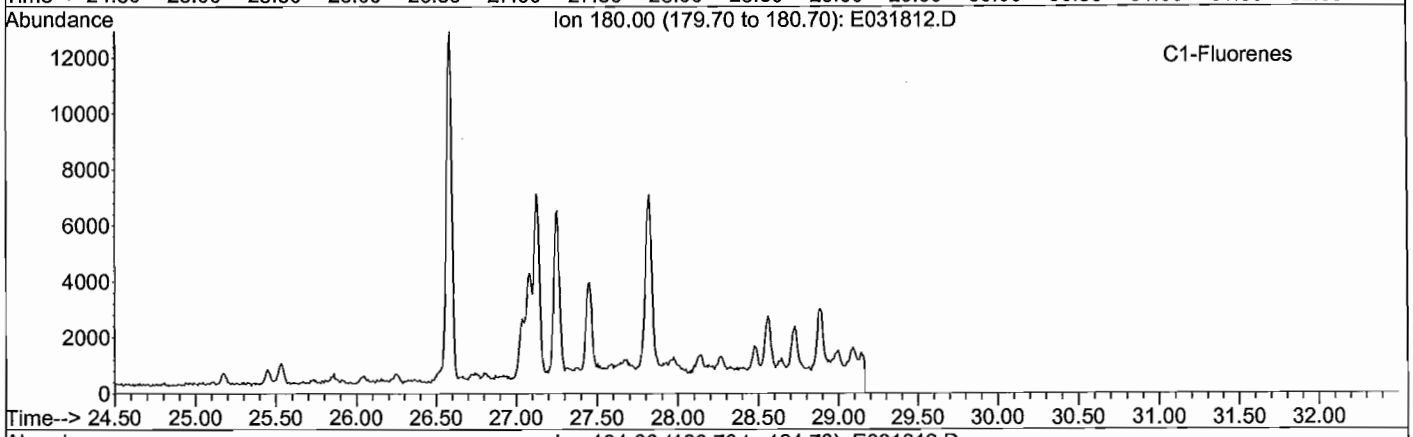


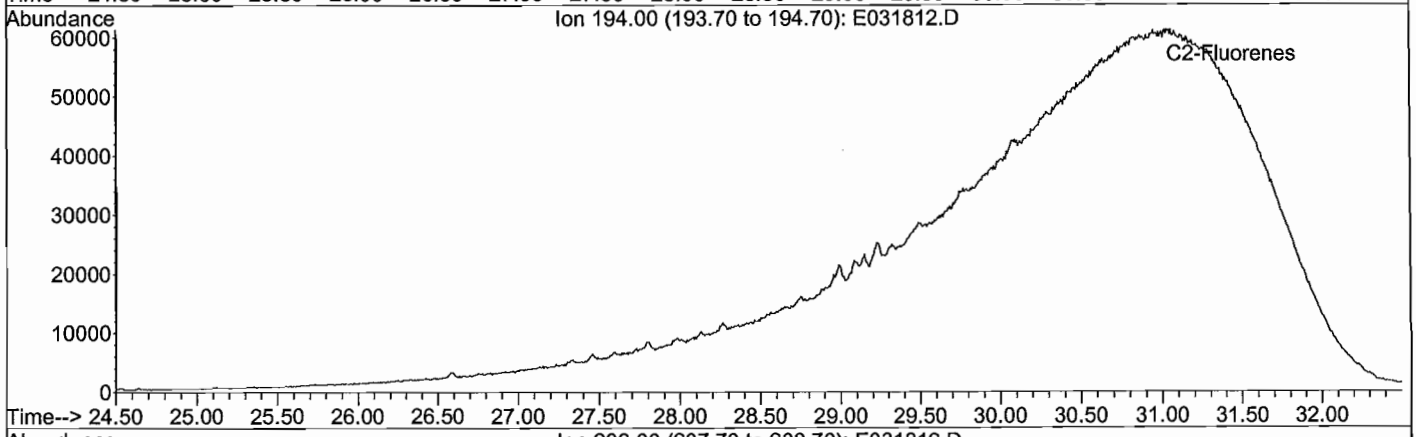
META Environmental, Inc.

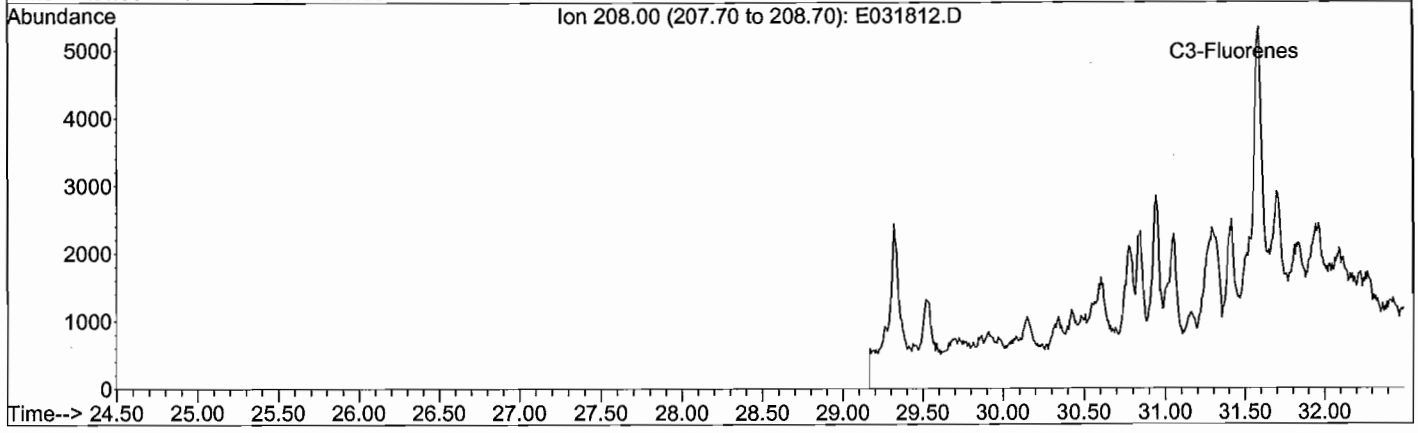
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090318\E031812.D
Date Acquired: 19 Mar 2009 7:23 am
Method File: 4008SIMD.M
Sample Name: TA090311-01
Misc Info: BH-SED-03E-2
Operator: JAR





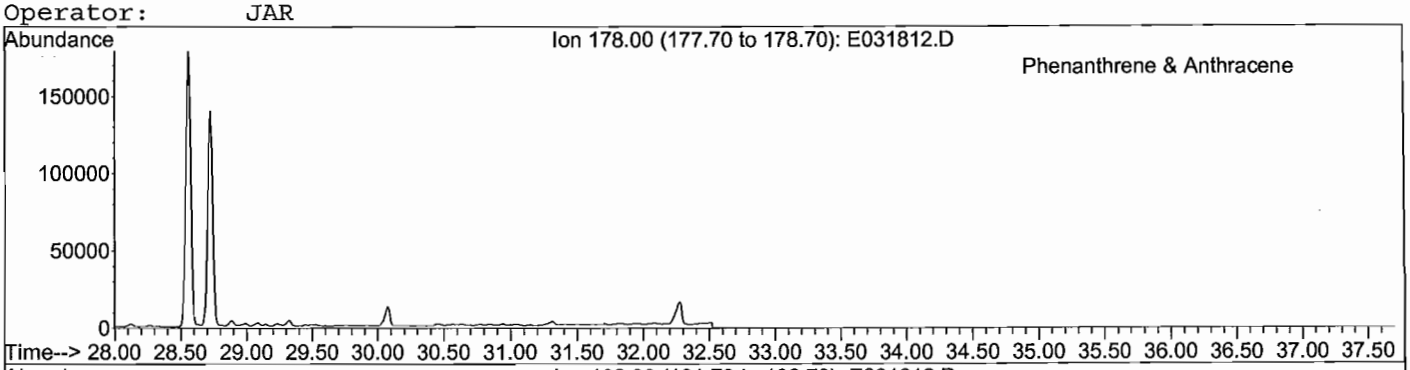


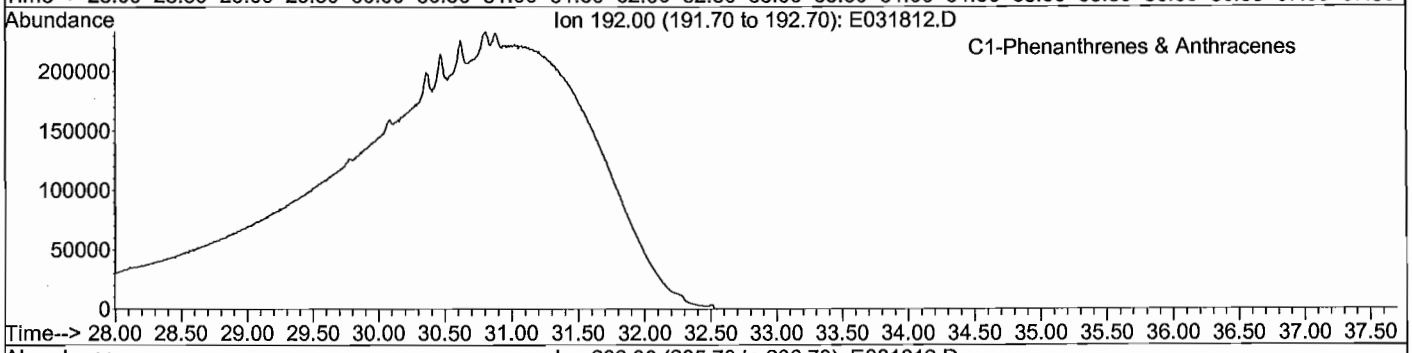


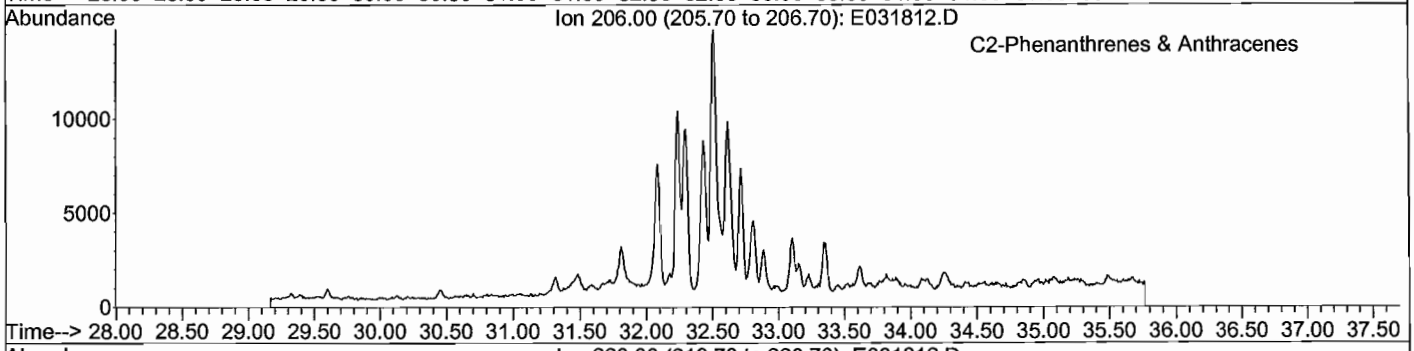
META Environmental, Inc.

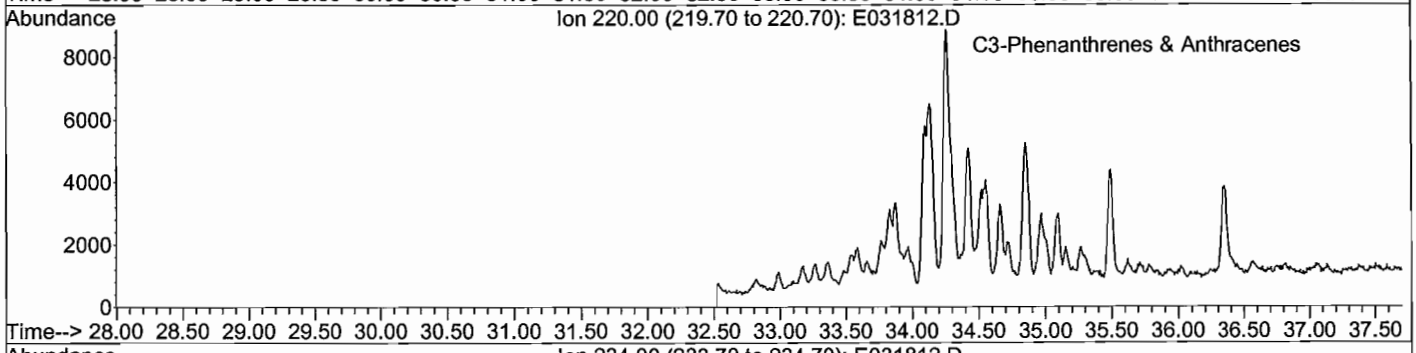
GC/MS EXTRACTED ION CHROMATOGRAM

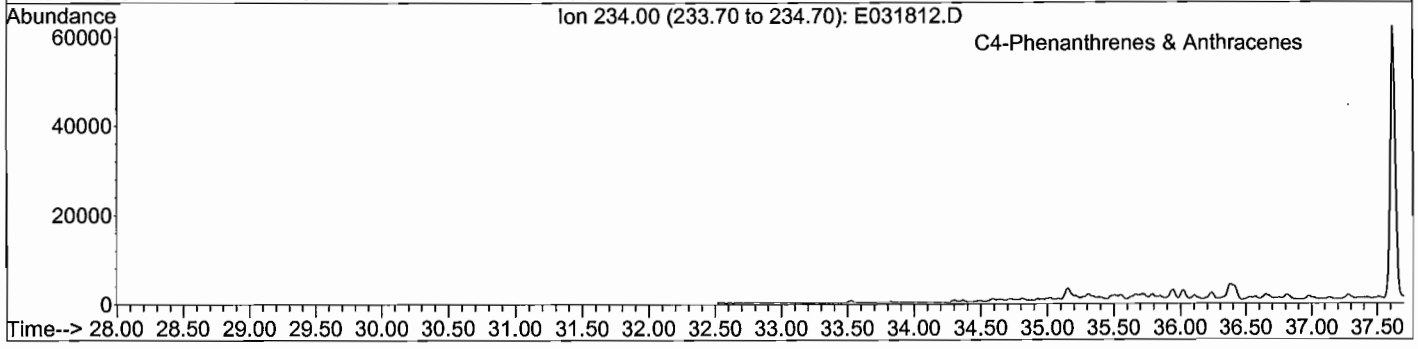
File: J:\1\DATA\E090318\E031812.D
Date Acquired: 19 Mar 2009 7:23 am
Method File: 4008SIMD.M
Sample Name: TA090311-01
Misc Info: BH-SED-03E-2
Operator: JAR











META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090318\E031812.D
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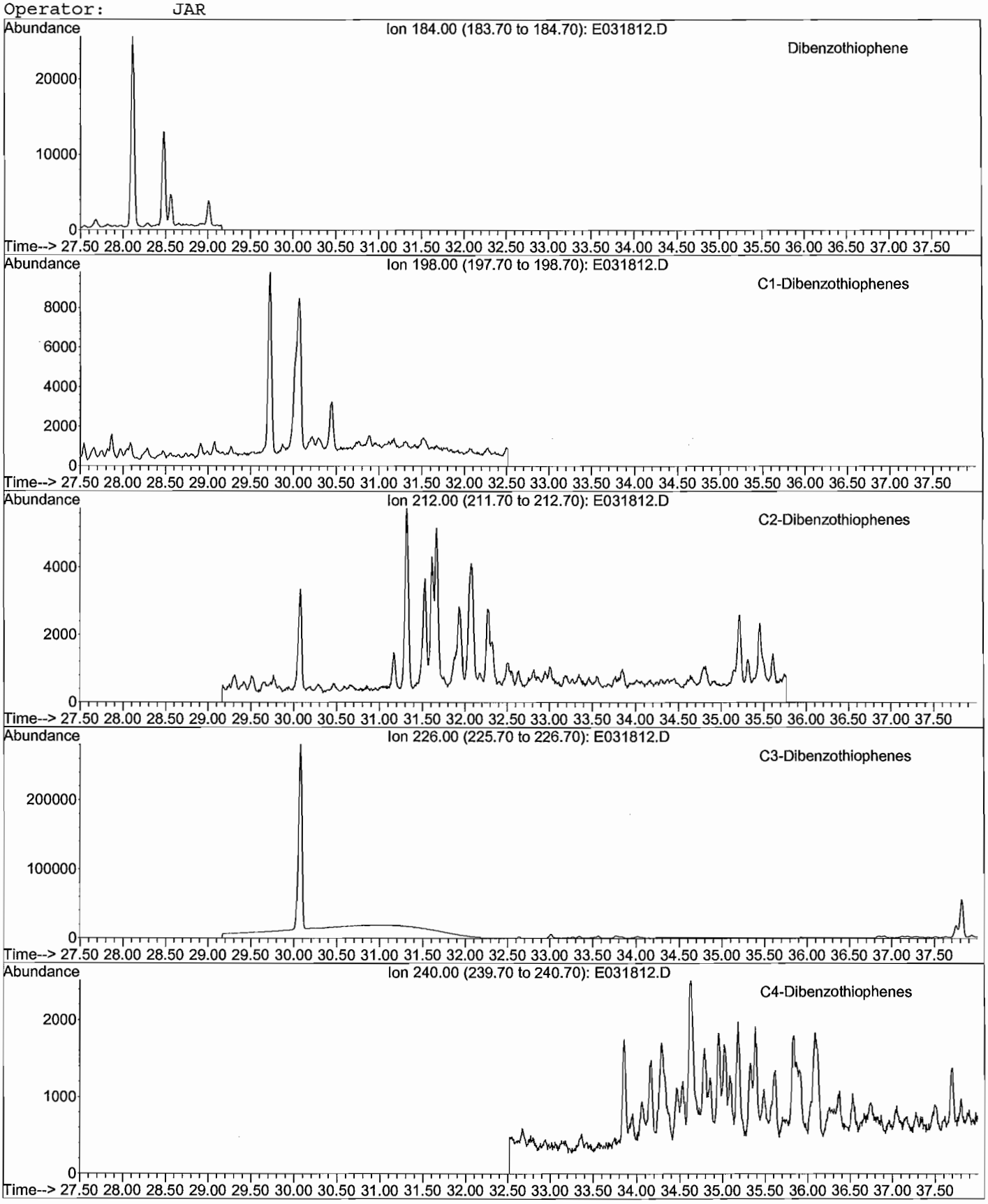

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090318\E031812.D
Date Acquired: 19 Mar 2009 7:23 am
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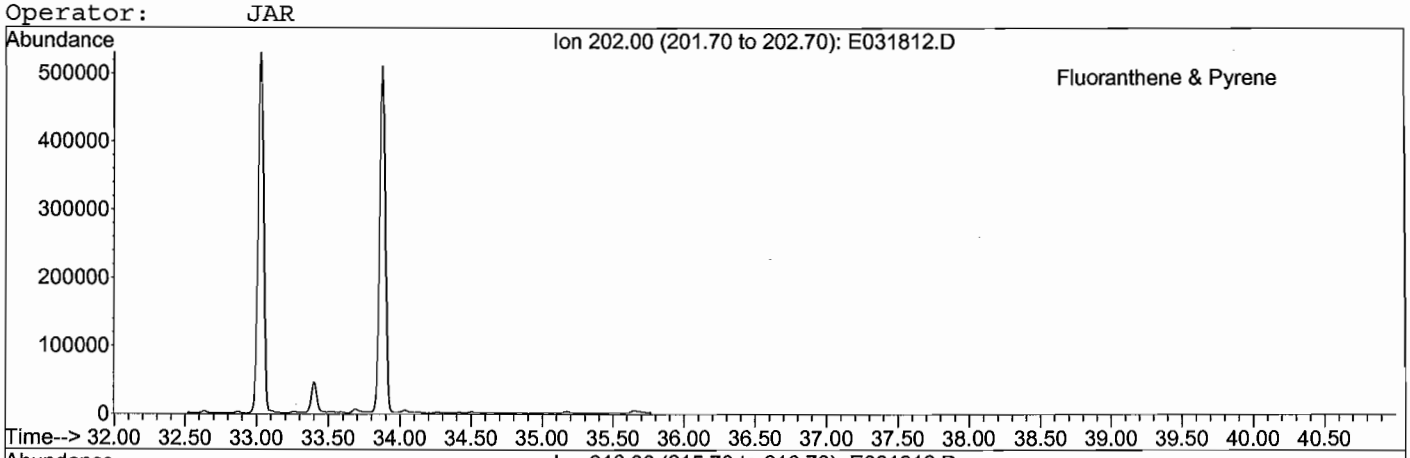

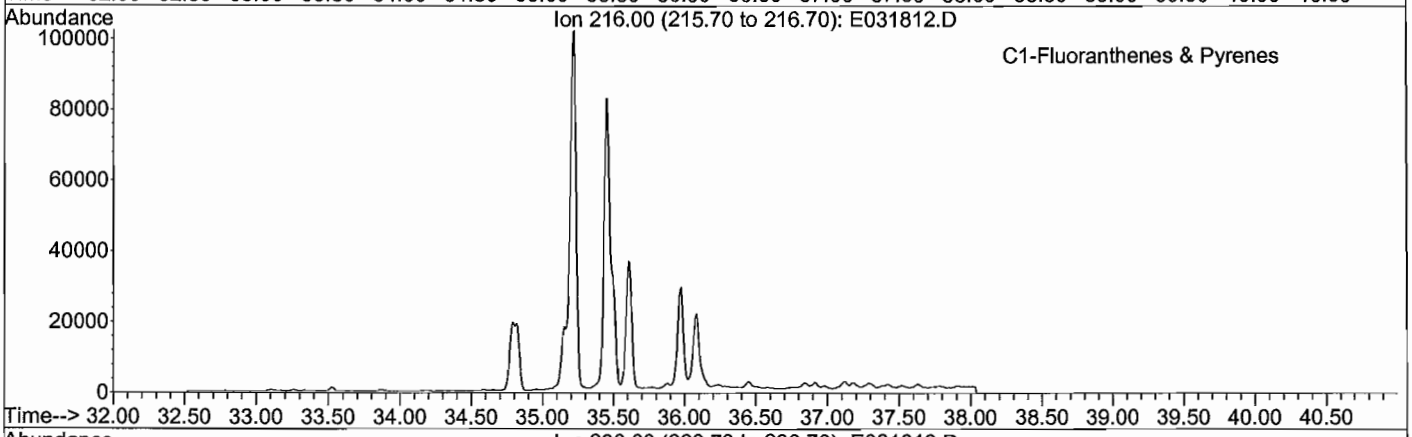

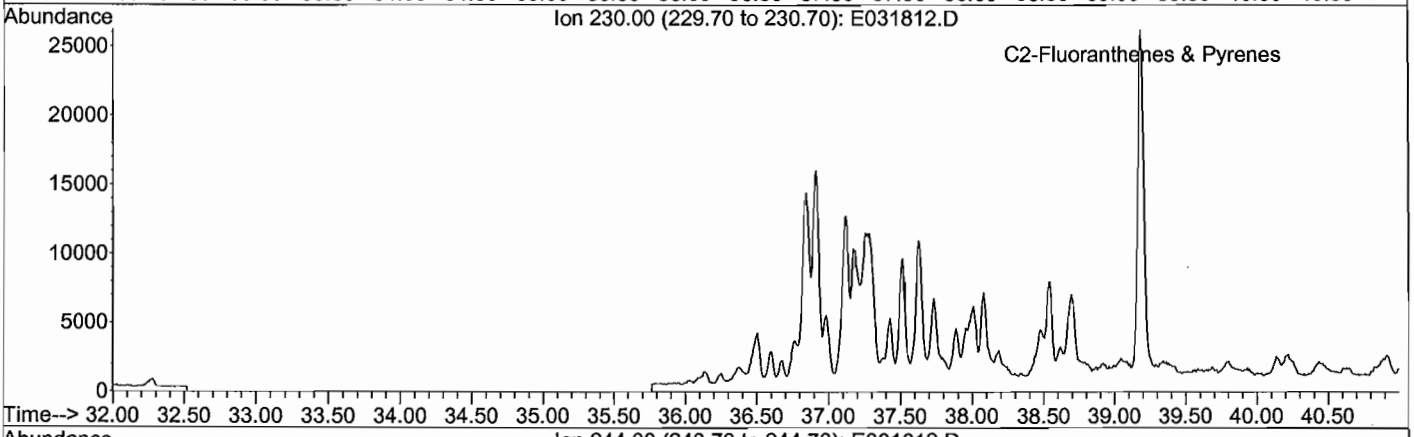

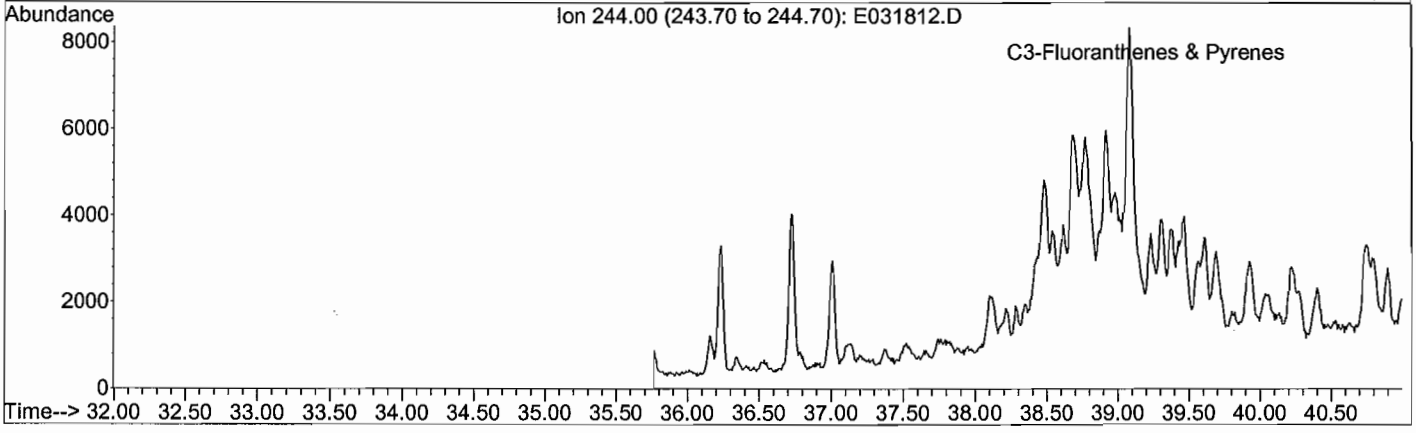

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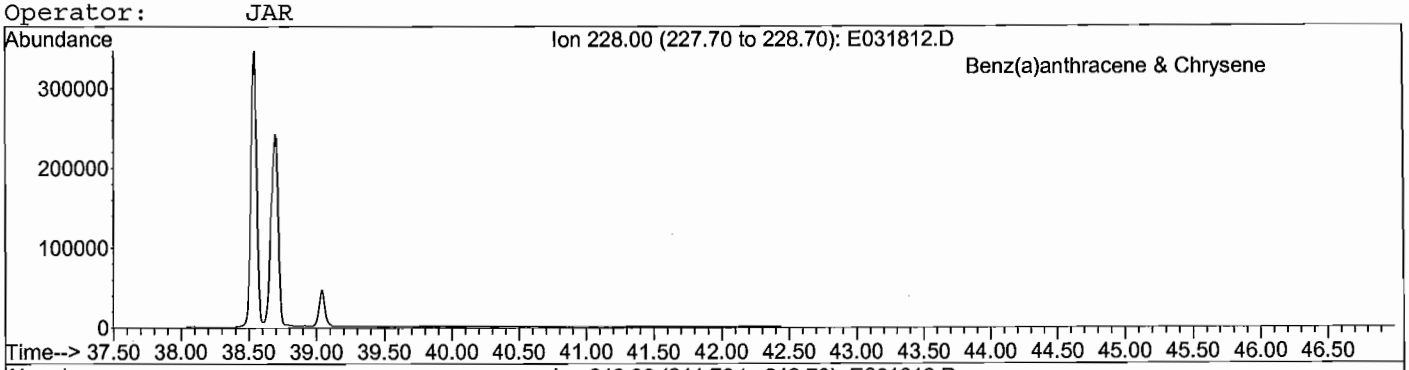
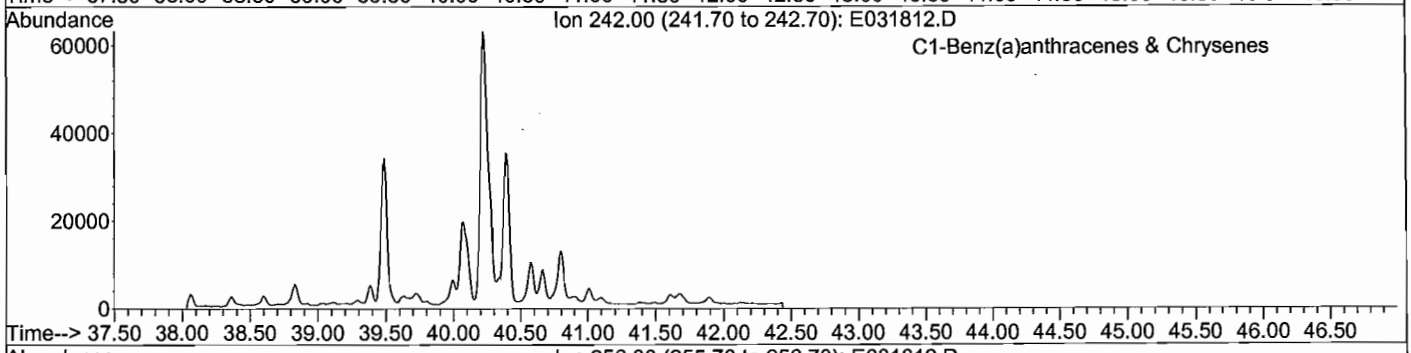
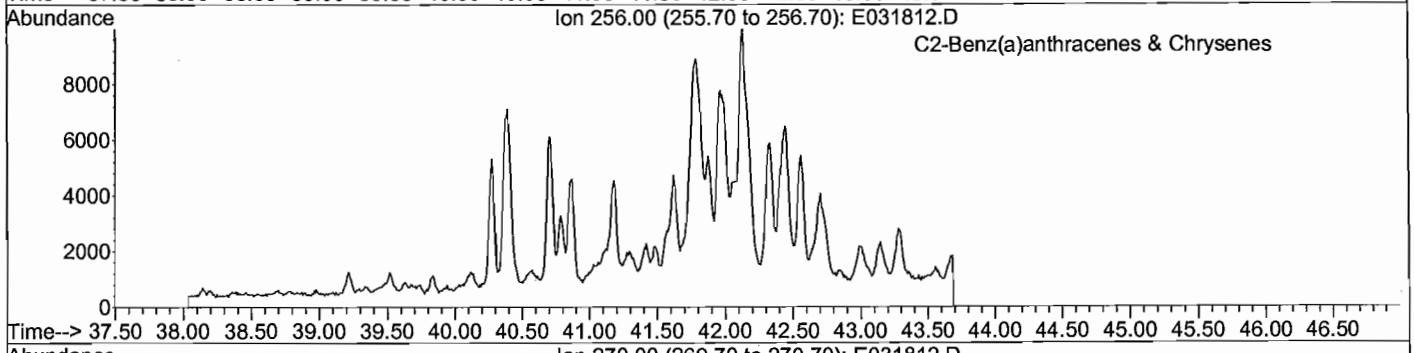
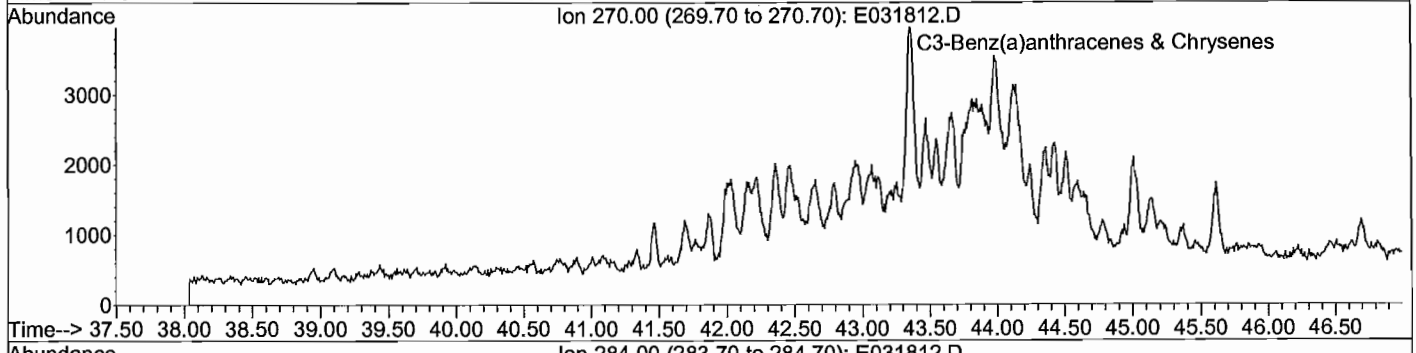
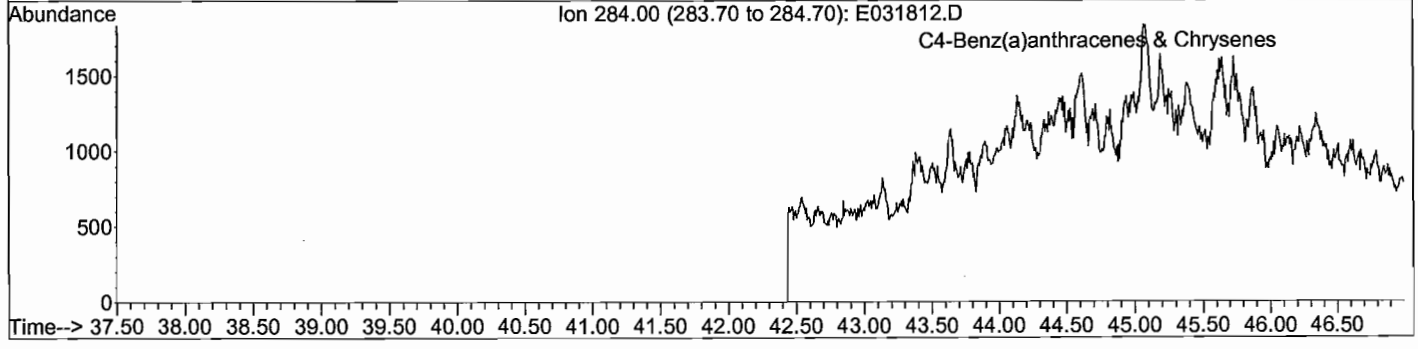






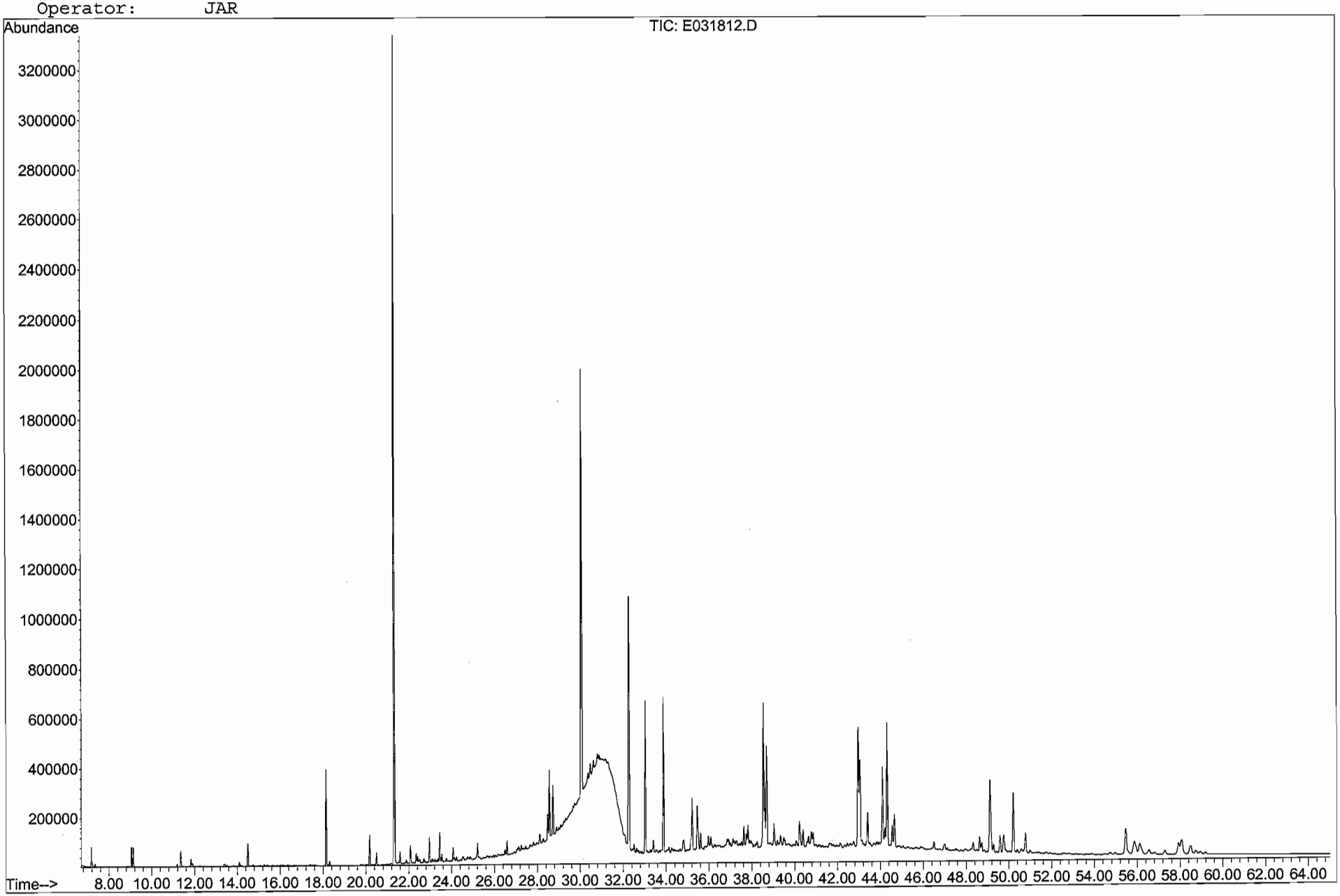




META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

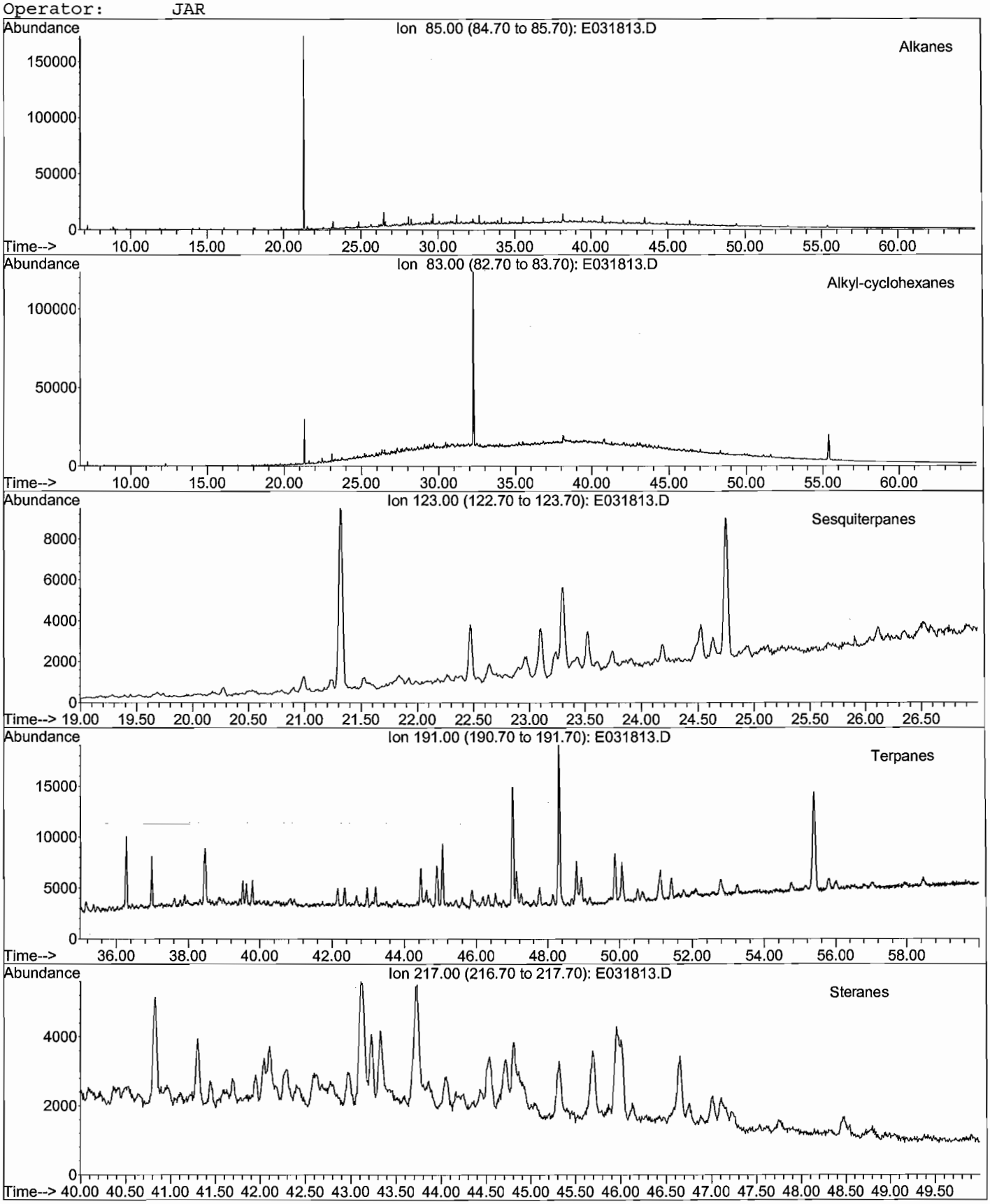
File: J:\1\DATA\E090318\E031812.D
Date Acquired: 19 Mar 2009 7:23 am
Method File: 4008SIMD.M
Sample Name: TA090311-01
Misc Info: BH-SED-03E-2
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090318\E031813.D
Date Acquired: 19 Mar 2009 8:38 am
Method File: 4008SIMD.M
Sample Name: TA090311-01DUP
Misc Info: Duplicate of BH-SED-03E-2
Operator: JAR



META Environmental, Inc.

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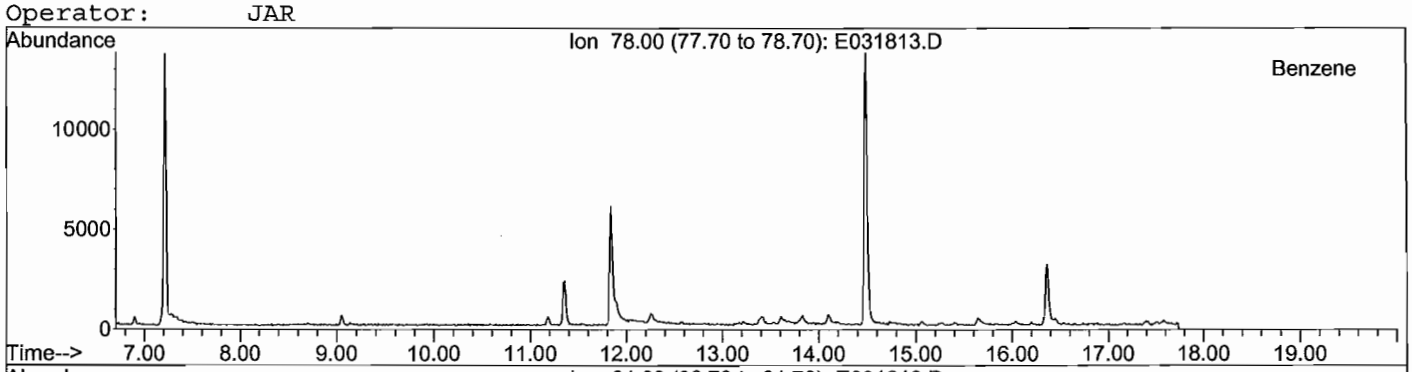
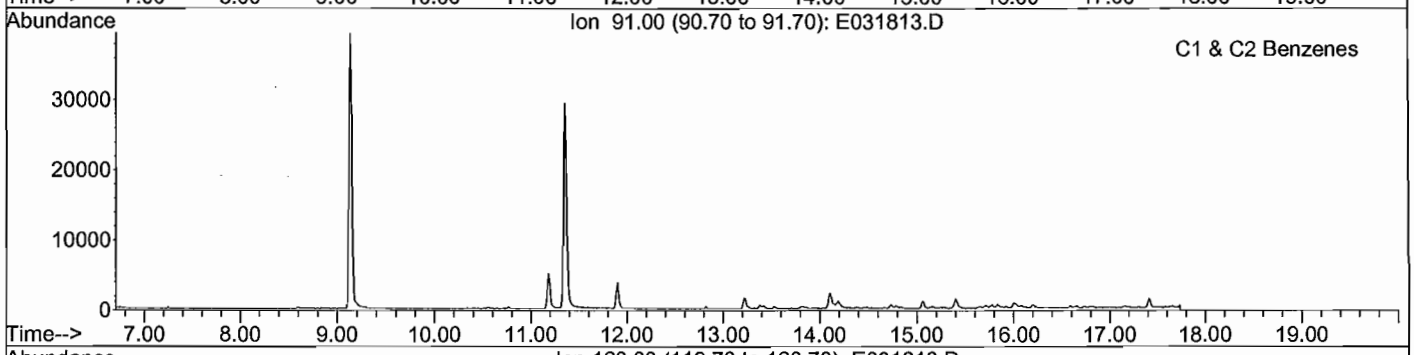
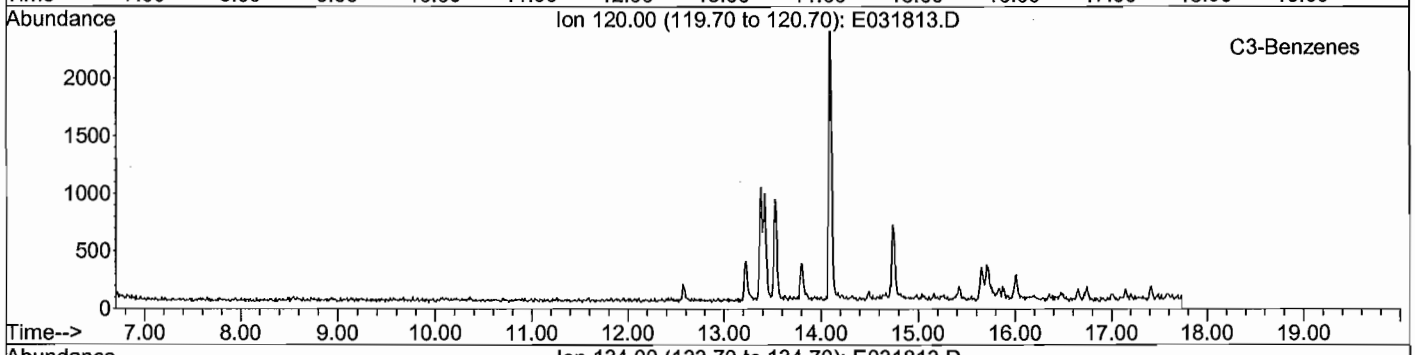
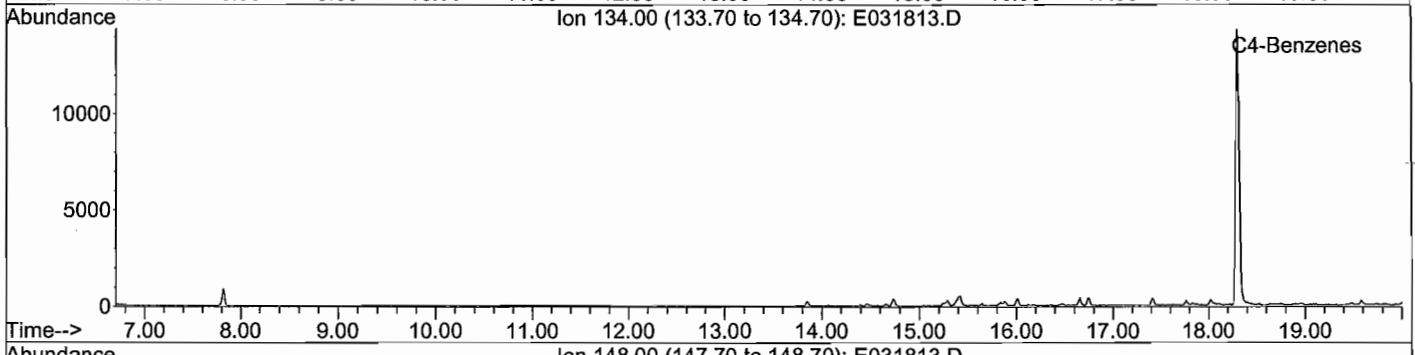
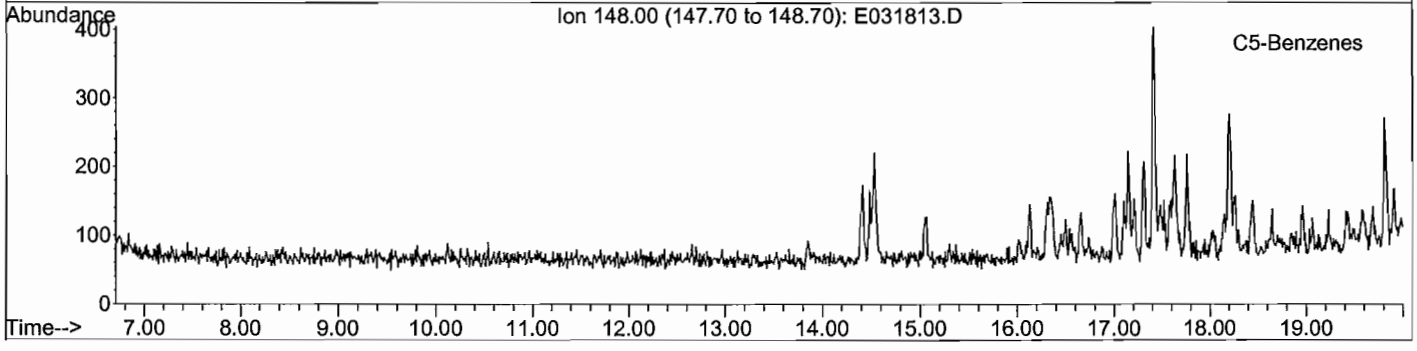
Operator: JAR











META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090318\E031813.D
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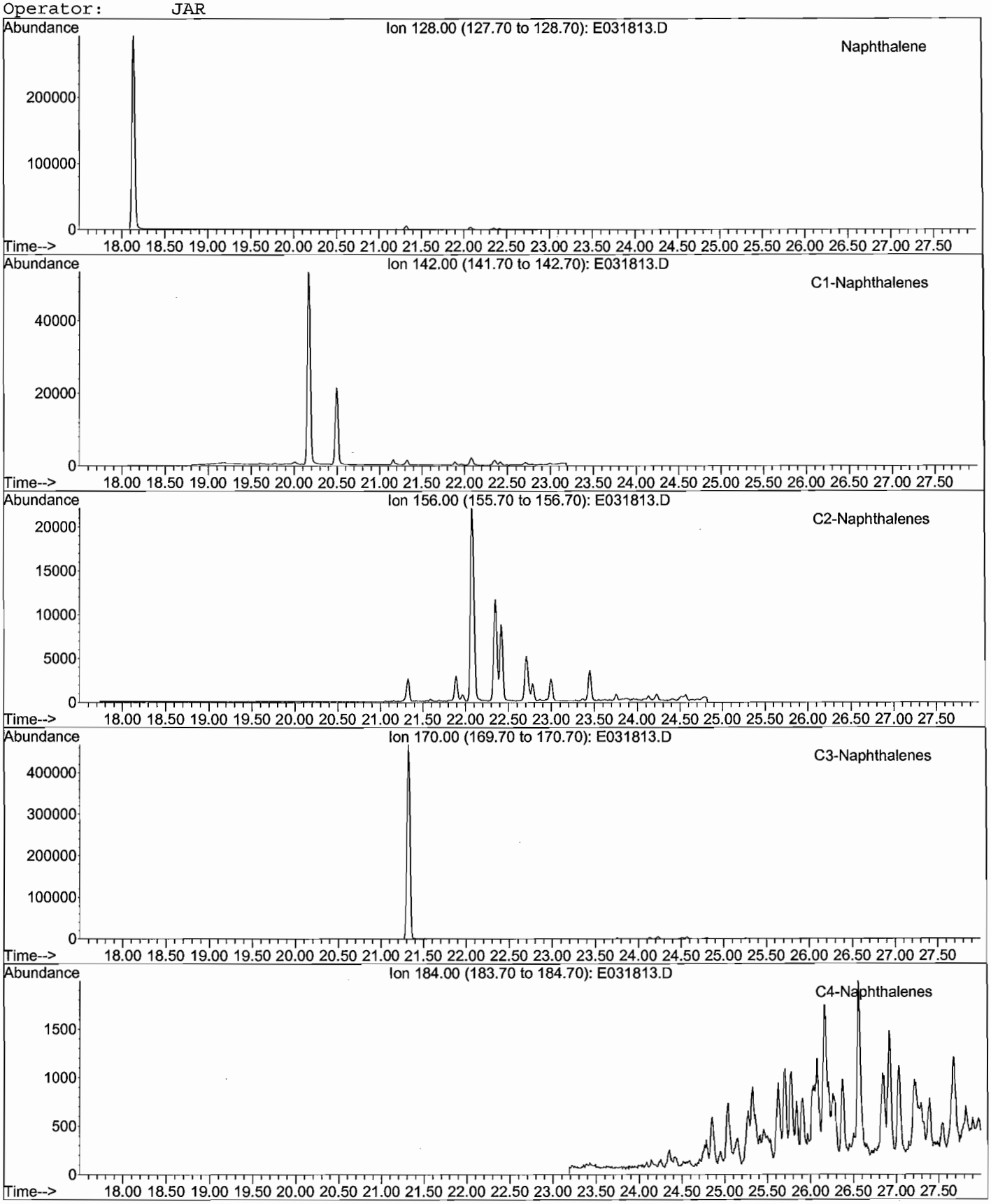

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090318\E031813.D
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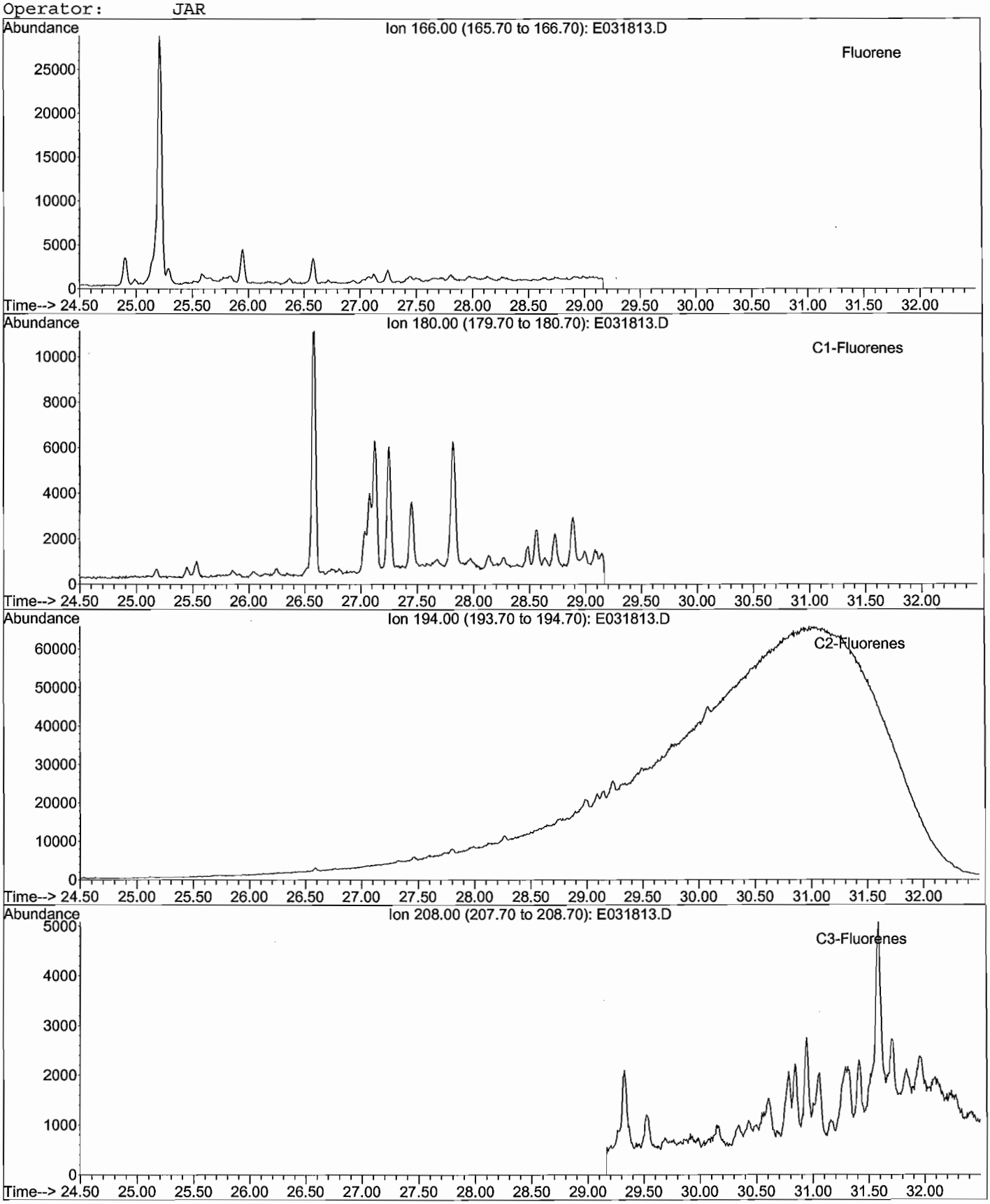

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090318\E031813.D
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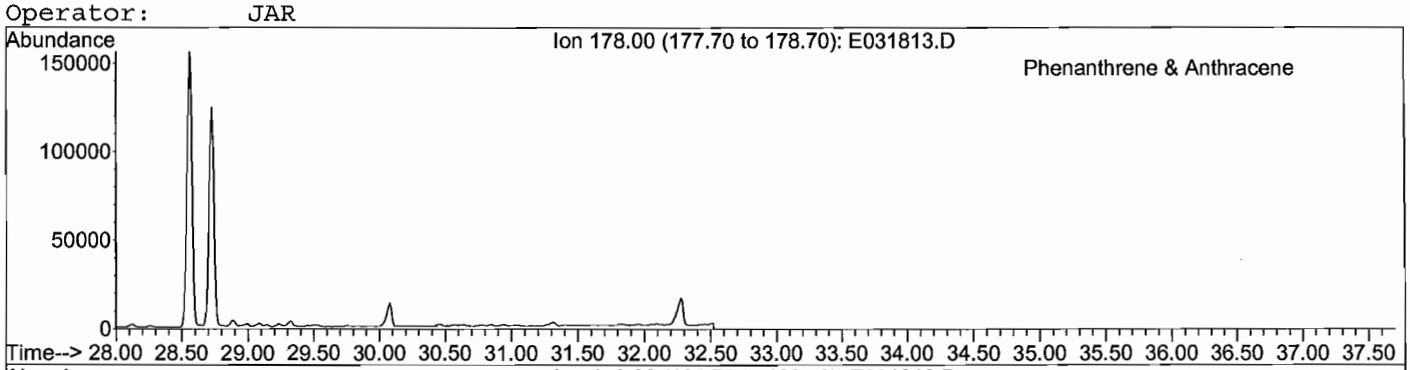

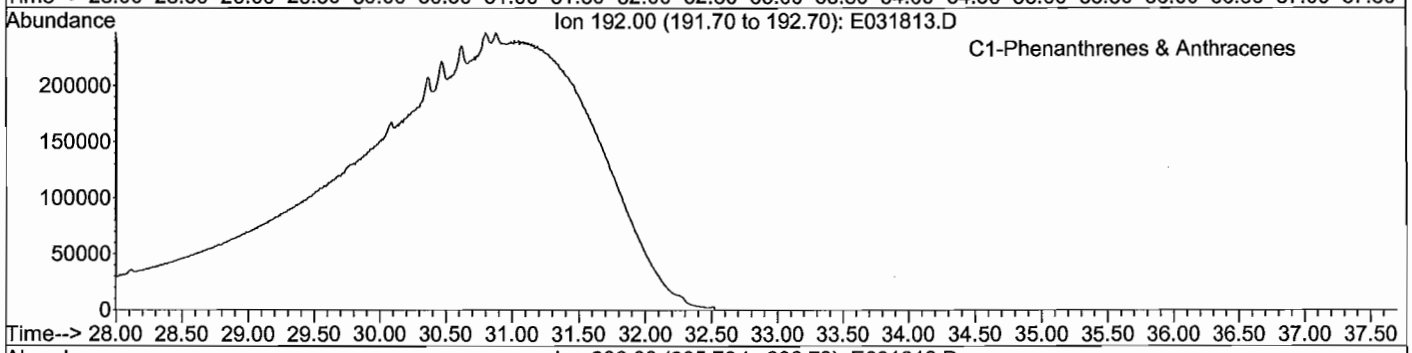

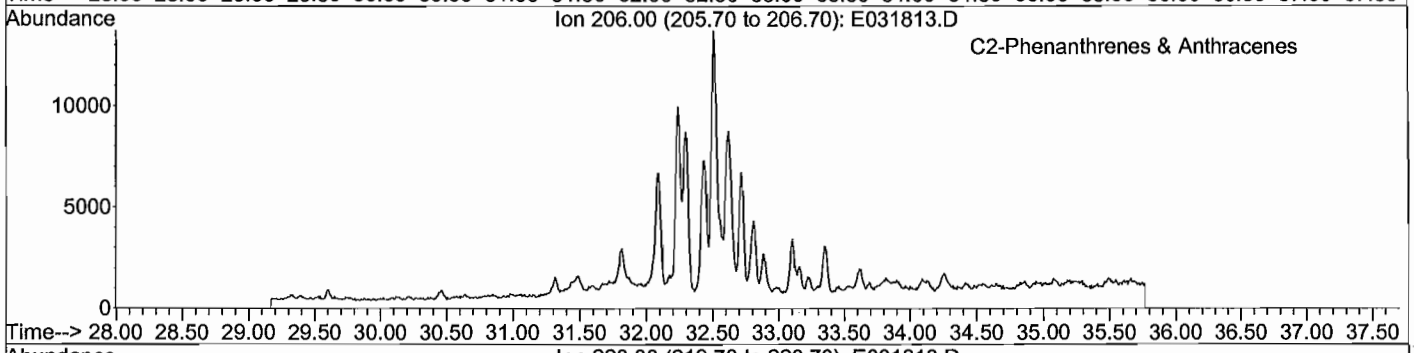

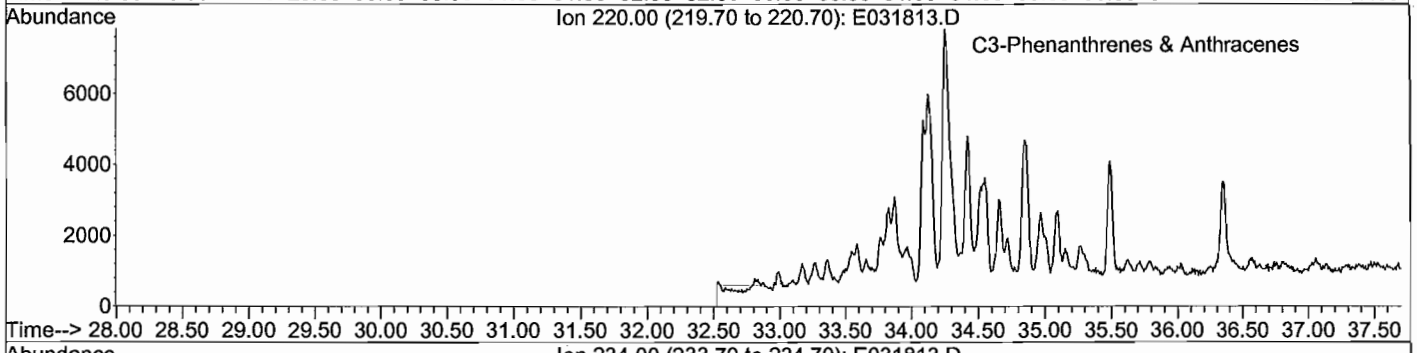

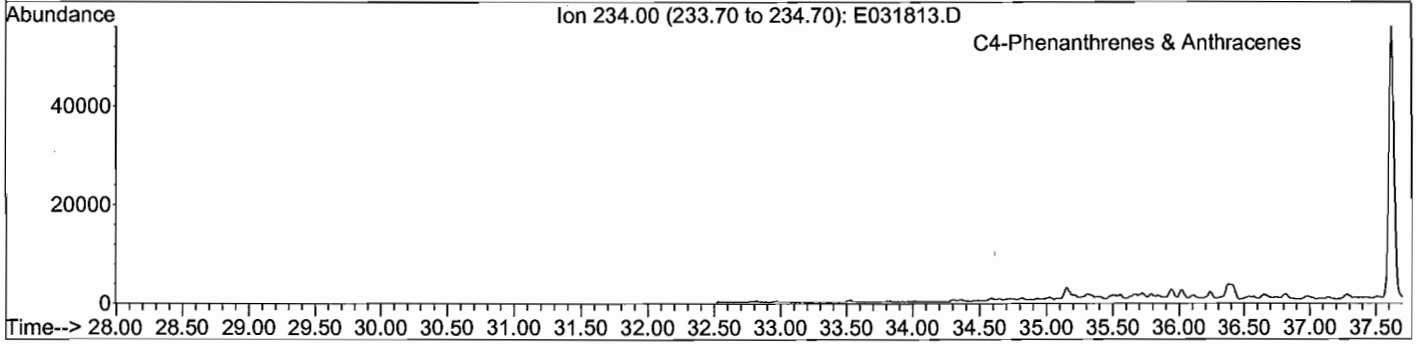

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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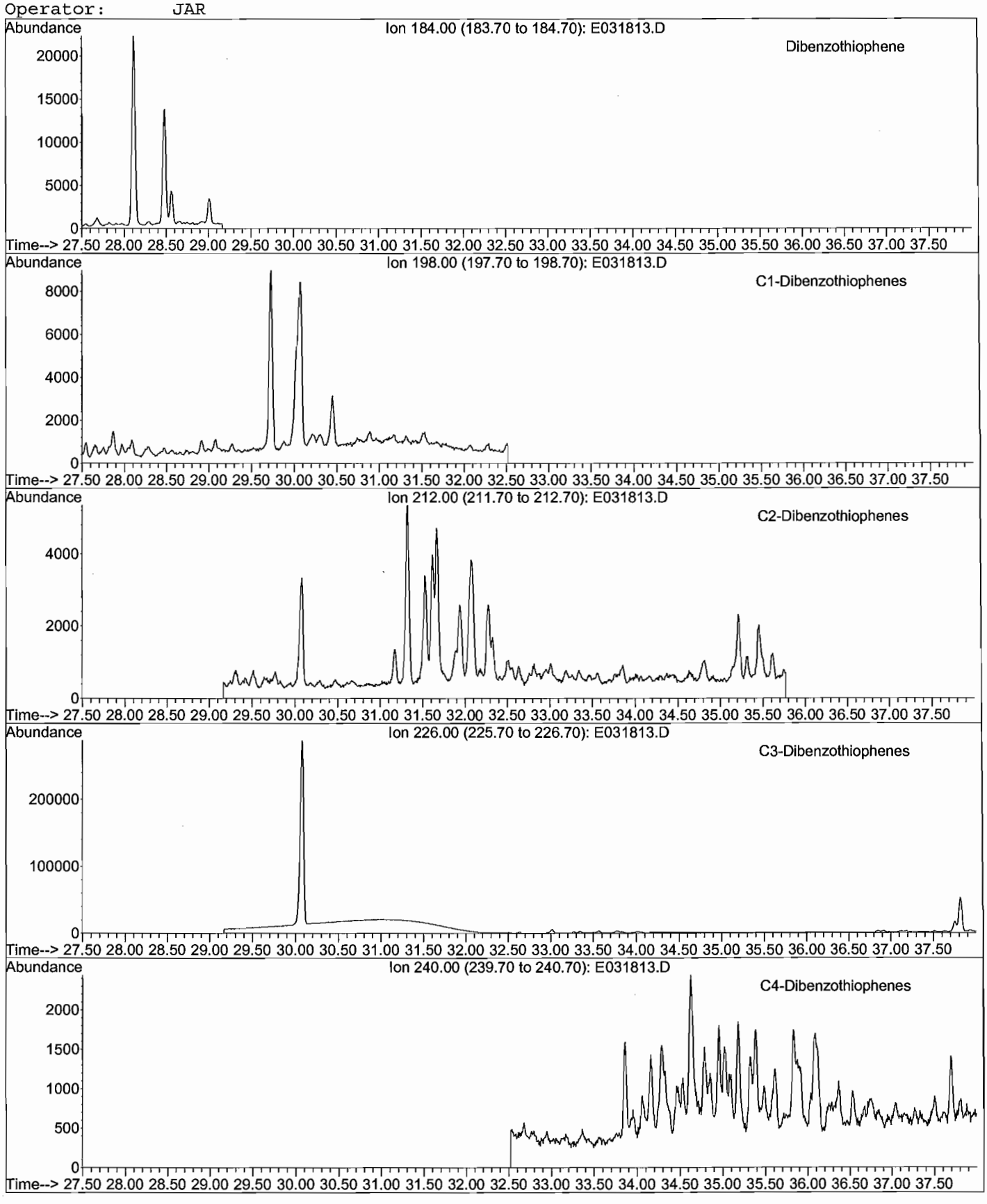

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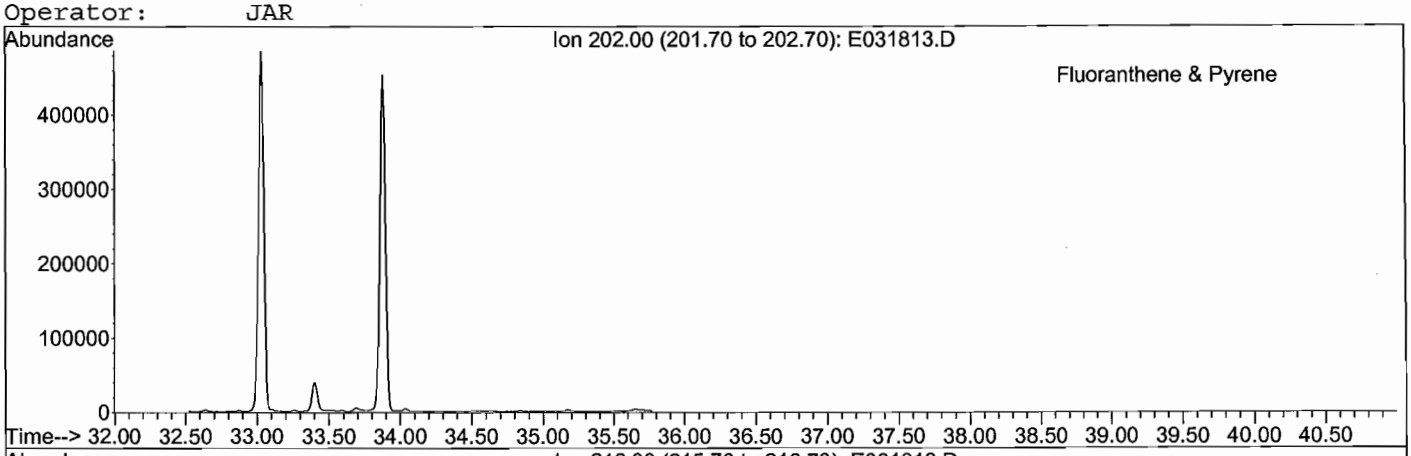

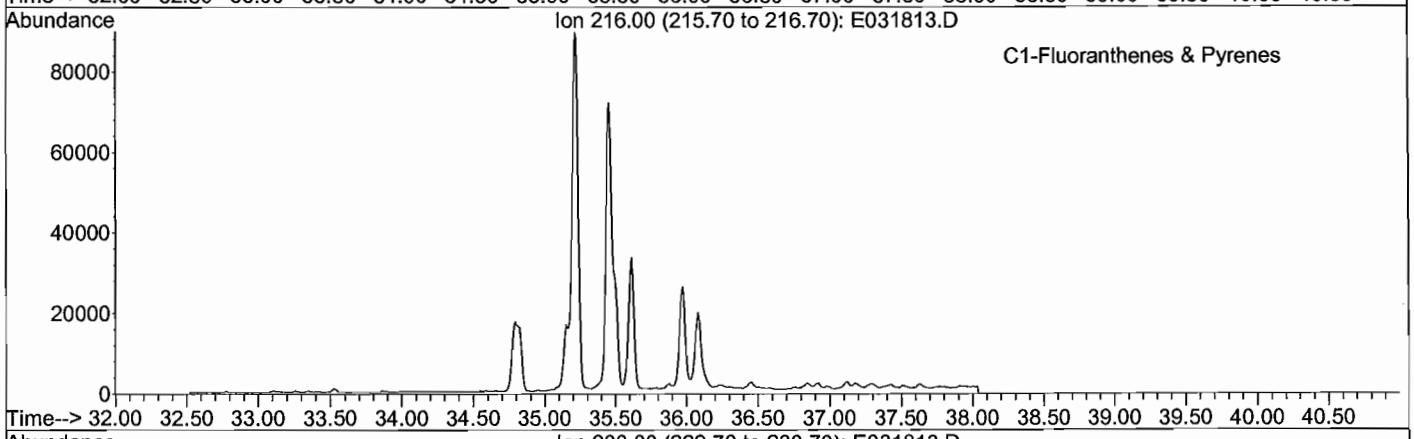

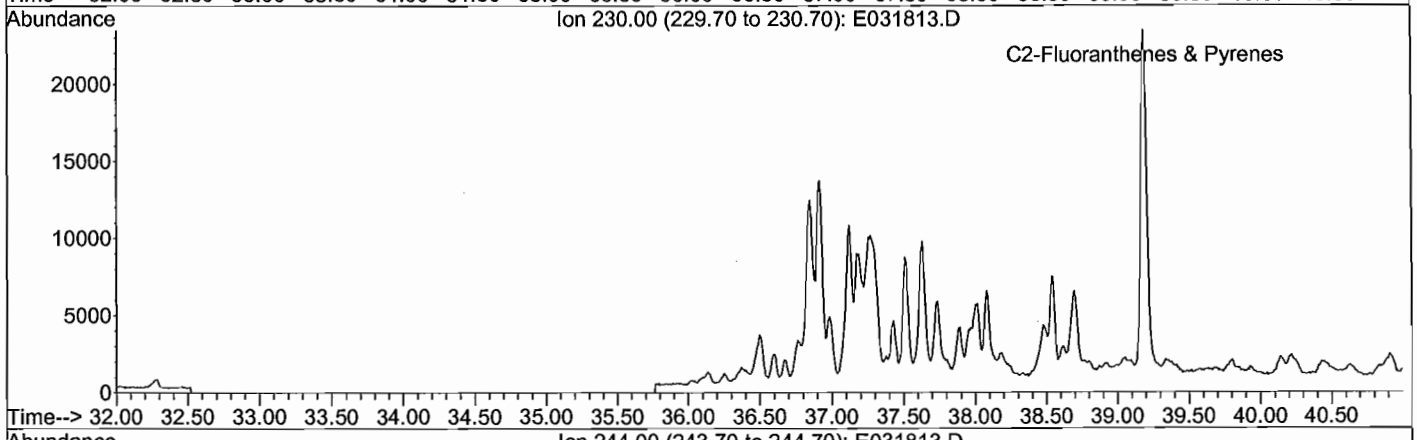

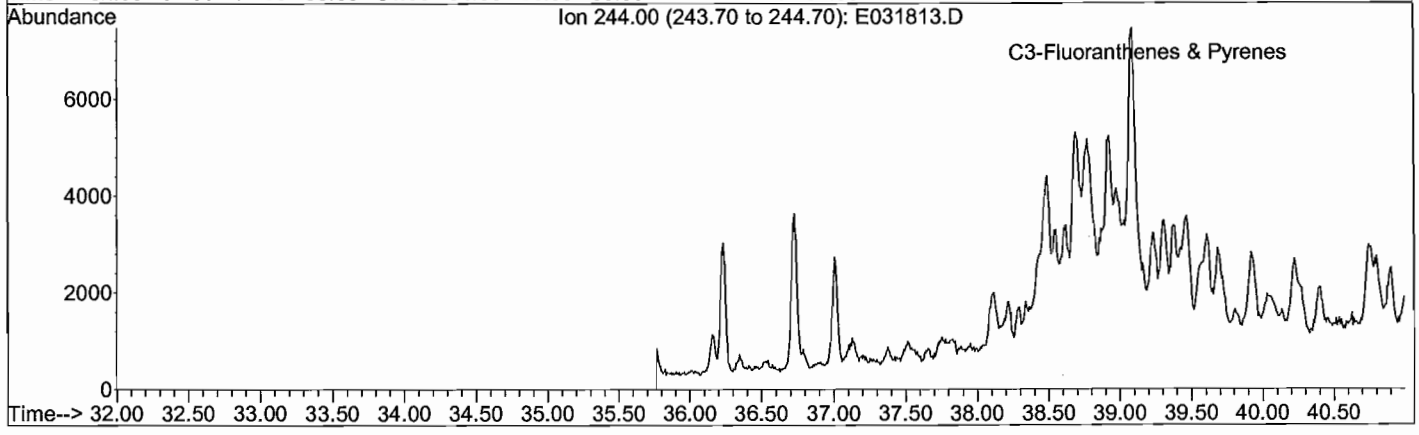

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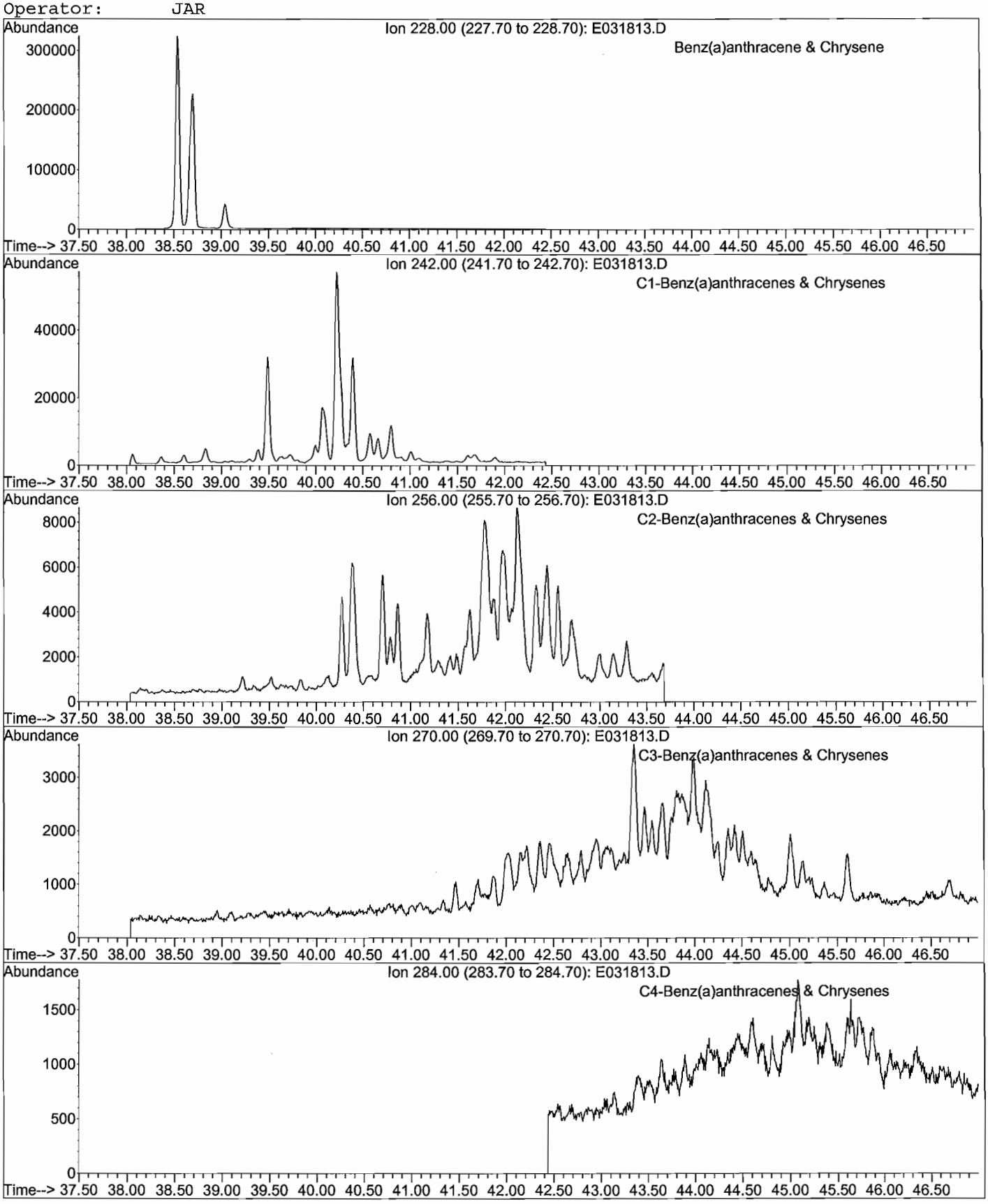

META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E090318\E031813.D
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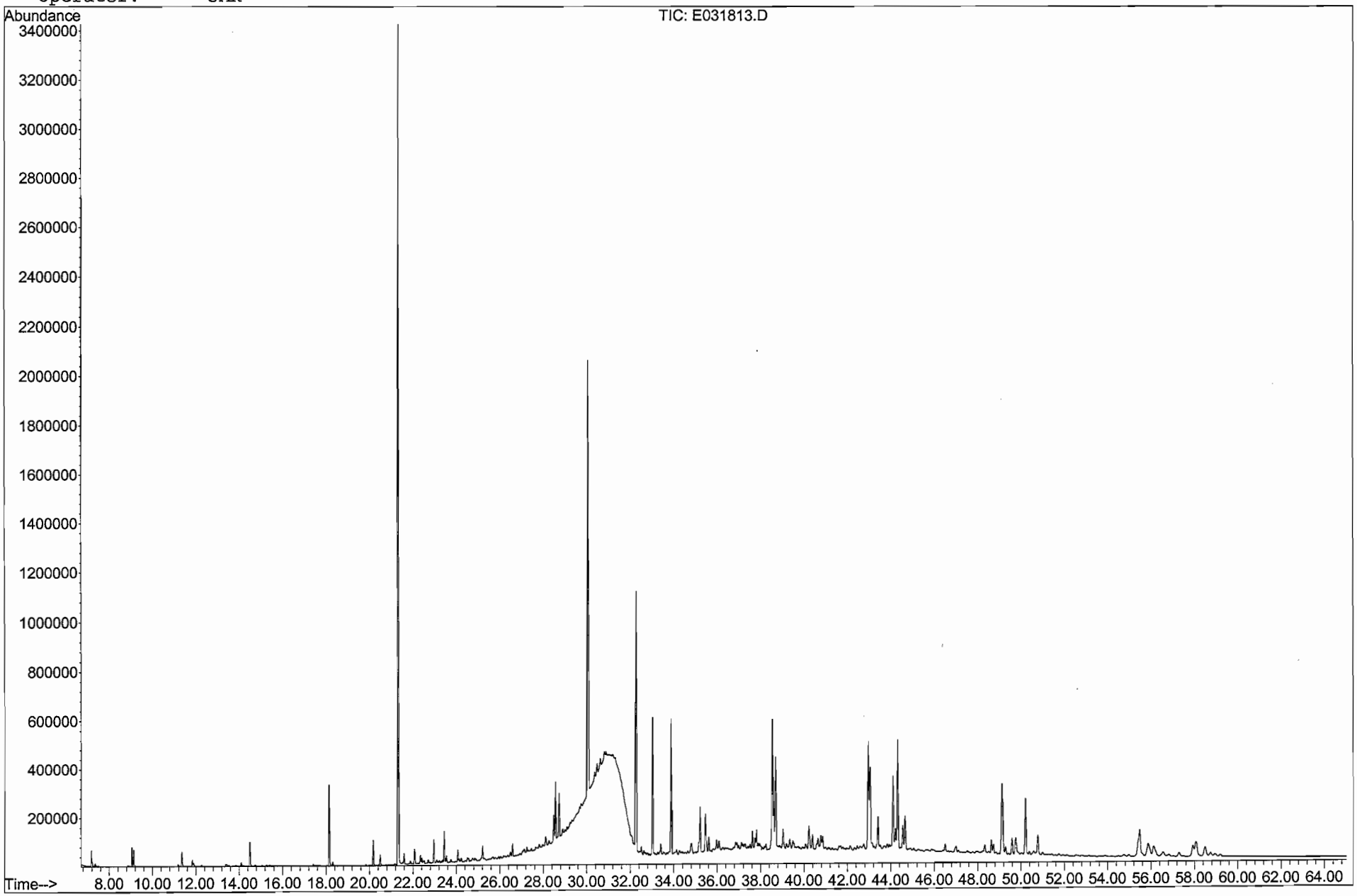

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E090318\E031814.D
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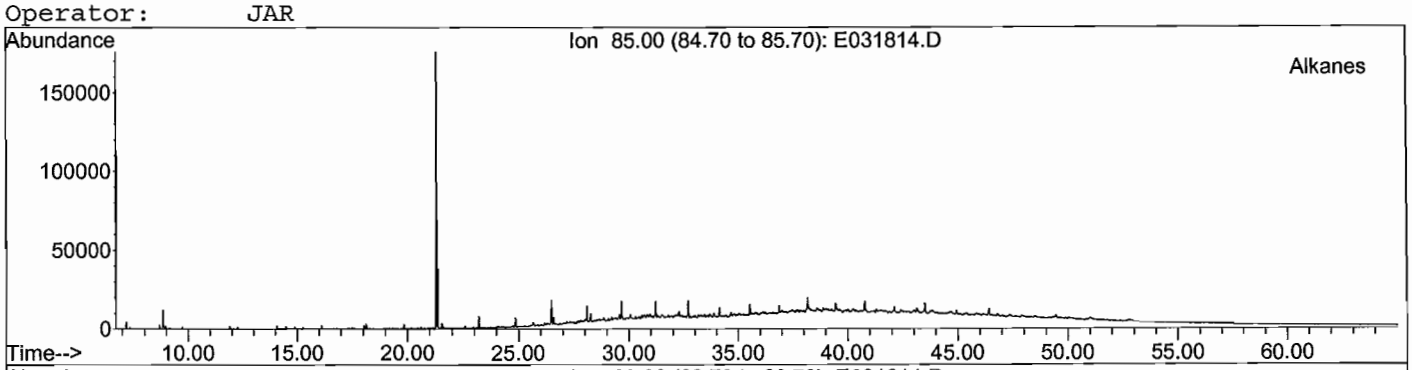
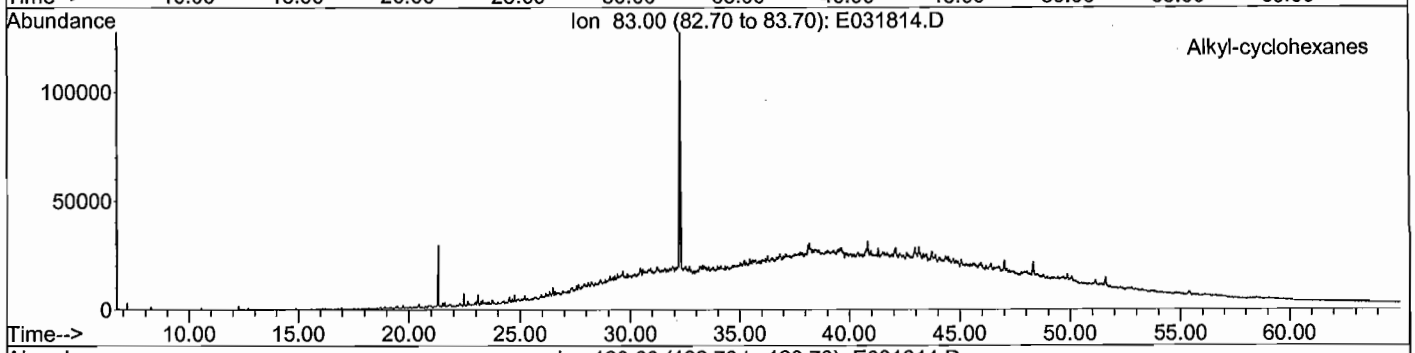
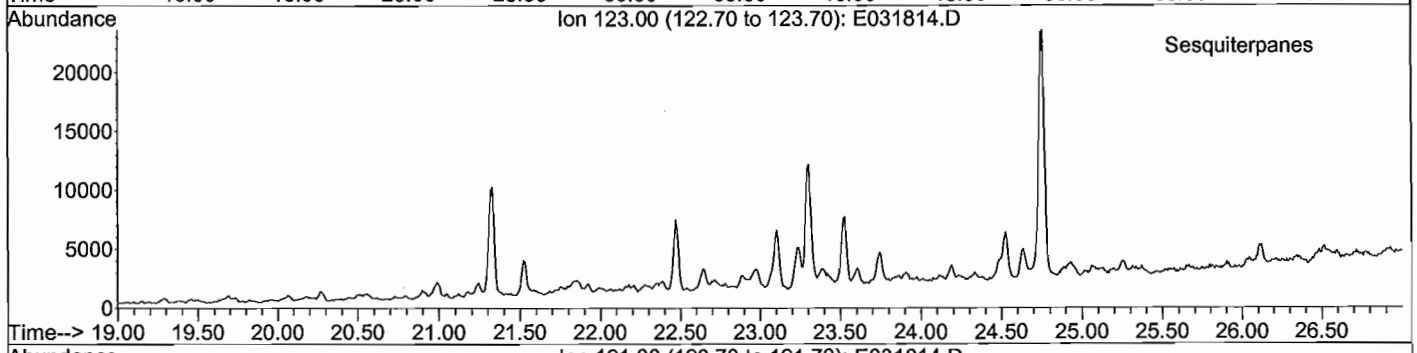
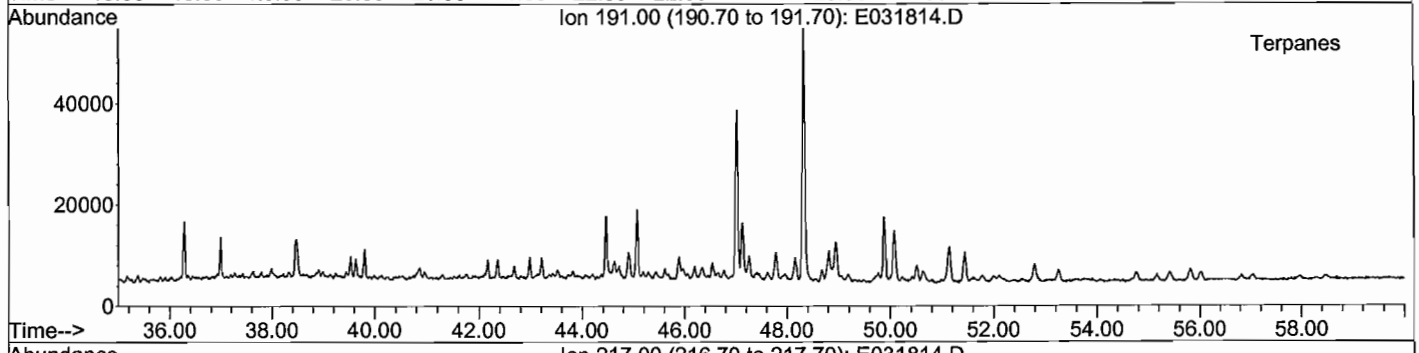
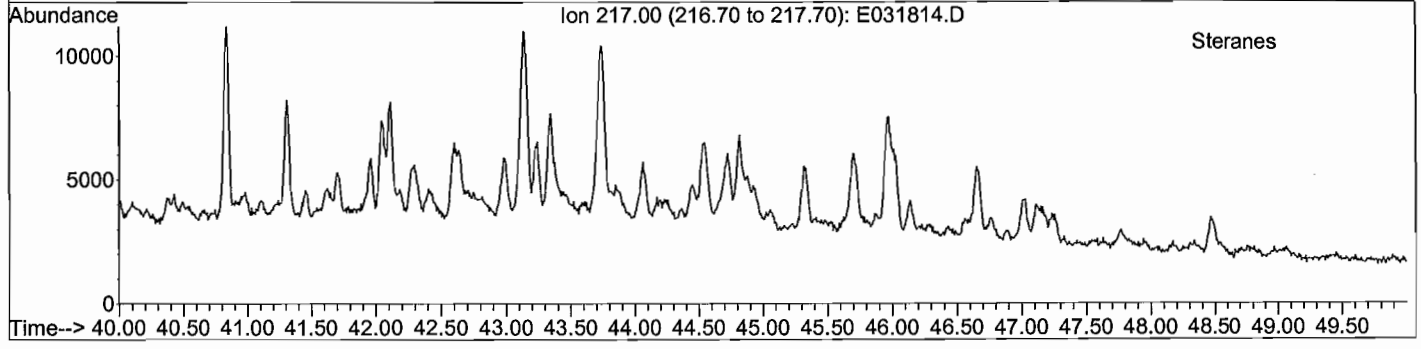
Sample Name: TA090311-02
Misc Info: BH-SED-17-0
Operator: JAR











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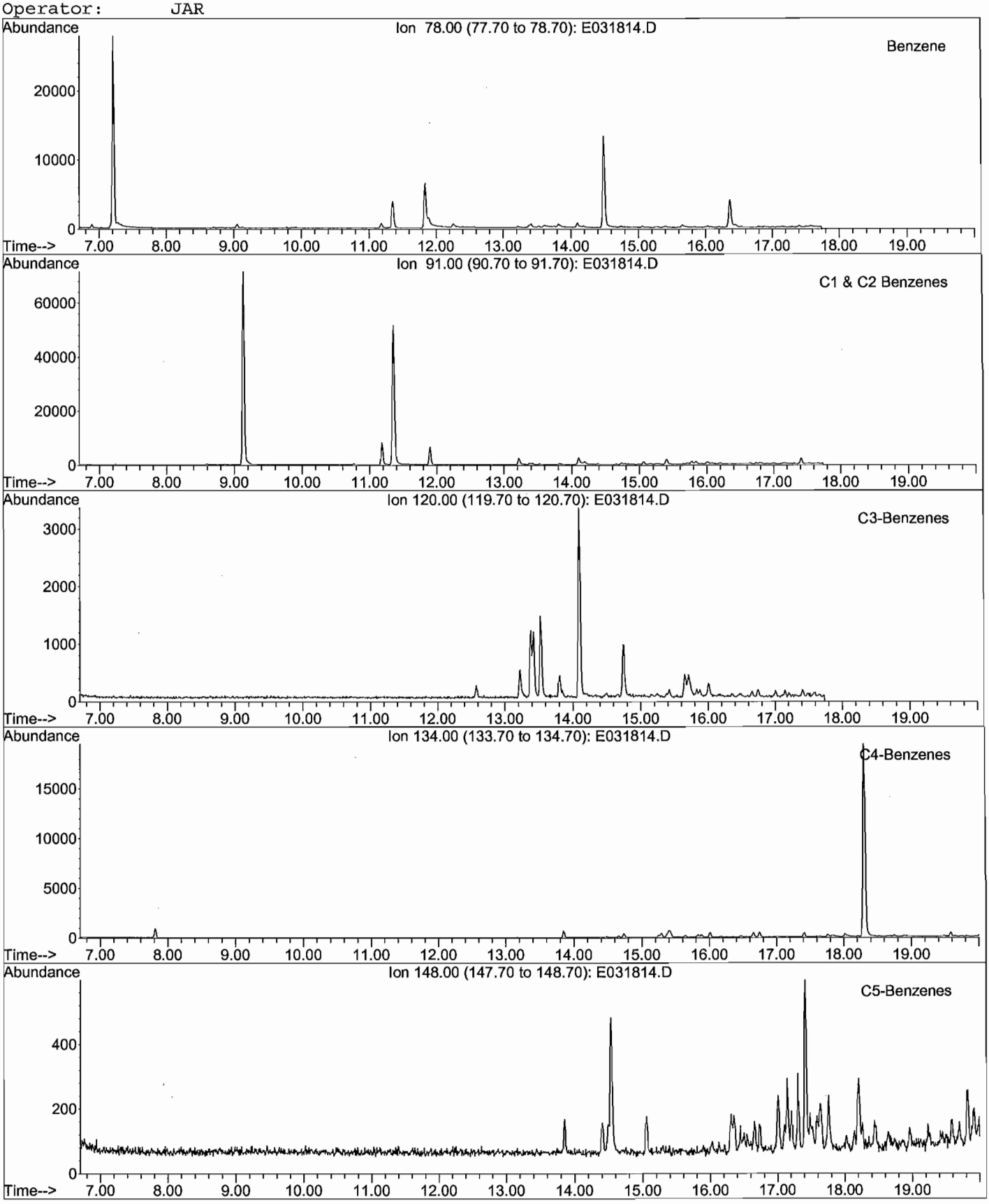

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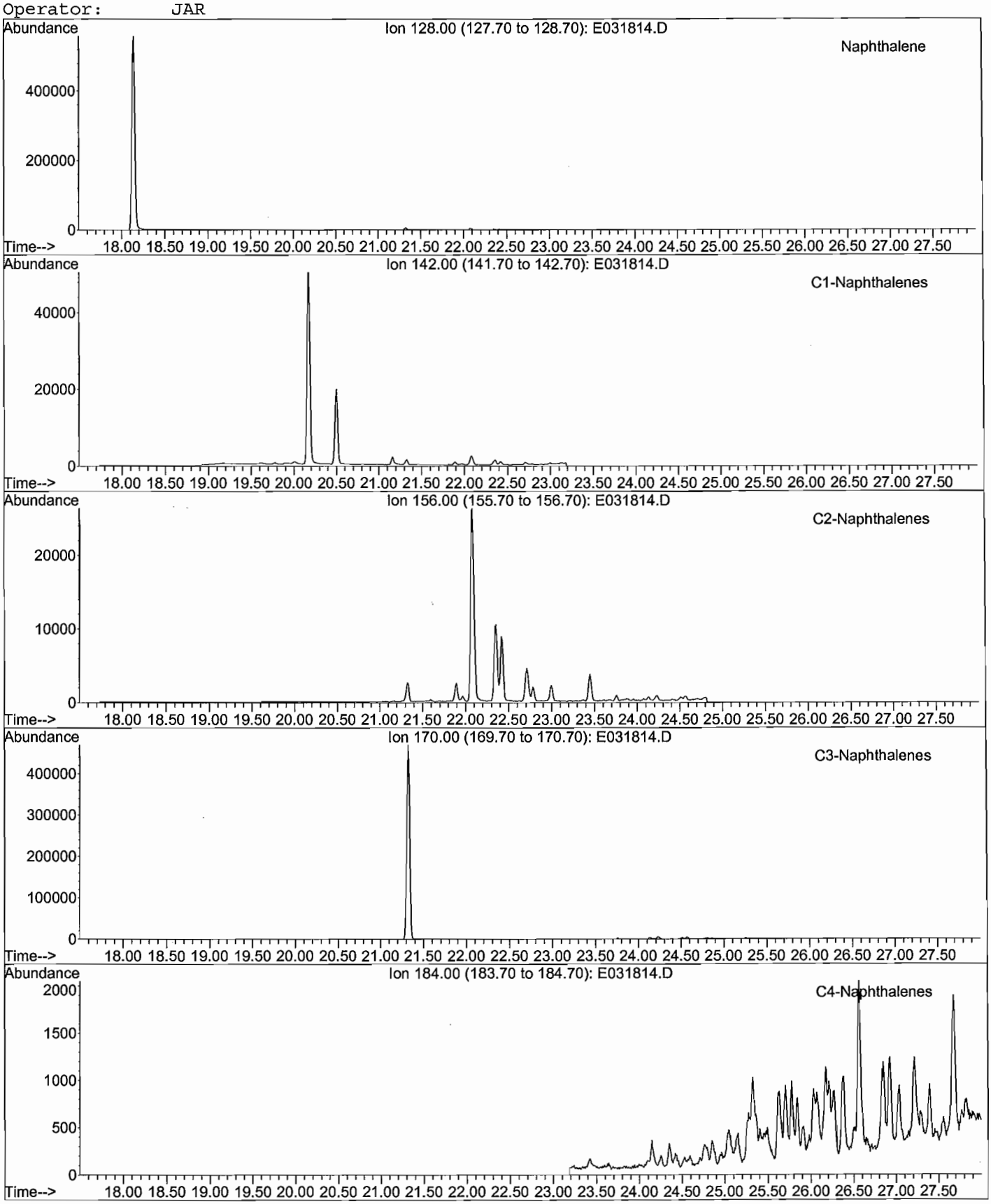

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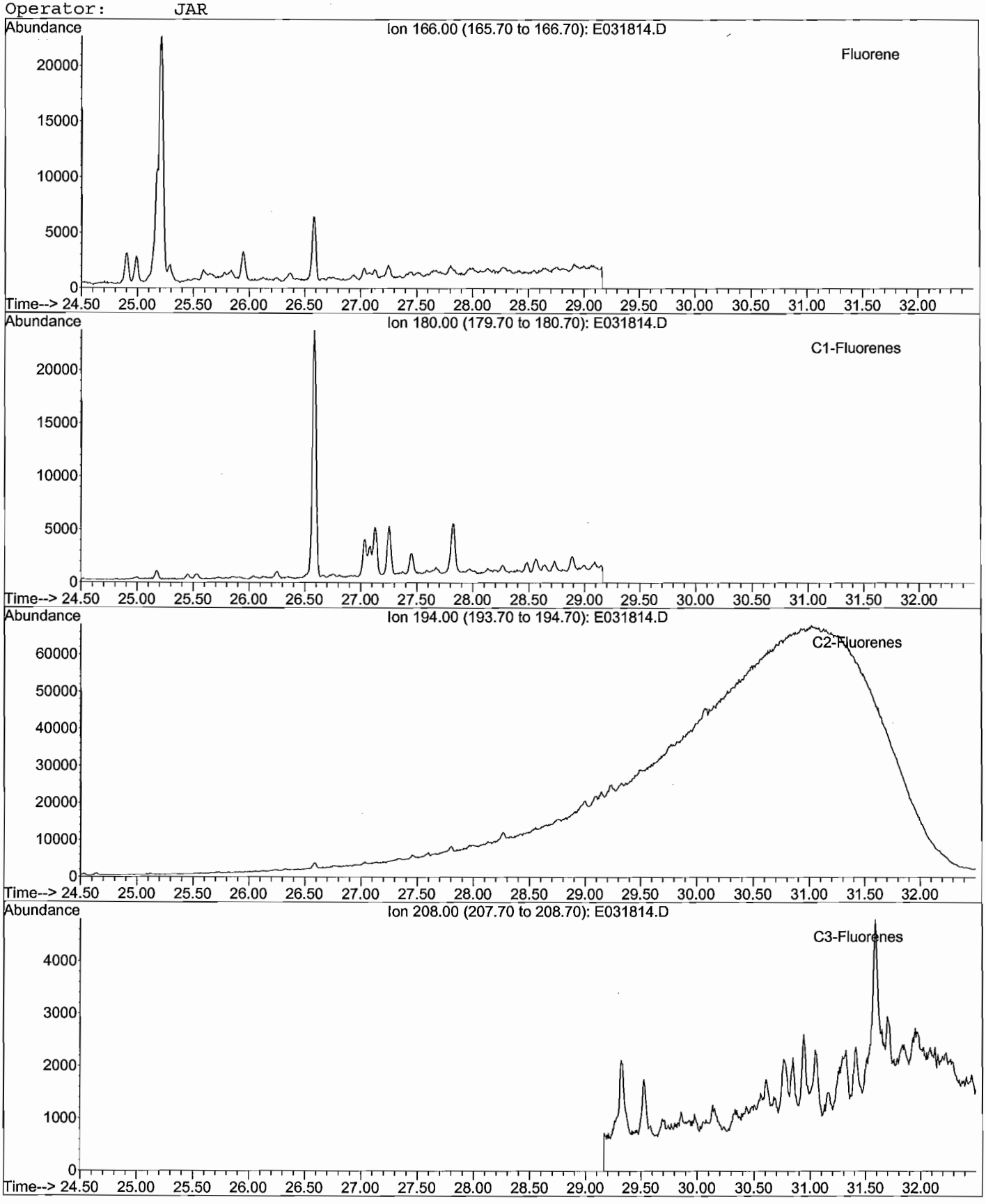

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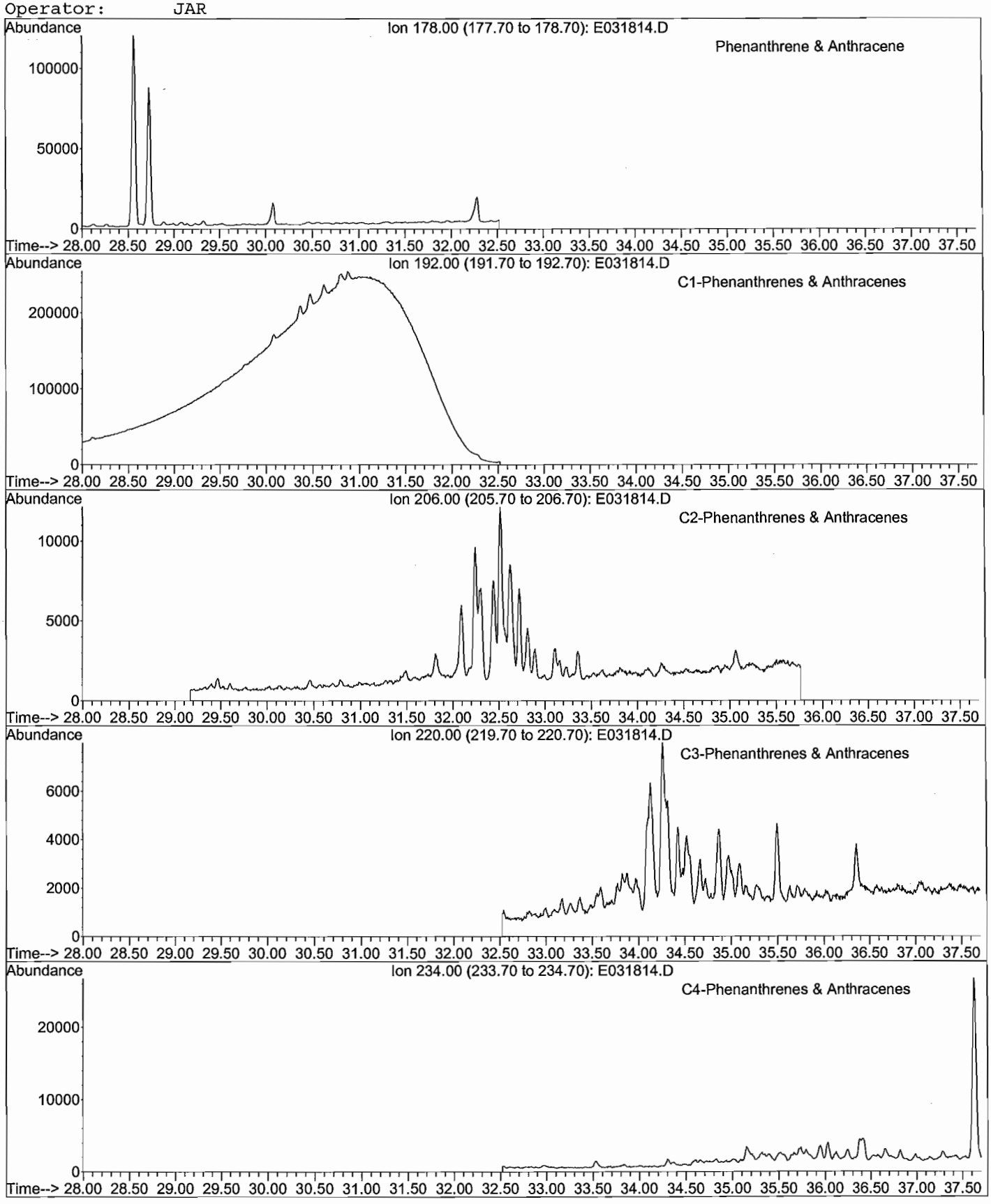
Operator: JAR



META Environmental, Inc.

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Sample Name: TA090311-02
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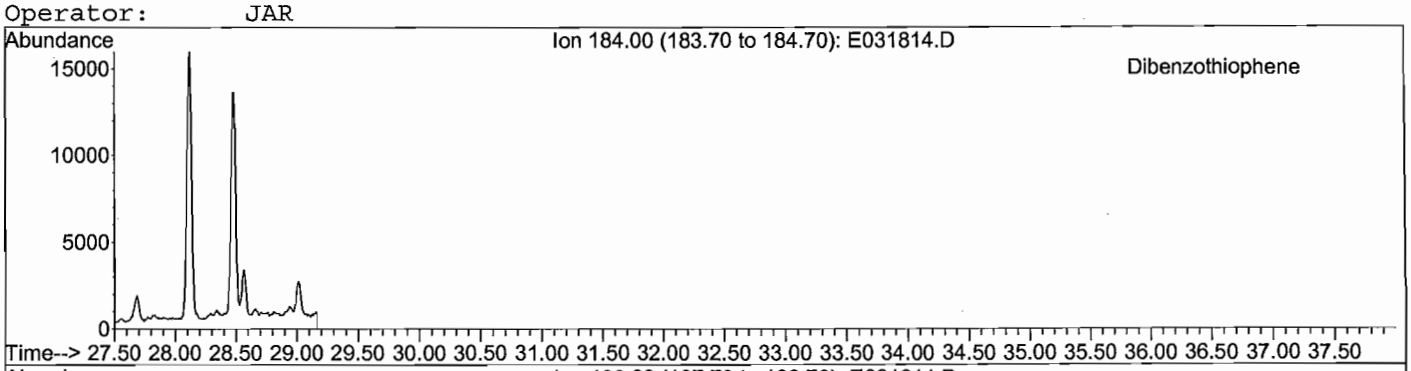

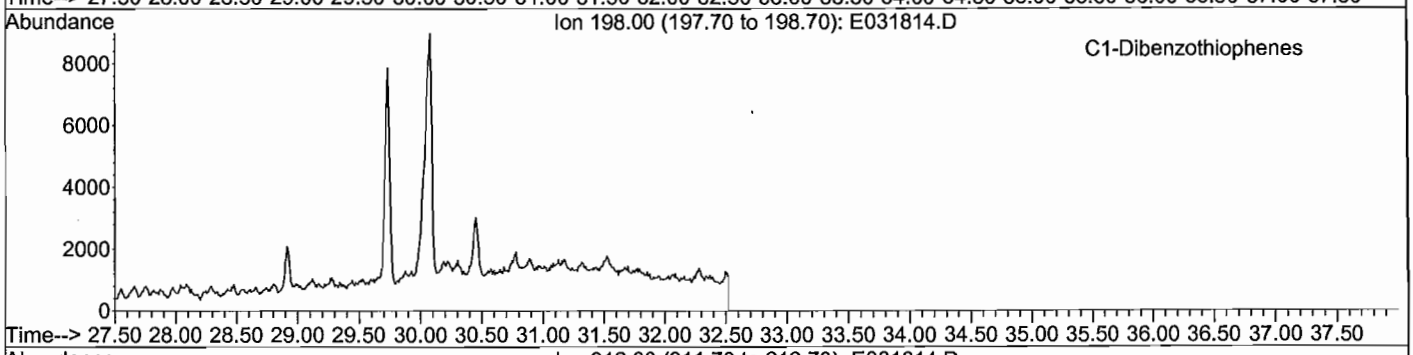

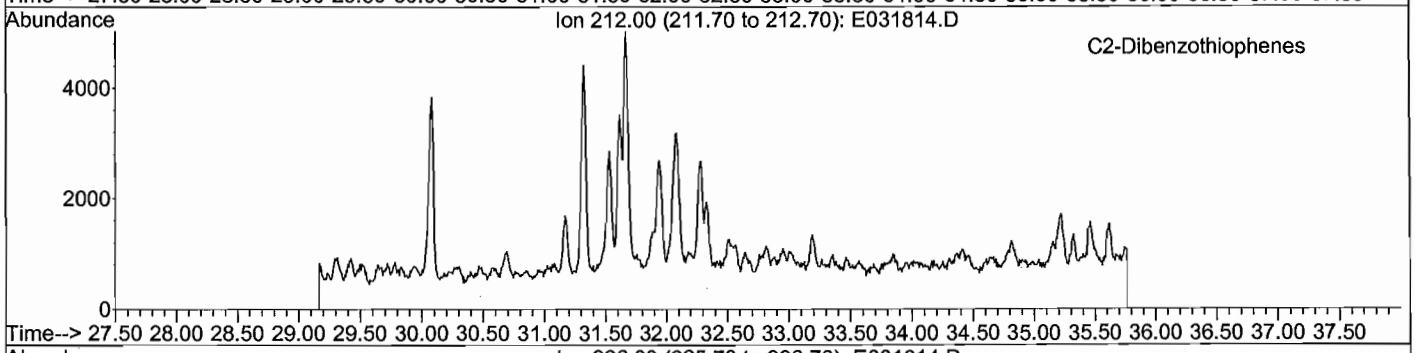

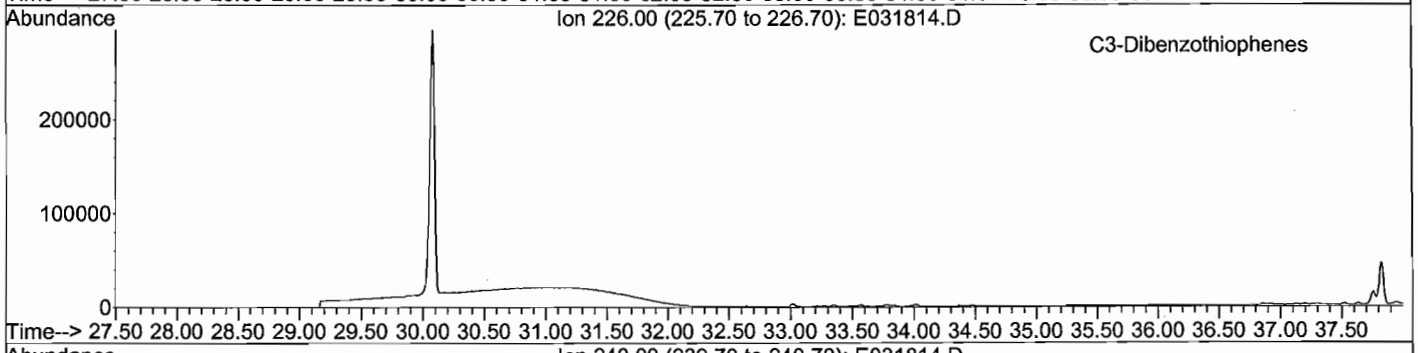

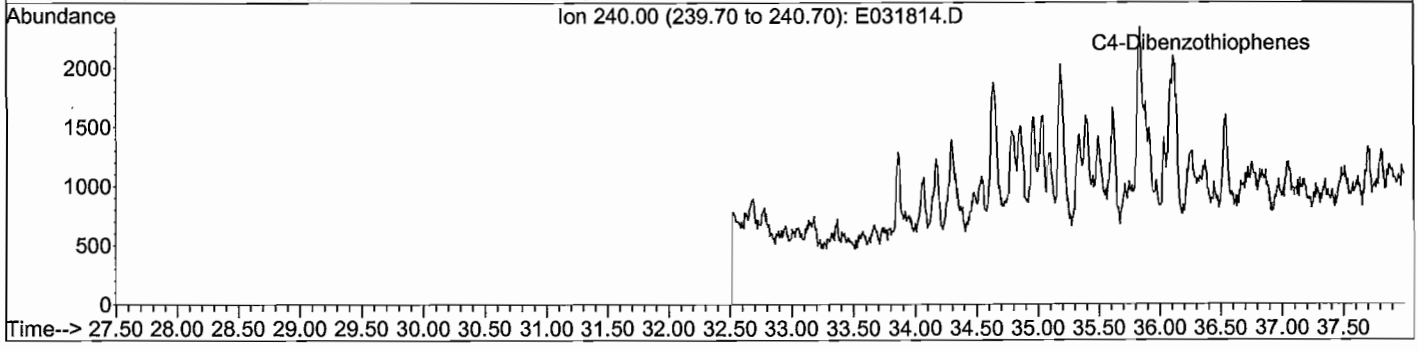

META Environmental, Inc.

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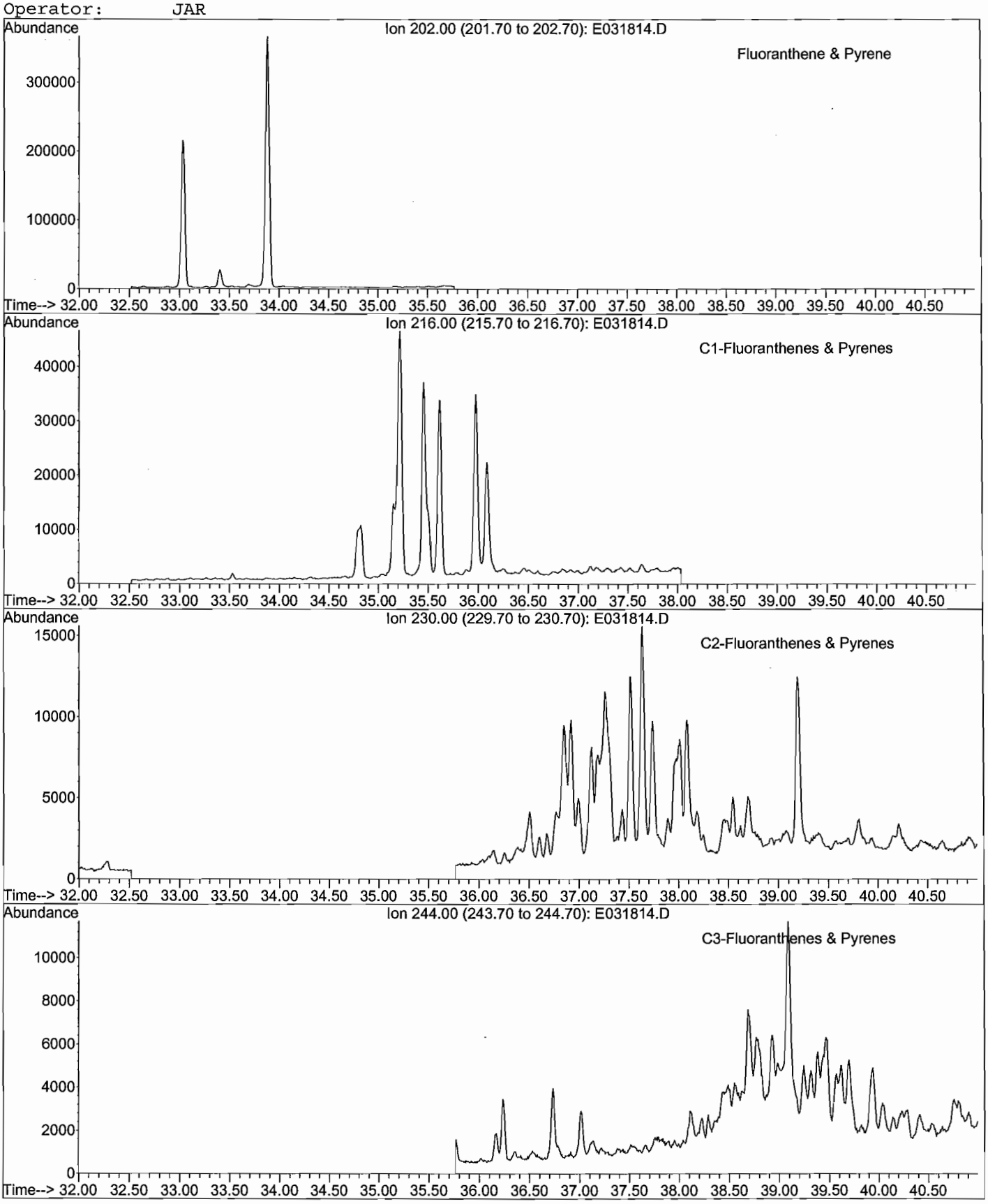

META Environmental, Inc.

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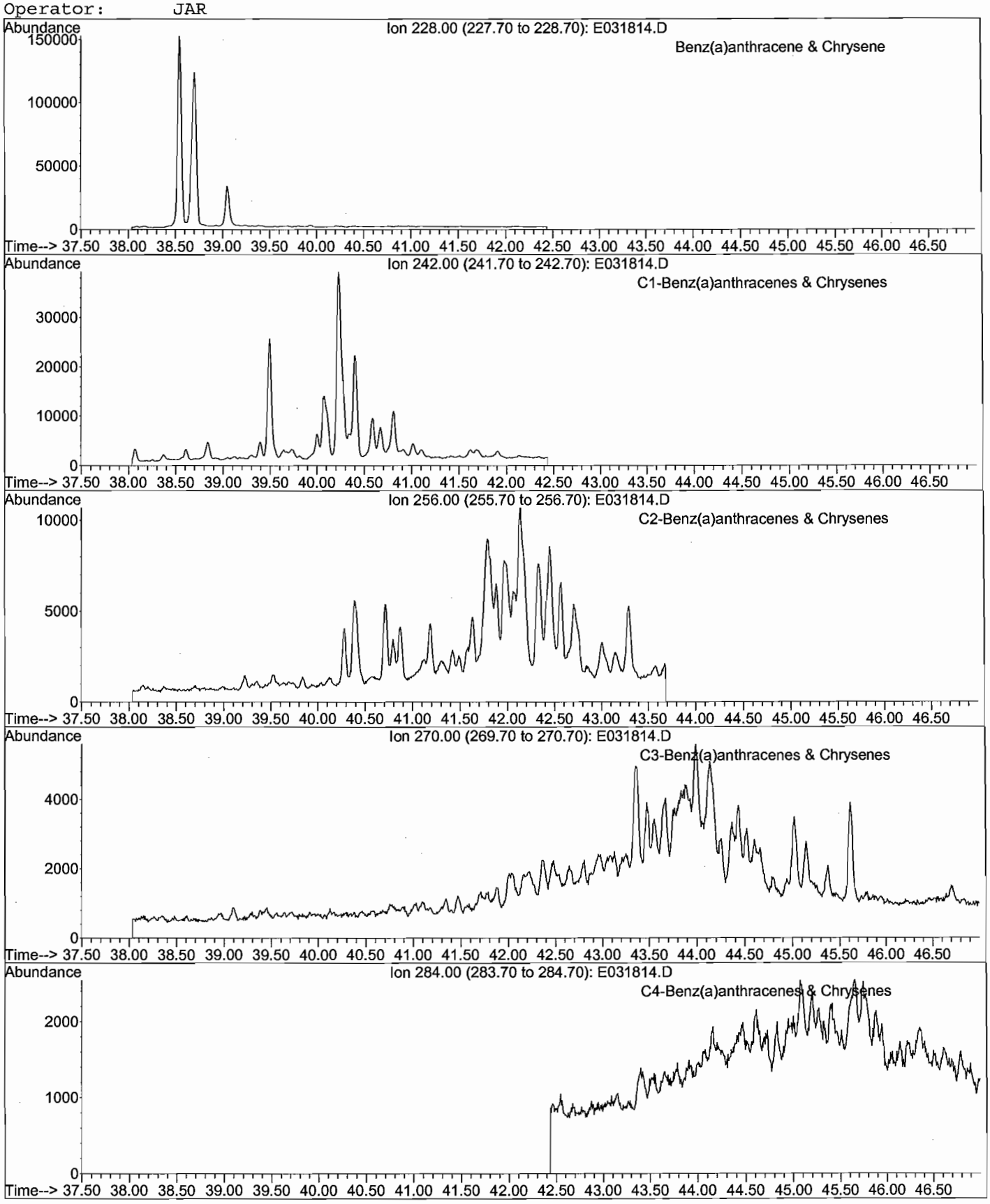

META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

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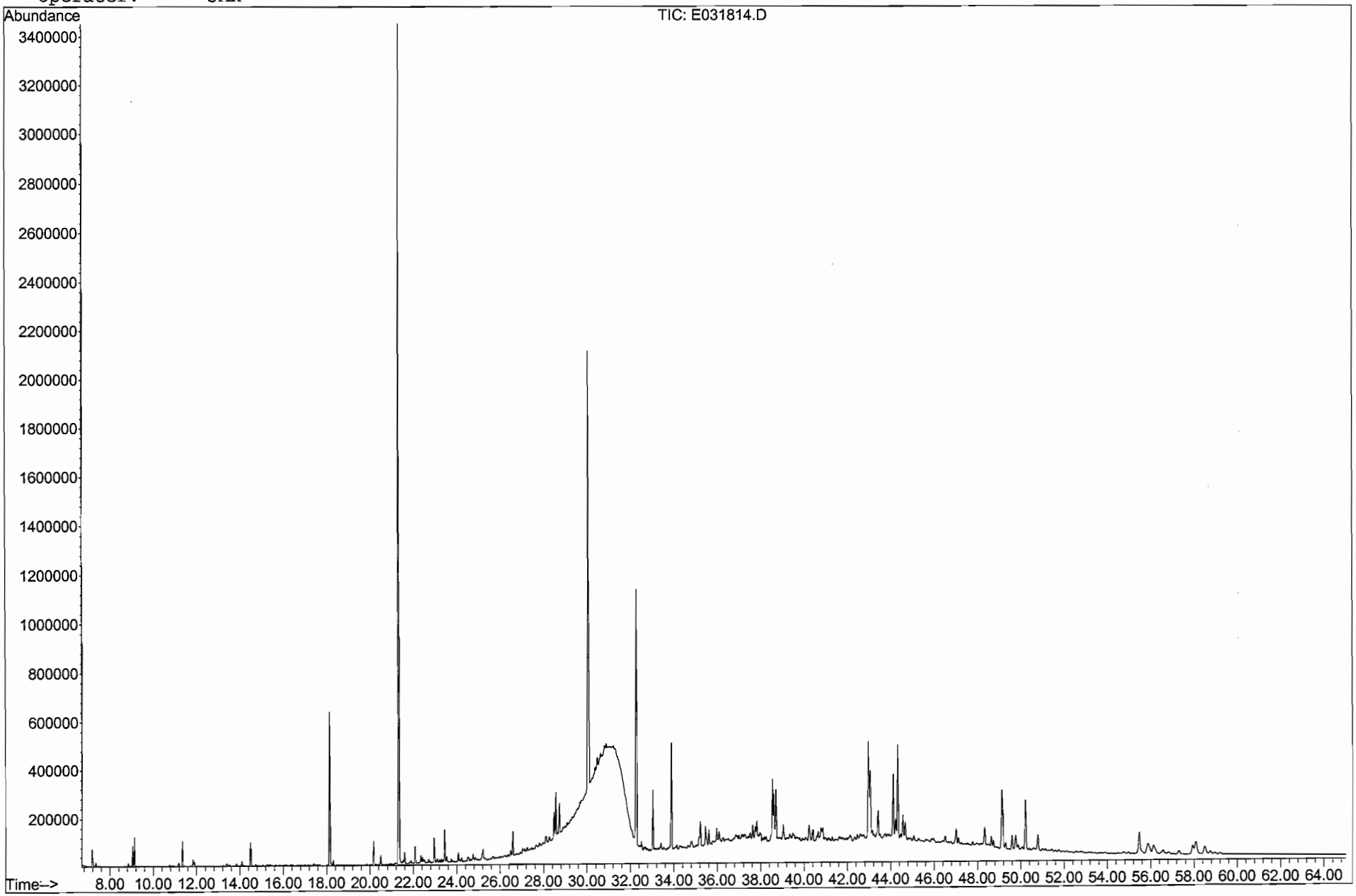

Appendix F

Stable Carbon Compound-Specific Isotope Ratio (CSIRs) Results

META Environmental, Inc.

Stable Carbon Compound Specific Isotope Ratios of PAHs (‰)

Lab ID:	TA090211-01	TA090211-02	TA090226-01	TA090226-02	TA090305-01	TA090305-02	TA090311-01	TA090311-02
Field ID:	BH-SED-03A-00	Reference	BH-SED-10-2	BH-SED-03A-12	BH-SED-13C-6	BH-SED-05-4	BH-SED-03E-2	BH-SED-17-0
PAH Compounds								
Naphthalene	-25.5		-24.5	-25.0	-24.5	-24.4	-25.0	-24.7
2-MethylNaphthalene	-23.7			-23.5	-23.4	-23.5		
1-MethylNaphthalene	-24.3			-24.1		-23.3		
Acenaphthylene	-21.8					-23.8		
Acenaphthene	-23.2				-23.1	-23.4		
Dibenzofuran	-21.8				-21.9	-22.7		
Fluorene	-23.0		-24.2		-24.2	-23.6		
Phenanthrene	-24.3		-24.4	-27.0	-24.6	-24.3	-25.8	
Anthracene	-23.7		-23.6		-24.1	-23.9		
Fluoranthene	-24.5		-25.9	-24.6	-24.9	-24.8	-26.3	
Pyrene	-24.3		-26.1	-24.8	-24.5	-24.7	-25.1	-25.1
Benz[a]anthracene	-23.6		-23.9	-30.5	-23.7	-24.1	-24.6	
Chrysene	-25.2		-25.0		-25.4	-25.6	-26.4	
Benzo[b/k]fluoranthene	-25.0		-28.6		-25.0	-24.3	-24.6	-26.0
Benzo[a]pyrene	-24.9		-24.5		-24.8	-25.3	-25.5	-26.4
Indeno[1,2,3-cd]pyrene & Dibenz[a,h]anthracene	-28.1				-26.0			
Benzo[g,h,i]perylene	-25.0							
Standards								
9D	-31.5	-31.5	-31.7	-31.4	-32.0	-31.3	-31.3	-31.5
10D	-32.6	-32.9	-32.5	-32.9	-32.8	-33.0	-32.9	-33.1
16D	-30.4	-30.8	-30.2	-30.6	-30.8	-30.6	-30.5	-30.3
19D	-27.5	-27.7	-27.2	-27.6	-27.6	-27.7	-27.5	-27.3
24D	-26.3	-26.9	-26.7	-26.8	-26.9	-26.7	-26.5	-27.0
32D	-29.5	-29.6	-29.8	-29.7	-29.8	-29.8	-29.9	-30.4

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Stable Carbon Compound Specific Isotope Ratios of PAHs (‰)