CITGO PETROLEUM CORPORATION
LAKE CHARLES REFINERY

RESULTS OF SEDIMENT SAMPLING AND ANALYSIS FOR THE INDIAN MARAIS

AUGUST 2013

C-K Associates' Project No. 7966

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1.0 INTRODUCTION

C-K Associates, LLC (C-K) was retained by CITGO Lake Charles Refinery (CITGO), to characterize the sediments in the Indian Marais Bayou (Indian Marais) through a sampling and analysis program. C-K teamed with TEA, Inc. to support the data evaluation process and with TerraBase, Inc. to support data management and provide data validation.

The sediment sampling and analysis was performed in accordance with a Sampling and Analysis Plan dated March 2013. Sediment samples were collected on March 26, 2013. **Figures 1** and **2** depict the sampling locations for the Indian Marais.

2.0 GENERAL SITE INFORMATION

General information regarding the site, including background and site description, is presented below.

2.1 Background

A release of oil and untreated water from CITGO's storm water storage units occurred after a series of heavy rain events in June 2006. Sediment sampling for the Indian Marais has been ordered by the U.S. District Court for the Western District of Louisiana (Court) to determine if there are any lingering effects from the June 2006 release.

C-K evaluated the best approach to meet the request of the Court. The selected approach met the following two objectives:

1. Identify a recognized framework that contains an appropriate basis to evaluate sediments; and
2. Provide the means to measure key parameters in the Indian Marais and conclude if there are residual effects.

In order to meet these two objectives, the approach included the collection of sediment samples for polycyclic aromatic hydrocarbons (PAHs) chemical analysis and the evaluation of the PAH data reported by the analytical laboratory.

2.2 Site Description

The Indian Marais is a drainage feature that originates inside the fences of an existing petrochemical facility approximately two and 1/2 miles west of the Calcasieu River and flows east through a portion of the CITGO facility before emptying into the Calcasieu River. The Indian Marais is a natural drainage feature with intermittent flow in its upper reaches. It receives significant runoff from facilities and developed areas upstream of the CITGO facility. Various segments of the Indian Marais have been subject to rerouting a number of times since the early 1940's.

Soils information from the United States Department of Agriculture Natural Resources Conservation Service shows that the drainage way and adjacent land consists of both hydric and non-hydric soils, some of which are covered by asphalt, concrete or other impervious surfaces, or which consist of material that has been excavated from other places during the construction and maintenance of navigable waterways. The drainage traverses a mixture of herbaceous, scrub shrub and forested habitats, as well as developed areas on its way to the Calcasieu River. The upper reaches of the Indian Marais are considered freshwater, but as the Indian Marais approaches the Calcasieu River, it becomes tidally influenced and exhibits brackish characteristics. In 2004, the last half mile (approximately) of the drainage was rerouted into the Calcasieu River. That final section of the drainage is considerably wider than the upper reaches and the last 550 feet of the drainage are lined with bulkhead to its confluence with the Calcasieu River.

3.0 EVALUATION METHODOLOGY

Constituent of concern (COC) selection and data evaluation methodologies are discussed in the following sections.

3.1 COC Selection

PAHs were selected as the most appropriate set of analytes to characterize potential impacts from the 2006 release. PAHs are widespread within the environment from both natural and anthropogenic sources, and are a confirmed constituent in crude oil and processed fossil fuels. PAHs have relatively low solubilities in water, and thus occur in the environment primarily in soil, sediment and oily substances. PAHs are fairly persistent, and less susceptible to the degradation processes that affect crude oil and processed fuel hydrocarbons. Also, PAHs are considered to reflect a conservative measure of the potential risks resulting from oil spills.

The nature of the release, above characteristics for PAHs and the established Texas Ecological Benchmarks for PAHs are the bases to utilize PAHs as an indicator to determine if residual effects exist in the Indian Marais from the 2006 release.

3.2 TCEQ Ecological Benchmarks for Sediment

The State of Louisiana has not published formal standards for the assessment of sediments in the state. Accordingly, C-K looked to assessment frameworks developed by other states and identified the Texas Commission on Environmental Quality's ("TCEQ") Ecological Benchmarks for Sediment as an appropriate set of screening standards by which to conservatively assess the potential for ecological risk from sediments in the Indian Marais. The Ecological Benchmarks for Sediment are provided as **Appendix A**. The Texas Ecological Benchmarks were updated in January 2006 and reflect recognized standards for evaluating whether

the detected concentration of a chemical of concern may potentially pose an ecological risk. Further, the Texas Ecological Benchmarks have the advantage of frequently being applied in Gulf Coast environments similar to the environment in Lake Charles, Louisiana. Importantly, the benchmarks are not intended to be used as triggers for remediation or as cleanup goals. Rather if detected media concentrations are less than the benchmark levels, then the respective chemical should be excluded from further consideration of potential to present an ecologic risk.

3.3 Data Evaluation Methodologies

The laboratory-reported sediment data from the March 2013 sampling event was evaluated primarily from 1) a spatial standpoint (sample locations upstream and downstream of the 2006 release point) and 2) through comparison to TCEQ Ecological Benchmarks for Sediment. Other evaluations include: a qualitative analysis comparing bar charts of three data sets - the March 2013 data, data from released material sampled in June 2006, and data from a sediment sample collected from the Calcasieu River at the mouth of Indian Marais; a discussion regarding other likely sources of PAHs; and a discussion of results of sediment toxicity testing conducted shortly after the 2006 release.

Spatial Evaluation

Evaluation of PAH data upstream versus downstream of the 2006 release allowed a comparison of unimpacted (background) conditions against potentially impacted conditions.

Ecological Benchmark Evaluation

Comparison to the TCEQ Ecological Benchmarks for Sediment (freshwater and marine benchmarks) allowed evaluation against an appropriate set of regulatory criteria to characterize the degree of impact, if any. TCEQ's benchmarks for sediment are intended to be protective of benthic biota, and are based primarily on scientific research regarding consensus-based sediment quality guidelines.

While benchmarks are provided for individual PAH compounds as well as total PAHs, TCEQ guidance emphasizes that the benchmarks for total PAHs are the most relevant for evaluating ecological risk. This is the case because PAHs almost always occur in the environment as mixtures. TCEQ advises that PAHs may be eliminated as ecological risks using the total PAH benchmark even if individual PAH benchmarks are exceeded. When mixtures of PAHs are present, the total risk posed by all PAHs viewed as a whole is a better metric than assessing risk from a single PAH in isolation. As stated in the TCEQ guidance, if the total PAH benchmark is to be used to for screening, it is appropriate to have a value for all thirteen PAH compounds listed in the TCEQ's Table 3-3 (included as **Appendix A** in this document). The analytical data from the sample analyses does indeed include values for all thirteen PAH compounds, and also includes additional PAH compounds not included in the TCEQ tables.

Six sediment samples were collected along the Indian Marais, identified as IM1 through IM6. As mentioned previously, the Indian Marais is characterized as freshwater in its upper reaches, and brackish/tidally influenced in lower reaches. Sediment samples were collected from points within both the upper and lower reaches of the Indian Marias; therefore the sediment data will be compared to the appropriate (freshwater or marine) TCEQ Ecological Benchmark. Samples IM1 and IM2 were collected within the upper reaches of the Indian Marais, and samples IM3 – IM6 were collected from the lower reaches. Samples IM1 and IM2 are located upstream of the point where the 2006 release entered the Indian Marais. Samples IM3-IM6 are located downstream of this point.

4.0 FIELD INVESTIGATION

A sampling and analysis plan describing the scope of work, methods and procedures that were proposed for the sediment sampling event was developed by C-K and reviewed by the project team in March 2013. The details of the sediment sampling and analysis are provided below.

4.1 Sediment Sampling

Sediment samples were collected from six locations on March 26, 2013. The locations are shown on **Figure 1** and **Figure 2**.

A petite ponar sampling device was used to collect each sediment sample. The ponar grabbed a sample consisting of the top four- to six-inches of sediment from the center of the channel of the Indian Marais. In some instances more than one ponar grab was necessary to obtain the required sample volume. The sediment was placed in a clean disposable metal tray for processing (removal of debris such as rocks, vegetation, etc.) and then transferred into the appropriate laboratory-supplied container.

<u>Field Quality Assurance</u>

The following quality control (QC) samples were collected, to evaluate field sampling protocols:

- Field duplicate;
- Matrix spike/matrix spike duplicate (MS/MSD);
- Field blank; and
- Equipment rinsate.

<u>Equipment Decontamination</u>

Prior to collection of samples and between each sample location point, the ponar was cleaned via the following protocol: Excess sediment was rinsed from the

ponar and containerized. The ponar was then washed with an Alconox and tap water mixture using a scrub brush. The ponar was then thoroughly rinsed using tap water, and set to dry in a clean bucket. All other equipment utilized in the sampling process was disposable, and therefore did not require decontamination.

Sample Handling

New latex (or similar) sampling gloves were donned by sampling personnel for each sampling location. Sampling equipment, bottles, and other pertinent equipment or materials was laid out and arranged prior to sampling. Water-resistant marking were used to label the sample bottles, and the container label was checked for proper markings.

The samples were packed in coolers with ice as soon after collection as possible and chilled to temperatures at or below 4 degrees Centigrade. Sample bottles were double-checked for leaks, cracks, proper labeling, and sufficient ice. Samples containers were arranged and packed so as to not make contact during shipping, and the chain-of-custody transfer record for the samples was completed.

Samples were maintained in the custody of the sampling personnel until transportation of samples by laboratory courier to the laboratory. The samples were delivered to Accutest Laboratories (Houston, Texas), accredited under the Louisiana Environmental Laboratory Accreditation Program, for analysis.

4.2 Sample Analysis

Sediment samples were analyzed for PAHs and percent organic matter/organic carbon. The PAH analysis was performed using USEPA Method 8270 selective ion monitoring (SIM). Seventeen specific PAHs were analyzed. Total organic carbon was analyzed using SW 9060M. A full deliverable/Level 4 analytical report was requested from Accutest.

5.0 SEDIMENT ANALYTICAL RESULTS

Sediment analytical results are described below. Tabulated data are presented in **Table 1** and the laboratory analytical report is presented in **Appendix B**. **Figures 1** and **2** depict sample locations. Laboratory-reported PAH concentrations were 1) evaluated from a spatial standpoint (upstream and downstream of the 2006 release point); and 2) compared to Texas Commission on Environmental Quality (TCEQ) Ecological Benchmarks for Sediment.

5.1 Sediment Analytical Results and Sample Locations

Figures 1 and **2** show sample locations. The samples collected from locations IM1 and IM3 have the lowest total PAH concentrations. The sample collected from IM2 showed the highest reported total PAH concentrations, followed by the

sample collected from IM4. The ranking from lowest total PAH concentration to highest is summarized below:

Total PAH Ranking by Location

Rank (lowest concentration to highest)	Sample Location	Total PAH Concentration (mg/kg)
1	IM1	0.1643
2	IM3	0.2044
3	IM6	0.5058
4	IM5	1.4269
5	IM4	4.9931
6	IM2	7.0748

mg/kg = milligrams/kilogram
proxy values of ½ the detection limit were used in the calculation of the total PAH concentrations

Sample locations IM1 (lowest total PAH concentration) and IM2 (highest total PAH concentration) are located upstream of the point at which the 2006 release entered the Indian Marais. Sample locations IM3 through IM6 are located downstream of the 2006 release entry point.

The general proportions of the individual PAHs identified at each sample location were reviewed to evaluate similarities and differences between the PAHs found at each location. For IM1, IM2, IM3 and IM4, pyrene made up the greatest proportion of the total concentration of PAHs, followed by benzo(b)fluoranthene, fluoranthene and chrysene. For IM5 and IM6, acenaphthylene contributed most to the total PAH concentration, followed by benzo(g,h,i)perylene and pyrene.

5.2 Analytical Results and Ecological Benchmarks

Sample locations IM1 and IM2 are located in an upstream segment of Indian Marais that is characterized as freshwater, and are therefore those sample results are compared to freshwater ecological benchmarks. Freshwater ecological benchmarks are established for 13 of the PAHs. Sample locations IM3 through IM6 are located in a tidally-influenced segment of Indian Marais that is characterized as a brackish environment, and are therefore those sample results are compared to marine ecological benchmarks. Marine ecological benchmarks are established for 14 of the PAHs.

Freshwater Ecological Benchmarks – Locations IM1 and IM2

Sample location IM1 was located furthest upstream, approximately 9,600 feet from the Indian Marais' confluence with the Calcasieu River (**Figures 1** and **2**). The analytical laboratory reported many of the PAHs to be non-detect. None of the detected PAH concentrations from IM1 exceeded freshwater ecological benchmarks. It is noted that the freshwater ecological benchmarks for acenaphthene and acenaphthylene are very low (0.0067 mg/kg and 0.0059 mg/kg,

respectively), and the reporting limits (RL) for these two analytes exceeded the freshwater ecological benchmarks. The analytical laboratory indicated that, due to the relatively low percent solids within the sample matrix, the laboratory reporting limits for acenaphthene and acenaphthylene (0.0.013 mg/kg for both) could not be lowered. Therefore, RLs lower than the freshwater ecological benchmarks for these two analytes could not be attained.

Location IM2 was located approximately 3,000 feet downstream of location IM1, and upstream of the 2006 release point. The analytical laboratory reported location IM2 as having the highest PAH concentrations of the sample locations. The following PAHs exceeded freshwater ecological benchmarks: acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene and pyrene. The presence of PAHs at this upstream location indicate 1) that PAHs from sources other than the 2006 release are observable in the Indian Marais; and 2) the highest concentrations of PAHs are present at a location not impacted by the 2006 release.

Marine Ecological Benchmarks – Locations IM3, IM4, IM5 and IM6

Location IM3 is approximately 3,500 feet downstream of location IM2 and downstream of the 2006 release point. This location is the closest to the 2006 release point and would presumably be the most susceptible to impacts from the 2006 release. None of the reported PAH concentrations exceeded marine ecological benchmarks, which provides significant evidence that the 2006 release has not resulted in any lingering effects.

Location IM4 is approximately 1,500 feet downstream of location IM3 and downstream of the 2006 release point. Four PAHs (acenaphthylene, benzo(a)anthracene, chrysene and pyrene) exceeded marine ecological benchmarks, but are lower than the concentrations in upstream sample IM2.

Location IM5 is approximately 700 feet downstream of location IM4 and downstream of the 2006 release point. Two PAHs (acenaphthylene and indeno(1,2,3-c,d)pyrene) exceeded marine ecological benchmarks, but again are lower than IM2 PAH concentrations.

Location IM6 is the furthest downgradient sample location, and is approximately 800 feet downstream of location IM5 and downstream of the 2006 release point. Location IM6 had the third-lowest reported total PAH concentration after IM1 and IM3. Only one PAH (acenaphthylene) exceeded marine ecological benchmarks.

Applying this guidance to the data collected from locations potentially impacted by the 2006 release (locations IM3 through IM6), all but one location exhibited concentrations below the total PAH screening benchmark. Only IM4 contained

total PAH concentrations (4.993 mg/kg) modestly above the conservative screening benchmark numbers for total PAH concentrations (4.022 mg/kg).

5.3 Additional Evaluations

Bar Chart Comparison

Bar charts were developed from three PAH data sets: one PAH data set is from the six samples collected from the Indian Marais in March 2013; a second PAH data set is from sediment sample SCN-SED-004 collected in September 2006 from the Calcasieu River near the mouth of Indian Marais; and the third PAH data set is from a sample of released material (described as "Boom 1" collected in June 2006 by Louisiana State University [LSU] and presumed to be oily material from a containment boom).

The "Boom 1" bar chart, and the 14 individual PAHs displayed in it, was included in a document published by LSU as part of 2006 spill response activities and is therefore utilized as a "fingerprint" of the material released. The bar charts for other two data sets were generated such that comparisons could be made to the "Boom 1" chart. The charts were configured and formatted (utilizing the same 14 PAHs in the same order) to facilitate the comparisons.

The bar charts were compared qualitatively for similarities or differences among the PAHs detected in the samples. The comparison revealed that the "fingerprints" of the two sediment sample data sets are similar, and both are quite different from the "fingerprint" of the released material. Specifically, when looking at the charts for the Indian Marais sediment data and the SCN-SED-004 sediment data, the proportions of most of the individual PAHs, including pyrene, chrysene, fluoranthene, benzo(a)pyrene and benzo(g,h,i)perylene are very similar. The PAH chart of the oily substance collected from the boom shows proportionately large amounts naphthalene, phenanthrene and fluorene. The bar charts and data are presented in **Appendix D**. More information is provided in the conclusion section.

Other Sources of PAHs

As previously mentioned, PAHs are widespread within the environment from both natural and anthropogenic sources. Natural sources are forest and rangeland fires, oil seeps, volcanic eruptions and exudates from trees. Anthropogenic sources of PAH include burning of fossil fuel, coal tar, wood, asphaltic materials associated with roadways, municipal solid waste incineration and petroleum spills and discharge. Given the anthropogenic sources in the area of the Indian Marais, particularly 1) industrial activity associated with chemical plants and refineries and 2) adjacent asphalt roadways, there is a high potential for significant PAH contribution into the Indian Marais from sources other than the 2006 release.

Samples IM2 and IM4 contained the highest total PAH concentrations, and pyrene made up the greatest proportion of these PAHs. Notable pyrene sources

include domestic heating sources, particularly wood burning; gasoline fuel exhaust; coal tar and asphalt, and cigarette smoke. Benzo(b)fluoranthene made up the second greatest proportion of these PAHs after pyrene, and generally have the same sources as pyrene, including asphalt roads. Storm water runoff in contact with liquid asphalt used to coat roads and bind road materials can leach these PAHs from the asphalt and can carry asphalt-coated particulates and materials into adjacent waterways.

Sediment Toxicity Testing

In 2006 after the release, sediment samples were collected to establish baseline and evaluate potential impact to the Calcasieu Estuary ecological system. While sediment samples were not collected within the Indian Marais, a sediment sample was collected at the confluence of the Indian Marais to the Calcasieu River. This was a location that was susceptible to impact from the 2006 release. The sediment sample (sample identification SCN-SED-004) was analyzed for PAHs (results presented in **Table 2**) with a correlating 28-day sediment toxicity test. The sediment toxicity test was conducted using the epibenthic amphipod *Hyalella azteca*, which are detritivores known to minimally borough into sediments and to feed on algae and bacteria. The sediment toxicity test at SCN-SED-004 reported an 85% survival rate. This 85% survival rate fell within the range of survival rates yielded by eight reference samples collected from unimpacted areas within the Calcasieu Estuary that share the same or similar characteristics as the sediment from SCN-SED-004. The similar survival rates between the unimpacted reference samples and the sample SCN-SED-004 indicate no direct impacts to the test organisms within four months after the 2006 release. It is noted that total PAH concentrations from SCN-SED-004 (**Table 2**) did not exceed the applicable marine sediment benchmark or the more conservative freshwater benchmark.

5.4 Field Observations

Field observations were made and recorded during the sediment sampling event. None of the sediment samples collected produced a hydrocarbon sheen or emitted a hydrocarbon odor, and no sheens were noted within the mixing trays. In addition, a “glove test” was performed by spraying clean water on sampling gloves that came in contact with the sediment sampled, to observe the presence of residual hydrocarbon films or sheens. No films or sheens were observed on the gloves. Photographs taken during the sampling event are included as **Appendix C**.

6.0 SUMMARY AND CONCLUSIONS

Sediment samples were collected from six locations within the Indian Marias drainage on March 26, 2013, in order to evaluate the potential for residual impacts from a 2006 release of oil and untreated water. PAHs were selected as indicator compounds to determine the potential for residual impacts. Data evaluations included spatial (upstream vs. downstream) comparisons among PAH concentrations and comparisons against

TCEQ Ecological Benchmarks for Sediment, as well as other evaluation methodologies. C-K offers the following observations and conclusions:

- With the exception of sample IM1 (the most upstream location and therefore presumably the least impacted sample location), the sample collected from location IM3 showed the lowest total PAH concentrations of all sample locations, and no individual PAH concentrations exceeded applicable sediment benchmarks. Sample IM3 was located downstream of the 2006 release, and was the closest downstream sample location to the 2006 release point and therefore the most susceptible to impacts from the 2006 release. The absence of apparent impacts from a location close to the release point strongly suggests that impacts associated with the 2006 release are not present.
- Sample IM3 contained no reported PAH concentrations that exceeded applicable ecological benchmarks. Sample locations downstream of IM3, and downstream of the 2006 release, contained few individual PAHs that exceeded applicable ecological benchmarks. These concentration patterns, sporadic detections and minor exceedances downstream of the 2006 release point are not indicative of significant residual impacts resulting from a release, and are more closely indicative of general urban activity and drainage from asphalt roadways or background industrial activity.
- The sample collected from location IM2 showed the highest reported total PAH concentrations of all samples collected. Sample location IM2 is located upstream of the point at which the 2006 release entered the Indian Marais. Additionally, several individual PAHs exceeded applicable ecological benchmarks for sediment. The presence of the relatively high concentrations of PAHs at a point upstream of the release suggests the presence of a PAH source upstream of and not related to the 2006 release.
- Sample IM2 contained the greatest number of individual PAHs that exceeded applicable ecological benchmarks for sediment. These elevated concentrations appear to be unrelated to the 2006 release, and are more likely related to asphalt or other sources associated with urban activity. The anthropogenic sources in the area of the Indian Marais, particularly adjacent asphalt roadways, allow for a high potential for significant PAH contribution into the Indian Marais from sources other than the 2006 release.
- Sediment samples IM2 and IM4 were the only samples that exceeded applicable total PAH benchmarks, and contained the highest total PAH concentrations; pyrene and benzo(b)fluoranthene made up the greatest proportion of these PAH concentrations. Notable pyrene and benzo(b)fluoranthene sources include domestic heating sources, particularly wood burning; gasoline fuel exhaust; coal tar and asphalt, and cigarette smoke. Storm water runoff in contact with liquid asphalt used to coat roads and bind road materials can leach these PAHs from the asphalt and can carry asphalt-coated particulates and materials into adjacent waterways. Sample IM2, located near where storm water discharges from a roadway into the Indian Marais, was located upstream of the 2006 release but

contained the highest concentrations of PAH, indicating sources other than the 2006 release.

- The sediment sample identified as SCN-SED-004, on which the sediment toxicity test was performed, was also analyzed for PAHs. Analytical results indicated that total PAH concentrations did not exceed the applicable marine sediment benchmark or the more conservative freshwater benchmark. This further indicates that any potential impacts from the Indian Marais did not adversely affect the Calcasieu River sediments.
- The whole sediment 28-day toxicity and growth test for sediment collected in September 2006 at SCN-SED-004 was performed using the epibenthic amphipod *Hyalella azteca*, which are detritivores known to minimally borough into sediments and to feed on algae and bacteria. This organism is reported by the U.S. Environmental Protections Agency (USEPA 2000) to be ideal for use in laboratory sediment toxicity tests, in part because of its wide tolerance to changes in salinity that are often characteristic of the Calcasieu Estuary. Appropriately, whole-sediment testing is to describe a relationship between toxicity or growth to concentrations of PAHs (either total PAH or selected individual PAHs) in sediments. The fact that 1) the 85% survival rate for sample SCN-SED-004 fell within the range of the survival rates yielded by the unimpacted reference samples, and 2) the PAH concentrations were below the ecological benchmarks for the sediment collected at SCN-SED-004 four months after the release suggest that at that time there were no indication of release impact to the Indian Marais.
- The comparison of the three bar charts revealed that, in general, the "fingerprints" of the two sediment sample data sets are similar, and both are quite different from the "fingerprint" of the released material. Specifically, when looking at the charts for the Indian Marais sediment data and the data from SCN-SED-004, both exhibit similar proportions of most of the individual PAHs for the two sediment data sets, including pyrene, chrysene, fluoranthene, benzo(a)pyrene and benzo(g,h,i)perylene. Upon comparing the Indian Marais data set to the "Boom 1" data, no similarities were evident; i.e. the PAH chart of the oily substance collected in June 2006 from the boom shows proportionately large amounts naphthalene, phenanthrene and fluorene, whereas the Indian Marais data set shows greater amounts of pyrene, chrysene, fluoranthene, benzo(a)pyrene and benzo(g,h,i)perylene. These comparisons suggest a strong connection between SCN-SED-004 data, which was shown to be unaffected by the 2006 release through sediment toxicity testing and total PAH concentrations, and the Indian Marais data. The comparisons also suggest a lack of connection between the "Boom 1" data (material released during the 2006 event) and the Indian Marais data sets.

Based on the evidence presented above, it has been concluded that residual impact to the Indian Marais as a result of the 2006 release is not present. Sample locations most susceptible to effects from the 2006 release did not show evidence of related impacts, including the sediment sample on which the toxicity test was run. Only one of the sediment samples downgradient of the 2006 release point indicated impacts based on comparison to conservative ecological sediment benchmarks (and that sample's PAH

fingerprint does not match the PAH fingerprint for the oil released in 2006). That isolated location with PAH concentrations above the total PAH benchmark only slightly exceeded that standard. Therefore, taken as a whole, and recognizing the conservatism built into the screening benchmarks, the data do not suggest any unacceptable risk is posed by sediments in the Indian Marais.

TABLES

TABLE 1

LABORATORY ANALYTICAL RESULTS
SEDIMENT SAMPLES

Table 1
Laboratory Analytical Results, Sediment Samples
March 26, 2013

Citgo Petroleum Corporation
Lake Charles Refinery
Lake Charles, Louisiana

COMPOUND		ANALYTICAL RESULT (mg/kg)							ECOLOGICAL BENCHMARKS FOR SEDIMENT (mg/kg)	
CAS No.	Name	IM1	IM2	IM3	IM4	IM4D	IM5	IM6	Freshwater	Marine
83-32-9	Acenaphthene	<0.013	**0.0228**	<0.0094	<0.017	<0.017	0.0073	<0.012	0.0067	0.016
208-96-8	Acenaphthylene	<0.013	0.0041	<0.0094	**0.0441**	**0.0549**	**0.362**	**0.0779**	0.0059	0.044
120-12-7	Anthracene	<0.013	**0.130**	0.0040	0.0247	0.0192	0.0431	0.0150	0.0572	0.0853
56-55-3	Benzo(a)anthracene	0.0068	**0.565**	0.0117	**0.353**	0.0442	0.0608	0.0258	0.108	0.261
50-32-8	Benzo(a)pyrene	0.0084	**0.469**	0.0170	0.0662	0.0864	0.110	0.0435	0.150	0.43
205-99-2	Benzo(b)fluoranthene	0.0219	0.740	0.0199	0.0690	0.0841	0.109	0.0418	NA	NA
191-24-2	Benzo(g,h,i)perylene	0.0096	0.299	0.0190	0.0774	0.108	0.142	0.0449	NA	NA
207-08-9	Benzo(k)fluoranthene	<0.013	0.184	<0.0094	0.0151	0.0180	0.0210	0.0097	NA	NA
218-01-9	Chrysene	0.0126	**0.655**	0.0236	**0.652**	0.0856	0.137	0.0448	0.166	0.384
53-70-3	Dibenzo(a,h)anthracene	0.0050	**0.0846**	0.0047	0.0218	0.0293	0.0384	0.0120	0.033	0.0634
206-44-0	Fluoranthene	0.0155	**1.36**	0.0157	0.410	0.0595	0.0519	0.0391	0.423	0.6
86-73-7	Fluorene	<0.013	0.0230	0.0029	<0.017	0.0090	<0.022	<0.012	0.0774	0.019
193-39-5	Indeno(1,2,3-cd)pyrene	0.0104	**0.375**	0.0108	0.0446	0.0627	**0.0761**	0.0290	0.033	0.0634
91-57-6	2-Methylnaphthalene	<0.013	0.0087	0.0116	0.0492	0.0666	0.0667	0.0148	NA	0.070
91-20-3	Naphthalene	<0.013	0.0086	0.0055	0.0242	0.0324	0.0352	0.0071	0.176	0.160
85-01-8	Phenanthrene	0.0048	**0.726**	0.0105	0.0248	0.0358	0.0324	0.0148	0.204	0.24
129-00-0	Pyrene	0.0238	**1.42**	0.0334	**3.10**	0.102	0.123	0.0736	0.195	0.665
---	Solids, Percent	50.20%	79%	70.6%	38.2%	37.8%	30.7%	55.8%	---	---
---	Total Organic Carbon	28700	12900	4050	20000	23200	32300	11700	---	---
Total PAHs		0.1643	**7.0748**	0.2044	**4.9931**	0.9062	1.4269	0.5058	1.61	4.022

Notes
mg/kg = milligrams/kilogram
Sample locations IM1 and IM2 are compared to freshwater ecological benchmarks.
Sample locations IM3, IM4, IM5 and IM6 are compared to marine ecological benchmarks.
Bolded results indicate exceedance of applicable benchmark

TABLE 2

SUMMARY OF SEDIMENT SAMPLE ANALYTICAL RESULTS SCN-SED-004

Table 2
Summary of Sediment Sample Analytical Results
Sample ID SCN-SED-004
September 14, 2006

Citgo Petroleum Corporation
Lake Charles Refinery
Lake Charles, Louisiana

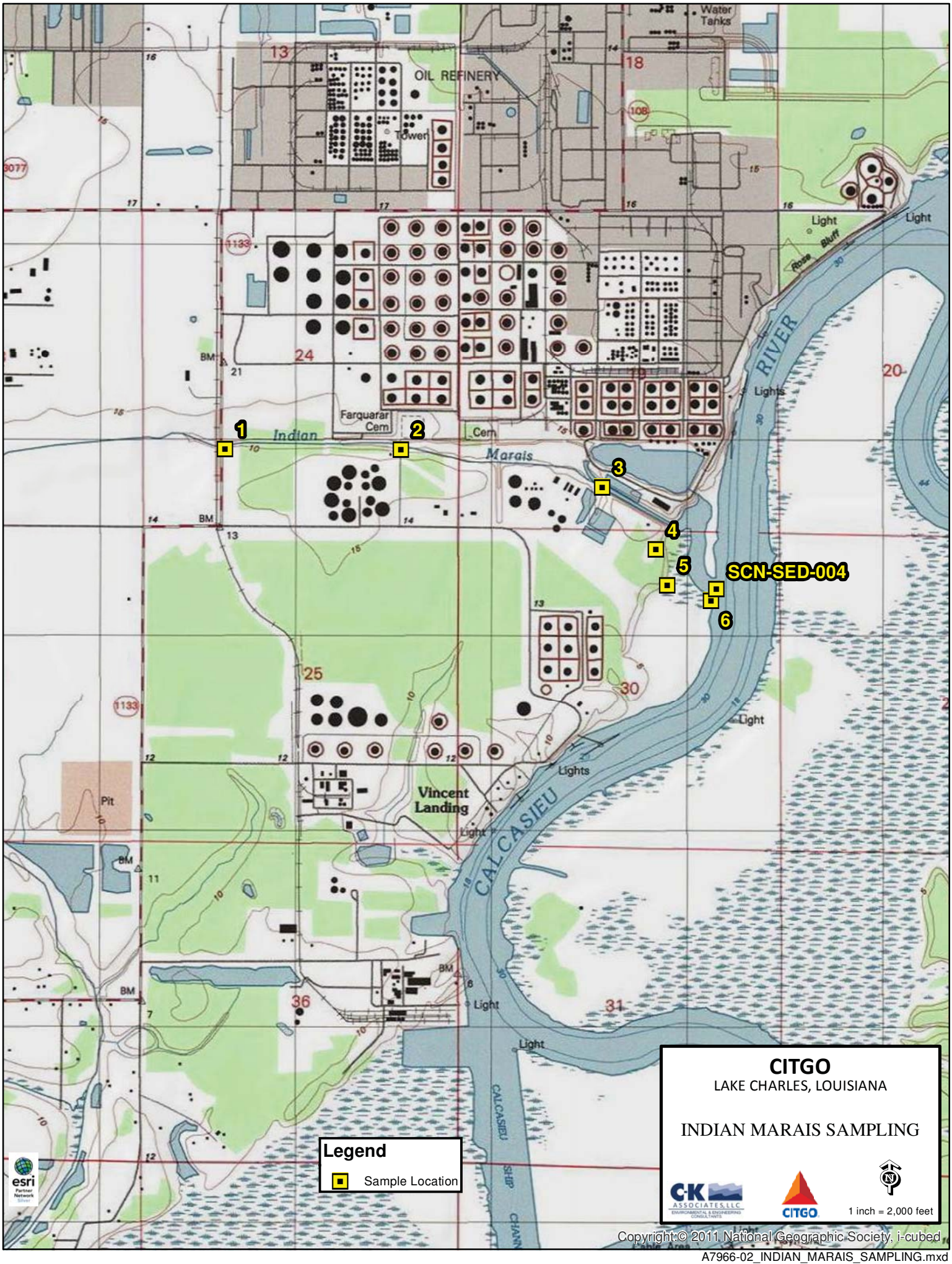
COMPOUND		ANALYTICAL RESULT (mg/kg)	ECOLOGICAL BENCHMARKS FOR SEDIMENT (mg/kg)	
CAS No.	**Name**	**SCN-SED-004**	**Freshwater**	**Marine**
91-20-3	Naphthalene	0.0059	0.176	0.160
86-73-7	Fluorene	0.016	0.0774	0.019
85-01-8	Phenanthrene	0.0385	0.204	0.24
120-12-7	Anthracene	0.0881	0.0572	0.0853
206-44-0	Fluoranthene	0.129	0.423	0.6
129-00-0	Pyrene	0.378	0.195	0.665
56-55-3	Benzo(a)anthracene	0.146	0.108	0.261
218-01-9	Chrysene	0.246	0.166	0.384
205-99-2	Benzo(b)fluoranthene	0.0905	NA	NA
207-08-9	Benzo(k)fluoranthene	0.0112	NA	NA
50-32-8	Benzo(a)pyrene	0.046	0.150	0.43
193-39-5	Indeno(1,2,3-cd)pyrene	0.0181	0.033	0.0634
53-70-3	Dibenzo(a,h)anthracene	0.019	0.033	0.0634
191-24-2	Benzo(g,h,i)perylene	0.0325	NA	NA
Total PAHs		0.0294	1.61	4.022

Notes
mg/kg = milligrams/kilogram
Sample location SCN-SED-004 is compared to marine ecological benchmarks.

FIGURES

FIGURE 1

SAMPLE LOCATION MAP
TOPOGRAPHIC BACKGROUND



A7966-02_INDIAN_MARAIS_SAMPLING.mxd

FIGURE 2

SAMPLE LOCATION MAP
AERIAL PHOTOGRAPH BACKGROUND

A7966-02_INDIAN_MARAIS_SAMPLING.mxd

APPENDICES

APPENDIX A

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY ECOLOGICAL BENCHMARKS FOR SEDIMENT

Table 3-3. Ecological Benchmarks for Sediment

CAS #	COC (mg/kg dry wt.)	Freshwater	Marine
Inorganics			
7440-36-0	Antimony	2 [a]	
7440-38-2	Arsenic	9.79	8.2
7440-43-9	Cadmium	0.99	1.2
7440-47-3	Chromium	43.4	81
7440-48-4	Cobalt	50 [b]	
7440-50-8	Copper	31.6	34
7439-89-6	Iron	20,000 [b]	
7439-92-1	Lead	35.8	46.7
7439-96-5	Manganese	460 [b]	
7439-97-6	Mercury	0.18	0.15
7440-02-0	Nickel	22.7	20.9
7440-22-4	Silver	1 [a]	1
7440-66-6	Zinc	121	150
Polycyclic Aromatic Hydrocarbons (PAHs) *Footnote (i) applies to all listed PAHs*			
83-32-9	Acenaphthene	0.0067 [j]	0.016
208-96-8	Acenaphthylene	0.0059 [j]	0.044
120-12-7	Anthracene	0.0572	0.0853
56-55-3	Benz(a)anthracene	0.108	0.261
50-32-8	Benzo(a)pyrene	0.150	0.43
218-01-9	Chrysene	0.166	0.384
53-70-3	Dibenz(a,h)anthracene	0.033	0.0634
206-44-0	Fluoranthene	0.423	0.6
86-73-7	Fluorene	0.0774	0.019
91-57-6	2- Methyl naphthalene		0.070
91-20-3	Naphthalene	0.176	0.160
85-01-8	Phenanthrene	0.204	0.24
129-00-0	Pyrene	0.195	0.665
	Low Molecular Weight PAHs		0.552 [e, f]
	High Molecular Weight PAHs		1.7 [e, g]
	Total PAHs	1.61 [e, h, i]	4.022 [e, h, i]
Chlorinated Pesticides/PCBs/Benzenes			
309-00-2	Aldrin	0.002 [b]	
27323-18-8	Aroclor 1254	0.060 [b]	

Table 3-3. Ecological Benchmarks for Sediment

CAS #	COC (mg/kg dry wt.)	Freshwater	Marine
12674-11-2	Aroclor 1016	0.007 [b]	
11096-82-5	Aroclor 1260	0.005 [b]	
12672-29-6	Aroclor 1248	0.030 [b]	
319-84-6	alpha-BHC	0.006 [b]	
319-85-7	beta-BHC	0.005 [b]	
58-89-9	gamma-BHC (Lindane)	0.00237	0.00032 [d]
608-73-1	BHC	0.003 [b, e]	
57-74-9	Chlordane (Total)	0.00324	0.00226 [d]
60-57-1	Dieldrin	0.0019	0.000715 [d]
72-20-8	Endrin	0.00222	
118-74-1	HCB (Hexachlorobenzene)	0.020 [b]	
1024-57-3	Heptachlor epoxide	0.00247	
2385-85-5	Mirex	0.007 [b]	
72-55-9	Sum DDE	0.00316 [e]	0.00207 [e]
72-54-8	Sum DDD	0.00488 [e]	0.00122 [e]
50-29-3	Sum DDT	0.00416 [e]	0.00119 [e]
	Total DDT	0.00528 [e]	0.00158 [e]
1336-36-3	Total PCBs	0.0598 [e]	0.0227 [e]
Organophosphate Pesticides			
2642-71-9	Azinphos-ethyl	0.000018 [l]	
86-50-0	Azinphos-methyl (Guthion)	0.000062 [l]	
331-41-5	Diazinon	0.00038 [l]	
121-75-5	Malathion	0.00067 [m]	
	Phoxim	0.000060 [l]	
	Pyrazophos	0.000015 [l]	
Other Pesticides			
8001-35-2	Toxaphene	0.00010 [k]	
1912-24-9	Atrazine	0.00030 [l]	
122-34-9	Simazine	0.00034 [l]	
Phthalates			
117-81-7	Bis(2-ethyl-hexyl)phthalate	0.182 [d]	0.182 [d]
84-66-2	Diethyl phthalate	0.630 [m]	

Table 3-3. Ecological Benchmarks for Sediment

CAS #	COC (mg/kg dry wt.)	Freshwater	Marine
Volatiles *Footnote (n) applies to all listed volatiles, unless otherwise noted*			
67-64-1	Acetone	60.03	167.23
107-13-1	Acrylonitrile	0.05	0.17
71-43-2	Benzene	0.16	0.14
104-51-8	N-butylbenzene	1.09	
103-65-1	Propyl benzene	0.72	
135-98-8	Sec-butylbenzene	0.88	
98-06-6	Tert-butylbenzene	1.21	
75-27-4	Bromodichloromethane	2.46	
78-93-3	2-butanone	25.71	
75-15-0	Carbon disulfide	0.12	
56-23-5	Carbon tetrachloride	0.02	3.67
108-90-7	Chlorobenzene	0.17	0.29
124-48-1	Chlorodibromomethane	0.16	
67-66-3	Chloroform (trichloromethane)	0.94	4.30
74-87-3	Chloromethane	17.80	8.74
98-82-8	Cumen	8.99	
99-87-6	p-Cymene	1.00	
95-50-1	1,2-dichlorobenzene	0.83	0.74
541-73-1	1,3-dichlorobenzene	0.19	0.32
106-46-7	1,4-dichlorobenzene	0.77	0.70
75-71-8	Dichlorodifluoromethane	3.68	
75-34-3	1,1-dichloroethane	2.32	
107-06-2	1,2-dichloroethane	4.79	4.30
75-35-4	1,1-dichloroethene	1.87	15.41
156-60-5	1,2-dichloroethene (trans)	23.95	
78-87-5	1,2-dichloropropane	2.20	2.82
542-75-6	1,3-dichloropropene	0.23	0.04
100-41-4	Ethylbenzene	2.86	0.65
87-68-3	HCBD (Hexachlorobutadiene)	0.055 [k]	0.02
67-72-1	Hexachloroethane	0.23	0.18
110-54-3	Hexane, n-	0.0031	
591-78-6	2-hexanone	4.70	

Table 3-3. Ecological Benchmarks for Sediment

CAS #	COC (mg/kg dry wt.)	Freshwater	Marine
108-10-1	4-methyl-2-pentanone (MIBK)	19.43	45.34
74-83-9	Methyl bromide	0.08	0.42
22967-92-6	Methyl Mercury	0.0000017	
80-62-6	Methyl methacrylate	9.50	
75-09-2	Methylene chloride	7.75	3.82
98-95-3	Nitrobenzene	0.51	0.13
71-41-0	1-Pentanol	0.07	
67-63-0	2-Propanol	0.0047	
100-42-5	Styrene	10.24	3.72
79-34-5	1,1,2,2-tetrachloroethane	0.63	0.61
127-18-4	Tetrachloroethene	1.69	3.10
108-88-3	Toluene	2.88	0.94
75-25-2	Bromoform	0.22	1.78
120-82-1	1,2,4-trichlorobenzene	0.88	0.39
71-55-6	1,1,1-trichloroethane	4.13	2.63
79-00-5	1,1,2-trichloroethane	0.98	0.30
79-01-6	Trichloroethene	0.84	1.47
75-69-4	Trichlorofloromethane	1.69	
76-13-1	1,1,2-trichlorotrifluoroethane	2.78	
95-63-6	1,2,4-trimethylbenzene	0.76	2.16
108-67-8	1,3,5-trimethylbenzene	0.77	
108-05-4	Vinyl acetate	0.010	
75-01-4	Vinyl chloride	1.96	
108-38-3	m-Xylene	0.0046	
1330-20-7	Xylenes	4.00	2.54

Freshwater - Unless otherwise noted, benchmarks are Threshold Effect Concentration (TEC) from: MacDonald, D.D., C.G. Ingersoll, and T.A. Berger. 2000. Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems. Arch. Environ. Contam. Toxicol. 39:20-31.

Marine - Unless otherwise noted, benchmarks are Effects Range Low (ERL) from: Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. Environ. Manage. 19(1):81-97.

Table 3-3. Ecological Benchmarks for Sediment

a Effects Range Low (ERL) from: Long, E.R. and L.G. Morgan. 1990. The Potential for Biological Effects of Sediment-sorbed Contaminants Tested in the National Status and Trends Program. NOAA Technical Memorandum NOS OMA 52, March 1990.

b Lowest Effects Level (LEL) from: Persaud, D., R. Jaagumagi and A. Hayton. 1993. Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario. Water Resources Branch. Ontario Ministry of the Environment and Energy. August.

c No "c" footnotes.

d Threshold Effects Level (TEL) from: Smith, S.L., D.D. MacDonald, K.A. Keenleyside, and C.L. Gaudet. 1996b. The Development and Implementation of Canadian Sediment Quality Guidelines. In: Development and Progress in Sediment Quality Assessment: Rationale, Challenges, Techniques & Strategies. Ecovision World Monograph Series. Munawar & Dave (Eds.). Academic Publishing, Amsterdam, The Netherlands.

e When benchmarks represent the sum of individual compounds, isomers, or groups of congeners, and the chemical analysis indicates an undetected value, the proxy value specified at §350.51 (n) shall be used for calculating the sum of the respective compounds, isomers, or congeners. This assumes that the particular COC has not been eliminated in accordance with the criteria at §350.71 (k).

f The low molecular weight PAH benchmark is to be compared to the sum of the concentrations of the following compounds: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, and 2-methyl napthalene. The PAH benchmark is not the sum of the corresponding benchmarks listed for the individual compounds.

g The high molecular weight PAH benchmark is to be compared to the sum of the concentrations of the following compounds: fluoranthene, pyrene, benz(a)anthracene, chrysene, benzo(a)pyrene, and dibenzo [a,h]anthracene. The PAH benchmark is not the sum of the corresponding benchmarks listed for the individual compounds.

h Total PAH refers to the sum of the concentrations of each of low and high molecular weight PAHs listed above and any other PAH compounds that are not eliminated in accordance with §350.71 (k).

i The benchmarks for total PAHs are the most relevant in evaluating risk in an ERA as PAHs almost always occur as mixtures. Values for individual, low molecular weight, and high molecular weight PAHs are provided as guidelines to aid in the determination of disproportionate concentrations within the mixture that may be masked by the total. See discussion in Section 3.5.4.

j CCME (Canadian Council of Ministers of the Environment). 1999. Canadian environmental quality guidelines. Winnipeg, Manitoba.

k NYSDEC (New York State Department of Environmental Conservation). 1999. Technical

guidance for screening contaminated sediments. Division of Fish , Wildlife, and Marine Resources. Albany, New York. 36 pp.

l Stortelder, P.B., M.A. Vandergaag, and L.A. van der Kooij. 1989. Perspectives for water organisms. An ecotoxicological basis for quality objectives for water and sediment. Part1. Results and calculations. DBW/RIZA Memorandum N. 89.016a. (English Version August, 1991). Institute for Inland Water Management and Waste Water Treatment. Lelystad, Netherlands.

m U.S. EPA. 1997. The incidence and severity of sediment contamination in surface waters of the United States. Volume 1: National sediment quality survey. EPA 823-R-97-006. Office of Science and Technology (4305). Washington, District of Columbia.

n Benchmarks derived using formula in: Fuchsman, P.C. 2003. Modification of the Equilibrium Partitioning Approach for Volatile Organic Compounds in Sediment. Environ Toxicol Chem. 22:1532-1534. TCEQ Surface water values from Table 3-2 were used for water quality values. TRRP-24 default values of 1% fraction organic carbon (f_{oc}) and 0.37 porosity were used. The person should adjust these values if sufficient site-specific data indicate they are not representative.

APPENDIX B

LABORATORY ANALYTICAL DATA REPORT

Gulf Coast
ACCUTEST
LABORATORIES

04/04/13

Technical Report for

CK Associates

CITGO Indian MARAIS

Accutest Job Number: TC27860

Sampling Date: 03/26/13

Report to:

C-K Assoicates
17170 Perkins Road
Baton Rouge, LA 70810
keith.nichols@c-ka.com; chris.warwick@c-ka.com

ATTN: Keith Nichols

Total number of pages in report: **353**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Richard Rodriguez
Laboratory Director

Client Service contact: Sylvia Garza 713-271-4700

Certifications: TX (T104704220-12-9) AR (12-029-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) OK (2012-059)

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Accutest Laboratories

Sample Summary

CK Associates

CITGO Indian MARAIS

Job No: TC27860

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
TC27860-1	03/26/13	08:45	03/28/13	SO	Solid	IM3
TC27860-2	03/26/13	09:40	03/28/13	SO	Solid	IM4
TC27860-2D	03/26/13	09:40	03/28/13	SO	Soil Dup/MSD	IM4 MSD
TC27860-2S	03/26/13	09:40	03/28/13	SO	Soil Matrix Spike	IM4 MS
TC27860-3	03/26/13	09:40	03/28/13	SO	Solid	IM4D
TC27860-4	03/26/13	10:15	03/28/13	SO	Solid	IM5
TC27860-5	03/26/13	10:25	03/28/13	SO	Solid	IM6
TC27860-6	03/26/13	11:05	03/28/13	SO	Solid	IM1
TC27860-7	03/26/13	11:20	03/28/13	SO	Solid	IM2
TC27860-8	03/26/13	10:30	03/28/13	AQ	Equipment Blank	ERG/1
TC27860-9	03/26/13	10:30	03/28/13	AQ	Field Blank Soil	FB

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	CK Associates	**Job No**	TC27860
Site:	CITGO Indian MARAIS	**Report Date**	4/4/2013 11:02:11 AM

8 Samples and 1 Field Blank were collected on 03/26/2013 and received intact at Accutest on 03/28/2013 and properly preserved in 1 cooler at 1.2 Deg C. These Samples received an Accutest job number of TC27860. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix AQ **Batch ID:** OP27767

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix SO **Batch ID:** OP27766

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC27860-2MS, TC27860-2MSD were used as the QC samples indicated.
- Matrix Spike/Matrix Spike Duplicate Recovery(s) for Benzo(a)anthracene, Benzo(k)fluoranthene, Chrysene are outside control limits. Probable cause due to matrix interference.
- Matrix Spike/Matrix Spike Duplicate Recovery(s) for Pyrene are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Wet Chemistry By Method CORP ENG 81M/SW9060M

Matrix SO **Batch ID:** N:GP71119

- Total Organic Carbon: Analysis performed at Accutest Laboratories, Dayton, NJ.

Wet Chemistry By Method SM 2540 G

Matrix SO **Batch ID:** GN49549

- Sample(s) TC27860-1DUP were used as the QC samples for Solids, Percent.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

CASE NARRATIVE / CONFORMANCE SUMMARY

C	Accutest Laboratories Gulf Coast, Inc.		TC27860
	CKALABR: CITGO Indian MARAIS		4/2/2013 5:24:23 PM

On 03/29/2013, 7 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 3.1 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of TC27860 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Wet Chemistry By Method CORP ENG 81M/SW9060M

SO	GP71119

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) TC27860-2DUP, TC27860-2MS were used as the QC samples for Total Organic Carbon.
- TC27860-7 for Total Organic Carbon: Multiple injections indicate possible sample non-homogeneity.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

Summary of Hits

Job Number: TC27860
Account: CK Associates
Project: CITGO Indian MARAIS
Collected: 03/26/13

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TC27860-1	**IM3**					
Anthracene		0.0040 J	0.0094	0.0023	mg/kg	SW846 8270C BY SIM
Benzo(a)anthracene		0.0117	0.0094	0.0015	mg/kg	SW846 8270C BY SIM
Benzo(a)pyrene		0.0170	0.0094	0.0019	mg/kg	SW846 8270C BY SIM
Benzo(b)fluoranthene		0.0199	0.0094	0.0035	mg/kg	SW846 8270C BY SIM
Benzo(g,h,i)perylene		0.0190	0.0094	0.0035	mg/kg	SW846 8270C BY SIM
Chrysene		0.0236	0.0094	0.0034	mg/kg	SW846 8270C BY SIM
Dibenzo(a,h)anthracene		0.0047 J	0.0094	0.0015	mg/kg	SW846 8270C BY SIM
Fluoranthene		0.0157	0.0094	0.0032	mg/kg	SW846 8270C BY SIM
Fluorene		0.0029 J	0.0094	0.0019	mg/kg	SW846 8270C BY SIM
Indeno(1,2,3-cd)pyrene		0.0108	0.0094	0.0037	mg/kg	SW846 8270C BY SIM
2-Methylnaphthalene		0.0116	0.0094	0.0024	mg/kg	SW846 8270C BY SIM
Naphthalene		0.0055 J	0.0094	0.0021	mg/kg	SW846 8270C BY SIM
Phenanthrene		0.0105	0.0094	0.0019	mg/kg	SW846 8270C BY SIM
Pyrene		0.0334	0.0094	0.0018	mg/kg	SW846 8270C BY SIM
Total Organic Carbon [a]		4050	1400		mg/kg	CORP ENG 81M/SW9060M
TC27860-2	**IM4**					
Acenaphthylene		0.0441	0.017	0.0043	mg/kg	SW846 8270C BY SIM
Anthracene		0.0247	0.017	0.0043	mg/kg	SW846 8270C BY SIM
Benzo(a)anthracene		0.353	0.017	0.0029	mg/kg	SW846 8270C BY SIM
Benzo(a)pyrene		0.0662	0.017	0.0035	mg/kg	SW846 8270C BY SIM
Benzo(b)fluoranthene		0.0690	0.017	0.0065	mg/kg	SW846 8270C BY SIM
Benzo(g,h,i)perylene		0.0774	0.017	0.0064	mg/kg	SW846 8270C BY SIM
Benzo(k)fluoranthene		0.0151 J	0.017	0.0071	mg/kg	SW846 8270C BY SIM
Chrysene		0.652	0.017	0.0062	mg/kg	SW846 8270C BY SIM
Dibenzo(a,h)anthracene		0.0218	0.017	0.0027	mg/kg	SW846 8270C BY SIM
Fluoranthene		0.410	0.017	0.0059	mg/kg	SW846 8270C BY SIM
Indeno(1,2,3-cd)pyrene		0.0446	0.017	0.0068	mg/kg	SW846 8270C BY SIM
2-Methylnaphthalene		0.0492	0.017	0.0044	mg/kg	SW846 8270C BY SIM
Naphthalene		0.0242	0.017	0.0039	mg/kg	SW846 8270C BY SIM
Phenanthrene		0.0248	0.017	0.0035	mg/kg	SW846 8270C BY SIM
Pyrene		3.10	0.17	0.033	mg/kg	SW846 8270C BY SIM
Total Organic Carbon [a]		20000	2600		mg/kg	CORP ENG 81M/SW9060M
TC27860-3	**IM4D**					
Acenaphthylene		0.0549	0.017	0.0044	mg/kg	SW846 8270C BY SIM
Anthracene		0.0192	0.017	0.0044	mg/kg	SW846 8270C BY SIM
Benzo(a)anthracene		0.0442	0.017	0.0029	mg/kg	SW846 8270C BY SIM
Benzo(a)pyrene		0.0864	0.017	0.0036	mg/kg	SW846 8270C BY SIM
Benzo(b)fluoranthene		0.0841	0.017	0.0065	mg/kg	SW846 8270C BY SIM
Benzo(g,h,i)perylene		0.108	0.017	0.0065	mg/kg	SW846 8270C BY SIM

Summary of Hits

Job Number: TC27860
Account: CK Associates
Project: CITGO Indian MARAIS
Collected: 03/26/13

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Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Benzo(k)fluoranthene	0.0180	0.017	0.0072	mg/kg	SW846 8270C BY SIM
Chrysene	0.0856	0.017	0.0063	mg/kg	SW846 8270C BY SIM
Dibenzo(a,h)anthracene	0.0293	0.017	0.0027	mg/kg	SW846 8270C BY SIM
Fluoranthene	0.0595	0.017	0.0060	mg/kg	SW846 8270C BY SIM
Fluorene	0.0090 J	0.017	0.0035	mg/kg	SW846 8270C BY SIM
Indeno(1,2,3-cd)pyrene	0.0627	0.017	0.0069	mg/kg	SW846 8270C BY SIM
2-Methylnaphthalene	0.0666	0.017	0.0045	mg/kg	SW846 8270C BY SIM
Naphthalene	0.0324	0.017	0.0039	mg/kg	SW846 8270C BY SIM
Phenanthrene	0.0358	0.017	0.0035	mg/kg	SW846 8270C BY SIM
Pyrene	0.102	0.017	0.0033	mg/kg	SW846 8270C BY SIM
Total Organic Carbon [a]	23200	2600		mg/kg	CORP ENG 81M/SW9060M
TC27860-4 IM5					
Acenaphthene	0.0073 J	0.022	0.0061	mg/kg	SW846 8270C BY SIM
Acenaphthylene	0.362	0.022	0.0054	mg/kg	SW846 8270C BY SIM
Anthracene	0.0431	0.022	0.0054	mg/kg	SW846 8270C BY SIM
Benzo(a)anthracene	0.0608	0.022	0.0036	mg/kg	SW846 8270C BY SIM
Benzo(a)pyrene	0.110	0.022	0.0044	mg/kg	SW846 8270C BY SIM
Benzo(b)fluoranthene	0.109	0.022	0.0081	mg/kg	SW846 8270C BY SIM
Benzo(g,h,i)perylene	0.142	0.022	0.0080	mg/kg	SW846 8270C BY SIM
Benzo(k)fluoranthene	0.0210 J	0.022	0.0089	mg/kg	SW846 8270C BY SIM
Chrysene	0.137	0.022	0.0078	mg/kg	SW846 8270C BY SIM
Dibenzo(a,h)anthracene	0.0384	0.022	0.0034	mg/kg	SW846 8270C BY SIM
Fluoranthene	0.0519	0.022	0.0074	mg/kg	SW846 8270C BY SIM
Indeno(1,2,3-cd)pyrene	0.0761	0.022	0.0086	mg/kg	SW846 8270C BY SIM
2-Methylnaphthalene	0.0667	0.022	0.0056	mg/kg	SW846 8270C BY SIM
Naphthalene	0.0352	0.022	0.0049	mg/kg	SW846 8270C BY SIM
Phenanthrene	0.0324	0.022	0.0043	mg/kg	SW846 8270C BY SIM
Pyrene	0.123	0.022	0.0041	mg/kg	SW846 8270C BY SIM
Total Organic Carbon [a]	32300	3300		mg/kg	CORP ENG 81M/SW9060M
TC27860-5 IM6					
Acenaphthylene	0.0779	0.012	0.0030	mg/kg	SW846 8270C BY SIM
Anthracene	0.0150	0.012	0.0030	mg/kg	SW846 8270C BY SIM
Benzo(a)anthracene	0.0258	0.012	0.0020	mg/kg	SW846 8270C BY SIM
Benzo(a)pyrene	0.0435	0.012	0.0024	mg/kg	SW846 8270C BY SIM
Benzo(b)fluoranthene	0.0418	0.012	0.0044	mg/kg	SW846 8270C BY SIM
Benzo(g,h,i)perylene	0.0449	0.012	0.0044	mg/kg	SW846 8270C BY SIM
Benzo(k)fluoranthene	0.0097 J	0.012	0.0049	mg/kg	SW846 8270C BY SIM
Chrysene	0.0448	0.012	0.0042	mg/kg	SW846 8270C BY SIM
Dibenzo(a,h)anthracene	0.0120	0.012	0.0018	mg/kg	SW846 8270C BY SIM
Fluoranthene	0.0391	0.012	0.0040	mg/kg	SW846 8270C BY SIM
Indeno(1,2,3-cd)pyrene	0.0290	0.012	0.0047	mg/kg	SW846 8270C BY SIM

Summary of Hits

Job Number: TC27860
Account: CK Associates
Project: CITGO Indian MARAIS
Collected: 03/26/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
2-Methylnaphthalene	0.0148	0.012	0.0030	mg/kg	SW846 8270C BY SIM
Naphthalene	0.0071 J	0.012	0.0026	mg/kg	SW846 8270C BY SIM
Phenanthrene	0.0148	0.012	0.0024	mg/kg	SW846 8270C BY SIM
Pyrene	0.0736	0.012	0.0022	mg/kg	SW846 8270C BY SIM
Total Organic Carbon [a]	11700	1800		mg/kg	CORP ENG 81M/SW9060M
TC27860-6 IM1					
Benzo(a)anthracene	0.0068 J	0.013	0.0022	mg/kg	SW846 8270C BY SIM
Benzo(a)pyrene	0.0084 J	0.013	0.0027	mg/kg	SW846 8270C BY SIM
Benzo(b)fluoranthene	0.0219	0.013	0.0049	mg/kg	SW846 8270C BY SIM
Benzo(g,h,i)perylene	0.0096 J	0.013	0.0049	mg/kg	SW846 8270C BY SIM
Chrysene	0.0126 J	0.013	0.0047	mg/kg	SW846 8270C BY SIM
Dibenzo(a,h)anthracene	0.0050 J	0.013	0.0020	mg/kg	SW846 8270C BY SIM
Fluoranthene	0.0155	0.013	0.0045	mg/kg	SW846 8270C BY SIM
Indeno(1,2,3-cd)pyrene	0.0104 J	0.013	0.0052	mg/kg	SW846 8270C BY SIM
Phenanthrene	0.0048 J	0.013	0.0026	mg/kg	SW846 8270C BY SIM
Pyrene	0.0238	0.013	0.0025	mg/kg	SW846 8270C BY SIM
Total Organic Carbon [a]	28700	2000		mg/kg	CORP ENG 81M/SW9060M
TC27860-7 IM2					
Acenaphthene	0.0228	0.0084	0.0024	mg/kg	SW846 8270C BY SIM
Acenaphthylene	0.0041 J	0.0084	0.0021	mg/kg	SW846 8270C BY SIM
Anthracene	0.130	0.0084	0.0021	mg/kg	SW846 8270C BY SIM
Benzo(a)anthracene	0.565	0.084	0.014	mg/kg	SW846 8270C BY SIM
Benzo(a)pyrene	0.469	0.084	0.017	mg/kg	SW846 8270C BY SIM
Benzo(b)fluoranthene	0.740	0.084	0.031	mg/kg	SW846 8270C BY SIM
Benzo(g,h,i)perylene	0.299	0.0084	0.0031	mg/kg	SW846 8270C BY SIM
Benzo(k)fluoranthene	0.184	0.0084	0.0034	mg/kg	SW846 8270C BY SIM
Chrysene	0.655	0.084	0.030	mg/kg	SW846 8270C BY SIM
Dibenzo(a,h)anthracene	0.0846	0.0084	0.0013	mg/kg	SW846 8270C BY SIM
Fluoranthene	1.36	0.084	0.029	mg/kg	SW846 8270C BY SIM
Fluorene	0.0230	0.0084	0.0017	mg/kg	SW846 8270C BY SIM
Indeno(1,2,3-cd)pyrene	0.375	0.0084	0.0033	mg/kg	SW846 8270C BY SIM
2-Methylnaphthalene	0.0087	0.0084	0.0022	mg/kg	SW846 8270C BY SIM
Naphthalene	0.0086	0.0084	0.0019	mg/kg	SW846 8270C BY SIM
Phenanthrene	0.726	0.084	0.017	mg/kg	SW846 8270C BY SIM
Pyrene	1.42	0.084	0.016	mg/kg	SW846 8270C BY SIM
Total Organic Carbon [b]	12900	1300		mg/kg	CORP ENG 81M/SW9060M
TC27860-8 ERG/1					

No hits reported in this sample.

Summary of Hits

Job Number: TC27860
Account: CK Associates
Project: CITGO Indian MARAIS
Collected: 03/26/13

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Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TC27860-9	**FB**					

No hits reported in this sample.

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.
(b) Multiple injections indicate possible sample non-homogeneity. Analysis performed at Accutest Laboratories, Dayton, NJ.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	IM3		
Lab Sample ID:	TC27860-1	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
Method:	SW846 8270C BY SIM SW846 3550B	**Percent Solids:**	70.6
Project:	CITGO Indian MARAIS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V14568.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0094	0.0026	mg/kg	
208-96-8	Acenaphthylene	ND	0.0094	0.0023	mg/kg	
120-12-7	Anthracene	0.0040	0.0094	0.0023	mg/kg	J
56-55-3	Benzo(a)anthracene	0.0117	0.0094	0.0015	mg/kg	
50-32-8	Benzo(a)pyrene	0.0170	0.0094	0.0019	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0199	0.0094	0.0035	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0190	0.0094	0.0035	mg/kg	
207-08-9	Benzo(k)fluoranthene	ND	0.0094	0.0039	mg/kg	
218-01-9	Chrysene	0.0236	0.0094	0.0034	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0047	0.0094	0.0015	mg/kg	J
206-44-0	Fluoranthene	0.0157	0.0094	0.0032	mg/kg	
86-73-7	Fluorene	0.0029	0.0094	0.0019	mg/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	0.0108	0.0094	0.0037	mg/kg	
91-57-6	2-Methylnaphthalene	0.0116	0.0094	0.0024	mg/kg	
91-20-3	Naphthalene	0.0055	0.0094	0.0021	mg/kg	J
85-01-8	Phenanthrene	0.0105	0.0094	0.0019	mg/kg	
129-00-0	Pyrene	0.0334	0.0094	0.0018	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	33%		10-127%
321-60-8	2-Fluorobiphenyl	33%		11-133%
1718-51-0	Terphenyl-d14	59%		22-132%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	IM3		
Lab Sample ID:	TC27860-1	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
		Percent Solids:	70.6
Project:	CITGO Indian MARAIS		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	70.6		%	1	03/29/13	PA	SM 2540 G
Total Organic Carbon [a]	4050	1400	mg/kg	1	04/02/13 11:59	ANJ	CORP ENG 81M/SW9060M

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	IM4		
Lab Sample ID:	TC27860-2	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
Method:	SW846 8270C BY SIM SW846 3550B	**Percent Solids:**	38.2
Project:	CITGO Indian MARAIS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V14575.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
Run #2	V14566.D	10	04/01/13	GJ	03/29/13	OP27766	EV835

	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2	30.3 g	1.0 ml

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.017	0.0049	mg/kg	
208-96-8	Acenaphthylene	0.0441	0.017	0.0043	mg/kg	
120-12-7	Anthracene	0.0247	0.017	0.0043	mg/kg	
56-55-3	Benzo(a)anthracene	0.353	0.017	0.0029	mg/kg	
50-32-8	Benzo(a)pyrene	0.0662	0.017	0.0035	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0690	0.017	0.0065	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0774	0.017	0.0064	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0151	0.017	0.0071	mg/kg	J
218-01-9	Chrysene	0.652	0.017	0.0062	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0218	0.017	0.0027	mg/kg	
206-44-0	Fluoranthene	0.410	0.017	0.0059	mg/kg	
86-73-7	Fluorene	ND	0.017	0.0034	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0446	0.017	0.0068	mg/kg	
91-57-6	2-Methylnaphthalene	0.0492	0.017	0.0044	mg/kg	
91-20-3	Naphthalene	0.0242	0.017	0.0039	mg/kg	
85-01-8	Phenanthrene	0.0248	0.017	0.0035	mg/kg	
129-00-0	Pyrene	3.10 [a]	0.17	0.033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	31%	26%	10-127%
321-60-8	2-Fluorobiphenyl	32%	32%	11-133%
1718-51-0	Terphenyl-d14	60%	56%	22-132%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	IM4		
Lab Sample ID:	TC27860-2	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
		Percent Solids:	38.2
Project:	CITGO Indian MARAIS		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	38.2		%	1	03/29/13	PA	SM 2540 G
Total Organic Carbon [a]	20000	2600	mg/kg	1	04/02/13 11:44	ANJ	CORP ENG 81M/SW9060M

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	IM4D		
Lab Sample ID:	TC27860-3	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
Method:	SW846 8270C BY SIM SW846 3550B	**Percent Solids:**	37.8
Project:	CITGO Indian MARAIS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V14573.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.017	0.0049	mg/kg	
208-96-8	Acenaphthylene	0.0549	0.017	0.0044	mg/kg	
120-12-7	Anthracene	0.0192	0.017	0.0044	mg/kg	
56-55-3	Benzo(a)anthracene	0.0442	0.017	0.0029	mg/kg	
50-32-8	Benzo(a)pyrene	0.0864	0.017	0.0036	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0841	0.017	0.0065	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.108	0.017	0.0065	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0180	0.017	0.0072	mg/kg	
218-01-9	Chrysene	0.0856	0.017	0.0063	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0293	0.017	0.0027	mg/kg	
206-44-0	Fluoranthene	0.0595	0.017	0.0060	mg/kg	
86-73-7	Fluorene	0.0090	0.017	0.0035	mg/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	0.0627	0.017	0.0069	mg/kg	
91-57-6	2-Methylnaphthalene	0.0666	0.017	0.0045	mg/kg	
91-20-3	Naphthalene	0.0324	0.017	0.0039	mg/kg	
85-01-8	Phenanthrene	0.0358	0.017	0.0035	mg/kg	
129-00-0	Pyrene	0.102	0.017	0.0033	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	50%		10-127%
321-60-8	2-Fluorobiphenyl	45%		11-133%
1718-51-0	Terphenyl-d14	64%		22-132%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	IM4D		
Lab Sample ID:	TC27860-3	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
		Percent Solids:	37.8
Project:	CITGO Indian MARAIS		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	37.8		%	1	03/29/13	PA	SM 2540 G
Total Organic Carbon [a]	23200	2600	mg/kg	1	04/02/13 12:14	ANJ	CORP ENG 81M/SW9060M

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID: IM5
Lab Sample ID: TC27860-4
Matrix: SO - Solid
Method: SW846 8270C BY SIM SW846 3550B
Project: CITGO Indian MARAIS

Date Sampled: 03/26/13
Date Received: 03/28/13
Percent Solids: 30.7

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V14574.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.0073	0.022	0.0061	mg/kg	J
208-96-8	Acenaphthylene	0.362	0.022	0.0054	mg/kg	
120-12-7	Anthracene	0.0431	0.022	0.0054	mg/kg	
56-55-3	Benzo(a)anthracene	0.0608	0.022	0.0036	mg/kg	
50-32-8	Benzo(a)pyrene	0.110	0.022	0.0044	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.109	0.022	0.0081	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.142	0.022	0.0080	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0210	0.022	0.0089	mg/kg	J
218-01-9	Chrysene	0.137	0.022	0.0078	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0384	0.022	0.0034	mg/kg	
206-44-0	Fluoranthene	0.0519	0.022	0.0074	mg/kg	
86-73-7	Fluorene	ND	0.022	0.0043	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0761	0.022	0.0086	mg/kg	
91-57-6	2-Methylnaphthalene	0.0667	0.022	0.0056	mg/kg	
91-20-3	Naphthalene	0.0352	0.022	0.0049	mg/kg	
85-01-8	Phenanthrene	0.0324	0.022	0.0043	mg/kg	
129-00-0	Pyrene	0.123	0.022	0.0041	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	45%		10-127%
321-60-8	2-Fluorobiphenyl	36%		11-133%
1718-51-0	Terphenyl-d14	66%		22-132%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	IM5		
Lab Sample ID:	TC27860-4	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
		Percent Solids:	30.7
Project:	CITGO Indian MARAIS		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	30.7		%	1	03/29/13	PA	SM 2540 G
Total Organic Carbon [a]	32300	3300	mg/kg	1	04/02/13 12:33	ANJ	CORP ENG 81M/SW9060M

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID: IM6
Lab Sample ID: TC27860-5
Matrix: SO - Solid
Method: SW846 8270C BY SIM SW846 3550B
Project: CITGO Indian MARAIS

Date Sampled: 03/26/13
Date Received: 03/28/13
Percent Solids: 55.8

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V14570.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.012	0.0033	mg/kg	
208-96-8	Acenaphthylene	0.0779	0.012	0.0030	mg/kg	
120-12-7	Anthracene	0.0150	0.012	0.0030	mg/kg	
56-55-3	Benzo(a)anthracene	0.0258	0.012	0.0020	mg/kg	
50-32-8	Benzo(a)pyrene	0.0435	0.012	0.0024	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0418	0.012	0.0044	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0449	0.012	0.0044	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.0097	0.012	0.0049	mg/kg	J
218-01-9	Chrysene	0.0448	0.012	0.0042	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0120	0.012	0.0018	mg/kg	
206-44-0	Fluoranthene	0.0391	0.012	0.0040	mg/kg	
86-73-7	Fluorene	ND	0.012	0.0023	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0290	0.012	0.0047	mg/kg	
91-57-6	2-Methylnaphthalene	0.0148	0.012	0.0030	mg/kg	
91-20-3	Naphthalene	0.0071	0.012	0.0026	mg/kg	J
85-01-8	Phenanthrene	0.0148	0.012	0.0024	mg/kg	
129-00-0	Pyrene	0.0736	0.012	0.0022	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	46%		10-127%
321-60-8	2-Fluorobiphenyl	39%		11-133%
1718-51-0	Terphenyl-d14	81%		22-132%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	IM6		
Lab Sample ID:	TC27860-5	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
		Percent Solids:	55.8
Project:	CITGO Indian MARAIS		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	55.8		%	1	03/29/13	PA	SM 2540 G
Total Organic Carbon [a]	11700	1800	mg/kg	1	04/02/13 12:45	ANJ	CORP ENG 81M/SW9060M

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	IM1		
Lab Sample ID:	TC27860-6	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
Method:	SW846 8270C BY SIM SW846 3550B	**Percent Solids:**	50.2
Project:	CITGO Indian MARAIS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V14569.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.013	0.0037	mg/kg	
208-96-8	Acenaphthylene	ND	0.013	0.0033	mg/kg	
120-12-7	Anthracene	ND	0.013	0.0033	mg/kg	
56-55-3	Benzo(a)anthracene	0.0068	0.013	0.0022	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0084	0.013	0.0027	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0219	0.013	0.0049	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0096	0.013	0.0049	mg/kg	J
207-08-9	Benzo(k)fluoranthene	ND	0.013	0.0054	mg/kg	
218-01-9	Chrysene	0.0126	0.013	0.0047	mg/kg	J
53-70-3	Dibenzo(a,h)anthracene	0.0050	0.013	0.0020	mg/kg	J
206-44-0	Fluoranthene	0.0155	0.013	0.0045	mg/kg	
86-73-7	Fluorene	ND	0.013	0.0026	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.0104	0.013	0.0052	mg/kg	J
91-57-6	2-Methylnaphthalene	ND	0.013	0.0034	mg/kg	
91-20-3	Naphthalene	ND	0.013	0.0029	mg/kg	
85-01-8	Phenanthrene	0.0048	0.013	0.0026	mg/kg	J
129-00-0	Pyrene	0.0238	0.013	0.0025	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	43%		10-127%
321-60-8	2-Fluorobiphenyl	41%		11-133%
1718-51-0	Terphenyl-d14	86%		22-132%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	IM1		
Lab Sample ID:	TC27860-6	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
		Percent Solids:	50.2
Project:	CITGO Indian MARAIS		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	50.2		%	1	03/29/13	PA	SM 2540 G
Total Organic Carbon [a]	28700	2000	mg/kg	1	04/02/13 13:01	ANJ	CORP ENG 81M/SW9060M

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	IM2		
Lab Sample ID:	TC27860-7	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
Method:	SW846 8270C BY SIM SW846 3550B	**Percent Solids:**	79.0
Project:	CITGO Indian MARAIS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V14578.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
Run #2	V14567.D	10	04/01/13	GJ	03/29/13	OP27766	EV835

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2	30.2 g	1.0 ml

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.0228	0.0084	0.0024	mg/kg	
208-96-8	Acenaphthylene	0.0041	0.0084	0.0021	mg/kg	J
120-12-7	Anthracene	0.130	0.0084	0.0021	mg/kg	
56-55-3	Benzo(a)anthracene	0.565 [a]	0.084	0.014	mg/kg	
50-32-8	Benzo(a)pyrene	0.469 [a]	0.084	0.017	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.740 [a]	0.084	0.031	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.299	0.0084	0.0031	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.184	0.0084	0.0034	mg/kg	
218-01-9	Chrysene	0.655 [a]	0.084	0.030	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.0846	0.0084	0.0013	mg/kg	
206-44-0	Fluoranthene	1.36 [a]	0.084	0.029	mg/kg	
86-73-7	Fluorene	0.0230	0.0084	0.0017	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.375	0.0084	0.0033	mg/kg	
91-57-6	2-Methylnaphthalene	0.0087	0.0084	0.0022	mg/kg	
91-20-3	Naphthalene	0.0086	0.0084	0.0019	mg/kg	
85-01-8	Phenanthrene	0.726 [a]	0.084	0.017	mg/kg	
129-00-0	Pyrene	1.42 [a]	0.084	0.016	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	39%	35%	10-127%
321-60-8	2-Fluorobiphenyl	41%	40%	11-133%
1718-51-0	Terphenyl-d14	77%	70%	22-132%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	IM2		
Lab Sample ID:	TC27860-7	**Date Sampled:**	03/26/13
Matrix:	SO - Solid	**Date Received:**	03/28/13
		Percent Solids:	79.0
Project:	CITGO Indian MARAIS		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	79		%	1	03/29/13	PA	SM 2540 G
Total Organic Carbon [a]	12900	1300	mg/kg	1	04/02/13 13:19	ANJ	CORP ENG 81M/SW9060M

(a) Multiple injections indicate possible sample non-homogeneity. Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Client Sample ID:	ERG/1		
Lab Sample ID:	TC27860-8	**Date Sampled:**	03/26/13
Matrix:	AQ - Equipment Blank	**Date Received:**	03/28/13
Method:	SW846 8270C BY SIM SW846 3510C	**Percent Solids:**	n/a
Project:	CITGO Indian MARAIS		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V14553.D	1	03/29/13	GJ	03/29/13	OP27767	EV834
Run #2							

	Initial Volume	Final Volume
Run #1	200 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0010	0.00032	mg/l	
208-96-8	Acenaphthylene	ND	0.0010	0.00025	mg/l	
120-12-7	Anthracene	ND	0.0010	0.00025	mg/l	
56-55-3	Benzo(a)anthracene	ND	0.0010	0.00025	mg/l	
50-32-8	Benzo(a)pyrene	ND	0.0010	0.00017	mg/l	
205-99-2	Benzo(b)fluoranthene	ND	0.0010	0.00025	mg/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.0010	0.00029	mg/l	
207-08-9	Benzo(k)fluoranthene	ND	0.0010	0.00037	mg/l	
218-01-9	Chrysene	ND	0.0010	0.00020	mg/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0010	0.00027	mg/l	
206-44-0	Fluoranthene	ND	0.0010	0.00040	mg/l	
86-73-7	Fluorene	ND	0.0010	0.00025	mg/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0010	0.00025	mg/l	
91-57-6	2-Methylnaphthalene	ND	0.0010	0.00025	mg/l	
91-20-3	Naphthalene	ND	0.0010	0.00050	mg/l	
85-01-8	Phenanthrene	ND	0.0010	0.00025	mg/l	
129-00-0	Pyrene	ND	0.0010	0.00021	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	60%		17-131%
321-60-8	2-Fluorobiphenyl	61%		11-122%
1718-51-0	Terphenyl-d14	79%		21-144%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: FB
Lab Sample ID: TC27860-9
Matrix: AQ - Field Blank Soil
Method: SW846 8270C BY SIM SW846 3510C
Project: CITGO Indian MARAIS

Date Sampled: 03/26/13
Date Received: 03/28/13
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V14554.D	1	03/29/13	GJ	03/29/13	OP27767	EV834
Run #2							

	Initial Volume	Final Volume
Run #1	200 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.0010	0.00032	mg/l	
208-96-8	Acenaphthylene	ND	0.0010	0.00025	mg/l	
120-12-7	Anthracene	ND	0.0010	0.00025	mg/l	
56-55-3	Benzo(a)anthracene	ND	0.0010	0.00025	mg/l	
50-32-8	Benzo(a)pyrene	ND	0.0010	0.00017	mg/l	
205-99-2	Benzo(b)fluoranthene	ND	0.0010	0.00025	mg/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.0010	0.00029	mg/l	
207-08-9	Benzo(k)fluoranthene	ND	0.0010	0.00037	mg/l	
218-01-9	Chrysene	ND	0.0010	0.00020	mg/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.0010	0.00027	mg/l	
206-44-0	Fluoranthene	ND	0.0010	0.00040	mg/l	
86-73-7	Fluorene	ND	0.0010	0.00025	mg/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.0010	0.00025	mg/l	
91-57-6	2-Methylnaphthalene	ND	0.0010	0.00025	mg/l	
91-20-3	Naphthalene	ND	0.0010	0.00050	mg/l	
85-01-8	Phenanthrene	ND	0.0010	0.00025	mg/l	
129-00-0	Pyrene	ND	0.0010	0.00021	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	72%		17-131%
321-60-8	2-Fluorobiphenyl	74%		11-122%
1718-51-0	Terphenyl-d14	87%		21-144%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- LRC Form

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

Accutest Gulf Coast
500 Ambassador Caffery Pkwy, Scott, LA 70583
TEL.337-237-4775 FAX: 337-237-7838
www.accutest.com

LSR-F005.00

PAGE 1 OF 2

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: TC27860

Client / Reporting Information

Company Name: C-K ASSOCIATES
Street Address: 17170 PARKINS Rd
City State Zip: BATON ROUGE LA 70810
Project Contact: KEITH NICHOLS / KEITH WARWICK E-mail:
Phone #: 225-755-1000 Fax #:
Sampler(s) Name(s): KEITH NICHOLS / JESSE B. Phone #:

Project Information

Project Name: CITGO INDIAN MARAIS
Street:
City State:
Project #:
Client Purchase Order #:
Project Manager: KEITH NICHOLS / KEITH.NICHOLS@C-KA.COM

Billing Information (if different from Report to)

Company Name: SAME
Street Address:
City State Zip:
Attention:

Requested Analyses

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	HCl	NaOH	ZA/NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	TSP	Na2SO4	ENCORE	OTHER	DAILS SEE TABLE 1 ATTACHED TOC	TRRP Ecological Benchmarks for Sediment Level 4 Report 4 Day TAT in around w/ Level 2 Quick pollow up with Level 4 Report	LAB USE ONLY
1	IM3	3/26/13	0845	KN	Sol	2	NO PRESERVEL														
2	IM4		0940			2															
3	IM4D		0940			2															
2	IM4MS MATRIX SPIKE		0940			2															
2	IM4MSD MATRIX SPIKE DUPLICATE		0940			2															
4	IM5		1015			2															
5	IM6		1025			2															
6	IM1		1105			2															
7	IM2		1120			2															
8	ERG11 EQUIP. RINSATE		1030		AQ	2															
9	FB FIELD BLANK		1030		AQ	2															

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; SED-Sediment; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid; WP - Wipe; FB-Field Blank; EB-Equipment Blank; RB- Rinse Blank; TB-Trip Blank

Turnaround Time (Business days)

- [x] Standard
- [ ] 5 Day *RUSH*
- [ ] 4 Day *RUSH*
- [ ] 3 Day *RUSH*
- [ ] 2 Day *RUSH*
- [ ] 1 Day *EMERGENCY*

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULT1 (Level 3+4)
- [ ] REDT1 (Level 3+4)
- [ ] Commercial "C"
- [x] TRRP
- [ ] EDD Format
- [ ] Other _____

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

Comments / Special Instructions

Received at Baton Rouge Service Center

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	3-27-13 0931	1	2	3-27-13 1130	2
Relinquished By Sampler: 3	3-27-13 1405	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not intact	Preserved where applicable [ ] On Ice [ ] Cooler Temp.

LAKECHAR SC

TC27860: Chain of Custody
Page 1 of 4

Table 1 - Analytical Parameters and Laboratory Reporting Limits
CITGO PETROLEUM CORPORATION, Lake Charles Refinery
Sediment Sampling and Analysis Plan for the Indian Marais

Analyte	Method	units	SIM MDL	SIM RL
2-Methylnaphthalene	EPA 8270C - SIM	ug/Kg	1.71	67
Acenaphthene	EPA 8270C - SIM	ug/Kg	1.88	67
Acenaphthylene	EPA 8270C - SIM	ug/Kg	1.13	67
Anthracene	EPA 8270C - SIM	ug/Kg	0.88	67
Benzo(a)anthracene	EPA 8270C - SIM	ug/Kg	1.10	67
Benzo(a)pyrene	EPA 8270C - SIM	ug/Kg	1.36	67
*Benzo(e)pyrene	EPA 8270C - SIM	ug/Kg	2.46	67
Benzo(b)fluoranthene	EPA 8270C - SIM	ug/Kg	2.49	67
Benzo(g,h,i)perylene	EPA 8270C - SIM	ug/Kg	2.46	67
Benzo(k)fluoranthene	EPA 8270C - SIM	ug/Kg	2.74	67
Chrysene	EPA 8270C - SIM	ug/Kg	2.39	67
Dibenz(a,h) anthracene	EPA 8270C - SIM	ug/Kg	1.03	67
Fluoranthene	EPA 8270C - SIM	ug/Kg	2.28	67
Fluorene	EPA 8270C - SIM	ug/Kg	1.32	67
Indeno(1,2,3-cd)pyrene	EPA 8270C - SIM	ug/Kg	2.63	67
Naphthalene	EPA 8270C - SIM	ug/Kg	1.49	67
*Perylene	EPA 8270C - SIM	ug/Kg	2.46	67
Phenanthrene	EPA 8270C - SIM	ug/Kg	1.33	67
Pyrene	EPA 8270C - SIM	ug/Kg	1.26	67
Percent organic matter/organic carbon	ASTM D2974 or SM 9060	percent	---	---

Notes:
MDL = method detection limit
RL = reporting limit
SIM = selective ion monitoring
ug/Kg = micrograms/kilogram

* NOT cert for these cmpds. SKG 3-29-13

ACCUTEST LABORATORIES

TC27860 | C K ASSOCIATES | CITGO INDIAN MARAIS

3/28/2013

1 | IR6; | 0;

#1: (1.2/1.2);

1. Custody Seals Present:	☑	☐
2. Custody Seals Intact:	☑	☐
3. COC Present:	☑	☐
4. Smpl Dates/Time OK	☑	☐

1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	

1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☐	☑	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments Recevied 2 4oz ambers for "field blank" and "equipment blank". Insufficient volume received for analysis requested.

Accutest Laboratories
V:713.271.4700

10165 Harwin Drive
F: 713.271.4770

Houston, TX 77036
www/accutest.com

TC27860 | 3/28/2013 7:05:00 PM | BG

C K ASSOCIATES

Coo		o	o	o o			T	T	C	T
1	TC27860 1	4oz	1	2 60	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 1	4oz	2	S B	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 2	4oz	1	2 60	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 2	4oz	2	2 60	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 2	4oz	3	2 60	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 2	4oz	4	S B	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 2	4oz	5	S B	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 2	4oz	6	S B	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 3	4oz	1	2 60	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 3	4oz	2	S B	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 4	4oz	1	2 60	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 4	4oz	2	S B	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 5	4oz	1	2 60	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 5	4oz	2	S B	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 6	4oz	1	2 60	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 6	4oz	2	S B	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 7	4oz	1	2 60	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 7	4oz	2	S B	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 8	4oz	1	4MM	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860 8	4oz	2	4MM	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860	4oz	1	4MM	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2
1	TC27860	4oz	2	4MM	N/P	Note #2 Preservative check not applicable.	IR6	1.2	0	1.2

TC27860: Chain of Custody
Page 4 of 4

Appendix A Laboratory Data Package Cover Page

TC27860 This data package consists of

- This signature page, the laboratory review checklist, and the following reportable data:
- R1 Field chain□of□custody documentation;
- R2 Sample identification cross□reference;
- R3 Test reports (analytical data sheets) for each environmental sample that includes:
  - a) Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
  - b) dilution factors,
  - c) preparation methods,
  - d) cleanup methods, and
  - e) if required for the pro□ect, tentatively identified compounds (TICs).
- R4 Surrogate recovery data including:
  - a) Calculated recovery (□R), and
  - b) The laboratory's surrogate QC limits.
- R5 Test reports/summary forms for blank samples;
- R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  - a) LCS spiking amounts,
  - b) Calculated □R for each analyte, and
  - c) The laboratory's LCS QC limits.
- R7 Test reports for pro□ect matri□spike/matri□spike duplicates (MS/MSDs) including:
  - a) Samples associated with the MS/MSD clearly identified,
  - b) MS/MSD spiking amounts,
  - c) Concentration of each MS/MSD analyte measured in the parent and
  - d) Calculated □Rs and relative percent differences (RPDs), and
  - e) The laboratory's MS/MSD QC limits
- R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  - a) The amount of analyte measured in the duplicate,
  - b) The calculated RPD, and
  - c) The laboratory's QC limits for analytical duplicates.
- R□ List of method quantitation limits (M□Ls) and detectability check sample results for each analyte for each
- R10 Other problems or anomalies.

The Exception Report for each "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Te□as Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Te□as Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package e□cept as noted in the E□ception Report. This data package has been reviewed by the laboratory and is complete and technically compliant with the requirements of the methods used, e□cept where noted by the laboratory in the attached e□ception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld.

Check, if applicable: This laboratory meets an e□ception under 30 TAC□25.6 and was last inspection by

□□ □X □TCE□ or □□□□□□□□□□ on April 2011. Any findings affecting the data in this laboratory data package are noted in the E□ception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

QA Manager

Name (Printed)	Signature	Official Title (printed)	Date
Richard Rodriguez		Laboratory Director	4/4/2013

LABORATORY REVIEW CHECKLIST: REPORTABLE DATA

Laboratory Name:	Accutest Gulf Coast	LRC Date:	4/4/2013
Pro□ect Name:	CITGO Indian MARAIS	Laboratory Pro□ect Number:	TC27860
Reviewer Name:	Anita Patel	Prep Batch Number(s):	GN49549, OP27766, OP27767

#[1]	A[2]	DESCRIPTION	□ES	NO	NA[3]	NR[4]	ER #[5]
R1	OI	**CHAIN-OF-CUSTODY (C-O-C):**					
		Did samples meet the laboratory□s standard conditions of sample acceptability upon receipt□	X				
		□ ere all departures from standard conditions described in an e□ception report□	X				
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross□referenced to the laboratory ID numbers□	X				
		Are all laboratory ID numbers cross□referenced to the corresponding □C data□	X				
R3	OI	**Test reports**					
		□ ere samples prepared and analyzed within holding times□	X				
		Other than those results □M□L, were all other raw values bracketed by calibration standards□	X				
		□ ere calculations checked by a peer or supervisor□	X				
		□ ere all analyte identifications checked by a peer or supervisor□	X				
		□ ere sample detection limits reported for all analytes not detected□	X				
		□ ere all results for soil and sediment samples reported on a dry weight basis□	X				
		□ ere □ moisture (or solids) reported for all soil and sediment samples□	X				
		□ ere bulk soils/solids samples for volatile analysis e□tracted with methanol per S□ 846 Method 5035□			X		
		If required for the pro□ect, are TIC□s reported□			X		
R4	O	**Surrogate recovery data**					
		□ ere surrogates added prior to e□traction□	X				
		□ ere surrogate percent recoveries in all samples within the laboratory □C limits□	X				
R5	OI	**Test reports/summary forms for blank samples**					
		□ ere appropriate type(s) of blanks analyzed□	X				
		□ ere blanks analyzed at the appropriate frequency□	X				
		□ ere method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures□	X				
		□ ere blank concentrations □M□L□	X				
R6	OI	**Laboratory control samples (LCS):**					
		□ ere all COCs included in the LCS□	X				
		□ as each LCS taken through the entire analytical procedure, including prep and cleanup steps□	X				
		□ ere LCSs analyzed at required frequency□	X				
		□ ere LCS (and LCSD, if applicable) □ Rs within the laboratory □C limits□	X				
		Does the detectablility check sample data document the laboratory□s capability to detect the COCs at the MDL used to calculate the SDLs□	X				
		□ as the LCSD RPD within □C limits□	X				
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		□ ere the pro□ect/method specified analytes included in the MS and MSD□	X				
		□ ere MS/MSD analyzed at the appropriate frequency□	X				
		□ ere MS (and MSD, if applicable) □ Rs within the laboratory □C Limits□		X			4
		□ ere the MS/MSD RPDs within laboratory □C limits□	X				
R8	OI	**Analytical duplicate data**					
		□ ere appropriate analytical duplicates analyzed for each matri□□	X				
		□ ere analytical duplicates analyzed at the appropriate frequency□	X				
		□ ere RPDs or relative standard deviations within the laboratory □C limits□	X				
R9	OI	**Method quantitation limits (MQLs):**					
		Are the M□Ls for each method analyte included in the laboratory data package□	X				
		Do the M□Ls correspond to the concentration of the lowest non□zero calibration	X				
		Are unad□usted M□Ls and DCSs included in the laboratory data package□		X			2
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER□	X				
		□ as applicable and available technology used to lower the SDL to minimize the	X				
		Is the laboratory NELAC□accredited under the Te□as Laboratory Accreditation Program for the analytes, matrices, and methods associated with this laboratory data package□	X				3

Laboratory Name:	Accutest Gulf Coast	LRC Date:	4/4/2013
Pro□ect Name:	CITGO Indian MARAIS	Laboratory Pro□ect Number:	TC27860
Reviewer Name:	Anita Patel	Prep Batch Number(s):	GN49549, OP27766, OP27767

#[1]	A[2]	DESCRIPTION	□ES	NO	NA[3]	NR[4]	ER #[5]
S1	OI	Initial calibration (ICAL)					
		□ ere response factors and/or relative response factors for each analyte within □C limits□	X				
		□ ere percent RSDs or correlation coefficient criteria met□	X				
		□ as the number of standards recommended in the method used for all analytes□	X				
		□ ere all points generated between the lowest and highest standard used to calculate the curve□	X				
		Are ICAL data available for all instruments used□	X				
		Has the initial calibration curve been verified using an appropriate second source standard□	X				
S2	OI	Initial and continuing calibration verification (ICCV AND CCV) and continuing					
		□ as the CCV analyzed at the method□required frequency□	X				
		□ ere percent differences for each analyte within the method□required □C limits□	X				
		□ as the ICAL curve verified for each analyte□	X				
		□ as the absolute value of the analyte concentration in the inorganic CCB□MDL□			X		
S3	O	Mass spectral tuning					
		□ as the appropriate compound for the method used for tuning□	X				
		□ ere ion abundance data within the method□required □C limits□	X				
S4	O	Internal standards (IS)					
		□ ere IS area counts and retention times within the method□required □C limits□	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		□ ere the raw data (for e□ample, chromatograms, spectral data) reviewed by an analyst□	X				
		□ ere data associated with manual integrations flagged on the raw data□	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method□required □C□			X		
S7	O	Tentatively identified compounds (TICs):					
		If TICs were requested, were the mass spectra and TIC data sub□ect to appropriate checks□			X		
S8	I	Interference Check Sample (ICS) results					
		□ ere percent recoveries within method □C limits□			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		□ ere percent differences, recoveries, and the linearity within the □C limits specified in the method□			X		
S10	OI	Method detection limit (MDL) studies					
		□ as a MDL study performed for each reported analyte□	X				
		Is the MDL either ad□usted or supported by the analysis of DCSs□	X				
S11	OI	Proficiency test reports					
		□ as the laboratory□s performance acceptable on the applicable proficiency tests or evaluation studies□	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST□traceable or obtained from other appropriate source□	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented□	X				
S14	OI	Demonstration of analyst competency (DOC)					
		□ as DOC conducted consistent with NELAC Chapter 5□	X				
		Is documentation of the analyst□s competency up□to□date and on file□	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documentated, verified, and validated, where applicable□	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed□	X				

LABORATORY REVIEW CHECKLIST (continued): Exception Reports			
Laboratory Name:	Accutest Gulf Coast	LRC Date:	4/4/2013
Project Name:	CITGO Indian MARAIS	Laboratory Project Number:	TC27860
Reviewer Name:	Anita Patel	Prep Batch Number(s):	GN49549, OP27766, OP27767

ER#[1]	Description
1	For reporting purposes, the MDL is defined in the report as the RL. The unadjusted MDL/RL is reported in the method blank. The SDL is defined in the report as the MDL.
2	For reporting purposes, the method blank represents the unadjusted MDL. The DCS is on file in the laboratory and is not included in the laboratory data package.
3	The laboratory is NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices, and methods associated with this laboratory data package for analytes that are listed in the Texas Fields of Accreditation.
4	All anomalies are discussed in the case narrative.

1ER# - Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked on

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP27766-MB	V14547.D	1	03/29/13	GJ	03/29/13	OP27766	EV834

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

TC27860-1, TC27860-2, TC27860-3, TC27860-4, TC27860-5, TC27860-6, TC27860-7

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	6.7	1.9	ug/kg	
208-96-8	Acenaphthylene	ND	6.7	1.7	ug/kg	
120-12-7	Anthracene	ND	6.7	1.7	ug/kg	
56-55-3	Benzo(a)anthracene	ND	6.7	1.1	ug/kg	
50-32-8	Benzo(a)pyrene	ND	6.7	1.4	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	6.7	2.5	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	6.7	2.5	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	6.7	2.7	ug/kg	
218-01-9	Chrysene	ND	6.7	2.4	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	6.7	1.0	ug/kg	
206-44-0	Fluoranthene	ND	6.7	2.3	ug/kg	
86-73-7	Fluorene	ND	6.7	1.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	6.7	2.6	ug/kg	
91-57-6	2-Methylnaphthalene	ND	6.7	1.7	ug/kg	
91-20-3	Naphthalene	ND	6.7	1.5	ug/kg	
85-01-8	Phenanthrene	ND	6.7	1.3	ug/kg	
129-00-0	Pyrene	ND	6.7	1.3	ug/kg	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	58%	10-127%
321-60-8	2-Fluorobiphenyl	62%	11-133%
1718-51-0	Terphenyl-d14	77%	22-132%

Method Blank Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP27767-MB	V14548.D	1	03/29/13	GJ	03/29/13	OP27767	EV834

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

TC27860-8, TC27860-9

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.20	0.064	ug/l	
208-96-8	Acenaphthylene	ND	0.20	0.050	ug/l	
120-12-7	Anthracene	ND	0.20	0.050	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	0.050	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.20	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	0.050	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	0.058	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	0.074	ug/l	
218-01-9	Chrysene	ND	0.20	0.041	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	0.054	ug/l	
206-44-0	Fluoranthene	ND	0.20	0.081	ug/l	
86-73-7	Fluorene	ND	0.20	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	0.050	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.20	0.050	ug/l	
91-20-3	Naphthalene	ND	0.20	0.10	ug/l	
85-01-8	Phenanthrene	ND	0.20	0.050	ug/l	
129-00-0	Pyrene	ND	0.20	0.041	ug/l	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	68%	17-131%
321-60-8	2-Fluorobiphenyl	67%	11-122%
1718-51-0	Terphenyl-d14	85%	21-144%

Blank Spike Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP27766-BS	V14549.D	1	03/29/13	GJ	03/29/13	OP27766	EV834

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

TC27860-1, TC27860-2, TC27860-3, TC27860-4, TC27860-5, TC27860-6, TC27860-7

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	167	111	67	35-110
208-96-8	Acenaphthylene	167	120	72	36-120
120-12-7	Anthracene	167	118	71	44-116
56-55-3	Benzo(a)anthracene	167	125	75	45-119
50-32-8	Benzo(a)pyrene	167	117	70	41-117
205-99-2	Benzo(b)fluoranthene	167	132	79	45-134
191-24-2	Benzo(g,h,i)perylene	167	127	76	44-133
207-08-9	Benzo(k)fluoranthene	167	127	76	51-127
218-01-9	Chrysene	167	132	79	44-119
53-70-3	Dibenzo(a,h)anthracene	167	128	77	48-129
206-44-0	Fluoranthene	167	127	76	45-124
86-73-7	Fluorene	167	120	72	34-119
193-39-5	Indeno(1,2,3-cd)pyrene	167	124	74	42-130
91-57-6	2-Methylnaphthalene	167	105	63	33-106
91-20-3	Naphthalene	167	103	62	33-106
85-01-8	Phenanthrene	167	116	70	44-111
129-00-0	Pyrene	167	137	82	45-119

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	64%	10-127%
321-60-8	2-Fluorobiphenyl	68%	11-133%
1718-51-0	Terphenyl-d14	82%	22-132%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP27767-BS	V14552.D	1	03/29/13	GJ	03/29/13	OP27767	EV834
OP27767-BSD	V14551.D	1	03/29/13	GJ	03/29/13	OP27767	EV834

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

TC27860-8, TC27860-9

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	5	3.3	66	3.7	74	11	19-119/30
208-96-8	Acenaphthylene	5	3.6	72	4.1	82	13	25-123/30
120-12-7	Anthracene	5	3.6	72	4.1	82	13	33-126/30
56-55-3	Benzo(a)anthracene	5	3.7	74	4.2	84	13	38-126/30
50-32-8	Benzo(a)pyrene	5	3.5	70	4.0	80	13	38-123/30
205-99-2	Benzo(b)fluoranthene	5	3.9	78	4.5	90	14	43-132/30
191-24-2	Benzo(g,h,i)perylene	5	3.7	74	4.2	84	13	43-131/30
207-08-9	Benzo(k)fluoranthene	5	3.7	74	4.1	82	10	45-132/30
218-01-9	Chrysene	5	3.9	78	4.4	88	12	34-129/30
53-70-3	Dibenzo(a,h)anthracene	5	3.7	74	4.3	86	15	42-132/30
206-44-0	Fluoranthene	5	3.8	76	4.3	86	12	39-129/30
86-73-7	Fluorene	5	3.5	70	4.0	80	13	26-123/30
193-39-5	Indeno(1,2,3-cd)pyrene	5	3.7	74	4.3	86	15	38-132/30
91-57-6	2-Methylnaphthalene	5	3.2	64	3.5	70	9	19-110/30
91-20-3	Naphthalene	5	3.1	62	3.5	70	12	19-115/30
85-01-8	Phenanthrene	5	3.4	68	3.9	78	14	32-121/30
129-00-0	Pyrene	5	4.0	80	4.6	92	14	33-131/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
4165-60-0	Nitrobenzene-d5	70%	76%	17-131%
321-60-8	2-Fluorobiphenyl	67%	73%	11-122%
1718-51-0	Terphenyl-d14	81%	88%	21-144%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP27766-MS	V14576.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
OP27766-MSD	V14577.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
TC27860-2	V14575.D	1	04/01/13	GJ	03/29/13	OP27766	EV835
TC27860-2	V14566.D	10	04/01/13	GJ	03/29/13	OP27766	EV835

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

TC27860-1, TC27860-2, TC27860-3, TC27860-4, TC27860-5, TC27860-6, TC27860-7

CAS No.	Compound	TC27860-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		435	212	49	195	45	8	35-110/45
208-96-8	Acenaphthylene	44.1		435	273	53	250	48	9	36-120/44
120-12-7	Anthracene	24.7		435	252	52	236	49	7	44-116/43
56-55-3	Benzo(a)anthracene	353		435	286	-15*	266	-20*	7	45-119/40
50-32-8	Benzo(a)pyrene	66.2		435	305	55	293	52	4	41-117/42
205-99-2	Benzo(b)fluoranthene	69.0		435	320	58	324	59	1	45-134/42
191-24-2	Benzo(g,h,i)perylene	77.4		435	321	56	313	54	3	44-133/42
207-08-9	Benzo(k)fluoranthene	15.1	J	435	259	56	230	50*	12	51-127/42
218-01-9	Chrysene	652		435	298	-81*	288	-84*	3	44-119/40
53-70-3	Dibenzo(a,h)anthracene	21.8		435	283	60	274	58	3	48-129/45
206-44-0	Fluoranthene	410		435	273	-32*	249	-37*	9	45-124/45
86-73-7	Fluorene	ND		435	226	52	206	48	9	34-119/43
193-39-5	Indeno(1,2,3-cd)pyrene	44.6		435	321	64	298	58	7	42-130/43
91-57-6	2-Methylnaphthalene	49.2		435	236	43	212	38	11	33-106/44
91-20-3	Naphthalene	24.2		435	194	39	177	35	9	33-106/39
85-01-8	Phenanthrene	24.8		435	247	51	234	48	5	44-111/35
129-00-0	Pyrene	3100 [b]		435	387	-681* [a]	349	-692* [a]	10	45-119/36

CAS No.	Surrogate Recoveries	MS	MSD	TC27860-2	TC27860-2	Limits
4165-60-0	Nitrobenzene-d5	44%	38%	31%	26%	10-127%
321-60-8	2-Fluorobiphenyl	39%	34%	32%	32%	11-133%
1718-51-0	Terphenyl-d14	72%	61%	60%	56%	22-132%

(a) Outside control limits due to high level in sample relative to spike amount.
(b) Result is from Run #2.

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample: EV831-DFTPP
Lab File ID: V14501.D
Instrument ID: GCMSV
Injection Date: 03/26/13
Injection Time: 10:31

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	58160	37.1		Pass
68	Less than 2.0% of mass 69	1276	0.81	(1.92) [a]	Pass
69	Mass 69 relative abundance	66568	42.4		Pass
70	Less than 2.0% of mass 69	362	0.23	(0.54) [a]	Pass
127	40.0 - 60.0% of mass 198	75021	47.8		Pass
197	Less than 1.0% of mass 198	236	0.15		Pass
198	Base peak, 100% relative abundance	156864	100.0		Pass
199	5.0 - 9.0% of mass 198	10340	6.59		Pass
275	10.0 - 30.0% of mass 198	39749	25.3		Pass
365	1.0 - 100.0% of mass 198	5124	3.27		Pass
441	Present, but less than mass 443	15547	9.91	(76.3) [b]	Pass
442	40.0 - 100.0% of mass 198	103835	66.2		Pass
443	17.0 - 23.0% of mass 442	20389	13.0	(19.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EV831-IC831	V14502.D	03/26/13	10:45	00:14	Initial cal 0.1
EV831-IC831	V14503.D	03/26/13	11:13	00:42	Initial cal 0.2
EV831-IC831	V14504.D	03/26/13	11:41	01:10	Initial cal 0.5
EV831-IC831	V14505.D	03/26/13	12:09	01:38	Initial cal 1.0
EV831-ICC831	V14506.D	03/26/13	12:38	02:07	Initial cal 2.5
EV831-IC831	V14507.D	03/26/13	13:06	02:35	Initial cal 5.0
EV831-IC831	V14508.D	03/26/13	13:34	03:03	Initial cal 10.0
EV831-ICV831	V14509.D	03/26/13	14:02	03:31	Initial cal verification 5.0
OP27720-MB	V14511.D	03/26/13	15:10	04:39	Method Blank
OP27720-BS	V14512.D	03/26/13	15:39	05:08	Blank Spike
TC27469-3	V14513.D	03/26/13	16:06	05:35	(used for QC only; not part of job TC27860)
TC27469-3	V14514.D	03/26/13	16:34	06:03	(used for QC only; not part of job TC27860)
ZZZZZZ	V14515.D	03/26/13	17:02	06:31	(unrelated sample)
ZZZZZZ	V14517.D	03/26/13	17:58	07:27	(unrelated sample)
ZZZZZZ	V14518.D	03/26/13	18:26	07:55	(unrelated sample)
OP27720-MS	V14519.D	03/26/13	18:55	08:24	Matrix Spike
OP27720-MSD	V14520.D	03/26/13	19:23	08:52	Matrix Spike Duplicate

Instrument Performance Check (DFTPP)

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample: EV834-DFTPP
Lab File ID: V14545.D
Instrument ID: GCMSV
Injection Date: 03/29/13
Injection Time: 13:26

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	66155	38.9		Pass
68	Less than 2.0% of mass 69	1502	0.88	(1.96) [a]	Pass
69	Mass 69 relative abundance	76712	45.0		Pass
70	Less than 2.0% of mass 69	172	0.10	(0.22) [a]	Pass
127	40.0 - 60.0% of mass 198	86117	50.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	170283	100.0		Pass
199	5.0 - 9.0% of mass 198	11583	6.80		Pass
275	10.0 - 30.0% of mass 198	43357	25.5		Pass
365	1.0 - 100.0% of mass 198	5195	3.05		Pass
441	Present, but less than mass 443	15305	8.99	(73.8) [b]	Pass
442	40.0 - 100.0% of mass 198	105752	62.1		Pass
443	17.0 - 23.0% of mass 442	20738	12.2	(19.6) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EV834-CC831	V14546.D	03/29/13	13:39	00:13	Continuing cal 1.0
OP27766-MB	V14547.D	03/29/13	14:07	00:41	Method Blank
OP27767-MB	V14548.D	03/29/13	14:35	01:09	Method Blank
OP27766-BS	V14549.D	03/29/13	15:03	01:37	Blank Spike
OP27767-BSD	V14551.D	03/29/13	16:00	02:34	Blank Spike Duplicate
OP27767-BS	V14552.D	03/29/13	16:28	03:02	Blank Spike
TC27860-8	V14553.D	03/29/13	16:56	03:30	ERG/1
TC27860-9	V14554.D	03/29/13	17:24	03:58	FB

Instrument Performance Check (DFTPP)

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample: EV835-DFTPP
Lab File ID: V14562.D
Instrument ID: GCMSV
Injection Date: 04/01/13
Injection Time: 09:34

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
51	30.0 - 60.0% of mass 198	59787	36.6		Pass
68	Less than 2.0% of mass 69	1271	0.78	(1.82) [a]	Pass
69	Mass 69 relative abundance	69843	42.8		Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) [a]	Pass
127	40.0 - 60.0% of mass 198	79336	48.6		Pass
197	Less than 1.0% of mass 198	0	0.00		Pass
198	Base peak, 100% relative abundance	163157	100.0		Pass
199	5.0 - 9.0% of mass 198	11107	6.81		Pass
275	10.0 - 30.0% of mass 198	42272	25.9		Pass
365	1.0 - 100.0% of mass 198	5320	3.26		Pass
441	Present, but less than mass 443	15389	9.43	(75.2) [b]	Pass
442	40.0 - 100.0% of mass 198	107008	65.6		Pass
443	17.0 - 23.0% of mass 442	20473	12.5	(19.1) [c]	Pass

(a) Value is % of mass 69
(b) Value is % of mass 443
(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EV835-CC831	V14564.D	04/01/13	10:15	00:41	Continuing cal 1.0
TC27860-2	V14566.D	04/01/13	11:13	01:39	IM4
TC27860-7	V14567.D	04/01/13	11:41	02:07	IM2
TC27860-1	V14568.D	04/01/13	12:10	02:36	IM3
TC27860-6	V14569.D	04/01/13	12:38	03:04	IM1
TC27860-5	V14570.D	04/01/13	13:06	03:32	IM6
TC27860-3	V14573.D	04/01/13	14:29	04:55	IM4D
TC27860-4	V14574.D	04/01/13	14:57	05:23	IM5
TC27860-2	V14575.D	04/01/13	15:25	05:51	IM4
OP27766-MS	V14576.D	04/01/13	15:53	06:19	Matrix Spike
OP27766-MSD	V14577.D	04/01/13	16:21	06:47	Matrix Spike Duplicate
TC27860-7	V14578.D	04/01/13	16:49	07:15	IM2
OP27790-BS	V14581.D	04/01/13	18:13	08:39	Blank Spike
OP27790-BSD	V14582.D	04/01/13	18:41	09:07	Blank Spike Duplicate
OP27790-MB	V14583.D	04/01/13	19:08	09:34	Method Blank
ZZZZZZ	V14584.D	04/01/13	19:36	10:02	(unrelated sample)
ZZZZZZ	V14585.D	04/01/13	20:04	10:30	(unrelated sample)
ZZZZZZ	V14586.D	04/01/13	20:32	10:58	(unrelated sample)
ZZZZZZ	V14587.D	04/01/13	21:00	11:26	(unrelated sample)

Semivolatile Internal Standard Area Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Check Std:	EV834-CC831	**Injection Date:**	03/29/13
Lab File ID:	V14546.D	**Injection Time:**	13:39
Instrument ID:	GCMSV	**Method:**	SW846 8270C BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	10359	5.11	53028	6.27	26948	8.66	46876	11.31	37936	16.49	44315	19.12
Upper Limit [a]	20718	5.61	106056	6.77	53896	9.16	93752	11.81	75872	16.99	88630	19.62
Lower Limit [b]	5180	4.61	26514	5.77	13474	8.16	23438	10.81	18968	15.99	22158	18.62

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
OP27766-MB	11105	5.11	57297	6.27	29649	8.66	53255	11.31	38657	16.49	42630	19.12
OP27767-MB	10986	5.11	56790	6.27	29686	8.66	54145	11.31	39364	16.49	43466	19.12
OP27766-BS	11147	5.11	57646	6.27	30036	8.66	53186	11.31	40274	16.49	44655	19.12
OP27767-BSD	11151	5.11	57983	6.27	30585	8.66	53704	11.30	40597	16.49	45720	19.12
OP27767-BS	11632	5.11	60544	6.27	32538	8.66	57876	11.30	44034	16.49	48880	19.12
TC27860-8	11307	5.11	57931	6.27	30110	8.66	54037	11.30	39902	16.49	44393	19.12
TC27860-9	11355	5.11	57898	6.27	29358	8.66	52878	11.30	37764	16.49	42649	19.12

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Semivolatile Internal Standard Area Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Check Std:	EV835-CC831	**Injection Date:**	04/01/13
Lab File ID:	V14564.D	**Injection Time:**	10:15
Instrument ID:	GCMSV	**Method:**	SW846 8270C BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
Check Std	12835	5.10	67640	6.26	35835	8.64	63404	11.28	51899	16.47	56863	19.10
Upper Limit [a]	25670	5.60	135280	6.76	71670	9.14	126808	11.78	103798	16.97	113726	19.60
Lower Limit [b]	6418	4.60	33820	5.76	17918	8.14	31702	10.78	25950	15.97	28432	18.60

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT	IS 6 AREA	RT
TC27860-2	14949	5.10	83638	6.26	42108	8.64	71019	11.29	50252	16.47	49924	19.10
TC27860-7	16981	5.10	94035	6.26	45309	8.64	73235	11.29	44183	16.46	45410	19.09
TC27860-1	14890	5.10	83777	6.26	42067	8.64	68926	11.29	43610	16.47	40078	19.10
TC27860-6	15046	5.10	86168	6.26	42501	8.64	70146	11.29	40937	16.47	38850	19.10
TC27860-5	15052	5.10	84651	6.26	41534	8.64	66349	11.29	39219	16.47	38313	19.10
TC27860-3	15746	5.10	87096	6.26	40779	8.65	62343	11.30	40127	16.48	40930	19.11
TC27860-4	14956	5.10	83531	6.26	40144	8.65	63578	11.30	36987	16.48	35626	19.11
TC27860-2	14974	5.10	82806	6.26	40205	8.65	63084	11.30	37343	16.48	36741	19.11
OP27766-MS	14387	5.10	81706	6.26	40245	8.65	65081	11.30	38462	16.48	37022	19.12
OP27766-MSD	14571	5.10	81547	6.26	39533	8.66	62290	11.30	37379	16.49	36879	19.12
TC27860-7	14869	5.10	82956	6.26	41300	8.65	66242	11.30	38144	16.49	37692	19.12
OP27790-BS	14893	5.10	83272	6.26	42242	8.65	69620	11.30	41080	16.48	40912	19.11
OP27790-BSD [c]	14833	5.10	82811	6.26	42016	8.65	68802	11.30	40327	16.48	40764	19.11
OP27790-MB	14619	5.10	81646	6.26	41620	8.65	69068	11.30	40082	16.48	40980	19.11
ZZZZZZ	14887	5.10	83077	6.26	41945	8.65	69071	11.30	40535	16.48	41681	19.11
ZZZZZZ	14964	5.10	83948	6.26	42275	8.65	70407	11.30	40620	16.48	42096	19.11
ZZZZZZ	14488	5.10	81741	6.26	42168	8.65	71358	11.30	41742	16.48	43341	19.11
ZZZZZZ	15650	5.10	87378	6.26	44542	8.65	72261	11.30	43192	16.48	45110	19.11

IS 1 = 1,4-Dichlorobenzene-d4
IS 2 = Naphthalene-d8
IS 3 = Acenaphthene-D10
IS 4 = Phenanthrene-d10
IS 5 = Chrysene-d12
IS 6 = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Insufficient sample for MS/MSD.

Semivolatile Surrogate Recovery Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Method: SW846 8270C BY SIM **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
TC27860-8	V14553.D	60.0	61.0	79.0
TC27860-9	V14554.D	72.0	74.0	87.0
OP27767-BS	V14552.D	70.0	67.0	81.0
OP27767-BSD	V14551.D	76.0	73.0	88.0
OP27767-MB	V14548.D	68.0	67.0	85.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	17-131%
S2 = 2-Fluorobiphenyl	11-122%
S3 = Terphenyl-d14	21-144%

Semivolatile Surrogate Recovery Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Method: SW846 8270C BY SIM **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
TC27860-1	V14568.D	33.0	33.0	59.0
TC27860-2	V14566.D	26.0	32.0	56.0
TC27860-2	V14575.D	31.0	32.0	60.0
TC27860-3	V14573.D	50.0	45.0	64.0
TC27860-4	V14574.D	45.0	36.0	66.0
TC27860-5	V14570.D	46.0	39.0	81.0
TC27860-6	V14569.D	43.0	41.0	86.0
TC27860-7	V14578.D	39.0	41.0	77.0
TC27860-7	V14567.D	35.0	40.0	70.0
OP27766-BS	V14549.D	64.0	68.0	82.0
OP27766-MB	V14547.D	58.0	62.0	77.0
OP27766-MS	V14576.D	44.0	39.0	72.0
OP27766-MSD	V14577.D	38.0	34.0	61.0

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	10-127%
S2 = 2-Fluorobiphenyl	11-133%
S3 = Terphenyl-d14	22-132%

Initial Calibration Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS
Sample: EV831-ICC831
Lab FileID: V14506.D

Response Factor Report MS V

Method : C:\msdchem\1\METHODS\ev831sim.m (RTE Integrator)
Title :
Last Update : Tue Mar 26 13:55:17 2013
Response via : Initial Calibration

Calibration Files
0.1 =v14502.D 0.2 =v14503.D 1.0 =v14505.D 2.5 =v14506.D
5.0 =v14507.D 10.0=v14508.D 0.5 =v14504.D

Compound	0.1	0.2	1.0	2.5	5.0	10.0	0.5	Avg	%RSD
1) I 1,4-Dichlorobenzene-d	----------ISTD----------								
2)S 2-Fluorophenol (S	1.125	1.127	1.142	1.173	1.161	1.161	1.186	1.154	2.02
3)S Phenol-d5 (SURR)	1.355	1.373	1.391	1.437	1.434	1.435	1.447	1.411	2.60
4)CPbis(2-chloroethyl	1.277	1.270	1.252	1.313	1.292	1.295	1.311	1.287	1.73
5) I Naphthalene-d8	----------ISTD----------								
6)S Nitrobenzene-d5 (	0.305	0.301	0.318	0.329	0.318	0.331	0.315	0.317	3.54
7)CPNaphthalene	1.015	0.977	0.999	1.012	0.974	1.006	1.003	0.998	1.62
8) Quinoline	0.630	0.608	0.632	0.664	0.634	0.665	0.638	0.639	3.14
9)CP2-Methylnaphthale	0.644	0.642	0.684	0.715	0.695	0.726	0.676	0.683	4.73
10)CP1-Methylnaphthale	0.607	0.597	0.636	0.666	0.643	0.671	0.630	0.636	4.34
11) I Acenaphthene-d10	----------ISTD----------								
12)S 2-Fluorobiphenyl	1.514	1.485	1.509	1.526	1.467	1.498	1.508	1.501	1.30
13)CPAcenaphthylene	1.608	1.603	1.738	1.819	1.775	1.852	1.692	1.727	5.65
14)CPAcenaphthene	1.099	1.070	1.096	1.124	1.089	1.126	1.091	1.099	1.80
15)CPDibenzofuran	1.539	1.513	1.578	1.624	1.561	1.605	1.577	1.571	2.42
16)CPFluorene	1.273	1.243	1.337	1.411	1.371	1.428	1.319	1.340	5.09
17) I Phenanthrene-d10	----------ISTD----------								
18)CPHexachlorobenzene	0.258	0.245	0.248	0.252	0.243	0.251	0.249	0.250	2.01
19)S 2,4,6-Tribromophe	0.082	0.083	0.093	0.097	0.094	0.096	0.090	0.091	6.57
20)CPPentachlorophenol	0.090	0.081	0.096	0.113	0.120	0.133	0.088	0.103	18.76
---- Quadratic regression ---- Coefficient = 0.9996									
Response Ratio = -0.00191 + 0.08926 *A + 0.01779 *A^2									
21)CPPhenanthrene	1.186	1.132	1.171	1.200	1.162	1.205	1.179	1.176	2.11
22)CPAnthracene	1.049	1.010	1.111	1.175	1.167	1.224	1.074	1.116	6.88
23)CPFluoranthene	1.100	1.037	1.131	1.233	1.226	1.300	1.104	1.162	8.01
24) I Chrysene-d12	----------ISTD----------								
25)CPPyrene	1.476	1.363	1.267	1.524	1.502	1.584	1.394	1.444	7.52
26)S Terphenyl-d14	0.628	0.601	0.576	0.664	0.636	0.642	0.637	0.626	4.61
27)CPBenzo(a)anthracen	1.564	1.385	1.194	1.404	1.381	1.458	1.354	1.391	8.04
28)CPChrysene	1.434	1.328	1.217	1.404	1.366	1.408	1.366	1.360	5.31
29) I Perylene-d12	----------ISTD----------								
30)CPBenzo(b)fluoranth	1.047	1.000	0.967	1.185	1.271	1.311	1.058	1.120	12.11
31)CPBenzo(k)fluoranth	1.262	1.210	1.172	1.285	1.304	1.377	1.263	1.268	5.19
32)CPBenzo(a)pyrene	1.057	1.003	0.963	1.175	1.215	1.283	1.041	1.105	10.80
33)CPIndeno(1,2,3-cd)p	0.904	0.875	0.839	1.038	1.006	1.072	0.919	0.950	9.29
34)CPDibenz(a,h)anthra	1.031	1.045	0.972	1.164	1.166	1.225	1.074	1.097	8.23
35)CPBenzo(g,h,i)peryl	1.187	1.118	1.036	1.224	1.214	1.266	1.144	1.170	6.58

(#) = Out of Range

Initial Calibration Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample: EV831-ICC831
Lab FileID: V14506.D

ev831sim.m Tue Mar 26 14:35:53 2013

Initial Calibration Verification

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS
Sample: EV831-ICV831
Lab FileID: V14509.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\EV831\v14509.D Vial: 9
Acq On : 26 Mar 2013 2:02 pm Operator: garyj
Sample : icv831-5.0 Inst : MS V
Misc : op21163,ev831,1000,,,1,1,water Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\ev831sim.m (RTE Integrator)
Title :
Last Update : Tue Mar 26 14:36:28 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	5.13
2	S	2-Fluorophenol (SURR)		----------NA----------				
3	S	Phenol-d5 (SURR)		----------NA----------				
4	CP	bis(2-chloroethyl)ether	1.287	1.197	7.0	93	0.00	4.91
5	I	Naphthalene-d8	1.000	1.000	0.0	97	0.00	6.29
6	S	Nitrobenzene-d5 (SURR)		----------NA----------				
7	CP	Naphthalene	0.998	0.928	7.0	92	0.00	6.32
8		Quinoline	0.639	0.622	2.7	95	0.00	6.69
9	CP	2-Methylnaphthalene	0.683	0.632	7.5	88	0.00	7.15
10	CP	1-Methylnaphthalene	0.636	0.604	5.0	91	0.00	7.28
11	I	Acenaphthene-d10	1.000	1.000	0.0	94	0.00	8.69
12	S	2-Fluorobiphenyl (SURR)		----------NA----------				
13	CP	Acenaphthylene	1.727	1.769	-2.4	93	0.00	8.46
14	CP	Acenaphthene	1.099	1.026	6.6	88	0.00	8.74
15	CP	Dibenzofuran	1.571	1.480	5.8	89	0.00	9.04
16	CP	Fluorene	1.340	1.288	3.9	88	0.00	9.63
17	I	Phenanthrene-d10	1.000	1.000	0.0	93	0.00	11.34
18	CP	Hexachlorobenzene	0.250	0.229	8.4	88	0.00	10.65
19	S	2,4,6-Tribromophenol (SUR		----------NA----------				
		----------	Amount	Calc.	%Drift		----------	
20	CP	Pentachlorophenol	5.000	4.999	0.0	89	0.00	11.04
		----------	AvgRF	CCRF	%Dev		----------	
21	CP	Phenanthrene	1.176	1.096	6.8	88	0.00	11.38
22	CP	Anthracene	1.116	1.117	-0.1	90	0.00	11.48
23	CP	Fluoranthene	1.162	1.183	-1.8	90	0.00	13.69
24	I	Chrysene-d12	1.000	1.000	0.0	91	0.01	16.53
25	CP	Pyrene	1.444	1.483	-2.7	89	0.00	14.12
26	S	Terphenyl-d14		----------NA----------				
27	CP	Benzo(a)anthracene	1.391	1.324	4.8	87	0.00	16.50
28	CP	Chrysene	1.360	1.336	1.8	89	0.00	16.57
29	I	Perylene-d12	1.000	1.000	0.0	92	0.00	19.16
30	CP	Benzo(b)fluoranthene	1.120	1.237	-10.4	89	0.00	18.50
31	CP	Benzo(k)fluoranthene	1.268	1.170	7.7	82	0.00	18.55
32	CP	Benzo(a)pyrene	1.105	1.080	2.3	82	0.00	19.05
33	CP	Indeno(1,2,3-cd)pyrene	0.950	0.932	1.9	85	0.00	20.96

Initial Calibration Verification

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample: EV831-ICV831
Lab FileID: V14509.D

34	CP	Dibenz(a,h)anthracene	1.097	1.103	-0.5	87	0.00	21.01
35	CP	Benzo(g,h,i)perylene	1.170	1.151	1.6	87	0.00	21.46

(#) = Out of Range SPCC's out = 0 CCC's out = 0
v14507.D ev831sim.m Tue Mar 26 14:36:40 2013

6.8.2

6

Continuing Calibration Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS
Sample: EV834-CC831
Lab FileID: V14546.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EV834\v14546.D            Vial: 2
Acq On    : 29 Mar 2013   1:39 pm                   Operator: garyj
Sample    : cc831-1.0                               Inst    : MS V
Misc      : op21163,ev834,1000,,,1,1,water          Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\ev831sim.m (RTE Integrator)
Title        :
Last Update  : Tue Mar 26 13:55:17 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	97	0.00	5.11
2	S	2-Fluorophenol (SURR)	1.154	1.131	2.0	96	0.00	4.17
3	S	Phenol-d5 (SURR)	1.411	1.406	0.4	98	0.00	4.85
4	CP	bis(2-chloroethyl)ether	1.287	1.262	1.9	97	0.00	4.90
5	I	Naphthalene-d8	1.000	1.000	0.0	99	0.00	6.27
6	S	Nitrobenzene-d5 (SURR)	0.317	0.310	2.2	96	0.00	5.56
7	CP	Naphthalene	0.998	1.001	-0.3	99	0.00	6.29
8		Quinoline	0.639	0.647	-1.3	101	0.00	6.67
9	CP	2-Methylnaphthalene	0.683	0.694	-1.6	100	0.00	7.12
10	CP	1-Methylnaphthalene	0.636	0.642	-0.9	100	0.00	7.25
11	I	Acenaphthene-d10	1.000	1.000	0.0	102	0.00	8.66
12	S	2-Fluorobiphenyl (SURR)	1.501	1.493	0.5	101	0.00	7.63
13	CP	Acenaphthylene	1.727	1.764	-2.1	103	0.00	8.43
14	CP	Acenaphthene	1.099	1.110	-1.0	103	0.00	8.71
15	CP	Dibenzofuran	1.571	1.567	0.3	101	0.00	9.00
16	CP	Fluorene	1.340	1.381	-3.1	105	0.00	9.60
17	I	Phenanthrene-d10	1.000	1.000	0.0	103	0.00	11.31
18	CP	Hexachlorobenzene	0.250	0.248	0.8	103	0.00	10.62
19	S	2,4,6-Tribromophenol (SUR	0.091	0.089	2.2	99	0.00	10.03
		----------	Amount	Calc.	%Drift		----------	
20	CP	Pentachlorophenol	2.500	2.643	-5.7	111	0.00	11.01
		----------	AvgRF	CCRF	%Dev		----------	
21	CP	Phenanthrene	1.176	1.189	-1.1	105	0.00	11.35
22	CP	Anthracene	1.116	1.130	-1.3	105	0.00	11.45
23	CP	Fluoranthene	1.162	1.155	0.6	105	0.00	13.66
24	I	Chrysene-d12	1.000	1.000	0.0	91	0.00	16.49
25	CP	Pyrene	1.444	1.468	-1.7	105	0.00	14.09
26	S	Terphenyl-d14	0.626	0.582	7.0	92	0.00	14.48
27	CP	Benzo(a)anthracene	1.391	1.305	6.2	99	0.00	16.47
28	CP	Chrysene	1.360	1.339	1.5	100	-0.01	16.53
29	I	Perylene-d12	1.000	1.000	0.0	95	0.00	19.12
30	CP	Benzo(b)fluoranthene	1.120	1.048	6.4	104	0.00	18.47
31	CP	Benzo(k)fluoranthene	1.268	1.193	5.9	97	0.00	18.51
32	CP	Benzo(a)pyrene	1.105	1.013	8.3	100	0.00	19.02
33	CP	Indeno(1,2,3-cd)pyrene	0.950	0.814	14.3	93	0.00	20.92

Continuing Calibration Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample: EV834-CC831
Lab FileID: V14546.D

34	CP	Dibenz(a,h)anthracene	1.097	1.003	8.6	98	0.00	20.96
35	CP	Benzo(g,h,i)perylene	1.170	1.079	7.8	99	0.00	21.41

(#) = Out of Range SPCC's out = 0 CCC's out = 0
v14505.D ev831sim.m Fri Mar 29 14:01:55 2013

6.8.3

6

Continuing Calibration Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS
Sample: EV835-CC831
Lab FileID: V14564.D

Evaluate Continuing Calibration Report

```
Data File : C:\msdchem\1\DATA\EV835\v14564.D            Vial: 3
Acq On    :  1 Apr 2013  10:15 am                   Operator: garyj
Sample    : cc831-1.0                               Inst    : MS V
Misc      : op21163,ev835,1000,,,1,1,water          Multiplr: 1.00
MS Integration Params: rteint.p

Method       : C:\msdchem\1\METHODS\ev831sim.m (RTE Integrator)
Title        :
Last Update  : Tue Mar 26 13:55:17 2013
Response via : Multiple Level Calibration

Min. RRF     :   0.000  Min. Rel. Area :  50%  Max. R.T. Dev  0.50min
Max. RRF Dev :  20%     Max. Rel. Area : 200%
```

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	120	0.00	5.10
2	S	2-Fluorophenol (SURR)	1.154	1.128	2.3	118	0.00	4.16
3	S	Phenol-d5 (SURR)	1.411	1.410	0.1	122	0.00	4.83
4	CP	bis(2-chloroethyl)ether	1.287	1.269	1.4	121	0.00	4.88
5	I	Naphthalene-d8	1.000	1.000	0.0	126	0.00	6.26
6	S	Nitrobenzene-d5 (SURR)	0.317	0.314	0.9	124	0.00	5.55
7	CP	Naphthalene	0.998	1.002	-0.4	127	0.00	6.28
8		Quinoline	0.639	0.666	-4.2	133	0.00	6.65
9	CP	2-Methylnaphthalene	0.683	0.709	-3.8	131	0.00	7.10
10	CP	1-Methylnaphthalene	0.636	0.659	-3.6	131	0.00	7.23
11	I	Acenaphthene-d10	1.000	1.000	0.0	135	0.00	8.64
12	S	2-Fluorobiphenyl (SURR)	1.501	1.477	1.6	132	0.00	7.61
13	CP	Acenaphthylene	1.727	1.769	-2.4	138	0.00	8.41
14	CP	Acenaphthene	1.099	1.116	-1.5	138	0.00	8.69
15	CP	Dibenzofuran	1.571	1.581	-0.6	135	0.00	8.99
16	CP	Fluorene	1.340	1.400	-4.5	142	0.00	9.58
17	I	Phenanthrene-d10	1.000	1.000	0.0	139	0.00	11.28
18	CP	Hexachlorobenzene	0.250	0.245	2.0	137	0.00	10.60
19	S	2,4,6-Tribromophenol (SUR	0.091	0.090	1.1	135	0.00	10.01
		----------	Amount	Calc.	%Drift		----------	
20	CP	Pentachlorophenol	2.500	2.693	-7.7	154	0.00	10.98
		----------	AvgRF	CCRF	%Dev		----------	
21	CP	Phenanthrene	1.176	1.182	-0.5	141	0.00	11.33
22	CP	Anthracene	1.116	1.131	-1.3	142	0.00	11.42
23	CP	Fluoranthene	1.162	1.171	-0.8	144	0.00	13.63
24	I	Chrysene-d12	1.000	1.000	0.0	124	0.00	16.47
25	CP	Pyrene	1.444	1.465	-1.5	144	-0.02	14.06
26	S	Terphenyl-d14	0.626	0.597	4.6	129	-0.01	14.46
27	CP	Benzo(a)anthracene	1.391	1.311	5.8	136	0.00	16.45
28	CP	Chrysene	1.360	1.306	4.0	133	-0.01	16.51
29	I	Perylene-d12	1.000	1.000	0.0	122	0.00	19.10
30	CP	Benzo(b)fluoranthene	1.120	1.024	8.6	130	0.00	18.44
31	CP	Benzo(k)fluoranthene	1.268	1.241	2.1	130	0.00	18.49
32	CP	Benzo(a)pyrene	1.105	1.009	8.7	128	0.00	18.99
33	CP	Indeno(1,2,3-cd)pyrene	0.950	0.788	17.1	115	-0.02	20.88

Continuing Calibration Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample: EV835-CC831
Lab FileID: V14564.D

34	CP	Dibenz(a,h)anthracene	1.097	0.916	16.5	115	-0.02	20.93
35	CP	Benzo(g,h,i)perylene	1.170	0.978	16.4	116	-0.01	21.38

(#) = Out of Range SPCC's out = 0 CCC's out = 0
v14505.D ev831sim.m Mon Apr 01 10:55:27 2013

6.8.4

6

GC/MS Semi-volatiles

Raw Data

Data Validation
Review
Not Reviewed with Data
Validation
04/02/13 12:4

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On : 1 Apr 2013 12:10 pm
Operator : garyj
Sample : tc27860-1
Misc : op27766,ev835,30.19,,,1,1,soil
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 01 12:35:31 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	14890	4.00	ppm	0.00
5) Naphthalene-d8	6.256	136	83777	4.00	ppm	0.00
11) Acenaphthene-d10	8.645	164	42067	4.00	ppm	0.00
17) Phenanthrene-d10	11.291	188	68926	4.00	ppm	0.00
24) Chrysene-d12	16.472	240	43610	4.00	ppm	0.00
29) Perylene-d12	19.099	264	40078	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.163	112	16485	3.84	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 38.40%			
3) Phenol-d5 (SURR)	4.838	99	26870	5.12	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 51.20%			
6) Nitrobenzene-d5 (SURR)	5.553	82	10847	1.63	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 32.60%			
12) 2-Fluorobiphenyl (SURR)	7.613	172	25895	1.64	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 32.80%			
19) 2,4,6-Tribromophenol (...	10.013	330	8053	5.16	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 51.60%			
26) Terphenyl-d14	14.462	244	20056	2.94	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 58.80%			
Target Compounds						Qvalue
7) Naphthalene	6.280	128	2457	0.12	ppm	# 69
9) 2-Methylnaphthalene	7.104	142	3550	0.25	ppm	97
10) 1-Methylnaphthalene	7.235	142	1565m	0.12	ppm	
13) Acenaphthylene	8.414	152	673	0.04	ppm	# 62
16) Fluorene	9.583	166	864	0.06	ppm	# 82
21) Phenanthrene	11.332	178	4525	0.22	ppm	88
22) Anthracene	11.427	178	1656m	0.09	ppm	
23) Fluoranthene	13.638	202	6693	0.33	ppm	94
25) Pyrene	14.067	202	11214	0.71	ppm	# 88
27) Benzo(a)anthracene	16.451	228	3789m	0.25	ppm	
28) Chrysene	16.514	228	7465	0.50	ppm	# 70
30) Benzo(b)fluoranthene	18.452	252	4755m	0.42	ppm	
31) Benzo(k)fluoranthene	18.494	252	1003m	0.08	ppm	
32) Benzo(a)pyrene	18.994	252	4023	0.36	ppm	89
33) Indeno(1,2,3-cd)pyrene	20.892	276	2184	0.23	ppm	85
34) Dibenz(a,h)anthracene	20.933	278	1112	0.10	ppm	# 34
35) Benzo(g,h,i)perylene	21.382	276	4747	0.40	ppm	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

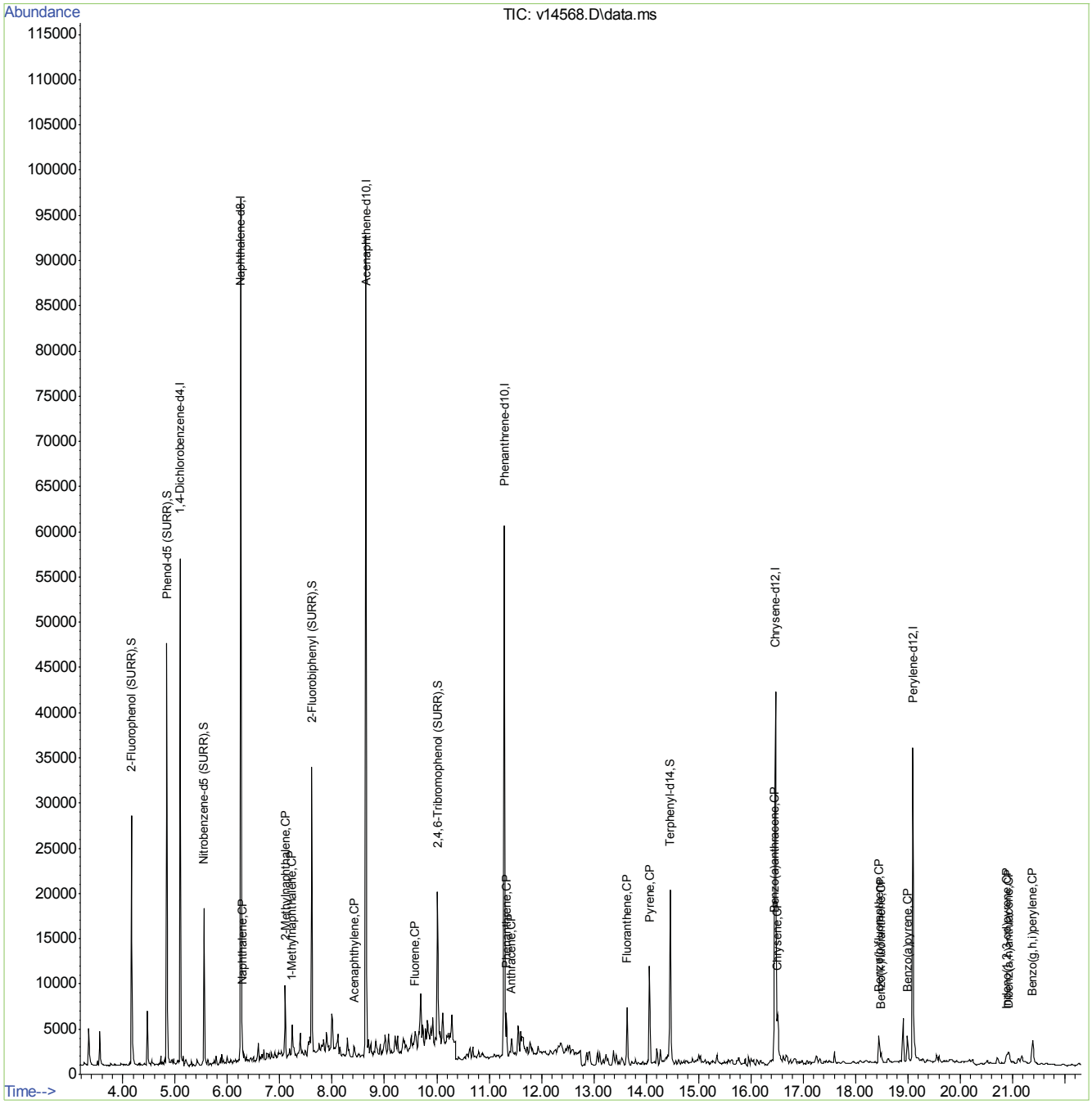
7.1.1

7

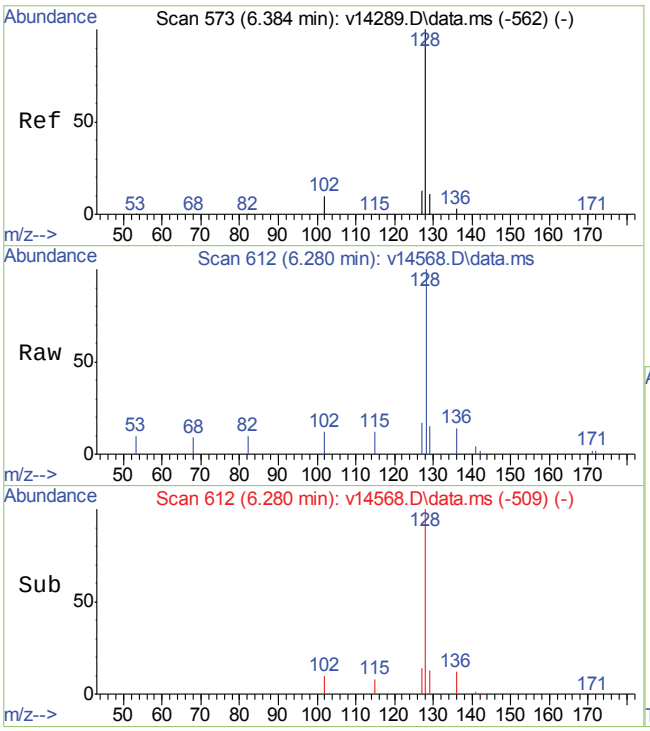
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On : 1 Apr 2013 12:10 pm
Operator : garyj
Sample : tc27860-1
Misc : op27766,ev835,30.19,,,1,1,soil
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 01 12:35:31 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration



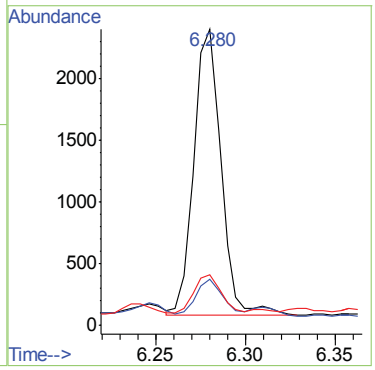
ev831sim.m Mon Apr 01 12:35:49 2013 Page: 2

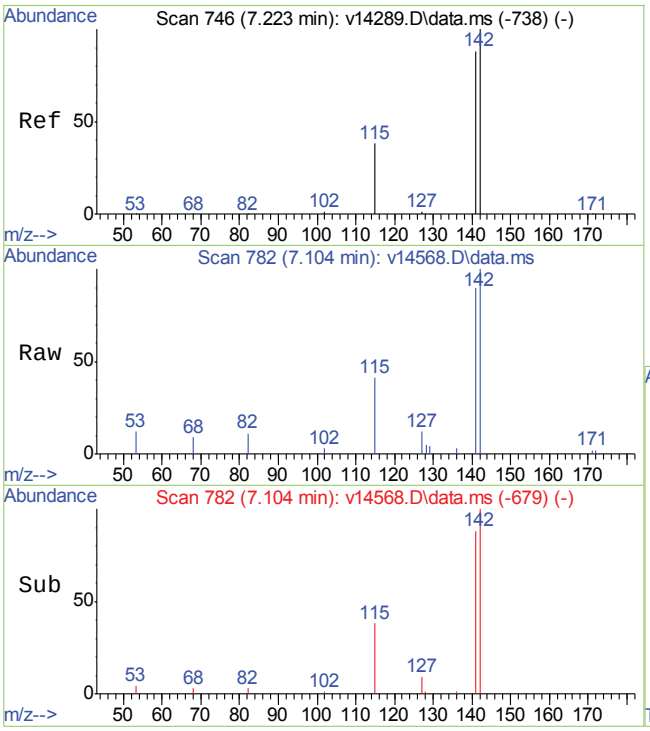


#7
Naphthalene
Concen: 0.12 ppm
RT: 6.280 min Scan# 612
Delta R.T. 0.000 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:128 Resp: 2457

Ion	Ratio	Lower	Upper
128	100		
129	0.0	0.0	31.0
127	0.0	0.0	32.9

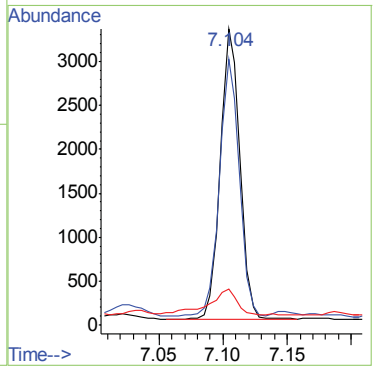


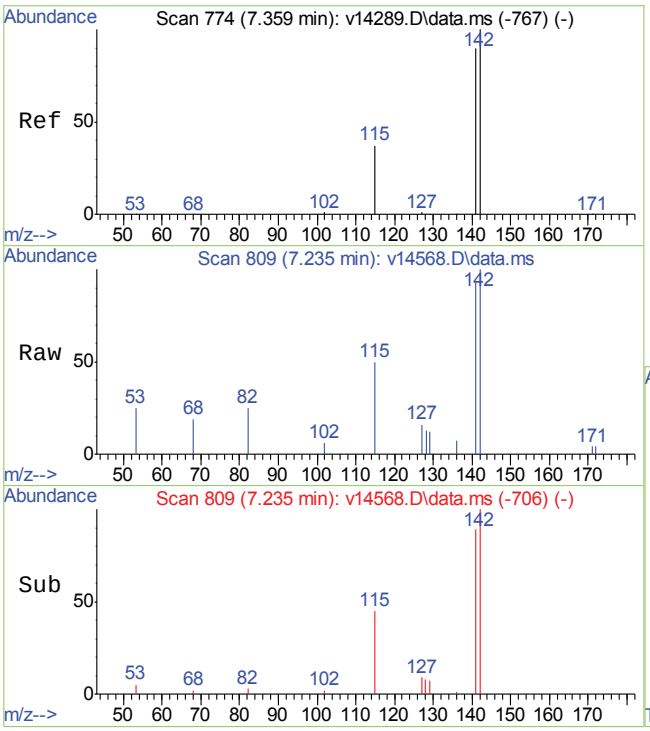


#9
2-Methylnaphthalene
Concen: 0.25 ppm
RT: 7.104 min Scan# 782
Delta R.T. 0.000 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:142 Resp: 3550

Ion	Ratio	Lower	Upper
142	100		
141	88.2	66.0	106.0
127	13.4	0.0	20.7

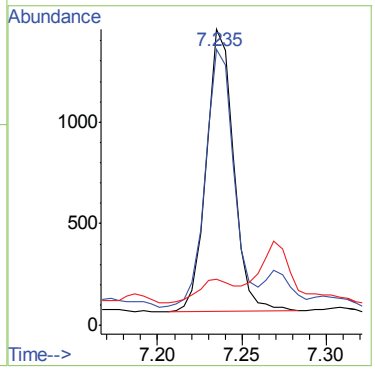


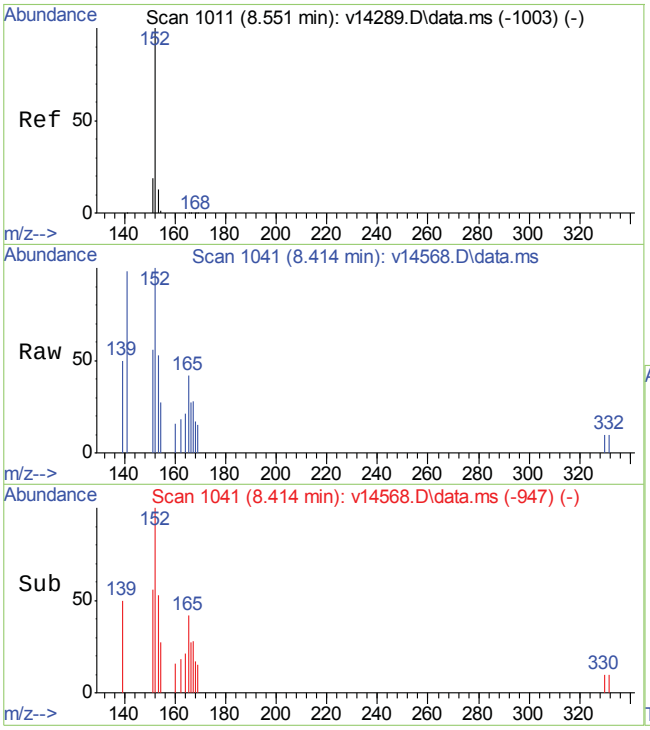


#10
1-Methylnaphthalene
Concen: 0.12 ppm m
RT: 7.235 min Scan# 809
Delta R.T. 0.001 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:142 Resp: 1565

Ion	Ratio	Lower	Upper
142	100		
141	200.7	69.6	109.6#
127	30.3	0.0	20.6#

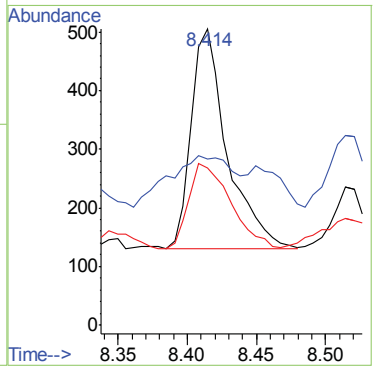




#13
Acenaphthylene
Concen: 0.04 ppm
RT: 8.414 min Scan# 1041
Delta R.T. 0.010 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

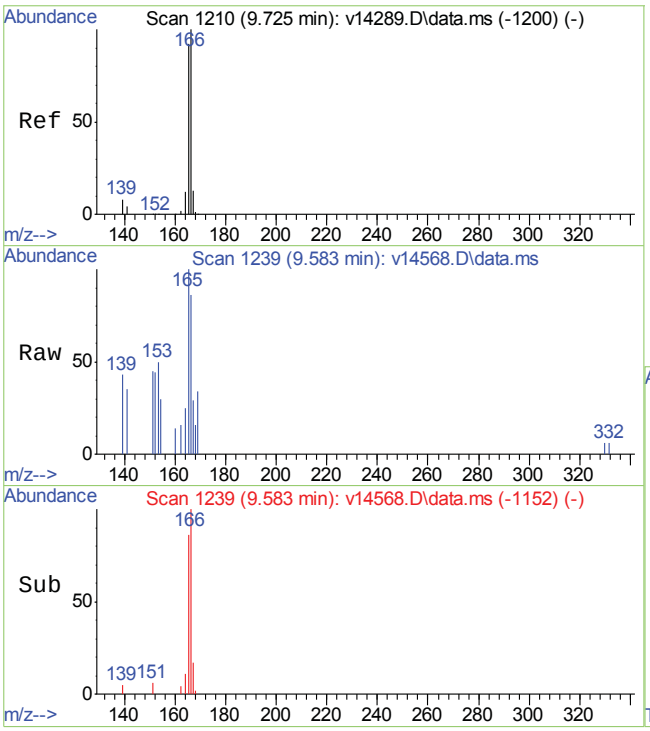
Tgt Ion:152 Resp: 673

Ion	Ratio	Lower	Upper
152	100		
151	0.0	0.0	39.0
153	0.0	0.0	33.1



7.1.1

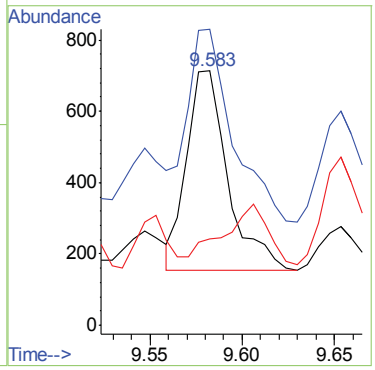
7

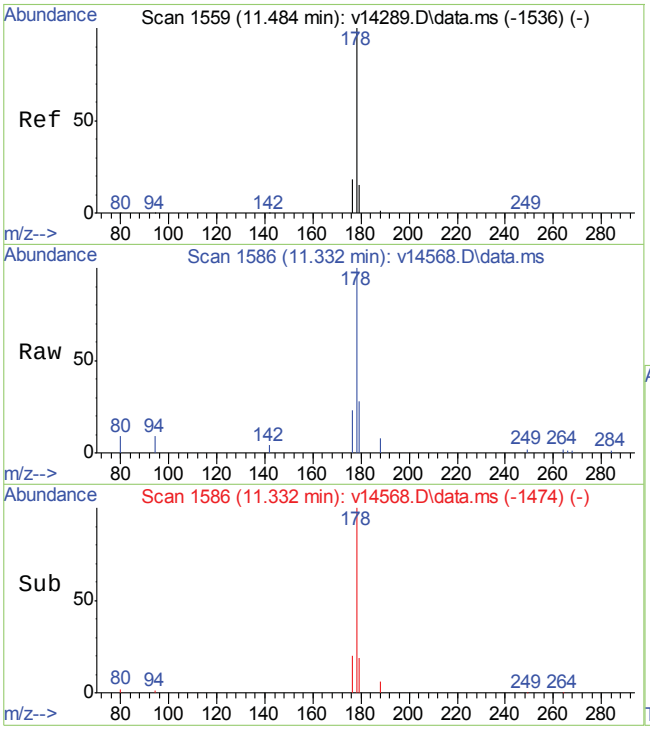


#16
Fluorene
Concen: 0.06 ppm
RT: 9.583 min Scan# 1239
Delta R.T. 0.012 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:166 Resp: 864

Ion	Ratio	Lower	Upper
166	100		
165	107.4	72.1	112.1
167	0.0	0.0	33.5

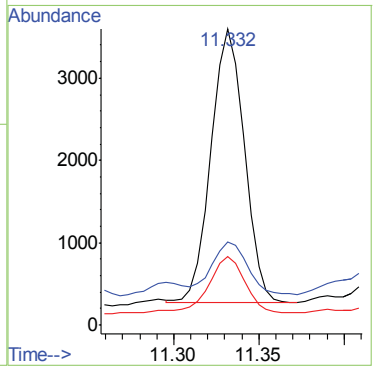




#21
Phenanthrene
Concen: 0.22 ppm
RT: 11.332 min Scan# 1586
Delta R.T. 0.005 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:178 Resp: 4525

Ion	Ratio	Lower	Upper
178	100		
179	20.2	0.0	35.4
176	23.7	0.0	38.0



7.1.1

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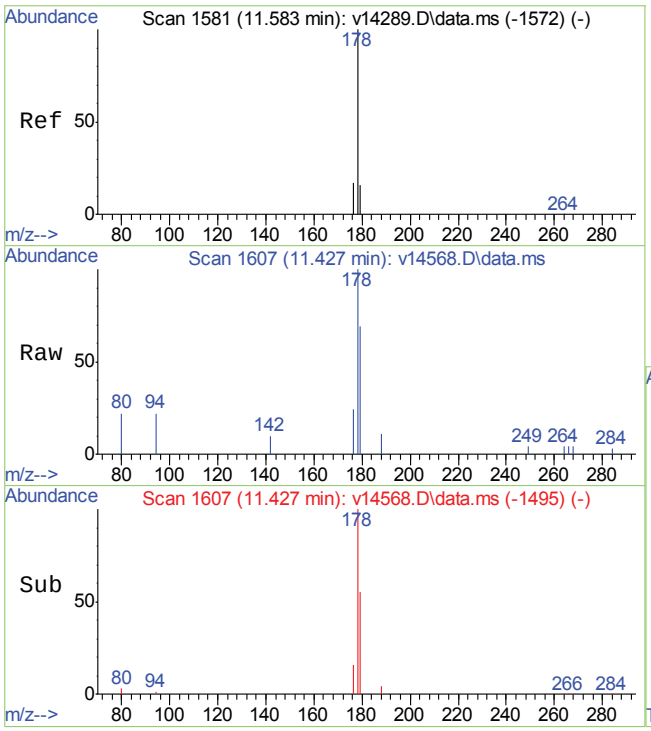
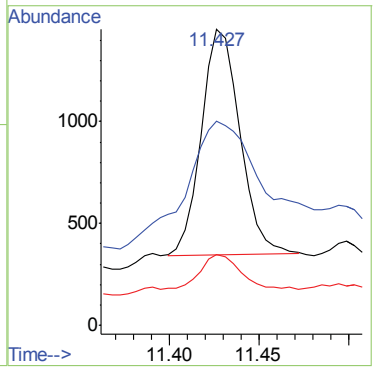
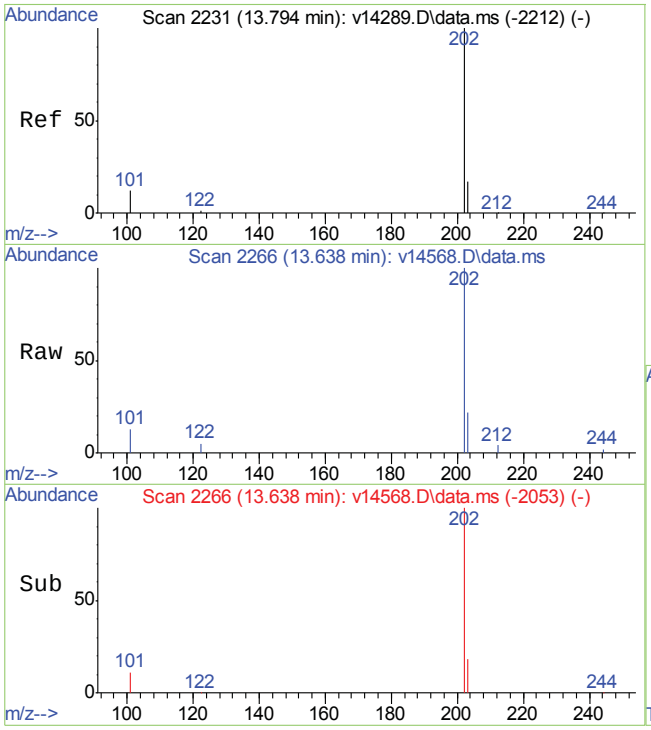


#22
Anthracene
Concen: 0.09 ppm m
RT: 11.427 min Scan# 1607
Delta R.T. 0.006 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:178 Resp: 1656

Ion	Ratio	Lower	Upper
178	100		
179	55.2	0.0	35.4#
176	64.7	0.0	37.4#

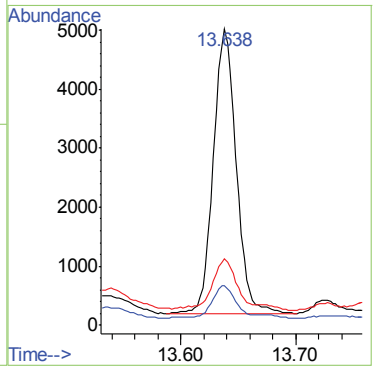




#23
Fluoranthene
Concen: 0.33 ppm
RT: 13.638 min Scan# 2266
Delta R.T. 0.016 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:202 Resp: 6693

Ion	Ratio	Lower	Upper
202	100		
101	11.1	0.0	32.2
203	21.1	0.0	37.3



7.1.1

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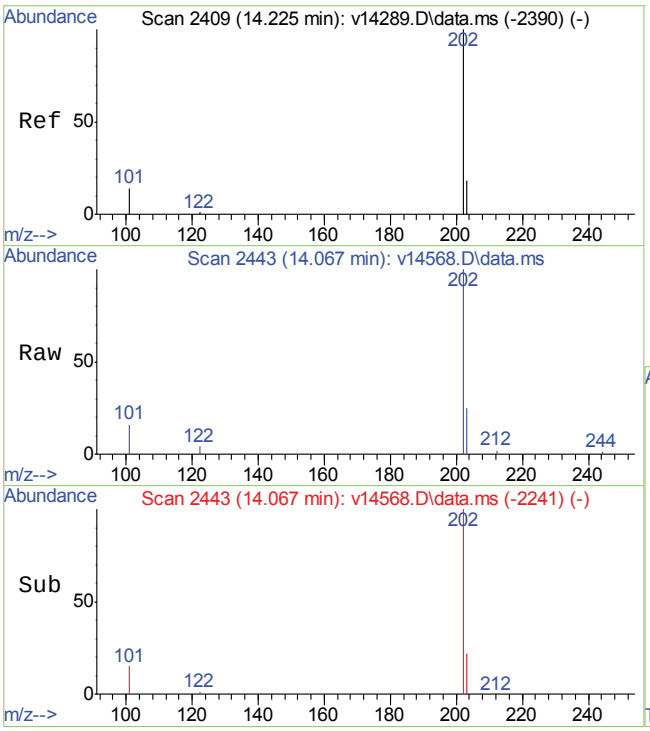
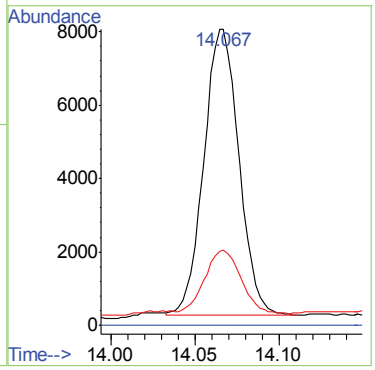
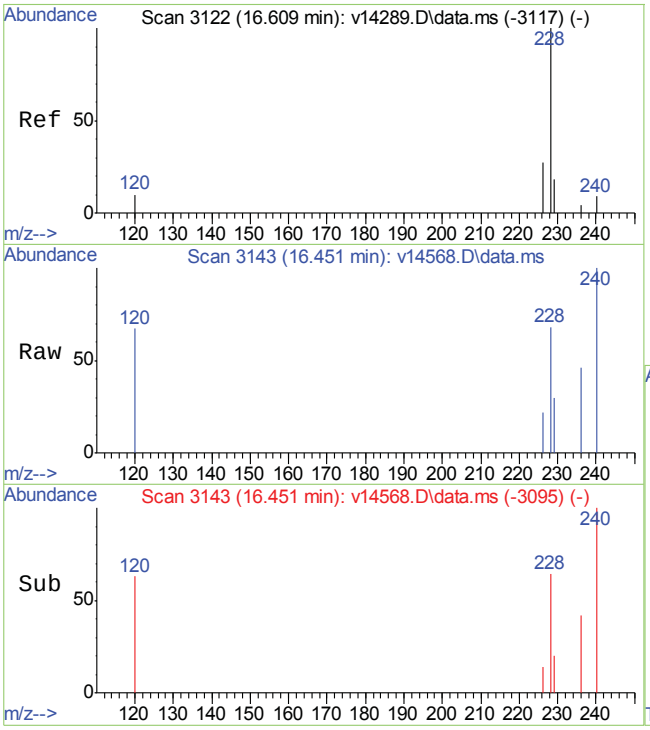


#25
Pyrene
Concen: 0.71 ppm
RT: 14.067 min Scan# 2443
Delta R.T. -0.010 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:202 Resp: 11214

Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.0	20.0
203	23.1	0.0	37.9

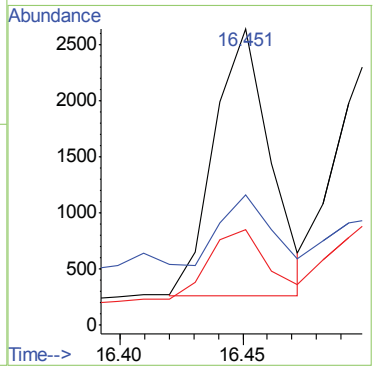


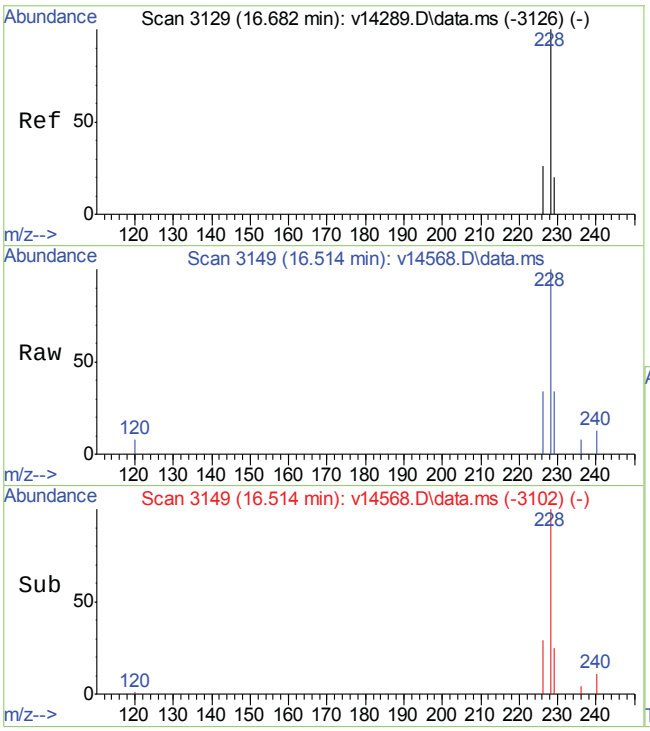


#27
Benzo(a)anthracene
Concen: 0.25 ppm m
RT: 16.451 min Scan# 3143
Delta R.T. 0.000 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:228 Resp: 3789

Ion	Ratio	Lower	Upper
228	100		
229	83.3	0.0	39.6#
226	31.4	5.5	45.5

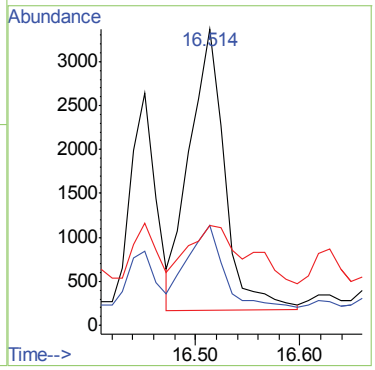


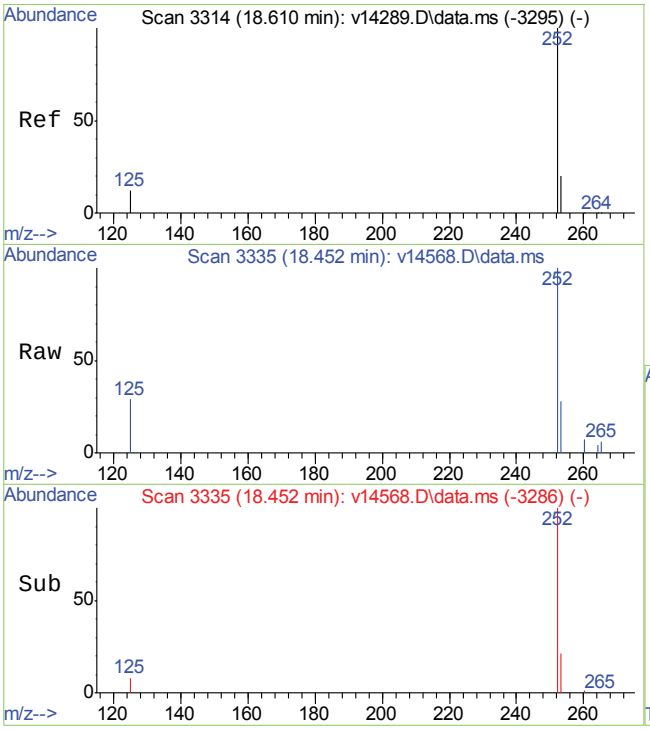


#28
Chrysene
Concen: 0.50 ppm
RT: 16.514 min Scan# 3149
Delta R.T. -0.010 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:228 Resp: 7465

Ion	Ratio	Lower	Upper
228	100		
226	30.2	7.8	47.8
229	49.3	0.0	39.6#

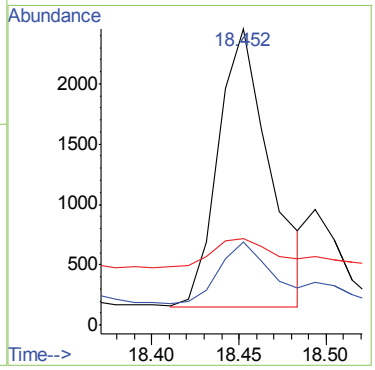


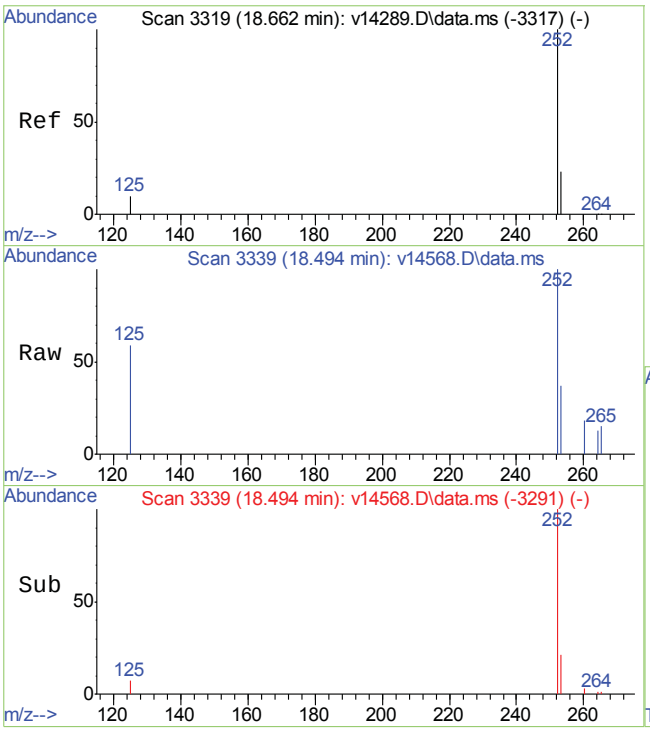


#30
Benzo(b)fluoranthene
Concen: 0.42 ppm m
RT: 18.452 min Scan# 3335
Delta R.T. 0.008 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:252 Resp: 4755

Ion	Ratio	Lower	Upper
252	100		
253	28.0	3.4	43.4
125	16.6	0.0	31.8

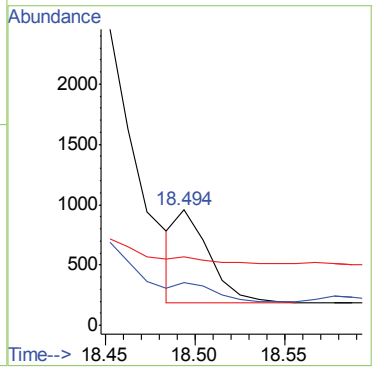


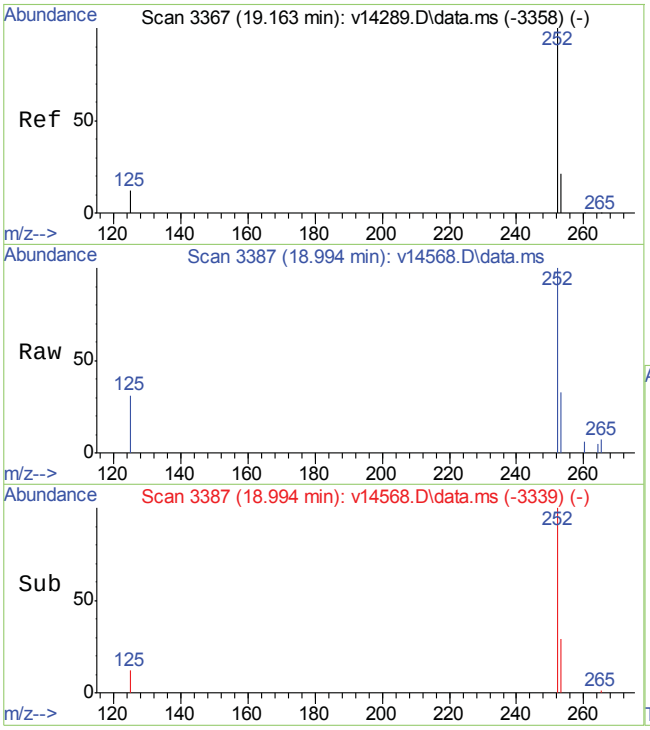


#31
Benzo(k)fluoranthene
Concen: 0.08 ppm m
RT: 18.494 min Scan# 3339
Delta R.T. -0.002 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:252 Resp: 1003

Ion	Ratio	Lower	Upper
252	100		
253	132.8	2.0	42.0#
125	78.5	0.0	32.6#

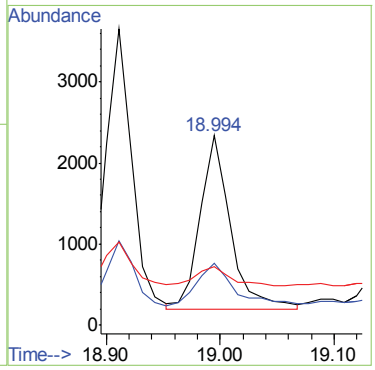




#32
Benzo(a)pyrene
Concen: 0.36 ppm
RT: 18.994 min Scan# 3387
Delta R.T. -0.001 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:252 Resp: 4023

Ion	Ratio	Lower	Upper
252	100		
253	29.0	1.6	41.6
125	11.4	0.0	32.8



7.1.1

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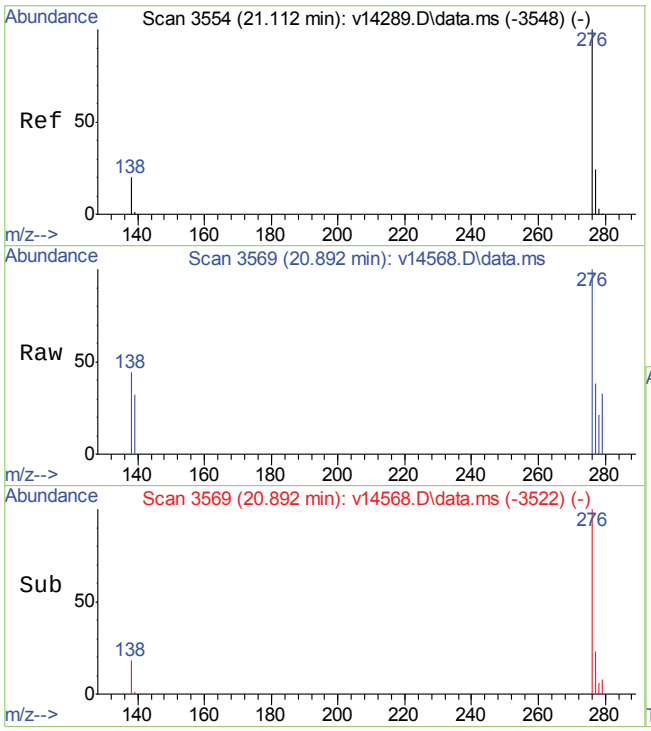
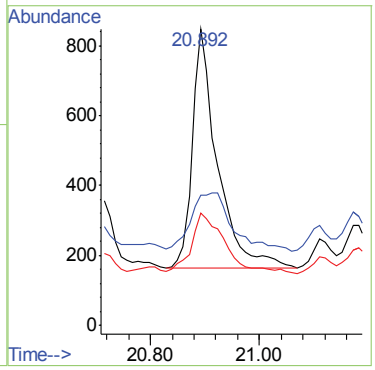
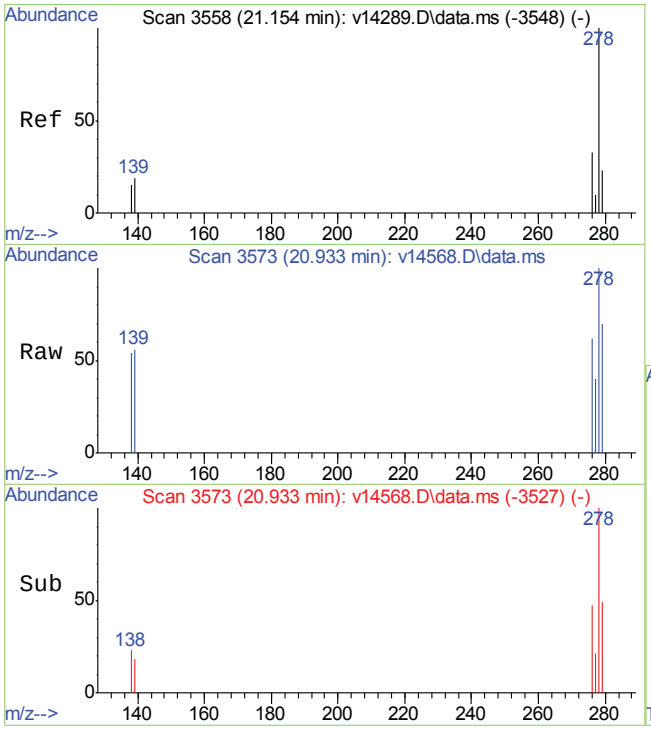


#33
Indeno(1,2,3-cd)pyrene
Concen: 0.23 ppm
RT: 20.892 min Scan# 3569
Delta R.T. -0.005 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:276 Resp: 2184

Ion	Ratio	Lower	Upper
276	100		
138	40.3	2.0	42.0
277	34.0	14.5	54.5

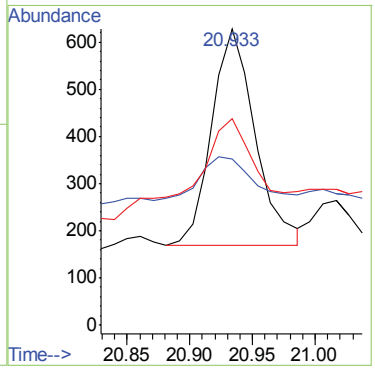


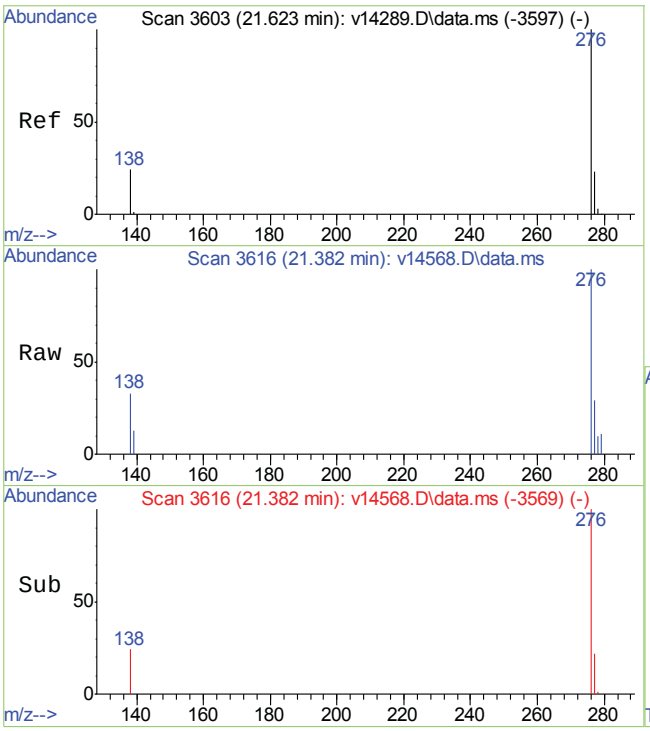


#34
Dibenz(a,h)anthracene
Concen: 0.10 ppm
RT: 20.933 min Scan# 3573
Delta R.T. -0.016 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:278 Resp: 1112

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	39.0
279	66.0	4.0	44.0#

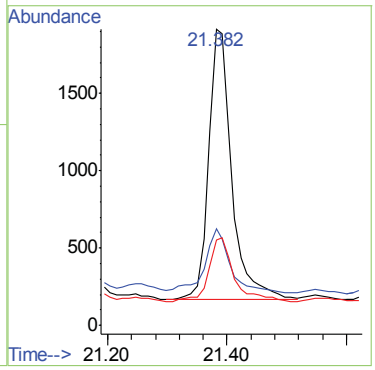




#35
Benzo(g,h,i)perylene
Concen: 0.40 ppm
RT: 21.382 min Scan# 3616
Delta R.T. -0.013 min
Lab File: v14568.D
Acq: 1 Apr 2013 12:10 pm

Tgt Ion:276 Resp: 4747

Ion	Ratio	Lower	Upper
276	100		
138	25.7	5.0	45.0
277	26.0	3.4	43.4



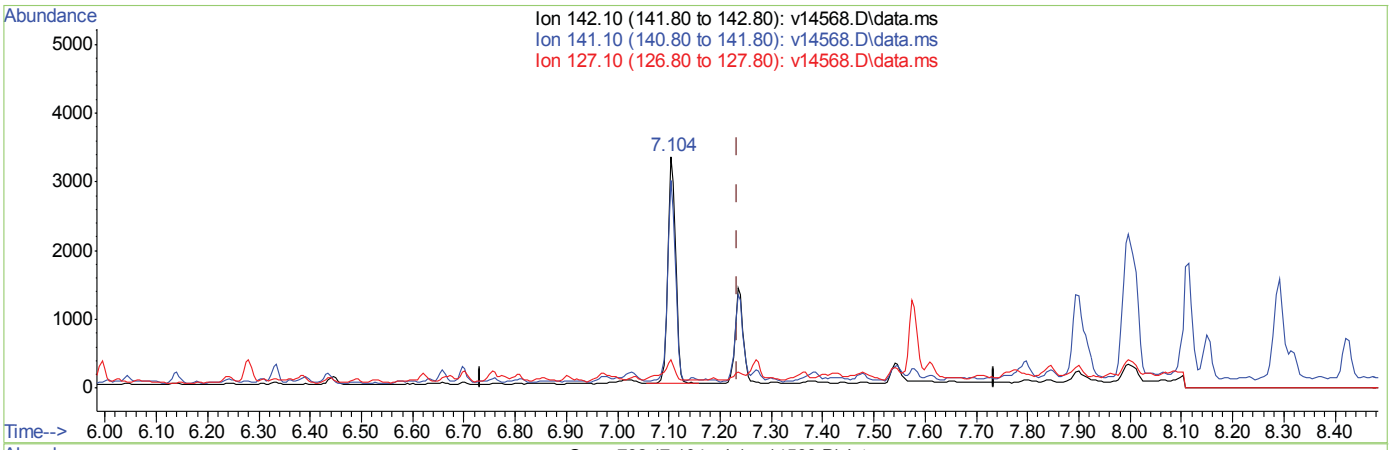
7.1.1

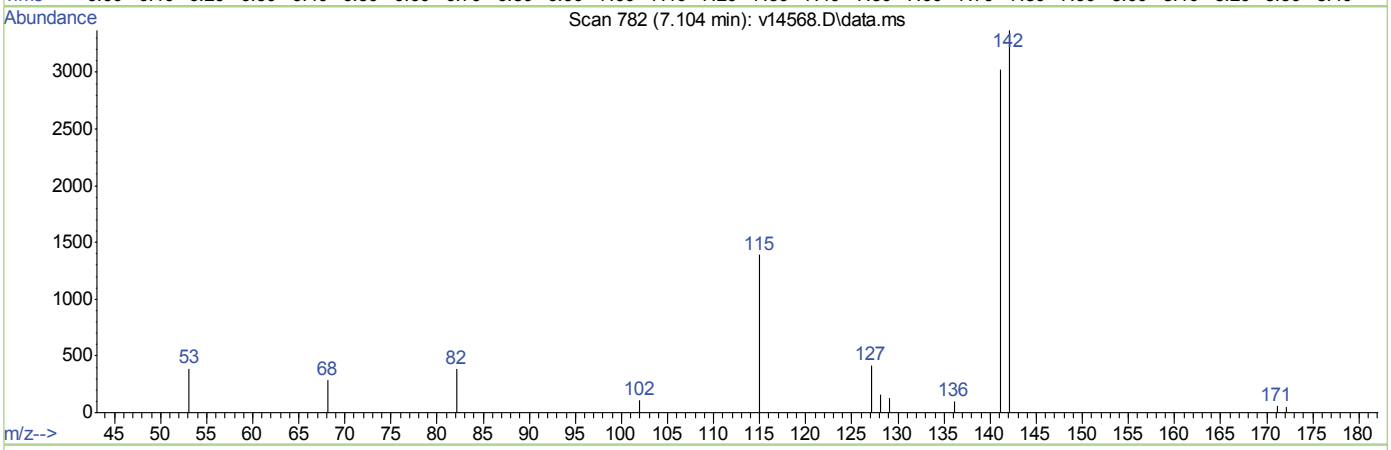
7

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On : 1 Apr 2013 12:10 pm
Operator : garyj
Sample : tc27860-1
Misc : op27766,ev835,30.19,,,1,1,soil
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 01 12:33:31 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14568.D\data.ms

(10) 1-Methylnaphthalene (CP)

7.104min (-0.130) 0.27ppm

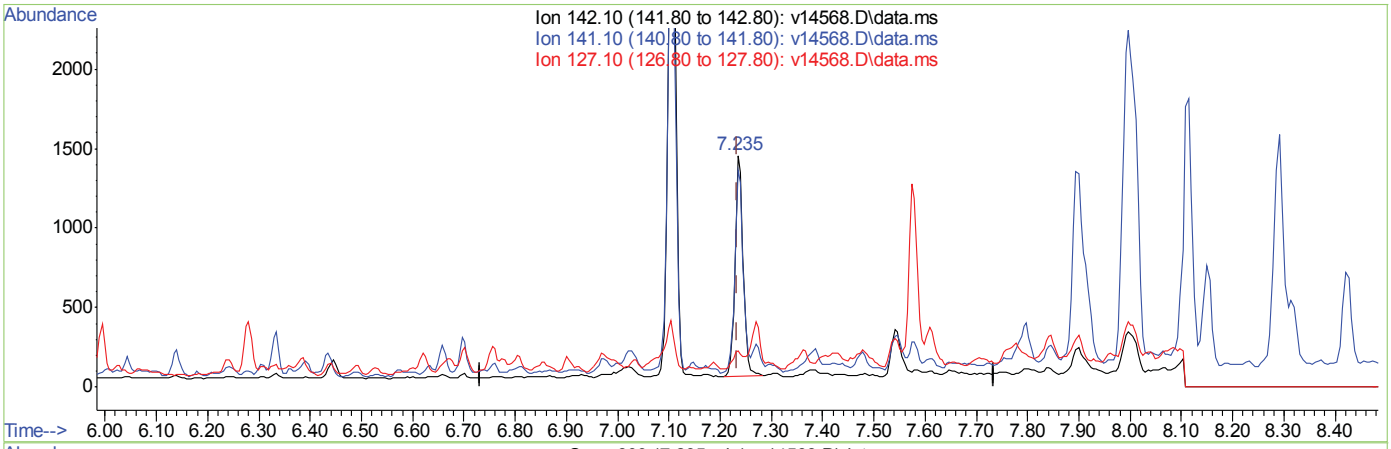
response 3550

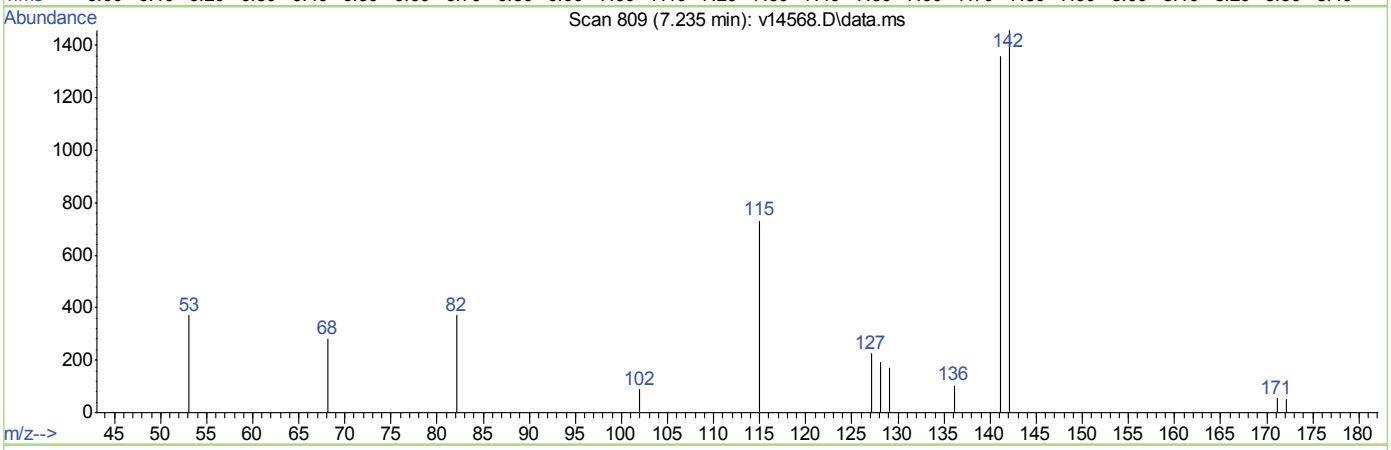
Ion	Exp%	Act%
142.10	100	100
141.10	89.60	88.48
127.10	0.60	13.35
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On    :  1 Apr 2013  12:10 pm
Operator  : garyj
Sample    : tc27860-1
Misc      : op27766,ev835,30.19,,,1,1,soil
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Apr 01 12:33:31 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14568.D\data.ms

(10) 1-Methylnaphthalene (CP)

7.235min (+0.001) 0.12ppm m

response 1565

Ion	Exp%	Act%
142.10	100	100
141.10	89.60	200.70#
127.10	0.60	30.29#
0.00	0.00	0.00

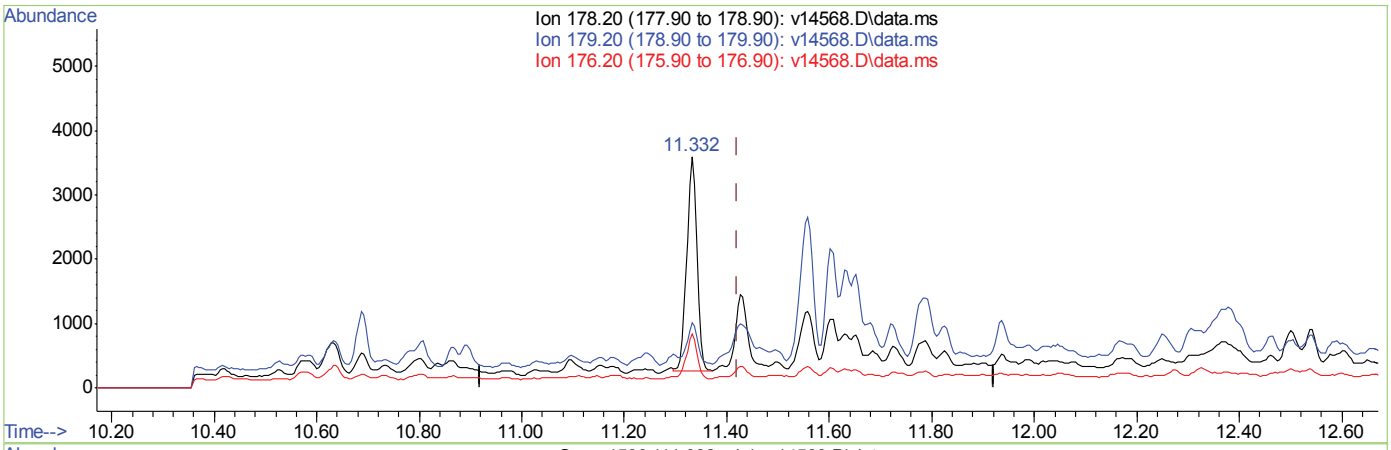
7.1.1.2

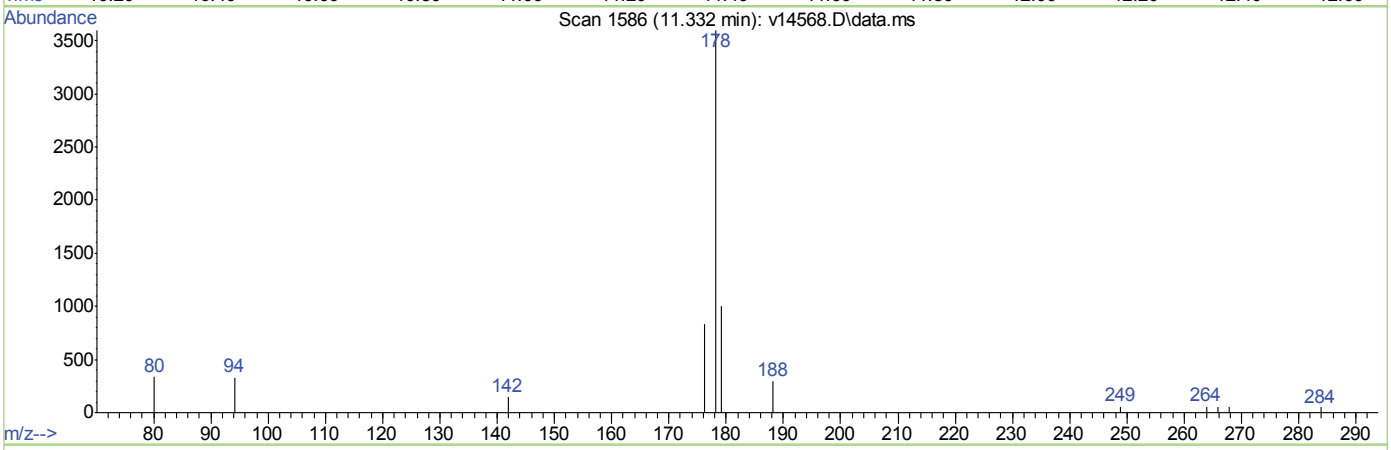
7

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On : 1 Apr 2013 12:10 pm
Operator : garyj
Sample : tc27860-1
Misc : op27766,ev835,30.19,,,1,1,soil
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 01 12:33:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14568.D\data.ms

(22) Anthracene (CP)

11.332min (-0.089) 0.24ppm

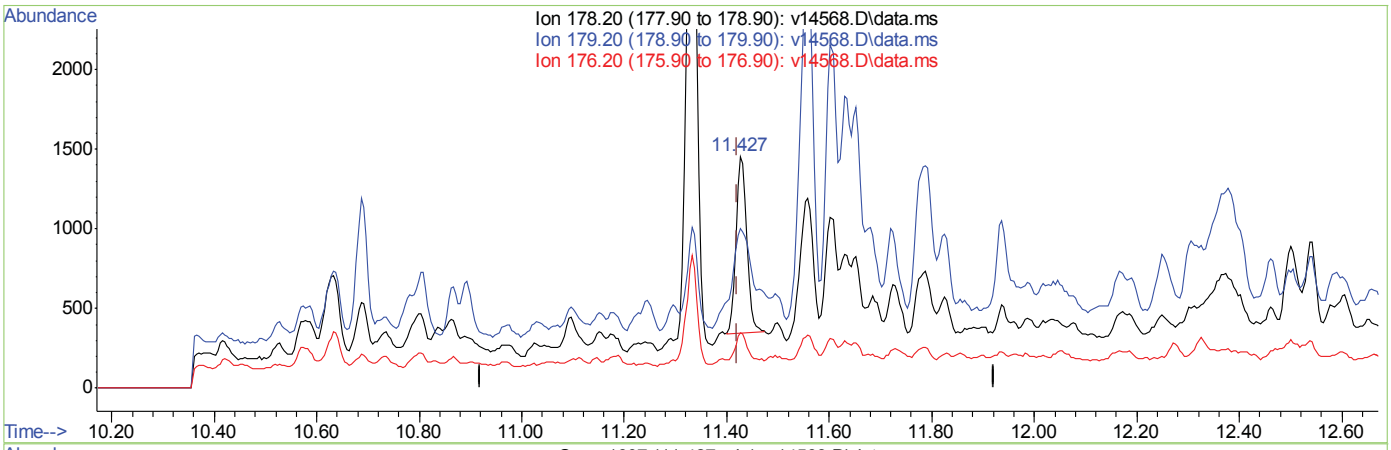
response 4525

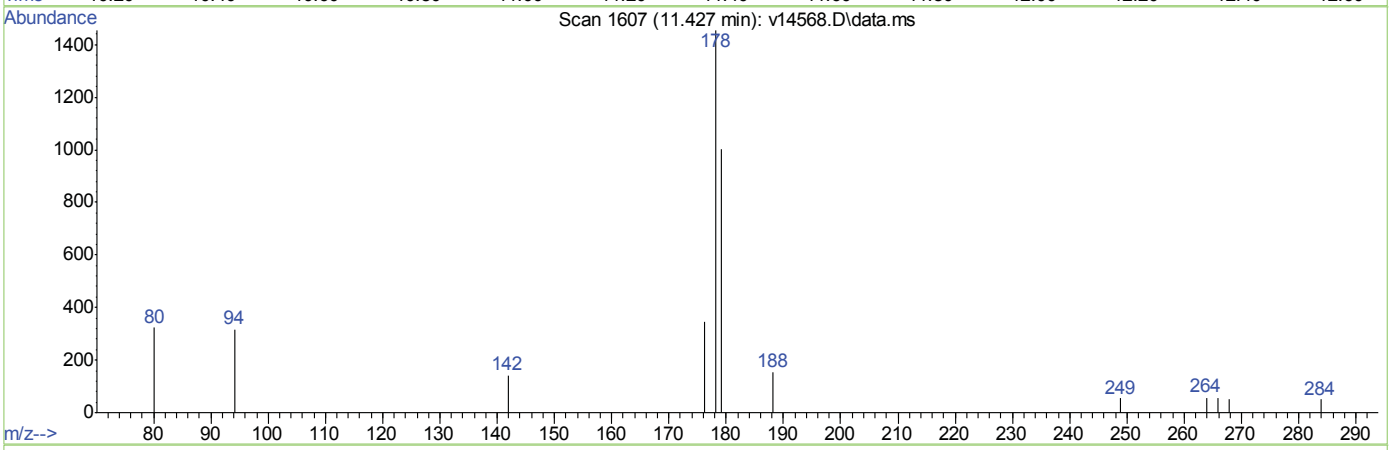
Ion	Exp%	Act%
178.20	100	100
179.20	15.40	20.20
176.20	17.40	23.67
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On : 1 Apr 2013 12:10 pm
Operator : garyj
Sample : tc27860-1
Misc : op27766,ev835,30.19,,,1,1,soil
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 01 12:33:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14568.D\data.ms

(22) Anthracene (CP)

11.427min (+0.006) 0.09ppm m

response 1656

Ion	Exp%	Act%
178.20	100	100
179.20	15.40	55.19#
176.20	17.40	64.67#
0.00	0.00	0.00

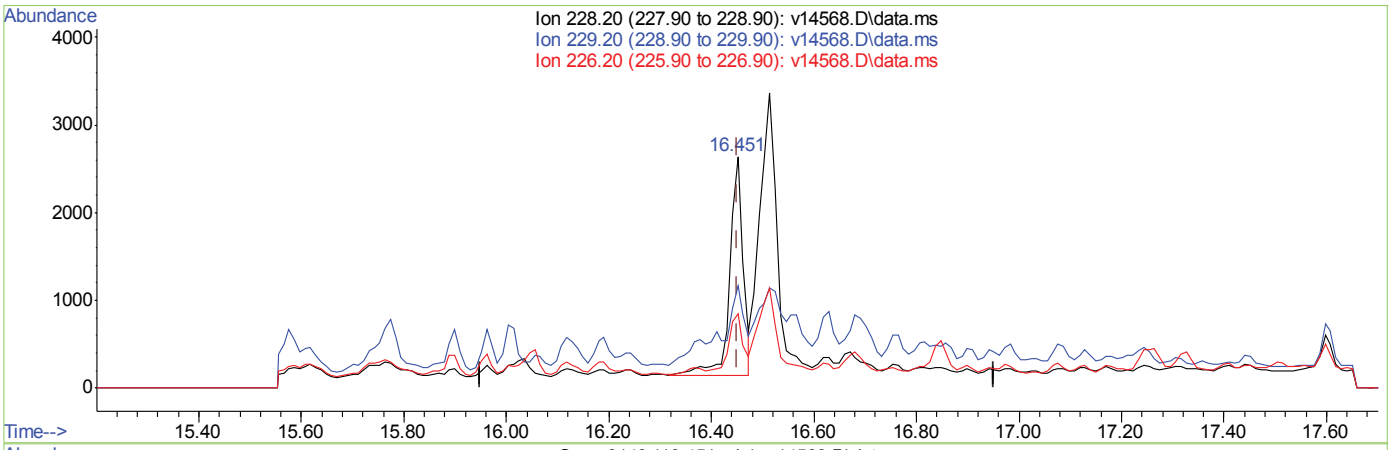
7.1.1.4

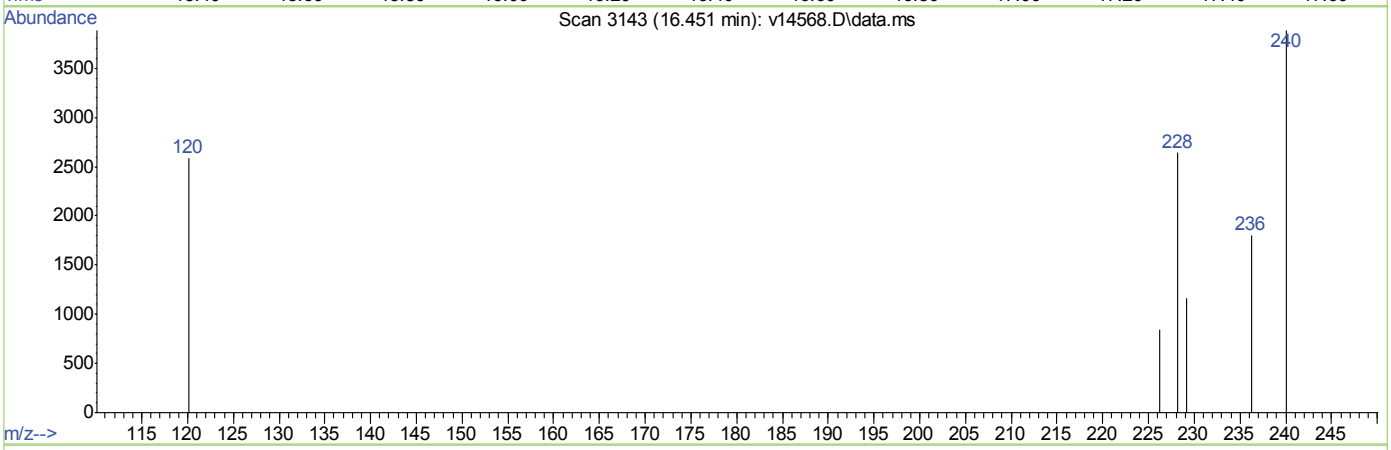
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On    :  1 Apr 2013  12:10 pm
Operator  : garyj
Sample    : tc27860-1
Misc      : op27766,ev835,30.19,,,1,1,soil
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Apr 01 12:33:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14568.D\data.ms

(27) Benzo(a)anthracene (CP)

16.451min (+0.000) 0.30ppm

response 4582

Ion	Exp%	Act%
228.20	100	100
229.20	19.60	68.92#
226.20	25.50	25.99
0.00	0.00	0.00

7.1.1.5

7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On    :  1 Apr 2013  12:10 pm
Operator  : garyj
Sample    : tc27860-1
Misc      : op27766,ev835,30.19,,,1,1,soil
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Apr 01 12:33:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
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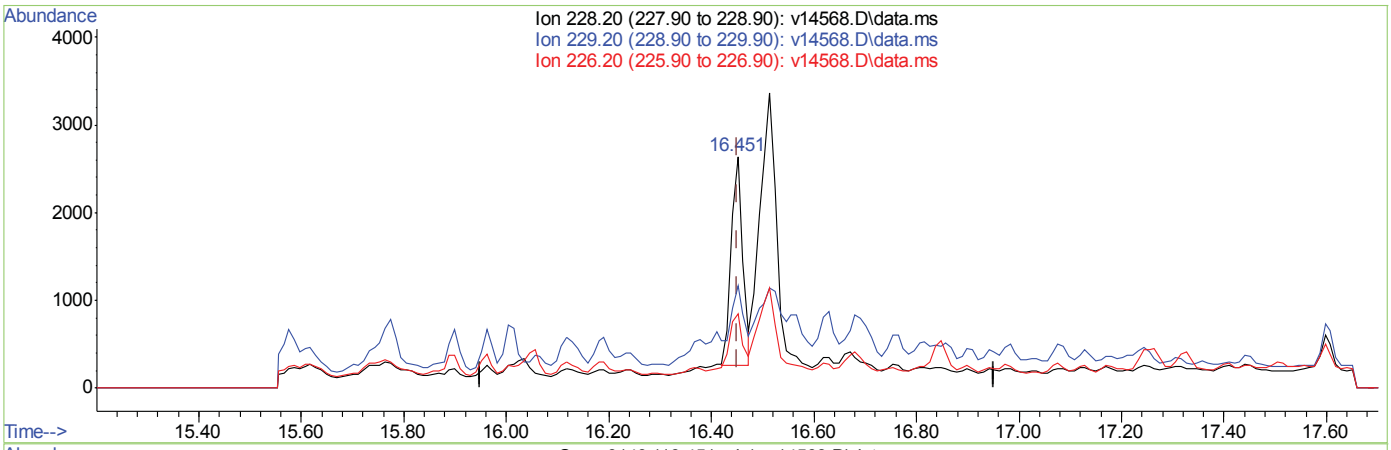
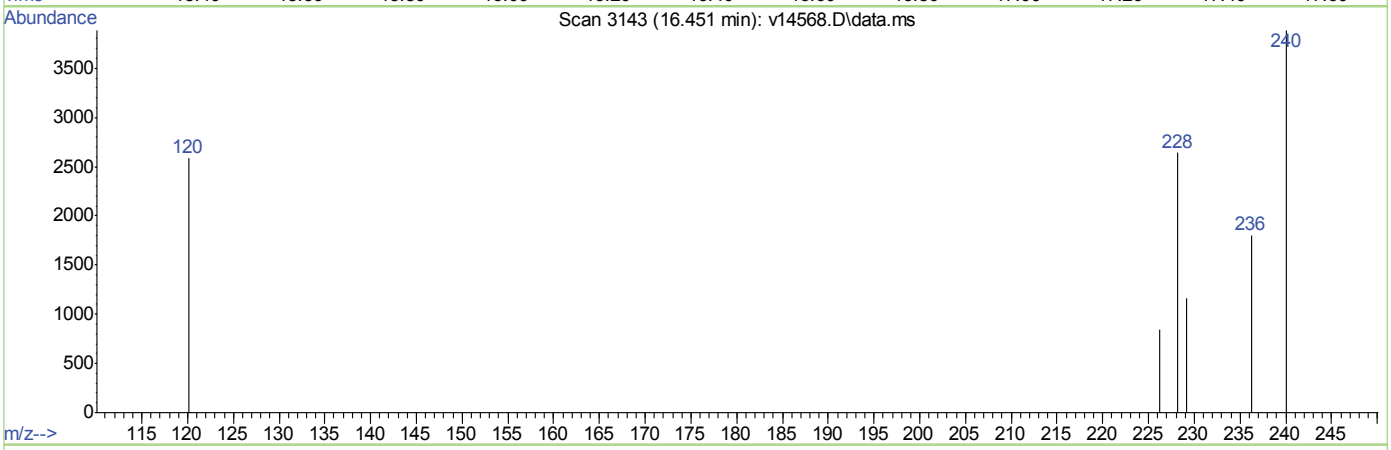




TIC: v14568.D\data.ms

(27) Benzo(a)anthracene (CP)

16.451min (+0.000) 0.25ppm m

response 3789

Ion	Exp%	Act%
228.20	100	100
229.20	19.60	83.35#
226.20	25.50	31.43
0.00	0.00	0.00

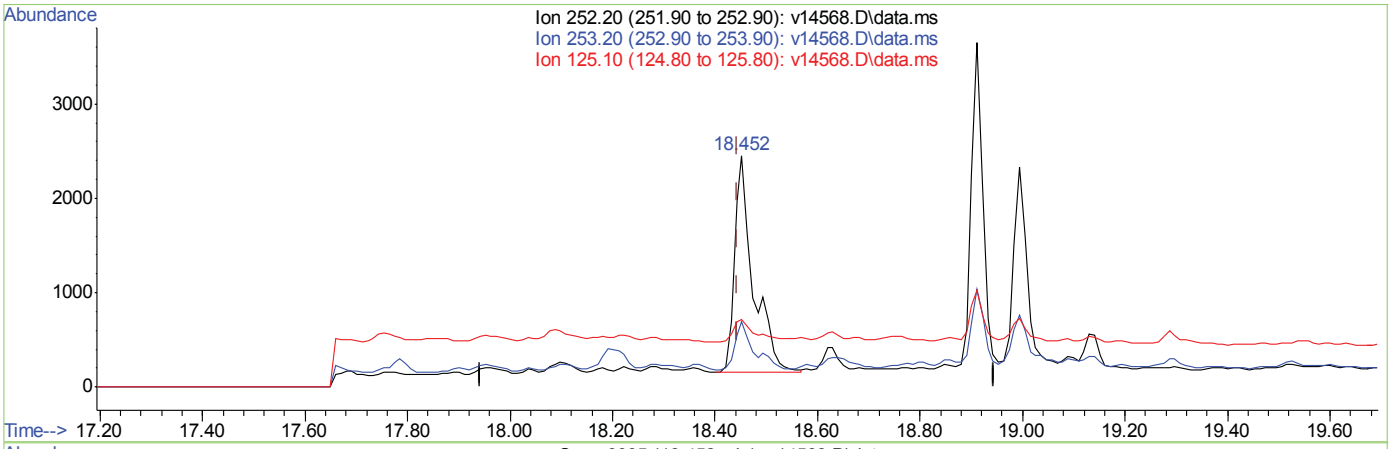
7.1.1.6

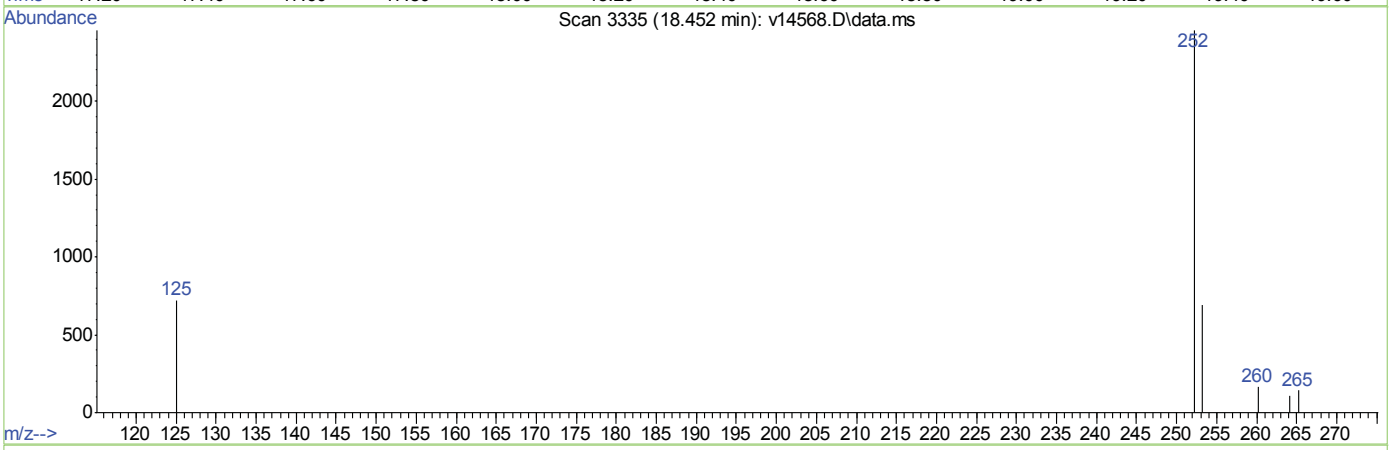
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On    :  1 Apr 2013  12:10 pm
Operator  : garyj
Sample    : tc27860-1
Misc      : op27766,ev835,30.19,,,1,1,soil
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Apr 01 12:33:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14568.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.452min (+0.008) 0.52ppm

response 5810

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	22.93
125.10	11.80	13.55
0.00	0.00	0.00

ev831sim.m Mon Apr 01 12:35:09 2013 Page: 1

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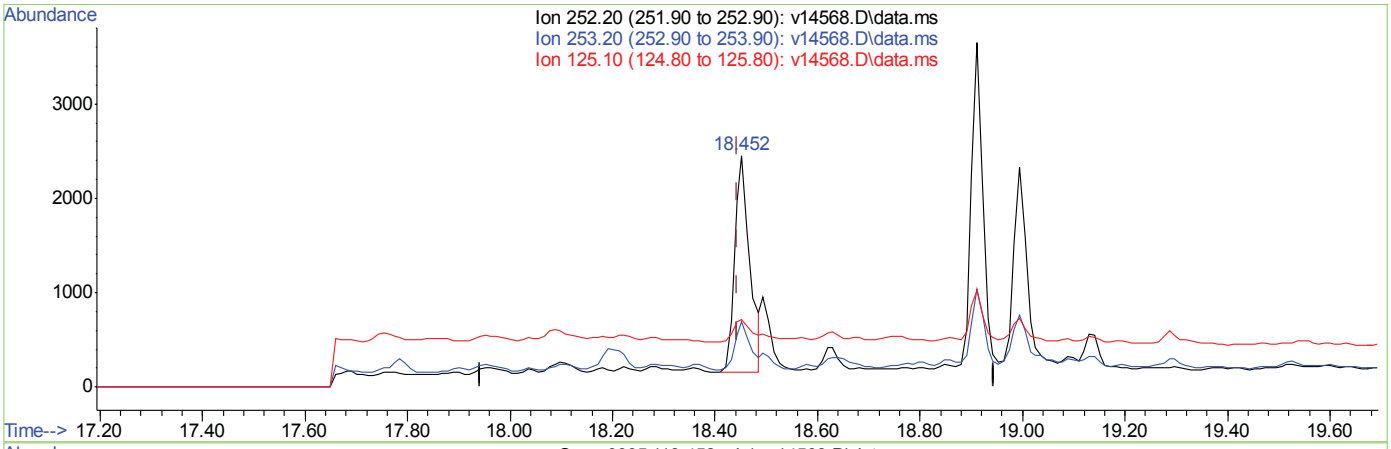
ACCUTEST LABORATORIES
TC27860

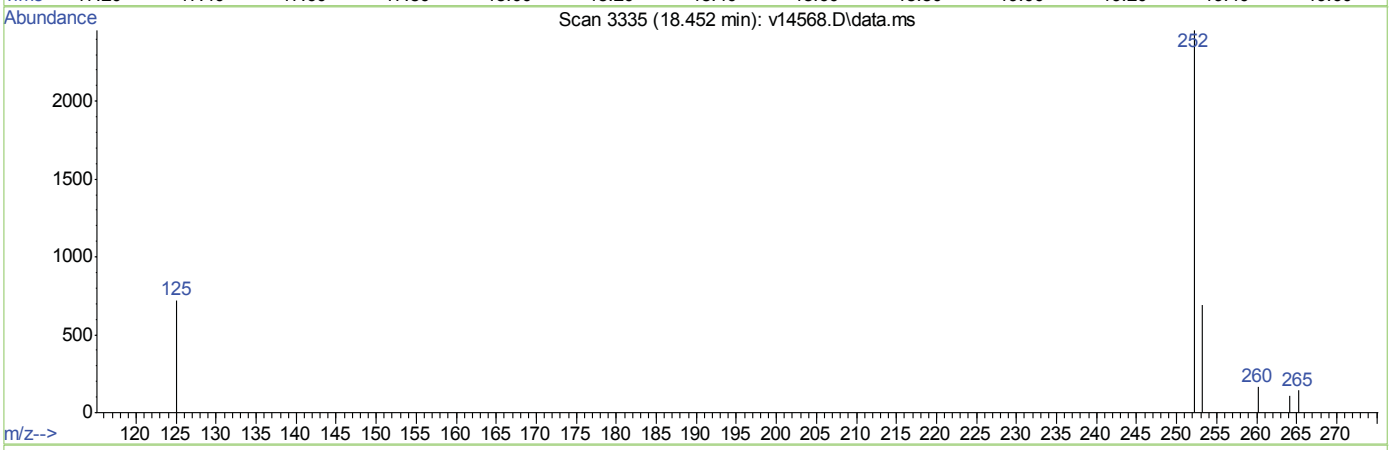
V14568.D t: o f o a t

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On    :  1 Apr 2013  12:10 pm
Operator  : garyj
Sample    : tc27860-1
Misc      : op27766,ev835,30.19,,,1,1,soil
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Apr 01 12:33:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14568.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.452min (+0.008) 0.42ppm m

response 4755

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	28.01
125.10	11.80	16.55
0.00	0.00	0.00

ev831sim.m Mon Apr 01 12:35:17 2013 Page: 1

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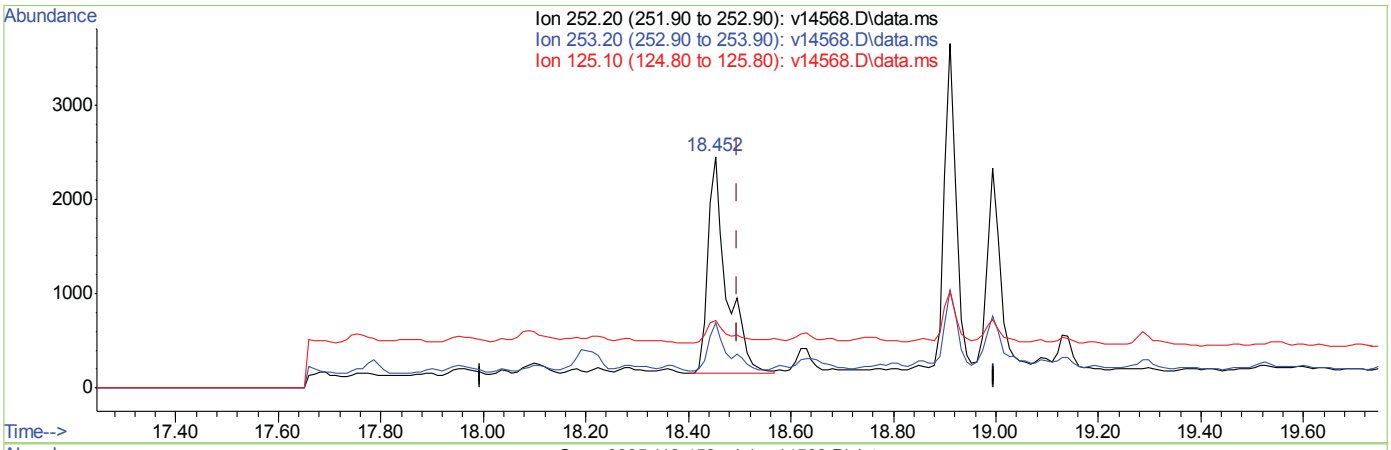
ACCUTEST LABORATORIES
TC27860

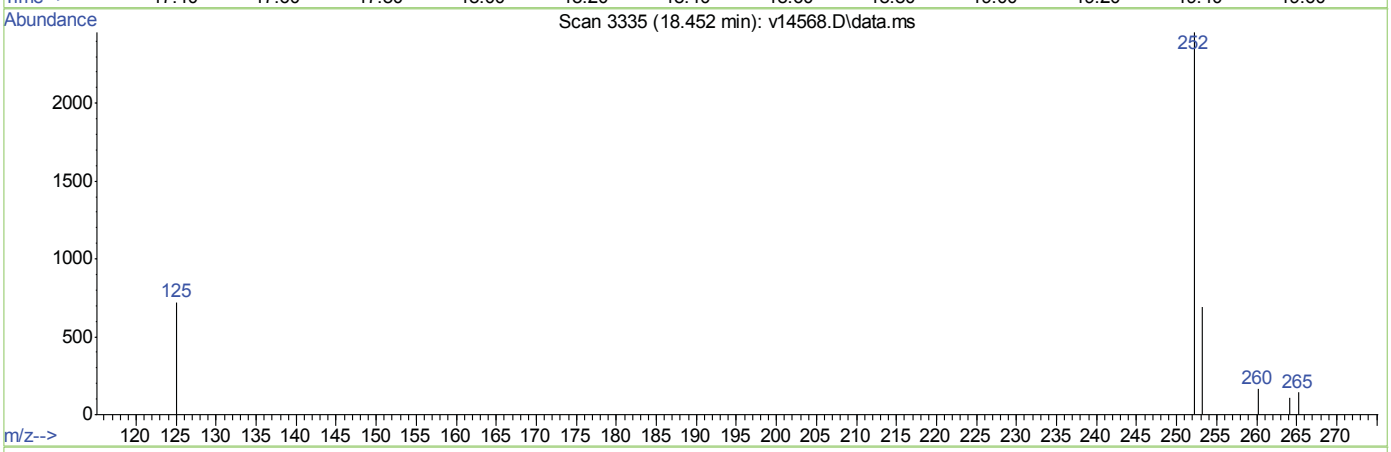
V14568.D t: o f o a t

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On : 1 Apr 2013 12:10 pm
Operator : garyj
Sample : tc27860-1
Misc : op27766,ev835,30.19,,,1,1,soil
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Apr 01 12:33:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14568.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.452min (-0.044) 0.46ppm

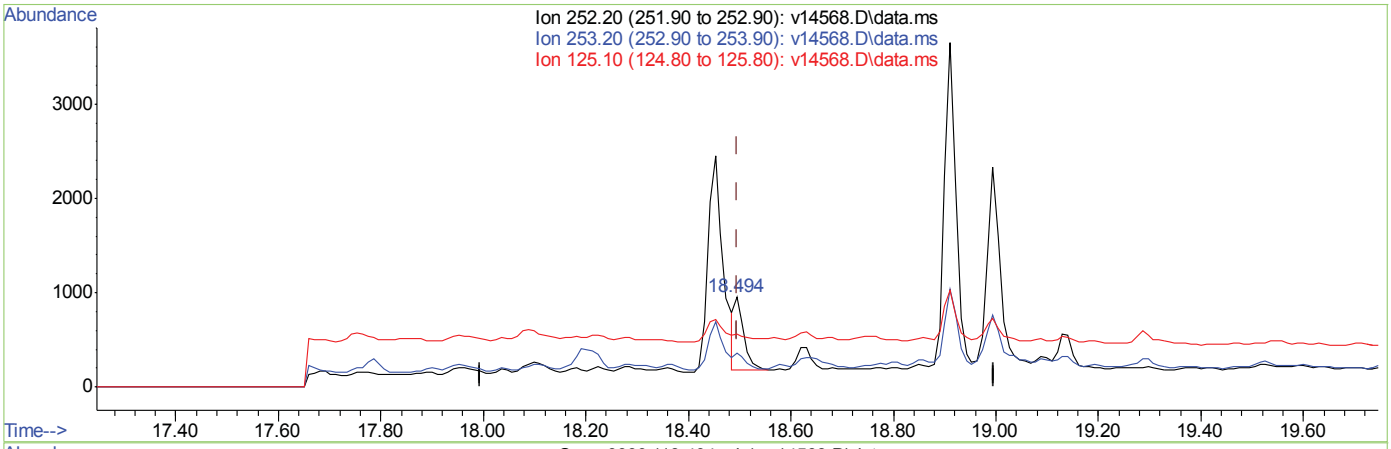
response 5810

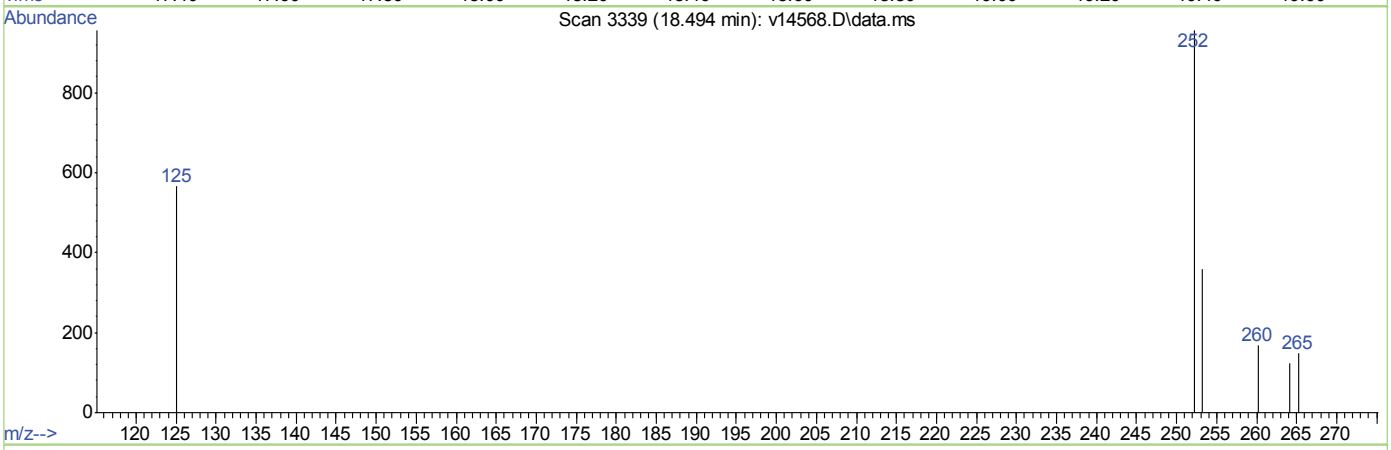
Ion	Exp%	Act%
252.20	100	100
253.20	22.00	22.93
125.10	12.60	13.55
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14568.D
Acq On    :  1 Apr 2013  12:10 pm
Operator  : garyj
Sample    : tc27860-1
Misc      : op27766,ev835,30.19,,,1,1,soil
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Apr 01 12:33:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14568.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.494min (-0.002) 0.08ppm m

response 1003

Ion	Exp%	Act%
252.20	100	100
253.20	22.00	132.80#
125.10	12.60	78.46#
0.00	0.00	0.00

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ACCUTEST LABORATORIES
TC27860

V14568.D t: o f o a t

Data Validation
Review
Not Reviewed
Validation
04/02/13 12:4

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14566.D
Acq On : 1 Apr 2013 11:13 am
Operator : garyj
Sample : tc27860-2, x10
Misc : op27766,ev835,30.29,,,1,10,soil
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 01 12:38:23 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	14949	4.00	ppm	0.00
5) Naphthalene-d8	6.256	136	83638	4.00	ppm	0.00
11) Acenaphthene-d10	8.638	164	42108	4.00	ppm	0.00
17) Phenanthrene-d10	11.286	188	71019	4.00	ppm	0.00
24) Chrysene-d12	16.472	240	50252	4.00	ppm	0.00
29) Perylene-d12	19.098	264	49924	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.168	112	1473	0.34	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 3.40%#			
3) Phenol-d5 (SURR)	4.843	99	2568	0.49	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 4.90%#			
6) Nitrobenzene-d5 (SURR)	5.553	82	851	0.13	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 2.60%#			
12) 2-Fluorobiphenyl (SURR)	7.608	172	2563	0.16	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 3.20%#			
19) 2,4,6-Tribromophenol (...	10.013	330	725	0.45	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 4.50%#			
26) Terphenyl-d14	14.457	244	2184	0.28	ppm	-0.01
Spiked Amount 5.000	Range 22 - 132		Recovery = 5.60%#			
Target Compounds						Qvalue
9) 2-Methylnaphthalene	7.104	142	824	0.06	ppm #	91
13) Acenaphthylene	8.408	152	651	0.04	ppm #	62
23) Fluoranthene	13.631	202	10713	0.52	ppm	98
25) Pyrene	14.062	202	65095	3.59	ppm #	96
27) Benzo(a)anthracene	16.440	228	8716	0.50	ppm	85
28) Chrysene	16.513	228	13605	0.80	ppm	82
30) Benzo(b)fluoranthene	18.442	252	1053m	0.08	ppm	
32) Benzo(a)pyrene	18.994	252	951	0.07	ppm #	59
35) Benzo(g,h,i)perylene	21.381	276	1115	0.08	ppm #	51

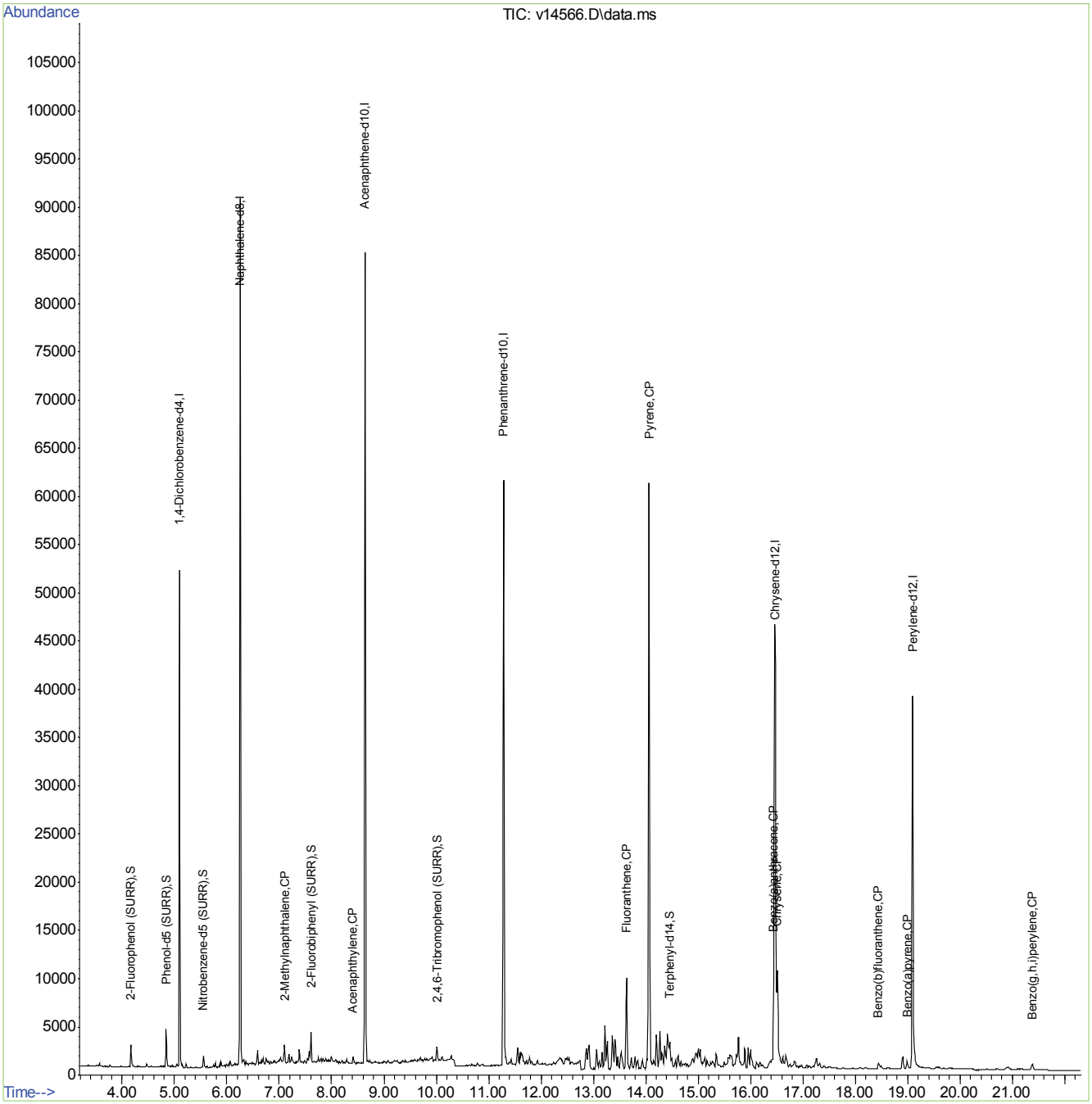
(#) = qualifier out of range (m) = manual integration (+) = signals summed

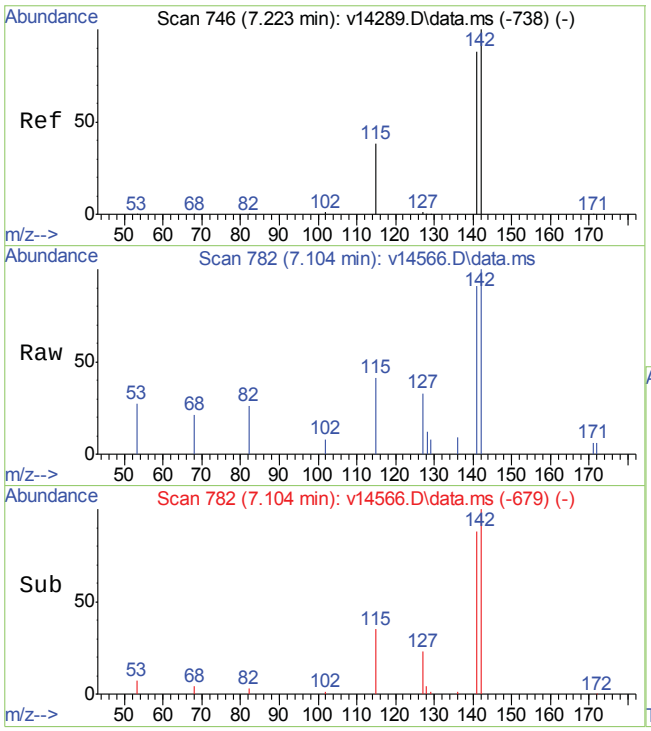
7.1.2
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14566.D
Acq On : 1 Apr 2013 11:13 am
Operator : garyj
Sample : tc27860-2, x10
Misc : op27766,ev835,30.29,,,1,10,soil
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Apr 01 12:38:23 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

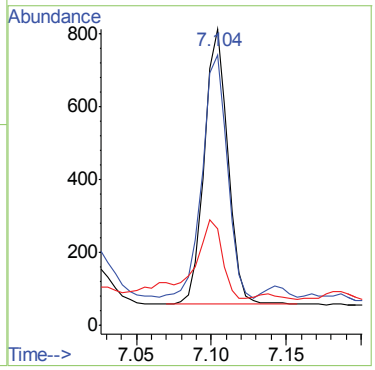


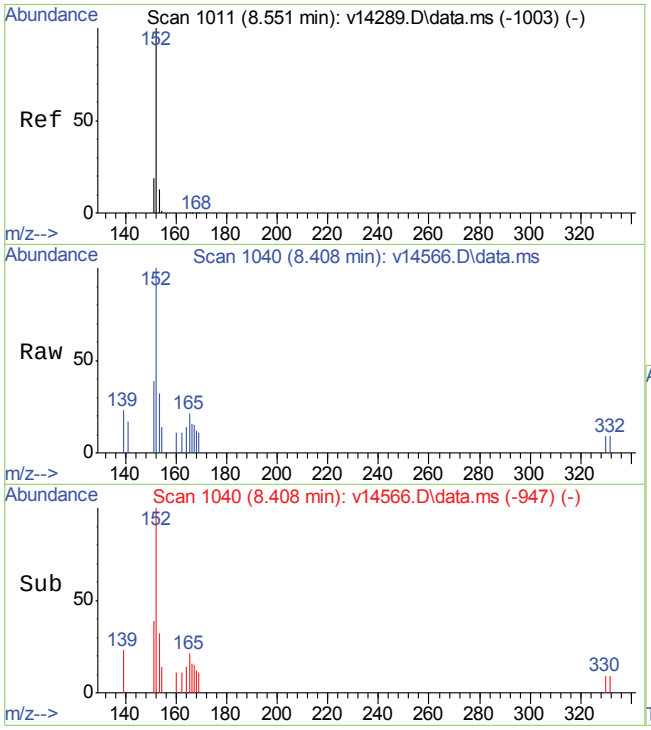


#9
2-Methylnaphthalene
Concen: 0.06 ppm
RT: 7.104 min Scan# 782
Delta R.T. -0.000 min
Lab File: v14566.D
Acq: 1 Apr 2013 11:13 am

Tgt Ion:142 Resp: 824

Ion	Ratio	Lower	Upper
142	100		
141	94.1	66.0	106.0
127	0.0	0.0	20.7

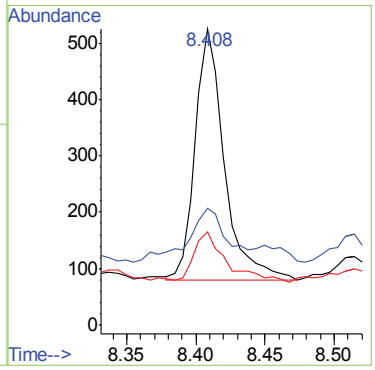




#13
Acenaphthylene
Concen: 0.04 ppm
RT: 8.408 min Scan# 1040
Delta R.T. 0.004 min
Lab File: v14566.D
Acq: 1 Apr 2013 11:13 am

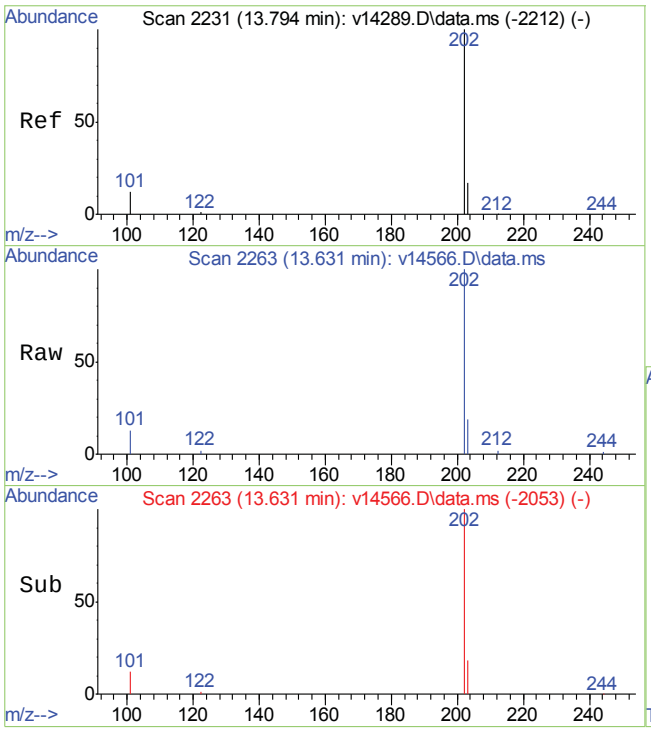
Tgt Ion:152 Resp: 651

Ion	Ratio	Lower	Upper
152	100		
151	0.0	0.0	39.0
153	0.0	0.0	33.1



7.1.2

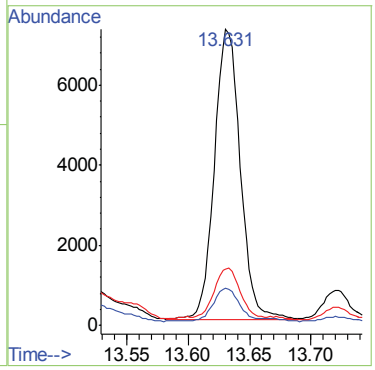
7

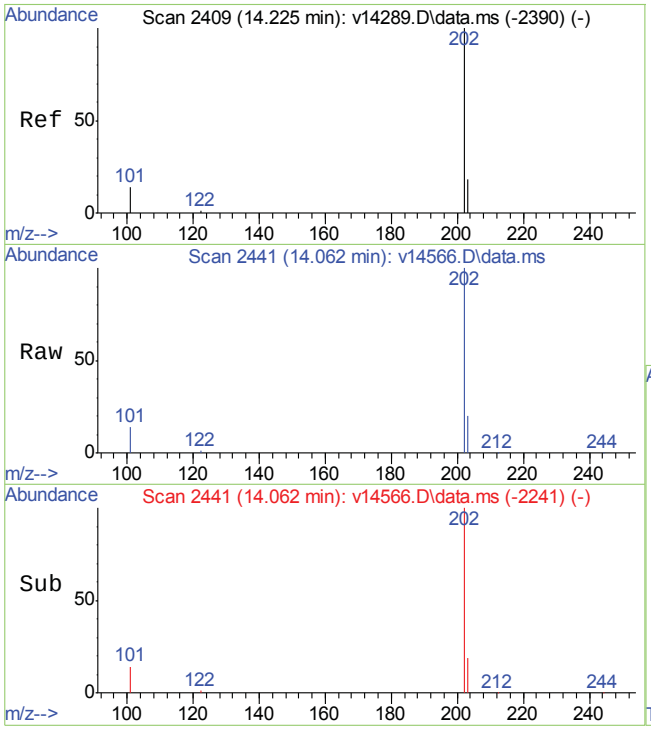


#23
Fluoranthene
Concen: 0.52 ppm
RT: 13.631 min Scan# 2263
Delta R.T. 0.008 min
Lab File: v14566.D
Acq: 1 Apr 2013 11:13 am

Tgt Ion:202 Resp: 10713

Ion	Ratio	Lower	Upper
202	100		
101	10.8	0.0	32.2
203	17.5	0.0	37.3

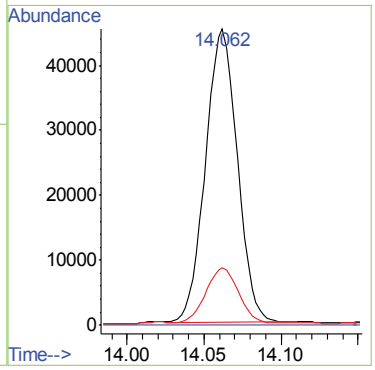




#25
Pyrene
Concen: 3.59 ppm
RT: 14.062 min Scan# 2441
Delta R.T. -0.015 min
Lab File: v14566.D
Acq: 1 Apr 2013 11:13 am

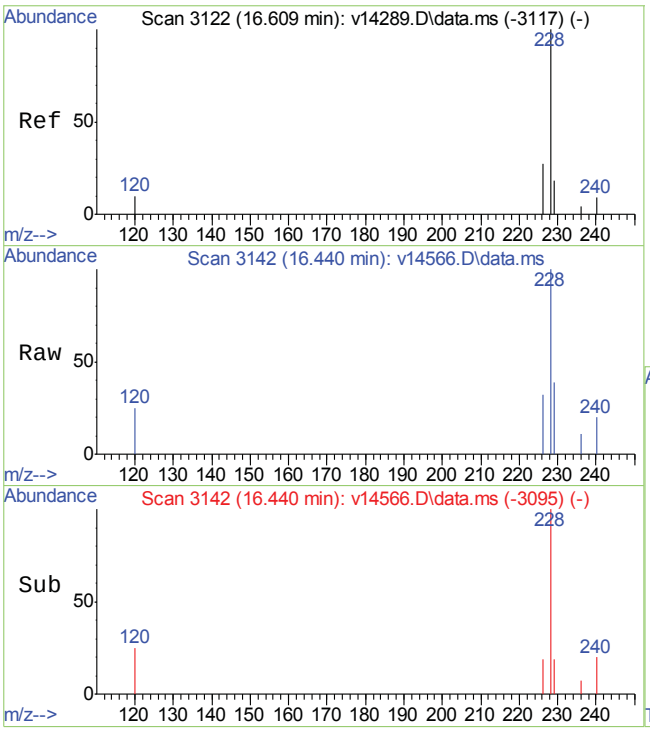
Tgt Ion:202 Resp: 65095

Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.0	20.0
203	19.4	0.0	37.9



7.1.2

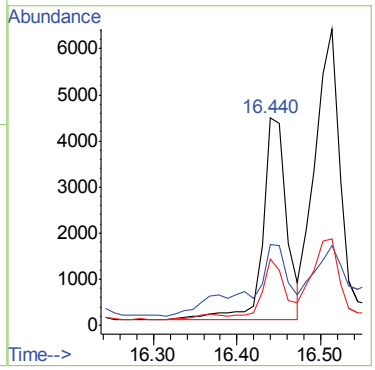
7

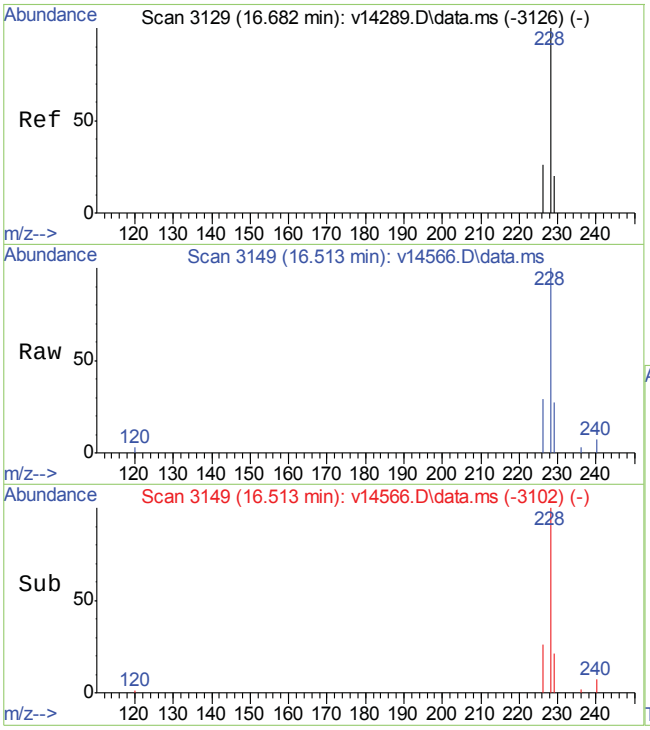


#27
Benzo(a)anthracene
Concen: 0.50 ppm
RT: 16.440 min Scan# 3142
Delta R.T. -0.011 min
Lab File: v14566.D
Acq: 1 Apr 2013 11:13 am

Tgt Ion:228 Resp: 8716

Ion	Ratio	Lower	Upper
228	100		
229	34.8	0.0	39.6
226	25.4	5.5	45.5

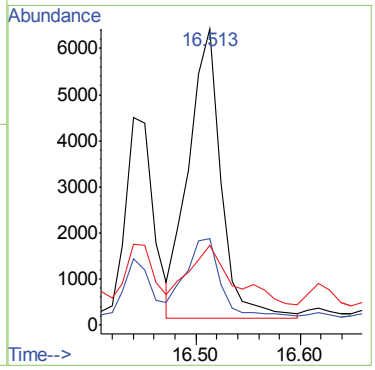




#28
Chrysene
Concen: 0.80 ppm
RT: 16.513 min Scan# 3149
Delta R.T. -0.011 min
Lab File: v14566.D
Acq: 1 Apr 2013 11:13 am

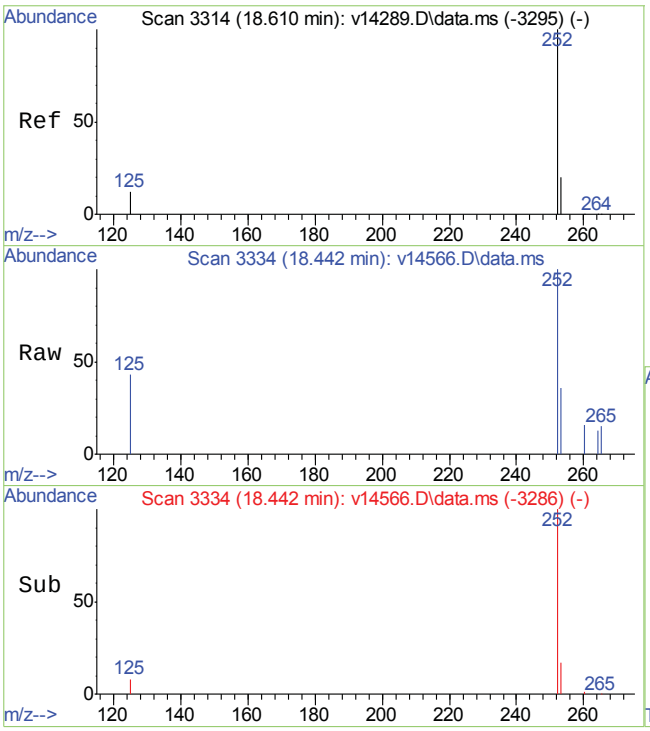
Tgt Ion:228 Resp: 13605

Ion	Ratio	Lower	Upper
228	100		
226	28.9	7.8	47.8
229	38.6	0.0	39.6



7.1.2

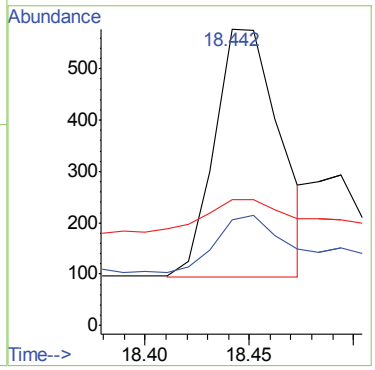
7

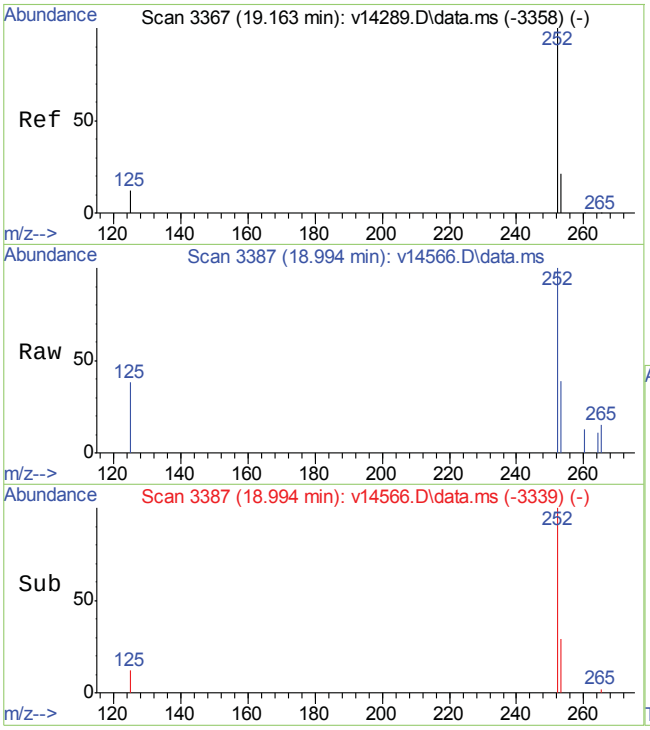


#30
Benzo(b)fluoranthene
Concen: 0.08 ppm m
RT: 18.442 min Scan# 3334
Delta R.T. -0.002 min
Lab File: v14566.D
Acq: 1 Apr 2013 11:13 am

Tgt Ion:252 Resp: 1053

Ion	Ratio	Lower	Upper
252	100		
253	0.0	3.4	43.4#
125	0.0	0.0	31.8

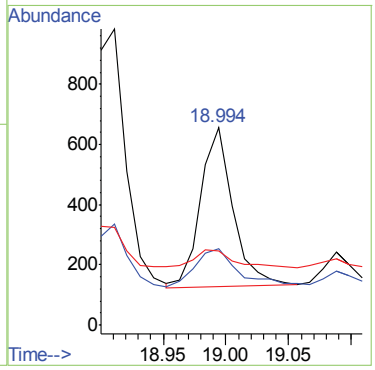


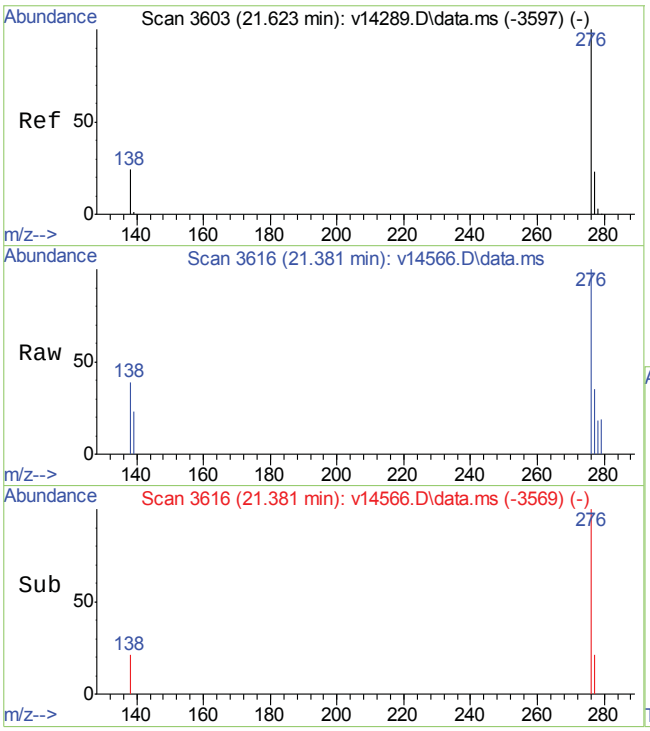


#32
Benzo(a)pyrene
Concen: 0.07 ppm
RT: 18.994 min Scan# 3387
Delta R.T. -0.001 min
Lab File: v14566.D
Acq: 1 Apr 2013 11:13 am

Tgt Ion:252 Resp: 951

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.6	41.6#
125	0.0	0.0	32.8

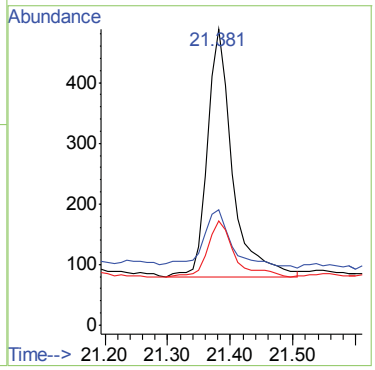




#35
Benzo(g,h,i)perylene
Concen: 0.08 ppm
RT: 21.381 min Scan# 3616
Delta R.T. -0.014 min
Lab File: v14566.D
Acq: 1 Apr 2013 11:13 am

Tgt Ion:276 Resp: 1115

Ion	Ratio	Lower	Upper
276	100		
138	0.0	5.0	45.0#
277	0.0	3.4	43.4#



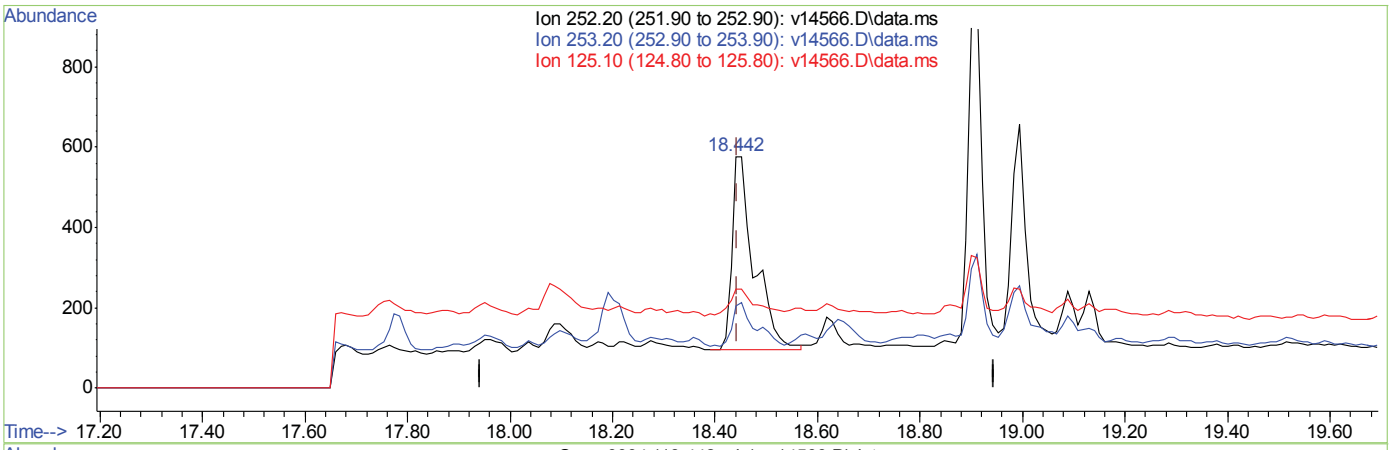
7.1.2

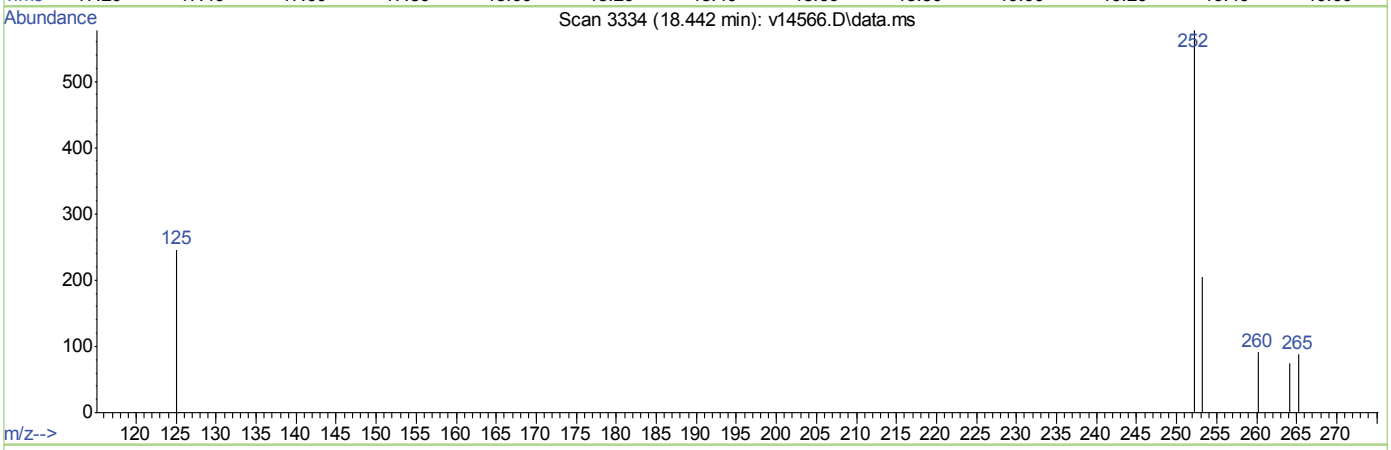
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14566.D
Acq On    :  1 Apr 2013  11:13 am
Operator  : garyj
Sample    : tc27860-2, x10
Misc      : op27766,ev835,30.29,,,1,10,soil
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Apr 01 12:37:26 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14566.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.442min (-0.002) 0.10ppm

response 1447

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	0.00#
125.10	11.80	0.00
0.00	0.00	0.00

ev831sim.m Mon Apr 01 12:37:54 2013 Page: 1

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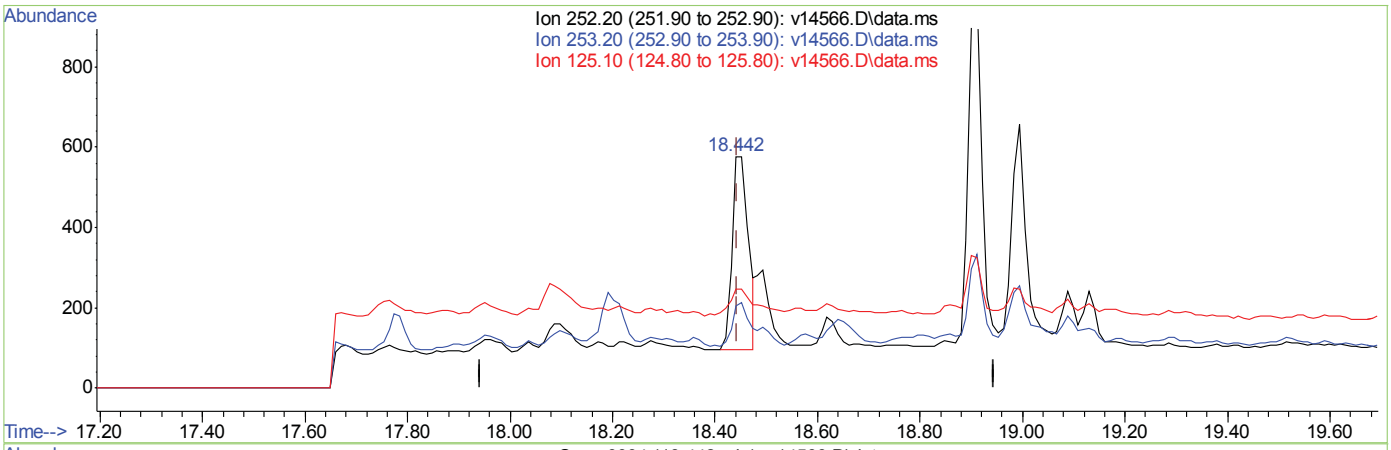
ACCUTEST LABORATORIES
TC27860

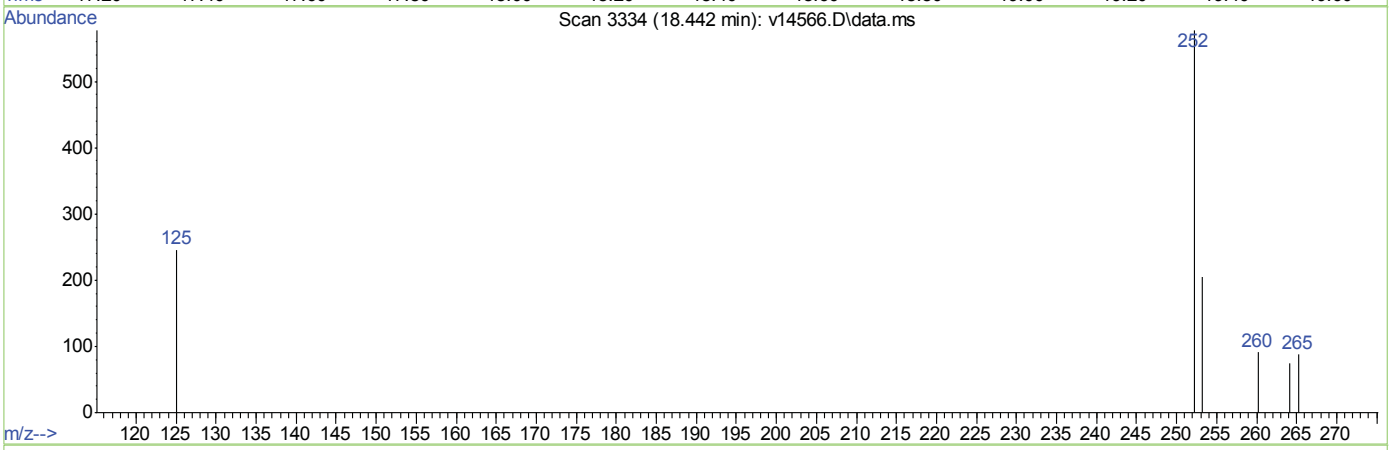
V14566.D t: o f o a t

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14566.D
Acq On    :  1 Apr 2013  11:13 am
Operator  : garyj
Sample    : tc27860-2, x10
Misc      : op27766,ev835,30.29,,,1,10,soil
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Apr 01 12:37:26 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14566.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.442min (-0.002) 0.08ppm m

response 1053

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	0.00#
125.10	11.80	0.00
0.00	0.00	0.00

ev831sim.m Mon Apr 01 12:38:16 2013 Page: 1

88 of 353
ACCUTEST LABORATORIES
TC27860

V14566.D t: o f o a t

Data Validation
RVD
Not Reviewed
Validation
04/02/13 12:4

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On : 1 Apr 2013 3:25 pm
Operator : garyj
Sample : tc27860-2
Misc : op27766,ev835,30.29,,,1,1,soil
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Apr 01 16:15:37 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	14974	4.00	ppm	0.00
5) Naphthalene-d8	6.261	136	82806	4.00	ppm	0.00
11) Acenaphthene-d10	8.650	164	40205	4.00	ppm	0.01
17) Phenanthrene-d10	11.300	188	63084	4.00	ppm	0.02
24) Chrysene-d12	16.482	240	37343	4.00	ppm	0.01
29) Perylene-d12	19.109	264	36741	4.00	ppm	0.01
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.168	112	15748	3.65	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 36.50%			
3) Phenol-d5 (SURR)	4.843	99	27979	5.30	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 53.00%			
6) Nitrobenzene-d5 (SURR)	5.553	82	10156	1.55	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 31.00%			
12) 2-Fluorobiphenyl (SURR)	7.613	172	24114	1.60	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 32.00%			
19) 2,4,6-Tribromophenol (...	10.025	330	8112	5.68	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 56.80%			
26) Terphenyl-d14	14.476	244	17419	2.98	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 59.60%			
Target Compounds						Qvalue
7) Naphthalene	6.280	128	5781	0.28	ppm	91
9) 2-Methylnaphthalene	7.109	142	8056	0.57	ppm #	89
10) 1-Methylnaphthalene	7.240	142	2820	0.21	ppm #	80
13) Acenaphthylene	8.420	152	8848	0.51	ppm	84
21) Phenanthrene	11.341	178	5325	0.29	ppm	83
22) Anthracene	11.440	178	5038m	0.29	ppm	
23) Fluoranthene	13.655	202	86815	4.74	ppm	98
25) Pyrene	14.091	202	523055	38.79	ppm #	97
27) Benzo(a)anthracene	16.461	228	53093m	4.09	ppm	
28) Chrysene	16.534	228	95796	7.54	ppm	80
30) Benzo(b)fluoranthene	18.463	252	8207m	0.80	ppm	
31) Benzo(k)fluoranthene	18.504	252	2029m	0.17	ppm	
32) Benzo(a)pyrene	19.015	252	7781m	0.77	ppm	
33) Indeno(1,2,3-cd)pyrene	20.912	276	4501	0.52	ppm	88
34) Dibenz(a,h)anthracene	20.954	278	2545	0.25	ppm	76
35) Benzo(g,h,i)perylene	21.413	276	9626	0.90	ppm	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

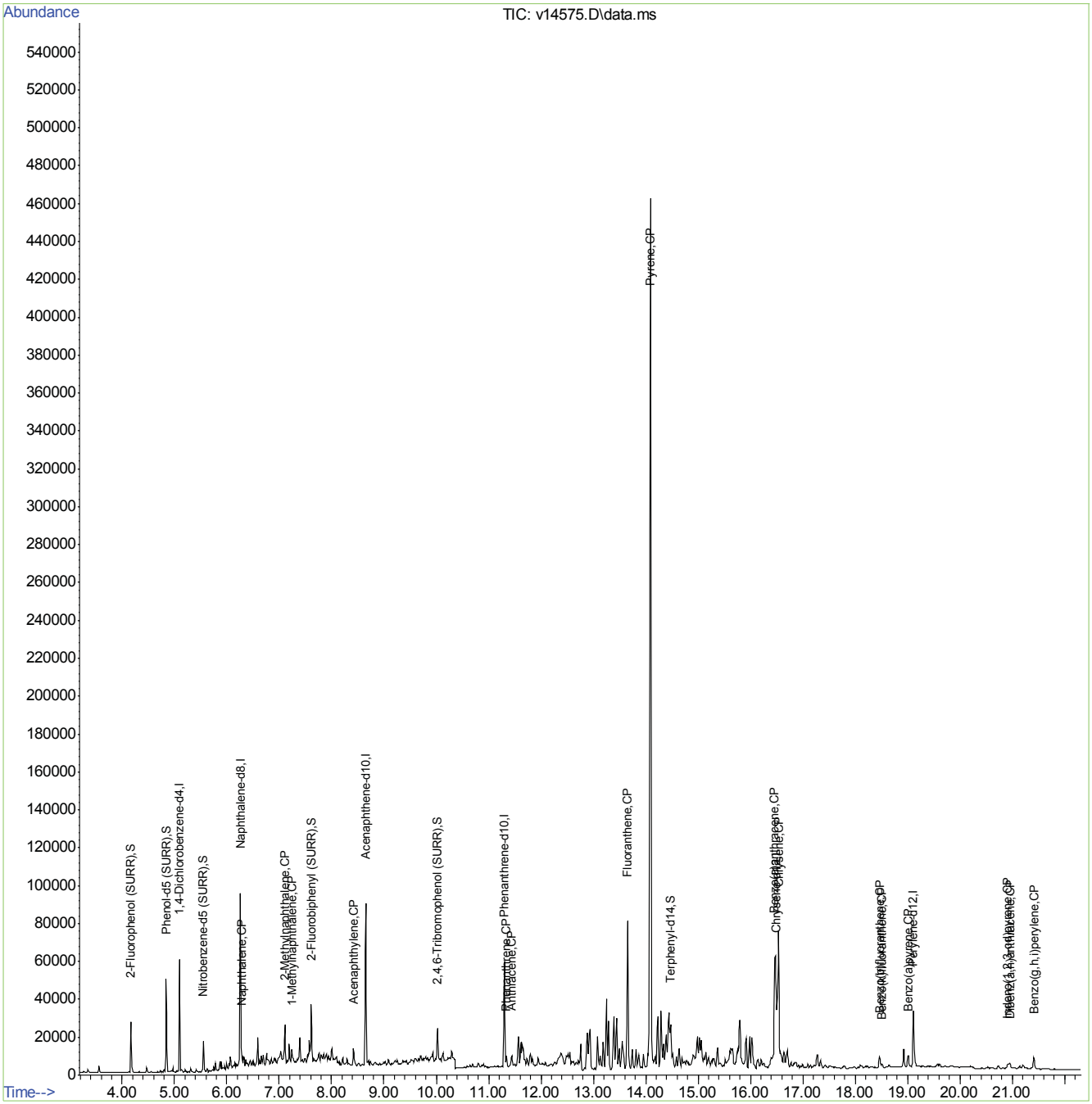
7.1.3

7

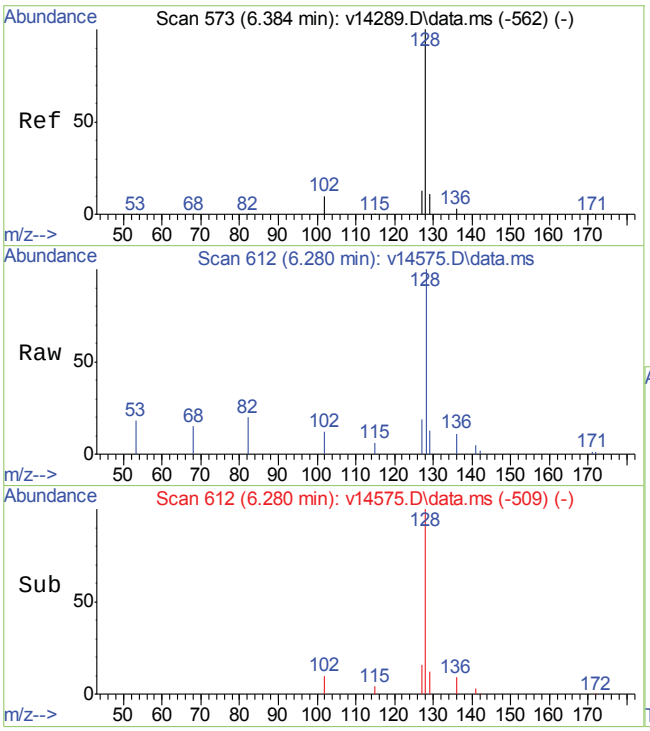
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On : 1 Apr 2013 3:25 pm
Operator : garyj
Sample : tc27860-2
Misc : op27766,ev835,30.29,,,1,1,soil
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Apr 01 16:15:37 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration



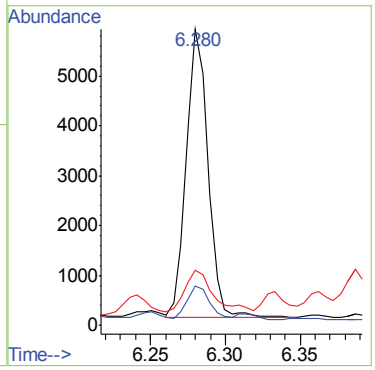
ACCUTEST LABORATORIES TC27860

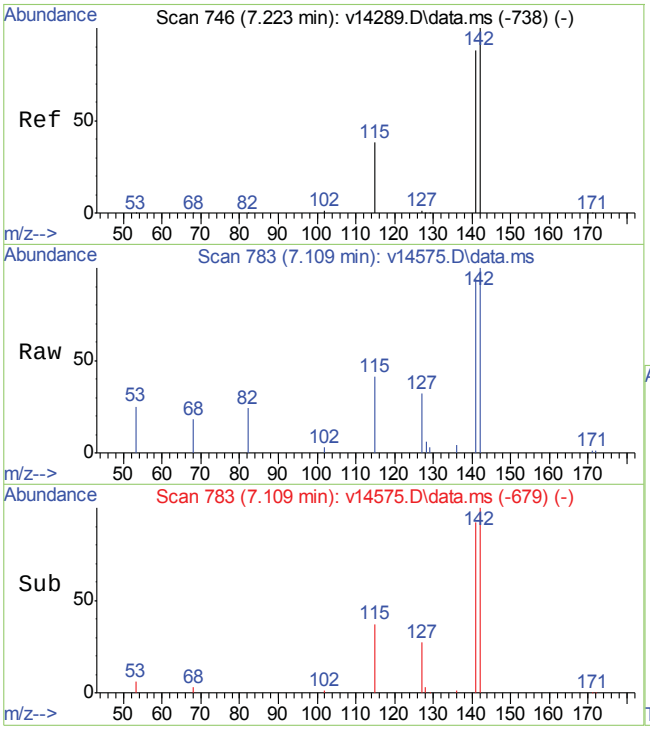


#7
Naphthalene
Concen: 0.28 ppm
RT: 6.280 min Scan# 612
Delta R.T. -0.000 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:128 Resp: 5781

Ion	Ratio	Lower	Upper
128	100		
129	11.1	0.0	31.0
127	19.1	0.0	32.9

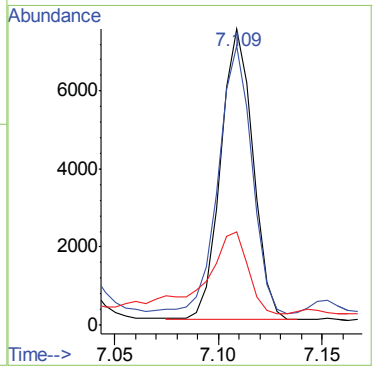


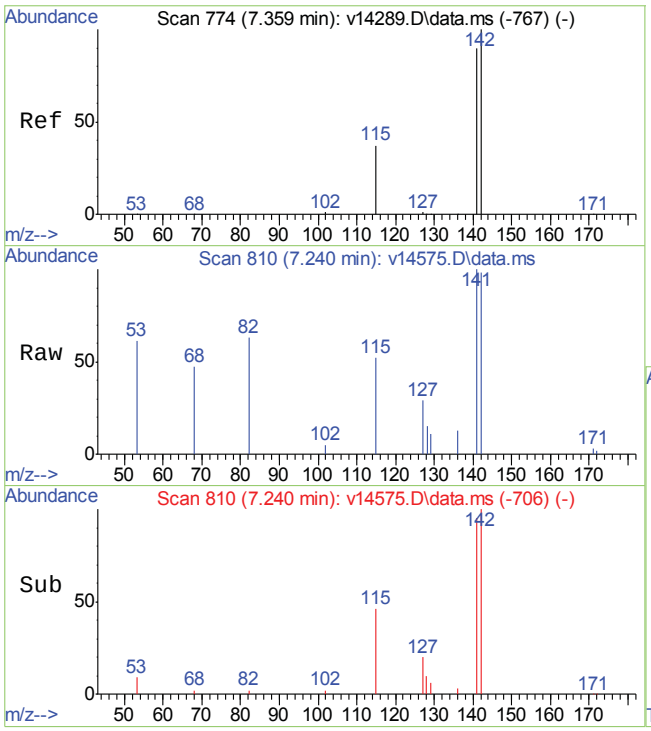


#9
2-Methylnaphthalene
Concen: 0.57 ppm
RT: 7.109 min Scan# 783
Delta R.T. 0.005 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:142 Resp: 8056

Ion	Ratio	Lower	Upper
142	100		
141	95.6	66.0	106.0
127	40.0	0.0	20.7#

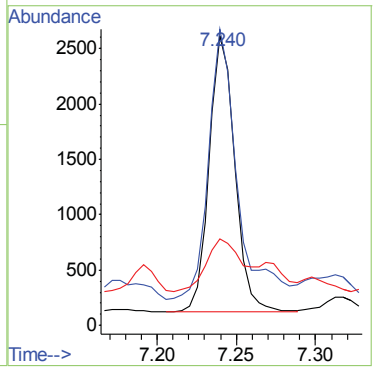


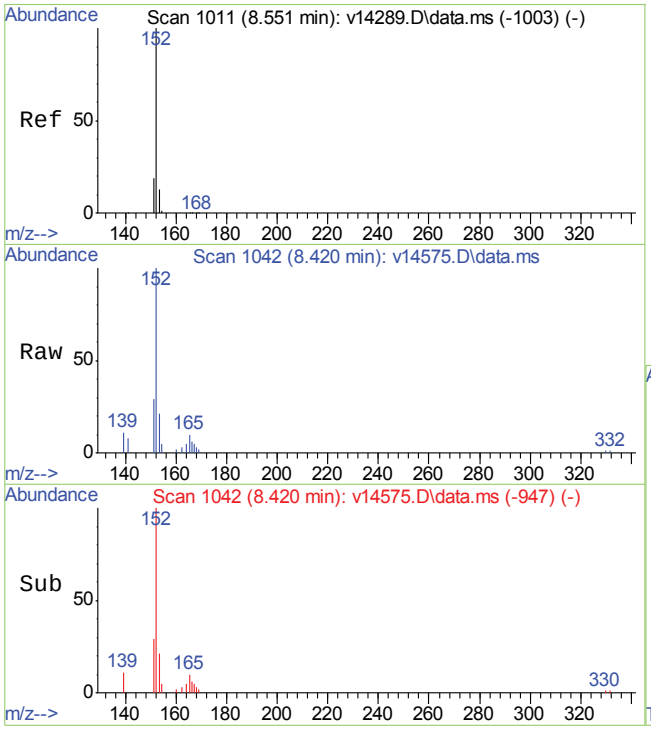


#10
1-Methylnaphthalene
Concen: 0.21 ppm
RT: 7.240 min Scan# 810
Delta R.T. 0.006 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:142 Resp: 2820

Ion	Ratio	Lower	Upper
142	100		
141	108.3	69.6	109.6
127	25.5	0.0	20.6#

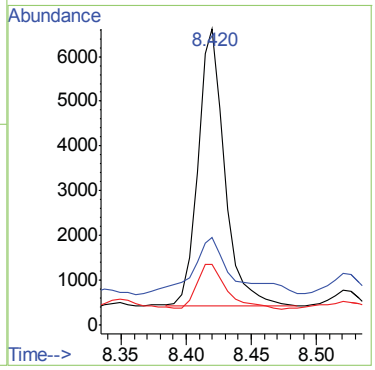


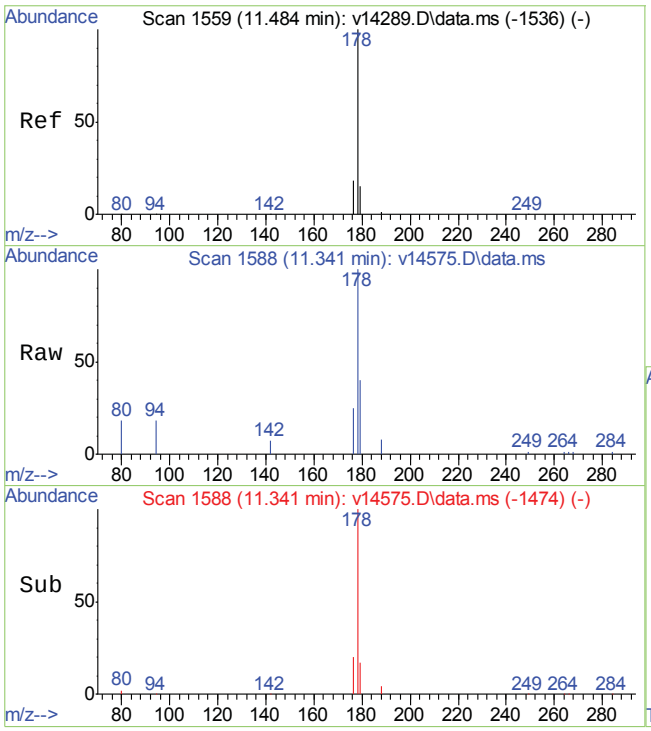


#13
Acenaphthylene
Concen: 0.51 ppm
RT: 8.420 min Scan# 1042
Delta R.T. 0.016 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:152 Resp: 8848

Ion	Ratio	Lower	Upper
152	100		
151	27.3	0.0	39.0
153	18.2	0.0	33.1

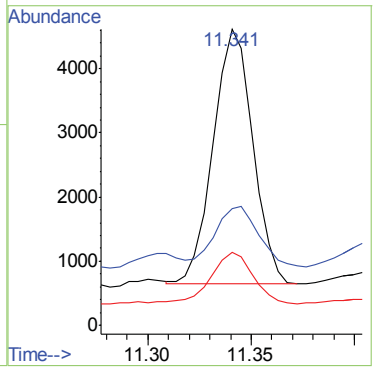


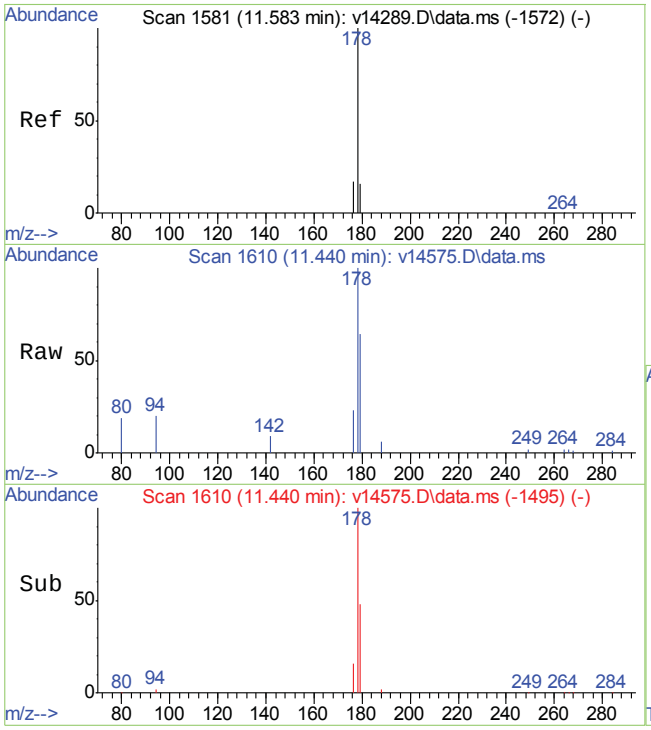


#21
Phenanthrene
Concen: 0.29 ppm
RT: 11.341 min Scan# 1588
Delta R.T. 0.014 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:178 Resp: 5325

Ion	Ratio	Lower	Upper
178	100		
179	26.3	0.0	35.4
176	21.8	0.0	38.0

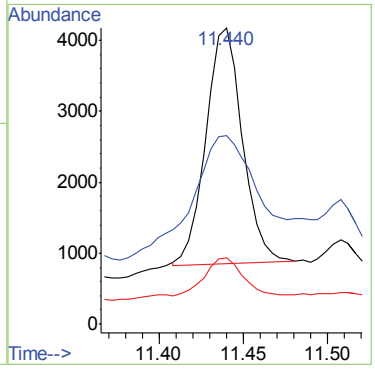


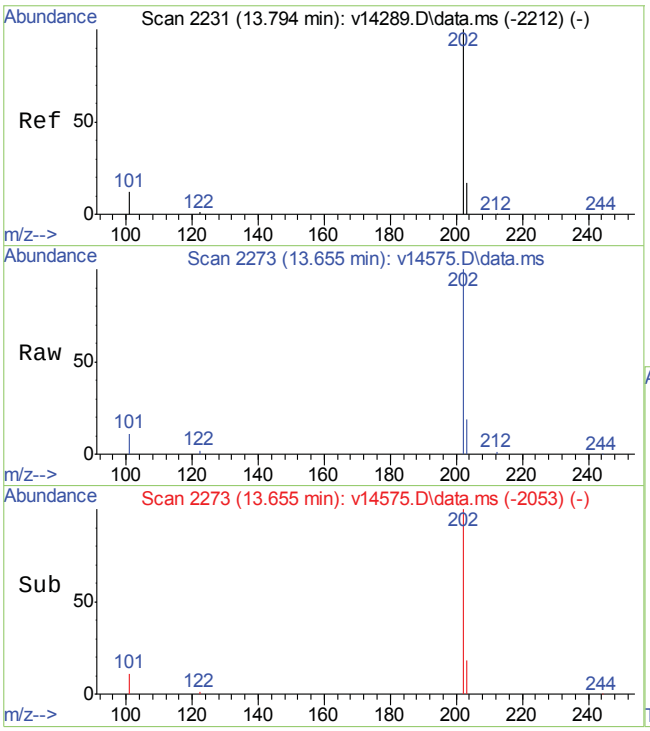


#22
Anthracene
Concen: 0.29 ppm m
RT: 11.440 min Scan# 1610
Delta R.T. 0.019 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:178 Resp: 5038

Ion	Ratio	Lower	Upper
178	100		
179	27.8	0.0	35.4
176	23.0	0.0	37.4

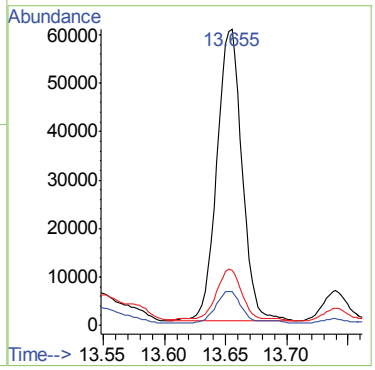


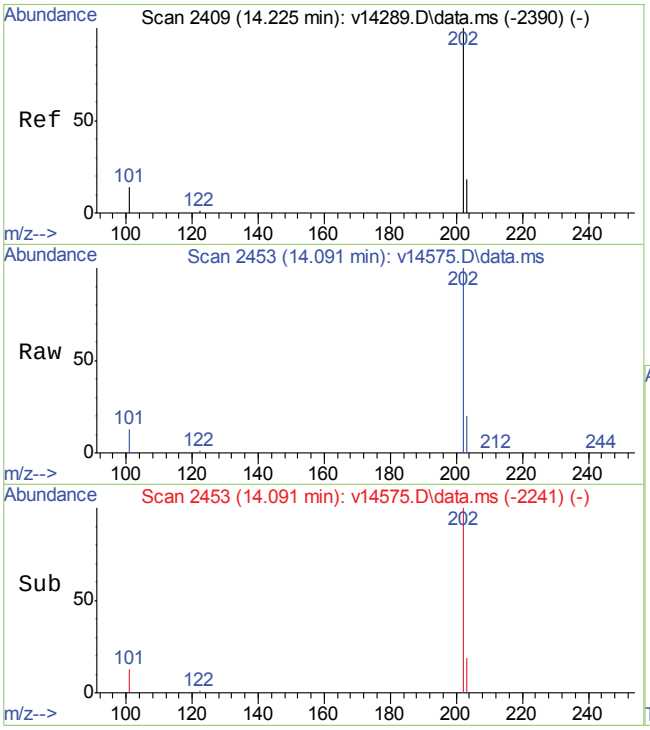


#23
Fluoranthene
Concen: 4.74 ppm
RT: 13.655 min Scan# 2273
Delta R.T. 0.033 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:202 Resp: 86815

Ion	Ratio	Lower	Upper
202	100		
101	10.5	0.0	32.2
203	17.4	0.0	37.3

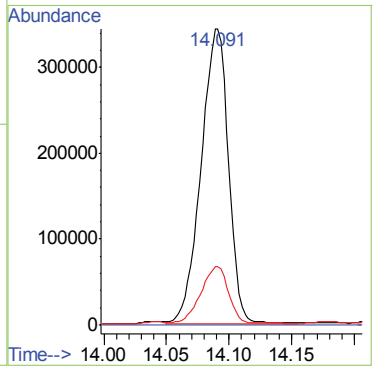


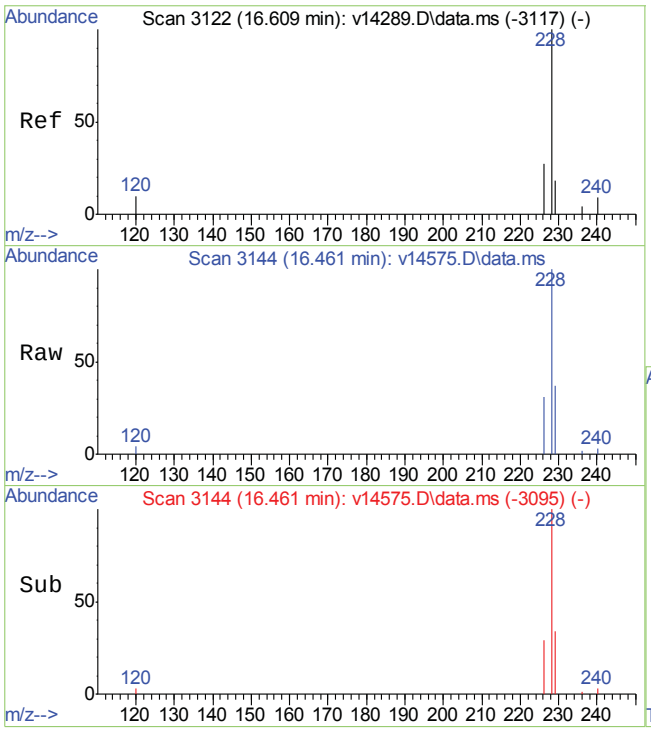


#25
Pyrene
Concen: 38.79 ppm
RT: 14.091 min Scan# 2453
Delta R.T. 0.014 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:202 Resp: 523055

Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.0	20.0
203	19.2	0.0	37.9

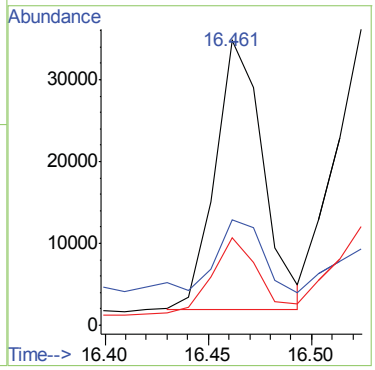


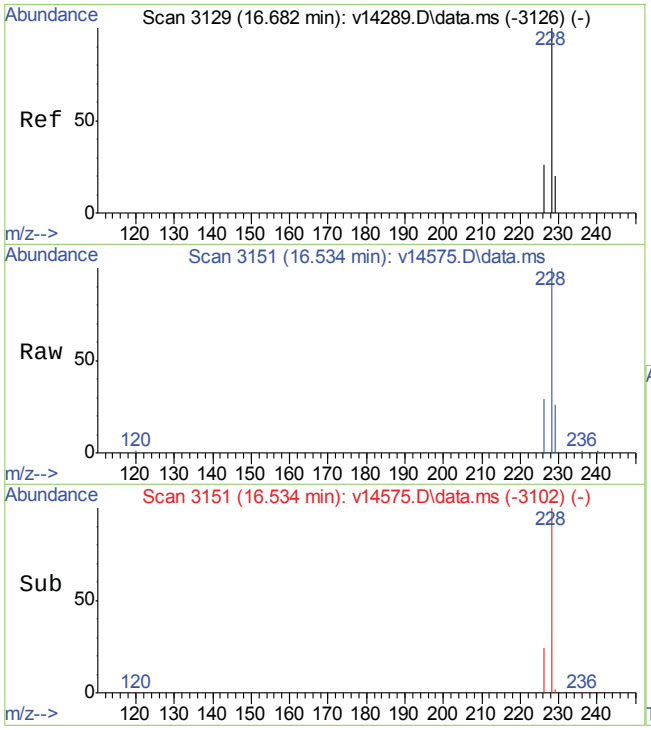


#27
Benzo(a)anthracene
Concen: 4.09 ppm m
RT: 16.461 min Scan# 3144
Delta R.T. 0.010 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:228 Resp: 53093

Ion	Ratio	Lower	Upper
228	100		
229	67.7	0.0	39.6#
226	55.8	5.5	45.5#

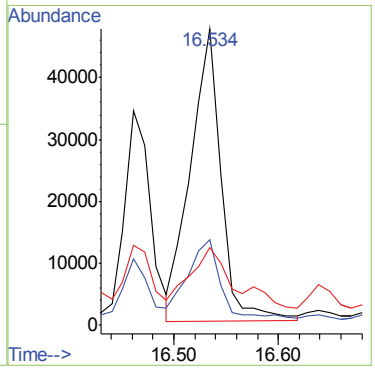


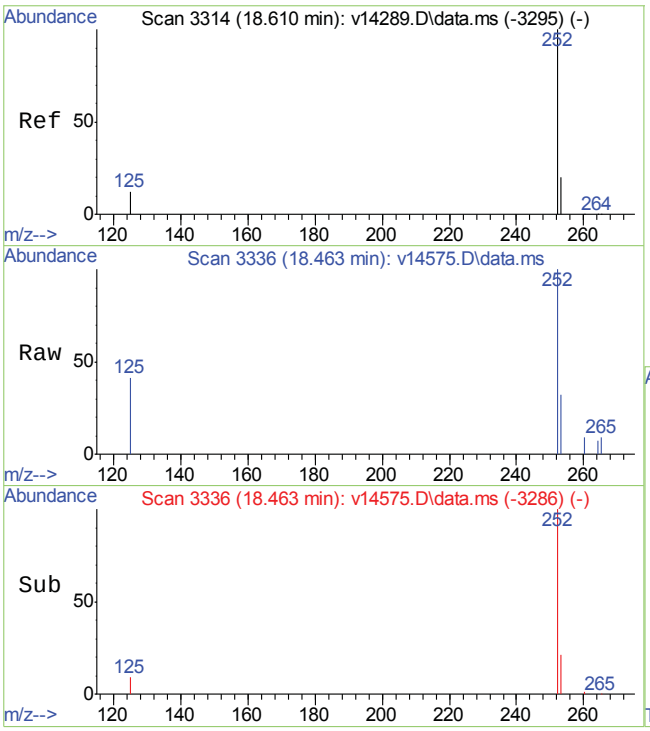


#28
Chrysene
Concen: 7.54 ppm
RT: 16.534 min Scan# 3151
Delta R.T. 0.010 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:228 Resp: 95796

Ion	Ratio	Lower	Upper
228	100		
226	31.3	7.8	47.8
229	37.5	0.0	39.6

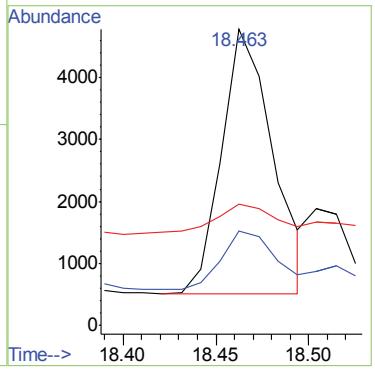


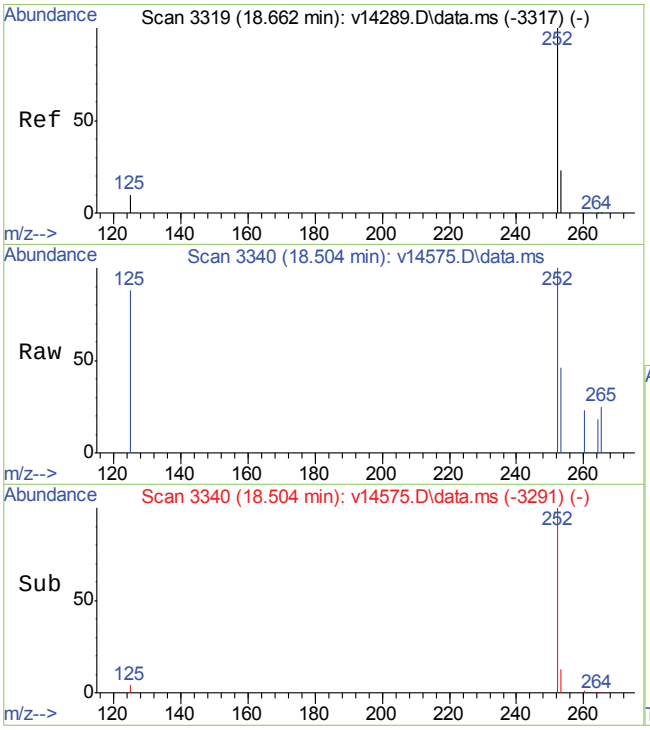


#30
Benzo(b)fluoranthene
Concen: 0.80 ppm m
RT: 18.463 min Scan# 3336
Delta R.T. 0.019 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:252 Resp: 8207

Ion	Ratio	Lower	Upper
252	100		
253	31.5	3.4	43.4
125	13.3	0.0	31.8

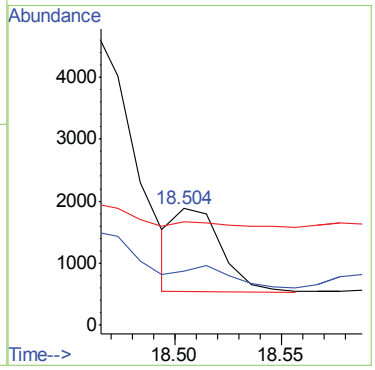


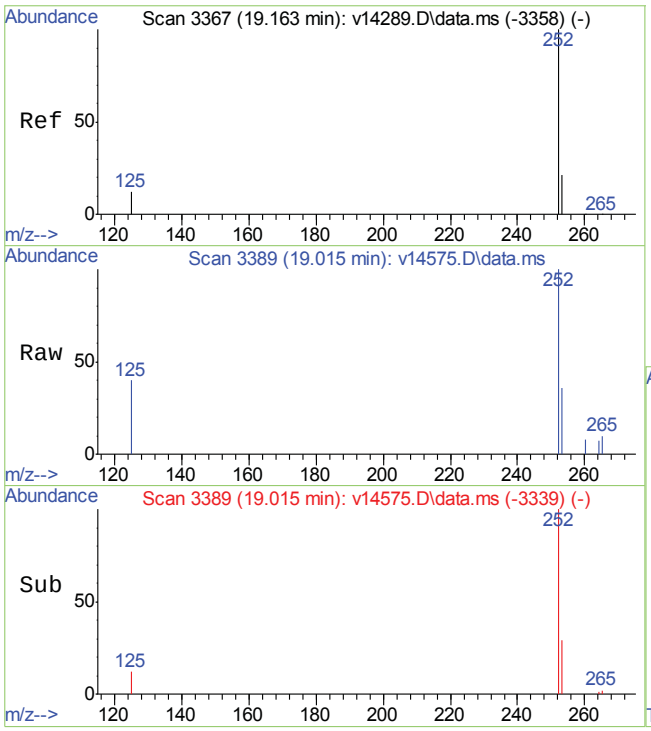


#31
Benzo(k)fluoranthene
Concen: 0.17 ppm m
RT: 18.504 min Scan# 3340
Delta R.T. 0.008 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:252 Resp: 2029

Ion	Ratio	Lower	Upper
252	100		
253	127.3	2.0	42.0#
125	53.6	0.0	32.6#

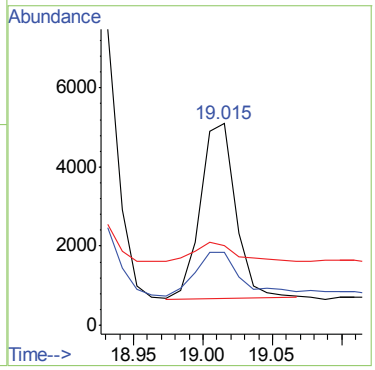


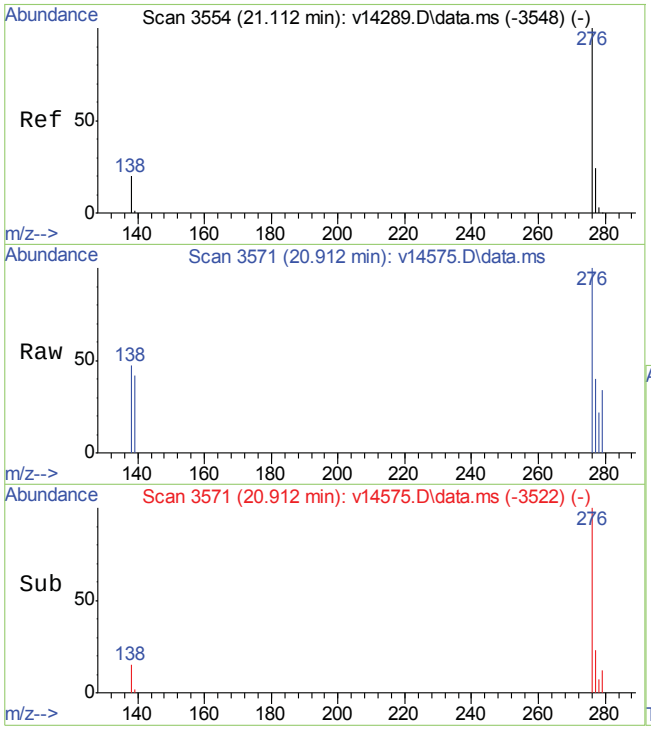


#32
Benzo(a)pyrene
Concen: 0.77 ppm m
RT: 19.015 min Scan# 3389
Delta R.T. 0.020 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:252 Resp: 7781

Ion	Ratio	Lower	Upper
252	100		
253	44.0	1.6	41.6#
125	23.0	0.0	32.8

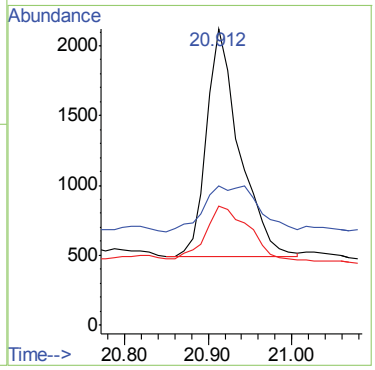


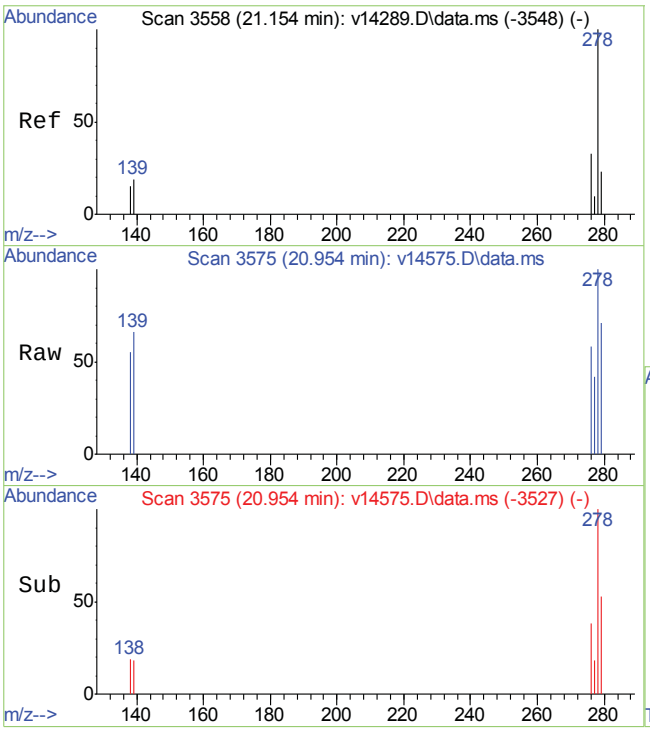


#33
Indeno(1,2,3-cd)pyrene
Concen: 0.52 ppm
RT: 20.912 min Scan# 3571
Delta R.T. 0.015 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:276 Resp: 4501

Ion	Ratio	Lower	Upper
276	100		
138	33.6	2.0	42.0
277	37.0	14.5	54.5

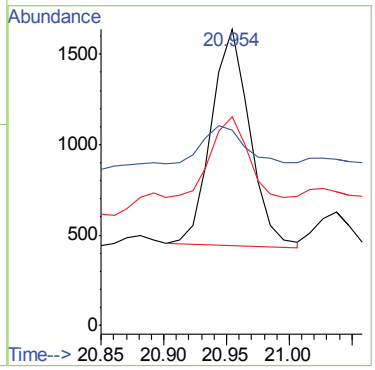


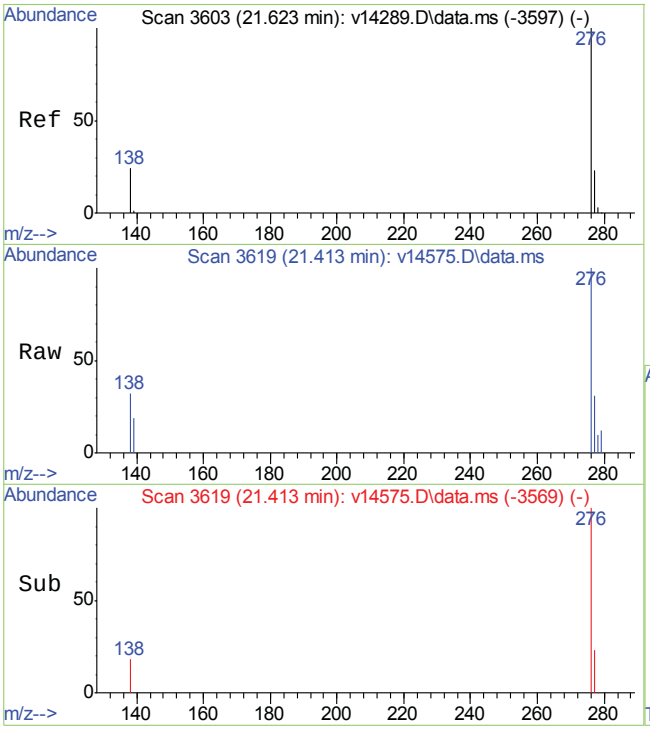


#34
Dibenz(a,h)anthracene
Concen: 0.25 ppm
RT: 20.954 min Scan# 3575
Delta R.T. 0.005 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:278 Resp: 2545

Ion	Ratio	Lower	Upper
278	100		
139	30.3	0.0	39.0
279	35.7	4.0	44.0

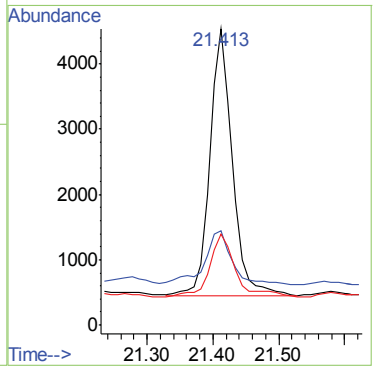




#35
Benzo(g,h,i)perylene
Concen: 0.90 ppm
RT: 21.413 min Scan# 3619
Delta R.T. 0.018 min
Lab File: v14575.D
Acq: 1 Apr 2013 3:25 pm

Tgt Ion:276 Resp: 9626

Ion	Ratio	Lower	Upper
276	100		
138	26.1	5.0	45.0
277	27.8	3.4	43.4



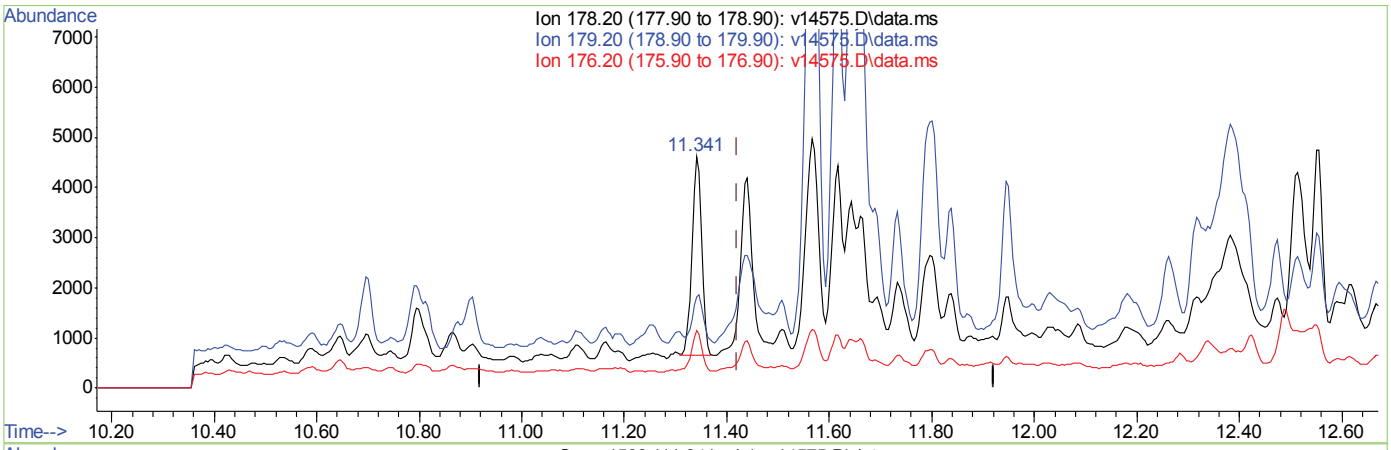
7.1.3

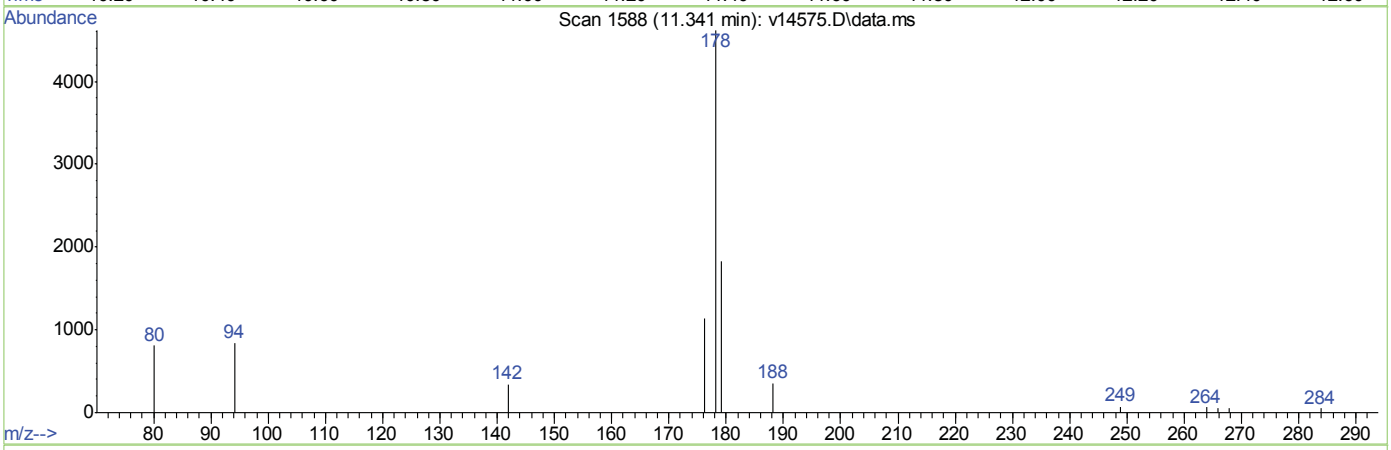
7

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On : 1 Apr 2013 3:25 pm
Operator : garyj
Sample : tc27860-2
Misc : op27766,ev835,30.29,,,1,1,soil
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14575.D\data.ms

(22) Anthracene (CP)

11.341min (-0.080) 0.30ppm

response 5325

Ion	Exp%	Act%
178.20	100	100
179.20	15.40	26.27
176.20	17.40	21.80
0.00	0.00	0.00

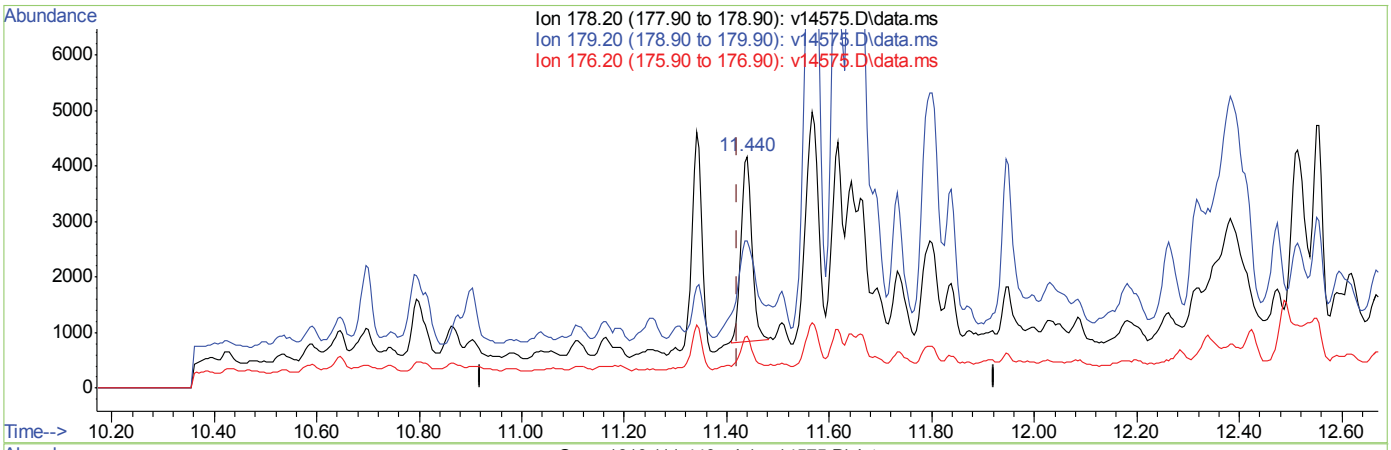
7.1.3.1

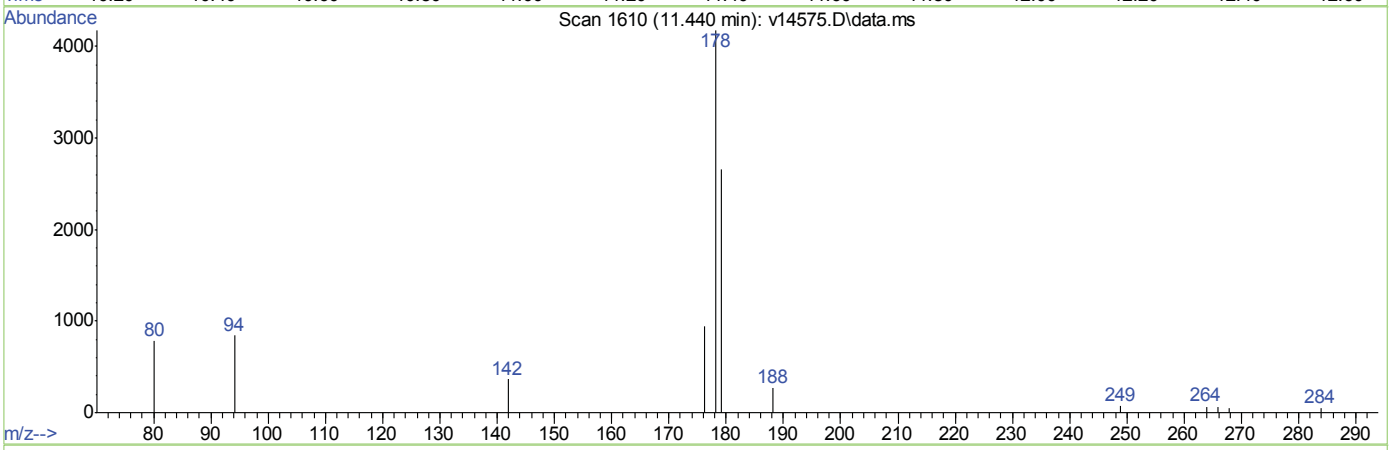
7

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On : 1 Apr 2013 3:25 pm
Operator : garyj
Sample : tc27860-2
Misc : op27766,ev835,30.29,,,1,1,soil
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14575.D\data.ms

(22) Anthracene (CP)

11.440min (+0.019) 0.29ppm m

response 5038

Ion	Exp%	Act%
178.20	100	100
179.20	15.40	27.77
176.20	17.40	23.04
0.00	0.00	0.00

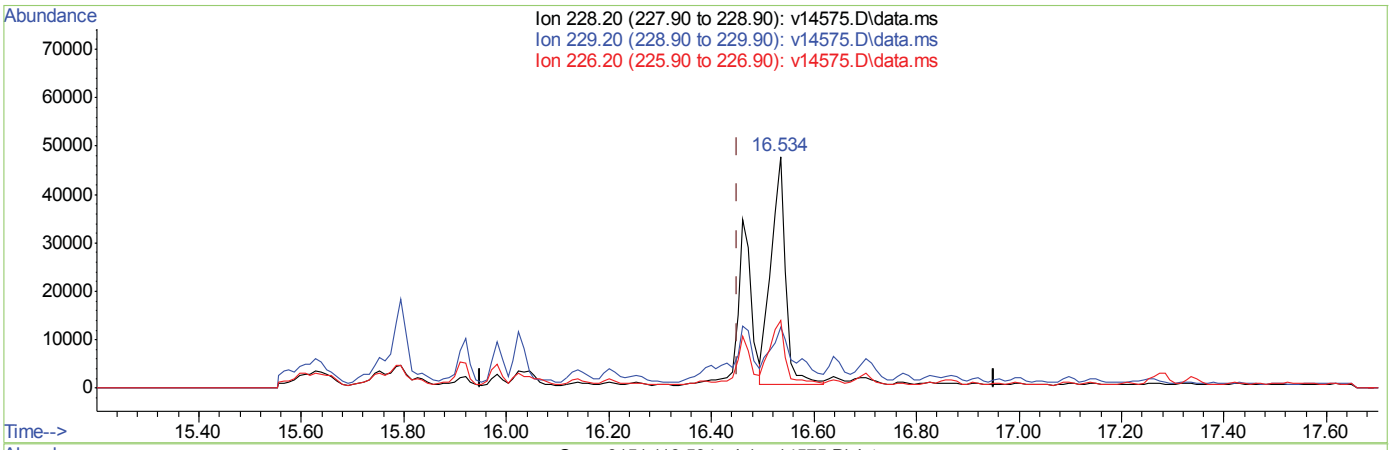
7.1.3.2

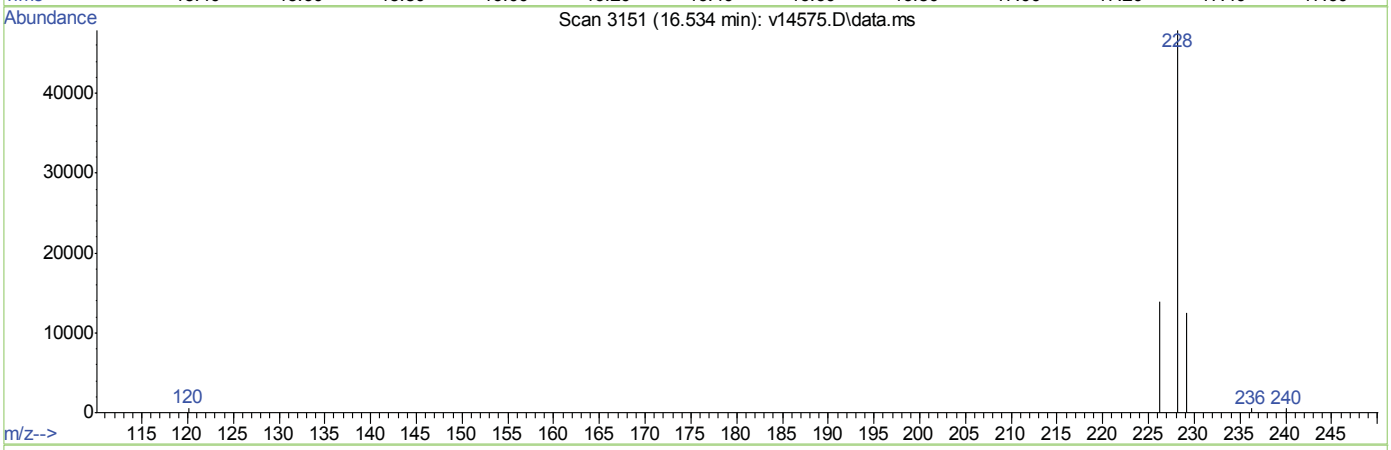
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On    :  1 Apr 2013   3:25 pm
Operator  : garyj
Sample    : tc27860-2
Misc      : op27766,ev835,30.29,,,1,1,soil
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14575.D\data.ms

(27) Benzo(a)anthracene (CP)

16.534min (+0.083) 7.27ppm

response 94479

Ion	Exp%	Act%
228.20	100	100
229.20	19.60	38.05
226.20	25.50	31.35
0.00	0.00	0.00

ev831sim.m Mon Apr 01 16:14:42 2013 Page: 1

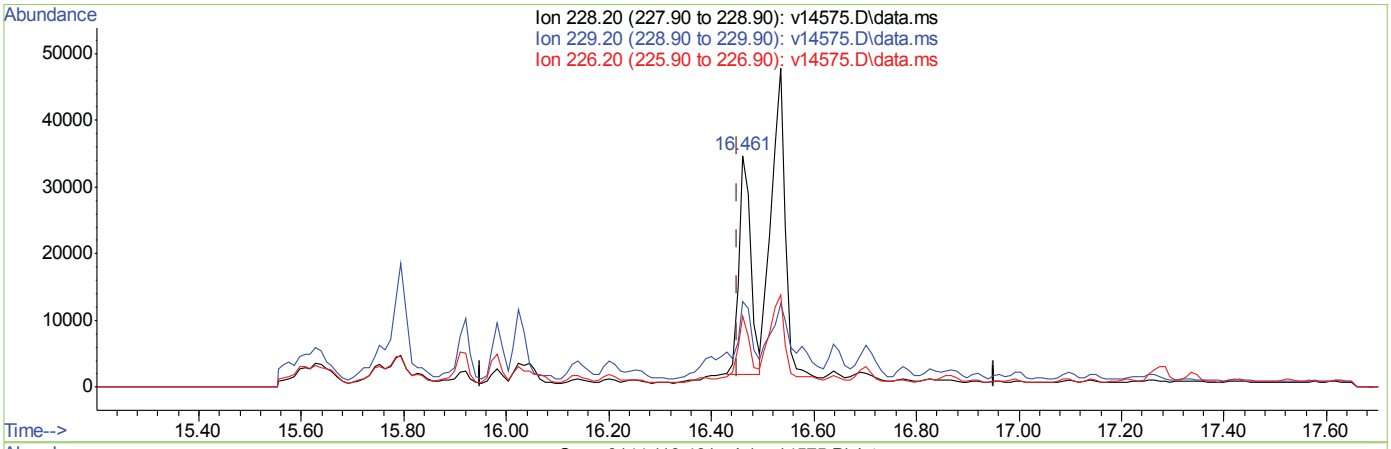
101 of 353
ACCUTEST LABORATORIES
TC27860

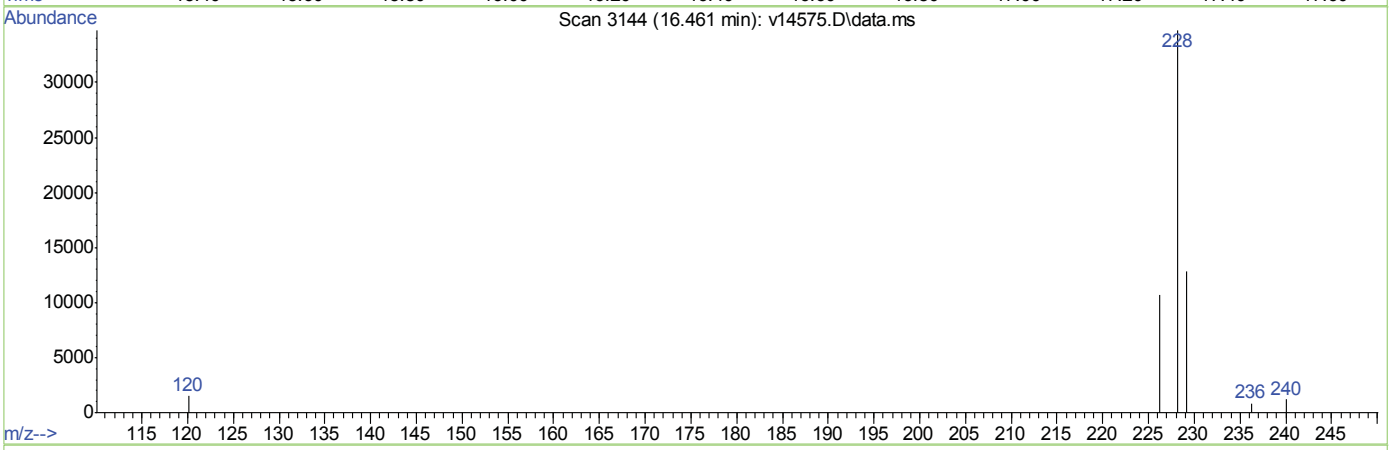
V14575.D t: o a a t a

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On    :  1 Apr 2013   3:25 pm
Operator  : garyj
Sample    : tc27860-2
Misc      : op27766,ev835,30.29,,,1,1,soil
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





(27) Benzo(a)anthracene (CP)

16.461min (+0.010) 4.09ppm m

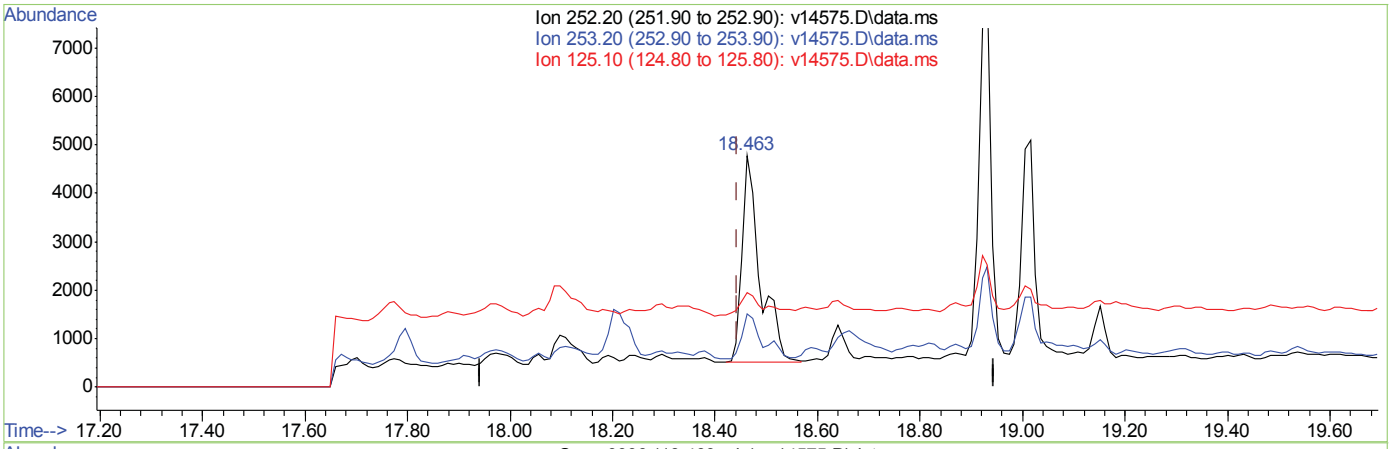
response 53093

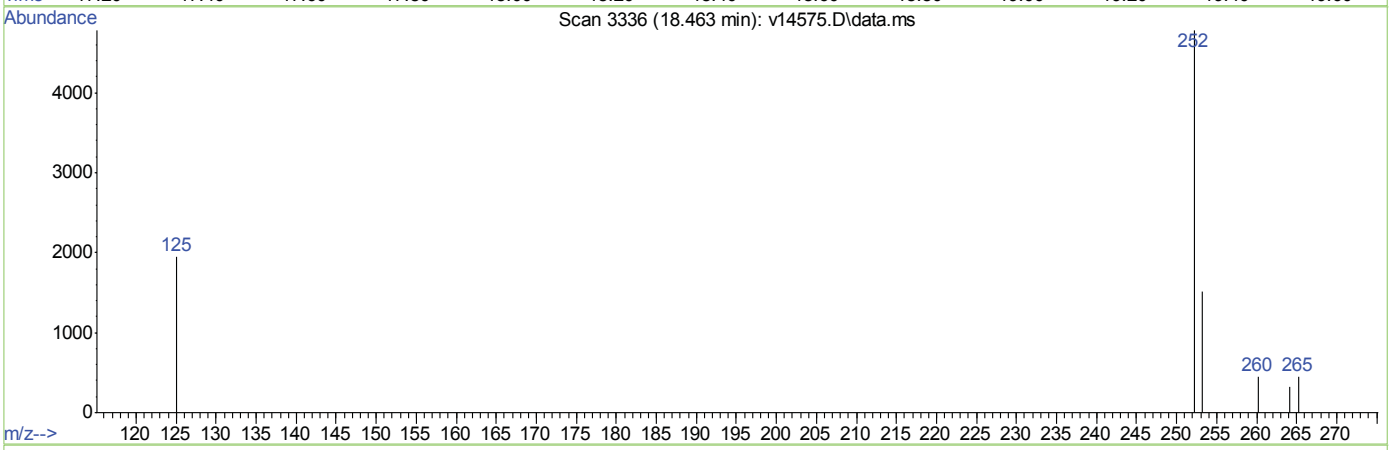
Ion	Exp%	Act%
228.20	100	100
229.20	19.60	67.71#
226.20	25.50	55.78#
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On    :  1 Apr 2013   3:25 pm
Operator  : garyj
Sample    : tc27860-2
Misc      : op27766,ev835,30.29,,,1,1,soil
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14575.D\data.ms

(30) Benzo(b)□uoranthene (CP)

18.463min (+0.019) 1.01ppm

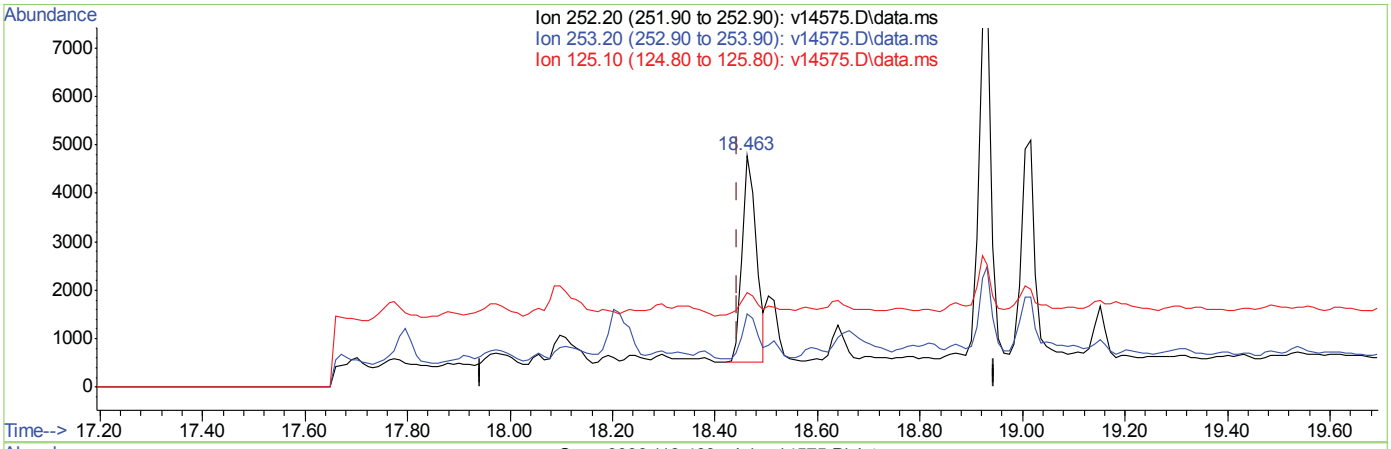
response 10351

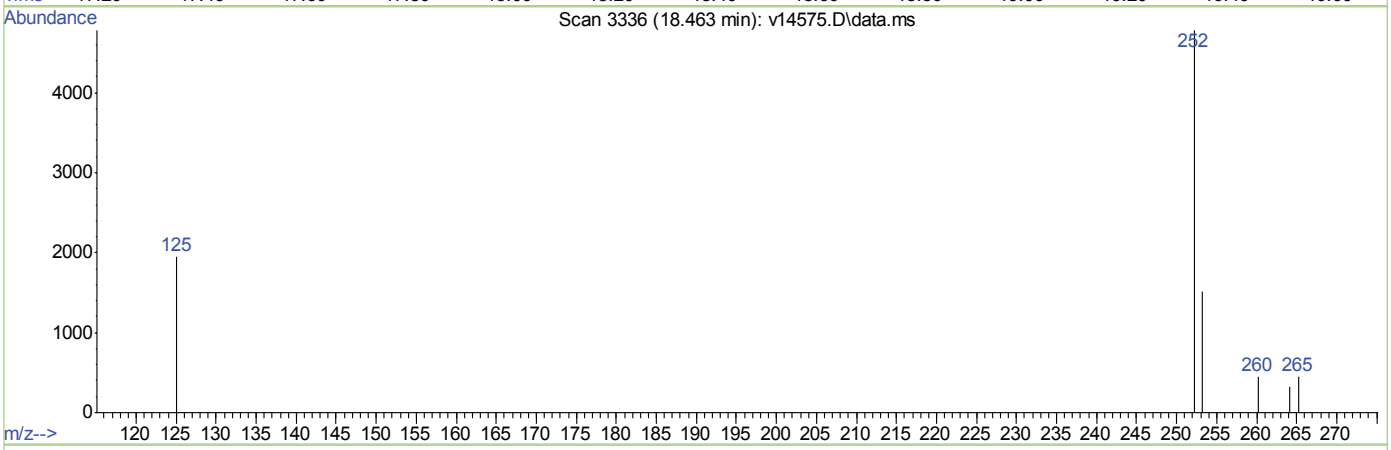
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	24.94
125.10	11.80	10.51
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On    :  1 Apr 2013   3:25 pm
Operator  : garyj
Sample    : tc27860-2
Misc      : op27766,ev835,30.29,,,1,1,soil
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14575.D\data.ms

(30) Benzo(b)□uoranthene (CP)

18.463min (+0.019) 0.80ppm m

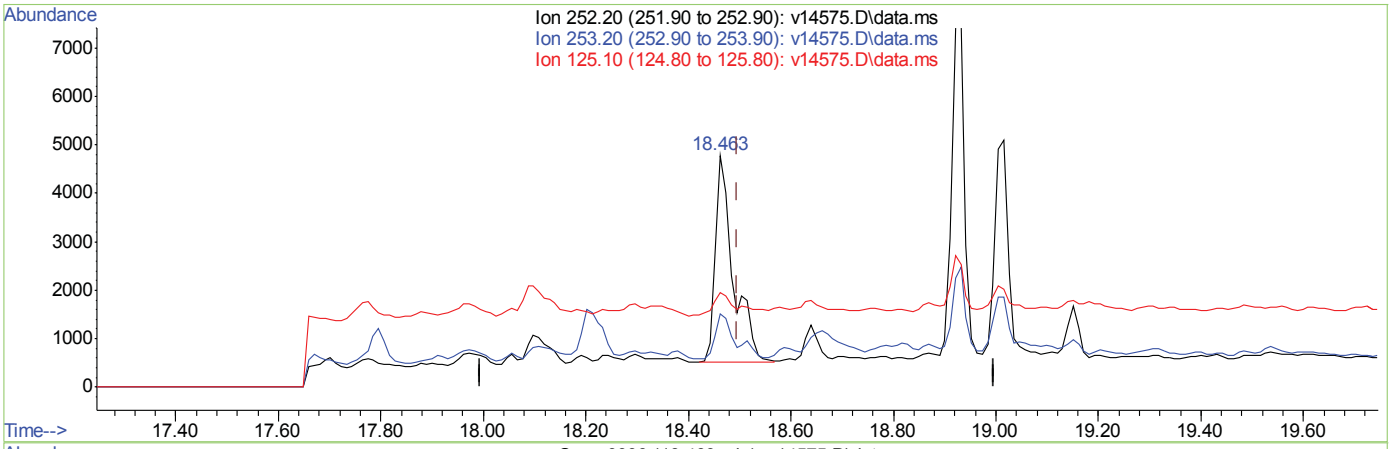
response 8207

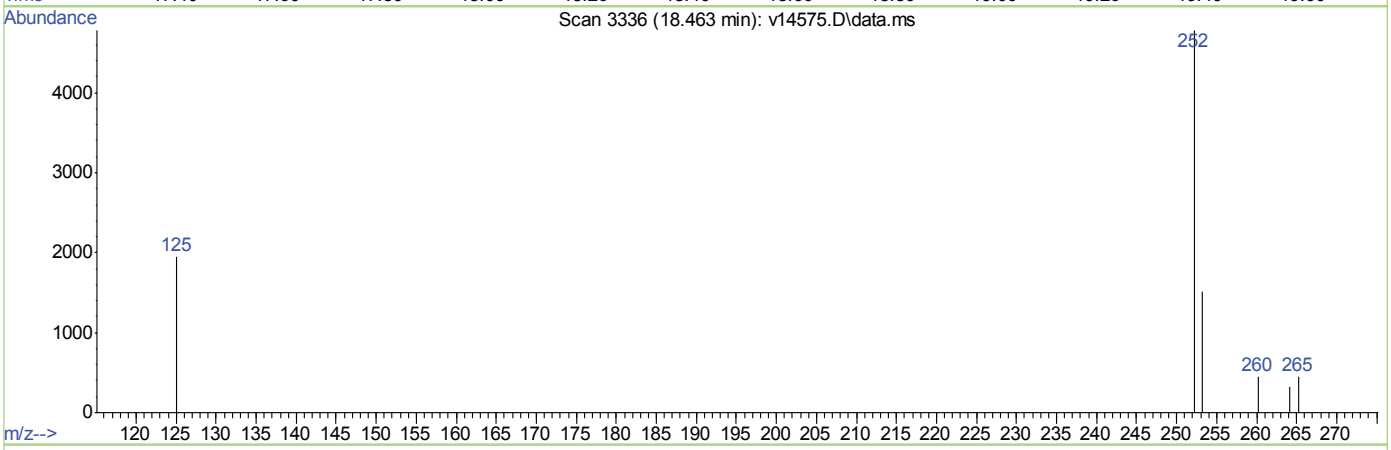
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	31.46
125.10	11.80	13.26
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On    :  1 Apr 2013   3:25 pm
Operator  : garyj
Sample    : tc27860-2
Misc      : op27766,ev835,30.29,,,1,1,soil
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14575.D\data.ms

(31) Benzo(□)□uoranthene (CP)

18.463min (-0.033) 0.89ppm

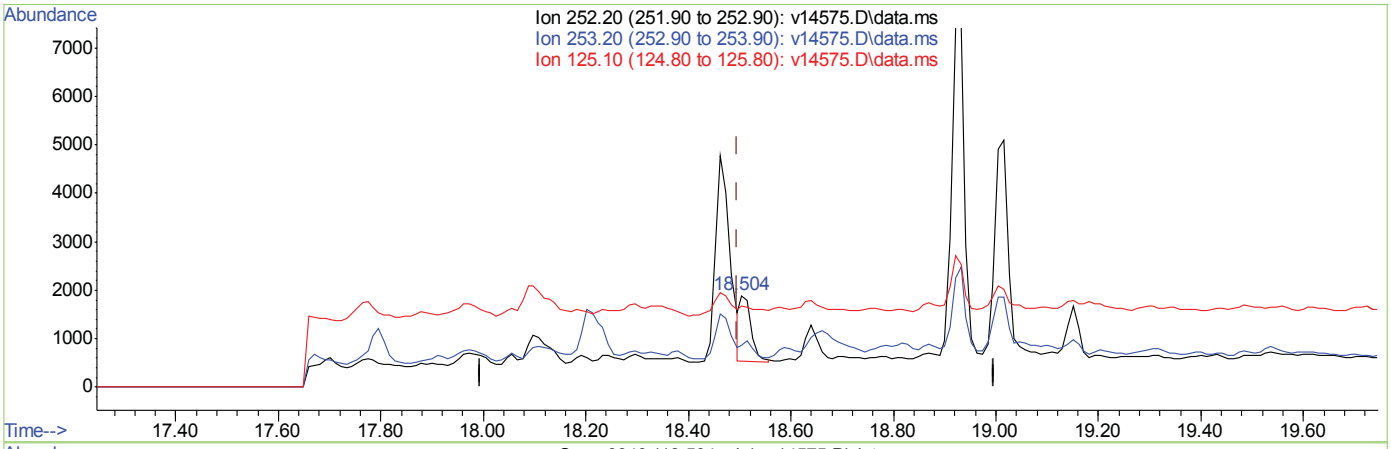
response 10351

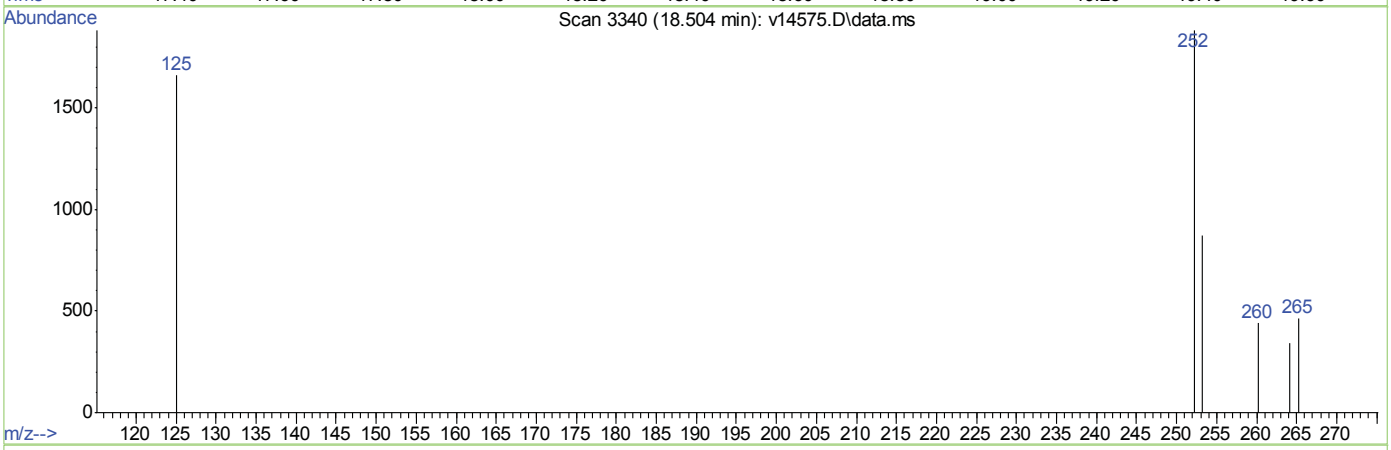
Ion	Exp%	Act%
252.20	100	100
253.20	22.00	24.94
125.10	12.60	10.51
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On    :  1 Apr 2013   3:25 pm
Operator  : garyj
Sample    : tc27860-2
Misc      : op27766,ev835,30.29,,,1,1,soil
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14575.D\data.ms

(31) Benzo(□)□uoranthene (CP)

18.504min (+0.008) 0.17ppm m

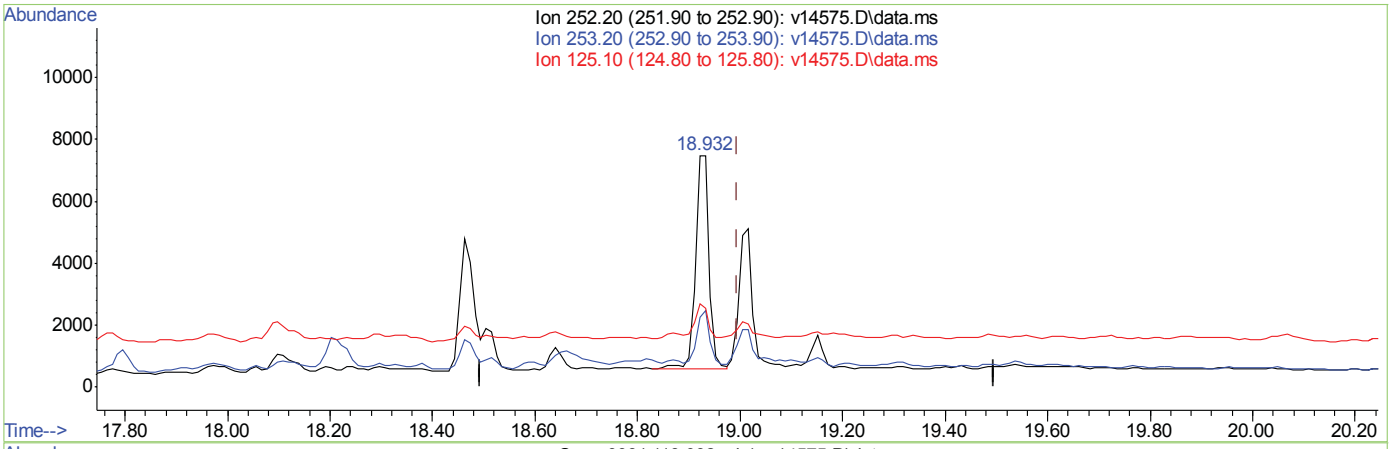
response 2029

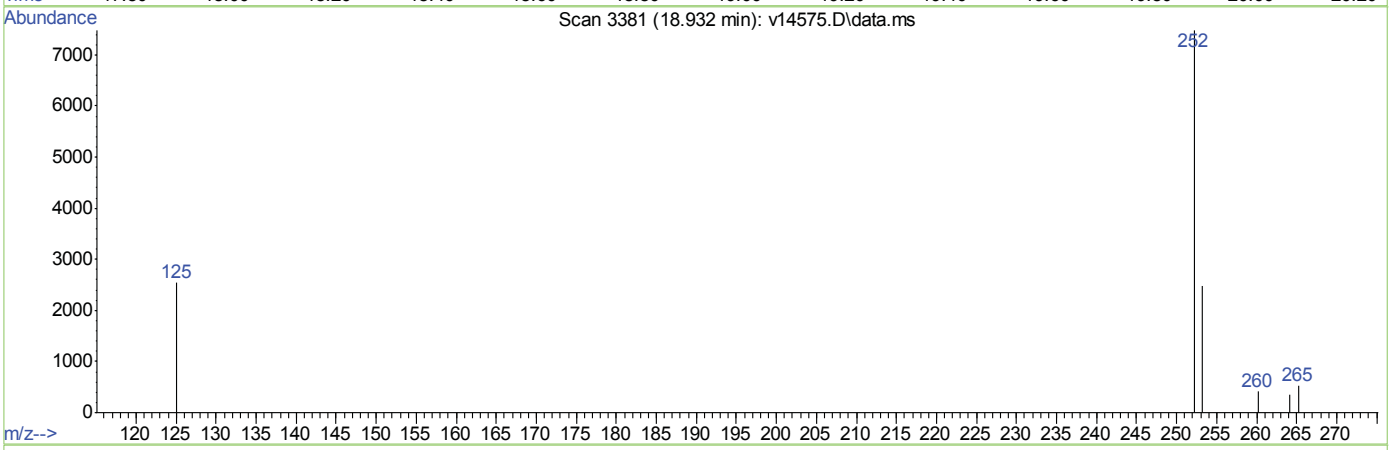
Ion	Exp%	Act%
252.20	100	100
253.20	22.00	127.25#
125.10	12.60	53.62#
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On    :  1 Apr 2013   3:25 pm
Operator  : garyj
Sample    : tc27860-2
Misc      : op27766,ev835,30.29,,,1,1,soil
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14575.D\data.ms

(32) Benzo(a)p□rene (CP)

18.932min (-0.063) 1.23ppm

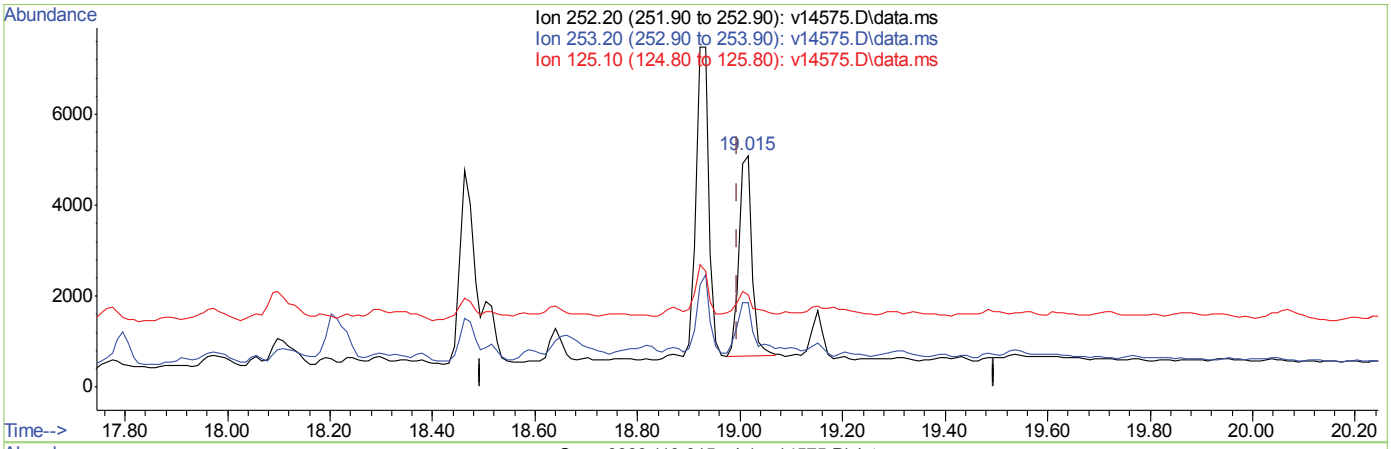
response 12487

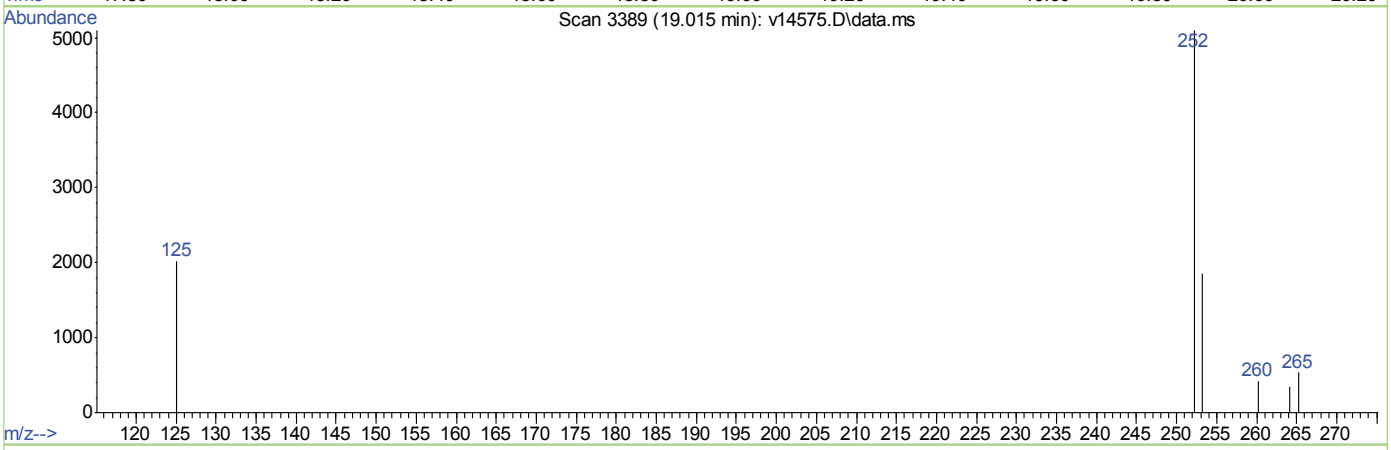
Ion	Exp%	Act%
252.20	100	100
253.20	21.60	27.43
125.10	12.80	14.34
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14575.D
Acq On    :  1 Apr 2013   3:25 pm
Operator  : garyj
Sample    : tc27860-2
Misc      : op27766,ev835,30.29,,,1,1,soil
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Apr 01 16:12:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14575.D\data.ms

(32) Benzo(a)p□rene (CP)

19.015min (+0.020) 0.77ppm m

response 7781

Ion	Exp%	Act%
252.20	100	100
253.20	21.60	44.02#
125.10	12.80	23.02
0.00	0.00	0.00

anual nte rations
R V D
(compounds ith m fla)
ohn atson
04 02 13 12:4

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On : 1 Apr 2013 2:29 pm
Operator : garyj
Sample : tc27860-3
Misc : op27766,ev835,30.24,,,1,1,soil
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 01 14:51:49 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

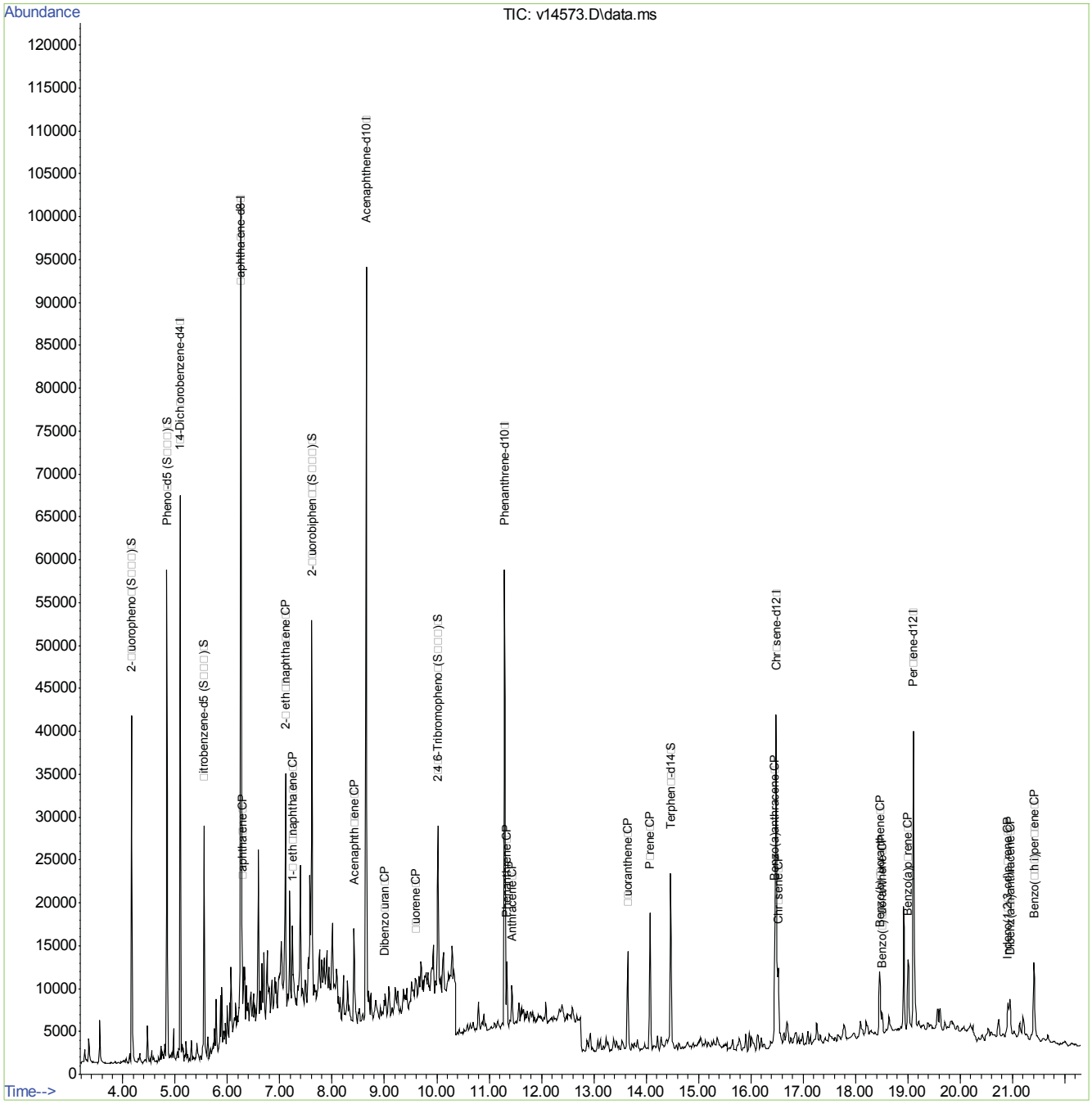
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	15746	4.00	ppm	0.00
5) Naphthalene-d8	6.256	136	87096	4.00	ppm	0.00
11) Acenaphthene-d10	8.650	164	40779	4.00	ppm	0.01
17) Phenanthrene-d10	11.295	188	62343	4.00	ppm	0.01
24) Chrysene-d12	16.482	240	40127	4.00	ppm	0.01
29) Perylene-d12	19.109	264	40930	4.00	ppm	0.01
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.168	112	22797	5.02	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 50.20%			
3) Phenol-d5 (SURR)	4.843	99	34497	6.21	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 62.10%			
6) Nitrobenzene-d5 (SURR)	5.553	82	17133	2.48	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 49.60%			
12) 2-Fluorobiphenyl (SURR)	7.613	172	34644	2.26	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 45.20%			
19) 2,4,6-Tribromophenol (...	10.025	330	9440	6.69	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 66.90%			
26) Terphenyl-d14	14.469	244	20176	3.21	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 64.20%			
Target Compounds						Qvalue
7) Naphthalene	6.280	128	8057	0.37	ppm	93
9) 2-Methylnaphthalene	7.109	142	11325	0.76	ppm #	90
10) 1-Methylnaphthalene	7.240	142	3925	0.28	ppm #	81
13) Acenaphthylene	8.414	152	11053	0.63	ppm	89
15) Dibenzofuran	8.992	168	749	0.05	ppm #	1
16) Fluorene	9.588	166	1412	0.10	ppm	85
21) Phenanthrene	11.340	178	7504	0.41	ppm	93
22) Anthracene	11.435	178	3819m	0.22	ppm	
23) Fluoranthene	13.648	202	12317	0.68	ppm	92
25) Pyrene	14.076	202	16869	1.16	ppm #	90
27) Benzo(a)anthracene	16.461	228	7056m	0.51	ppm	
28) Chrysene	16.524	228	13353m	0.98	ppm	
30) Benzo(b)fluoranthene	18.463	252	11013m	0.96	ppm	
31) Benzo(k)fluoranthene	18.504	252	2675m	0.21	ppm	
32) Benzo(a)pyrene	19.005	252	11169	0.99	ppm	76
33) Indeno(1,2,3-cd)pyrene	20.912	276	6970	0.72	ppm	87
34) Dibenz(a,h)anthracene	20.954	278	3763	0.34	ppm	73
35) Benzo(g,h,i)perylene	21.413	276	14786	1.24	ppm	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

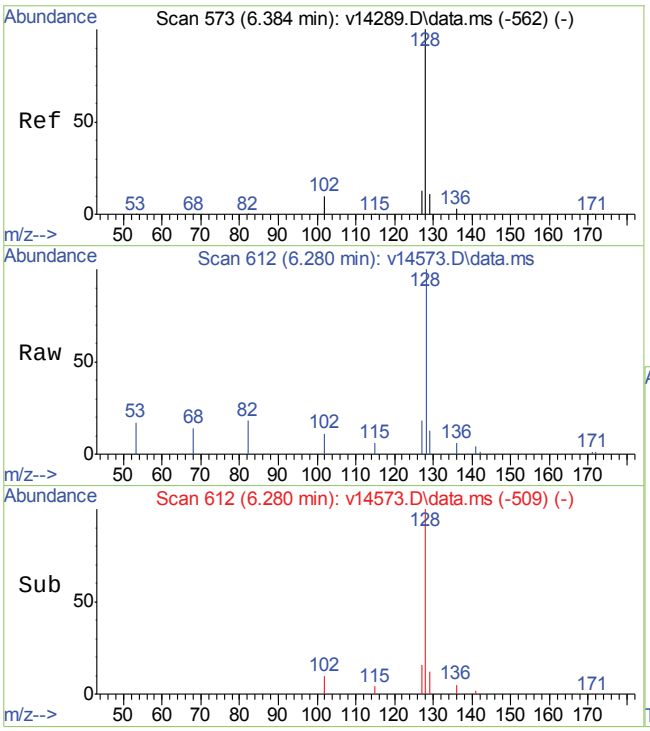
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On : 1 Apr 2013 2:29 pm
Operator : garyj
Sample : tc27860-3
Misc : op27766,ev835,30.24,,,1,1,soil
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 01 14:51:49 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration



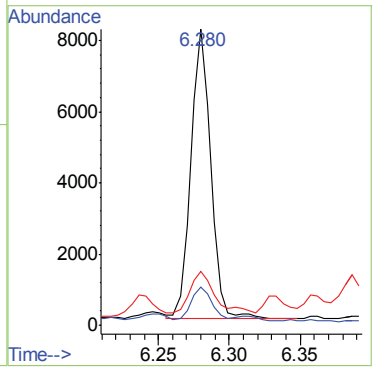
ev831sim.m Mon Apr 01 14:52:07 2013 Page: 2

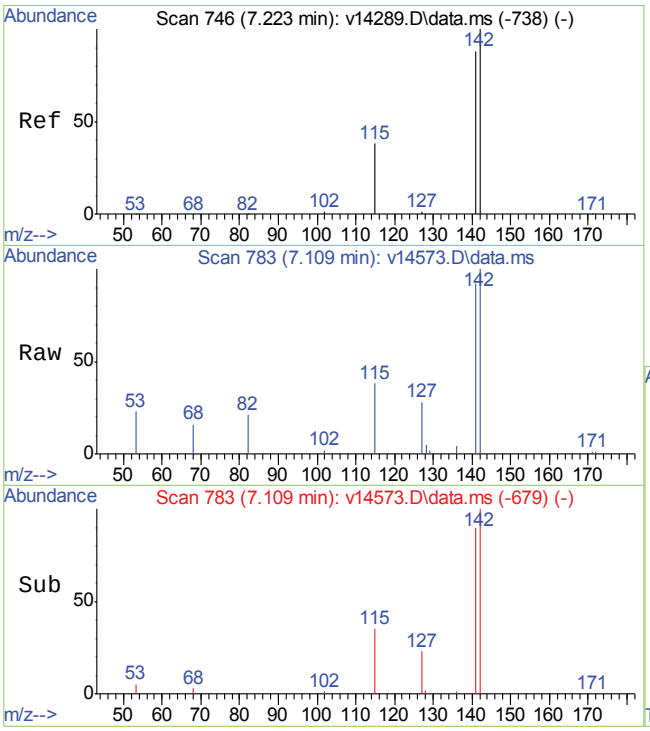


#7
Naphthalene
Concen: 0.37 ppm
RT: 6.280 min Scan# 612
Delta R.T. -0.000 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:128 Resp: 8057

Ion	Ratio	Lower	Upper
128	100		
129	11.2	0.0	31.0
127	17.6	0.0	32.9

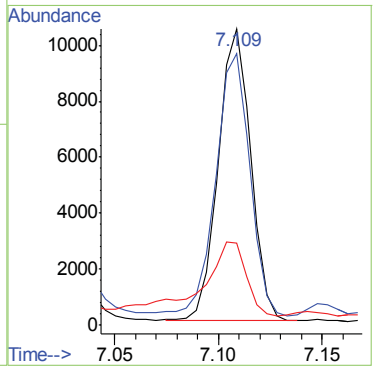


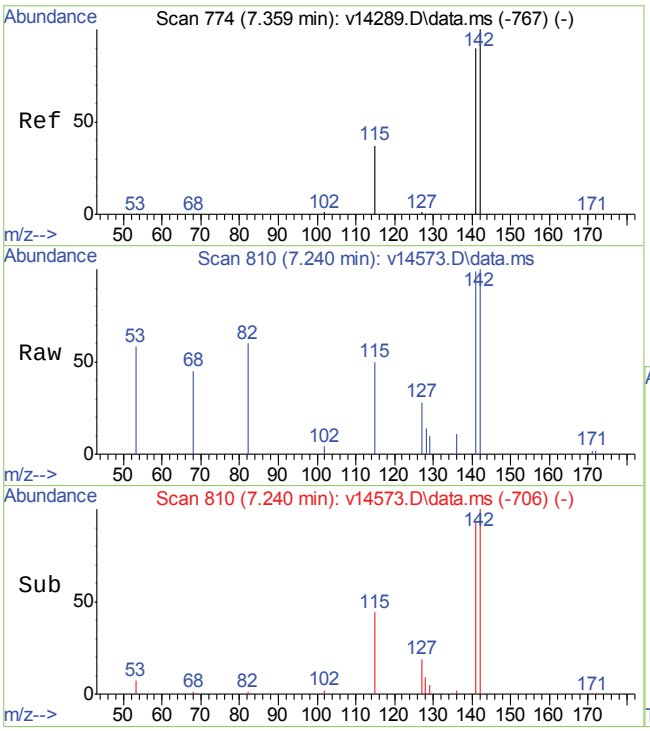


#9
2-Methylnaphthalene
Concen: 0.76 ppm
RT: 7.109 min Scan# 783
Delta R.T. 0.005 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:142 Resp: 11325

Ion	Ratio	Lower	Upper
142	100		
141	94.9	66.0	106.0
127	36.3	0.0	20.7#

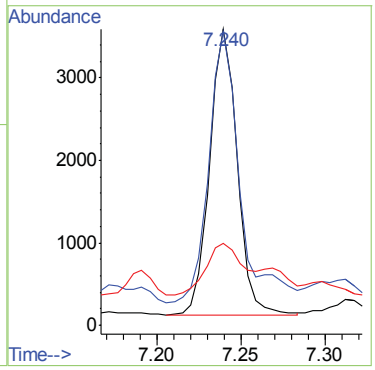


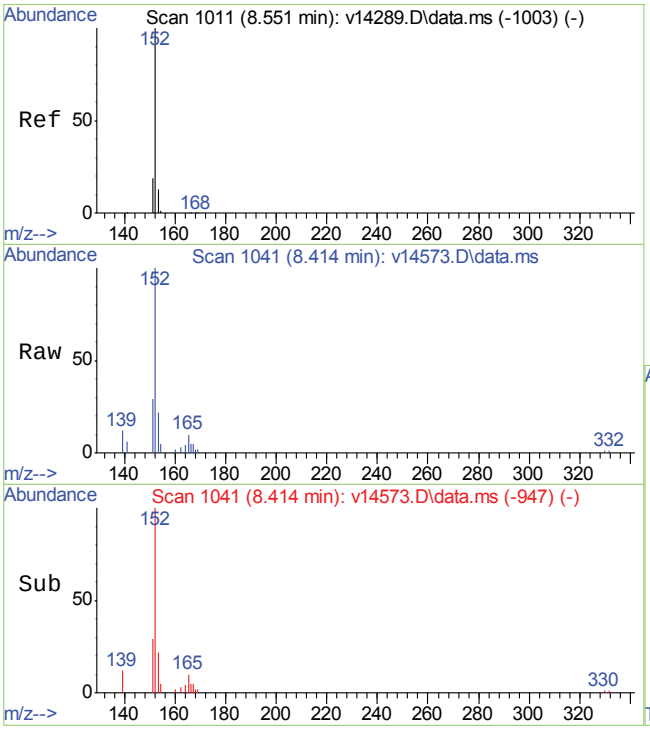


#10
1-Methylnaphthalene
Concen: 0.28 ppm
RT: 7.240 min Scan# 810
Delta R.T. 0.006 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:142 Resp: 3925

Ion	Ratio	Lower	Upper
142	100		
141	107.2	69.6	109.6
127	24.9	0.0	20.6#

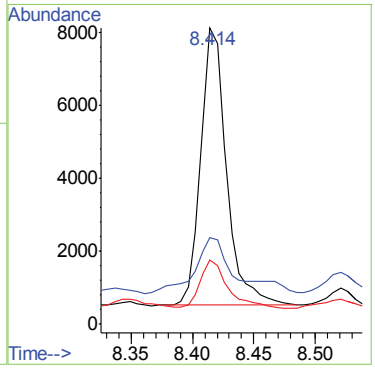


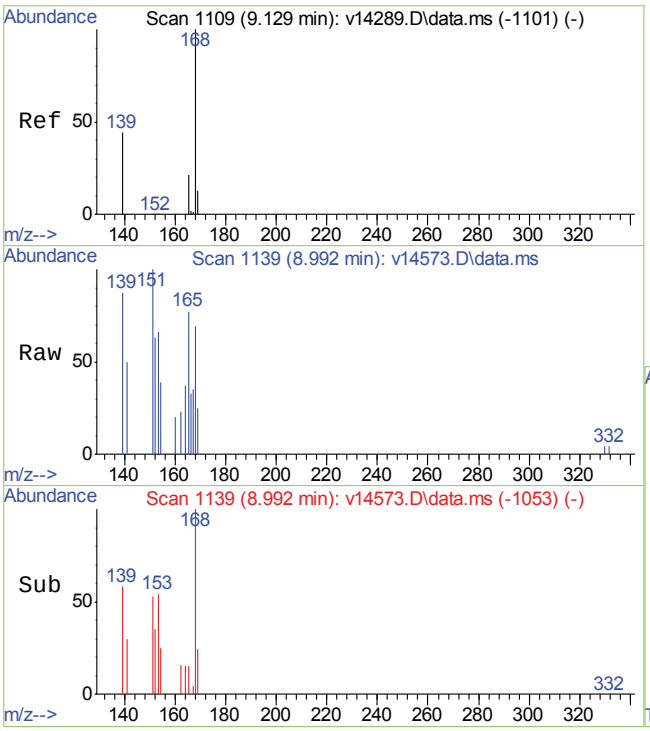


#13
Acenaphthylene
Concen: 0.63 ppm
RT: 8.414 min Scan# 1041
Delta R.T. 0.010 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:152 Resp: 11053

Ion	Ratio	Lower	Upper
152	100		
151	15.1	0.0	39.0
153	19.0	0.0	33.1

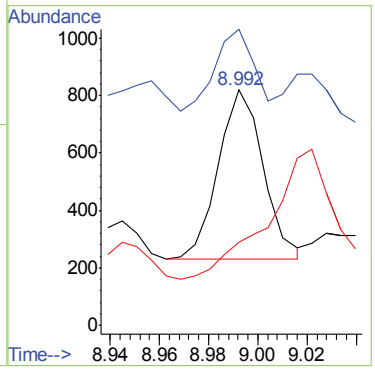


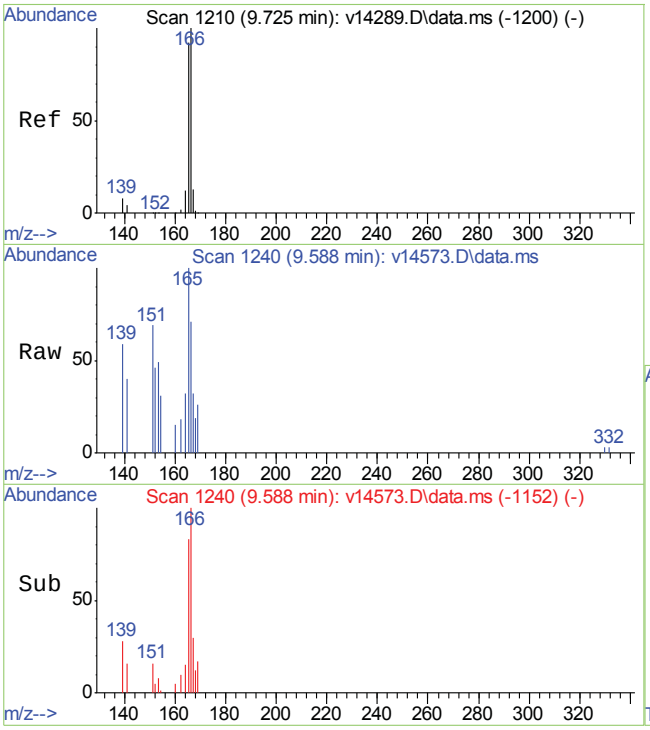


#15
Dibenzofuran
Concen: 0.05 ppm
RT: 8.992 min Scan# 1139
Delta R.T. 0.008 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:168 Resp: 749

Ion	Ratio	Lower	Upper
168	100		
139	0.0	33.3	73.3#
169	115.4	0.0	33.1#

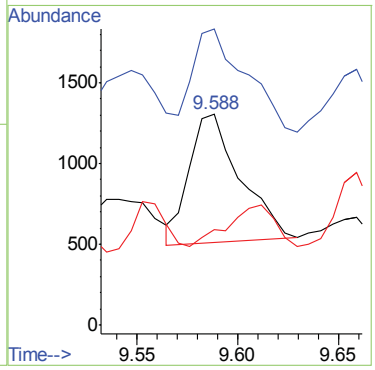




#16
Fluorene
Concen: 0.10 ppm
RT: 9.588 min Scan# 1240
Delta R.T. 0.017 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:166 Resp: 1412

Ion	Ratio	Lower	Upper
166	100		
165	102.5	72.1	112.1
167	29.1	0.0	33.5



7.1.4

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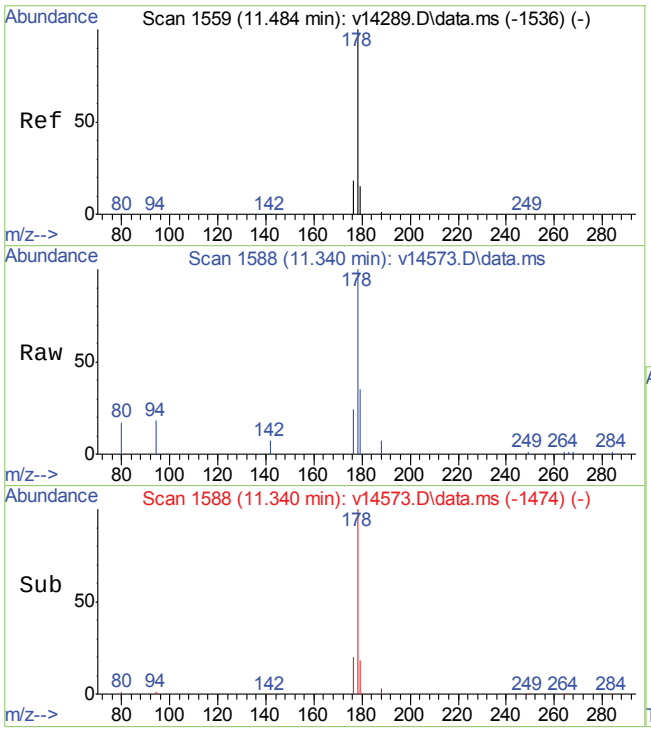
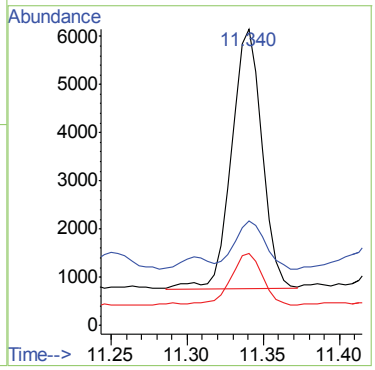
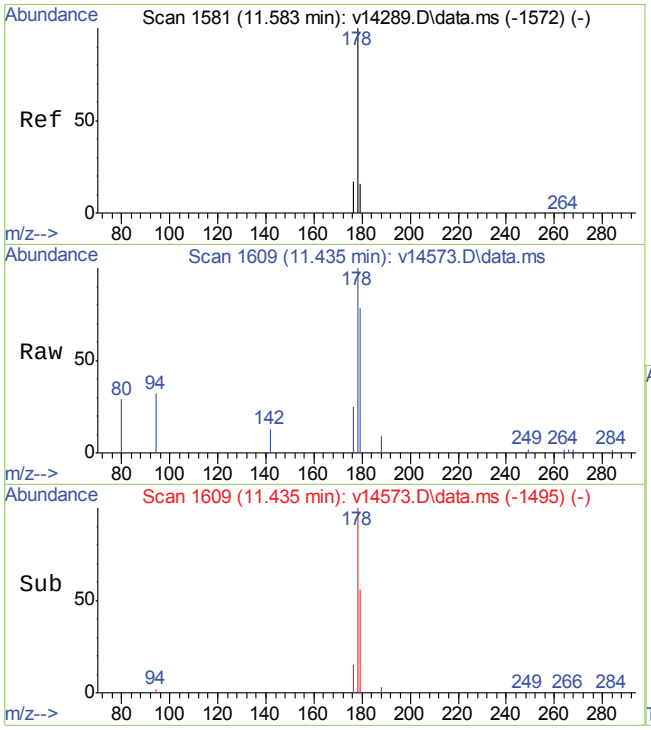


#21
Phenanthrene
Concen: 0.41 ppm
RT: 11.340 min Scan# 1588
Delta R.T. 0.013 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:178 Resp: 7504

Ion	Ratio	Lower	Upper
178	100		
179	18.5	0.0	35.4
176	20.7	0.0	38.0

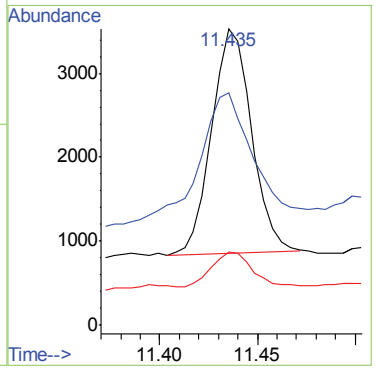




#22
Anthracene
Concen: 0.22 ppm m
RT: 11.435 min Scan# 1609
Delta R.T. 0.014 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

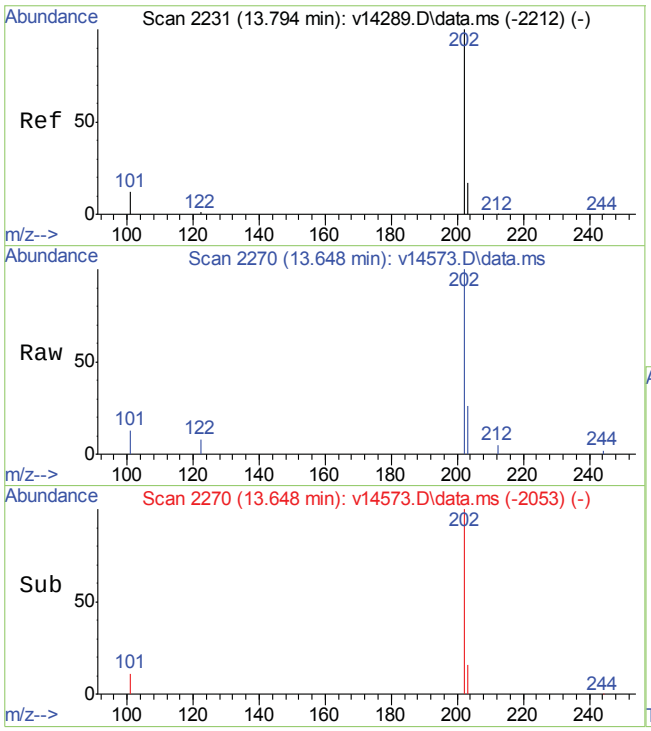
Tgt Ion:178 Resp: 3819

Ion	Ratio	Lower	Upper
178	100		
179	36.4	0.0	35.4#
176	40.7	0.0	37.4#



7.1.4

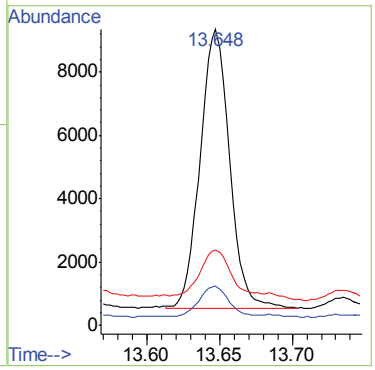
7

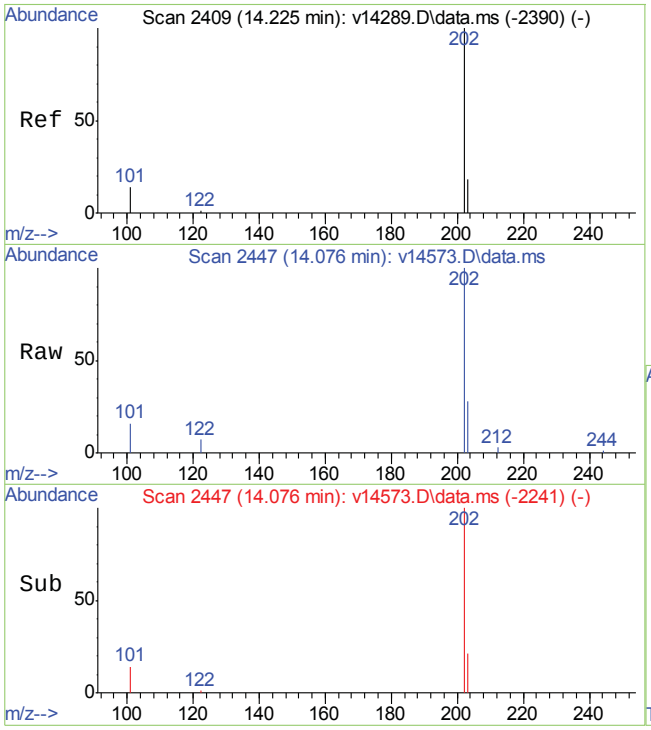


#23
Fluoranthene
Concen: 0.68 ppm
RT: 13.648 min Scan# 2270
Delta R.T. 0.026 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:202 Resp: 12317

Ion	Ratio	Lower	Upper
202	100		
101	10.7	0.0	32.2
203	22.0	0.0	37.3

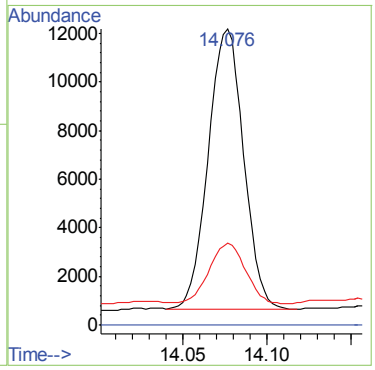


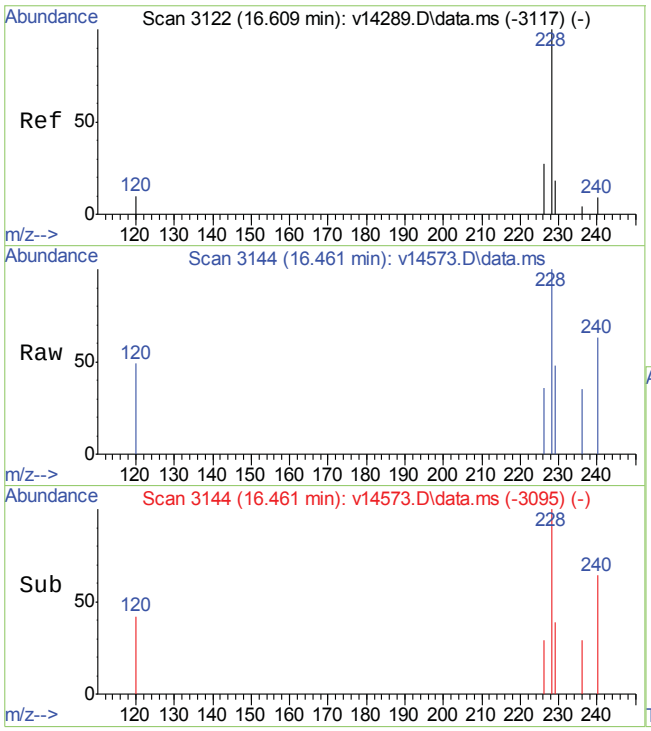


#25
Pyrene
Concen: 1.16 ppm
RT: 14.076 min Scan# 2447
Delta R.T. -0.001 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:202 Resp: 16869

Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.0	20.0
203	22.2	0.0	37.9

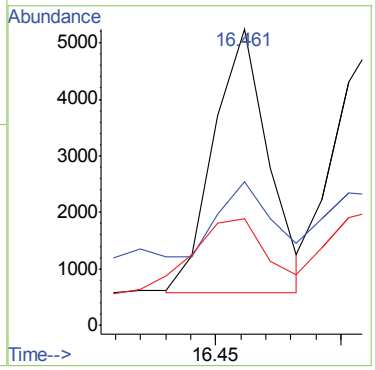


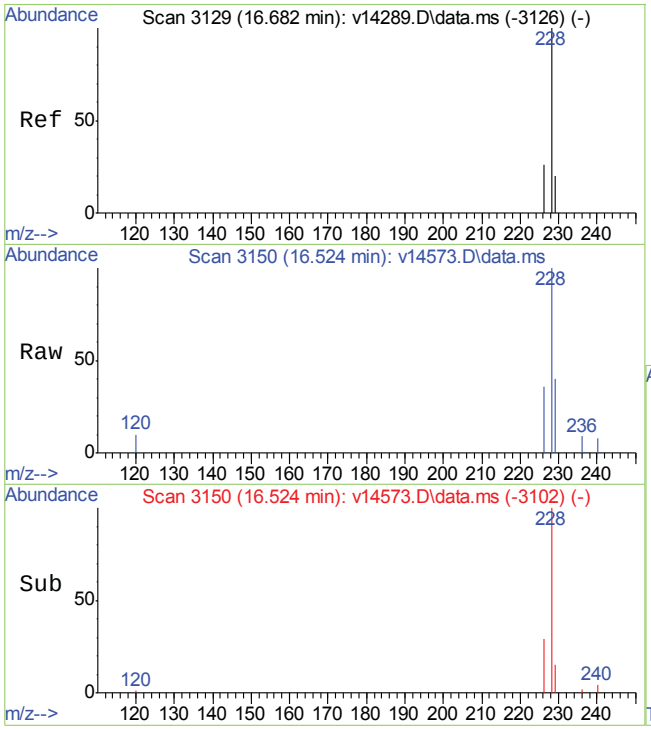


#27
Benzo(a)anthracene
Concen: 0.51 ppm m
RT: 16.461 min Scan# 3144
Delta R.T. 0.010 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:228 Resp: 7056

Ion	Ratio	Lower	Upper
228	100		
229	42.9	0.0	39.6#
226	41.8	5.5	45.5

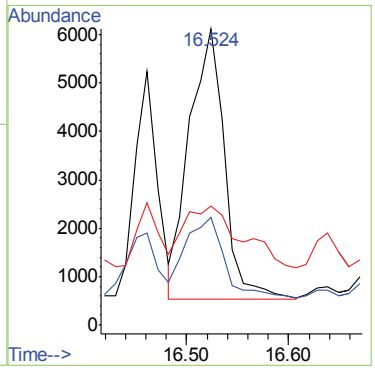


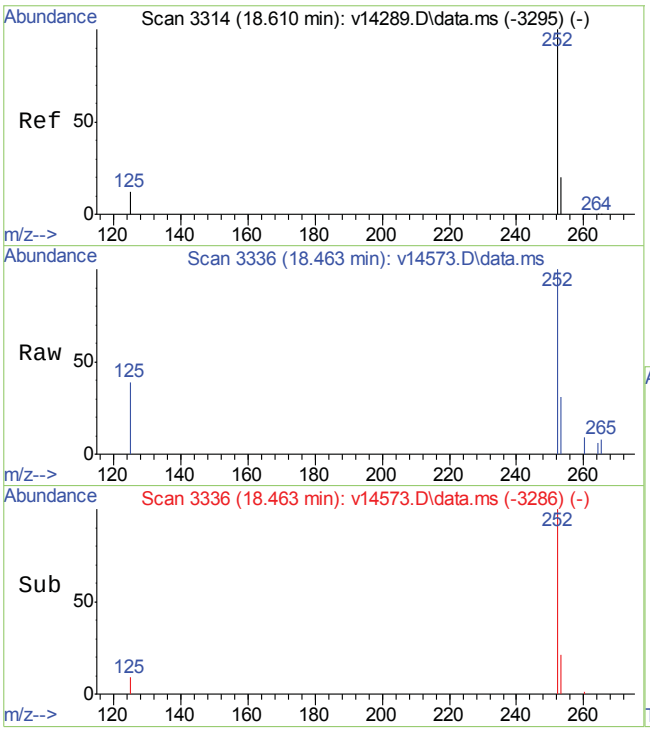


#28
Chrysene
Concen: 0.98 ppm m
RT: 16.524 min Scan# 3150
Delta R.T. -0.000 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:228 Resp: 13353

Ion	Ratio	Lower	Upper
228	100		
226	22.1	7.8	47.8
229	23.5	0.0	39.6

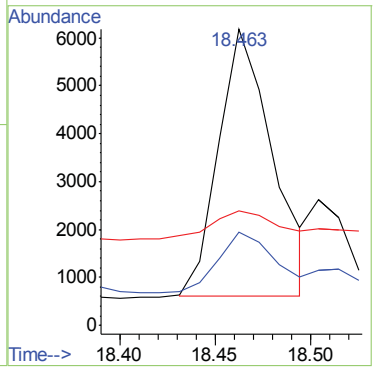


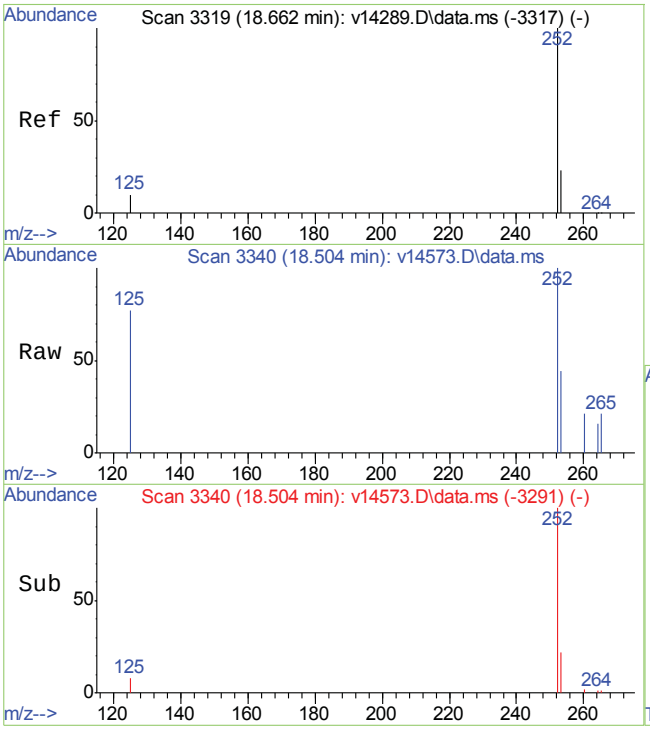


#30
Benzo(b)fluoranthene
Concen: 0.96 ppm m
RT: 18.463 min Scan# 3336
Delta R.T. 0.019 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:252 Resp: 11013

Ion	Ratio	Lower	Upper
252	100		
253	31.0	3.4	43.4
125	19.7	0.0	31.8

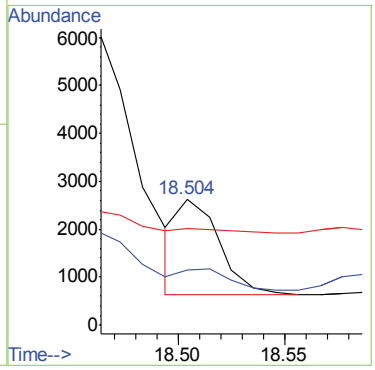


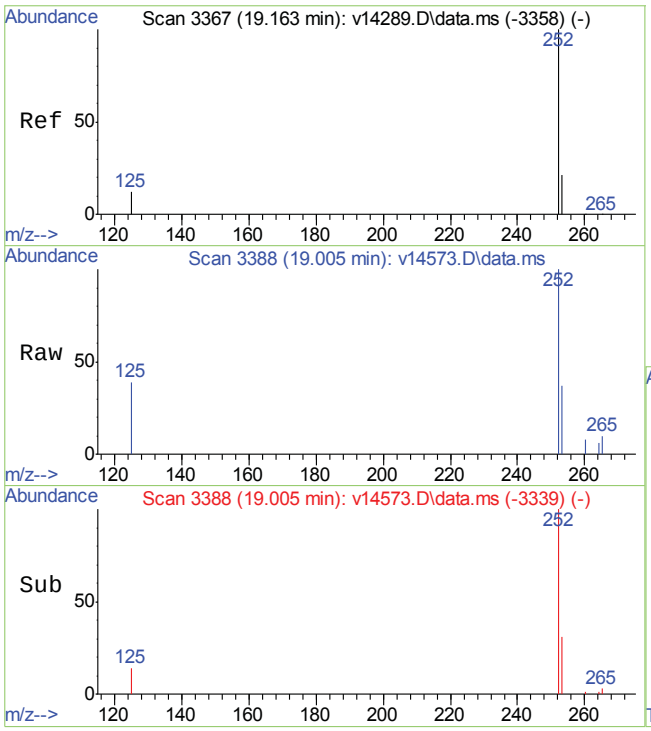


#31
Benzo(k)fluoranthene
Concen: 0.21 ppm m
RT: 18.504 min Scan# 3340
Delta R.T. 0.008 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:252 Resp: 2675

Ion	Ratio	Lower	Upper
252	100		
253	127.5	2.0	42.0#
125	81.3	0.0	32.6#

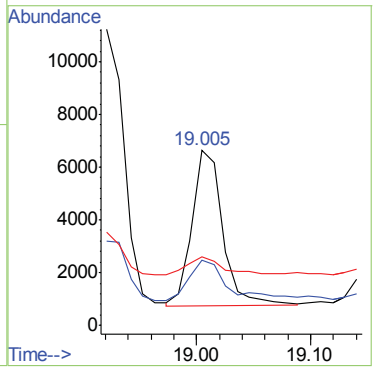


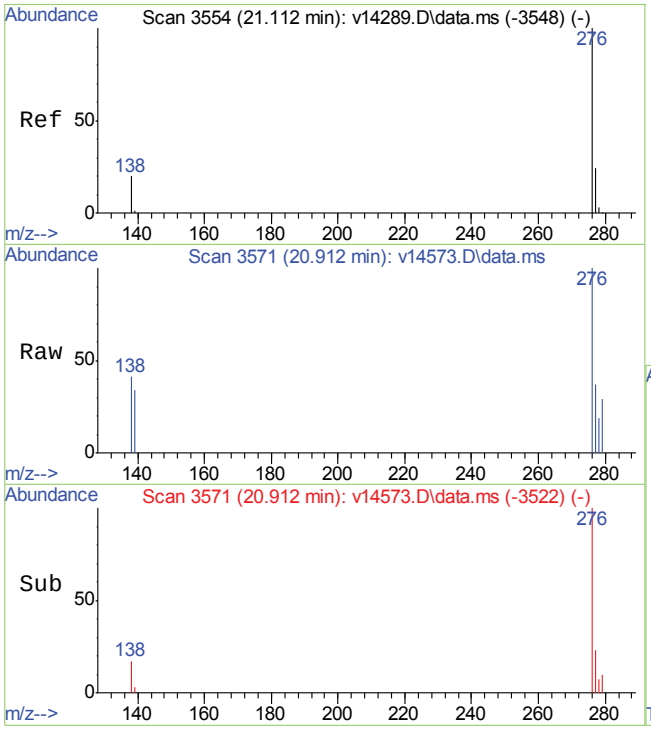


#32
Benzo(a)pyrene
Concen: 0.99 ppm
RT: 19.005 min Scan# 3388
Delta R.T. 0.010 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:252 Resp: 11169

Ion	Ratio	Lower	Upper
252	100		
253	39.5	1.6	41.6
125	12.7	0.0	32.8

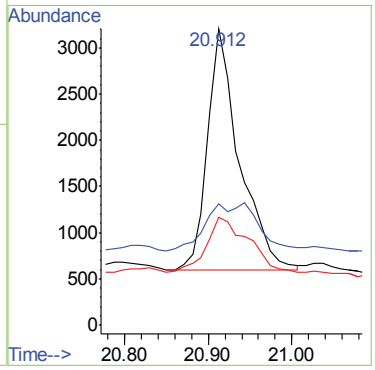




#33
Indeno(1,2,3-cd)pyrene
Concen: 0.72 ppm
RT: 20.912 min Scan# 3571
Delta R.T. 0.015 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:276 Resp: 6970

Ion	Ratio	Lower	Upper
276	100		
138	32.1	2.0	42.0
277	30.4	14.5	54.5



7.1.4

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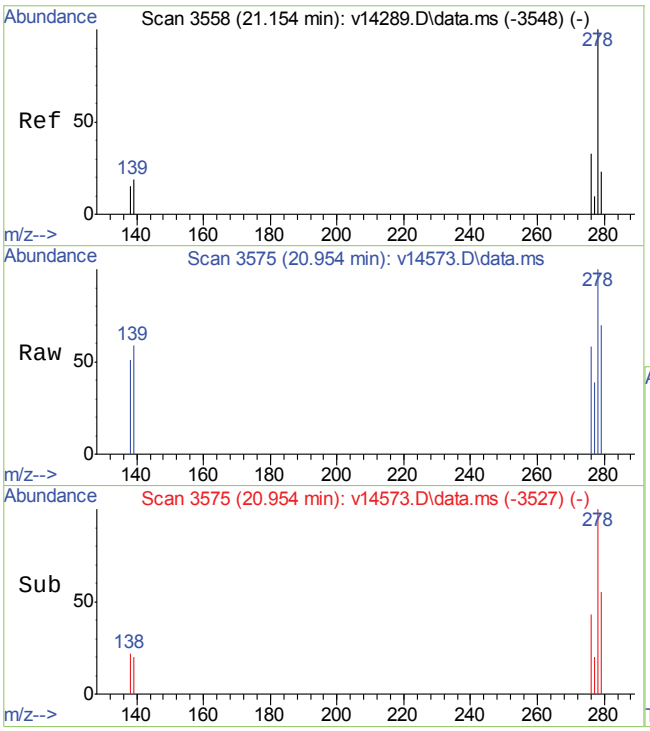
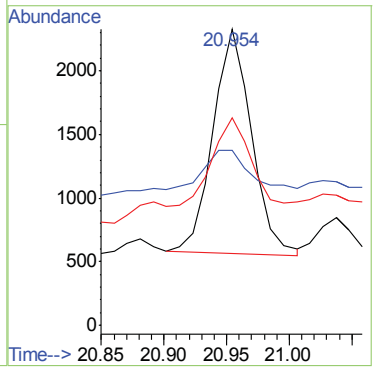
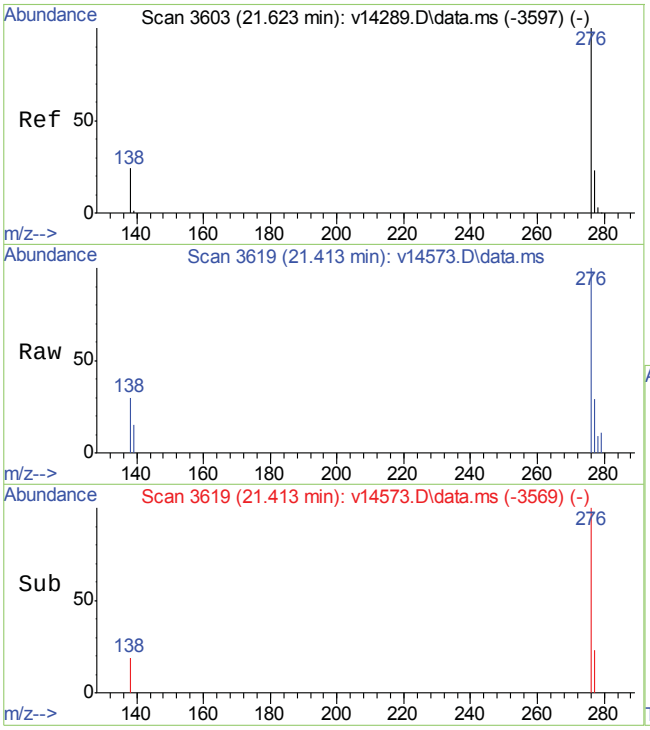


#34
Dibenz(a,h)anthracene
Concen: 0.34 ppm
RT: 20.954 min Scan# 3575
Delta R.T. 0.005 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:278 Resp: 3763

Ion	Ratio	Lower	Upper
278	100		
139	29.7	0.0	39.0
279	38.6	4.0	44.0

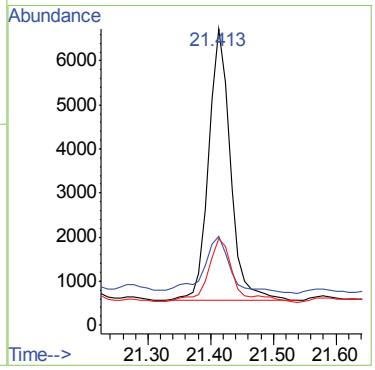




#35
Benzo(g,h,i)perylene
Concen: 1.24 ppm
RT: 21.413 min Scan# 3619
Delta R.T. 0.018 min
Lab File: v14573.D
Acq: 1 Apr 2013 2:29 pm

Tgt Ion:276 Resp: 14786

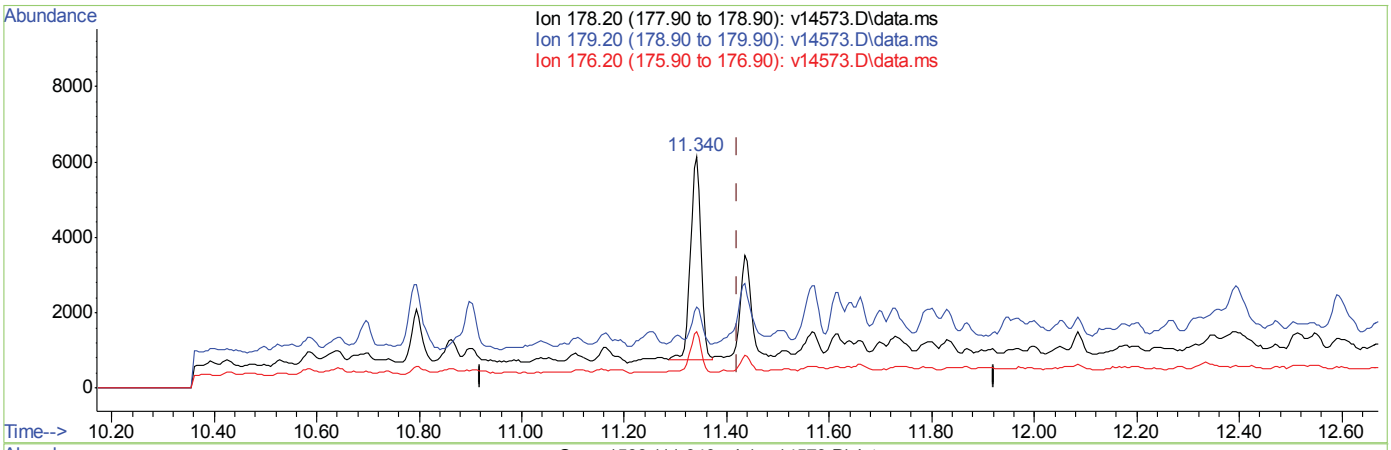
Ion	Ratio	Lower	Upper
276	100		
138	25.9	5.0	45.0
277	27.5	3.4	43.4

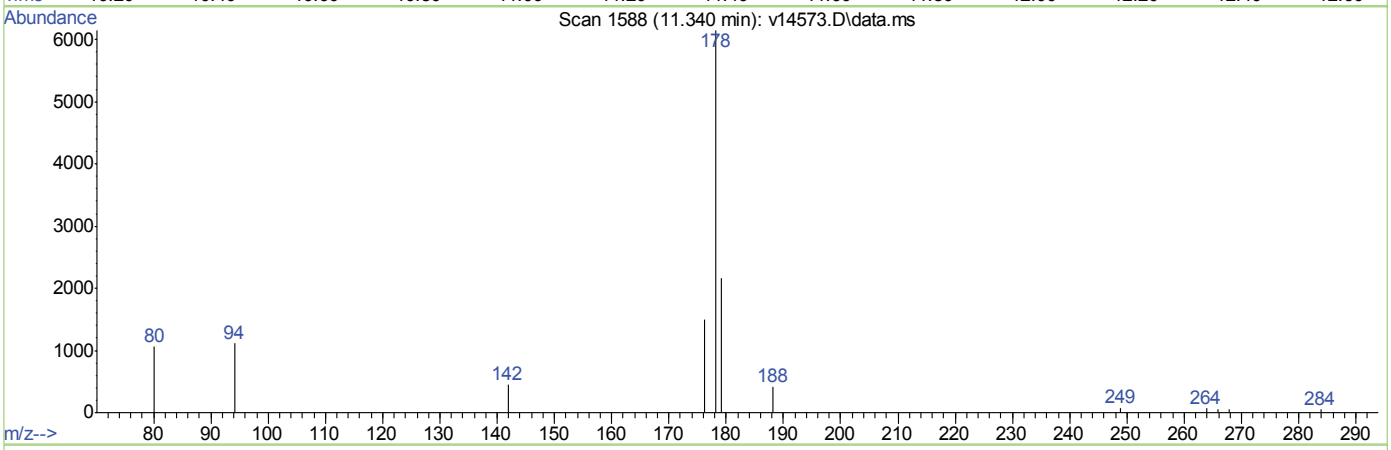


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On : 1 Apr 2013 2:29 pm
Operator : garyj
Sample : tc27860-3
Misc : op27766,ev835,30.24,,,1,1,soil
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14573.D\data.ms

(22) Anthracene (CP)

11.340min (-0.081) 0.43ppm

response 7504

Ion	Exp%	Act%
178.20	100	100
179.20	15.40	18.54
176.20	17.40	20.74
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On    :  1 Apr 2013   2:29 pm
Operator  : garyj
Sample    : tc27860-3
Misc      : op27766,ev835,30.24,,,1,1,soil
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
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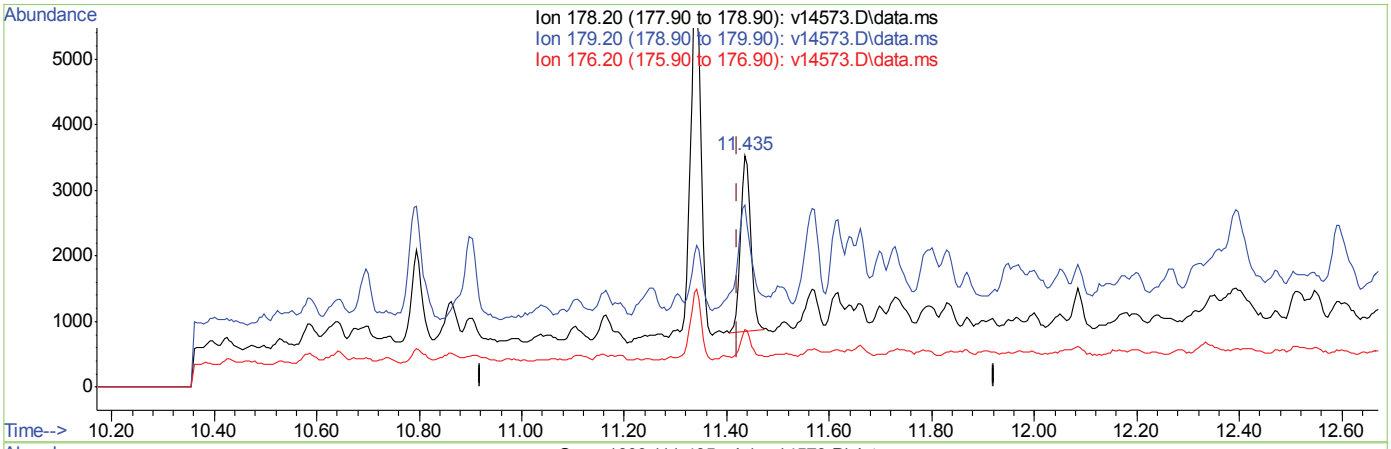

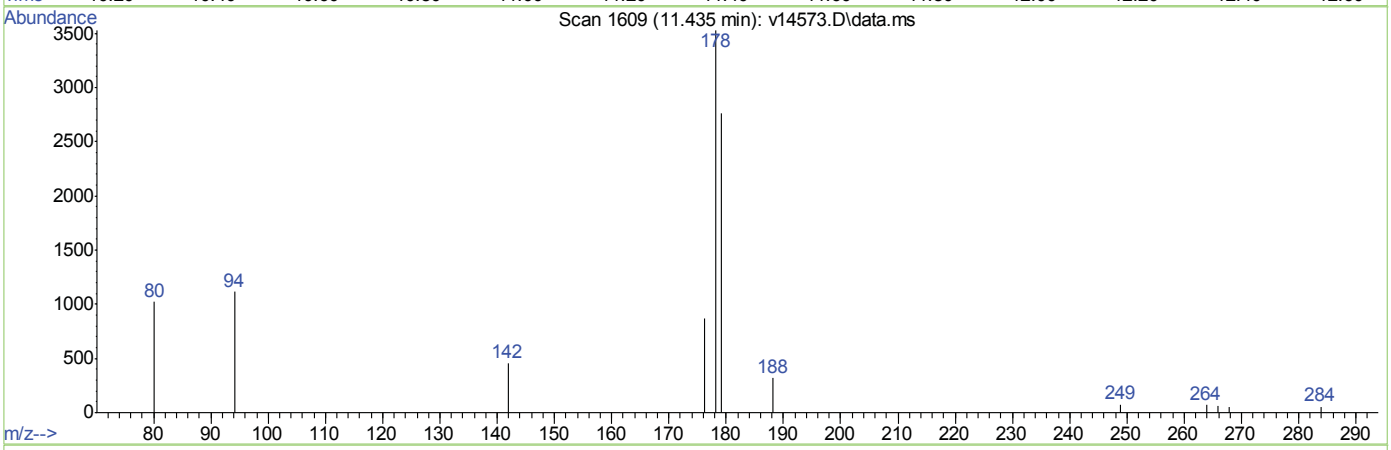

TIC: v14573.D\data.ms

(22) Anthracene (CP)

11.435min (+0.014) 0.22ppm m

response 3819

Ion	Exp%	Act%
178.20	100	100
179.20	15.40	36.42#
176.20	17.40	40.74#
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On    :  1 Apr 2013   2:29 pm
Operator  : garyj
Sample    : tc27860-3
Misc      : op27766,ev835,30.24,,,1,1,soil
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
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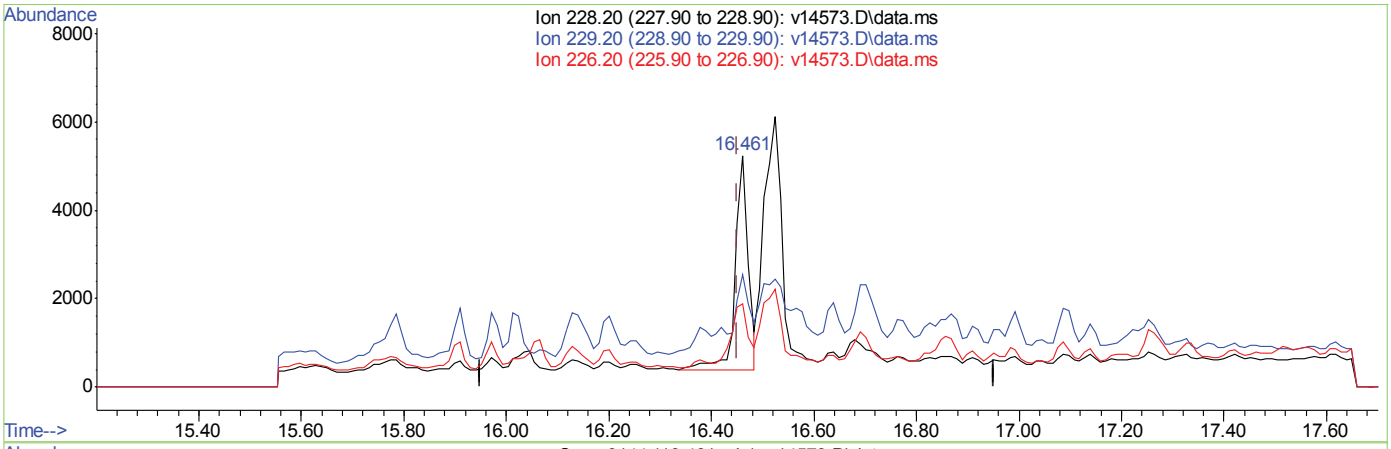
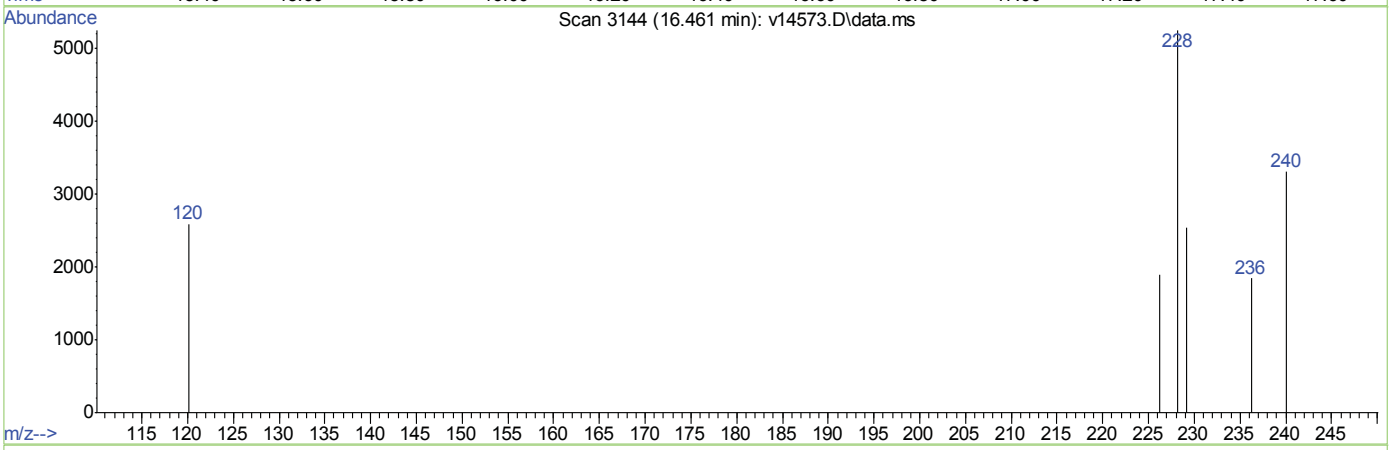




TIC: v14573.D\data.ms

(27) Benzo(a)anthracene (CP)

16.461min (+0.010) 0.60ppm

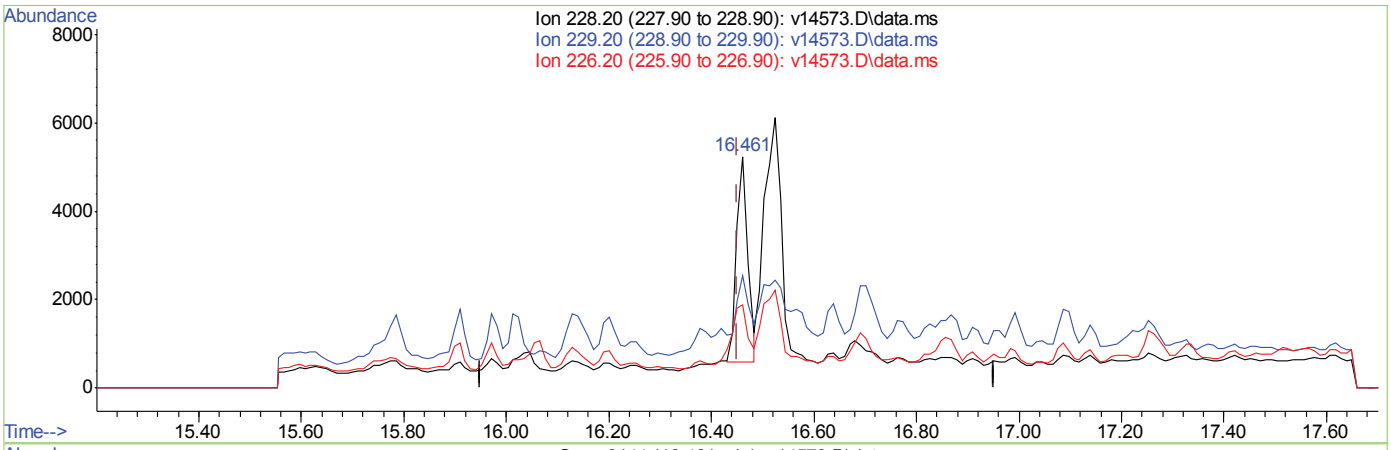
response 8379

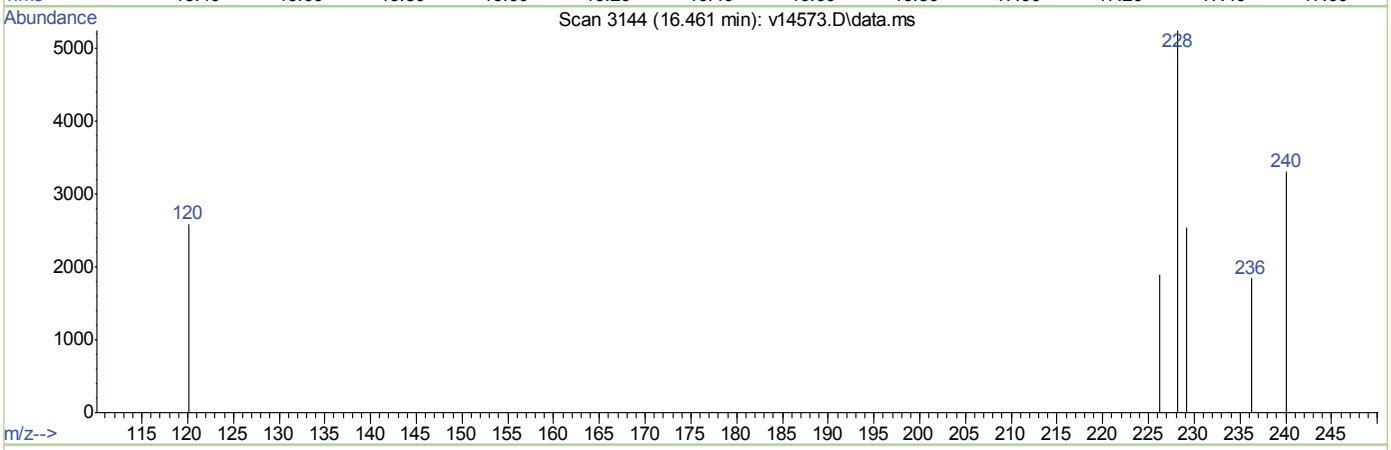
Ion	Exp%	Act%
228.20	100	100
229.20	19.60	36.15
226.20	25.50	35.16
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On    :  1 Apr 2013   2:29 pm
Operator  : garyj
Sample    : tc27860-3
Misc      : op27766,ev835,30.24,,,1,1,soil
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14573.D\data.ms

(27) Benzo(a)anthracene (CP)

16.461min (+0.010) 0.51ppm m

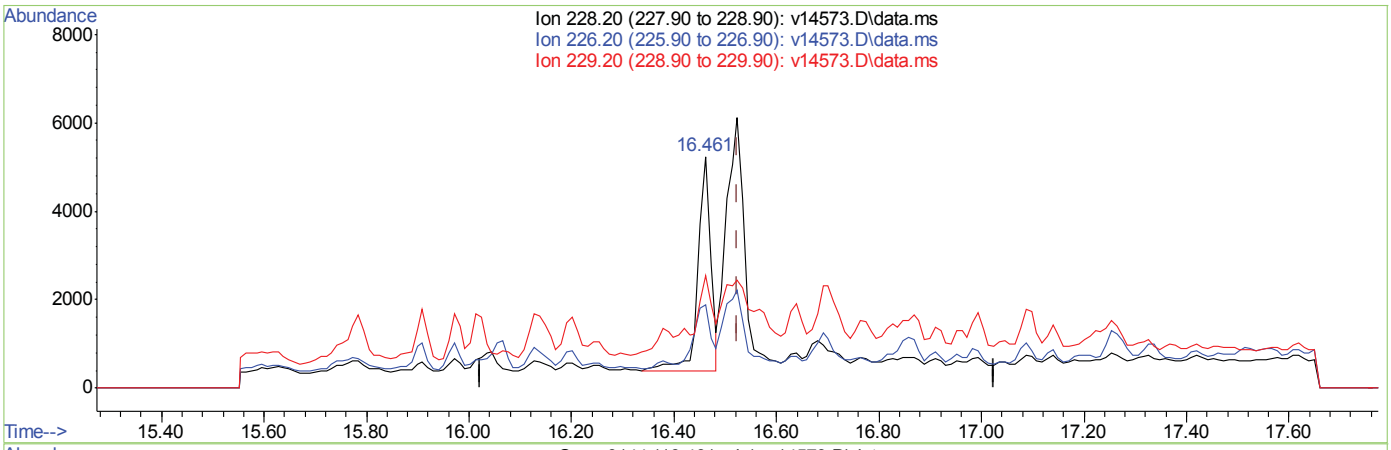
response 7056

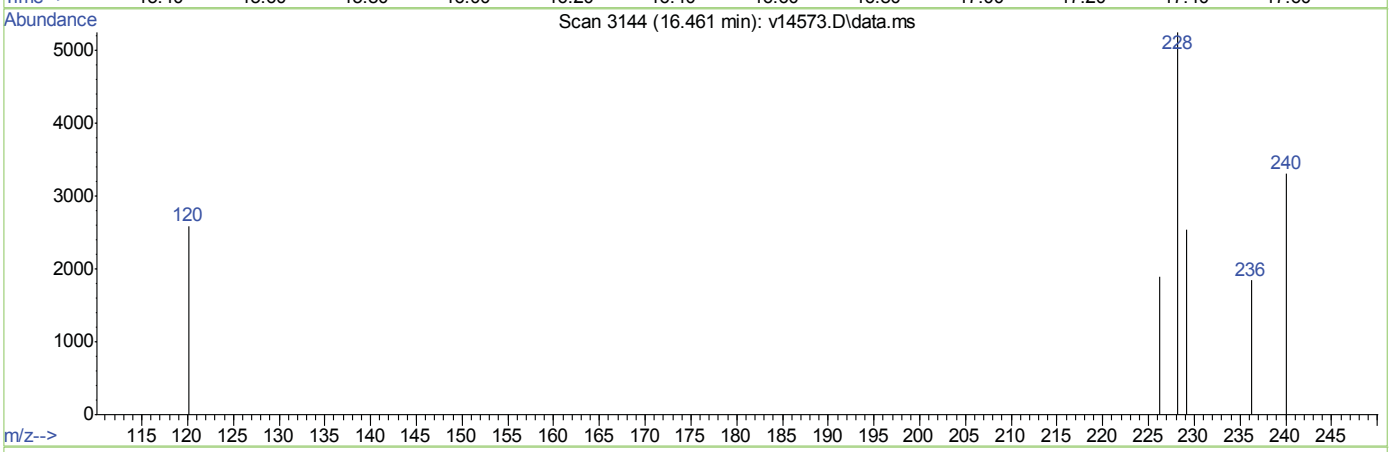
Ion	Exp%	Act%
228.20	100	100
229.20	19.60	42.93#
226.20	25.50	41.75
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On    :  1 Apr 2013   2:29 pm
Operator  : garyj
Sample    : tc27860-3
Misc      : op27766,ev835,30.24,,,1,1,soil
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14573.D\data.ms

(28) Chr□sene (CP)

16.461min (-0.063) 0.61ppm

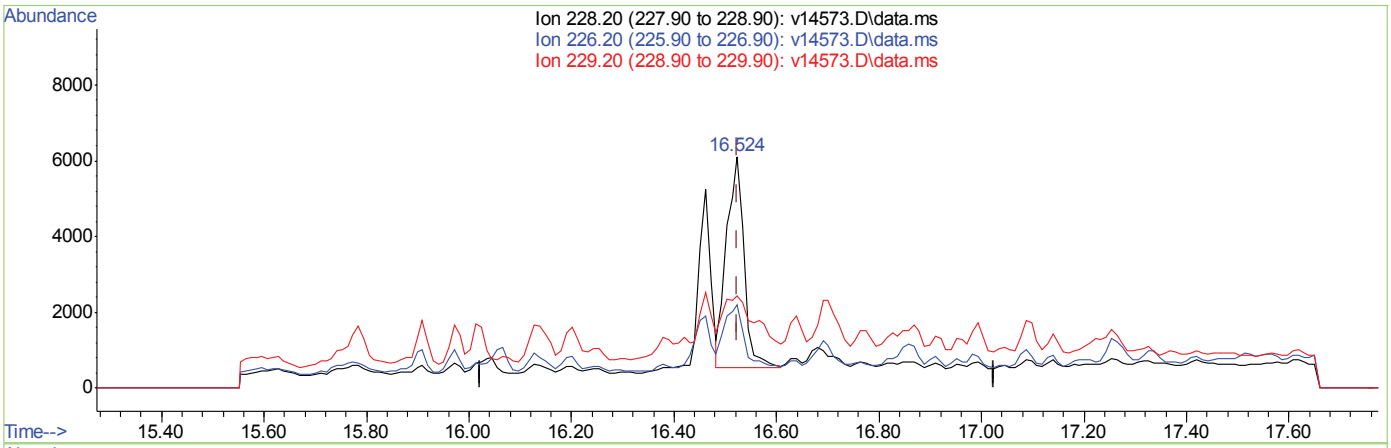
response 8379

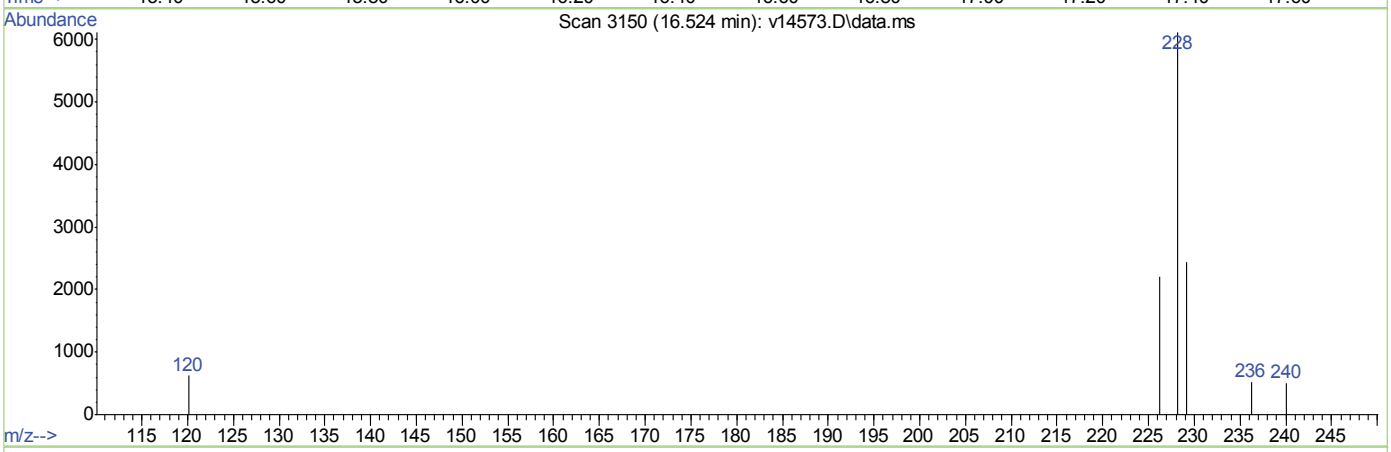
Ion	Exp%	Act%
228.20	100	100
226.20	27.80	35.16
229.20	19.60	37.46
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On    :  1 Apr 2013   2:29 pm
Operator  : garyj
Sample    : tc27860-3
Misc      : op27766,ev835,30.24,,,1,1,soil
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14573.D\data.ms

(28) Chr□sene (CP)

16.524min (-0.000) 0.98ppm m

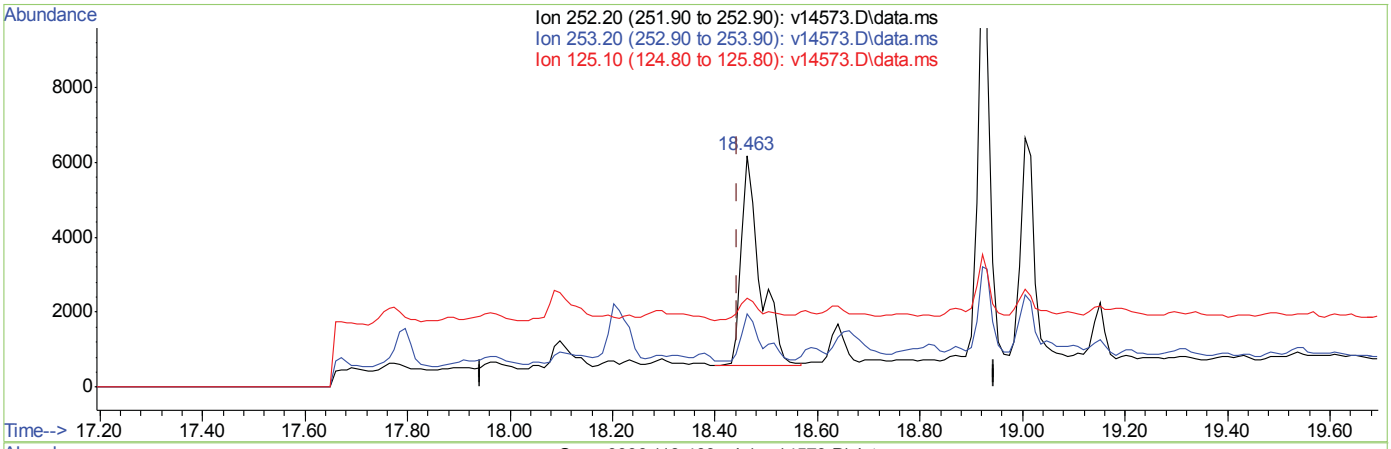
response 13353

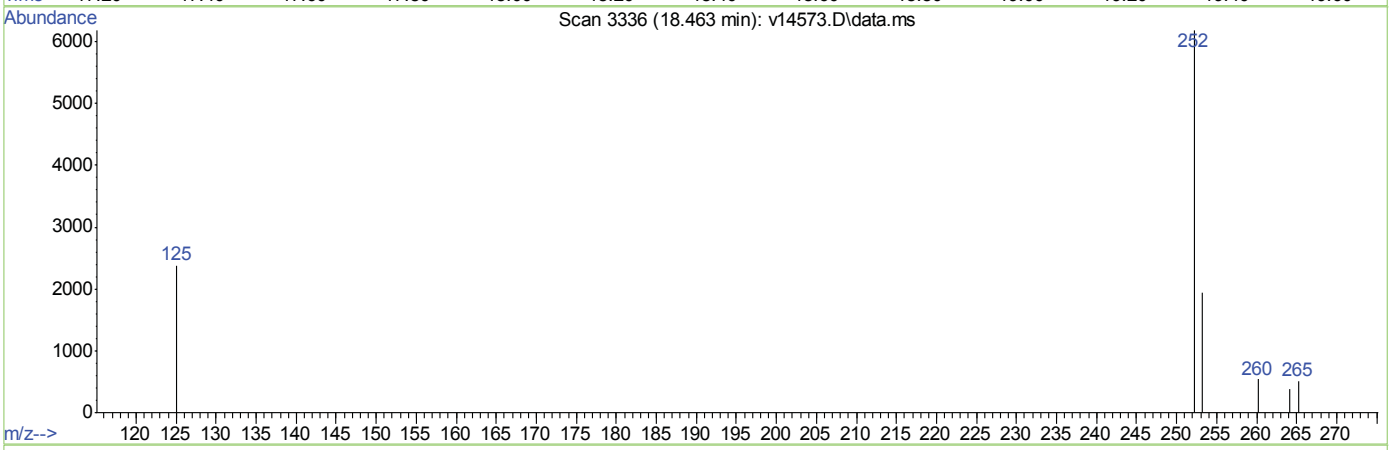
Ion	Exp%	Act%
228.20	100	100
226.20	27.80	22.06
229.20	19.60	23.51
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On    :  1 Apr 2013   2:29 pm
Operator  : garyj
Sample    : tc27860-3
Misc      : op27766,ev835,30.24,,,1,1,soil
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14573.D\data.ms

(30) Benzo(b)□uoranthene (CP)

18.463min (+0.019) 1.24ppm

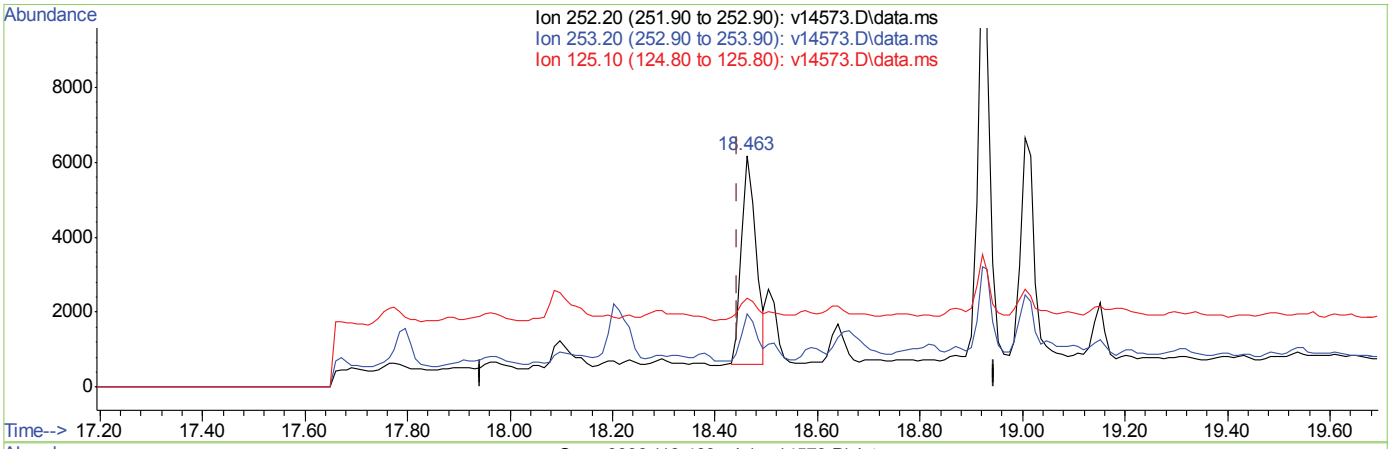
response 14263

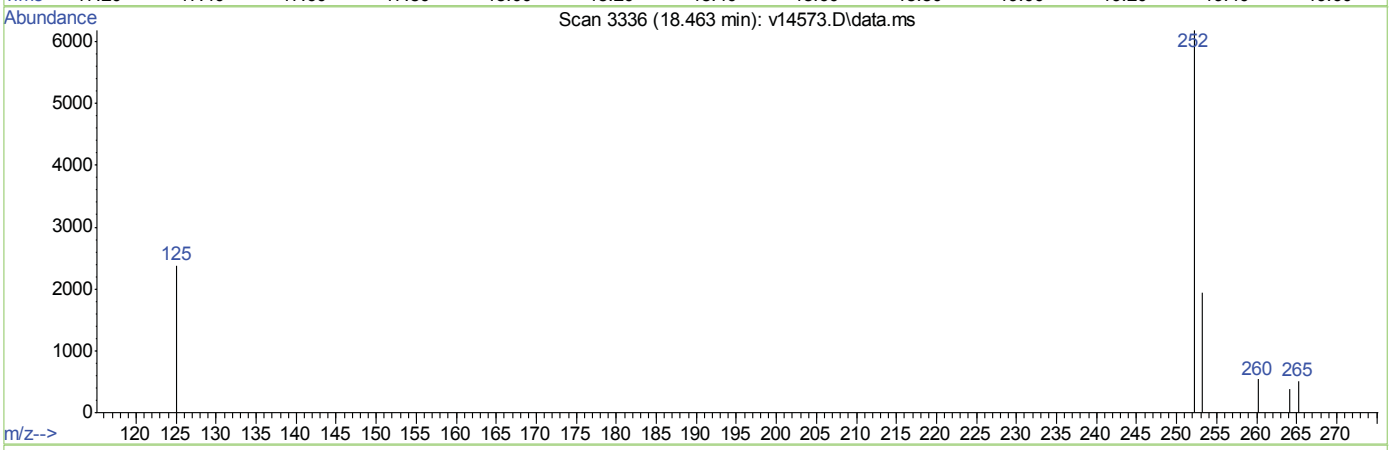
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	23.91
125.10	11.80	15.24
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On    :  1 Apr 2013   2:29 pm
Operator  : garyj
Sample    : tc27860-3
Misc      : op27766,ev835,30.24,,,1,1,soil
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14573.D\data.ms

(30) Benzo(b)□uoranthene (CP)

18.463min (+0.019) 0.96ppm m

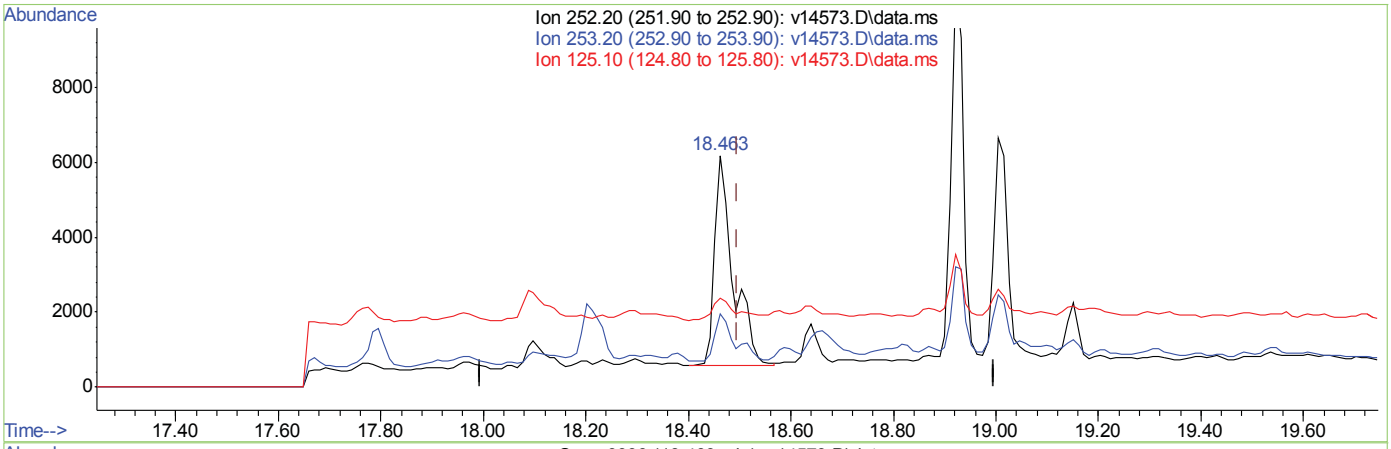
response 11013

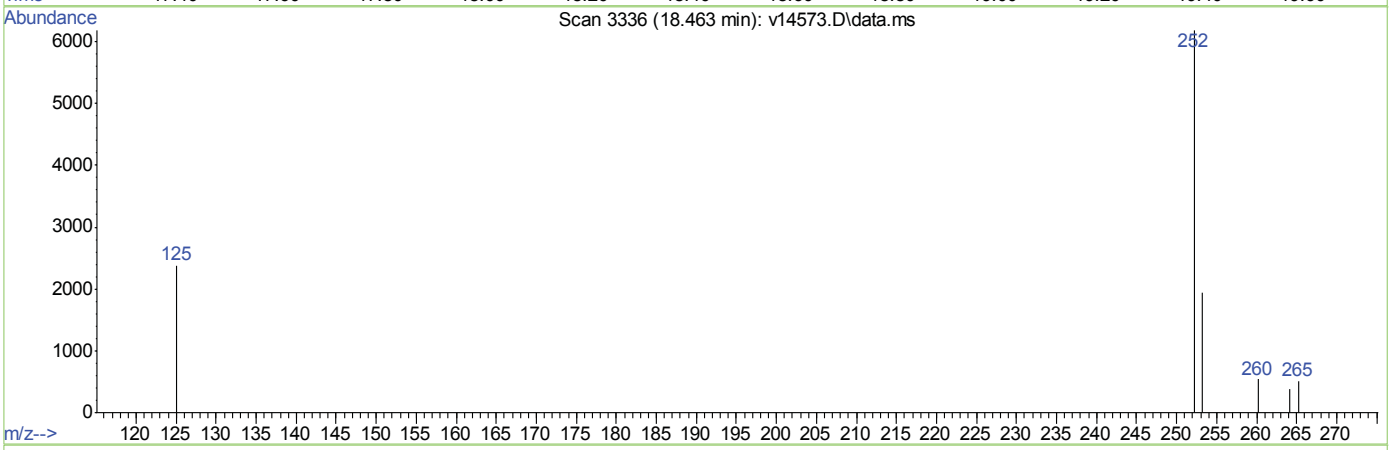
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	30.96
125.10	11.80	19.74
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On    :  1 Apr 2013   2:29 pm
Operator  : garyj
Sample    : tc27860-3
Misc      : op27766,ev835,30.24,,,1,1,soil
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14573.D\data.ms

(31) Benzo(□)□uoranthene (CP)

18.463min (-0.033) 1.10ppm

response 14263

Ion	Exp%	Act%
252.20	100	100
253.20	22.00	23.91
125.10	12.60	15.24
0.00	0.00	0.00

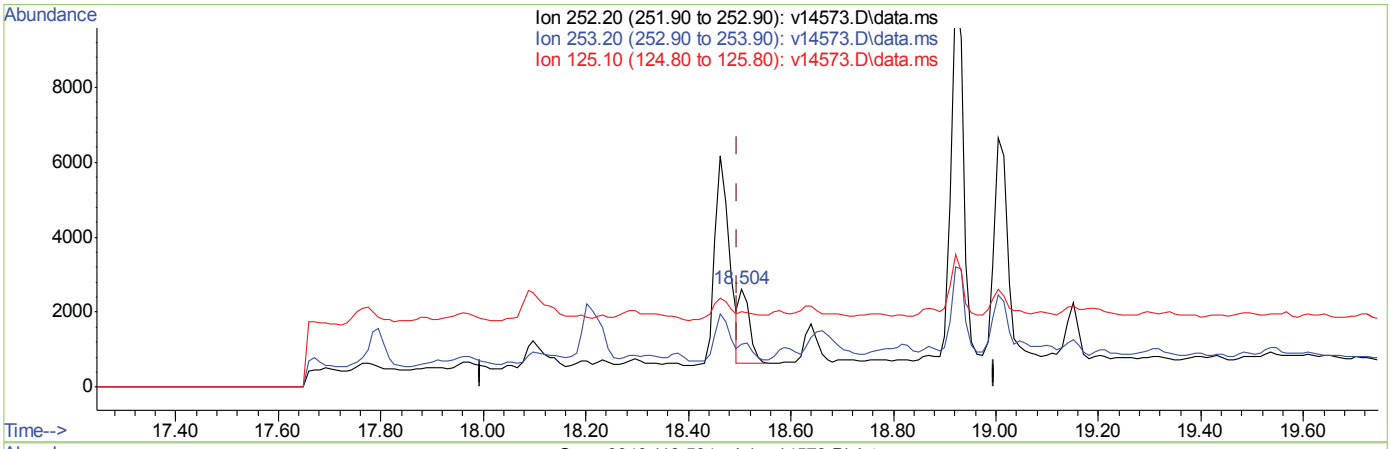
7.1.4.□

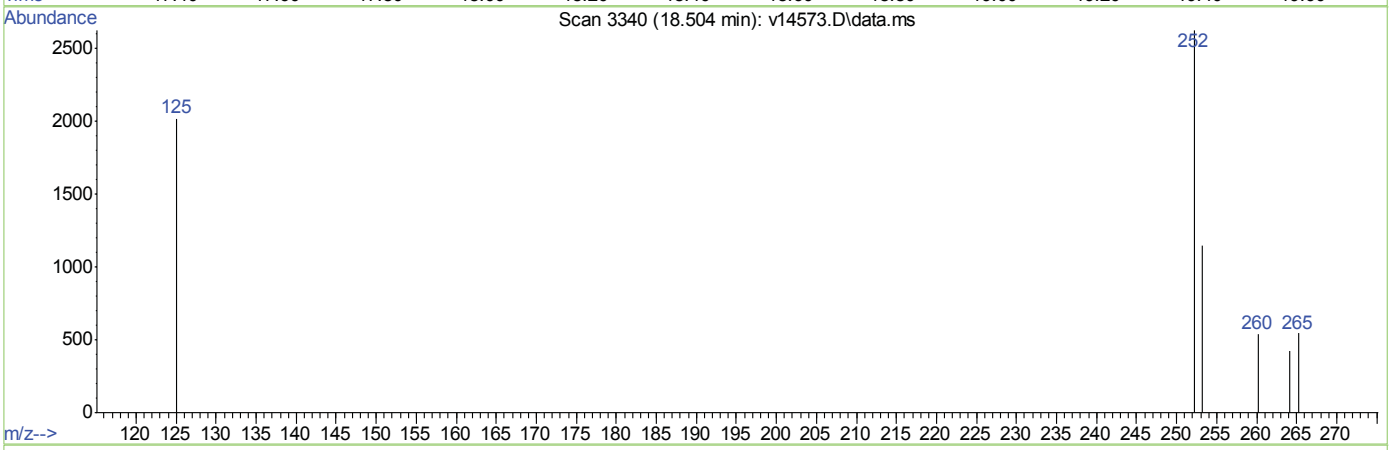
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14573.D
Acq On    :  1 Apr 2013   2:29 pm
Operator  : garyj
Sample    : tc27860-3
Misc      : op27766,ev835,30.24,,,1,1,soil
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Apr 01 14:50:05 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14573.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.504min (+0.008) 0.21ppm m

response 2675

Ion	Exp%	Act%
252.20	100	100
253.20	22.00	127.48#
125.10	12.60	81.27#
0.00	0.00	0.00

anual nte rations
R V D
(ompounds ith m fla)
ohn atson
04 02 13 12:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On : 1 Apr 2013 2:57 pm
Operator : garyj
Sample : tc27860-4
Misc : op27766,ev835,30.00,,,1,1,soil
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 01 15:33:33 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

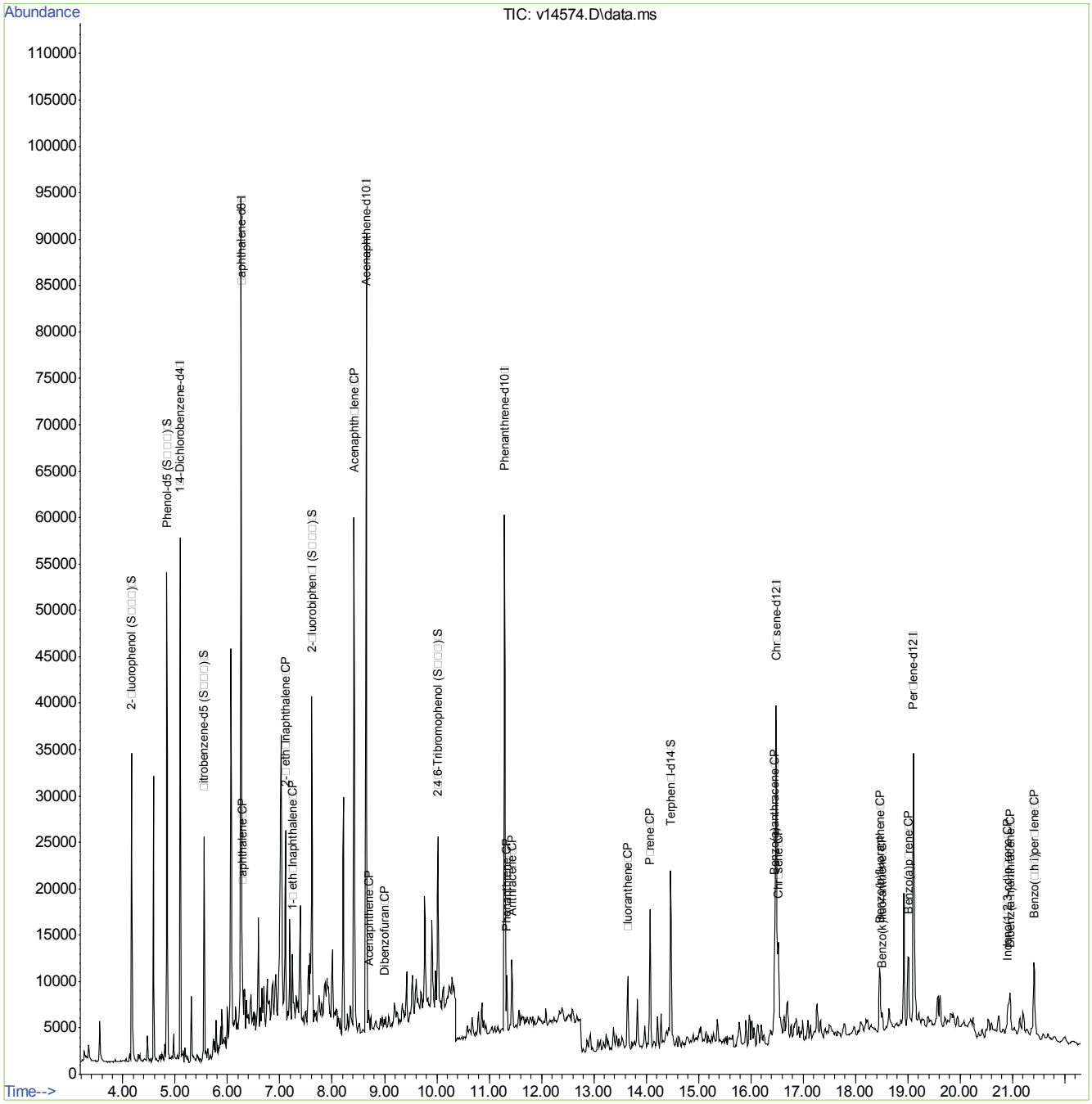
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	14956	4.00	ppm	0.00
5) Naphthalene-d8	6.260	136	83531	4.00	ppm	0.00
11) Acenaphthene-d10	8.650	164	40144	4.00	ppm	0.01
17) Phenanthrene-d10	11.295	188	63578	4.00	ppm	0.01
24) Chrysene-d12	16.482	240	36987	4.00	ppm	0.01
29) Perylene-d12	19.109	264	35626	4.00	ppm	0.01
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.168	112	20144	4.67	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 46.70%			
3) Phenol-d5 (SURR)	4.843	99	31017	5.88	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 58.80%			
6) Nitrobenzene-d5 (SURR)	5.553	82	15021	2.27	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 45.40%			
12) 2-Fluorobiphenyl (SURR)	7.613	172	27249	1.81	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 36.20%			
19) 2,4,6-Tribromophenol (...	10.025	330	9349	6.50	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 65.00%			
26) Terphenyl-d14	14.471	244	18998	3.28	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 65.60%			
Target Compounds						Qvalue
7) Naphthalene	6.280	128	6752	0.32	ppm	94
9) 2-Methylnaphthalene	7.109	142	8768m	0.61	ppm	
10) 1-Methylnaphthalene	7.240	142	2973	0.22	ppm	85
13) Acenaphthylene	8.414	152	57758	3.33	ppm	98
14) Acenaphthene	8.697	154	742	0.07	ppm	88
15) Dibenzofuran	8.992	168	552	0.04	ppm #	9
21) Phenanthrene	11.340	178	5580	0.30	ppm	91
22) Anthracene	11.435	178	7031m	0.40	ppm	
23) Fluoranthene	13.648	202	8834	0.48	ppm	91
25) Pyrene	14.076	202	15153	1.13	ppm #	88
27) Benzo(a)anthracene	16.461	228	7207m	0.56	ppm	
28) Chrysene	16.524	228	15863	1.26	ppm #	43
30) Benzo(b)fluoranthene	18.463	252	10048m	1.01	ppm	
31) Benzo(k)fluoranthene	18.504	252	2187m	0.19	ppm	
32) Benzo(a)pyrene	19.015	252	9973m	1.01	ppm	
33) Indeno(1,2,3-cd)pyrene	20.912	276	5932	0.70	ppm #	76
34) Dibenz(a,h)anthracene	20.954	278	3458	0.35	ppm	61
35) Benzo(g,h,i)perylene	21.413	276	13659	1.31	ppm	92

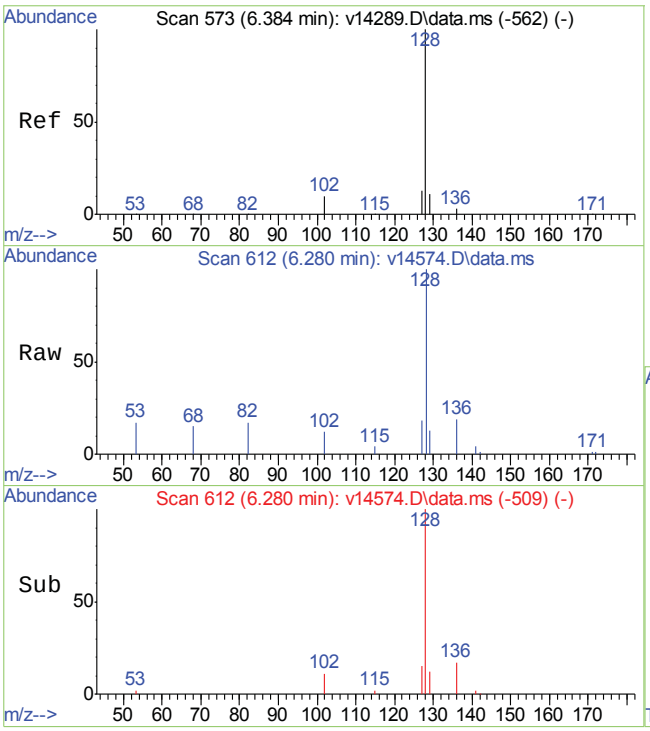
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On : 1 Apr 2013 2:57 pm
Operator : garyj
Sample : tc27860-4
Misc : op27766,ev835,30.00,,,1,1,soil
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 01 15:33:33 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

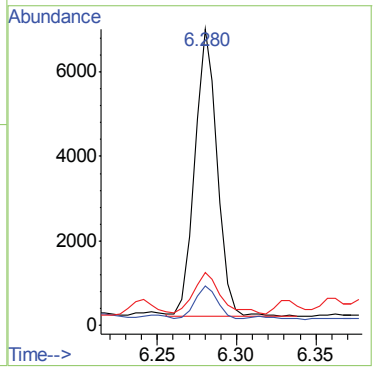


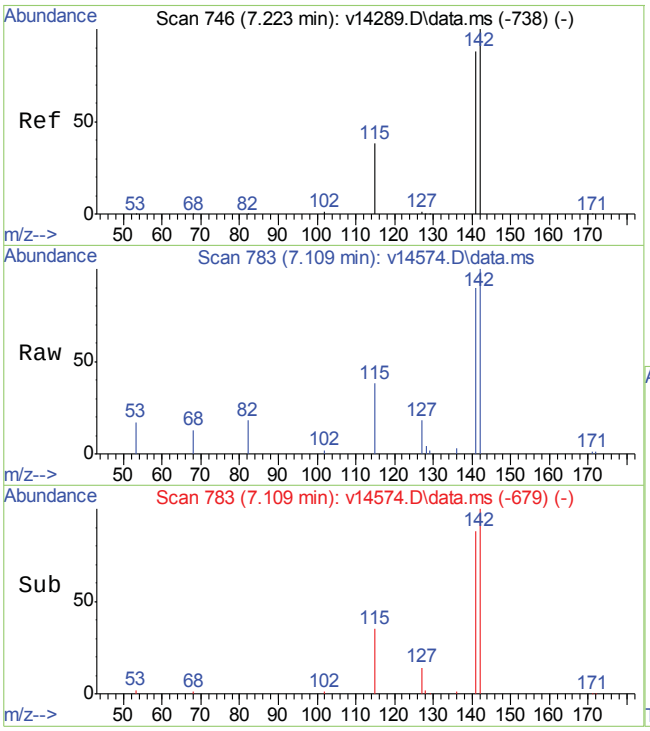


#7
Naphthalene
Concen: 0.32 ppm
RT: 6.280 min Scan# 612
Delta R.T. -0.000 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:128 Resp: 6752

Ion	Ratio	Lower	Upper
128	100		
129	11.0	0.0	31.0
127	17.3	0.0	32.9

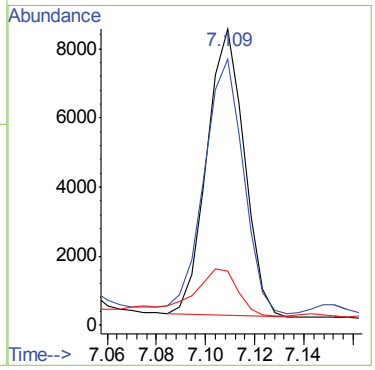


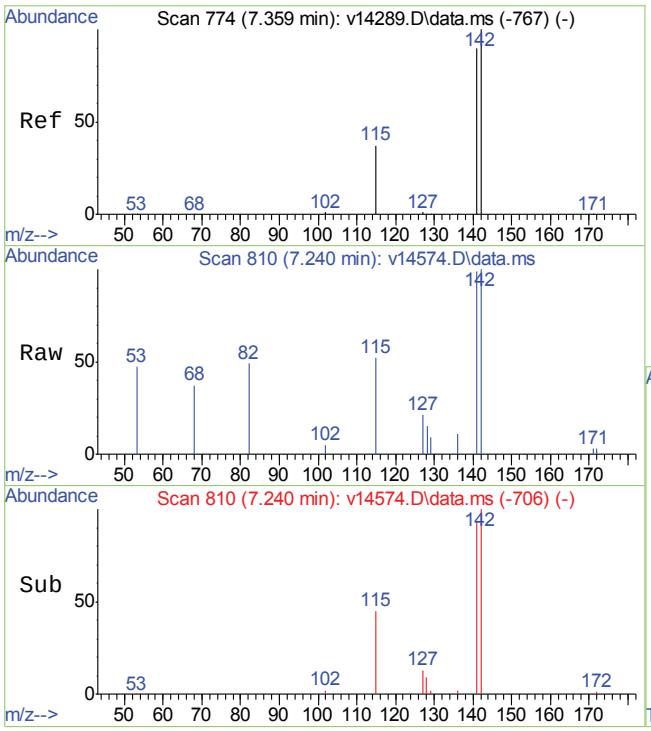


#9
2-Methylnaphthalene
Concen: 0.61 ppm m
RT: 7.109 min Scan# 783
Delta R.T. 0.005 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:142 Resp: 8768

Ion	Ratio	Lower	Upper
142	100		
141	306.9	66.0	106.0#
127	5.2	0.0	20.7

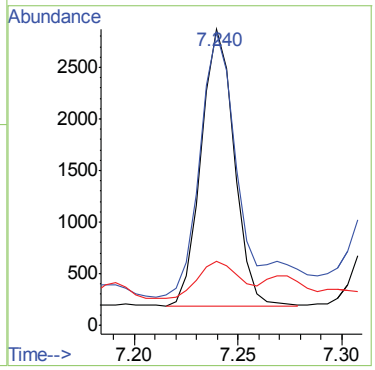


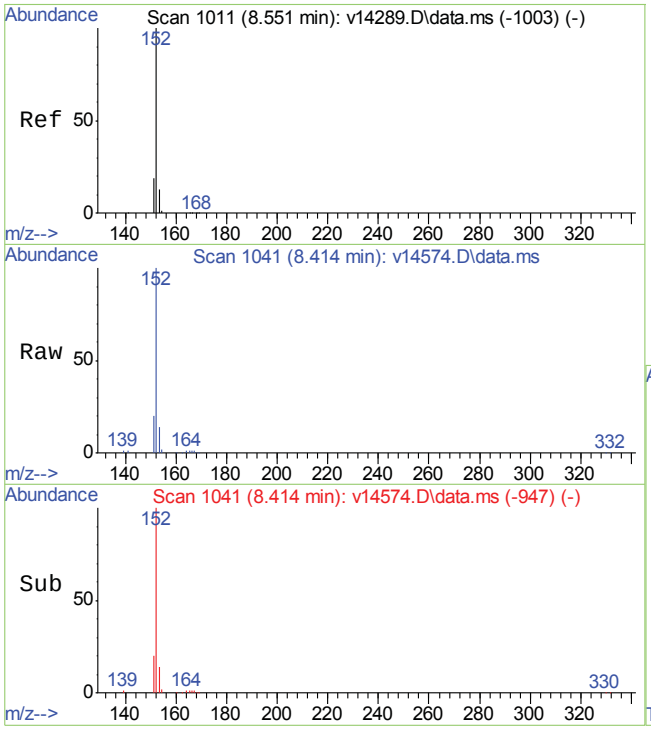


#10
1-Methylnaphthalene
Concen: 0.22 ppm
RT: 7.240 min Scan# 810
Delta R.T. 0.006 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:142 Resp: 2973

Ion	Ratio	Lower	Upper
142	100		
141	103.9	69.6	109.6
127	17.3	0.0	20.6

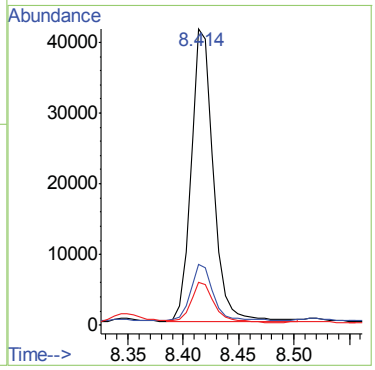


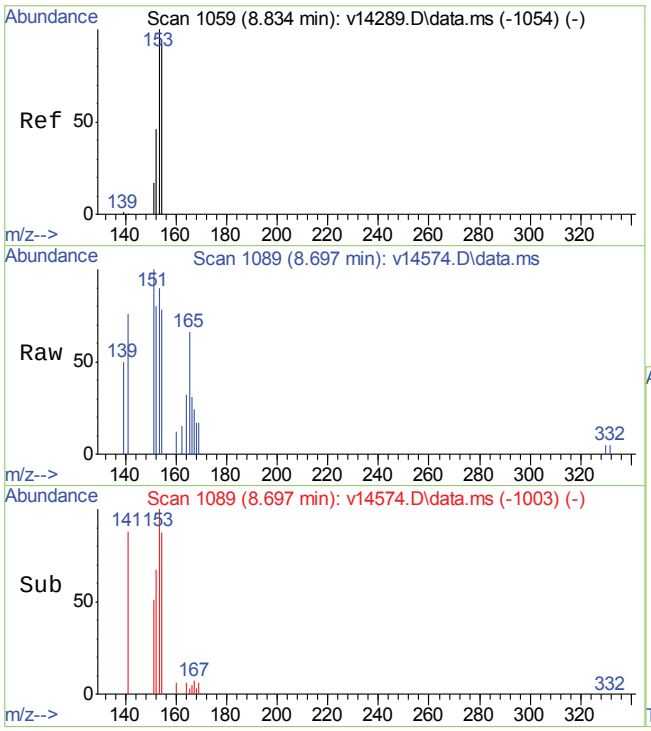


#13
Acenaphthylene
Concen: 3.33 ppm
RT: 8.414 min Scan# 1041
Delta R.T. 0.010 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:152 Resp: 57758

Ion	Ratio	Lower	Upper
152	100		
151	19.7	0.0	39.0
153	14.0	0.0	33.1

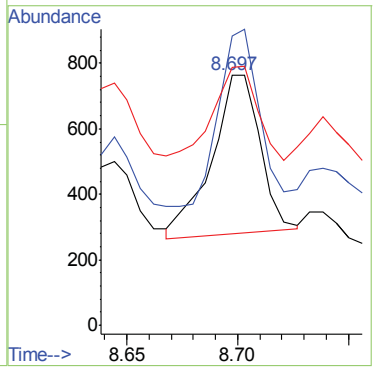


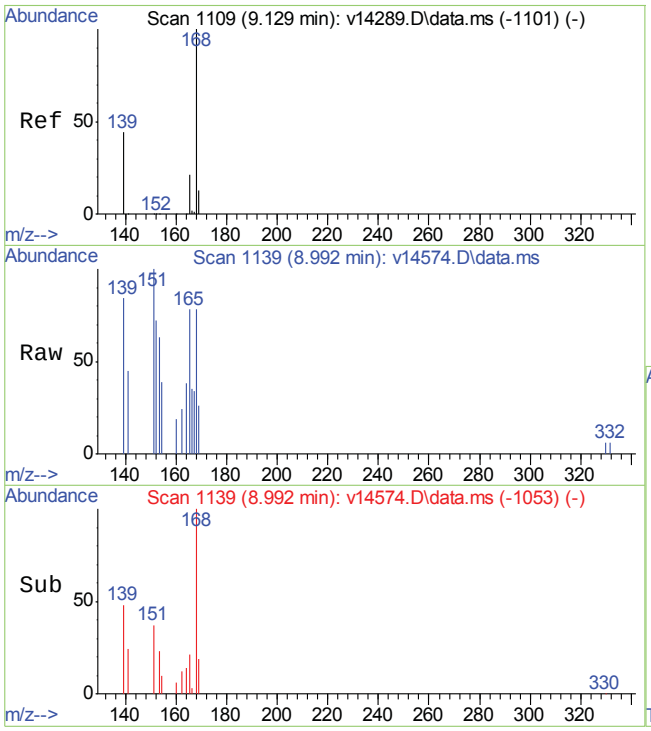


#14
Acenaphthene
Concen: 0.07 ppm
RT: 8.697 min Scan# 1089
Delta R.T. 0.006 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:154 Resp: 742

Ion	Ratio	Lower	Upper
154	100		
153	93.1	87.7	127.7
152	54.3	29.6	69.6

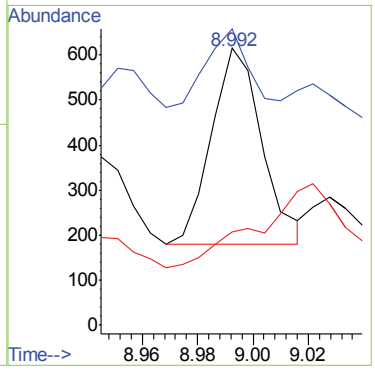


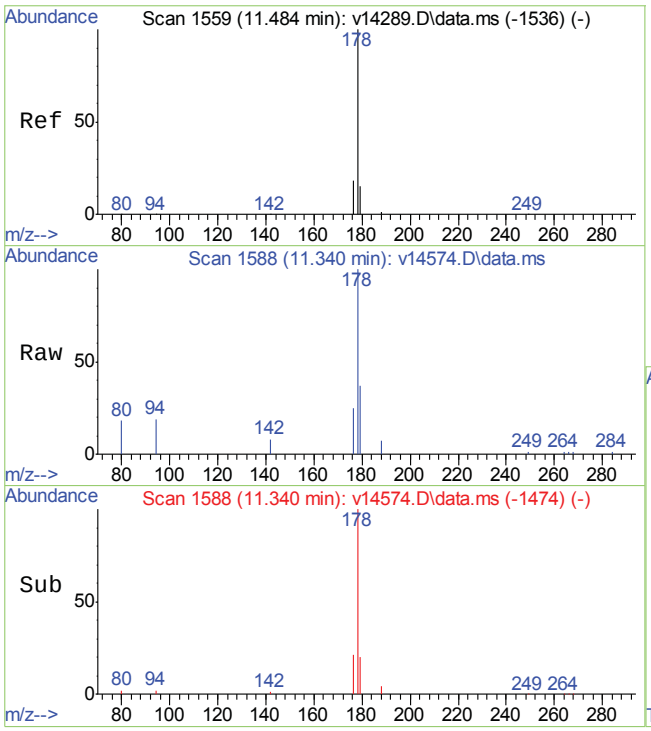


#15
Dibenzofuran
Concen: 0.04 ppm
RT: 8.992 min Scan# 1139
Delta R.T. 0.008 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:168 Resp: 552

Ion	Ratio	Lower	Upper
168	100		
139	0.0	33.3	73.3#
169	75.2	0.0	33.1#

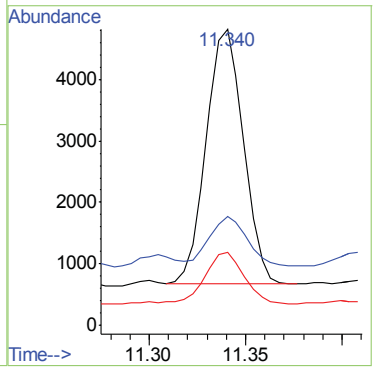


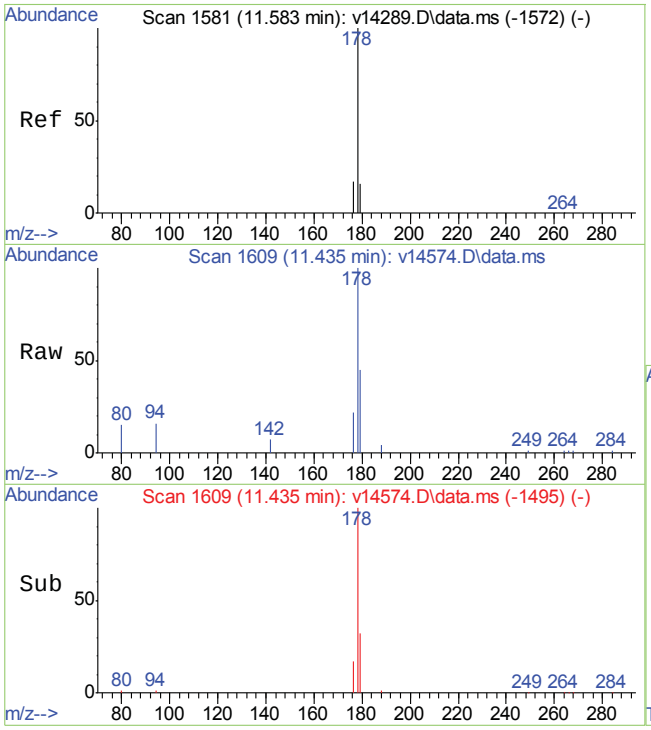


#21
Phenanthrene
Concen: 0.30 ppm
RT: 11.340 min Scan# 1588
Delta R.T. 0.013 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:178 Resp: 5580

Ion	Ratio	Lower	Upper
178	100		
179	19.8	0.0	35.4
176	21.4	0.0	38.0

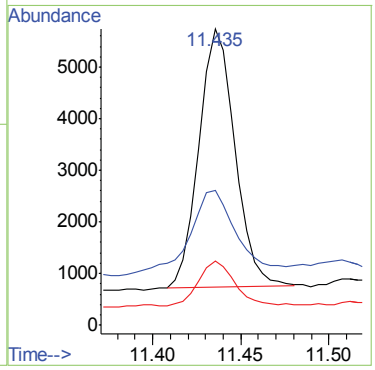


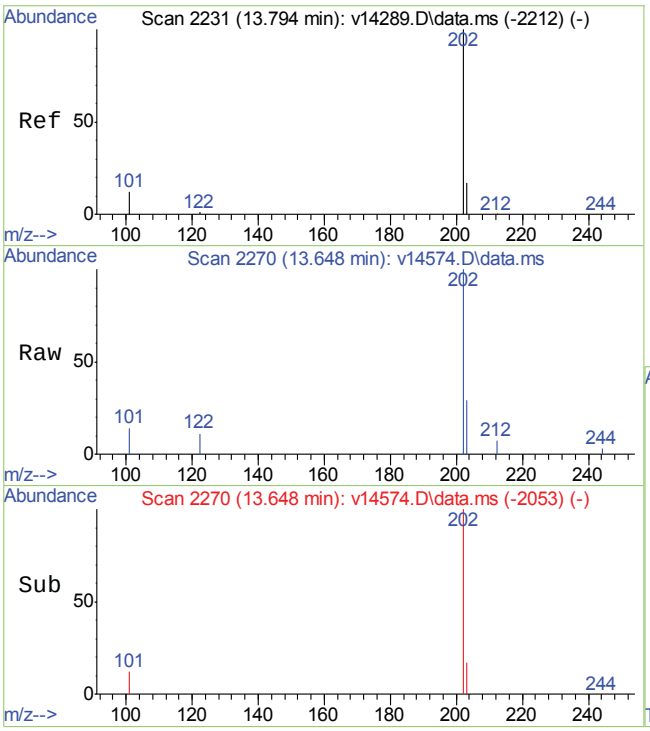


#22
Anthracene
Concen: 0.40 ppm m
RT: 11.435 min Scan# 1609
Delta R.T. 0.014 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:178 Resp: 7031

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	35.4
176	17.0	0.0	37.4

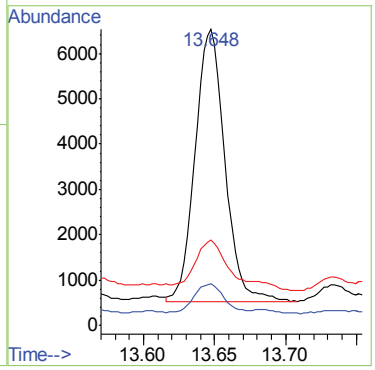


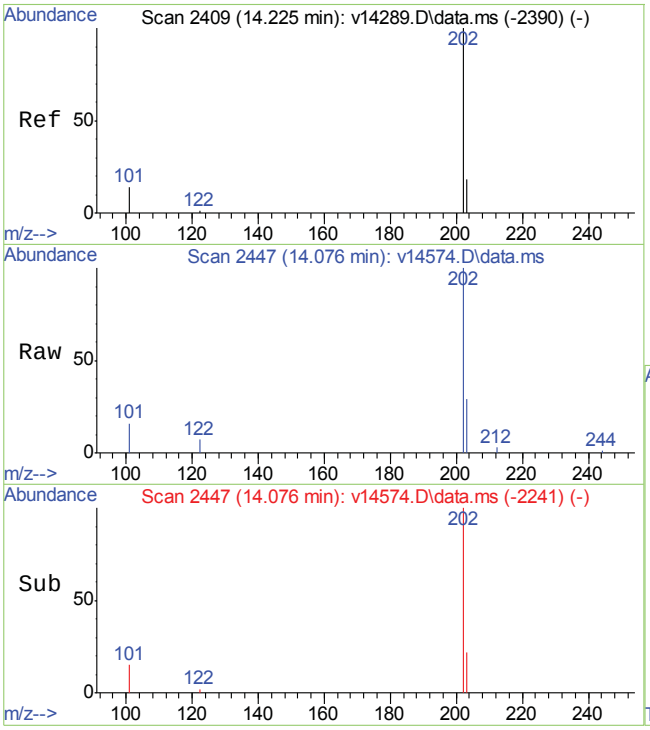


#23
Fluoranthene
Concen: 0.48 ppm
RT: 13.648 min Scan# 2270
Delta R.T. 0.026 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:202 Resp: 8834

Ion	Ratio	Lower	Upper
202	100		
101	10.1	0.0	32.2
203	22.7	0.0	37.3

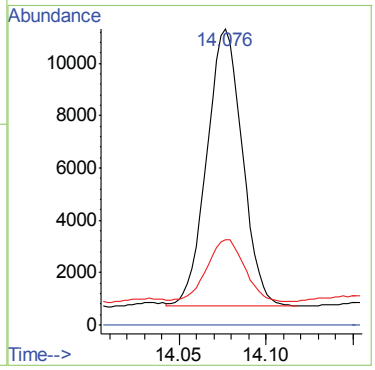


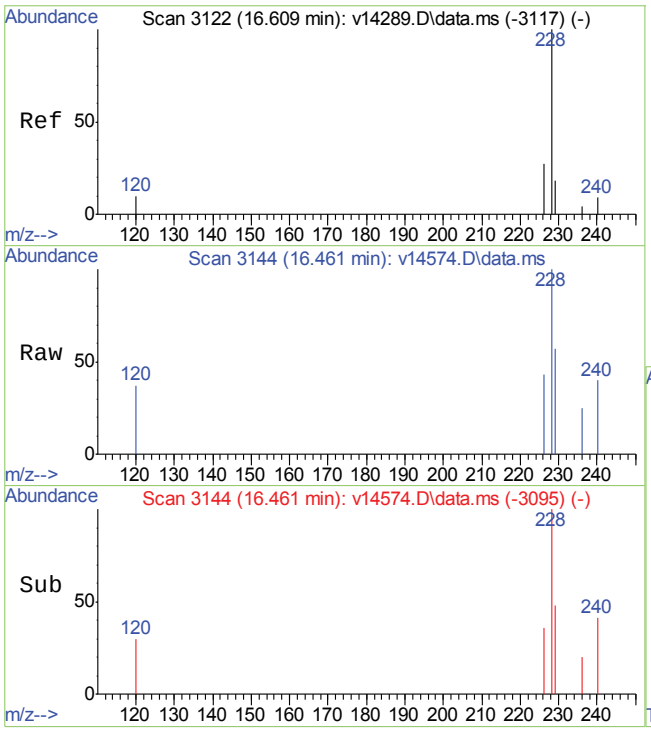


#25
Pyrene
Concen: 1.13 ppm
RT: 14.076 min Scan# 2447
Delta R.T. -0.001 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:202 Resp: 15153

Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.0	20.0
203	23.2	0.0	37.9

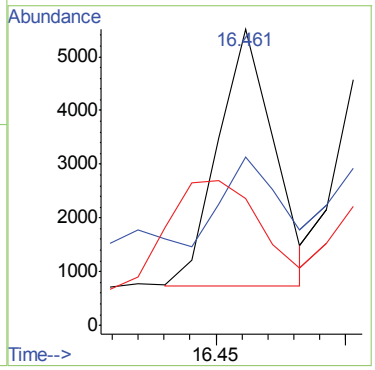


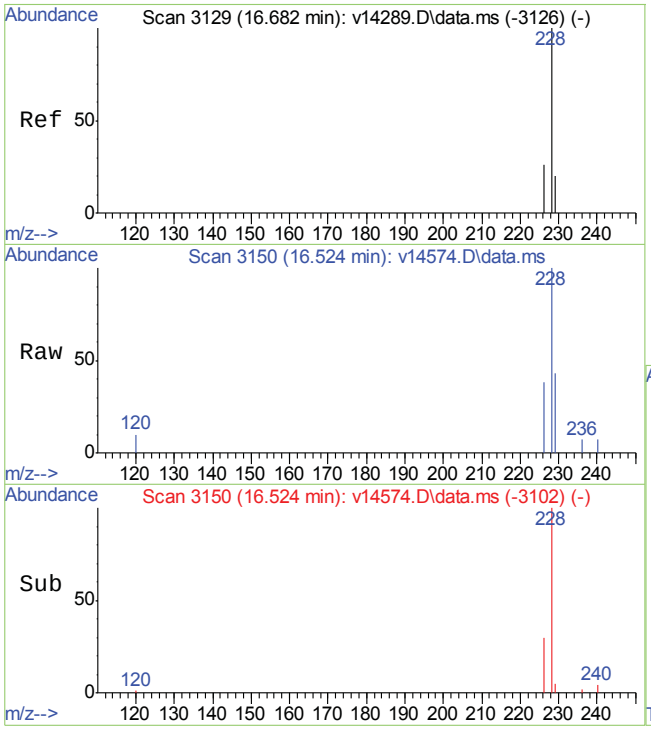


#27
Benzo(a)anthracene
Concen: 0.56 ppm m
RT: 16.461 min Scan# 3144
Delta R.T. 0.010 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:228 Resp: 7207

Ion	Ratio	Lower	Upper
228	100		
229	43.6	0.0	39.6#
226	80.8	5.5	45.5#

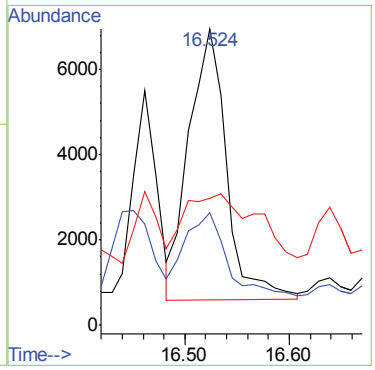


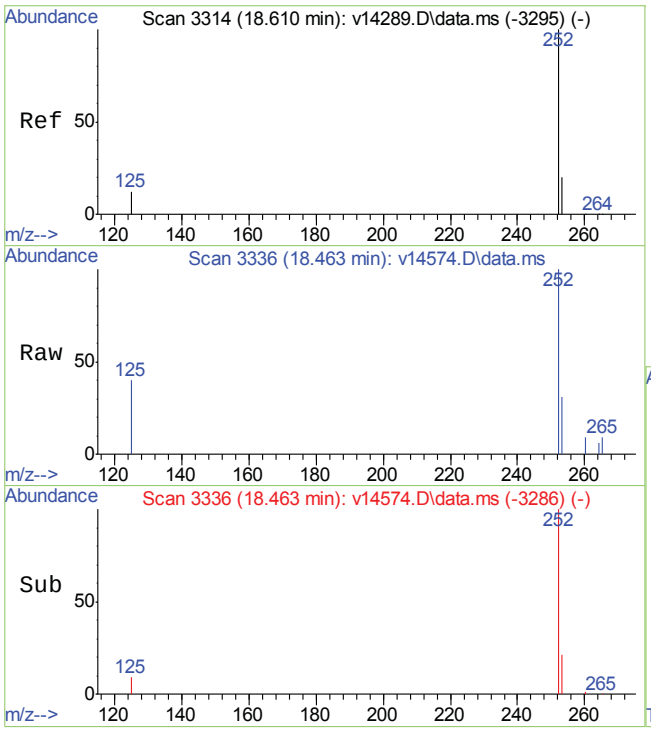


#28
Chrysene
Concen: 1.26 ppm
RT: 16.524 min Scan# 3150
Delta R.T. -0.000 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:228 Resp: 15863

Ion	Ratio	Lower	Upper
228	100		
226	37.5	7.8	47.8
229	70.0	0.0	39.6#

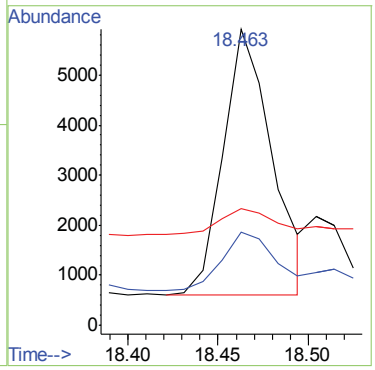


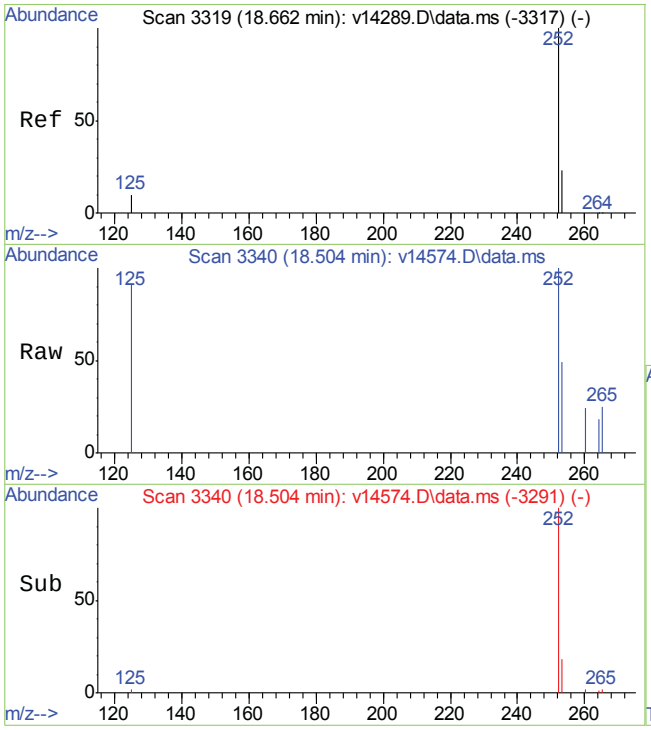


#30
Benzo(b)fluoranthene
Concen: 1.01 ppm m
RT: 18.463 min Scan# 3336
Delta R.T. 0.019 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:252 Resp: 10048

Ion	Ratio	Lower	Upper
252	100		
253	31.3	3.4	43.4
125	16.9	0.0	31.8

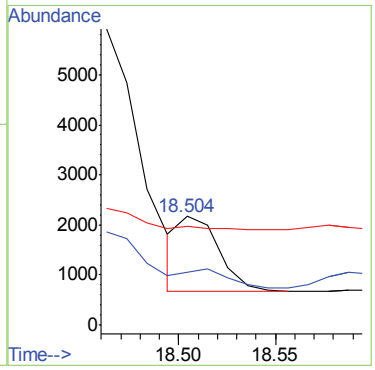


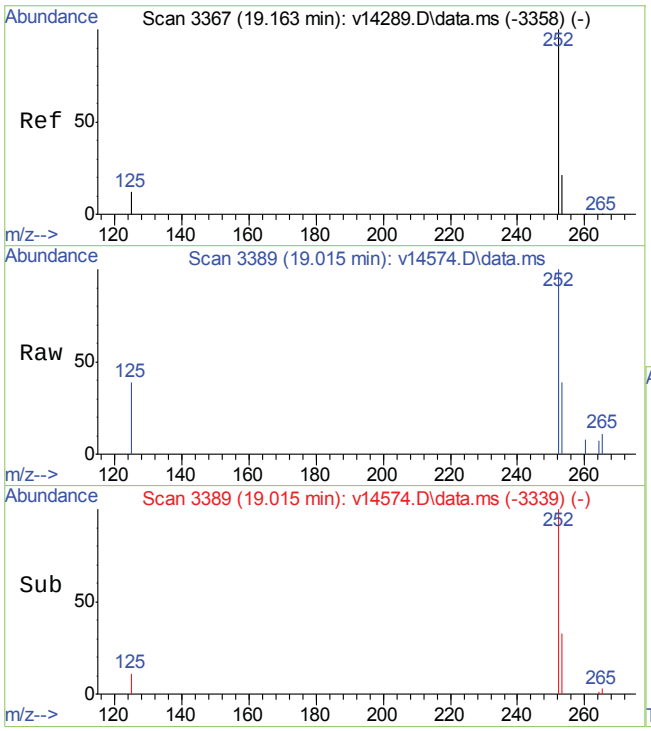


#31
Benzo(k)fluoranthene
Concen: 0.19 ppm m
RT: 18.504 min Scan# 3340
Delta R.T. 0.008 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:252 Resp: 2187

Ion	Ratio	Lower	Upper
252	100		
253	143.9	2.0	42.0#
125	77.6	0.0	32.6#

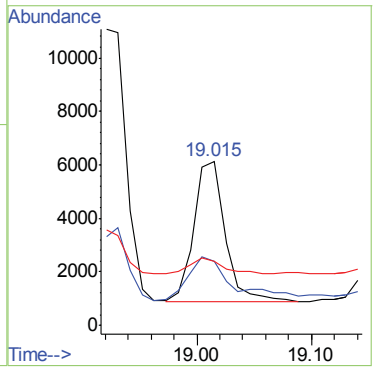


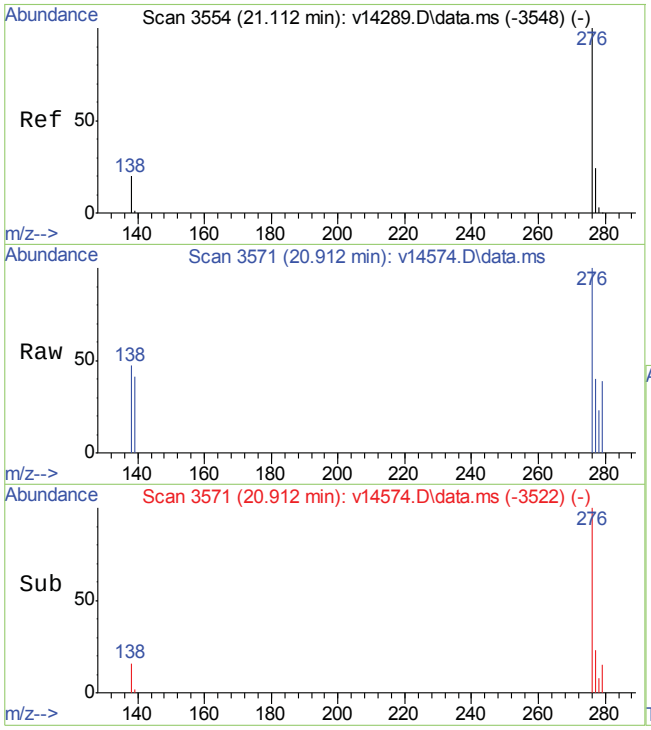


#32
Benzo(a)pyrene
Concen: 1.01 ppm m
RT: 19.015 min Scan# 3389
Delta R.T. 0.020 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:252 Resp: 9973

Ion	Ratio	Lower	Upper
252	100		
253	52.0	1.6	41.6#
125	28.1	0.0	32.8

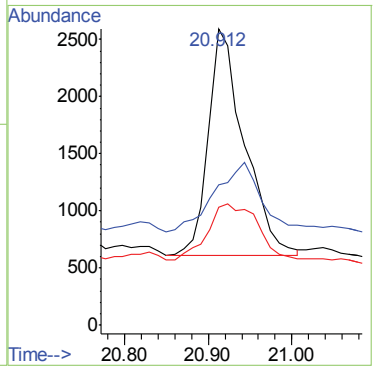




#33
Indeno(1,2,3-cd)pyrene
Concen: 0.70 ppm
RT: 20.912 min Scan# 3571
Delta R.T. 0.015 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

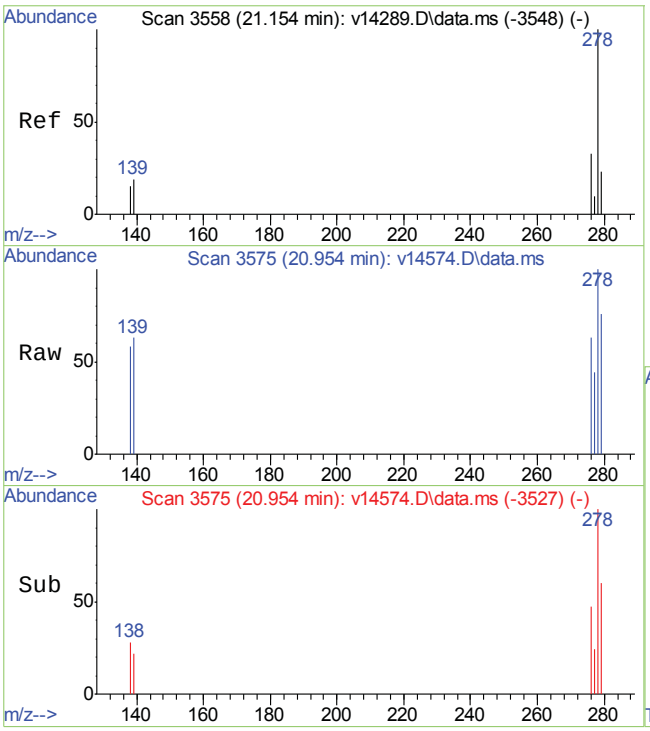
Tgt Ion:276 Resp: 5932

Ion	Ratio	Lower	Upper
276	100		
138	42.4	2.0	42.0#
277	41.7	14.5	54.5



7.1.5

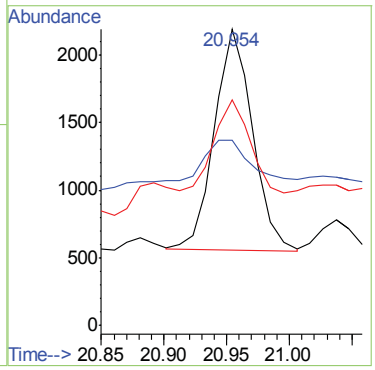
7

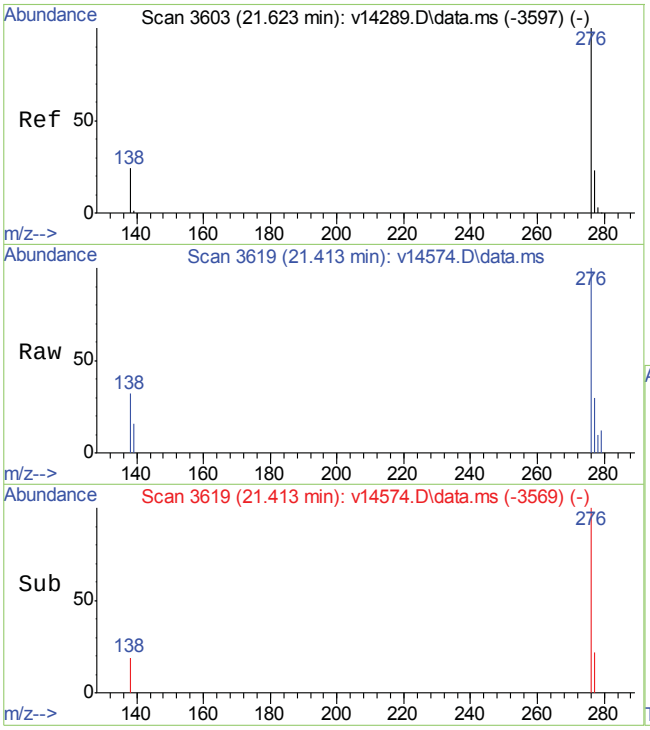


#34
Dibenz(a,h)anthracene
Concen: 0.35 ppm
RT: 20.954 min Scan# 3575
Delta R.T. 0.005 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:278 Resp: 3458

Ion	Ratio	Lower	Upper
278	100		
139	36.7	0.0	39.0
279	42.7	4.0	44.0

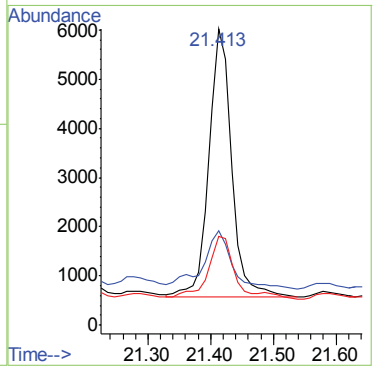




#35
Benzo(g,h,i)perylene
Concen: 1.31 ppm
RT: 21.413 min Scan# 3619
Delta R.T. 0.018 min
Lab File: v14574.D
Acq: 1 Apr 2013 2:57 pm

Tgt Ion:276 Resp: 13659

Ion	Ratio	Lower	Upper
276	100		
138	28.2	5.0	45.0
277	28.4	3.4	43.4



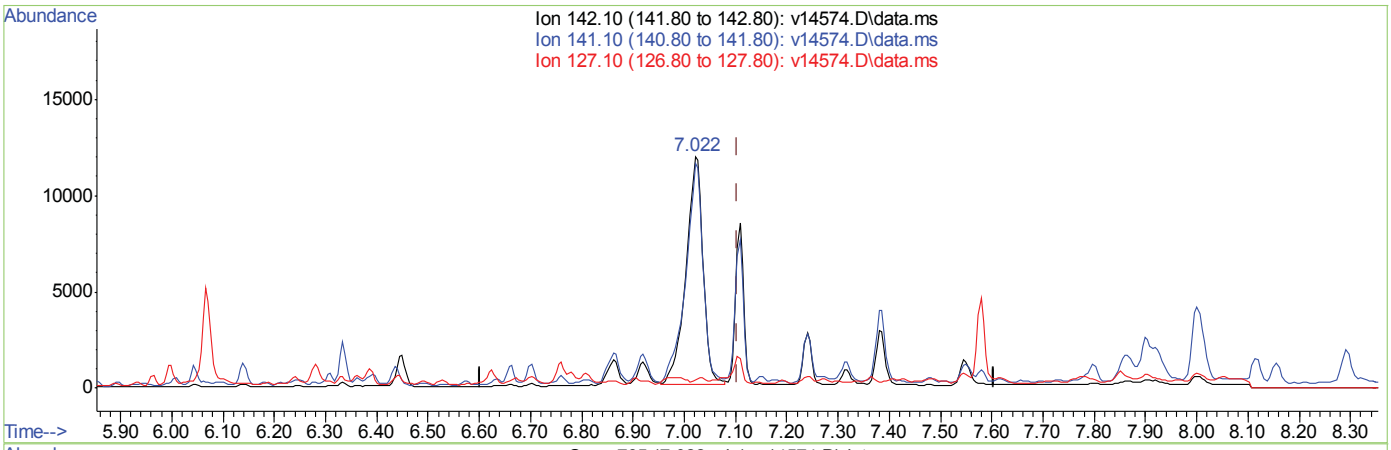
7.1.5

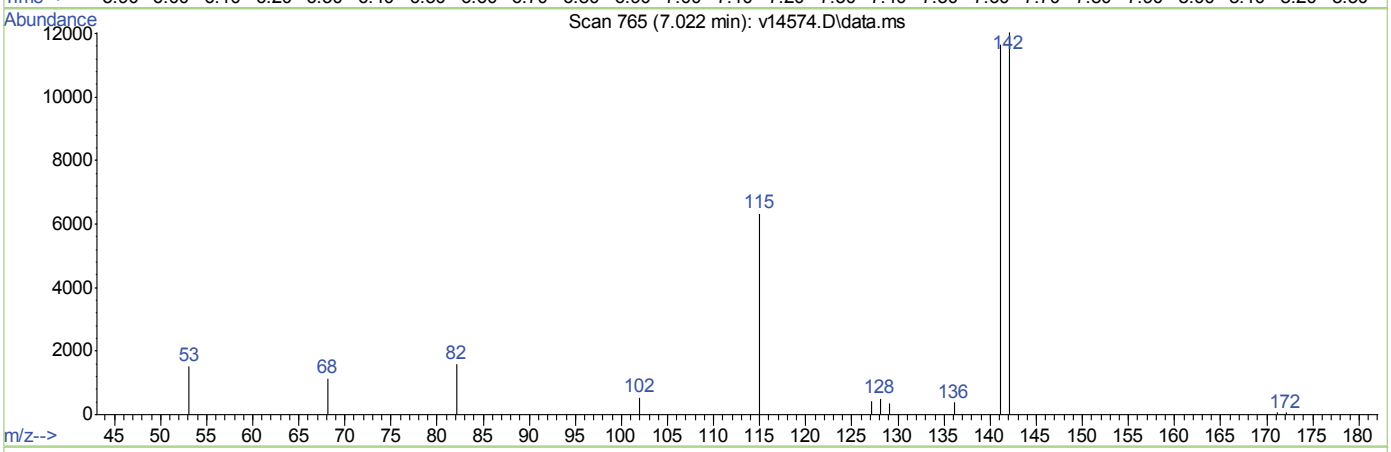
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On    :  1 Apr 2013   2:57 pm
Operator  : garyj
Sample    : tc27860-4
Misc      : op27766,ev835,30.00,,,1,1,soil
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14574.D\data.ms

(9) 2-□eth□naphthalene (CP)

7.022min (-0.082) 1.94ppm

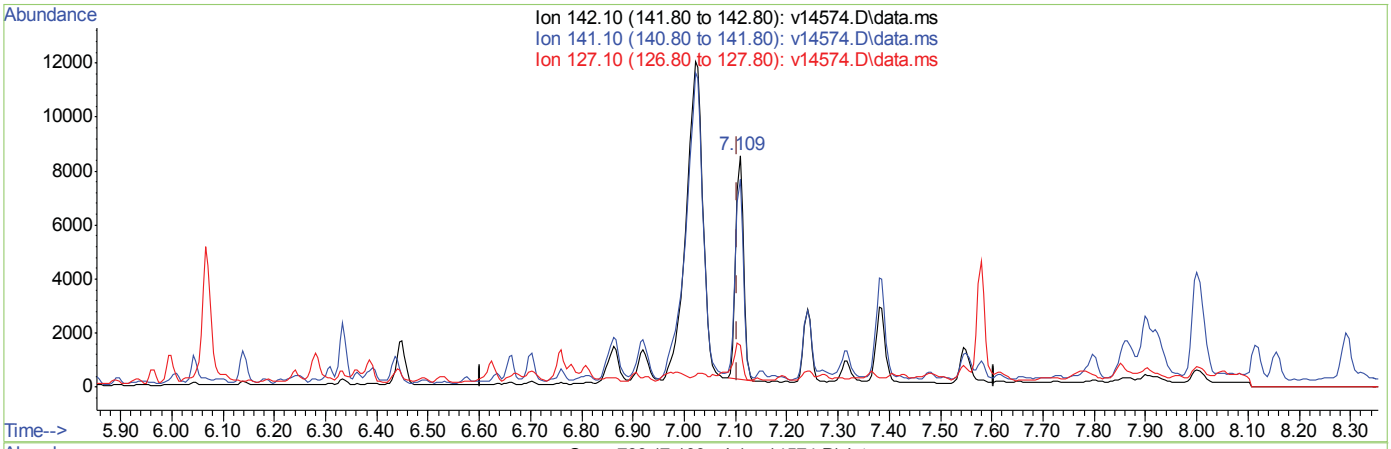
response 27690

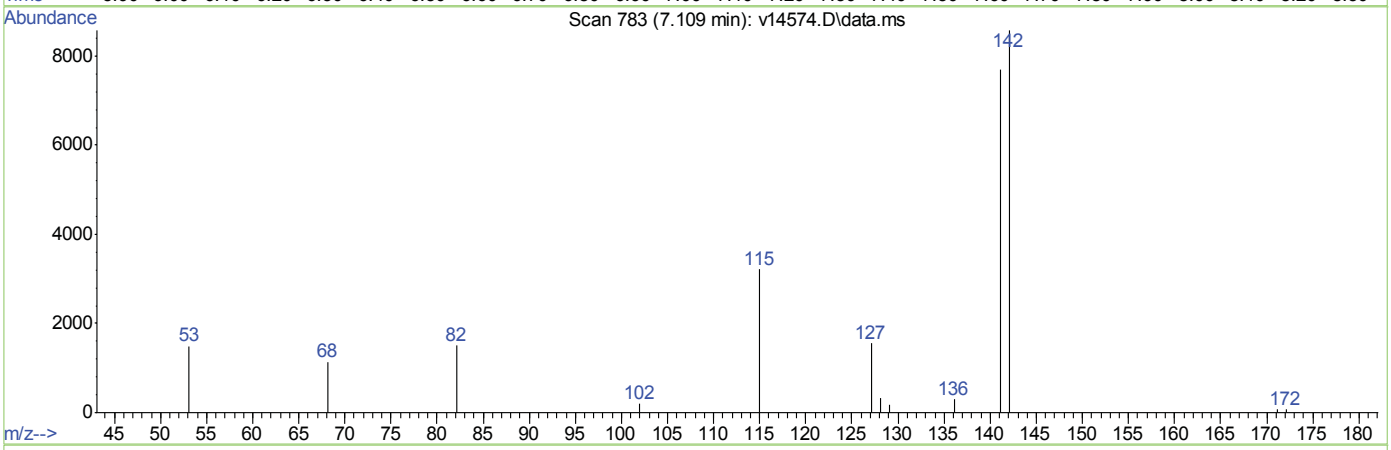
Ion	Exp%	Act%
142.10	100	100
141.10	86.00	97.18
127.10	0.70	1.64
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On    :  1 Apr 2013   2:57 pm
Operator  : garyj
Sample    : tc27860-4
Misc      : op27766,ev835,30.00,,,1,1,soil
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14574.D\data.ms

(9) 2-□eth□naphthalene (CP)

7.109min (+0.005) 0.61ppm m

response 8768

Ion	Exp%	Act%
142.10	100	100
141.10	86.00	306.91#
127.10	0.70	5.18
0.00	0.00	0.00

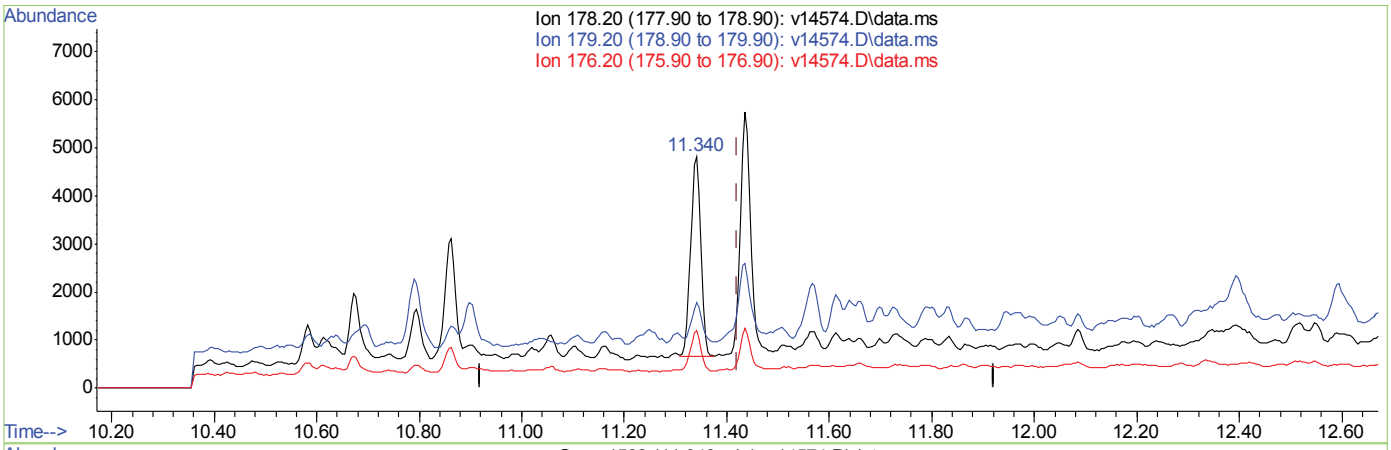
7.1.5.2

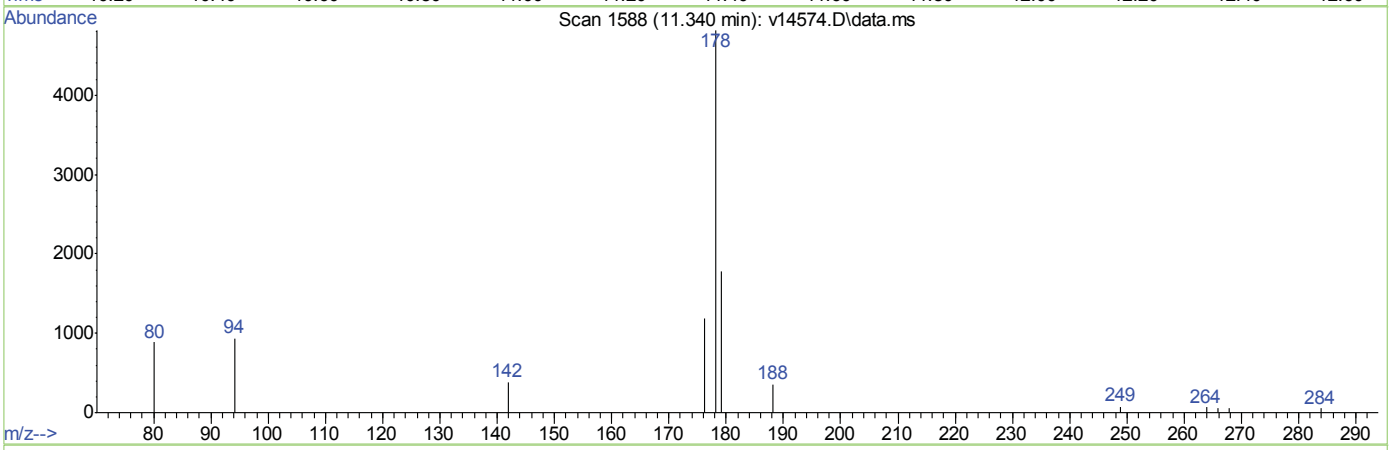
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On    :  1 Apr 2013   2:57 pm
Operator  : garyj
Sample    : tc27860-4
Misc      : op27766,ev835,30.00,,,1,1,soil
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14574.D\data.ms

(22) Anthracene (CP)

11.340min (-0.081) 0.31ppm

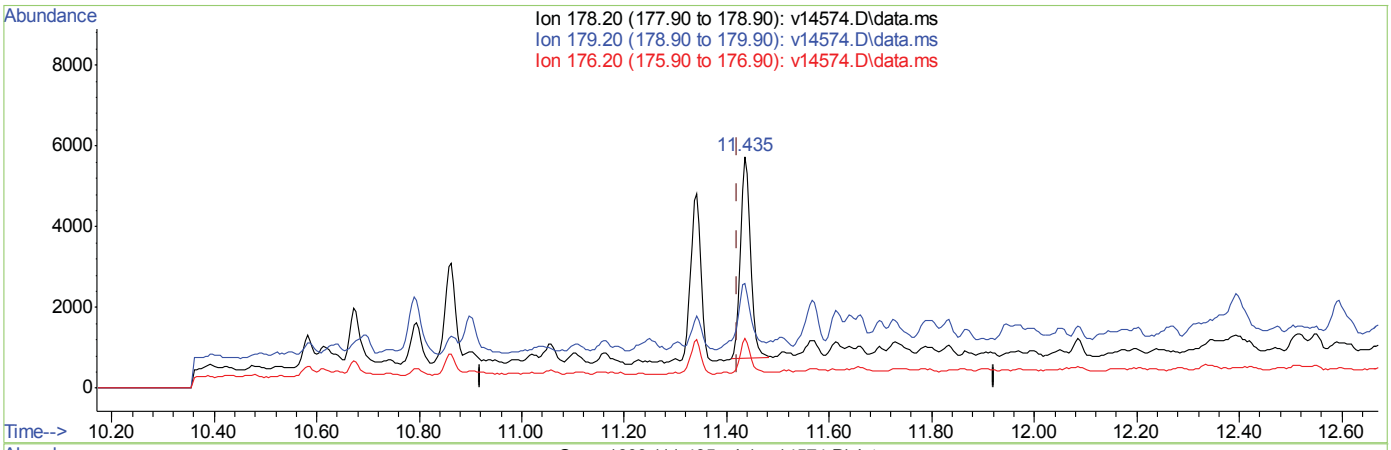
response 5580

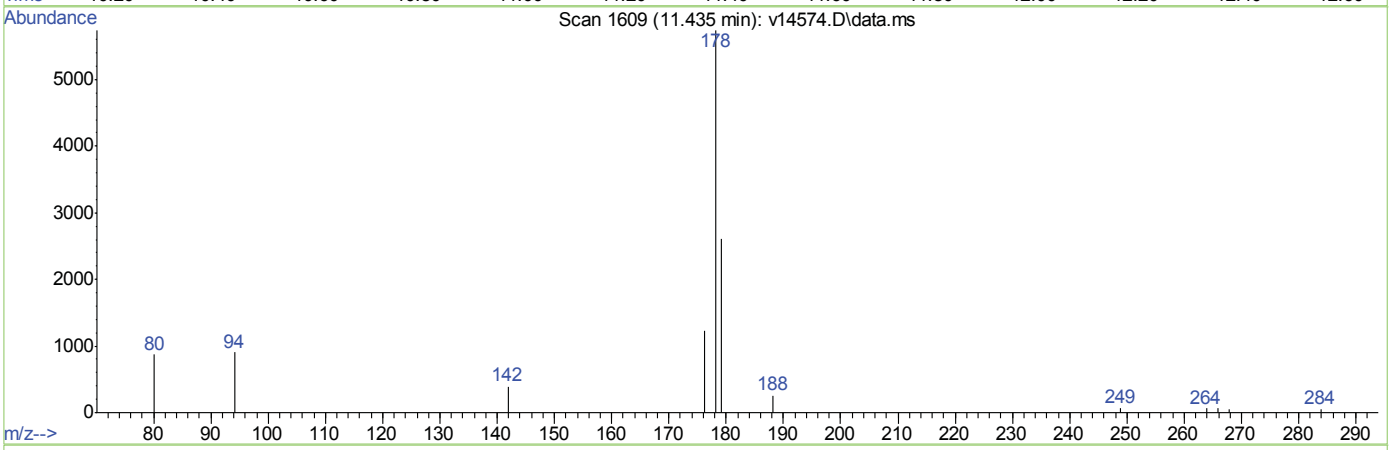
Ion	Exp%	Act%
178.20	100	100
179.20	15.40	19.80
176.20	17.40	21.40
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On : 1 Apr 2013 2:57 pm
Operator : garyj
Sample : tc27860-4
Misc : op27766,ev835,30.00,,,1,1,soil
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14574.D\data.ms

(22) Anthracene (CP)

11.435min (+0.014) 0.40ppm m

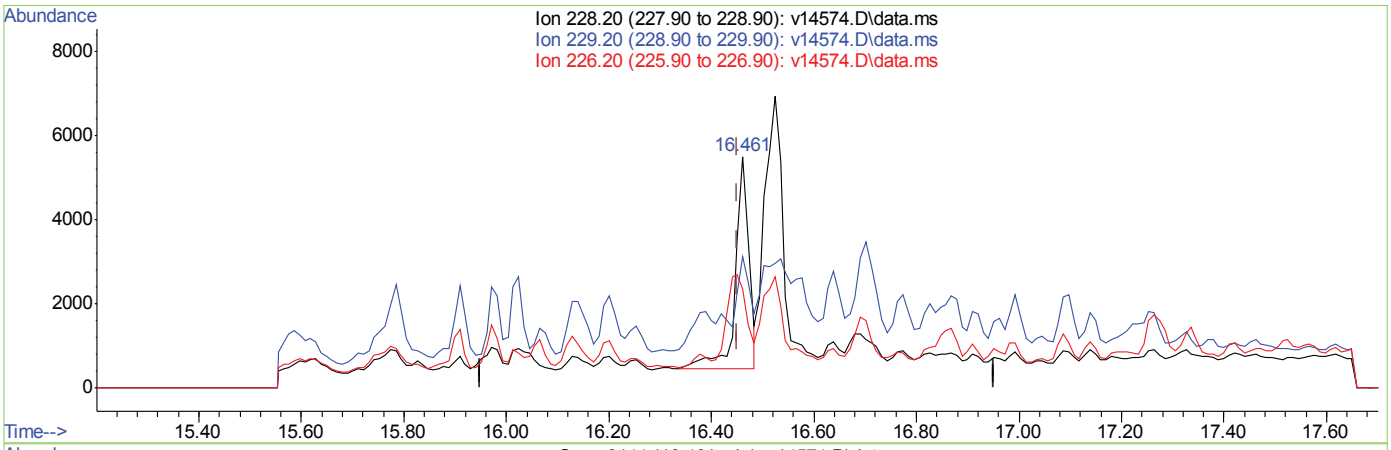
response 7031

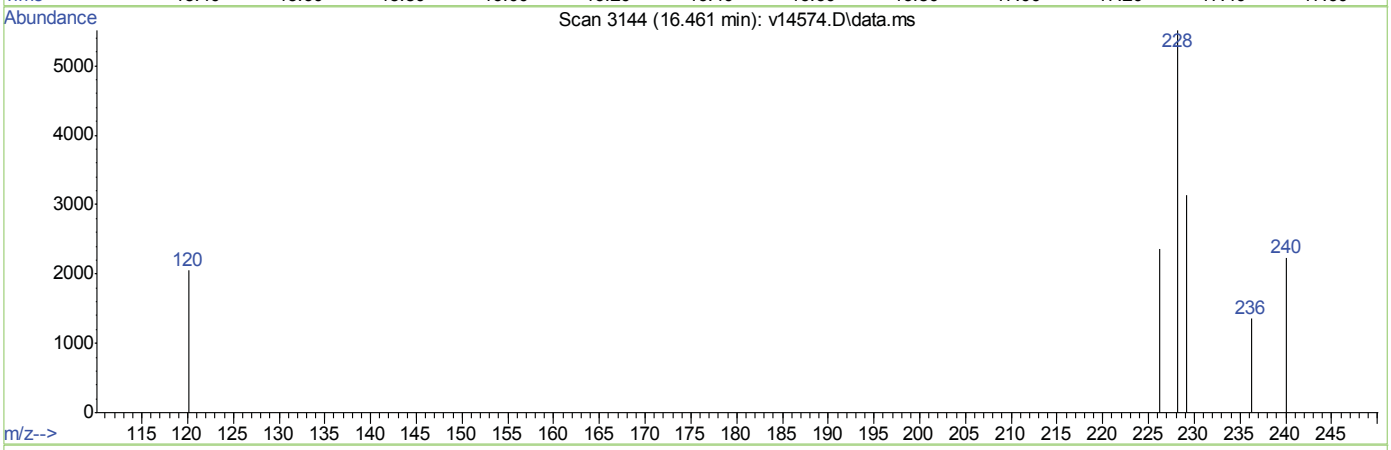
Ion	Exp%	Act%
178.20	100	100
179.20	15.40	15.72
176.20	17.40	16.98
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On : 1 Apr 2013 2:57 pm
Operator : garyj
Sample : tc27860-4
Misc : op27766,ev835,30.00,,,1,1,soil
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14574.D\data.ms

(27) Benzo(a)anthracene (CP)

16.461min (+0.010) 0.73ppm

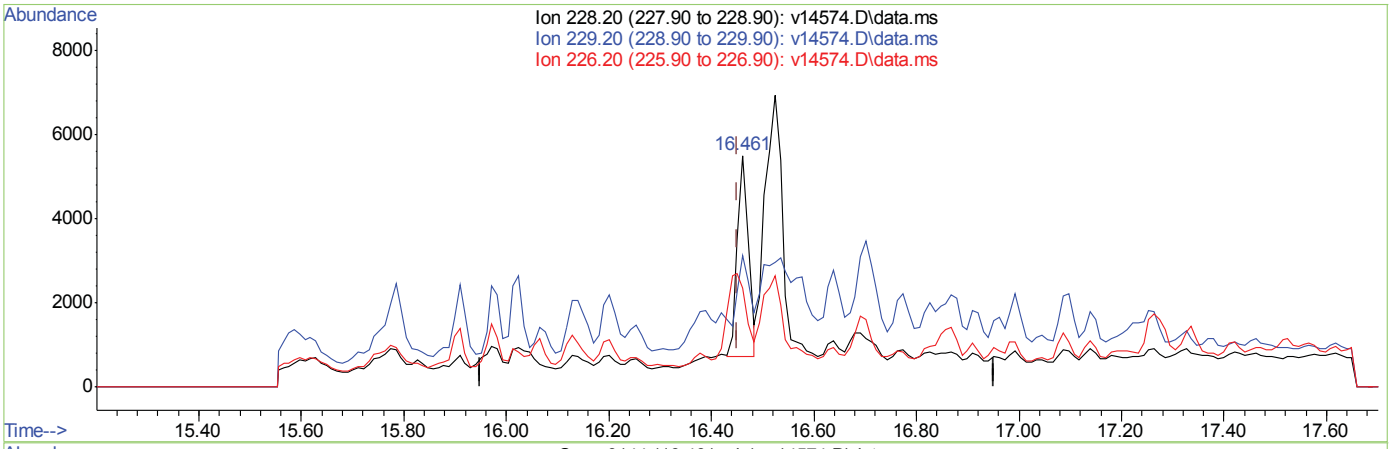
response 9336

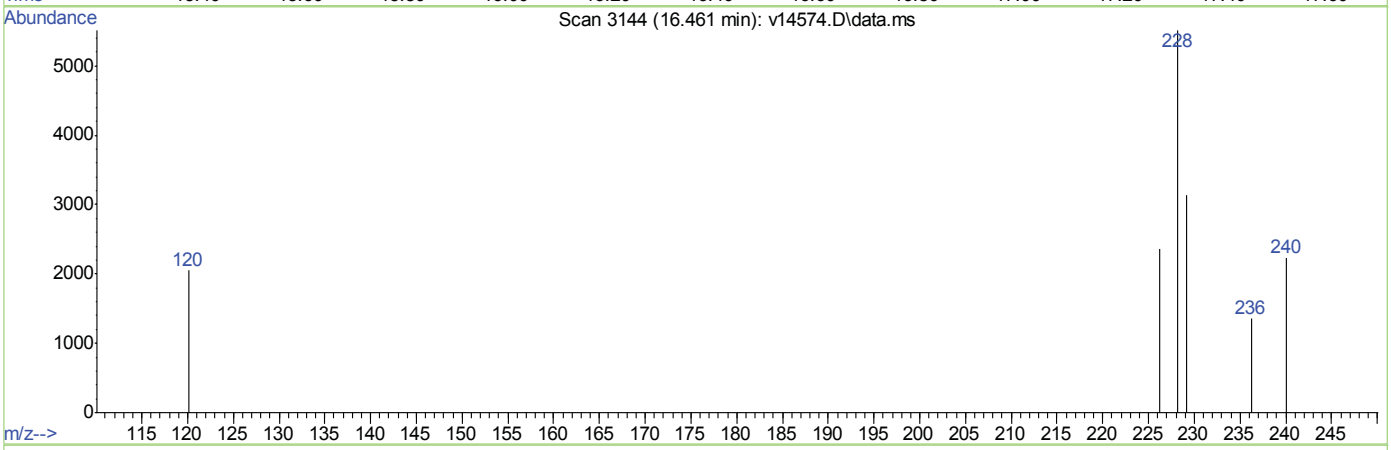
Ion	Exp%	Act%
228.20	100	100
229.20	19.60	33.67
226.20	25.50	62.36#
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On    :  1 Apr 2013   2:57 pm
Operator  : garyj
Sample    : tc27860-4
Misc      : op27766,ev835,30.00,,,1,1,soil
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14574.D\data.ms

(27) Benzo(a)anthracene (CP)

16.461min (+0.010) 0.56ppm m

response 7207

Ion	Exp%	Act%
228.20	100	100
229.20	19.60	43.61#
226.20	25.50	80.78#
0.00	0.00	0.00

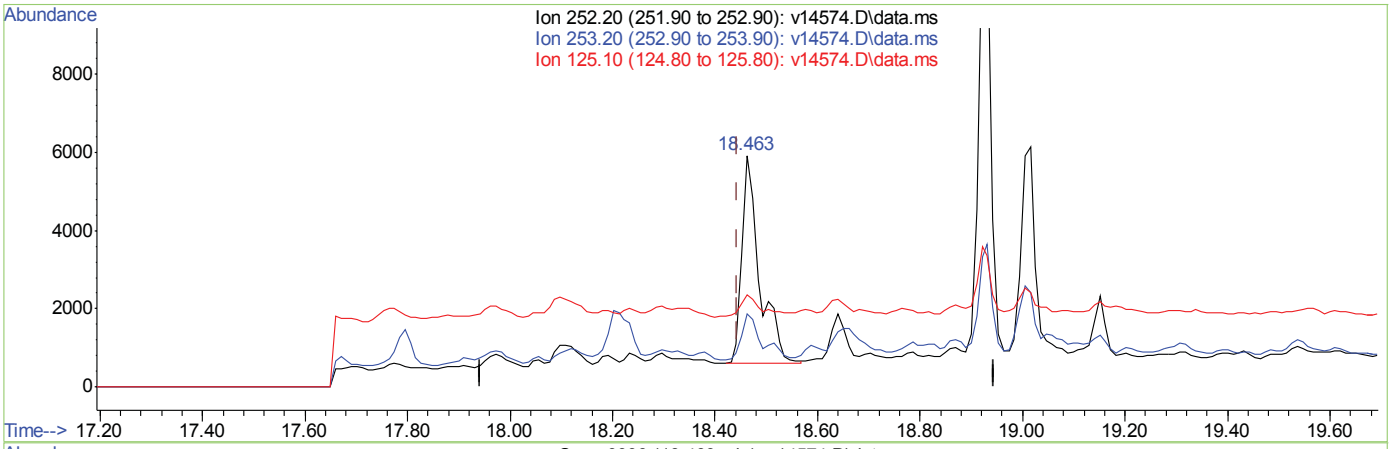
7.1.5.6

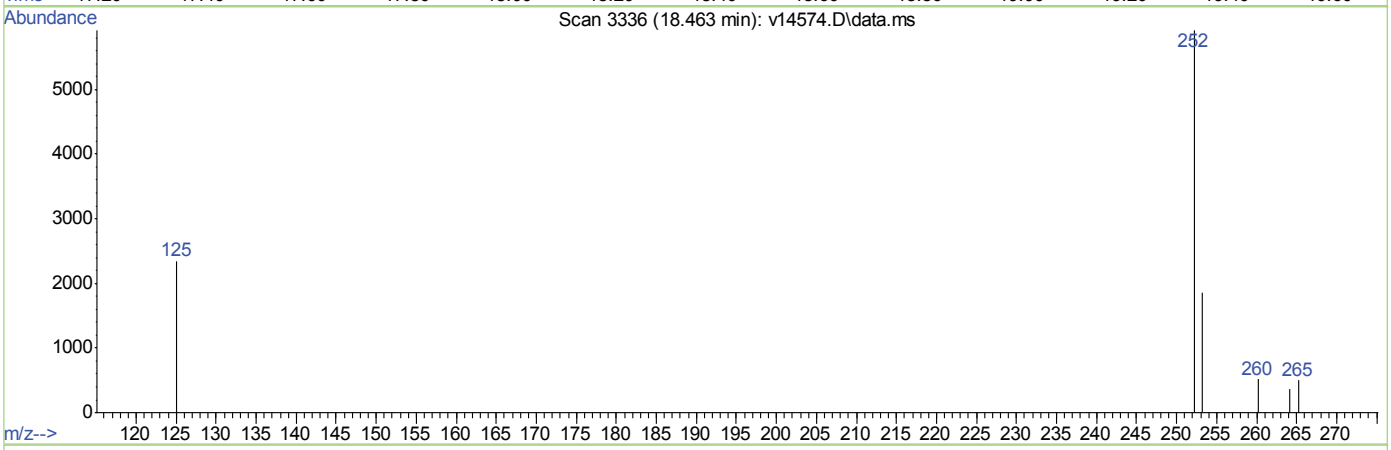
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On    :  1 Apr 2013   2:57 pm
Operator  : garyj
Sample    : tc27860-4
Misc      : op27766,ev835,30.00,,,1,1,soil
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14574.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.463min (+0.019) 1.25ppm

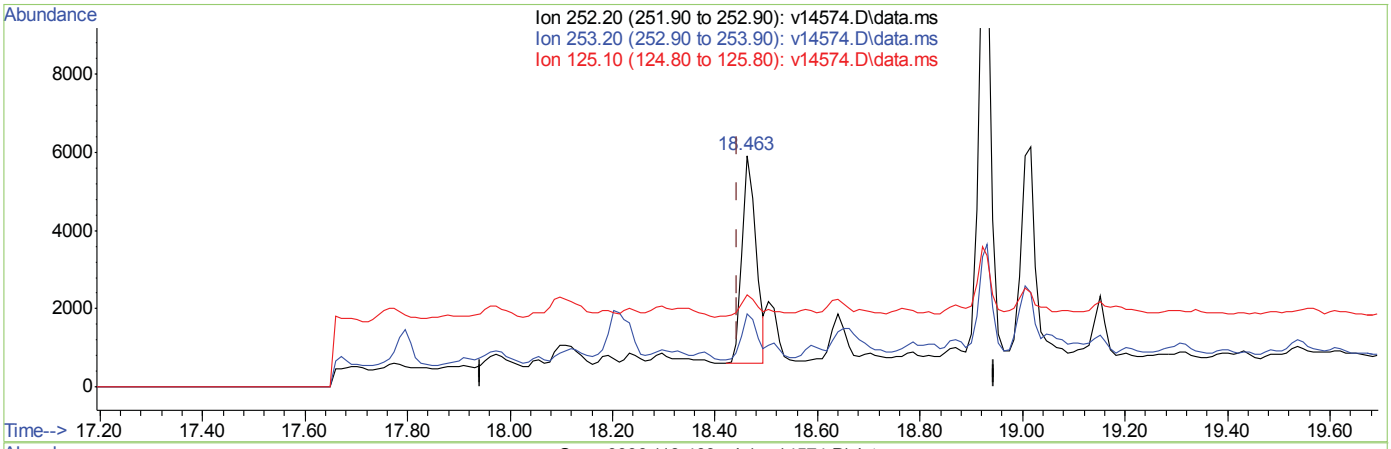
response 12464

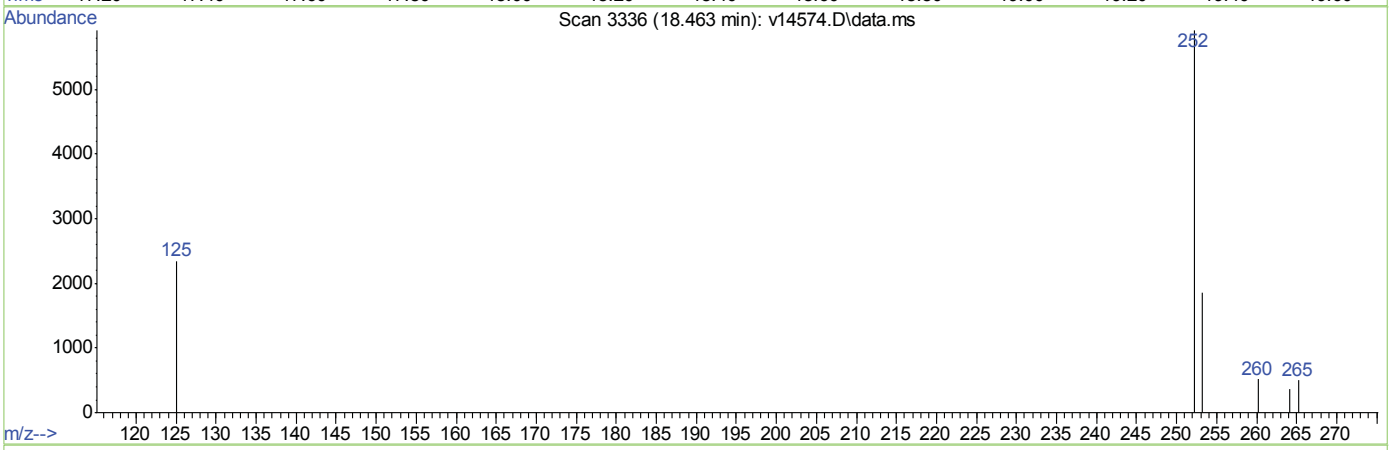
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	25.24
125.10	11.80	13.62
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On    :  1 Apr 2013   2:57 pm
Operator  : garyj
Sample    : tc27860-4
Misc      : op27766,ev835,30.00,,,1,1,soil
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14574.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.463min (+0.019) 1.01ppm m

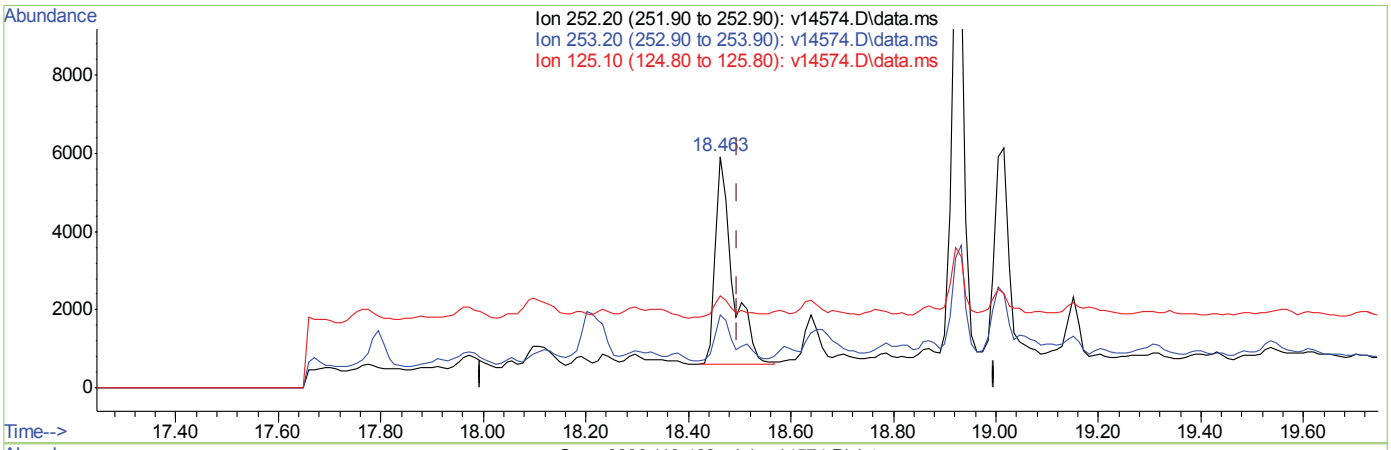
response 10048

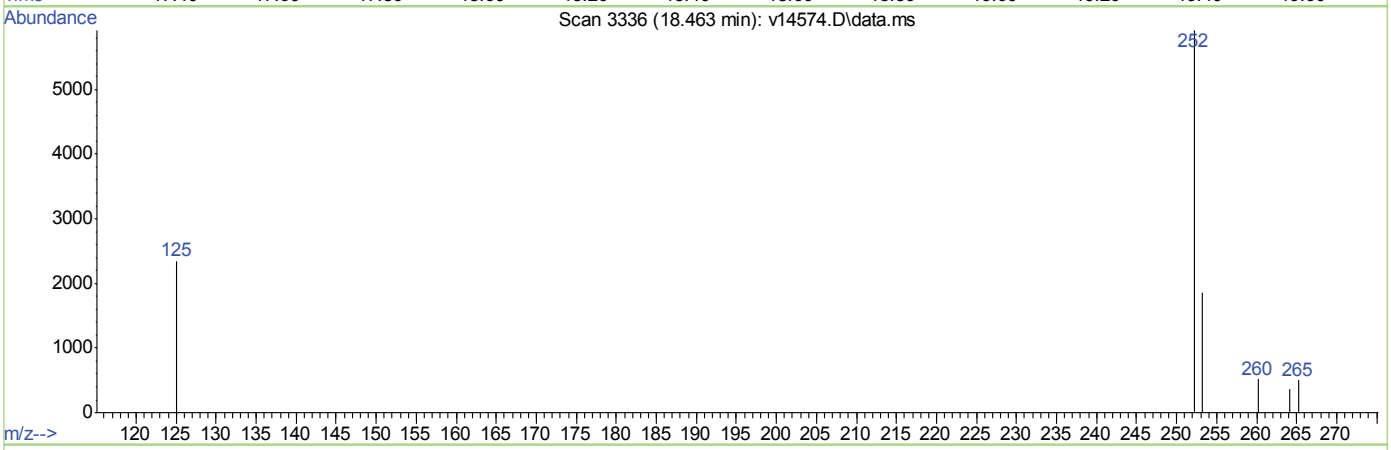
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	31.31
125.10	11.80	16.89
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On : 1 Apr 2013 2:57 pm
Operator : garyj
Sample : tc27860-4
Misc : op27766,ev835,30.00,,,1,1,soil
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14574.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.463min (-0.033) 1.10ppm

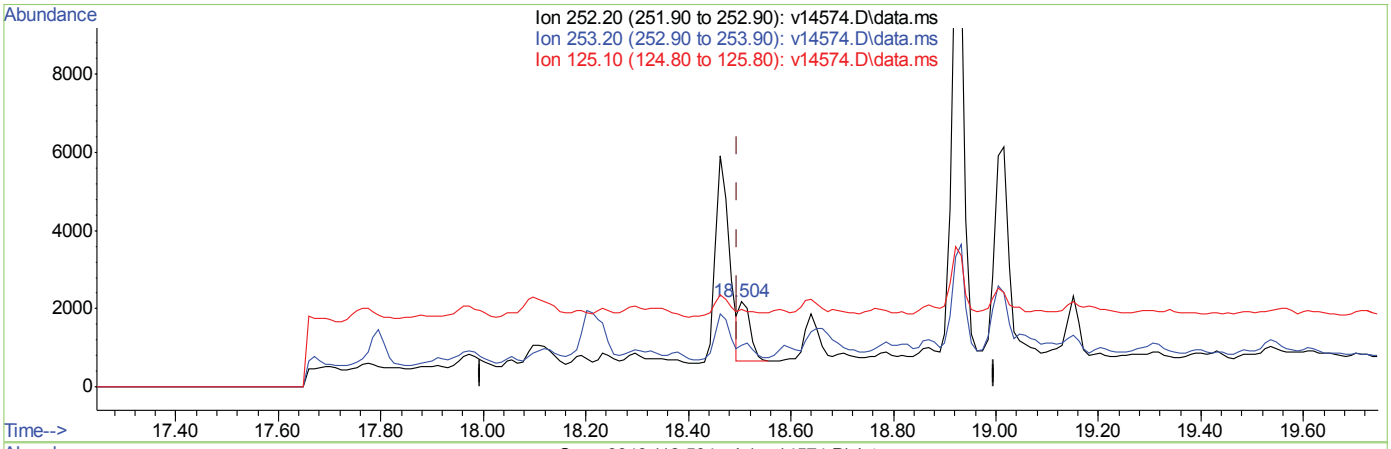
response 12464

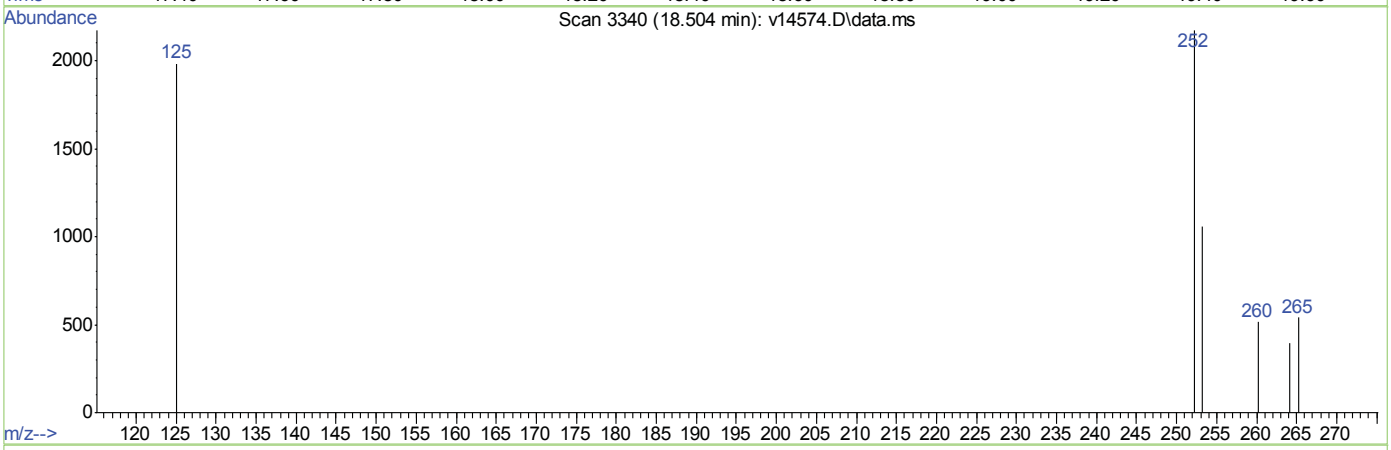
Ion	Exp%	Act%
252.20	100	100
253.20	22.00	25.24
125.10	12.60	13.62
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On    :  1 Apr 2013   2:57 pm
Operator  : garyj
Sample    : tc27860-4
Misc      : op27766,ev835,30.00,,,1,1,soil
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14574.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.504min (+0.008) 0.19ppm m

response 2187

Ion	Exp%	Act%
252.20	100	100
253.20	22.00	143.85#
125.10	12.60	77.59#
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On    :  1 Apr 2013   2:57 pm
Operator  : garyj
Sample    : tc27860-4
Misc      : op27766,ev835,30.00,,,1,1,soil
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
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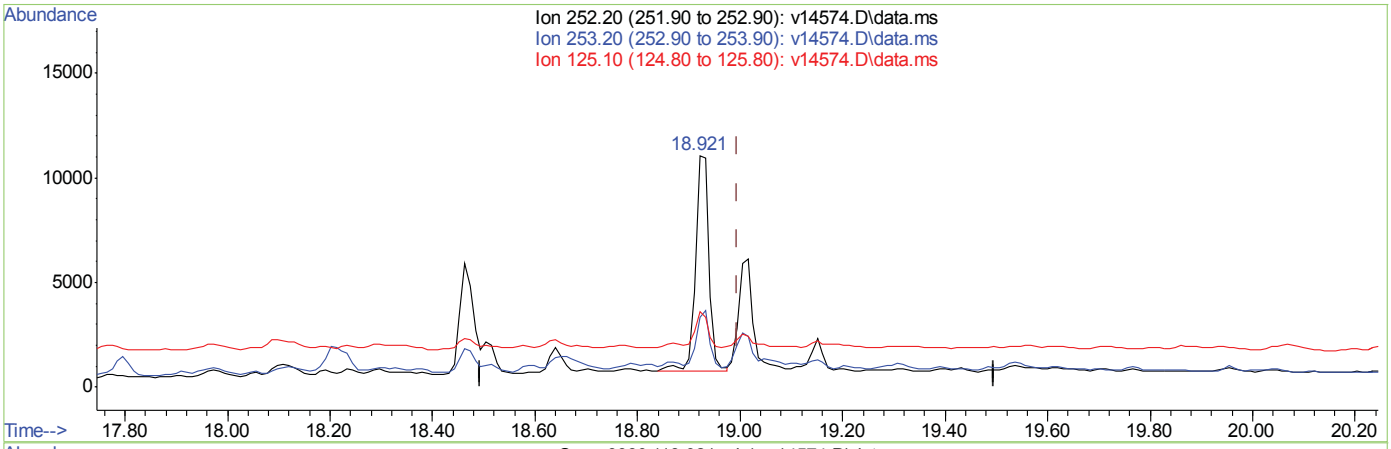
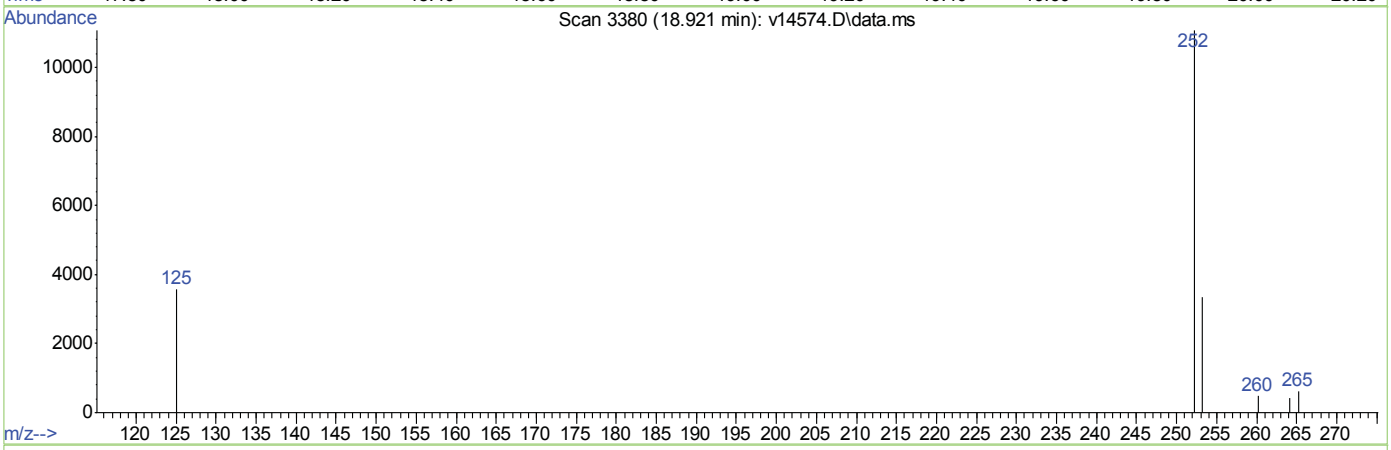




TIC: v14574.D\data.ms

(32) Benzo(a)p□rene (CP)

18.921min (-0.074) 1.91ppm

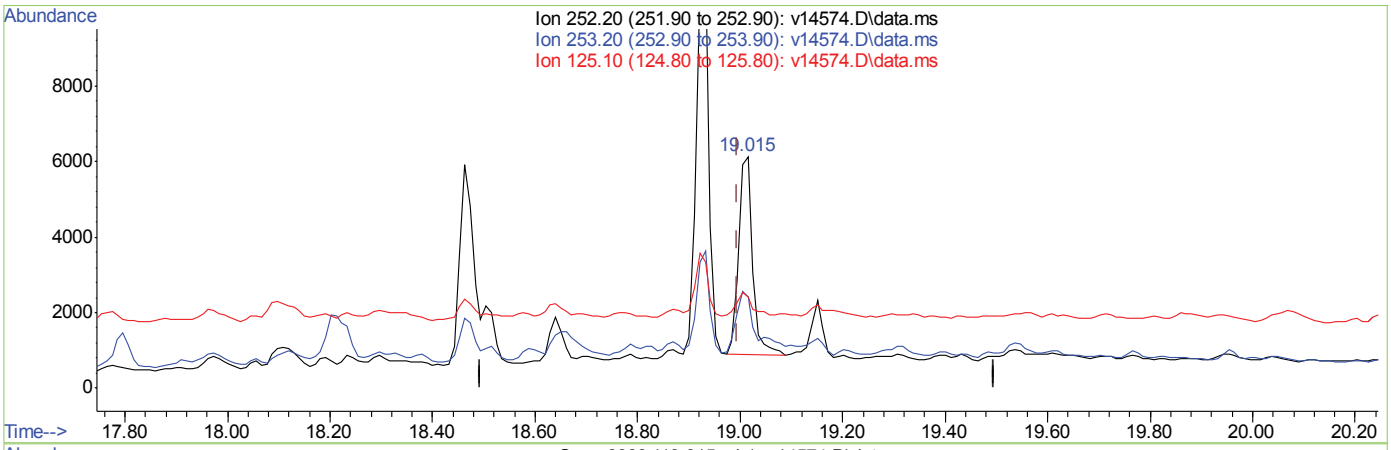
response 18790

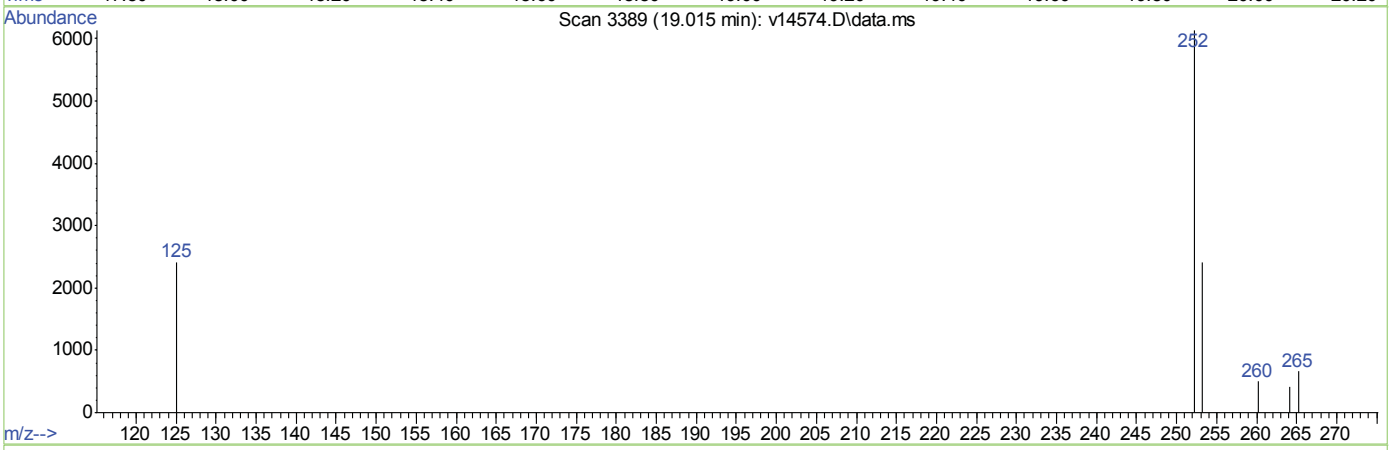
Ion	Exp%	Act%
252.20	100	100
253.20	21.60	27.61
125.10	12.80	14.93
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14574.D
Acq On : 1 Apr 2013 2:57 pm
Operator : garyj
Sample : tc27860-4
Misc : op27766,ev835,30.00,,,1,1,soil
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Apr 01 15:31:08 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14574.D\data.ms

(32) Benzo(a)p□rene (CP)

19.015min (+0.020) 1.01ppm m

response 9973

Ion	Exp%	Act%
252.20	100	100
253.20	21.60	52.02#
125.10	12.80	28.14
0.00	0.00	0.00

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R V D
(ompounds ith m fla)
ohn atson
04 02 13 12:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On : 1 Apr 2013 1:06 pm
Operator : garyj
Sample : tc27860-5
Misc : op27766,ev835,30.23,,,1,1,soil
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 01 13:49:02 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

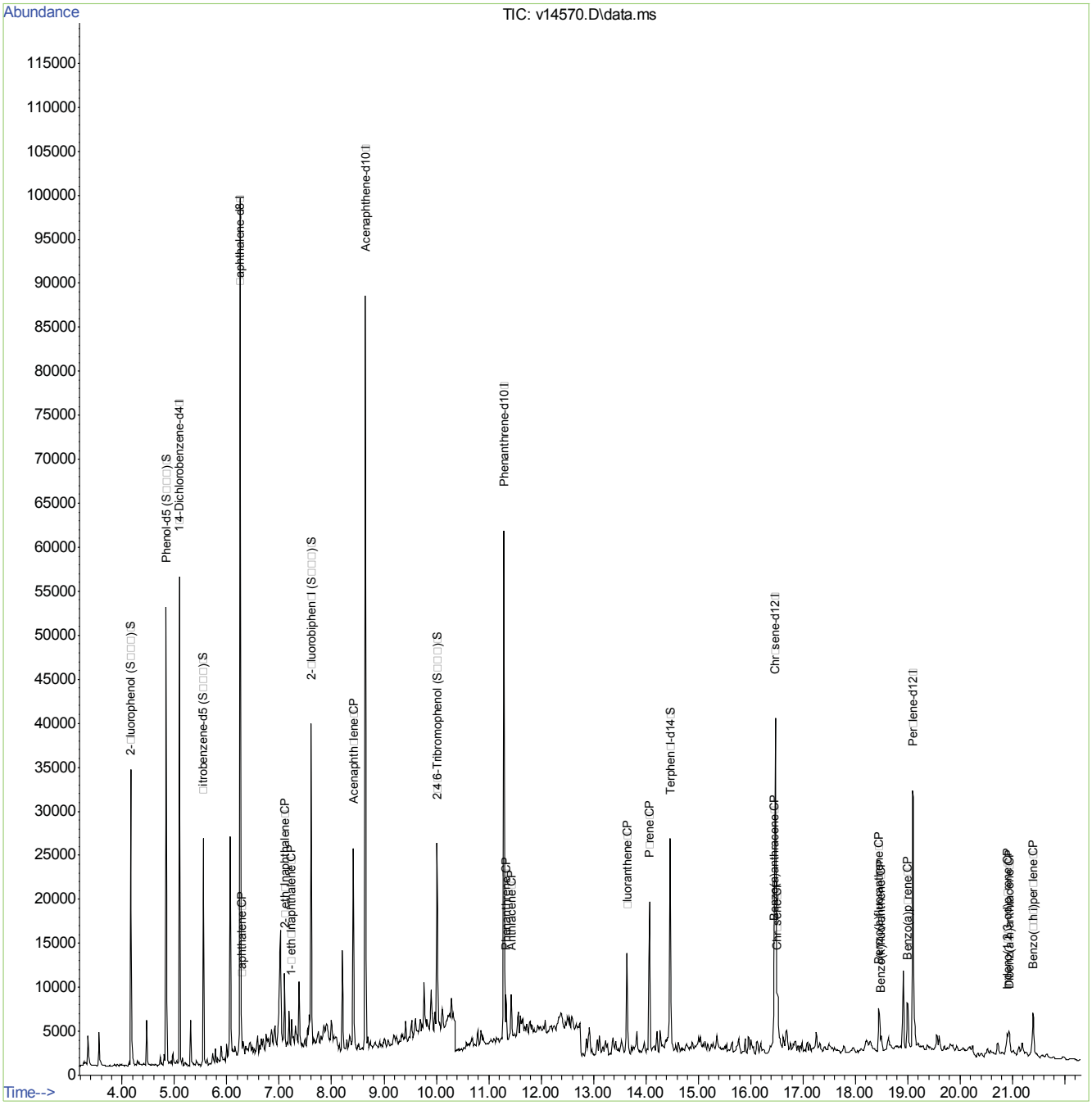
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	15052	4.00	ppm	0.00
5) Naphthalene-d8	6.256	136	84651	4.00	ppm	0.00
11) Acenaphthene-d10	8.644	164	41534	4.00	ppm	0.00
17) Phenanthrene-d10	11.291	188	66349	4.00	ppm	0.00
24) Chrysene-d12	16.472	240	39219	4.00	ppm	0.00
29) Perylene-d12	19.098	264	38313	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.168	112	20091	4.63	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 46.30%			
3) Phenol-d5 (SURR)	4.838	99	30853	5.81	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 58.10%			
6) Nitrobenzene-d5 (SURR)	5.553	82	15565	2.32	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 46.40%			
12) 2-Fluorobiphenyl (SURR)	7.613	172	30034	1.93	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 38.60%			
19) 2,4,6-Tribromophenol (...	10.019	330	10921	7.27	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 72.70%			
26) Terphenyl-d14	14.467	244	25011	4.07	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 81.40%			
Target Compounds						Qvalue
7) Naphthalene	6.280	128	2525m	0.12	ppm	
9) 2-Methylnaphthalene	7.104	142	3611	0.25	ppm	93
10) 1-Methylnaphthalene	7.235	142	1198m	0.09	ppm	
13) Acenaphthylene	8.414	152	23554	1.31	ppm	96
21) Phenanthrene	11.331	178	4882	0.25	ppm	85
22) Anthracene	11.431	178	4692m	0.25	ppm	
23) Fluoranthene	13.640	202	12720	0.66	ppm	96
25) Pyrene	14.069	202	17577	1.24	ppm #	80
27) Benzo(a)anthracene	16.451	228	5933m	0.43	ppm	
28) Chrysene	16.513	228	10088m	0.76	ppm	
30) Benzo(b)fluoranthene	18.452	252	7557m	0.70	ppm	
31) Benzo(k)fluoranthene	18.494	252	1990m	0.16	ppm	
32) Benzo(a)pyrene	19.005	252	7766	0.73	ppm	75
33) Indeno(1,2,3-cd)pyrene	20.902	276	4460	0.49	ppm	86
34) Dibenz(a,h)anthracene	20.943	278	2135	0.20	ppm #	31
35) Benzo(g,h,i)perylene	21.392	276	8496	0.76	ppm	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

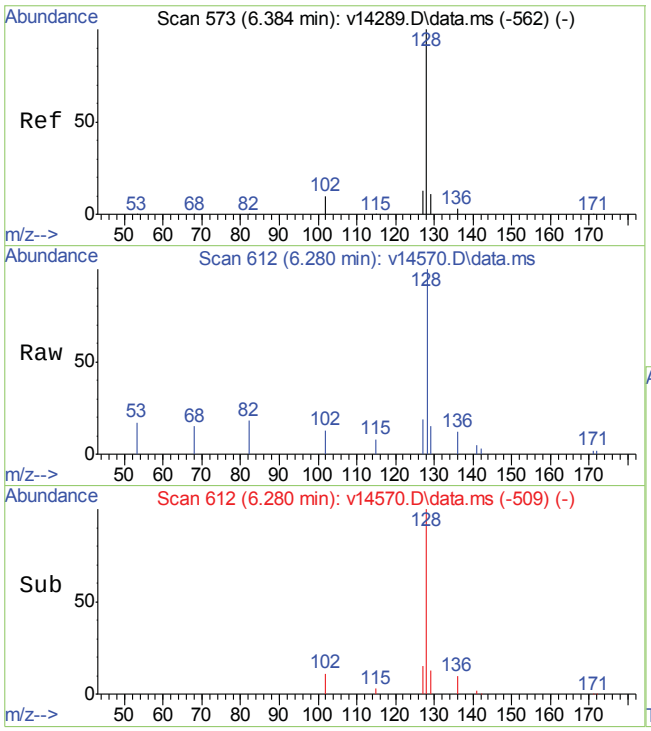
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On : 1 Apr 2013 1:06 pm
Operator : garyj
Sample : tc27860-5
Misc : op27766,ev835,30.23,,,1,1,soil
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 01 13:49:02 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration



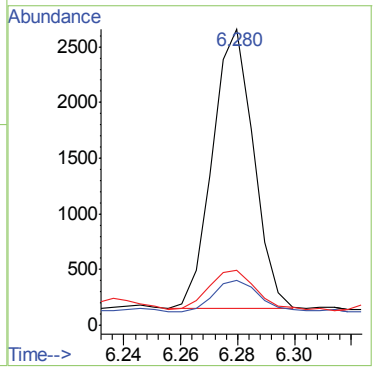
ev831sim.m Mon Apr 01 13:49:15 2013 Page: 2

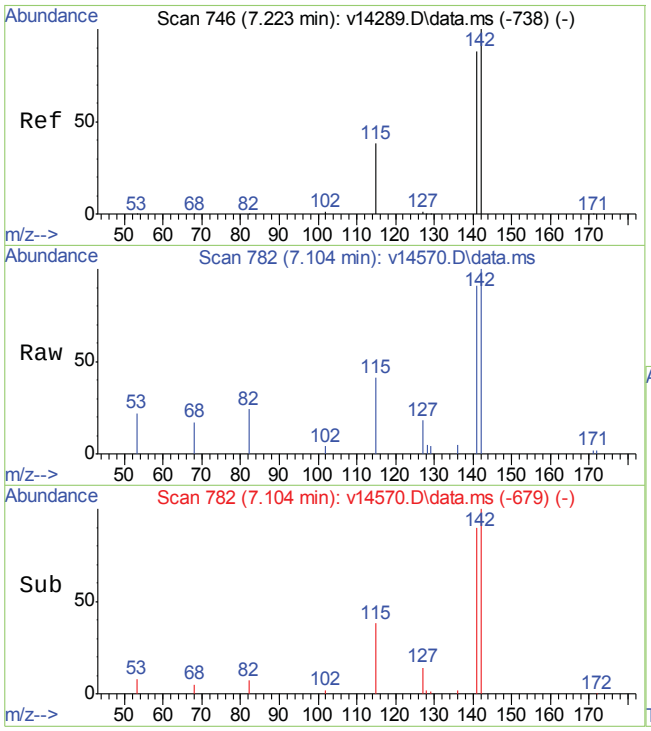


#7
Naphthalene
Concen: 0.12 ppm m
RT: 6.280 min Scan# 612
Delta R.T. -0.000 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:128 Resp: 2525

Ion	Ratio	Lower	Upper
128	100		
129	180.8	0.0	31.0#
127	146.1	0.0	32.9#

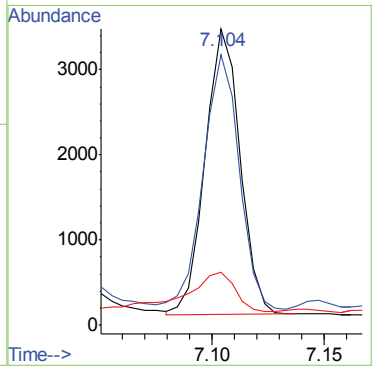


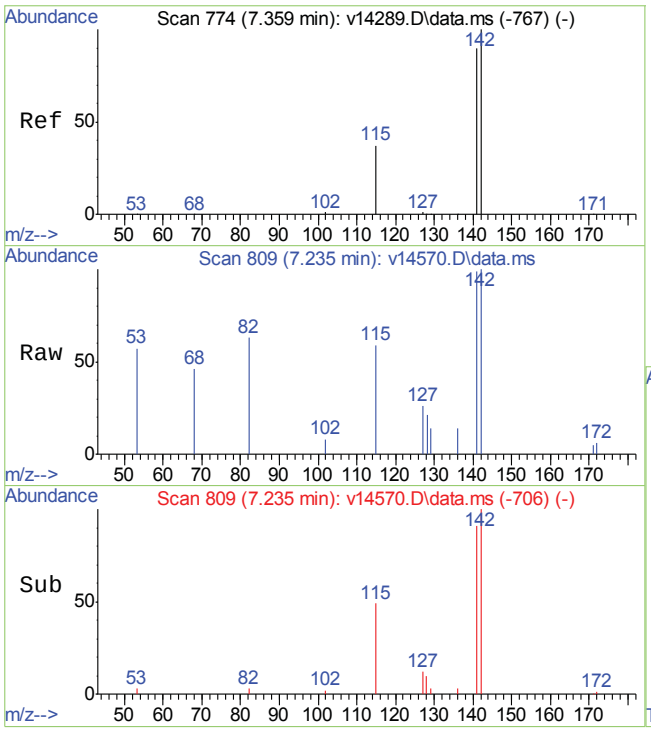


#9
2-Methylnaphthalene
Concen: 0.25 ppm
RT: 7.104 min Scan# 782
Delta R.T. -0.000 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:142 Resp: 3611

Ion	Ratio	Lower	Upper
142	100		
141	91.8	66.0	106.0
127	20.4	0.0	20.7

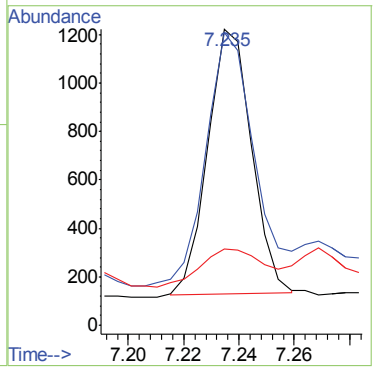


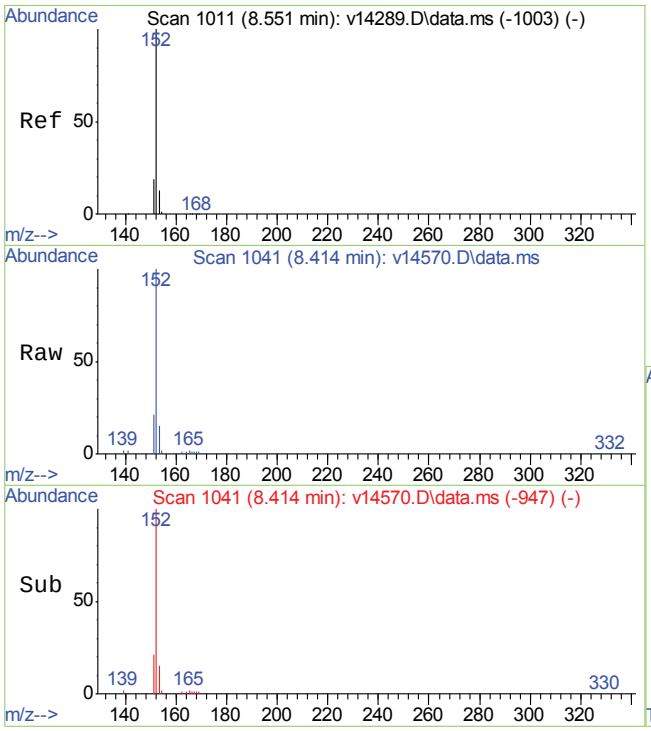


#10
1-Methylnaphthalene
Concen: 0.09 ppm m
RT: 7.235 min Scan# 809
Delta R.T. 0.001 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:142 Resp: 1198

Ion	Ratio	Lower	Upper
142	100		
141	276.7	69.6	109.6#
127	61.4	0.0	20.6#

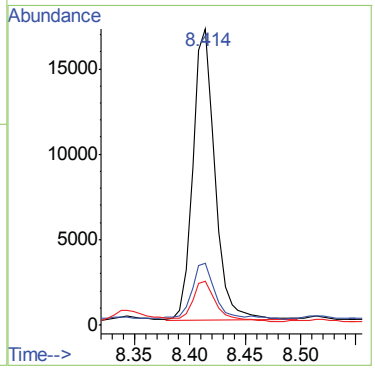


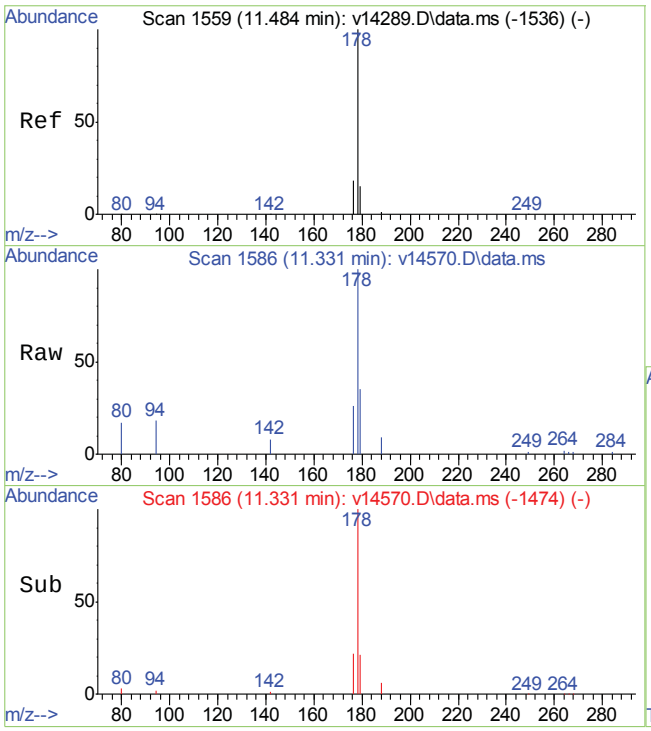


#13
Acenaphthylene
Concen: 1.31 ppm
RT: 8.414 min Scan# 1041
Delta R.T. 0.010 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:152 Resp: 23554

Ion	Ratio	Lower	Upper
152	100		
151	20.5	0.0	39.0
153	14.7	0.0	33.1

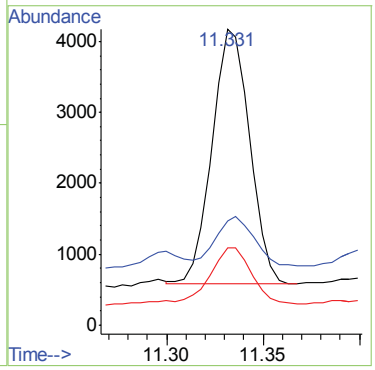


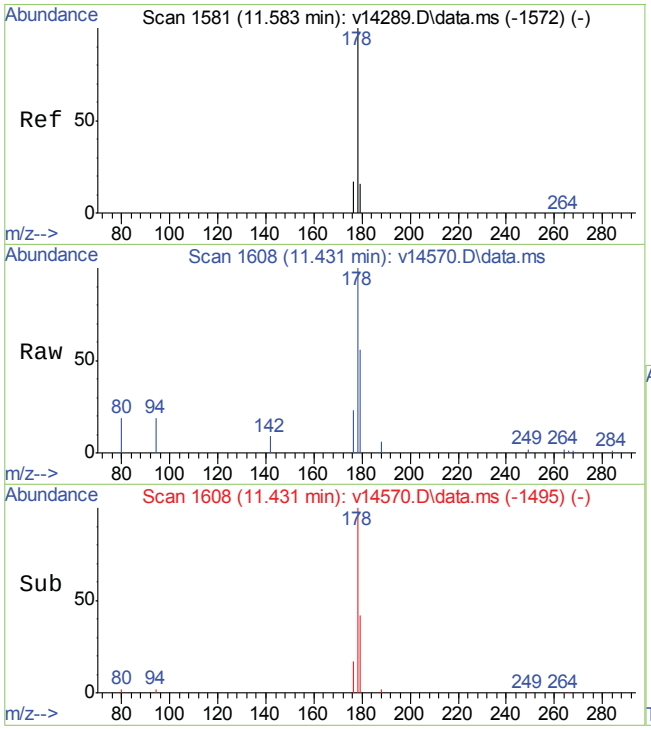


#21
Phenanthrene
Concen: 0.25 ppm
RT: 11.331 min Scan# 1586
Delta R.T. 0.004 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:178 Resp: 4882

Ion	Ratio	Lower	Upper
178	100		
179	19.7	0.0	35.4
176	26.8	0.0	38.0

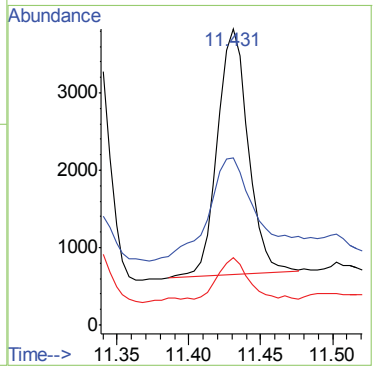


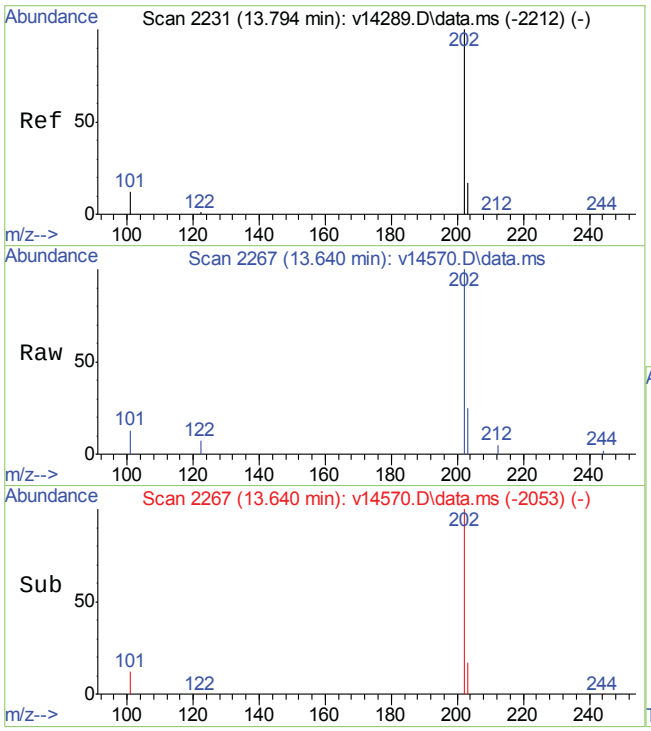


#22
Anthracene
Concen: 0.25 ppm m
RT: 11.431 min Scan# 1608
Delta R.T. 0.010 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:178 Resp: 4692

Ion	Ratio	Lower	Upper
178	100		
179	20.5	0.0	35.4
176	27.9	0.0	37.4

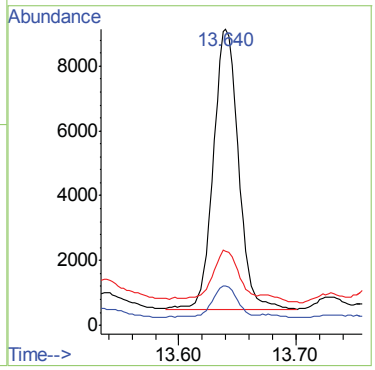


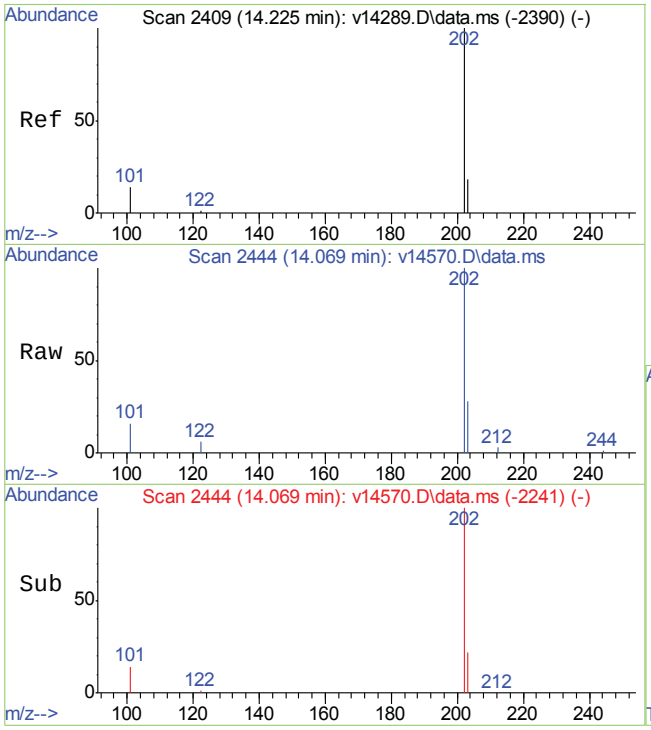


#23
Fluoranthene
Concen: 0.66 ppm
RT: 13.640 min Scan# 2267
Delta R.T. 0.018 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:202 Resp: 12720

Ion	Ratio	Lower	Upper
202	100		
101	10.4	0.0	32.2
203	15.5	0.0	37.3

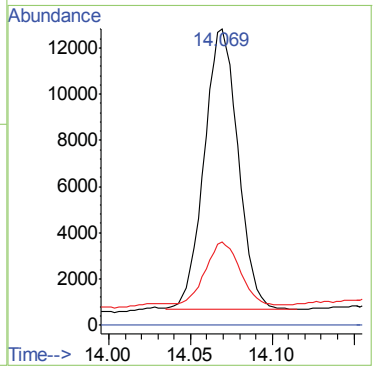




#25
Pyrene
Concen: 1.24 ppm
RT: 14.069 min Scan# 2444
Delta R.T. -0.008 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

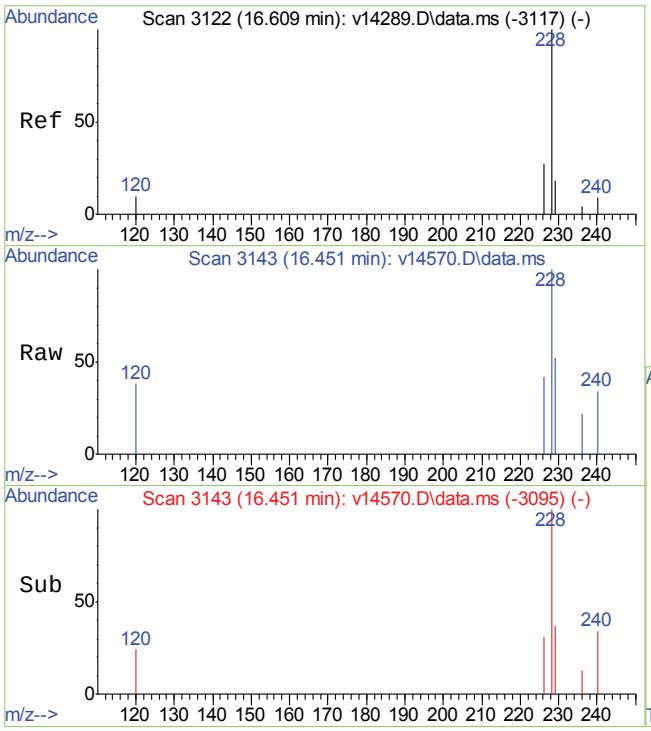
Tgt Ion:202 Resp: 17577

Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.0	20.0
203	26.9	0.0	37.9



7.1.6

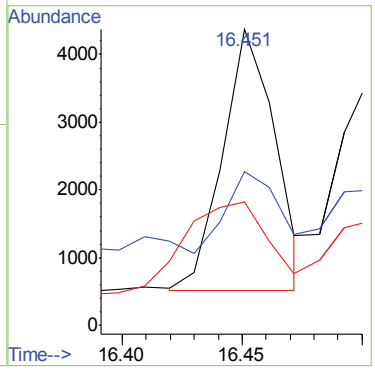
7

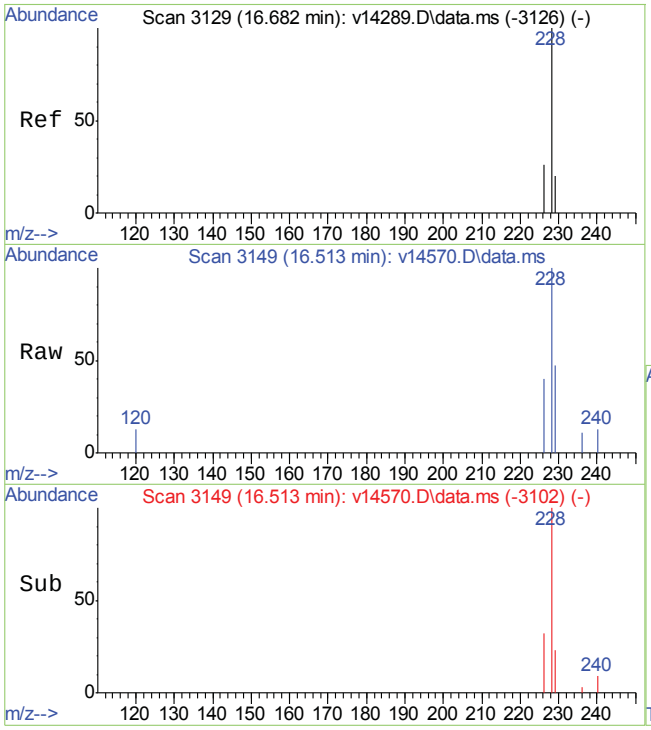


#27
Benzo(a)anthracene
Concen: 0.43 ppm m
RT: 16.451 min Scan# 3143
Delta R.T. -0.000 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:228 Resp: 5933

Ion	Ratio	Lower	Upper
228	100		
229	41.9	0.0	39.6#
226	56.3	5.5	45.5#

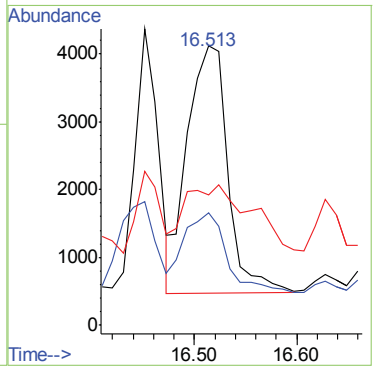




#28
Chrysene
Concen: 0.76 ppm m
RT: 16.513 min Scan# 3149
Delta R.T. -0.011 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

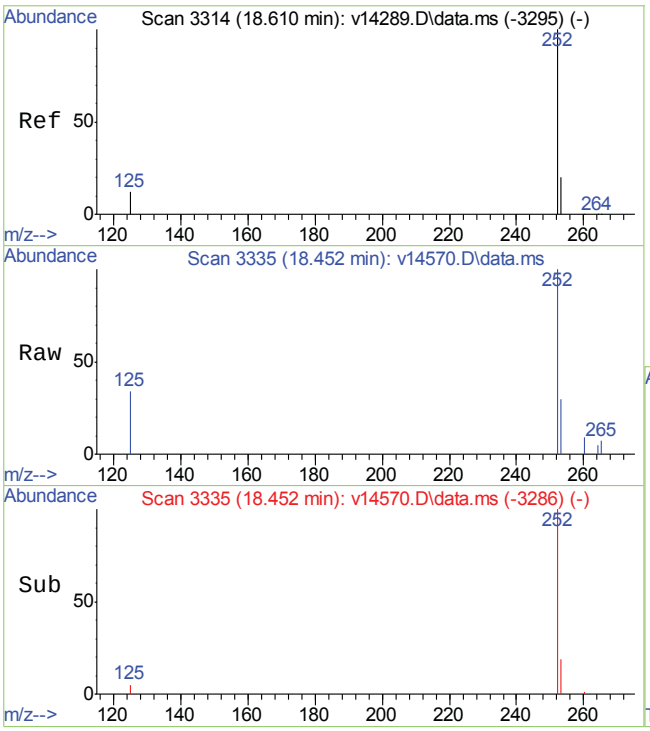
Tgt Ion:228 Resp: 10088

Ion	Ratio	Lower	Upper
228	100		
226	33.1	7.8	47.8
229	24.6	0.0	39.6



7.1.6

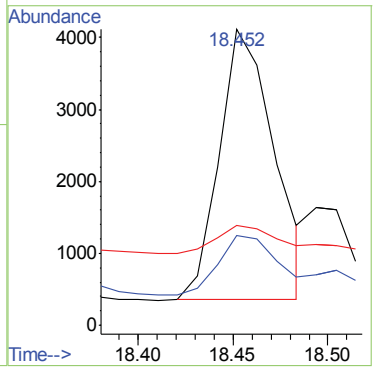
7

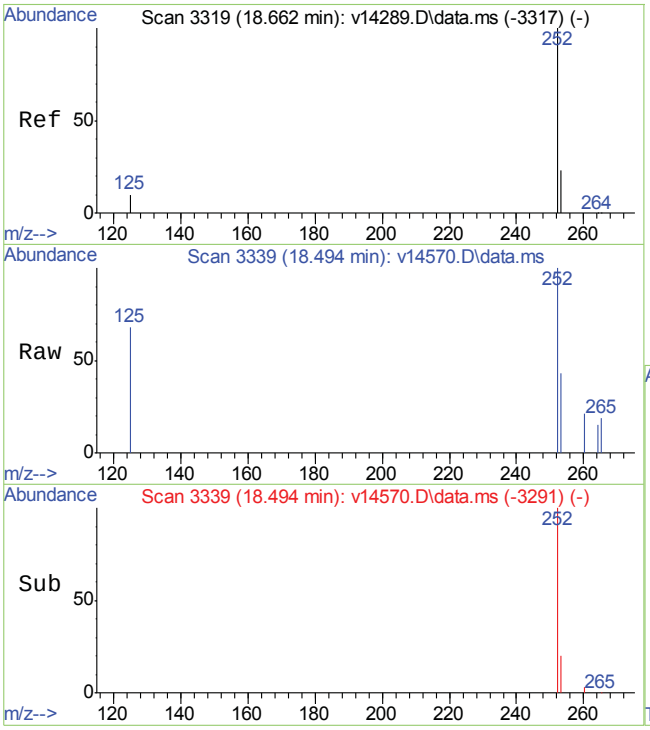


#30
Benzo(b)fluoranthene
Concen: 0.70 ppm m
RT: 18.452 min Scan# 3335
Delta R.T. 0.008 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:252 Resp: 7557

Ion	Ratio	Lower	Upper
252	100		
253	32.0	3.4	43.4
125	13.7	0.0	31.8

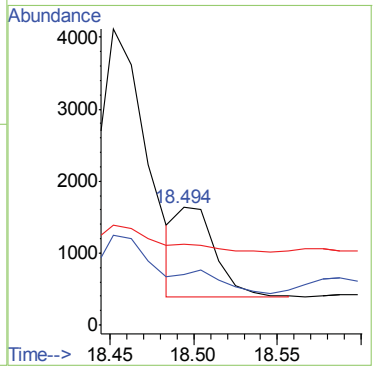


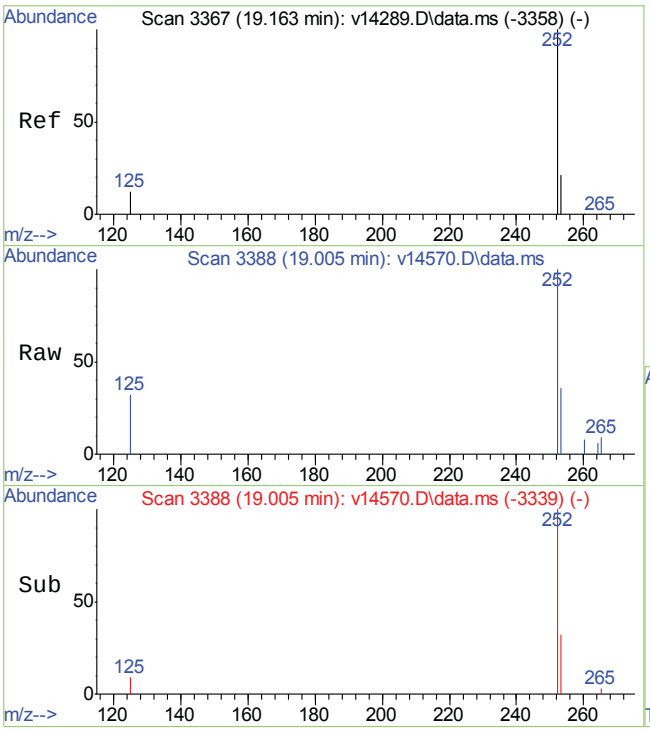


#31
Benzo(k)fluoranthene
Concen: 0.16 ppm m
RT: 18.494 min Scan# 3339
Delta R.T. -0.002 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:252 Resp: 1990

Ion	Ratio	Lower	Upper
252	100		
253	121.6	2.0	42.0#
125	51.9	0.0	32.6#

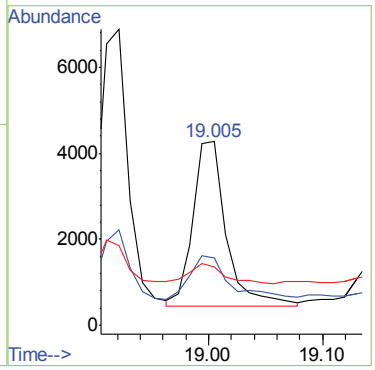


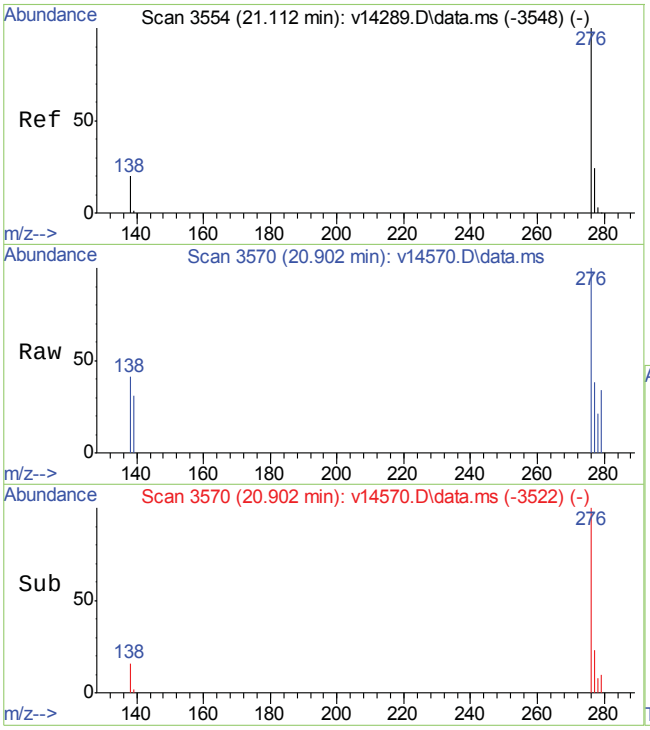


#32
Benzo(a)pyrene
Concen: 0.73 ppm
RT: 19.005 min Scan# 3388
Delta R.T. 0.010 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:252 Resp: 7766

Ion	Ratio	Lower	Upper
252	100		
253	40.1	1.6	41.6
125	12.1	0.0	32.8

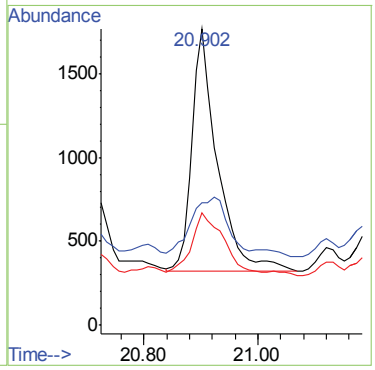


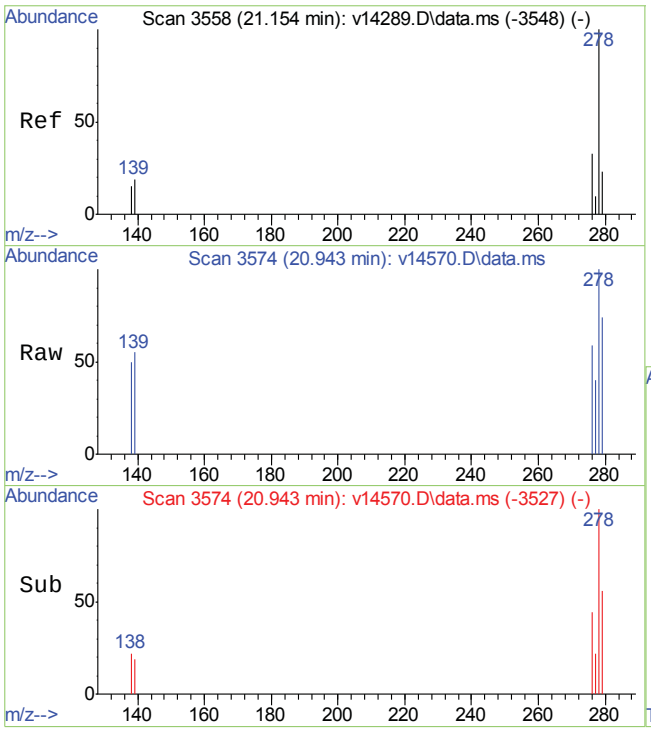


#33
Indeno(1,2,3-cd)pyrene
Concen: 0.49 ppm
RT: 20.902 min Scan# 3570
Delta R.T. 0.005 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:276 Resp: 4460

Ion	Ratio	Lower	Upper
276	100		
138	32.4	2.0	42.0
277	29.3	14.5	54.5

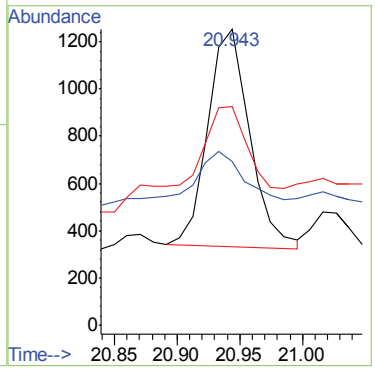


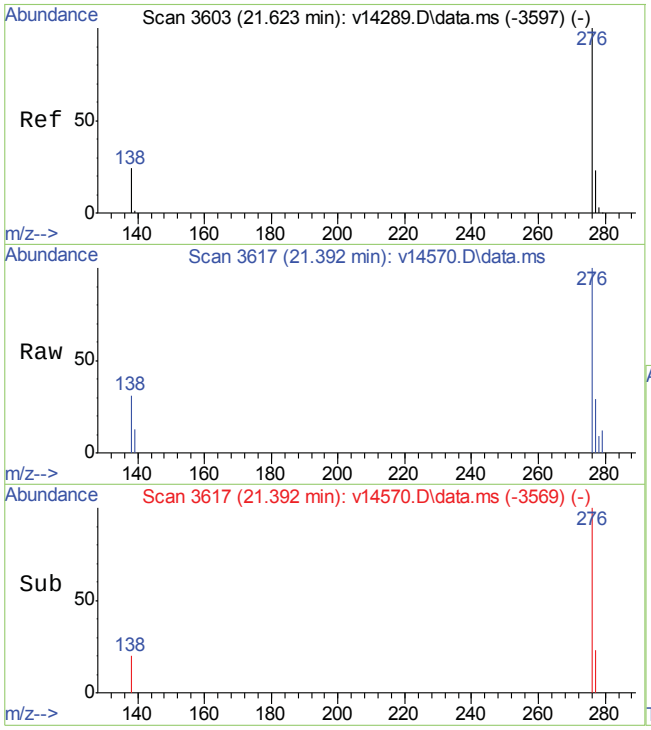


#34
Dibenz(a,h)anthracene
Concen: 0.20 ppm
RT: 20.943 min Scan# 3574
Delta R.T. -0.006 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:278 Resp: 2135

Ion	Ratio	Lower	Upper
278	100		
139	32.0	0.0	39.0
279	74.0	4.0	44.0#

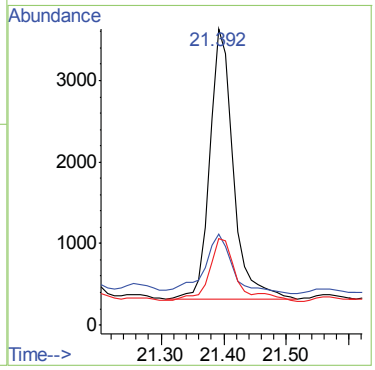




#35
Benzo(g,h,i)perylene
Concen: 0.76 ppm
RT: 21.392 min Scan# 3617
Delta R.T. -0.003 min
Lab File: v14570.D
Acq: 1 Apr 2013 1:06 pm

Tgt Ion:276 Resp: 8496

Ion	Ratio	Lower	Upper
276	100		
138	27.9	5.0	45.0
277	27.6	3.4	43.4



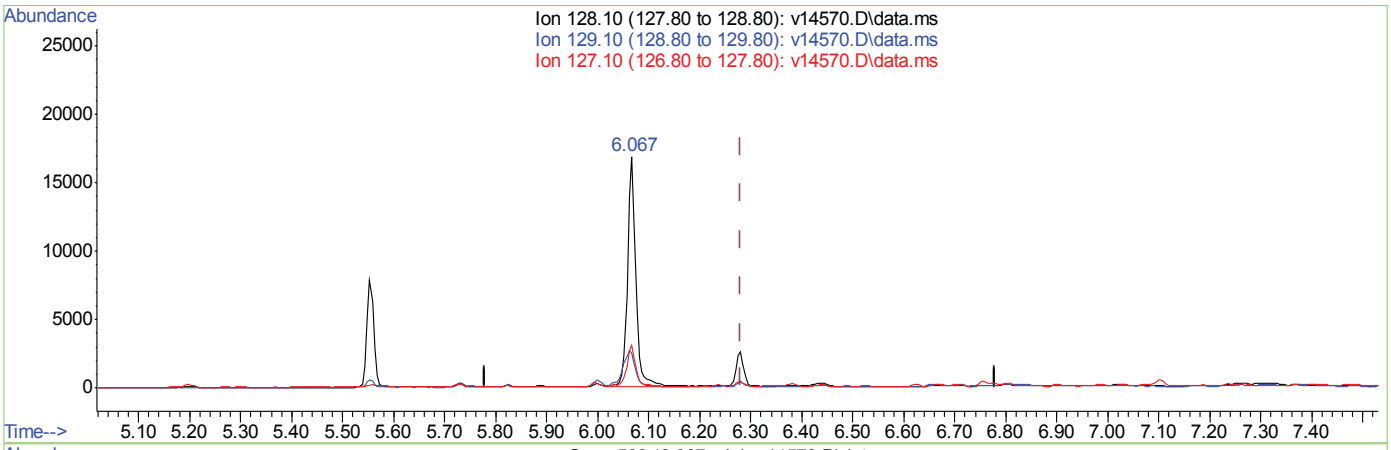
7.1.6

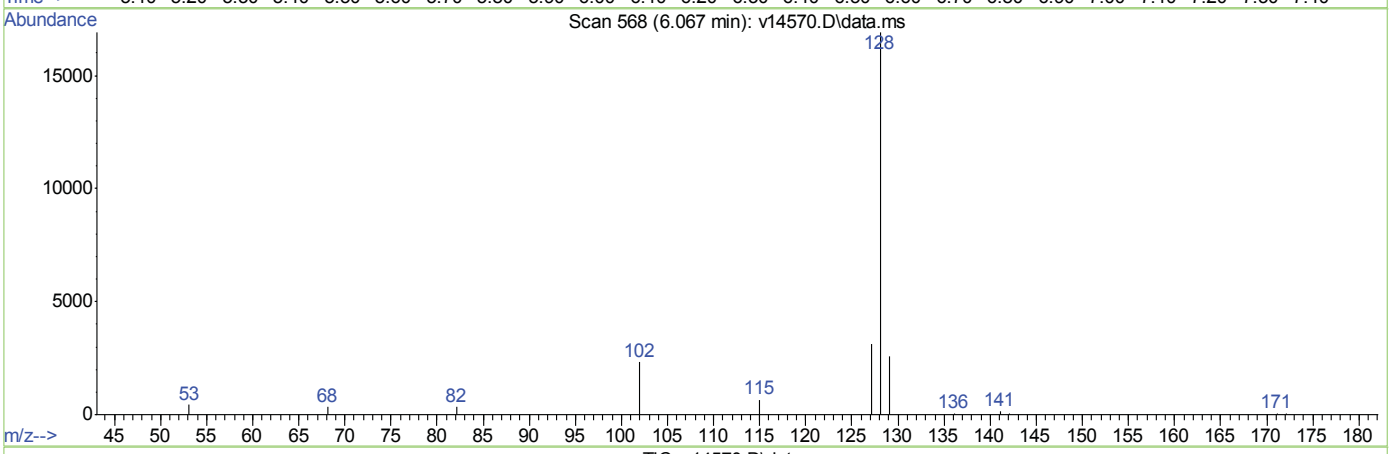
7

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On : 1 Apr 2013 1:06 pm
Operator : garyj
Sample : tc27860-5
Misc : op27766,ev835,30.23,,,1,1,soil
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14570.D\data.ms

(7) □aphthalene (CP)

6.067min (-0.213) 0.90ppm

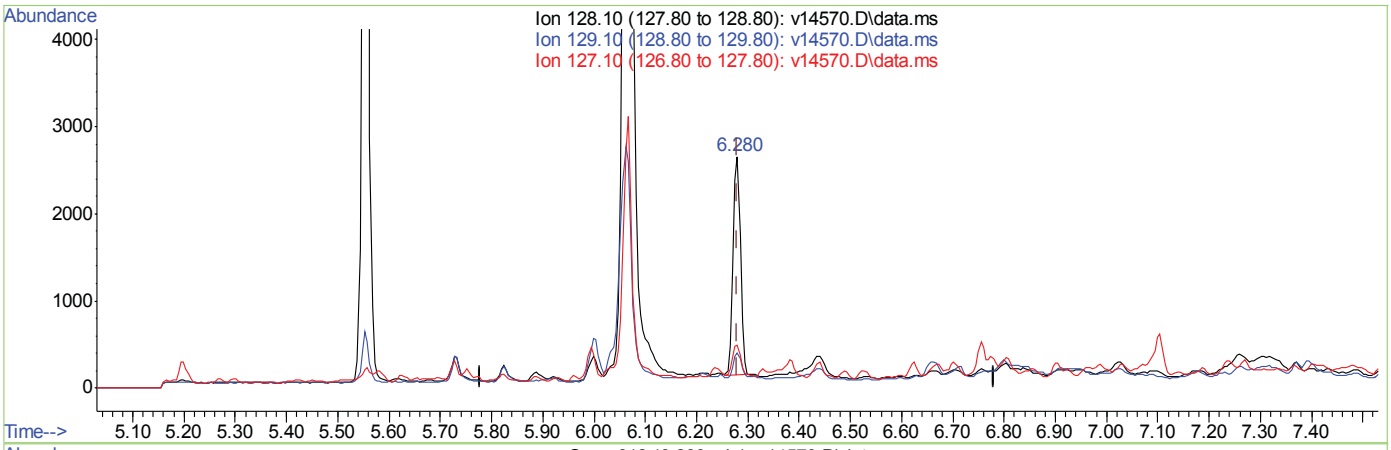
response 19028

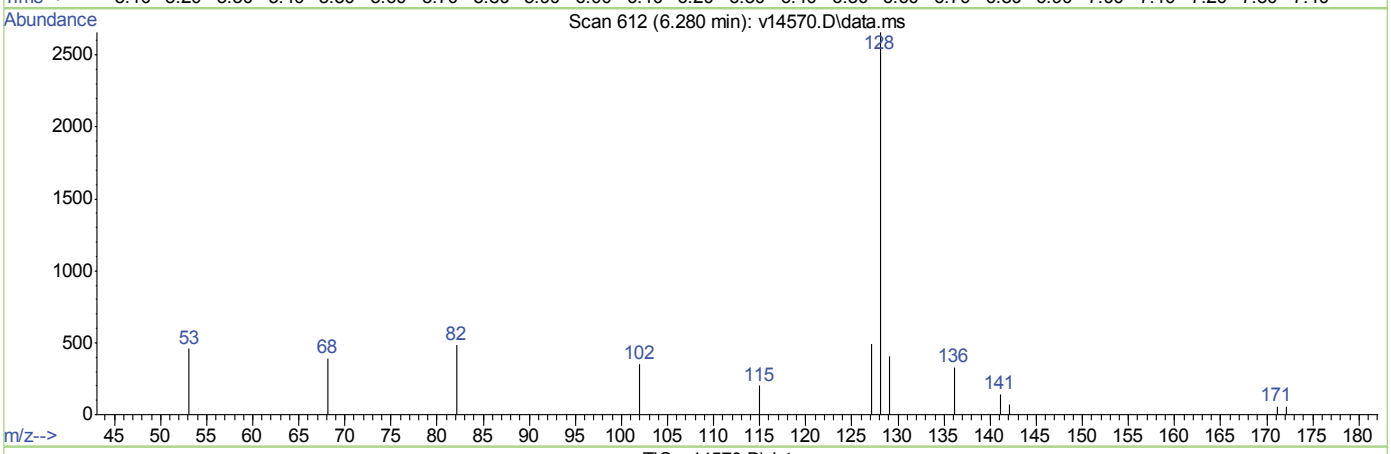
Ion	Exp%	Act%
128.10	100	100
129.10	11.00	23.99
127.10	12.90	19.38
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14570.D\data.ms

(7) □aphthalene (CP)

6.280min (-0.000) 0.12ppm m

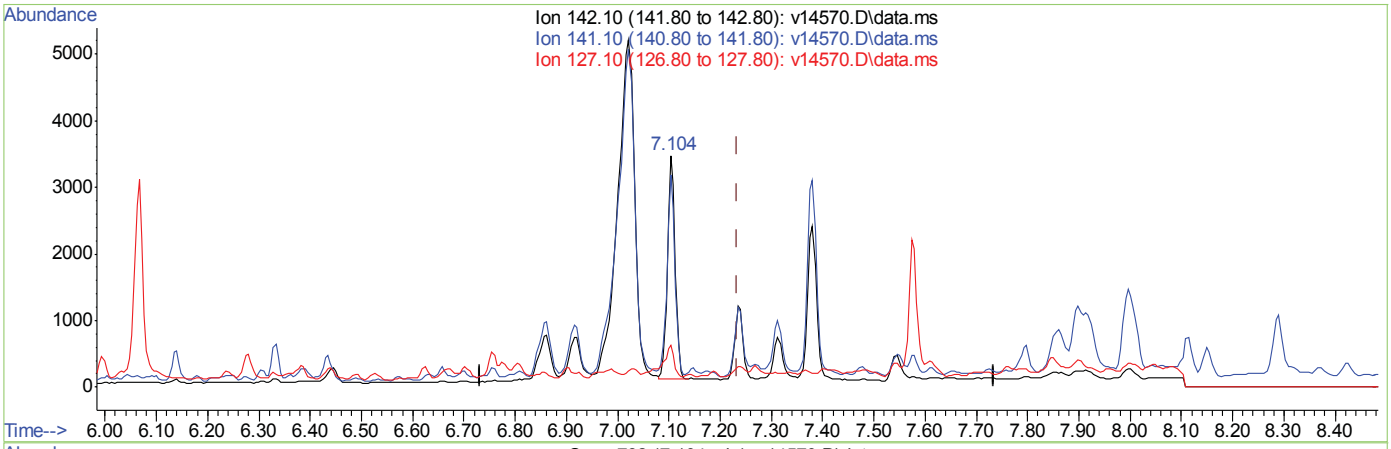
response 2525

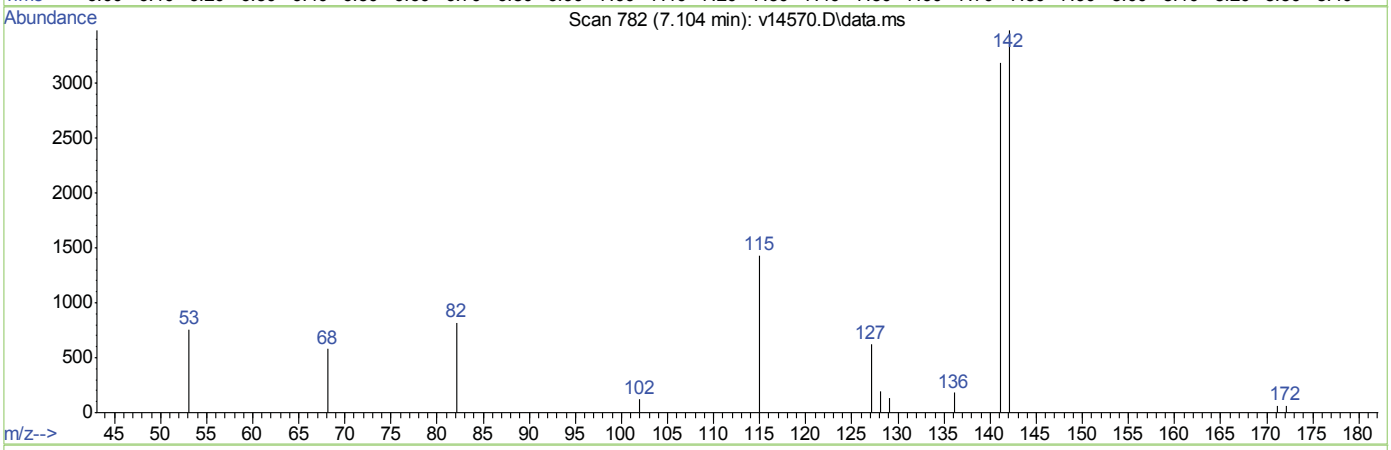
Ion	Exp%	Act%
128.10	100	100
129.10	11.00	180.79#
127.10	12.90	146.06#
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14570.D\data.ms

(10) 1-Methylnaphthalene (CP)

7.104min (-0.130) 0.27ppm

response 3611

Ion	Exp%	Act%
142.10	100	100
141.10	89.60	91.80
127.10	0.60	20.38
0.00	0.00	0.00

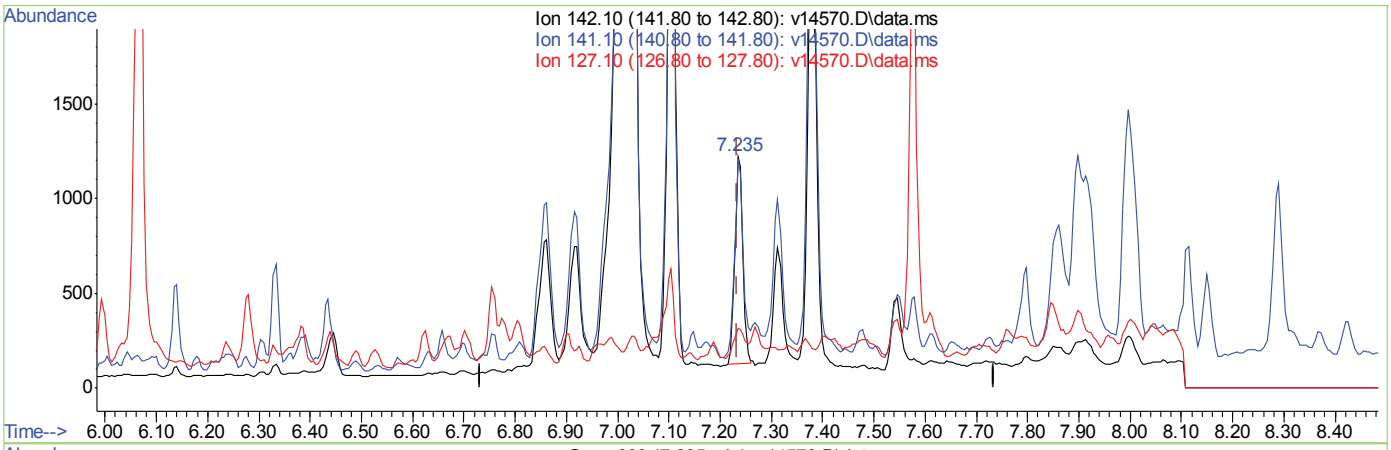
7.1.6.3

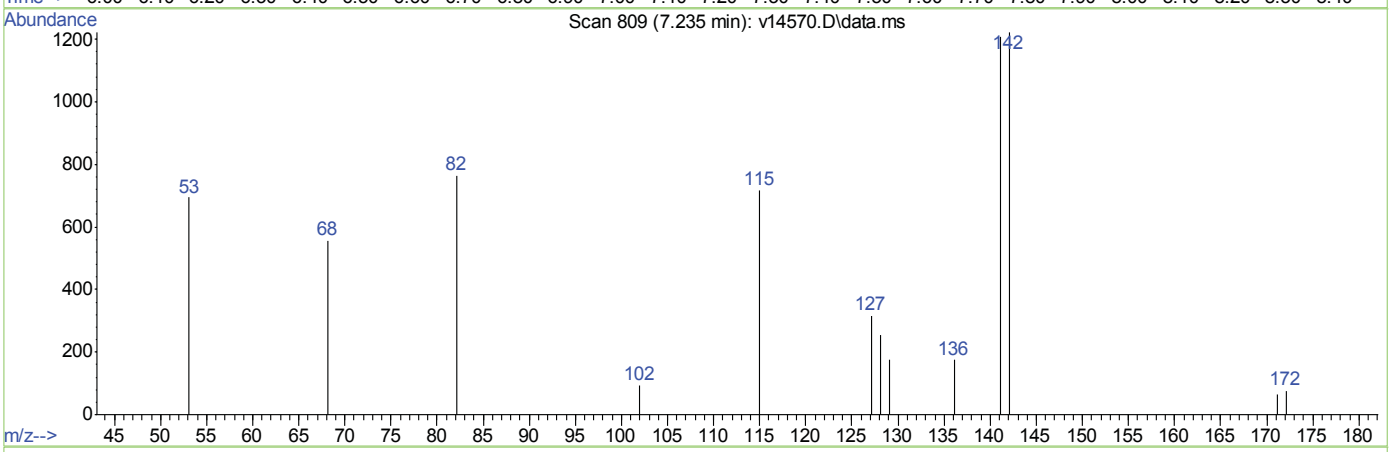
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14570.D\data.ms

(10) 1-Methylnaphthalene (CP)

7.235min (□0.001) 0.09ppm m

response 1198

Ion	Exp%	Act%
142.10	100	100
141.10	89.60	276.71□
127.10	0.60	61.44□
0.00	0.00	0.00

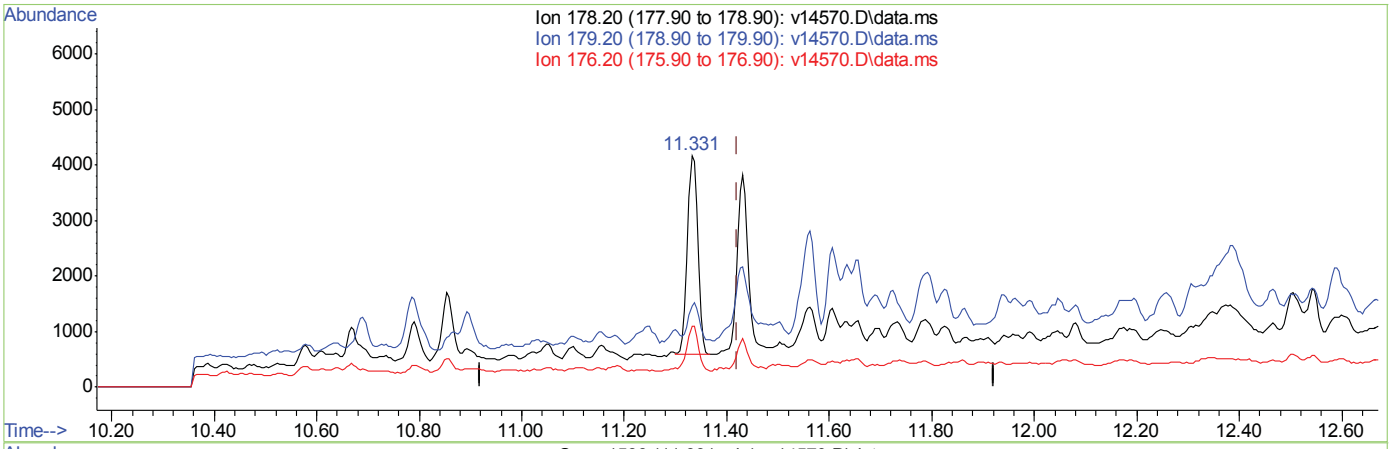
7.1.6.4

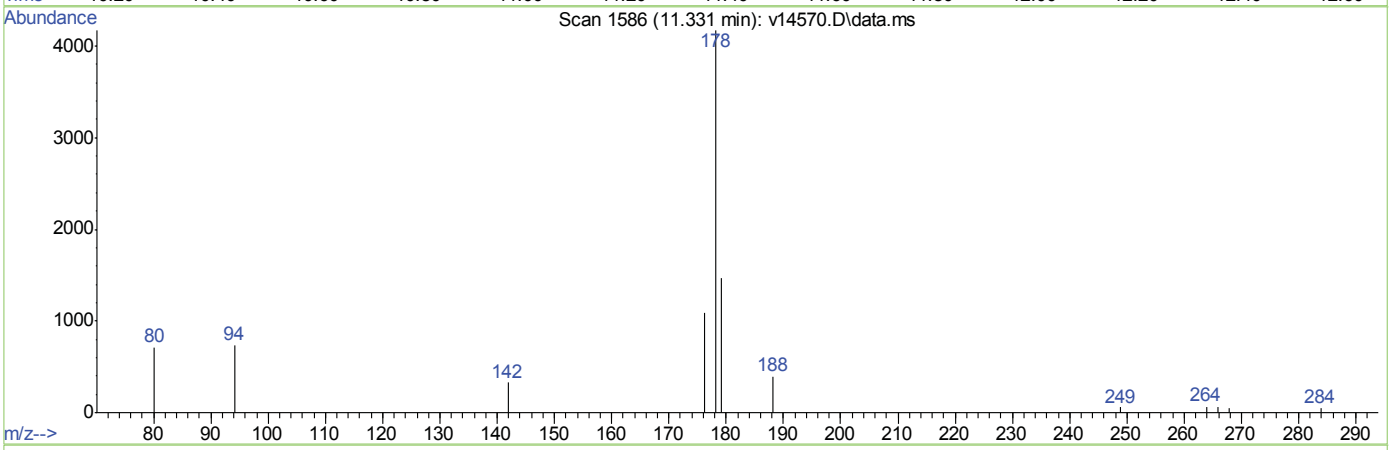
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14570.D\data.ms

(22) Anthracene (CP)

11.331min (-0.090) 0.26ppm

response 4882

Ion	Exp%	Act%
178.20	100	100
179.20	15.40	19.66
176.20	17.40	26.83
0.00	0.00	0.00

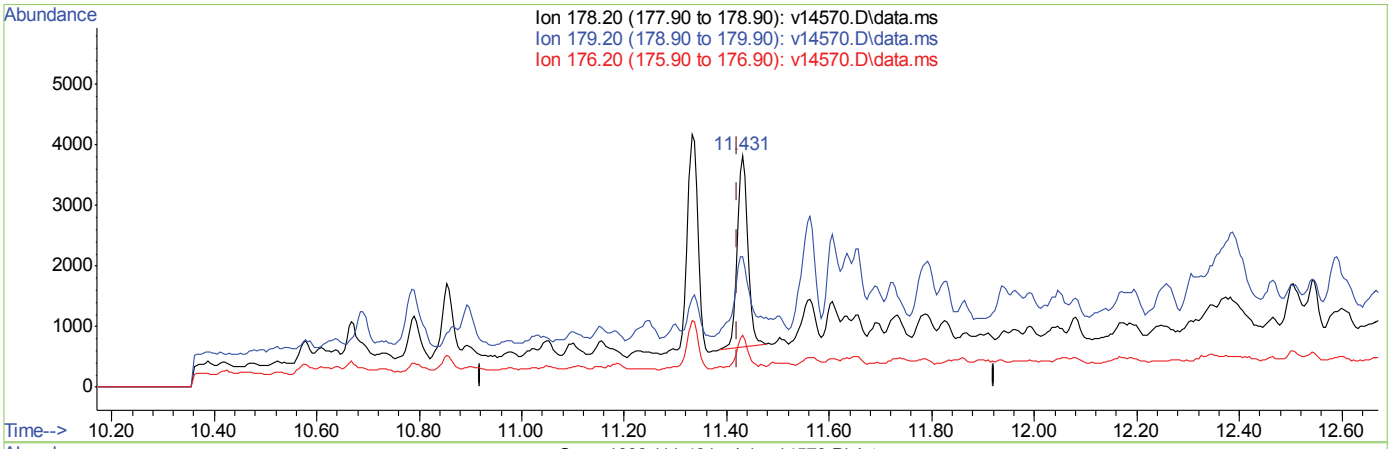
7.1.6.5

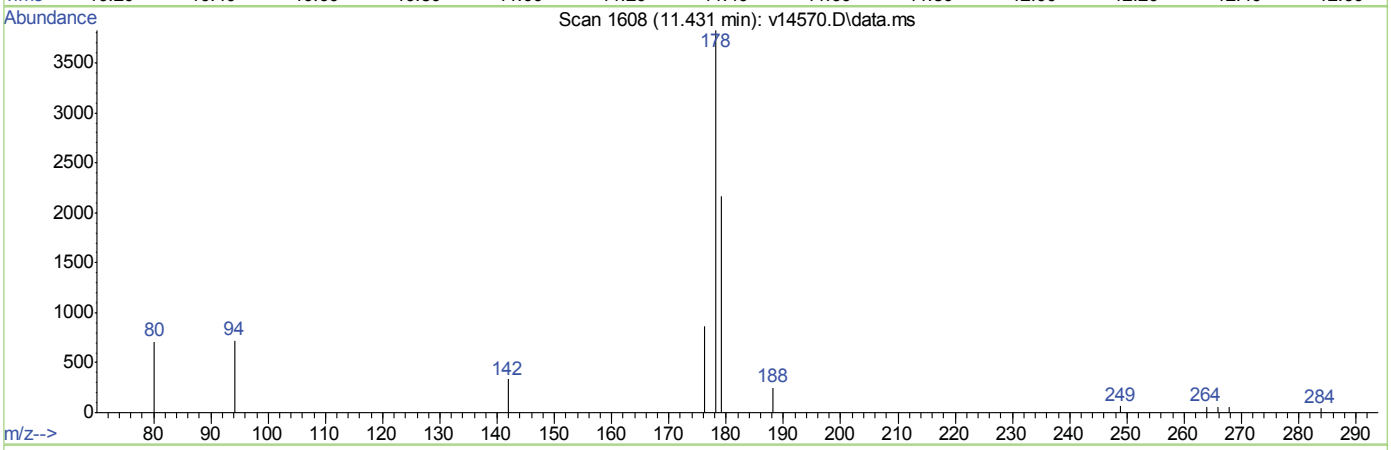
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14570.D\data.ms

(22) Anthracene (CP)

11.431min (□0.010) 0.25ppm m

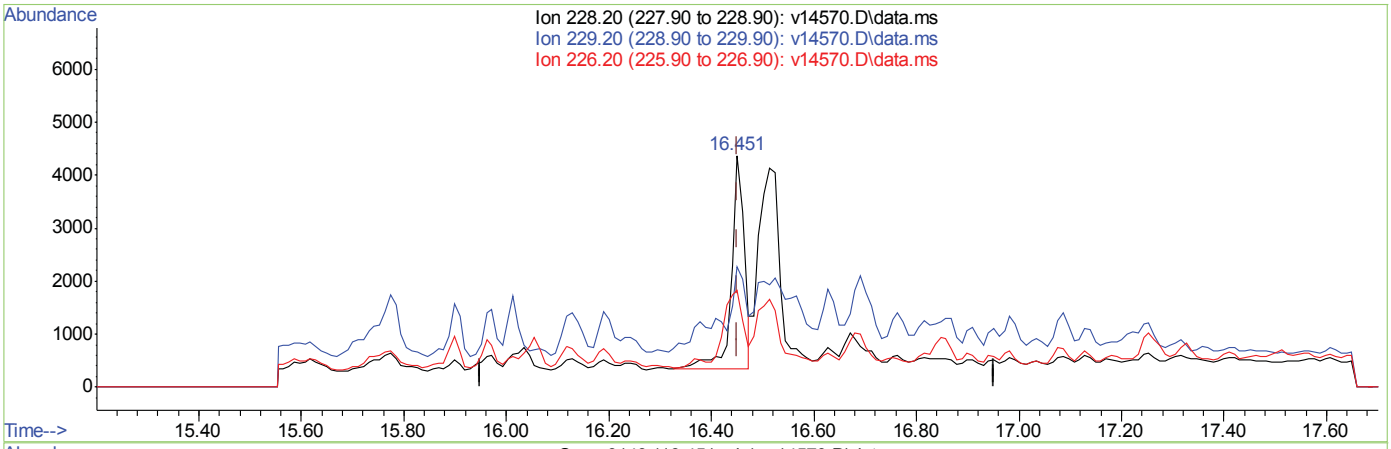
response 4692

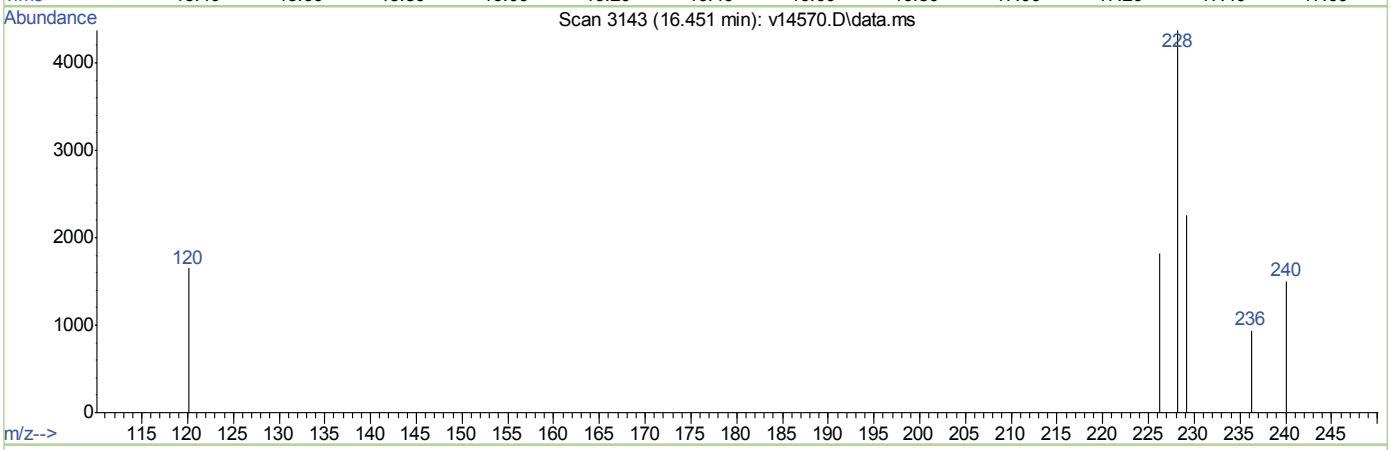
Ion	Exp%	Act%
178.20	100	100
179.20	15.40	20.46
176.20	17.40	27.92
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On : 1 Apr 2013 1:06 pm
Operator : garyj
Sample : tc27860-5
Misc : op27766,ev835,30.23,,,1,1,soil
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration





TIC: v14570.D\data.ms

(27) □enzo(a)anthracene (CP)

16.451min (-0.000) 0.53ppm

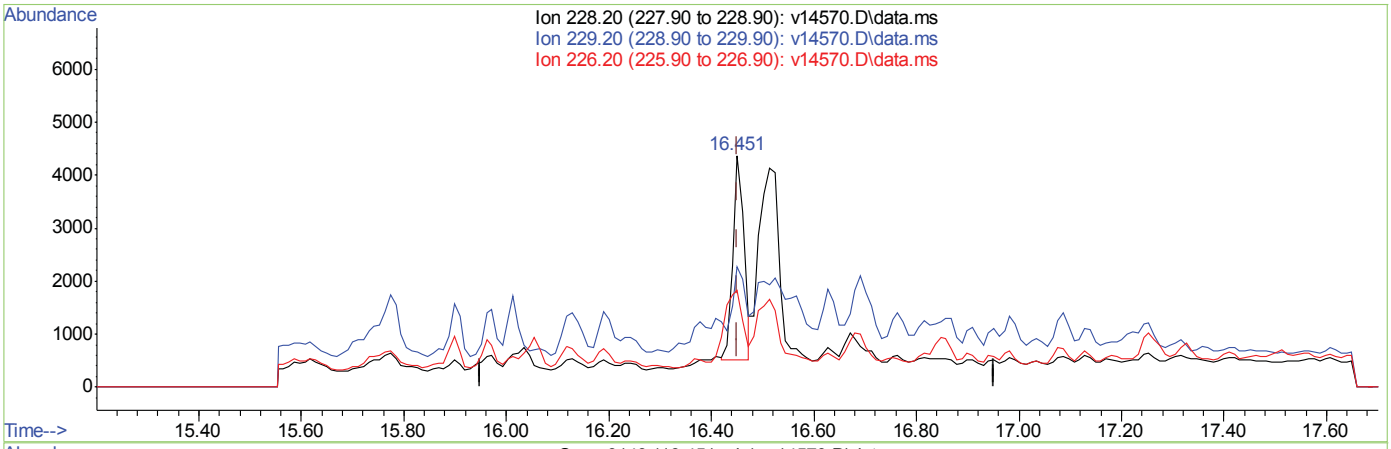
response 7265

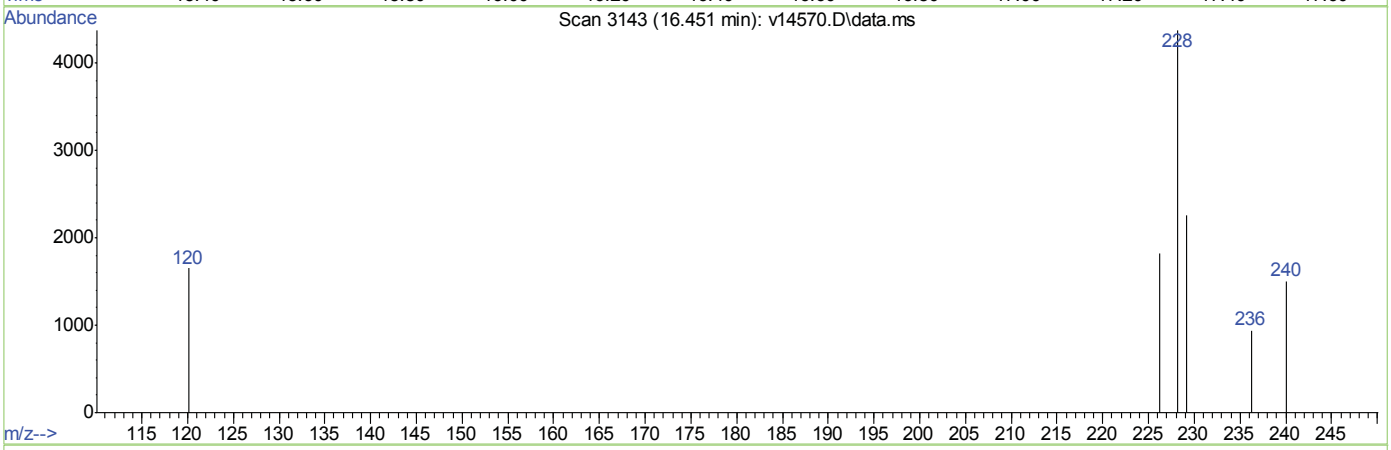
Ion	Exp%	Act%
228.20	100	100
229.20	19.60	34.21
226.20	25.50	46.00□
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14570.D\data.ms

(27) □enzo(a)anthracene (CP)

16.451min (-0.000) 0.43ppm m

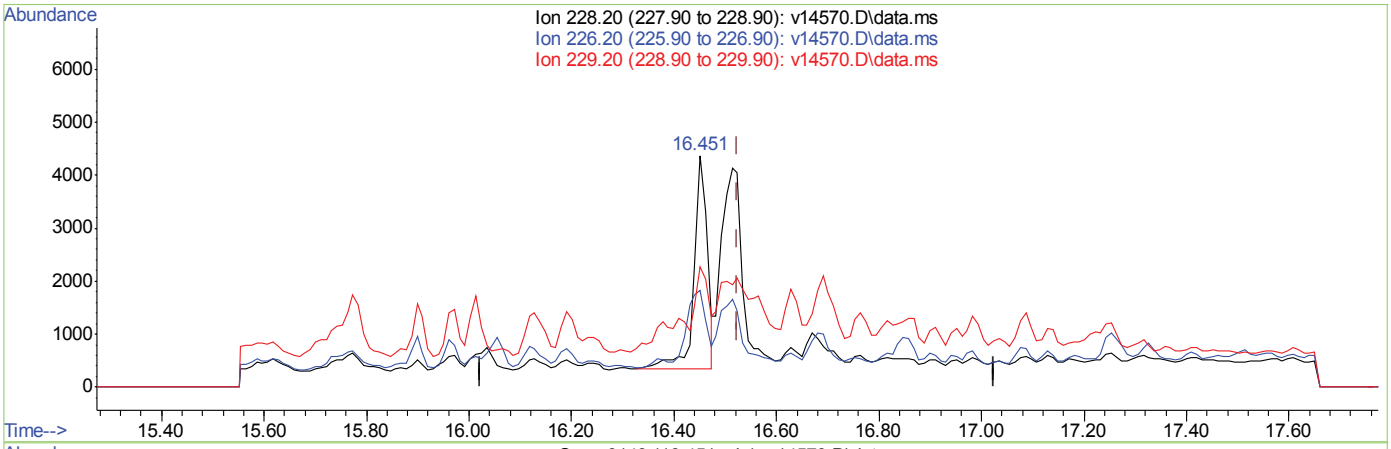
response 5933

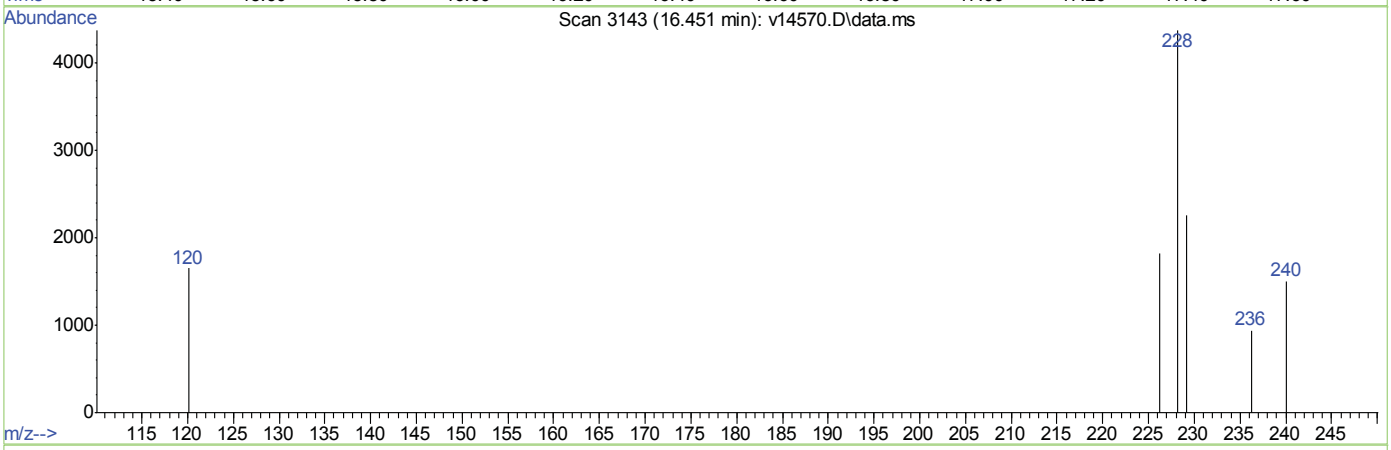
Ion	Exp%	Act%
228.20	100	100
229.20	19.60	41.88□
226.20	25.50	56.33□
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14570.D\data.ms

(28) Chrysene (CP)

16.451min (-0.073) 0.54ppm

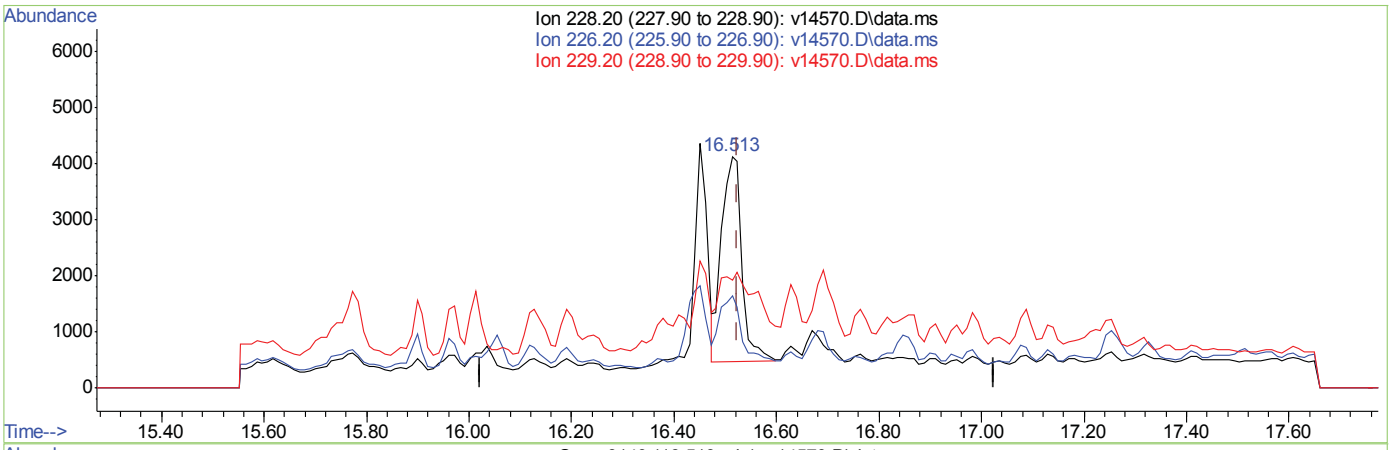
response 7265

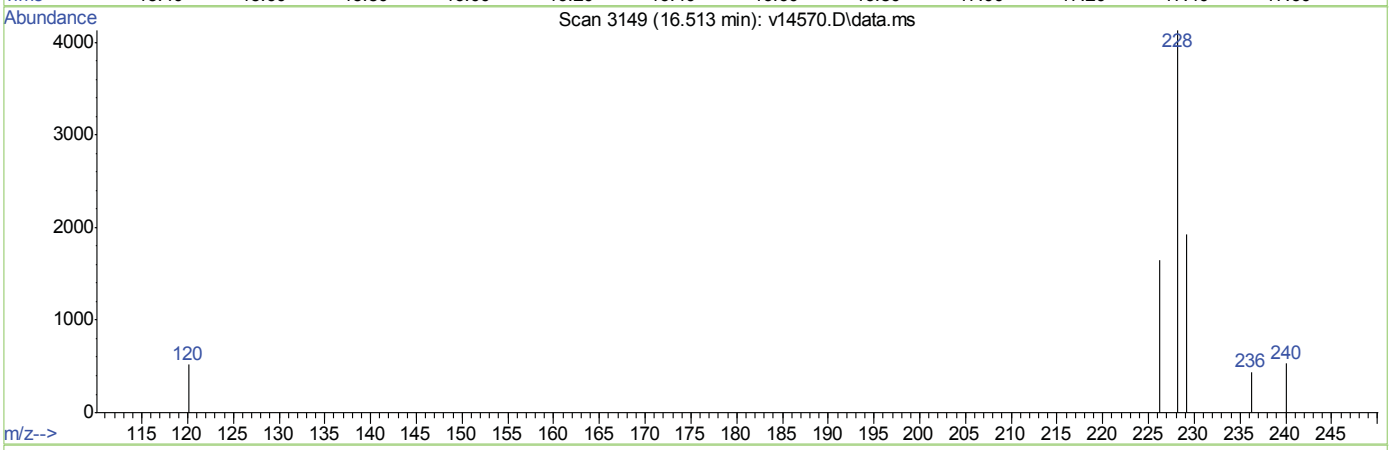
Ion	Exp%	Act%
228.20	100	100
226.20	27.80	46.00
229.20	19.60	34.21
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14570.D\data.ms

(28) Chrysene (CP)

16.513min (-0.011) 0.76ppm m

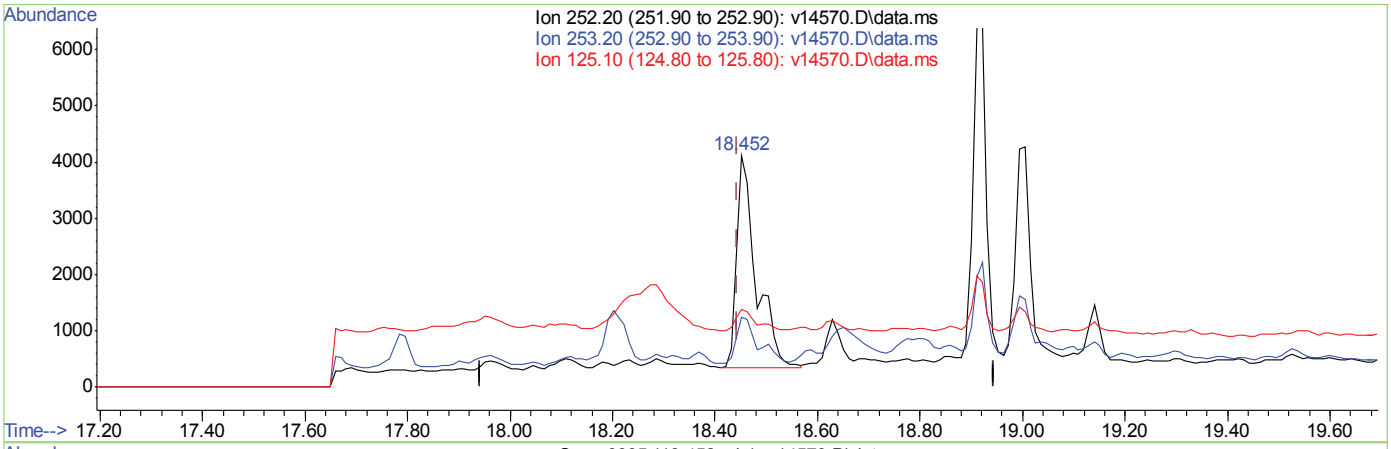
response 10088

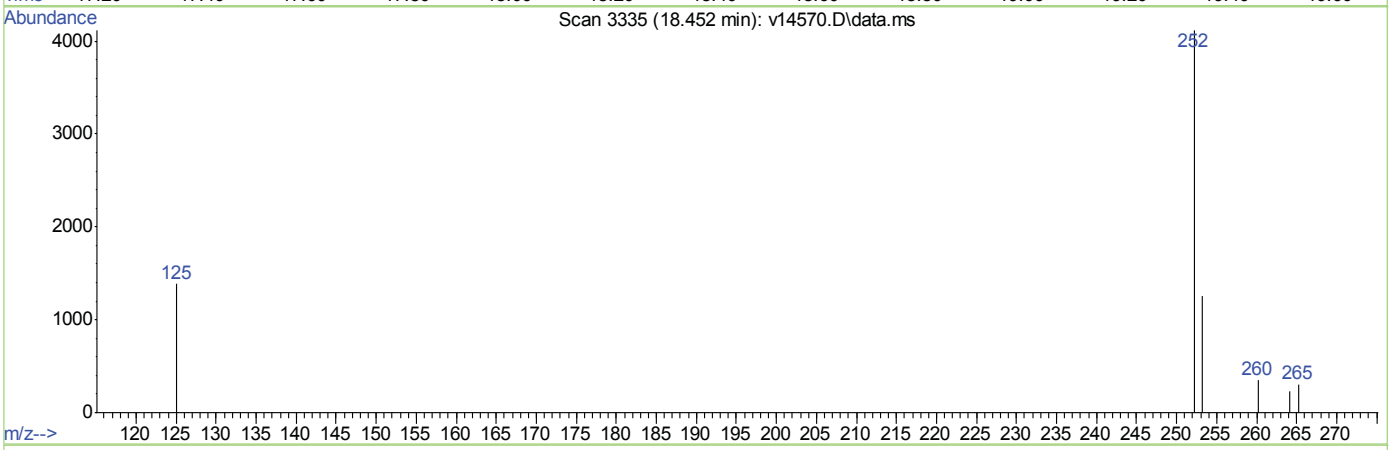
Ion	Exp%	Act%
228.20	100	100
226.20	27.80	33.13
229.20	19.60	24.63
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14570.D\data.ms

(30) □enzo(b)□luoranthene (CP)

18.452min (□0.008) 0.92ppm

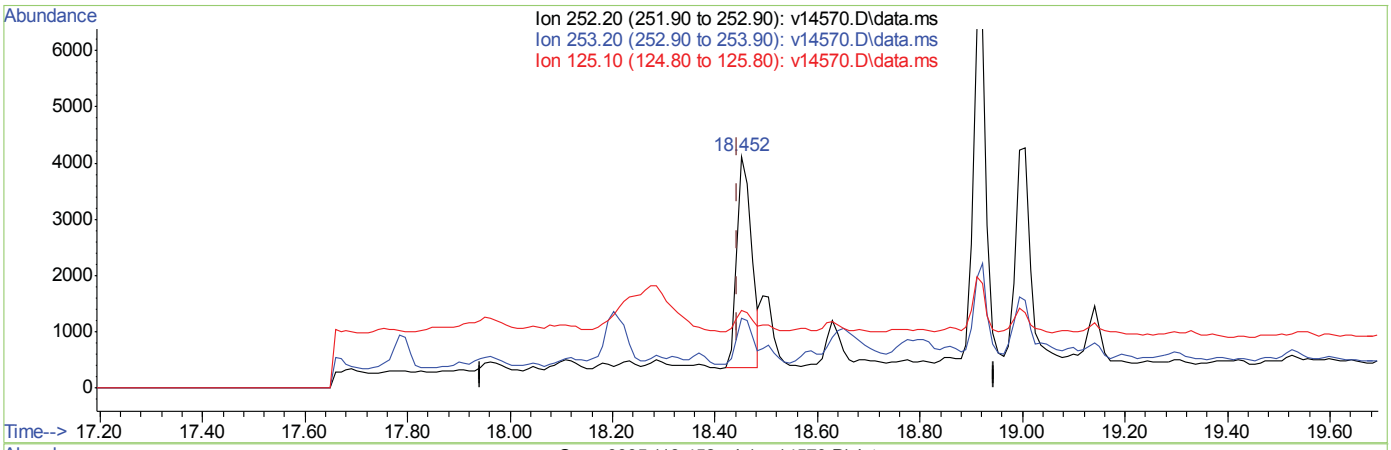
response 9830

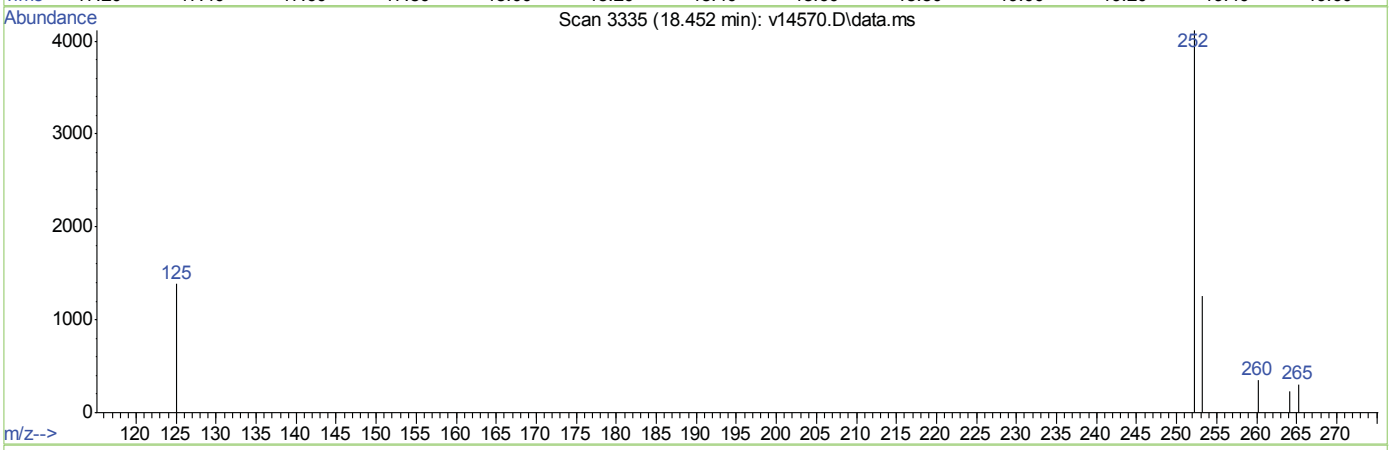
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	24.61
125.10	11.80	10.51
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14570.D\data.ms

(30) □enzo(b)□luoranthene (CP)

18.452min (□0.008) 0.70ppm m

response 7557

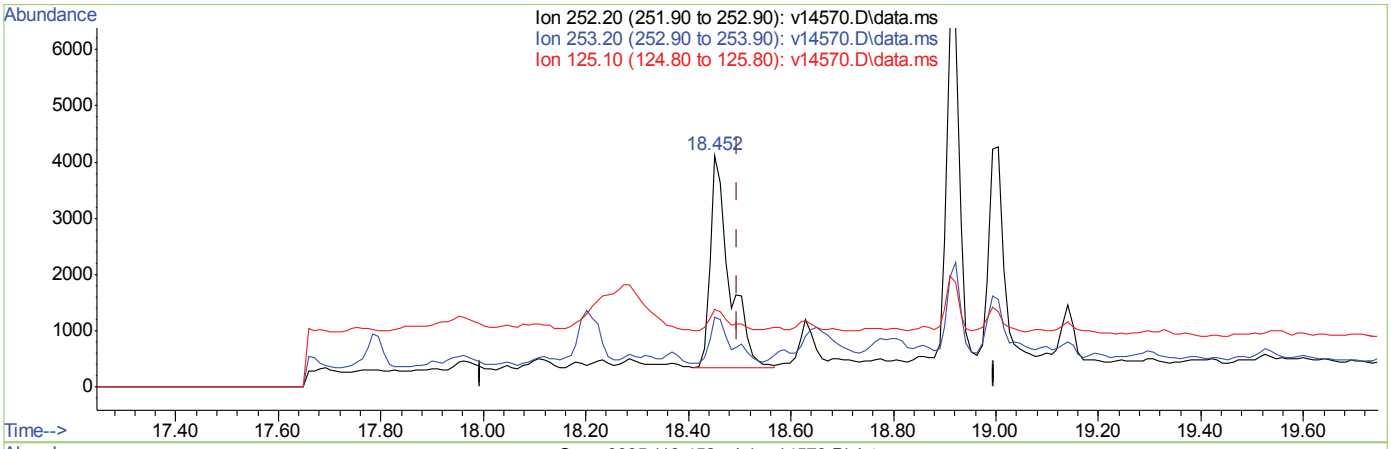
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	32.01
125.10	11.80	13.67
0.00	0.00	0.00

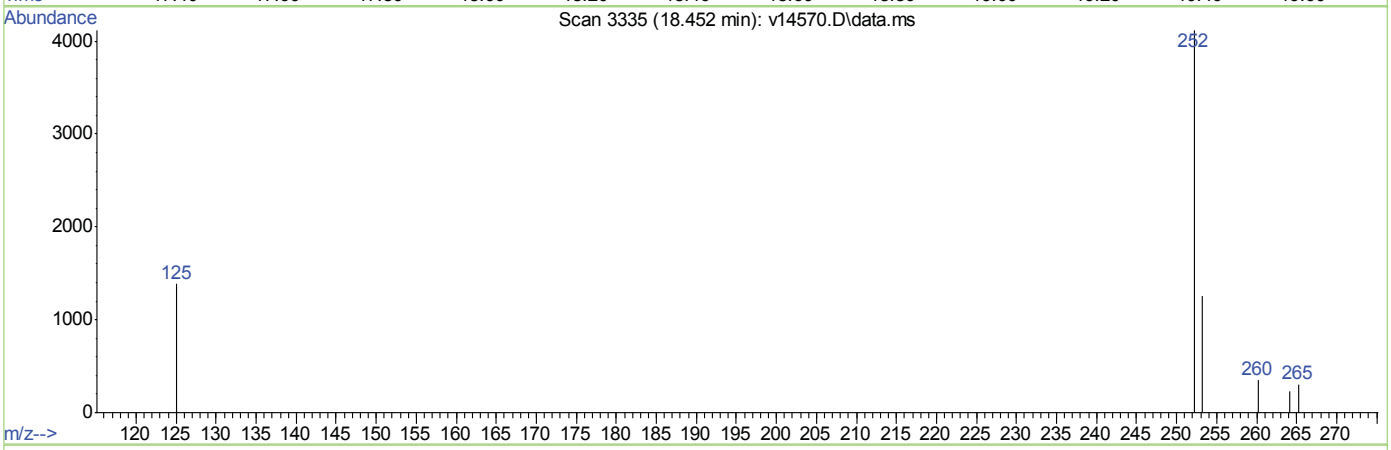
V14570.D edits: □en□o□□□fluo□anthene

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```



TIC: v14570.D\data.ms

(31) □enzo(□)□luoranthene (CP)

18.452min (-0.044) 0.81ppm

response 9830

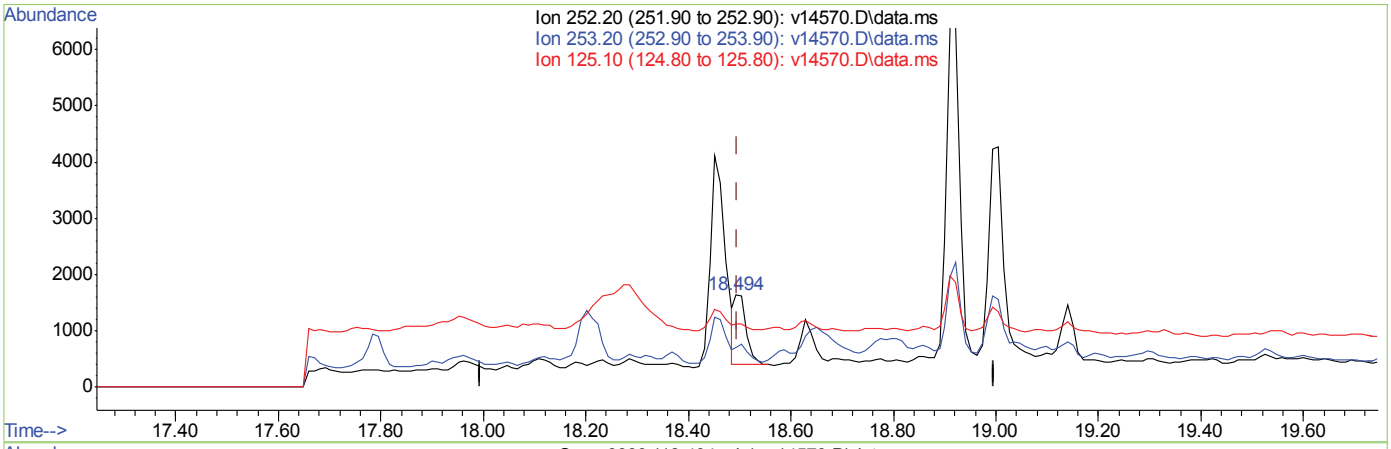
Ion	Exp%	Act%
252.20	100	100
253.20	22.00	24.61
125.10	12.60	10.51
0.00	0.00	0.00

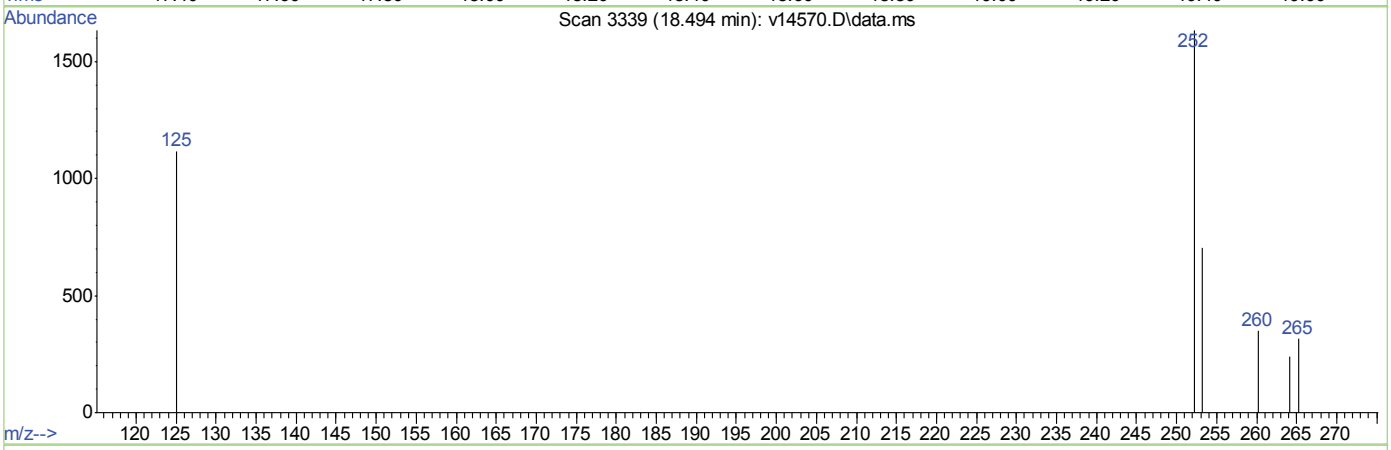
V14570.D edits: □en□o□□fluo□anthene

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14570.D
Acq On    :  1 Apr 2013   1:06 pm
Operator  : garyj
Sample    : tc27860-5
Misc      : op27766,ev835,30.23,,,1,1,soil
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Apr 01 13:47:00 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14570.D\data.ms

(31) □enzo(□)□luoranthene (CP)

18.494min (-0.002) 0.16ppm m

response 1990

Ion	Exp%	Act%
252.20	100	100
253.20	22.00	121.56□
125.10	12.60	51.91□
0.00	0.00	0.00

7.1.6.14

7

Manual □nte□□ations
□□□R□V□D
□□ompounds □ith □m□fla□□
□ohn □ atson
04□02□13 12:4□

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On : 1 Apr 2013 12:38 pm
Operator : garyj
Sample : tc27860-6
Misc : op27766,ev835,30.20,,,1,1,soil
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 01 13:46:35 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	15046	4.00	ppm	0.00
5) Naphthalene-d8	6.256	136	86168	4.00	ppm	0.00
11) Acenaphthene-d10	8.644	164	42501	4.00	ppm	0.00
17) Phenanthrene-d10	11.291	188	70146	4.00	ppm	0.00
24) Chrysene-d12	16.472	240	40937	4.00	ppm	0.00
29) Perylene-d12	19.099	264	38850	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.163	112	20566	4.74	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 47.40%			
3) Phenol-d5 (SURR)	4.838	99	31679	5.97	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 59.70%			
6) Nitrobenzene-d5 (SURR)	5.553	82	14762	2.16	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 43.20%			
12) 2-Fluorobiphenyl (SURR)	7.613	172	32747	2.05	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 41.00%			
19) 2,4,6-Tribromophenol (...	10.013	330	10196	6.42	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 64.20%			
26) Terphenyl-d14	14.462	244	27548	4.30	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 86.00%			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.880	93	698	0.14	ppm	# 26
13) Acenaphthylene	8.414	152	517	0.03	ppm	# 62
16) Fluorene	9.582	166	463	0.03	ppm	# 88
21) Phenanthrene	11.332	178	1496	0.07	ppm	# 61
22) Anthracene	11.426	178	736	0.04	ppm	# 62
23) Fluoranthene	13.636	202	4794	0.24	ppm	99
25) Pyrene	14.064	202	5344	0.36	ppm	# 96
27) Benzo(a)anthracene	16.451	228	1472m	0.10	ppm	
28) Chrysene	16.514	228	2660	0.19	ppm	93
30) Benzo(b)fluoranthene	18.452	252	3604m	0.33	ppm	
31) Benzo(k)fluoranthene	18.494	252	882m	0.07	ppm	
32) Benzo(a)pyrene	18.994	252	1372m	0.13	ppm	
33) Indeno(1,2,3-cd)pyrene	20.892	276	1457	0.16	ppm	# 46
34) Dibenz(a,h)anthracene	20.933	278	807	0.08	ppm	# 54
35) Benzo(g,h,i)perylene	21.392	276	1654	0.15	ppm	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.1.7

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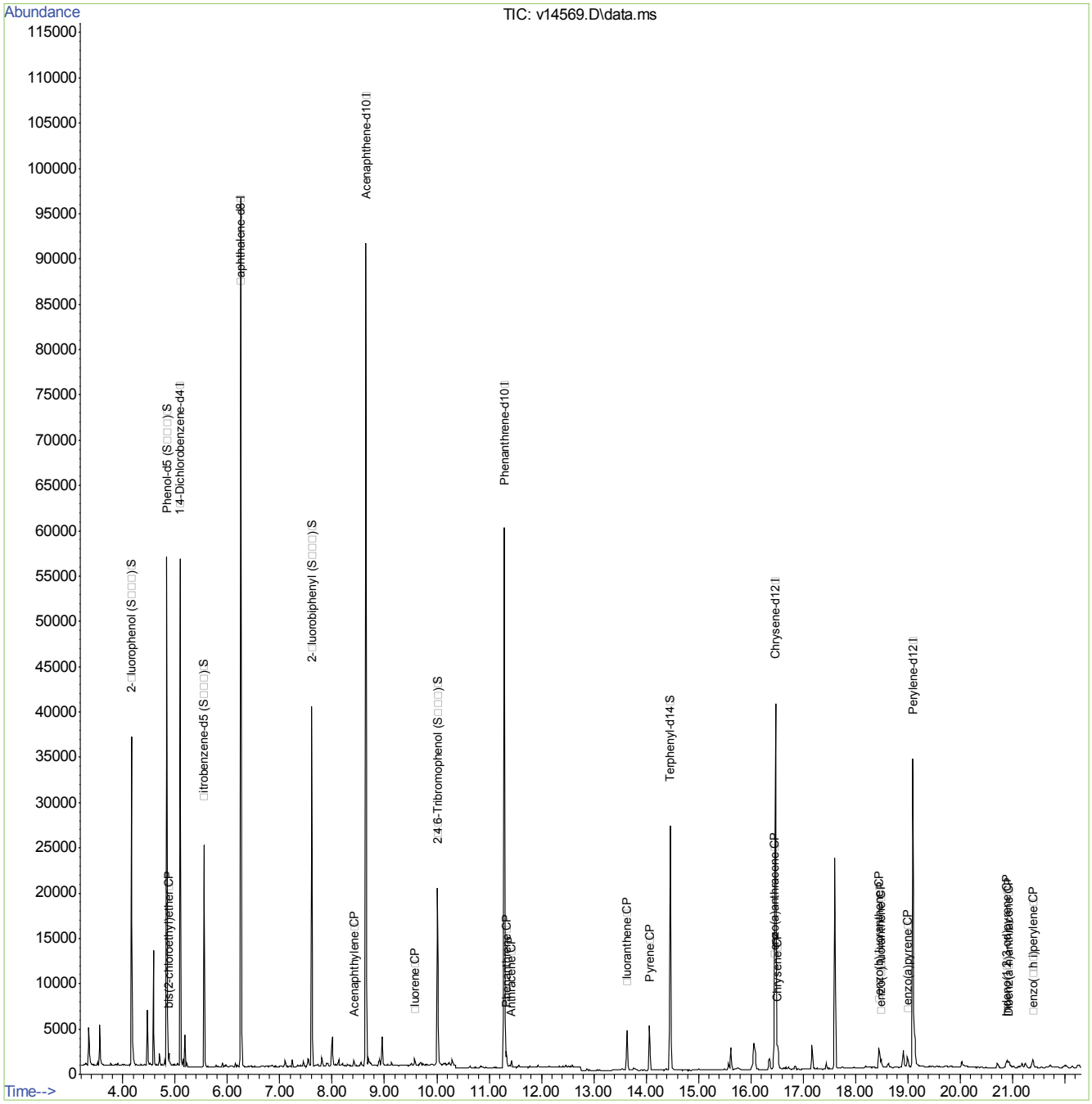
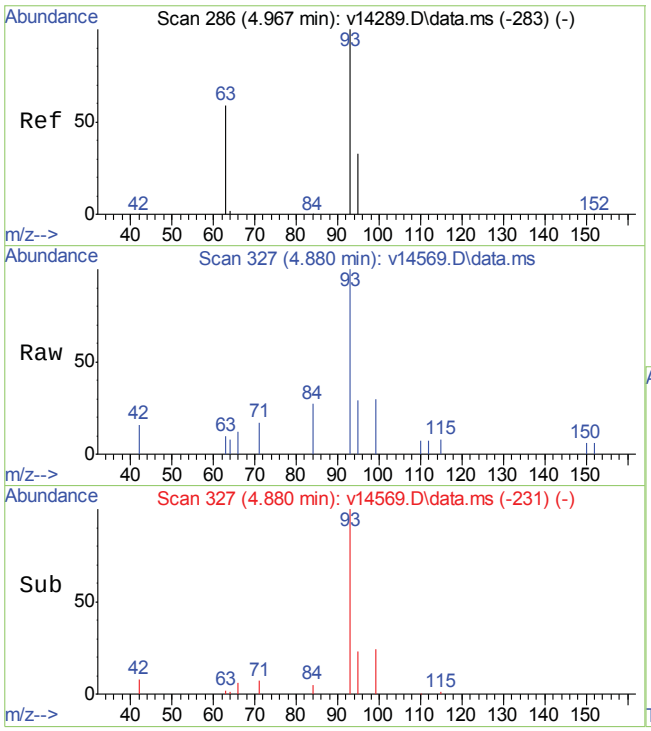
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On : 1 Apr 2013 12:38 pm
Operator : garyj
Sample : tc27860-6
Misc : op27766,ev835,30.20,,,1,1,soil
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Apr 01 13:46:35 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

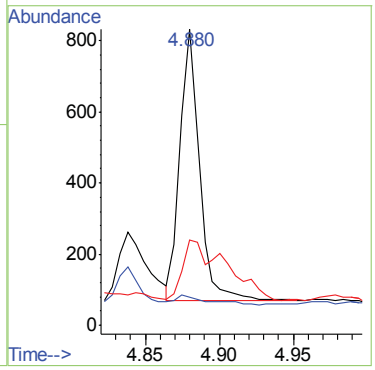


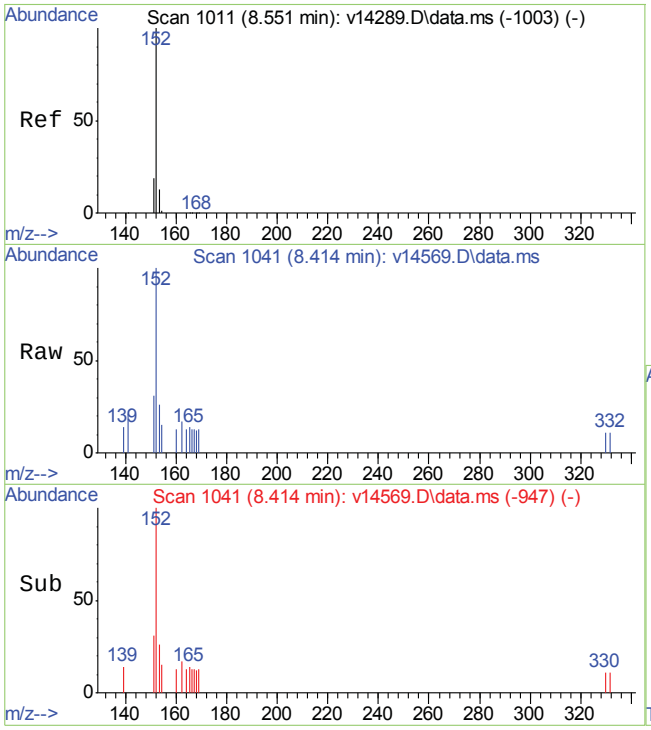


#4
bis(2-chloroethyl)ether
Concen: 0.14 ppm
RT: 4.880 min Scan# 327
Delta R.T. -0.002 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion: 93 Resp: 698

Ion	Ratio	Lower	Upper
93	100		
63	0.0	44.0	84.0#
95	0.0	11.2	51.2#

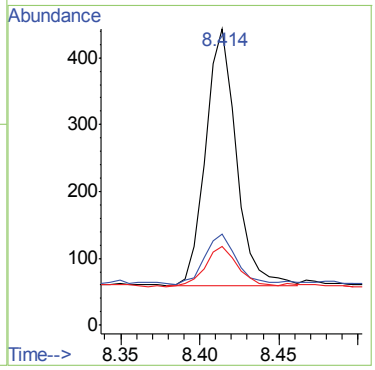


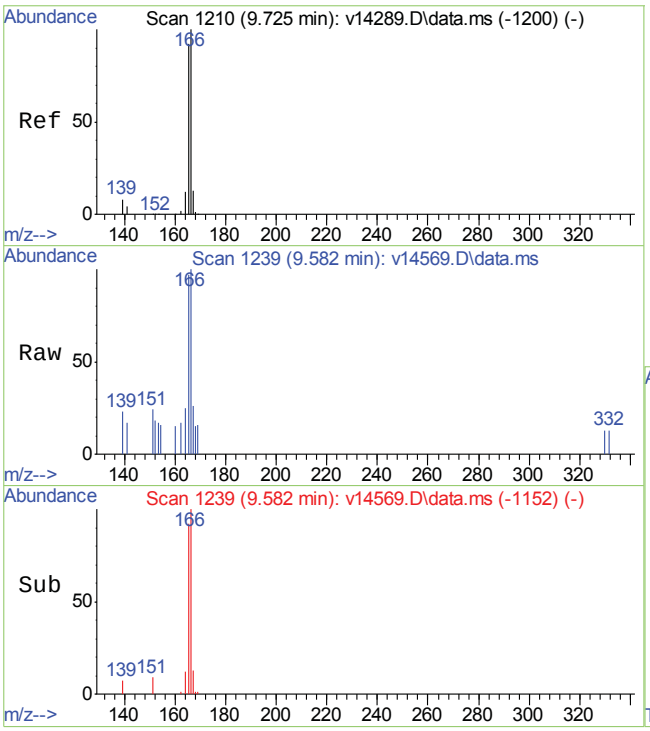


#13
Acenaphthylene
Concen: 0.03 ppm
RT: 8.414 min Scan# 1041
Delta R.T. 0.010 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:152 Resp: 517

Ion	Ratio	Lower	Upper
152	100		
151	0.0	0.0	39.0
153	0.0	0.0	33.1

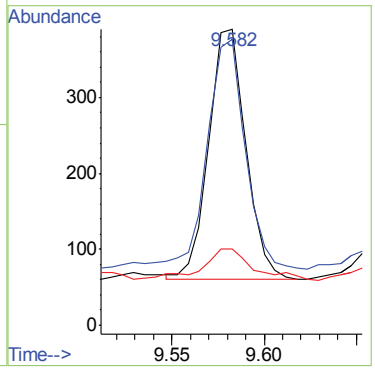


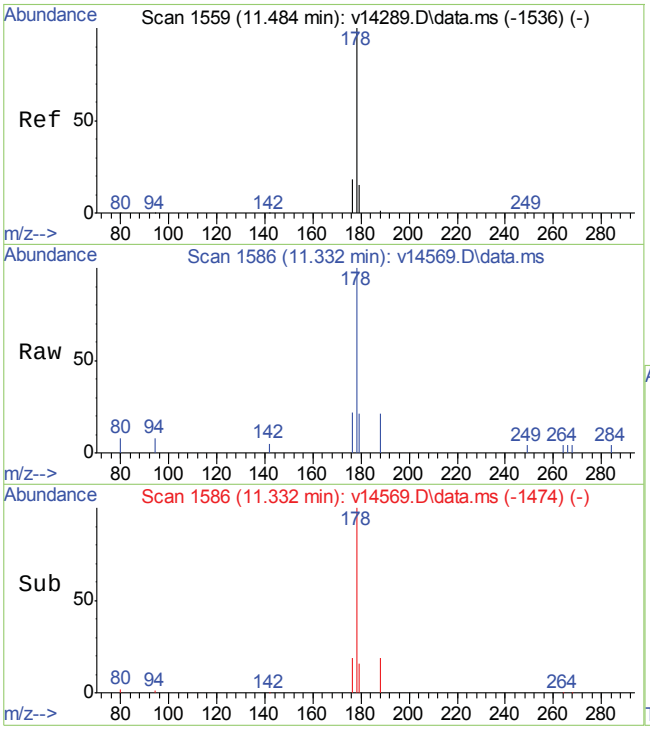


#16
Fluorene
Concen: 0.03 ppm
RT: 9.582 min Scan# 1239
Delta R.T. 0.011 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:166 Resp: 463

Ion	Ratio	Lower	Upper
166	100		
165	100.4	72.1	112.1
167	0.0	0.0	33.5

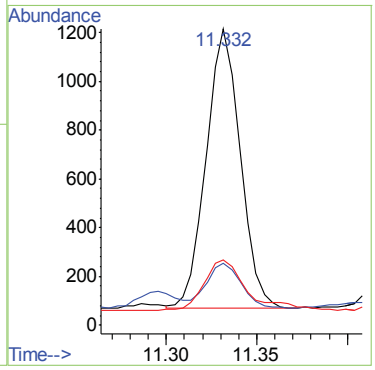


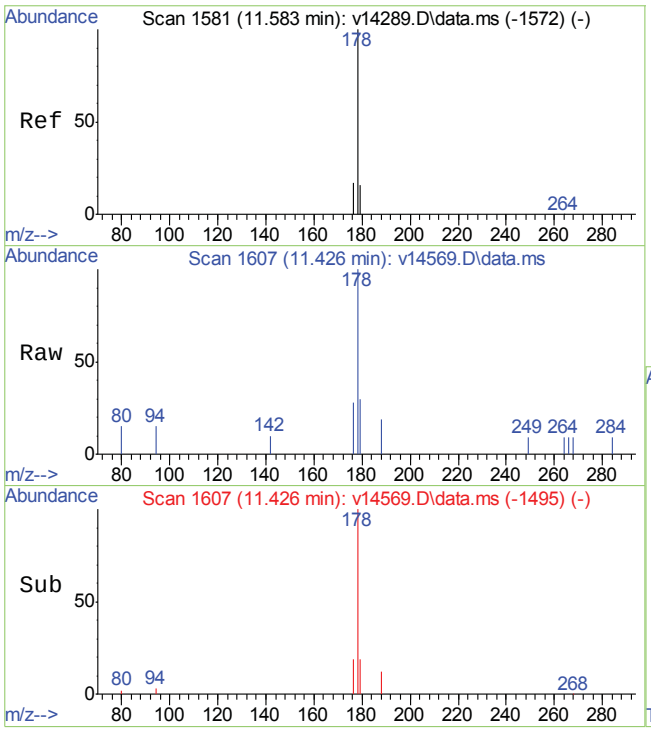


#21
Phenanthrene
Concen: 0.07 ppm
RT: 11.332 min Scan# 1586
Delta R.T. 0.005 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:178 Resp: 1496

Ion	Ratio	Lower	Upper
178	100		
179	0.0	0.0	35.4
176	0.0	0.0	38.0

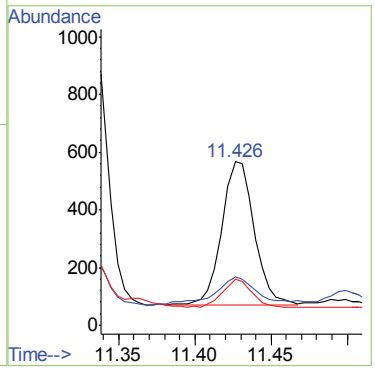


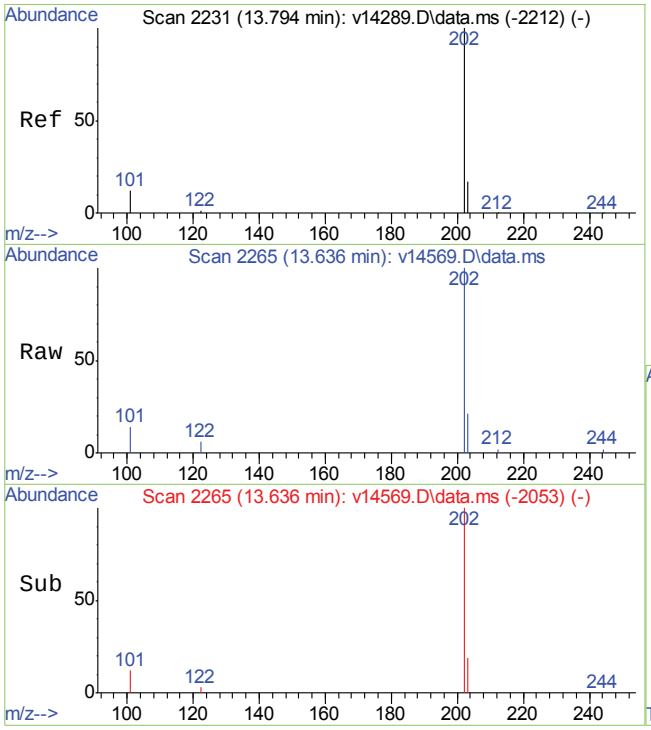


#22
Anthracene
Concen: 0.04 ppm
RT: 11.426 min Scan# 1607
Delta R.T. 0.005 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:178 Resp: 736

Ion	Ratio	Lower	Upper
178	100		
179	0.0	0.0	35.4
176	0.0	0.0	37.4

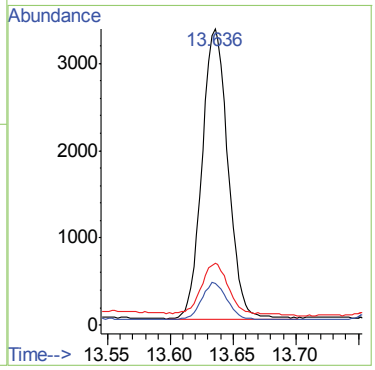




#23
Fluoranthene
Concen: 0.24 ppm
RT: 13.636 min Scan# 2265
Delta R.T. 0.014 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:202 Resp: 4794

Ion	Ratio	Lower	Upper
202	100		
101	12.5	0.0	32.2
203	17.5	0.0	37.3



7.1.7

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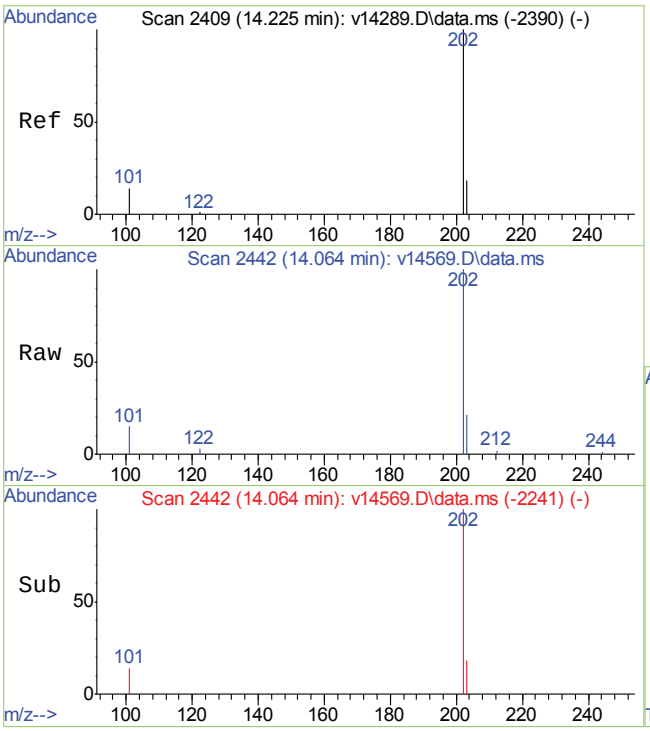
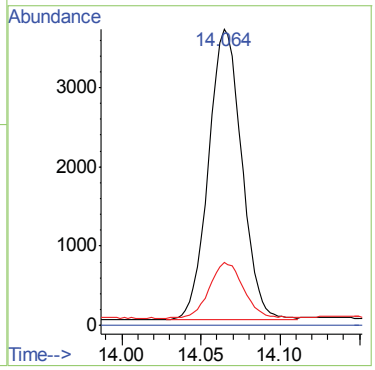
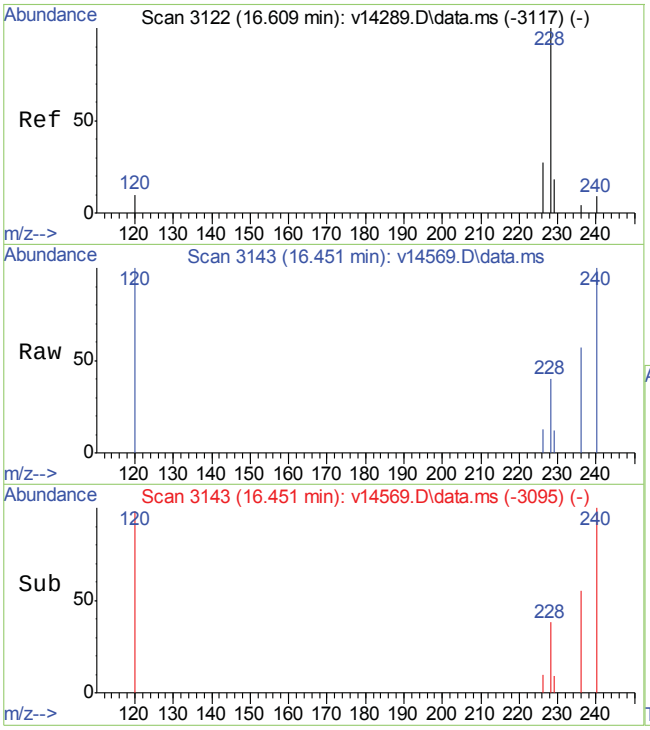


#25
Pyrene
Concen: 0.36 ppm
RT: 14.064 min Scan# 2442
Delta R.T. -0.013 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:202 Resp: 5344

Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.0	20.0
203	19.6	0.0	37.9

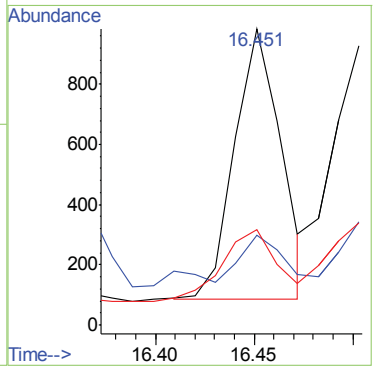


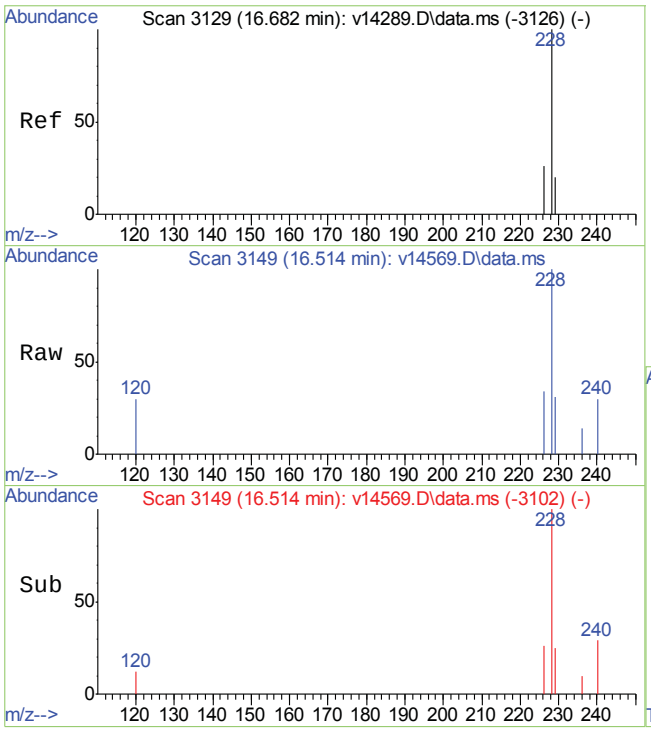


#27
Benzo(a)anthracene
Concen: 0.10 ppm m
RT: 16.451 min Scan# 3143
Delta R.T. 0.000 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:228 Resp: 1472

Ion	Ratio	Lower	Upper
228	100		
229	44.4	0.0	39.6#
226	54.2	5.5	45.5#

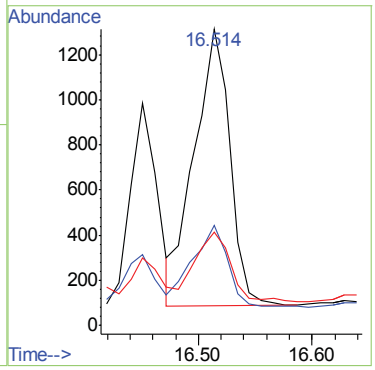


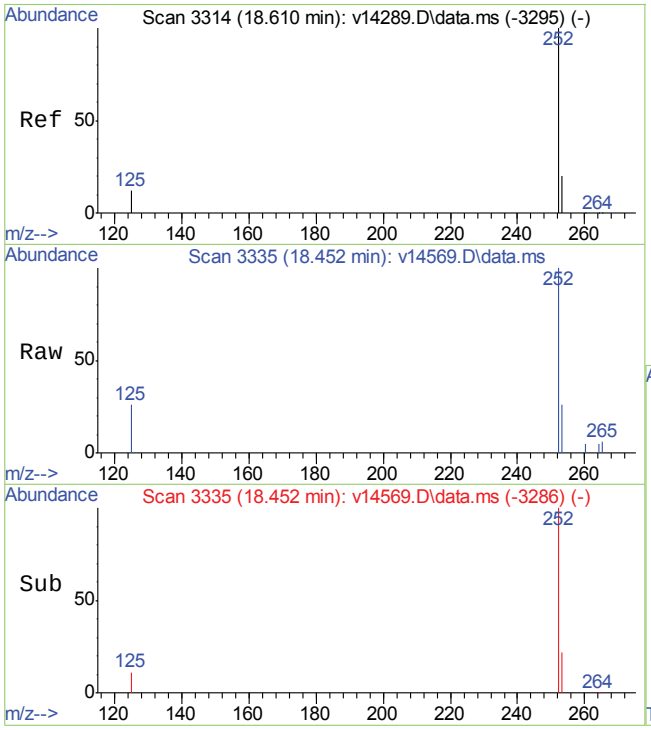


#28
Chrysene
Concen: 0.19 ppm
RT: 16.514 min Scan# 3149
Delta R.T. -0.010 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:228 Resp: 2660

Ion	Ratio	Lower	Upper
228	100		
226	30.0	7.8	47.8
229	24.5	0.0	39.6

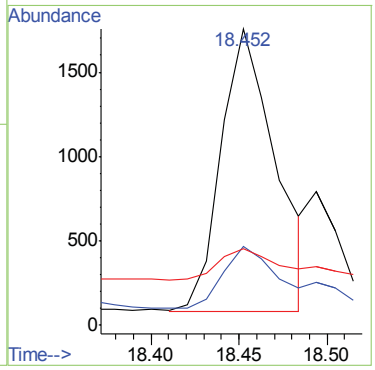




#30
Benzo(b)fluoranthene
Concen: 0.33 ppm m
RT: 18.452 min Scan# 3335
Delta R.T. 0.008 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:252 Resp: 3604

Ion	Ratio	Lower	Upper
252	100		
253	27.7	3.4	43.4
125	15.2	0.0	31.8



7.1.7

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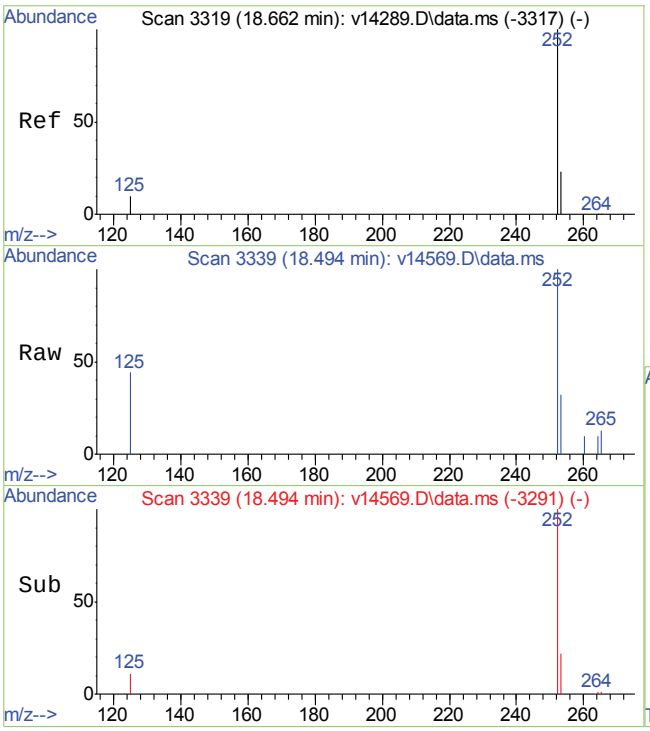
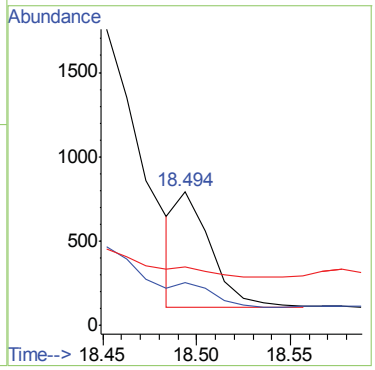
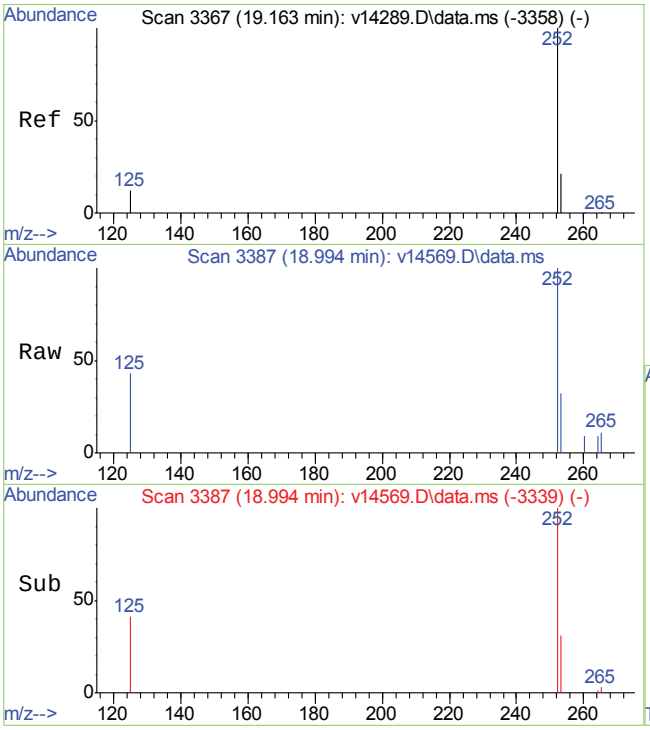


#31
Benzo(k)fluoranthene
Concen: 0.07 ppm m
RT: 18.494 min Scan# 3339
Delta R.T. -0.002 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:252 Resp: 882

Ion	Ratio	Lower	Upper
252	100		
253	113.2	2.0	42.0#
125	62.2	0.0	32.6#

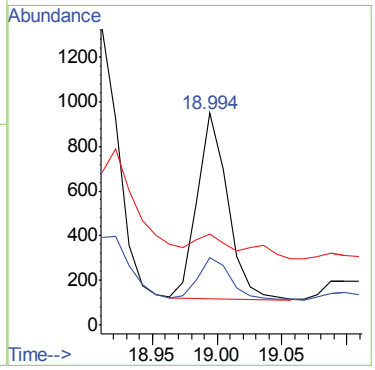




#32
Benzo(a)pyrene
Concen: 0.13 ppm m
RT: 18.994 min Scan# 3387
Delta R.T. -0.001 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:252 Resp: 1372

Ion	Ratio	Lower	Upper
252	100		
253	51.8	1.6	41.6#
125	33.9	0.0	32.8#



7.1.7

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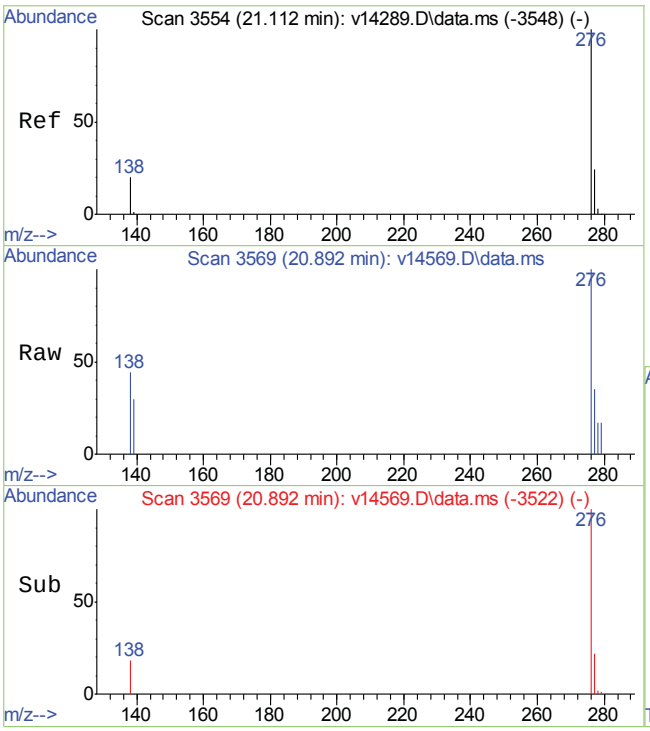
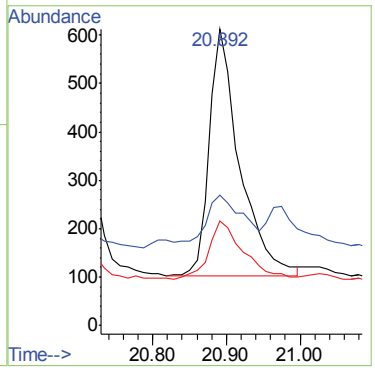
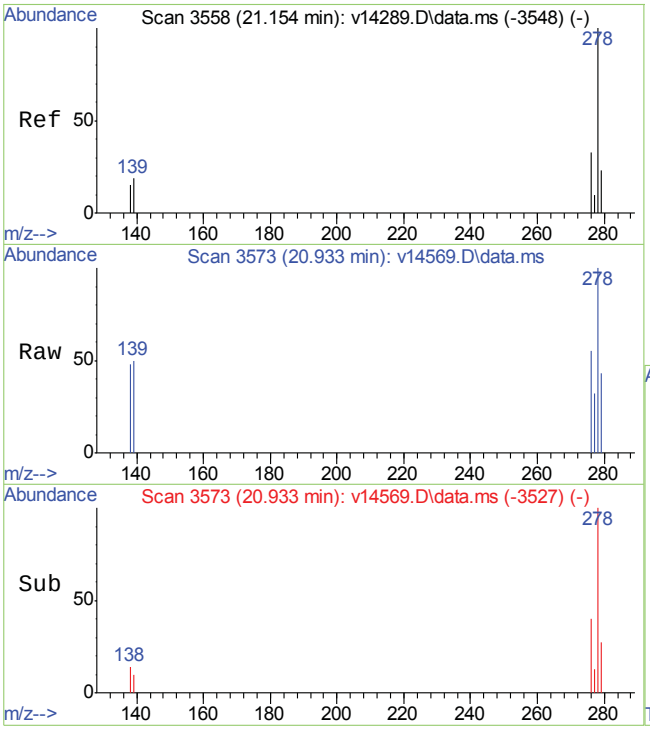


#33
Indeno(1,2,3-cd)pyrene
Concen: 0.16 ppm
RT: 20.892 min Scan# 3569
Delta R.T. -0.005 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:276 Resp: 1457

Ion	Ratio	Lower	Upper
276	100		
138	0.0	2.0	42.0#
277	0.0	14.5	54.5#

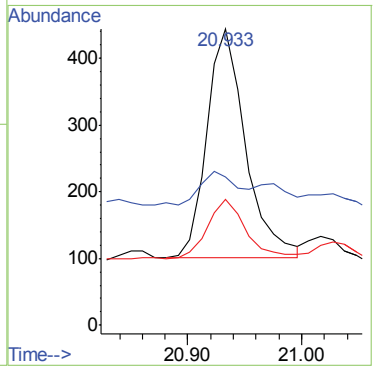


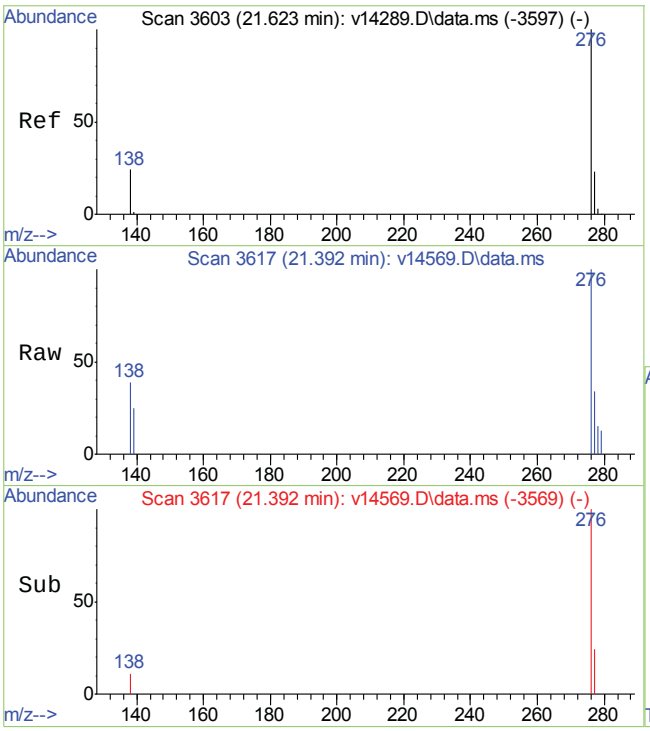


#34
Dibenz(a,h)anthracene
Concen: 0.08 ppm
RT: 20.933 min Scan# 3573
Delta R.T. -0.016 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:278 Resp: 807

Ion	Ratio	Lower	Upper
278	100		
139	0.0	0.0	39.0
279	0.0	4.0	44.0#

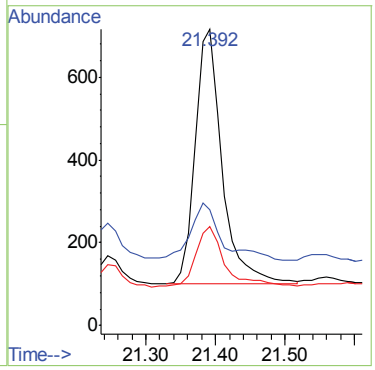




#35
Benzo(g,h,i)perylene
Concen: 0.15 ppm
RT: 21.392 min Scan# 3617
Delta R.T. -0.003 min
Lab File: v14569.D
Acq: 1 Apr 2013 12:38 pm

Tgt Ion:276 Resp: 1654

Ion	Ratio	Lower	Upper
276	100		
138	26.0	5.0	45.0
277	24.2	3.4	43.4



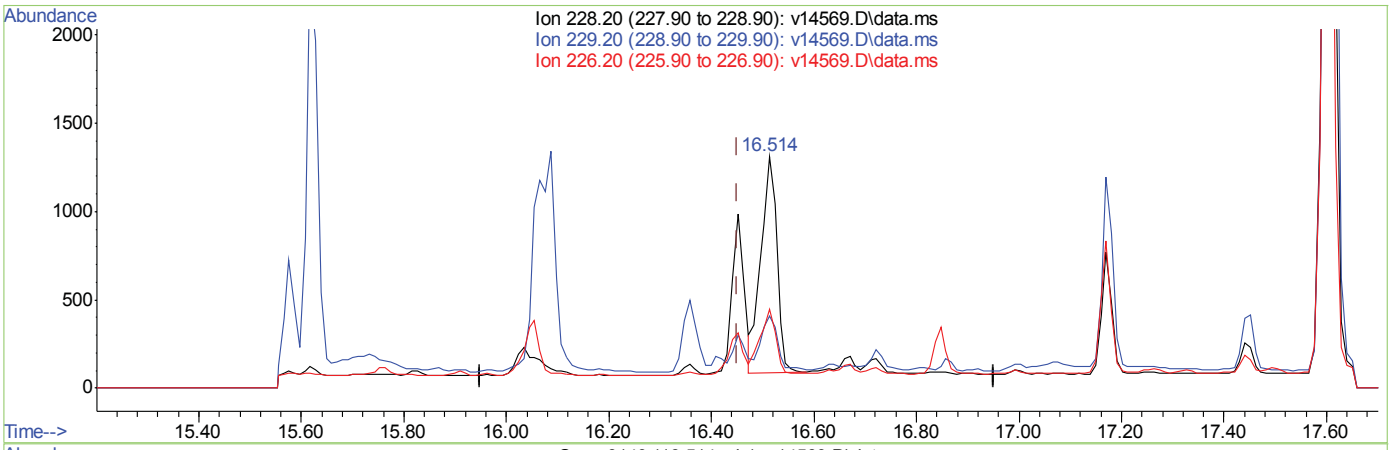
7.1.7

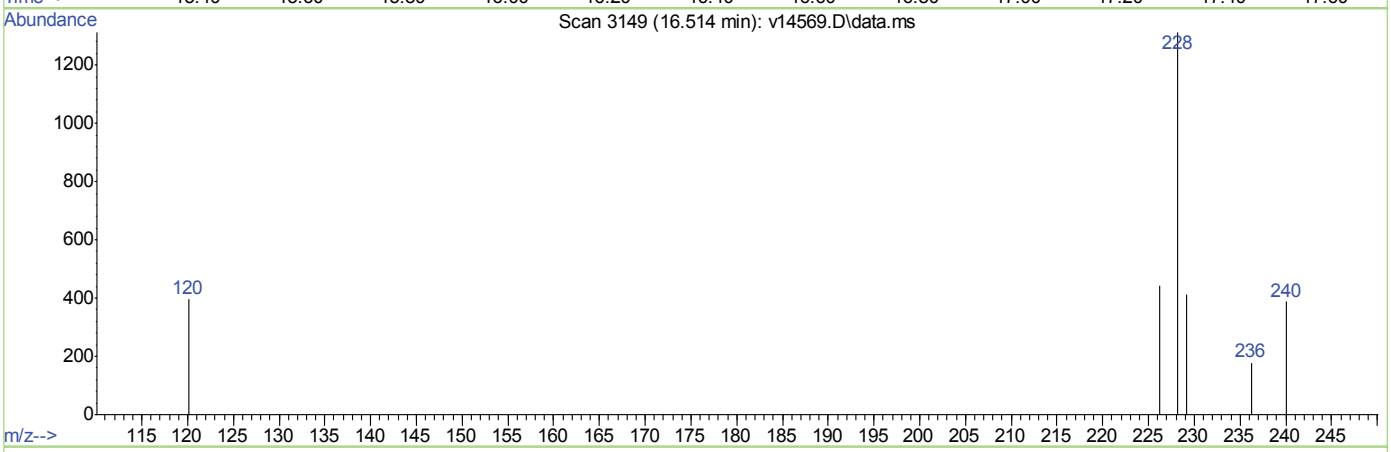
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On    :  1 Apr 2013  12:38 pm
Operator  : garyj
Sample    : tc27860-6
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Apr 01 13:45:14 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14569.D\data.ms

(27) □enzo(a)anthracene (CP)

16.514min (□0.063) 0.19ppm

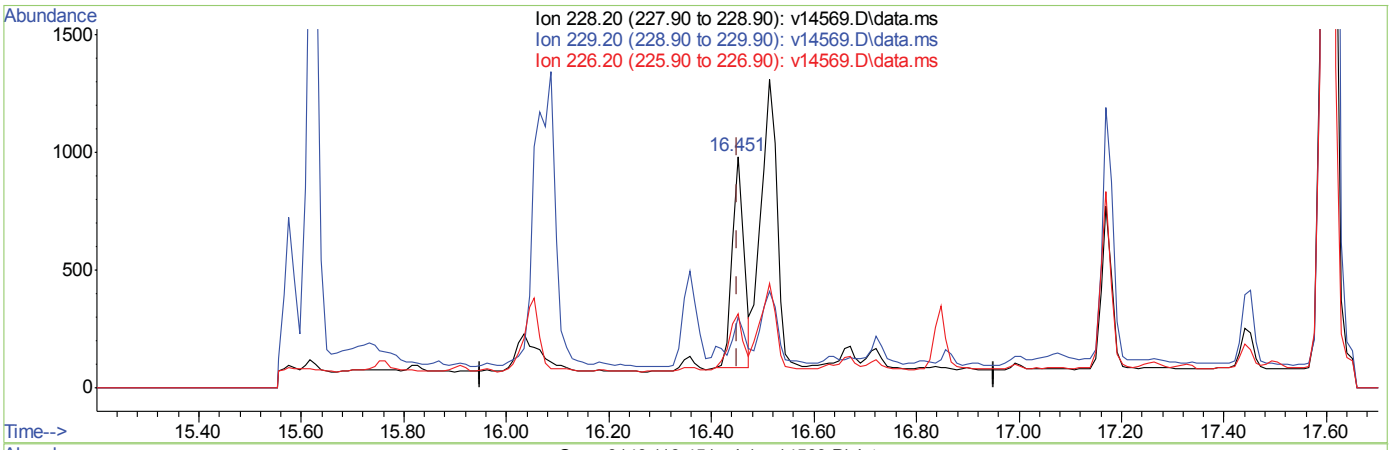
response 2660

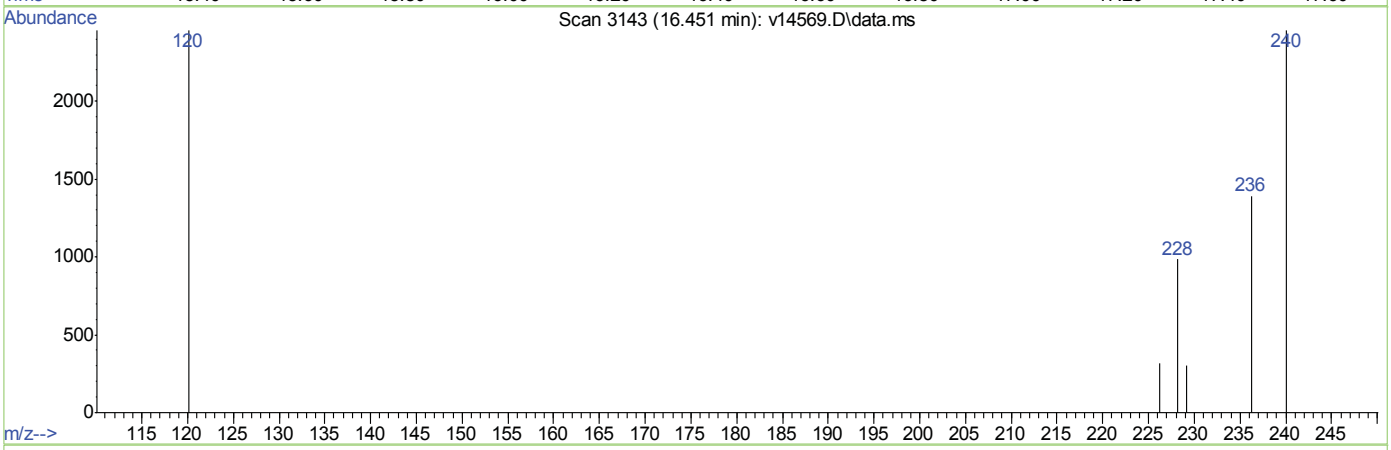
Ion	Exp%	Act%
228.20	100	100
229.20	19.60	24.55
226.20	25.50	30.00
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On    :  1 Apr 2013  12:38 pm
Operator  : garyj
Sample    : tc27860-6
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Apr 01 13:45:14 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14569.D\data.ms

(27) □enzo(a)anthracene (CP)

16.451min (□0.000) 0.10ppm m

response 1472

Ion	Exp%	Act%
228.20	100	100
229.20	19.60	44.36□
226.20	25.50	54.21□
0.00	0.00	0.00

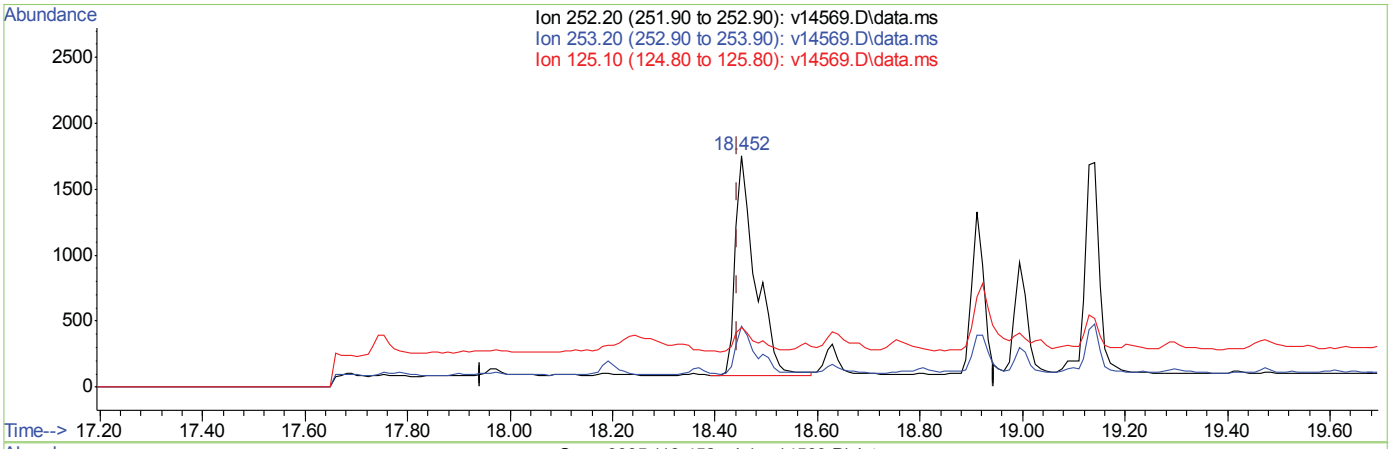
7.1.7.2

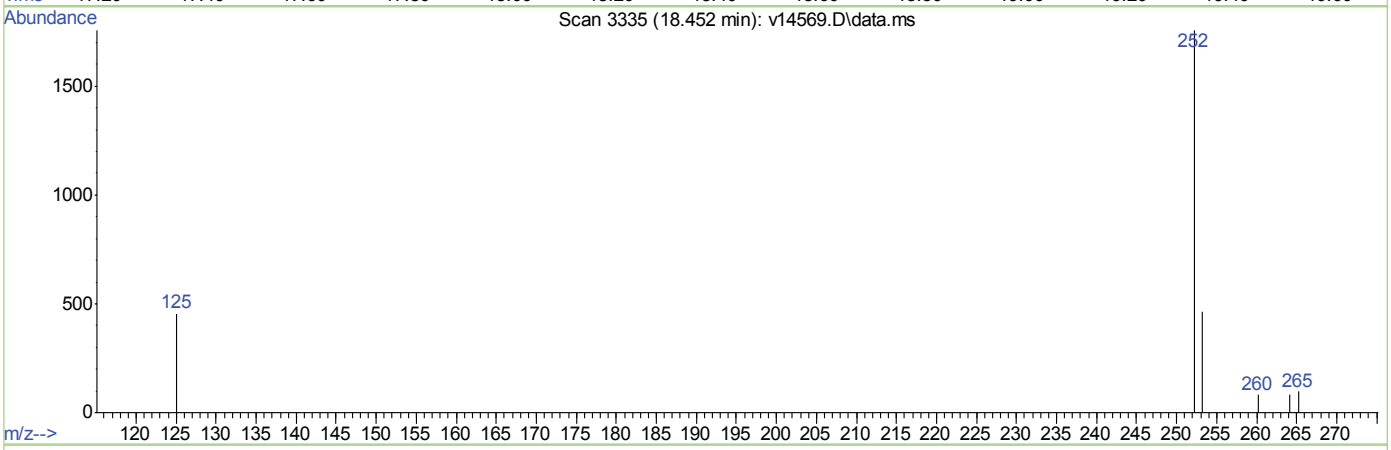
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On    :  1 Apr 2013  12:38 pm
Operator  : garyj
Sample    : tc27860-6
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Apr 01 13:45:14 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14569.D\data.ms

(30) □enzo(b)□luoranthene (CP)

18.452min (□0.008) 0.42ppm

response 4552

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	21.92
125.10	11.80	12.06
0.00	0.00	0.00

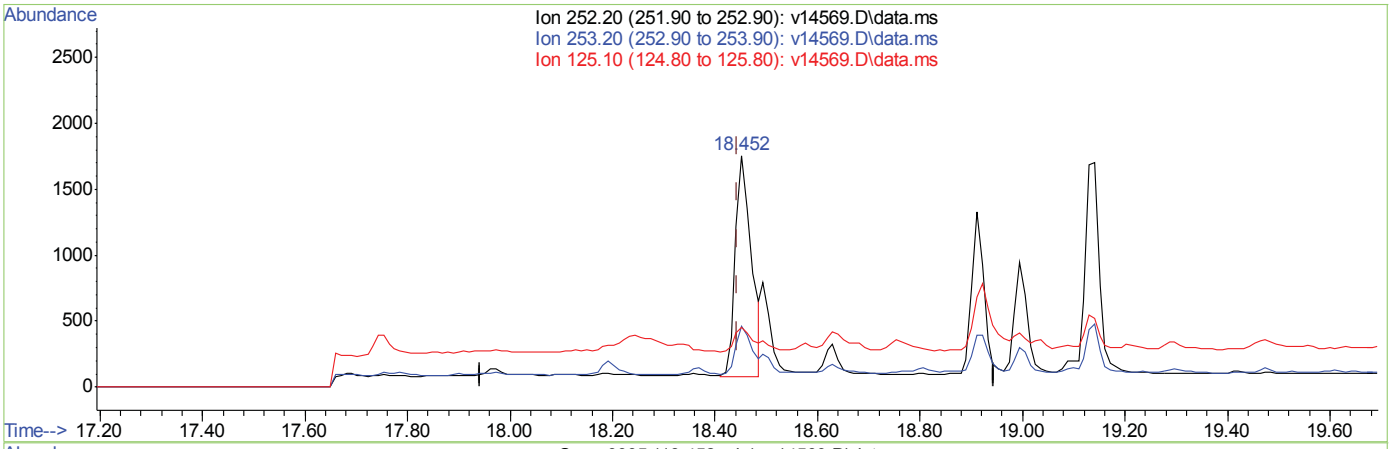
7.1.7.3

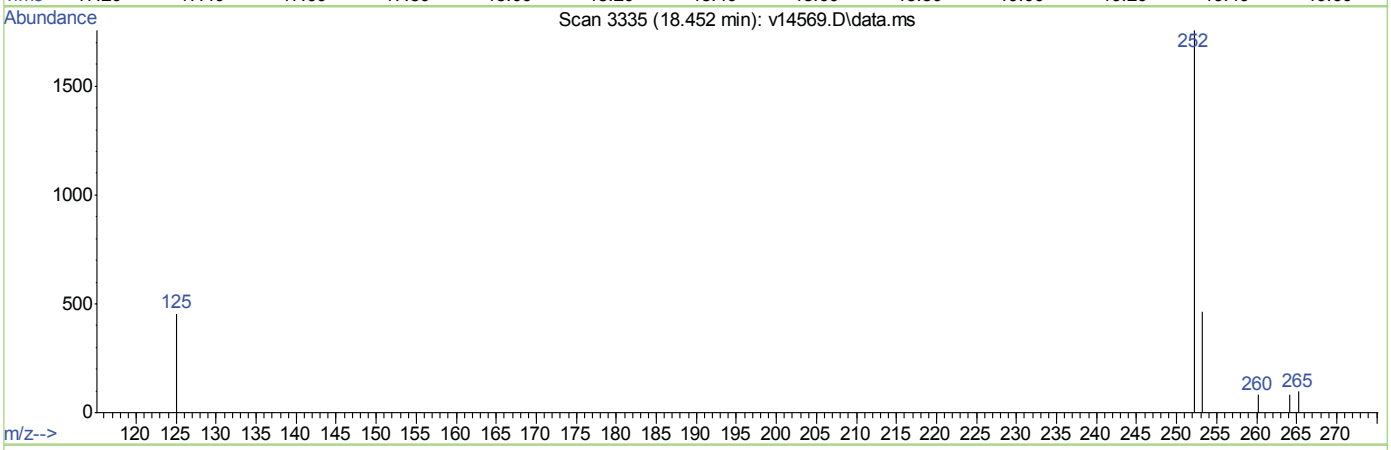
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On    :  1 Apr 2013  12:38 pm
Operator  : garyj
Sample    : tc27860-6
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Apr 01 13:45:14 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14569.D\data.ms

(30) □enzo(b)□luoranthene (CP)

18.452min (□0.008) 0.33ppm m

response 3604

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	27.69
125.10	11.80	15.23
0.00	0.00	0.00

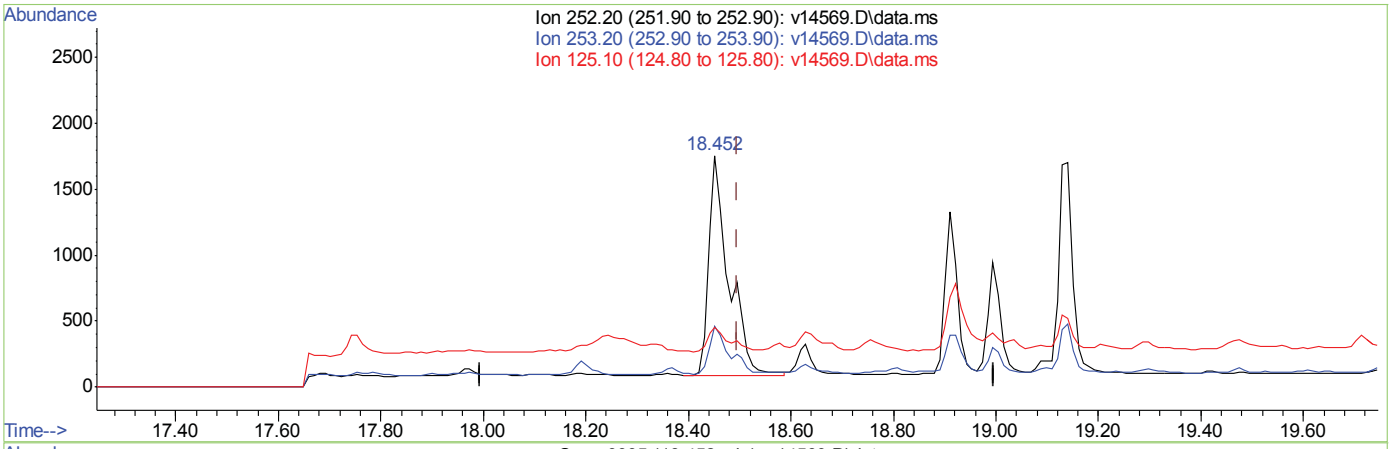
7.1.7.4

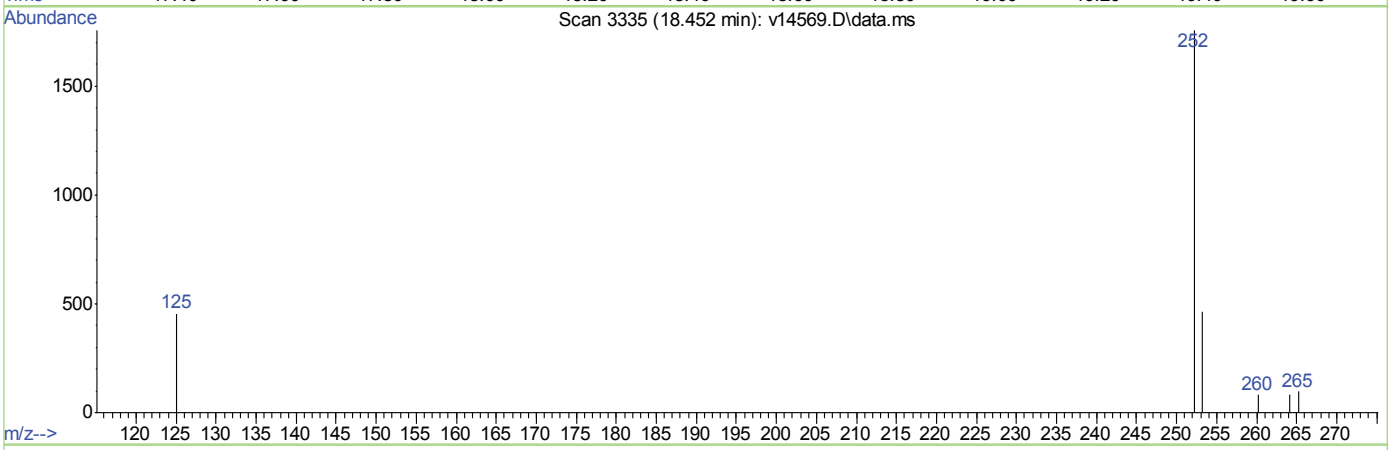
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On    :  1 Apr 2013  12:38 pm
Operator  : garyj
Sample    : tc27860-6
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Apr 01 13:45:14 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14569.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.452min (-0.044) 0.37ppm

response 4552

Ion	Exp%	Act%
252.20	100	100
253.20	22.00	21.92
125.10	12.60	12.06
0.00	0.00	0.00

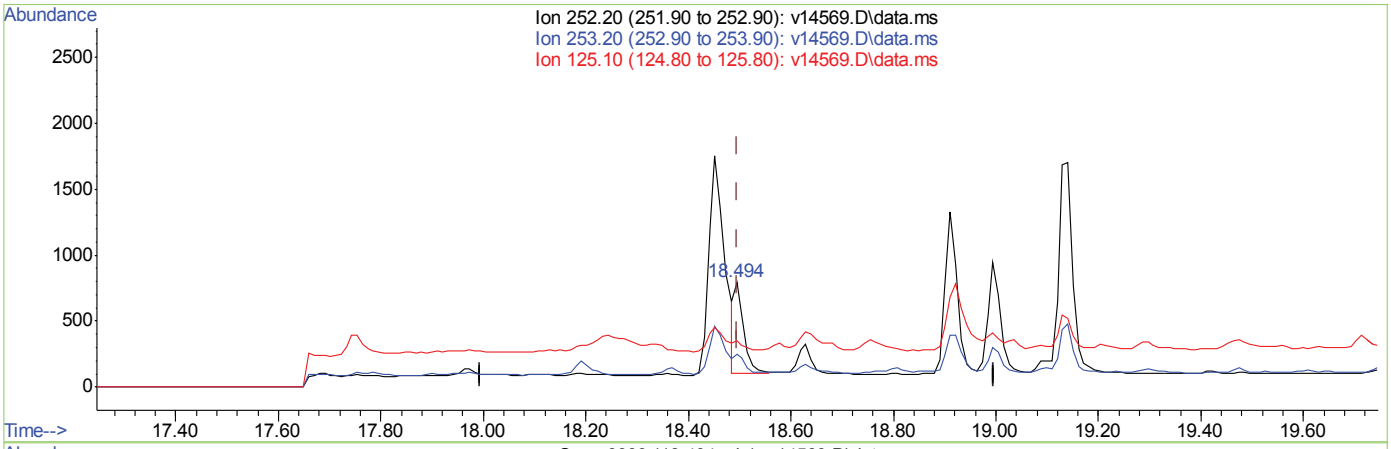
7.1.7.5

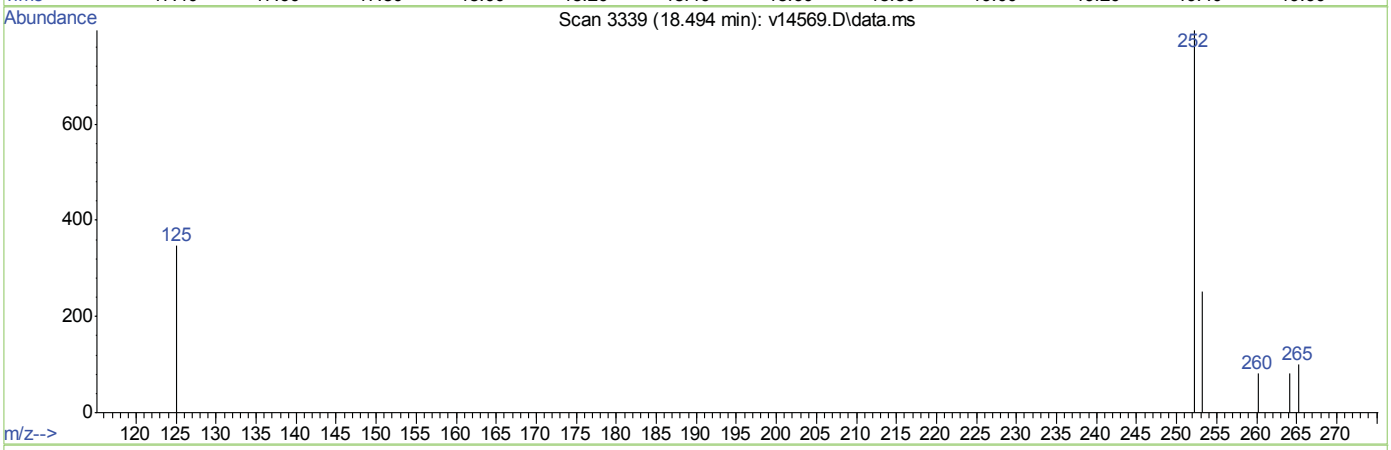
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On    :  1 Apr 2013  12:38 pm
Operator  : garyj
Sample    : tc27860-6
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Apr 01 13:45:14 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14569.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.494min (-0.002) 0.07ppm m

response 882

Ion	Exp%	Act%
252.20	100	100
253.20	22.00	113.15
125.10	12.60	62.24
0.00	0.00	0.00

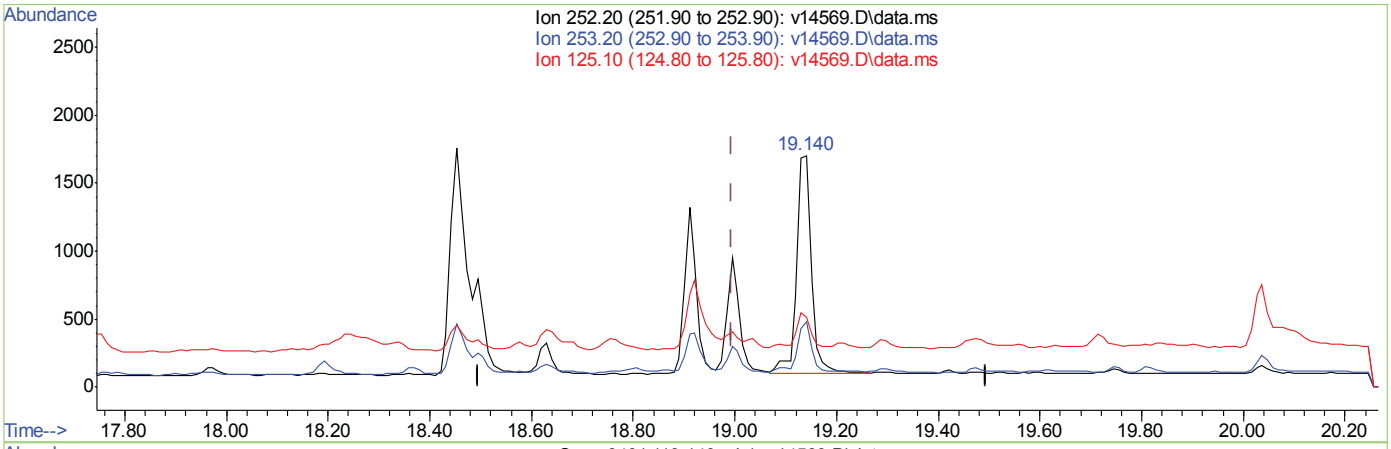
7.1.7.6

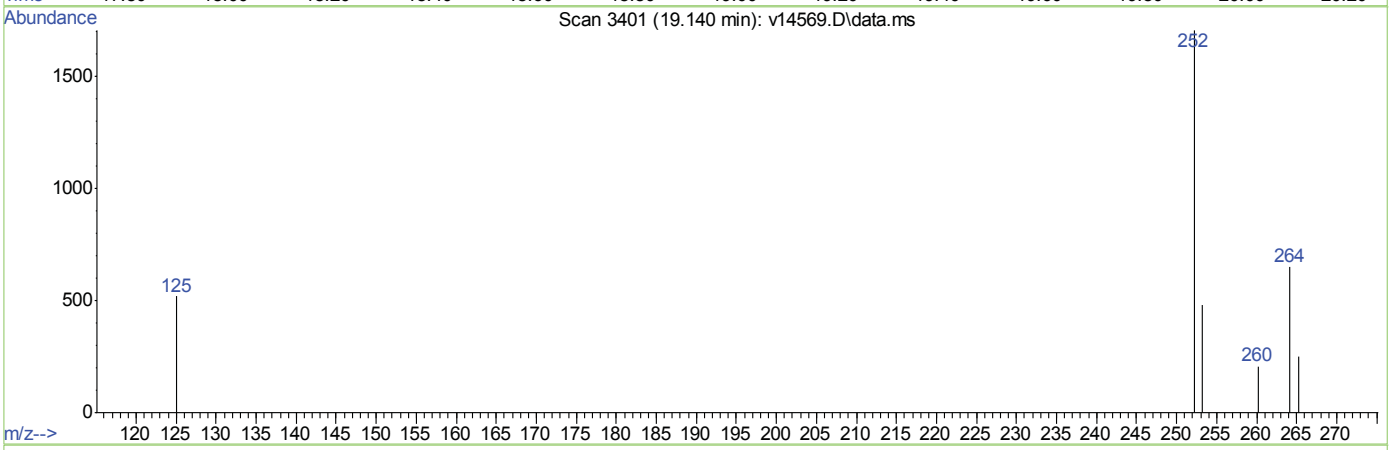
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On    :  1 Apr 2013  12:38 pm
Operator  : garyj
Sample    : tc27860-6
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Apr 01 13:45:14 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14569.D\data.ms

(32) Benzo(a)p□rene (CP)

19.140min (□0.145) 0.30ppm

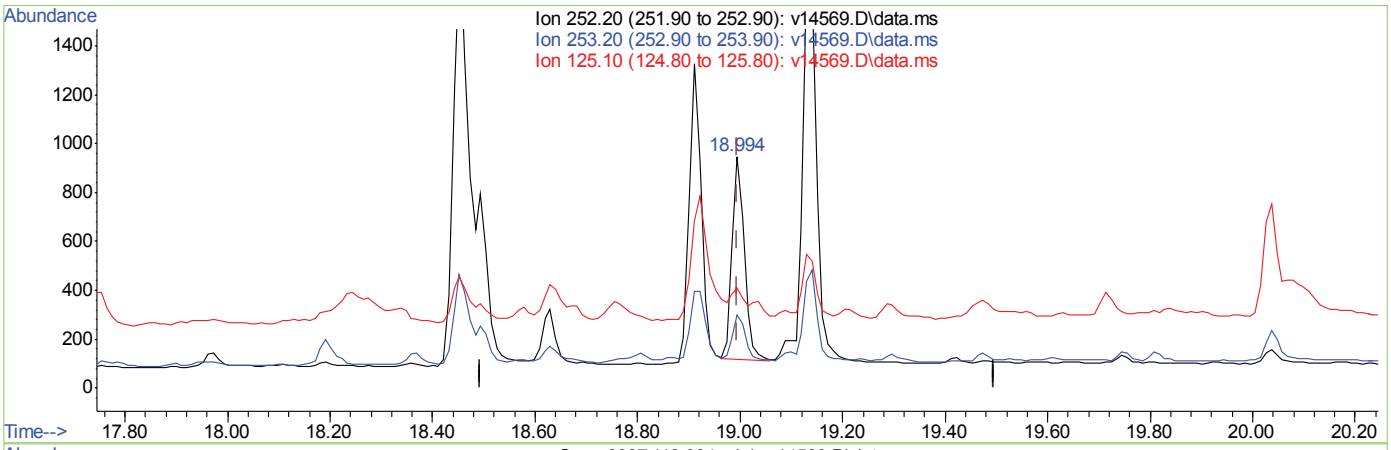
response 3182

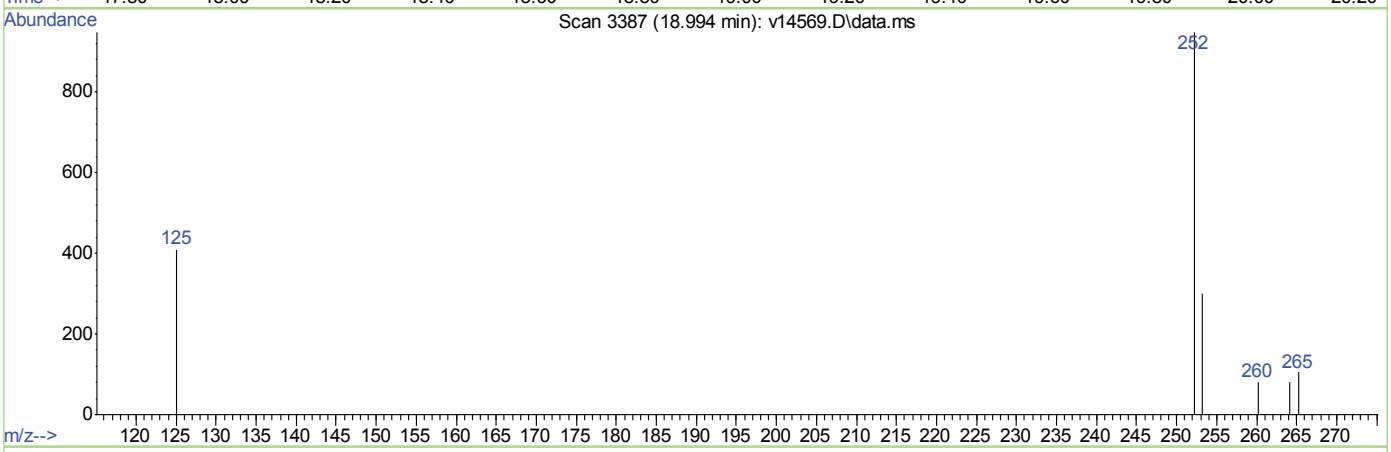
Ion	Exp%	Act%
252.20	100	100
253.20	21.60	22.34
125.10	12.80	14.61
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14569.D
Acq On    :  1 Apr 2013  12:38 pm
Operator  : garyj
Sample    : tc27860-6
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Apr 01 13:45:14 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14569.D\data.ms

(32) Benzo(a)p□rene (CP)

18.994min (-0.001) 0.13ppm m

response 1372

Ion	Exp%	Act%
252.20	100	100
253.20	21.60	51.82□
125.10	12.80	33.89□
0.00	0.00	0.00

7.17.8

7

anual nte rations
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(ompounds ith m fla)
ohn atson
04 02 13 12:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14567.D
Acq On : 1 Apr 2013 11:41 am
Operator : garyj
Sample : tc27860-7, x10
Misc : op27766,ev835,30.16,,,1,10,soil
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 01 12:39:16 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

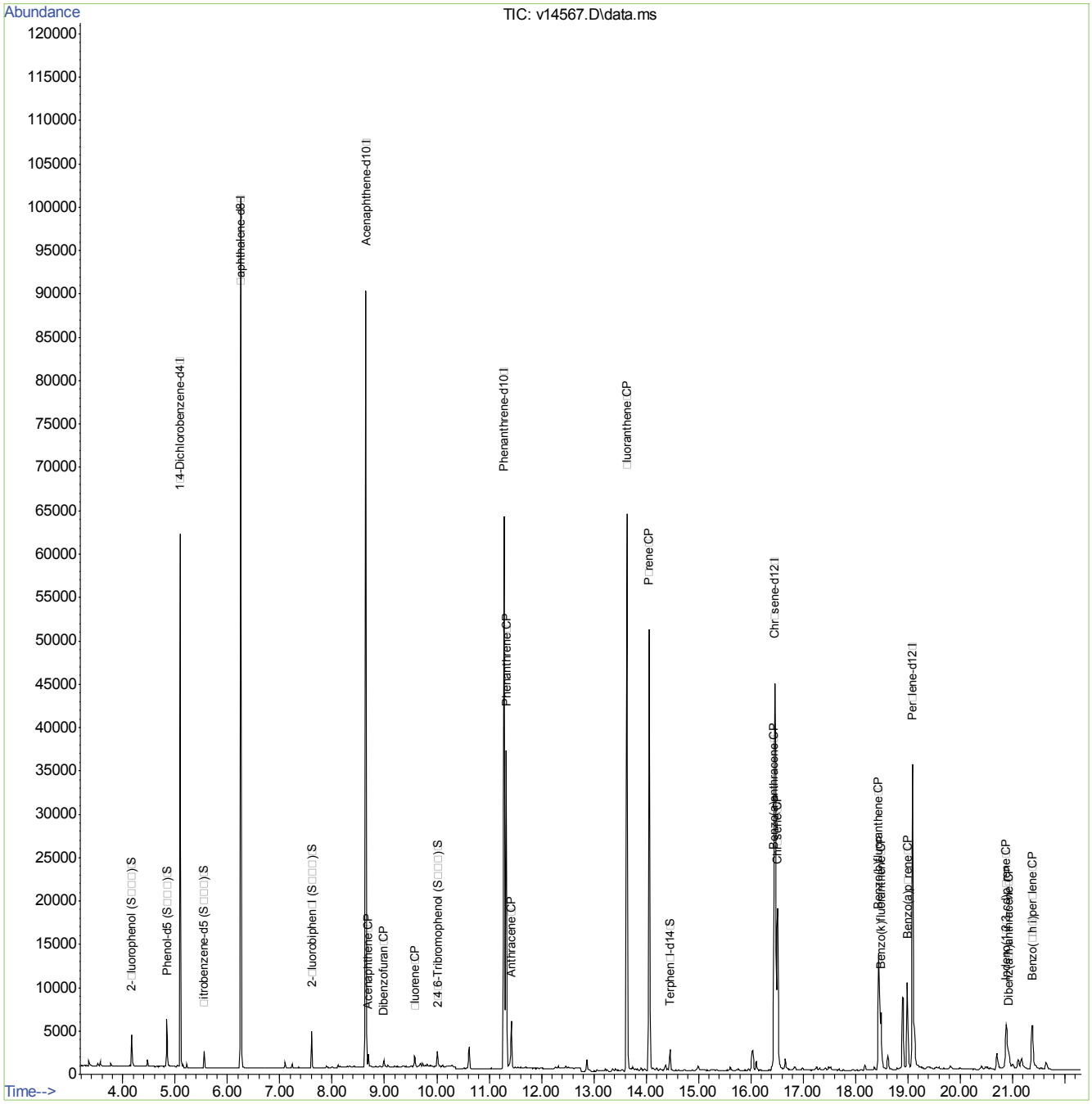
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	16981	4.00	ppm	0.00
5) Naphthalene-d8	6.256	136	94035	4.00	ppm	0.00
11) Acenaphthene-d10	8.644	164	45309	4.00	ppm	0.00
17) Phenanthrene-d10	11.286	188	73235	4.00	ppm	0.00
24) Chrysene-d12	16.461	240	44183	4.00	ppm	-0.01
29) Perylene-d12	19.088	264	45410	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.168	112	2113	0.43	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery	=	4.30%#	
3) Phenol-d5 (SURR)	4.843	99	3381	0.56	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery	=	5.60%#	
6) Nitrobenzene-d5 (SURR)	5.553	82	1318	0.18	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery	=	3.60%#	
12) 2-Fluorobiphenyl (SURR)	7.608	172	3431	0.20	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery	=	4.00%#	
19) 2,4,6-Tribromophenol (...	10.013	330	843	0.51	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery	=	5.10%#	
26) Terphenyl-d14	14.457	244	2404	0.35	ppm	-0.01
Spiked Amount 5.000	Range 22 - 132		Recovery	=	7.00%#	
Target Compounds						Qvalue
14) Acenaphthene	8.692	154	638	0.05	ppm	# 77
15) Dibenzofuran	8.986	168	629	0.04	ppm	# 33
16) Fluorene	9.576	166	754	0.05	ppm	# 94
21) Phenanthrene	11.327	178	37226	1.73	ppm	100
22) Anthracene	11.422	178	5752	0.28	ppm	94
23) Fluoranthene	13.631	202	68731	3.23	ppm	99
25) Pyrene	14.060	202	53916	3.38	ppm	# 97
27) Benzo(a)anthracene	16.441	228	20685	1.35	ppm	94
28) Chrysene	16.514	228	23466	1.56	ppm	97
30) Benzo(b)fluoranthene	18.442	252	22407m	1.76	ppm	
31) Benzo(k)fluoranthene	18.483	252	8099m	0.56	ppm	
32) Benzo(a)pyrene	18.994	252	14037	1.12	ppm	100
33) Indeno(1,2,3-cd)pyrene	20.881	276	9227	0.86	ppm	88
34) Dibenz(a,h)anthracene	20.923	278	1624	0.13	ppm	91
35) Benzo(g,h,i)perylene	21.381	276	9259	0.70	ppm	98

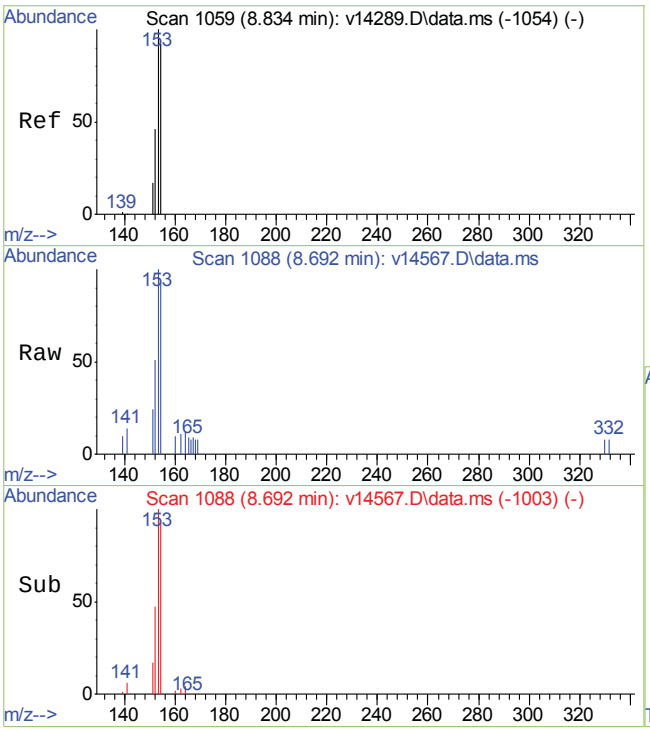
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14567.D
Acq On : 1 Apr 2013 11:41 am
Operator : garyj
Sample : tc27860-7, x10
Misc : op27766,ev835,30.16,,,1,10,soil
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Apr 01 12:39:16 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

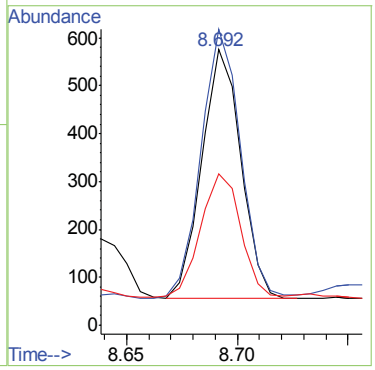


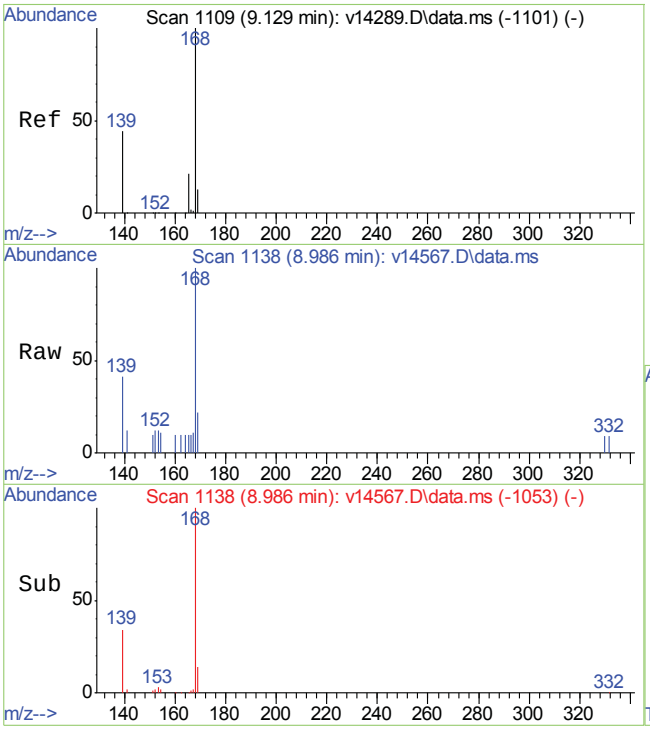


#14
Acenaphthene
Concen: 0.05 ppm
RT: 8.692 min Scan# 1088
Delta R.T. 0.001 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:154 Resp: 638

Ion	Ratio	Lower	Upper
154	100		
153	108.5	87.7	127.7
152	0.0	29.6	69.6#

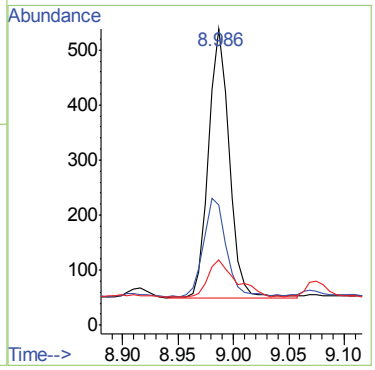




#15
Dibenzofuran
Concen: 0.04 ppm
RT: 8.986 min Scan# 1138
Delta R.T. 0.002 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:168 Resp: 629

Ion	Ratio	Lower	Upper
168	100		
139	0.0	33.3	73.3#
169	0.0	0.0	33.1



v14567.D ev831sim.m Mon Apr 01 12:39:28 2013 Page 3

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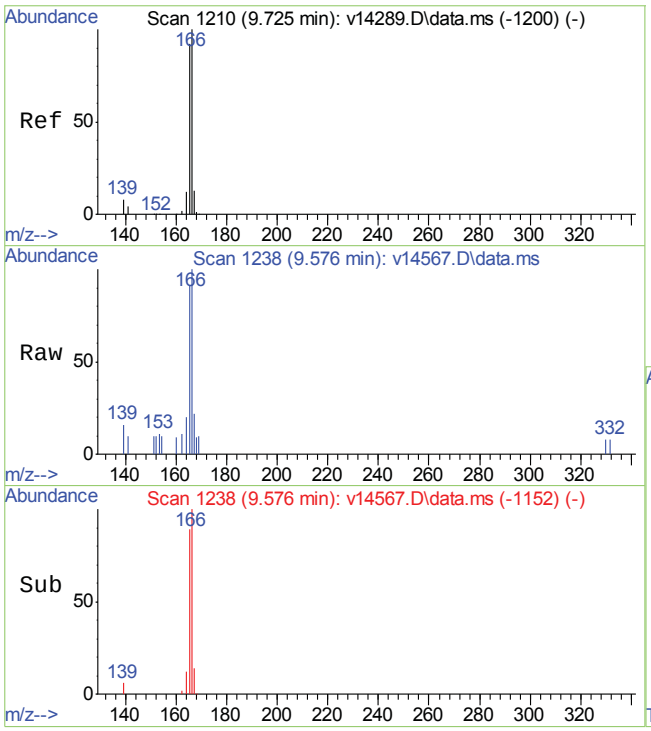
ACCUTEST LABORATORIES
TC27860

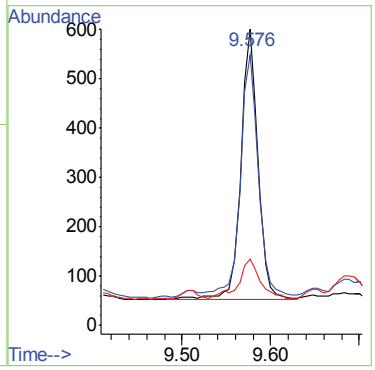
V14567.D: TC27860 7 2 pa e 3 of 10

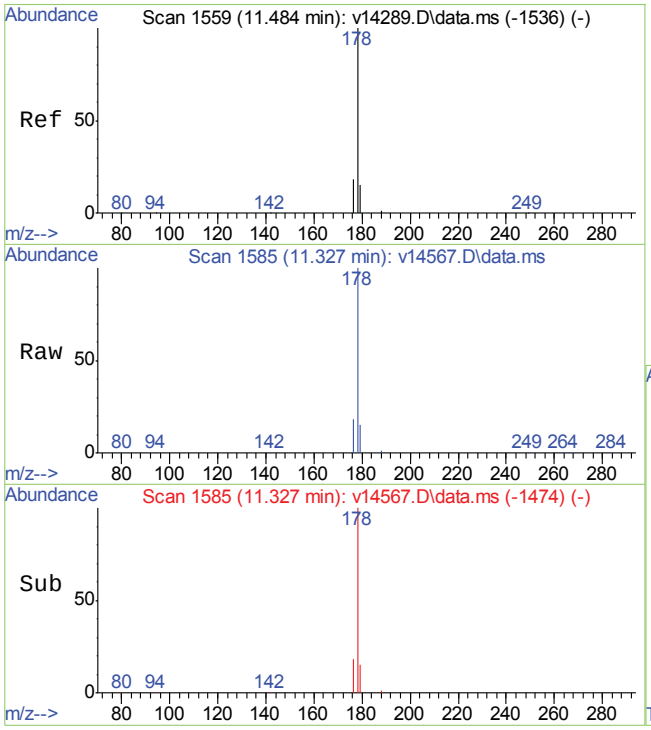


#16
Fluorene
Concen: 0.05 ppm
RT: 9.576 min Scan# 1238
Delta R.T. 0.005 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:166 Resp: 754

Ion	Ratio	Lower	Upper
166	100		
165	90.5	72.1	112.1
167	0.0	0.0	33.5

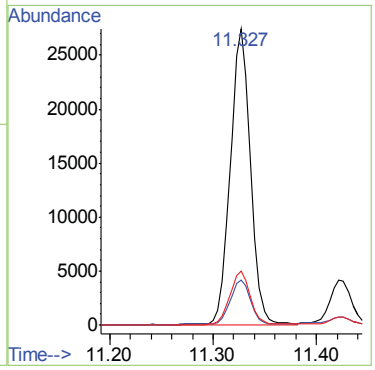


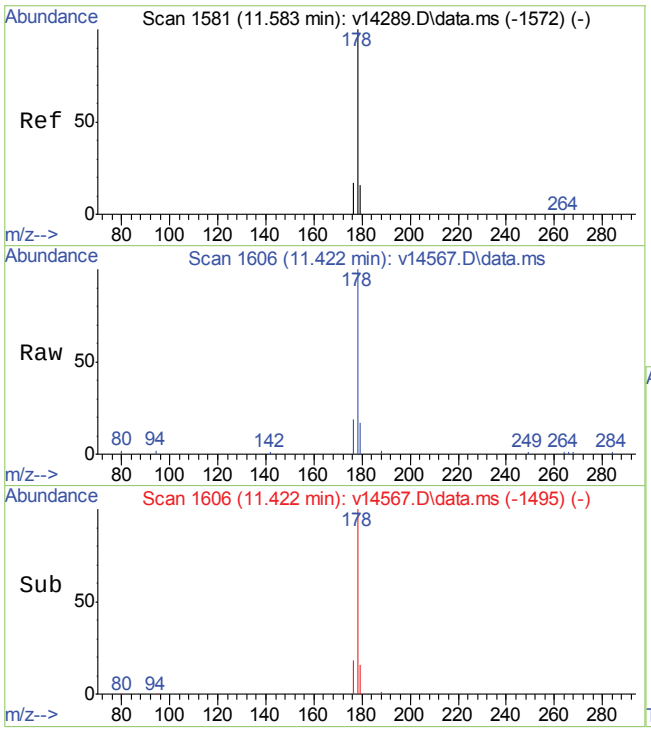


#21
Phenanthrene
Concen: 1.73 ppm
RT: 11.327 min Scan# 1585
Delta R.T. 0.000 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:178 Resp: 37226

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	35.4
176	18.1	0.0	38.0

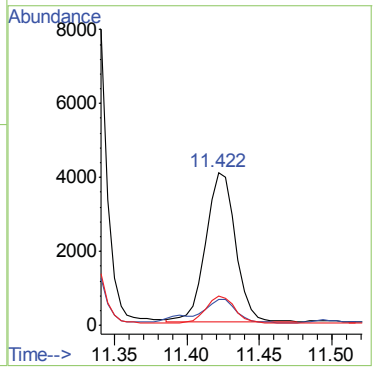


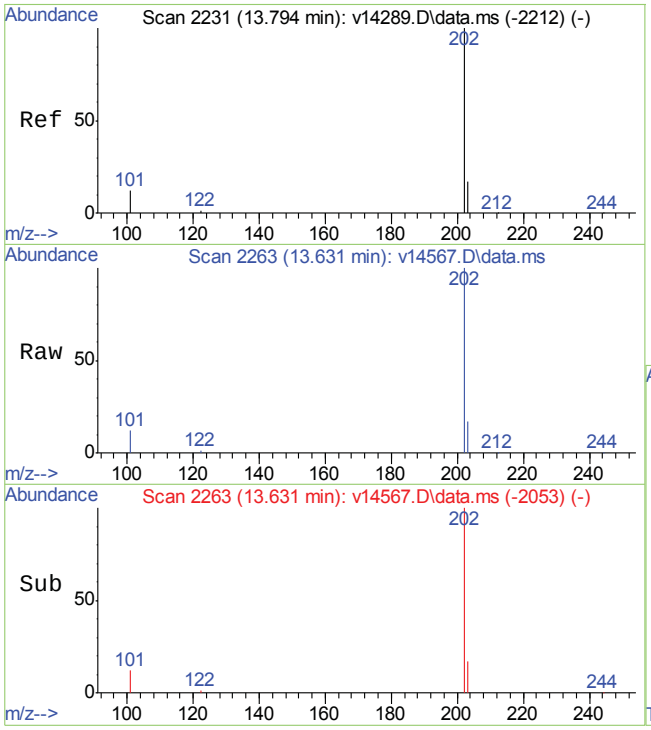


#22
Anthracene
Concen: 0.28 ppm
RT: 11.422 min Scan# 1606
Delta R.T. 0.001 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:178 Resp: 5752

Ion	Ratio	Lower	Upper
178	100		
179	20.3	0.0	35.4
176	17.5	0.0	37.4

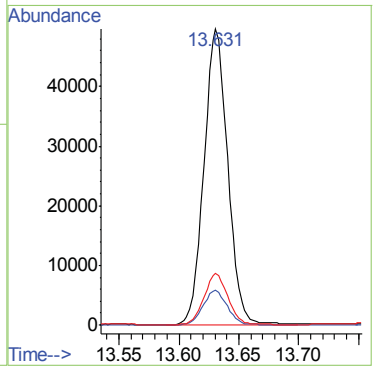


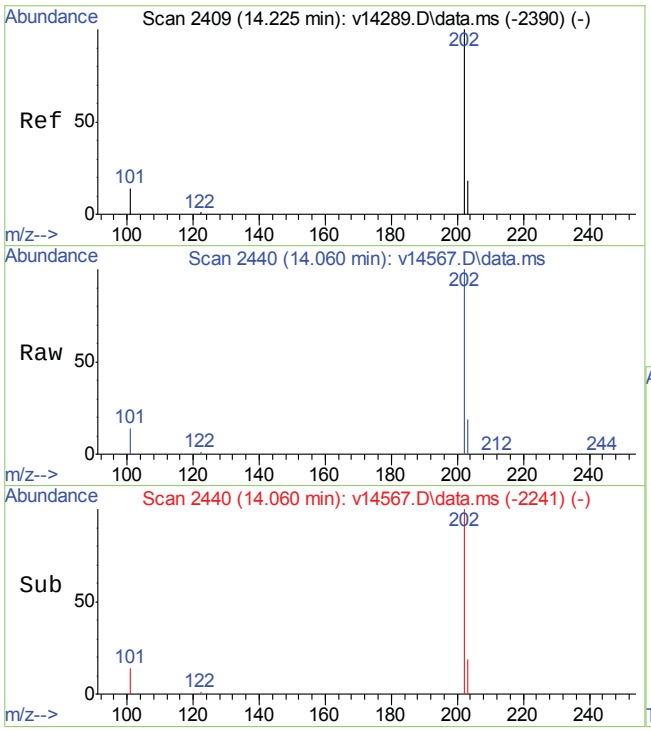


#23
Fluoranthene
Concen: 3.23 ppm
RT: 13.631 min Scan# 2263
Delta R.T. 0.009 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:202 Resp: 68731

Ion	Ratio	Lower	Upper
202	100		
101	11.7	0.0	32.2
203	17.3	0.0	37.3

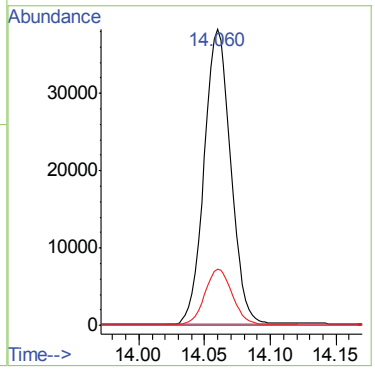


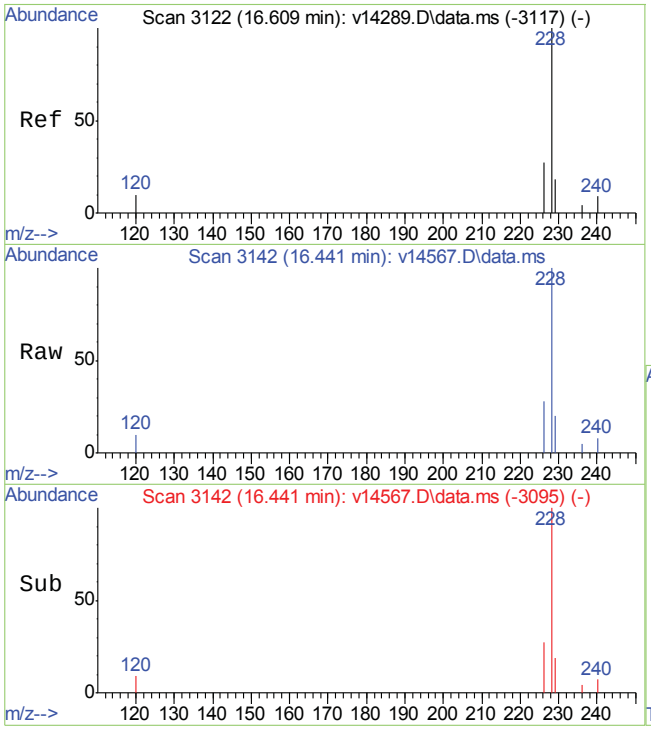


#25
Pyrene
Concen: 3.38 ppm
RT: 14.060 min Scan# 2440
Delta R.T. -0.017 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:202 Resp: 53916

Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.0	20.0
203	19.2	0.0	37.9

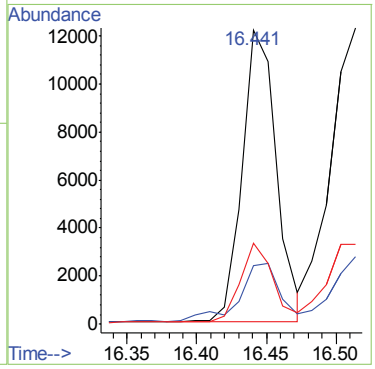




#27
Benzo(a)anthracene
Concen: 1.35 ppm
RT: 16.441 min Scan# 3142
Delta R.T. -0.010 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:228 Resp: 20685

Ion	Ratio	Lower	Upper
228	100		
229	24.8	0.0	39.6
226	26.3	5.5	45.5



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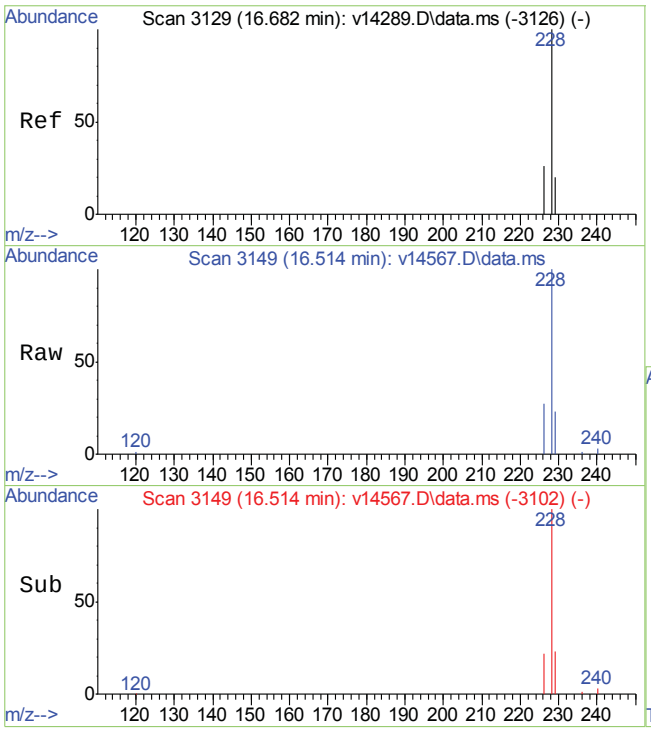
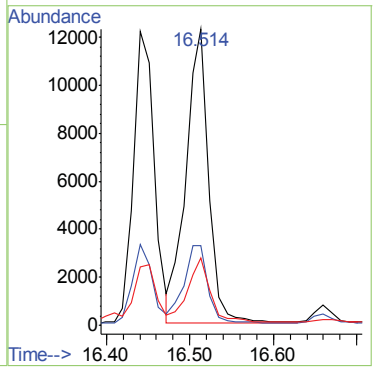
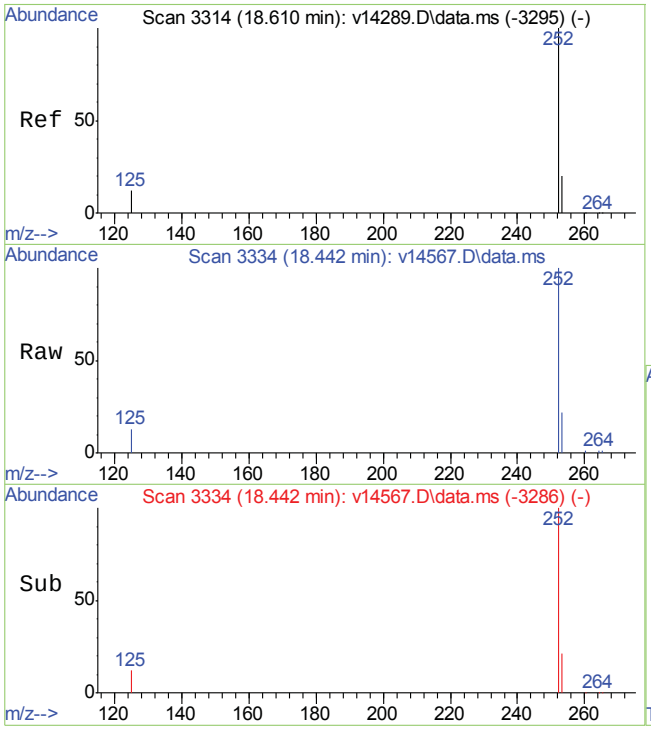


#28
Chrysene
Concen: 1.56 ppm
RT: 16.514 min Scan# 3149
Delta R.T. -0.010 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:228 Resp: 23466

Ion	Ratio	Lower	Upper
228	100		
226	28.6	7.8	47.8
229	22.4	0.0	39.6

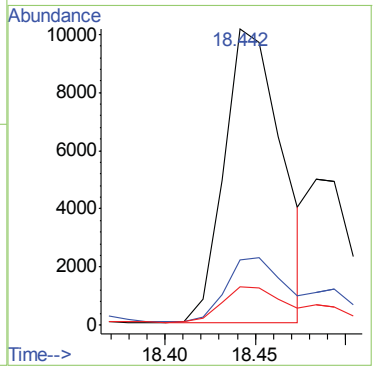


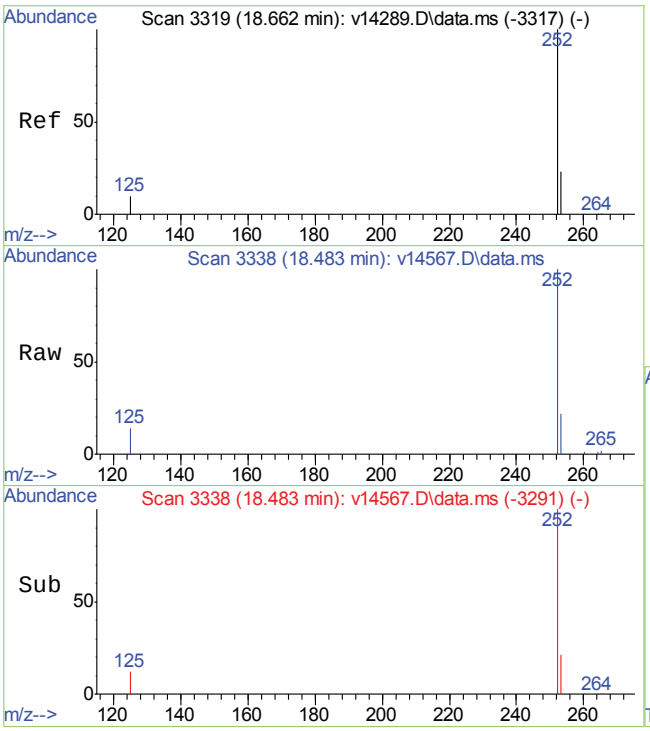


#30
Benzo(b)fluoranthene
Concen: 1.76 ppm m
RT: 18.442 min Scan# 3334
Delta R.T. -0.002 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:252 Resp: 22407

Ion	Ratio	Lower	Upper
252	100		
253	31.8	3.4	43.4
125	17.0	0.0	31.8

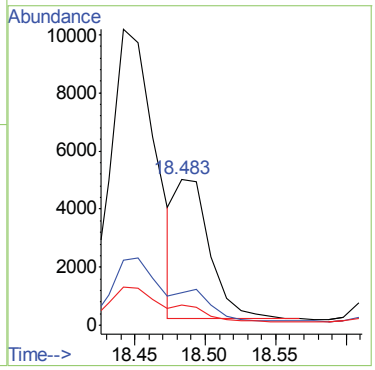


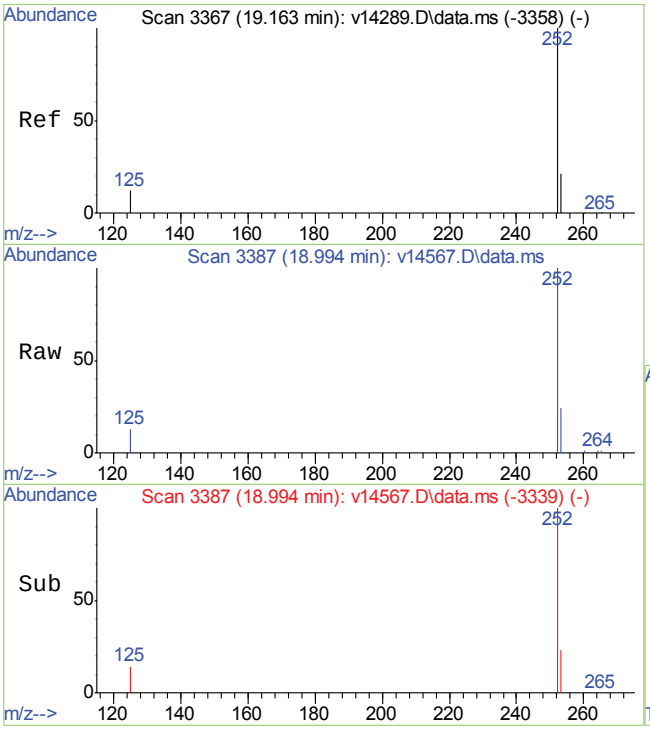


#31
Benzo(k)fluoranthene
Concen: 0.56 ppm m
RT: 18.483 min Scan# 3338
Delta R.T. -0.013 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:252 Resp: 8099

Ion	Ratio	Lower	Upper
252	100		
253	87.9	2.0	42.0#
125	47.1	0.0	32.6#

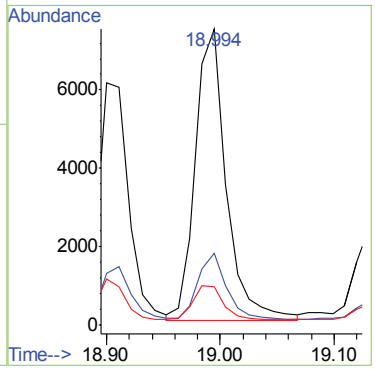


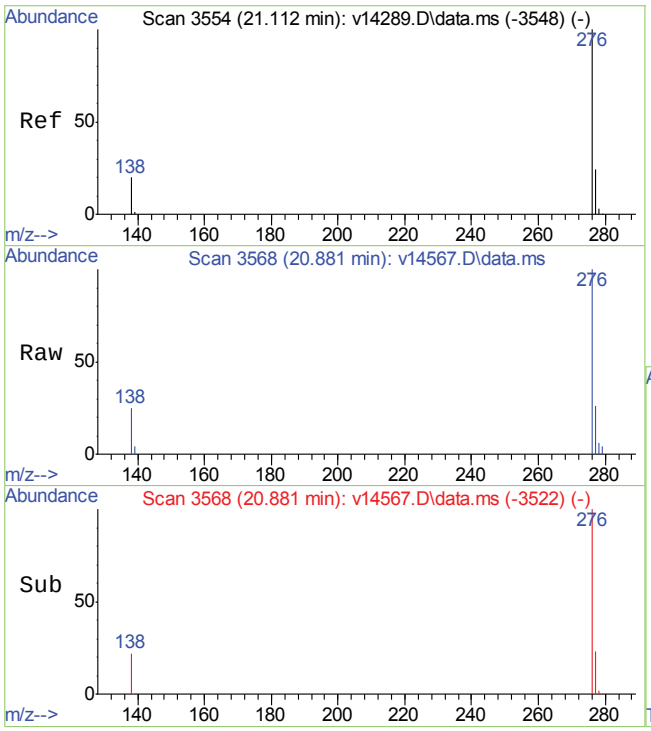


#32
Benzo(a)pyrene
Concen: 1.12 ppm
RT: 18.994 min Scan# 3387
Delta R.T. -0.001 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:252 Resp: 14037

Ion	Ratio	Lower	Upper
252	100		
253	21.6	1.6	41.6
125	12.3	0.0	32.8

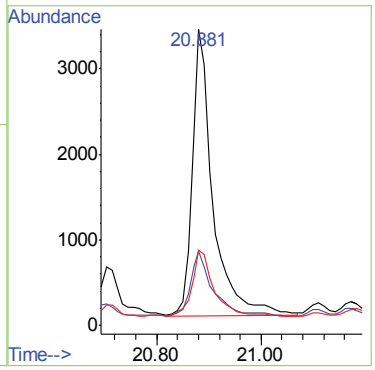


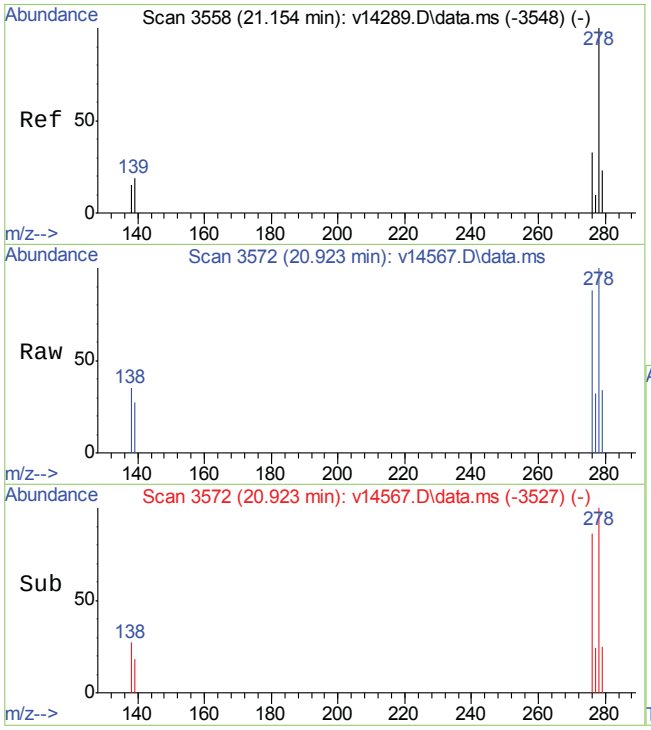


#33
Indeno(1,2,3-cd)pyrene
Concen: 0.86 ppm
RT: 20.881 min Scan# 3568
Delta R.T. -0.016 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:276 Resp: 9227

Ion	Ratio	Lower	Upper
276	100		
138	25.2	2.0	42.0
277	26.0	14.5	54.5

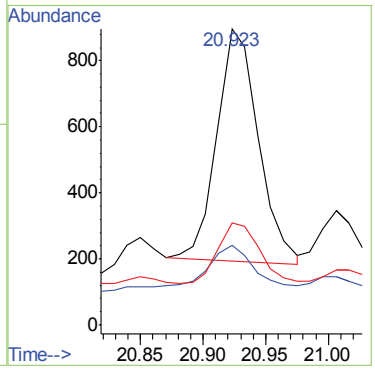


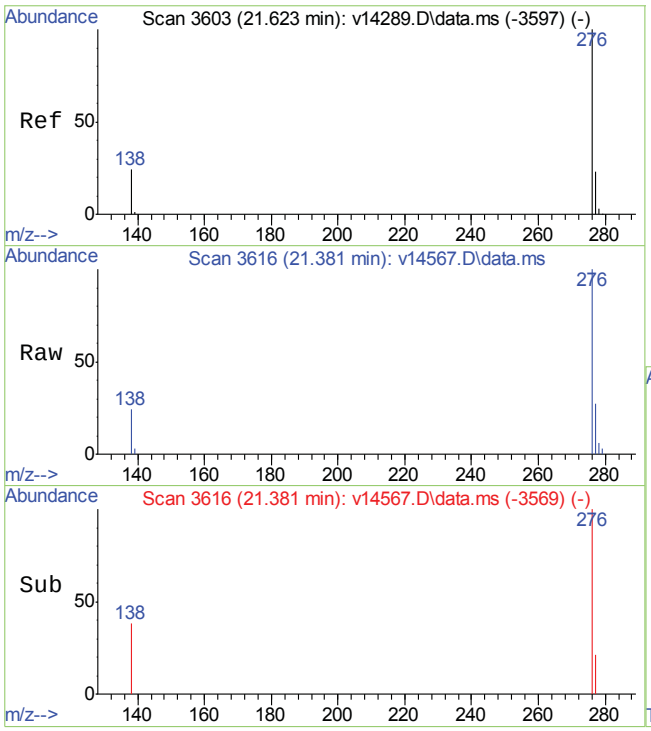


#34
Dibenz(a,h)anthracene
Concen: 0.13 ppm
RT: 20.923 min Scan# 3572
Delta R.T. -0.026 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:278 Resp: 1624

Ion	Ratio	Lower	Upper
278	100		
139	24.9	0.0	39.0
279	26.5	4.0	44.0

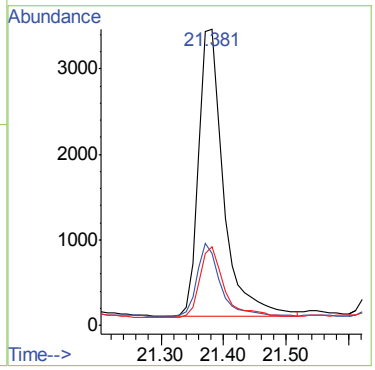




#35
Benzo(g,h,i)perylene
Concen: 0.70 ppm
RT: 21.381 min Scan# 3616
Delta R.T. -0.014 min
Lab File: v14567.D
Acq: 1 Apr 2013 11:41 am

Tgt Ion:276 Resp: 9259

Ion	Ratio	Lower	Upper
276	100		
138	24.0	5.0	45.0
277	24.1	3.4	43.4



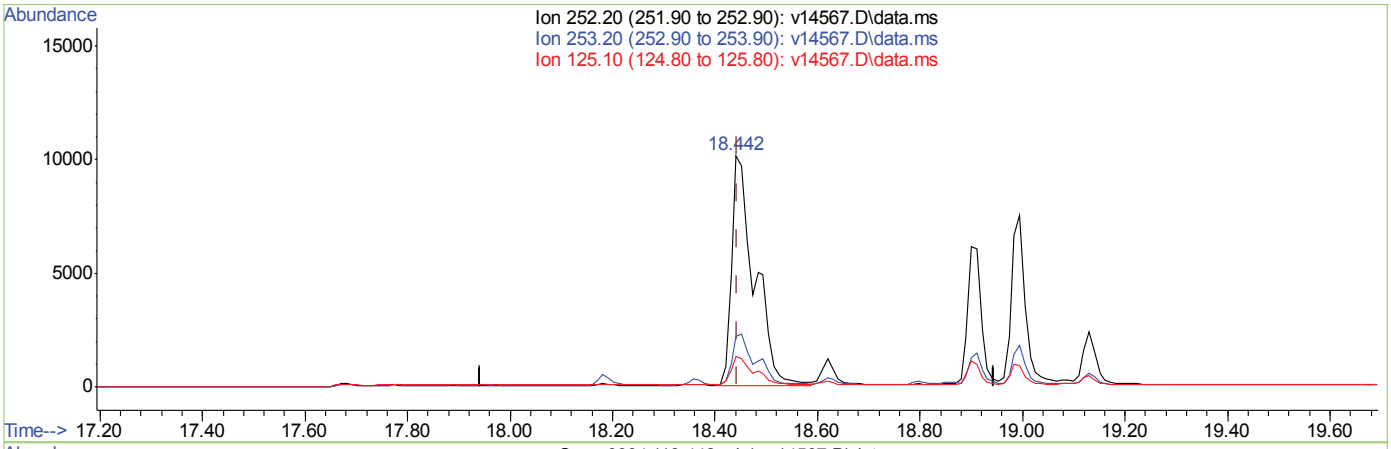
7.1.8

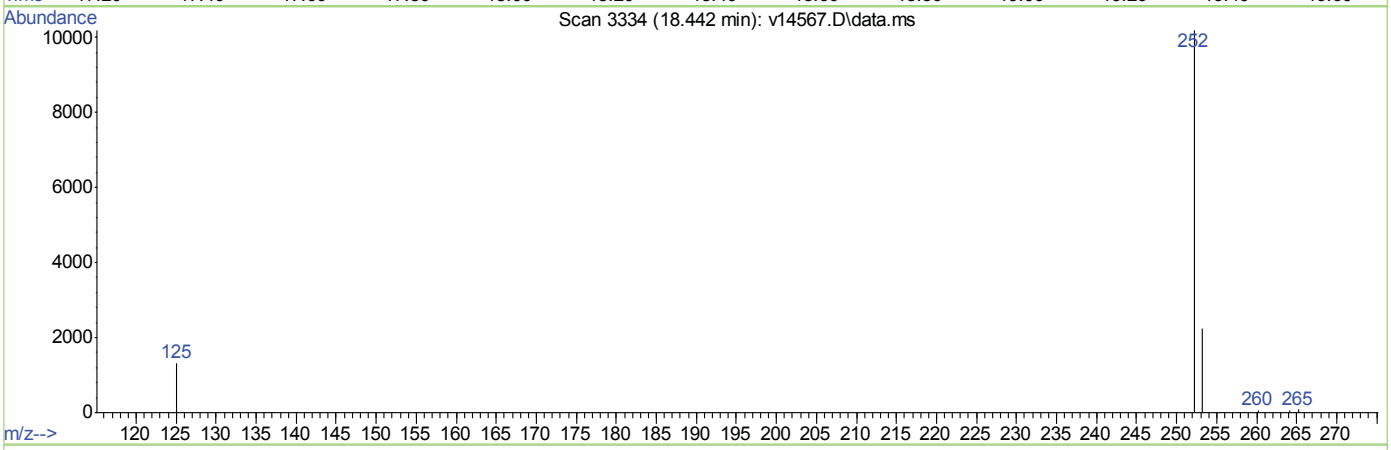
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14567.D
Acq On    :  1 Apr 2013  11:41 am
Operator  : garyj
Sample    : tc27860-7, x10
Misc      : op27766,ev835,30.16,,,1,10,soil
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Apr 01 12:04:21 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14567.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.442min (-0.002) 2.47ppm

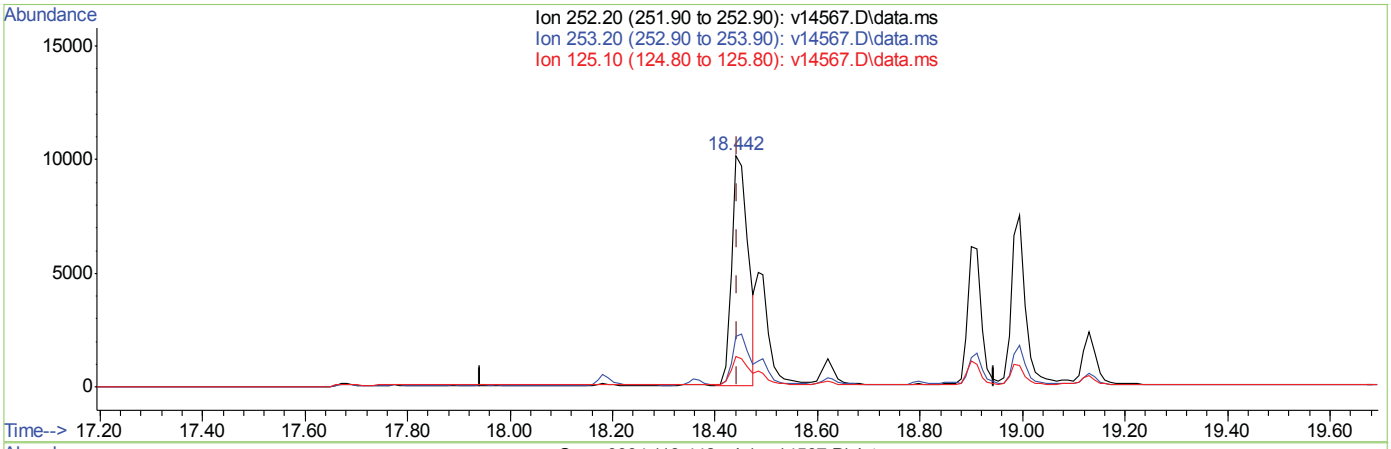
response 31416

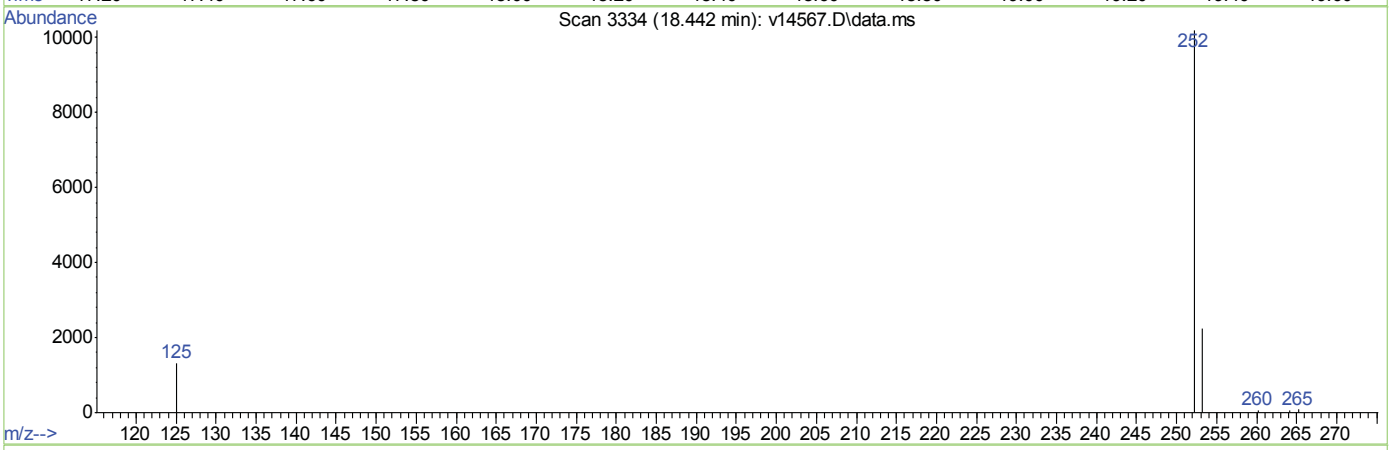
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	22.66
125.10	11.80	12.15
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14567.D
Acq On    :  1 Apr 2013  11:41 am
Operator  : garyj
Sample    : tc27860-7, x10
Misc      : op27766,ev835,30.16,,,1,10,soil
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Apr 01 12:04:21 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14567.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.442min (-0.002) 1.76ppm m

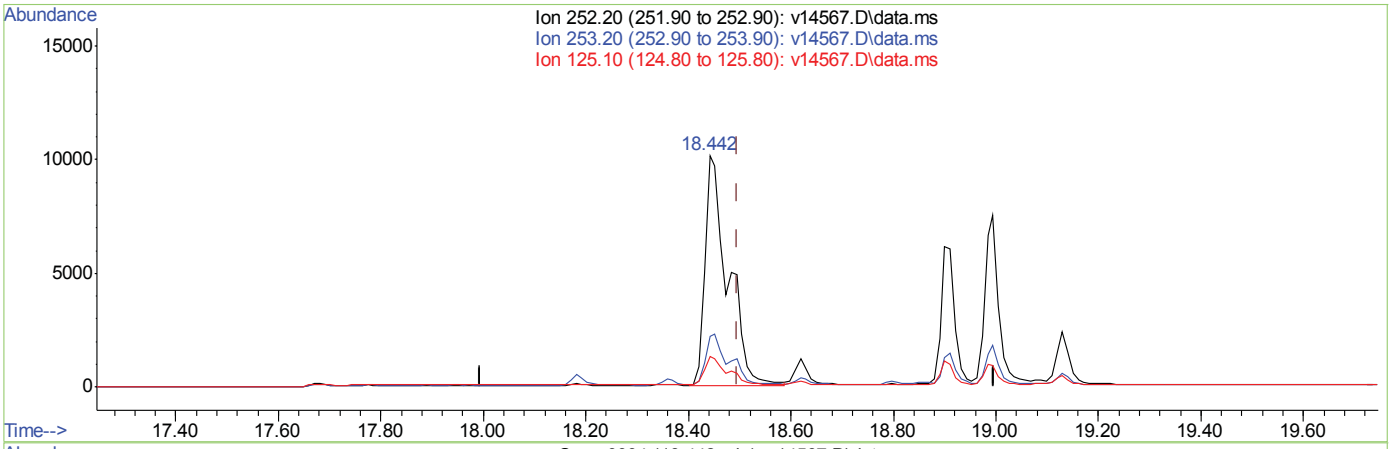
response 22407

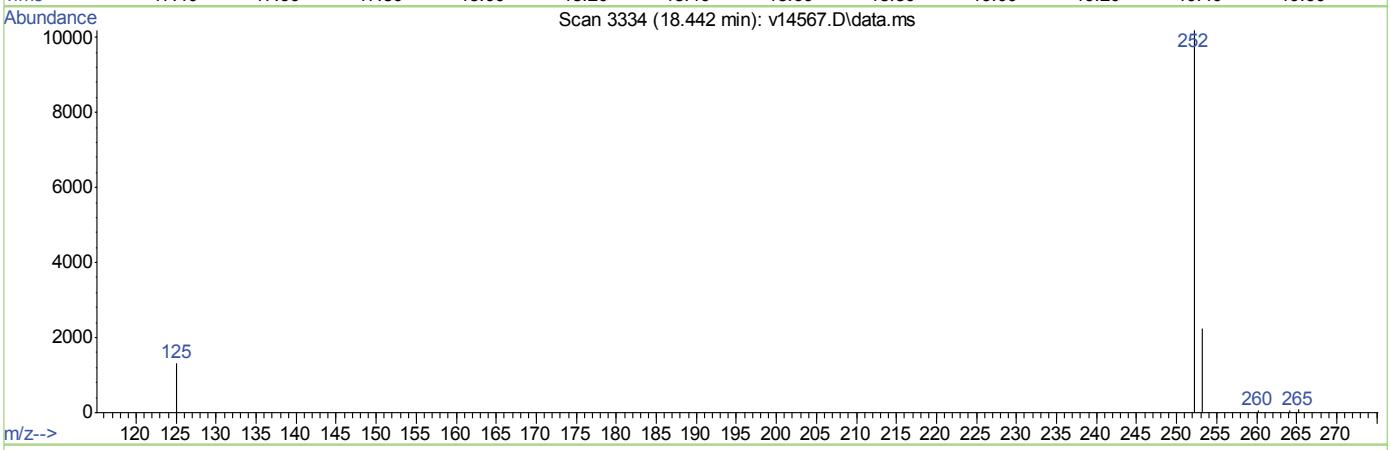
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	31.77
125.10	11.80	17.03
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14567.D
Acq On    :  1 Apr 2013  11:41 am
Operator  : garyj
Sample    : tc27860-7, x10
Misc      : op27766,ev835,30.16,,,1,10,soil
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Apr 01 12:04:21 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14567.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.442min (-0.054) 2.18ppm

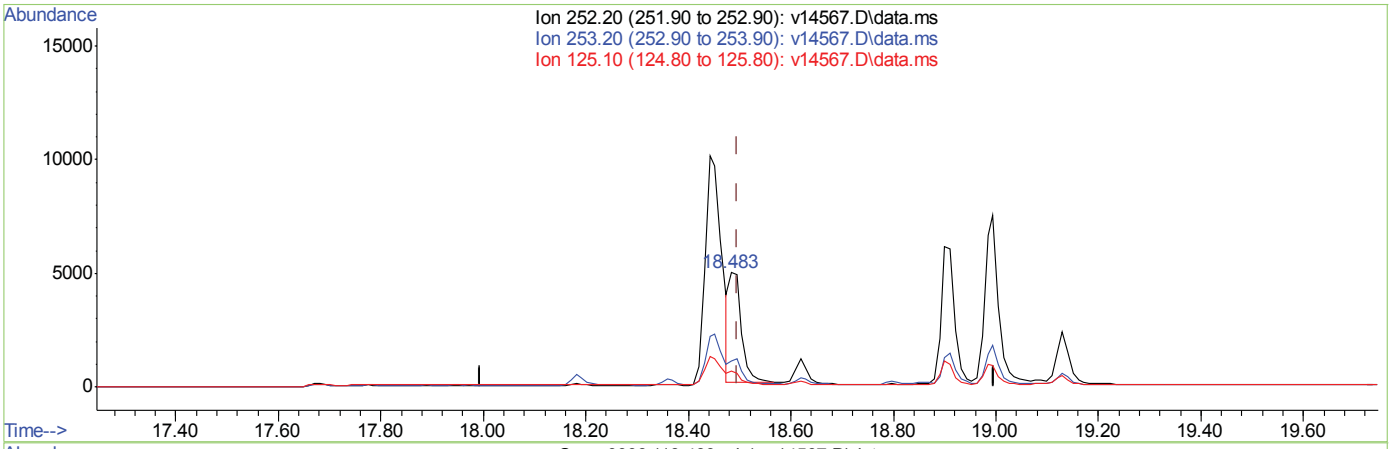
response 31416

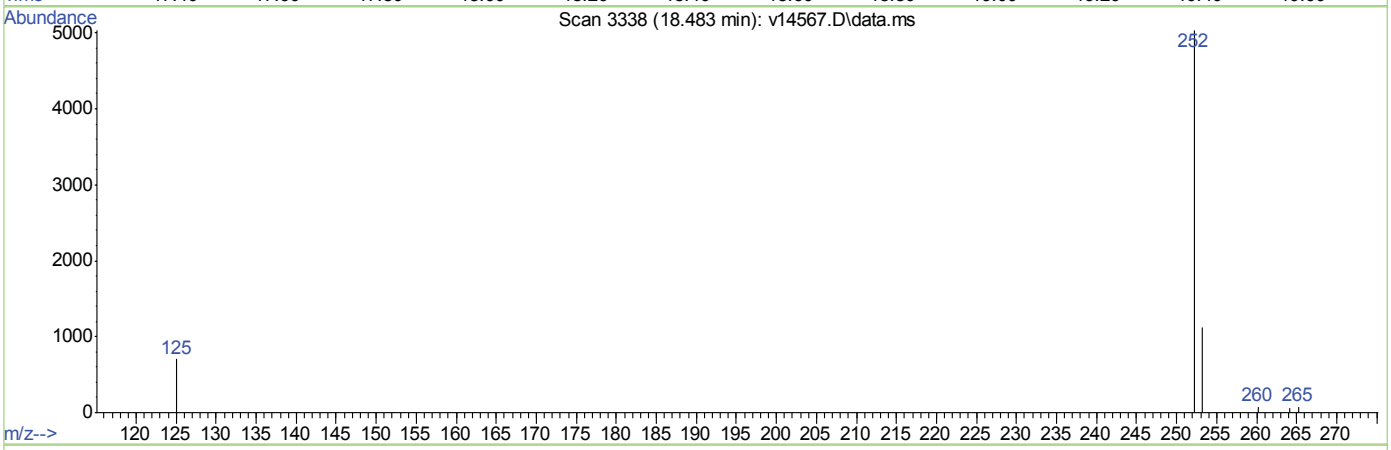
Ion	Exp%	Act%
252.20	100	100
253.20	22.00	22.66
125.10	12.60	12.15
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14567.D
Acq On    :  1 Apr 2013  11:41 am
Operator  : garyj
Sample    : tc27860-7, x10
Misc      : op27766,ev835,30.16,,,1,10,soil
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Apr 01 12:04:21 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14567.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.483min (-0.013) 0.56ppm m

response 8099

Ion	Exp%	Act%
252.20	100	100
253.20	22.00	87.89
125.10	12.60	47.13
0.00	0.00	0.00

7.1.8.4

7

Manual Integrations
RVD
(Compounds with m fla)
John Watson
04/02/13 12:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14578.D
Acq On : 1 Apr 2013 4:49 pm
Operator : garyj
Sample : tc27860-7
Misc : op27766,ev835,30.16,,,1,1,soil
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Apr 01 17:35:04 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	14869	4.00	ppm	0.00
5) Naphthalene-d8	6.261	136	82956	4.00	ppm	0.00
11) Acenaphthene-d10	8.650	164	41300	4.00	ppm	0.01
17) Phenanthrene-d10	11.300	188	66242	4.00	ppm	0.02
24) Chrysene-d12	16.493	240	38144	4.00	ppm	0.02
29) Perylene-d12	19.119	264	37692	4.00	ppm	0.02
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.168	112	19267	4.49	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 44.90%			
3) Phenol-d5 (SURR)	4.843	99	30748	5.86	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 58.60%			
6) Nitrobenzene-d5 (SURR)	5.553	82	12935	1.97	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 39.40%			
12) 2-Fluorobiphenyl (SURR)	7.618	172	31649	2.04	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 40.80%			
19) 2,4,6-Tribromophenol (...	10.025	330	9371	6.25	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 62.50%			
26) Terphenyl-d14	14.474	244	23058	3.86	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 77.20%			
Target Compounds						Qvalue
7) Naphthalene	6.280	128	4244	0.21	ppm	98
9) 2-Methylnaphthalene	7.109	142	2924	0.21	ppm #	100
10) 1-Methylnaphthalene	7.240	142	2164	0.16	ppm #	98
13) Acenaphthylene	8.420	152	1733	0.10	ppm #	62
14) Acenaphthene	8.703	154	6156	0.54	ppm	100
15) Dibenzofuran	8.998	168	5990	0.37	ppm	83
16) Fluorene	9.588	166	7567	0.55	ppm	97
21) Phenanthrene	11.345	178	339893	17.45	ppm	100
22) Anthracene	11.440	178	57167	3.09	ppm	99
23) Fluoranthene	13.660	202	606136	31.51	ppm	99
25) Pyrene	14.086	202	468555	34.02	ppm #	97
27) Benzo(a)anthracene	16.472	228	177827	13.40	ppm	93
28) Chrysene	16.534	228	196794	15.17	ppm	97
30) Benzo(b)fluoranthene	18.473	252	211137m	20.01	ppm	
31) Benzo(k)fluoranthene	18.515	252	52291m	4.38	ppm	
32) Benzo(a)pyrene	19.015	252	119363	11.46	ppm	97
33) Indeno(1,2,3-cd)pyrene	20.923	276	80049	8.94	ppm	90
34) Dibenz(a,h)anthracene	20.954	278	20831	2.02	ppm	97
35) Benzo(g,h,i)perylene	21.423	276	78540	7.12	ppm	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

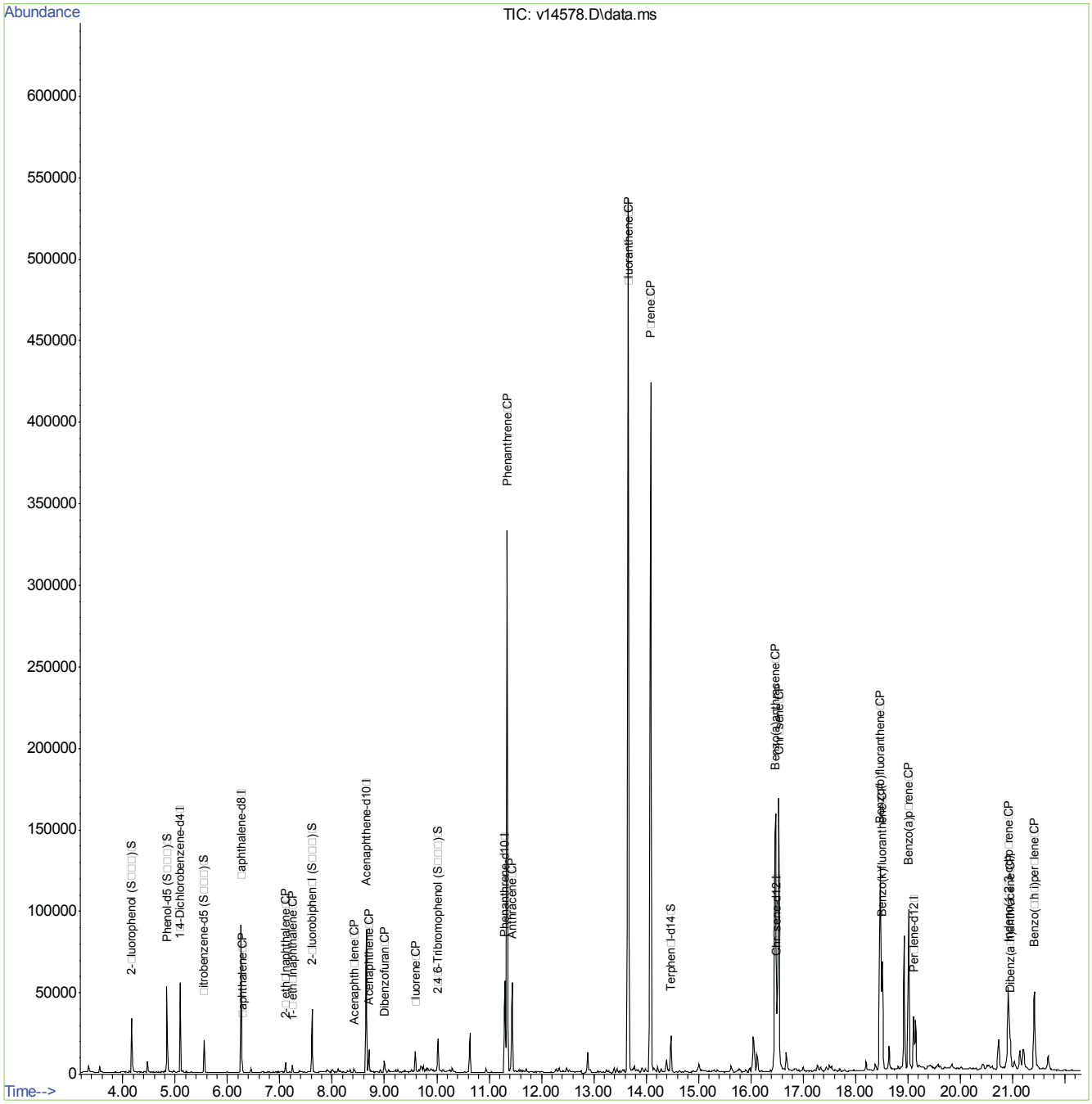
7.1.9

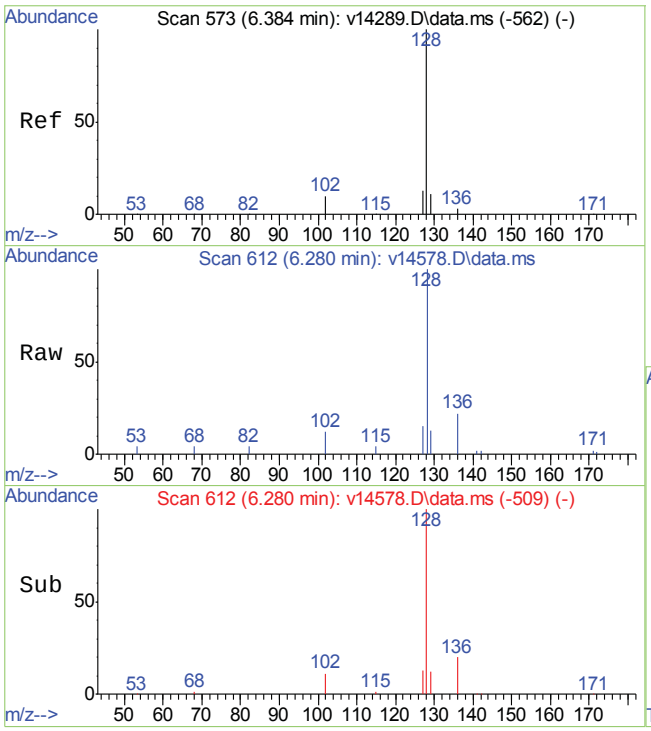
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14578.D
Acq On : 1 Apr 2013 4:49 pm
Operator : garyj
Sample : tc27860-7
Misc : op27766,ev835,30.16,,,1,1,soil
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Apr 01 17:35:04 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

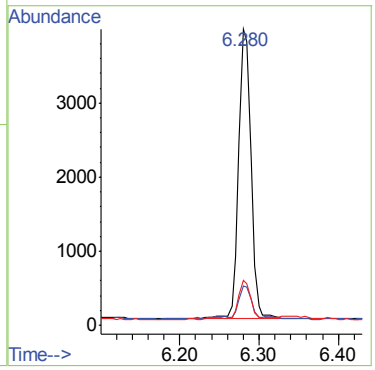


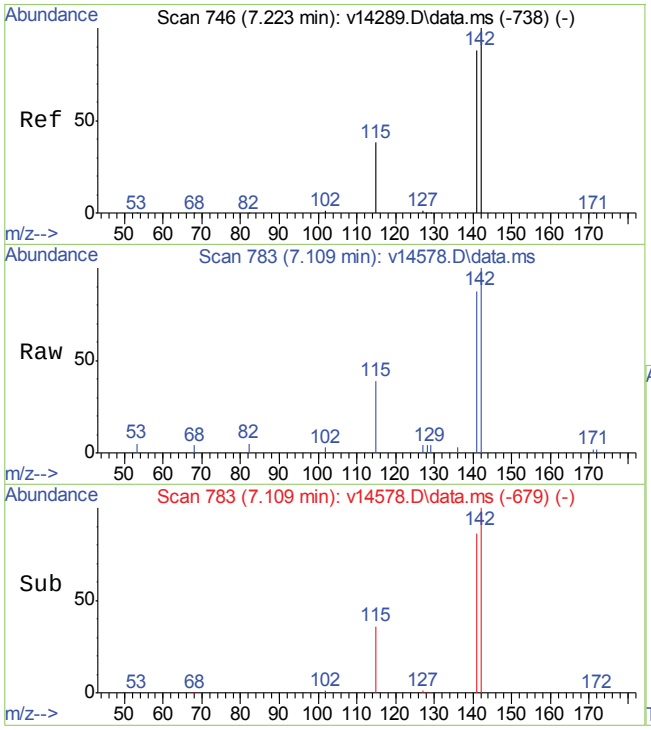


#7
Naphthalene
Concen: 0.21 ppm
RT: 6.280 min Scan# 612
Delta R.T. -0.000 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:128 Resp: 4244

Ion	Ratio	Lower	Upper
128	100		
129	10.2	0.0	31.0
127	12.3	0.0	32.9

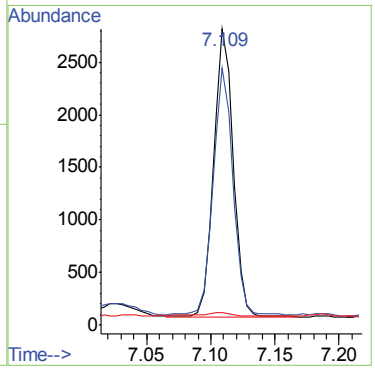


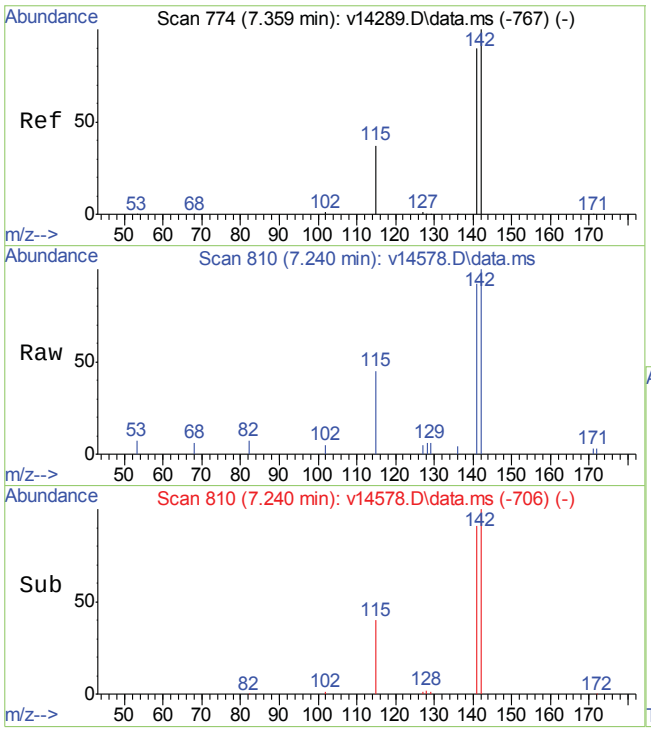


#9
2-Methylnaphthalene
Concen: 0.21 ppm
RT: 7.109 min Scan# 783
Delta R.T. 0.005 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:142 Resp: 2924

Ion	Ratio	Lower	Upper
142	100		
141	86.4	66.0	106.0
127	0.0	0.0	20.7

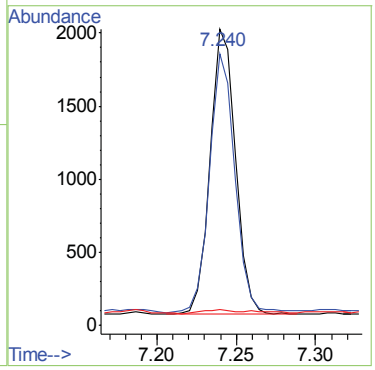


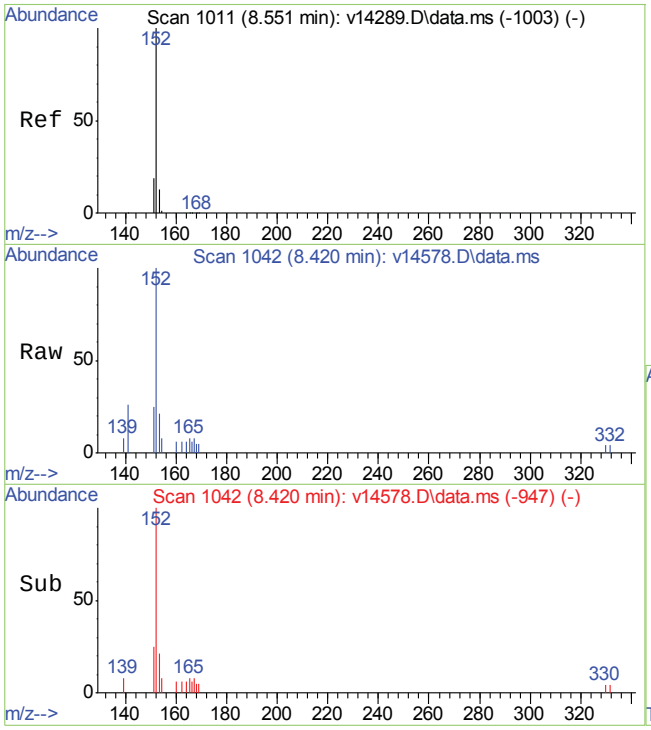


#10
1-Methylnaphthalene
Concen: 0.16 ppm
RT: 7.240 min Scan# 810
Delta R.T. 0.006 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:142 Resp: 2164

Ion	Ratio	Lower	Upper
142	100		
141	91.0	69.6	109.6
127	0.0	0.0	20.6

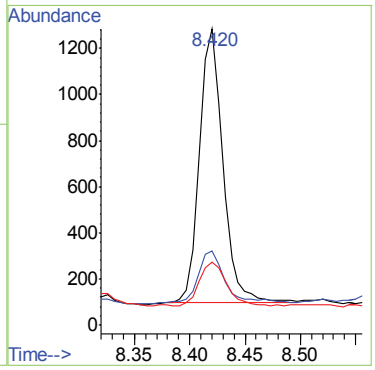




#13
Acenaphthylene
Concen: 0.10 ppm
RT: 8.420 min Scan# 1042
Delta R.T. 0.016 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:152 Resp: 1733

Ion	Ratio	Lower	Upper
152	100		
151	0.0	0.0	39.0
153	0.0	0.0	33.1



7.1.9

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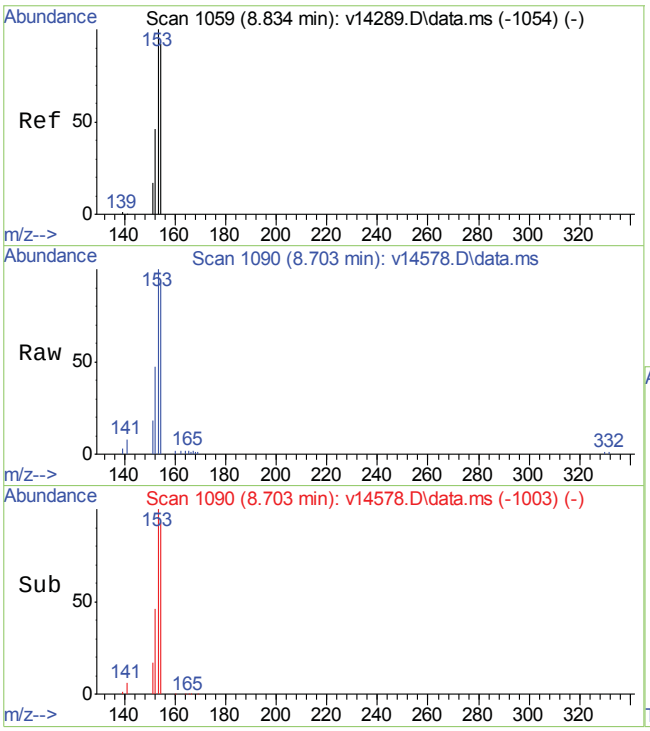
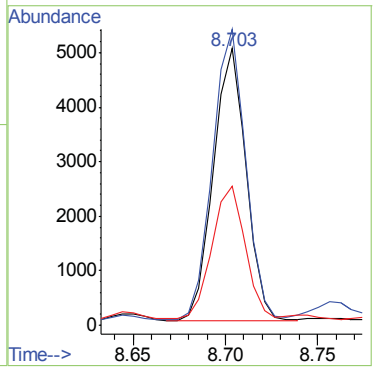
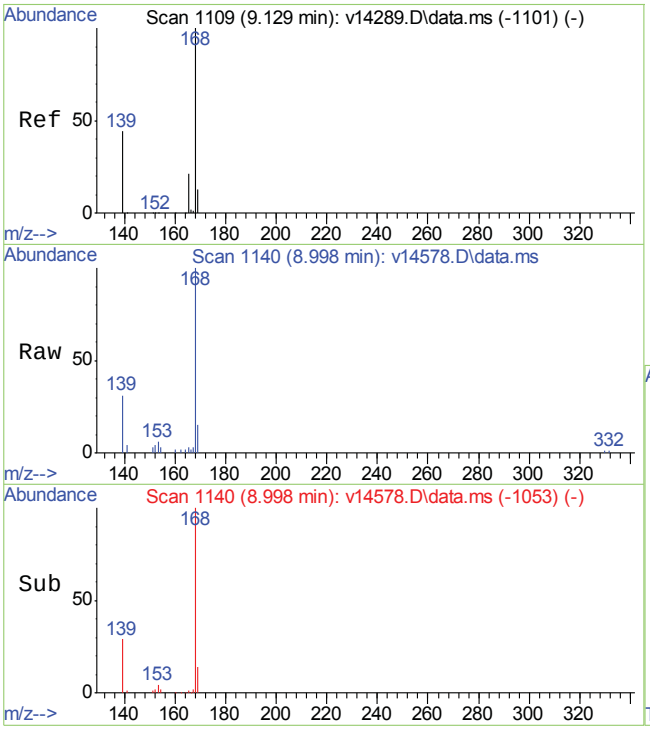


#14
Acenaphthene
Concen: 0.54 ppm
RT: 8.703 min Scan# 1090
Delta R.T. 0.012 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:154 Resp: 6156

Ion	Ratio	Lower	Upper
154	100		
153	107.7	87.7	127.7
152	49.6	29.6	69.6

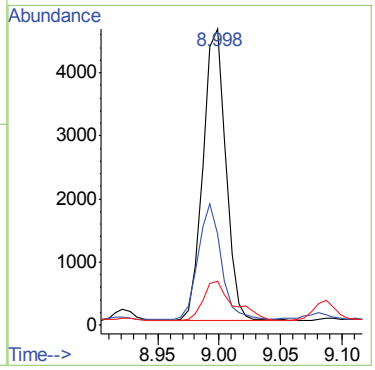


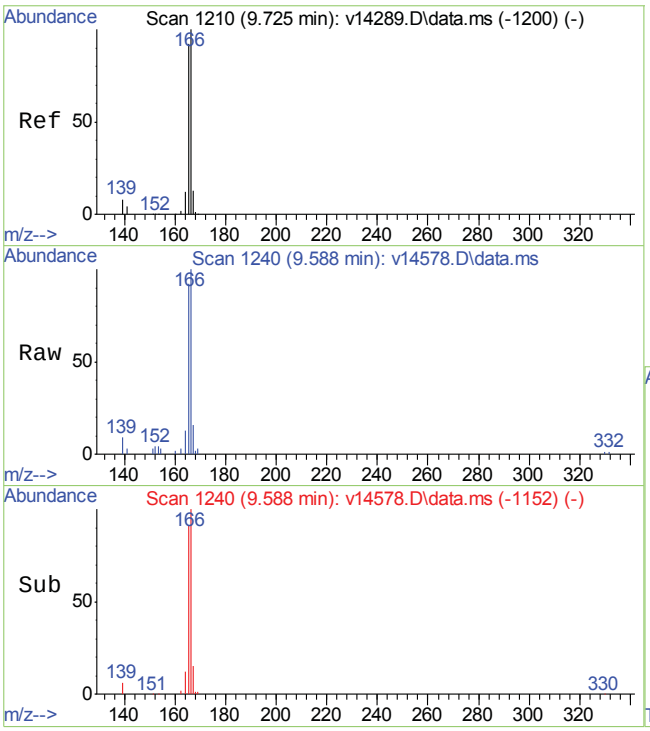


#15
Dibenzofuran
Concen: 0.37 ppm
RT: 8.998 min Scan# 1140
Delta R.T. 0.014 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:168 Resp: 5990

Ion	Ratio	Lower	Upper
168	100		
139	39.9	33.3	73.3
169	17.9	0.0	33.1

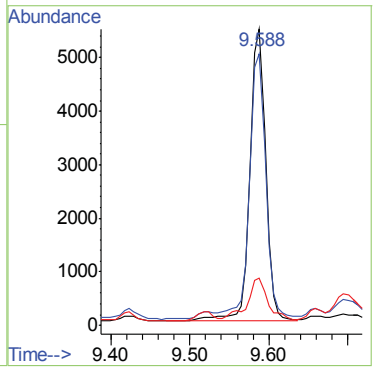


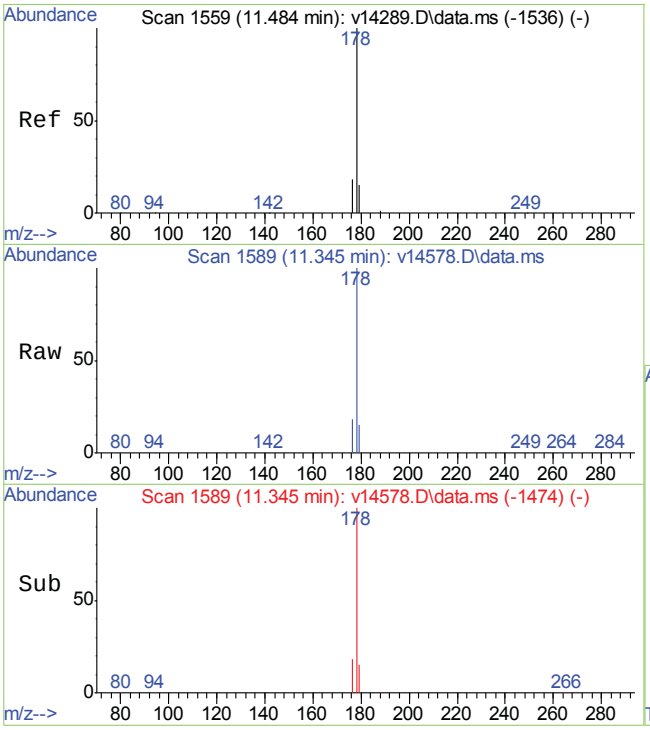


#16
Fluorene
Concen: 0.55 ppm
RT: 9.588 min Scan# 1240
Delta R.T. 0.017 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:166 Resp: 7567

Ion	Ratio	Lower	Upper
166	100		
165	90.2	72.1	112.1
167	18.3	0.0	33.5

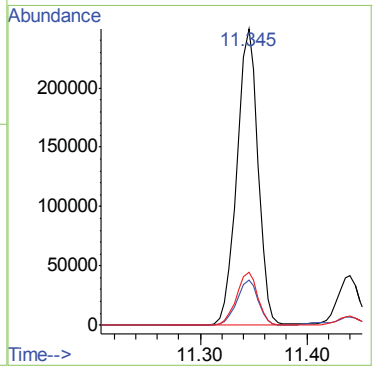




#21
Phenanthrene
Concen: 17.45 ppm
RT: 11.345 min Scan# 1589
Delta R.T. 0.018 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:178 Resp: 339893

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	35.4
176	18.0	0.0	38.0



7.1.9

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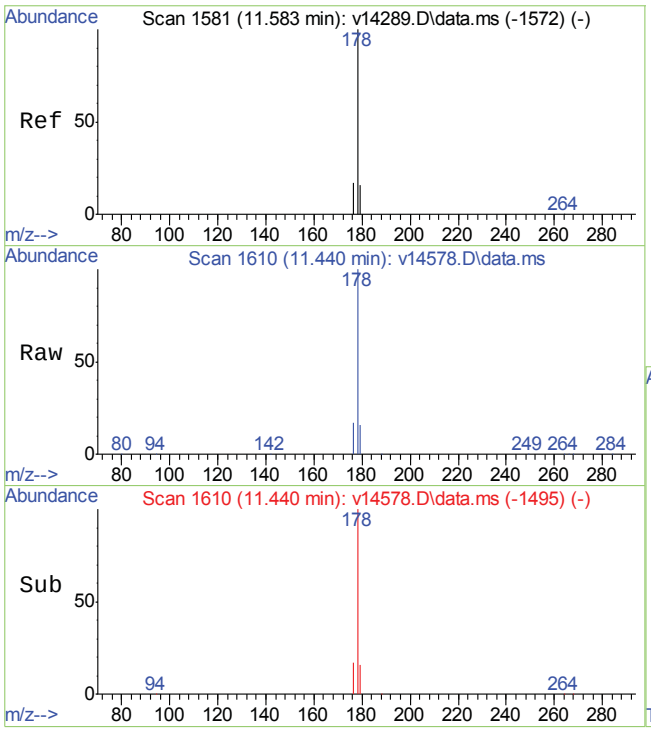
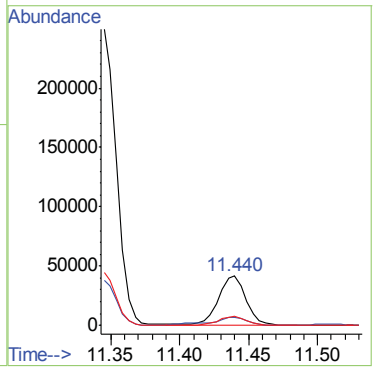
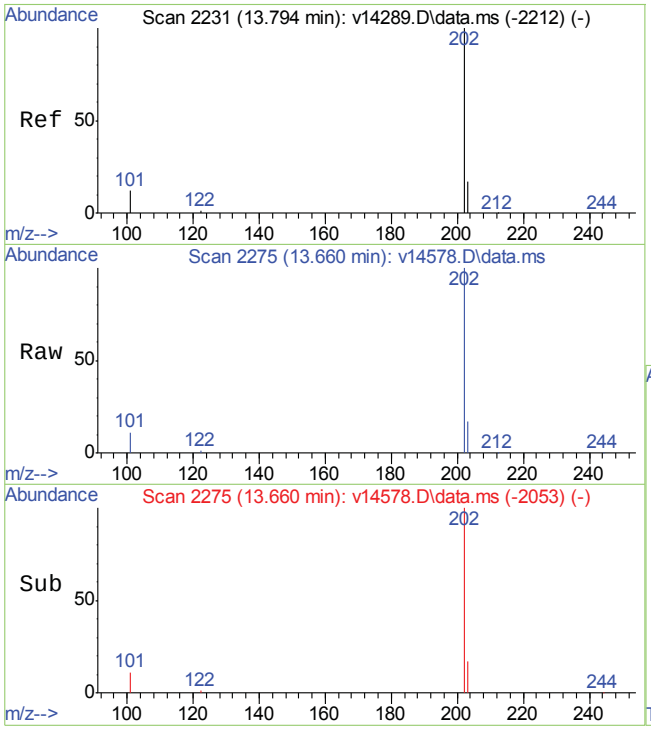


#22
Anthracene
Concen: 3.09 ppm
RT: 11.440 min Scan# 1610
Delta R.T. 0.019 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:178 Resp: 57167

Ion	Ratio	Lower	Upper
178	100		
179	15.7	0.0	35.4
176	17.2	0.0	37.4

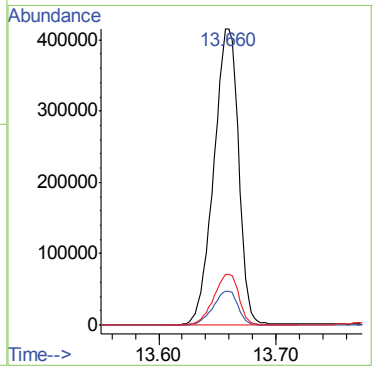


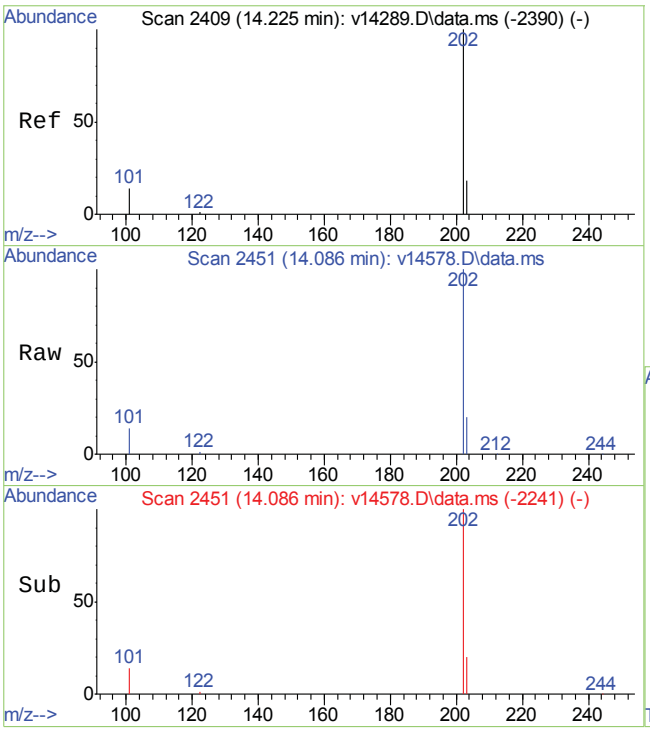


#23
Fluoranthene
Concen: 31.51 ppm
RT: 13.660 min Scan# 2275
Delta R.T. 0.038 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:202 Resp: 606136

Ion	Ratio	Lower	Upper
202	100		
101	11.4	0.0	32.2
203	17.3	0.0	37.3

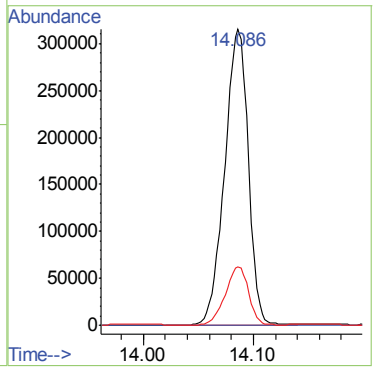


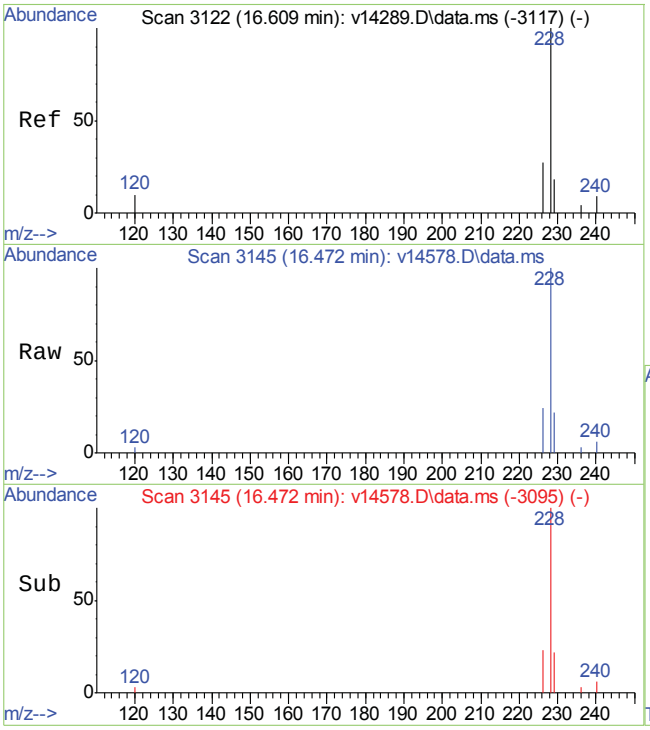


#25
Pyrene
Concen: 34.02 ppm
RT: 14.086 min Scan# 2451
Delta R.T. 0.009 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:202 Resp: 468555

Ion	Ratio	Lower	Upper
202	100		
200	0.0	0.0	20.0
203	19.4	0.0	37.9

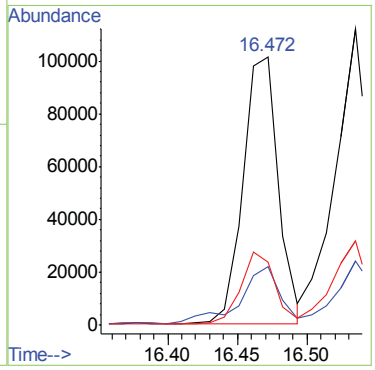




#27
Benzo(a)anthracene
Concen: 13.40 ppm
RT: 16.472 min Scan# 3145
Delta R.T. 0.021 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:228 Resp: 177827

Ion	Ratio	Lower	Upper
228	100		
229	25.4	0.0	39.6
226	26.5	5.5	45.5



7.1.9

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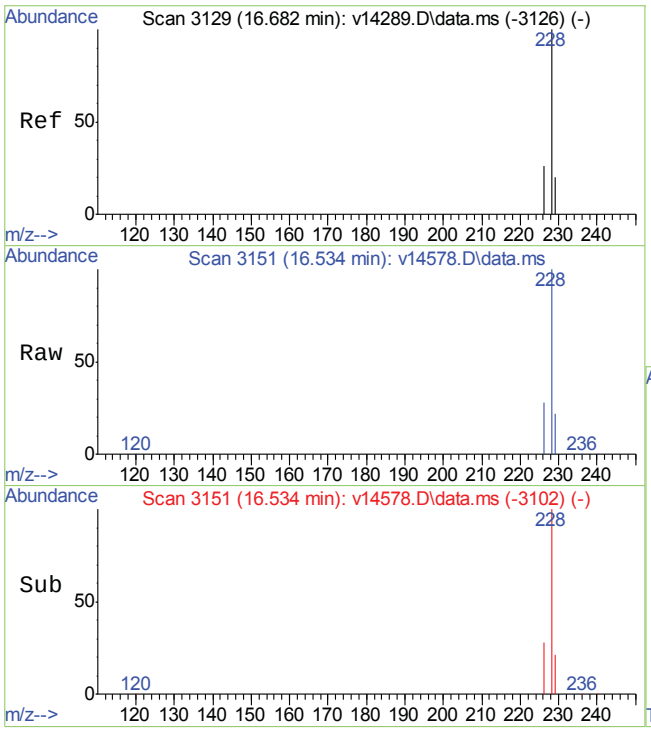
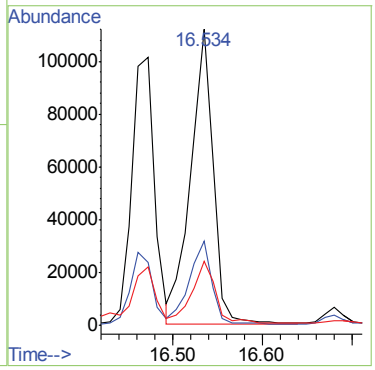
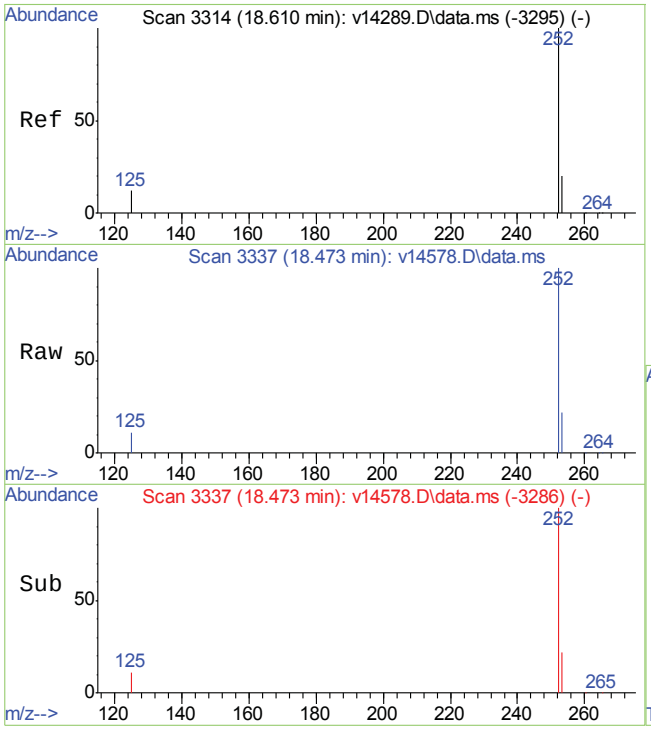


#28
Chrysene
Concen: 15.17 ppm
RT: 16.534 min Scan# 3151
Delta R.T. 0.010 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:228 Resp: 196794

Ion	Ratio	Lower	Upper
228	100		
226	28.7	7.8	47.8
229	21.5	0.0	39.6

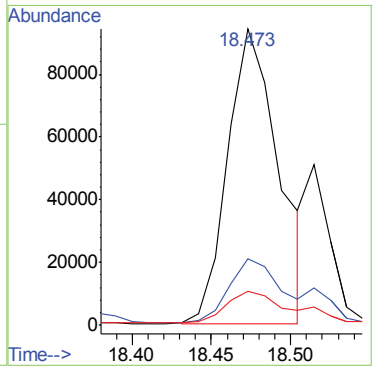


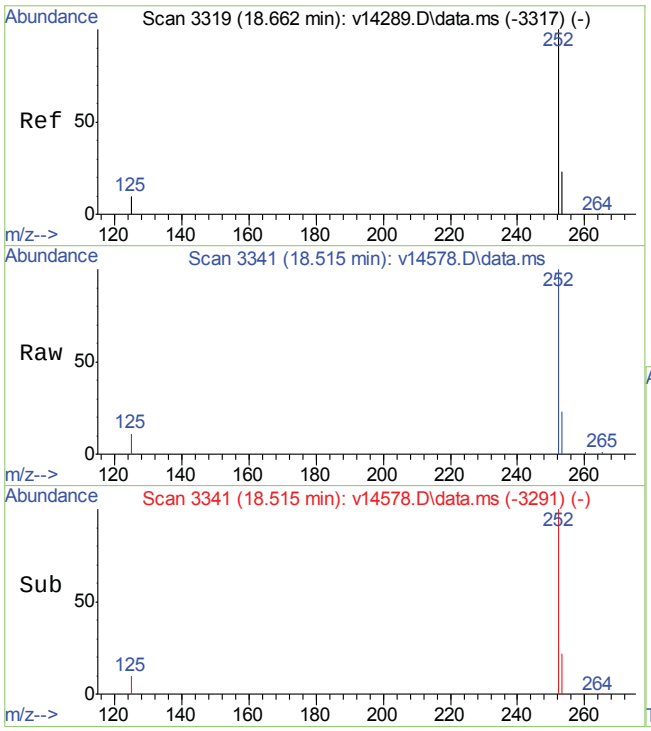


#30
Benzo(b)fluoranthene
Concen: 20.01 ppm m
RT: 18.473 min Scan# 3337
Delta R.T. 0.029 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:252 Resp: 211137

Ion	Ratio	Lower	Upper
252	100		
253	28.0	3.4	43.4
125	13.5	0.0	31.8

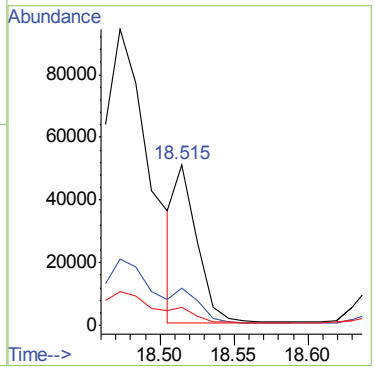


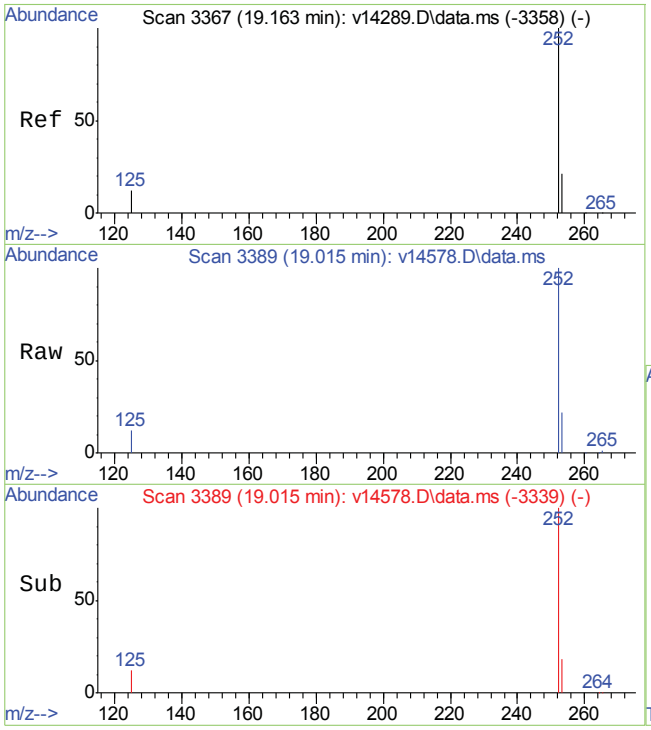


#31
Benzo(k)fluoranthene
Concen: 4.38 ppm m
RT: 18.515 min Scan# 3341
Delta R.T. 0.019 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:252 Resp: 52291

Ion	Ratio	Lower	Upper
252	100		
253	112.9	2.0	42.0#
125	54.5	0.0	32.6#

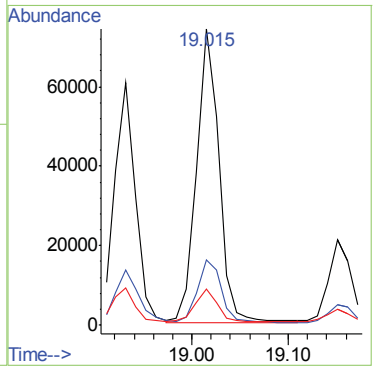


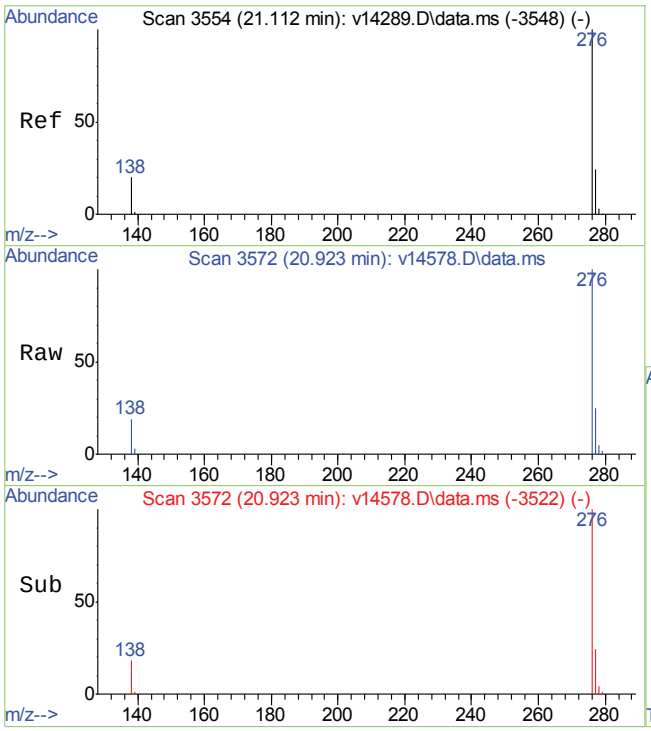


#32
Benzo(a)pyrene
Concen: 11.46 ppm
RT: 19.015 min Scan# 3389
Delta R.T. 0.020 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:252 Resp: 119363

Ion	Ratio	Lower	Upper
252	100		
253	22.6	1.6	41.6
125	10.8	0.0	32.8

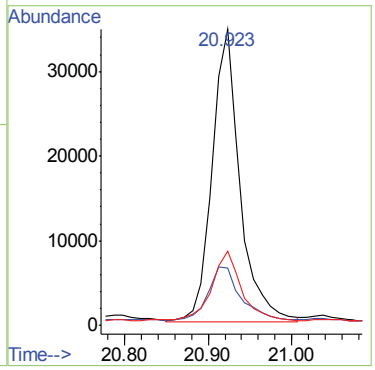


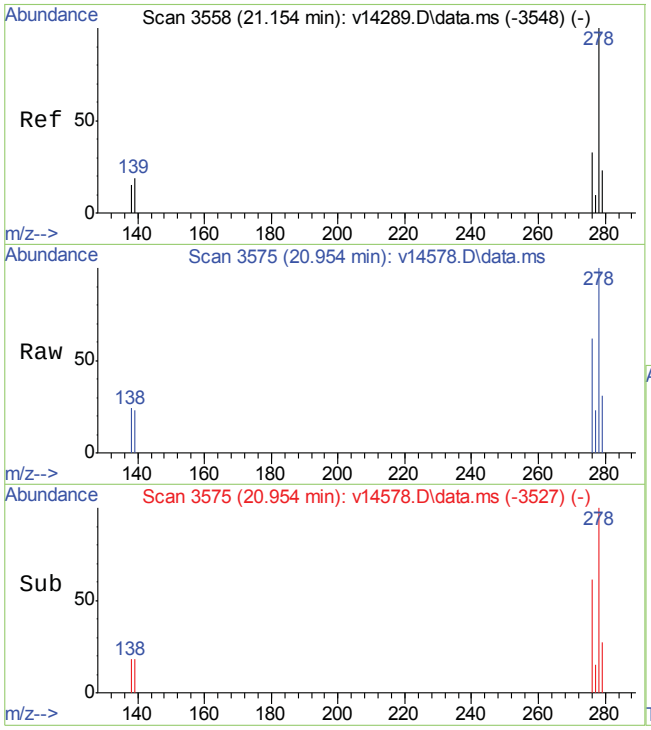


#33
Indeno(1,2,3-cd)pyrene
Concen: 8.94 ppm
RT: 20.923 min Scan# 3572
Delta R.T. 0.026 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:276 Resp: 80049

Ion	Ratio	Lower	Upper
276	100		
138	22.1	2.0	42.0
277	24.8	14.5	54.5

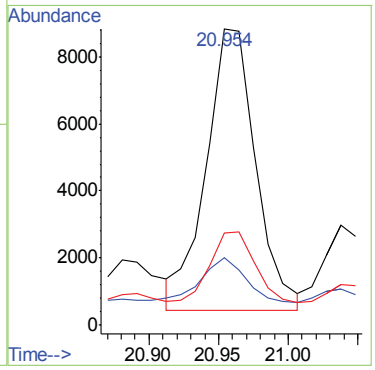


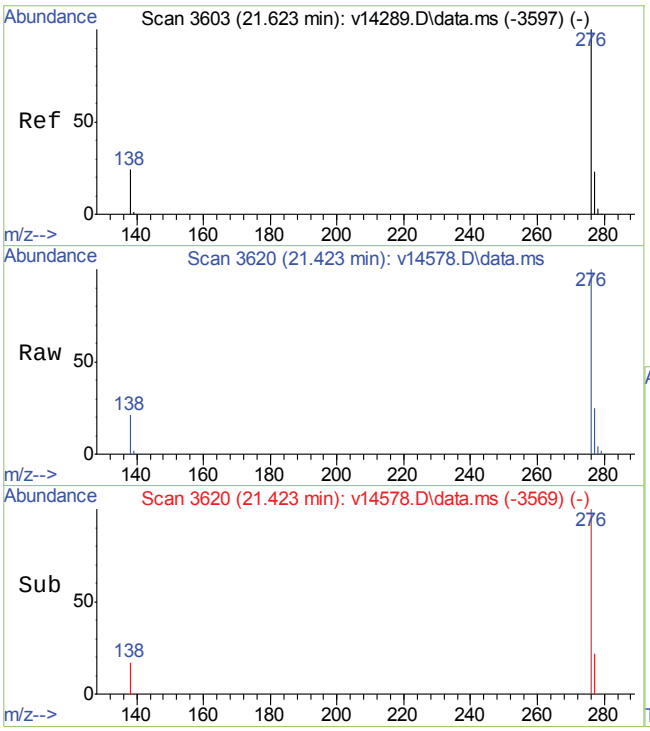


#34
Dibenz(a,h)anthracene
Concen: 2.02 ppm
RT: 20.954 min Scan# 3575
Delta R.T. 0.005 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:278 Resp: 20831

Ion	Ratio	Lower	Upper
278	100		
139	19.0	0.0	39.0
279	26.8	4.0	44.0

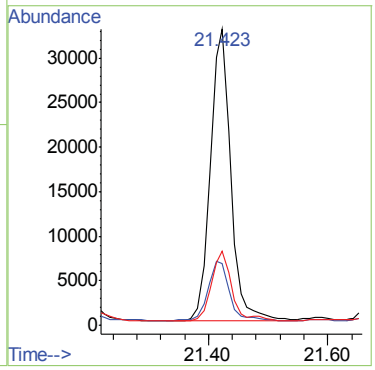




#35
Benzo(g,h,i)perylene
Concen: 7.12 ppm
RT: 21.423 min Scan# 3620
Delta R.T. 0.028 min
Lab File: v14578.D
Acq: 1 Apr 2013 4:49 pm

Tgt Ion:276 Resp: 78540

Ion	Ratio	Lower	Upper
276	100		
138	21.2	5.0	45.0
277	24.3	3.4	43.4



7.1.9

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Quantitation Report (Qedit)

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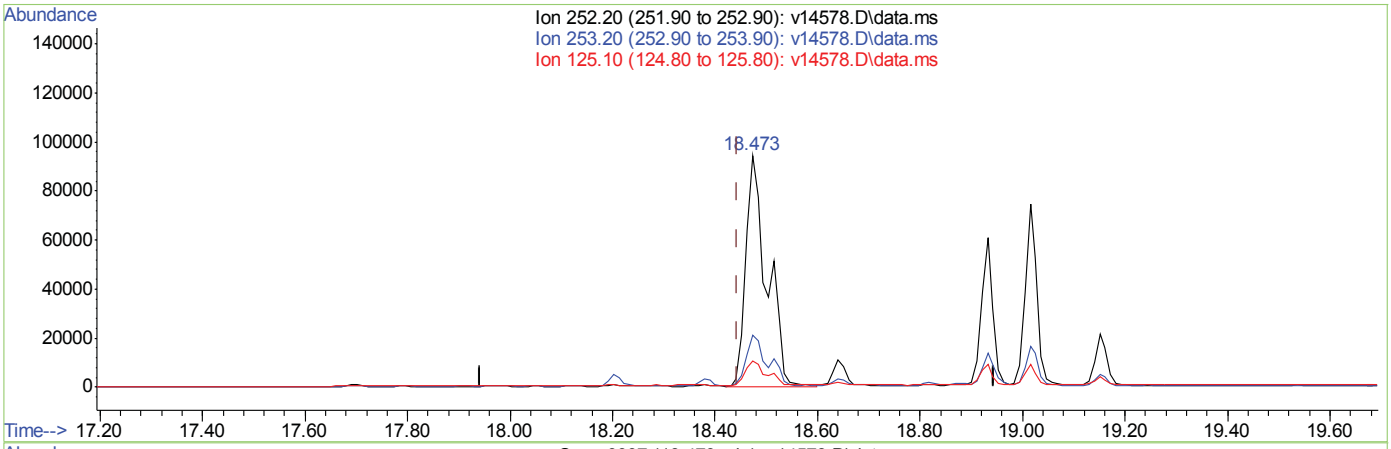
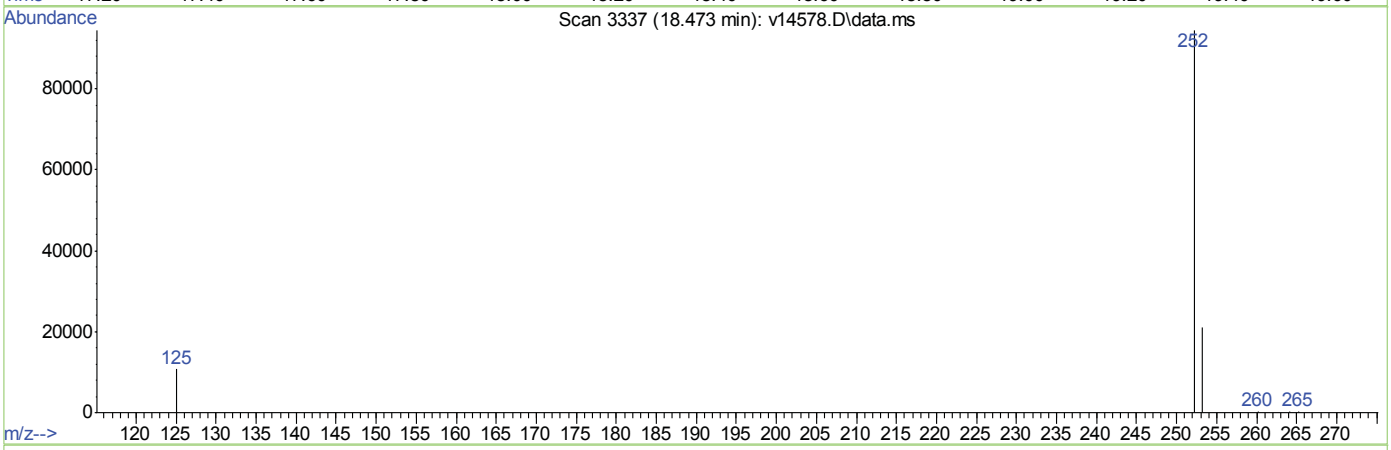
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14578.D
Acq On    :  1 Apr 2013   4:49 pm
Operator  : garyj
Sample    : tc27860-7
Misc      : op27766,ev835,30.16,,,1,1,soil
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Apr 01 17:34:19 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14578.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.473min (□0.029) 25.22ppm

response 266143

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	22.19
125.10	11.80	10.71
0.00	0.00	0.00

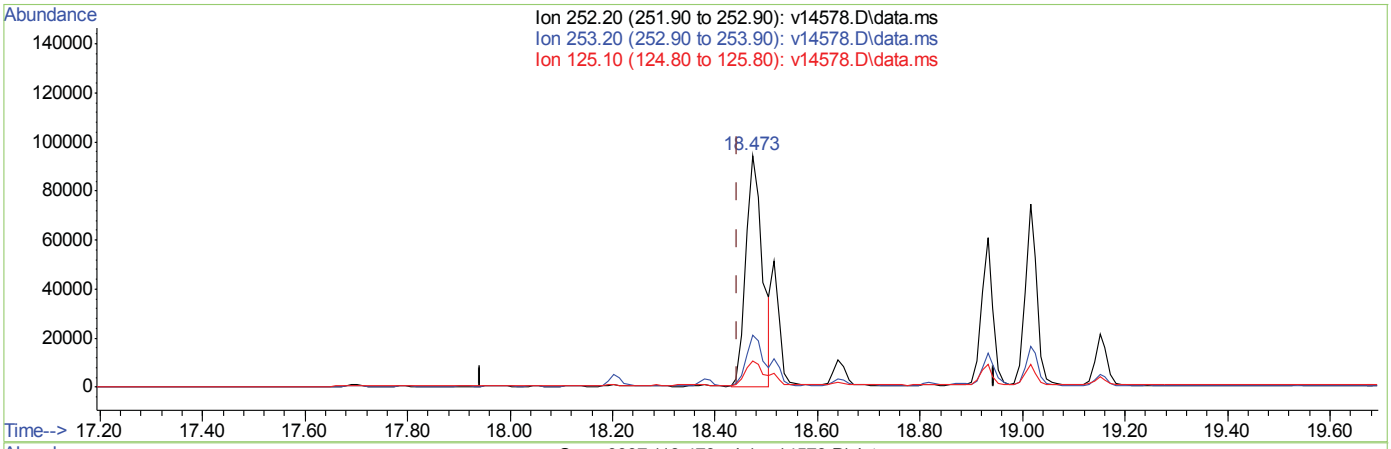
7.1.9.1

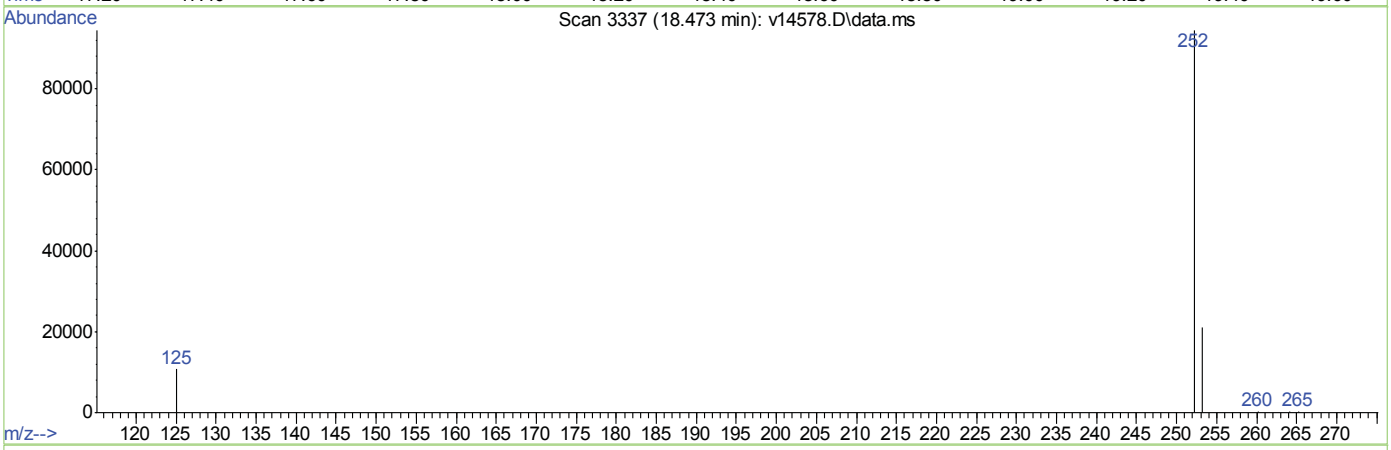
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14578.D
Acq On    :  1 Apr 2013   4:49 pm
Operator  : garyj
Sample    : tc27860-7
Misc      : op27766,ev835,30.16,,,1,1,soil
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Apr 01 17:34:19 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14578.D\data.ms

(30) Benzo(b)fluoranthene (CP)

18.473min (□0.029) 20.01ppm m

response 211137

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	27.97
125.10	11.80	13.49
0.00	0.00	0.00

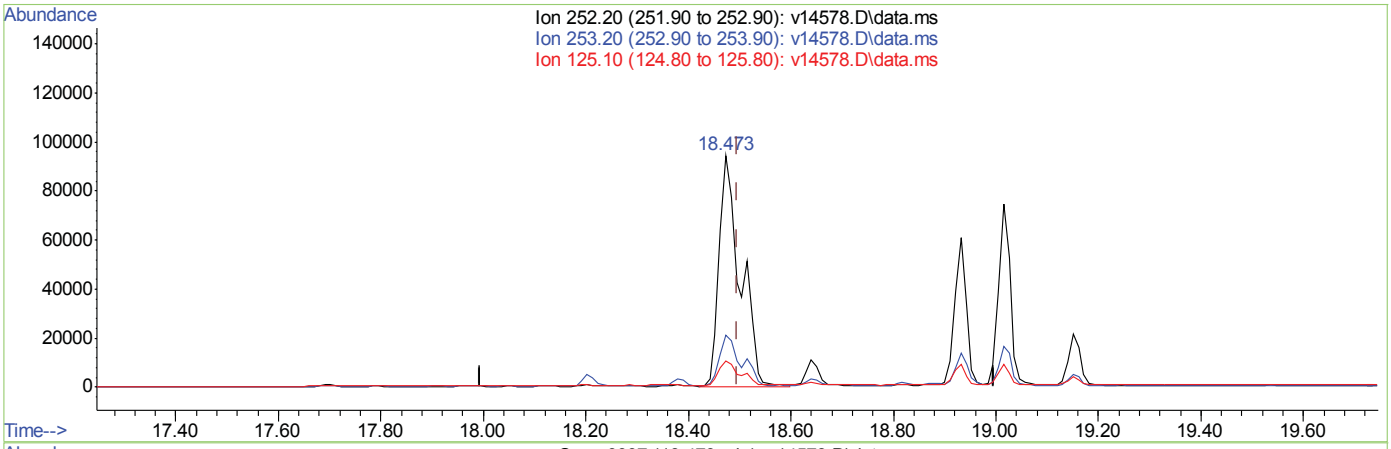
7.1.9.2

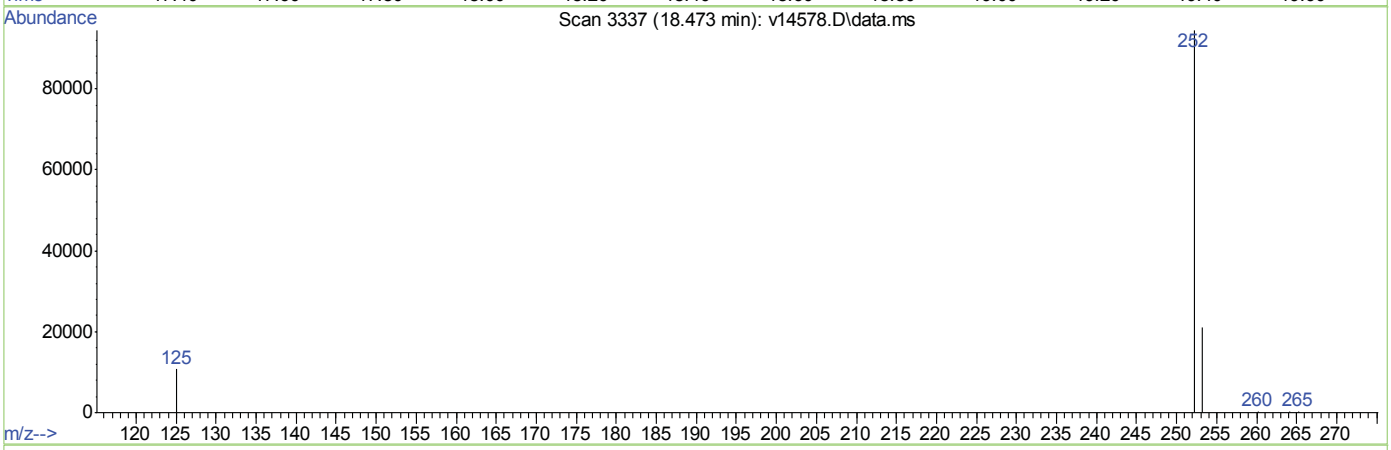
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14578.D
Acq On    :  1 Apr 2013   4:49 pm
Operator  : garyj
Sample    : tc27860-7
Misc      : op27766,ev835,30.16,,,1,1,soil
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Apr 01 17:34:19 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14578.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.473min (-0.023) 22.28ppm

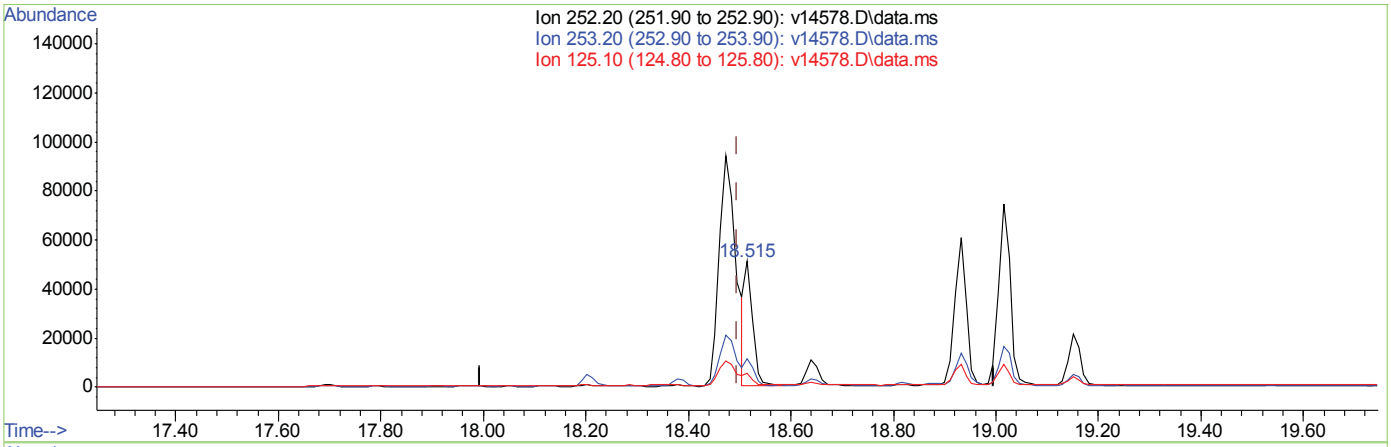
response 266143

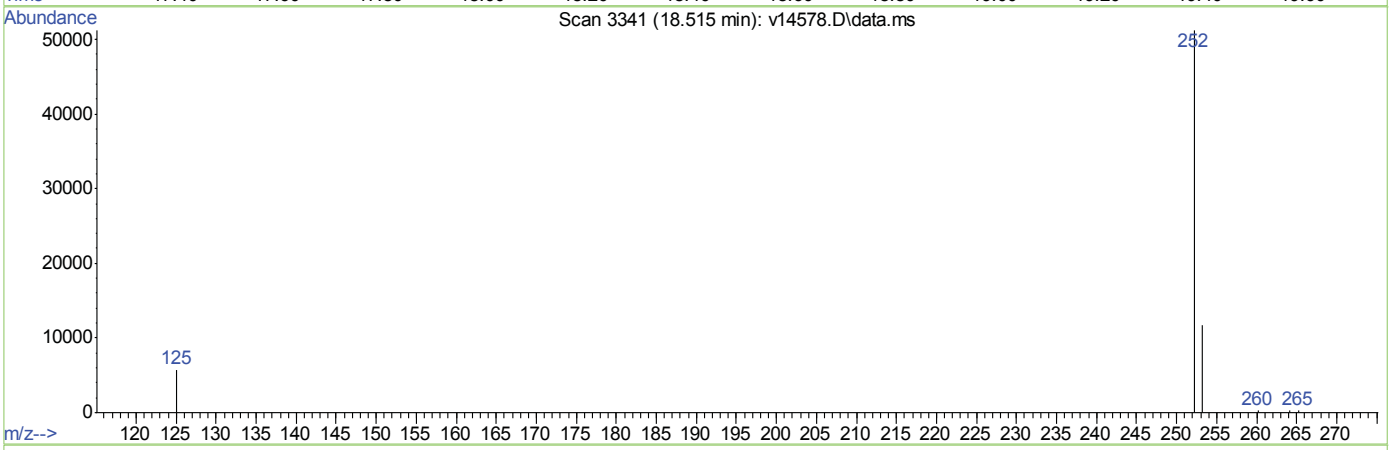
Ion	Exp%	Act%
252.20	100	100
253.20	22.00	22.19
125.10	12.60	10.71
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14578.D
Acq On    :  1 Apr 2013   4:49 pm
Operator  : garyj
Sample    : tc27860-7
Misc      : op27766,ev835,30.16,,,1,1,soil
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Apr 01 17:34:19 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14578.D\data.ms

(31) Benzo(k)fluoranthene (CP)

18.515min (□0.019) 4.38ppm m

response 52291

Ion	Exp%	Act%
252.20	100	100
253.20	22.00	112.95□
125.10	12.60	54.49□
0.00	0.00	0.00

7.1.9.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14553.D
Acq On : 29 Mar 2013 4:56 pm
Operator : garyj
Sample : tc27860-8
Misc : op27767,ev834,200,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 01 08:59:59 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.108	152	11307	4.00	ppm	0.00
5) Naphthalene-d8	6.265	136	57931	4.00	ppm	0.00
11) Acenaphthene-d10	8.662	164	30110	4.00	ppm	0.00
17) Phenanthrene-d10	11.304	188	54037	4.00	ppm	0.00
24) Chrysene-d12	16.493	240	39902	4.00	ppm	0.00
29) Perylene-d12	19.119	264	44393	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	0.000	112	0	0.00	ppm	
Spiked Amount 10.000	Range 21 - 100		Recovery = 0.00%#			
3) Phenol-d5 (SURR)	0.000	99	0d	0.00	ppm	
Spiked Amount 10.000	Range 10 - 94		Recovery = 0.00%#			
6) Nitrobenzene-d5 (SURR)	5.562	82	13767	3.00	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery = 60.00%			
12) 2-Fluorobiphenyl (SURR)	7.623	172	34668	3.07	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery = 61.40%			
19) 2,4,6-Tribromophenol (...	0.000	330	0	0.00	ppm	
Spiked Amount 10.000	Range 18 - 143		Recovery = 0.00%#			
26) Terphenyl-d14	14.479	244	24819	3.97	ppm	-0.01
Spiked Amount 5.000	Range 21 - 144		Recovery = 79.40%			

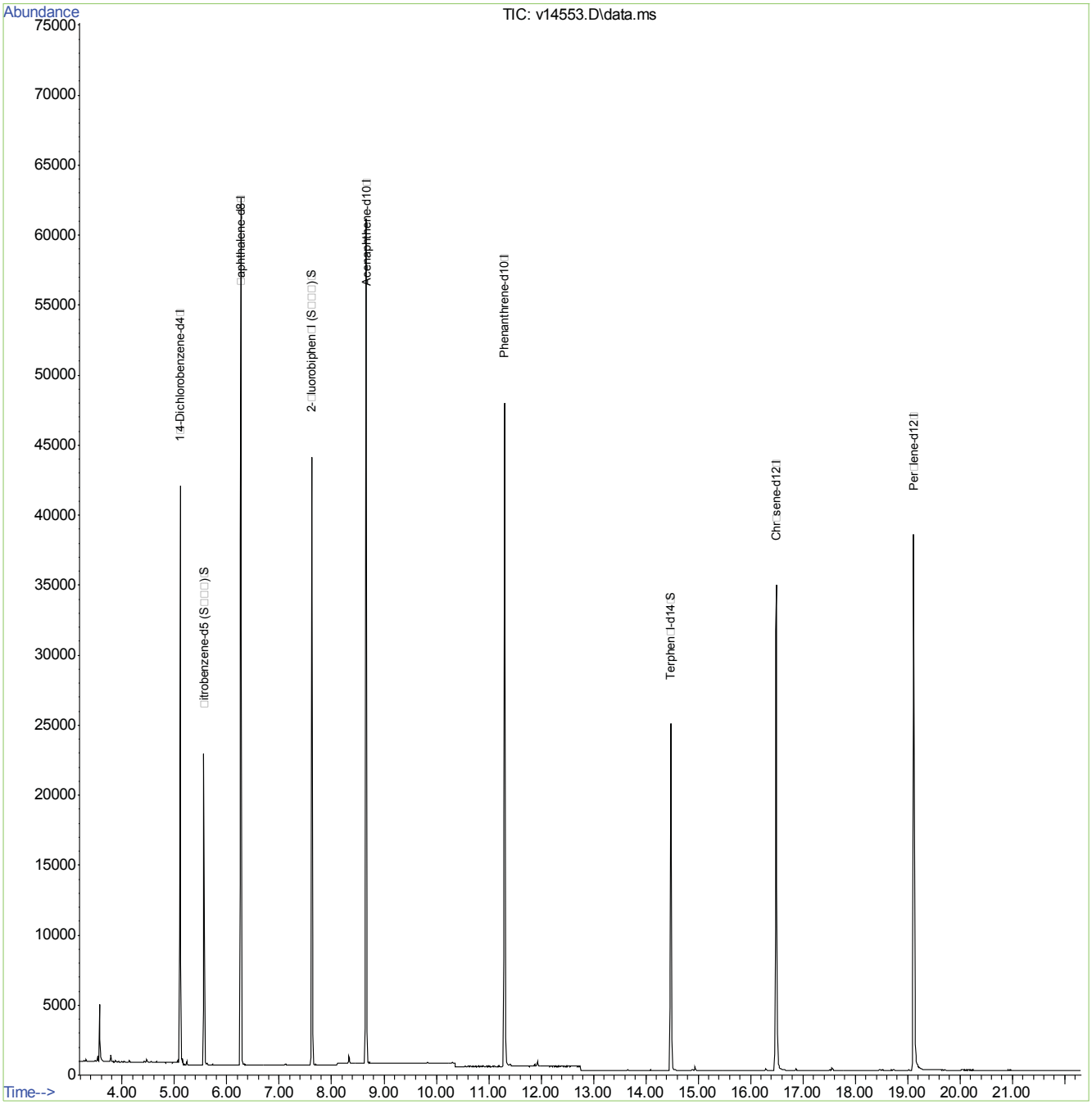
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14553.D
Acq On : 29 Mar 2013 4:56 pm
Operator : garyj
Sample : tc27860-8
Misc : op27767,ev834,200,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Apr 01 08:59:59 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration



ev831sim.m Mon Apr 01 09:00:32 2013 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14554.D
Acq On : 29 Mar 2013 5:24 pm
Operator : garyj
Sample : tc27860-9
Misc : op27767,ev834,200,,,1,1,water
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Apr 01 09:01:16 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.108	152	11355	4.00	ppm	0.00
5) Naphthalene-d8	6.266	136	57898	4.00	ppm	0.00
11) Acenaphthene-d10	8.656	164	29358	4.00	ppm	0.00
17) Phenanthrene-d10	11.305	188	52878	4.00	ppm	0.00
24) Chrysene-d12	16.493	240	37764	4.00	ppm	0.00
29) Perylene-d12	19.119	264	42649	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	0.000	112	0	0.00	ppm	
Spiked Amount 10.000	Range 21 - 100		Recovery = 0.00%#			
3) Phenol-d5 (SURR)	0.000	99	0	0.00	ppm	
Spiked Amount 10.000	Range 10 - 94		Recovery = 0.00%#			
6) Nitrobenzene-d5 (SURR)	5.563	82	16446	3.59	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery = 71.80%			
12) 2-Fluorobiphenyl (SURR)	7.623	172	40580	3.68	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery = 73.60%			
19) 2,4,6-Tribromophenol (...	0.000	330	0	0.00	ppm	
Spiked Amount 10.000	Range 18 - 143		Recovery = 0.00%#			
26) Terphenyl-d14	14.479	244	25642	4.34	ppm	-0.01
Spiked Amount 5.000	Range 21 - 144		Recovery = 86.80%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

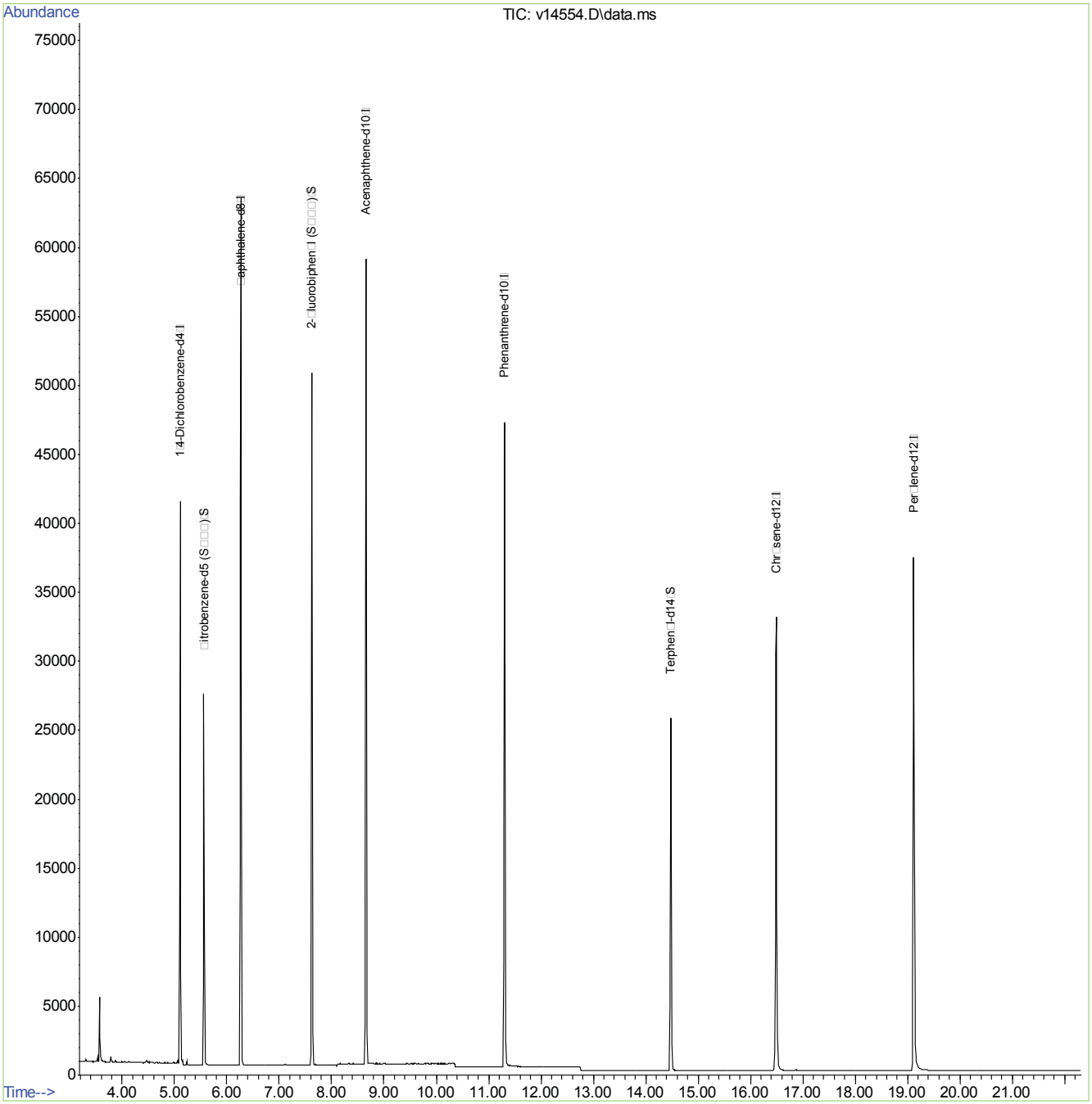
7.1.11

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14554.D
Acq On : 29 Mar 2013 5:24 pm
Operator : garyj
Sample : tc27860-9
Misc : op27767,ev834,200,,,1,1,water
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Apr 01 09:01:16 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration



ev831sim.m Mon Apr 01 09:01:22 2013 Page: 2

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14547.D
Acq On : 29 Mar 2013 2:07 pm
Operator : garyj
Sample : op27766-mb
Misc : op27766,ev834,30.00,,,1,1,soil
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 29 14:28:01 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.108	152	11105	4.00	ppm	0.00
5) Naphthalene-d8	6.270	136	57297	4.00	ppm	0.00
11) Acenaphthene-d10	8.662	164	29649	4.00	ppm	0.00
17) Phenanthrene-d10	11.309	188	53255	4.00	ppm	0.00
24) Chrysene-d12	16.493	240	38657	4.00	ppm	0.00
29) Perylene-d12	19.119	264	42630	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.174	112	17784	5.55	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 55.50%			
3) Phenol-d5 (SURR)	4.849	99	25620	6.54	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 65.40%			
6) Nitrobenzene-d5 (SURR)	5.563	82	13049	2.88	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 57.60%			
12) 2-Fluorobiphenyl (SURR)	7.628	172	34606	3.11	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 62.20%			
19) 2,4,6-Tribromophenol (...	10.031	330	7520	6.24	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 62.40%			
26) Terphenyl-d14	14.481	244	23381	3.86	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 77.20%			

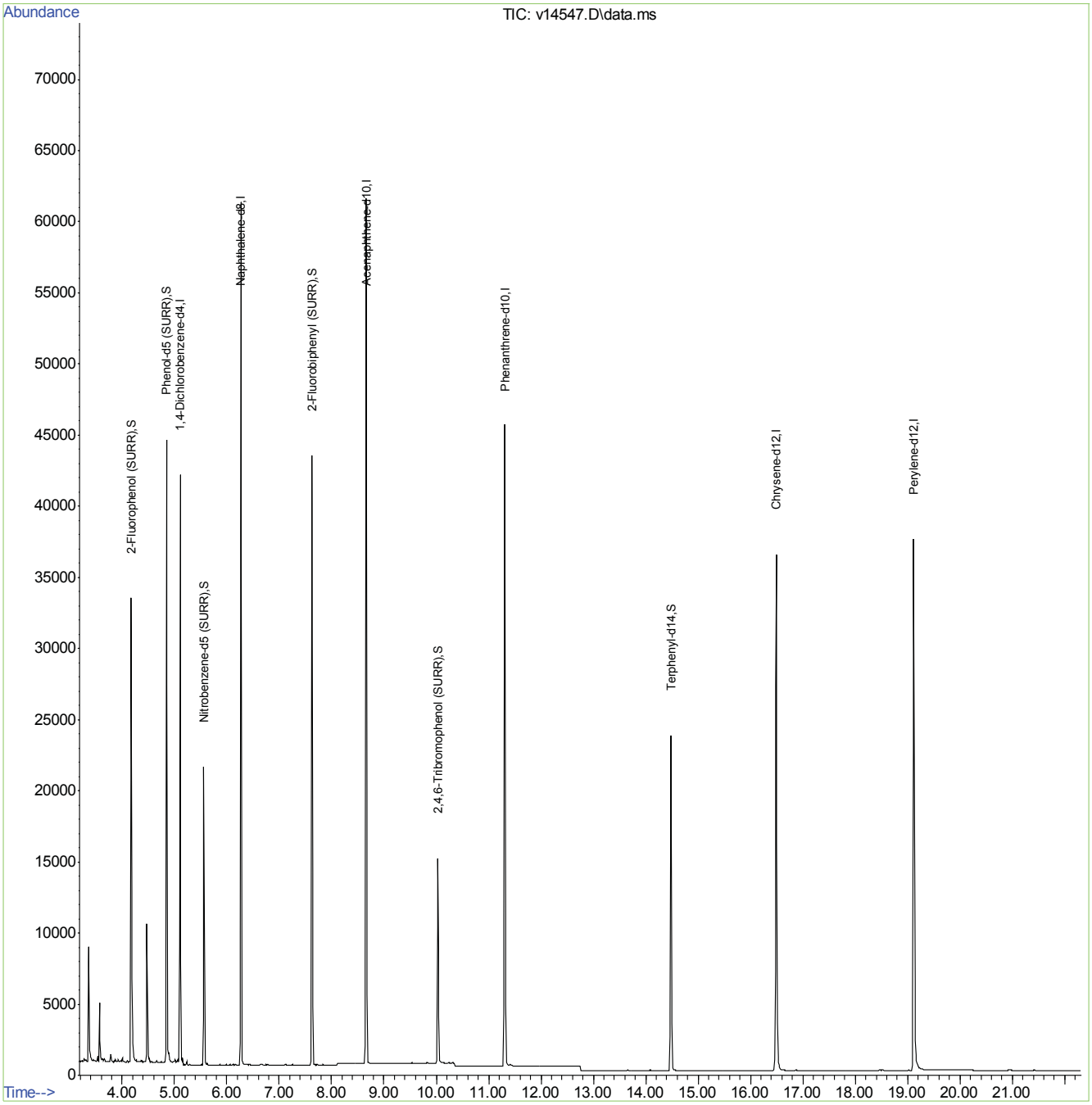
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14547.D
Acq On : 29 Mar 2013 2:07 pm
Operator : garyj
Sample : op27766-mb
Misc : op27766,ev834,30.00,,,1,1,soil
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 29 14:28:01 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration



ACCUTEST LABORATORIES TC27860

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14548.D
Acq On : 29 Mar 2013 2:35 pm
Operator : garyj
Sample : op27767-mb
Misc : op27767,ev834,1000,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 29 14:58:45 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.108	152	10986	4.00	ppm	0.00
5) Naphthalene-d8	6.270	136	56790	4.00	ppm	0.00
11) Acenaphthene-d10	8.662	164	29686	4.00	ppm	0.00
17) Phenanthrene-d10	11.309	188	54145	4.00	ppm	0.00
24) Chrysene-d12	16.493	240	39364	4.00	ppm	0.00
29) Perylene-d12	19.119	264	43466	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	0.000	112	0	0.00	ppm	
Spiked Amount 10.000	Range 21 - 100		Recovery = 0.00%#			
3) Phenol-d5 (SURR)	0.000	99	0	0.00	ppm	
Spiked Amount 10.000	Range 10 - 94		Recovery = 0.00%#			
6) Nitrobenzene-d5 (SURR)	5.563	82	15271	3.40	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery = 68.00%			
12) 2-Fluorobiphenyl (SURR)	7.628	172	37438	3.36	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery = 67.20%			
19) 2,4,6-Tribromophenol (...	0.000	330	0	0.00	ppm	
Spiked Amount 10.000	Range 18 - 143		Recovery = 0.00%#			
26) Terphenyl-d14	14.481	244	26290	4.27	ppm	0.00
Spiked Amount 5.000	Range 21 - 144		Recovery = 85.40%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

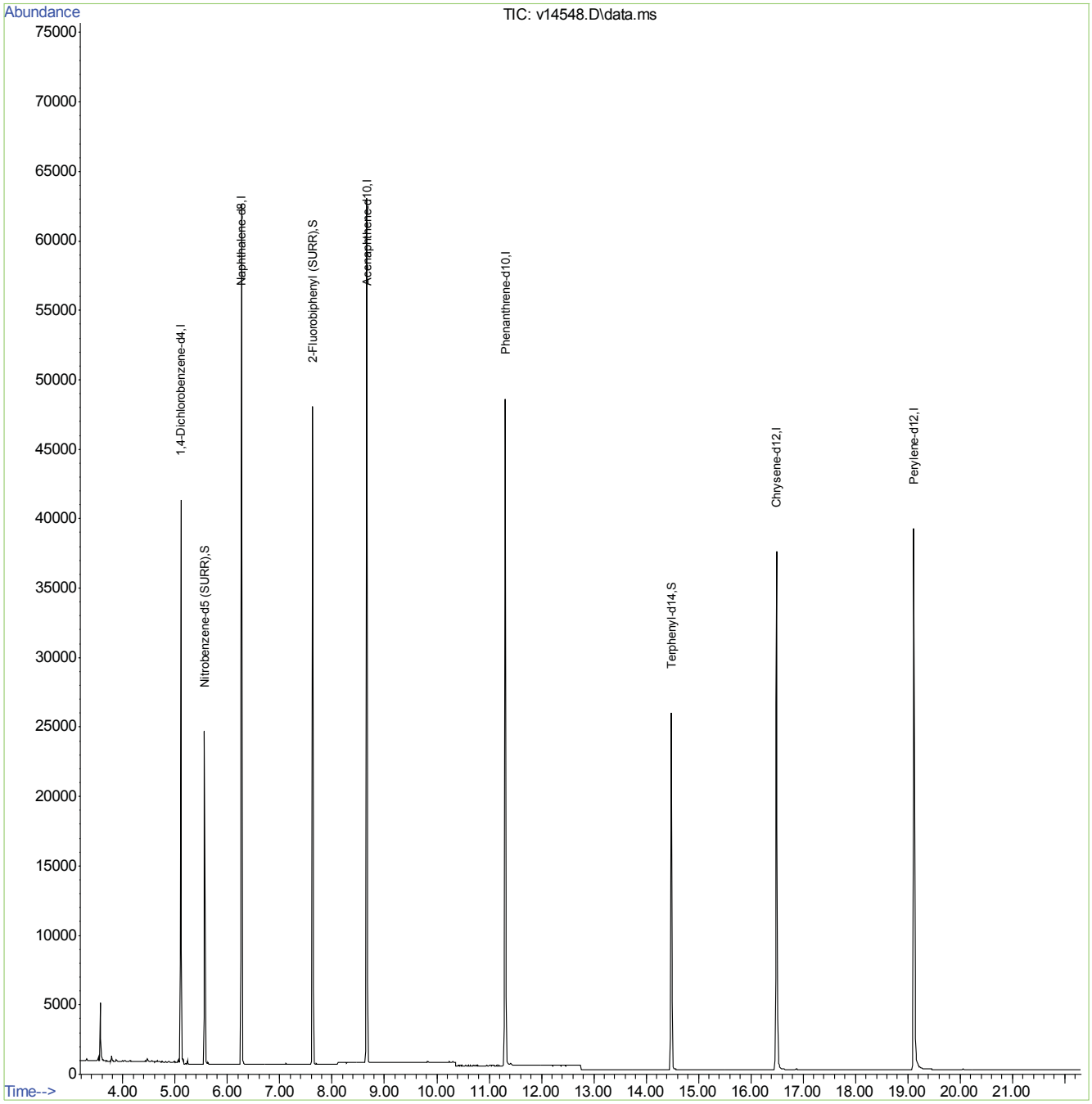
7.2.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14548.D
Acq On : 29 Mar 2013 2:35 pm
Operator : garyj
Sample : op27767-mb
Misc : op27767,ev834,1000,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 29 14:58:45 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration



ACCUTEST LABORATORIES TC27860

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14549.D
Acq On : 29 Mar 2013 3:03 pm
Operator : garyj
Sample : op27766-bs
Misc : op27766,ev834,30.00,,,1,1,soil
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 29 15:31:45 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	5.108	152	11147	4.00 ppm	0.00
5) Naphthalene-d8	6.270	136	57646	4.00 ppm	0.00
11) Acenaphthene-d10	8.662	164	30036	4.00 ppm	0.00
17) Phenanthrene-d10	11.309	188	53186	4.00 ppm	0.00
24) Chrysene-d12	16.493	240	40274	4.00 ppm	0.00
29) Perylene-d12	19.119	264	44655	4.00 ppm	0.00
System Monitoring Compounds					
2) 2-Fluorophenol (SURR)	4.173	112	19853	6.18 ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 61.80%		
3) Phenol-d5 (SURR)	4.849	99	28249	7.19 ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 71.90%		
6) Nitrobenzene-d5 (SURR)	5.563	82	14635	3.21 ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 64.20%		
12) 2-Fluorobiphenyl (SURR)	7.628	172	38398	3.41 ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 68.20%		
19) 2,4,6-Tribromophenol (...	10.037	330	8663	7.19 ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 71.90%		
26) Terphenyl-d14	14.481	244	26011	4.12 ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 82.40%		
Target Compounds					Qvalue
4) bis(2-chloroethyl)ether	4.895	93	10560	2.94 ppm	96
7) Naphthalene	6.290	128	44289	3.08 ppm	100
9) 2-Methylnaphthalene	7.119	142	31001	3.15 ppm #	100
10) 1-Methylnaphthalene	7.249	142	29918	3.27 ppm #	99
13) Acenaphthylene	8.426	152	46756	3.61 ppm	100
14) Acenaphthene	8.715	154	27457	3.33 ppm	99
15) Dibenzofuran	9.010	168	39633	3.36 ppm	99
16) Fluorene	9.600	166	36116	3.59 ppm	100
18) Hexachlorobenzene	10.618	284	11107	3.35 ppm	98
20) Pentachlorophenol	11.007	266	5025	3.65 ppm	100
21) Phenanthrene	11.350	178	54575	3.49 ppm	100
22) Anthracene	11.449	178	52381	3.53 ppm	100
23) Fluoranthene	13.655	202	58858	3.81 ppm	99
25) Pyrene	14.086	202	59573	4.10 ppm #	99
27) Benzo(a)anthracene	16.472	228	52702	3.76 ppm	100
28) Chrysene	16.534	228	54273	3.96 ppm	100
30) Benzo(b)fluoranthene	18.473	252	49457	3.96 ppm	97
31) Benzo(k)fluoranthene	18.515	252	53988	3.81 ppm	98
32) Benzo(a)pyrene	19.015	252	43441	3.52 ppm	98
33) Indeno(1,2,3-cd)pyrene	20.923	276	39569m	3.73 ppm	
34) Dibenz(a,h)anthracene	20.964	278	47004	3.84 ppm	99
35) Benzo(g,h,i)perylene	21.413	276	49666	3.80 ppm	99

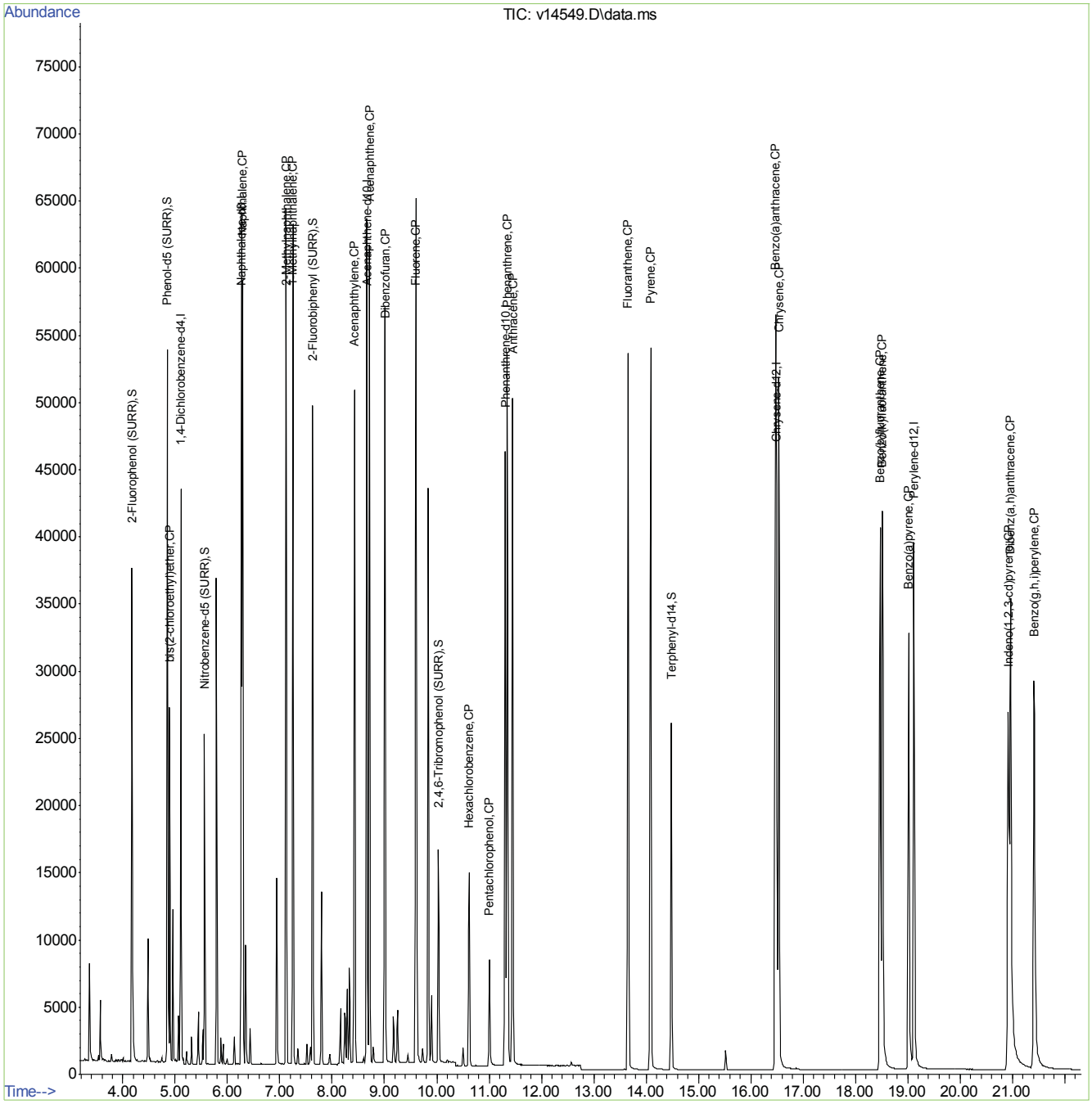
(#) = qualifier out of range (m) = manual integration (+) = signals summed

ACCUTEST LABORATORIES TC27860

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14549.D
Acq On : 29 Mar 2013 3:03 pm
Operator : garyj
Sample : op27766-bs
Misc : op27766,ev834,30.00,,,1,1,soil
ALS Vial : 5 Sample Multiplier: 1

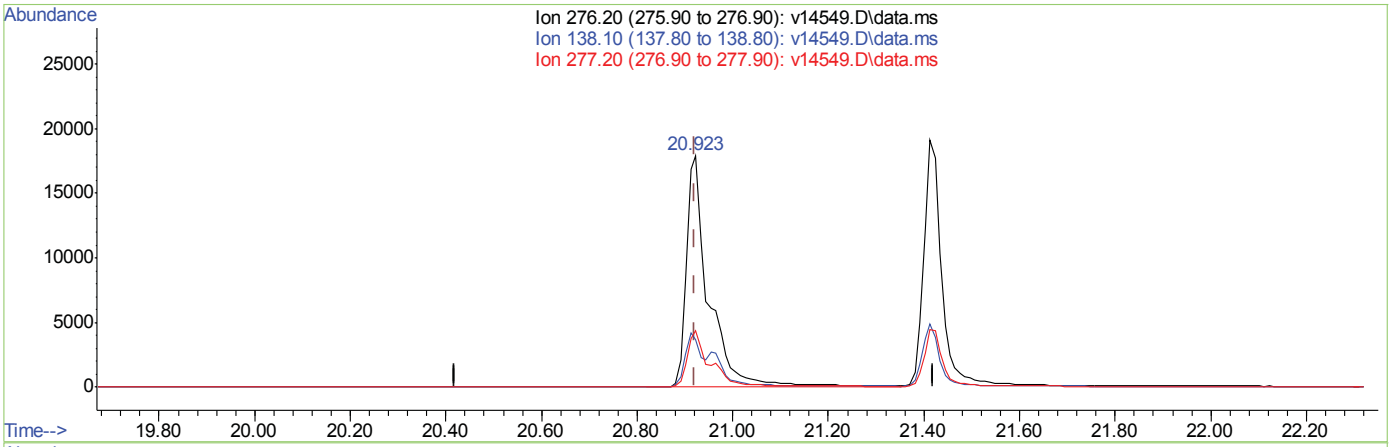
Quant Time: Mar 29 15:31:45 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

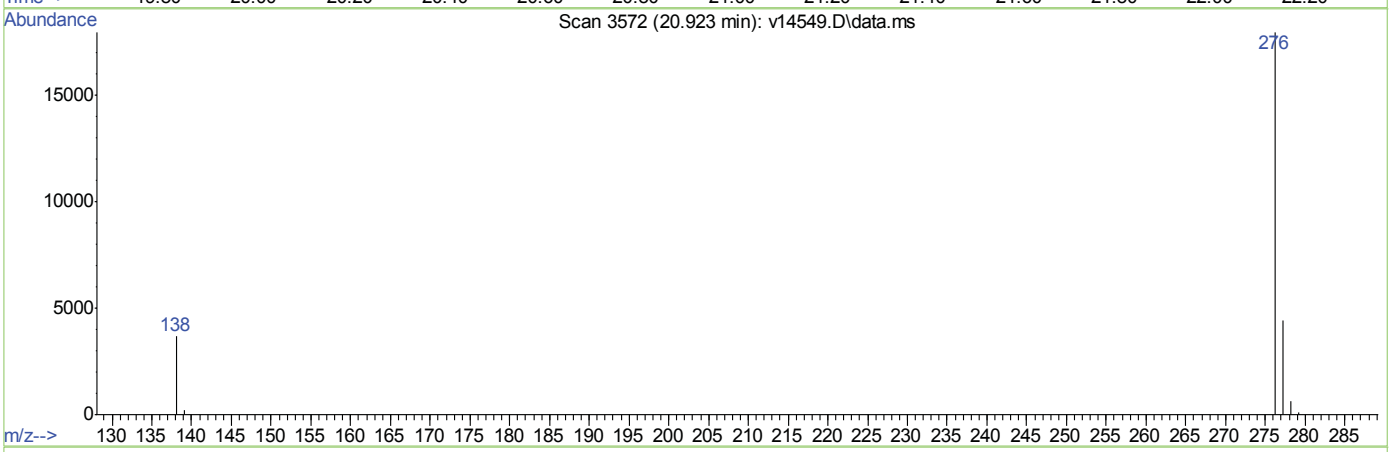


Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14549.D
Acq On    : 29 Mar 2013   3:03 pm
Operator  : garyj
Sample    : op27766-bs
Misc      : op27766,ev834,30.00,,,1,1,soil
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Mar 29 15:31:26 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration
```





TIC: v14549.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.923min (+0.003) 5.36ppm

response 56925

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	17.02
277.20	34.50	25.26
0.00	0.00	0.00

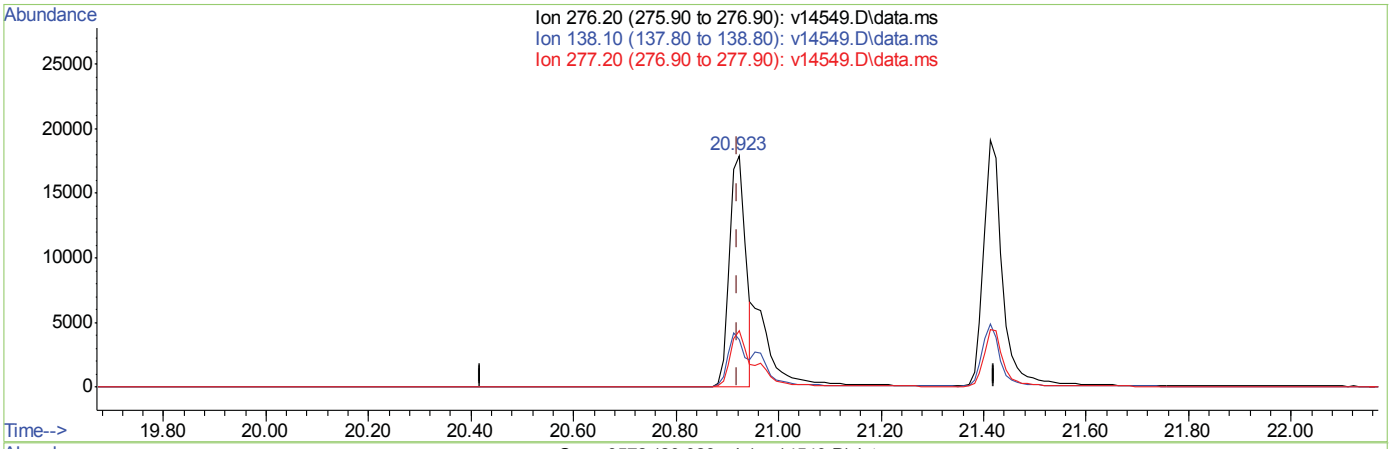
7.3.1.1

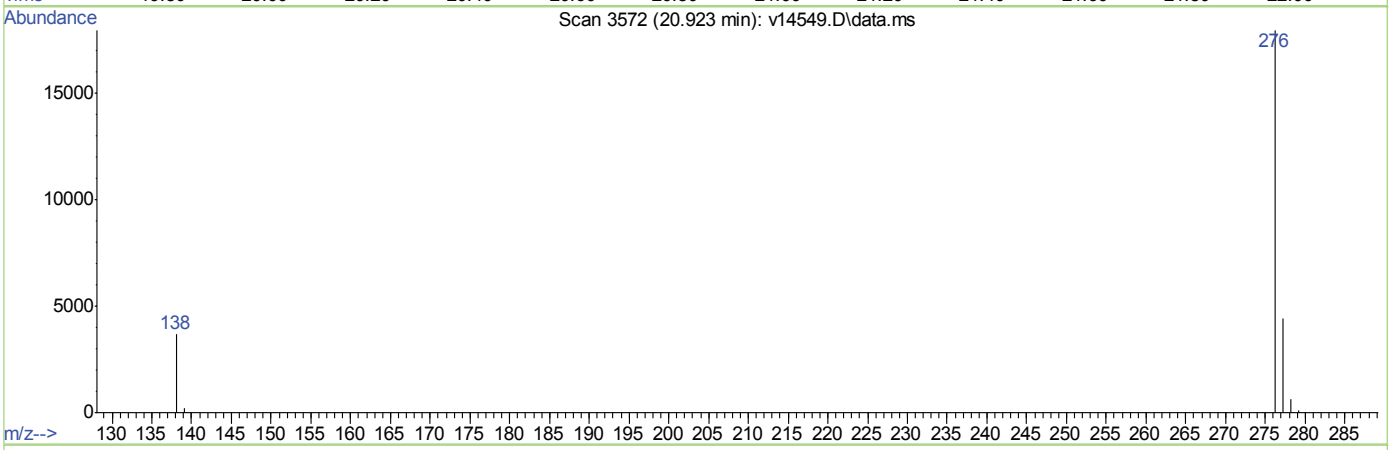
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14549.D
Acq On    : 29 Mar 2013   3:03 pm
Operator  : garyj
Sample    : op27766-bs
Misc      : op27766,ev834,30.00,,,1,1,soil
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Mar 29 15:31:26 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration
```





TIC: v14549.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.923min (+0.003) 3.73ppm m

response 39569

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	24.49
277.20	34.50	36.33
0.00	0.00	0.00

7.3.1.2

7

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14551.D
Acq On : 29 Mar 2013 4:00 pm
Operator : garyj
Sample : op27767-bsd
Misc : op27767,ev834,1000,,,1,1,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 16:20:01 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.109	152	11151	4.00	ppm	0.00
5) Naphthalene-d8	6.266	136	57983	4.00	ppm	0.00
11) Acenaphthene-d10	8.662	164	30585	4.00	ppm	0.00
17) Phenanthrene-d10	11.305	188	53704	4.00	ppm	0.00
24) Chrysene-d12	16.493	240	40597	4.00	ppm	0.00
29) Perylene-d12	19.120	264	45720	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	0.000	112	0	0.00	ppm	
Spiked Amount 10.000	Range 21 - 100		Recovery	=	0.00%#	
3) Phenol-d5 (SURR)	0.000	99	0d	0.00	ppm	
Spiked Amount 10.000	Range 10 - 94		Recovery	=	0.00%#	
6) Nitrobenzene-d5 (SURR)	5.563	82	17540	3.82	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery	=	76.40%	
12) 2-Fluorobiphenyl (SURR)	7.623	172	41978	3.66	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery	=	73.20%	
19) 2,4,6-Tribromophenol (...	0.000	330	0	0.00	ppm	
Spiked Amount 10.000	Range 18 - 143		Recovery	=	0.00%#	
26) Terphenyl-d14	14.477	244	28004	4.41	ppm	-0.01
Spiked Amount 5.000	Range 21 - 144		Recovery	=	88.20%	
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.896	93	13007	3.62	ppm	99
7) Naphthalene	6.290	128	50475	3.49	ppm	100
9) 2-Methylnaphthalene	7.119	142	34873	3.52	ppm #	99
10) 1-Methylnaphthalene	7.250	142	33832	3.67	ppm #	100
13) Acenaphthylene	8.426	152	53545	4.06	ppm	100
14) Acenaphthene	8.710	154	31172	3.71	ppm	99
15) Dibenzofuran	9.005	168	44540	3.71	ppm	82
16) Fluorene	9.594	166	40885	3.99	ppm	100
18) Hexachlorobenzene	10.614	284	12480	3.73	ppm	99
21) Phenanthrene	11.345	178	60826	3.85	ppm	100
22) Anthracene	11.445	178	60789	4.06	ppm	99
23) Fluoranthene	13.650	202	66404	4.26	ppm	99
25) Pyrene	14.082	202	67316	4.59	ppm #	99
27) Benzo(a)anthracene	16.472	228	59745	4.23	ppm	99
28) Chrysene	16.535	228	60816	4.40	ppm	100
30) Benzo(b)fluoranthene	18.473	252	57466	4.49	ppm	97
31) Benzo(k)fluoranthene	18.515	252	59013	4.07	ppm	98
32) Benzo(a)pyrene	19.015	252	50777	4.02	ppm	98
33) Indeno(1,2,3-cd)pyrene	20.913	276	46495m	4.28	ppm	
34) Dibenz(a,h)anthracene	20.965	278	53769	4.29	ppm	99
35) Benzo(g,h,i)perylene	21.413	276	56652	4.24	ppm	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

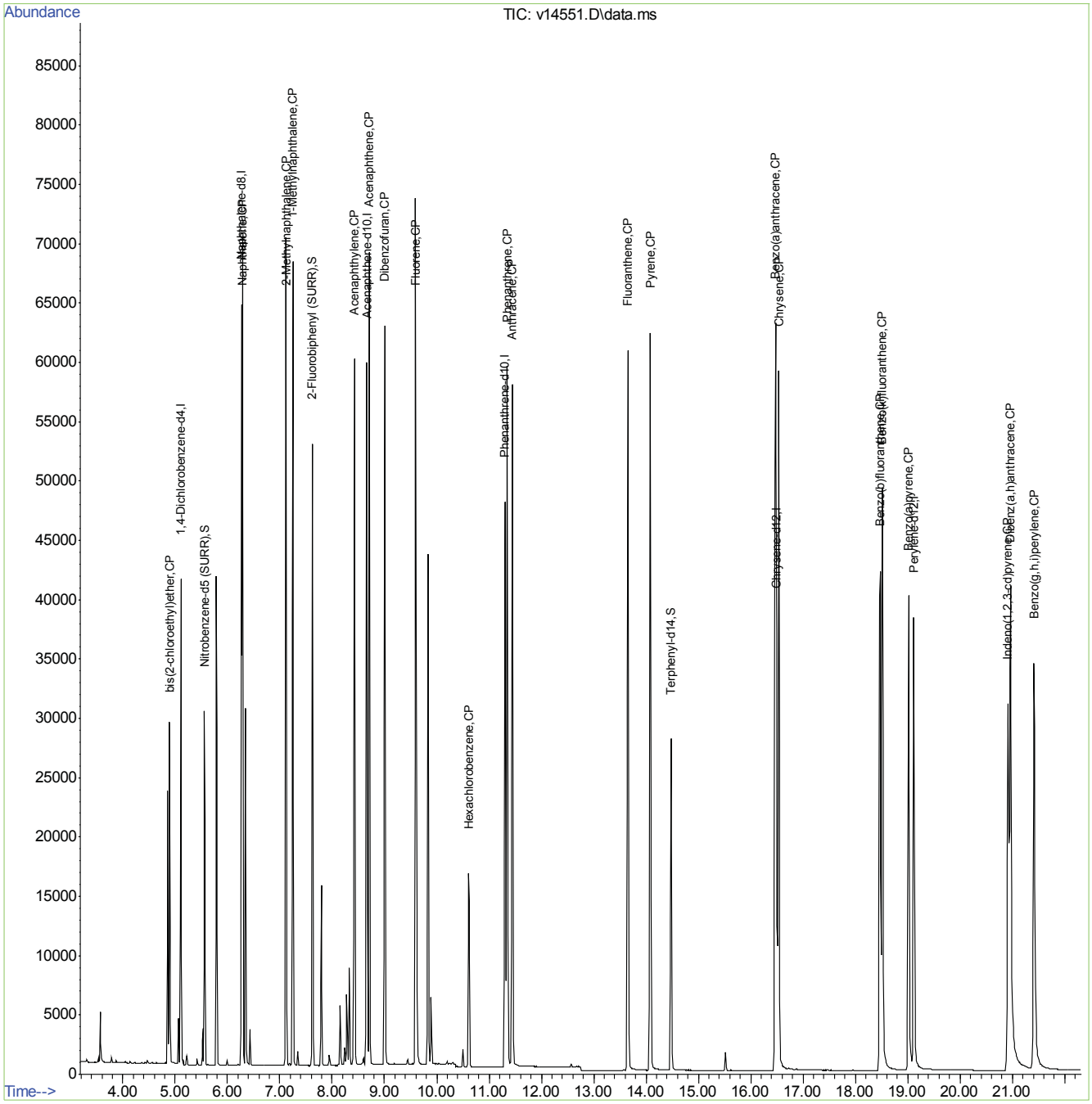
7.3.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14551.D
Acq On : 29 Mar 2013 4:00 pm
Operator : garyj
Sample : op27767-bsd
Misc : op27767,ev834,1000,,,1,1,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 29 16:20:01 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

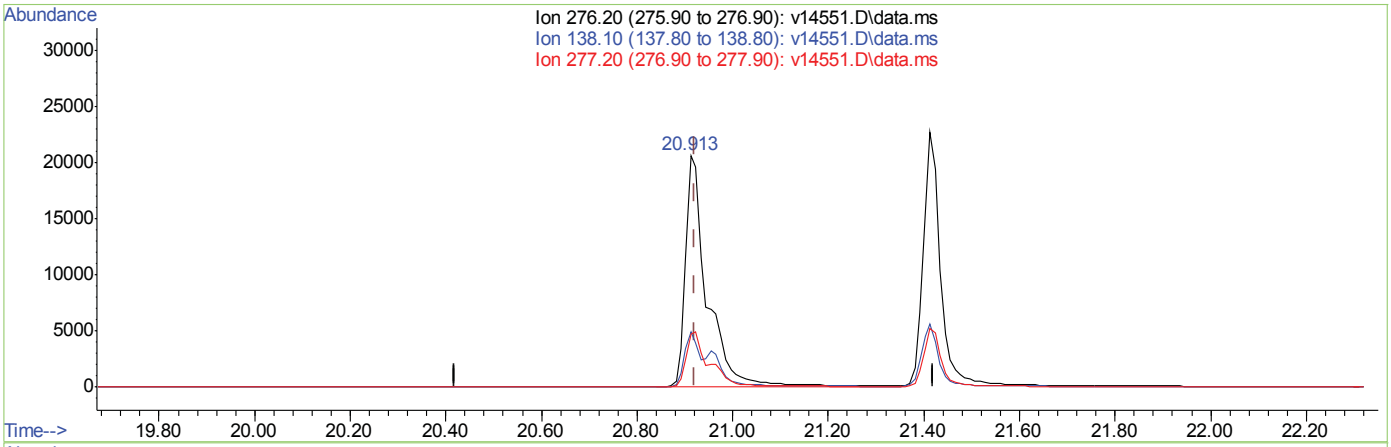


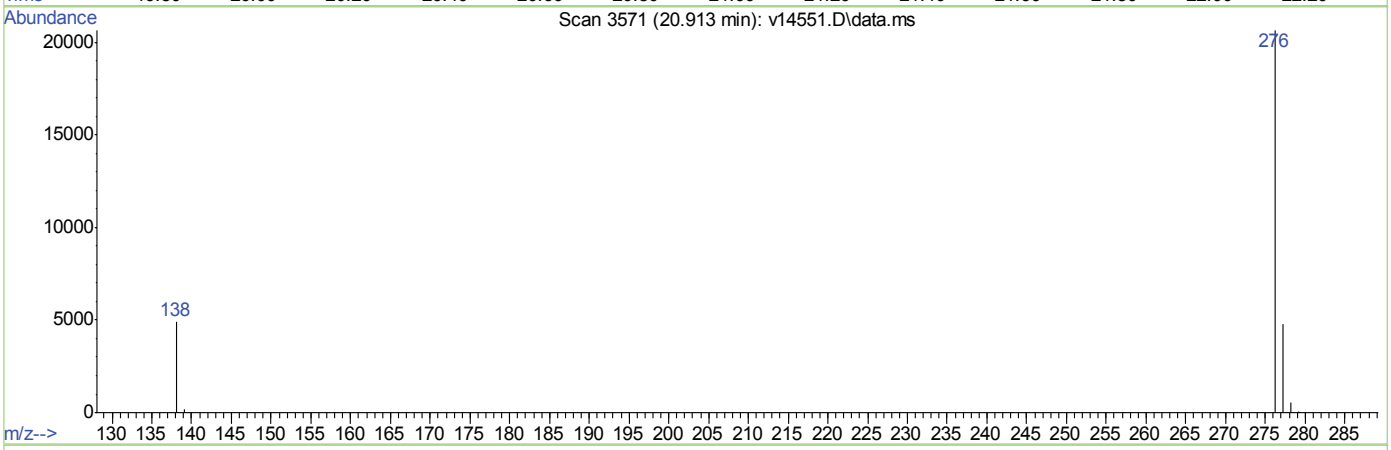
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14551.D
Acq On    : 29 Mar 2013   4:00 pm
Operator  : garyj
Sample    : op27767-bsd
Misc      : op27767,ev834,1000,,,1,1,water
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Mar 29 16:19:34 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration
```





TIC: v14551.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.913min (-0.007) 5.96ppm

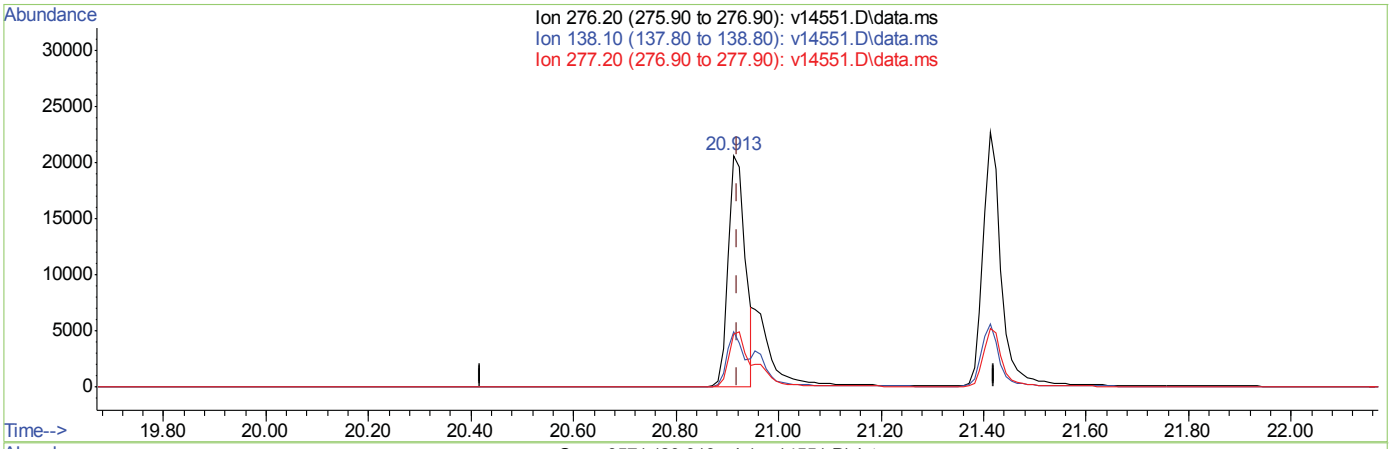
response 64758

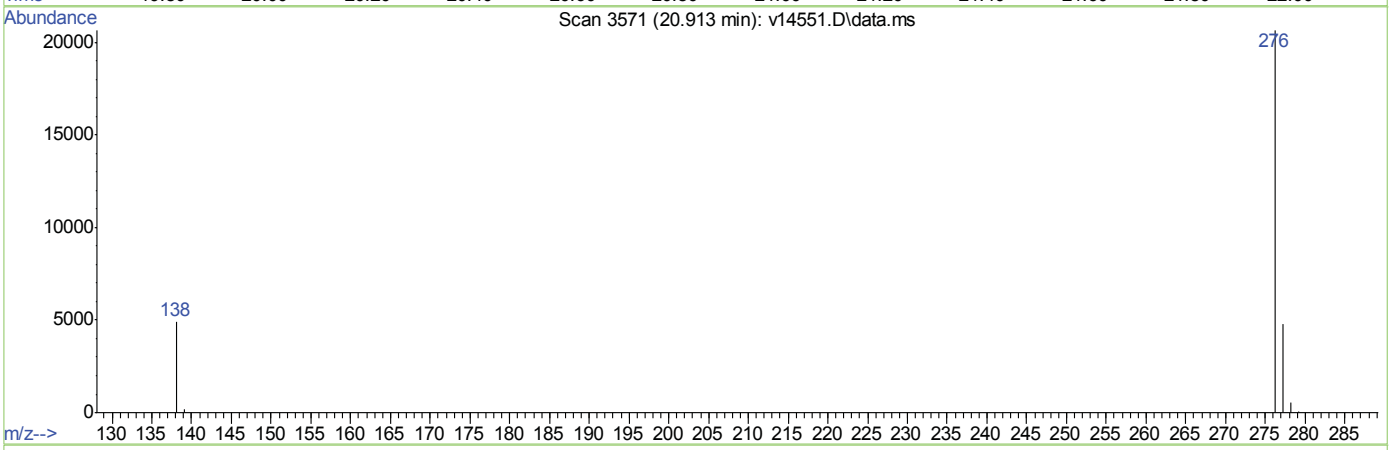
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	17.77
277.20	34.50	25.28
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14551.D
Acq On    : 29 Mar 2013   4:00 pm
Operator  : garyj
Sample    : op27767-bsd
Misc      : op27767,ev834,1000,,,1,1,water
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Mar 29 16:19:34 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration
```





TIC: v14551.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.913min (-0.007) 4.28ppm m

response 46495

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	24.76
277.20	34.50	35.21
0.00	0.00	0.00

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14552.D
Acq On : 29 Mar 2013 4:28 pm
Operator : garyj
Sample : op27767-bs
Misc : op27767,ev834,1000,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 16:48:01 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.108	152	11632	4.00	ppm	0.00
5) Naphthalene-d8	6.265	136	60544	4.00	ppm	0.00
11) Acenaphthene-d10	8.662	164	32538	4.00	ppm	0.00
17) Phenanthrene-d10	11.304	188	57876	4.00	ppm	0.00
24) Chrysene-d12	16.493	240	44034	4.00	ppm	0.00
29) Perylene-d12	19.119	264	48880	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	0.000	112	0	0.00	ppm	
Spiked Amount 10.000	Range 21 - 100		Recovery	=	0.00%#	
3) Phenol-d5 (SURR)	0.000	99	0d	0.00	ppm	
Spiked Amount 10.000	Range 10 - 94		Recovery	=	0.00%#	
6) Nitrobenzene-d5 (SURR)	5.562	82	16830	3.51	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery	=	70.20%	
12) 2-Fluorobiphenyl (SURR)	7.623	172	40732	3.34	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery	=	66.80%	
19) 2,4,6-Tribromophenol (...	0.000	330	0	0.00	ppm	
Spiked Amount 10.000	Range 18 - 143		Recovery	=	0.00%#	
26) Terphenyl-d14	14.479	244	27834	4.04	ppm	-0.01
Spiked Amount 5.000	Range 21 - 144		Recovery	=	80.80%	
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.895	93	12114	3.24	ppm	100
7) Naphthalene	6.290	128	47203	3.12	ppm	100
9) 2-Methylnaphthalene	7.119	142	32870	3.18	ppm #	100
10) 1-Methylnaphthalene	7.249	142	31775	3.30	ppm #	100
13) Acenaphthylene	8.426	152	50331	3.58	ppm	100
14) Acenaphthene	8.709	154	29380	3.29	ppm	100
15) Dibenzofuran	9.004	168	41967	3.28	ppm	82
16) Fluorene	9.594	166	38614	3.54	ppm	100
18) Hexachlorobenzene	10.614	284	11917	3.30	ppm	99
21) Phenanthrene	11.350	178	58327	3.43	ppm	100
22) Anthracene	11.444	178	57543	3.57	ppm	100
23) Fluoranthene	13.655	202	63687	3.79	ppm	99
25) Pyrene	14.084	202	64303	4.04	ppm #	99
27) Benzo(a)anthracene	16.472	228	56441	3.68	ppm	100
28) Chrysene	16.534	228	58297	3.89	ppm	100
30) Benzo(b)fluoranthene	18.473	252	53222	3.89	ppm	97
31) Benzo(k)fluoranthene	18.515	252	57078	3.68	ppm	98
32) Benzo(a)pyrene	19.015	252	47933	3.55	ppm	98
33) Indeno(1,2,3-cd)pyrene	20.923	276	42637m	3.67	ppm	
34) Dibenz(a,h)anthracene	20.964	278	50051	3.73	ppm	99
35) Benzo(g,h,i)perylene	21.413	276	52747	3.69	ppm	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

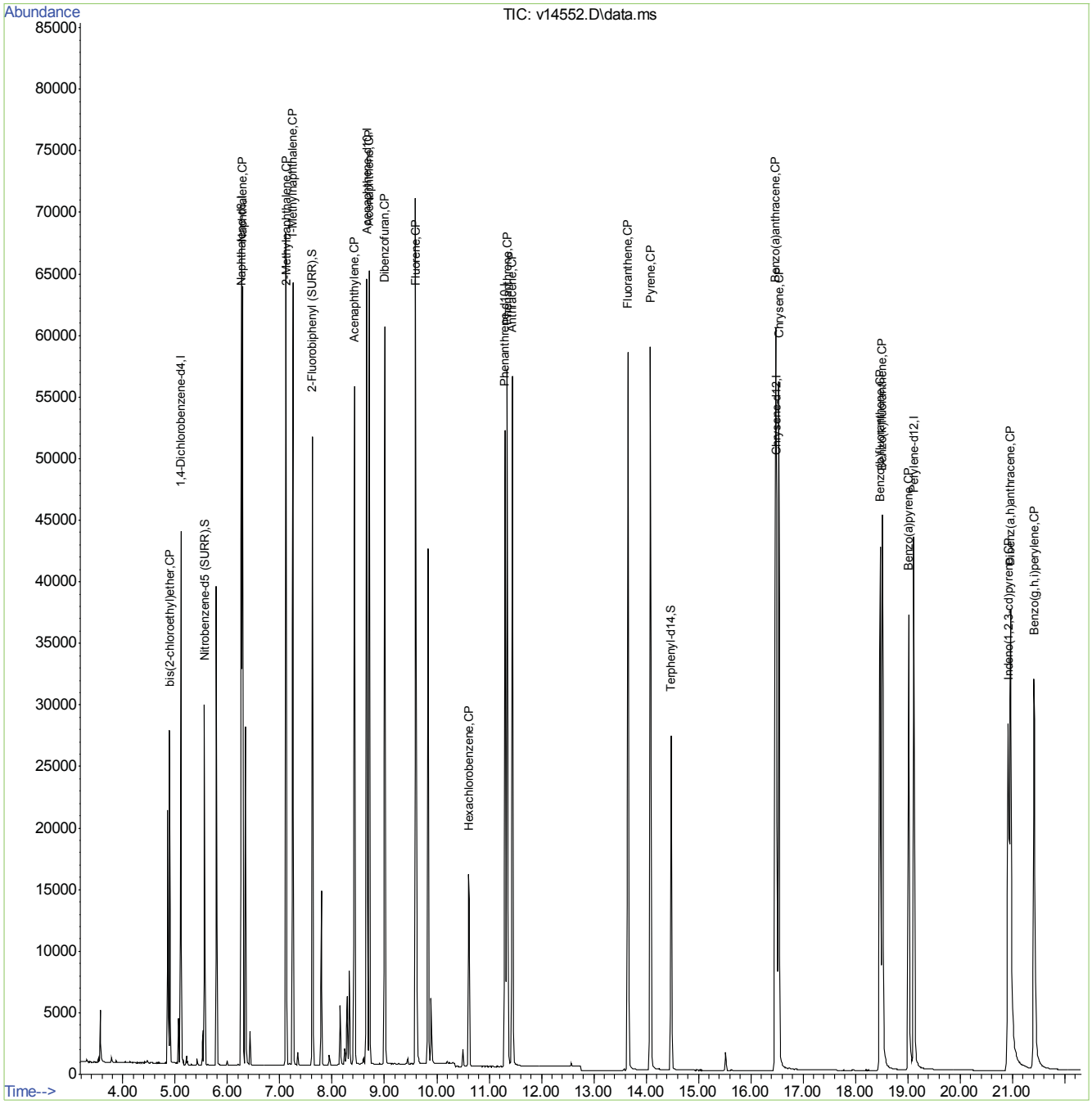
7.3.3

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14552.D
Acq On : 29 Mar 2013 4:28 pm
Operator : garyj
Sample : op27767-bs
Misc : op27767,ev834,1000,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 29 16:48:01 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

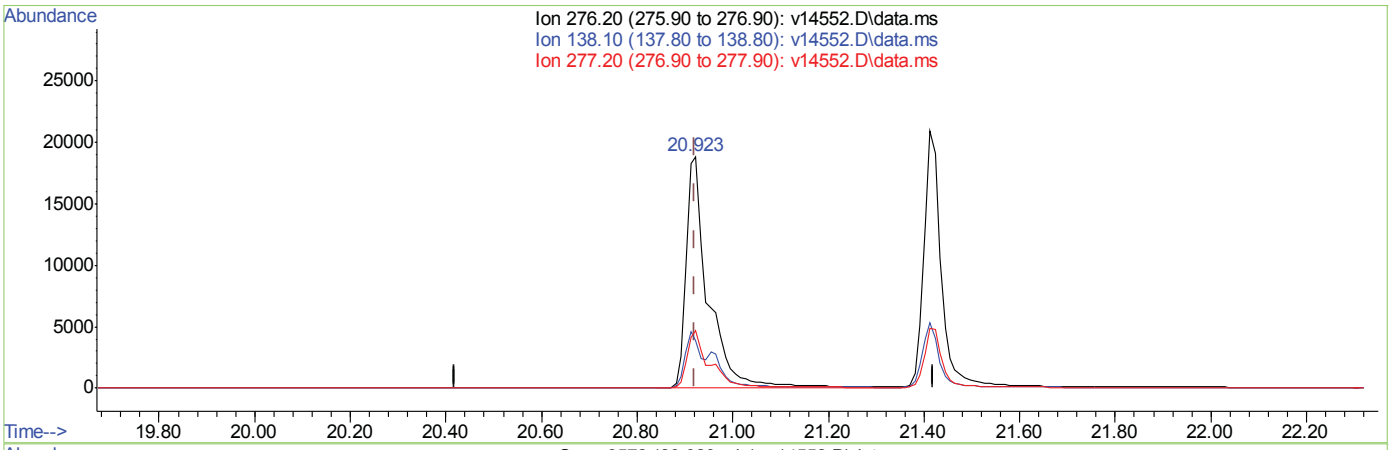


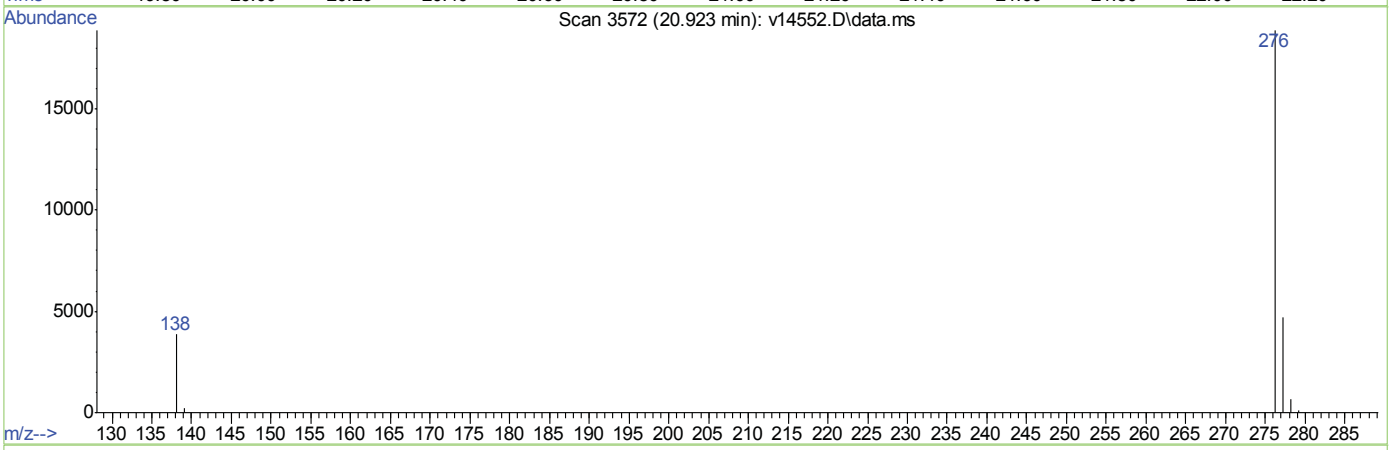
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14552.D
Acq On    : 29 Mar 2013   4:28 pm
Operator  : garyj
Sample    : op27767-bs
Misc      : op27767,ev834,1000,,,1,1,water
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Mar 29 16:47:46 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration
```





TIC: v14552.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.923min (+0.003) 5.19ppm

response 60299

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	17.45
277.20	34.50	25.33
0.00	0.00	0.00

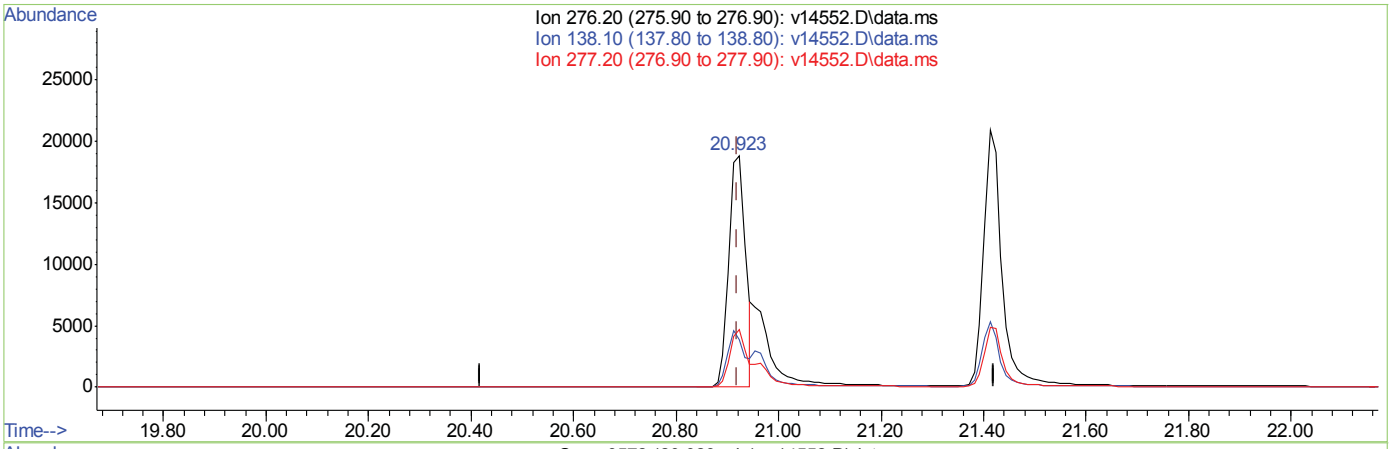
7.3.3.1

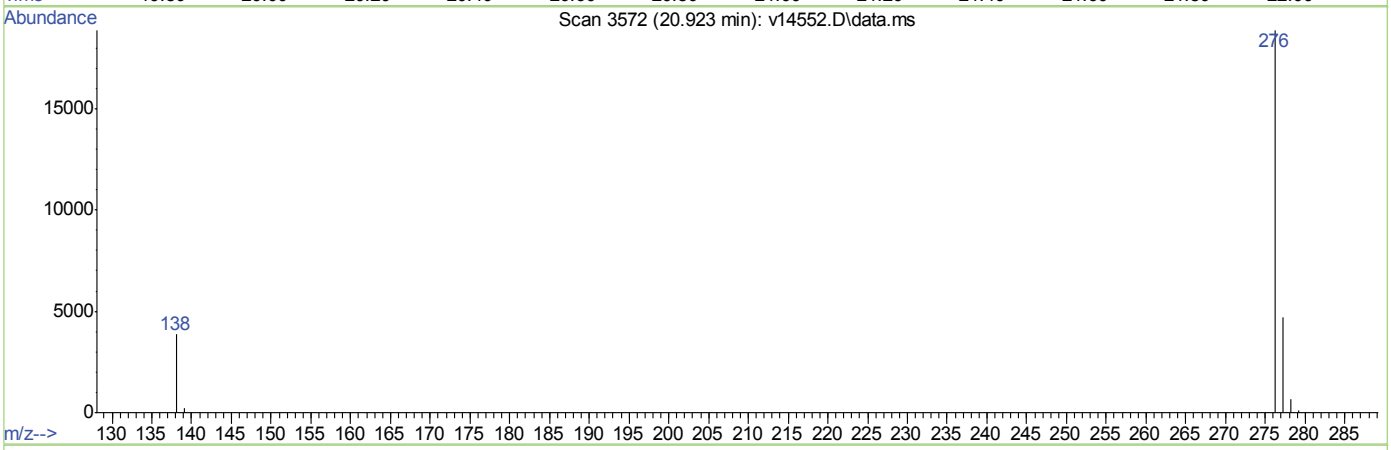
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14552.D
Acq On    : 29 Mar 2013   4:28 pm
Operator  : garyj
Sample    : op27767-bs
Misc      : op27767,ev834,1000,,,1,1,water
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Mar 29 16:47:46 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration
```





TIC: v14552.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.923min (+0.003) 3.67ppm m

response 42637

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	24.67
277.20	34.50	35.82
0.00	0.00	0.00

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14576.D
Acq On : 1 Apr 2013 3:53 pm
Operator : garyj
Sample : op27766-ms
Misc : op27766,ev835,30.10,,,1,1,soil
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Apr 01 16:13:46 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	14387	4.00	ppm	0.00
5) Naphthalene-d8	6.261	136	81706	4.00	ppm	0.00
11) Acenaphthene-d10	8.651	164	40245	4.00	ppm	0.01
17) Phenanthrene-d10	11.300	188	65081	4.00	ppm	0.02
24) Chrysene-d12	16.483	240	38462	4.00	ppm	0.01
29) Perylene-d12	19.120	264	37022	4.00	ppm	0.02
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.169	112	19551	4.71	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 47.10%			
3) Phenol-d5 (SURR)	4.844	99	31870	6.28	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 62.80%			
6) Nitrobenzene-d5 (SURR)	5.553	82	14079	2.18	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 43.60%			
12) 2-Fluorobiphenyl (SURR)	7.618	172	29483	1.95	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 39.00%			
19) 2,4,6-Tribromophenol (...	10.025	330	9347	6.34	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 63.40%			
26) Terphenyl-d14	14.474	244	21710	3.61	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 72.20%			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.885	93	9237	2.00	ppm	98
7) Naphthalene	6.280	128	45385	2.23	ppm	99
9) 2-Methylnaphthalene	7.109	142	37853	2.71	ppm	99
10) 1-Methylnaphthalene	7.240	142	31458	2.42	ppm	99
13) Acenaphthylene	8.420	152	54469	3.13	ppm	97
14) Acenaphthene	8.704	154	27012	2.44	ppm	98
15) Dibenzofuran	8.999	168	37081	2.35	ppm	97
16) Fluorene	9.589	166	34966	2.59	ppm	95
18) Hexachlorobenzene	10.610	284	10382	2.56	ppm	98
20) Pentachlorophenol	10.998	266	4941	3.03	ppm	99
21) Phenanthrene	11.341	178	54287	2.84	ppm	99
22) Anthracene	11.440	178	52503	2.89	ppm	96
23) Fluoranthene	13.648	202	59319	3.14	ppm	98
25) Pyrene	14.077	202	61761	4.45	ppm #	99
27) Benzo(a)anthracene	16.462	228	43996	3.29	ppm	95
28) Chrysene	16.524	228	44808	3.43	ppm	93
30) Benzo(b)fluoranthene	18.463	252	38084	3.67	ppm	98
31) Benzo(k)fluoranthene	18.515	252	34994	2.98	ppm	93
32) Benzo(a)pyrene	19.015	252	35848	3.50	ppm	93
33) Indeno(1,2,3-cd)pyrene	20.913	276	32511m	3.70	ppm	
34) Dibenz(a,h)anthracene	20.965	278	33042	3.26	ppm	94
35) Benzo(g,h,i)perylene	21.413	276	39979	3.69	ppm	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

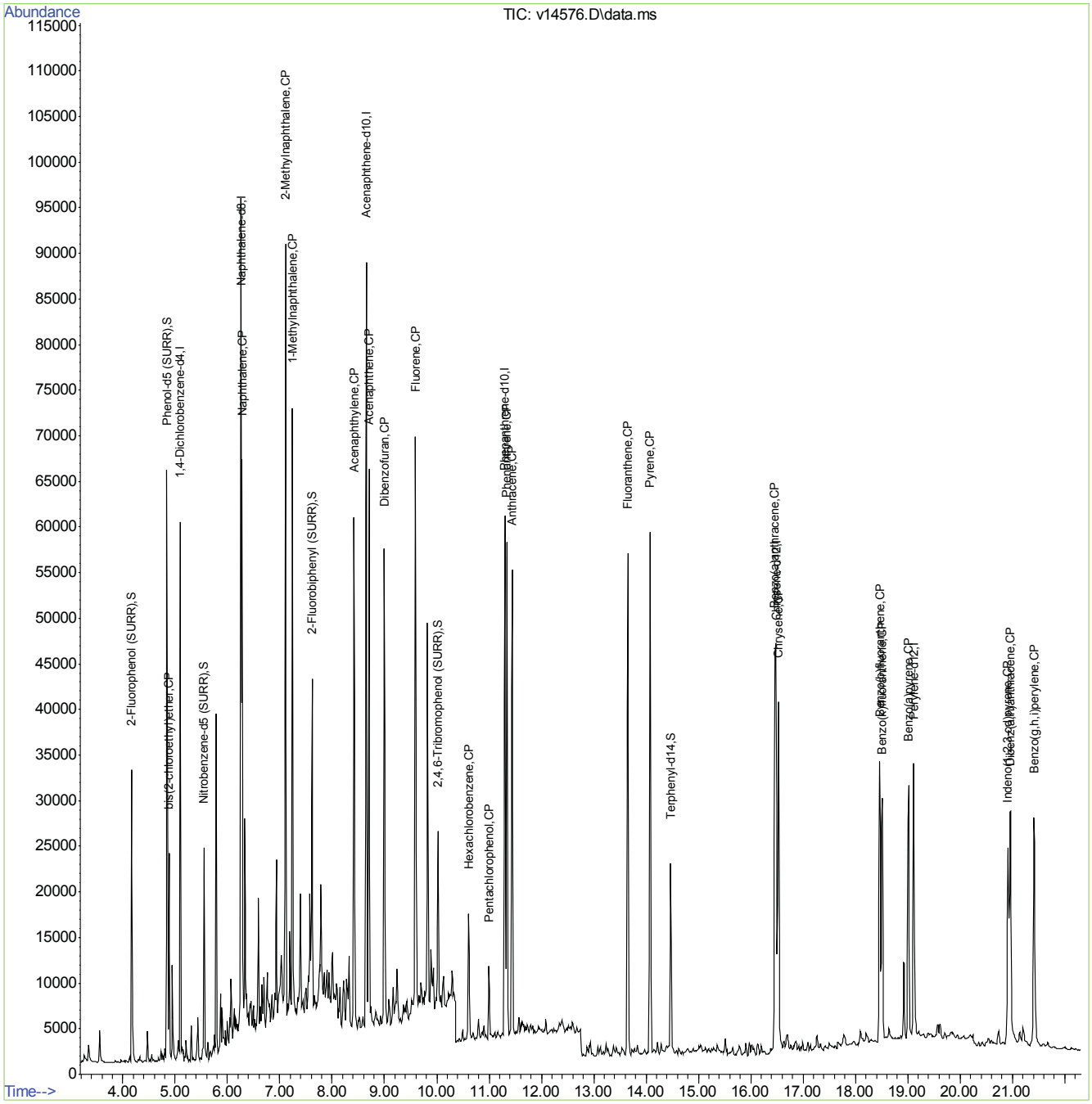
7.4.1

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14576.D
Acq On : 1 Apr 2013 3:53 pm
Operator : garyj
Sample : op27766-ms
Misc : op27766,ev835,30.10,,,1,1,soil
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Apr 01 16:13:46 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

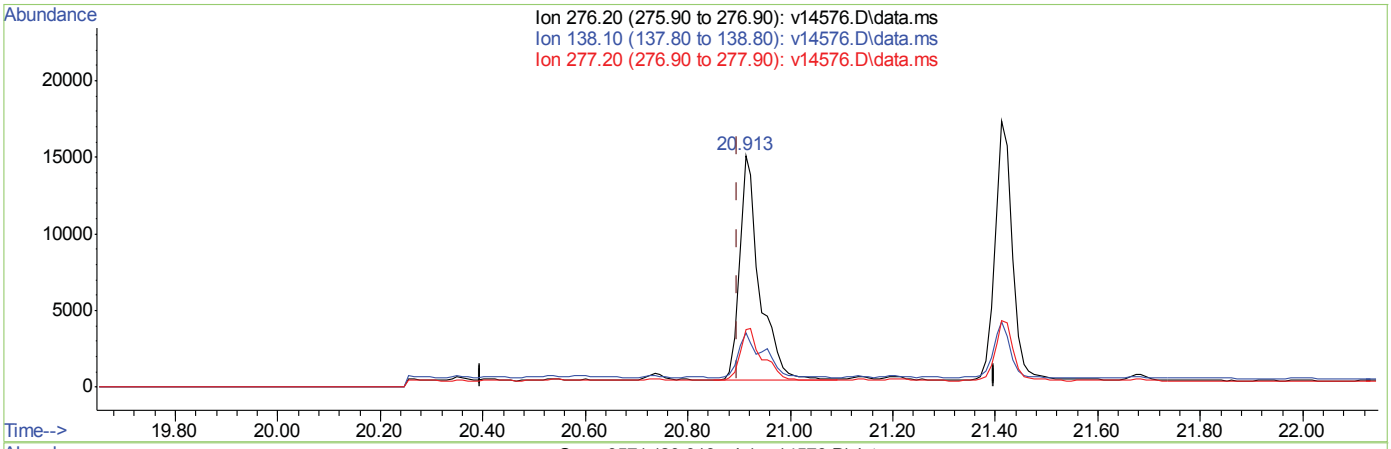


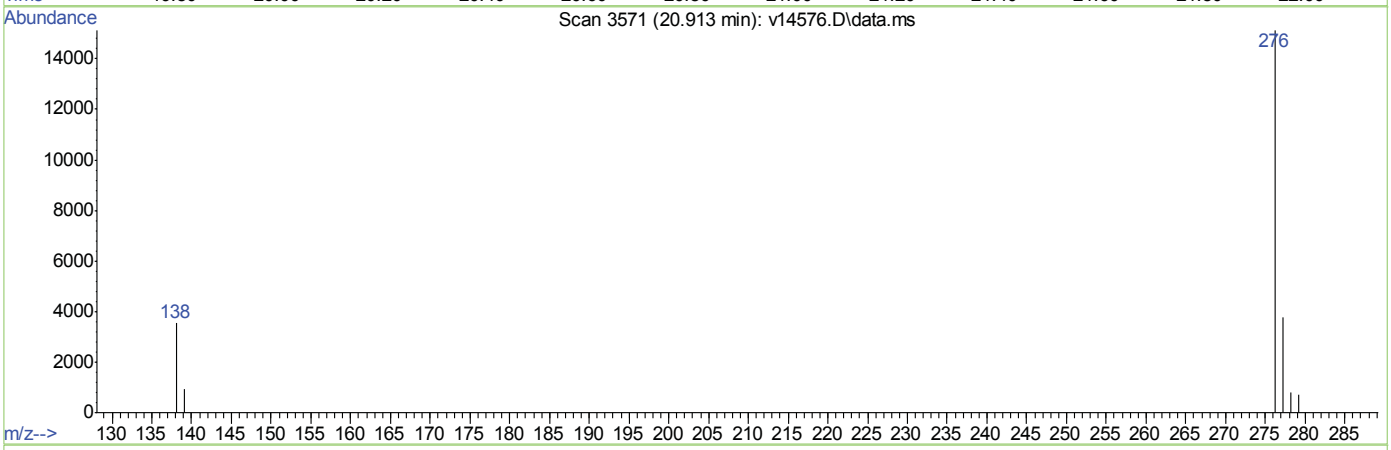
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14576.D
Acq On    :  1 Apr 2013   3:53 pm
Operator  : garyj
Sample    : op27766-ms
Misc      : op27766,ev835,30.10,,,1,1,soil
ALS Vial  : 15   Sample Multiplier: 1

Quant Time: Apr 01 16:13:06 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14576.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.913min (+0.016) 4.55ppm

response 40055

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	25.71
277.20	34.50	26.03
0.00	0.00	0.00

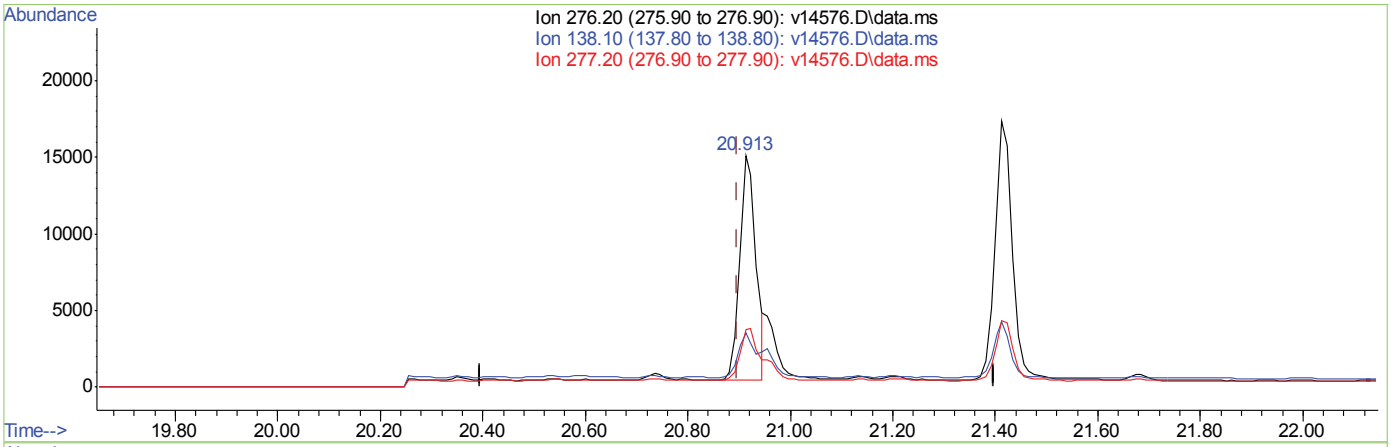
7.4.1.1

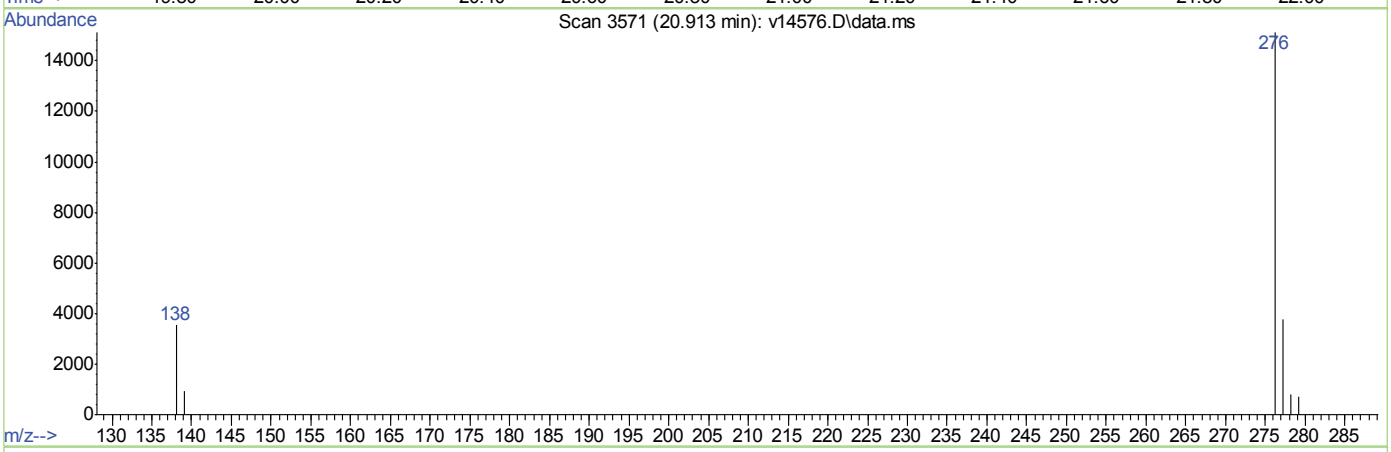
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14576.D
Acq On    :  1 Apr 2013   3:53 pm
Operator  : garyj
Sample    : op27766-ms
Misc      : op27766,ev835,30.10,,,1,1,soil
ALS Vial  : 15   Sample Multiplier: 1

Quant Time: Apr 01 16:13:06 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14576.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.913min (+0.016) 3.70ppm m

response 32511

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	31.68
277.20	34.50	32.07
0.00	0.00	0.00

ev831sim.m Mon Apr 01 16:13:49 2013 Page: 1

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TC27860

V14576.D ed t : ndeno 1 2 3- d p rene

7.4.1.2
7

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□ohn □ at□on
04□02□13 12:49

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14577.D
Acq On : 1 Apr 2013 4:21 pm
Operator : garyj
Sample : op27766-msd
Misc : op27766,ev835,30.20,,,1,1,soil
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Apr 01 16:41:24 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	14571	4.00	ppm	0.00
5) Naphthalene-d8	6.261	136	81547	4.00	ppm	0.00
11) Acenaphthene-d10	8.656	164	39533	4.00	ppm	0.02
17) Phenanthrene-d10	11.300	188	62290	4.00	ppm	0.02
24) Chrysene-d12	16.493	240	37379	4.00	ppm	0.02
29) Perylene-d12	19.119	264	36879	4.00	ppm	0.02
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.168	112	17104	4.07	ppm	0.00
Spiked Amount 10.000	Range 36 - 129		Recovery = 40.70%			
3) Phenol-d5 (SURR)	4.843	99	28896	5.62	ppm	0.00
Spiked Amount 10.000	Range 38 - 135		Recovery = 56.20%			
6) Nitrobenzene-d5 (SURR)	5.553	82	12193	1.89	ppm	0.00
Spiked Amount 5.000	Range 10 - 127		Recovery = 37.80%			
12) 2-Fluorobiphenyl (SURR)	7.618	172	25203	1.70	ppm	0.00
Spiked Amount 5.000	Range 11 - 133		Recovery = 34.00%			
19) 2,4,6-Tribromophenol (...	10.025	330	8196	5.81	ppm	0.00
Spiked Amount 10.000	Range 18 - 129		Recovery = 58.10%			
26) Terphenyl-d14	14.474	244	17779	3.04	ppm	0.00
Spiked Amount 5.000	Range 22 - 132		Recovery = 60.80%			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.885	93	9192	1.96	ppm	98
7) Naphthalene	6.280	128	41492	2.04	ppm	99
9) 2-Methylnaphthalene	7.109	142	34127	2.45	ppm	98
10) 1-Methylnaphthalene	7.240	142	28267	2.18	ppm	98
13) Acenaphthylene	8.420	152	49277	2.89	ppm	97
14) Acenaphthene	8.703	154	24404	2.25	ppm	98
15) Dibenzofuran	8.998	168	33469	2.16	ppm	96
16) Fluorene	9.588	166	31492	2.38	ppm	95
18) Hexachlorobenzene	10.614	284	9545	2.46	ppm	98
20) Pentachlorophenol	11.002	266	4455	2.88	ppm	100
21) Phenanthrene	11.341	178	49388	2.70	ppm	99
22) Anthracene	11.440	178	47387	2.73	ppm	96
23) Fluoranthene	13.652	202	52063	2.88	ppm	97
25) Pyrene	14.079	202	54343	4.03	ppm #	99
27) Benzo(a)anthracene	16.461	228	39868	3.07	ppm	94
28) Chrysene	16.534	228	42165	3.32	ppm	92
30) Benzo(b)fluoranthene	18.463	252	38546	3.73	ppm	97
31) Benzo(k)fluoranthene	18.515	252	31027	2.65	ppm	96
32) Benzo(a)pyrene	19.015	252	34457	3.38	ppm	93
33) Indeno(1,2,3-cd)pyrene	20.923	276	30126m	3.44	ppm	
34) Dibenz(a,h)anthracene	20.964	278	31979	3.16	ppm	94
35) Benzo(g,h,i)perylene	21.423	276	38922	3.61	ppm	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

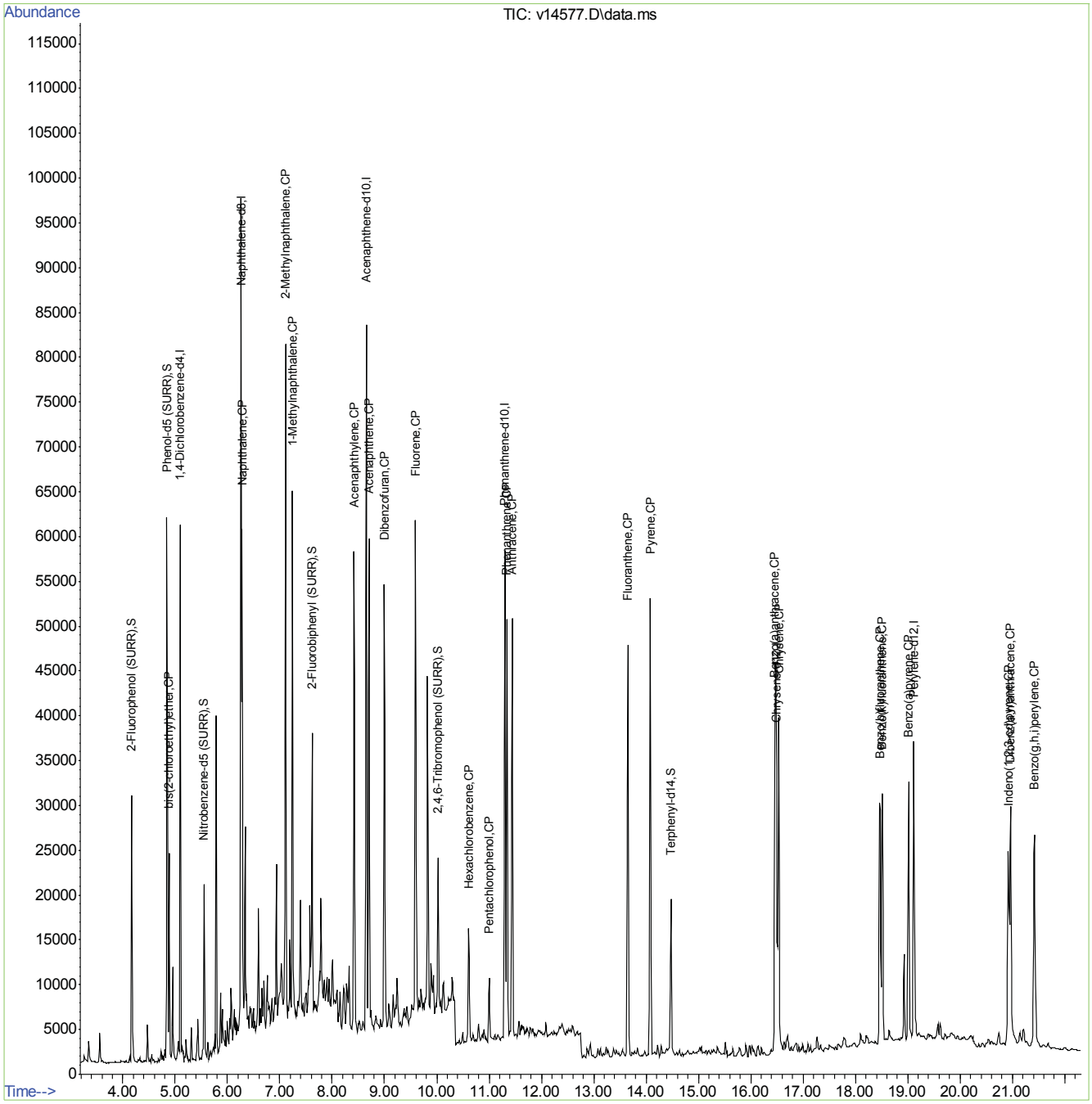
7.4.2

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14577.D
Acq On : 1 Apr 2013 4:21 pm
Operator : garyj
Sample : op27766-msd
Misc : op27766,ev835,30.20,,,1,1,soil
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Apr 01 16:41:24 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration

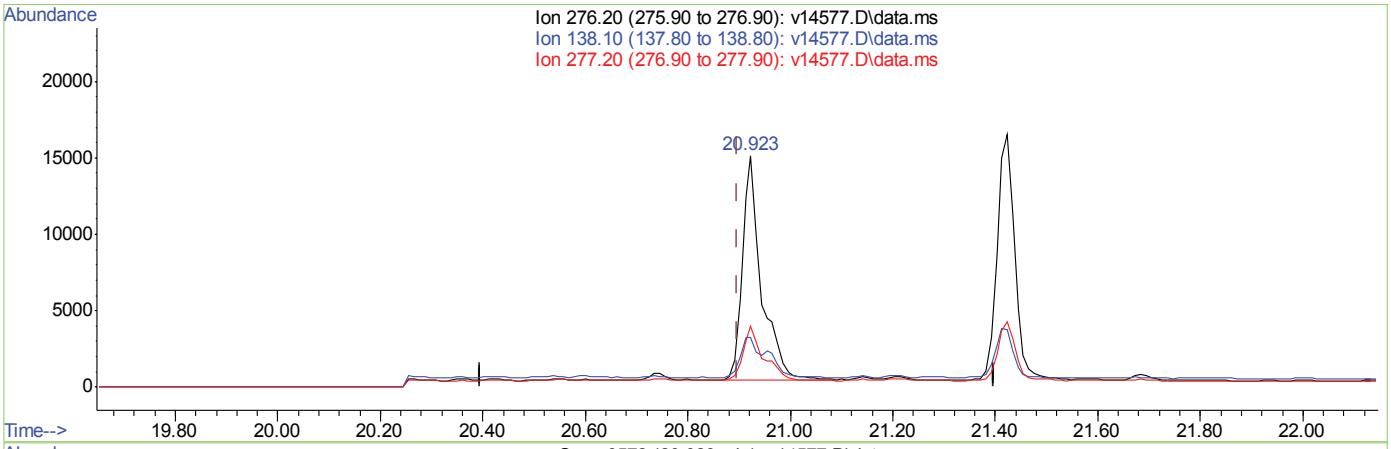


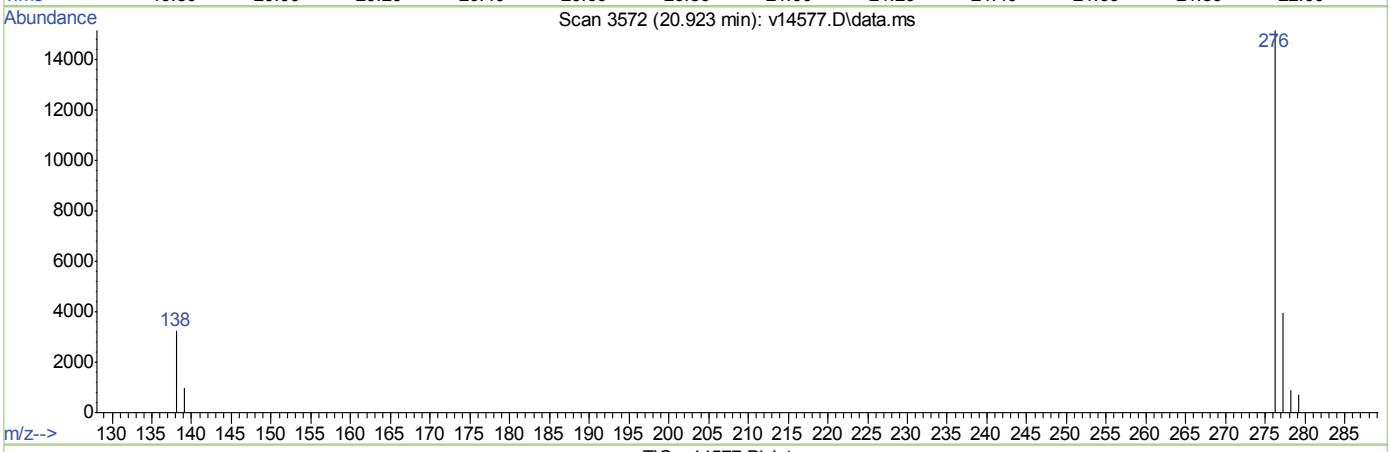
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14577.D
Acq On    :  1 Apr 2013   4:21 pm
Operator  : garyj
Sample    : op27766-msd
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 16   Sample Multiplier: 1

Quant Time: Apr 01 16:40:53 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14577.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.923min (+0.026) 4.39ppm

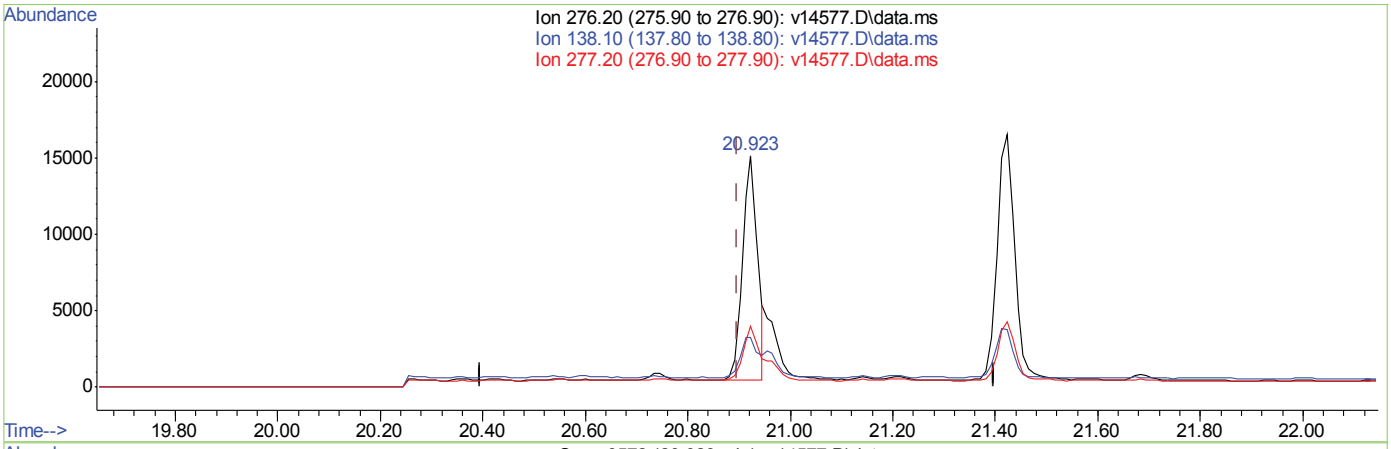
response 38498

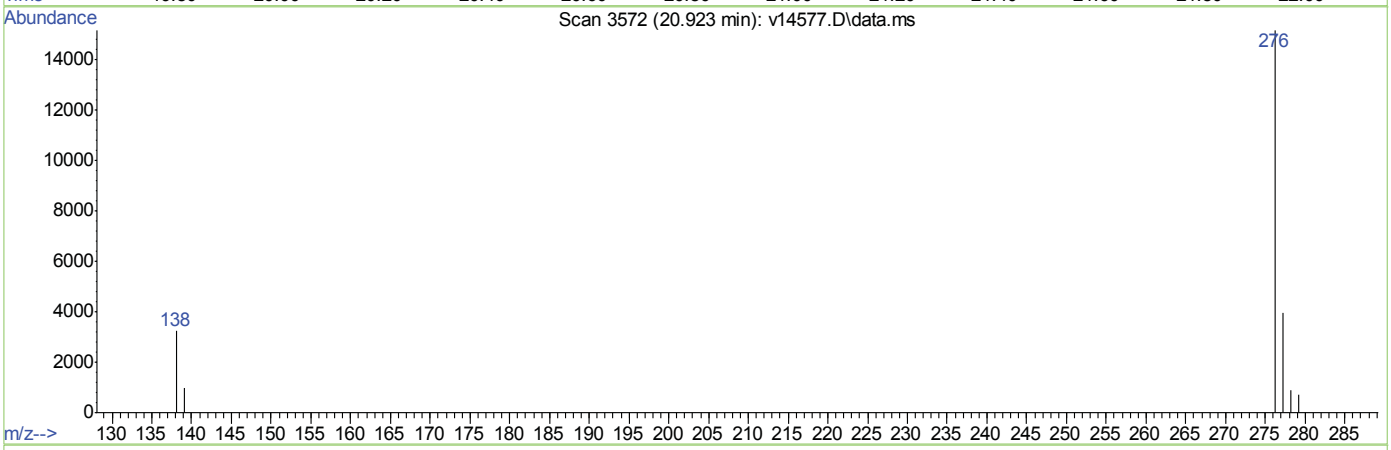
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	25.71
277.20	34.50	26.29
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14577.D
Acq On    :  1 Apr 2013   4:21 pm
Operator  : garyj
Sample    : op27766-msd
Misc      : op27766,ev835,30.20,,,1,1,soil
ALS Vial  : 16   Sample Multiplier: 1

Quant Time: Apr 01 16:40:53 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14577.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.923min (+0.026) 3.44ppm m

response 30126

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	32.86
277.20	34.50	33.60
0.00	0.00	0.00

ev831sim.m Mon Apr 01 16:41:28 2013 Page: 1

V14577.D ed t : ndeno 1 2 3- d p rene

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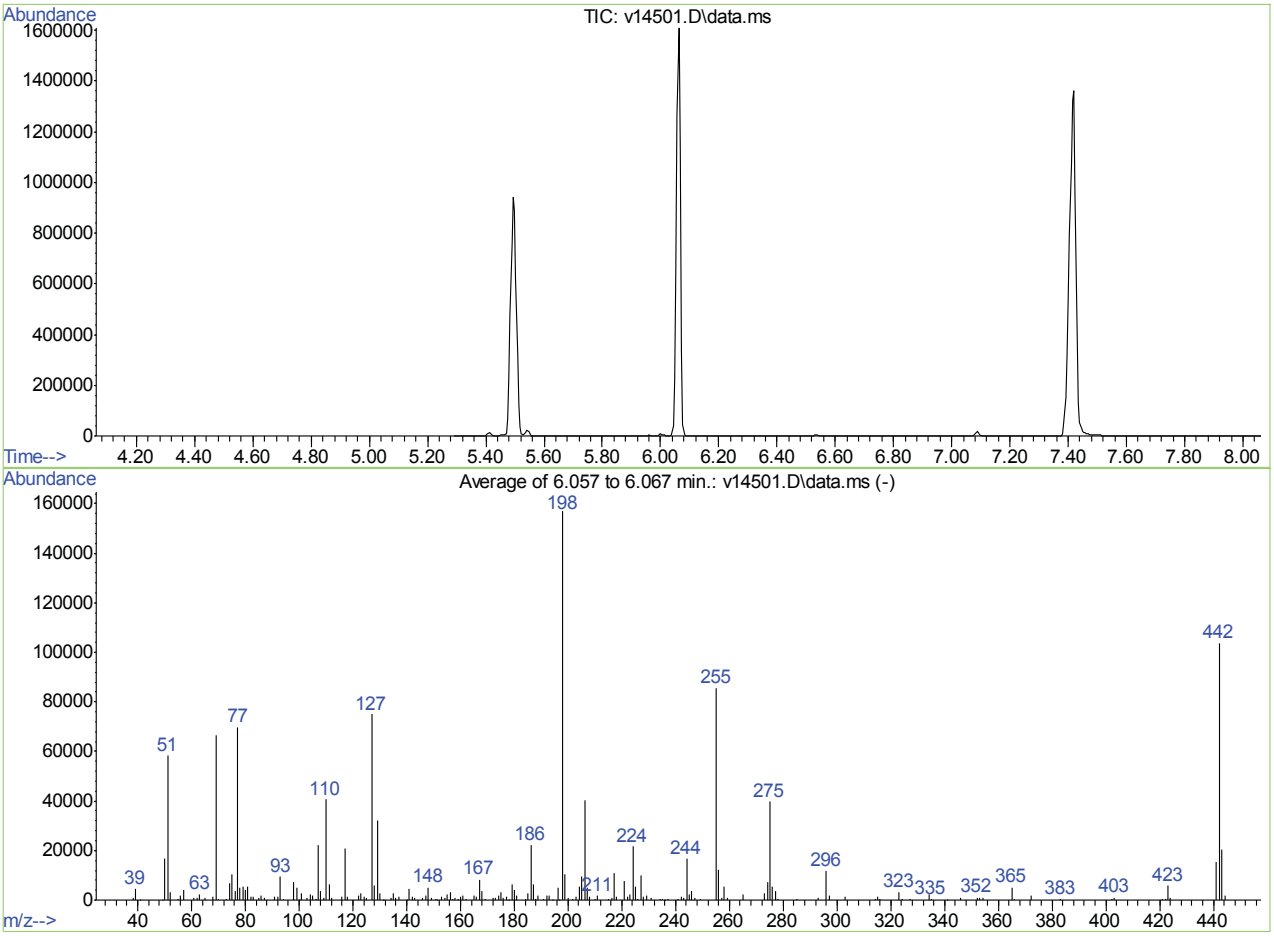
7.4.2.2
7

DFTPP

Data File : C:\msdchem\1\DATA\EV831\v14501.D Vial: 1
Acq On : 26 Mar 2013 10:31 am Operator: garyj
Sample : dftpp Inst : MS V
Misc : op21163,ev831,1000,,,1,1,water Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\ev779sim.m (RTE Integrator)
Title :



AutoFind: Scans 160, 161, 162; Background Corrected with Scan 153

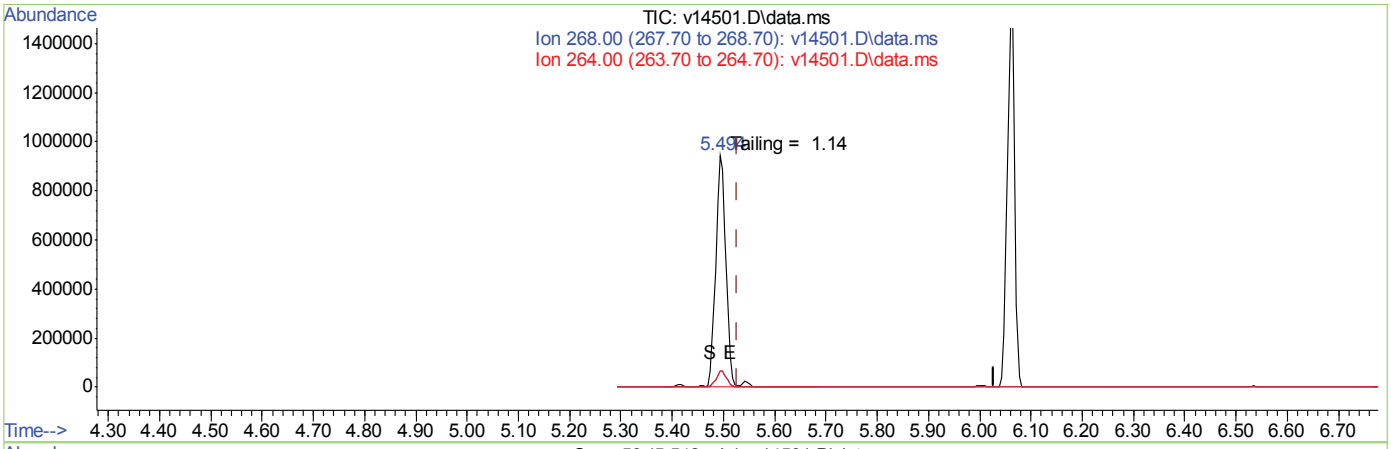
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	37.1	58160	PASS
68	69	0.00	2	1.9	1276	PASS
69	198	0.00	100	42.4	66568	PASS
70	69	0.00	2	0.5	362	PASS
127	198	40	60	47.8	75021	PASS
197	198	0.00	1	0.2	236	PASS
198	198	100	100	100.0	156864	PASS
199	198	5	9	6.6	10340	PASS
275	198	10	30	25.3	39749	PASS
365	198	1	100	3.3	5124	PASS
441	443	0.01	100	76.3	15547	PASS
442	198	40	100	66.2	103835	PASS
443	442	17	23	19.6	20389	PASS

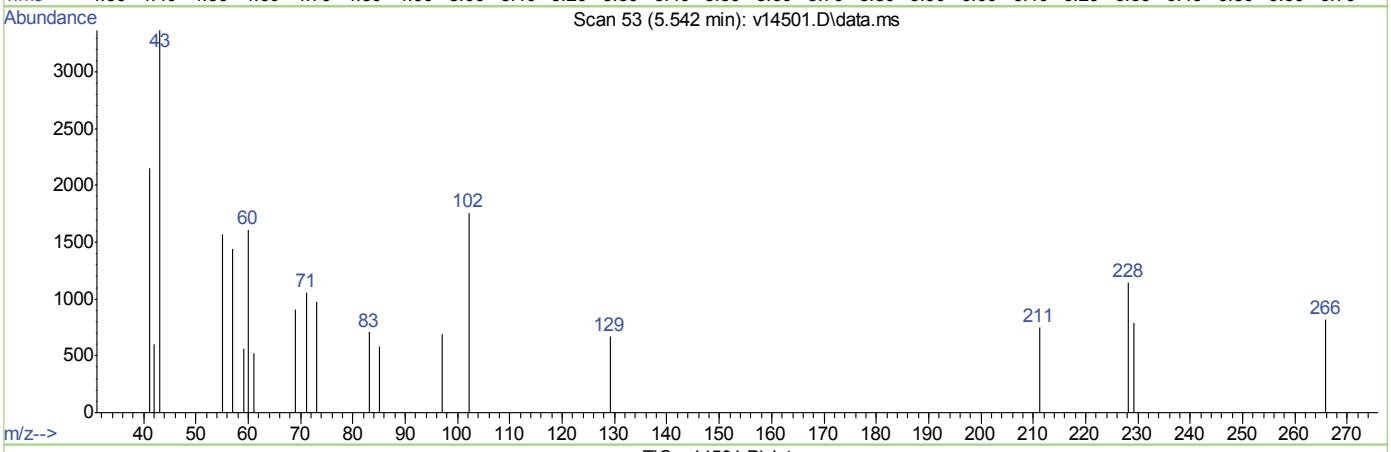
v14501.D ev779sim.m Tue Mar 26 10:37:18 2013

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14501.D
Acq On    : 26 Mar 2013  10:31 am
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Mar 26 10:37:22 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Wed Mar 20 12:45:32 2013
Response via : Initial Calibration
```





TIC: v14501.D\data.ms

(1) Pentachlorophenol

5.542min (+0.014) 0.00

response 21141

Signal	Exp%	Act%
TIC	100	100
268.00	686.40	0.00#
264.00	689.70	0.00#
0.00	0.00	0.00

dftpp.m Tue Mar 26 10:37:28 2013 Page: 1

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ACCUTEST LABORATORIES
TC27860

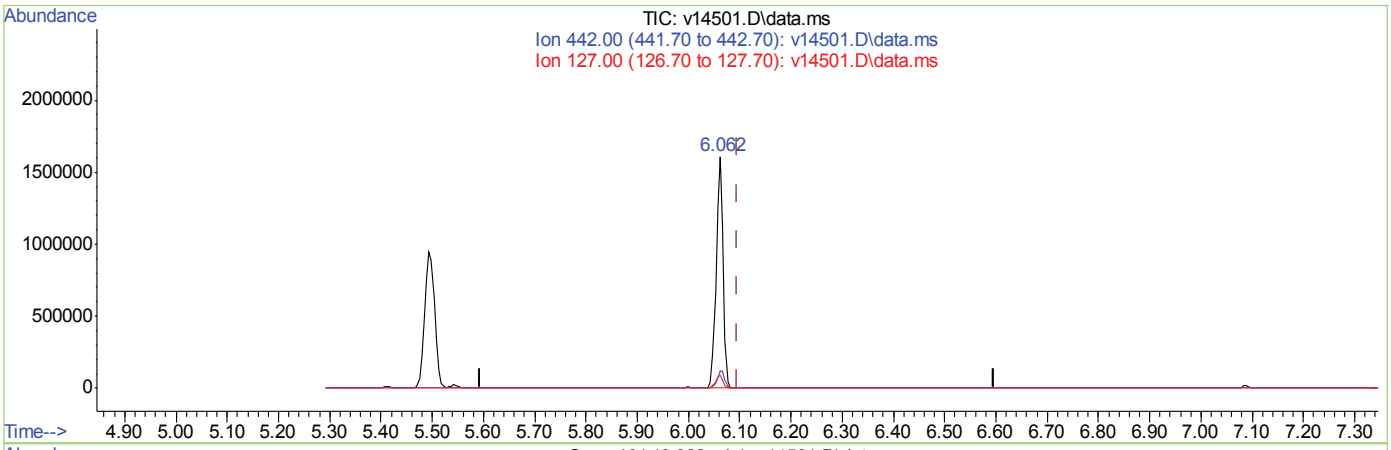
V14501.D ed□t□: Penta□hlorophenol

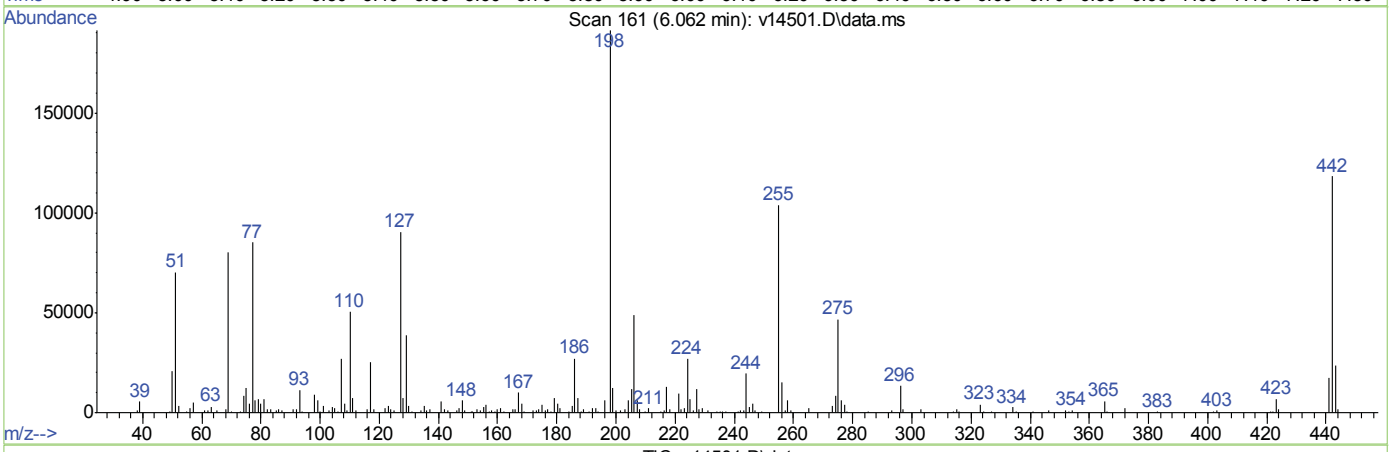
7.5.1.1
7

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14501.D
Acq On    : 26 Mar 2013  10:31 am
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Mar 26 10:37:22 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Wed Mar 20 12:45:32 2013
Response via : Initial Calibration
```





TIC: v14501.D\data.ms

(2) DFTPP

6.062min (-0.034) 0.00

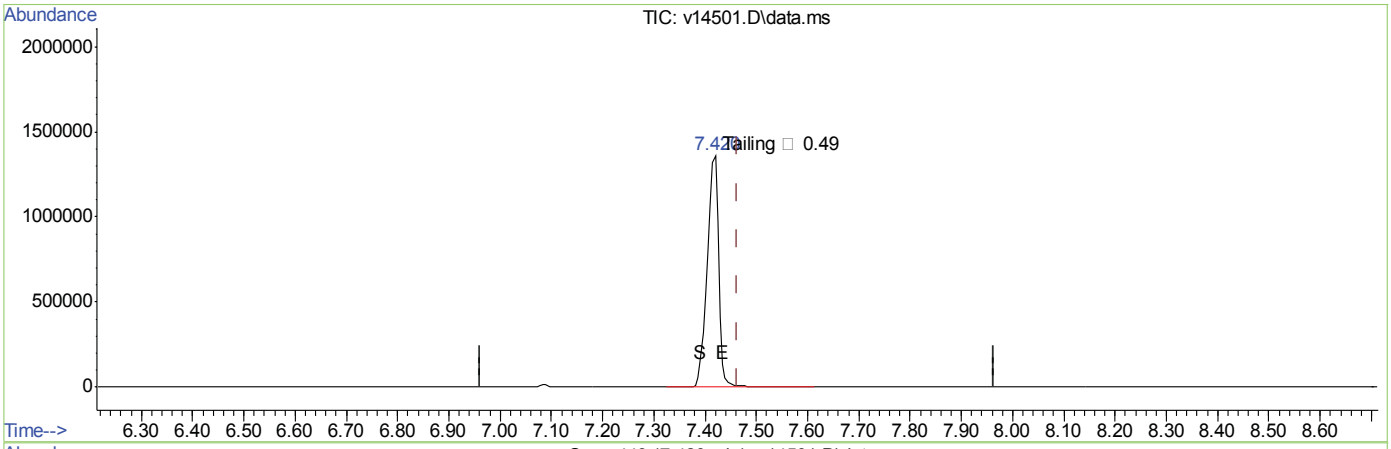
response 1532722

Signal	Exp%	Act%
TIC	100	100
442.00	826.30	7.99#
127.00	557.40	5.71#
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14501.D
Acq On    : 26 Mar 2013  10:31 am
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Mar 26 10:37:22 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Wed Mar 20 12:45:32 2013
Response via : Initial Calibration
```



(3) enzidine

7.420min (-0.043) 0.00

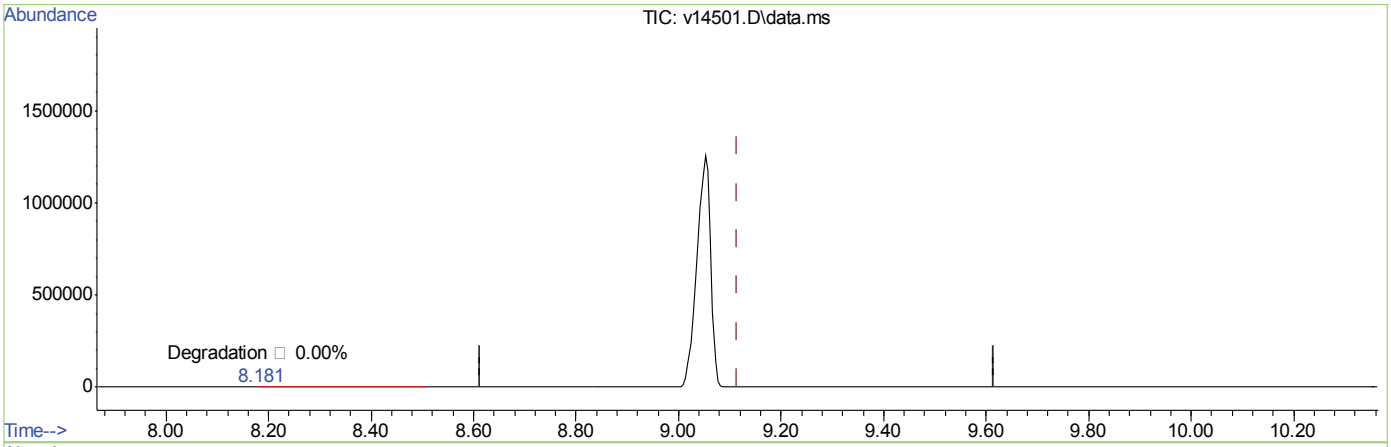
response 2116914

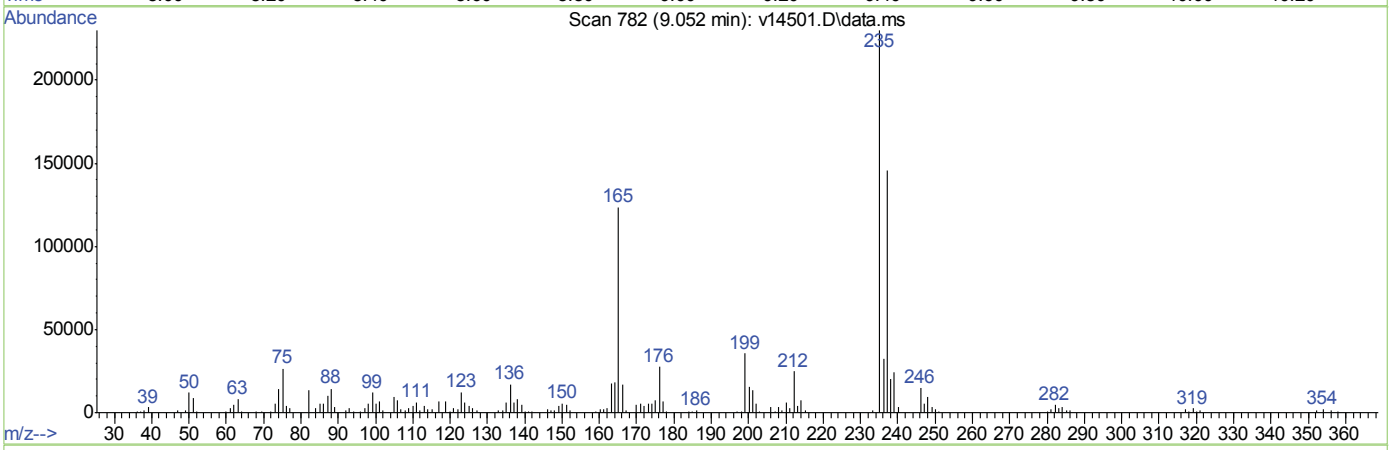
Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14501.D
Acq On    : 26 Mar 2013  10:31 am
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Mar 26 10:37:22 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Wed Mar 20 12:45:32 2013
Response via : Initial Calibration
```





TIC: v14501.D\data.ms

(4) DDT

9.052min (-0.063) 0.00

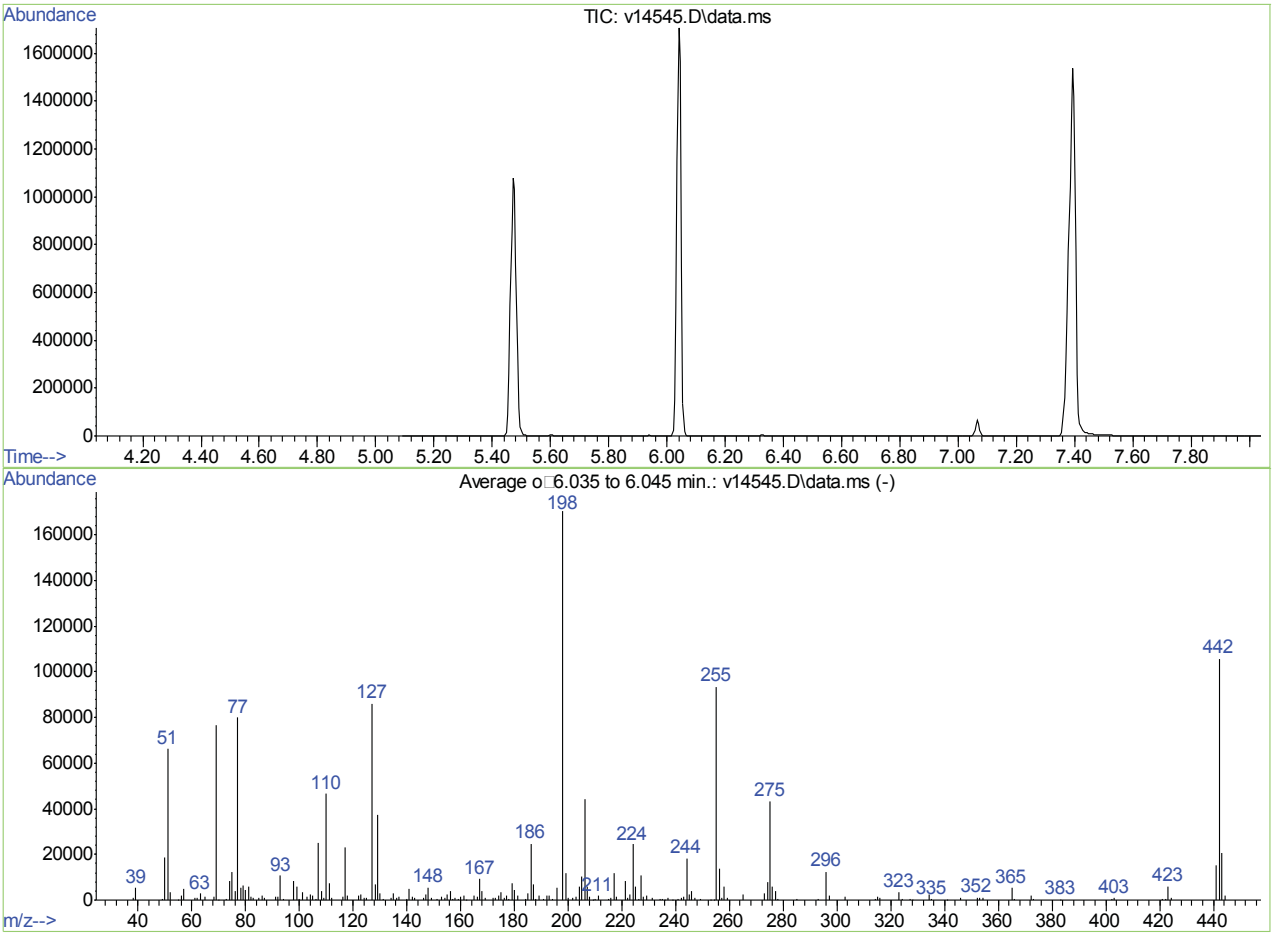
response 2357940

Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

DFTPP

```
Data File : C:\msdchem\1\DATA\EV834\v14545.D            Vial: 1
Acq On    : 29 Mar 2013   1:26 pm                   Operator: garyj
Sample    : dftpp                                   Inst    : MS V
Misc      : op21163,ev834,1000,,,1,1,water          Multiplr: 1.00
MS Integration Params: rteint.p

Method    : C:\msdchem\1\METHODS\dftpp.m (RTE Integrator)
Title     :
```



AutoFind: Scans 197, 198, 199; Background Corrected with Scan 191

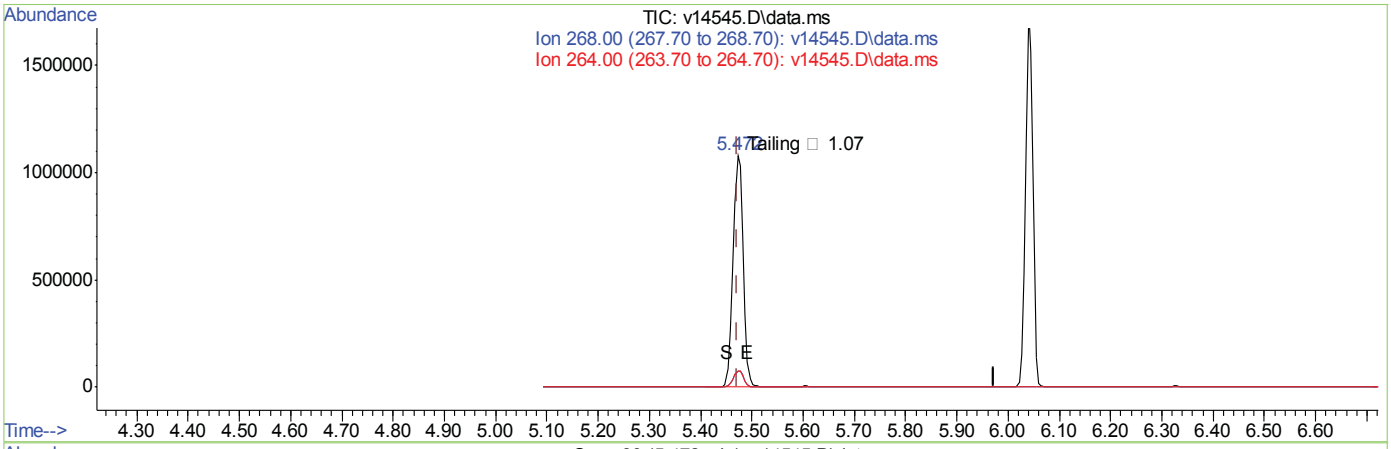
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	38.9	66155	PASS
68	69	0.00	2	2.0	1502	PASS
69	198	0.00	100	45.0	76712	PASS
70	69	0.00	2	0.2	172	PASS
127	198	40	60	50.6	86117	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	170283	PASS
199	198	5	9	6.8	11583	PASS
275	198	10	30	25.5	43357	PASS
365	198	1	100	3.1	5195	PASS
441	443	0.01	100	73.8	15305	PASS
442	198	40	100	62.1	105752	PASS
443	442	17	23	19.6	20738	PASS

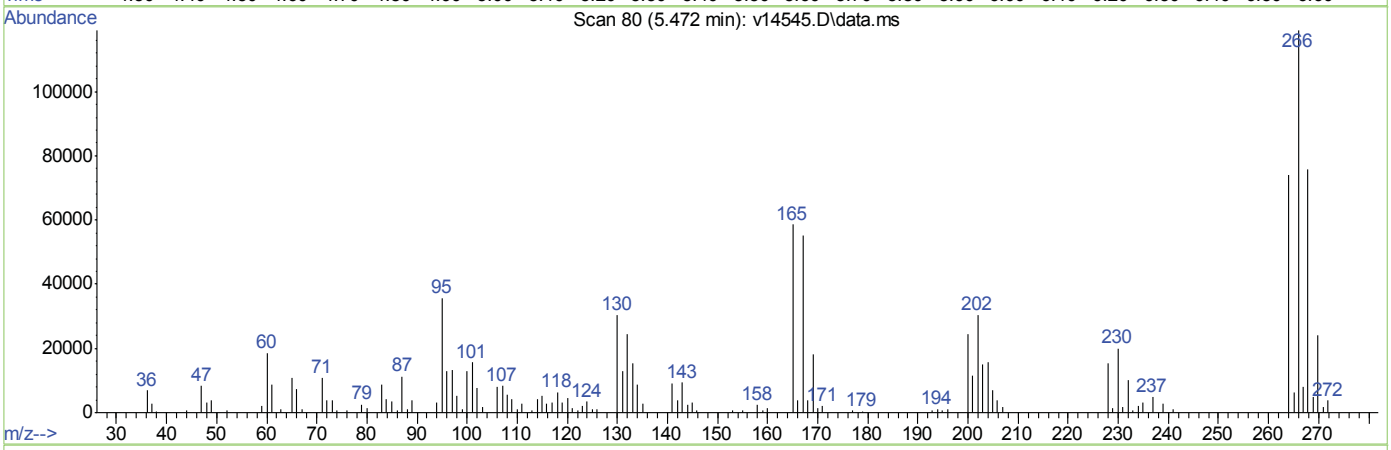
v14545.D dftpp.m Fri Mar 29 14:02:09 2013

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14545.D
Acq On    : 29 Mar 2013   1:26 pm
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev834,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Mar 29 14:02:28 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Fri Mar 29 14:02:22 2013
Response via : Initial Calibration
```





TIC: v14545.D\data.ms

(1) Pentac□lorop□enol

5.472min (0.000) 0.00

response 1481120

Signal	Exp%	Act%
TIC	100	100
268.00	701.80	7.38#
264.00	686.10	7.21#
0.00	0.00	0.00

7.5.2.1

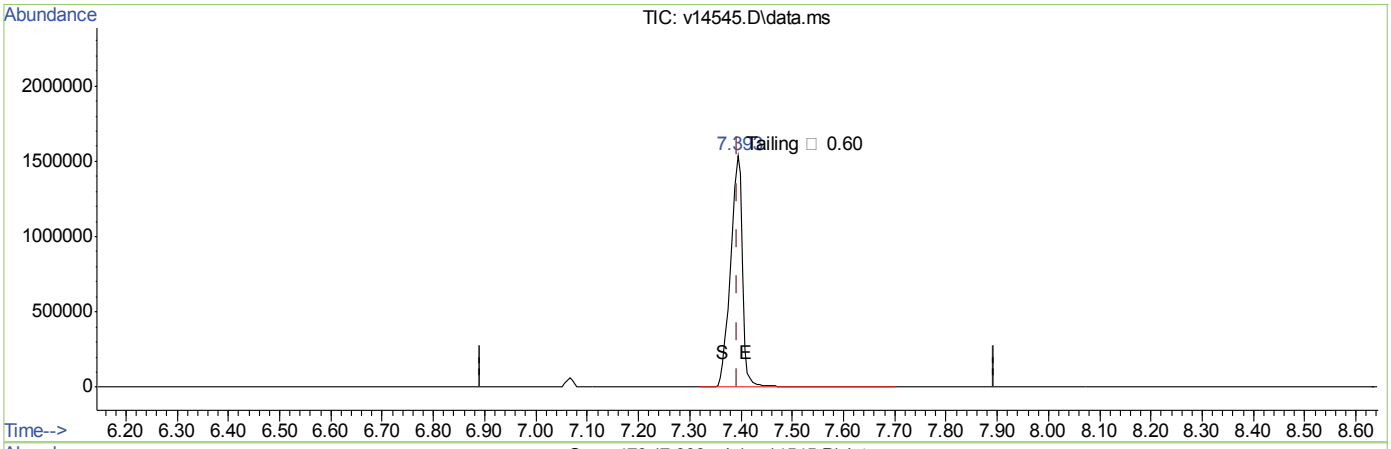
7

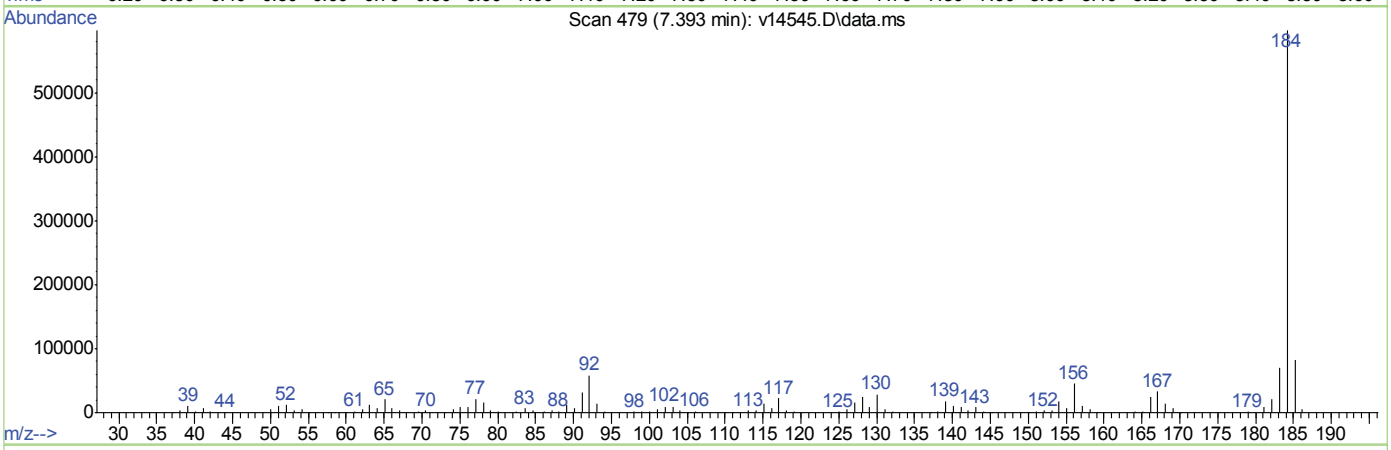
dftpp.m Fri Mar 29 14:02:34 2013 Page: 1

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14545.D
Acq On    : 29 Mar 2013   1:26 pm
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev834,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Mar 29 14:02:28 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Fri Mar 29 14:02:22 2013
Response via : Initial Calibration
```





TIC: v14545.D\data.ms

(3) □enzidine

7.393min (0.000) 0.00

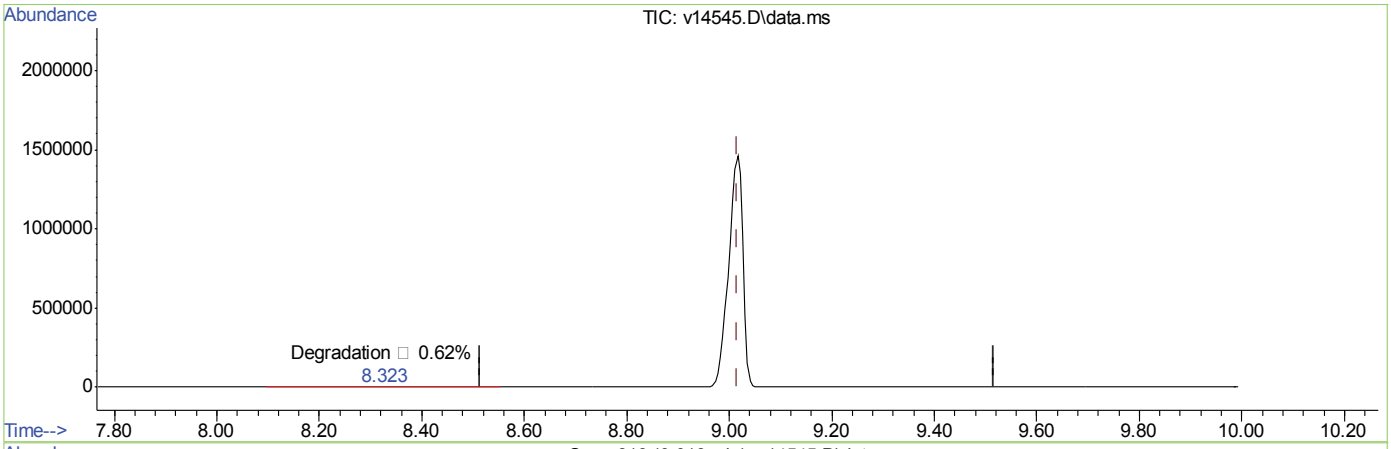
response 2462322

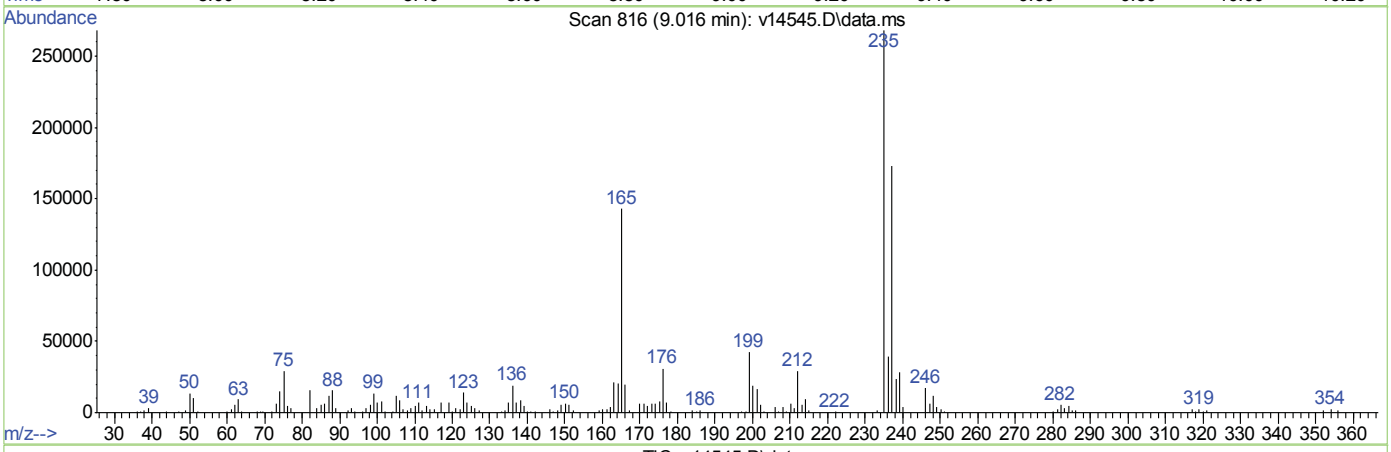
Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14545.D
Acq On    : 29 Mar 2013   1:26 pm
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev834,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Mar 29 14:02:28 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Fri Mar 29 14:02:22 2013
Response via : Initial Calibration
```





TIC: v14545.D\data.ms

(4) DDT

9.016min (0.000) 0.00

response 2803169

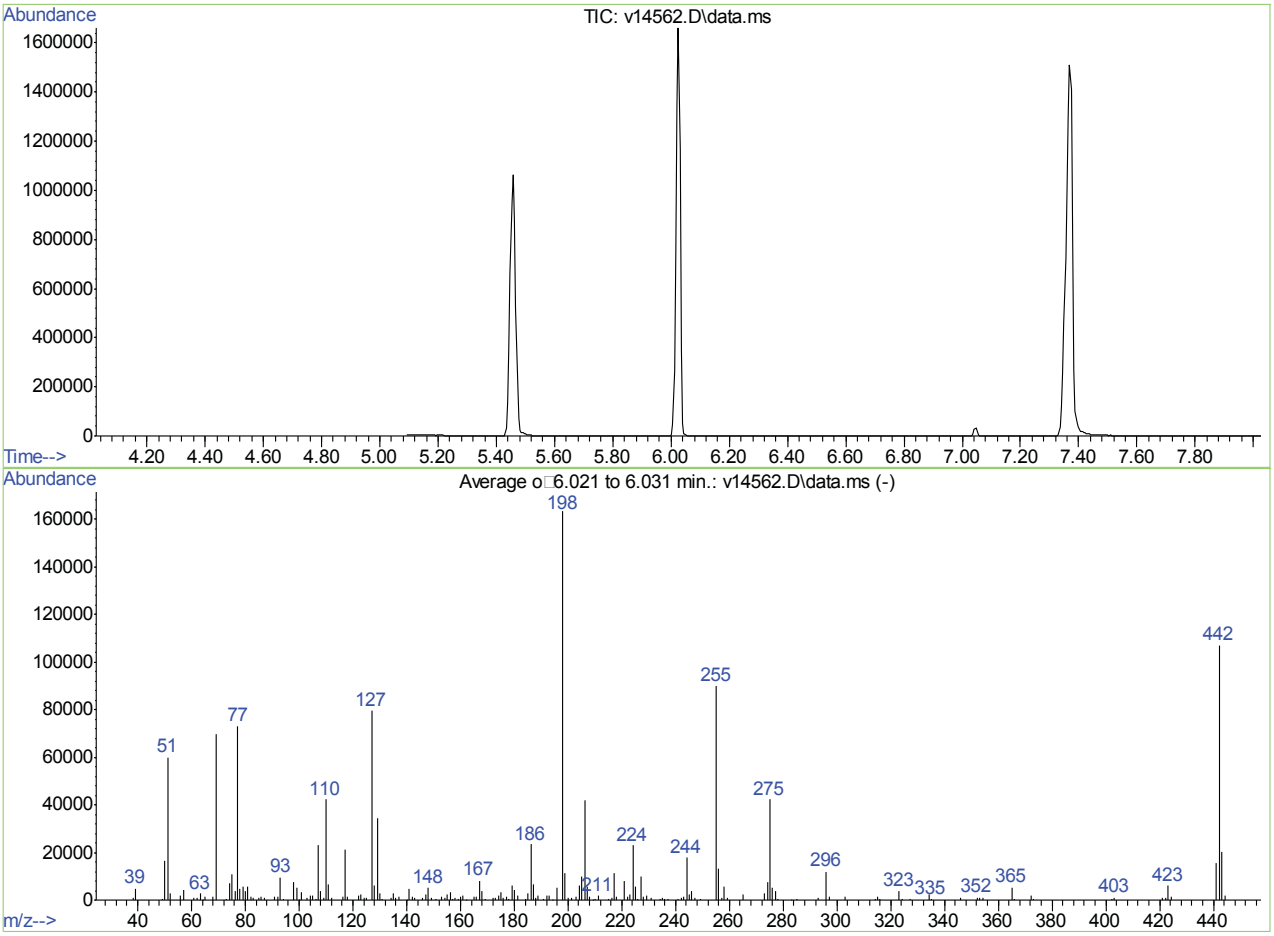
Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

ACCUTEST LABORATORIES TC27860

DFTPP

Data File : C:\msdchem\1\DATA\EV835\v14562.D Vial: 1
Acq On : 1 Apr 2013 9:34 am Operator: garyj
Sample : dftpp Inst : MS V
Misc : op21163,ev835,1000,,,1,1,water Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\msdchem\1\METHODS\dftpp.m (RTE Integrator)
Title :



AutoFind: Scans 194, 195, 196; Background Corrected with Scan 187

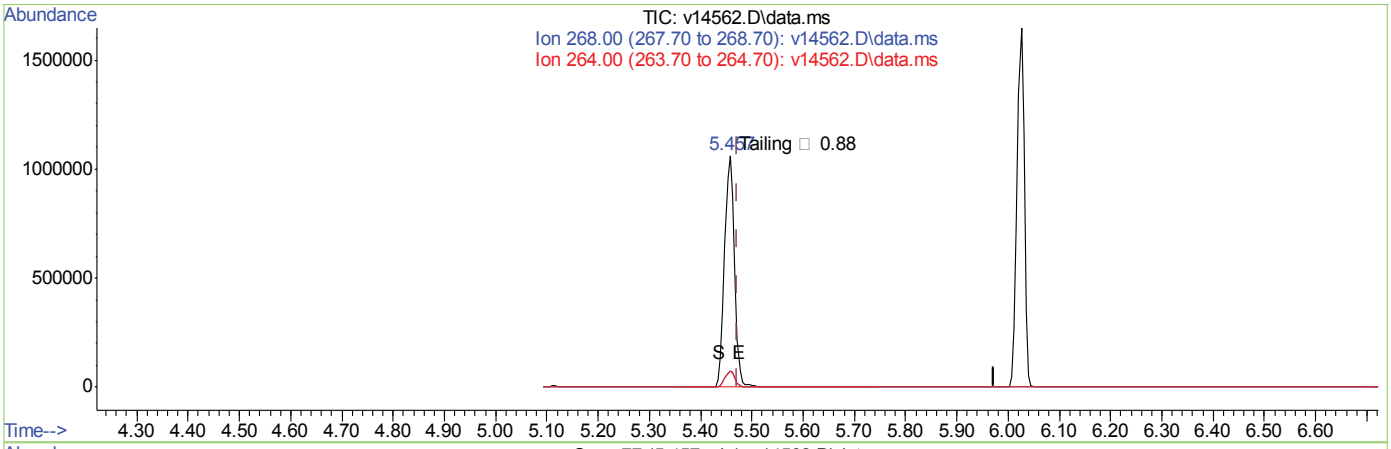
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	36.6	59787	PASS
68	69	0.00	2	1.8	1271	PASS
69	198	0.00	100	42.8	69843	PASS
70	69	0.00	2	0.0	0	PASS
127	198	40	60	48.6	79336	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	163157	PASS
199	198	5	9	6.8	11107	PASS
275	198	10	30	25.9	42272	PASS
365	198	1	100	3.3	5320	PASS
441	443	0.01	100	75.2	15389	PASS
442	198	40	100	65.6	107008	PASS
443	442	17	23	19.1	20473	PASS

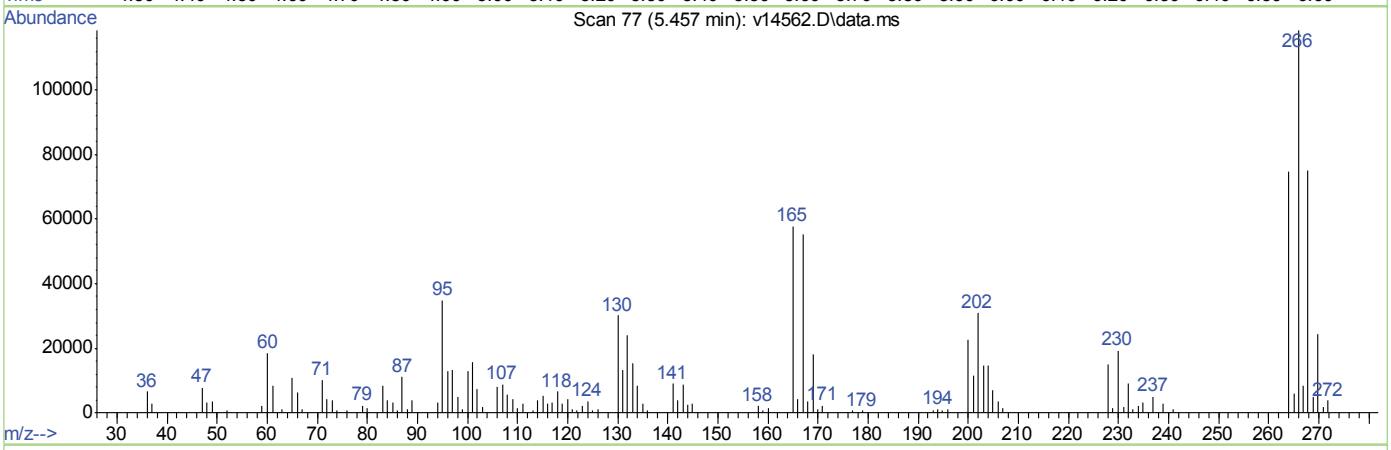
v14562.D dftpp.m Mon Apr 01 09:39:52 2013

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14562.D
Acq On    :  1 Apr 2013   9:34 am
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev835,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Apr 01 09:39:53 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Fri Mar 29 14:02:22 2013
Response via : Initial Calibration
```





TIC: v14562.D\data.ms

(1) Pentac□lorop□enol

5.457min (-0.015) 0.00

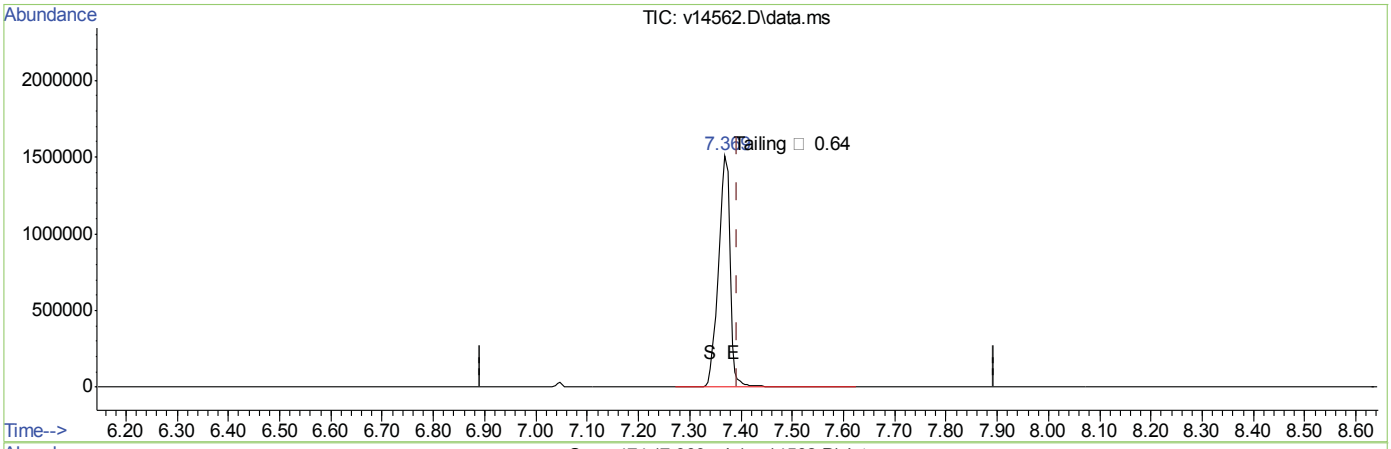
response 1444354

Signal	Exp%	Act%
TIC	100	100
268.00	701.80	7.16#
264.00	686.10	7.11#
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14562.D
Acq On    :  1 Apr 2013   9:34 am
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev835,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Apr 01 09:39:53 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Fri Mar 29 14:02:22 2013
Response via : Initial Calibration
```



TIC: v14562.D\data.ms

(3) enzidine

7.369min (-0.024) 0.00

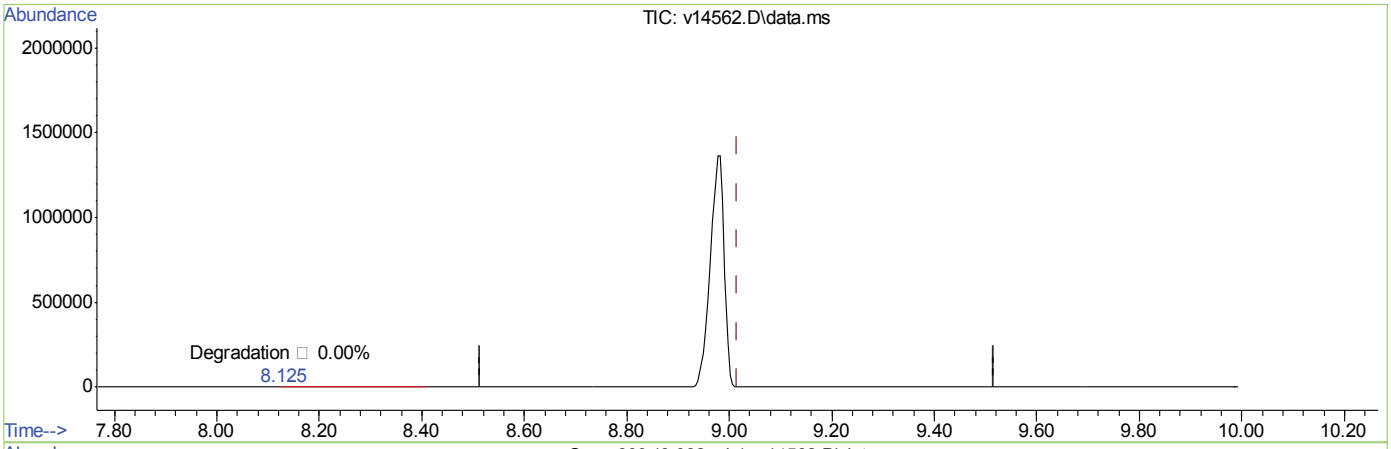
response 2391080

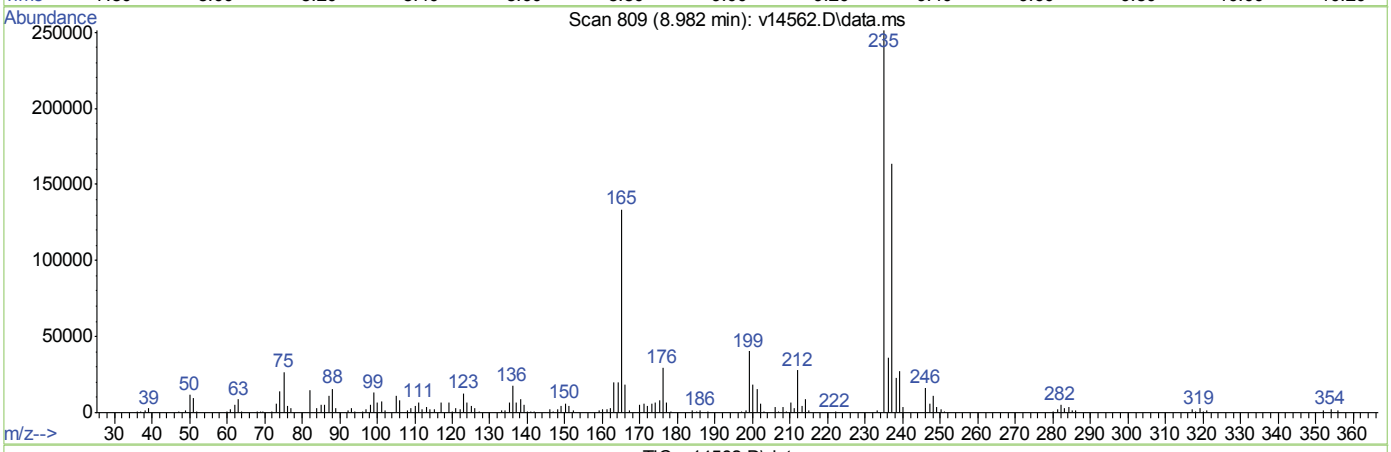
Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14562.D
Acq On    :  1 Apr 2013   9:34 am
Operator  : garyj
Sample    : dftpp
Misc      : op21163,ev835,1000,,,1,1,water
ALS Vial  : 1   Sample Multiplier: 1

Quant Time: Apr 01 09:39:53 2013
Quant Method : C:\msdchem\1\METHODS\dftpp.m
Quant Title  :
QLast Update : Fri Mar 29 14:02:22 2013
Response via : Initial Calibration
```





TIC: v14562.D\data.ms

(4) DDT

8.982min (-0.034) 0.00

response 2587484

Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

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□o□n □ □tson
03□2□13 12:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14502.D
Acq On : 26 Mar 2013 10:45 am
Operator : garyj
Sample : ic831-0.1
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 26 11:07:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 11:07:18 2013
Response via : Initial Calibration

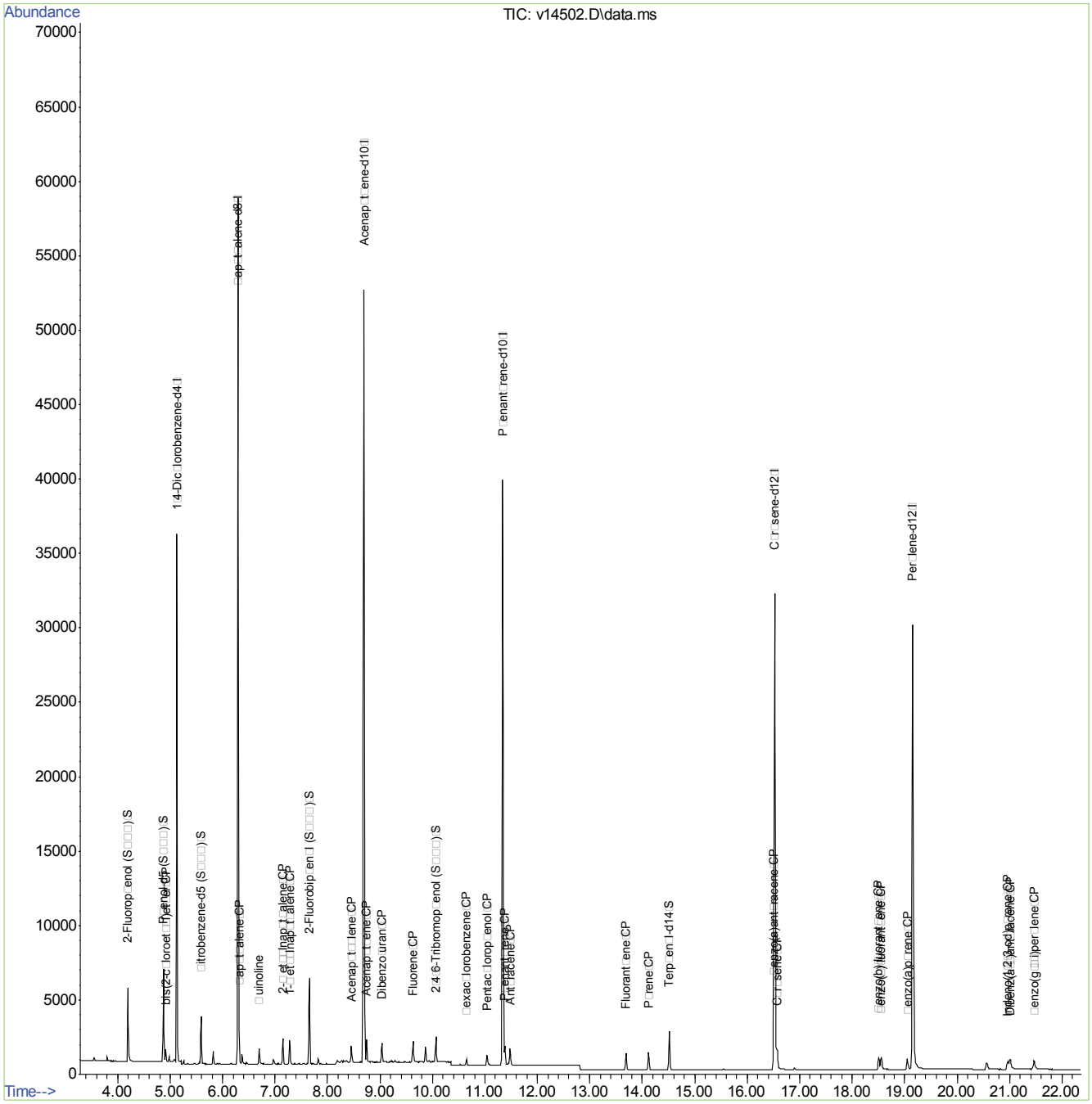
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	5.130	152	10557	4.00 ppm	0.00
5) Naphthalene-d8	6.294	136	52676	4.00 ppm	0.00
11) Acenaphthene-d10	8.692	164	25192	4.00 ppm	0.00
17) Phenanthrene-d10	11.339	188	43513	4.00 ppm	0.00
24) Chrysene-d12	16.522	240	33929	4.00 ppm	0.00
29) Perylene-d12	19.149	264	37990	4.00 ppm	0.00
System Monitoring Compounds					
2) 2-Fluorophenol (SURR)	4.196	112	2968	1.00 ppm	0.00
Spiked Amount 10.000	Range 21 - 100		Recovery	= 10.00%#	
3) Phenol-d5 (SURR)	4.871	99	3577	1.00 ppm	0.00
Spiked Amount 10.000	Range 10 - 94		Recovery	= 10.00%	
6) Nitrobenzene-d5 (SURR)	5.587	82	2005	0.50 ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery	= 10.00%#	
12) 2-Fluorobiphenyl (SURR)	7.652	172	4768	0.50 ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery	= 10.00%#	
19) 2,4,6-Tribromophenol (...	10.066	330	892	1.00 ppm	0.00
Spiked Amount 10.000	Range 18 - 143		Recovery	= 10.00%#	
26) Terphenyl-d14	14.515	244	2664	0.50 ppm	0.00
Spiked Amount 5.000	Range 21 - 144		Recovery	= 10.00%#	
Target Compounds					Qvalue
4) bis(2-chloroethyl)ether	4.917	93	337	0.10 ppm	94
7) Naphthalene	6.314	128	1336	0.10 ppm	99
8) Quinoline	6.697	129	830	0.10 ppm	99
9) 2-Methylnaphthalene	7.148	142	848	0.10 ppm #	99
10) 1-Methylnaphthalene	7.278	142	799	0.10 ppm #	100
13) Acenaphthylene	8.456	152	1013	0.10 ppm	99
14) Acenaphthene	8.745	154	692	0.10 ppm	99
15) Dibenzofuran	9.034	168	969	0.10 ppm	97
16) Fluorene	9.630	166	802	0.10 ppm	99
18) Hexachlorobenzene	10.649	284	281	0.10 ppm #	72
20) Pentachlorophenol	11.041	266	492	0.50 ppm	97
21) Phenanthrene	11.380	178	1290	0.10 ppm	100
22) Anthracene	11.479	178	1141	0.10 ppm	99
23) Fluoranthene	13.688	202	1197	0.10 ppm	99
25) Pyrene	14.120	202	1252	0.10 ppm #	99
27) Benzo(a)anthracene	16.502	228	1327	0.10 ppm	97
28) Chrysene	16.575	228	1216	0.10 ppm	98
30) Benzo(b)fluoranthene	18.503	252	994	0.10 ppm	95
31) Benzo(k)fluoranthene	18.555	252	1199	0.10 ppm	96
32) Benzo(a)pyrene	19.055	252	1004	0.10 ppm	99
33) Indeno(1,2,3-cd)pyrene	20.963	276	859m	0.07 ppm	
34) Dibenz(a,h)anthracene	21.015	278	979	0.10 ppm	94
35) Benzo(g,h,i)perylene	21.463	276	1127	0.10 ppm	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14502.D
Acq On : 26 Mar 2013 10:45 am
Operator : garyj
Sample : ic831-0.1
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 26 11:07:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 11:07:18 2013
Response via : Initial Calibration



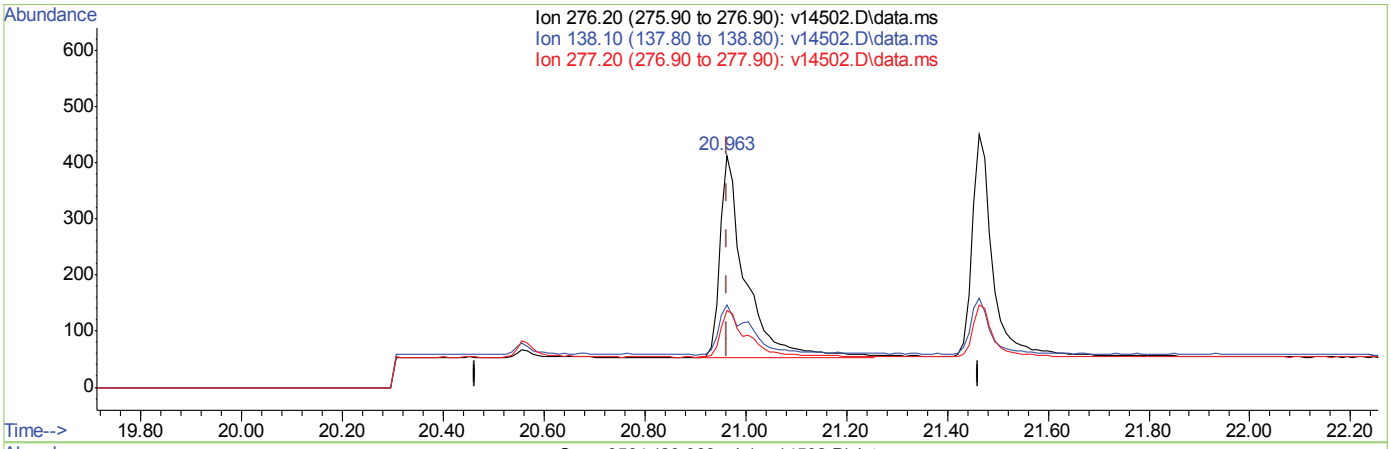
ev831sim.m Tue Mar 26 11:08:03 2013 Page: 2

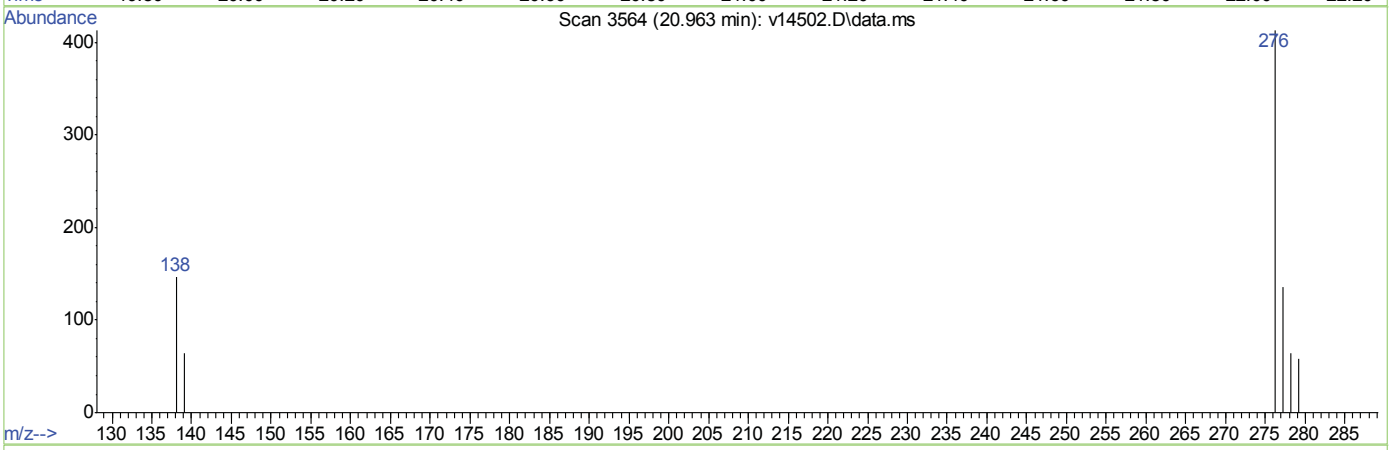
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14502.D
Acq On : 26 Mar 2013 10:45 am
Operator : garyj
Sample : ic831-0.1
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 26 11:07:27 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 11:07:18 2013
Response via : Initial Calibration





TIC: v14502.D\data.ms

(33) Indeno(1□2□3-cd)p□rene (CP)

20.963min (0.000) 0.10ppm

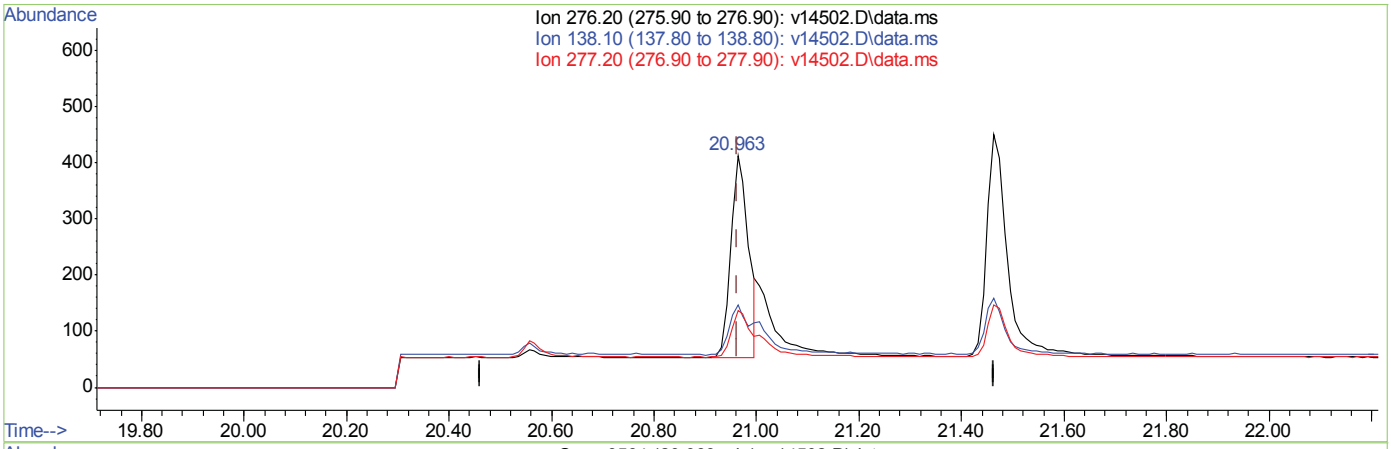
response 1247

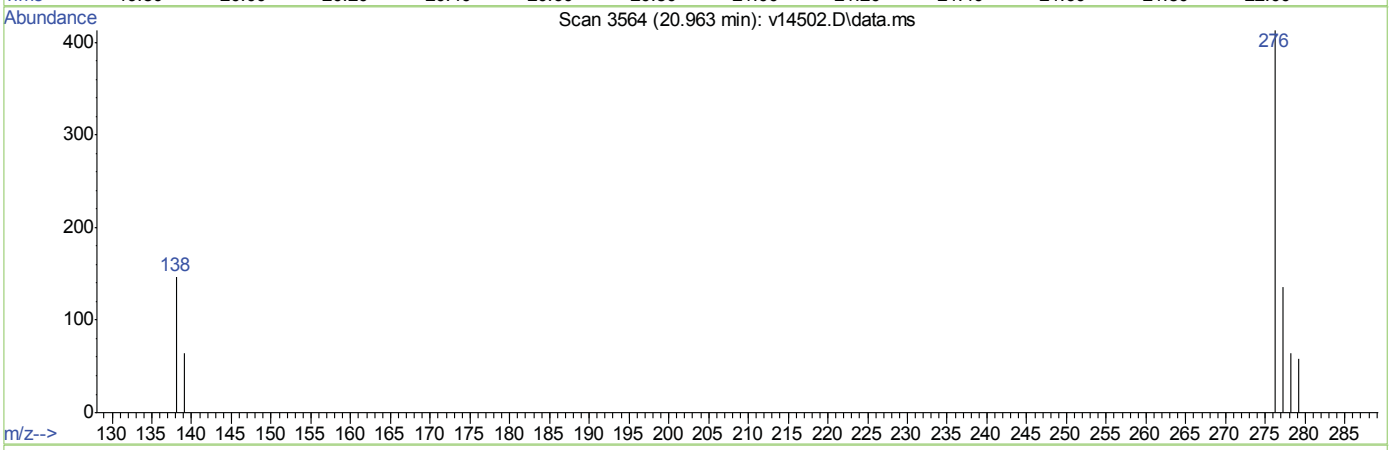
Ion	Exp%	Act%
276.20	100	100
138.10	23.10	32.40
277.20	24.50	25.74
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14502.D
Acq On : 26 Mar 2013 10:45 am
Operator : garyj
Sample : ic831-0.1
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 26 11:07:27 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 11:07:18 2013
Response via : Initial Calibration





TIC: v14502.D\data.ms

(33) Indeno(1□2□3-cd)p□rene (CP)

20.963min (0.000) 0.07ppm m

response 859

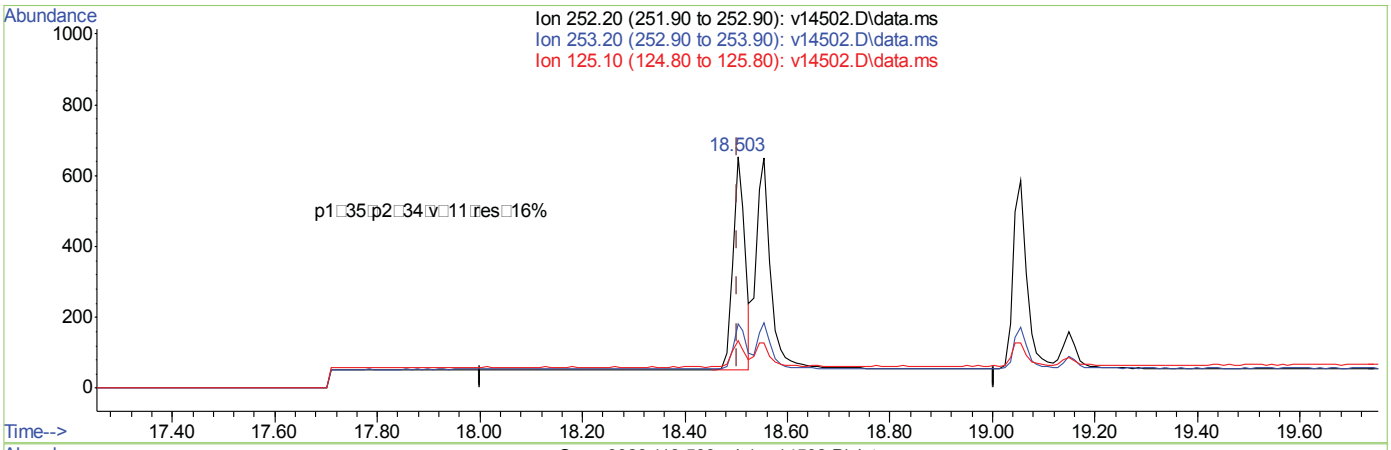
Ion	Exp%	Act%
276.20	100	100
138.10	23.10	47.03#
277.20	24.50	37.37
0.00	0.00	0.00

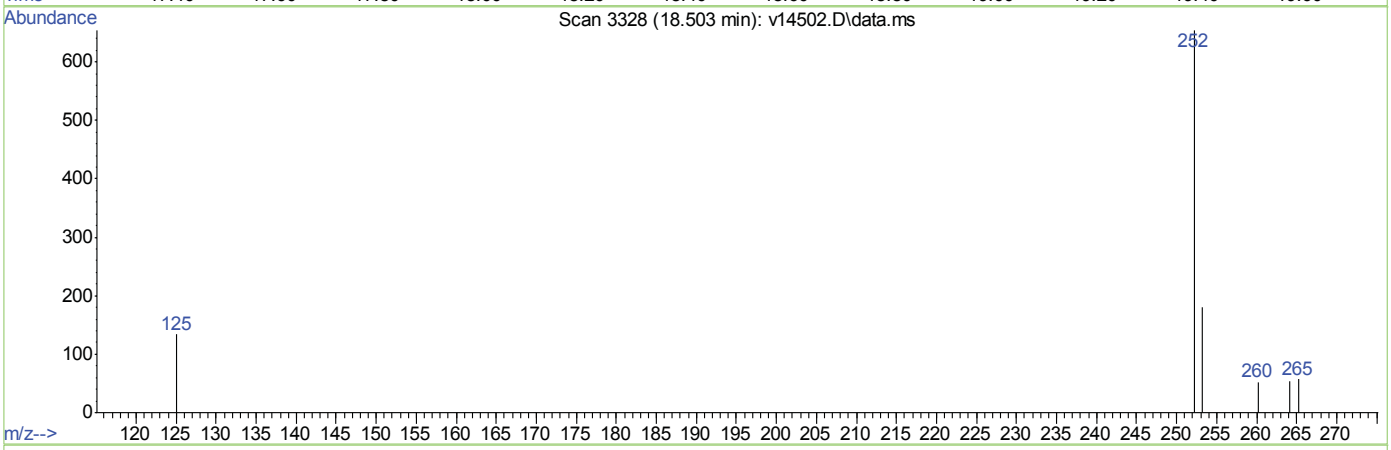
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14502.D
Acq On : 26 Mar 2013 10:45 am
Operator : garyj
Sample : ic831-0.1
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 26 11:07:52 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 11:07:18 2013
Response via : Initial Calibration





TIC: v14502.D\data.ms

(30) □enzo(b)□luorant□ene (CP)

18.503min (0.000) 0.10ppm

response 994

Ion	Exp%	Act%
252.20	100	100
253.20	20.60	24.14
125.10	13.00	12.58
0.00	0.00	0.00

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03□2□13 12:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14503.D
Acq On : 26 Mar 2013 11:13 am
Operator : garyj
Sample : ic831-0.2
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 26 11:46:48 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 11:08:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	5.130	152	10627	4.00 ppm	0.00
5) Naphthalene-d8	6.294	136	54672	4.00 ppm	0.00
11) Acenaphthene-d10	8.692	164	26536	4.00 ppm	0.00
17) Phenanthrene-d10	11.338	188	45434	4.00 ppm	0.00
24) Chrysene-d12	16.521	240	35476	4.00 ppm	0.00
29) Perylene-d12	19.158	264	39885	4.00 ppm	0.00
System Monitoring Compounds					
2) 2-Fluorophenol (SURR)	4.195	112	5989	2.00 ppm	0.00
Spiked Amount 10.000	Range 21 - 100		Recovery	= 20.00%#	
3) Phenol-d5 (SURR)	4.871	99	7296	2.03 ppm	0.00
Spiked Amount 10.000	Range 10 - 94		Recovery	= 20.30%	
6) Nitrobenzene-d5 (SURR)	5.587	82	4115	0.99 ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery	= 19.80%	
12) 2-Fluorobiphenyl (SURR)	7.656	172	9851	0.98 ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery	= 19.60%	
19) 2,4,6-Tribromophenol (...	10.066	330	1884	2.02 ppm	0.00
Spiked Amount 10.000	Range 18 - 143		Recovery	= 20.20%	
26) Terphenyl-d14	14.514	244	5331	0.96 ppm	0.00
Spiked Amount 5.000	Range 21 - 144		Recovery	= 19.20%#	
Target Compounds					Qvalue
4) bis(2-chloroethyl)ether	4.917	93	675	0.20 ppm	93
7) Naphthalene	6.319	128	2671	0.19 ppm	99
8) Quinoline	6.697	129	1663	0.19 ppm	100
9) 2-Methylnaphthalene	7.147	142	1755	0.20 ppm #	99
10) 1-Methylnaphthalene	7.278	142	1632	0.20 ppm #	100
13) Acenaphthylene	8.456	152	2127	0.20 ppm	100
14) Acenaphthene	8.745	154	1420	0.19 ppm	99
15) Dibenzofuran	9.040	168	2007	0.20 ppm	96
16) Fluorene	9.630	166	1649	0.20 ppm	100
18) Hexachlorobenzene	10.648	284	556	0.19 ppm	98
20) Pentachlorophenol	11.036	266	917	0.89 ppm	97
21) Phenanthrene	11.383	178	2571	0.19 ppm	100
22) Anthracene	11.478	178	2294	0.19 ppm	100
23) Fluoranthene	13.690	202	2356	0.19 ppm	99
25) Pyrene	14.119	202	2417	0.18 ppm #	99
27) Benzo(a)anthracene	16.500	228	2457	0.18 ppm	97
28) Chrysene	16.573	228	2356	0.19 ppm	98
30) Benzo(b)fluoranthene	18.502	252	1995	0.19 ppm	95
31) Benzo(k)fluoranthene	18.554	252	2414	0.19 ppm	95
32) Benzo(a)pyrene	19.054	252	2000	0.19 ppm	99
33) Indeno(1,2,3-cd)pyrene	20.962	276	1745m	0.19 ppm	
34) Dibenz(a,h)anthracene	21.014	278	2083	0.20 ppm	94
35) Benzo(g,h,i)perylene	21.462	276	2230	0.19 ppm	99

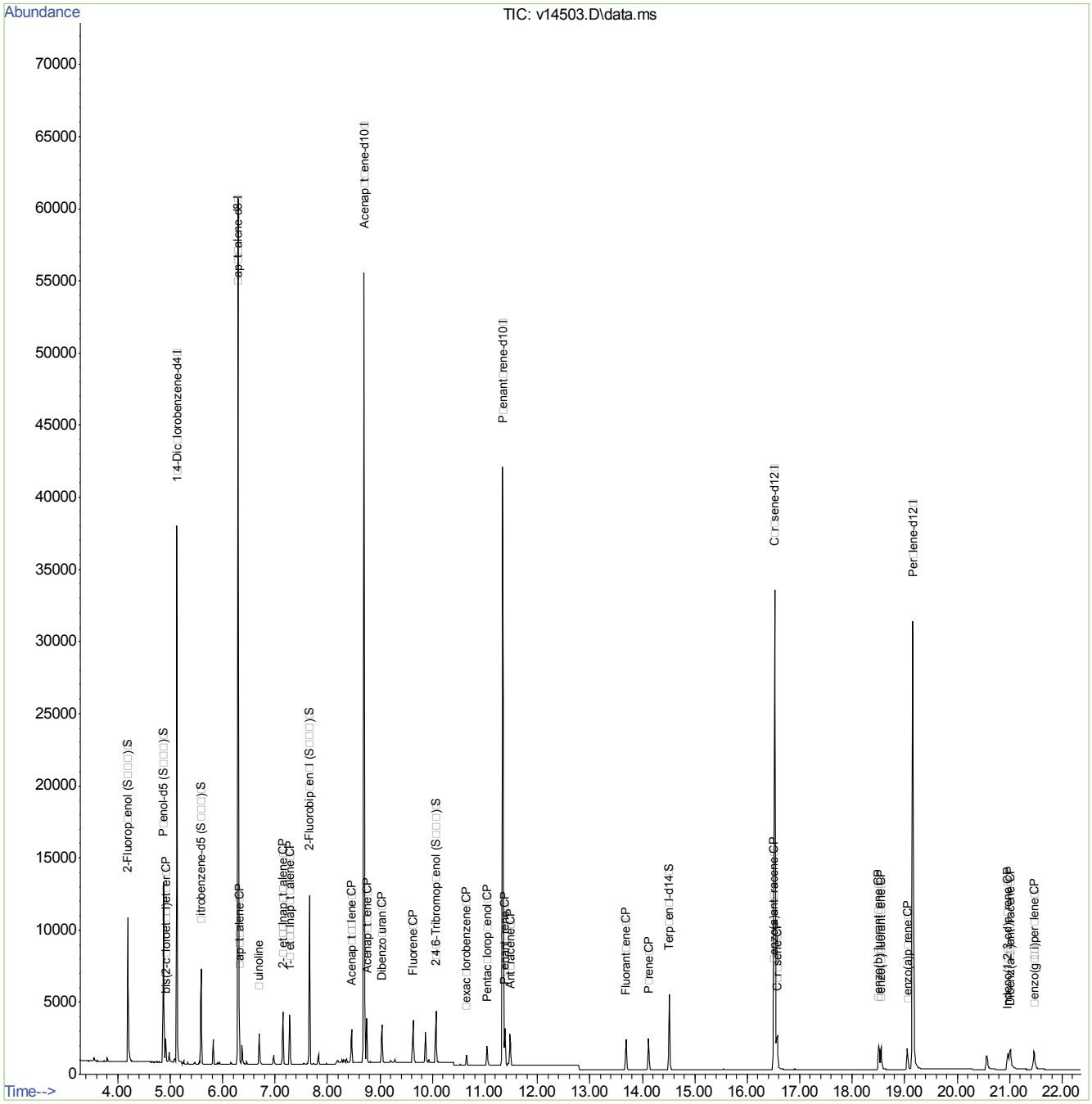
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.6.2
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14503.D
Acq On : 26 Mar 2013 11:13 am
Operator : garyj
Sample : ic831-0.2
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

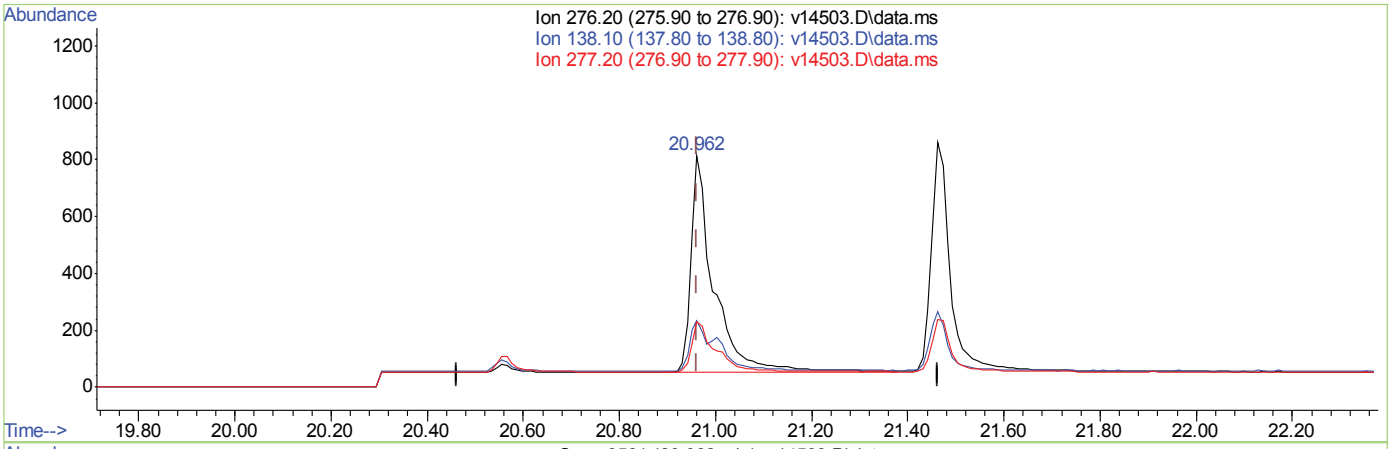
Quant Time: Mar 26 11:46:48 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 11:08:05 2013
Response via : Initial Calibration

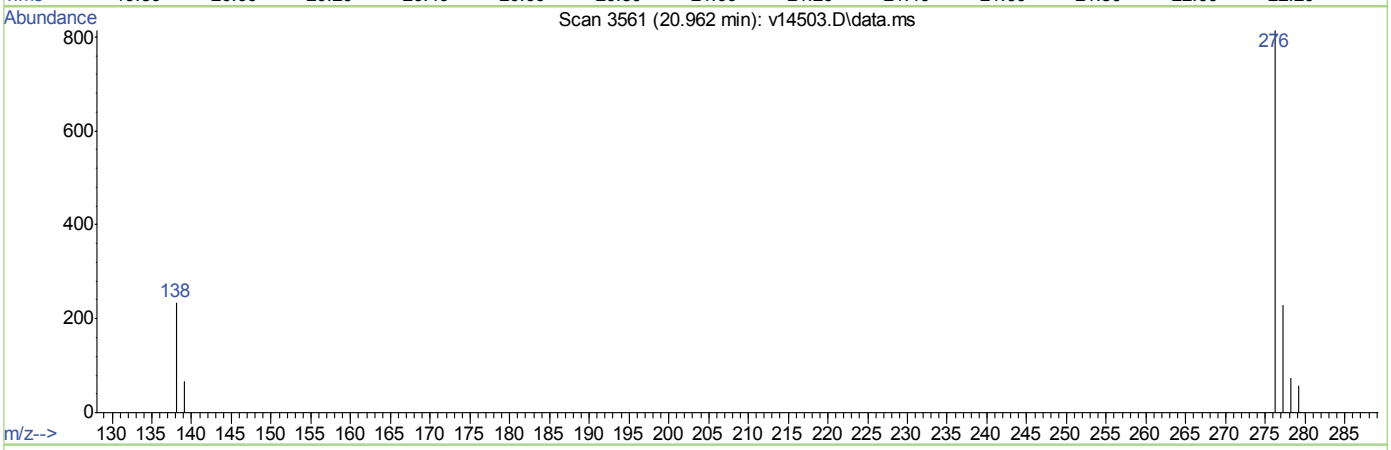


Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14503.D
Acq On    : 26 Mar 2013  11:13 am
Operator  : garyj
Sample    : ic831-0.2
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Mar 26 11:46:16 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 11:08:05 2013
Response via : Initial Calibration
```





TIC: v14503.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (-0.001) 0.29ppm

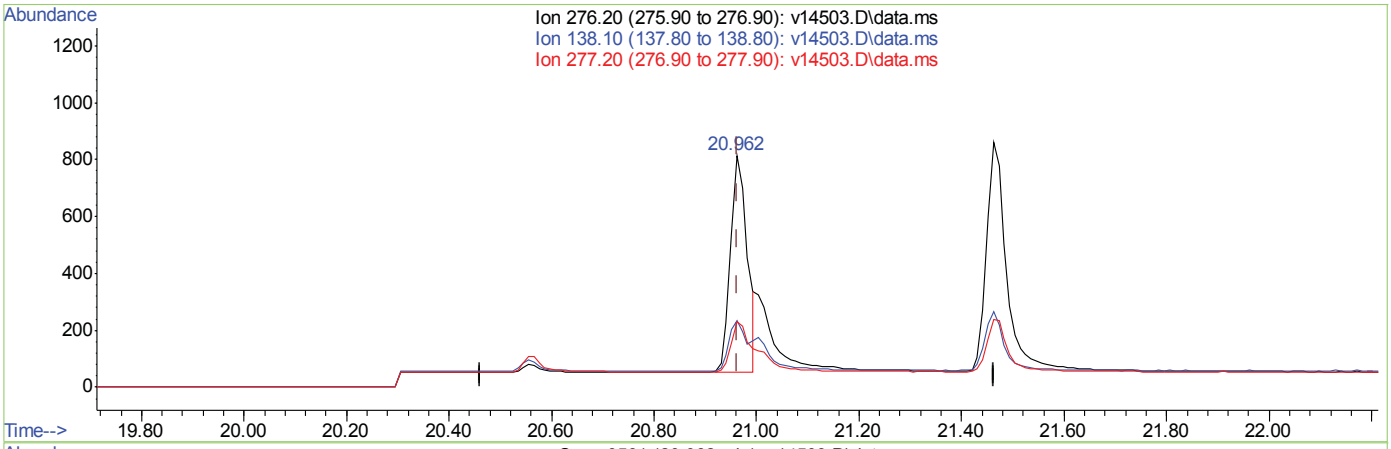
response 2573

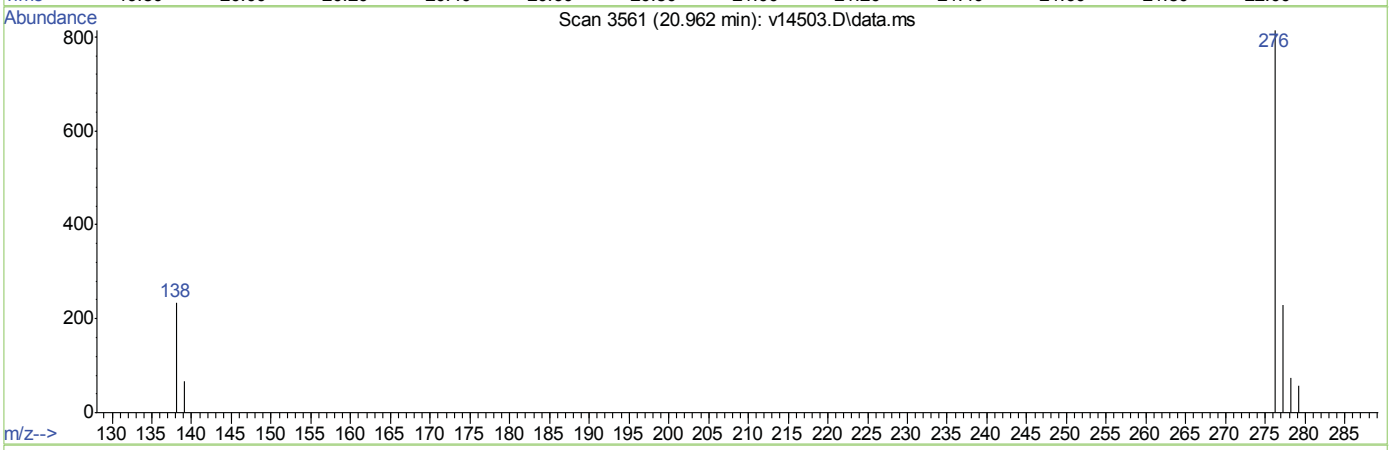
Ion	Exp%	Act%
276.20	100	100
138.10	23.10	30.08
277.20	24.50	24.95
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14503.D
Acq On    : 26 Mar 2013  11:13 am
Operator  : garyj
Sample    : ic831-0.2
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Mar 26 11:46:16 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 11:08:05 2013
Response via : Initial Calibration
```





TIC: v14503.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (-0.001) 0.19ppm m

response 1745

Ion	Exp%	Act%
276.20	100	100
138.10	23.10	44.36
277.20	24.50	36.79
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14503.D
Acq On    : 26 Mar 2013  11:13 am
Operator  : garyj
Sample    : ic831-0.2
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Mar 26 11:46:48 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 11:08:05 2013
Response via : Initial Calibration
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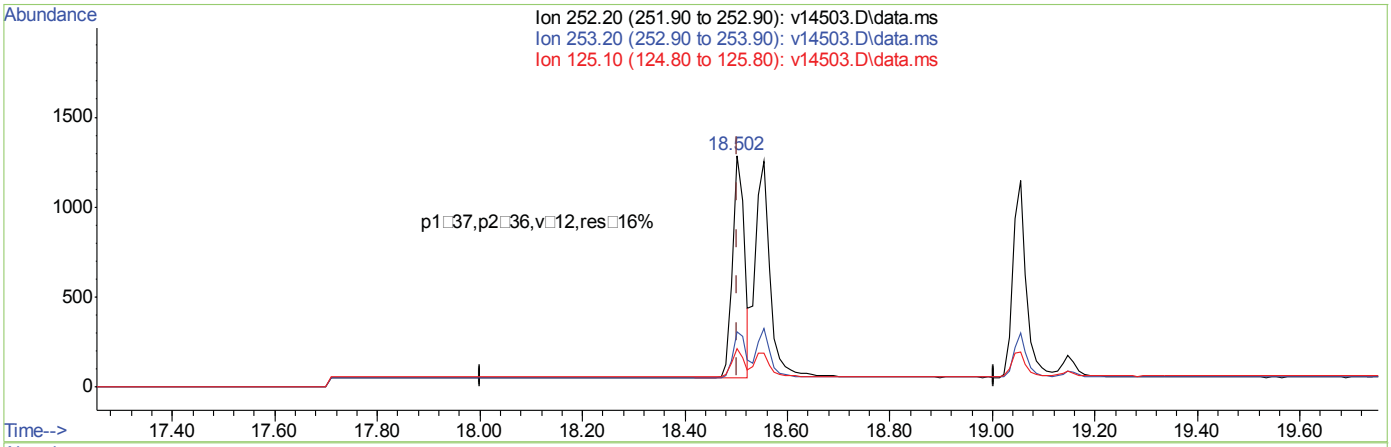

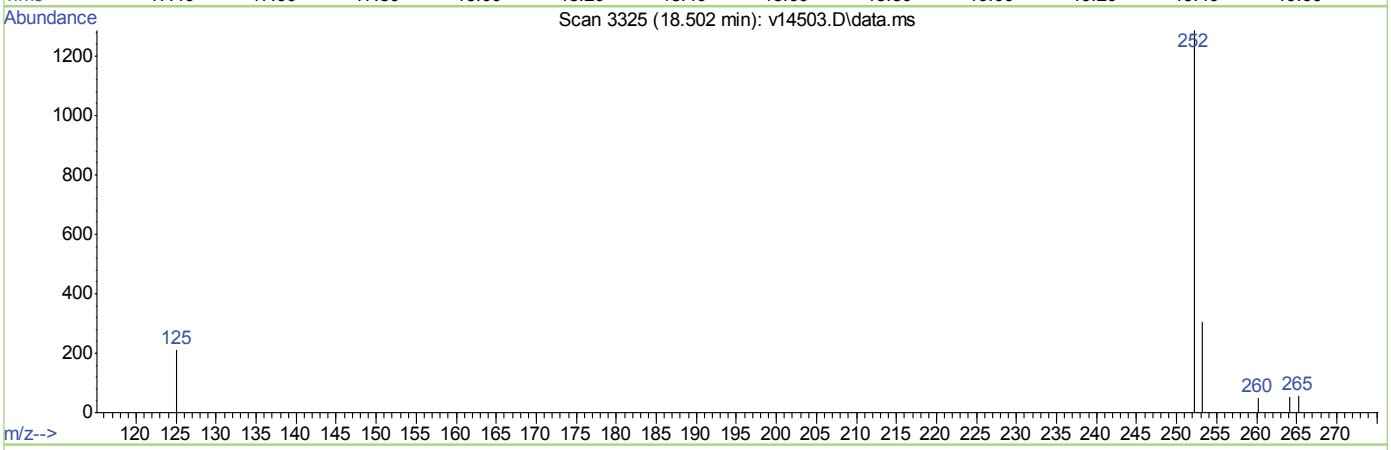

TIC: v14503.D\data.ms

(30) □enzo(b)□uorant□ene (CP)

18.502min (-0.001) 0.19ppm

response 1995

Ion	Exp%	Act%
252.20	100	100
253.20	20.60	23.91
125.10	13.00	12.08
0.00	0.00	0.00

an al Inte rations
R V D
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o n atson
03 2 13 12:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14504.D
Acq On : 26 Mar 2013 11:41 am
Operator : garyj
Sample : ic831-0.5
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 26 12:02:42 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 11:46:59 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.130	152	10067	4.00	ppm	0.00
5) Naphthalene-d8	6.294	136	52306	4.00	ppm	0.00
11) Acenaphthene-d10	8.692	164	26032	4.00	ppm	0.00
17) Phenanthrene-d10	11.338	188	45436	4.00	ppm	0.00
24) Chrysene-d12	16.521	240	37239	4.00	ppm	0.00
29) Perylene-d12	19.158	264	41561	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.190	112	14925	5.27	ppm	0.00
Spiked Amount 10.000	Range 21 - 100		Recovery = 52.70%			
3) Phenol-d5 (SURR)	4.866	99	18207	5.30	ppm	0.00
Spiked Amount 10.000	Range 10 - 94		Recovery = 53.00%			
6) Nitrobenzene-d5 (SURR)	5.587	82	10307	2.60	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery = 52.00%			
12) 2-Fluorobiphenyl (SURR)	7.657	172	24532	2.51	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery = 50.20%			
19) 2,4,6-Tribromophenol (...	10.066	330	5107	5.45	ppm	0.00
Spiked Amount 10.000	Range 18 - 143		Recovery = 54.50%			
26) Terphenyl-d14	14.514	244	14827	2.59	ppm	0.00
Spiked Amount 5.000	Range 21 - 144		Recovery = 51.80%			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.917	93	1650	0.51	ppm	94
7) Naphthalene	6.319	128	6561	0.50	ppm	99
8) Quinoline	6.697	129	4169	0.51	ppm	100
9) 2-Methylnaphthalene	7.148	142	4423	0.53	ppm #	98
10) 1-Methylnaphthalene	7.279	142	4117	0.52	ppm #	100
13) Acenaphthylene	8.456	152	5507	0.53	ppm	100
14) Acenaphthene	8.745	154	3549	0.50	ppm	100
15) Dibenzofuran	9.040	168	5131	0.52	ppm	95
16) Fluorene	9.630	166	4293	0.52	ppm	99
18) Hexachlorobenzene	10.648	284	1416	0.50	ppm	98
20) Pentachlorophenol	11.036	266	1493	1.54	ppm	99
21) Phenanthrene	11.383	178	6697	0.51	ppm	99
22) Anthracene	11.478	178	6097	0.52	ppm	100
23) Fluoranthene	13.687	202	6273	0.52	ppm	99
25) Pyrene	14.119	202	6489	0.49	ppm #	99
27) Benzo(a)anthracene	16.501	228	6301	0.46	ppm	96
28) Chrysene	16.573	228	6358	0.49	ppm	98
30) Benzo(b)fluoranthene	18.502	252	5498	0.52	ppm	95
31) Benzo(k)fluoranthene	18.554	252	6559	0.51	ppm	96
32) Benzo(a)pyrene	19.054	252	5410	0.51	ppm	99
33) Indeno(1,2,3-cd)pyrene	20.962	276	4772m	0.52	ppm	
34) Dibenz(a,h)anthracene	21.014	278	5578	0.52	ppm	96
35) Benzo(g,h,i)perylene	21.462	276	5942	0.50	ppm	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

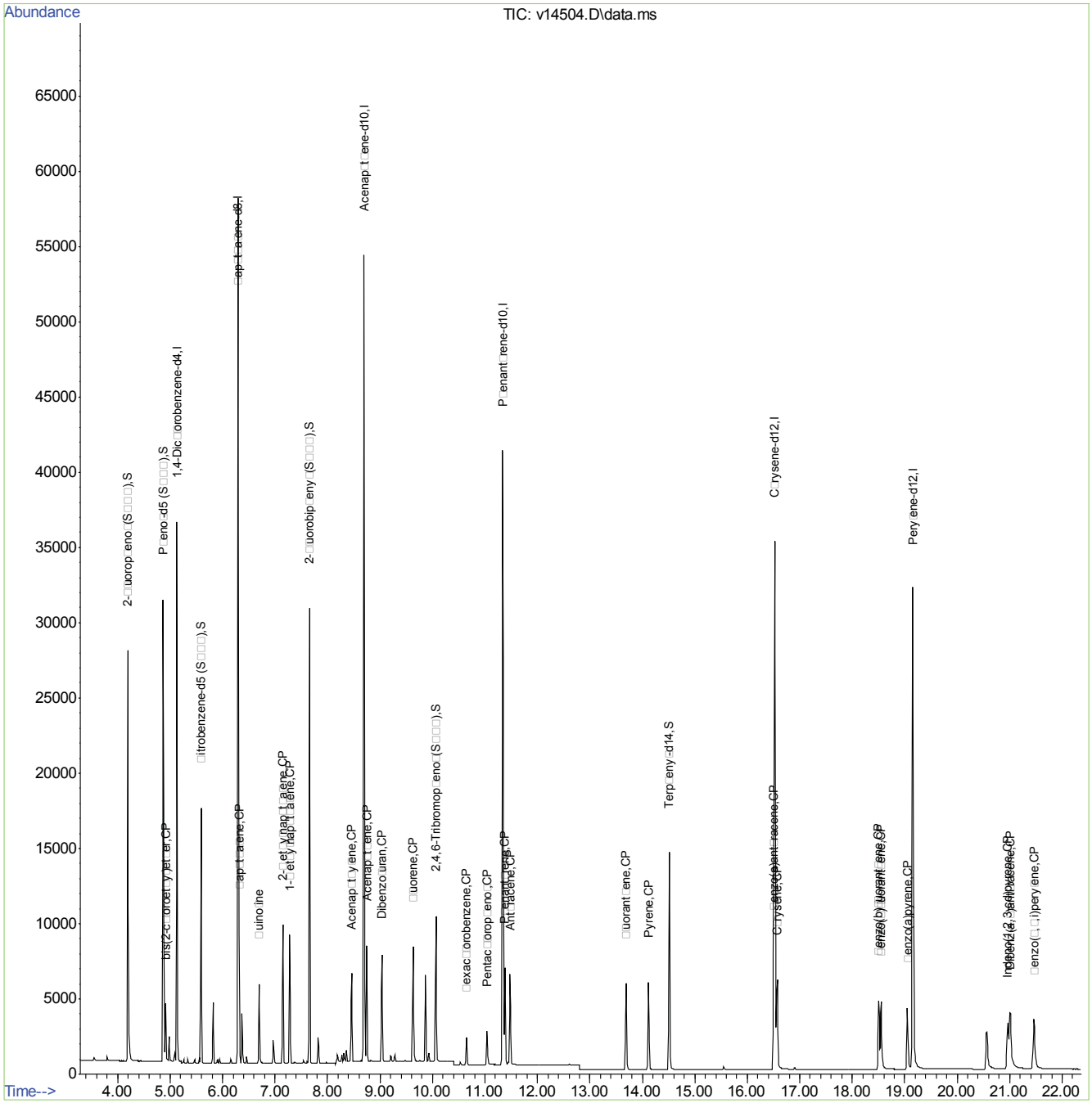
7.6.3

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14504.D
Acq On : 26 Mar 2013 11:41 am
Operator : garyj
Sample : ic831-0.5
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 4 Sample Multiplier: 1

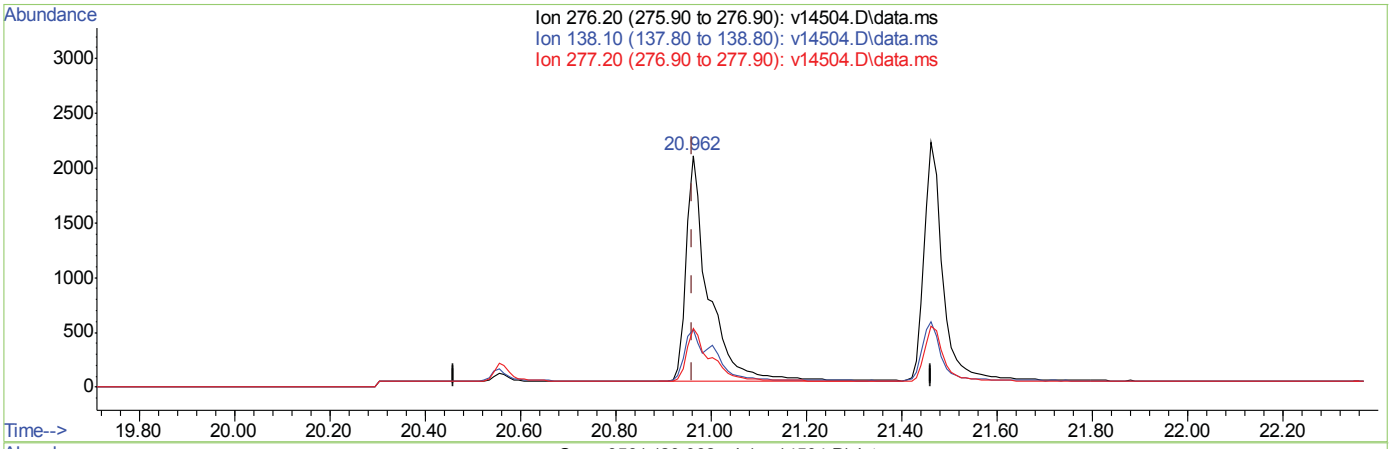
Quant Time: Mar 26 12:02:42 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 11:46:59 2013
Response via : Initial Calibration

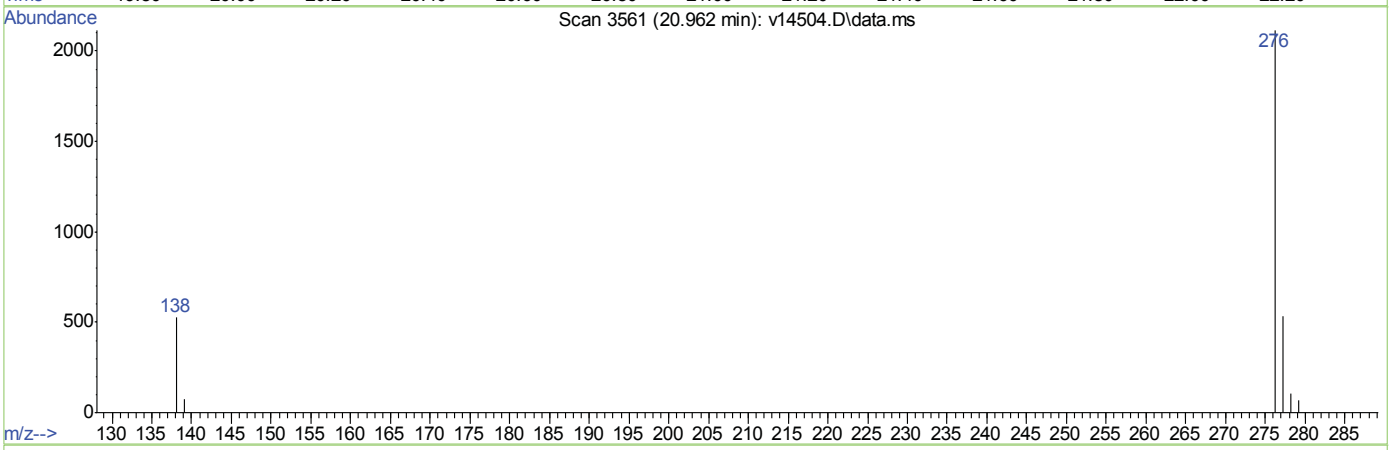


Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14504.D
Acq On    : 26 Mar 2013  11:41 am
Operator  : garyj
Sample    : ic831-0.5
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 4   Sample Multiplier: 1

Quant Time: Mar 26 12:02:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 11:46:59 2013
Response via : Initial Calibration
```





TIC: v14504.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (□0.000) 0.74ppm

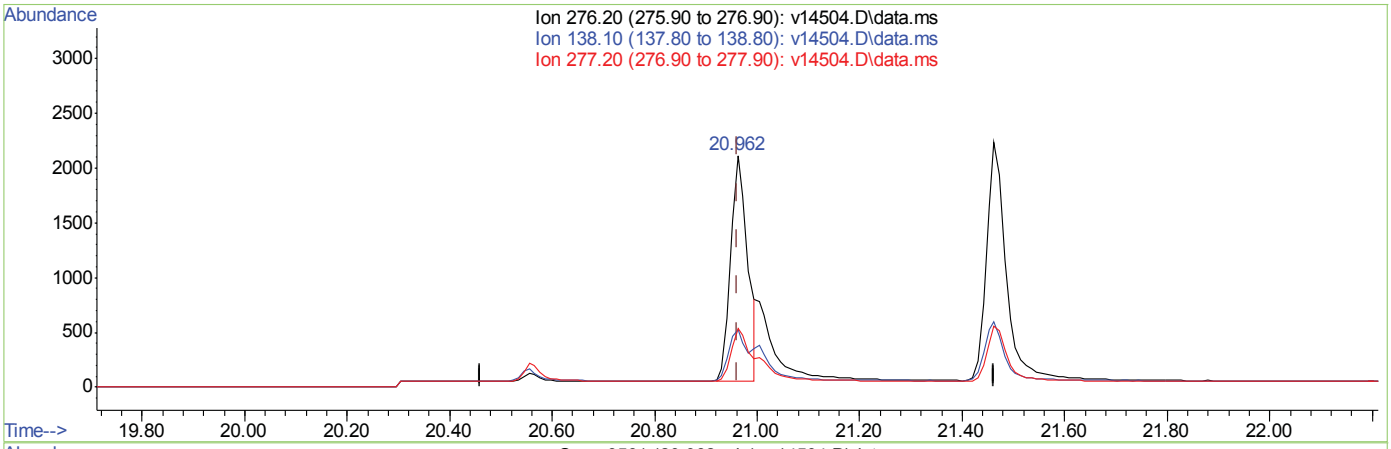
response 6847

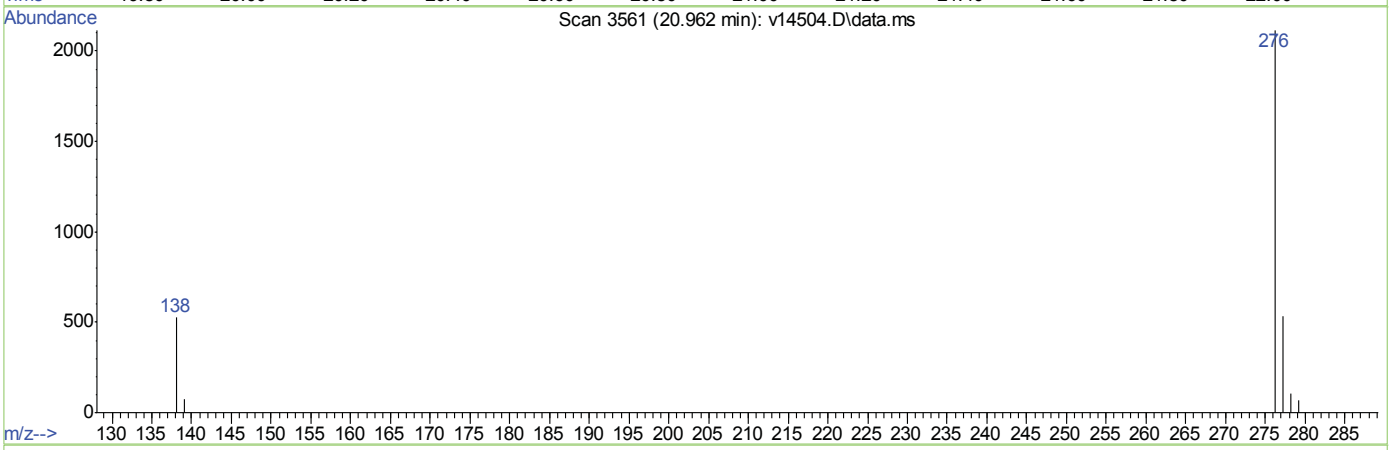
Ion	Exp%	Act%
276.20	100	100
138.10	23.10	15.79
277.20	24.50	24.93
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14504.D
Acq On    : 26 Mar 2013  11:41 am
Operator  : garyj
Sample    : ic831-0.5
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 4   Sample Multiplier: 1

Quant Time: Mar 26 12:02:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 11:46:59 2013
Response via : Initial Calibration
```





TIC: v14504.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (□0.000) 0.52ppm m

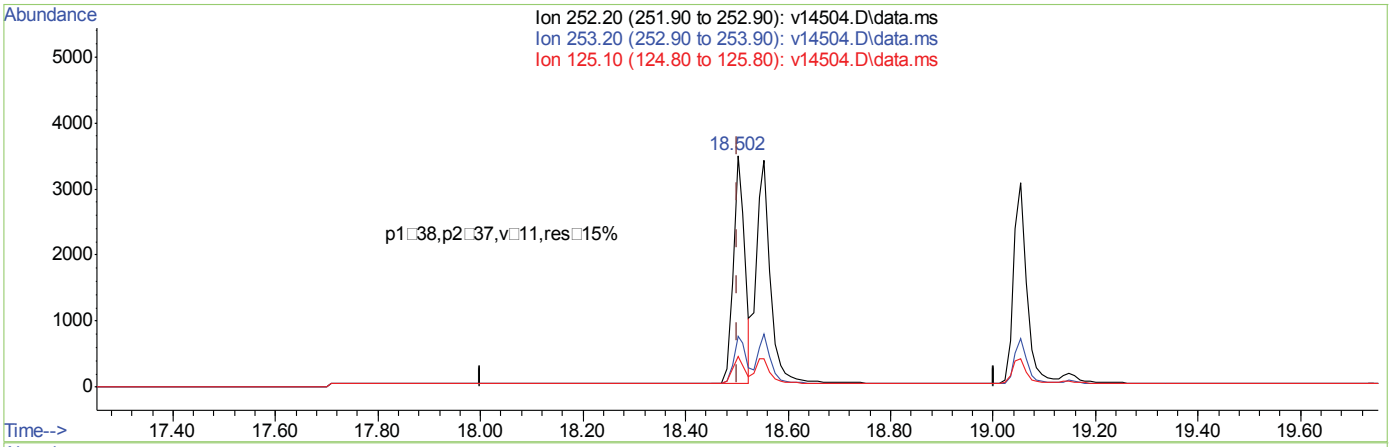
response 4772

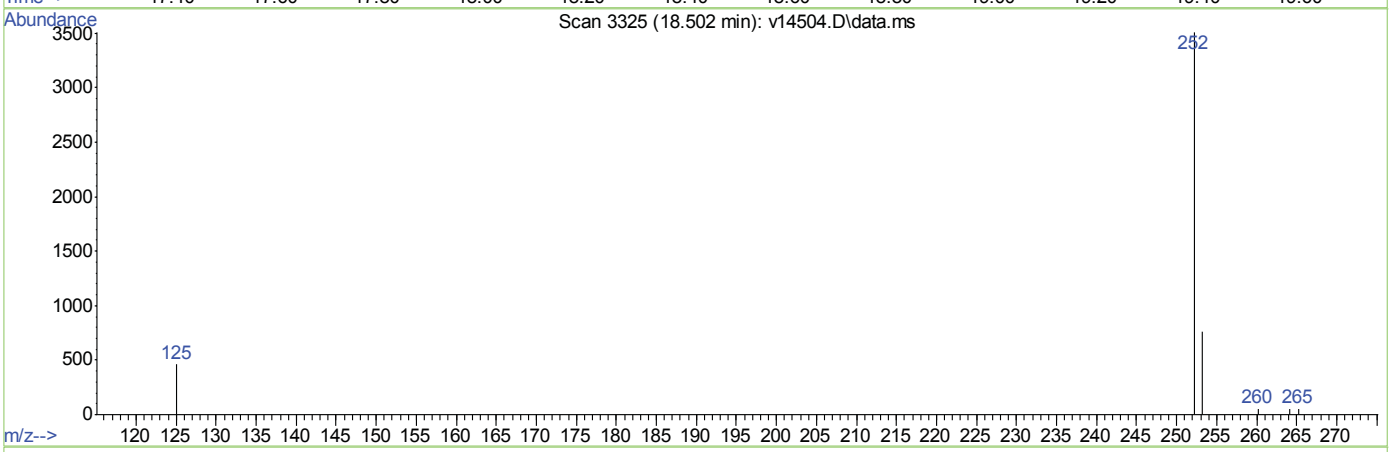
Ion	Exp%	Act%
276.20	100	100
138.10	23.10	22.65
277.20	24.50	35.77
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14504.D
Acq On    : 26 Mar 2013  11:41 am
Operator  : garyj
Sample    : ic831-0.5
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 4   Sample Multiplier: 1

Quant Time: Mar 26 12:02:42 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 11:46:59 2013
Response via : Initial Calibration
```





TIC: v14504.D\data.ms

(30) □enzo(b)□uorant□ene (CP)

18.502min (□0.000) 0.52ppm

response 5498

Ion	Exp%	Act%
252.20	100	100
253.20	20.60	23.68
125.10	13.00	11.88
0.00	0.00	0.00

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o n atson
03 2 13 12:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14505.D
Acq On : 26 Mar 2013 12:09 pm
Operator : garyj
Sample : ic831-1.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 26 12:38:02 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 12:02:55 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.130	152	10710	4.00	ppm	0.00
5) Naphthalene-d8	6.294	136	53564	4.00	ppm	0.00
11) Acenaphthene-d10	8.692	164	26507	4.00	ppm	0.00
17) Phenanthrene-d10	11.338	188	45513	4.00	ppm	0.00
24) Chrysene-d12	16.521	240	41817	4.00	ppm	0.00
29) Perylene-d12	19.158	264	46426	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.190	112	30572	9.96	ppm	0.00
Spiked Amount 10.000	Range 21 - 100		Recovery = 99.60%			
3) Phenol-d5 (SURR)	4.865	99	37249	10.00	ppm	0.00
Spiked Amount 10.000	Range 10 - 94		Recovery = 100.00%#			
6) Nitrobenzene-d5 (SURR)	5.587	82	21324	5.19	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery = 103.80%			
12) 2-Fluorobiphenyl (SURR)	7.657	172	49986	5.02	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery = 100.40%			
19) 2,4,6-Tribromophenol (...	10.066	330	10532	10.90	ppm	0.00
Spiked Amount 10.000	Range 18 - 143		Recovery = 109.00%			
26) Terphenyl-d14	14.514	244	30126	4.63	ppm	0.00
Spiked Amount 5.000	Range 21 - 144		Recovery = 92.60%			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.912	93	3352	0.97	ppm	93
7) Naphthalene	6.319	128	13377	1.00	ppm	99
8) Quinoline	6.692	129	8460	1.01	ppm	100
9) 2-Methylnaphthalene	7.148	142	9159	1.05	ppm #	99
10) 1-Methylnaphthalene	7.278	142	8518	1.04	ppm #	100
13) Acenaphthylene	8.456	152	11519	1.06	ppm	100
14) Acenaphthene	8.745	154	7261	1.01	ppm	100
15) Dibenzofuran	9.040	168	10454	1.02	ppm	94
16) Fluorene	9.630	166	8860	1.05	ppm	99
18) Hexachlorobenzene	10.648	284	2821	0.99	ppm	98
20) Pentachlorophenol	11.036	266	2736	2.79	ppm	99
21) Phenanthrene	11.383	178	13321	1.00	ppm	99
22) Anthracene	11.478	178	12640	1.06	ppm	99
23) Fluoranthene	13.690	202	12865	1.05	ppm	99
25) Pyrene	14.119	202	13246	0.90	ppm #	99
27) Benzo(a)anthracene	16.500	228	12480	0.83	ppm	96
28) Chrysene	16.573	228	12720	0.88	ppm	98
30) Benzo(b)fluoranthene	18.502	252	11218	0.93	ppm	95
31) Benzo(k)fluoranthene	18.554	252	13602	0.94	ppm	96
32) Benzo(a)pyrene	19.054	252	11181	0.93	ppm	99
33) Indeno(1,2,3-cd)pyrene	20.962	276	9738m	0.93	ppm	
34) Dibenz(a,h)anthracene	21.014	278	11287	0.93	ppm	97
35) Benzo(g,h,i)perylene	21.462	276	12030	0.90	ppm	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

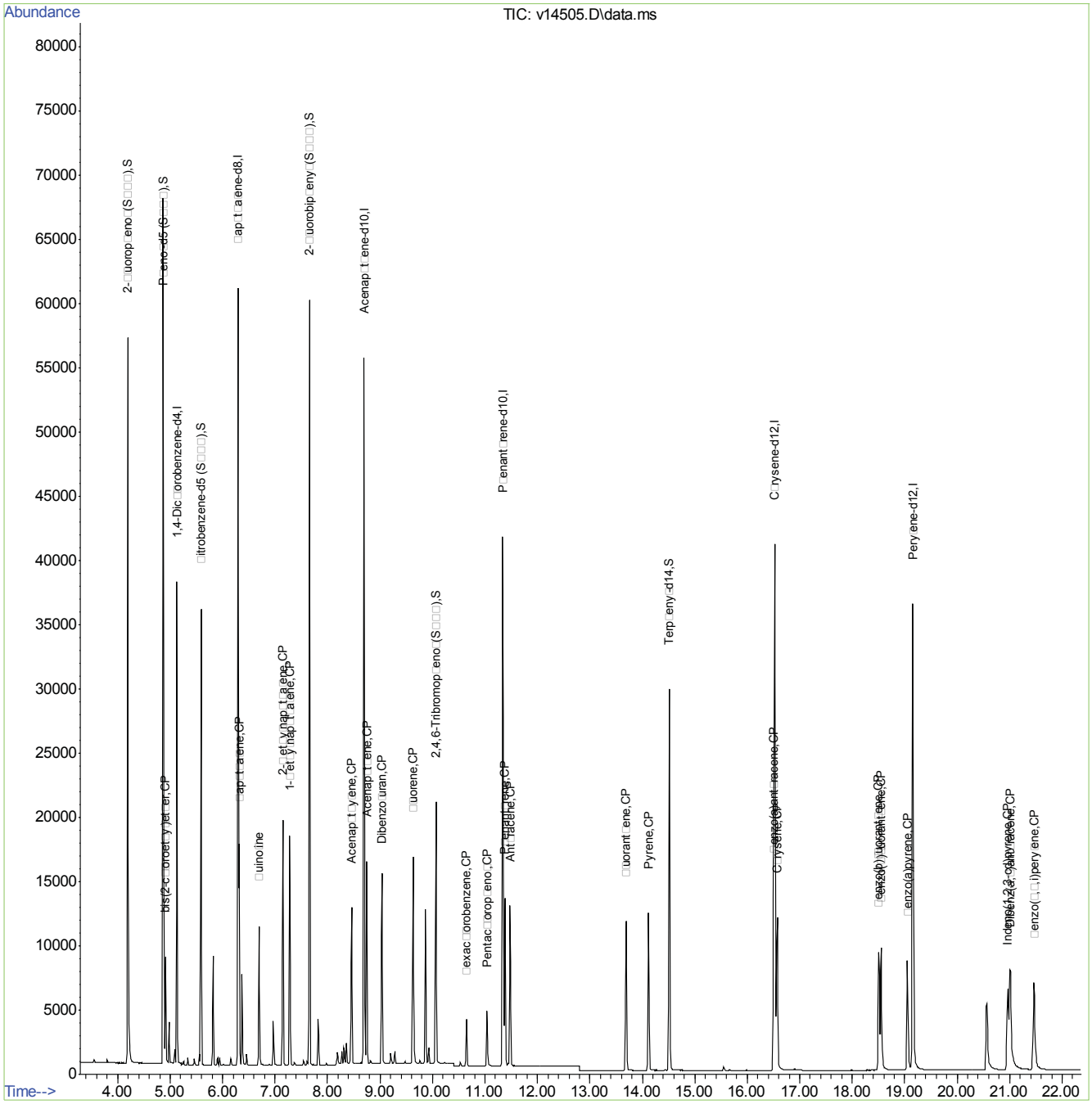
7.6.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14505.D
Acq On : 26 Mar 2013 12:09 pm
Operator : garyj
Sample : ic831-1.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 26 12:38:02 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 12:02:55 2013
Response via : Initial Calibration



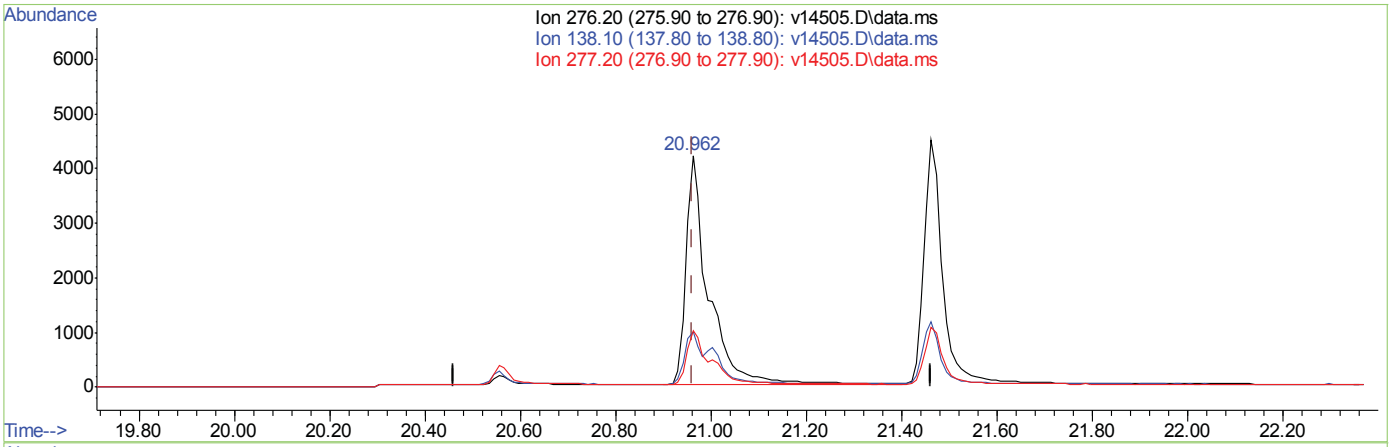
ev831sim.m Tue Mar 26 12:38:12 2013 Page: 2

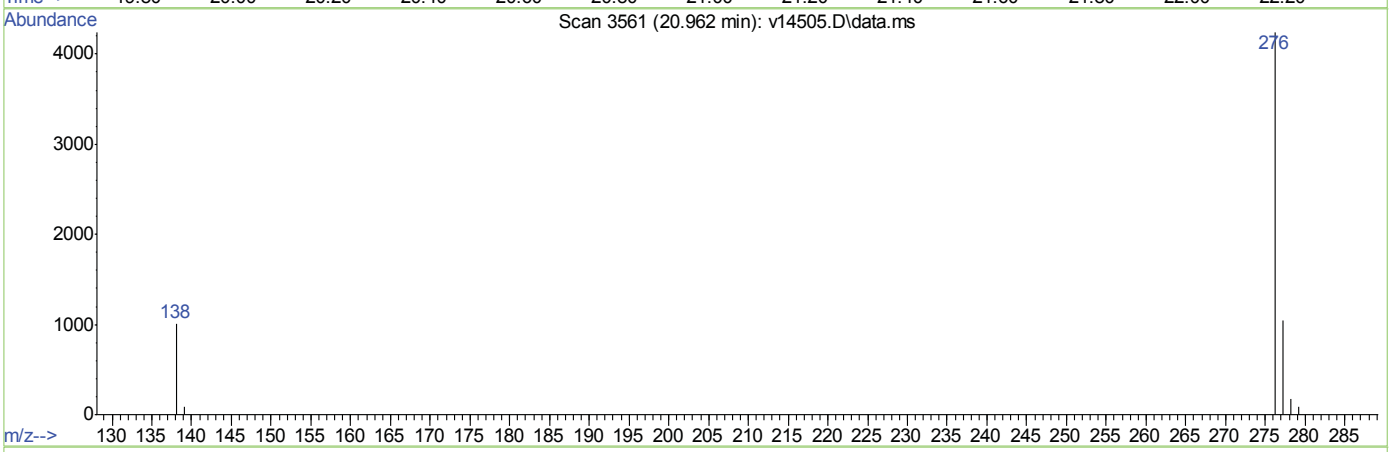
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14505.D
Acq On    : 26 Mar 2013  12:09 pm
Operator  : garyj
Sample    : ic831-1.0
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Mar 26 12:37:41 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 12:02:55 2013
Response via : Initial Calibration
```





TIC: v14505.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (-0.000) 1.33ppm

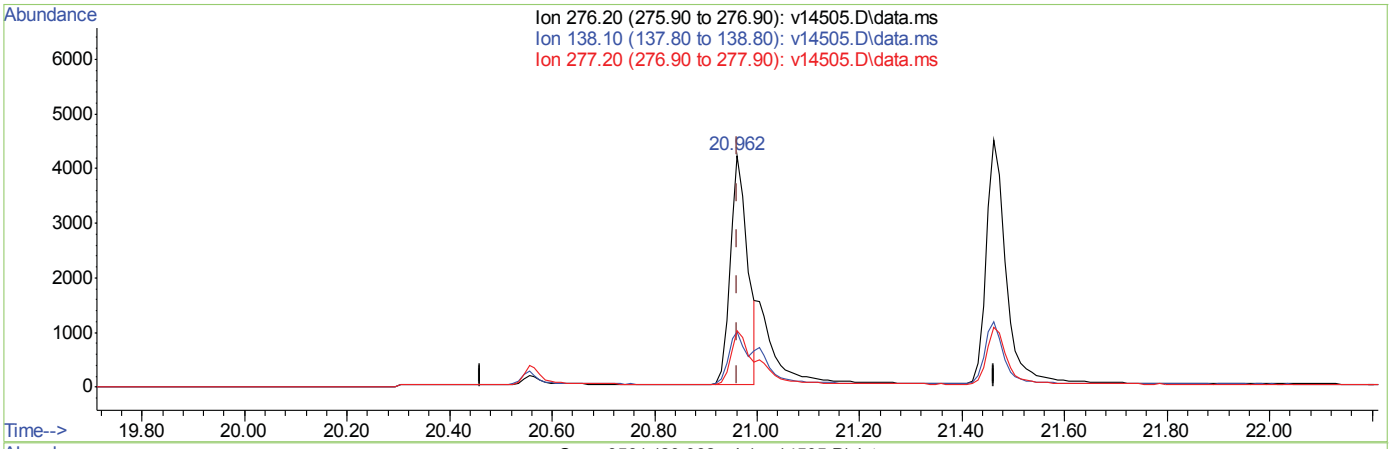
response 13851

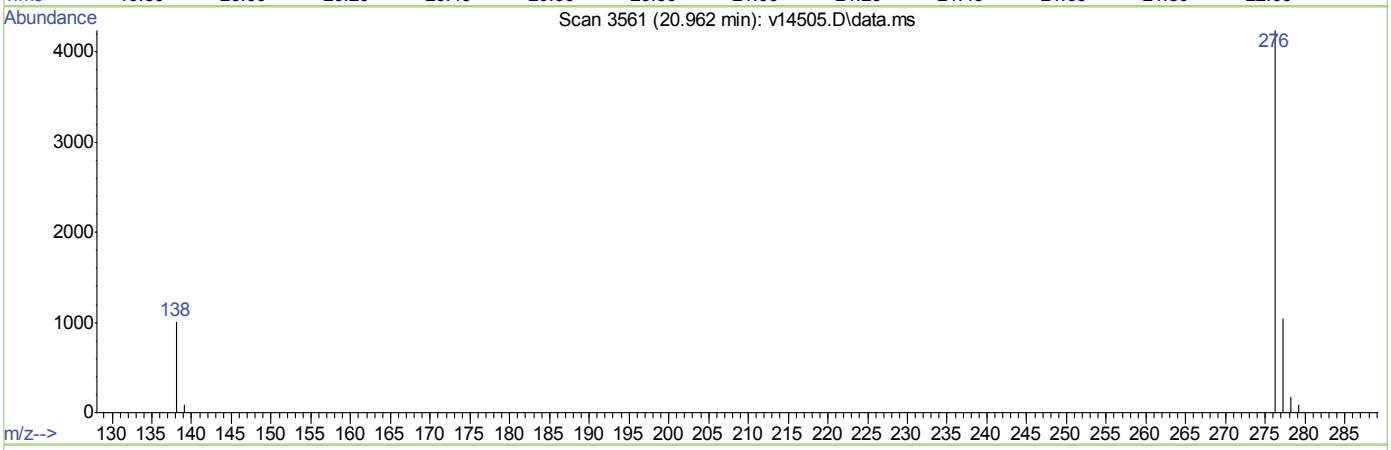
Ion	Exp%	Act%
276.20	100	100
138.10	23.10	15.75
277.20	24.50	25.17
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14505.D
Acq On    : 26 Mar 2013  12:09 pm
Operator  : garyj
Sample    : ic831-1.0
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Mar 26 12:37:41 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 12:02:55 2013
Response via : Initial Calibration
```





TIC: v14505.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (-0.000) 0.93ppm m

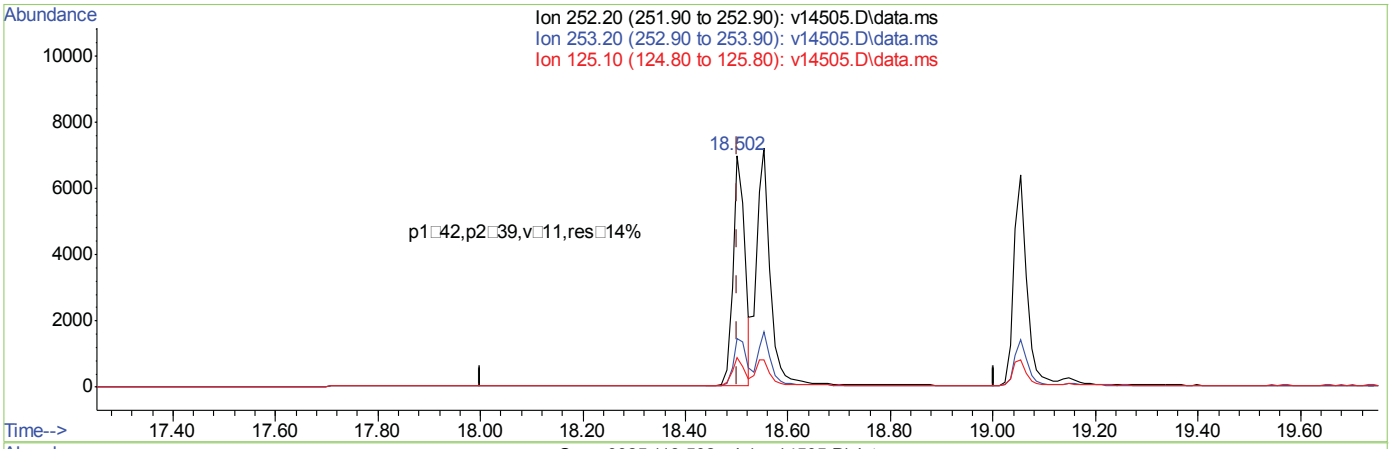
response 9738

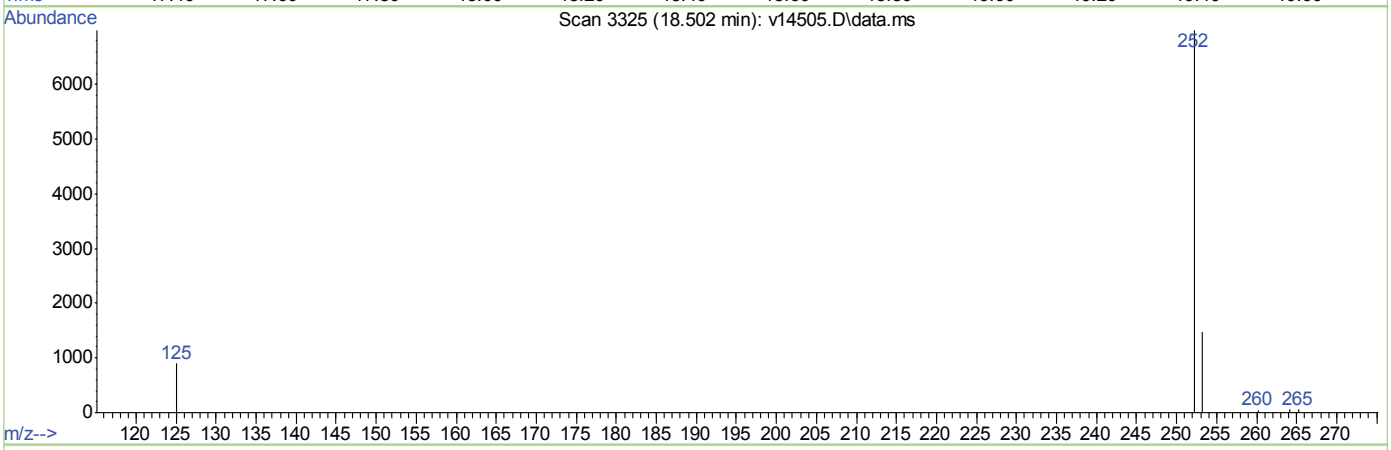
Ion	Exp%	Act%
276.20	100	100
138.10	23.10	22.41
277.20	24.50	35.80
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14505.D
Acq On : 26 Mar 2013 12:09 pm
Operator : garyj
Sample : ic831-1.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 26 12:38:02 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 12:02:55 2013
Response via : Initial Calibration





TIC: v14505.D\data.ms

(30) □enzo(b)□uorant□ene (CP)

18.502min (-0.000) 0.93ppm

response 11218

Ion	Exp%	Act%
252.20	100	100
253.20	20.60	23.71
125.10	13.00	11.86
0.00	0.00	0.00

ACCUTEST LABORATORIES TC27860

□an□al Inte□rations
□□□R□V□D
(co□po□nds □it□ □□ □fla□)
□o□n □ atson
03□2□□13 12:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14506.D
Acq On : 26 Mar 2013 12:38 pm
Operator : garyj
Sample : icc831-2.5
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 26 12:59:59 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 12:38:15 2013
Response via : Initial Calibration

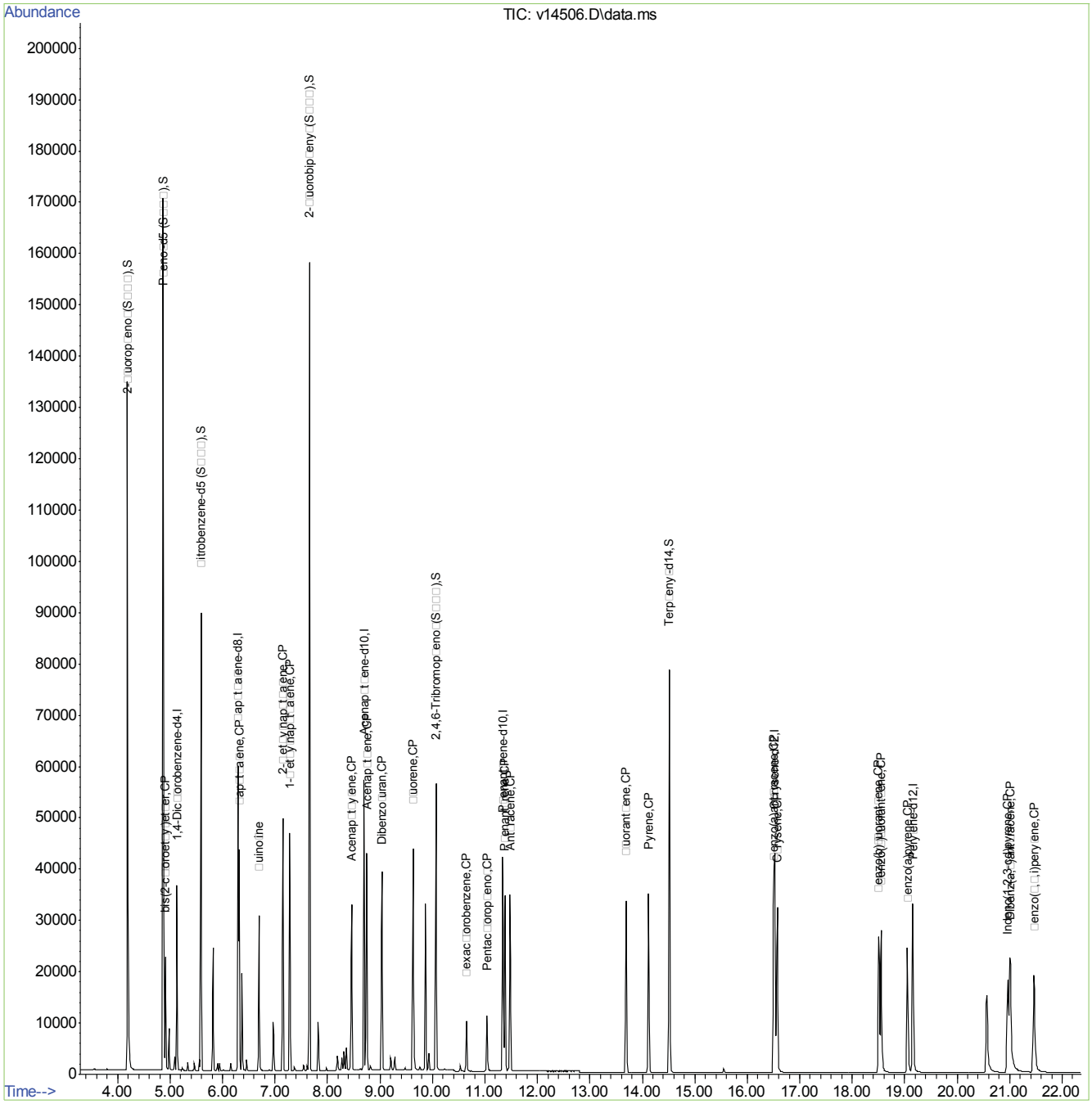
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.130	152	10472	4.00	ppm	0.00
5) Naphthalene-d8	6.294	136	52887	4.00	ppm	0.00
11) Acenaphthene-d10	8.692	164	26825	4.00	ppm	0.00
17) Phenanthrene-d10	11.338	188	46542	4.00	ppm	0.00
24) Chrysene-d12	16.521	240	38749	4.00	ppm	0.00
29) Perylene-d12	19.158	264	42515	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.190	112	76801	25.62	ppm	0.00
Spiked Amount 10.000	Range 21 - 100		Recovery = 256.20%#			
3) Phenol-d5 (SURR)	4.865	99	94076	25.82	ppm	0.00
Spiked Amount 10.000	Range 10 - 94		Recovery = 258.20%#			
6) Nitrobenzene-d5 (SURR)	5.587	82	54402	13.28	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery = 265.60%#			
12) 2-Fluorobiphenyl (SURR)	7.657	172	127883	12.68	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery = 253.60%#			
19) 2,4,6-Tribromophenol (...	10.066	330	28132	27.84	ppm	0.00
Spiked Amount 10.000	Range 18 - 143		Recovery = 278.40%#			
26) Terphenyl-d14	14.514	244	80430	13.60	ppm	0.00
Spiked Amount 5.000	Range 21 - 144		Recovery = 272.00%#			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.912	93	8595	2.57	ppm	94
7) Naphthalene	6.319	128	33462	2.53	ppm	100
8) Quinoline	6.692	129	21964	2.65	ppm	100
9) 2-Methylnaphthalene	7.148	142	23641	2.70	ppm	99
10) 1-Methylnaphthalene	7.278	142	21999	2.70	ppm	100
13) Acenaphthylene	8.456	152	30499	2.74	ppm	100
14) Acenaphthene	8.745	154	18839	2.58	ppm	100
15) Dibenzofuran	9.040	168	27234	2.62	ppm	92
16) Fluorene	9.630	166	23650	2.73	ppm	99
18) Hexachlorobenzene	10.648	284	7337	2.52	ppm	98
20) Pentachlorophenol	11.036	266	6580	6.37	ppm	99
21) Phenanthrene	11.383	178	34896	2.57	ppm	100
22) Anthracene	11.478	178	34179	2.77	ppm	100
23) Fluoranthene	13.690	202	35878	2.82	ppm	99
25) Pyrene	14.119	202	36919	2.77	ppm #	99
27) Benzo(a)anthracene	16.500	228	34014	2.55	ppm	97
28) Chrysene	16.573	228	34006	2.63	ppm	98
30) Benzo(b)fluoranthene	18.502	252	31491m	2.91	ppm	
31) Benzo(k)fluoranthene	18.554	252	34155	2.62	ppm	98
32) Benzo(a)pyrene	19.054	252	31218	2.89	ppm	99
33) Indeno(1,2,3-cd)pyrene	20.962	276	27588m	2.94	ppm	
34) Dibenz(a,h)anthracene	21.014	278	30928	2.82	ppm	97
35) Benzo(g,h,i)perylene	21.462	276	32515	2.73	ppm	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14506.D
Acq On : 26 Mar 2013 12:38 pm
Operator : garyj
Sample : icc831-2.5
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 26 12:59:59 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 12:38:15 2013
Response via : Initial Calibration



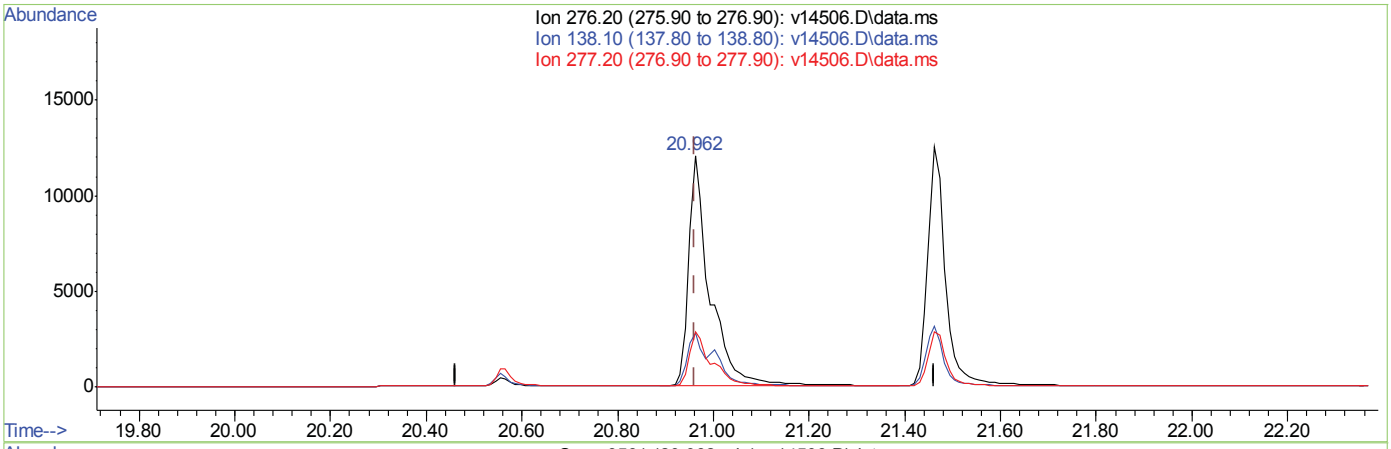
ev831sim.m Tue Mar 26 13:00:05 2013 Page: 2

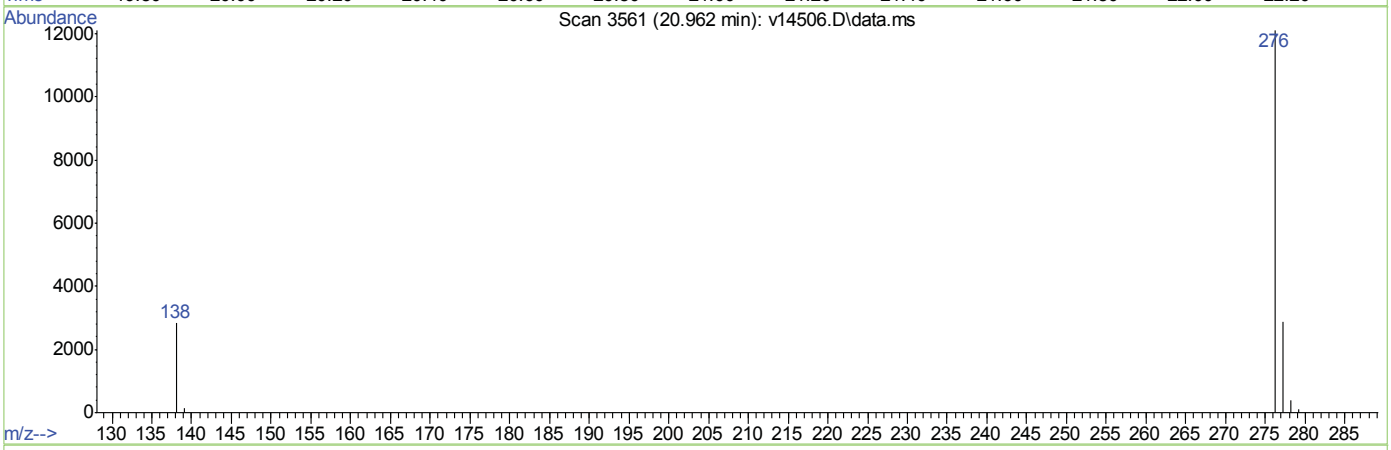
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14506.D
Acq On    : 26 Mar 2013  12:38 pm
Operator  : garyj
Sample    : icc831-2.5
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Mar 26 12:58:07 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 12:38:15 2013
Response via : Initial Calibration
```





TIC: v14506.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (-0.000) 4.01ppm

response 37716

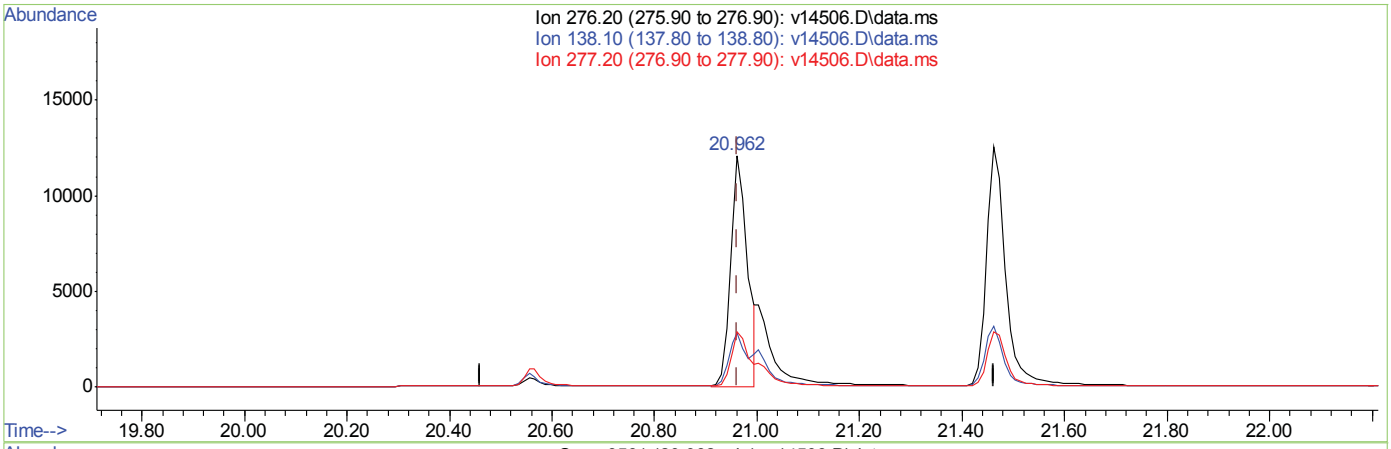
Ion	Exp%	Act%
276.20	100	100
138.10	23.10	16.13
277.20	24.50	25.20
0.00	0.00	0.00

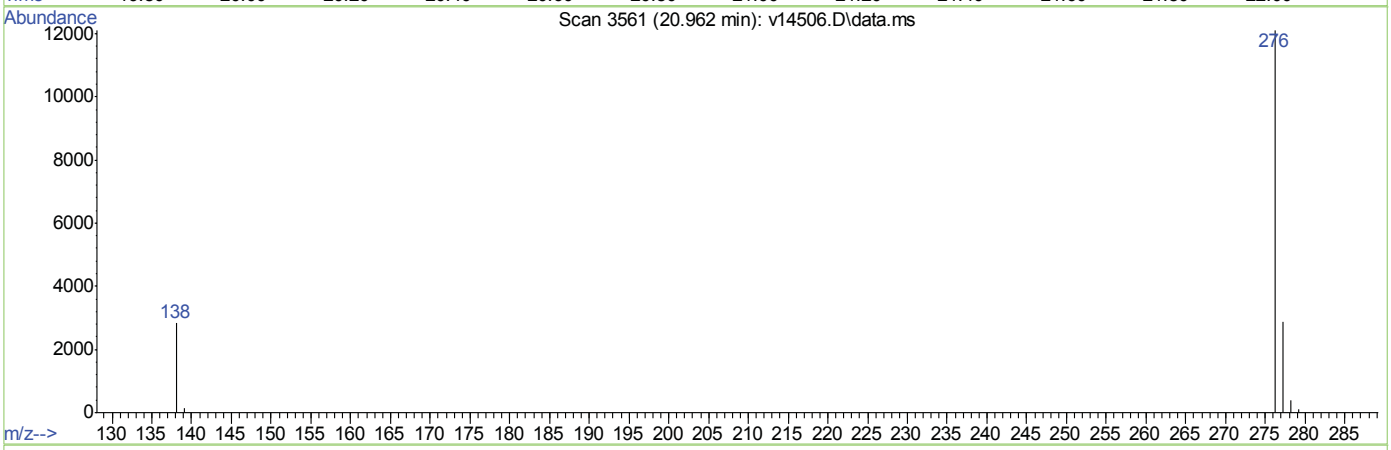
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14506.D
Acq On    : 26 Mar 2013  12:38 pm
Operator  : garyj
Sample    : icc831-2.5
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Mar 26 12:58:07 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 12:38:15 2013
Response via : Initial Calibration
```





TIC: v14506.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (-0.000) 2.94ppm m

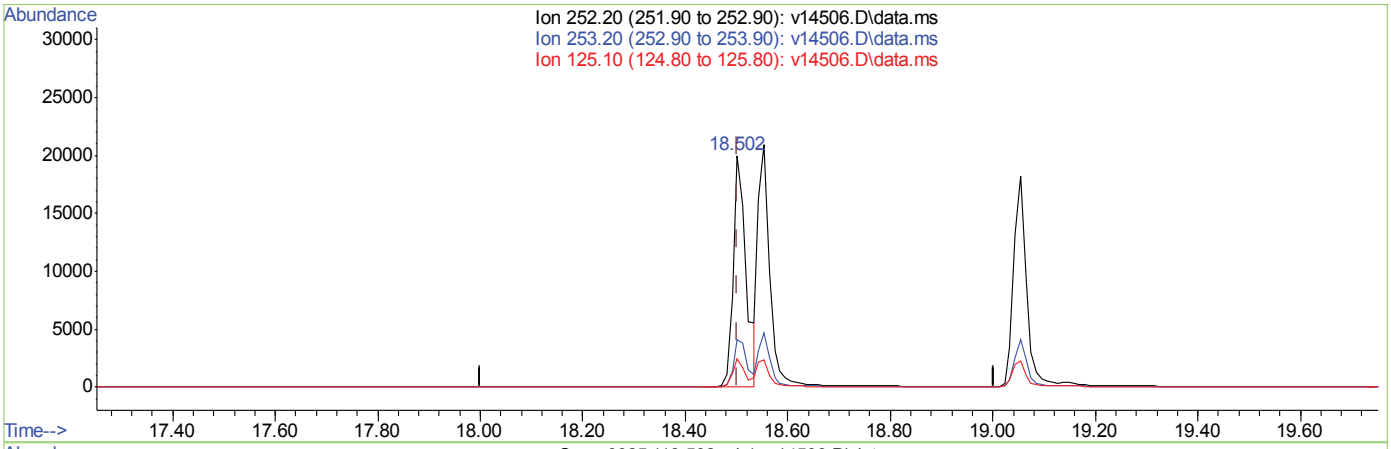
response 27588

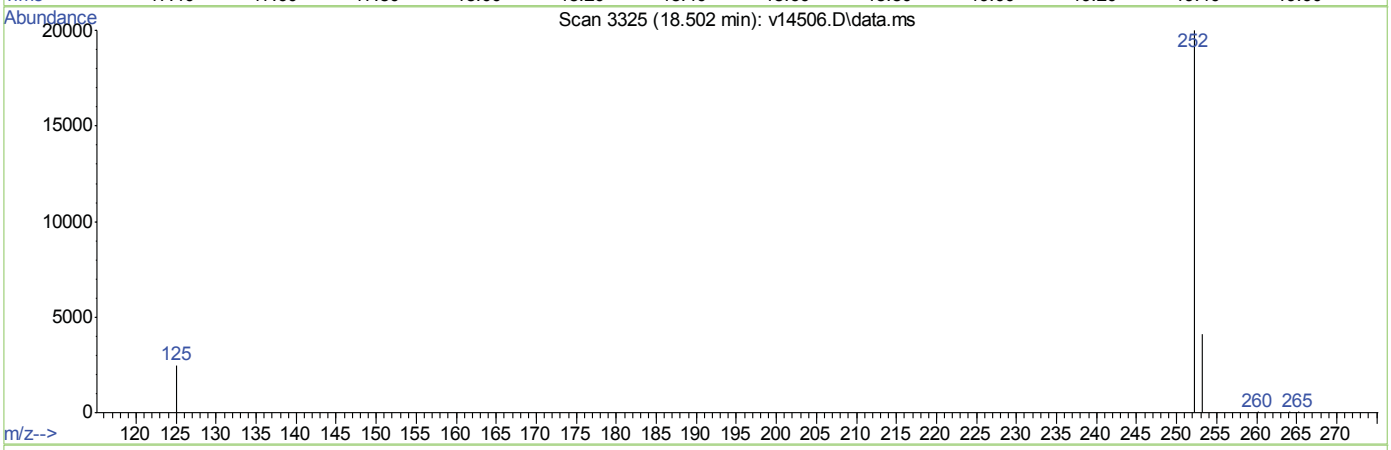
Ion	Exp%	Act%
276.20	100	100
138.10	23.10	22.05
277.20	24.50	34.46
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14506.D
Acq On : 26 Mar 2013 12:38 pm
Operator : garyj
Sample : icc831-2.5
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 26 12:58:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 12:38:15 2013
Response via : Initial Calibration





TIC: v14506.D\data.ms

(30) □enzo(b)□uorant□ene (CP)

18.502min (-0.000) 3.22ppm

response 34817

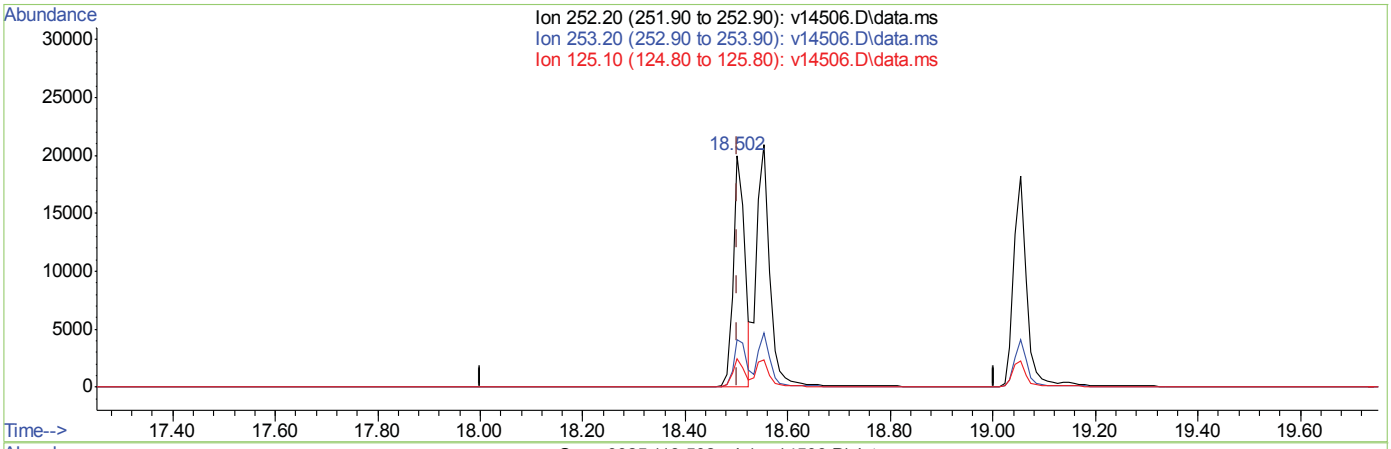
Ion	Exp%	Act%
252.20	100	100
253.20	20.60	21.17
125.10	13.00	10.64
0.00	0.00	0.00

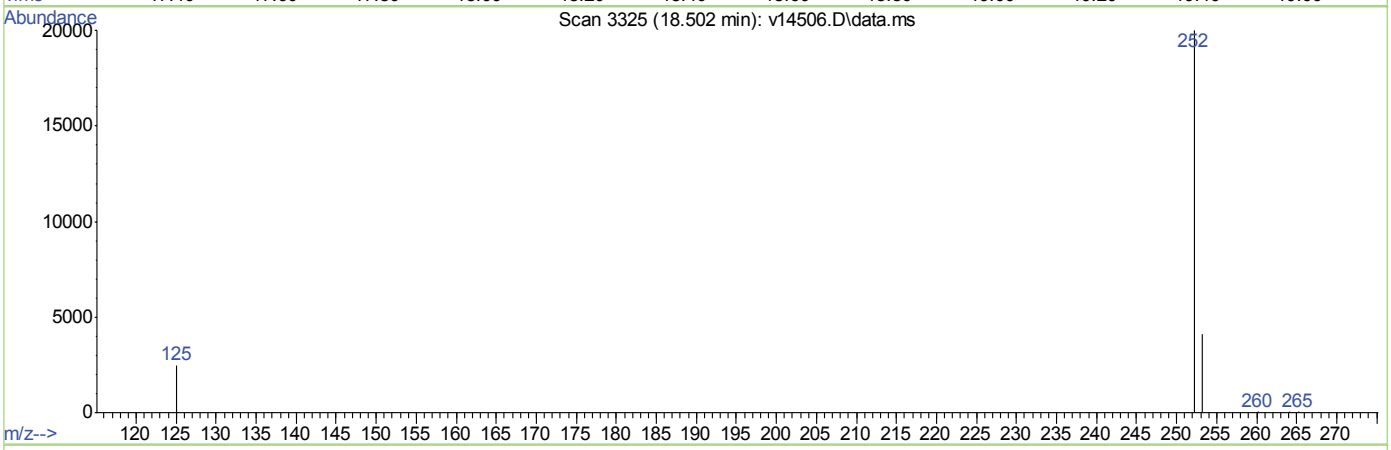
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14506.D
Acq On : 26 Mar 2013 12:38 pm
Operator : garyj
Sample : icc831-2.5
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 26 12:58:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 12:38:15 2013
Response via : Initial Calibration





TIC: v14506.D\data.ms

(30) □enzo(b)□uorant□ene (CP)

18.502min (-0.000) 2.91ppm m

response 31491

Ion	Exp%	Act%
252.20	100	100
253.20	20.60	23.40
125.10	13.00	11.77
0.00	0.00	0.00

ACCUTEST LABORATORIES TC27860

□an□al Inte□rations
□□□R□V□D
(co□po□nds □it□ □□ □fla□)
□o□n □ atson
03□2□□13 12:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14507.D
Acq On : 26 Mar 2013 1:06 pm
Operator : garyj
Sample : ic831-5.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 26 13:37:26 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:00:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.130	152	10211	4.00	ppm	0.00
5) Naphthalene-d8	6.294	136	52981	4.00	ppm	0.00
11) Acenaphthene-d10	8.692	164	26672	4.00	ppm	0.00
17) Phenanthrene-d10	11.343	188	45630	4.00	ppm	0.00
24) Chrysene-d12	16.532	240	38311	4.00	ppm	0.01
29) Perylene-d12	19.158	264	42044	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.185	112	148215	50.46	ppm	0.00
Spiked Amount 10.000	Range 21 - 100		Recovery = 504.60%#			
3) Phenol-d5 (SURR)	4.865	99	183088	51.20	ppm	0.00
Spiked Amount 10.000	Range 10 - 94		Recovery = 512.00%#			
6) Nitrobenzene-d5 (SURR)	5.587	82	105439	25.38	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery = 507.60%#			
12) 2-Fluorobiphenyl (SURR)	7.657	172	244612	24.32	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery = 486.40%#			
19) 2,4,6-Tribromophenol (...	10.072	330	53650	52.95	ppm	0.00
Spiked Amount 10.000	Range 18 - 143		Recovery = 529.50%#			
26) Terphenyl-d14	14.519	244	152197	25.57	ppm	0.00
Spiked Amount 5.000	Range 21 - 144		Recovery = 511.40%#			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.912	93	16494	5.03	ppm	99
7) Naphthalene	6.319	128	64537	4.87	ppm	100
8) Quinoline	6.692	129	42017	5.00	ppm	100
9) 2-Methylnaphthalene	7.148	142	46026	5.17	ppm	100
10) 1-Methylnaphthalene	7.278	142	42563	5.13	ppm	100
13) Acenaphthylene	8.462	152	59184	5.24	ppm	100
14) Acenaphthene	8.745	154	36306	4.97	ppm	99
15) Dibenzofuran	9.040	168	52047	4.98	ppm	99
16) Fluorene	9.630	166	45694	5.20	ppm	100
18) Hexachlorobenzene	10.652	284	13874	4.86	ppm	100
20) Pentachlorophenol	11.036	266	10245	9.59	ppm	100
21) Phenanthrene	11.383	178	66257	4.95	ppm	100
22) Anthracene	11.483	178	66536	5.38	ppm	100
23) Fluoranthene	13.692	202	69911	5.47	ppm	100
25) Pyrene	14.121	202	71920	5.35	ppm #	100
27) Benzo(a)anthracene	16.511	228	66135	5.00	ppm	100
28) Chrysene	16.573	228	65409	5.06	ppm	100
30) Benzo(b)fluoranthene	18.512	252	66780	6.04	ppm	97
31) Benzo(k)fluoranthene	18.554	252	68545	5.27	ppm	99
32) Benzo(a)pyrene	19.054	252	63841	5.80	ppm	99
33) Indeno(1,2,3-cd)pyrene	20.972	276	52869m	5.50	ppm	
34) Dibenz(a,h)anthracene	21.014	278	61303	5.52	ppm	100
35) Benzo(g,h,i)perylene	21.473	276	63803	5.32	ppm	100

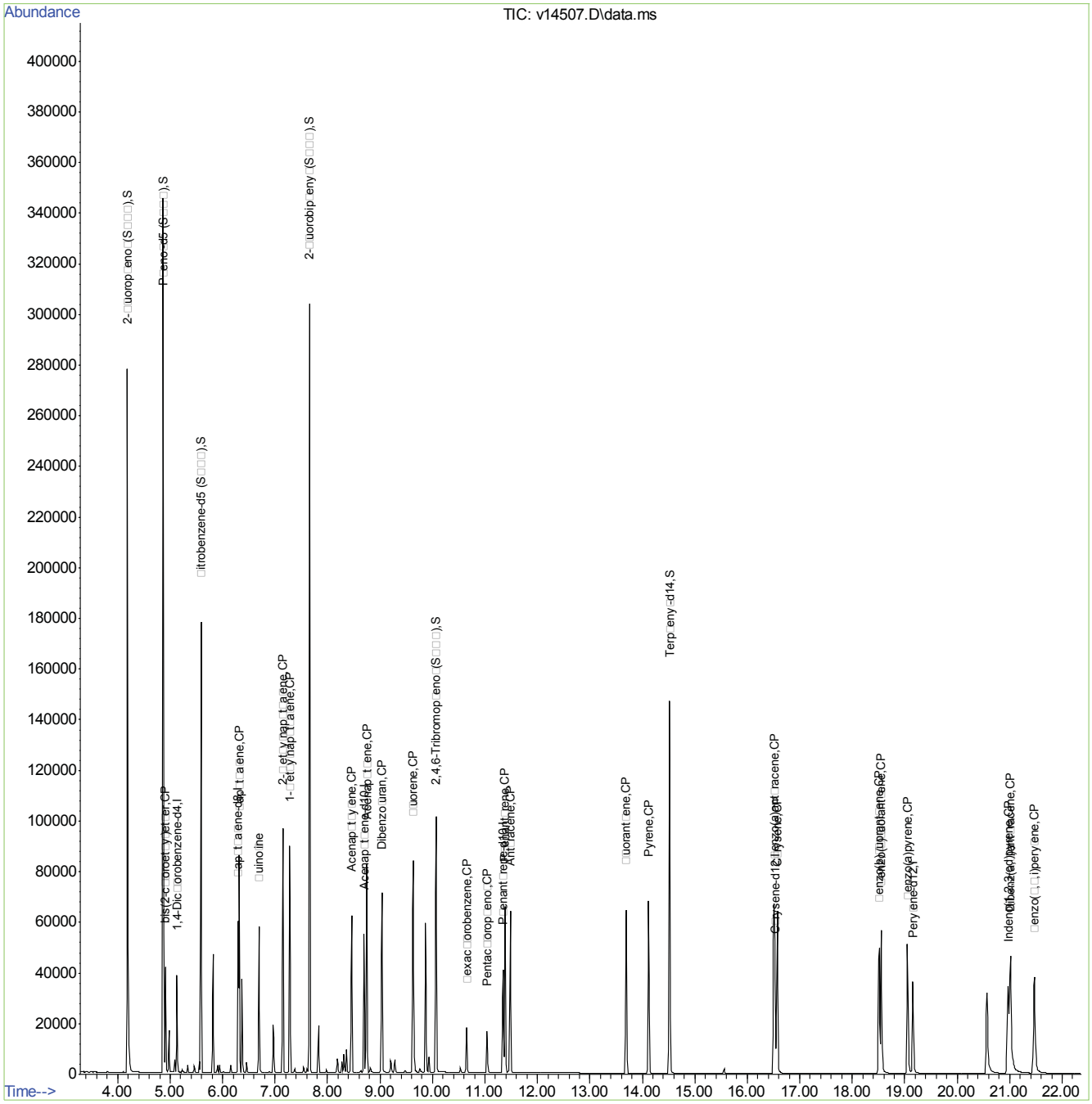
(#) = qualifier out of range (m) = manual integration (+) = signals summed

ACCUTEST LABORATORIES TC27860

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14507.D
Acq On    : 26 Mar 2013   1:06 pm
Operator  : garyj
Sample    : ic831-5.0
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Mar 26 13:37:26 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 13:00:08 2013
Response via : Initial Calibration
```



ev831sim.m Tue Mar 26 13:37:35 2013 Page: 2

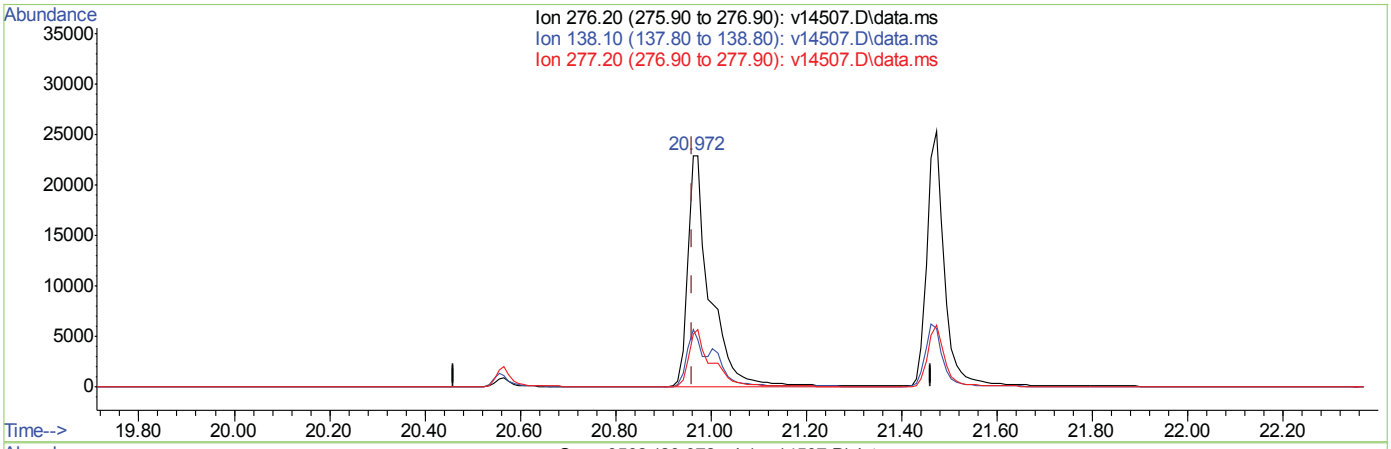
2 3 of 353
ACCUTEST LABORATORIES
TC27860

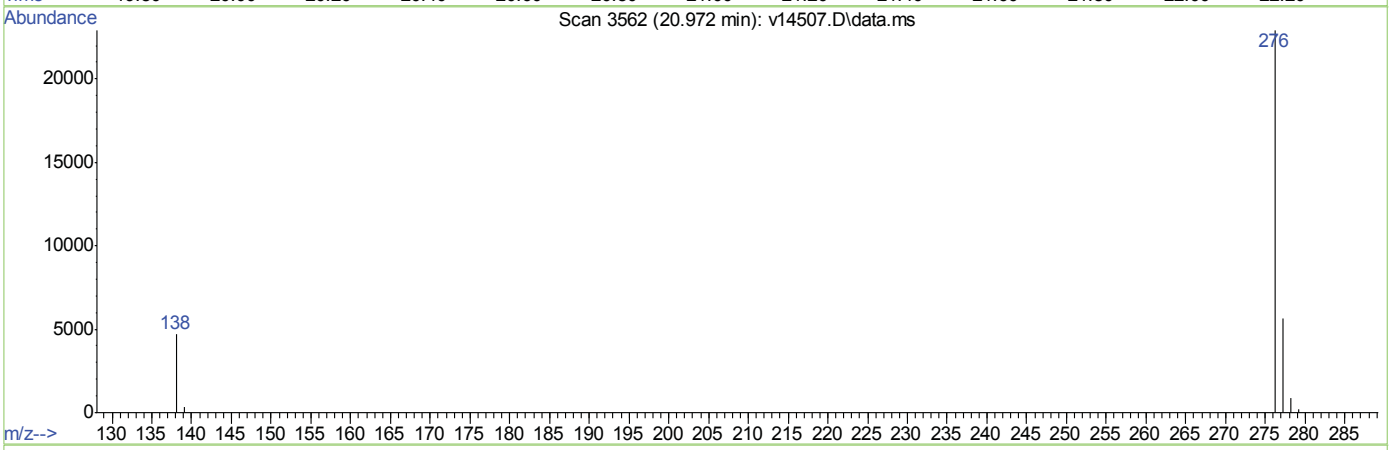
V14507.D: V831-IC831 Initial Cali ration (5.0) pa e 2 of 2

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14507.D
Acq On    : 26 Mar 2013   1:06 pm
Operator  : garyj
Sample    : ic831-5.0
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Mar 26 13:37:10 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 13:00:08 2013
Response via : Initial Calibration
```





TIC: v14507.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.972min (+0.010) 7.76ppm

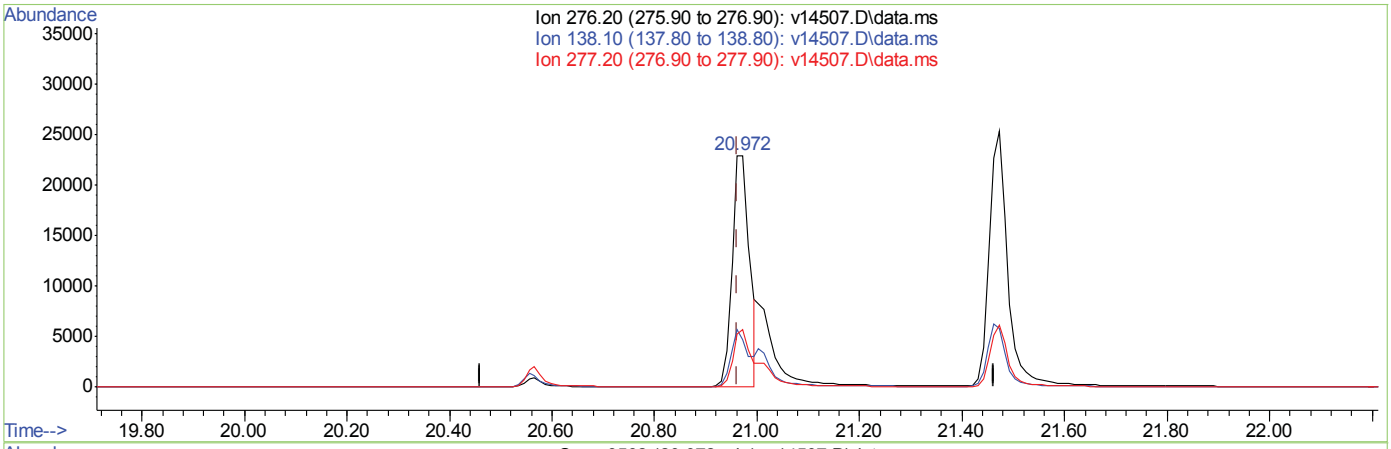
response 74642

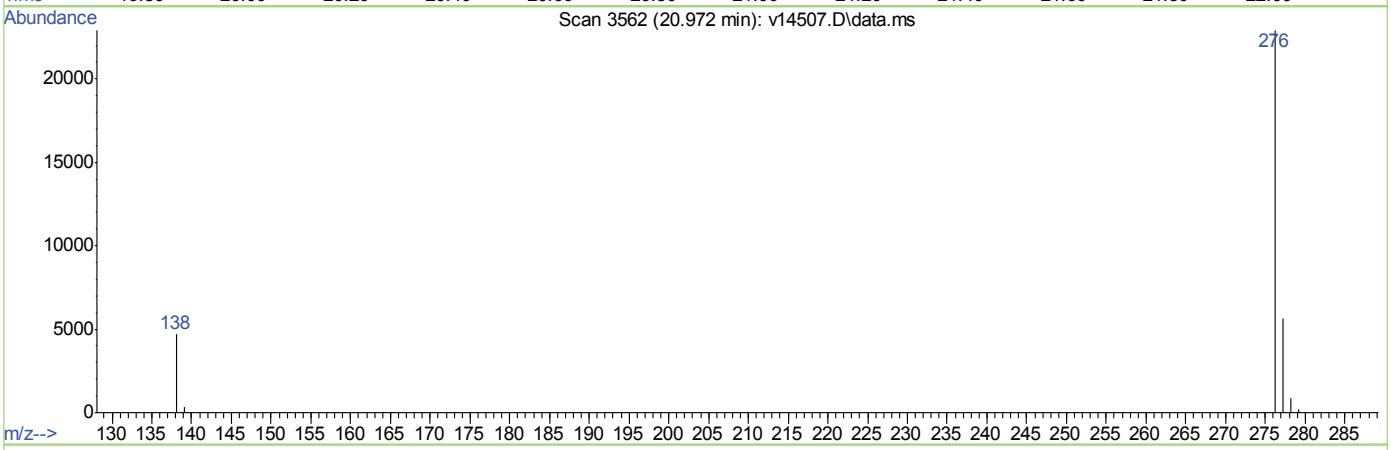
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	17.98
277.20	34.50	25.16
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14507.D
Acq On    : 26 Mar 2013   1:06 pm
Operator  : garyj
Sample    : ic831-5.0
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Mar 26 13:37:10 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 13:00:08 2013
Response via : Initial Calibration
```





TIC: v14507.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.972min (+0.010) 5.50ppm m

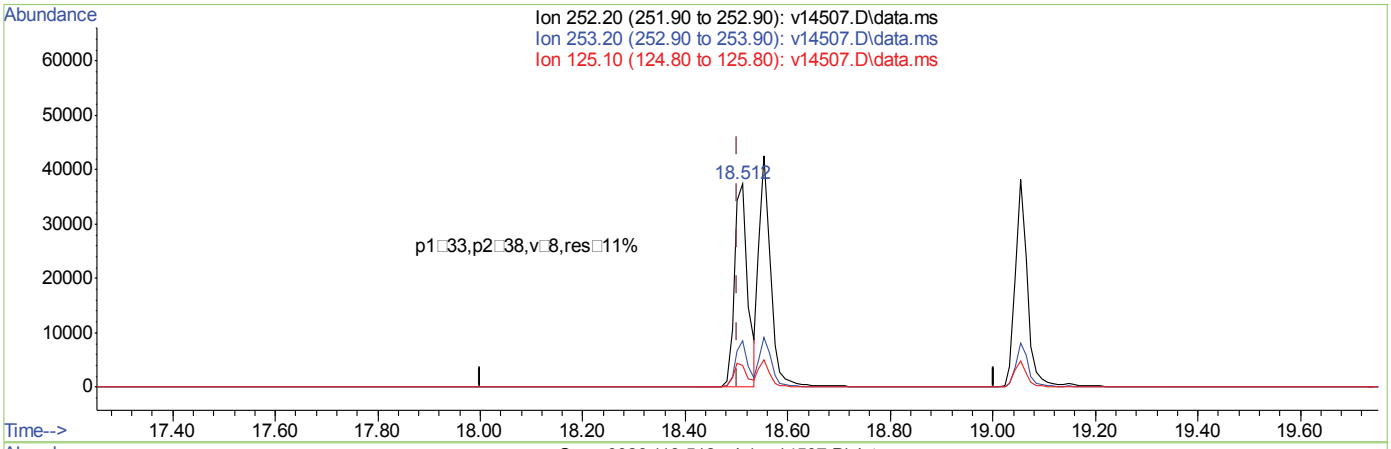
response 52869

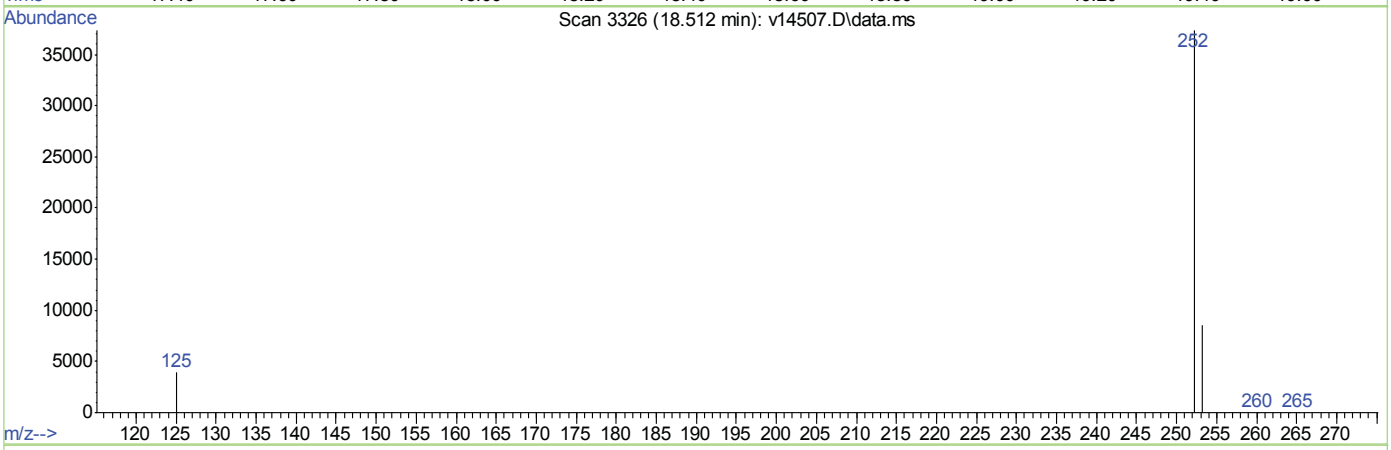
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	25.38
277.20	34.50	35.53
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14507.D
Acq On    : 26 Mar 2013   1:06 pm
Operator  : garyj
Sample    : ic831-5.0
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Mar 26 13:37:26 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 13:00:08 2013
Response via : Initial Calibration
```





TIC: v14507.D\data.ms

(30) □enzo(b)□uorant□ene (CP)

18.512min (+0.010) 6.04ppm

response 66780

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	21.32
125.10	11.80	11.85
0.00	0.00	0.00

V14508.D

□an□al Inte□rations
□□□R□V□D
(co□po□nds □it□ □□ □fla□)
□o□n □ atson
03□29□13 12:47

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14508.D
Acq On : 26 Mar 2013 1:34 pm
Operator : garyj
Sample : ic831-10.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 26 13:54:36 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:37:39 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) 1,4-Dichlorobenzene-d4	5.130	152	10211	4.00 ppm	# 0.00
5) Naphthalene-d8	6.294	136	52360	4.00 ppm	0.00
11) Acenaphthene-d10	8.692	164	26782	4.00 ppm	0.00
17) Phenanthrene-d10	11.343	188	46067	4.00 ppm	0.00
24) Chrysene-d12	16.532	240	38830	4.00 ppm	0.01
29) Perylene-d12	19.158	264	42633	4.00 ppm	0.00
System Monitoring Compounds					
2) 2-Fluorophenol (SURR)	4.185	112	296476	100.78 ppm	0.00
Spiked Amount 10.000	Range 21 - 100		Recovery	= 1007.80%#	
3) Phenol-d5 (SURR)	4.866	99	366435	102.07 ppm	0.00
Spiked Amount 10.000	Range 10 - 94		Recovery	= 1020.70%#	
6) Nitrobenzene-d5 (SURR)	5.587	82	216517	52.60 ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery	= 1052.00%#	
12) 2-Fluorobiphenyl (SURR)	7.657	172	501466	49.88 ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery	= 997.60%#	
19) 2,4,6-Tribromophenol (...	10.072	330	110219	106.70 ppm	0.00
Spiked Amount 10.000	Range 18 - 143		Recovery	= 1067.00%#	
26) Terphenyl-d14	14.523	244	311440	51.44 ppm	0.00
Spiked Amount 5.000	Range 21 - 144		Recovery	= 1028.80%#	
Target Compounds					Qvalue
4) bis(2-chloroethyl)ether	4.912	93	33047	10.07 ppm	99
7) Naphthalene	6.319	128	131743	10.10 ppm	100
8) Quinoline	6.692	129	87058	10.48 ppm	100
9) 2-Methylnaphthalene	7.148	142	95001	10.73 ppm	100
10) 1-Methylnaphthalene	7.279	142	87843	10.66 ppm	100
13) Acenaphthylene	8.462	152	123994	10.85 ppm	100
14) Acenaphthene	8.745	154	75406	10.29 ppm	99
15) Dibenzofuran	9.040	168	107496	10.26 ppm	98
16) Fluorene	9.630	166	95592	10.77 ppm	100
18) Hexachlorobenzene	10.652	284	28900	10.07 ppm	100
20) Pentachlorophenol	11.036	266	15363	13.62 ppm	99
21) Phenanthrene	11.383	178	138743	10.28 ppm	100
22) Anthracene	11.483	178	140961	11.15 ppm	100
23) Fluoranthene	13.692	202	149727	11.42 ppm	100
25) Pyrene	14.121	202	153722	11.14 ppm #	100
27) Benzo(a)anthracene	16.511	228	141504	10.56 ppm	100
28) Chrysene	16.573	228	136683	10.41 ppm	100
30) Benzo(b)fluoranthene	18.512	252	139682	12.05 ppm	97
31) Benzo(k)fluoranthene	18.554	252	146726	11.02 ppm	99
32) Benzo(a)pyrene	19.054	252	136751	11.93 ppm	100
33) Indeno(1,2,3-cd)pyrene	20.972	276	114266m	11.53 ppm	
34) Dibenz(a,h)anthracene	21.014	278	130579	11.39 ppm	100
35) Benzo(g,h,i)perylene	21.473	276	134973	10.98 ppm	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

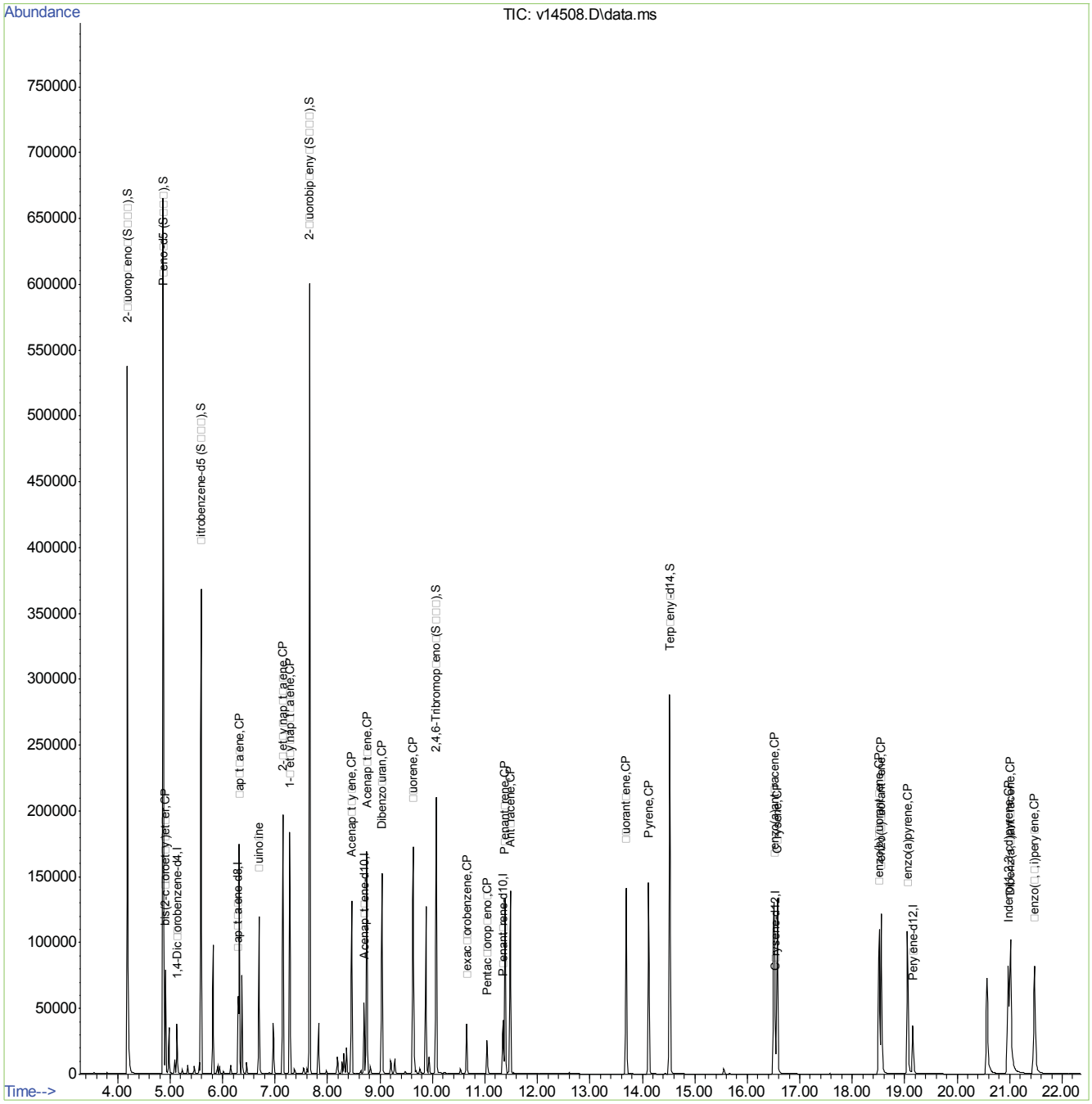
7.6.7

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14508.D
Acq On : 26 Mar 2013 1:34 pm
Operator : garyj
Sample : ic831-10.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 26 13:54:36 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:37:39 2013
Response via : Initial Calibration

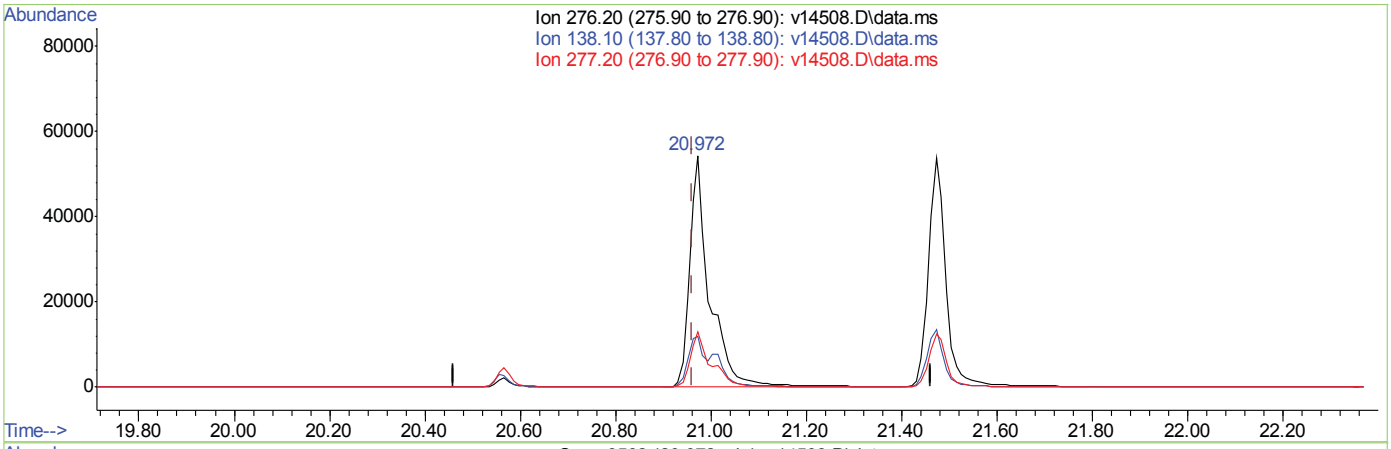


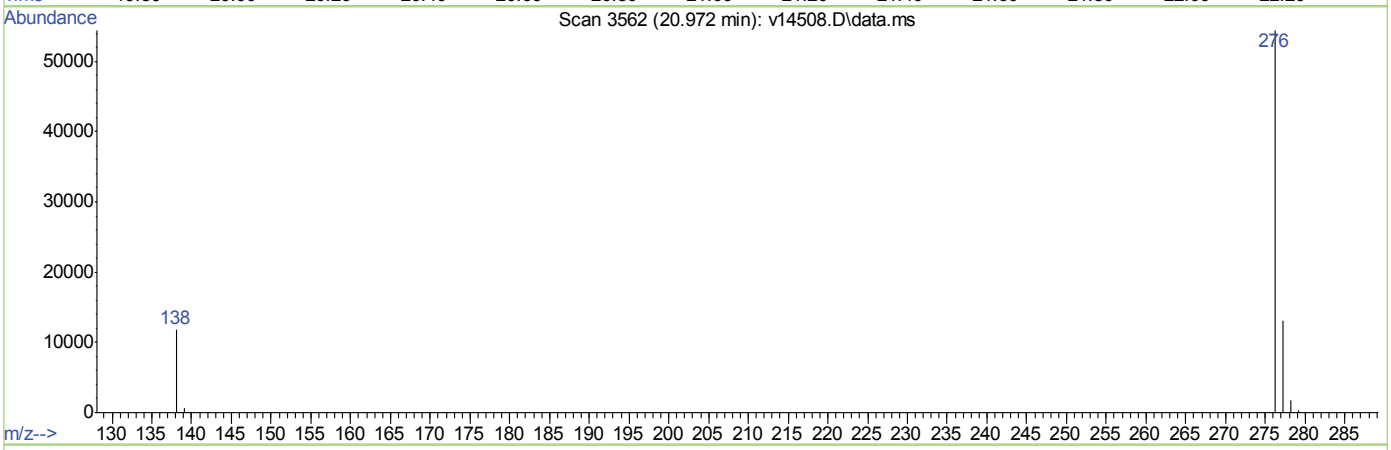
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14508.D
Acq On : 26 Mar 2013 1:34 pm
Operator : garyj
Sample : ic831-10.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 26 13:54:21 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:37:39 2013
Response via : Initial Calibration





TIC: v14508.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.972min (+0.010) 16.05ppm

response 159138

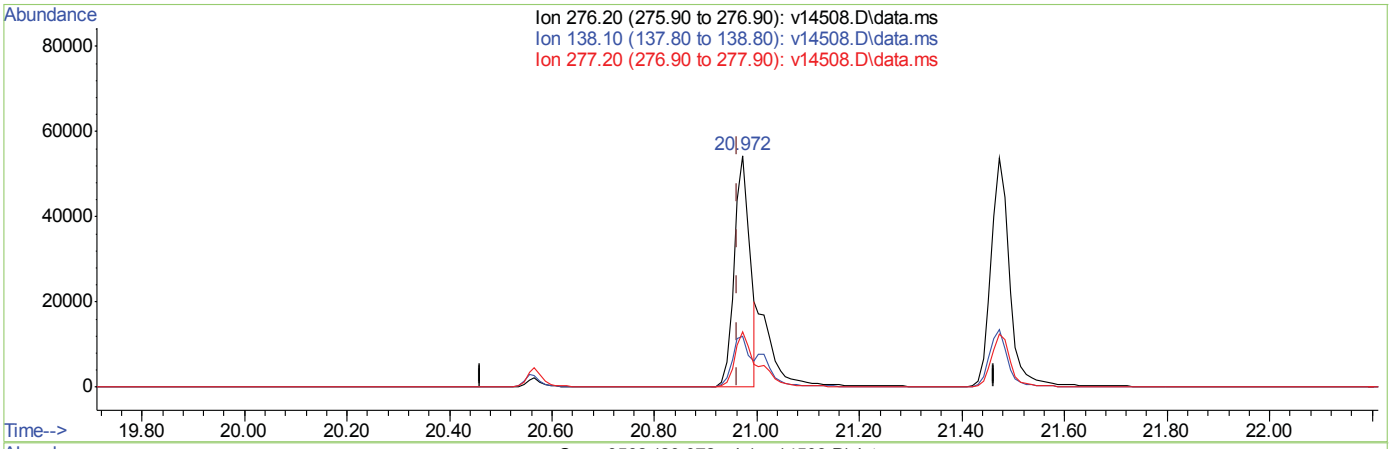
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	17.91
277.20	34.50	25.18
0.00	0.00	0.00

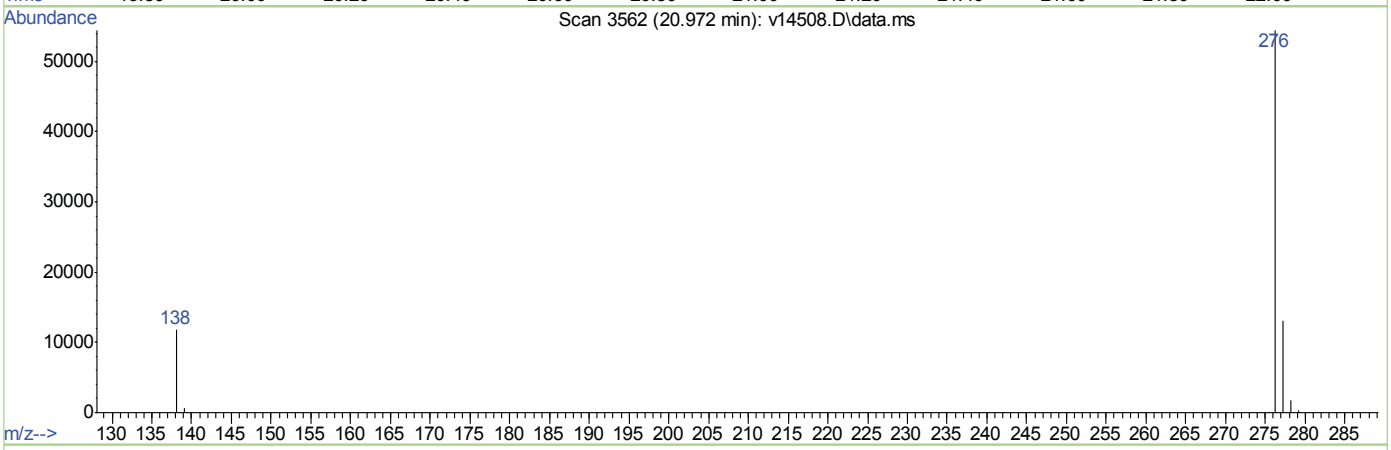
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14508.D
Acq On : 26 Mar 2013 1:34 pm
Operator : garyj
Sample : ic831-10.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 26 13:54:21 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:37:39 2013
Response via : Initial Calibration





TIC: v14508.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.972min (+0.010) 11.53ppm m

response 114266

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	24.94
277.20	34.50	35.06
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14508.D
Acq On    : 26 Mar 2013   1:34 pm
Operator  : garyj
Sample    : ic831-10.0
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Mar 26 13:54:36 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 13:37:39 2013
Response via : Initial Calibration
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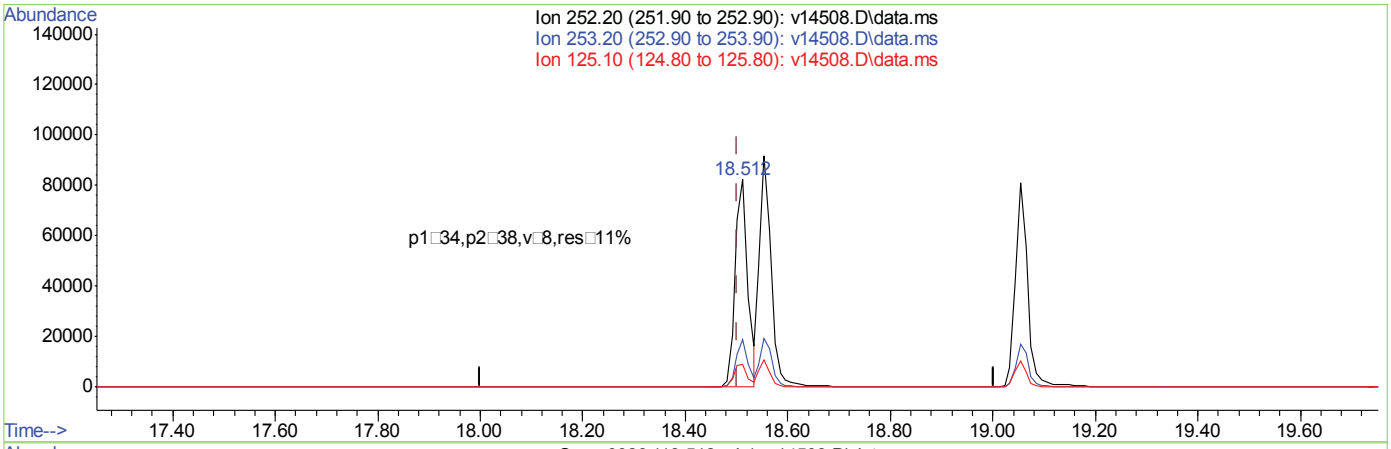

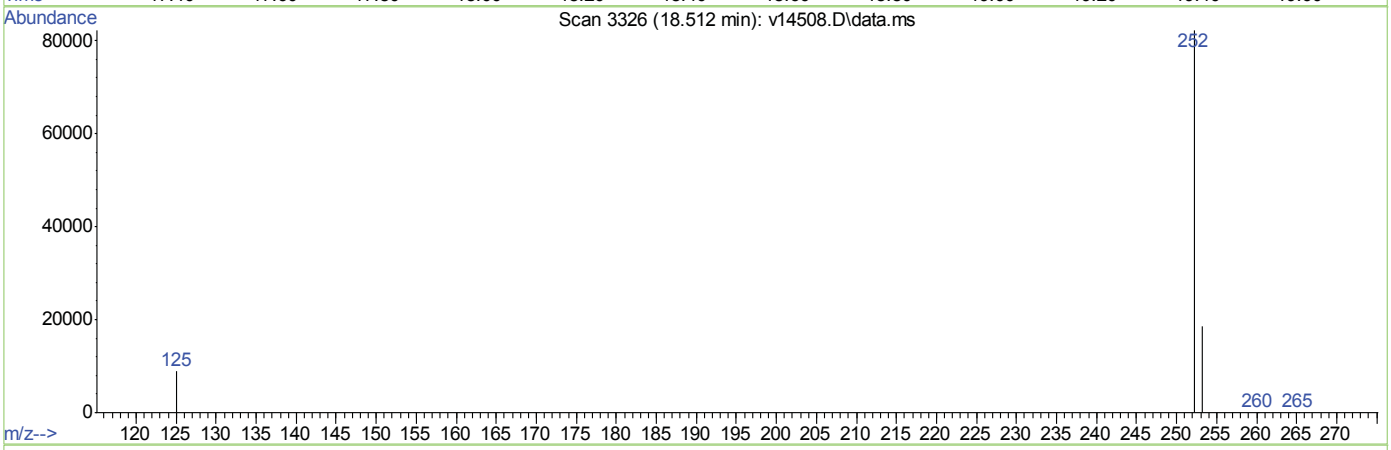

(30) □enzo(b)□uorant□ene (CP)

18.512min (+0.010) 12.05ppm

response 139682

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	21.53
125.10	11.80	11.87
0.00	0.00	0.00

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14509.D
Acq On : 26 Mar 2013 2:02 pm
Operator : garyj
Sample : icv831-5.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 26 14:34:23 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:54:48 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.130	152	10220	4.00	ppm	0.00
5) Naphthalene-d8	6.294	136	51272	4.00	ppm	0.00
11) Acenaphthene-d10	8.692	164	25020	4.00	ppm	0.00
17) Phenanthrene-d10	11.343	188	42658	4.00	ppm	0.00
24) Chrysene-d12	16.532	240	34728	4.00	ppm	0.01
29) Perylene-d12	19.158	264	38639	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	0.000	112	0	0.00	ppm	
Spiked Amount 10.000	Range 21 - 100		Recovery = 0.00%#			
3) Phenol-d5 (SURR)	0.000	99	0	0.00	ppm	
Spiked Amount 10.000	Range 10 - 94		Recovery = 0.00%#			
6) Nitrobenzene-d5 (SURR)	0.000	82	0d	0.00	ppm	
Spiked Amount 5.000	Range 17 - 131		Recovery = 0.00%#			
12) 2-Fluorobiphenyl (SURR)	0.000	172	0	0.00	ppm	
Spiked Amount 5.000	Range 11 - 122		Recovery = 0.00%#			
19) 2,4,6-Tribromophenol (...	0.000	330	0	0.00	ppm	
Spiked Amount 10.000	Range 18 - 143		Recovery = 0.00%#			
26) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 5.000	Range 21 - 144		Recovery = 0.00%#			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.912	93	15288	4.65	ppm	95
7) Naphthalene	6.319	128	59485	4.65	ppm	100
8) Quinoline	6.692	129	39881	4.87	ppm	100
9) 2-Methylnaphthalene	7.148	142	40519	4.63	ppm #	100
10) 1-Methylnaphthalene	7.278	142	38714	4.75	ppm #	100
13) Acenaphthylene	8.456	152	55321	5.12	ppm	100
14) Acenaphthene	8.745	154	32073	4.66	ppm	99
15) Dibenzofuran	9.040	168	46300	4.71	ppm	99
16) Fluorene	9.630	166	40293	4.81	ppm	100
18) Hexachlorobenzene	10.652	284	12222	4.59	ppm	100
20) Pentachlorophenol	11.040	266	5862	5.00	ppm	100
21) Phenanthrene	11.383	178	58430	4.66	ppm	100
22) Anthracene	11.478	178	59577	5.01	ppm	100
23) Fluoranthene	13.690	202	63069	5.09	ppm	100
25) Pyrene	14.121	202	64360	5.13	ppm #	99
27) Benzo(a)anthracene	16.500	228	57461	4.76	ppm	99
28) Chrysene	16.573	228	57987	4.91	ppm	100
30) Benzo(b)fluoranthene	18.502	252	59757	5.52	ppm	98
31) Benzo(k)fluoranthene	18.554	252	56530	4.62	ppm	99
32) Benzo(a)pyrene	19.054	252	52163	4.89	ppm	100
33) Indeno(1,2,3-cd)pyrene	20.962	276	45032m	4.90	ppm	
34) Dibenz(a,h)anthracene	21.014	278	53268	5.03	ppm	98
35) Benzo(g,h,i)perylene	21.462	276	55595	4.92	ppm	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

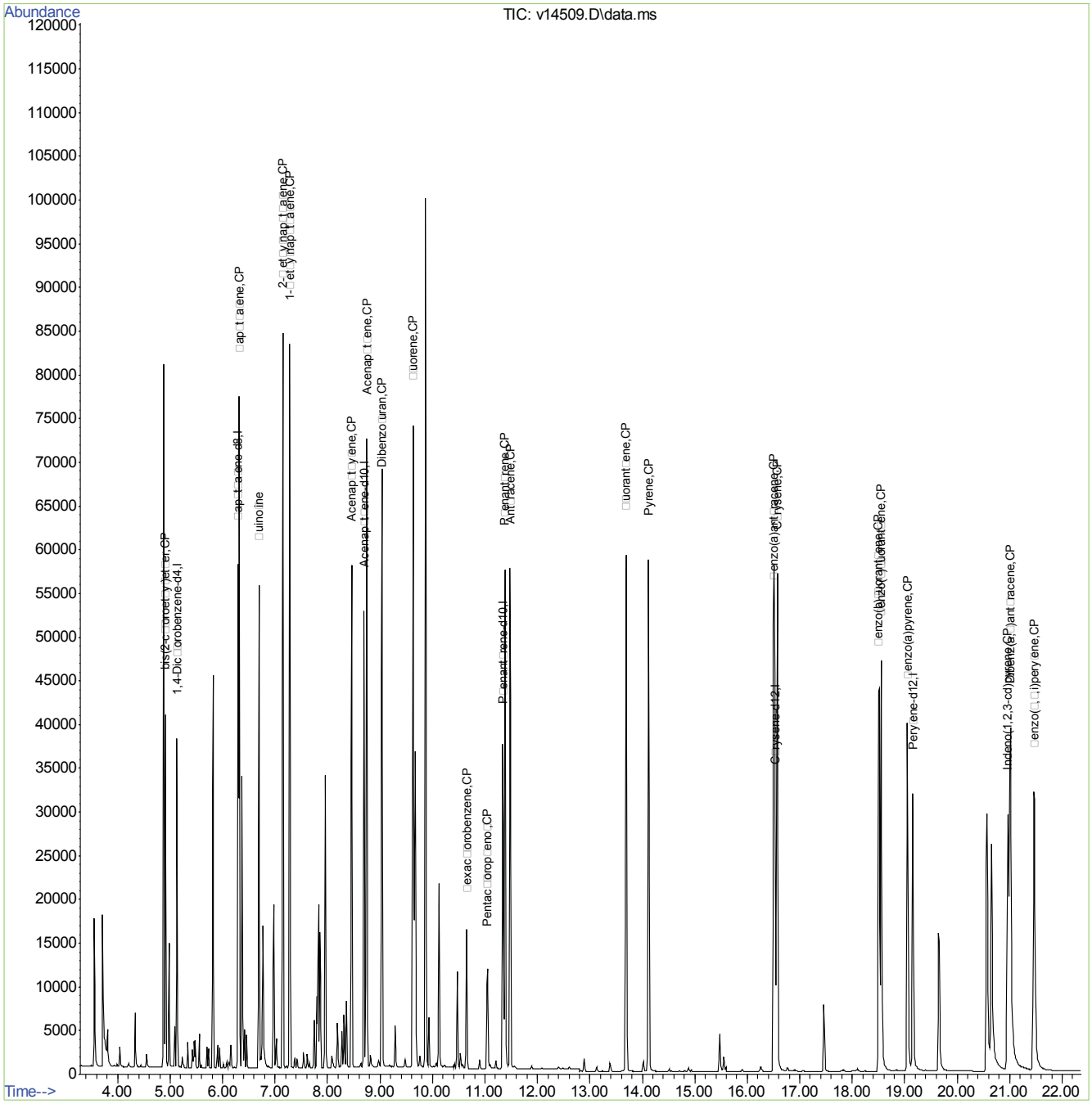
7.6.8

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14509.D
Acq On : 26 Mar 2013 2:02 pm
Operator : garyj
Sample : icv831-5.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

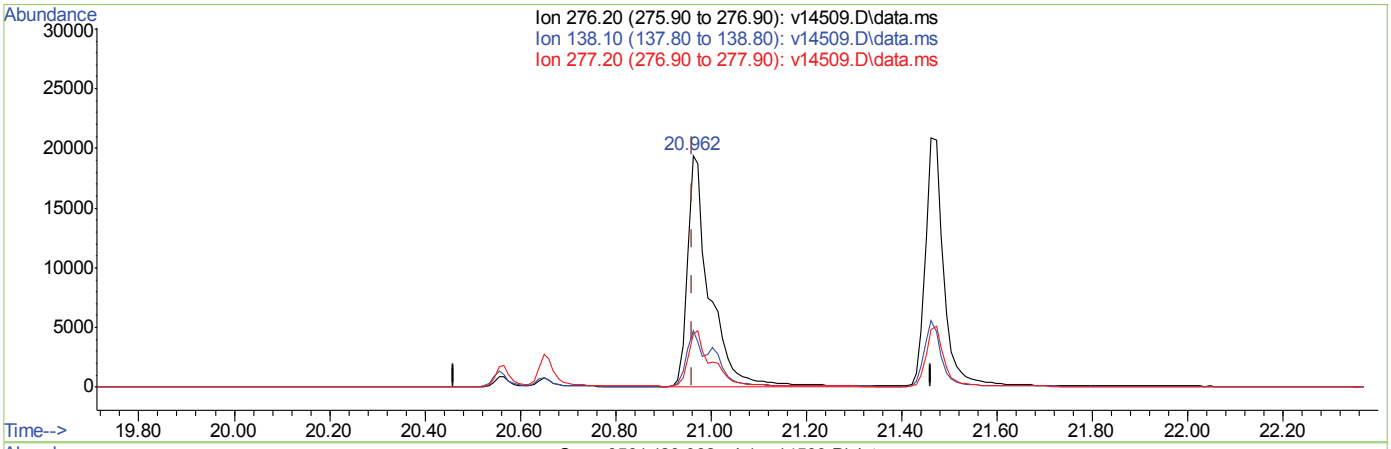
Quant Time: Mar 26 14:34:23 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:54:48 2013
Response via : Initial Calibration

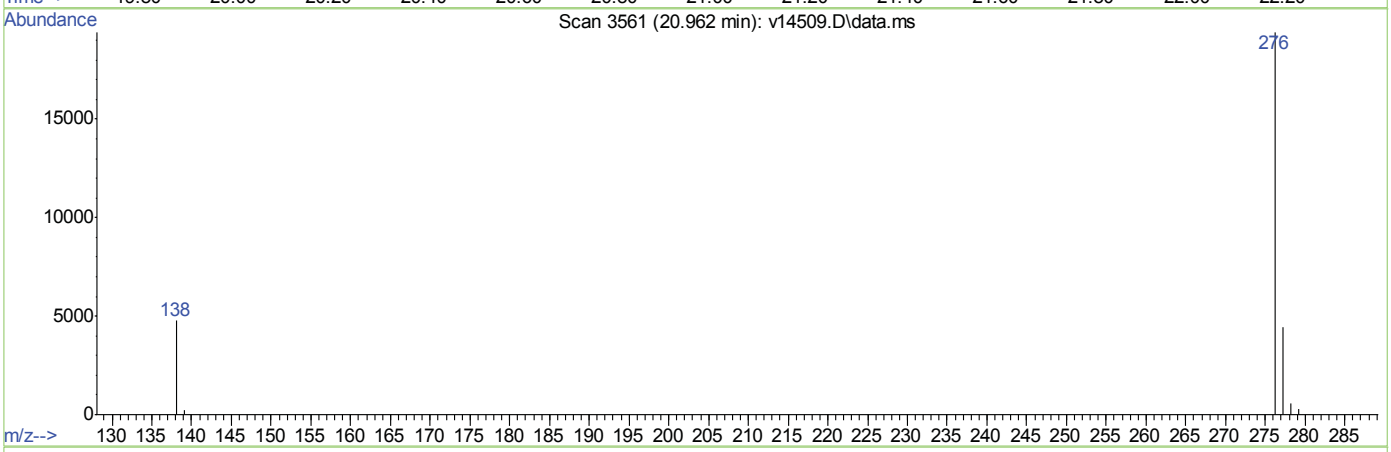


Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14509.D
Acq On    : 26 Mar 2013   2:02 pm
Operator  : garyj
Sample    : icv831-5.0
Misc      : op21163,ev831,1000,,,1,1,water
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Mar 26 14:34:01 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 13:54:48 2013
Response via : Initial Calibration
```





TIC: v14509.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (-0.000) 6.84ppm

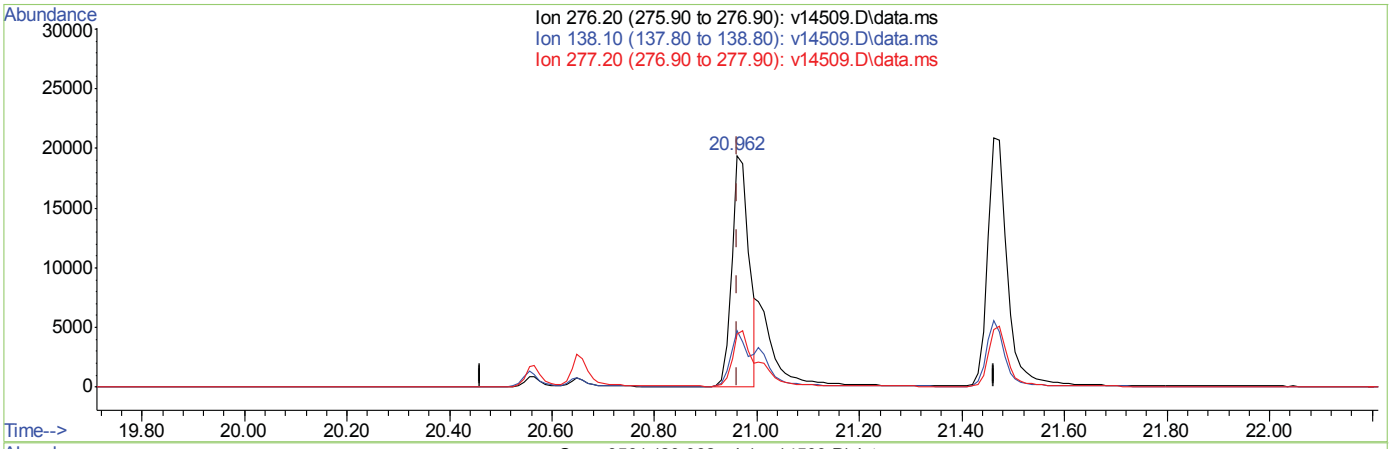
response 62805

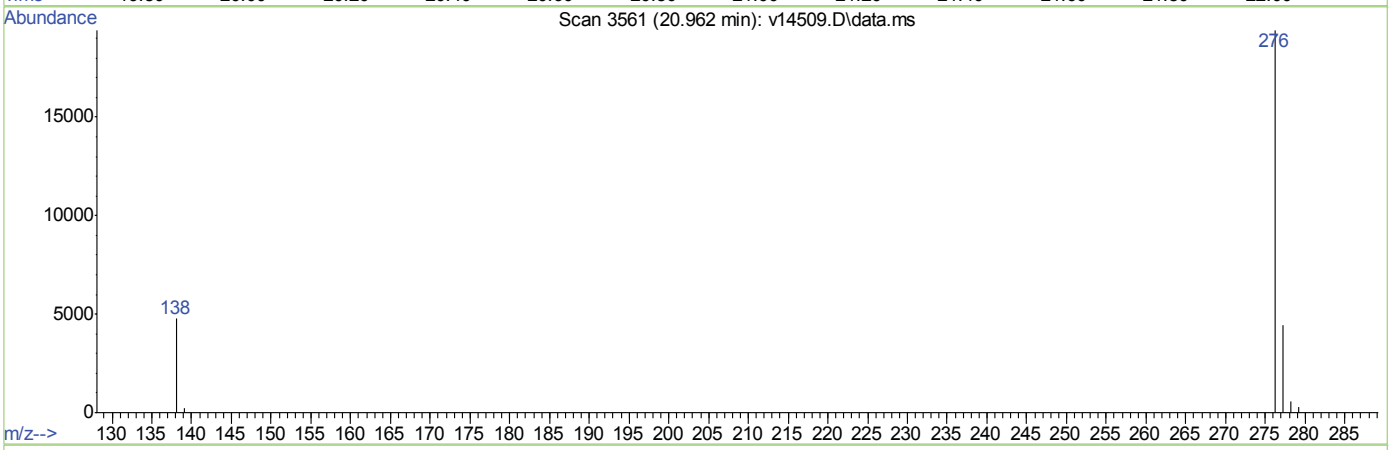
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	18.24
277.20	34.50	25.36
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14509.D
Acq On : 26 Mar 2013 2:02 pm
Operator : garyj
Sample : icv831-5.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 26 14:34:01 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:54:48 2013
Response via : Initial Calibration





TIC: v14509.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.962min (-0.000) 4.90ppm m

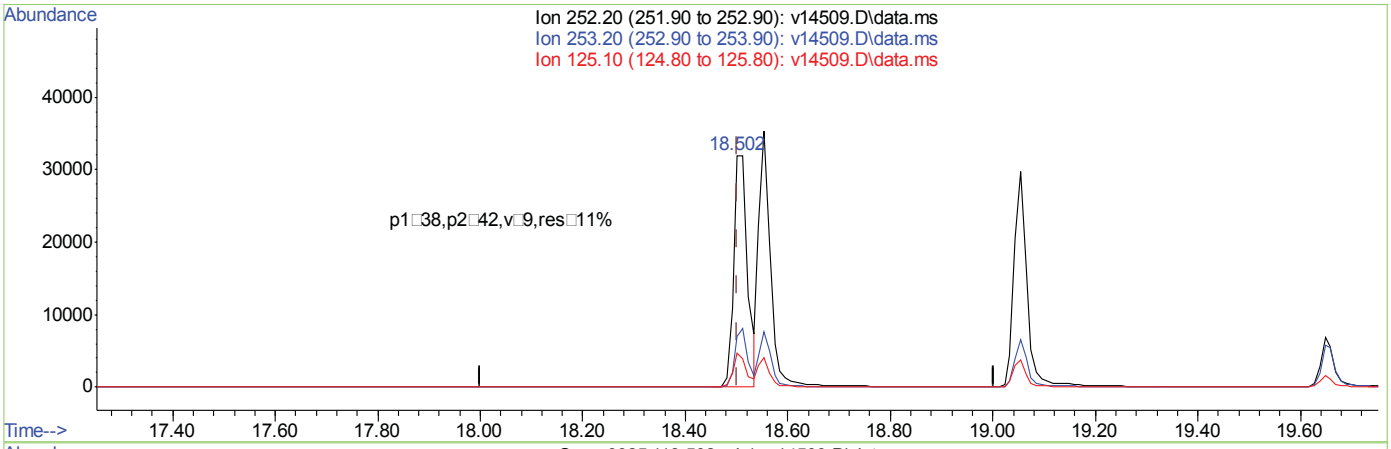
response 45032

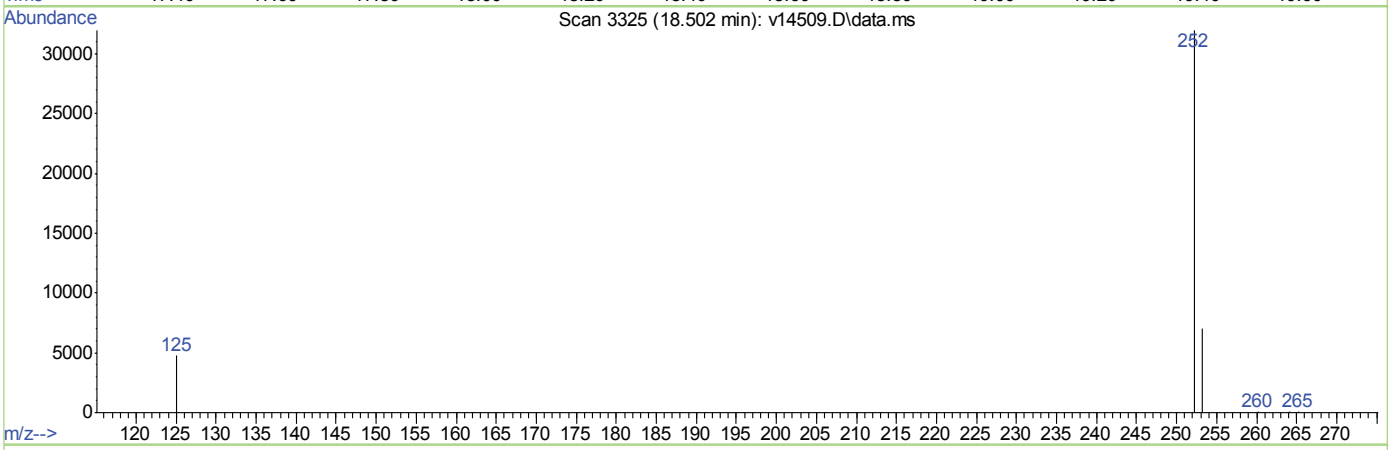
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	25.44
277.20	34.50	35.36
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV831\
Data File : v14509.D
Acq On : 26 Mar 2013 2:02 pm
Operator : garyj
Sample : icv831-5.0
Misc : op21163,ev831,1000,,,1,1,water
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 26 14:34:23 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:54:48 2013
Response via : Initial Calibration





TIC: v14509.D\data.ms

(30) □enzo(b)□uorant□ene (CP)

18.502min (-0.000) 5.52ppm

response 59757

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	23.17
125.10	11.80	13.70
0.00	0.00	0.00

□an□al Inte□rations
□□□R□V□D
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04□01□13 16:23

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14546.D
Acq On : 29 Mar 2013 1:39 pm
Operator : garyj
Sample : cc831-1.0
Misc : op21163,ev834,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 29 13:59:40 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration

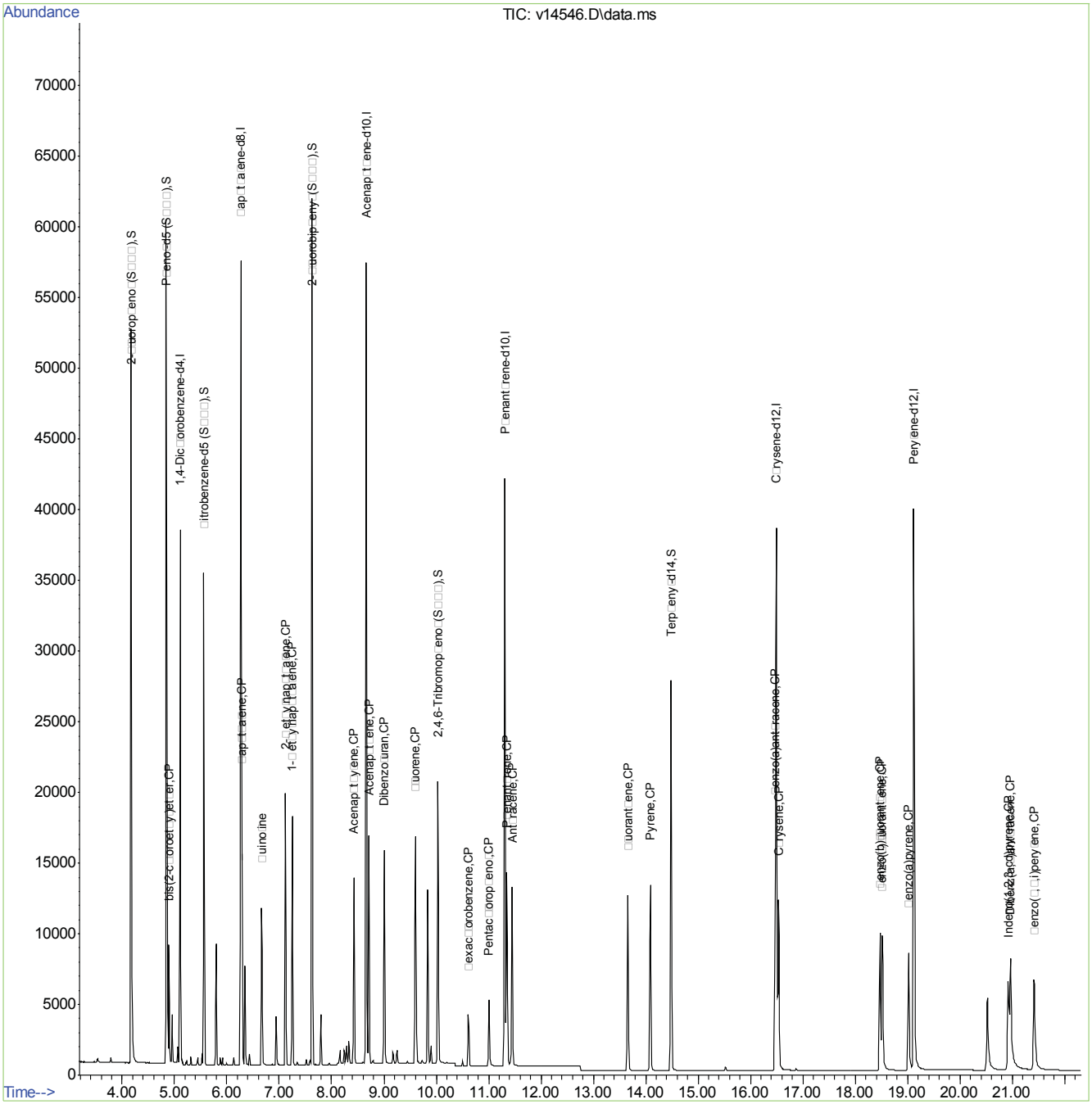
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.108	152	10359	4.00	ppm	0.00
5) Naphthalene-d8	6.270	136	53028	4.00	ppm	0.00
11) Acenaphthene-d10	8.662	164	26948	4.00	ppm	0.00
17) Phenanthrene-d10	11.309	188	46876	4.00	ppm	0.00
24) Chrysene-d12	16.493	240	37936	4.00	ppm	0.00
29) Perylene-d12	19.119	264	44315	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.173	112	29286	9.80	ppm	0.00
Spiked Amount 10.000	Range 21 - 100		Recovery = 98.00%			
3) Phenol-d5 (SURR)	4.848	99	36417	9.97	ppm	0.00
Spiked Amount 10.000	Range 10 - 94		Recovery = 99.70%#			
6) Nitrobenzene-d5 (SURR)	5.562	82	20542	4.89	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery = 97.80%			
12) 2-Fluorobiphenyl (SURR)	7.627	172	50305	4.97	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery = 99.40%			
19) 2,4,6-Tribromophenol (...	10.031	330	10415	9.81	ppm	0.00
Spiked Amount 10.000	Range 18 - 143		Recovery = 98.10%			
26) Terphenyl-d14	14.481	244	27581	4.64	ppm	0.00
Spiked Amount 5.000	Range 21 - 144		Recovery = 92.80%			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.895	93	3268	0.98	ppm	99
7) Naphthalene	6.290	128	13273	1.00	ppm	100
8) Quinoline	6.668	129	8576	1.01	ppm	99
9) 2-Methylnaphthalene	7.118	142	9195	1.02	ppm #	100
10) 1-Methylnaphthalene	7.249	142	8509	1.01	ppm #	100
13) Acenaphthylene	8.426	152	11882	1.02	ppm	100
14) Acenaphthene	8.715	154	7475	1.01	ppm	100
15) Dibenzofuran	9.004	168	10560	1.00	ppm	98
16) Fluorene	9.600	166	9304	1.03	ppm	100
18) Hexachlorobenzene	10.618	284	2910	1.00	ppm	98
20) Pentachlorophenol	11.006	266	3040	2.64	ppm	100
21) Phenanthrene	11.349	178	13939	1.01	ppm	100
22) Anthracene	11.449	178	13240	1.01	ppm	99
23) Fluoranthene	13.657	202	13532	0.99	ppm	100
25) Pyrene	14.086	202	13921	1.02	ppm #	100
27) Benzo(a)anthracene	16.472	228	12379	0.94	ppm	99
28) Chrysene	16.534	228	12697	0.98	ppm	99
30) Benzo(b)fluoranthene	18.473	252	11611	0.94	ppm	98
31) Benzo(k)fluoranthene	18.515	252	13221	0.94	ppm	98
32) Benzo(a)pyrene	19.015	252	11225	0.92	ppm	100
33) Indeno(1,2,3-cd)pyrene	20.923	276	9023m	0.86	ppm	
34) Dibenz(a,h)anthracene	20.964	278	11113	0.91	ppm	100
35) Benzo(g,h,i)perylene	21.413	276	11959	0.92	ppm	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14546.D
Acq On : 29 Mar 2013 1:39 pm
Operator : garyj
Sample : cc831-1.0
Misc : op21163,ev834,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 29 13:59:40 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration



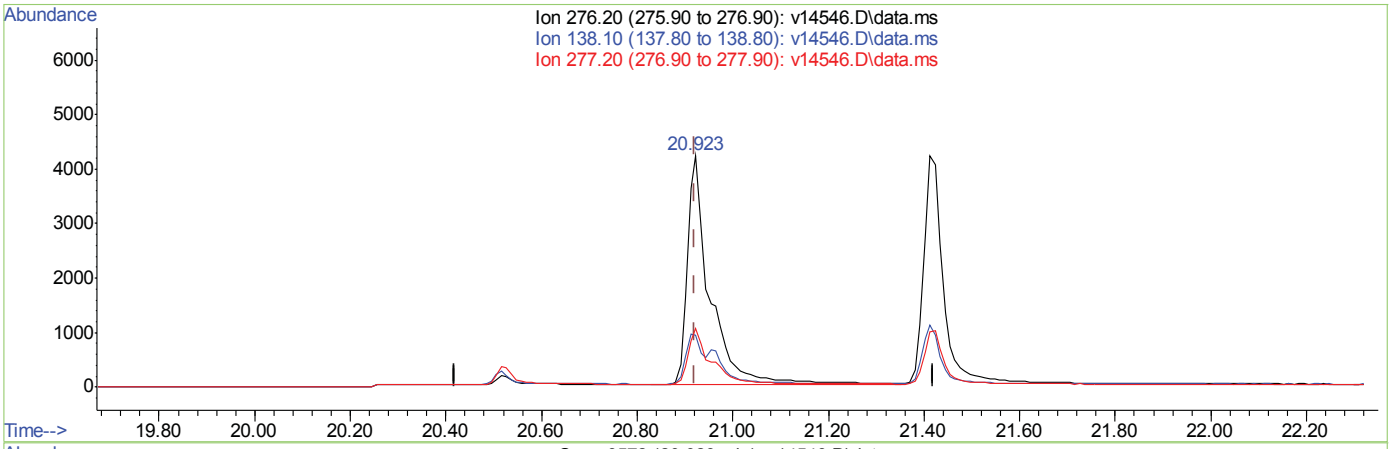
ev831sim.m Fri Mar 29 13:59:49 2013 Page: 2

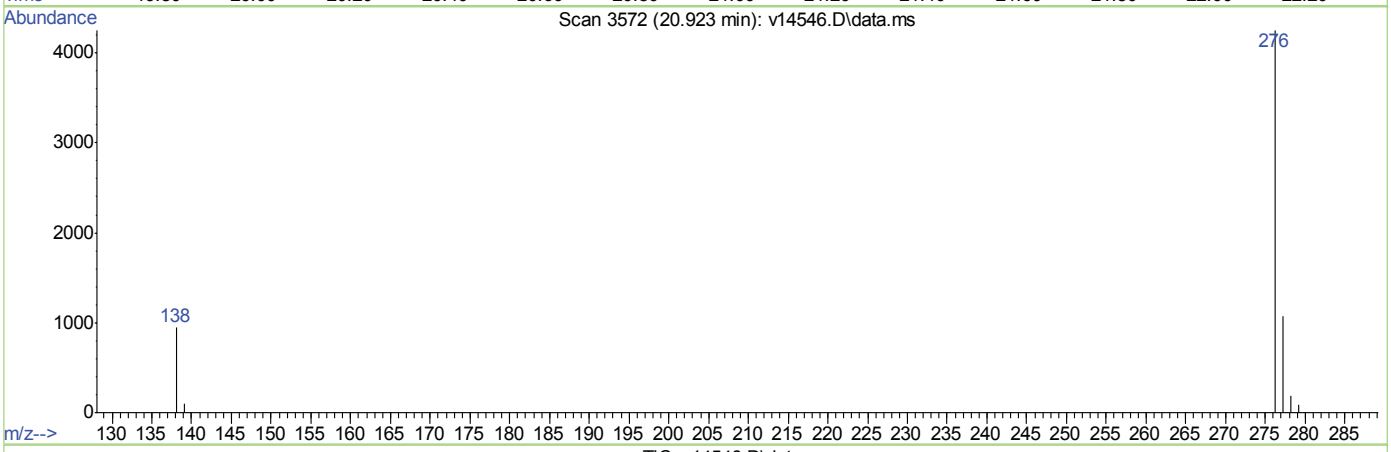
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14546.D
Acq On    : 29 Mar 2013   1:39 pm
Operator  : garyj
Sample    : cc831-1.0
Misc      : op21163,ev834,1000,,,1,1,water
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Mar 29 13:59:12 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration
```



TIC: v14546.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.923min (+0.003) 1.30ppm

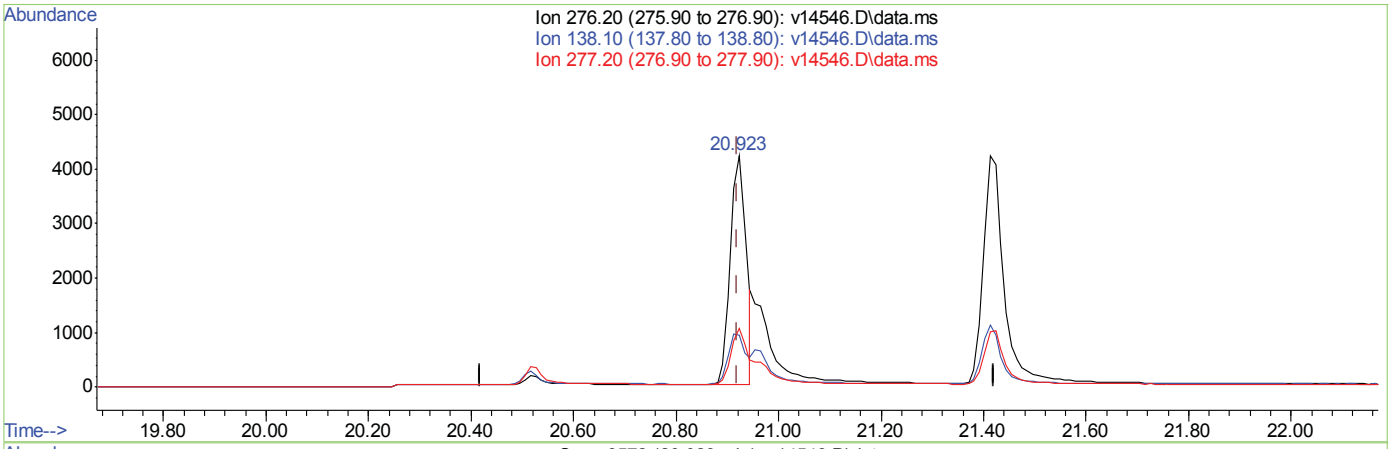
response 13741

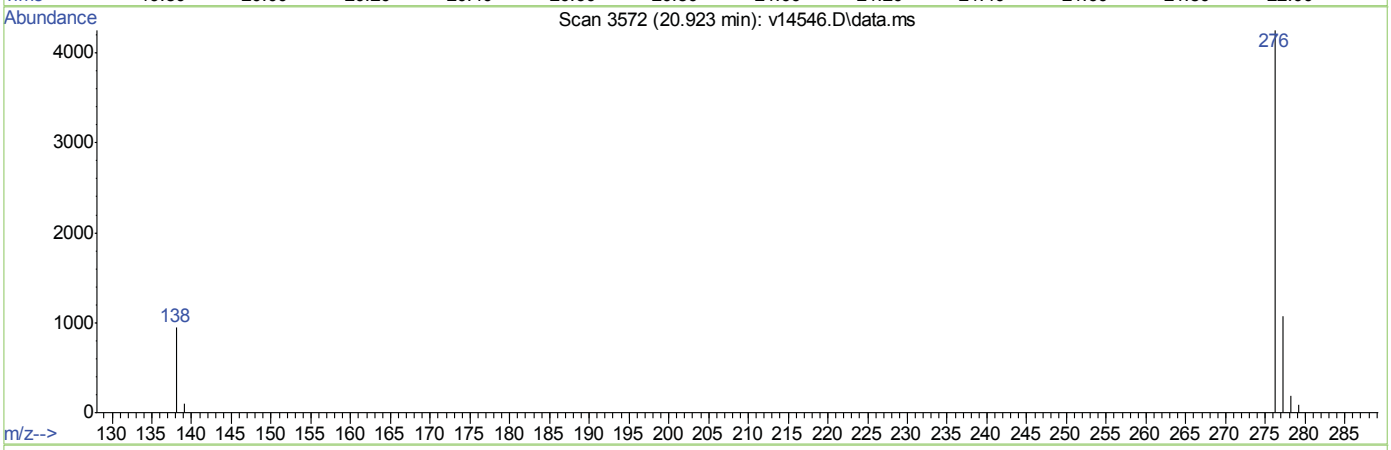
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	16.13
277.20	34.50	25.22
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14546.D
Acq On    : 29 Mar 2013   1:39 pm
Operator  : garyj
Sample    : cc831-1.0
Misc      : op21163,ev834,1000,,,1,1,water
ALS Vial  : 2   Sample Multiplier: 1

Quant Time: Mar 29 13:59:12 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration
```



TIC: v14546.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.923min (+0.003) 0.86ppm m

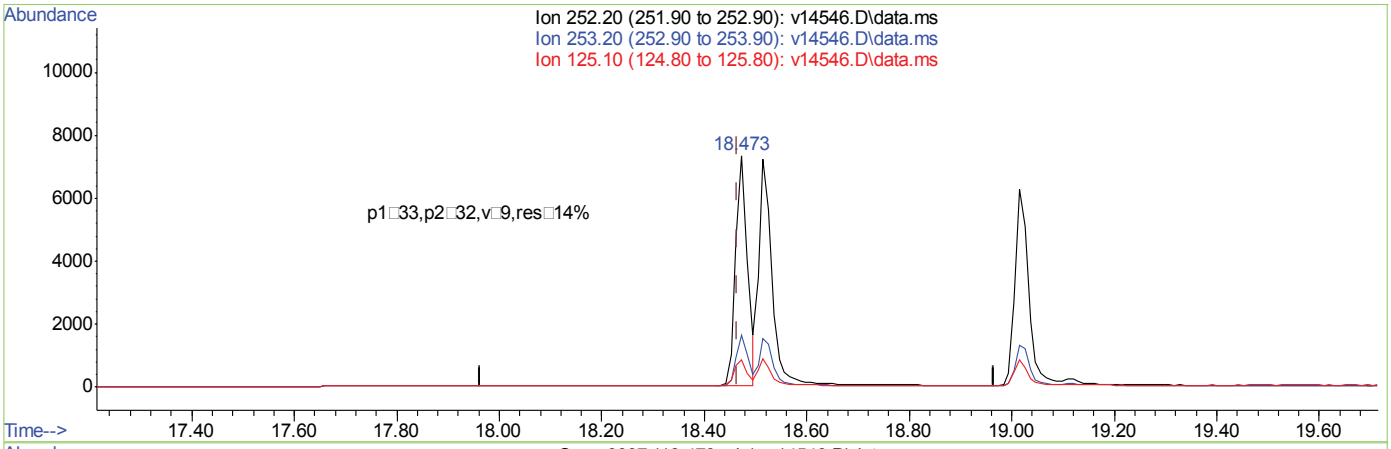
response 9023

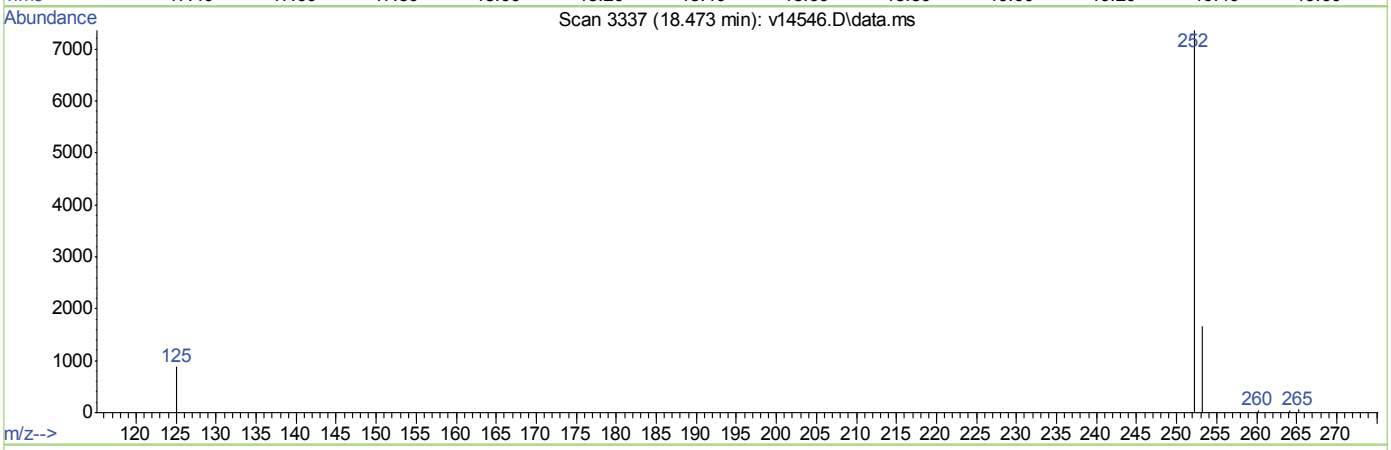
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	24.57
277.20	34.50	38.41
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\EV834\
Data File : v14546.D
Acq On : 29 Mar 2013 1:39 pm
Operator : garyj
Sample : cc831-1.0
Misc : op21163,ev834,1000,,,1,1,water
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Mar 29 13:59:40 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Fri Mar 29 10:29:19 2013
Response via : Initial Calibration





TIC: v14546.D\data.ms

(30) □enzo(b)□uorant□ene (CP)

18.473min (+0.008) 0.94ppm

response 11611

Ion	Exp%	Act%
252.20	100	100
253.20	23.40	21.63
125.10	11.80	11.82
0.00	0.00	0.00

□an□al Inte□rations
□□□R□V□D
(co□po□nds □it□ □□ □fla□)
□o□n □ atson
04□04□13 10:36

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14564.D
Acq On : 1 Apr 2013 10:15 am
Operator : garyj
Sample : cc831-1.0
Misc : op21163,ev835,1000,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 01 10:54:58 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:55:17 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.098	152	12835	4.00	ppm	0.00
5) Naphthalene-d8	6.256	136	67640	4.00	ppm	0.00
11) Acenaphthene-d10	8.638	164	35835	4.00	ppm	0.00
17) Phenanthrene-d10	11.282	188	63404	4.00	ppm	0.00
24) Chrysene-d12	16.472	240	51899	4.00	ppm	0.00
29) Perylene-d12	19.098	264	56863	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol (SURR)	4.158	112	36188	9.78	ppm	0.00
Spiked Amount 10.000	Range 21 - 100		Recovery = 97.80%			
3) Phenol-d5 (SURR)	4.833	99	45258	10.00	ppm	0.00
Spiked Amount 10.000	Range 10 - 94		Recovery = 100.00%#			
6) Nitrobenzene-d5 (SURR)	5.548	82	26526	4.95	ppm	0.00
Spiked Amount 5.000	Range 17 - 131		Recovery = 99.00%			
12) 2-Fluorobiphenyl (SURR)	7.608	172	66180	4.92	ppm	0.00
Spiked Amount 5.000	Range 11 - 122		Recovery = 98.40%			
19) 2,4,6-Tribromophenol (...	10.013	330	14187	9.88	ppm	0.00
Spiked Amount 10.000	Range 18 - 143		Recovery = 98.80%			
26) Terphenyl-d14	14.457	244	38757	4.77	ppm	-0.01
Spiked Amount 5.000	Range 21 - 144		Recovery = 95.40%			
Target Compounds						Qvalue
4) bis(2-chloroethyl)ether	4.885	93	4071	0.99	ppm	98
7) Naphthalene	6.275	128	16944	1.00	ppm	100
8) Quinoline	6.648	129	11268	1.04	ppm	100
9) 2-Methylnaphthalene	7.104	142	11994	1.04	ppm #	100
10) 1-Methylnaphthalene	7.235	142	11144	1.04	ppm #	100
13) Acenaphthylene	8.408	152	15850	1.02	ppm	100
14) Acenaphthene	8.691	154	9995	1.02	ppm	100
15) Dibenzofuran	8.986	168	14162	1.01	ppm	99
16) Fluorene	9.576	166	12546	1.04	ppm	100
18) Hexachlorobenzene	10.596	284	3878	0.98	ppm	99
20) Pentachlorophenol	10.979	266	4201	2.69	ppm	99
21) Phenanthrene	11.327	178	18730	1.00	ppm	100
22) Anthracene	11.422	178	17920	1.01	ppm	100
23) Fluoranthene	13.631	202	18561	1.01	ppm	100
25) Pyrene	14.059	202	19011	1.01	ppm #	100
27) Benzo(a)anthracene	16.451	228	17011	0.94	ppm	100
28) Chrysene	16.513	228	16951	0.96	ppm	100
30) Benzo(b)fluoranthene	18.442	252	14554	0.91	ppm	99
31) Benzo(k)fluoranthene	18.494	252	17641	0.98	ppm	96
32) Benzo(a)pyrene	18.994	252	14349	0.91	ppm	100
33) Indeno(1,2,3-cd)pyrene	20.881	276	11197m	0.83	ppm	
34) Dibenz(a,h)anthracene	20.933	278	13017	0.83	ppm	100
35) Benzo(g,h,i)perylene	21.381	276	13904	0.84	ppm	99

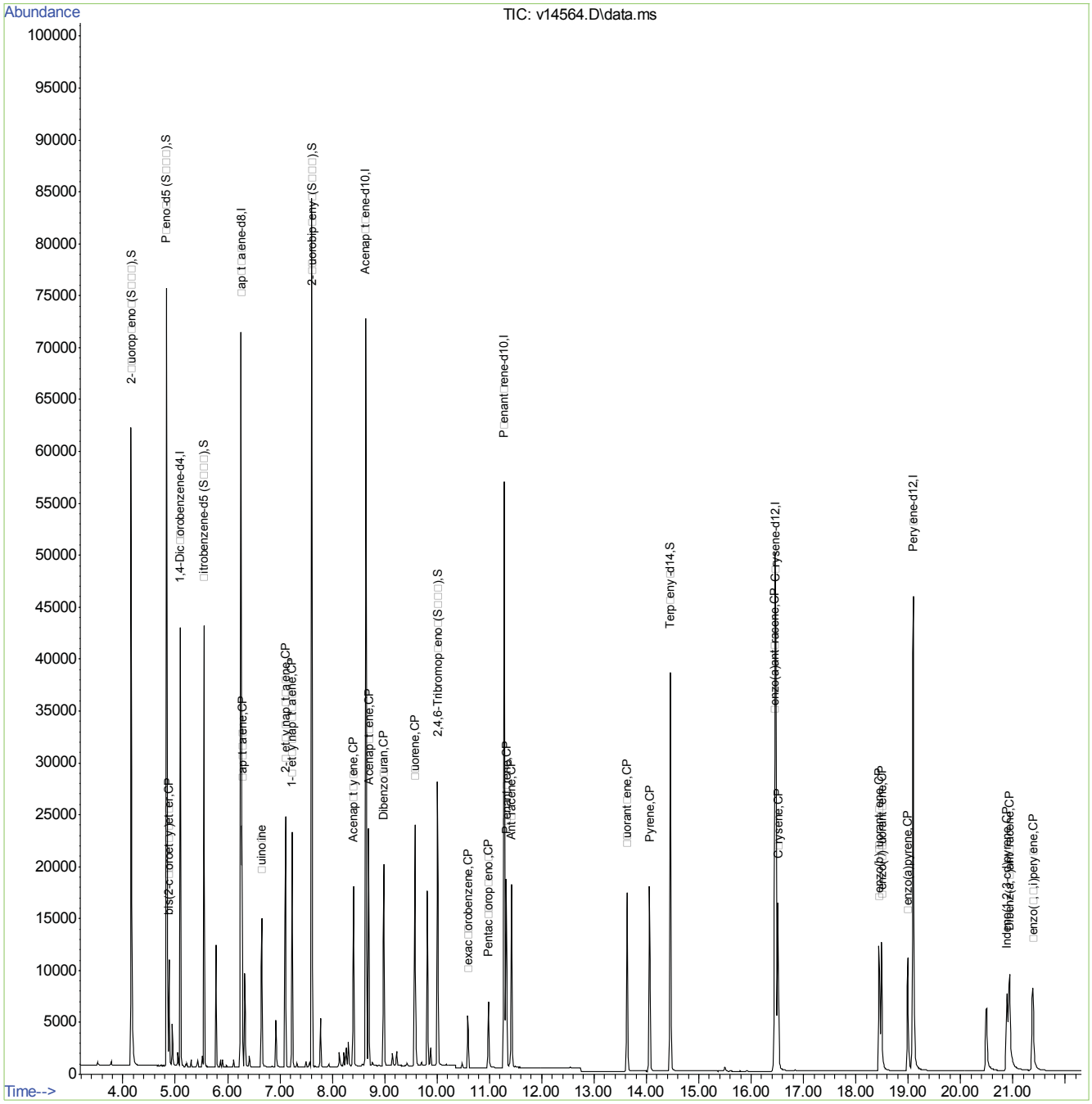
(#) = qualifier out of range (m) = manual integration (+) = signals summed

ACCUTEST LABORATORIES TC27860

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14564.D
Acq On : 1 Apr 2013 10:15 am
Operator : garyj
Sample : cc831-1.0
Misc : op21163,ev835,1000,,,1,1,water
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Apr 01 10:54:58 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title :
QLast Update : Tue Mar 26 13:55:17 2013
Response via : Initial Calibration



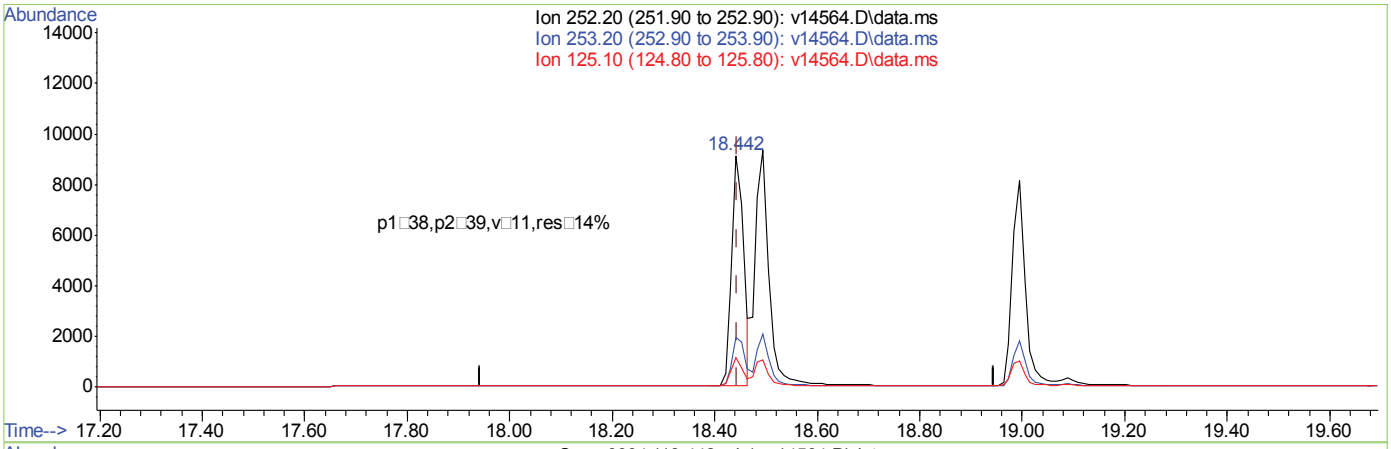
ev831sim.m Mon Apr 01 10:55:07 2013 Page: 2

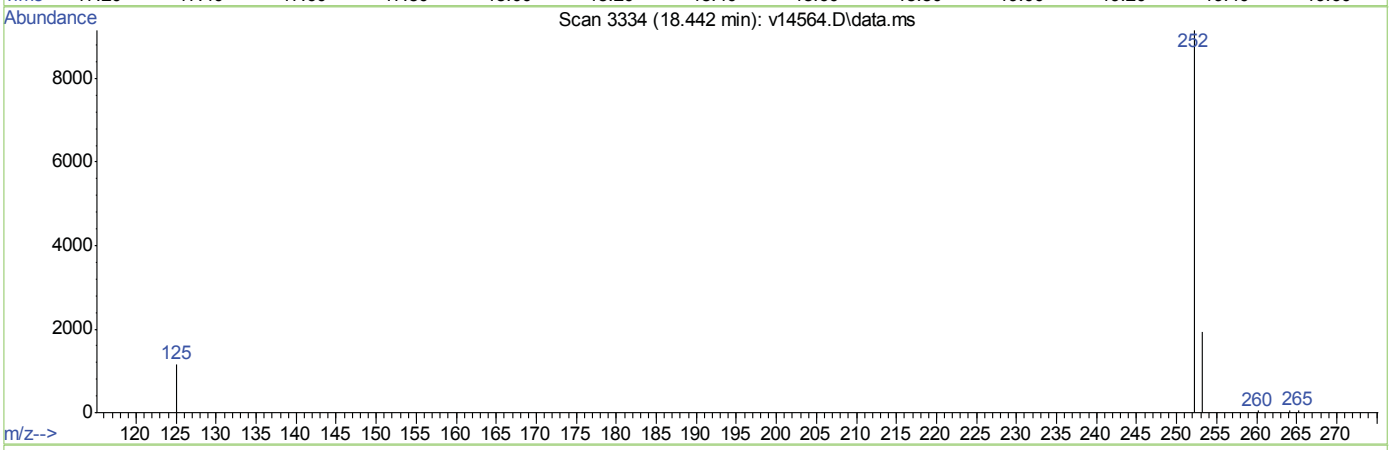
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14564.D
Acq On    :  1 Apr 2013  10:15 am
Operator  : garyj
Sample    : cc831-1.0
Misc      : op21163,ev835,1000,,,1,1,water
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Apr 01 10:36:14 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Mon Apr 01 10:35:51 2013
Response via : Initial Calibration
```





TIC: v14564.D\data.ms

(30) □enzo(b)□uorant□ene (CP)

18.442min (-0.003) 0.91ppm

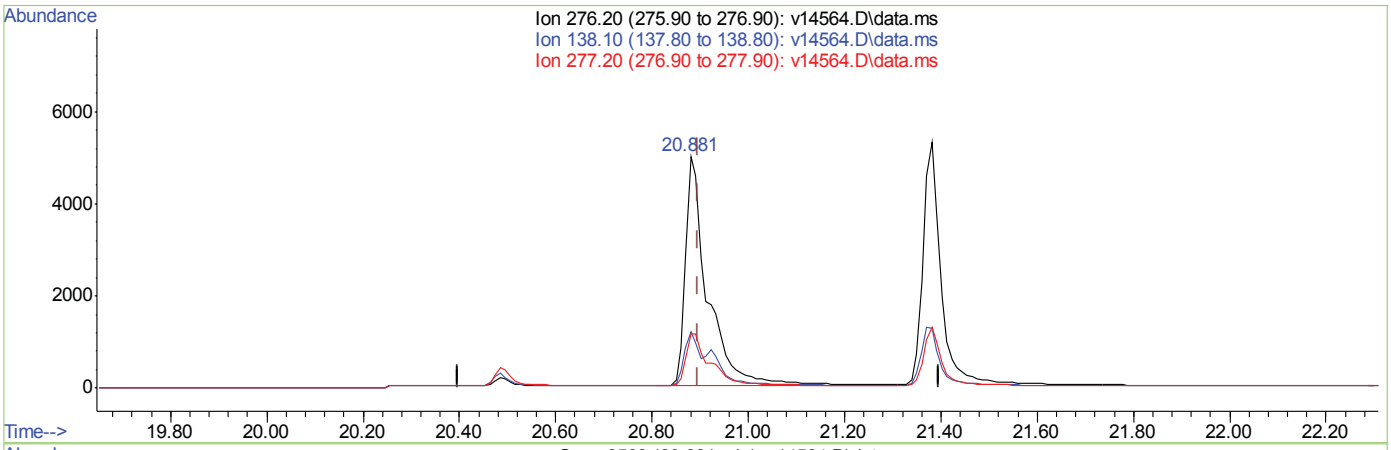
response 14554

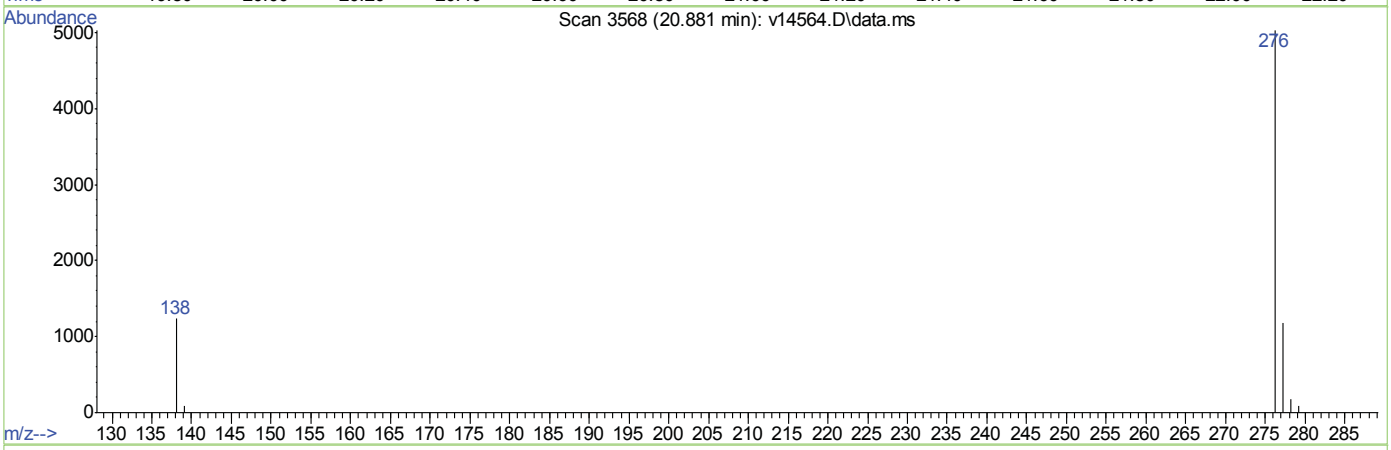
Ion	Exp%	Act%
252.20	100	100
253.20	23.40	23.81
125.10	11.80	11.76
0.00	0.00	0.00

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14564.D
Acq On    :  1 Apr 2013  10:15 am
Operator  : garyj
Sample    : cc831-1.0
Misc      : op21163,ev835,1000,,,1,1,water
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Apr 01 10:54:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 13:55:17 2013
Response via : Initial Calibration
```



TIC: v14564.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.881min (-0.016) 1.21ppm

response 16283

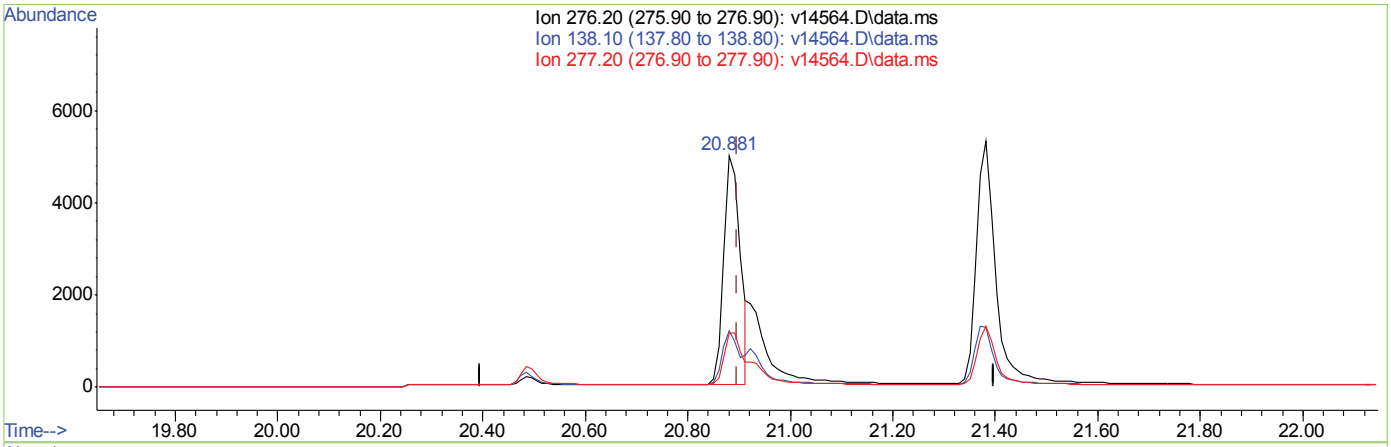
Ion	Exp%	Act%
276.20	100	100
138.10	22.00	17.32
277.20	34.50	25.03
0.00	0.00	0.00

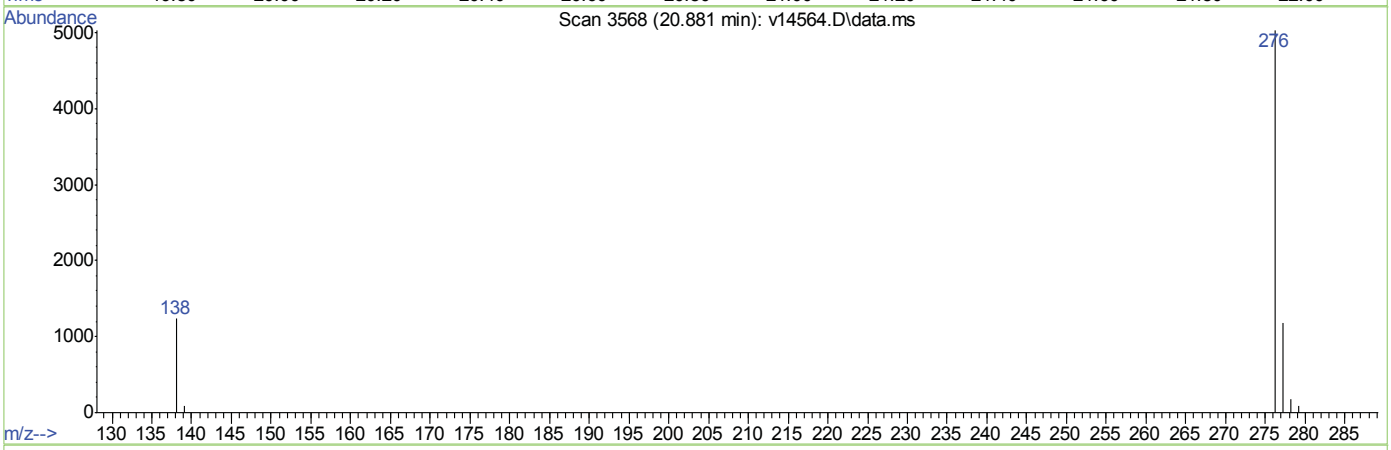
ACCUTEST LABORATORIES TC27860

Quantitation Report (Qedit)

```
Data Path : C:\msdchem\1\DATA\EV835\
Data File : v14564.D
Acq On    :  1 Apr 2013  10:15 am
Operator  : garyj
Sample    : cc831-1.0
Misc      : op21163,ev835,1000,,,1,1,water
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Apr 01 10:54:22 2013
Quant Method : C:\msdchem\1\METHODS\ev831sim.m
Quant Title  :
QLast Update : Tue Mar 26 13:55:17 2013
Response via : Initial Calibration
```



TIC: v14564.D\data.ms

(33) Indeno(1,2,3-cd)pyrene (CP)

20.881min (-0.016) 0.83ppm m

response 11197

Ion	Exp%	Act%
276.20	100	100
138.10	22.00	25.19
277.20	34.50	36.39
0.00	0.00	0.00

ACCUTEST

GC/MS SEMIVOLATILE ANALYSIS LOG

Batch ID: EV831

Date: 3-26-2013

Analyst Signature: Gary Fedlub

Standard Data		Standard Data	
Ref #	Description	Ref #	Description
1	MS1477	8	MS1486-7
2	MS1486-1	9	MS1487
3	-2	10	MS1483A-15
4	-3	11	MS1435-4
5	-4		
6	-5		GJ 3/26/2013
7	-6		

Columns: RTX-5 sil MS
SW-846/EPA Method 8270C SIM
Initial Cal. Method EV831SIM
Calibration Date: 3-26-2013
Injection Volume: 1 µL
Solvent ID #: OP130221
Solvent: MeCl

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP TGC012.

Ref #	Data File	ALS#	Sample ID	Method	MTX	OP Batch	Dilution	Run OK	Comments	Initials
1	V14501	1	DFTPP	DFTPP				✓		GJ
2	02	2	IC831-0.1	SIMVHUNTS				✓		
3	03	3	-0.2					✓		
4	04	4	-0.5					✓		
5	05	5	-1.0					✓		
6	06	6	ICC831-2.5					✓		
7	07	7	IC831 -5.0					✓		
8	08	8	↓ -10.0					✓		
9	09	9	ICV831-5.0					✓		
11	10	10	1.0 chk test					✓	check using MS1435-4	
10	11	11	OP27720-MB		S	27720	1	✓		
	12	12	↓ -BS				1	✓		
	13	13	TC27469-3				10	✓	Chrom ↑ Nap, 2MN, 1MN, Phen ↑	
	14	14	-3				200	✓	Nap, 2MN, 1MN, Phen OK	
	15	15	-7				10	✓	RRx1 or x4 2MN OK	
	16	16	↓ -7				200	X	DNR	
	17	17	TC27121-3		W	27641	10	✓	Nap, 2MN, 1MN ↑	
	18	18	↓ -3		↓	↓	200	✓	Nap, 2MN, 1MN OK	
	19	19	OP27720-MS		S	27720	10	✓	Chrom ↑	
	20	20	↓ -MSD		↓	↓	10	✓	↓	

GJ 3/27/2013

MTX = Matrix = W for water; S for soil; O for oil

ACCUTEST

GC/MS SEMIVOLATILE ANALYSIS LOG

Batch ID: EV834

Date: 3-29-2013

Analyst Signature: [signature]

Standard Data	
Ref #	Description
1	MS1477
2	MS1486-5
3	↓ -4
4	MS1483A-15
	GT 3/29/2013

Standard Data	
Ref #	Description
	GT 3/29/2013

Columns: RTX-5 sil MS
SW-846/EPA Method 8270C SIM
Initial Cal. Method EV831SIM
Calibration Date: 3-26-2013
Injection Volume: 1 µL

Solvent ID #: OP130221
Solvent: MeCl

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP TGC012.

Ref #	Data File	ALS#	Sample ID	Method	MTX	OP Batch	Dilution	Run OK	Comments	Initials
1	V14542	1	DFTPP	DFTPP				✓		GT
2	43	2	CC831-2.5	SIMVHUNTS				X	Pyrene ↑ RR 1.0	
3	44	3	↓ -1.0	↓				✓		
1	45	1	DFTPP	DFTPP				✓	Reran for time 1:26p.m	
3	46	2	CC831-1.0	SIMVHUNTS				✓		
4	47	3	OP~~27766~~ 27766 of 3/29/13 -MB		S	~~27767~~ 27766 of 3/29/13	1	✓		
	48	4	OP27767-MB		W	27767	1	✓		
	49	5	OP27766-BS		S	27766	1	✓		
	50	6	OP27767-BS		W	27767	1	X	IS ↑ Reprep ampule	
	51	7	↓ -BSD				1	✓		
	52	8	↓ -BS				1	✓		
	53	9	TC27860-8				1	✓		
	54	10	↓ -9				1	✓		
	55	11	TC27860-1		S	27766	10	X	NO IS RR	
	56	12	-6					X		
	57	13	-5					X		
	58	14	-2					X		
	59	15	-3					X		
	60	16	-4					X		
	61	17	-7					X		

GT 4/1/2013

MTX = Matrix = W for water; S for soil; O for oil

ACCUTEST

GC/MS SEMIVOLATILE ANALYSIS LOG

Batch ID: EV835

Date: 4-7-2013

Analyst Signature: [signature]

Standard Data	
Ref #	Description
1	MS1477
2	MS1486-5
3	↓ -4
4	MS1484A-15
	GJ 4/4/2013

Standard Data	
Ref #	Description
	GJ 4/4/2013

Columns: RTX-5sil MS
SW-846/EPA Method 8270C Sim
Initial Cal. Method EV831 Sim
Calibration Date: 3-26-2013
Injection Volume: 1 µL

Solvent ID #: OP130221
Solvent: MeCl

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP TGC012.

Ref #	Data File	ALS#	Sample ID	Method	MTX	OP Batch	Dilution	Run OK	Comments	Initials
1	V14562	1	DFTPP	DFTPP				✓		GJ
2	63	2	CC831-2.5	SIMVOLUNTS				X	Pyrene ↑ RR 1.0	
3	64	3	↓ -1.0					✓		
4	65	4	OP27766-MB		S	27766	1	✓	System Blank	
	66	5	TC27860-2				10	✓	Pyrene ↑	
	67	6	-7				10	✓	PAH OK	
	68	7	-1				1	✓		
	69	8	-6				1	✓		
	70	9	-5				1	✓		
	71	10	-3				1	X	IS DOUBLED Replicip. Ampulls	
	72	11	-4				1	X	↓ ↓	
	73	12	-3				1	✓		
	74	13	-4				1	✓		
	75	14	↓ -2				1	✓	Pyrene ↑	
	76	15	OP27766-MS				1	✓		
	77	16	↓ -MSD				1	✓		
	78	17	TC27860-7				1	✓	Chrom ↑ PAH ↑	
	79	18	TC27137-2R				10	✓	Nap ↑ RR x100, RR x1	
	80	19	↓ -2R				100	✓	Nap OK	
	81	20	OP27790-~~MS~~ BS GJ 4/4/13		W	27790	1	✓		
	82	21	↓ -~~MSD~~ BSD GJ 4/4/13				1	✓		
	83	22	OP27790-MB				1	✓		
	84	23	TC27922-2				1	✓		
	85	24	-3				1	✓		
	86	25	-5				1	✓		
	87	26	-6				1	✓		
									GJ 4/4/2013	

MTX = Matrix = W for water; S for soil; O for oil

ACCUTEST

BNA SOLID SAMPLE PREP LOG
LABORATORY NOTEBOOK #: OP2013-012

Date: 3-29-13 Method: 3550B Batch#: OP27766

Analyst: L.B. Balance ID: EXTRBAL2

8270SIMPAH

Sample ID	Bottle Number	Amount Extracted (g)	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
MB	N/A	30.02	50ul		1ml	Rush
BS	↓	30.01		50ul		
TC27860-1	1	30.19				
2	1	30.29				
3	1	30.24				
4	1	30.00				
5	1	30.23				
6	1	30.20				
7	1	30.16				GJ 3/29/2013
TC27927-1	1	30.20				
↓ -7	1	30.22				
						GJ 4/1/2013
MS	1	30.10	50ul	50ul	1ml	TC27860-2
MSD	1	30.20	↓	↓	↓	↓

L.B. 3-29-13 Spike ~~Surrogate~~ ID: MS121012A5 Conc: 100ppm Exp. Date: June 2013 Bath Temp.: 42°C

L.B. 3-29-13 Surrogate ~~Spike~~ ID: MS121127B2 Conc: 200/100ppm Exp. Date: 9-13-13 Bath Temp. #2: ↓

Methylene Chloride ID #: OP130325 Bath Temp. #3: ↓

50:50 Methylene Chloride/Acetone ID #: N/A Dried Sodium Sulfate ID#: 25-OP-19-2

Comments:

Relinquished By: Date: 3-29-13

Accepted By: Gary Pellett Date: 4-1-2013

Reviewed By: Date:

Form: OP005, Rev.3 08/23/11, QAO (TY)

7.8.1 7

ACCUTEST LABORATORIES GC

LIQUID SAMPLE PREP REPORT

Date/Time: 3/29/13 (mm/dd/yy 24:00)

Prep Method: 3510C 3520C 3580A or 625 (circle)

Batch#: OP 27767

Analytical Method: 8827 Osim 1AH

Ext. By: NM Conc. By: NM Vialed By: NM

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
MB	N/A	1000	6	>12	.050	—	1.0	
BS	↓	↓	6	↓	↓	.050	↓	
BSD	↓	↓	6	↓	↓	.050	↓	
TC27860-8	1/2	200	5	↓	↓	—	↓	
9	1/2	200	5	↓	↓	—	↓	OT 3/29/2013
TC27922-2								
-3								
-5								
-6								
Comments:—	Samples ID# TC27860-8 & 9, received in 100ml. Vials, 2 of each. Compinde in funnal and extract.							
MS								
MSD								

CLH 3/29/13

Comments: Limited containers received & volumes, Performed BS/BSD

Surr. ID: MS121127B2 Conc: 200/100ppm Exp. Date: 9/13/13 Inj. By: NM

Spk. ID: MS121012A5 Conc: 100ppm Exp. Date: 9/15/13 Inj. By: NM

Initial Bath Temp (Therm ID): N/A

Observed Temp °C: Corr. Temp °C:

Exchange Bath/N-Evap Temp (Therm ID): N/A

Observed Temp °C: Corr. Temp °C:

Turbo Vap ID: # 3

Turbo Vap Pressure: 17

Turbo Vap Temp (Therm ID): 42°C

Observed Temp °C: 42 Corr. Temp °C: 42

CH2CL2 Lot # OP130325 Hexane Lot # N/A Acetone Lot# N/A

Na2SO4 Lot# 25-OP-19.2 NaOH # OP121008 Sulfuric Acid # N/A

Relinquished By: [signature] Date: 3/29/13

Accepted By: [signature] Date: 3/29/2013

Laboratory Notebook OP2013-023

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7.8.2

7

Gulf Coast ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample: TC27860-1 **Analyzed:** 29-MAR-13 by PA **Method:** SM 2540 G
ClientID: IM3

Wet Weight (Total)	10.64	g
Tare Weight	1.04	g
Dry Weight (Total)	7.82	g
Solids, Percent	70.6	%

Sample: TC27860-2 **Analyzed:** 29-MAR-13 by PA **Method:** SM 2540 G
ClientID: IM4

Wet Weight (Total)	10.19	g
Tare Weight	1.07	g
Dry Weight (Total)	4.55	g
Solids, Percent	38.2	%

Sample: TC27860-3 **Analyzed:** 29-MAR-13 by PA **Method:** SM 2540 G
ClientID: IM4D

Wet Weight (Total)	10.07	g
Tare Weight	1.05	g
Dry Weight (Total)	4.46	g
Solids, Percent	37.8	%

Sample: TC27860-4 **Analyzed:** 29-MAR-13 by PA **Method:** SM 2540 G
ClientID: IM5

Wet Weight (Total)	10.2	g
Tare Weight	1.02	g
Dry Weight (Total)	3.84	g
Solids, Percent	30.7	%

Sample: TC27860-5 **Analyzed:** 29-MAR-13 by PA **Method:** SM 2540 G
ClientID: IM6

Wet Weight (Total)	10.77	g
Tare Weight	1.06	g
Dry Weight (Total)	6.48	g
Solids, Percent	55.8	%

Sample: TC27860-6 **Analyzed:** 29-MAR-13 by PA **Method:** SM 2540 G
ClientID: IM1

Wet Weight (Total)	10.26	g
Tare Weight	1.05	g
Dry Weight (Total)	5.67	g
Solids, Percent	50.2	%

Percent Solids Raw Data Summary

Job Number: TC27860
Account: CKALABR CK Associates
Project: CITGO Indian MARAIS

Sample: TC27860-7 **Analyzed:** 29-MAR-13 by PA **Method:** SM 2540 G
ClientID: IM2

Wet Weight (Total)	10.24	g
Tare Weight	1.02	g
Dry Weight (Total)	8.3	g
Solids, Percent	79	%

□ulf Coast ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest New Jersey)

Includes the following where applicable:

- Chain of Custody

SEP

ACCUTEST Laboratories

SUBCONTRACT COC

10165 Harwin, Suite 150 - Houston, TX 77036 - 713-271-4700 fax: 713-271-4770

FED-EX Tracking #	Bottle Order Control #
9173 7250 6352	
Accutest Quote #	Accutest Job # TC27860

Client Information		Subcontract Information	
Company Name: Accutest Gulf Coast		Subcontract Laboratory: ACCUTEST NEW JERSEY	
Project Contact: Sylvia Garza	Email	Laboratory Contact: SampleReceiving	Email
Address: 10165 Harwin Dr, Suite 150		Address	
City: Houston State: TX	Zip: 77036	City State Zip	
Phone No.: 713-271-4700		Phone No.	

Requested Analyses

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Wastewater; SW - Surface Water; SO - Soil; SL - Sludge; OI - Oil; LIQ - Liquid; SOL - Other Solid

Accutest Sample Number	Collection Date	Collection Time	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	DI/MeOH	TSP	NONE	OTHER	TOC	LAB USE ONLY
TC27860-1 (IM3)	3/26/2013	8:45	SED	1									X	
TC27860-2, 2MS, 2MSD (IM4)	3/26/2013	9:40	SED	3									X	B7 TX
TC27860-3 (IM4D)	3/26/2013	9:40	SED	1									X	
TC27860-4 (IM5)	3/26/2013	10:15	SED	1									X	
TC27860-5 (IM6)	3/26/2013	10:25	SED	1									X	
TC27860-6 (IM1)	3/26/2013	11:05	SED	1									X	
TC27860-7 (IM2)	3/26/2013	11:20	SED	1									X	

Turnaround Time (Business days)

- [ ] STANDARD
- [ ] 7 Day
- [ ] 4 Day RUSH
- [ ] 3 Day EMERGENCY
- [x] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY
- [ ] Other

Approved By:/Date:

RUSH / APRIL 2nd

Real time analytical data available via Lablink

Data Deliverable Information

- [ ] Commercial "A"
- [ ] Commercial "B"
- [ ] Reduced Tier 1
- [x] Full Data Package
- [x] TRRP-13
- [ ] EDD Format
- [ ] Other NARR+

Commercial "A" = Results Only

Commercial "B" = Results & Standard QC

Comments / Remarks

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	3-28-13	1 FEDEX	2 FEDEX	3/29/13 930	2 [signature]
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable ☐	On Ice ☒ Cooler Temp. MW 3.1

2A

TC27860: Chain of Custody
Page 1 of 3
Accutest New Jersey

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

Accutest Gulf Coast
500 Ambassador Caffery Pkwy, Scott, LA 70583
TEL.337-237-4775 FAX: 337-237-7838
www.accutest.com

LSR-F005.00

PAGE 1 OF 2 H

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # TC27860

Client / Reporting Information

Company Name: C-K ASSOCIATES
Street Address: 17170 Perkins Rd
City / State / Zip: Baton Rouge LA 70810
Project Contact / E-mail: Keith Nichols, Chris Warwick
Phone #: 225-755-1000 Fax #:
Sampler(s) Name(s) / Phone #: Keith Nichols, Jesse B.

Project Information

Project Name: CITGO Indian Marais
Street:
City / State:
Project #:
Client Purchase Order #:
Project Manager: Keith Nichols, Keith.Nichols@C-Ka.com

Billing Information (if different from Report to)

Company Name: SAME
Street Address:
City / State / Zip:
Attention:

Requested Analyses

Accutest Sample #	Field ID / Point of Collection	Date	Time	Sampled By	Matrix	# of bottles	HCl	NaOH	ZA/NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	TSP	NaHSO4	ENCORE	OTHER	PAHs See Table 1 Attached	TOC	TRRP Ecological	Benchmarks for Sediment Level 4	Report 4 Day	Turnaround w/ Level 2 Bowl follow	up with Level 4	Report	LAB USE ONLY
1	IM3	3/26/13	0845	KN	Sed	2	NO Preserved																				
2	IM4		0940			2																					
3	IM4D		0940			2																					
2	IM4MS Matrix Spike		0940			2																					
2	IM4MSD Matrix Spike Duplicate		0940			2																					
4	IM5		1015			2																					
5	IM6		1025			2																					
6	IM1		1105			2																					
7	IM2		1120			2																					
8	ER6/1 Equip. Reinsate		1030		AQ	2																					
9	FB Field Blank		1030		AQ	2																					

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB-Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Turnaround Time (Business days)

- [x] Standard
- [ ] 5 Day RUSH
- [ ] 4 Day RUSH
- [ ] 3 Day RUSH
- [ ] 2 Day RUSH
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Approved By (Accutest PM): / Date:

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] FULT1 (Level 3+4)
- [ ] REDT1 (Level 3+4)
- [ ] Commercial "C"
- [x] TRRP
- [ ] EDD Format
- [ ] Other _____

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC & Surrogate Summary

Comments / Special Instructions

Received at Baton Rouge Service Center

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	3-27-13 0931	1 [signature] LAKECHAR SC	2 [signature]	3-27-13 1630	2 [signature]
Relinquished by Sampler: 3 [signature]	Date Time: 3/27/13 1905	Received By: 3	Relinquished By: 4 [signature]	Date Time: 3-28-13	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	[ ] Intact [ ] Not intact	Preserved where applicable [ ] On Ice [ ] Cooler Temp.

TC27860: Chain of Custody
Page 2 of 3

ACCUTEST LABORATORIES

□□utest □aboratories □a□ ple Re□eipt □u□ □ ar□

□□utest □ob □u□ ber: TC27860 Client: _____ □ro□e□t: _____

Date □Ti□ e Re□ei□ed: 3/29/2013 Deli□er□ □ ethod: _____ □irbill □s: _____

Cooler Te□ ps (□nitial□□d□usted): #1: (3.1/3.1); 0

Cooler □e□urit□	□ or □		□ or □
1. Custody Seals Present:	☑ ☐	3. COC Present:	☑ ☐
2. Custody Seals Intact:	☑ ☐	4. Smpl Dates/Time OK	☑ ☐

Cooler Te□ perature	□ or □
1. Temp criteria achieved:	☑ ☐
2. Cooler temp verification:	
3. Cooler media:	Ice (Bag)
4. No. Coolers:	1

□ualit□ Control - □reser□ation	□ or □	□□
1. Trip Blank present / cooler:	☐ ☑	☐
2. Trip Blank listed on COC:	☐ ☑	☐
3. Samples preserved properly:	☑ ☐	
4. VOCs headspace free:	☐ ☐	☑

□a□ ple □nte□rit□ □Do□u□ entation	□ or □
1. Sample labels present on bottles:	☑ ☐
2. Container labeling complete:	☑ ☐
3. Sample container label / COC agree:	☑ ☐

□a□ ple □nte□rit□ □Condition	□ or □
1. Sample recvd within HT:	☑ ☐
2. All containers accounted for:	☑ ☐
3. Condition of sample:	Intact

□a□ ple □nte□rit□ □nstru□tions	□ or □	□□
1. Analysis requested is clear:	☑ ☐	
2. Bottles received for unspecified tests	☐ ☑	
3. Sufficient volume recvd for analysis:	☑ ☐	
4. Compositing instructions clear:	☐ ☐	☑
5. Filtering instructions clear:	☐ ☐	☑

Comments

Accutest Laboratories
V:732.329.0200
2235 US Highway 130
F: 732.329.3499
Dayton, New Jersey
www/accutest.com

□1

TC27860: Chain of Custody
Page 3 of 3

□ulf Coast ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

(Accutest New Jersey)

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries
- Instrument Runlogs/QC

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC27860
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: CKALABR: CITGO Indian MARAIS

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Total Organic Carbon	GP71119/GN82522	1000	0.00	mg/kg	20000	19800	99.0	80-120%

Associated Samples:
Batch GP71119: TC27860-1, TC27860-2, TC27860-3, TC27860-4, TC27860-5, TC27860-6, TC27860-7
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC27860
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: CKALABR: CITGO Indian MARAIS

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Total Organic Carbon	GP71119/GN82522	TC27860-2	mg/kg	20000	20500	2.5	0-40%

Associated Samples:
Batch GP71119: TC27860-1, TC27860-2, TC27860-3, TC27860-4, TC27860-5, TC27860-6, TC27860-7
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC27860
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: CKALABR: CITGO Indian MARAIS

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Total Organic Carbon	GP71119/GN82522	TC27860-2	mg/kg	20000	50500	69900	98.8	46.9-123.4%

Associated Samples:
Batch GP71119: TC27860-1, TC27860-2, TC27860-3, TC27860-4, TC27860-5, TC27860-6, TC27860-7
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: TC27860
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: CKALABR: CITGO Indian MARAIS

File ID: D30402S1.TXT Date Analyzed: 04/02/13 Methods: CORP ENG 81M/SW9060M
Analyst: VA Run ID: GN82522
Parameters: Total Organic Carbon

Time	Sample Description	Dilution Factor	PS Recov	Comments
09:40	GN82522-STD1	1		STDA
09:55	GN82522-STD2	1		STDB
10:08	GN82522-STD3	1		STDC
10:26	GN82522-STD4	1		STDD
10:42	GN82522-STD5	1		STDE
10:58	GN82522-STD6	1		STDF
11:08	GN82522-STD7	1		STDG
09:21	GN82522-CRI1	1		
09:39	GN82522-HSTD1	1		
09:56	GN82522-ICV1	1		
10:23	GN82522-CCV1	1		
11:04	GP71119-MB1	1		
11:28	GP71119-B1	1		
11:44	TC27860-2	1		
11:59	TC27860-1	1		
12:14	TC27860-3	1		
12:33	TC27860-4	1		
12:45	TC27860-5	1		
13:01	TC27860-6	1		
13:19	TC27860-7	1		Multiple injections indicate possible sample non-homogeneity.
14:37	GN82522-CCV2	1		
14:49	GP71119-D1	1		
15:03	GP71119-S1	1		
15:16	GN82522-CCV3	1		
16:48	ZZZZZZ	1		
17:19	ZZZZZZ	1		
17:32	GN82522-CCV4	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: TC27860
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.
Project: CKALABR: CITGO Indian MARAIS

File ID: D30402S1.TXT Date Analyzed: 04/02/13 Methods: CORP ENG 81M/SW9060M
Run ID: GN82522 Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN82522-CRI1	Total Organic Carbon	1280	1000	420	1000	128.0	70-130
GN82522-HSTD1	Total Organic Carbon	50000	1000	420	50000	100.0	90-110
GN82522-ICV1	Total Organic Carbon	19900	1000	420	20000	99.5	90-110
GN82522-CCV1	Total Organic Carbon	25000	1000	420	25000	100.0	90-110
GN82522-CCV2	Total Organic Carbon	24900	1000	420	25000	99.6	90-110
GN82522-CCV3	Total Organic Carbon	25300	1000	420	25000	101.2	90-110
GN82522-CCV4	Total Organic Carbon	25300	1000	420	25000	101.2	90-110

(!) Outside of QC limits

□ulf Coast ACCUTEST LABORATORIES

General Chemistry

Raw Data

(Accutest New Jersey)

LABORATORY REVIEW SIGNATURE FORM
(To be stored with the raw data)

File ID: D30402S1.TXT
Analyst: VA

Date Analyzed: 04/02/13
Run ID: GN82522

Methods: CORP ENG 81M/SW9060M

The following analyst(s) have reviewd this run and attest that, to the best of their knowledge, this documentation is complete and correct:

Analyst: VA Date 4/2/13

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

The following supervisor or their designee has reviewed this run and attests that, to the best of their knowledge, this documentation is complete and correct:

Supervisor (or designee): _____ Date _____

C:\TOC-L\Data\d30402s1.toc.tlx

	Type	Sample Nam	Sample ID	Origin	Manual Diluti	Result	Status
1	Unknown	CRI		TOCSSMC	1.000	SSM-TC:0.1280mg/L	Completed
2	Unknown	HSTD		TOCSSMC	1.000	SSM-TC:4.998mg/L	Completed
3	Unknown	ICV		TOCSSMC	1.000	SSM-TC:1.988mg/L	Completed
4	Unknown	CCV		TOCSSMC	1.000	SSM-TC:2.503mg/L	Completed
5	Unknown	GP71119-M	TOC	TOCSSM.m	1.000	SSM-TC:0.03926mg/	Completed
6	Unknown	GP71119-B1		TOCSSM.m	1.000	SSM-TC:1.977mg/L	Completed
7	Unknown	TC27860-2		TOCSSM.m	1.000	SSM-TC:0.7643mg/L	Completed
8	Unknown	TC27860-1		TOCSSM.m	1.000	SSM-TC:0.2858mg/L	Completed
9	Unknown	TC27860-3		TOCSSM.m	1.000	SSM-TC:0.8777mg/L	Completed
10	Unknown	TC27860-4		TOCSSM.m	1.000	SSM-TC:0.9903mg/L	Completed
11	Unknown	TC27860-5		TOCSSM.m	1.000	SSM-TC:0.6539mg/L	Completed
12	Unknown	TC27860-6		TOCSSM.m	1.000	SSM-TC:1.442mg/L	Completed
13	Unknown	TC27860-7		TOCSSM.m	1.000	SSM-TC:1.021mg/L	Completed
14	Unknown	CCV		TOCSSMC	1.000	SSM-TC:2.490mg/L	Completed
15	Unknown	GP71119-D1	TC27860-2	TOCSSM.m	1.000	SSM-TC:0.7840mg/L	Completed
16	Unknown	GP71119-S1	TC27860-2	TOCSSM.m	1.000	SSM-TC:2.671mg/L	Completed
17	Unknown	CCV		TOCSSMC	1.000	SSM-TC:2.525mg/L	Completed

D30402S1. TOC
TOC

GN82522
VA 4/2/13

11.1
11

4/2/2013 3:22:17 PM

1/2

ACCUTEST.

Test: **Total Organic Carbon** Units = mg/kg
Product: **TOC** Balance ID: B-39
Method: **Corp. Eng. 81 M/SW846 9060 M or EPA Region 2 Lloyd Kahn** (circle one)
RDL = 1000 mg/kg or 100 mg/kg (circle one)

D3040251-TOC
GN Batch ID GN82522
Date 4/2/13
Analyst VA

Sample ID	Sample Weight	Bottle #	Sample Description & comments
CRI			
HSTD			
ICV			
CCV			
GP71119 -MB1	0.1000		
	0.1000		
GP71119 -B1	0.1000		
	0.1000		
TC27860-2	0.1080	1	
	0.1001		
	0.1029		
	0.1021		
TC27860-1	0.1039	1	
	0.1032		
	0.1068		
	0.1020		
TC27860-3	0.1080	1	
	0.1057		
	0.1052		
	0.1010		
TC27860-4	0.1075	1	
	0.1036		
	0.1009		
	0.1015		

nalyst: VA Date: 4/2/13 QCReviewer: Date:
lanager Review: Date:
omments:
MS+ BSP = 100 ul of 20,000 mg/L (Glucose) → 0.1g of Silica Sand TV= 2000 ml

Form: GN-058a

11.1 11

ACCUTEST LABORATORIES TC27860

ACCUTEST.

(2)

Test: **Total Organic Carbon** Units = mg/kg GN Batch ID GN82522
Product: TOC Balance ID: B-39 Date 4/2/13
Method: ~~Corp. Eng. 81 M/SW846 9060 M or~~ EPA Region 2 Lloyd Kahn (circle one)
RDL = 1000 mg/kg or 100 mg/kg (circle one) Analyst VA

Sample ID	Sample Weight	Bottle #	Sample Description & comments
TC27860-5	0.1035	1	
	0.1038		
	0.1054		
	0.1011		
TC27860-6	0.1046	1	
	0.1031		
	0.1015		
	0.1019		
TC27860-7	0.1075	1	
	0.1072		
	0.1023		
CCV	0.1085		
~~TC27860-8~~ VA 4/2/13			
GP71119-P1	0.1028	1	TC27860-2
	0.1020		
	0.1062		
	0.1078		
GP71119-S1	0.1055	1	TC27860-2 TV = 19286.
	0.1019		
	0.1060		
	0.1064.		

nalyst: VA Date: 4/2/13 QCReviewer: Date:
lanager Review: Date:
omments:

Form: GN-058a

11.1 11

ACCUTEST

Balance : B-39
Glass Pipet : Class A

GENERAL CHEMISTRY STANDARD PREPARATION LOG

Product: TOC

GN or GP Number: _____

Intermediate Standard Description	Stock used to prepare standard	Stock concentration	Stock volume used in ml	Diluent	Final Volume	Final Conc. of Intermediate (mg/l)	Expiration Date	Analyst	Date
GNE3-35701-TOC	Fisher 122976	Sucrose	47.5g	DI H_2O	100mL	200000	4/24/13	VA	4/2/13
GNE3-35702-TOC	Fisher 120315	Glucose	12.5g	↓	↓	50000	↓	↓	↓

Standard Description	Intermediate or Stock used to prepare standard	Intermediate or Stock concentration	Intermediate or Stock volume used in ml	Diluent	Final Volume	Final Conc. of Standard (mg/l)	Expiration Date	Analyst	Date
Sucrose STDs									
GNE3-35703-TOC	GNE3-35701-TOC	200000	0.5	DI H_2O	100mL	1000	4/24/13	VA	4/2/13
GNE3-35704-TOC	↓	↓	2.5	↓	↓	5000	↓	↓	↓
GNE3-35705-TOC			5.0			10000			
GNE3-35706-TOC			12.5			25000			
GNE3-35707-TOC			20.0			40000			
GNE3-35708-TOC			25.0			50000			
Glucose STDs									
GNE3-35709-TOC	GNE3-35702-TOC	50000	40.0	DI H_2O	100mL	20000	4/24/13	VA	4/2/13
GNE3-35710-TOC	↓	↓	50.0	↓	↓	25,000	↓	↓	↓

Form: GN121
Rev. Date:2/26/03

ACCUTEST LABORATORIES TC27860

ACCUTEST

Reagent Information Log - TOC - Soil

Reagent	Reagent # or Manufacturer/Lot
Sucrose Stock Solution, 200000 mg/L	GNE3-35701-TOC 4/24/13
Glucose Stock Solution, 50000 ug/L	GNE3-35702-TOC 4/24/13
Glucose Check Solution, 25000 ug/L	GNE3-35710-TOC 4/24/13
Nitric Acid, Reagent Grade	J.T. Baker K50030 2/7/17
Glucose ~~Stock~~ Check Solution, 20000 µg/L	GNE3-35709-TOC 4/24/13

All standards and stocks were made as described in the SOP for this method (circle one): Y or N
If no (N), see attached page for standards prep.

Form: GN-087 1-66
Rev. Date:4/26/01

11.1 11

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[redacted] Carbon pa e 6 of 18

TC27860

TOC-Control L Report

d30328s1.toc.tlx

Instr.Information

Instrument Options	TOC/SSM/Sparge Kit/
Catalyst	Regular Sensitivity

Cal. Curve

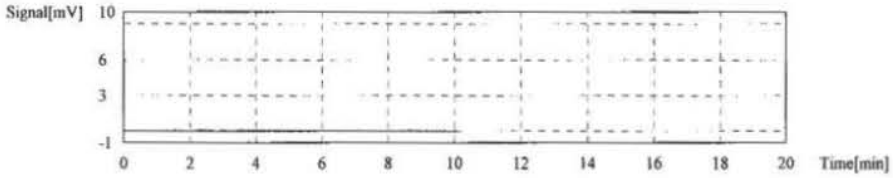
Sample Name:	Untitled
Sample ID:	Untitled
Cal. Curve:	d30328s1.2013_03_28_09_33_27.cal
Status	Completed

Standard	SSM-TC

AbsC: 0.000ug

1	0.000	0.000	0.000ug	100.0mg	*******	3/28/2013 9:40:50 AM
2	0.000	0.000	0.000ug	100.0mg	*******	3/28/2013 9:48:19 AM

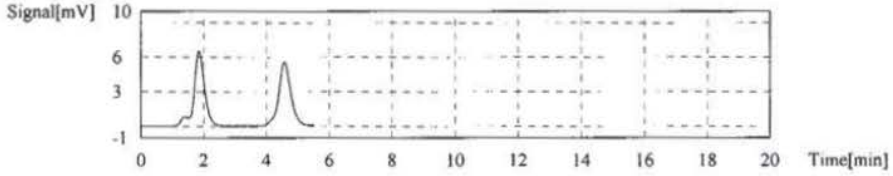
Mean Area 0.000
Mean CNV 0.000



AbsC: 0.01000ug

1	15.44	15.44	0.01000ug	100.0mg	*******	3/28/2013 9:55:30 AM
2	14.43	14.43	0.01000ug	100.0mg	*******	3/28/2013 10:02:06 AM

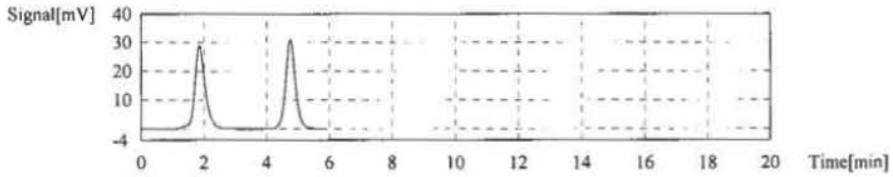
Mean Area 14.94
Mean CNV 14.94



AbsC: 0.05000ug

1	65.80	65.80	0.05000ug	100.0mg	*******	3/28/2013 10:08:20 AM
2	66.66	66.66	0.05000ug	100.0mg	*******	3/28/2013 10:12:58 AM

Mean Area 66.23
Mean CNV 66.23



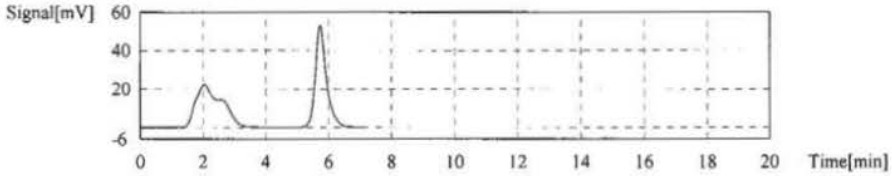
TOC-Control L Report

d30328s1.toc.tlx

AbsC: 0.1000ug

1	126.9	126.9	0.1000ug	100.0mg	*******	3/28/2013 10:26:33 AM
2	131.0	131.0	0.1000ug	100.0mg	*******	3/28/2013 10:31:50 AM

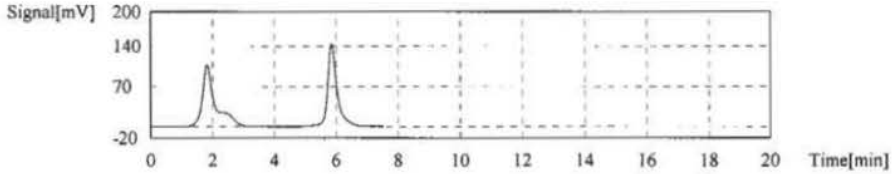
Mean Area 128.9
Mean CNV 128.9



AbsC: 0.2500ug

1	314.1	314.1	0.2500ug	100.0mg	*******	3/28/2013 10:42:13 AM
2	308.4	308.4	0.2500ug	100.0mg	*******	3/28/2013 10:50:30 AM

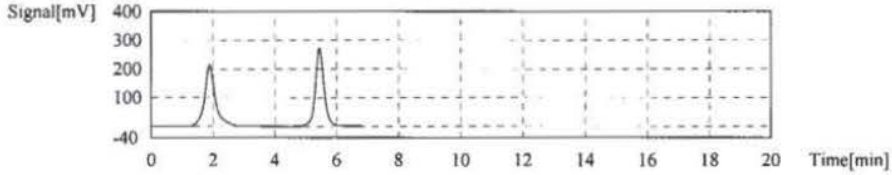
Mean Area 311.3
Mean CNV 311.3



AbsC: 0.4000ug

1	515.3	515.3	0.4000ug	100.0mg	*******	3/28/2013 10:58:11 AM
2	530.8	530.8	0.4000ug	100.0mg	*******	3/28/2013 11:02:41 AM

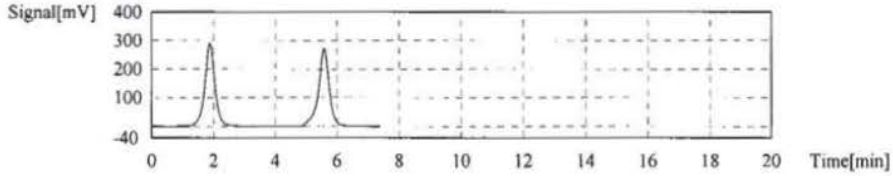
Mean Area 523.1
Mean CNV 523.1



AbsC: 0.5000ug

1	654.9	654.9	0.5000ug	100.0mg	*******	3/28/2013 11:08:47 AM
2	662.9	662.9	0.5000ug	100.0mg	*******	3/28/2013 11:17:34 AM

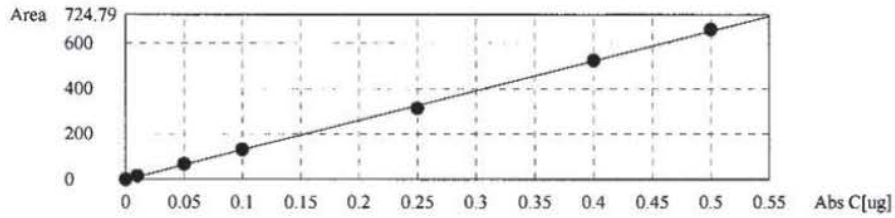
Mean Area 658.9
Mean CNV 658.9



TOC-Control L Report

d30328s1.toc.tlx

Slope:	1309
Intercept	-1.631
r^2	0.9994
r	0.9997
Zero Shift	No



TOC-Control L Report

d30402s1.toc.tlx

Instr.Information

Instrument Options	TOC/SSM/Sparge Kit/
Catalyst	Regular Sensitivity

Sample

Sample Name:	CRI
Sample ID:	
Origin:	TOCSSMCAL.met
Status	Completed
Chk. Result	

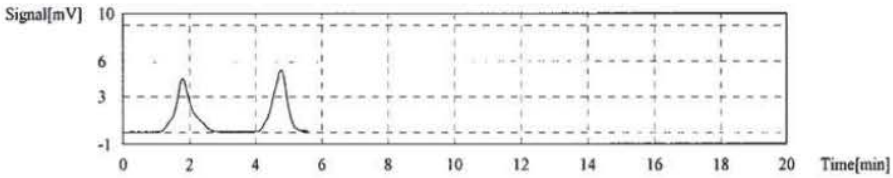
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.1280mg/L

1. Det

Anal.: SSM-TC

1	15.02	15.02	0.1272mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 9:21:11 AM
2	15.22	15.22	0.1287mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 9:28:51 AM

Mean Conc.	0.1280mg/L
CV Conc	0.84%



Sample

Sample Name:	HSTD
Sample ID:	
Origin:	TOCSSMCAL.met
Status	Completed
Chk. Result	

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:4.998mg/L

1. Det

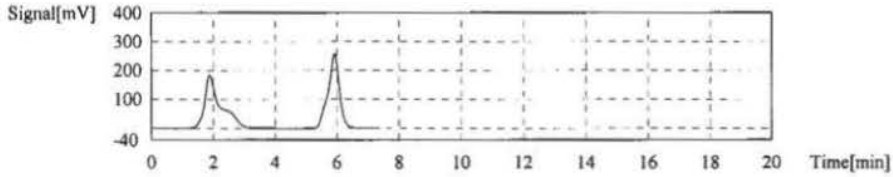
Anal.: SSM-TC

1	651.7	651.7	4.991mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 9:39:00 AM
2	653.6	653.6	5.006mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 9:44:08 AM

TOC-Control L Report

d30402s1.toc.tlx

Mean Conc. 4.998mg/L
CV Conc 0.21%



Sample

Sample Name: ICV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

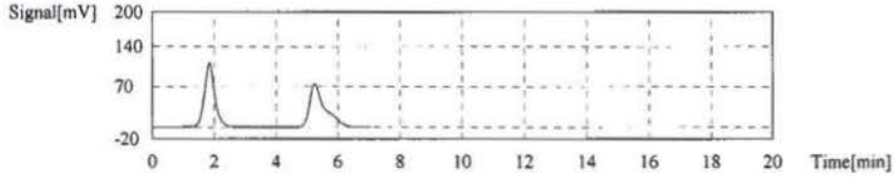
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:1.988mg/L

1. Det

Anal.: SSM-TC

1	259.1	259.1	1.992mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 9:56:59 AM
2	258.0	258.0	1.983mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 10:09:11 AM

Mean Conc. 1.988mg/L
CV Conc 0.30%



Sample

Sample Name: CCV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:2.503mg/L

1. Det

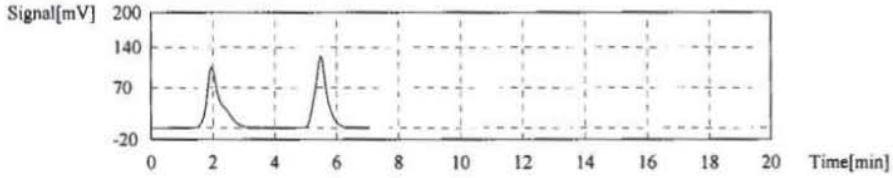
Anal.: SSM-TC

1	326.7	326.7	2.508mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 10:23:10 AM
2	325.3	325.3	2.498mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 10:31:39 AM

TOC-Control L Report

d30402s1.toc.tlx

Mean Conc. 2.503mg/L
CV Conc 0.30%



Sample

Sample Name: GP71119-MB1
Sample ID: TOC
Origin: TOCSSM.met
Status Completed
Chk. Result

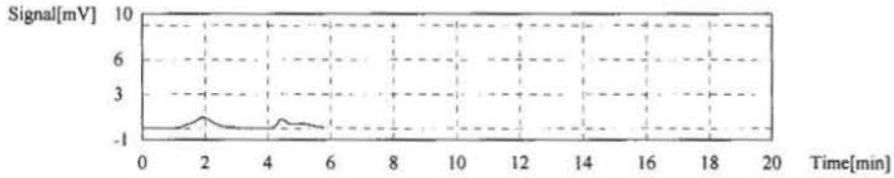
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:0.03926mg/L

1. Det

Anal.: SSM-TC

1	3.964	3.964	0.04275mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 11:04:05 AM
2	3.050	3.050	0.03576mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 11:15:05 AM

Mean Conc. 0.03926mg/L
CV Conc 12.58%



Sample

Sample Name: GP71119-B1
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:1.977mg/L

1. Det

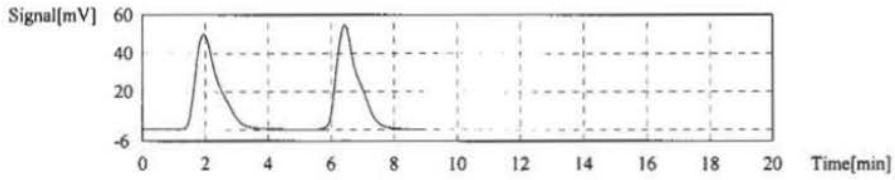
Anal.: SSM-TC

1	254.4	254.4	1.956mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 11:28:24 AM
2	259.9	259.9	1.998mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 11:34:34 AM

TOC-Control L Report

d30402s1.toc.tlx

Mean Conc. 1.977mg/L
CV Conc 1.50%



Sample

Sample Name: TC27860-2
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

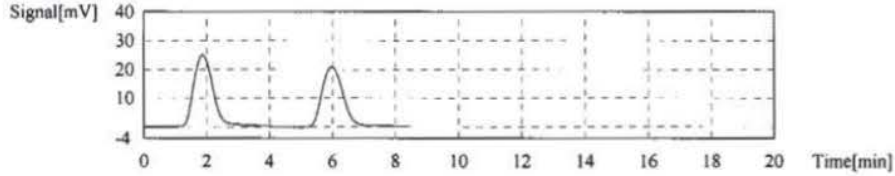
Unknown	SSM-TC		1.000	1.000mg/uL		SSM-TC:0.7643mg/L

1. Det

Anal.: SSM-TC

1	107.0	107.0	0.7684mg/L	108.0mg	108uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 11:44:33 AM
2	97.96	105.7	0.7601mg/L	100.1mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 11:50:29 AM

Mean Conc. 0.7643mg/L
CV Conc 0.77%



Sample

Sample Name: TC27860-1
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC		1.000	1.000mg/uL		SSM-TC:0.2858mg/L

1. Det

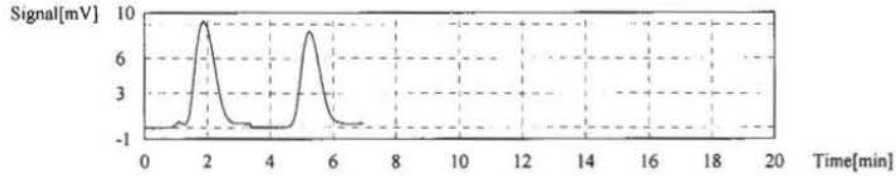
Anal.: SSM-TC

1	39.94	39.94	0.3057mg/L	103.9mg	103uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 11:59:39 AM
2	34.28	34.51	0.2658mg/L	103.2mg	103uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 12:06:17 PM

TOC-Control L Report

d30402s1.toc.tlx

Mean Conc. 0.2858mg/L
CV Conc 9.86%



Sample

Sample Name: TC27860-3
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

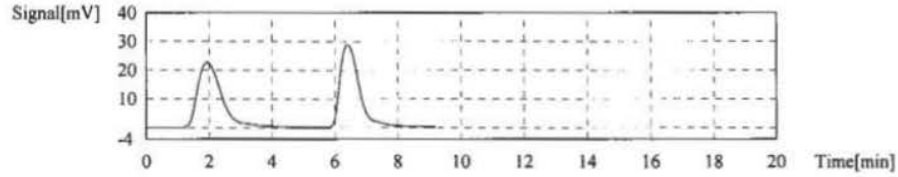
Unknown	SSM-TC		1.000	1.000mg/uL	SSM-TC:0.8777mg/L

1. Det

Anal.: SSM-TC

1	120.3	120.3	0.8625mg/L	108.0mg	108uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 12:14:48 PM
2	121.9	124.6	0.8928mg/L	105.7mg	105uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 12:25:34 PM

Mean Conc. 0.8777mg/L
CV Conc 2.44%



Sample

Sample Name: TC27860-4
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC		1.000	1.000mg/uL	SSM-TC:0.9903mg/L

1. Det

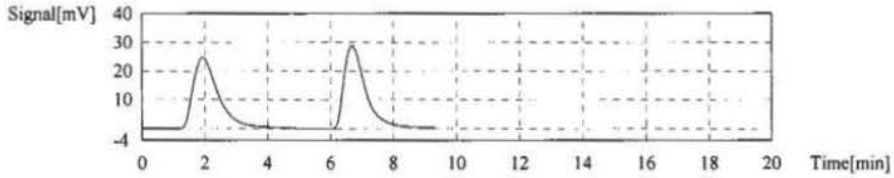
Anal.: SSM-TC

1	135.6	135.6	0.9753mg/L	107.5mg	107uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 12:33:29 PM
2	134.7	139.8	1.005mg/L	103.6mg	103uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 12:39:26 PM

TOC-Control L Report

d30402s1.toc.tlx

Mean Conc. 0.9903mg/L
CV Conc 2.15%



Sample

Sample Name: TC27860-5
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

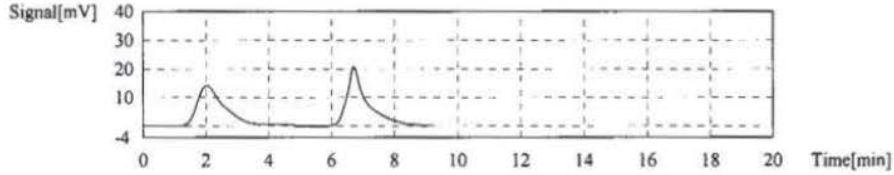
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC 0.6539mg/L

1. Det

Anal.: SSM-TC

1	82.80	82.80	0.6232mg/L	103.5mg	103uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 12:45:34 PM
2	91.37	91.11	0.6845mg/L	103.8mg	103uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 12:53:04 PM

Mean Conc. 0.6539mg/L
CV Conc 6.63%



Sample

Sample Name: TC27860-6
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC 1.442mg/L

1. Det

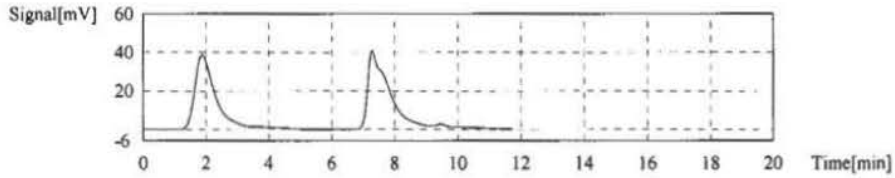
Anal.: SSM-TC

1	185.7	185.7	1.368mg/L	104.6mg	104uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 1:01:25 PM
2	202.9	205.9	1.516mg/L	103.1mg	103uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 1:10:21 PM

TOC-Control L Report

d30402s1.toc.tlx

Mean Conc. 1.442mg/L
CV Conc 7.23%



Sample

Sample Name: TC27860-7
Sample ID:
Origin: TOCSSM.met
Status Completed
Chk. Result

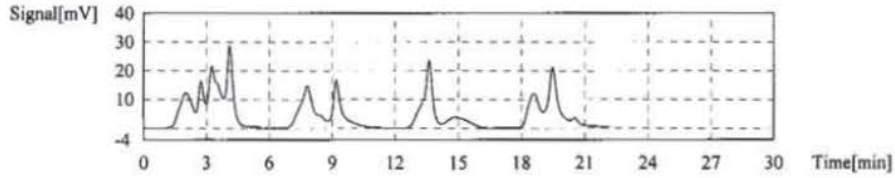
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:1.021mg/L

1. Det

Anal.: SSM-TC

1	220.9	220.9	1.581mg/L	107.5mg	107uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 1:19:17 PM
2	120.1	120.4	0.8675mg/L	107.2mg	107uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 1:26:31 PM
3	101.8	105.9	0.7649mg/L	103.3mg	103uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 2:22:16 PM
4	122.1	121.0	0.8712mg/L	108.5mg	108uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 2:29:45 PM

Mean Conc. 1.021mg/L
CV Conc 36.88%



Sample

Sample Name: CCV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:2.490mg/L

1. Det

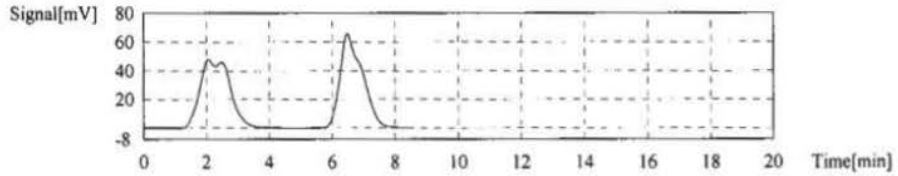
Anal.: SSM-TC

TOC-Control L Report

d30402s1.toc.tlx

1	322.2	322.2	2.474mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 2:37:27 PM
2	326.4	326.4	2.506mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 2:42:58 PM

Mean Conc. 2.490mg/L
CV Conc 0.91%



Sample

Sample Name: GP71119-D1
Sample ID: TC27860-2
Origin: TOCSSM.met
Status Completed
Chk. Result

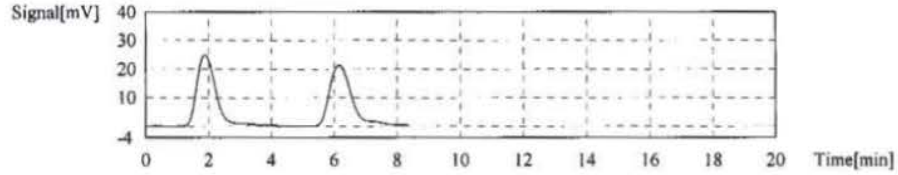
Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:0.7840mg/L

1. Det

Anal.: SSM-TC

1	103.0	103.0	0.7776mg/L	102.8mg	102uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 2:49:49 PM
2	103.9	104.7	0.7904mg/L	102.0mg	102uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 2:56:11 PM

Mean Conc. 0.7840mg/L
CV Conc 1.16%



Sample

Sample Name: GP71119-S1
Sample ID: TC27860-2
Origin: TOCSSM.met
Status Completed
Chk. Result

Unknown	SSM-TC	1.000	1.000mg/uL	SSM-TC:2.671mg/L

1. Det

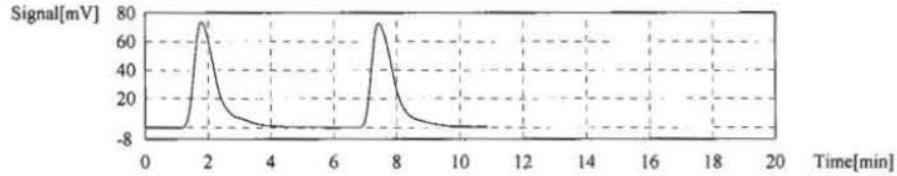
Anal.: SSM-TC

TOC-Control L Report

d30402s1.toc.tlx

1	362.8	362.8	2.639mg/L	105.5mg	105uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 3:03:05 PM
2	358.9	371.6	2.703mg/L	101.9mg	101uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 3:09:35 PM

Mean Conc. 2.671mg/L
CV Conc 1.69%



Sample

Sample Name: CCV
Sample ID:
Origin: TOCSSMCAL.met
Status Completed
Chk. Result

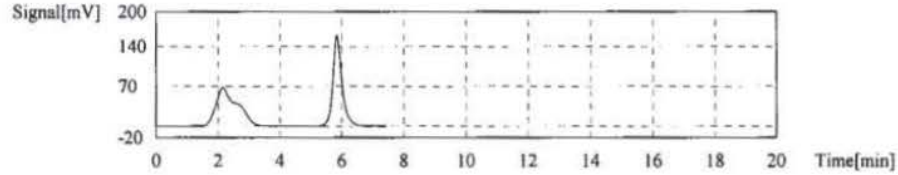
Unknown	SSM-TC	1.000	1.000mg/uL		SSM-TC:2.525mg/L

1. Det

Anal.: SSM-TC

1	326.9	326.9	2.510mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 3:16:34 PM
2	330.9	330.9	2.540mg/L	100.0mg	100uL	d30328s1.2013_03_28_09_33_27.cal	4/2/2013 3:22:11 PM

Mean Conc. 2.525mg/L
CV Conc 0.86%



APPENDIX C

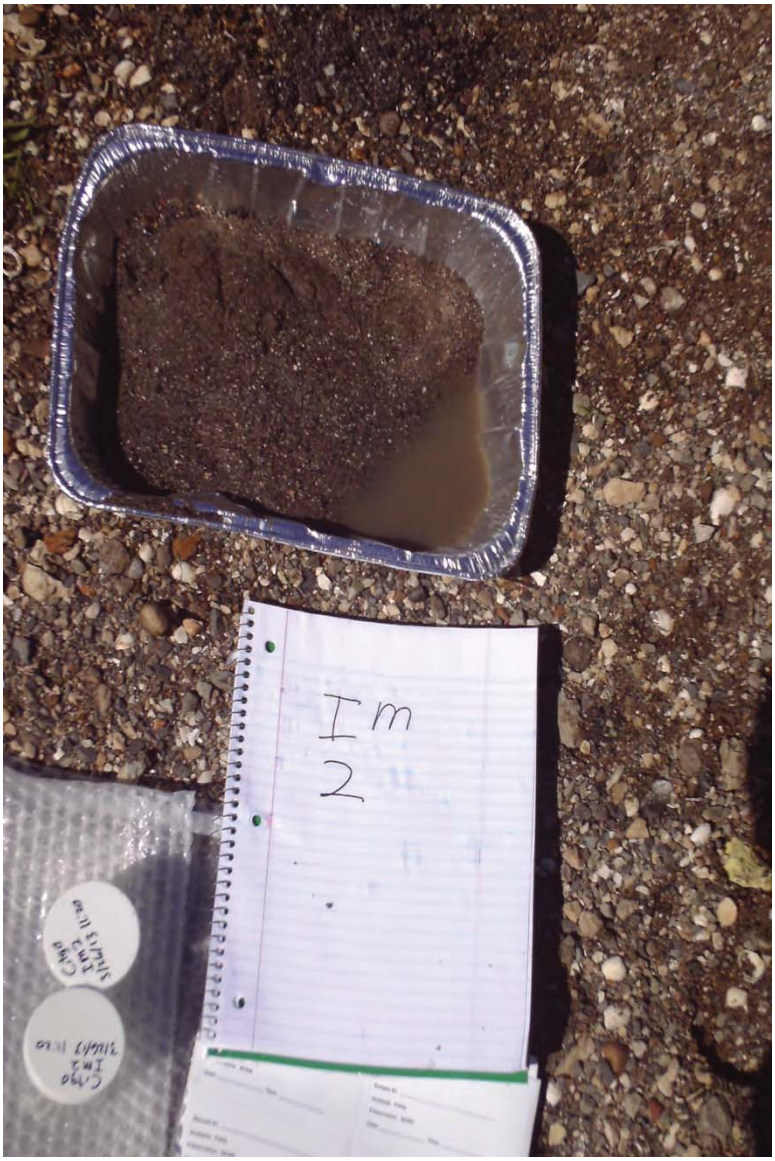
SAMPLING EVENT PHOTOGRAPHS

IM1 Sediment Sample

IM1 Sediment Sample
No observed sheen and no hydrocarbon odor

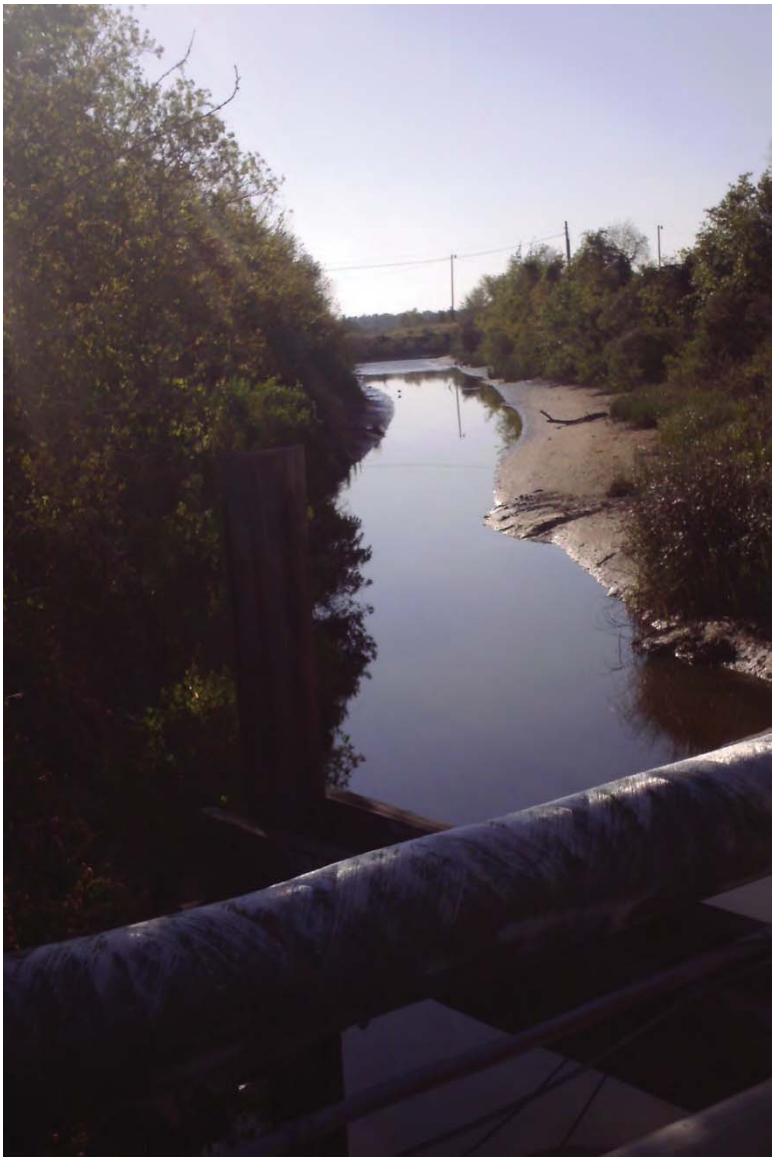
IM1 Glove Test
Indicated no hydrocarbon film

IM2 Sediment Sample Location
Looking downstream



IM2 Sediment Sample
No observed sheen and no hydrocarbon odor

IM2 Glove Test
Indicated no hydrocarbon film



IM3 Sediment Sampling Location
Looking downstream

IM3 Sediment Sample
No observed sheen and no hydrocarbon odor

IM4 Sediment Sample
No observed sheen and no hydrocarbon odor

IM4 Glove Test
Indicated no hydrocarbon film

IM5 Sediment Sample
No observed sheen and no hydrocarbon odor

IM5 Glove Test
Indicated no hydrocarbon film

IM6 Sediment Sample
No observed sheen and no hydrocarbon odor

IM6 Glove Test
Indicated no hydrocarbon film

APPENDIX D

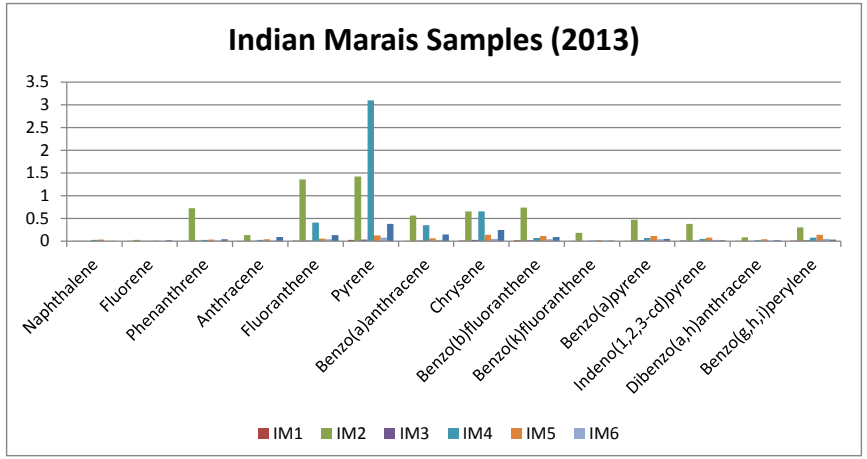
GRAPHICAL EVALUATION OF PAH DATA

Appendix D

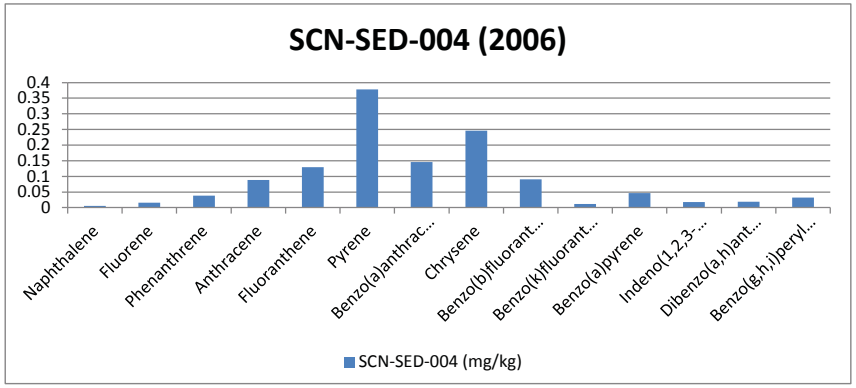
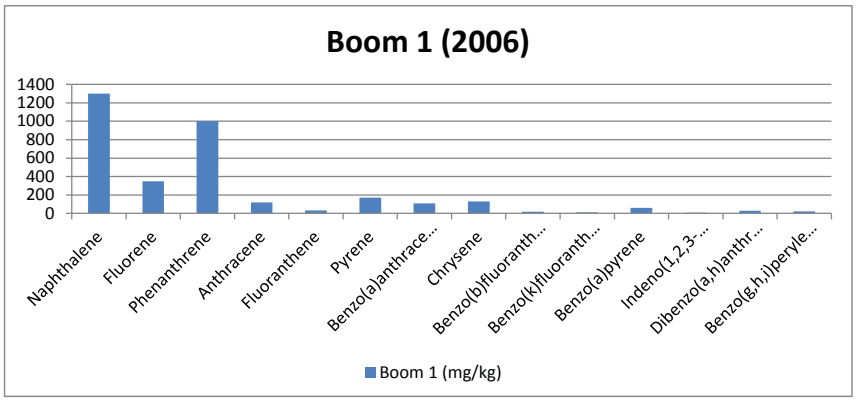
Graphical Evaluation of PAH Data

Name	IM1	IM2	IM3	IM4	IM4D	IM4D	IM5	IM6
Naphthalene	0.0065	0.0086	0.0055	0.0242	0.0324	0.0324	0.0352	0.0071
Fluorene	0.0065	0.0230	0.0029	0.0085	0.0090	0.0090	0.011	0.006
Phenanthrene	0.0048	**0.726**	0.0105	0.0248	0.0358	0.0358	0.0324	0.0148
Anthracene	0.0065	**0.130**	0.0040	0.0247	0.0192	0.0192	0.0431	0.0150
Fluoranthene	0.0155	**1.36**	0.0157	0.410	0.0595	0.0595	0.0519	0.0391
Pyrene	0.0238	**1.42**	0.0334	**3.10**	0.102	0.102	0.123	0.0736
Benzo(a)anthracene	0.0068	**0.565**	0.0117	**0.353**	0.0442	0.0442	0.0608	0.0258
Chrysene	0.0126	**0.655**	0.0236	**0.652**	0.0856	0.0856	0.137	0.0448
Benzo(b)fluoranthene	0.0219	0.740	0.0199	0.0690	0.0841	0.0841	0.109	0.0418
Benzo(k)fluoranthene	0.0065	0.184	0.0047	0.0151	0.0180	0.0180	0.0210	0.0097
Benzo(a)pyrene	0.0084	**0.469**	0.0170	0.0662	0.0864	0.0864	0.110	0.0435
Indeno(1,2,3-cd)pyrene	0.0104	**0.375**	0.0108	0.0446	0.0627	0.0627	**0.0761**	0.0290
Dibenzo(a,h)anthracene	0.0050	**0.0846**	0.0047	0.0218	0.0293	0.0293	0.0384	0.0120
Benzo(g,h,i)perylene	0.0096	0.299	0.0190	0.0774	0.108	0.108	0.142	0.0449

* all concentrations in milligrams/kilogram (mg/kg)



Name	SCN-SED-004 (mg/kg)
Naphthalene	0.0059
Fluorene	0.016
Phenanthrene	0.0385
Anthracene	0.0881
Fluoranthene	0.129
Pyrene	0.378
Benzo(a)anthracene	0.146
Chrysene	0.246
Benzo(b)fluoranthene	0.0905
Benzo(k)fluoranthene	0.0112
Benzo(a)pyrene	0.046
Indeno(1,2,3-cd)pyrene	0.0181
Dibenzo(a,h)anthracene	0.019
Benzo(g,h,i)perylene	0.0325



Name	Boom 1 (mg/kg)
Naphthalene	1300
Fluorene	350
Phenanthrene	1000
Anthracene	120
Fluoranthene	32
Pyrene	170
Benzo(a)anthracene	110
Chrysene	130
Benzo(b)fluoranthene	20
Benzo(k)fluoranthene	11
Benzo(a)pyrene	60
Indeno(1,2,3-cd)pyrene	10
Dibenzo(a,h)anthracene	30
Benzo(g,h,i)perylene	23