

First Quarter 2020
Groundwater Monitoring Report
Patchogue Former MGP Site
NYSDEC Site No. 1-52-182
Village of Patchogue, Suffolk County, New York

Prepared for
National Grid USA
Hicksville, New York
June 2020

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List of Abbreviations

BC	Brown and Caldwell Associates
BTEX	Benzene, toluene, ethylbenzene and isomers of xylene
CCR	Construction Completion Report
DUSR	Data Usability Summary Report
EDD	Electronic Data Deliverable
ELAP	Environmental Laboratory Approval Program
ISS	In-Situ Solidification
Lancaster	Eurofins Lancaster Laboratories Environmental
MGP	Manufactured Gas Plant
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MTBE	Methyl tertiary-butyl ether
NAPL	Non-Aqueous Phase Liquid
NYCRR	New York State Code of Rules and Regulations
NYSDEC	New York Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAHs	Polycyclic aromatic hydrocarbons
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
SIM	Selective Ion Monitoring
TOGS	Technical and Operational Guidance Series
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency

Section 1

Introduction

This Quarterly Groundwater Monitoring Report documents the implementation and summarizes the results of the groundwater monitoring activities conducted during the first quarter of 2020 at the Patchogue Former Manufactured Gas Plant (MGP) Site (hereinafter referred to as the “Site”). This monitoring event is the first to be conducted after completion of the implementation of the remedy in the fourth quarter 2019. The groundwater monitoring activities included the performance of water level measurements, non-aqueous phase liquid (NAPL) gauging and groundwater sampling activities.

The groundwater monitoring event and the preparation of this report are part of the long-term groundwater monitoring program being conducted at the Site in accordance with the “100% Remedial Design Report” (Brown and Caldwell Associates (BC), May 2019) as modified by subsequent email correspondence between National Grid and the New York State Department of Environmental Conservation (NYSDEC). Remedial construction activities were substantially completed in 2019. Restoration activities are scheduled to be completed in Spring 2020. This report has been prepared for submittal to the NYSDEC and includes the following:

- Description of the scope of the field activities, methods and procedures;
- Table summarizing the results of the water level measurements and the gauging for the presence of NAPL in the monitoring wells (Table 1);
- Table summarizing the analytical results for the groundwater samples obtained during the March 2020 monitoring event including a comparison to the applicable groundwater quality criteria (Table 2);
- Comparison of data from this monitoring period to data from historical monitoring events (Tables 3 and 4);
- Discussion of the results and findings from the groundwater monitoring data;
- A water table elevation contour map depicting the generalized direction of groundwater flow based on groundwater elevation data obtained from monitoring wells (Figure 1);
- Field Sampling Data Sheets (Appendix A);
- Laboratory Data Report (Appendix B);
- Data Validator Qualifications (Appendix C)
- Data Usability Summary Report (Appendix D);
- Electronic Data Deliverable (Appendix E); and
- Evaluation of Potential Impacts to River from Site Constituents in Groundwater (Appendix F).

1.1 Background

This report presents the results and findings associated with the March 2020 groundwater monitoring event, which is the first such event conducted following implementation of the Site remedy. Groundwater conditions prior to remedy implementation are documented and discussed in previous groundwater monitoring reports dating back to 2009 and in the “Final Remedial Investigation Report for the Patchogue Former MGP Site” (Tetra Tech EC, Inc., December 2009). Remedial construction activities, which included in-situ solidification (ISS) of MGP-related source materials and associated soils, were

performed during the period from June through December 2019. Final site restoration efforts are planned for Spring 2020. At the end of 2018, groundwater monitoring was suspended to allow for remedial construction activities. Several monitoring wells and piezometers were decommissioned prior to remedial construction activities to facilitate remedy implementation. These wells included MW-5, MW-6, MW-9S, MW-9D, and PZ-1A through PZ-4A. Each well/piezometer was decommissioned in accordance with NYSDEC's guidance document "CP-43: Groundwater Monitoring Well Decommissioning Policy". A description of the decommissioning activities as well as field inspection logs and well decommissioning records, will be provided under separate cover in the Construction Completion Report (CCR).

Prior to resumption of groundwater monitoring following remedial construction activities, five monitoring well couplets (MW-10S/D through MW-14S/D) were installed in January 2020 to facilitate performance of a long-term groundwater monitoring program at the Site. These additions to the well network were installed in accordance with the "100% Remedial Design Report" (BC, May 2019) and as modified by subsequent email correspondence between National Grid and the NYSDEC. These wells are supplemental to previously-installed wells MW-1, MW-3, MW-4S/D, MW-7S/D, and MW-8S/D, which serve as site perimeter monitoring locations. The newly installed well couplets are intended to more fully characterize post-remediation groundwater quality conditions at locations positioned around the ISS mass, and at locations between the ISS mass and the Patchogue River. The screens of the monitoring wells provide coverage across the vertical extent of the ISS mass. A description of the well installation activities and monitoring well construction logs for the newly installed couplets will be provided in the CCR.

Groundwater monitoring prior to remedy implementation was conducted on a semi-annual basis; however, the sampling frequency will be temporarily increased to quarterly to evaluate the effectiveness of the remedy for Calendar Years 2020 and possibly 2021, depending on the results. The post-remediation groundwater monitoring results will be assessed after the 2020 quarterly groundwater monitoring program to determine whether a reduction in sampling locations and/or sampling frequency is warranted.

Section 2

Scope of Work

Field activities for the first quarter 2020 groundwater monitoring were conducted by BC from March 17 through 19, 2020. The activities conducted during this monitoring event are described below. Locations of the monitoring wells and staff gauges referenced below are depicted on Figure 1.

Prior to groundwater sampling, water level measurements and NAPL gauging was performed in the monitoring wells associated with the Site. The level of the Patchogue River was measured during previous sampling events from surface water elevation control points (i.e., staff gauges SG-1 and SG-2) established in the river; however, both SG-1 and SG-2 were found to have been destroyed (polyvinyl chloride (PVC) stilling pipes detached from angle irons driven into stream bed). Accordingly, SG-1 and SG-2 were re-established in March 2020 by fastening new lengths of PVC stilling pipes to the angle irons. Depth to water measurements from the SG-1 and SG-2 were collected in March, yet these locations will need to be re-surveyed to determine the surface water elevation at these locations. Water level measurements and NAPL gauging were conducted using an electronic oil/water interface probe; measurements were made to the nearest 0.01 foot. At the locations where indications of potential MGP-related odors were noted (e.g., strong mothball-like odor), a 3-foot long threaded rod attached to a nylon mason line was lowered to the bottom of monitoring well to confirm that NAPL has not entered the well casing.

Groundwater sampling was conducted at 18 monitoring wells (previously-existing wells MW-1, MW-3, MW-4S, MW-4D, MW-7S, MW-7D, MW-8S, and MW-8D; and newly installed well couplets MW-10S/D through MW-14S/D) following the water level and NAPL gauging activities using low flow purging and sampling techniques in accordance with the United States Environmental Protection Agency (USEPA) protocol (USEPA, July 1996, Revised January 2010). Samples were submitted to Eurofins Lancaster Laboratories Environmental (Lancaster) located in Lancaster, Pennsylvania. Lancaster is certified (Certification No. 10670) through the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP).

The groundwater samples were analyzed for: benzene, toluene, ethylbenzene and isomers of xylene (BTEX) compounds and methyl tertiary-butyl ether (MTBE) using USEPA SW-846 Method 8260B, and polycyclic aromatic hydrocarbons (PAHs) using USEPA SW-846 Method 8270D. The selective ion monitoring (SIM) component of the 8270 analysis was also performed on the samples to obtain lower detection limits for certain PAH compounds. The groundwater samples were also analyzed in the field for pH, specific conductivity, temperature, turbidity, oxidation-reduction potential, and dissolved oxygen (see Appendix A for field data sheets).

The laboratory report from Lancaster is provided in Appendix B. Laboratory analytical data were provided to BC in electronic form by Lancaster and have been incorporated into the environmental database maintained by BC for the Site.

In addition to the samples described above, quality assurance/quality control (QA/QC) samples were also collected. The QA/QC samples included: trip blanks (one per cooler containing samples for BTEX and MTBE analysis), a field duplicate, and an equipment blank. Also, extra sample volume was collected from one location to provide for matrix spike/matrix spike duplicate (MS/MSD) analysis. The trip blank sample was analyzed for BTEX and MTBE only. The other QA/QC samples were analyzed for BTEX, MTBE, and PAHs.

The groundwater analytical data packages were validated by Kelly Donahue of BC. Ms. Donahue's qualifications and experience as a data validator are included in Appendix C. A Data Usability Summary Report (DUSR) was prepared for the groundwater data packages (see Appendix D). Overall, the analytical data for the groundwater monitoring were determined to be acceptable for the intended purposes and none of the data was rejected. As noted in the DUSR, some data were qualified as follows:

- The laboratory qualifier, E, indicates the concentration of the compound exceeded the calibration range. Laboratory qualification stands and is changed to a J, with a reason code E; and
- Several RPDs were outside control limits of 30% for analytes measured at concentrations more than 5X the detection limit in the field duplicate sample. Parent and duplicate concentrations are qualified as estimated, J, with reason code 8.

An Electronic Data Deliverable (EDD) of the validated analytical data, prepared in accordance with NYSDEC requirements, is provided in Appendix E.

Section 3

Results and Findings

3.1 Water Level Data

Table 1 provides the water level data and calculated water elevations from the March 2020 measurements. Figure 1 illustrates the elevation contours of the water table based on these data. The contours were developed using water level elevation data from the shallow monitoring wells (i.e., those with screens that straddle, or are just below, the water table). As discussed above in Section 2, the staff gauges in the Patchogue River were not re-surveyed at the time this report was prepared and thus, the elevation contours presented on Figure 1 do not depict the relationship between groundwater and surface water elevations at the Site. Subsequent monitoring reports will provide elevation data for both groundwater and surface water. For the newly installed shallow wells (MW-10S through MW-14S), depth to water measurements were made from ground surface and their elevation approximated using known surveyed ground surface elevation points rather than taken from a reference elevation such as the top of the PVC. The post-remediation groundwater monitoring wells were not surveyed at the time of the monitoring event, as the restoration activities associated with the remedy implementation had not been completed at the time this report was prepared. These restoration activities have been considered non-essential work during the COVID-19 pandemic which include final grading and conversion of wells from stick-up to flush-mounted surface completions. These wells will be surveyed once final restoration is completed. Thus, groundwater elevations posted on Figure 1 for the newly installed wells are considered approximate.

The water level elevations used for contouring are representative of water table elevations at the Site. The groundwater elevation (hydraulic head) values for the wells screened in deeper intervals are also posted for reference on Figure 1. The water table is relatively shallow and is typically positioned in the fill that overlies the native alluvial deposits and outwash deposits. The water table contours indicate that lateral groundwater flow is from the northwest to the south and southeast across the Site toward the Patchogue River.

3.2 NAPL Gauging

Table 1 presents the results of the NAPL gauging conducted in the monitoring wells associated with the Site during the March 2020 groundwater monitoring event. NAPL was not identified in any of the site monitoring wells during the March 2020 gauging activities.

3.3 Groundwater Quality Data

Table 2 provides the results of the laboratory analyses of the groundwater samples collected during the March 2020 monitoring event and a comparison of the data to the New York State Class GA groundwater quality criteria (i.e., New York State Code of Rules and Regulations (NYCRR) Part 703 groundwater standards for Class GA water (groundwater) or, for constituents with no standard, the corresponding guidance value from Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1). Comparisons of total BTEX and total PAH concentrations from this sampling event to previous sampling events are provided as Tables 3 and 4, respectively.

Groundwater samples were collected from 18 site monitoring wells (previously-existing wells MW-1, MW-3, MW-4S, MW-4D, MW-7S, MW-7D, MW-8S, and MW-8D; and newly installed well couplets MW-10S/D through MW-14S/D) in March 2020 and submitted to the laboratory for analysis. Constituent concentrations were detected above Class GA groundwater quality criteria in March 2020 samples at locations MW-3, MW-4S, MW-11S, and MW-13S for one or more of the following tested constituents: benzene, ethylbenzene, xylenes, acenaphthene and naphthalene. Each of these locations are proximal to the ISS mass. The presence in groundwater of these constituents, which are potentially indicative of MGP impacts, is an expected result of the short-term disturbance of the subsurface during implementation of the ISS. Prior to remediation, these constituents were either not detected or detected at concentrations below Class GA groundwater quality criteria in the wells that existed prior to remedy implementation. These concentrations are anticipated to decrease with time and will be evaluated during subsequent monitoring events. As described above in Section 3.1, groundwater flow is from the northwest to the south and southeast across the Site toward the Patchogue River. The concentrations of most of the constituents that were detected and potentially mobile in the dissolved phase (benzene, ethylbenzene, xylenes and naphthalene) were below applicable surface water quality criteria listed in the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004) that are applicable to the Patchogue River (the portion of the Patchogue River proximal to the Site is classified as a Class C water body per 6 NYCRR Part 897). Therefore, they do not have the potential to impact the river. However, the concentration of three potentially mobile constituents (acenaphthene, fluorene, and pyrene) were slightly above their respective applicable surface water quality criteria. Although it was not anticipated that these constituent concentrations would impact to surface water quality if they discharged to the river, an analysis was conducted to assess the potential for discharge of site-related constituents in shallow groundwater to impact water quality in the Patchogue River. The evaluation was conducted by estimating the rate at which a mass of site-related constituents dissolved in groundwater may be contributing to the surface water in the Patchogue River (i.e., the mass flux of constituents from groundwater to surface water). The details of this constituent mass flux analysis are presented in Appendix F; the results are summarized below.

The estimated concentrations of acenaphthene, fluorene and pyrene in the Patchogue River resulting from the discharge of site groundwater to the river was calculated using conservative assumptions that bias the estimates toward higher concentrations. The results of the mass flux evaluation, the estimated concentrations of acenaphthene, fluorene and pyrene in the Patchogue River adjacent to the Site during low-flow conditions are 0.0033 micrograms per liter ($\mu\text{g/L}$), 0.00050 $\mu\text{g/L}$ and 0.00127 $\mu\text{g/L}$, respectively (see Appendix F). These estimated concentrations are three orders of magnitude below the surface water standards and guidance values for these constituents. Based on the evaluation conducted, site-related constituents in shallow groundwater do not impact surface water quality in the Patchogue River.

MTBE was not detected at any of the 18 monitoring wells sampled during the March 2020 monitoring event. High molecular weight PAH compounds were detected in samples collected from monitoring wells MW-3, MW-10S, MW-10D, MW-11S, MW-11D, MW-12S, and MW-13S at low concentrations (i.e., at or slightly above the laboratory method detection limit), but above the Class GA groundwater quality criteria, during the March 2020 monitoring event. The PAH compounds that were identified in the groundwater samples from these sampling locations at concentrations above the Class GA groundwater quality criteria include one or more of the following six compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene. These PAH compounds have very low aqueous solubilities, are not readily mobile in groundwater, and are unlikely to have migrated from the on-site source area as a result of the short-term disturbance of the source materials during ISS implementation. The criteria that were exceeded for five of these six PAHs are unpromulgated guidance values rather than 6 NYCRR Part 703 standards. The criteria for the sixth PAH,

benzo(a)pyrene, is a Part 703 standard. The standard for benzo(a)pyrene is “non-detect” and the guidance value for the other four PAHs, 0.002 µg/L, is approximately an order of magnitude below the method detection limit. Therefore, any detection of these compounds in groundwater will result in an exceedance. The detection of these constituents in the monitoring locations is likely related to the disturbance of fine or colloid sized particles during purging or sampling activities. These particles are derived from within the well or the soil adjacent to the well that become suspended into the water column of the well as a result of disturbance during purging and sampling activities.

Section 4

Summary and Conclusions

Provided below is a summary of the findings and conclusions associated with the March 2020 groundwater monitoring event.

- NAPL was not identified in any of the site monitoring wells during the March 2020 gauging activities.
- MTBE was not detected in groundwater samples from the 18 monitoring wells sampled during the March 2020 monitoring event.
- Constituent concentrations above Class GA groundwater quality criteria were detected in March 2020 samples at four shallow well locations proximal to the ISS mass (MW-3, MW-4S, MW-11S, and MW-13S). The exceedances in the wells were for one or more of the following constituents: benzene, ethylbenzene, xylenes, acenaphthene and naphthalene. The presence of these likely MGP-related constituents is an expected result of the short-term disturbance of the subsurface during implementation of the ISS. These concentrations are anticipated to decrease with time and will be evaluated during subsequent monitoring events.
- The concentrations of mobile, dissolved phase Site-related constituents detected in groundwater at the Site do not have the potential to impact surface water quality in the Patchogue River based on an evaluation of the mass flux of constituents in groundwater to the river.
- Low concentrations of several high molecular weight PAHs were detected in samples from several wells at concentrations slightly above Class GA groundwater quality criteria; these PAHs have very low aqueous solubilities and are not considered representative of mobile dissolved-phase impacts associated with the former MGP.

Section 5

References

Brown and Caldwell Associates, May 2019, Remedial Design Report (100% Submission), Patchogue Former MGP Site, Village of Patchogue, Suffolk County, New York, Site ID No. 1-52-182.

Brown and Caldwell Associates, December 2012, Construction Completion Report Utility Corridor Work Plan Implementation, Patchogue Former MGP Site, Village of Patchogue, Suffolk County, New York, Site ID No. 1-52-182.

NYSDEC, CP-43: Groundwater Monitoring Well Decommissioning Policy, November 2009).

Tetra Tech EC, Inc, December 2009. Final Remedial Investigation Report for the Patchogue Former MGP Site, Patchogue, Suffolk County, New York.

USEPA, July 1996; Revised January 2010. Low-Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells.

Tables



TABLE 1
WATER ELEVATIONS AND NAPL MONITORING DATA
FIRST QUARTER 2020 GROUNDWATER MONITORING EVENT
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Location ID	Top of Casing Elevation	Approx. Ground Surface Elevation ⁽¹⁾	Depth to Water	Stick-up Length	Water Elevation	Depth to NAPL	Total Depth of Well	Remarks
	(ft., NAVD)	(ft., NAVD)	(ft., BTOC)	(feet)	(ft., NAVD)	(ft., BTOC)	(ft., BTOC)	
MW-1	11.47	NA	5.81	NA	5.66	NI	15.25	
MW-3	5.56	NA	1.93	NA	3.63	NI	10.08	Slight mothball-like odor observed upon removal of oil/water interface probe from well casing following gauging of well.
MW-4S	7.97	NA	4.98	NA	2.99	NI	12.25	Faint mothball-like odor observed upon removal of oil/water interface probe from well casing following gauging of well.
MW-4D	7.79	NA	4.75	NA	3.04	NI	26.65	
MW-7S	8.45	NA	4.72	NA	3.73	NI	12.70	Faint mothball-like odor observed upon removal of oil/water interface probe from well casing following gauging of well.
MW-7D	8.31	NA	4.70	NA	3.61	NI	28.54	
MW-8S	5.08	NA	0.76	NA	4.32	NI	9.90	
MW-8D	4.98	NA	0.70	NA	4.28	NI	25.10	
MW-10S	NA	6	3.80	2.39	4.59	NI	17.83	
MW-10D	NA	6	3.89	2.51	4.62	NI	28.21	
MW-11S	NA	5.7	3.70	2.71	4.71	NI	16.58	Slight to moderate mothball-like odor observed upon removal of oil/water interface probe from well casing following gauging of well.
MW-11D	NA	5.7	3.81	2.70	4.59	NI	26.40	
MW-12S	NA	5.5	4.11	2.60	3.99	NI	16.41	Moderate mothball-like odor observed upon removal of oil/water interface probe from well casing following gauging of well.
MW-12D	NA	5.5	4.16	2.76	4.10	NI	26.58	Slight mothball-like odor observed upon removal of oil/water interface probe from well casing following gauging of well.
MW-13S	NA	5.5	4.51	2.88	3.87	NI	15.90	Moderate mothball-like odor observed upon removal of oil/water interface probe from well casing following gauging of well.
MW-13D	NA	5.5	4.41	2.73	3.82	NI	26.81	Slight mothball-like odor observed upon removal of oil/water interface probe from well casing following gauging of well.

TABLE 1
WATER ELEVATIONS AND NAPL MONITORING DATA
FIRST QUARTER 2020 GROUNDWATER MONITORING EVENT
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Location ID	Top of Casing Elevation	Approx. Ground Surface Elevation ⁽¹⁾	Depth to Water	Stick-up Length	Water Elevation	Depth to NAPL	Total Depth of Well	Remarks
	(ft., NAVD)	(ft., NAVD)	(ft., BTOC)	(feet)	(ft., NAVD)	(ft., BTOC)	(ft., BTOC)	
MW-14S	NA	4.5	3.94	2.67	3.23	NI	15.57	
MW-14D	NA	4.5	3.96	2.52	3.06	NI	24.90	
SG-1	--	--	4.09	NA	--	--	NA	Re-established staff gauge, existing PVC stilling tube detached from angle iron driven into stream bed.
SG-2	--	--	3.75	NA	--	--	NA	Re-established staff gauge, existing PVC stilling tube detached from angle iron driven into stream bed.

Notes:

(1) - Reference elevations for wells MW-10S/D through MW-14S/D and the surface water elevation control points (staff gauges SG-1 and SG-2) have not been surveyed. Depth to water measurements were made from ground surface and the water elevation approximated using known surveyed ground surface elevations. The calculated water elevations for these locations are considered approximate.

NAVD - North American Vertical Datum 1988

ft. - Feet

BGS - Below Ground Surface

BTOC - Below Top of Casing

NA - Not Applicable

NI - NAPL not Indicated by Oil/Water Interface Probe

NM - Not measured

MW - monitoring well

SG - staff gauge

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
FIRST QUARTER 2020 SEMI-ANNUAL GROUNDWATER MONITORING EVENT
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Class GA Groundwater Criteria			Units	Loc ID	MW-1	MW-3	MW-4S	MW-4D	MW-7S	MW-7D	MW-8S	MW-8D	MW-10S	MW-10D	MW-11S	
TOGS 1.1.1	NYS Part 703	Guidance														Standard
Constituent				Date	3/17/2020	3/19/2020	3/18/2020	3/18/2020	3/18/2020	3/18/2020	3/18/2020	3/17/2020	3/17/2020	3/17/2020	3/17/2020	3/18/2020
Volatile Organic Compounds (VOCs)																
BTEX Compounds																
Benzene	NE	1	µg/L		0.20 U	2.0 J	3.0		0.20 U	0.40 J	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	2.0
Toluene	NE	5	µg/L		0.20 U	2.0 J	0.60 J		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Ethylbenzene	NE	5	µg/L		0.40 U	16	0.70 J		0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Xylenes, Total	NE	NE	µg/L		1.0 U	15 J	1.0 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 J
Total BTEX ^(a)	NE	NE	µg/L		ND	35	4.3		ND	0.4 J	ND	ND	ND	ND	ND	4.0
Other VOCs																
Methyl Tertiary Butyl Ether	10	NE	µg/L		0.2 U	1.0 U	0.20 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U
Semi-Volatile Organic Compounds (SVOCs)																
Polycyclic Aromatic Hydrocarbons (PAHs)																
Acenaphthene	20	NE	µg/L		0.01 U	5	12		0.01 J	0.08	0.01 U	0.09	0.01 U	0.01 U	0.01 U	56
Acenaphthylene	NE	NE	µg/L		0.01 U	0.70	0.01 U		0.02 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Anthracene	50	NE	µg/L		0.01 U	0.4	0.20		0.01 U	0.02 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	3.00
Benzo(a)anthracene	0.002	NE	µg/L		0.01 U	0.9	0.01 U		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 J	0.03 J	0.40
Benzo(a)pyrene	NE	0	µg/L		0.01 U	0.02 J	0.01 U		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.03 J	0.04 J	0.20
Benzo(b)fluoranthene	0.002	NE	µg/L		0.01 U	0.02 J	0.01 U		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.04 J	0.04 J	0.10
Benzo(g,h,i)perylene	NE	NE	µg/L		0.01 U	0.01 U	0.01 U		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 J	0.03 J	0.06
Benzo(k)fluoranthene	0.002	NE	µg/L		0.01 U	0.01 U	0.01 U		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 J	0.02 J	0.05
Chrysene	0.002	NE	µg/L		0.01 U	0.5	0.01 U		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.03 J	0.05 J	0.30
Dibenzo(a,h)anthracene	NE	NE	µg/L		0.02 U	0.02 U	0.02 U		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Fluoranthene	50	NE	µg/L		0.01 U	4.0	0.05 J		0.02 J	0.01 U	0.01 U	0.01 U	0.01 U	0.03 J	0.04 J	3.0
Fluorene	50	NE	µg/L		0.01 U	0.5	2.0		0.05 J	0.02 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	7.0
Indeno(1,2,3-cd)pyrene	0.002	NE	µg/L		0.01 U	0.01 U	0.01 U		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 J	0.04 J	0.06
Naphthalene	10	NE	µg/L		0.03 U	3	2.0		0.04 J	0.2	0.03 U	0.03 U	0.03 U	0.04 J	0.03 U	7.0
Phenanthrene	50	NE	µg/L		0.03 U	0.4	0.09		0.05 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	15
Pyrene	50	NE	µg/L		0.01 U	5.0	0.60		0.02 J	0.01 U	0.01 U	0.01 U	0.01 U	0.03 J	0.05 J	4.0
Total PAHs ^(b)	NE	NE	µg/L		ND	20.4 J	16.9 J		0.21 J	0.32 J	ND	0.09	ND	0.3 J	0.3 J	96

Notes:

BTEX - benzene, toluene, ethylbenzene and isomers of xylene.

U - The analyte was analyzed for, but was not detected above the sample reporting limit.

Value shown is representative of method detection limit for the analyzed constituent.

J - Estimated concentration. The result is below the reporting limit but above the method detection limit.

µg/L - micrograms per liter

ND - Not detected.

NE - Not established.

(a) - To calculate total BTEX concentration, a value of zero is used for non-detect values.

(b) - To calculate total PAH concentration, a value of zero is used for non-detect values.

Boxed concentrations are above New York State Class GA Groundwater Quality Criteria (Standards or Guidance values).

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
FIRST QUARTER 2020 SEMI-ANNUAL GROUNDWATER MONITORING EVENT
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Class GA Groundwater Criteria				Loc ID	MW-11D	MW-12S	MW-12S (Dup)	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D
Constituent	TOGS 1.1.1 Guidance	NYS Part 703 Standard	Units									
Volatile Organic Compounds (VOCs)												
BTEX Compounds												
Benzene	NE	1	µg/L		0.20 U	0.20 U	0.20 U	0.20 U	2.0 J	0.20 U	0.20 U	0.20 U
Toluene	NE	5	µg/L		0.20 U	0.20 U	0.20 U	0.20 U	2.0 J	0.20 U	0.20 U	0.20 U
Ethylbenzene	NE	5	µg/L		0.40 U	0.40 U	0.40 U	0.40 U	19	0.40 U	0.40 U	0.40 U
Xylenes, Total	NE	NE	µg/L		1.0 U	1.0 U	1.0 U	1.0 U	14 J	1.0 U	1.0 U	1.0 U
Total BTEX ^(a)	NE	NE	µg/L		ND	ND	ND	ND	37	ND	ND	ND
Other VOCs												
Methyl Tertiary Butyl Ether	10	NE	µg/L		0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U
Semi-Volatile Organic Compounds (SVOCs)												
Polycyclic Aromatic Hydrocarbons (PAHs)												
Acenaphthene	20	NE	µg/L		0.06	0.08	0.10	0.01 U	36	0.01 U	0.4	0.01 U
Acenaphthylene	NE	NE	µg/L		0.01 J	0.06 J	0.20 J	0.01 U	1.00	0.01 U	0.03 J	0.01 U
Anthracene	50	NE	µg/L		0.05	0.20 J	0.30 J	0.01 U	2.00	0.01 U	0.02 J	0.01 U
Benzo(a)anthracene	0.002	NE	µg/L		0.10	0.60 J	2.00 J	0.01 U	1.00	0.01 U	0.01 U	0.01 U
Benzo(a)pyrene	NE	0	µg/L		0.09	0.50 J	2.00 J	0.01 U	0.10	0.01 U	0.01 U	0.01 U
Benzo(b)fluoranthene	0.002	NE	µg/L		0.10	0.50 J	1.00 J	0.01 U	0.07	0.01 U	0.01 U	0.01 U
Benzo(g,h,i)perylene	NE	NE	µg/L		0.04 J	0.20 J	0.70 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(k)fluoranthene	0.002	NE	µg/L		0.05 J	0.20 J	0.50 J	0.01 U	0.04 J	0.01 U	0.01 U	0.01 U
Chrysene	0.002	NE	µg/L		0.10	0.50 J	1.00 J	0.01 U	0.90	0.01 U	0.01 U	0.01 U
Dibenzo(a,h)anthracene	NE	NE	µg/L		0.02 U	0.06 J	0.20 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Fluoranthene	50	NE	µg/L		0.20	0.8 J	2.0 J	0.01 U	6.0	0.01 U	0.01 U	0.01 J
Fluorene	50	NE	µg/L		0.05 J	0.08 J	0.20 J	0.01 U	7.0	0.01 U	0.01 U	0.01 U
Indeno(1,2,3-cd)pyrene	0.002	NE	µg/L		0.05	0.30 J	0.80 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Naphthalene	10	NE	µg/L		0.20	0.09	0.10	0.03 U	110	0.1	0.03 U	0.03 J
Phenanthrene	50	NE	µg/L		0.20	0.40 J	0.80 J	0.03 U	16	0.03 U	0.03 U	0.03 U
Pyrene	50	NE	µg/L		0.20	1.0 J	2.0 J	0.01 U	7.0	0.01 U	0.01 U	0.01 U
Total PAHs ^(b)	NE	NE	µg/L		1.5 J	5.6 J	13.9 J	ND	187 J	0.1	0.5 J	0.04 J

Notes:

BTEX - benzene, toluene, ethylbenzene and isomers of xylene.

U - The analyte was analyzed for, but was not detected above the sample reporting limit.

Value shown is representative of method detection limit for the analyzed constituent.

J - Estimated concentration. The result is below the reporting limit but above the method detection limit.

µg/L - micrograms per liter

ND - Not detected.

NE - Not established.

(a) - To calculate total BTEX concentration, a value of zero is used for non-detect values.

(b) - To calculate total PAH concentration, a value of zero is used for non-detect values.

Boxed concentrations are above New York State Class GA Groundwater Quality Criteria (Standards or Guidance values).

TABLE 3
SUMMARY OF HISTORICAL BTEX CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total BTEX Concentrations (µg/L) ^(a)													
	Monitoring Well													
	MW-1	MW-2S	MW-2D	MW-3	MW-4S	MW-4D	MW-5	MW-6	MW-7S	MW-7D	MW-8S	MW-8D	MW-9S	MW-9D
Mar-08	0	0	0	0	3.4	0	1016	57	NS	NS	NS	NS	NS	NS
Jul-08	NS	0	0	0	0	0	678	0	0	0	0	0	0	0
Mar-09	0	0	0	0	0	0	975	0	0	1	0	0	0	0
Sep-09	0	0	0	0	0	0	1257	1	0	0	0	0	0	0
Mar-10	0	0	0	0	0	0	637	2	0	9	0	0	0	0
Sep-10	0	0	0	0	0	0	NS	0	0	0	0	0	27	0
Jan-11	1.7	0	0	0	0	0	NS	NS	0	0	0	0	1	0
Apr-11	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
Aug-11	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
Nov-11	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
Feb-12	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
May-12	0	0	0	0	0	0	NS	NS	0	0	0	0	0	0
Nov-12	0	-- (b)	-- (a)	0	12	0	NS	NS	1	0	0	0	NS	NS
Jun-13	0	-- (b)	-- (b)	0	0.8	0	NS	NS	0.7	0	0	0	0	NS
Dec-13	0	-- (b)	-- (b)	NS	0	0	NS	NS	0.8	0	0	0	NS	NS
Jun-14	0	-- (b)	-- (b)	0	0	0	NS	NS	0.8	0	0	0	NS	NS
Dec-14	0	-- (b)	-- (b)	0	0	0	NS	NS	1.3	0	0	0	0	0
Jun-15	0	-- (b)	-- (b)	0	0	0	NS	NS	0	0	0	0	0	0
Dec-15	0	-- (b)	-- (b)	0	0	0	NS	NS	0.5	0	0	0	0	0
Jun-16	0	-- (b)	-- (b)	0	0	0	NS	NS	0	0	0	0	0	0
Dec-16	0	-- (b)	-- (b)	0	0	0	NS	NS	0	0	0	0	0	0
Jun-17	0	-- (b)	-- (b)	0	0	0	NS	NS	0	0	0	0	0	0
Dec-17	0	-- (b)	-- (b)	0	0	0	NS	NS	0	0	0	0	0	0
Jun-18	0	-- (b)	-- (b)	0	0	0	NS	0	0	0	0	0	0	0
Dec-18	0	-- (b)	-- (b)	0	0	0	NS	NS	0	0	0	0	0	0
Mar-20	0	-- (b)	-- (b)	35	4.3	0	-- (c)	-- (c)	0.4	0	0	0	-- (c)	-- (c)
Minimum	0	0	0	9	0	0	637	0	0	0	0	0	0	0
Maximum	1.7	0	0	35	12	0	1257	57	1.3	9	0	0	27	0
Mean	0.1	0	0	1.4	0.8	0	913	9	0.2	0.4	0	0	1	0

Notes:

BTEX - Benzene, toluene, ethylbenzene and isomers of xylene

µg/L - micrograms per liter

NS - Not sampled.

NI - Monitoring well or piezometer not installed at time of sampling.

(a) - To calculate total BTEX concentration, a value of zero is used for non-detect values.

(b) - Monitoring well was decommissioned on 6/4/12 as part of the Utility Corridor Construction activities. See "Construction Completion Report, Utility Corridor Work Plan Implementation" (BC, December 2012).

(c) - Monitoring well/piezometer was decommissioned on 6/13/19 as part of pre-remedial construction activities in accordance with the "Remedial Design Report (100% Submittal)" (BC, May 2019) and "CP-43: Groundwater Monitoring Well Decommissioning Policy" (NYSDEC, November 2009).

TABLE 3
SUMMARY OF HISTORICAL BTEX CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total BTEX Concentrations (µg/L) ^(a)										
	Monitoring Well/Piezometer										
	MW-10S	MW-10D	MW-11S	MW-11D	MW-12S	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D	PZ-4A
Mar-08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jul-08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Mar-09	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Sep-09	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Mar-10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Sep-10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jan-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Apr-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Aug-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Nov-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Feb-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
May-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Nov-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jun-13	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Dec-13	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jun-14	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	0
Dec-14	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-15	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-15	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-17	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-17	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Mar-20	0	0	4	0	0	0	37	0	0	0	-- ^(c)
Minimum	0	0	4	0	0	0	37	0	0	0	0
Maximum	0	0	4	0	0	0	37	0	0	0	0
Mean	0	0	4	0	0	0	37	0	0	0	0

Notes:

BTEX - Benzene, toluene, ethylbenzene and isomers of xylene

µg/L - micrograms per liter

NS - Not sampled.

NI - Monitoring well or piezometer not installed at time of sampling.

(a) - To calculate total BTEX concentration, a value of zero is used for non-detect values.

(b) - Monitoring well was decommissioned on 6/4/12 as part of the Utility Corridor Construction activities. See "Construction Completion Report, Utility Corridor Work Plan Implementation" (BC, December 2012).

(c) - Monitoring well/piezometer was decommissioned on 6/13/19 as part of pre-remedial construction activities in accordance with the "Remedial Design Report (100% Submittal)" (BC, May 2019) and "CP-43: Groundwater Monitoring Well Decommissioning Policy" (NYSDEC, November 2009).

TABLE 4
SUMMARY OF HISTORICAL PAH CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total PAH Concentrations (µg/L) ^(a)													
	Monitoring Well													
	MW-1	MW-2S	MW-2D	MW-3	MW-4S	MW-4D	MW-5	MW-6	MW-7S	MW-7D	MW-8S	MW-8D	MW-9S	MW-9D
Mar-08	0	0	0	0.76	0.6	4.3	1774	214	NS	NS	NS	NS	NS	NS
Jul-08	NS	0.7	0	0	8	0	1799	154	0	0.47	0	0	12	0
Mar-09	0	0	0	0	0	0	2730	0	0	0	0	0	0	0
Sep-09	0	0	0	0	0	0	3373	1	0	0	0	0	0	0
Mar-10	0	0	0	0	0	39	2390	17	0	0	22	0	2	0
Sep-10	0	0	0	128	0	6	NS	14	0	0	11	0	396	0
Jan-11	22	0	0	17	0	12	NS	NS	0	0	6	0	42	5
Apr-11	0	0	0	6	0	20	NS	NS	0	0	0	0	9	0
Aug-11	0	0	0.1	14	0.1	0	NS	NS	0	0	0.4	0	16	1.2
Nov-11	0	0	0.2	10	0.4	0	NS	NS	0	0	0.8	0.2	8	3.4
Feb-12	0.2	0	0	6	0.6	4	NS	NS	0.1	0	0.6	0	5	2.9
May-12	0.4	0.1	0.6	5	0	5.8	NS	NS	0.1	0.3	1	0	6	2.8
Nov-12	0.1	-- (b)	-- (b)	5.6	0.4	11.7	NS	NS	2.5	2.6	0.8	1.2	NS	NS
Jun-13	0.8	-- (b)	-- (b)	NS	0.3	3.7	NS	NS	1.3	0.4	0.4	0.6	2	NS
Dec-13	0	-- (b)	-- (b)	NS	0	2.5	NS	NS	0.8	0.4	0.3	0	NS	NS
Jun-14	0	-- (b)	-- (b)	2.2	0.9	0	NS	NS	0.8	0.3	0.2	0	NS	NS
Dec-14	0.1	-- (b)	-- (b)	1.2	0.4	0	NS	NS	3	0	0.1	0	21	0.3
Jun-15	0	-- (b)	-- (b)	1.1	0.9	0	NS	NS	0.9	0	0.3	0	10	0.3
Dec-15	0	-- (b)	-- (b)	0	0	0	NS	NS	0.9	0	0	0	3.9	0
Jun-16	0	-- (b)	-- (b)	1.9	0.8	0	NS	NS	2.5	0	0	0	5.9	0
Dec-16	0	-- (b)	-- (b)	0.02	0	0.1	NS	NS	0	0	0	0	5.5	0.07
Jun-17	0	-- (b)	-- (b)	2.0	0.5	0	NS	NS	1	0	0	0	3.2	0
Dec-17	0	-- (b)	-- (b)	0.53	0	0.031	NS	NS	0	0.11	0	0.017	6.0	0.14
Jun-18	0	-- (b)	-- (b)	3.1	1.1	0.010	NS	53	0.02	0.01	0.08	0.09	7.4	0.55
Dec-18	0.31	-- (b)	-- (b)	1.5	1.2	0.080	NS	NS	0.08	0.05	0.10	0.13	7.9	1.0
Mar-20	0	-- (b)	-- (b)	20	17	0.21	-- (c)	-- (c)	0.32	0	0.09	0	-- (c)	-- (c)
Min	0	0	0	0	0	0	1774	0	0	0	0	0	0	0
Max	22	0.7	0.6	128	17	39	3373	214	3	2.6	22	1.2	396	5
Mean	1.0	0.1	0.1	9	1.3	4	2413	65	0.6	0.2	1.8	0.1	27	0.9

Notes:

PAH - Polycyclic aromatic hydrocarbons

µg/L - micrograms per liter

NS - Not sampled.

NI - Monitoring Well or piezometer not installed at time of sampling.

(a) - To calculate total PAH concentration, a value of zero is used for non-detect values.

(b) - Monitoring well was decommissioned on 6/4/12 as part of the Utility Corridor Construction activities. See "Construction Completion Report, Utility Corridor Work Plan Implementation" (Brown and Caldwell, December 2012).

(c) - Monitoring well/piezometer was decommissioned on 6/13/19 as part of pre-remedial construction activities in accordance with the "Remedial Design Report (100% Submittal)" (BC, May 2019) and "CP-43: Groundwater Monitoring Well Decommissioning Policy" (NYSDEC, November 2009).

TABLE 4
SUMMARY OF HISTORICAL PAH CONCENTRATIONS
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

Sampling Date	Total PAH Concentrations (µg/L) ^(a)										
	Monitoring Well/ Piezometer										
	MW-10S	MW-10D	MW-11S	MW-11D	MW-12S	MW-12D	MW-13S	MW-13D	MW-14S	MW-14D	PZ-4A
Mar-08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jul-08	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Mar-09	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Sep-09	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Mar-10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Sep-10	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jan-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Apr-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Aug-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Nov-11	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Feb-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
May-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Nov-12	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jun-13	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Dec-13	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
Jun-14	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	0.3
Dec-14	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-15	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-15	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-16	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-17	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-17	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Jun-18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Dec-18	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NS
Mar-20	0.3	0.3	96	1.5	14	0	188	0.1	0.5	0.04	-- ^(c)
Min	0.3	0.3	96	1.5	14	0	188	0.1	0.5	0.04	0.3
Max	0.3	0.3	96	1.5	14	0	188	0.1	0.5	0.04	0.3
Mean	0.3	0.3	96	1.5	14	0	188	0.1	0.5	0.04	0.3

Notes:

PAH - Polycyclic aromatic hydrocarbons

µg/L - micrograms per liter

NS - Not sampled.

NI - Monitoring well or piezometer not installed at time of sampling.

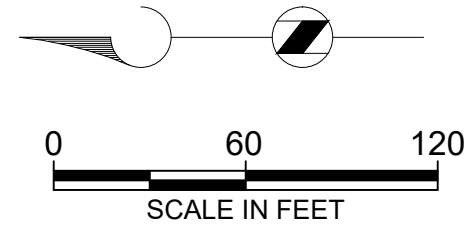
(a) - To calculate total PAH concentration, a value of zero is used for non-detect values.

(b) - Monitoring well was decommissioned on 6/4/12 as part of the Utility Corridor Construction activities. See "Construction Completion Report, Utility Corridor Work Plan Implementation" (Brown and Caldwell, December 2012).

(c) - Monitoring well/piezometer was decommissioned on 6/13/19 as part of pre-remedial construction activities in accordance with the "Remedial Design Report (100% Submittal)" (BC, May 2019) and "CP-43: Groundwater Monitoring Well Decommissioning Policy" (NYSDEC, November 2009).

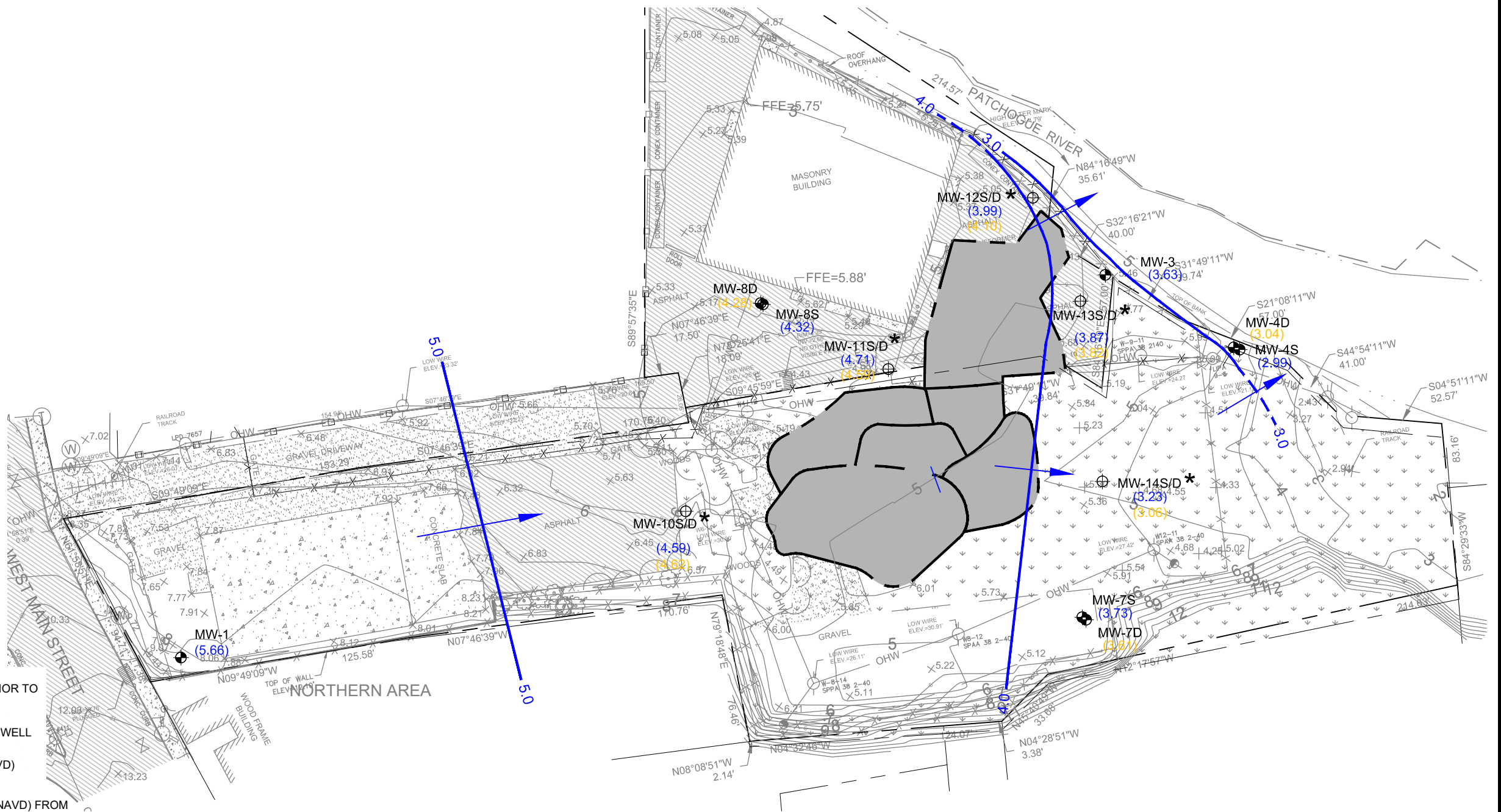
Figures





- LEGEND:
- PROPERTY LINE
 - x x FENCE
 - 10 TOPOGRAPHIC CONTOUR
 - ⊕ MONITORING WELL INSTALLED PRIOR TO REMEDIATION
 - ⊕ POST-REMEDIATION MONITORING WELL
 - 4 WATER TABLE CONTOUR (FT., NAVD)
DASHED WHERE INFERRED
 - (3.87) GROUNDWATER ELEVATION (FT., NAVD) FROM
SHALLOW MONITORING WELL (SCREENED ACROSS OR
CLOSE TO WATER TABLE)
 - (3.06) GROUNDWATER ELEVATION (FT., NAVD) FROM DEEP
MONITORING WELL (SCREENED BELOW WATER TABLE). VALUE
NOT USED FOR CONTOURING.
 - GENERALIZED DIRECTION OF GROUNDWATER FLOW
 - * HORIZONTAL LOCATION AND POSTED GROUNDWATER
ELEVATION DATA IS APPROXIMATE, AS SURVEYING OF WELLS
WILL BE PERFORMED FOLLOWING COMPLETION OF FINAL SITE
RESTORATION ACTIVITIES.

NOTES:
1. BASE MAP INFORMATION OBTAINED FROM TETRA
TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE
MODEL", DATED DECEMBER 17, 2008.



SCALE: 1" = 60'
153021
DATE: May 6, 2020

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

WATER TABLE ELEVATION CONTOUR MAP
MARCH 17, 2020

FIGURE
1

Appendix A: Field Sampling Data Sheets



NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Patchogue National Grid	Project Number:	153021
Client:	BC	Date:	03/17/20
Personnel:	AFV/MHM	Well ID:	MW-1
Purge/Sample Depth:	~125'	Sample ID:	MW-1-20200317

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1219	6.57	9.55	2.32	2.64	2.4	-51	6.00	125 ↓	
1222	6.10	9.52	2.76	1.71	2.3	-76	6.00		
1226	6.33	9.55	3.02	0.93	13.9	-103	6.00		
1238	6.39	9.23	3.08	0.76	8.7	-112	6.00		
1231	6.44	9.22	3.09	0.73	8.1	-112	6.00		
1234	6.48	9.26	3.09	0.70	8.1	-115	6.00		
1237	6.50	9.33	3.09	0.68	8.0	-119	6.00		
1240	6.53	9.38	3.09	0.63	7.8	-120	6.00		
1243	6.55	9.43	3.09	0.57	7.8	-122	6.00		
1246	6.56	9.45	3.08	0.57	8.3	-123	5.80		
1249	6.57	9.49	3.08	0.57	9.5	-124	5.80		
1252	Collected MW-1 - 20200317								
AFV 3/17/20									

Certified Sample Information:

Time of Sample:

Analyst Signature:

Instrument Data:

Manufacturer/Model:

Serial No. Unit:

Calibration Date/Time:

Serial No. Handheld:

UR DSGPwq

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-1
Sample I.D.: MW-1-20200317 (if different from well no.)

Project: Patchogue National Grid
Personnel: AW/MHM

Date: 03/17/20 Time: 1219
Weather: Rainy Air Temp.: 40°F

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 5.81 ft Bottom of Well: _____ ft
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☐ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☐ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 125 mL/min Elapsed Time: 30 min Volume Pumped: 1.25 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☒ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☒ Color: Yellow ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: AW Date: 3/17/20

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Palahogue National grid	Project Number:	153021
Client:	BY	Date:	03/17/20
Personnel:	MUM/AFV	Well ID:	Mw-105-2020-03-17-20 M/L/K
Purge/Sample Depth:	~14'	Sample ID:	Mw-105-2020-03-17

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1322	6.77	9.77	0.747	4.68	160	-72	2.46	250 ↓	
1325	6.78	9.86	0.643	1.09	120	-83	3.59		
1328	6.73	9.92	0.592	0.75	108	-88	3.61		
1331	6.73	9.99	0.586	0.65	98.1	-94	3.76		
1334	6.74	10.02	0.581	0.60	84.6	-94	3.77		
1337	6.82	10.01	0.590	0.55	85.5	-93	3.77		
1340	6.80	10.78	0.560	0.51	76.3	-96	3.77		
1343	6.75	10.76	0.586	0.51	74.6	-99	3.70		
1346	6.77	10.83	0.566	0.49	71.6	-103	3.68		
1349	6.77	10.82	0.583	0.48	66.9	-99	3.44		
1352	6.74	10.72	0.584	0.47	62.7	-100	3.51		
1355	Collect					MW-103-20	200517		
MM									

Certified Sample Information:

Time of Sample: 1353

Analyst Signature:

Instrument Data:

Manufacturer/Model: Hofiba-457

Serial No. Unit: TKARTEB

Calibration Date/Time: 03/17/20

Serial No. Handheld: 42056467

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: Mw-105
Sample I.D.: Mw-105-20200315 (if different from well no.)

Project: Patchogue National gfm
Personnel: MMH/AFV

Date: 03/17/20 Time: 1322
Weather: RAINY Air Temp.: _____

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☐ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2 ☐ Stainless Steel ☐ Galv. Steel ☐ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 3.80 ft Bottom of Well: _____ ft
DATUM: ☒ Top of Protective Casing ☐ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 250 ml/min Elapsed Time: 30 min Volume Pumped: 2.5 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☒ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☒ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☐ Yes ☐ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____ Date: 03/17/20

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Patchogue National Grid	Project Number:	153021
Client:	BC	Date:	05/17/20
Personnel:	MHM/AFV	Well ID:	MW-100
Purge/Sample Depth:	~26'	Sample ID:	MW-100-20200517

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1404	7.32	11.09	0.398	3.13	401	-133	3.82	300	
1407	7.25	11.82	0.396	1.00	266	-60	3.83		
1409	7.25	11.89	0.404	0.89	220	-44	3.84		
1413	7.25	11.40	0.402	0.93	180	-33	3.84		
1416	7.25	11.91	0.398	0.95	154	-18	3.85		
1419	7.25	11.96	0.395	0.97	109	-16	3.87		
1422	7.25	11.90	0.393	1.01	93.9	-15	3.89		
1425	7.32	11.94	0.393	1.05	69.8	-4	3.90		
1428	7.39	11.94	0.390	1.02	49.3	3	3.90		
1431	7.40	11.93	0.387	1.05	29.7	7	3.90		
1434	7.35	11.96	0.388	1.06	35.1	10	3.90		
1437		ML	10.0	2.20	31.7				

Analyst Signature:

TKWBJTCB

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: Mw-100
Sample I.D.: Mw-100-20200317 (if different from well no.)

Project: Patchogue National Grid
Personnel: MHM / AFV

Date: 03/17/20 Time: 1407
Weather: Sunny Air Temp.: 40°F

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☐ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 3.89 ft Bottom of Well: _____ ft
DATUM: ☒ Top of Protective Casing ☐ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 300 ml/min Elapsed Time: 30 min Volume Pumped: 30 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel
Tubing/Rope: ☐ Teflon® ☒ Polyethylene
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [Signature] Date: 03/17/20

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: Patchogue Neck and Gnd
Client: BC
Personnel: MHA/DAV
Purge/Sample Depth: ~7

Project Number: 153021
Date: 03/17/20
Well ID: Mh-BS
Sample ID: Mh-BS 2020 0517

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1453	7.14	10.14	0.501	3.32	11.7	-30	0.8	306 ↓ ✓	
1456	6.44	10.27	0.551	0.67	29.1	-48	0.8		
1459	6.68	10.26	0.558	0.46	16.7	-61	0.8		
1502	6.57	10.31	0.580	0.521	12.7	-64	0.8		
1506	6.58	10.31	0.583	0.46	9.4	-69	0.8		
1508	6.58	10.32	0.583	0.43	8.4	-69	0.8		
1511	6.51	10.34	0.583	0.40	3.4	-69	0.8		
1514	6.62	10.43	0.585	0.39	3.1	-70	0.8		
1517	6.57	10.45	0.584	0.40	4.8	-72	0.8		
1520	6.56	10.43	0.586	0.40	4.6	-74	0.8		
1523	6.57	10.43	0.582	0.40	5.0	-74	0.8		
1526	Collect Mwr BS-20200317								
MAH/MA									

Certified Sample Information:

Time of Sample: 1526

Analyst Signature:

Instrument Data:

Manufacturer/Model: MONITOR - 402

Serial No. Unit: ~~47K, RAS-FCB~~

Calibration Date/Time: 8/31/2020

Serial No. Handheld:

~~4RDS6W1~~
4RDS6PW

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-10A MW-8S

Sample I.D.: MW-10A MW-8S-20200317

(if different from well no.)

Project: Patchogue National Grid
Personnel: MUM /AFU

Date: 03/17/20

Time: 1453

Weather: Sunny

Air Temp.: 40°F

WELL DATA:

Casing Diameter: 8"

☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____

Intake Diameter: 2"

☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock

DEPTH TO: Static Water Level: 301.05-76 Bottom of Well: _____ ft

DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____

CONDITION: Is Well clearly labeled? ☐ Yes ☒ No Is well clean to bottom? ☐ Yes ☒ No

Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☐ Yes ☒ No

Does Weep Hole adequately drain well head? ☒ Yes ☐ No

Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No

Is Padlock Functional? ☐ Yes ☒ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No

Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD:

☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon®
☒ Stainless Steel
☐ PVC
☐ Other: _____

Tubing/Rope: ☐ Teflon®
☒ Polyethylene
☐ Polypropylene
☐ Other: _____

Pumping Rate: 300 mL/min Elapsed Time: 30 min Volume Pumped: 30.9 gal

Was well Evacuated? ☐ Yes ☒ No

Number of Well Volumes Removed: _____

PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon®
☒ Stainless Steel

Tubing/Rope: ☐ Teflon®
☒ Polyethylene

SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

Metals samples field filtered? ☐ Yes ☒ No Method: _____

APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid

FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____

MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____

Date: 03/17/20

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 238-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Patchogue National ER12	Project Number:	153021
Client:	BY	Date:	03/17/20
Personnel:	MHM / AFV	Well ID:	MW-8B
Purge/Sample Depth:	~21	Sample ID:	MW-8B-20206317

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1534	6.53	11.50	0.398	2.01	27.8	33	0.69	300 ↓ ✓	
1537	6.11	12.25	0.395	0.74	17.9	90	0.69		
1540	5.97	12.41	0.392	0.67	14.1	103	0.69		
1543	5.81	12.48	0.393	0.63	8.5	122	0.69		
1546	5.77	12.51	0.399	0.56	6.1	122	0.69		
1549	5.73	12.62	0.409	0.52	3.3	144	0.69		
1552	5.71	12.66	0.416	0.50	2.8	147	0.69		
1555	5.74	12.69	0.417	0.48	1.8	161	0.69		
1558	5.81	12.71	0.421	0.48	1.6	163	0.69		
1601	5.77	12.74	0.422	0.46	0.9	163	0.69		
1604	5.83	12.77	0.424	0.46	1.0	173	0.69		
1607	collect Mw-8D-2020 0317								

Certified Sample Information:

Time of Sample: 1607

Analyst Signature:

Instrument Data:

Manufacturer/Model: Horiba - 452

Serial No. Unit: TKUAB5TLB

Calibration Date/Time: 03/17/20

Serial No. Handheld: 4RDS6W9

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-8A
Sample I.D.: MW-8A-20200317 (if different from well no.)

Project: Patchogue National Grid
Personnel: MMH/AFV

Date: 03/17/20 Time: 1530
Weather: cloudy Air Temp.: 40°F

WELL DATA:

Casing Diameter: 8" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 0.70 ft Bottom of Well: _____ ft
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☐ Yes ☒ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☐ Yes ☐ No ☒ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☐ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 300 mL/min Elapsed Time: 30 min Volume Pumped: 30 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [Signature] Date: 03/17/20

Brown AND Caldwell2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: <u>PALCHOGUE</u>	Project Number: <u>153021</u>
Client: <u>RC</u>	Date: <u>05/18/2020</u>
Personnel: <u>MUK/APV</u>	Well ID: <u>MW-115</u>
Purge/Sample Depth: <u>~11'</u>	Sample ID: <u>MW-115-20200518</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
0405	5.77	9.09	0.611	3.61	12.4	-48	2.90	200 ↓	
0408	6.47	9.10	0.624	1.66	208	-113	3.90		
0411	6.52	9.12	0.624	1.55	186	-118	3.90		
0414	6.55	9.13	0.627	1.41	158	-122	3.90		
0417	6.59	9.14	0.637	1.16	128	-127	3.90		
0420	6.59	9.14	0.637	1.07	127	-128	3.90		
0423	6.60	9.16	0.635	0.95	91.7	-131	3.90		
0426	6.60	9.17	0.636	0.74	62.1	-131	3.90		
0429	6.61	9.20	0.638	0.68	50.1	-130	3.90		
0432	6.57	9.23	0.635	0.74	40.6	-133	3.90		
0435	6.61	9.25	0.633	0.61	29.7	-134	3.90		
0438	Collect				MW-115-20200318				
4/4/22									

Certified Sample Information:

Time of Sample: 0438Analyst Signature: [Signature]

Instrument Data:

Manufacturer/Model: Horiba - U52Serial No. Unit: TKU-B5JTCBSerial No. Handheld: URDS6w7Calibration Date/Time: 03/18/20 @ 0900URDS6Pw9Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-115
Sample I.D.: MW-115-20200318 (if different from well no.)

Project: Patchogue
Personnel: MHW / ARV

Date: 03/18/20 Time: 0905
Weather: Sunny Air Temp.: 46

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 3.76 ft Bottom of Well: _____ ft
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☐ Yes ☐ No
Does Weep Hole adequately drain well head? ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 200 mL/min Elapsed Time: 30 min Volume Pumped: 2.0 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: MW-115-20200318 (MS/MSD) MHW

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____ Date: 03/18/20

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: <u>PAtechogine</u>	Project Number: <u>153021</u>
Client: <u>ASC</u>	Date: <u>03/18/2020</u>
Personnel: <u>MLW/AFV</u>	Well ID: <u>MLW-110</u>
Purge/Sample Depth: <u>~21'</u>	Sample ID: <u>MLW-110-20200318</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
0452	6.57	10.46	0.451	0.93	265	-80	3.88	250 ↓	
0455	6.48	11.52	0.444	0.56	265	-76	3.88		
0458	6.47	11.75	0.448	0.50	199	-65	3.88		
1001	6.52	11.85	0.543	0.47	169	-69	3.88		
1004	6.52	11.87	0.453	0.47	154	-68	3.88		
1007	6.50	11.95	0.457	0.47	131	-70	3.88		
1010	6.47	12.00	0.461	0.47	117	-72	3.88		
1013	6.52	12.04	0.466	0.48	105	-77	3.89		
1016	6.53	12.09	0.467	0.47	92.6	-78	3.89		
1019	6.51	12.13	0.468	0.48	84.1	-79	3.88		
1022	6.52	12.20	0.472	0.65	77.1	-81	3.88		
1025		Collect	M.W.	110-20	200518				
~~RA/HA~~									

Certified Sample Information;

Time of Sample: 1025

Analyst Signature:

Instrument Data:

Manufacturer/Model: Florian - kb2

Serial No. Unit: TK-02-TCB

Calibration Date/Time: 03/18/2012 @ 0700

Serial No. Handheld: 412056PW9

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-11D
Sample I.D.: MW-11D - 20000313 (if different from well no.)

Project: PATCHUGU
Personnel: MUM /AFV

Date: 03/18/20 Time: 0952
Weather: 64MM Air Temp.: 40

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 384 ft Bottom of Well: _____ ft
DATUM: ☒ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 250ml/min Elapsed Time: 20 min Volume Pumped: 2.5 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [Signature] Date: 03/18/20

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Patchogue	Project Number:	153026
Client:	BC	Date:	03/18/20
Personnel:	M. Han / AFV	Well ID:	MW-75
Purge/Sample Depth:	~9'	Sample ID:	MW-75-20200318

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
11 01	6.65	11.57	0.612	1.37	66.3	-153	4.65	250 ↓	
11 10	6.87	9.44	0.640	0.51	76.4	-182	4.83		
11 13	6.96	9.15	0.640	0.43	57.0	-188	4.81		
11 16	7.01	9.09	0.642	0.40	38.8	-186	4.80		
11 19	7.03	9.65	0.644	0.40	32.2	-187	4.62		
11 22	7.04	9.07	0.645	0.39	32.7	-189	4.61		
11 25	7.05	9.05	0.645	0.38	30.9	-187	4.60		
11 28	7.07	9.03	0.645	0.38	29.6	-189	4.60		
11 31	7.06	9.07	0.646	0.37	29.6	-187	4.61		
11 34	7.07	9.04	0.646	0.37	21.4	-188	4.60		
11 37	7.08	9.05	0.646	0.38	15.6	-188	4.60		
11 40		Collect	MW-75-2020			319			
			</						

Certified Sample Information:

Time of Sample: 11/10

Analyst Signature:

Instrument Data:

Manufacturer/Model: Horizon - 452

Serial No. Unit: FLUOR 510

Serial No. Handheld:

Calibration Date/Time: 02/18/20 @

TKuβ5TCB

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-73

Sample I.D.: MW-73-20206 (if different from well no.)

Project: PASchague
Personnel: MHM/AFV

Date: 03/18/20 Time: 1107
Weather: Sunny Air Temp.: 40°F

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____

Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☐ PVC ☐ Teflon® ☐ Open rock

DEPTH TO: Static Water Level: 4.68 ft Bottom of Well: _____ ft

DATUM: ☒ Top of Protective Casing ☐ Top of Well Casing ☐ Other: _____

CONDITION: Is Well clearly labeled? ☐ Yes ☒ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☐ Yes ☒ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____

Pumping Rate: 250 ml/min Elapsed Time: 30 min Volume Pumped: 25 gal
Was well Evacuated? ☐ Yes ☐ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____

SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____

APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid

FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____ Date: 03/18/20

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	PALCHAGUE	Project Number:	153021
Client:	PLC	Date:	03/19
Personnel:	MHM/AFV	Well ID:	Mu-70-20200319
Purge/Sample Depth:	~23'	Sample ID:	Mu-70-20200319

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
12:30	6.48	12.00	0.386	5.32	15.4	51	4.39	250 ↓ ✓	
12:33	6.04	11.72	0.402	1.46	12.4	128	4.37		
12:36	5.68	11.88	0.397	1.00	6.5	164	4.34		
12:39	5.53	11.90	0.396	0.95	4.3	181	4.38		
12:42	5.35	11.88	0.400	0.40	3.2	190	4.38		
12:45	5.45	11.91	0.400	0.91	2.6	197	4.38		
12:48	5.41	11.93	0.297	0.40	2.6	201	4.38		
12:51	5.44	11.77	0.400	0.95	2.6	185	4.38		
12:54	5.39	11.91	0.394	0.89	1.4	192	4.39		
12:57	5.36	11.91	0.400	0.91	1.5	186	4.39		
1:00	5.34	12.00	0.400	1.07	0.0	146	4.40		
1:03	Collect MW-70-20200318 HMS/MSD)								
~~HA/HA~~									

Certified Sample Information:

Time of Sample: 1303

Analyst Signature:

Instrument Data:

Manufacturer/Model: Florbu-457

Serial No. Unit: IK-02-1113

Serial No. Handheld: UD DSPW9

Calibration Date/Time: 03/18/20 @ 0910p

TKVBSTCB

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-7D
Sample I.D.: MW-7D-20200318 (if different from well no.)

Project: PALCHAGUE
Personnel: MMH/AFV

Date: 03/18/20 Time: 1230
Weather: Sunny Air Temp.: 45

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☒ Galv. Steel ☐ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 4.34 ft Bottom of Well: _____ ft
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☐ Yes ☒ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☐ Yes ☒ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☐ Yes ☒ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____

Pumping Rate: 250 mL/min Elapsed Time: 30 min Volume Pumped: 2.5 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____

SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____

APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid

FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☐ No ☒ Yes Name: MW-7D-20200318

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____ Date: 03/18/20

Project Name: Patchogue Project Number: 153021
Client: BC Date: 03/18/21
Personnel: MHM / AFU Well ID: MW-145-20200318
Purge/Sample Depth: ~10' Sample ID: MW-145-20200318

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-14

Sample I.D.: MW-14S-20200318 (if different from well no.)

Project: Patchogue

Personnel: MMH/AFV

Date: 03/18/20

Time: 1324

Weather: 54°F

Air Temp.: 45

WELL DATA:

Casing Diameter: 4"

☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____

Intake Diameter: 2"

☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock

DEPTH TO: Static Water Level: 4.01 ft Bottom of Well: _____ ft

DATUM: ☒ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____

CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☒ Yes ☐ No

Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No

Does Weep Hole adequately drain well head? ☒ Yes ☐ No

Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No

Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No

Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☒ Teflon®
☒ Stainless Steel
☐ PVC
☐ Other: _____

Tubing/Rope: ☒ Teflon®
☒ Polyethylene
☐ Polypropylene
☐ Other: _____

Pumping Rate: 250 ml/min Elapsed Time: 30 min Volume Pumped: 2.5 gal

Was well Evacuated? ☐ Yes ☒ No

Number of Well Volumes Removed: _____

PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer: ☐ Teflon®
☒ Stainless Steel

Tubing/Rope: ☐ Teflon®
☒ Polyethylene

SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

Metals samples field filtered? ☐ Yes ☒ No Method: _____

APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid

FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____

MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____

Date: 03/18/20

Brown AND Caldwell

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023 LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: <u>PALCHAGUE</u>	Project Number: <u>153021</u>
Client: <u>BC</u>	Date: <u>03/18/20</u>
Personnel: <u>MMH/ADF</u>	Well ID: <u>MW-140</u>
Purge/Sample Depth: <u>~20</u>	Sample ID: <u>MW-140-20200318</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments									
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)													
1404	7.35	13.28	0.665	1.21	2.37	93	4.00	275 ↓ ✓										
1407	6.56	13.78	0.660	0.45	2.17	137	4.00											
1410	6.52	13.87	0.657	0.41	2.10	140	4.00											
1413	6.07	13.93	0.654	0.38	0.38	163	4.00											
1416	5.92	13.92	0.654	0.37	2.12	170	4.00											
1419	5.86	13.94	0.654	0.37	1.87	173	4.00											
1422	5.80	13.87	0.654	0.33	1.60	180	4.00											
1425	5.78	13.95	0.655	0.32	1.50	182	4.00											
1428	5.75	13.97	0.653	0.33	0.9	186	4.00											
1431	5.74	13.90	0.654	0.33	70.1	170	4.00											
1434	5.73	13.87	0.654	0.33	55.0	142	4.00											
1437	5.74	13.84	0.655	0.33	47.3	142	4.00											
1437	Collect MW-140-20200318																	

Certified Sample Information:

Time of Sample: 1437

Analyst Signature: [Signature]

Instrument Data:

Manufacturer/Model: Horiba-U52

Serial No. Unit: TK4P-BJTLQ

Serial No. Handheld: URDSCPH9

Calibration Date/Time: 03/18/20

TK4P-BJTLQ

Are low-flow parameters subject to field lab certification? ☒ Yes ☐ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-140

Sample I.D.: MW-140-20200219 (if different from well no.)

Project: Patchogue
Personnel: MWM/AFV

Date: 03/18/20 Time: 1404
Weather: Sunny Air Temp.: 47

WELL DATA:

Casing Diameter: 44 ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 4.00 ft Bottom of Well: _____ ft
DATUM: ☒ Top of Protective Casing ☐ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☐ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 275 mL/min Elapsed Time: 30 min Volume Pumped: 2.75 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____ Date: 03/18/20

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 238-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Patchague	Project Number:	153021
Client:	BC	Date:	03/18/20
Personnel:	MUM / AFV	Well ID:	MW-45-702
Purge/Sample Depth:	~9'	Sample ID:	MW-45-20200318

[illegible]**Certified Sample Information:**

Time of Sample: 1524

Analyst Signature:

Instrument Data:

Manufacturer/Model: Honda-452

Serial No. Unit: ~~TKU050701~~

Calibration Date/Time: 02/18/20 09:00

Serial No. Handheld:

WRDSLW

4RDS6Pw9

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.



Upper Saddle River, NJ Office

LOW-FLOW GROUNDWATER SAMPLING FIELD DATA

Well Number: MW-45

Sample I.D.: MW-45-2020 03 18 (if different from well no.)

Project: Patchogue

Personnel: MHM / ARJ

Date: 05/18/20

Time: 1455

Weather: SUNNY

Air Temp: 45

WELL DATA: M4

Casing Diameter: 24

☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____

Intake Diameter: 24

☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock

DEPTH TO: Static Water Level: 3.15 ft Bottom of Well: _____ ft

DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____

CONDITION: Is Well clearly labeled? ☐ Yes ☒ No Is well clean to bottom? ☒ Yes ☐ No

Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No

Does Weep Hole adequately drain well head? ☒ Yes ☐ No

Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No

Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No

Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD:

☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer:

☐ Teflon®
☒ Stainless Steel
☐ PVC
☐ Other: _____

Tubing/Rope:

☐ Teflon®
☒ Polyethylene
☐ Polypropylene
☐ Other: _____

Pumping Rate: _____

Elapsed Time: _____

Volume Pumped: _____

Was well Evacuated? ☐ Yes ☒ No

Number of Well Volumes Removed: _____

PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD:

☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____

MATERIALS: Pump/Bailer:

☐ Teflon®
☒ Stainless Steel

Tubing/Rope:

☐ Teflon®
☒ Polyethylene

SAMPLING EQUIPMENT:

☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

Metals samples field filtered?

☐ Yes ☒ No Method: _____

APPEARANCE:

☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid

FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No

☐ Yes

Name: _____

MS/MSD: ☒ No

☐ Yes

Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____

Date: 03/19/20

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	Datchague	Project Number:	153021
Client:	BC	Date:	03/18/20
Personnel:	MHW/AFV	Well ID:	MW-40
Purge/Sample Depth:	~21'	Sample ID:	MW-40-20200318

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1530	7.00	12.26	0.451	1.66	5.8	-30	5.80	356 ↓	
1533	6.04	13.03	0.448	0.97	6.7	80	5.80		
1536	5.90	13.13	0.449	0.42	0.0	101	5.80		
1539	5.68	13.20	0.460	0.40	0.0	170	5.80		
1542	5.62	13.20	0.483	0.39	0.0	140	5.80		
1545	5.58	13.33	0.495	0.37	0.0	155	5.80		
1548	5.56	13.55	0.494	0.36	0.0	158	5.80		
1551	5.51	13.35	0.495	0.36	0.0	167	5.80		
1554	5.51	13.41	0.504	0.35	0.0	170	5.80		
1557	5.55	13.43	0.508	0.35	0.0	173	5.80		
1600	5.54	13.47	0.513	0.35	0.00	184	5.80		
1603	Collect		MW-40-26100318						

Certified Sample Information:

Time of Sample: _____

Analyst Signature:

Instrument Data:

Manufacturer/Model: Hornberg

Serial No. Unit: ~~FK-R-B-1-C~~

Calibration Date/Time: 03/18/20

Serial No. Handheld: ~~WR056W9~~

URDS6PW1

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**Well Number: MW-4B
Sample I.D.: MW-4B-20200318
(if different from well no.)Project: Patchogue
Personnel: MHM / ARVDate: 03/18/20 Time: 1530
Weather: Sunny Air Temp.: 45°**WELL DATA:**Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 5.75 ft Bottom of Well: _____ ft
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☐ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 360 ml/min Elapsed Time: 30 min Volume Pumped: 30 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned**SAMPLING DATA:**METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____ Date: 03/18/20

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

Project Name: Pulchogue
Client: BC
Personnel: MHA/AFV
Sample Depth: ~0.5

Project Number: 153021
Date: 05/19/20
Well ID: Mu-3
Sample ID: Mu-3-70700314

Certified Sample Information:

Time of Sample: 0952

Analyst Signature:

Instrument Data:

Manufacturer/Model: Husby-452

Serial No. Unit: 974RA57CB

Serial No. Handheld:

Calibration Date/Time: 02/14/20

TKUBJTCB

~~URDSWA~~

4RDS6Pw9

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

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Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-3

Sample I.D.: MW-3-20200319 (if different from well no.)

Project: Patchogue
Personnel: NLM/AFV

Date: 03/19/20 Time: 0914
Weather: Repy Air Temp.: 61.0°

WELL DATA:

Casing Diameter: 8" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☐ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 120 ft Bottom of Well: _____ ft
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☐ Yes ☒ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☐ Yes ☐ No ☒ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 150 mL/min Elapsed Time: 30 min Volume Pumped: 1.5 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☐ Clear ☐ Turbid ☒ Color: Yellow ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____

Date: 03/19/20

Brown AND Caldwell

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: <u>Datchogue</u>	Project Number: <u>153021</u>
Client: <u>BC</u>	Date: <u>03/18/20</u> <u>3/19/20</u>
Personnel: <u>MUM/AFV</u>	Well ID: <u>MW-135</u>
Purge/Sample Depth: <u>111'</u>	Sample ID: <u>MW-135-20200318</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments	
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)					
1003	6.86	4.69	0.601	0.59	"800"	-152	4.38	300 ↓ ✓	Odor noticeable	
1006	6.96	6.11	0.604	0.45	637	-183	4.37			
1009	7.05	10.31	0.678	0.43	586	-145	4.38		Moderate	
1012	7.11	10.40	0.705	0.43	508	-205	4.40			
1015	7.17	10.41	0.714	0.46	444	-212	4.40		Amber colored water	
1018	7.23	10.53	0.723	0.41	373	-221	4.40			
1021	7.28	10.56	0.756	0.52	301	-227	4.40			
1024	7.33	10.61	0.773	0.45	250	-232	4.40			
1027	7.36	10.69	0.780	0.42	213	-236	4.40			
1030	7.39	10.70	0.785	0.42	195	-240	4.40			
1033	7.42	10.72	0.790	0.42	177	-242	4.40			
1036	7.47	10.74	0.800	0.41	166	-245	4.40			
1039	7.51	10.76	0.800	0.41	145	-257	4.40			
1042	7.60	10.74	0.803	0.41	140	-258	4.40			
1045	7.60	10.79	0.814	0.46	129	-260	4.40			
1048	7.63	10.83	0.814	0.40	121	-264	4.40			
1051	7.65	10.90	0.819	0.51	112	-266	4.40			
1054	7.67	10.93	0.819	0.38	106	-269	4.40			
1057	7.68	10.87	0.812	0.36	101	-273	4.40			
1100	7.70	10.85	0.809	0.35	99.1	-275	4.40			
1103	7.68	10.87	0.809	0.35	95.2	-272	4.40			
1106	7.66	10.91	0.815	0.34	94.2	-272	4.40			
1109	Collect MW-135-20200319									
AFV										
3/19/20										

Certified Sample Information:Time of Sample: 1109Analyst Signature: [Signature]**Instrument Data:**Manufacturer/Model: Horiba-U52Serial No. Unit: TKUDB5TEBSerial No. Handheld: URDS6W9Calibration Date/Time: 02/19/20Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

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Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**Well Number: MW-135Sample I.D.: MW-135-2020 03 19 (if different from well no.)Project: Patchogue
Personnel: MMH / AFVDate: 03/19/20 Time: 1003
Weather: Rain Air Temp.: 40°**WELL DATA:**

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 4.35 ft Bottom of Well: _____ ft
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 300 mL/min Elapsed Time: 1 hr 3 min Volume Pumped: 6 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☐ Clear ☐ Turbid ☒ Color: Amber ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [Signature] Date: 03/19/20

2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607

NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: <u>Patchogue</u>	Project Number: <u>153021</u>
Client: <u>BC</u>	Date: <u>03/19/20</u>
Personnel: <u>AFV/MHM</u>	Well ID: <u>MW-13D</u>
Purge/Sample Depth: <u>221</u>	Sample ID: <u>MW-13D-2000319</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1118	7.23	10.99	0.442	2.17	67.6	-63	4.29	200 ↓	
1121	6.93	11.43	0.435	1.14	69.2	-35	4.29		
1124	6.84	11.76	0.427	1.08	50.2	-21	4.29		
1127	6.71	12.09	0.420	1.02	30.1	-7	4.29		
1130	6.69	12.24	0.421	0.87	20.3	-1	4.29		
1133	6.67	12.34	0.421	0.85	15.0	3	4.29		
1136	6.63	12.48	0.419	0.84	11.3	9	4.29		
1139	6.59	12.63	0.418	0.82	7.7	18	4.29		
1142	6.56	12.73	0.417	0.80	6.3	22	4.29		
1145	6.54	12.80	0.417	0.79	4.8	25	4.29		
1148	6.51	12.87	0.416	0.78	3.6	28	4.29		
1151	Collect MW-13D-20200319								
AFV 03/19/20									

Certified Sample Information:

Time of Sample:

Analyst Signature:

Instrument Data:

Manufacturer/Model:

Serial No. Unit:

Calibration Date/Time:

Serial No. Handheld:

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-130
Sample I.D.: MW-130-20200319 (if different from well no.)

Project: Patchogue
Personnel: AEV/MMH

Date: 03/19/20 Time: 1118
Weather: Cloudy Air Temp.: 40°F

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 4.28 ft Bottom of Well: _____ ft
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☐ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 200 mL/min Elapsed Time: 30 min Volume Pumped: 2 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: [Signature] Date: 3/19/20

Brown AND Caldwell2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 236-1607NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name: <u>PAKchoque</u>	Project Number: <u>153021</u>
Client: <u>BC</u>	Date: <u>03/19/20</u>
Personnel: <u>MMH/ARW</u>	Well ID: <u>MW-125</u>
Purge/Sample Depth: <u>~11'</u>	Sample ID: <u>MW-125-20200319</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
131	6.81	11.40	0.394	2.39	2.20	-47	3.74	200	Pulp
1314	6.57	11.78	0.385	1.08	2.44	-75	3.77		
1317	6.53	11.99	0.285	0.89	2.27	-12	3.79		
1320	6.51	12.08	0.385	0.72	2.13	6	3.79		Live
1323	6.57	12.10	0.385	0.61	2.15	18	3.99		
1326	6.58	12.14	0.385	0.60	2.01	22	3.99		Substance
1329	6.57	12.22	0.382	0.57	1.95	25	3.99		
1322	6.53	12.23	0.382	0.54	2.53	29	3.99		TA
1335	6.50	12.23	0.381	0.52	1.35	32	3.74		
1338	6.48	12.27	0.387	0.51	1.24	32	3.99		
1341	6.48	12.28	0.383	0.60	1.54	35	3.97		Water
1344	6.50	12.30	0.382	0.50	1.46	37	3.99		
1347	6.51	12.31	0.384	0.48	2.00	37	3.94		
1350	6.51	12.33	0.385	0.47	1.7	25	3.77		
1353	6.51	12.34	0.384	0.46	2.12	21	3.79		
F.M.P.W. h.21.04									
1359	6.45	12.51	0.387	0.57	2.16	4	3.74	✓	
1402	6.55	12.46	0.382	0.48	3.47	-14	3.77		
1405	6.60	12.40	0.381	2.22	3.12	-22	3.74		
1408	6.61	12.04	0.38	0.47	3.82	-32	3.94		
1411	6.65	12.66	0.385	0.47	1.70	-32	3.7		
Collect MW-125-20200319 + DUP-20200319									
~~MMH/ARW~~									

Certified Sample Information:

Time of Sample: 1411Analyst Signature: MMH

Instrument Data:

Manufacturer/Model: Horiba-U52Serial No. Unit: TKU BJT CBSerial No. Handheld: URDS6PW1Calibration Date/Time: 03/19/20Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MW-125
Sample I.D.: MW-125-2020-0319 (if different from well no.)

Project: Patchogue
Personnel: MHV/IAFV

Date: 03/19/20 Time: 1311
Weather: cloudy Air Temp.: _____

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☐ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 5.49 ft Bottom of Well: _____ ft
DATUM: ☒ Top of Protective Casing ☐ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☐ Yes ☒ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☐ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☒ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☒ Teflon® ☐ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 200 mL/min Elapsed Time: 1 hr Volume Pumped: 4 gal
Was well Evacuated? ☐ Yes ☐ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☐ Clear ☒ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.
DUP: ☐ No ☒ Yes Name: DUP-20200319
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____

Date: 03/19/20

Brown AND Caldwell2 Park Way, Upper Saddle River, NJ 07458
Phone: (201) 574-4700 Fax: (201) 238-1807NJ FIELD LAB ID# 02023
LOW-FLOW GROUNDWATER FIELD DATA SHEET

Project Name:	<u>Dalchoque</u>	Project Number:	<u>153021</u>
Client:	<u>BL</u>	Date:	<u>03/19/20</u>
Personnel:	<u>MJM / AFEV</u>	Well ID:	<u>MW-12D</u>
Purge/Sample Depth:	<u>~11</u>	Sample ID:	<u>MW-12D-20200211</u>

Actual Time	Certified Parameters					ORP (mV)	DTW (ft)	Pumping Rate (mL/min)	Comments
	pH	Temp (°C)	Cond (mS/cm)	DO (mg/L)	Turbidity (NTU)				
1428	6.63	12.05	0.537	2.42	61.4	41	4.04	300 ↓	
1429	5.55	12.41	0.547	0.76	18.6	137	4.69		
1431	5.28	12.63	0.550	0.53	2.1	170	4.09		
1433	5.19	12.64	0.551	0.50	0.1	183	4.04		
1435	5.11	12.63	0.550	0.48	0.0	141	4.69		
1437	5.06	12.71	0.555	0.78	0.0	205	4.09		
1439	5.10	12.73	0.555	0.46	8.0	208	4.09		
1441	5.08	12.77	0.556	0.44	0.0	211	4.09		
1443	5.04	12.82	0.556	0.44	0.0	218	4.04		
1445	5.02	12.87	0.556	0.43	0.0	223	4.09		
1447	5.00	12.88	0.556	0.42	0.0	228	4.09		
1501	4.99	12.98	0.558	0.42	0.0	235	4.09		
1504	Collect MW-12D-20200319								✓
AFEV 03/19/20									

Certified Sample Information:

Time of Sample:

1504

Analyst Signature:

Instrument Data:

Manufacturer/Model:

Horiba-U52

Serial No. Unit:

TKUBJTCB

Serial No. Handheld:

URDS6PW9

Calibration Date/Time:

03/19/20

Are low-flow parameters subject to field lab certification? ☐ Yes ☒ No (not required for CERCLA sites or sites outside of NJ)

If yes, low-flow data must be accompanied by a completed "Field Calibration Record, Horiba U-52" form or equivalent.

**Brown AND
Caldwell**

Upper Saddle River, NJ Office

**LOW-FLOW GROUNDWATER
SAMPLING FIELD DATA**

Well Number: MN-12 D

Sample I.D.: MN-12D-20200319 (if different from well no.)

Project: Patcoyue
Personnel: MHA/ARV

Date: 03/19/20 Time: 1128
Weather: Cloudy Air Temp.: 40°F

WELL DATA:

Casing Diameter: 4" ☐ Stainless Steel ☒ Steel ☐ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 2" ☐ Stainless Steel ☐ Galv. Steel ☐ PVC ☐ Teflon® ☐ Open rock
DEPTH TO: Static Water Level: 4.06 ft Bottom of Well: _____ ft
DATUM: ☒ Top of Protective Casing ☐ Top of Well Casing ☐ Other: _____
CONDITION: Is Well clearly labeled? ☐ Yes ☒ No Is well clean to bottom? ☒ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☒ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frost heaved) ☒ Yes ☐ No
Is Padlock Functional? ☐ Yes ☒ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No

VOLUME OF WATER: Standing in well: _____ To be purged: _____

PURGE DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
Pumping Rate: 300 mL/min Elapsed Time: 33 min Volume Pumped: 39 gal
Was well Evacuated? ☐ Yes ☒ No Number of Well Volumes Removed: _____
PURGING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned

SAMPLING DATA:

METHOD: ☐ Bailer, Size: _____ ☒ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Other: _____
MATERIALS: Pump/Bailer: ☐ Teflon® ☒ Stainless Steel ☐ PVC ☐ Other: _____
Tubing/Rope: ☐ Teflon® ☒ Polyethylene ☐ Polypropylene ☐ Other: _____
SAMPLING EQUIPMENT: ☐ Dedicated ☐ Prepared Off-Site ☒ Field Cleaned
Metals samples field filtered? ☐ Yes ☒ No Method: _____
APPEARANCE: ☒ Clear ☐ Turbid ☐ Color: _____ ☐ Contains Immiscible Liquid
FIELD DETERMINATIONS: See attached form for field parameter data.

DUP: ☒ No ☐ Yes Name: _____
MS/MSD: ☒ No ☐ Yes Name: _____

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.

Signature: _____ Date: 03/19/20

Appendix B: Laboratory Reports



NYSDEC ASP Category B Data Package

Prepared for:

Brown & Caldwell
500 North Franklin Turnpike
Suite 306
Ramsey NJ 07446-1177

Project: Patchogue, NY
Groundwater and Water Samples
Collected on 03/17/20-03/18/20

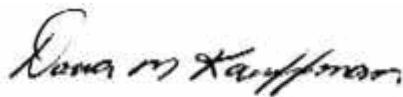
SDG# GPY67

GROUP	SAMPLE NUMBERS
2092992	1283809-1283824

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-20-35
AZ Cert. # AZ0780

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by:



Date: 04/20/2020

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Barbara Weyandt at (717) 556-7264.

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**Sample Reference List for SDG Number GPY67
with a Data Package Type of NYSDEC B**

09286 - Brown & Caldwell

Project: Patchogue, NY

Lab Sample Number	Client Sample ID	Collection Date	Date Received
1283809	MW-1-20200317	03/17/2020 12:52	03/19/2020 08:15
1283810	MW-10S-20200317	03/17/2020 13:55	03/19/2020 08:15
1283811	MW-10D-20200317	03/17/2020 14:37	03/19/2020 08:15
1283812	MW-8S-20200317	03/17/2020 15:26	03/19/2020 08:15
1283813	MW-8D-20200317	03/17/2020 16:07	03/19/2020 08:15
1283814	MW-11S-20200318	03/18/2020 09:38	03/19/2020 08:15
1283815	MW-11D-20200318	03/18/2020 10:25	03/19/2020 08:15
1283816	MW-7S-20200318	03/18/2020 11:40	03/19/2020 08:15
1283817	MW-7D-20200318	03/18/2020 13:03	03/19/2020 08:15
1283818	MW-7D-20200318-MS	03/18/2020 13:03	03/19/2020 08:15
1283819	MW-7D-20200318-MSD	03/18/2020 13:03	03/19/2020 08:15
1283820	MW-14S-20200318	03/18/2020 13:57	03/19/2020 08:15
1283821	MW-14D-20200318	03/18/2020 14:37	03/19/2020 08:15
1283822	MW-4S-20200318	03/18/2020 15:24	03/19/2020 08:15
1283823	MW-4D-20200318	03/18/2020 16:03	03/19/2020 08:15
1283824	TB-20200317	03/17/2020 00:00	03/19/2020 08:15

Sample pH Log

SDG: GPY67

<u>LLI Sample Number</u>	<u>Bottle Code</u>	<u>Actual pH</u>	<u>Exp. pH</u>	<u>*pH Check Code</u>	<u>Adj. pH</u>	<u>Adjusted Date</u>	<u>Adjusted Time</u>	<u>Preservative Added</u>	<u>Preservative Lot #</u>	<u>LLI Supplied Bottle?</u>	<u>Sulfide Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>**Chlorine Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>Record Date</u>	<u>Employee</u>
1283809	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:23AM	7818
1283809	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:10:45PM	19242
1283809	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:10:56PM	19242
1283810	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:23AM	7818
1283810	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:10:24PM	19242
1283810	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:11:06PM	19242
1283811	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:23AM	7818
1283811	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:09:31PM	19242
1283811	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:08:14PM	19242
1283812	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:23AM	7818
1283812	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:05:22PM	19242
1283812	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:10:13PM	19242
1283813	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:23AM	7818
1283813	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:10:36PM	19242
1283813	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:05:12PM	19242
1283814	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:23AM	7818
1283814	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:07:50PM	19242
1283814	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:05:32PM	19242
1283815	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:23AM	7818
1283815	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:08:02PM	19242
1283815	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:03:44PM	19242
1283816	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:23AM	7818
1283816	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:04:18PM	19242
1283816	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:06:02PM	19242
1283817	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:24AM	7818
1283817	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:02:32PM	19242
1283817	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:04:08PM	19242
1283818	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:24AM	7818
1283818	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:05:51PM	19242
1283818	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:05:41PM	19242
1283819	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:24AM	7818
1283819	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:04:29PM	19242
1283819	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:02:43PM	19242
1283820	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:24AM	7818
1283820	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:03:56PM	19242
1283820	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:06:25PM	19242
1283821	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:24AM	7818
1283821	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:01:51PM	19242

<u>LLI Sample</u> <u>Number</u>	<u>Bottle</u> <u>Code</u>	<u>Actual</u> <u>pH</u>	<u>Exp.</u> <u>pH</u>	<u>*pH Check</u> <u>Code</u>	<u>Adj.</u> <u>pH</u>	<u>Adjusted</u> <u>Date</u>	<u>Adjusted</u> <u>Time</u>	<u>Preservative</u> <u>Added</u>	<u>Preservative</u> <u>Lot #</u>	<u>LLI</u> <u>Supplied</u> <u>Bottle?</u>	<u>Sulfide</u> <u>Present?</u>	<u>Corrective</u> <u>Substance</u>	<u>CS Lot #</u>	<u>**Chlorine</u> <u>Present?</u>	<u>Corrective</u> <u>Substance</u>	<u>CS Lot #</u>	<u>Record Date</u>	<u>Employee</u>
1283821	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:02:22PM	19242
1283822	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:24AM	7818
1283822	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:03:24PM	19242
1283822	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:06:14PM	19242
1283823	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:24AM	7818
1283823	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:02:02PM	19242
1283823	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/19/2020 2:03:13PM	19242
1283824	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:24AM	7818

<u>*pH Check Code Key</u>	<u>**Chlorine Present Code Key</u>
PK = Original container checked - pH is within the correct range. (No preservative was added) PA = Original container checked - pH adjusted to correct range. (Preservative was added) PV = Volatile container checked PC = pH checked (unpreserved container) SPK = Subsampled from an original container. Original container checked - pH is within correct range SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range. SPC = Subsampled from an original container. pH checked (unpreserved container). SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample. UP = Unable to preserve due to matrix of the sample. NA = Not applicable	NA = Chlorine Not Checked Y = Chlorine Present N = Chlorine Not Present

01163 GC/MS VOA Water Prep

An undiluted aliquot of the water sample or a dilution of the sample is purged with an inert gas and the volatiles are collected on an adsorbent trap that is subsequently desorbed onto a gas chromatographic column.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5030C, May 2003.

13130 VOCs- 5ml Water by 8260C/D UST

The water sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS), SW-846 Method 8260C, August 2006.

10466 BNA Water Extraction SIM

The sample aliquot is extracted with methylene chloride by either separatory funnel or liquid/liquid apparatus. Extraction is performed at both a pH of 11 and 2. The extract is concentrated prior to analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3510C, Rev 3, December 1996

14244 SIM SVOAs 8270D MINI

The sample extract is analyzed by capillary column Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SIM).

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8270D (SIM), February 2007.

Analysis Reports / Field Chain of Custody



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Brown & Caldwell
500 North Franklin Turnpike
Suite 306
Ramsey NJ 07446-1177

Report Date: March 26, 2020 21:46

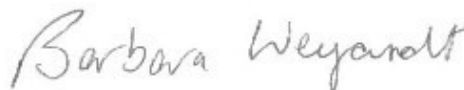
Project: Patchogue, NY

Account #: 09286
Group Number: 2092992
SDG: GPY67
PO Number: 153021
State of Sample Origin: NY

Electronic Copy To Brown & Caldwell

Attn: Jim Marolda

Respectfully Submitted,



Barbara A. Weyandt
Specialist

(717) 556-7264

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-1-20200317 Grab Groundwater	03/17/2020 12:52	1283809
MW-10S-20200317 Grab Groundwater	03/17/2020 13:55	1283810
MW-10D-20200317 Grab Groundwater	03/17/2020 14:37	1283811
MW-8S-20200317 Grab Groundwater	03/17/2020 15:26	1283812
MW-8D-20200317 Grab Groundwater	03/17/2020 16:07	1283813
MW-11S-20200318 Grab Groundwater	03/18/2020 09:38	1283814
MW-11D-20200318 Grab Groundwater	03/18/2020 10:25	1283815
MW-7S-20200318 Grab Groundwater	03/18/2020 11:40	1283816
MW-7D-20200318 Grab Groundwater	03/18/2020 13:03	1283817
MW-7D-20200318-MS Grab Groundwater	03/18/2020 13:03	1283818
MW-7D-20200318-MSD Grab Groundwater	03/18/2020 13:03	1283819
MW-14S-20200318 Grab Groundwater	03/18/2020 13:57	1283820
MW-14D-20200318 Grab Groundwater	03/18/2020 14:37	1283821
MW-4S-20200318 Grab Groundwater	03/18/2020 15:24	1283822
MW-4D-20200318 Grab Groundwater	03/18/2020 16:03	1283823
TB-20200317 Water	03/17/2020	1283824

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-1-20200317 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283809
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/17/2020 12:52
SDG#: GPY67-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	N.D.	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	N.D.	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	N.D.	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 15:00	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 14:59	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/24/2020 22:57	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-10S-20200317 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283810
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/17/2020 13:55
SDG#: GPY67-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles					
		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles					
		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	N.D.	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	0.02 J	0.01	1
14244	Benzo(a)pyrene	50-32-8	0.03 J	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	0.04 J	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	0.02 J	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	0.01 J	0.01	1
14244	Chrysene	218-01-9	0.03 J	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	0.03 J	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.02 J	0.01	1
14244	Naphthalene	91-20-3	0.04 J	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	0.03 J	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 15:24	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 15:23	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/24/2020 23:27	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-10D-20200317 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283811
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/17/2020 14:37
SDG#: GPY67-03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	N.D.	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	0.03 J	0.01	1
14244	Benzo(a)pyrene	50-32-8	0.04 J	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	0.04 J	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	0.03 J	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	0.02 J	0.01	1
14244	Chrysene	218-01-9	0.05 J	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	0.04 J	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.04 J	0.01	1
14244	Naphthalene	91-20-3	N.D.	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	0.05 J	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 15:49	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 15:48	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/24/2020 23:58	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-8S-20200317 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283812
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/17/2020 15:26
SDG#: GPY67-04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles					
		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles					
		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	0.09	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	N.D.	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	N.D.	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 16:13	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 16:12	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 00:28	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-8D-20200317 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283813
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/17/2020 16:07
SDG#: GPY67-05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	N.D.	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	N.D.	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	N.D.	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 16:38	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 16:37	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 00:58	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-11S-20200318 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283814
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 09:38
SDG#: GPY67-06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260C					
13130	Benzene	71-43-2	2	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	2 J	1	1
GC/MS Semivolatiles SW-846 8270D SIM					
14244	Acenaphthene	83-32-9	44 JE	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	3	0.01	1
14244	Benzo(a)anthracene	56-55-3	0.4	0.01	1
14244	Benzo(a)pyrene	50-32-8	0.2	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	0.1	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	0.06	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	0.05	0.01	1
14244	Chrysene	218-01-9	0.3	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	3	0.01	1
14244	Fluorene	86-73-7	7	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.06	0.01	1
14244	Naphthalene	91-20-3	7	0.03	1
14244	Phenanthrene	85-01-8	11 JE	0.03	1
14244	Pyrene	129-00-0	4	0.01	1
Trial ID: DL					
14244	Acenaphthene	83-32-9	56	0.1	10
14244	Acenaphthylene	208-96-8	N.D.	0.1	10
14244	Anthracene	120-12-7	4	0.1	10
14244	Benzo(a)anthracene	56-55-3	0.4 J	0.1	10
14244	Benzo(a)pyrene	50-32-8	0.1 J	0.1	10
14244	Benzo(b)fluoranthene	205-99-2	0.1 J	0.1	10
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	10
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.1	10
14244	Chrysene	218-01-9	0.4 J	0.1	10
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.2	10
14244	Fluoranthene	206-44-0	4	0.1	10
14244	Fluorene	86-73-7	13	0.1	10
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.1	10
14244	Naphthalene	91-20-3	8	0.3	10
14244	Phenanthrene	85-01-8	15	0.3	10
14244	Pyrene	129-00-0	5	0.1	10

Sample Description: MW-11S-20200318 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283814
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 09:38
SDG#: GPY67-06

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 17:02	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 17:01	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 01:29	Catherine E Bachman	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	2-DL	20083WAF026	03/25/2020 07:02	Catherine E Bachman	10
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-11D-20200318 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283815
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 10:25
SDG#: GPY67-07

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	0.06	0.01	1
14244	Acenaphthylene	208-96-8	0.01 J	0.01	1
14244	Anthracene	120-12-7	0.05	0.01	1
14244	Benzo(a)anthracene	56-55-3	0.1	0.01	1
14244	Benzo(a)pyrene	50-32-8	0.09	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	0.1	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	0.04 J	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	0.05 J	0.01	1
14244	Chrysene	218-01-9	0.1	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	0.2	0.01	1
14244	Fluorene	86-73-7	0.05 J	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.05	0.01	1
14244	Naphthalene	91-20-3	0.2	0.03	1
14244	Phenanthrene	85-01-8	0.2	0.03	1
14244	Pyrene	129-00-0	0.2	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 17:26	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 17:25	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 01:59	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-7S-20200318 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283816
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 11:40
SDG#: GPY67-08

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	0.4 J	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	0.08	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	0.02 J	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	N.D.	0.01	1
14244	Fluorene	86-73-7	0.02 J	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	0.2	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 17:51	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 17:50	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 02:29	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-7D-20200318 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283817
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 13:03
SDG#: GPY67-09BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	N.D.	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	N.D.	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	N.D.	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 10:33	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 10:32	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 03:00	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-7D-20200318-MS Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283818
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 13:03
SDG#: GPY67-09MS

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260C					
13130	Benzene	71-43-2	21	0.2	1
13130	Ethylbenzene	100-41-4	22	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	20	0.2	1
13130	Toluene	108-88-3	22	0.2	1
13130	Xylene (Total)	1330-20-7	70	1	1
GC/MS Semivolatiles SW-846 8270D SIM					
14244	Acenaphthene	83-32-9	0.6	0.01	1
14244	Acenaphthylene	208-96-8	0.5	0.01	1
14244	Anthracene	120-12-7	0.7	0.01	1
14244	Benzo(a)anthracene	56-55-3	0.7	0.01	1
14244	Benzo(a)pyrene	50-32-8	0.8	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	0.8	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	0.7	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	0.8	0.01	1
14244	Chrysene	218-01-9	0.8	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	0.8	0.02	1
14244	Fluoranthene	206-44-0	0.8	0.01	1
14244	Fluorene	86-73-7	0.6	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.8	0.01	1
14244	Naphthalene	91-20-3	0.7	0.03	1
14244	Phenanthrene	85-01-8	0.7	0.03	1
14244	Pyrene	129-00-0	0.6	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 10:57	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 10:56	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/24/2020 21:26	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-7D-20200318-MSD Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283819
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 13:03
SDG#: GPY67-09MSD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260C					
13130	Benzene	71-43-2	21	0.2	1
13130	Ethylbenzene	100-41-4	22	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	20	0.2	1
13130	Toluene	108-88-3	22	0.2	1
13130	Xylene (Total)	1330-20-7	70	1	1
GC/MS Semivolatiles SW-846 8270D SIM					
14244	Acenaphthene	83-32-9	0.7	0.01	1
14244	Acenaphthylene	208-96-8	0.6	0.01	1
14244	Anthracene	120-12-7	0.8	0.01	1
14244	Benzo(a)anthracene	56-55-3	0.8	0.01	1
14244	Benzo(a)pyrene	50-32-8	0.8	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	0.8	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	0.6	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	0.8	0.01	1
14244	Chrysene	218-01-9	0.8	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	0.7	0.02	1
14244	Fluoranthene	206-44-0	0.9	0.01	1
14244	Fluorene	86-73-7	0.7	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.7	0.01	1
14244	Naphthalene	91-20-3	0.7	0.03	1
14244	Phenanthrene	85-01-8	0.9	0.03	1
14244	Pyrene	129-00-0	0.7	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 11:21	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 11:20	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/24/2020 21:56	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-14S-20200318 Grab Groundwater
COC: 603682
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283820
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 13:57
SDG#: GPY67-10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	0.4	0.01	1
14244	Acenaphthylene	208-96-8	0.03 J	0.01	1
14244	Anthracene	120-12-7	0.02 J	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	N.D.	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	N.D.	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 11:45	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 11:44	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 03:30	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-14D-20200318 Grab Groundwater
COC: 603683
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283821
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 14:37
SDG#: GPY67-11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	N.D.	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	0.01 J	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	0.03 J	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 12:10	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 12:09	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 04:01	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-4S-20200318 Grab Groundwater
COC: 603683
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283822
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 15:24
SDG#: GPY67-12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260C					
13130	Benzene	71-43-2	3	0.2	1
13130	Ethylbenzene	100-41-4	0.7 J	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	0.6 J	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles SW-846 8270D SIM					
14244	Acenaphthene	83-32-9	12 JE	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	0.2	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	0.05 J	0.01	1
14244	Fluorene	86-73-7	2	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	2	0.03	1
14244	Phenanthrene	85-01-8	0.09	0.03	1
14244	Pyrene	129-00-0	0.6	0.01	1
Trial ID: DL					
14244	Acenaphthene	83-32-9	12	0.02	2
14244	Acenaphthylene	208-96-8	N.D.	0.02	2
14244	Anthracene	120-12-7	0.1	0.02	2
14244	Benzo(a)anthracene	56-55-3	N.D.	0.02	2
14244	Benzo(a)pyrene	50-32-8	N.D.	0.02	2
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.02	2
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.02	2
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.02	2
14244	Chrysene	218-01-9	N.D.	0.02	2
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.04	2
14244	Fluoranthene	206-44-0	0.04 J	0.02	2
14244	Fluorene	86-73-7	2	0.02	2
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.02	2
14244	Naphthalene	91-20-3	2	0.06	2
14244	Phenanthrene	85-01-8	0.07 J	0.06	2
14244	Pyrene	129-00-0	0.7	0.02	2

Sample Comments

State of New York Certification No. 10670

Sample Description: MW-4S-20200318 Grab Groundwater
COC: 603683
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283822
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 15:24
SDG#: GPY67-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 12:34	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 12:33	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 04:31	Catherine E Bachman	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	2-DL	20083WAF026	03/25/2020 07:32	Catherine E Bachman	2
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: MW-4D-20200318 Grab Groundwater
COC: 603683
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283823
ELLE Group #: 2092992
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/18/2020 16:03
SDG#: GPY67-13

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	0.01 J	0.01	1
14244	Acenaphthylene	208-96-8	0.02 J	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	0.02 J	0.01	1
14244	Fluorene	86-73-7	0.05 J	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	0.04 J	0.03	1
14244	Phenanthrene	85-01-8	0.05 J	0.03	1
14244	Pyrene	129-00-0	0.02 J	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 12:58	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 12:57	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20083WAF026	03/25/2020 05:01	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20083WAF026	03/24/2020 09:00	Austin Robinson	1

Sample Description: TB-20200317 Water
Patchogue, NY

Brown & Caldwell
ELLE Sample #: GW 1283824
ELLE Group #: 2092992
Matrix: Water

Project Name: Patchogue, NY

Submittal Date/Time: 03/19/2020 08:15
Collection Date/Time: 03/17/2020
SDG#: GPY67-14TB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 10:08	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 10:07	Alexander D Sechrist	1

Quality Control Summary

Client Name: Brown & Caldwell
Reported: 03/26/2020 21:46

Group Number: 2092992

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l	MDL ug/l
Batch number: Z200851AA	Sample number(s): 1283809-1283824	
Benzene	N.D.	0.2
Ethylbenzene	N.D.	0.4
Methyl Tertiary Butyl Ether	N.D.	0.2
Toluene	N.D.	0.2
Xylene (Total)	N.D.	1
Batch number: 20083WAF026	Sample number(s): 1283809-1283823	
Acenaphthene	N.D.	0.01
Acenaphthylene	N.D.	0.01
Anthracene	N.D.	0.01
Benzo(a)anthracene	N.D.	0.01
Benzo(a)pyrene	N.D.	0.01
Benzo(b)fluoranthene	N.D.	0.01
Benzo(g,h,i)perylene	N.D.	0.01
Benzo(k)fluoranthene	N.D.	0.01
Chrysene	N.D.	0.01
Dibenz(a,h)anthracene	N.D.	0.02
Fluoranthene	N.D.	0.01
Fluorene	N.D.	0.01
Indeno(1,2,3-cd)pyrene	N.D.	0.01
Naphthalene	N.D.	0.03
Phenanthrene	N.D.	0.03
Pyrene	N.D.	0.01

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: Z200851AA	Sample number(s): 1283809-1283824								
Benzene	20	19.91			100		80-120		
Ethylbenzene	20	20.35			102		80-120		
Methyl Tertiary Butyl Ether	20	19.87			99		69-122		
Toluene	20	20.66			103		80-120		
Xylene (Total)	60	64.81			108		80-120		

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Brown & Caldwell
Reported: 03/26/2020 21:46

Group Number: 2092992

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 20083WAF026	Sample number(s): 1283809-1283823								
Acenaphthene	1.00	0.767			77		52-107		
Acenaphthylene	1.00	0.651			65		48-103		
Anthracene	1.00	0.903			90		61-118		
Benzo(a)anthracene	1.00	0.852			85		61-117		
Benzo(a)pyrene	1.00	0.910			91		63-135		
Benzo(b)fluoranthene	1.00	0.921			92		66-138		
Benzo(g,h,i)perylene	1.00	0.898			90		53-129		
Benzo(k)fluoranthene	1.00	0.896			90		58-142		
Chrysene	1.00	0.882			88		61-117		
Dibenz(a,h)anthracene	1.00	0.956			96		51-139		
Fluoranthene	1.00	0.941			94		59-120		
Fluorene	1.00	0.773			77		55-112		
Indeno(1,2,3-cd)pyrene	1.00	1.03			103		56-147		
Naphthalene	1.00	0.734			73		37-114		
Phenanthrene	1.00	0.854			85		59-119		
Pyrene	1.00	0.762			76		50-122		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: Z200851AA	Sample number(s): 1283809-1283824 UNSPK: 1283817									
Benzene	N.D.	20	21.36	20	21.36	107	107	80-120	0	30
Ethylbenzene	N.D.	20	21.68	20	21.99	108	110	80-120	1	30
Methyl Tertiary Butyl Ether	N.D.	20	19.84	20	19.77	99	99	69-122	0	30
Toluene	N.D.	20	22.15	20	21.97	111	110	80-120	1	30
Xylene (Total)	N.D.	60	69.95	60	69.59	117	116	80-120	1	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 20083WAF026	Sample number(s): 1283809-1283823 UNSPK: 1283817									
Acenaphthene	N.D.	1.02	0.646	1.02	0.744	63	73	52-107	14	30
Acenaphthylene	N.D.	1.02	0.538	1.02	0.619	52	61	48-103	14	30
Anthracene	N.D.	1.02	0.731	1.02	0.817	71	80	61-118	11	30
Benzo(a)anthracene	N.D.	1.02	0.695	1.02	0.778	68	77	61-117	11	30
Benzo(a)pyrene	N.D.	1.02	0.803	1.02	0.814	78	80	63-135	1	30
Benzo(b)fluoranthene	N.D.	1.02	0.829	1.02	0.827	81	81	66-138	0	30
Benzo(g,h,i)perylene	N.D.	1.02	0.728	1.02	0.629	71	62	53-129	14	30

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
 (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Brown & Caldwell
Reported: 03/26/2020 21:46

Group Number: 2092992

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Benzo(k)fluoranthene	N.D.	1.02	0.791	1.02	0.796	77	78	58-142	1	30
Chrysene	N.D.	1.02	0.777	1.02	0.827	76	81	61-117	6	30
Dibenz(a,h)anthracene	N.D.	1.02	0.792	1.02	0.668	77	66	51-139	17	30
Fluoranthene	N.D.	1.02	0.780	1.02	0.893	76	88	59-120	14	30
Fluorene	N.D.	1.02	0.640	1.02	0.746	62	73	55-112	15	30
Indeno(1,2,3-cd)pyrene	N.D.	1.02	0.832	1.02	0.712	81	70	56-147	15	30
Naphthalene	N.D.	1.02	0.693	1.02	0.720	68	71	37-114	4	30
Phenanthrene	N.D.	1.02	0.737	1.02	0.853	72	84	59-119	15	30
Pyrene	N.D.	1.02	0.648	1.02	0.737	63	73	50-122	13	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX/MTBE
Batch number: Z200851AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1283809	109	104	100	93
1283810	108	104	100	93
1283811	110	104	99	91
1283812	110	105	100	92
1283813	110	103	99	91
1283814	110	105	99	95
1283815	108	103	99	91
1283816	108	104	100	93
1283817	109	103	100	92
1283818	105	102	101	101
1283819	103	103	102	101
1283820	108	103	100	93
1283821	107	103	100	92
1283822	108	104	100	94
1283823	109	104	100	92
1283824	108	104	100	92
Blank	107	103	101	93
LCS	104	103	101	101
MS	105	102	101	101
MSD	103	103	102	101
Limits:	80-120	80-120	80-120	80-120

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Brown & Caldwell
Reported: 03/26/2020 21:46

Group Number: 2092992

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PAHS (16) in Water SIM

Batch number: 20083WAF026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1283809	86	62	72
1283810	90	78	77
1283811	100	78	71
1283812	86	60	70
1283813	87	66	65
1283814	83	81	84
1283814DL	91	62	92
1283815	85	60	71
1283816	91	67	72
1283817	96	69	73
1283818	76	72	67
1283819	89	72	74
1283820	99	74	77
1283821	86	53	63
1283822	111	74	81
1283822DL	80	66	78
1283823	90	44	66
Blank	94	82	71
LCS	95	84	79
MS	76	72	67
MSD	89	72	74
Limits:	34-125	10-138	15-121

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 9286

Group # 2092992

Sample # 1283209-24

1 of 2

COC # 603682

Client Information				Matrix				Analysis Requested												For Lab Use Only			
Client: <u>Brown and Caldwell</u>		Acct. #:		☐ Tissue ☒ Ground ☐ Surface ☐ Potable ☐ NPDES ☐ Water ☐ Other:		Preservation and Filtration Codes [Grid for codes]												FSC: <u>256728</u> SCR#:					
Project Name/ #: <u>Patchogue Former-MGP</u>		PWSID #:				Preservation Codes H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ P=H ₃ PO ₄ F=Field Filtered O=Other												Remarks *BC Equ's EDD*					
Project Manager: <u>Jim Marolda</u>		P.O. #: <u>153021</u>		☐ Sediment ☐ Potable ☐ NPDES ☐ Water ☐ Other:		Total # of Containers: <u>BTEx/MTBE (using 200L)</u> <u>PAHs (using 82.70D 50m)</u>																	
Sampler: <u>AFV/MHM</u>		Quote #:																					
State where samples were collected: <u>New York</u>		For Compliance: Yes ☒ No ☐																					
Sample Identification		Collected		Grab	Composite	Soil	Water	Other	Total # of Containers														
		Date	Time																				
MW-1-20200317		03/17/20	1252	X			X		5	X	X												
MW-105-20200317			1355	X			X		5	X	X												
MW-10D-20200317			1437	X			X		5	X	X												
MW-85-20200317			1526	X			X		5	X	X												
MW-8D-20200317			1607	X			X		5	X	X												
MW-115-20200318		03/18/20	0938	X			X		5	X	X												
MW-11D-20200318			1025	X			X		5	X	X												
MW-75-20200318			1140	X			X		5	X	X												
MW-7D-20200318 (MS/MSD)			1303	X			X		5	X	X												
MW-145-20200318			1357	X			X		5	X	X												

Turnaround Time (TAT) Requested (please circle)		Relinquished by		Date	Time	Received by	Date	Time
Standard		[Signature]		3/13/20	09:35			
Rush		[Signature]		3/18/20	1630			
Requested TAT in business days:		Relinquished by		Date	Time	Received by	Date	Time
E-mail address: <u>JMarolda@BrownCald.com</u>		Relinquished by		Date	Time	Received by	Date	Time
Data Package Options (circle if required)		Relinquished by		Date	Time	Received by	Date	Time
Type I (EPA Level 3 Equivalent/non-CLP)	Type VI (Raw Data Only)	Relinquished by		Date	Time	Received by	Date	Time
Type III (Reduced non-CLP)	NJ DKQP TX TRRP-13	Relinquished by		Date	Time	Received by	Date	Time
<u>NYSEDEC Category A or B</u>	MA MCP CT RCP	Relinquished by		Date	Time	Received by	Date	Time
EDD Required? Yes ☒ No ☐		Relinquished by Commercial Carrier:		UPS ☒ FedEx ☐ Other ☐				
If yes, format: <u>BLE Quis EDD</u>		Site-Specific QC (MS/MSD/Dup)? Yes ☐ No ☐		Temperature upon receipt: <u>2.7/4.7C</u>				
(If yes, indicate QC sample and submit triplicate sample volume.)								

Environmental Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 9286

Group # 2092992 Sample # 1283309-24

2 of 2

COC # 603683

Client Information				Matrix				Analysis Requested												For Lab Use Only													
Client: <u>Brown and Caldwell</u>		Acct. #:		☐ Tissue ☐ Ground ☐ Surface ☐ Potable ☐ NPDES ☐ Other:		Preservation and Filtration Codes <table border="1" style="width:100%; height: 100px;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>																										FSC: _____	
Project Name/ #: <u>Patchogue Form-MBP</u>		PWSID #:				Total # of Containers <u>5</u>														SCR#: _____													
Project Manager: <u>Jim Marolda</u>		P.O. #: <u>153021</u>																		Preservation Codes H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ P=H ₃ PO ₄ F=Field Filtered O=Other													
Sampler: <u>AFV/MBM</u>		Quote #:														Remarks <u>*BC Equis EDD*</u>																	
State where samples were collected: <u>New York</u>		For Compliance: Yes ☒ No ☐		Grab	Composite	Soil	Water	Other:	Total # of Containers																								
Sample Identification		Collected																															
		Date	Time																														
<u>MW-4D-20200318</u>		<u>03/18/20</u>	<u>1437</u>	☒			☒			<u>5</u>	☒	☒	☒	☒	☒	☒	☒																
<u>MW-4B-20200318</u>		<u>↓</u>	<u>1524</u>	☒			☒			<u>5</u>	☒	☒	☒	☒	☒	☒	☒																
<u>MW-4D-20200318</u>		<u>↓</u>	<u>1603</u>	☒			☒			<u>5</u>	☒	☒	☒	☒	☒	☒	☒																

Turnaround Time (TAT) Requested (please circle) Standard ☒ Rush ☐ (Rush TAT is subject to laboratory approval and surcharge.)				Relinquished by <u>AVM</u> Date <u>3/18/20</u> Time <u>1630</u>		Received by _____ Date _____ Time _____	
Requested TAT in business days: _____				Relinquished by _____ Date _____ Time _____		Received by _____ Date _____ Time _____	
E-mail address: <u>JMarolda@BrownCald.com</u>				Relinquished by _____ Date _____ Time _____		Received by _____ Date _____ Time _____	
Data Package Options (circle if required) Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only) Type III (Reduced non-CLP) NJ DKQP TX TRRP-13 (NYSD) Category A ☒ B ☐ MA MCP CT RCP				Relinquished by _____ Date _____ Time _____		Received by <u>[Signature]</u> Date <u>3/19/20</u> Time <u>8:15</u>	
EDD Required? Yes ☒ No ☐ If yes, format: <u>BE Equis EDD</u>				Relinquished by Commercial Carrier: UPS ☒ FedEx ☐ Other ☐		Temperature upon receipt _____ °C	
Site-Specific QC (MS/MSD/Dup)? Yes ☐ No ☐ (If yes, indicate QC sample and submit triplicate sample volume.)							

Client: BROWN AND CALDWELL**Delivery and Receipt Information**

Delivery Method:	<u>Fed Ex</u>	Arrival Date:	<u>03/19/2020</u>
Number of Packages:	<u>2</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>NY</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	No
Custody Seal Intact:	Yes	Total Trip Blank Qty:	2
Samples Chilled:	Yes	Trip Blank Type:	HCL
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

*Unpacked by Jessenia Colon Martinez***Samples Chilled Details***Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	2.7	DT	Wet	Y	Bagged	N
2	DT146	4.7	DT	Wet	N	Bagged	N

Sample Date/Time Discrepancy Details

<u>Sample ID on COC</u>	<u>Date/Time on Label</u>	<u>Comments</u>
MW-7D-20200318(MS/MS D)	3/18/2020 13:00	

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is less than the LOQ
K2	Continuing Calibration Blank is above the QC limit and the sample result is less than the LOQ
K3	Initial Calibration Verification is above the QC limit and the sample result is less than the LOQ
K4	Continuing Calibration Verification is above the QC limit and the sample result is less than the LOQ
J (or G, I, X)	Estimated value $\geq$ the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $>40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.

Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Volatiles by GC/MS Data

Case Narrative/Conformance Summary

Volatiles by GC/MS

Case Narrative/Conformance Summary

CLIENT: Brown & Caldwell
SDG: GPY67

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
1283809	MW-1-20200317	X		1	
1283810	MW-10S-20200317	X		1	
1283811	MW-10D-20200317	X		1	
1283812	MW-8S-20200317	X		1	
1283813	MW-8D-20200317	X		1	
1283814	MW-11S-20200318	X		1	
1283815	MW-11D-20200318	X		1	
1283816	MW-7S-20200318	X		1	
1283817	MW-7D-20200318	X		1	Unspiked
1283818	MW-7D-20200318-MS	X		1	Matrix Spike
1283819	MW-7D-20200318-MSD	X		1	Matrix Spike Duplicate
1283820	MW-14S-20200318	X		1	
1283821	MW-14D-20200318	X		1	
1283822	MW-4S-20200318	X		1	
1283823	MW-4D-20200318	X		1	
1283824	TB-20200317	X		1	Trip Blank

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

Case Narrative/Conformance Summary

CLIENT: Brown & Caldwell
SDG: GPY67

GC/MS Volatiles

Fraction: Volatiles by GC/MS

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

 Lancaster Laboratories Environmental	Document Title: GC/MS Volatiles Calculations		
	Eurofins Document Reference: 1-P-QM-FOR-9035336	Revision: 1	Historical Reference: N/A
	Effective date: Dec 3, 2015		Status: Effective

1. Relative Response Factor (RRF)

$$RRF = \frac{AX}{Ais} \times \frac{Cis}{Cx}$$

Where:

Ax = Area of the characteristic ion for the compound to be measured

Ais = Area of the characteristic ion for the specific internal standard to be measured

Cis = Concentration of the internal standard

Cx = Concentration of the compound to be measured

2. % Relative Standard Deviation (%RSD)

$$\%RSD = \frac{\text{standard deviation}}{\text{Mean}} \times 100$$

3. % Difference

$$\%D = \frac{RRFc - RRFi}{RRFi} \times 100$$

Where:

RRFc = Relative response factor from the continuing calibration standard

RRFi = Mean relative response factor from the initial calibration

 Lancaster Laboratories Environmental	Document Title: GC/MS Volatiles Calculations		
	Eurofins Document Reference: 1-P-QM-FOR-9035336	Revision: 1	Historical Reference: N/A
	Effective date: Dec 3, 2015		Status: Effective

4. Concentration

$$\text{Concentration } (\mu\text{g} / \text{L}) = \frac{(Ax)(Is)(Df)}{(Ais)(RRF)}$$

Where:

Ax, Ais, and RRF are as given in 1. above

Is = Amount of internal standard added in parts per billion (µg/L)

Df = Dilution factor

5. % Recovery (% Rec)

$$\%Rec = \frac{SSR - SR}{SA} \times 100$$

Where:

SSR = Spiked sample result

SR = Sample result

SA = Spike added

6. Relative Percent Difference (RPD)

$$RPD = \frac{(MSR - MSRD)}{(1/2)(MSR + MSRD)} \times 100$$

Where:

MSR = Matrix spike recovery

MSRD = Matrix spike recovery duplicate

Quality Control and Calibration Summary Forms

Volatiles by GC/MS

Quality Control Reference List GC/MS Volatiles

CLIENT: Brown & Caldwell
SDG: GPY67

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
BTEx/MTBE	Z200851AA	VBLKZ91	03/25/2020 09:23
		LCSZ91	03/25/2020 08:59
		1283809	03/25/2020 15:00
		1283810	03/25/2020 15:24
		1283811	03/25/2020 15:49
		1283812	03/25/2020 16:13
		1283813	03/25/2020 16:38
		1283814	03/25/2020 17:02
		1283815	03/25/2020 17:26
		1283816	03/25/2020 17:51
		1283817 UNSPK	03/25/2020 10:33
		1283818 MS	03/25/2020 10:57
		1283819 MSD	03/25/2020 11:21
		1283820	03/25/2020 11:45
		1283821	03/25/2020 12:10
		1283822	03/25/2020 12:34
		1283823	03/25/2020 12:58
		1283824	03/25/2020 10:08

Fraction: Volatiles by GC/MS

Z200851AA / VBLKZ91					
Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Methyl Tertiary Butyl Ether	03/25/20	N.D.	ug/l	0.2	1
Benzene	03/25/20	N.D.	ug/l	0.2	1
Toluene	03/25/20	N.D.	ug/l	0.2	1
Ethylbenzene	03/25/20	N.D.	ug/l	0.4	1
Xylene (Total)	03/25/20	N.D.	ug/l	1	6

Fraction: Volatiles by GC/MS

Z200851AA Sample	1,2-Dichloroethane-d4		4-Bromofluorobenzene		Dibromofluoromethane		Toluene-d8	
	Spike Added	50 ug/l	Spike Added	50 ug/l	Spike Added	50 ug/l	Spike Added	50 ug/l
	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKZ91	103	80 - 120	93	80 - 120	107	80 - 120	101	80 - 120
LCSZ91	103	80 - 120	101	80 - 120	104	80 - 120	101	80 - 120
1283809	104	80 - 120	93	80 - 120	109	80 - 120	100	80 - 120
1283810	104	80 - 120	93	80 - 120	108	80 - 120	100	80 - 120
1283811	104	80 - 120	91	80 - 120	110	80 - 120	99	80 - 120
1283812	105	80 - 120	92	80 - 120	110	80 - 120	100	80 - 120
1283813	103	80 - 120	91	80 - 120	110	80 - 120	99	80 - 120
1283814	105	80 - 120	95	80 - 120	110	80 - 120	99	80 - 120
1283815	103	80 - 120	91	80 - 120	108	80 - 120	99	80 - 120
1283816	104	80 - 120	93	80 - 120	108	80 - 120	100	80 - 120
1283817 UNSPK	103	80 - 120	92	80 - 120	109	80 - 120	100	80 - 120
1283818 MS	102	80 - 120	101	80 - 120	105	80 - 120	101	80 - 120
1283819 MSD	103	80 - 120	101	80 - 120	103	80 - 120	102	80 - 120
1283820	103	80 - 120	93	80 - 120	108	80 - 120	100	80 - 120
1283821	103	80 - 120	92	80 - 120	107	80 - 120	100	80 - 120
1283822	104	80 - 120	94	80 - 120	108	80 - 120	100	80 - 120
1283823	104	80 - 120	92	80 - 120	109	80 - 120	100	80 - 120
1283824	104	80 - 120	92	80 - 120	108	80 - 120	100	80 - 120

GC/MS Volatiles

Fraction: Volatiles by GC/MS

UNSPK: 1283817 MS: 1283818 MSD: 1283819 Analyte	Batch: Z200851AA (Sample number(s): 1283809-1283824)								
	Spike Added ug/l	Unspiked Conc ug/l	MS Conc ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
Methyl Tertiary Butyl Ether	20	N.D.	19.84	19.77	99	99	69-122	0	30
Benzene	20	N.D.	21.36	21.36	107	107	80-120	0	30
Toluene	20	N.D.	22.15	21.97	111	110	80-120	1	30
Ethylbenzene	20	N.D.	21.68	21.99	108	110	80-120	1	30
Xylene (Total)	60	N.D.	69.95	69.59	117	116	80-120	1	30

Comments:

(2) The unspiked sample result is greater than four times the spike added.

* = Out of Specification

Results are being reported on an as received basis.

SDG: GPY67
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSZ91	Batch: Z200851AA (Sample number(s): 1283809-1283824)							
	Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Analyte								
Methyl Tertiary Butyl Ether	20	19.87	NA	99	NA	69-122	NA	NA
Benzene	20	19.91	NA	100	NA	80-120	NA	NA
Toluene	20	20.66	NA	103	NA	80-120	NA	NA
Ethylbenzene	20	20.35	NA	102	NA	80-120	NA	NA
Xylene (Total)	60	64.81	NA	108	NA	80-120	NA	NA

Fraction: Volatiles by GC/MS

13130: BTEX/MTBE Analyte Name	Default MDL	Default LOQ	Units
Methyl Tertiary Butyl Ether	0.2	1	ug/l
Benzene	0.2	1	ug/l
Toluene	0.2	1	ug/l
Ethylbenzene	0.4	1	ug/l
Xylene (Total)	1	6	ug/l

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: zj20t01.d BFB Injection Date: 01/20/20
 Instrument ID: HP09671 BFB Injection Time: 08:06
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.43
75	30.0 - 60.0% of mass 95	47.12
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.77
173	Less than 2.0% of mass 174	0.16 (0.21)1
174	Greater than 50.0% of mass 95	73.78
175	5.0 - 9.0% of mass 174	5.18 (7.02)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.60 (97.04)1
177	5.0 - 9.0% of mass 176	4.71 (6.58)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD200	zj20i01.d	01/20/20	09:09
02	VSTD200	zj20i02.d	01/20/20	09:21
03	VSTD100	zj20i03.d	01/20/20	09:33
04	VSTD100	zj20i04.d	01/20/20	09:45
05	VSTD50	zj20i05.d	01/20/20	09:57
06	VSTD50	zj20i06.d	01/20/20	10:09
07	VSTD20	zj20i07.d	01/20/20	10:21
08	VSTD20	zj20i08.d	01/20/20	10:33
09	VSTD10	zj20i09.d	01/20/20	10:46
10	VSTD10	zj20i10.d	01/20/20	10:58
11	VSTD2	zj20i11.d	01/20/20	11:10
12	VSTD2	zj20i12.d	01/20/20	11:22
13	VSTD1	zj20i13.d	01/20/20	11:34
14	VSTD1	zj20i14.d	01/20/20	11:46
15	ICVZ01	zj20v01.d	01/20/20	12:23
16	ICVZ02	zj20v02.d	01/20/20	12:35
17	VSTD100	zj20i23.d	01/20/20	12:47
18	VSTD100	zj20i24.d	01/20/20	12:59

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: zm25t01.d BFB Injection Date: 03/25/20
 Instrument ID: HP09671 BFB Injection Time: 07:47
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.82
75	30.0 - 60.0% of mass 95	45.26
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.65
173	Less than 2.0% of mass 174	0.31 (0.40)1
174	Greater than 50.0% of mass 95	77.53
175	5.0 - 9.0% of mass 174	5.49 (7.08)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.15 (95.65)1
177	5.0 - 9.0% of mass 176	4.87 (6.57)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	zm25c01.d	03/25/20	08:34
02	VSTD50	zm25c02.d	03/25/20	08:46
03	LCSZ91	zm25s01.d	03/25/20	08:59
04	LCSZ92	zm25s02.d	03/25/20	09:11
05	VLKZ91	zm25b01.d	03/25/20	09:23
06	VLKZ92	zm25b02.d	03/25/20	09:35
07	1283824	zm25s03.d	03/25/20	10:08
08	1285389	zm25s04.d	03/25/20	10:20
09	1283817	zm25s05.d	03/25/20	10:33
10	1285467	zm25s06.d	03/25/20	10:45
11	1283818MS	zm25s07.d	03/25/20	10:57
12	1285467MS	zm25s08.d	03/25/20	11:09
13	1283819MSD	zm25s09.d	03/25/20	11:21
14	1285467MSD	zm25s10.d	03/25/20	11:33
15	1283820	zm25s11.d	03/25/20	11:45
16	1285468	zm25s12.d	03/25/20	11:57
17	1283821	zm25s13.d	03/25/20	12:10
18	1285469	zm25s14.d	03/25/20	12:22
19	1283822	zm25s15.d	03/25/20	12:34
20	1285470	zm25s16.d	03/25/20	12:46
21	1283823	zm25s17.d	03/25/20	12:58
22	1285471	zm25s18.d	03/25/20	13:10

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: zm25t01.d BFB Injection Date: 03/25/20
 Instrument ID: HP09671 BFB Injection Time: 07:47
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.82
75	30.0 - 60.0% of mass 95	45.26
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.65
173	Less than 2.0% of mass 174	0.31 (0.40)1
174	Greater than 50.0% of mass 95	77.53
175	5.0 - 9.0% of mass 174	5.49 (7.08)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.15 (95.65)1
177	5.0 - 9.0% of mass 176	4.87 (6.57)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	1282212	zm25s19.d	03/25/20	13:23
24	1285472	zm25s20.d	03/25/20	13:35
25	1282212DL	zm25s21.d	03/25/20	13:47
26	1285473	zm25s22.d	03/25/20	13:59
27	1282214	zm25s23.d	03/25/20	14:11
28	1285474	zm25s24.d	03/25/20	14:23
29	1282215	zm25s25.d	03/25/20	14:36
30	1285475	zm25s26.d	03/25/20	14:48
31	1283809	zm25s27.d	03/25/20	15:00
32	1285476	zm25s28.d	03/25/20	15:12
33	1283810	zm25s29.d	03/25/20	15:24
34	1285477	zm25s30.d	03/25/20	15:36
35	1283811	zm25s31.d	03/25/20	15:49
36	1285478	zm25s32.d	03/25/20	16:01
37	1283812	zm25s33.d	03/25/20	16:13
38	1285479	zm25s34.d	03/25/20	16:25
39	1283813	zm25s35.d	03/25/20	16:38
40	1285480	zm25s36.d	03/25/20	16:50
41	1283814	zm25s37.d	03/25/20	17:02
42	1282176	zm25s38.d	03/25/20	17:14
43	1283815	zm25s39.d	03/25/20	17:26
44	1282177	zm25s40.d	03/25/20	17:38

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: zm25t01.d BFB Injection Date: 03/25/20
 Instrument ID: HP09671 BFB Injection Time: 07:47
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.82
75	30.0 - 60.0% of mass 95	45.26
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.65
173	Less than 2.0% of mass 174	0.31 (0.40)1
174	Greater than 50.0% of mass 95	77.53
175	5.0 - 9.0% of mass 174	5.49 (7.08)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.15 (95.65)1
177	5.0 - 9.0% of mass 176	4.87 (6.57)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
45	1283816	zm25s41.d	03/25/20	17:51
46	1282178	zm25s42.d	03/25/20	18:03
47	1285280	zm25s43.d	03/25/20	18:15
48	1282140	zm25s44.d	03/25/20	18:27
49	1285750	zm25s45.d	03/25/20	18:39
50	1282141	zm25s46.d	03/25/20	18:51

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract: _____
Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
Instrument ID: HP09671 Calibration Date(s): 01/20/20 01/20/20
Heated Purge: (Y/N) Y Calibration Times: 09:09 12:47
Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-VRX ID: .18

LAB FILE ID:		RRF 1 = zj20i13.d		RRF 2 = zj20i11.d		RRF 10= zj20i09.d		
RRF 20= zj20i07.d		RRF 50= zj20i05.d		RRF100= zj20i23.d		RRF200= zj20i01.d		

Minimum RRF for SPCC(%) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09671.i/20jan20z.b/zj20i01.d	VSTD200
/chem2/HP09671.i/20jan20z.b/zj20i05.d	VSTD050
/chem2/HP09671.i/20jan20z.b/zj20i07.d	VSTD020
/chem2/HP09671.i/20jan20z.b/zj20i09.d	VSTD010
/chem2/HP09671.i/20jan20z.b/zj20i11.d	VSTD002
/chem2/HP09671.i/20jan20z.b/zj20i13.d	VSTD001
/chem2/HP09671.i/20jan20z.b/zj20i23.d	VSTD100

Area Summary

File ID:

=====

Internal Standard Name	zj20i01.d	zj20i05.d	zj20i07.d	zj20i09.d	zj20i11.d	zj20i13.d	zj20i23.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	208848	208898	211026	211328	212009	208649	207431	209741	1	Yes
Fluorobenzene	742718	744962	739482	738198	719981	705593	740322	733037	2	Yes
Chlorobenzene-d5	534108	531084	529337	529752	524034	515943	531236	527928	1	Yes
1,4-Dichlorobenzene-d4	280673	279816	279120	278135	270712	265108	280823	276341	2	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

=====

Internal Standard Name	zj20i01.d	zj20i05.d	zj20i07.d	zj20i09.d	zj20i11.d	zj20i13.d	zj20i23.d	Avg. RT
t-Butyl alcohol-d10	1.604	1.592	1.604	1.592	1.598	1.598	1.592	1.597
Fluorobenzene	3.259	3.259	3.259	3.259	3.259	3.259	3.259	3.259
Chlorobenzene-d5	4.847	4.847	4.847	4.847	4.847	4.847	4.847	4.847
1,4-Dichlorobenzene-d4	5.869	5.869	5.869	5.869	5.869	5.869	5.869	5.869

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 01/21/2020 at 04:49.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP09671 ICV Date: 01/20/20 Time: 12:23
 Lab File ID: zj20v01.d Init. Calib. Date(s): 01/20/20 01/20/20
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-VRX ID: .18

COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethanol	0.1184	0.1197	505.53	500	1
t-Butyl alcohol	1.1432	1.0625	185.86	200	-7
# Methyl Tertiary Butyl Ether	0.7077	0.6530	18.45	20	-8 #
di-Isopropyl ether	0.7637	0.7162	18.75	20	-6
Ethyl t-butyl ether	0.6937	0.6596	19.02	20	-5
t-Butyl Formate	0.1408	0.1374	97.57	100	-2
t-Amyl Alcohol	0.5076	0.4707	185.45	200	-7
# 1,2-Dichloroethane	0.3515	0.3300	18.78	20	-6 #
# Benzene	1.0734	1.0334	19.25	20	-4 #
t-Amyl methyl ether	0.1589	0.1531	19.27	20	-4
# Toluene	0.9235	0.8939	19.36	20	-3 #
3,3-Dimethyl-1-butanol	0.7994	0.7580	474.11	500	-5
# 1,2-Dibromoethane	0.3211	0.3112	19.39	20	-3 #
# Ethylbenzene	1.6789	1.6251	19.36	20	-3 #
# m+p-Xylene	0.6626	0.6713	40.52	40	1 #
# o-Xylene	0.6314	0.6291	19.93	20	0 #
# Isopropylbenzene	1.6301	1.5926	19.54	20	-2 #
1,3,5-Trimethylbenzene	2.4861	2.4156	19.43	20	-3
1,2,4-Trimethylbenzene	2.5698	2.5718	20.02	20	0
Naphthalene	3.3324	3.0499	18.30	20	-8

Average %Drift 4

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %Drift for CCC(*)=20%

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

```

/chem2/HP09671.i/20jan20z.b/zj20i13.d
/chem2/HP09671.i/20jan20z.b/zj20i11.d
/chem2/HP09671.i/20jan20z.b/zj20i09.d
/chem2/HP09671.i/20jan20z.b/zj20i07.d
/chem2/HP09671.i/20jan20z.b/zj20i05.d
/chem2/HP09671.i/20jan20z.b/zj20i23.d
/chem2/HP09671.i/20jan20z.b/zj20i01.d

```

File /chem2/HP09671.i/20jan20z.b/zj20i05.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

```
/chem2/HP09671.i/20mar25a.b/zm25c01.d
```

RT Summary

File ID:

=====

Internal Standard Name	zm25c01.d	ICAL RT	In Spec
t-Butyl alcohol-d10	1.592	1.592	Yes
Fluorobenzene	3.253	3.259	Yes
Chlorobenzene-d5	4.847	4.847	Yes
1,4-Dichlorobenzene-d4	5.869	5.869	Yes

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

File ID:

=====

Internal Standard Name	zm25c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	180801	208898	104449	417796	Yes
Fluorobenzene	804362	744962	372481	1489924	Yes
Chlorobenzene-d5	568867	531084	265542	1062168	Yes
1,4-Dichlorobenzene-d4	312658	279816	139908	559632	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments:

report generated on 03/25/2020 at 09:55

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: HP09671 Calibration Date: 03/25/20 Time: 08:34

Lab File ID: zm25c01.d Init. Calib. Date(s): 01/20/20 01/20/20

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-VRX ID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
=====	=====	=====	=====	=====	=====
Ethanol	0.1184	0.1166	1230.81	1250	-2
t-Butyl alcohol	1.1432	1.2341	269.86	250	8
# Methyl Tertiary Butyl Ether	0.7077	0.7242	204.65	200	2 #
di-Isopropyl ether	0.7637	0.7941	51.99	50	4
Ethyl t-butyl ether	0.6937	0.7512	54.15	50	8
# 1,2-Dichloroethane	0.3515	0.3253	46.27	50	-7 #
# Benzene	1.0734	1.0840	50.50	50	1 #
t-Amyl methyl ether	0.1589	0.1779	55.97	50	12
# Toluene	0.9235	0.9700	52.52	50	5 #
# 1,2-Dibromoethane	0.3211	0.3496	54.44	50	9 #
# Ethylbenzene	1.6789	1.8078	53.84	50	8 #
# m+p-Xylene	0.6626	0.7370	111.21	100	11 #
# o-Xylene	0.6314	0.7104	56.25	50	13 #
# Isopropylbenzene	1.6301	1.8330	56.22	50	12 #
1,3,5-Trimethylbenzene	2.4861	2.7927	56.17	50	12
1,2,4-Trimethylbenzene	2.5698	2.9266	56.94	50	14
Naphthalene	3.3324	3.7560	56.36	50	13
=====	=====	=====	=====	=====	=====
Dibromofluoromethane	0.1959	0.2016	51.46	50	3
Dibromofluoromethane(2)	0.2009	0.2067	51.46	50	3
1,2-Dichloroethane-d4	0.0614	0.0638	51.97	50	4
1,2-Dichloroethane-d4(2)	0.2874	0.2801	48.74	50	-3
1,2-Dichloroethane-d4(3)	0.0379	0.0389	51.22	50	2
Toluene-d8	1.3376	1.3586	50.79	50	2
Toluene-d8(2)	0.8563	0.8790	51.32	50	3
4-Bromofluorobenzene	0.5034	0.5067	50.32	50	1
4-Bromofluorobenzene(2)	0.3789	0.4067	53.66	50	7

Average %Drift 7

Minimum RRF for SPCC(=)0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): zm25c01.d Date Analyzed: 03/25/20
 Instrument ID: HP09671 Time Analyzed: 08:34
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1 (TBA) AREA #	RT #	IS2 (FBZ) AREA #	RT #	IS3 (CBZ) AREA #	RT #	IS4 (DCB) AREA #	RT #
	12 HOUR STD	180801	1.592	804362	3.253	568867	4.847	312658	5.869
	UPPER LIMIT	361602	2.092	1608724	3.753	1137734	5.347	625316	6.369
	LOWER LIMIT	90400	1.092	402181	2.753	284434	4.347	156329	5.369
	LAB SAMPLE ID								
01	LCSZ91	172847	1.592	780598	3.259	553022	4.847	305404	5.869
02	LCSZ92	297188	1.586	737668	3.247	535810	4.847	297411	5.869
03	VBLKZ91	176790	1.598	760115	3.259	555996	4.847	295244	5.869
04	VBLKZ92	282395	1.586	702481	3.253	522049	4.847	281064	5.869
05	1283824	186104	1.592	755268	3.253	554185	4.847	293426	5.869
06	1285389	284596	1.580	696172	3.253	524634	4.847	278721	5.869
07	1283817	179159	1.598	750424	3.259	548414	4.847	294712	5.869
08	1285467	283020	1.580	680958	3.247	510140	4.847	269569	5.869
09	1283818MS	173908	1.592	779574	3.259	550289	4.847	305142	5.869
10	1285467MS	259663	1.580	711403	3.247	511377	4.847	287443	5.869
11	1283819MSD	176361	1.592	780618	3.259	549046	4.847	304773	5.869
12	1285467MSD	275998	1.580	718518	3.247	519830	4.847	293336	5.869
13	1283820	180128	1.592	734528	3.259	537458	4.847	288989	5.869
14	1285468	271784	1.580	700992	3.247	529805	4.847	288843	5.869
15	1283821	169258	1.592	728008	3.253	534358	4.847	286543	5.869
16	1285469	271033	1.580	679961	3.247	510886	4.847	270150	5.869
17	1283822	185996	1.598	739552	3.259	539954	4.847	298623	5.869
18	1285470	284444	1.574	683638	3.241	517054	4.847	272758	5.869
19	1283823	174525	1.598	727069	3.259	534130	4.847	282956	5.869
20	1285471	252015	1.586	662238	3.253	497520	4.847	264013	5.869
21	1282212	176485	1.598	759400	3.259	552489	4.847	295667	5.869
22	1285472	287926	1.580	715761	3.247	526593	4.847	291928	5.869

IS1 (TBA)=t-Butyl alcohol-d10 UPPER LIMIT = + 100%
 IS2 (FBZ)=Fluorobenzene of internal standard area.
 IS3 (CBZ)=Chlorobenzene-d5 LOWER LIMIT = - 50%
 IS4 (DCB)=1,4-Dichlorobenzene-d4 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): zm25c01.d Date Analyzed: 03/25/20
 Instrument ID: HP09671 Time Analyzed: 08:34
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1 (TBA) AREA #	RT #	IS2 (FBZ) AREA #	RT #	IS3 (CBZ) AREA #	RT #	IS4 (DCB) AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	180801	1.592	804362	3.253	568867	4.847	312658	5.869
	UPPER LIMIT	361602	2.092	1608724	3.753	1137734	5.347	625316	6.369
	LOWER LIMIT	90400	1.092	402181	2.753	284434	4.347	156329	5.369
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	LAB SAMPLE ID								
	=====	=====	=====	=====	=====	=====	=====	=====	=====
23	1282212DL	165493	1.592	714547	3.259	522100	4.847	290511	5.869
24	1285473	295808	1.580	713906	3.247	537585	4.847	287333	5.869
25	1282214	183426	1.592	744436	3.259	554491	4.847	294306	5.869
26	1285474	295038	1.586	721106	3.247	532367	4.847	293068	5.869
27	1282215	179484	1.604	739123	3.259	535801	4.847	286946	5.869
28	1285475	290670	1.580	710767	3.247	521871	4.847	292269	5.869
29	1283809	183579	1.592	740593	3.253	542633	4.847	293015	5.869
30	1285476	270173	1.574	672607	3.247	507444	4.847	269506	5.869
31	1283810	173626	1.592	720695	3.253	522370	4.847	279391	5.869
32	1285477	281261	1.586	676627	3.253	509799	4.847	269624	5.869
33	1283811	169698	1.604	687136	3.259	503878	4.847	266761	5.869
34	1285478	285808	1.574	660907	3.247	505016	4.847	264966	5.869
35	1283812	172498	1.592	704257	3.253	519373	4.847	278071	5.869
36	1285479	293099	1.574	664927	3.247	502159	4.847	265911	5.869
37	1283813	166853	1.604	700559	3.259	516588	4.847	274449	5.869
38	1285480	284853	1.586	651871	3.253	492686	4.847	260887	5.869
39	1283814	179540	1.598	698200	3.259	517552	4.847	287489	5.869
40	1282176	274295	1.574	664132	3.247	504414	4.847	273366	5.869
41	1283815	177442	1.598	718997	3.259	529452	4.847	280694	5.869
42	1282177	283765	1.586	706587	3.247	520102	4.847	286149	5.869
43	1283816	178037	1.592	717622	3.253	524997	4.847	285870	5.869
44	1282178	293903	1.580	731896	3.247	537417	4.847	293902	5.869

IS1 (TBA)=t-Butyl alcohol-d10 UPPER LIMIT = + 100%
 IS2 (FBZ)=Fluorobenzene of internal standard area.
 IS3 (CBZ)=Chlorobenzene-d5 LOWER LIMIT = - 50%
 IS4 (DCB)=1,4-Dichlorobenzene-d4 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.
 page 2 of 3

FORM VIII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): zm25c01.d Date Analyzed: 03/25/20
 Instrument ID: HP09671 Time Analyzed: 08:34
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1 (TBA) AREA #	RT #	IS2 (FBZ) AREA #	RT #	IS3 (CBZ) AREA #	RT #	IS4 (DCB) AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	180801	1.592	804362	3.253	568867	4.847	312658	5.869
	UPPER LIMIT	361602	2.092	1608724	3.753	1137734	5.347	625316	6.369
	LOWER LIMIT	90400	1.092	402181	2.753	284434	4.347	156329	5.369
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	LAB SAMPLE ID								
	=====	=====	=====	=====	=====	=====	=====	=====	=====
45	1285280	165146	1.604	679532	3.259	495066	4.847	264956	5.869
46	1282140	283704	1.574	721253	3.247	539914	4.847	287952	5.869
47	1285750	172528	1.592	722180	3.259	530482	4.847	283490	5.869
48	1282141	285794	1.580	681884	3.247	509667	4.847	270829	5.869

IS1 (TBA)=t-Butyl alcohol-d10
 IS2 (FBZ)=Fluorobenzene
 IS3 (CBZ)=Chlorobenzene-d5
 IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
 of internal standard area.
 LOWER LIMIT = - 50%
 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.
 page 3 of 3

FORM VIII VOA

Sample Data

Volatiles by GC/MS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC01

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283809

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s27.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC01

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283809

Data file: /chem2/HP09671.i/20mar25a.b/zm25s27.d

Injection date and time: 25-MAR-2020 15:00

Data file Sample Info. Line: BAC01;1283809;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 15:08 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	183579 (2)	250.00	
14) Fluorobenzene	3.253 (0.000)	357	96	740593 (-8)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	542633 (-5)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	293015 (-6)	50.00	

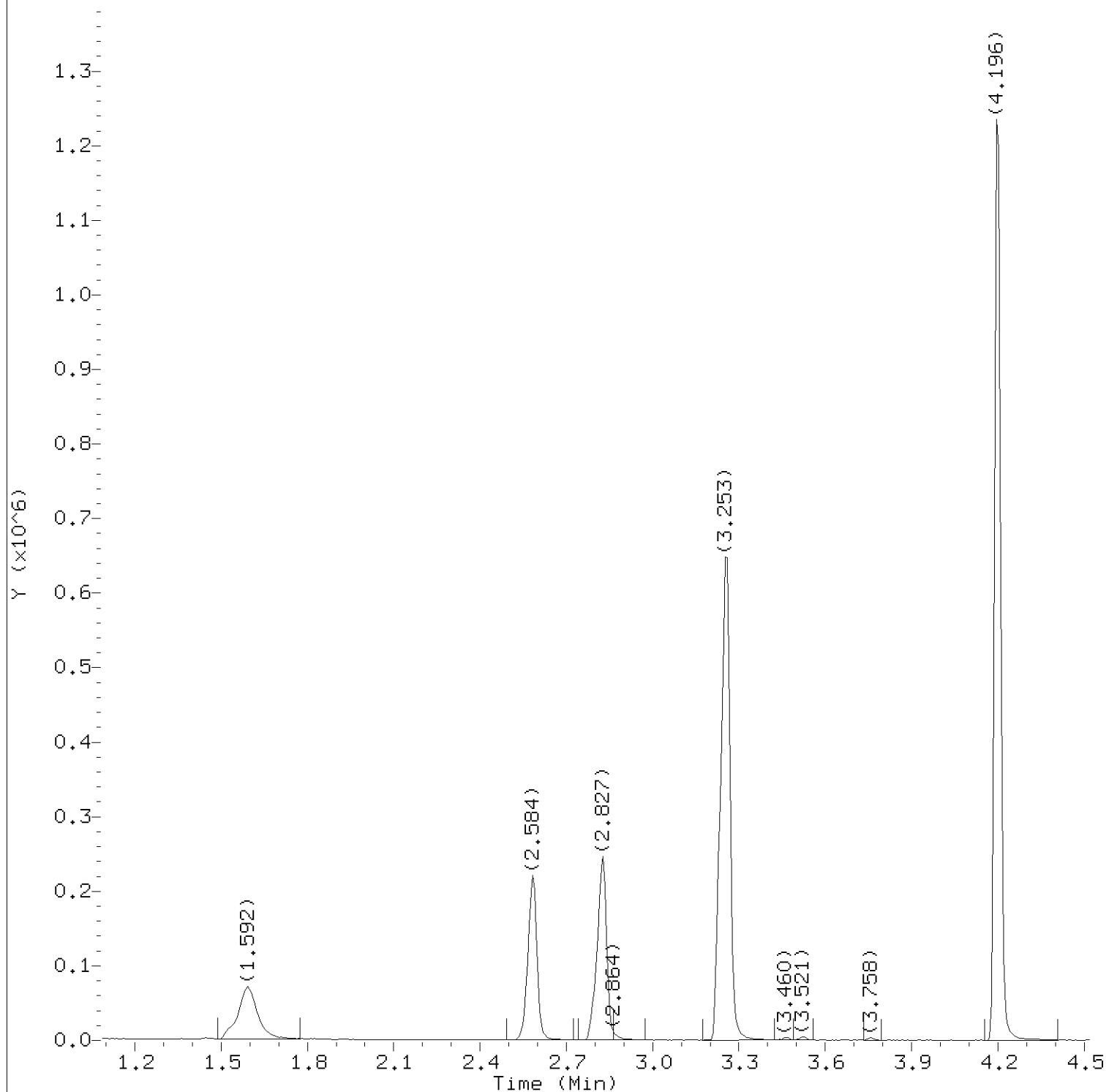
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.000)	113	157663	54.333	109%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.000)	102	47438	52.183	104%		80 - 120
15) Toluene-d8	(3)	4.196 (0.001)	98	727687	50.129	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	252850	46.277	93%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s27.d
Injection date and time: 25-MAR-2020 15:00

Instrument ID: HP09671.i
Analyst ID: ads07818

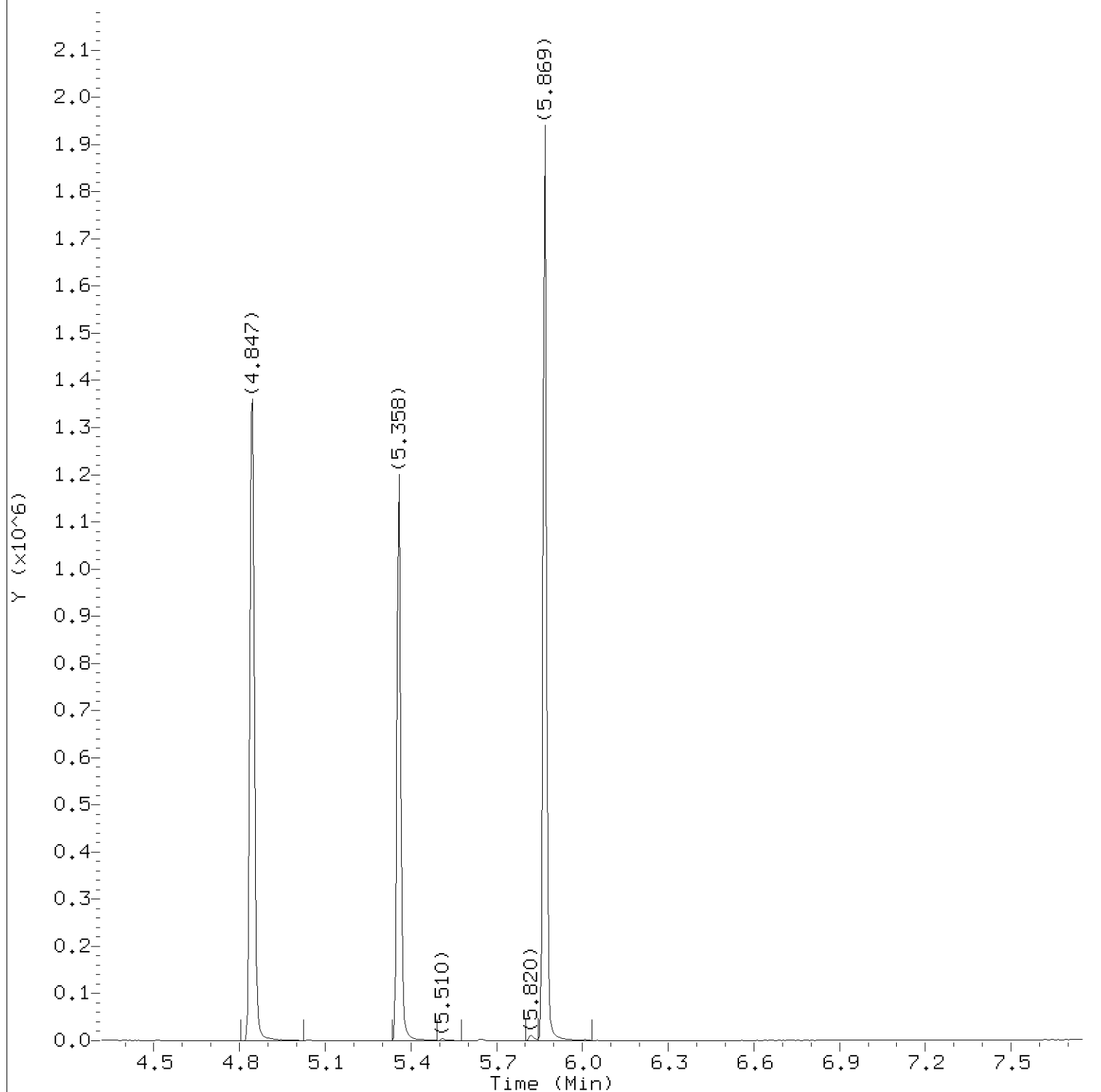
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 15:08 chemist

Sample Name: BAC01

Lab Sample ID: 1283809

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s27.d
Injection date and time: 25-MAR-2020 15:00

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 15:08 chemist

Sample Name: BAC01

Lab Sample ID: 1283809

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s27.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 15:00

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 15:08 chemist

Sample Name: BAC01

Lab Sample ID: 1283809

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.592	65	183579	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	157663	54.333
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	47438	52.183
14) *Fluorobenzene	(2)	3.253	96	740593	50.000
15) \$Toluene-d8	(3)	4.196	98	727687	50.129
19) *Chlorobenzene-d5	(3)	4.847	117	542633	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	252850	46.277
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	293015	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC02

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 1283810
 Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s29.d
 Level: (low/med) LOW Date Received: 03/19/20
 Moisture: not dec. _____ Date Analyzed: 03/25/20
 Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC02

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283810

Data file: /chem2/HP09671.i/20mar25a.b/zm25s29.d

Injection date and time: 25-MAR-2020 15:24

Data file Sample Info. Line: BAC02;1283810;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 15:33 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	173626 (-4)	250.00	
14) Fluorobenzene	3.253 (0.000)	357	96	720695 (-10)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	522370 (-8)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	279391 (-11)	50.00	

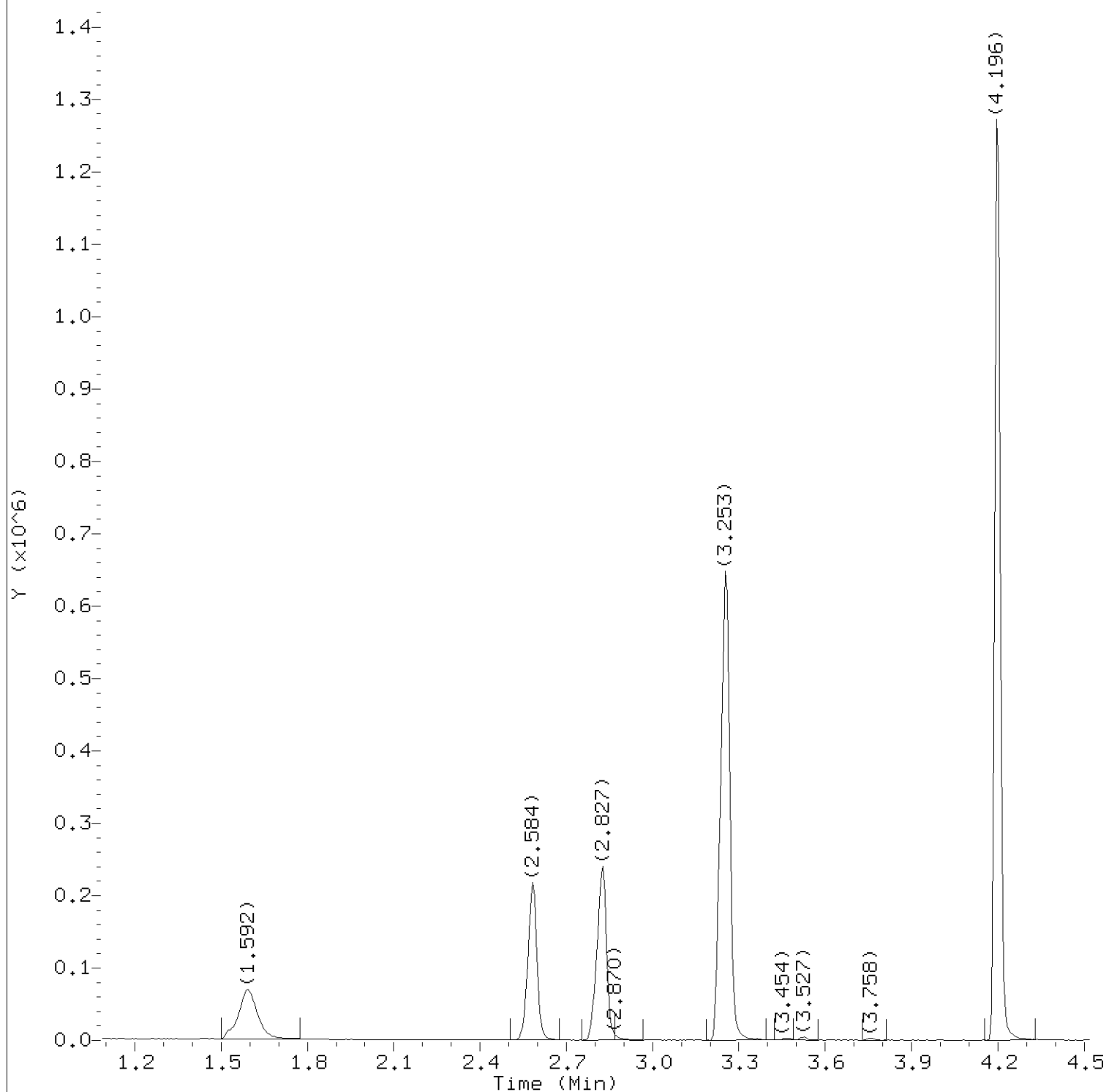
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.000)	113	153019	54.189	108%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.000)	102	46086	52.096	104%		80 - 120
15) Toluene-d8	(3)	4.196 (0.001)	98	699225	50.037	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	244742	46.531	93%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s29.d
Injection date and time: 25-MAR-2020 15:24

Instrument ID: HP09671.i
Analyst ID: ads07818

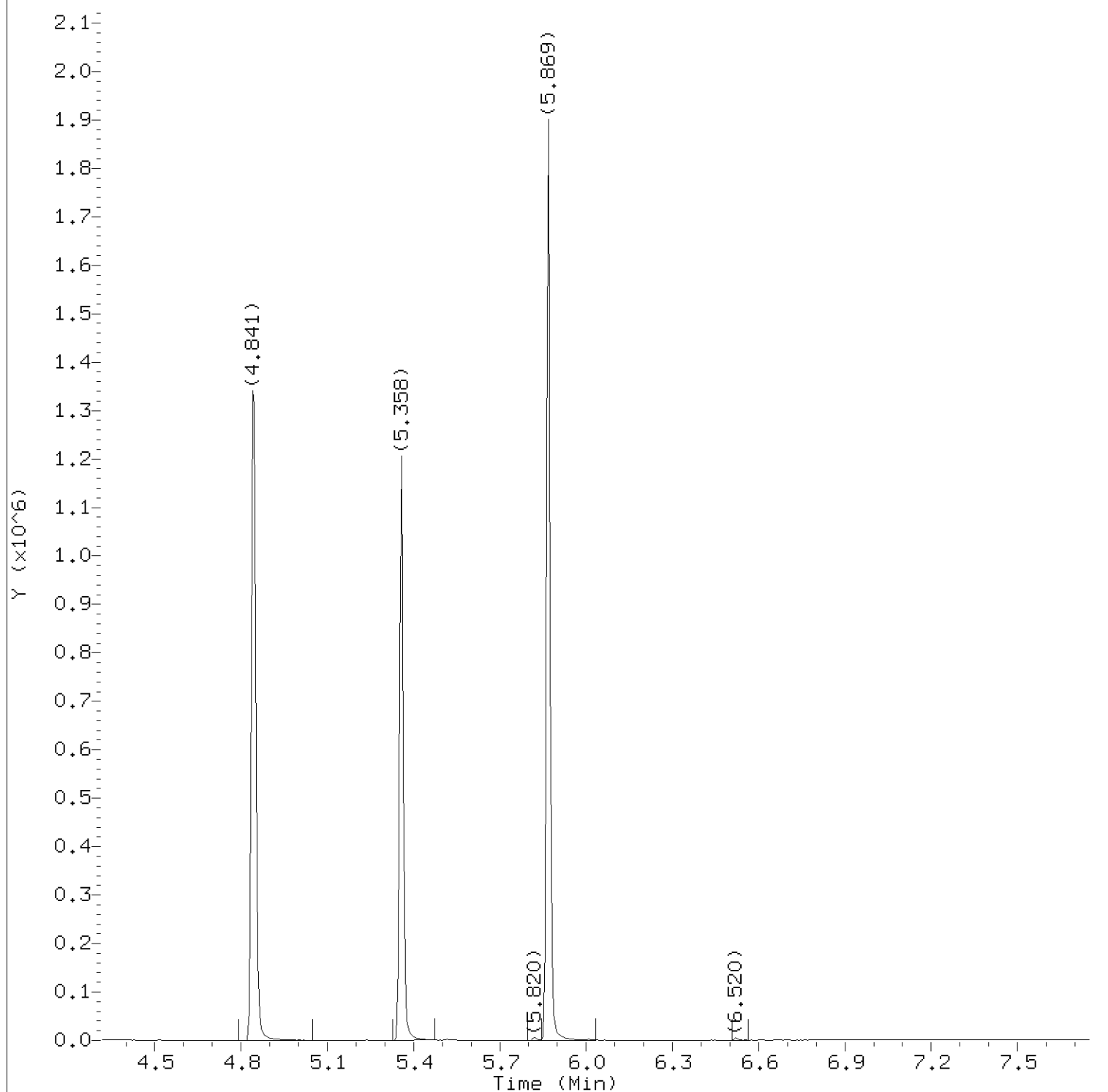
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Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 15:33 chemist

Sample Name: BAC02

Lab Sample ID: 1283810

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s29.d
Injection date and time: 25-MAR-2020 15:24

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 15:33 chemist

Sample Name: BAC02

Lab Sample ID: 1283810

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s29.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 15:24

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 15:33 chemist

Sample Name: BAC02

Lab Sample ID: 1283810

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2) *t-Butyl alcohol-d10	(1)	1.592	65	173626	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	153019	54.189
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	46086	52.096
14) *Fluorobenzene	(2)	3.253	96	720695	50.000
15) \$Toluene-d8	(3)	4.196	98	699225	50.037
19) *Chlorobenzene-d5	(3)	4.847	117	522370	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	244742	46.531
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	279391	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

GPY67 Page 73 of 609

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC03

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 1283811
 Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s31.d
 Level: (low/med) LOW Date Received: 03/19/20
 Moisture: not dec. _____ Date Analyzed: 03/25/20
 Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC03

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283811

Data file: /chem2/HP09671.i/20mar25a.b/zm25s31.d

Injection date and time: 25-MAR-2020 15:49

Data file Sample Info. Line: BAC03;1283811;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 15:58 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.604 (-0.012)	86	65	169698 (-6)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	687136 (-15)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	503878 (-11)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	266761 (-15)	50.00	

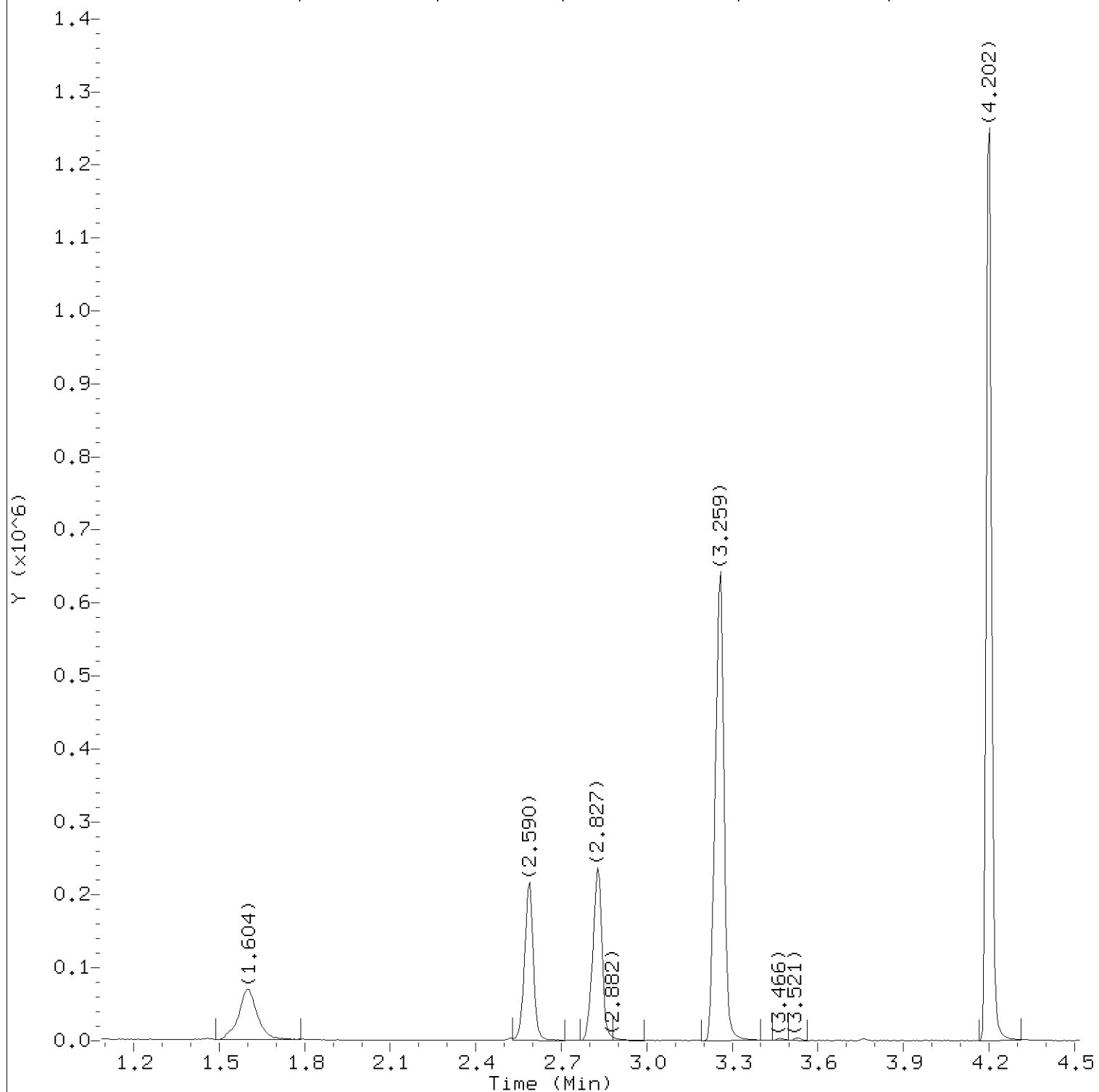
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.590 (0.000)	113	148268	55.071	110%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	43762	51.885	104%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	666850	49.471	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	230469	45.425	91%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit LOQ (in sample)
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2 1
12) Benzene	(2)			Not Detected					0.2 1
16) Toluene	(3)			Not Detected					0.2 1
20) Ethylbenzene	(3)			Not Detected					0.4 1
21) m+p-Xylene	(3)			Not Detected					1 5
22) o-Xylene	(3)			Not Detected					0.4 1
23) Xylene (Total)	(3)			Not Detected					1 6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s31.d
Injection date and time: 25-MAR-2020 15:49

Instrument ID: HP09671.i
Analyst ID: ads07818

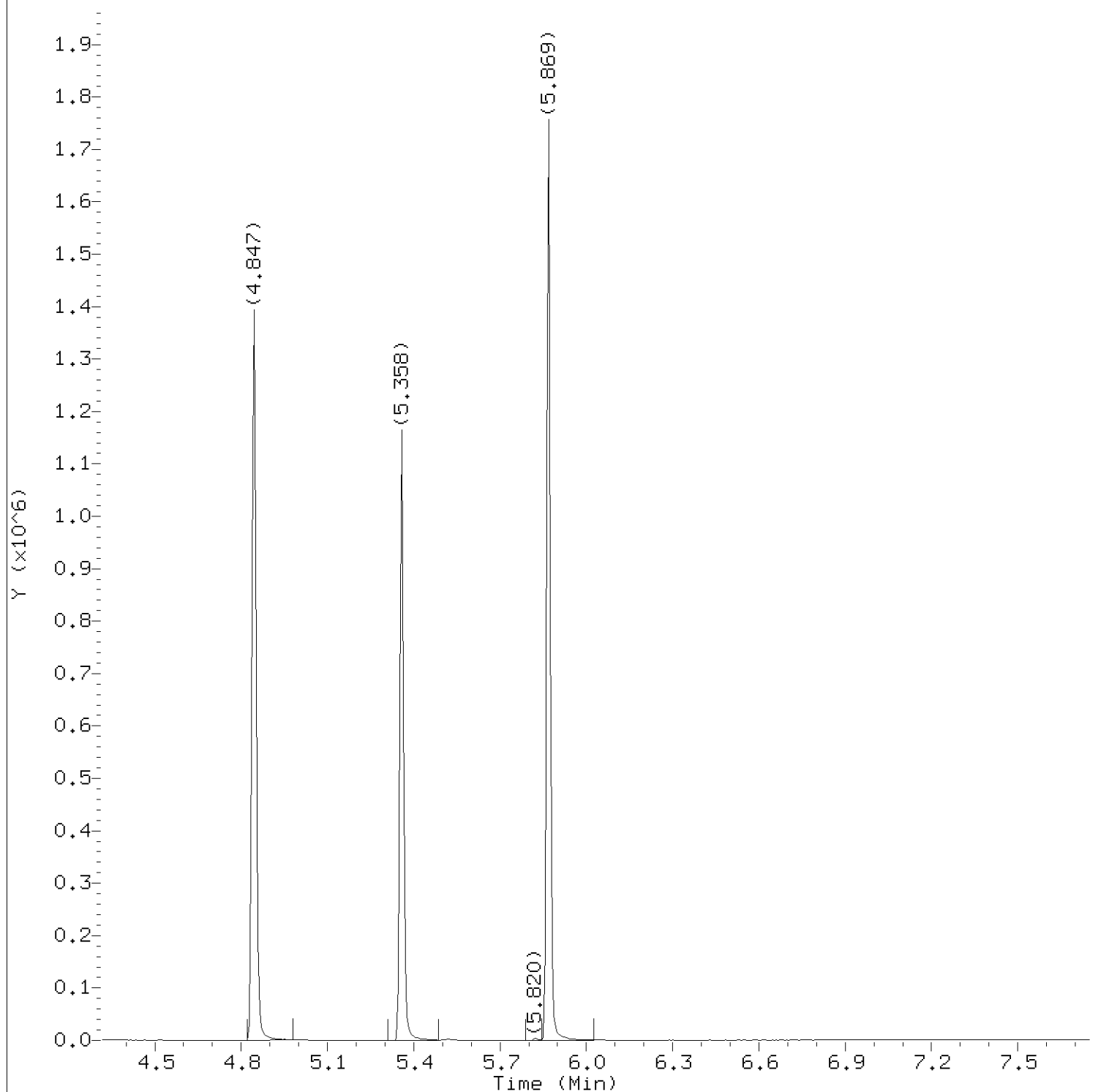
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Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 15:58 chemist

Sample Name: BAC03

Lab Sample ID: 1283811

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s31.d
Injection date and time: 25-MAR-2020 15:49

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 15:58 chemist

Sample Name: BAC03

Lab Sample ID: 1283811

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s31.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 15:49

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 15:58 chemist

Sample Name: BAC03

Lab Sample ID: 1283811

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.604	65	169698	250.000
7) \$Dibromofluoromethane	(2)	2.590	113	148268	55.071
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	43762	51.885
14) *Fluorobenzene	(2)	3.259	96	687136	50.000
15) \$Toluene-d8	(3)	4.202	98	666850	49.471
19) *Chlorobenzene-d5	(3)	4.847	117	503878	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	230469	45.425
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	266761	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC04

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283812

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s33.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC04

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283812

Data file: /chem2/HP09671.i/20mar25a.b/zm25s33.d

Injection date and time: 25-MAR-2020 16:13

Data file Sample Info. Line: BAC04;1283812;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 16:22 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	172498 (-5)	250.00	
14) Fluorobenzene	3.253 (0.000)	357	96	704257 (-12)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	519373 (-9)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	278071 (-11)	50.00	

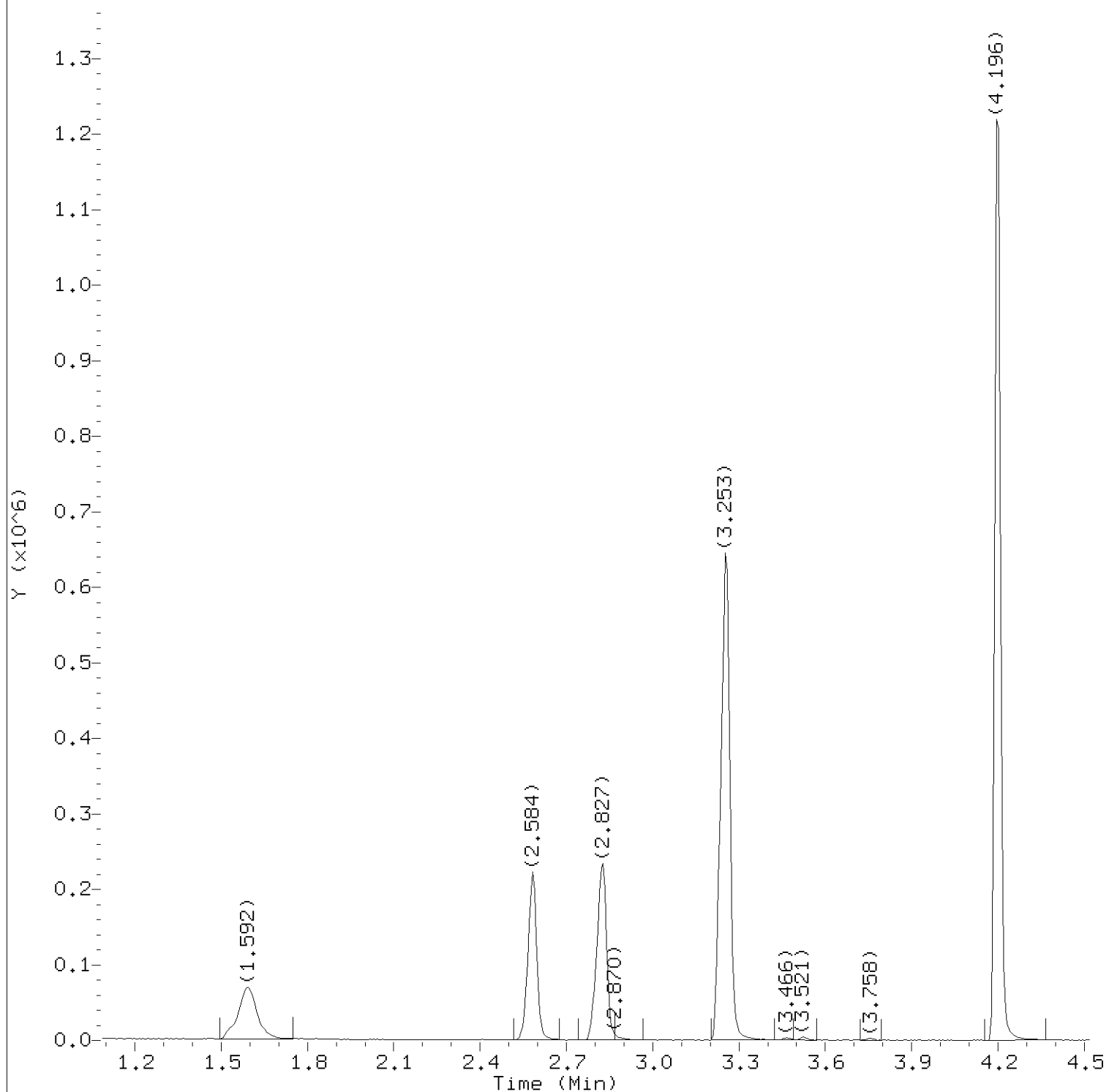
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.000)	113	151782	55.005	110%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.000)	102	45293	52.394	105%		80 - 120
15) Toluene-d8	(3)	4.196 (0.001)	98	691315	49.756	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	240475	45.983	92%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s33.d
Injection date and time: 25-MAR-2020 16:13

Instrument ID: HP09671.i
Analyst ID: ads07818

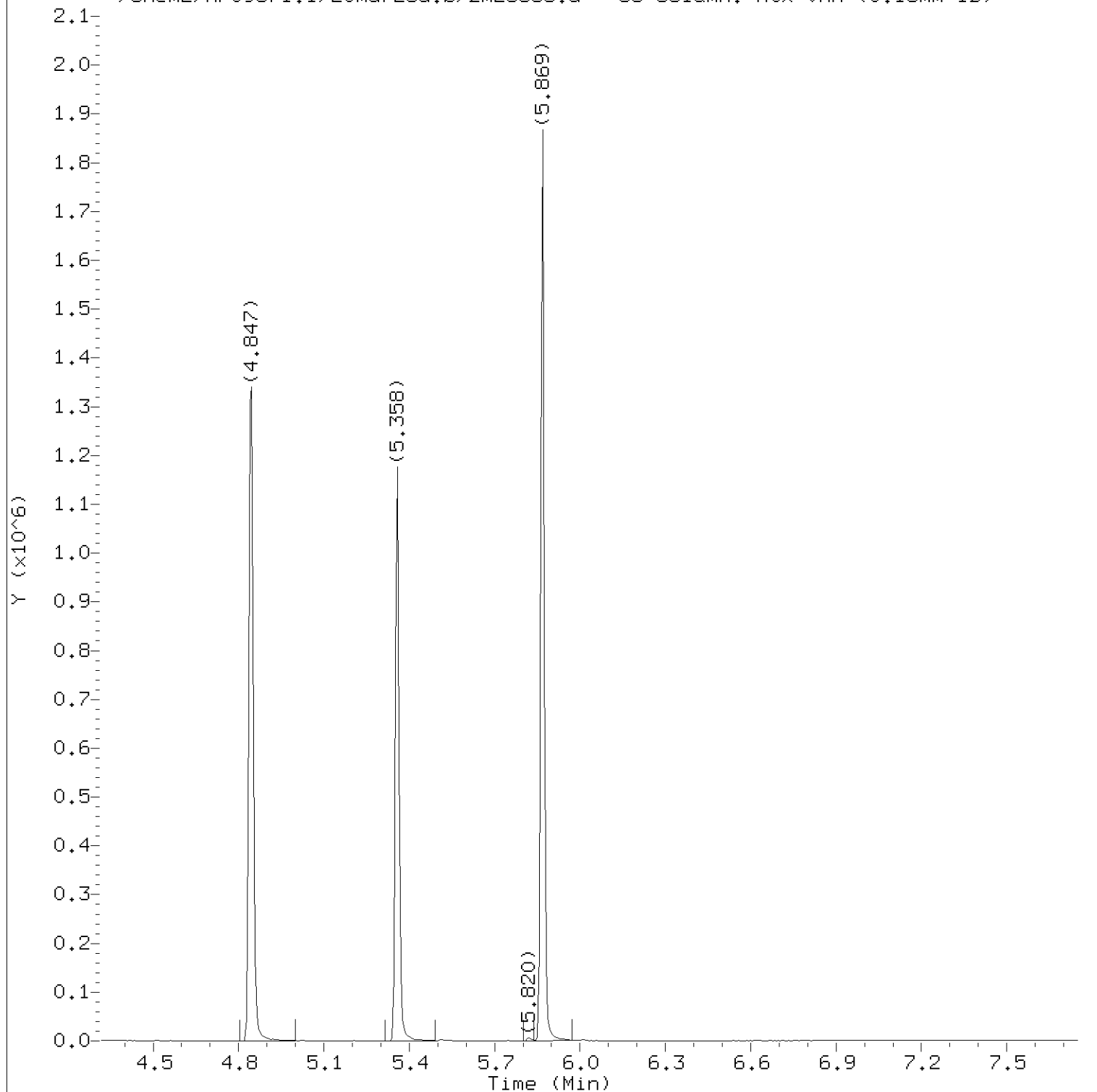
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Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 16:22 chemist

Sample Name: BAC04

Lab Sample ID: 1283812

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s33.d
Injection date and time: 25-MAR-2020 16:13

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 16:22 chemist

Sample Name: BAC04

Lab Sample ID: 1283812

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s33.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 16:13

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 16:22 chemist

Sample Name: BAC04

Lab Sample ID: 1283812

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.592	65	172498	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	151782	55.005
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	45293	52.394
14) *Fluorobenzene	(2)	3.253	96	704257	50.000
15) \$Toluene-d8	(3)	4.196	98	691315	49.756
19) *Chlorobenzene-d5	(3)	4.847	117	519373	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	240475	45.983
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	278071	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

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on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC05

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283813

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s35.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC05

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283813

Data file: /chem2/HP09671.i/20mar25a.b/zm25s35.d

Injection date and time: 25-MAR-2020 16:38

Data file Sample Info. Line: BAC05;1283813;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 16:47 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.604 (-0.012)	86	65	166853 (-8)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	700559 (-13)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	516588 (-9)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	274449 (-12)	50.00	

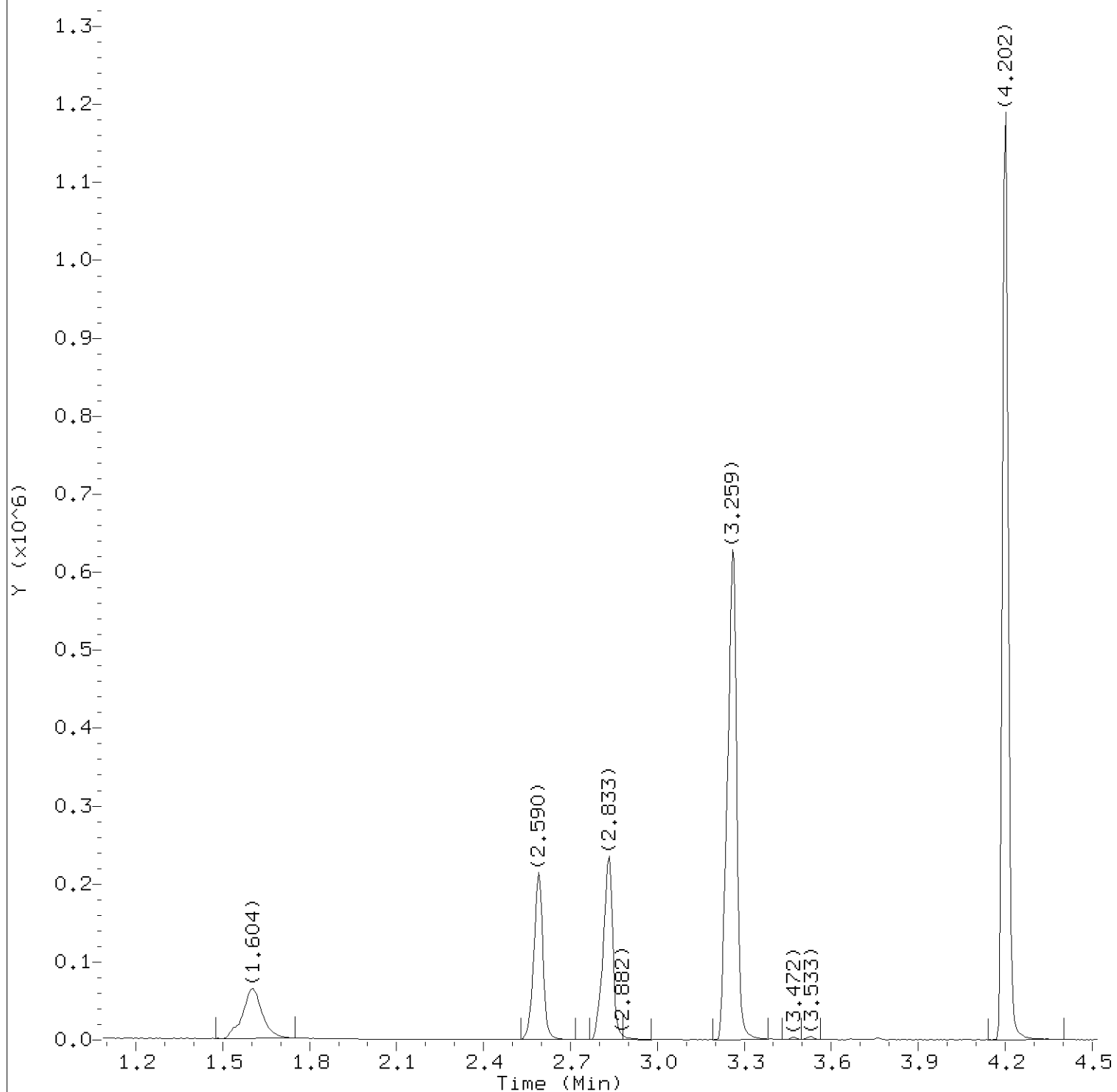
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.590 (0.000)	113	151069	55.036	110%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.833 (0.000)	102	44385	51.615	103%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	685312	49.590	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	237407	45.641	91%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s35.d
Injection date and time: 25-MAR-2020 16:38

Instrument ID: HP09671.i
Analyst ID: ads07818

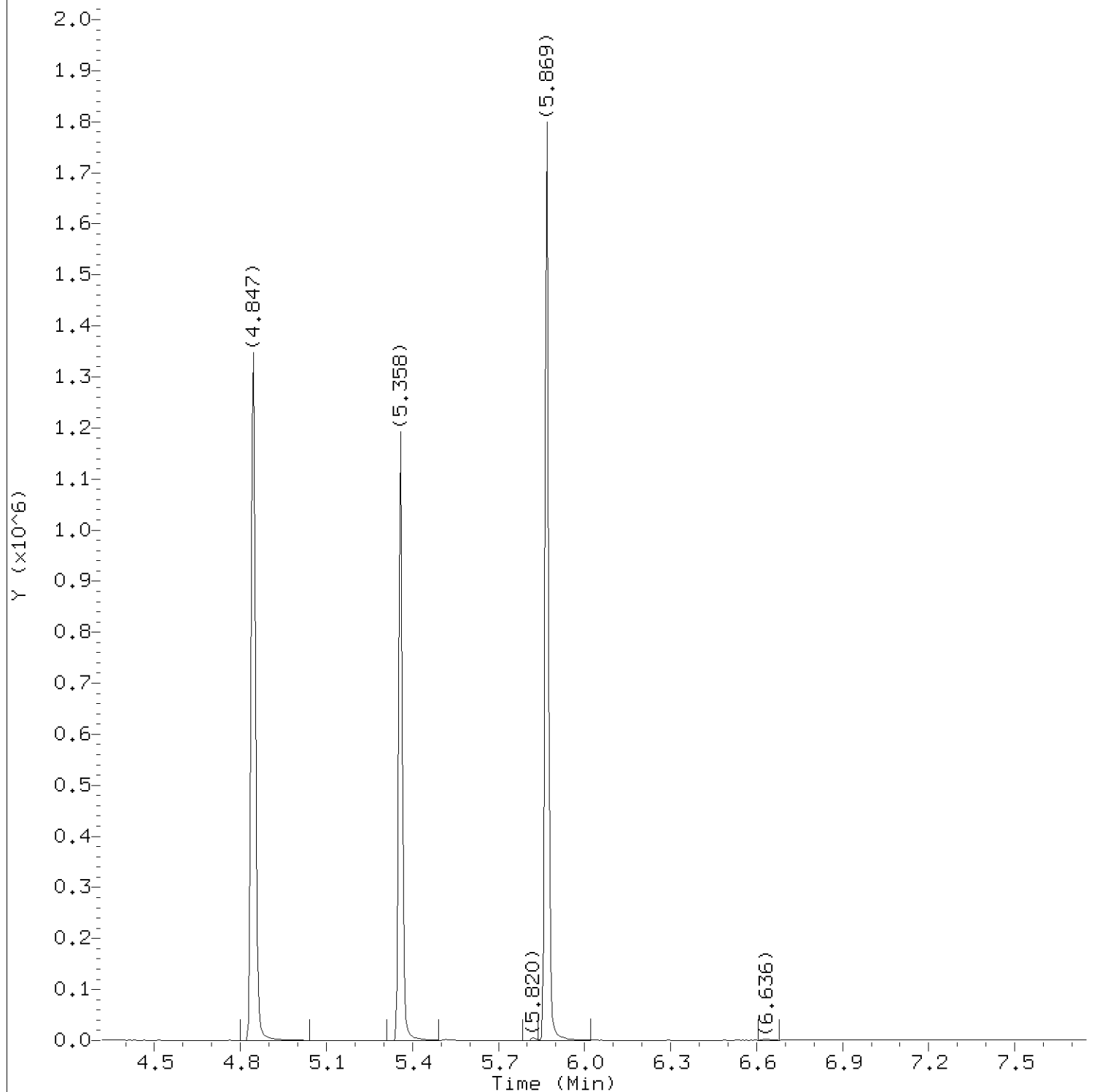
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Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 16:47 chemist

Sample Name: BAC05

Lab Sample ID: 1283813

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s35.d
Injection date and time: 25-MAR-2020 16:38

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 16:47 chemist

Sample Name: BAC05

Lab Sample ID: 1283813

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s35.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 16:38

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 16:47 chemist

Sample Name: BAC05

Lab Sample ID: 1283813

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.604	65	166853	250.000
7) \$Dibromofluoromethane	(2)	2.590	113	151069	55.036
10) \$1,2-Dichloroethane-d4	(2)	2.833	102	44385	51.615
14) *Fluorobenzene	(2)	3.259	96	700559	50.000
15) \$Toluene-d8	(3)	4.202	98	685312	49.590
19) *Chlorobenzene-d5	(3)	4.847	117	516588	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	237407	45.641
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	274449	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC06

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283814

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s37.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1		U
71-43-2-----	Benzene	2		
108-88-3-----	Toluene	1		U
100-41-4-----	Ethylbenzene	1		U
1330-20-7-----	Xylene (Total)	2		J

BAC06

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283814

Data file: /chem2/HP09671.i/20mar25a.b/zm25s37.d

Injection date and time: 25-MAR-2020 17:02

Data file Sample Info. Line: BAC06;1283814;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 17:11 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.598 (-0.006)	85	65	179540 (-1)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	698200 (-13)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	517552 (-9)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	287489 (-8)	50.00	

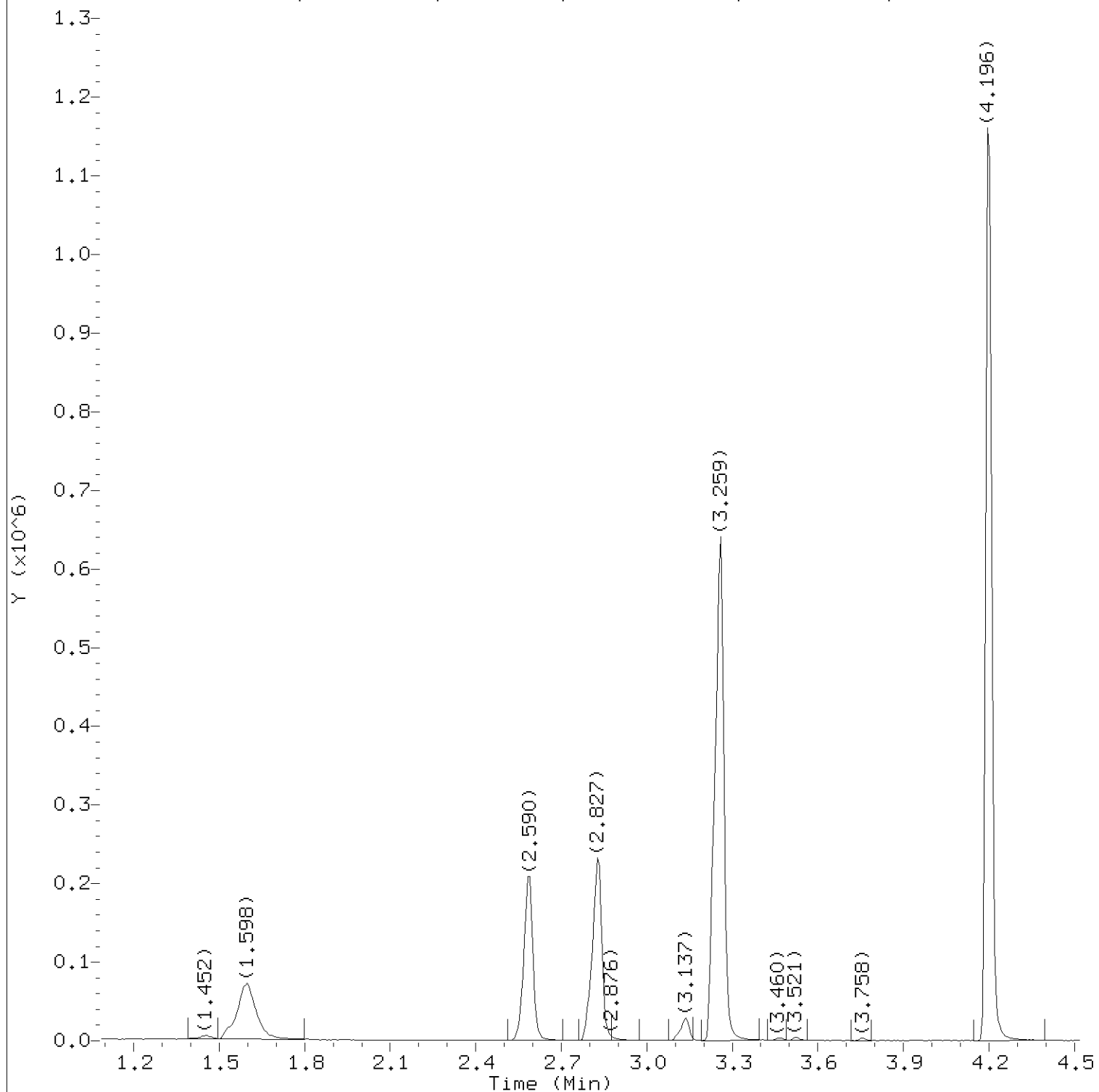
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.001)	113	151047	55.214	110%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	44880	52.367	105%		80 - 120
15) Toluene-d8	(3)	4.196 (0.001)	98	685089	49.482	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	246311	47.265	95%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)	3.137 (-0.000)	78	32618	2.176	2.18			0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)	5.036 (0.000)	106	7422	1.082	1.08		J	1	5
22) o-Xylene	(3)	5.200 (-0.001)	106	3619	0.554	0.55		J	0.4	1
23) Xylene (Total)	(3)		106	11041	1.636	1.64		J	1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s37.d
Injection date and time: 25-MAR-2020 17:02

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m
Calibration date and time: 25-MAR-2020 09:06

Sublist used: 12787

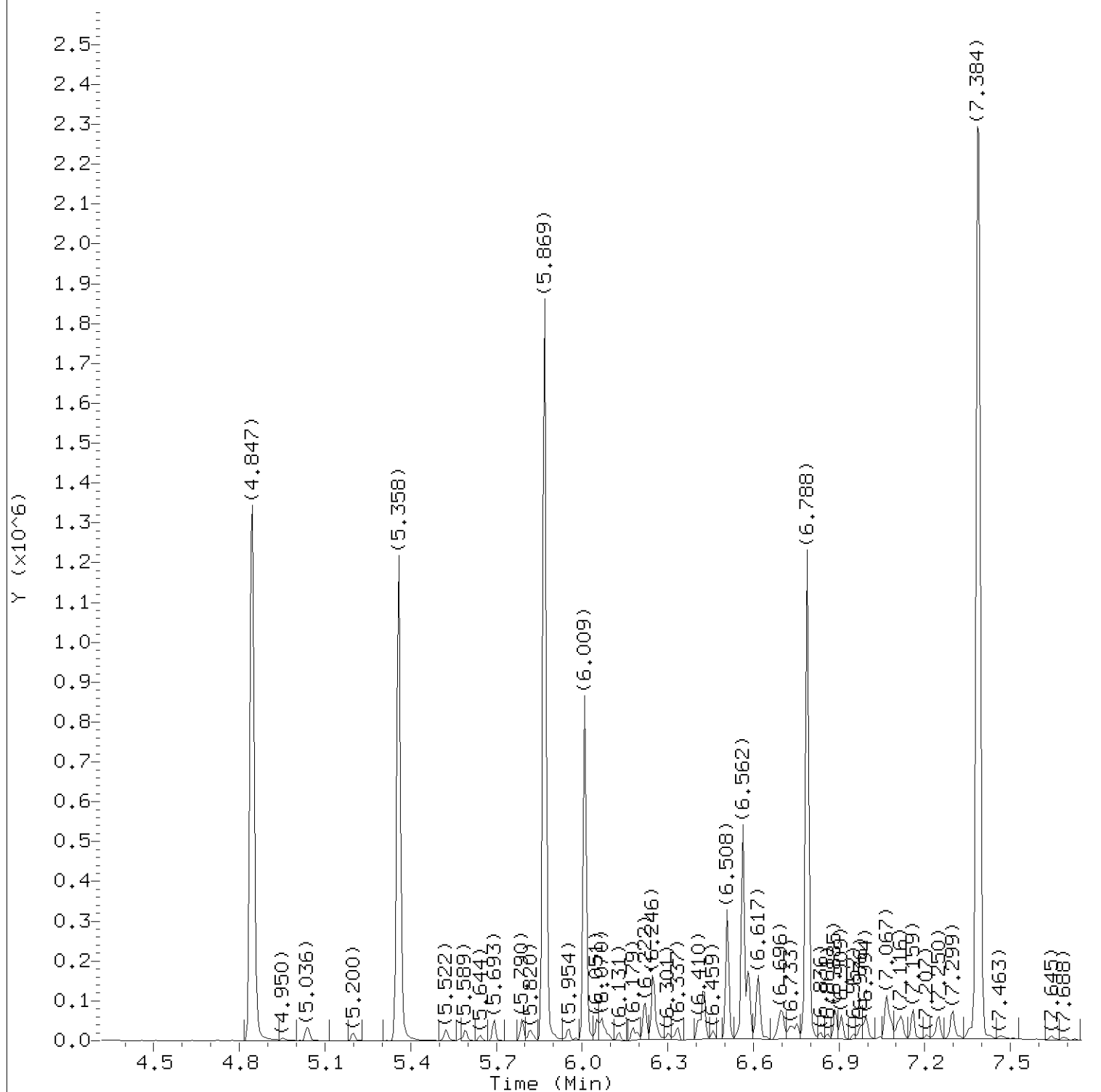
Date, time and analyst ID of latest file update: 25-Mar-2020 17:11 chemist

Sample Name: BAC06

Lab Sample ID: 1283814

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s37.d
Injection date and time: 25-MAR-2020 17:02

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 17:11 chemist

Sample Name: BAC06

Lab Sample ID: 1283814

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s37.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 17:02

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 17:11 chemist

Sample Name: BAC06

Lab Sample ID: 1283814

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.598	65	179540	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	151047	55.214
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	44880	52.367
12) Benzene	(2)	3.137	78	32618	2.176
14) *Fluorobenzene	(2)	3.259	96	698200	50.000
15) \$Toluene-d8	(3)	4.196	98	685089	49.482
19) *Chlorobenzene-d5	(3)	4.847	117	517552	50.000
21) m+p-Xylene	(3)	5.036	106	7422	1.082
22) o-Xylene	(3)	5.200	106	3619	0.554
25) \$4-Bromofluorobenzene	(3)	5.358	95	246311	47.265
23) Xylene (Total)	(3)		106	11041	1.636
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	287489	50.000

* = Compound is an internal standard.

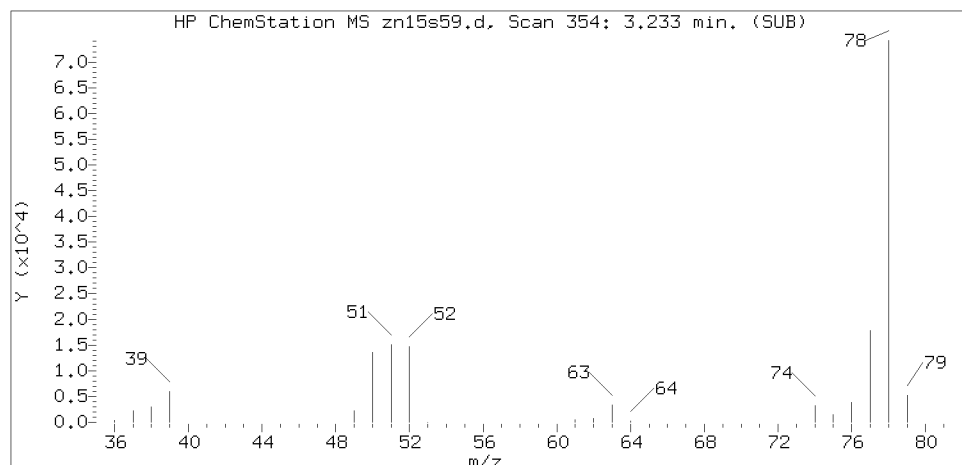
\$ = Compound is a surrogate standard.

page 1 of 1

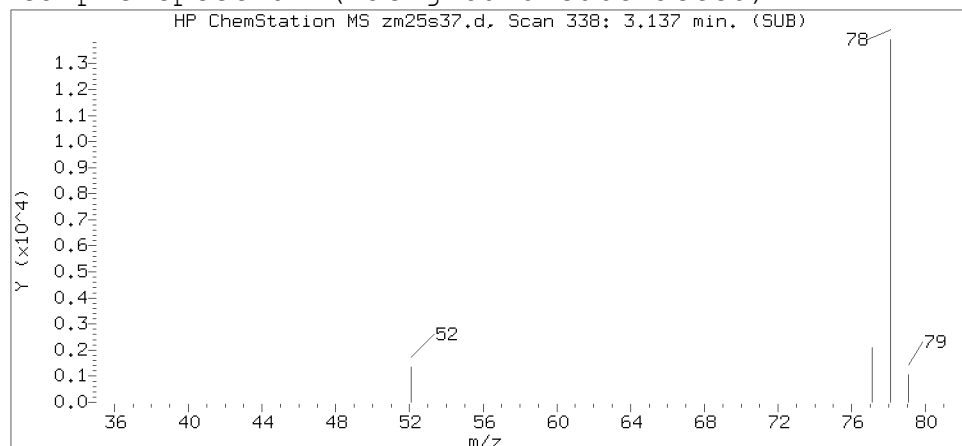
Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

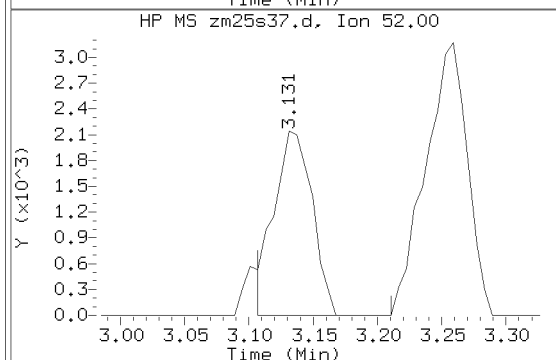
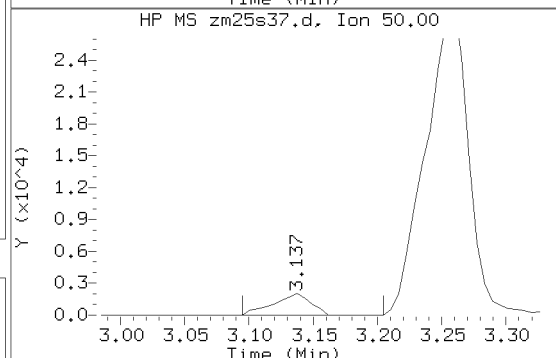
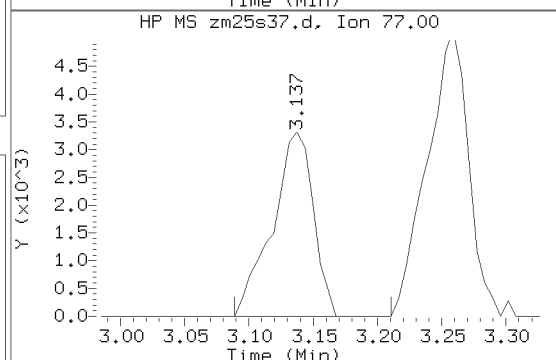
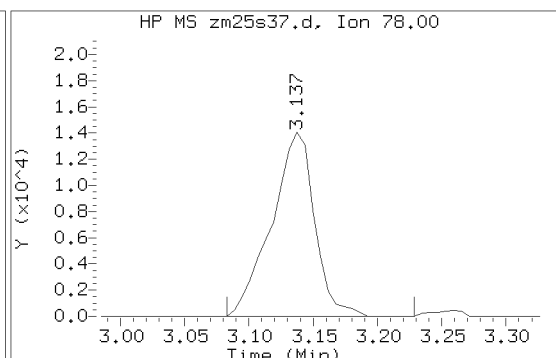
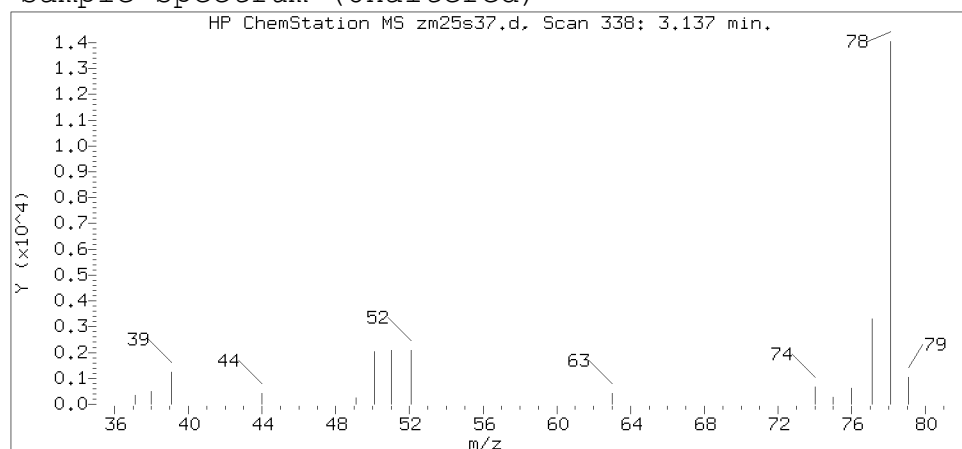
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem2/HP09671.i/20mar25a.b/zm25s37.d
Injection date and time: 25-MAR-2020 17:02

Instrument ID: HP09671.i
Analyst ID: ads07818

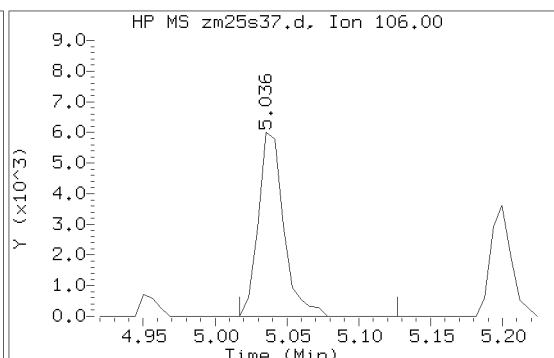
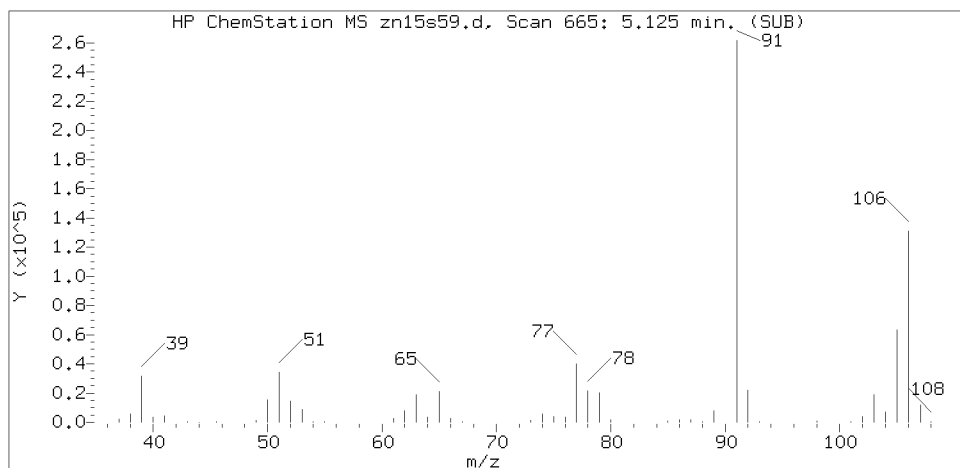
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Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 17:11 chemist

Sample Name: BAC06

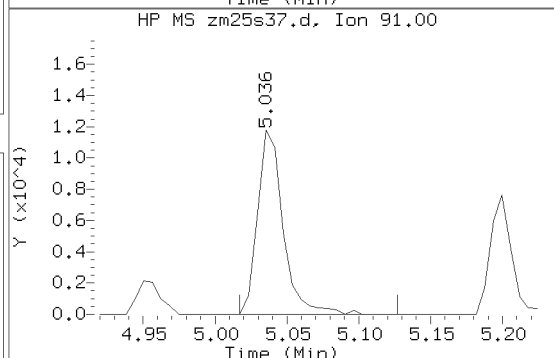
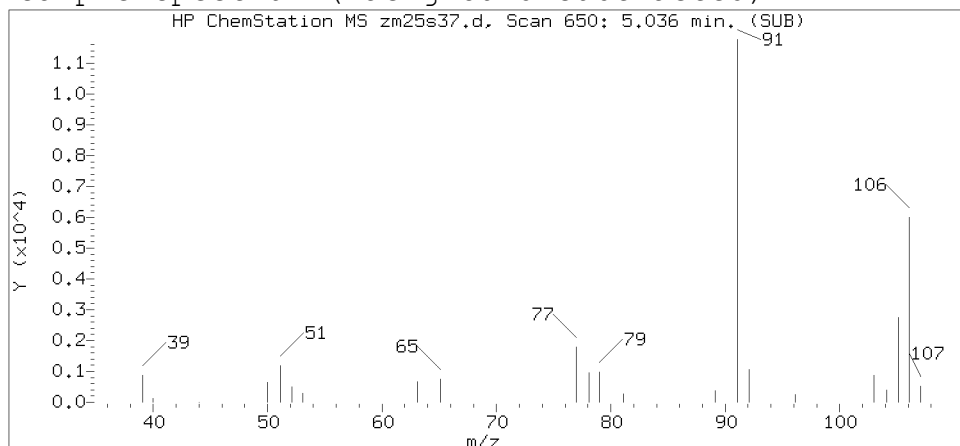
Lab Sample ID: 1283814

Compound Number : 12
Compound Name : Benzene
Scan Number : 338
Retention Time (minutes): 3.137
Relative Retention Time :-0.00007
Quant Ion : 78.00
Area (flag) : 32618
On-Column Amount (ng) : 2.1762

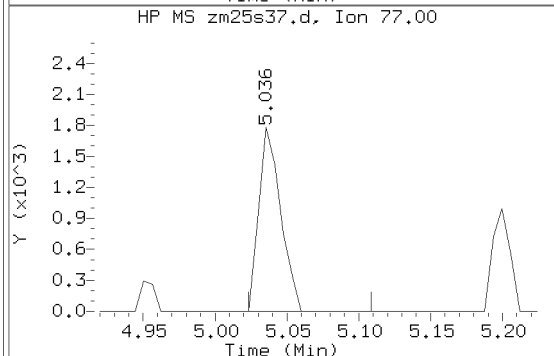
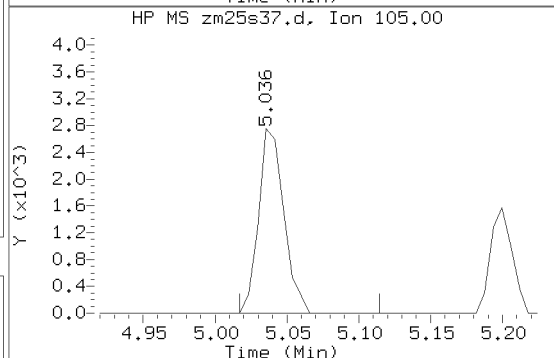
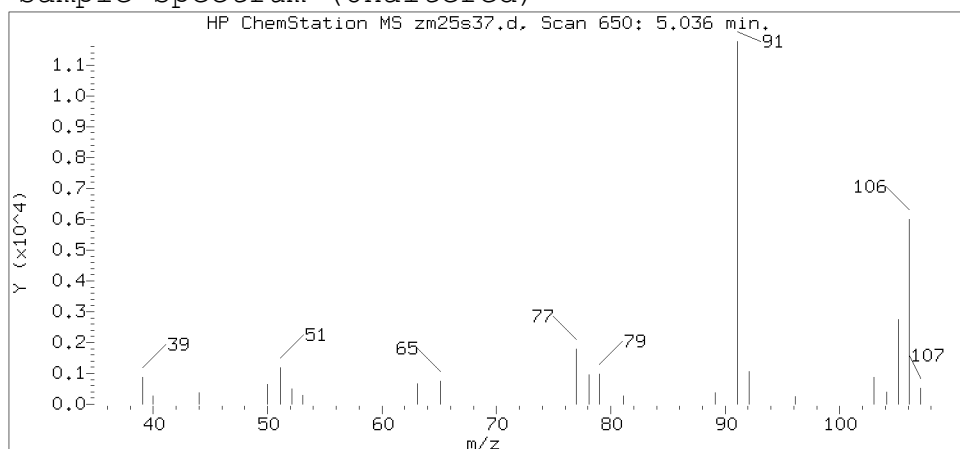
Reference Standard Spectrum for m+p-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem2/HP09671.i/20mar25a.b/zm25s37.d
Injection date and time: 25-MAR-2020 17:02

Instrument ID: HP09671.i
Analyst ID: ads07818

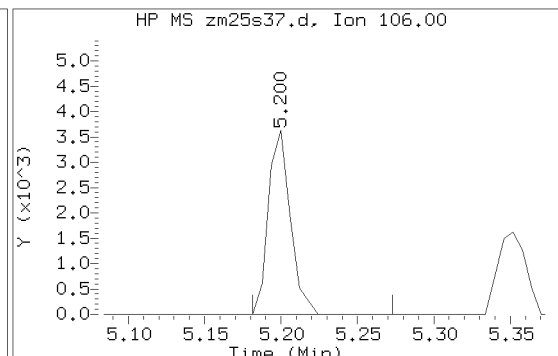
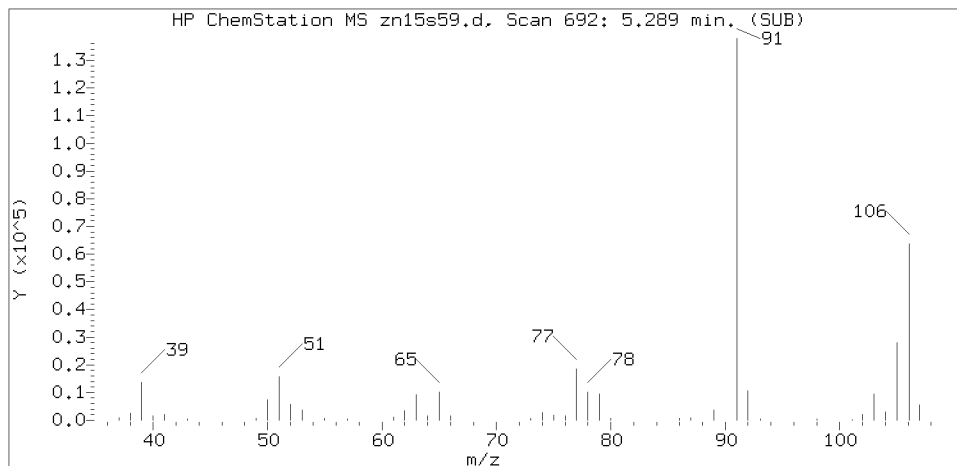
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 17:11 chemist

Sample Name: BAC06

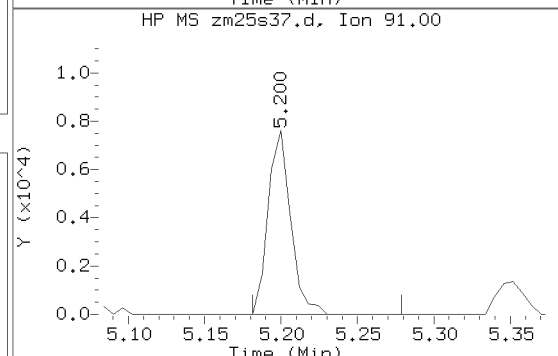
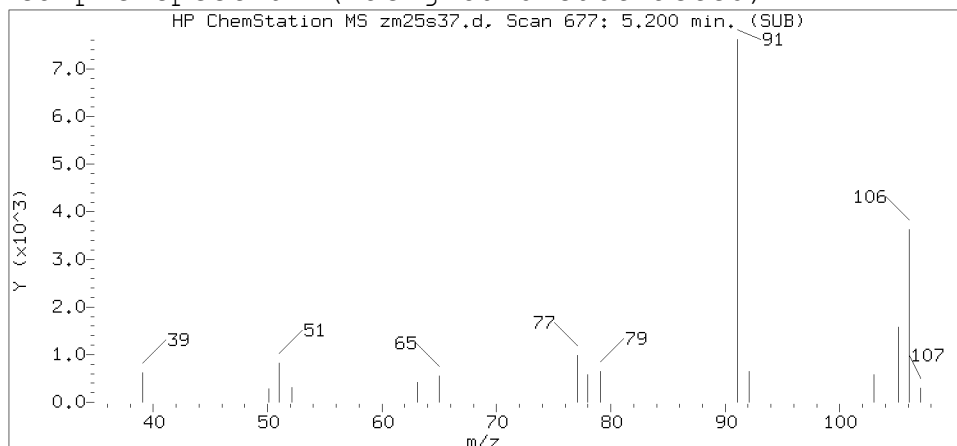
Lab Sample ID: 1283814

Compound Number : 21
Compound Name : m+p-Xylene
Scan Number : 650
Retention Time (minutes): 5.036
Relative Retention Time : 0.00000
Quant Ion : 106.00
Area (flag) : 7422
On-Column Amount (ng) : 1.0822

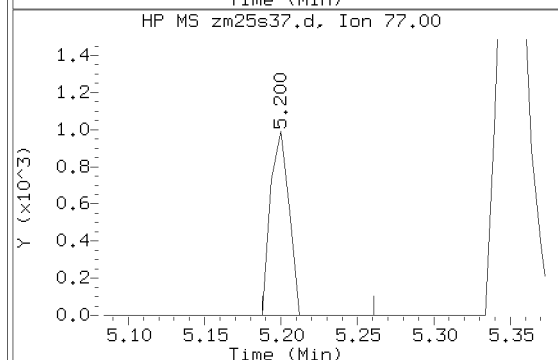
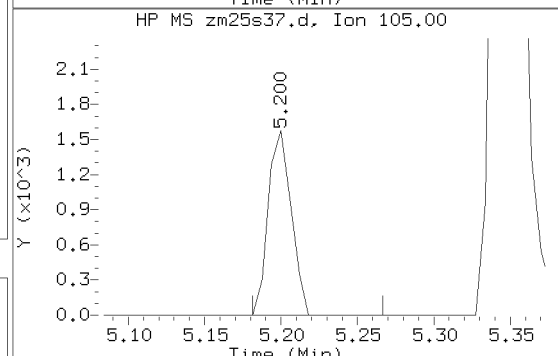
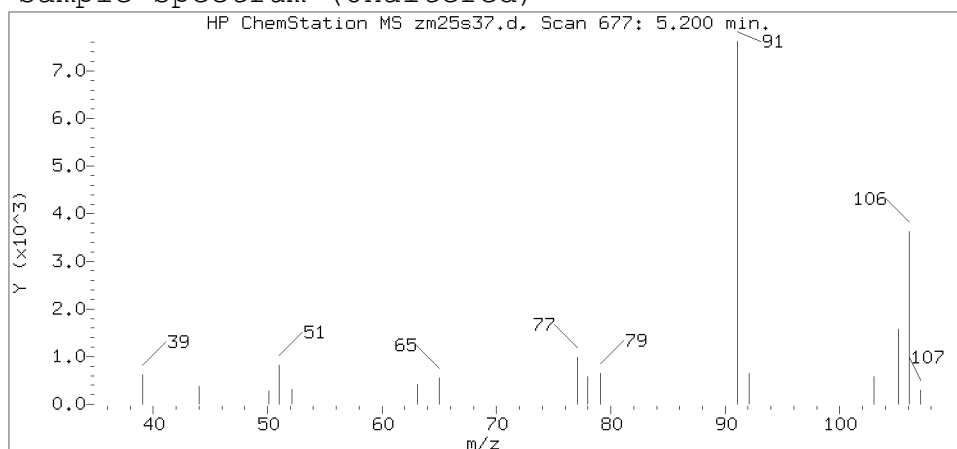
Reference Standard Spectrum for o-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem2/HP09671.i/20mar25a.b/zm25s37.d
Injection date and time: 25-MAR-2020 17:02

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 17:11 chemist

Sample Name: BAC06

Lab Sample ID: 1283814

Compound Number : 22
Compound Name : o-Xylene
Scan Number : 677
Retention Time (minutes): 5.200
Relative Retention Time : -0.00126
Quant Ion : 106.00
Area (flag) : 3619
On-Column Amount (ng) : 0.5537

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10.
Target 3.5 esignature user cn=ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC07

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283815

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s39.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC07

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283815

Data file: /chem2/HP09671.i/20mar25a.b/zm25s39.d

Injection date and time: 25-MAR-2020 17:26

Data file Sample Info. Line: BAC07;1283815;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 17:35 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.598 (-0.006)	85	65	177442 (-2)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	718997 (-11)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	529452 (-7)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	280694 (-10)	50.00	

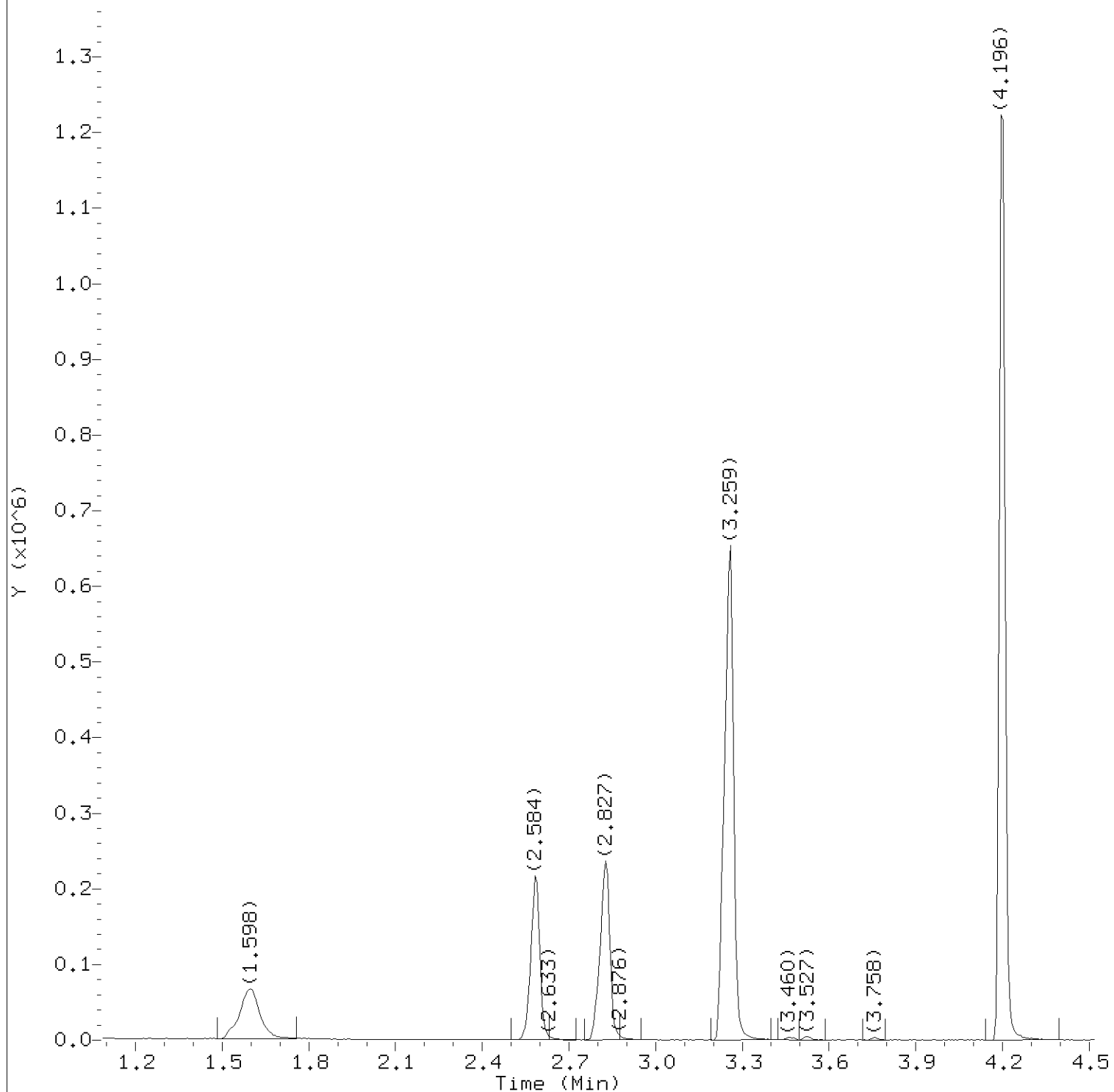
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.001)	113	152447	54.114	108%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	45484	51.537	103%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	701686	49.541	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	242837	45.551	91%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:11. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s39.d
Injection date and time: 25-MAR-2020 17:26

Instrument ID: HP09671.i
Analyst ID: ads07818

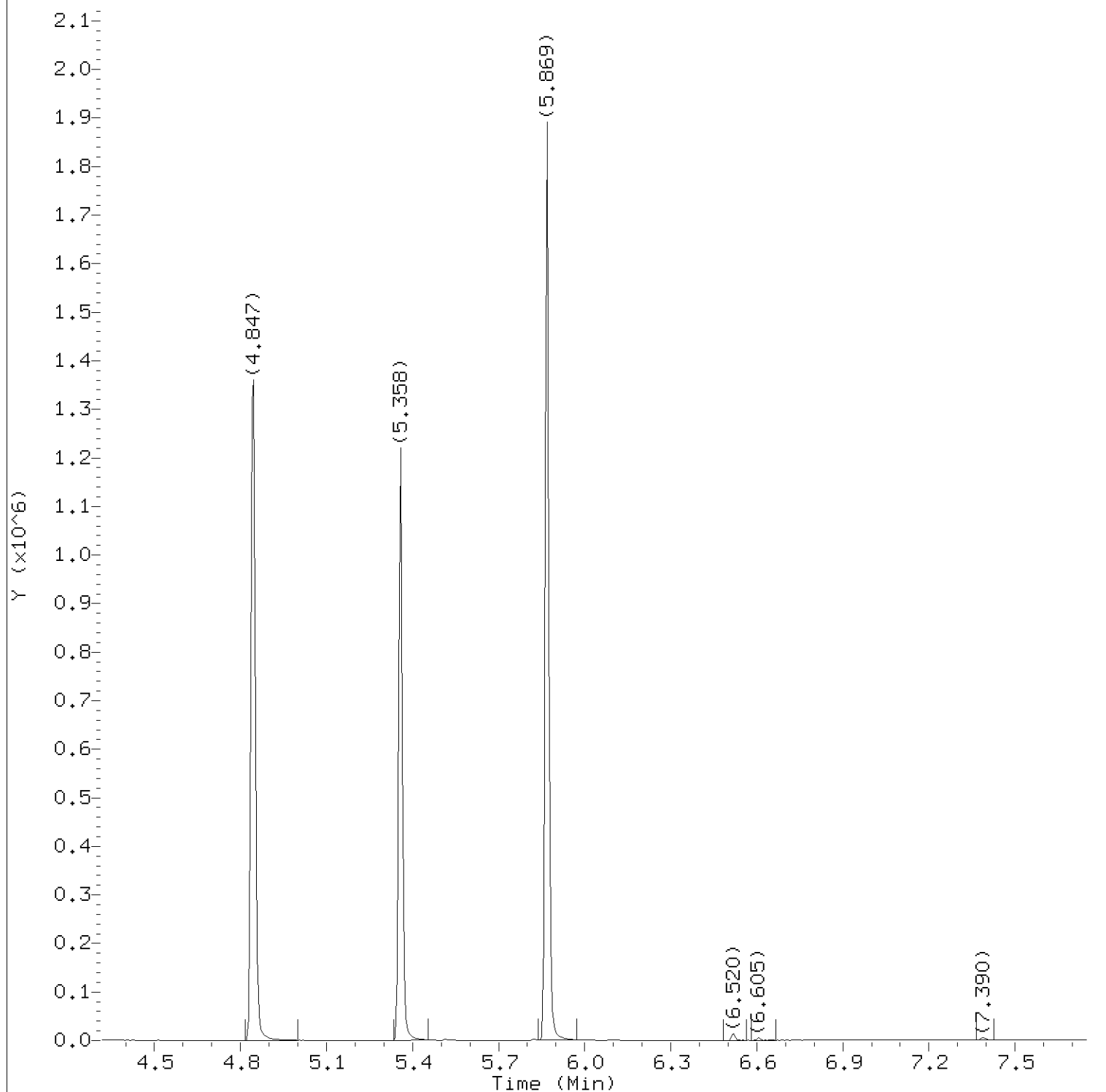
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Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 17:35 chemist

Sample Name: BAC07

Lab Sample ID: 1283815

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s39.d
Injection date and time: 25-MAR-2020 17:26

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 17:35 chemist

Sample Name: BAC07

Lab Sample ID: 1283815

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s39.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 17:26

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 17:35 chemist

Sample Name: BAC07

Lab Sample ID: 1283815

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.598	65	177442	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	152447	54.114
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	45484	51.537
14) *Fluorobenzene	(2)	3.259	96	718997	50.000
15) \$Toluene-d8	(3)	4.202	98	701686	49.541
19) *Chlorobenzene-d5	(3)	4.847	117	529452	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	242837	45.551
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	280694	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC08

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283816

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s41.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether		1	U
71-43-2-----	Benzene		0.4	J
108-88-3-----	Toluene		1	U
100-41-4-----	Ethylbenzene		1	U
1330-20-7-----	Xylene (Total)		6	U

BAC08

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283816

Data file: /chem2/HP09671.i/20mar25a.b/zm25s41.d

Injection date and time: 25-MAR-2020 17:51

Data file Sample Info. Line: BAC08;1283816;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 18:00 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	178037 (-2)	250.00	
14) Fluorobenzene	3.253 (0.000)	357	96	717622 (-11)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	524997 (-8)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	285870 (-9)	50.00	

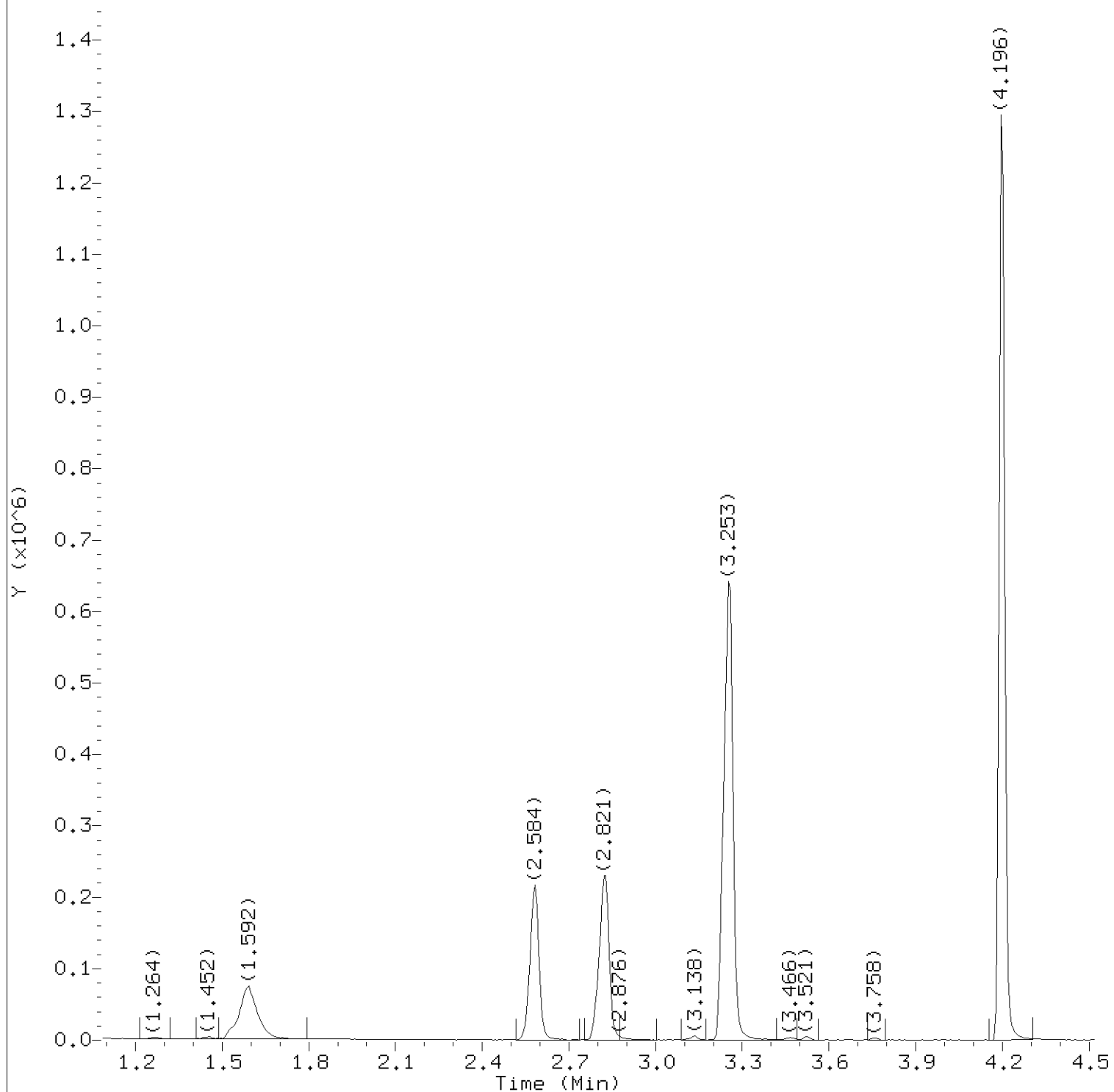
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.000)	113	151785	53.982	108%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.000)	102	45710	51.893	104%		80 - 120
15) Toluene-d8	(3)	4.196 (0.001)	98	703033	50.058	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	246126	46.560	93%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)	3.138 (-0.001)	78	6303	0.409	0.41		J	0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:11. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s41.d
Injection date and time: 25-MAR-2020 17:51

Instrument ID: HP09671.i
Analyst ID: ads07818

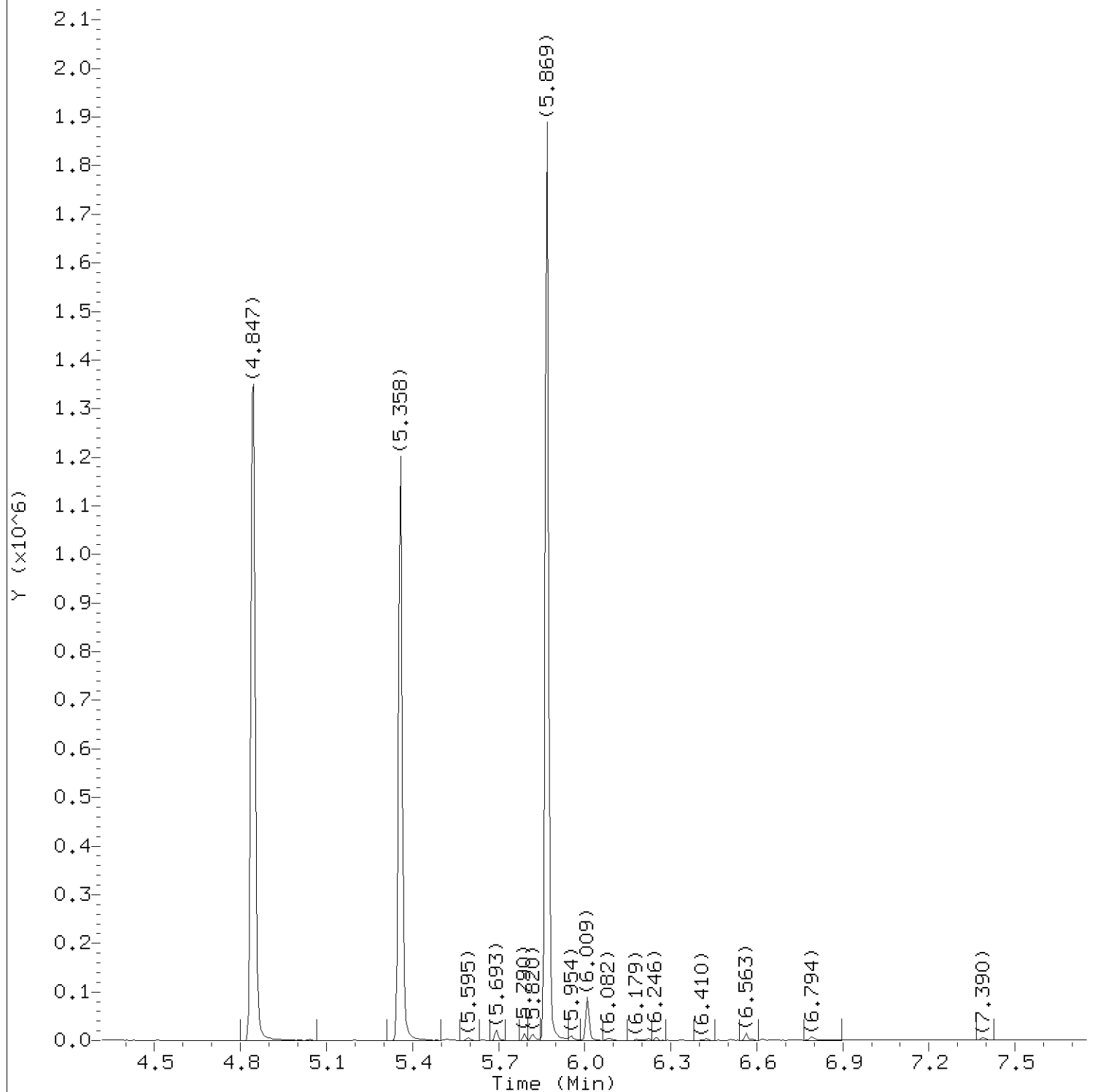
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 18:00 chemist

Sample Name: BAC08

Lab Sample ID: 1283816

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s41.d
Injection date and time: 25-MAR-2020 17:51

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 18:00 chemist

Sample Name: BAC08

Lab Sample ID: 1283816

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s41.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 17:51

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 18:00 chemist

Sample Name: BAC08

Lab Sample ID: 1283816

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.592	65	178037	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	151785	53.982
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	45710	51.893
12) Benzene	(2)	3.138	78	6303	0.409
14) *Fluorobenzene	(2)	3.253	96	717622	50.000
15) \$Toluene-d8	(3)	4.196	98	703033	50.058
19) *Chlorobenzene-d5	(3)	4.847	117	524997	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	246126	46.560
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	285870	50.000

* = Compound is an internal standard.

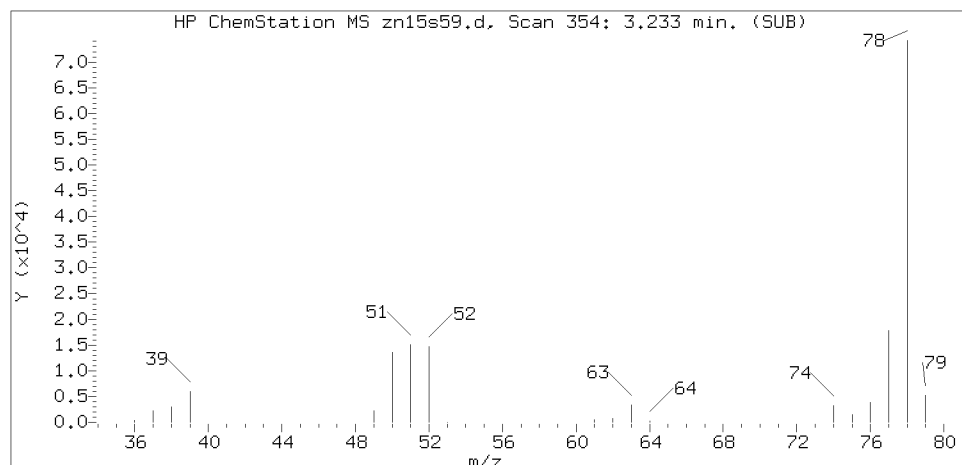
\$ = Compound is a surrogate standard.

page 1 of 1

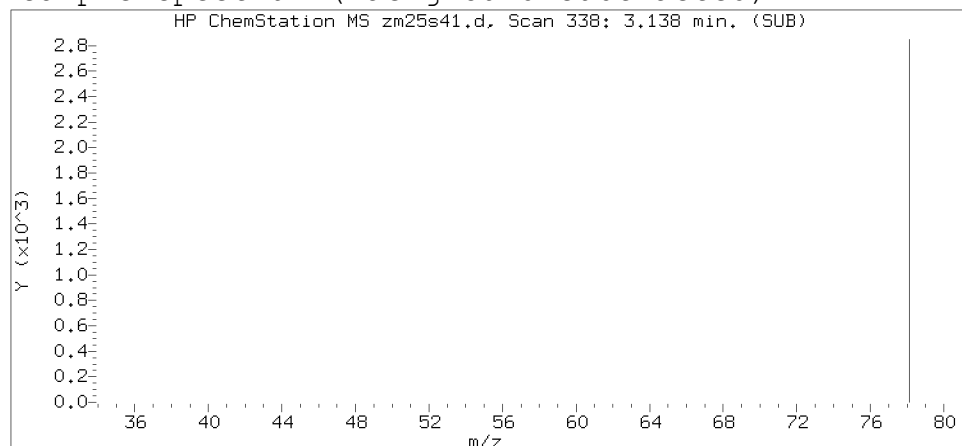
Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: ads07818

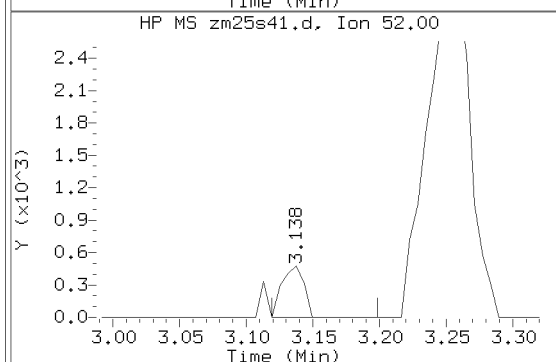
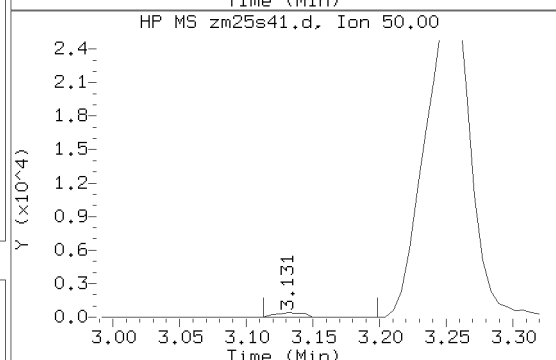
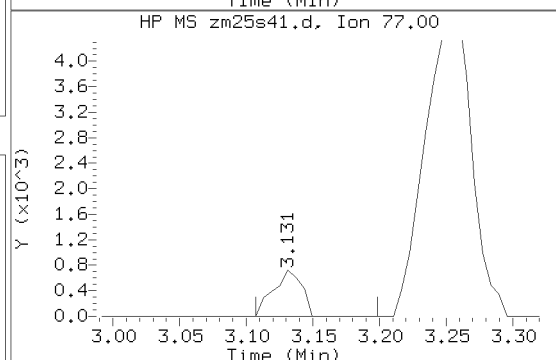
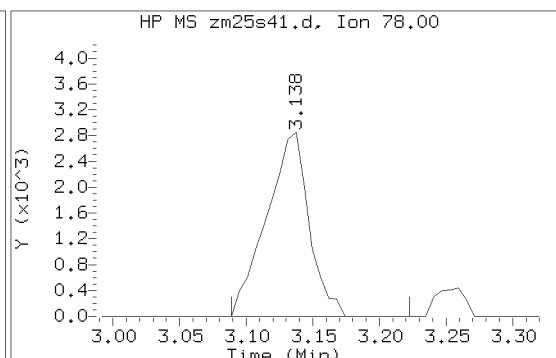
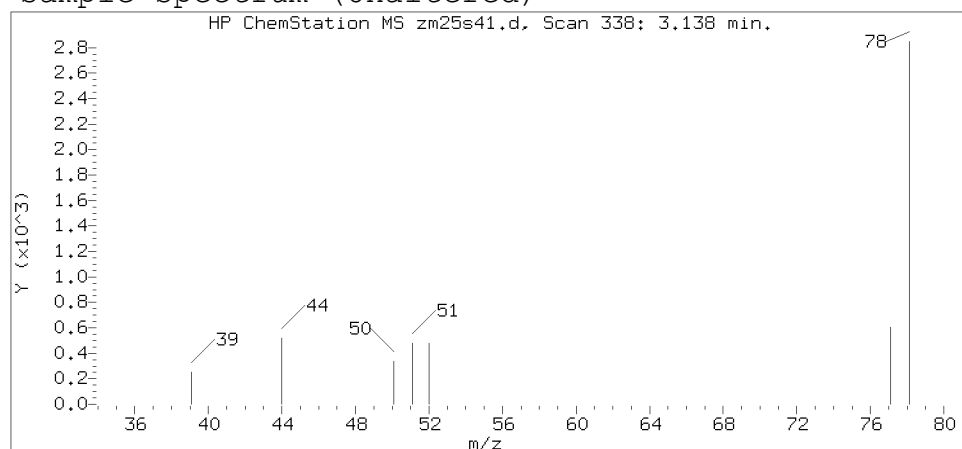
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem2/HP09671.i/20mar25a.b/zm25s41.d
Injection date and time: 25-MAR-2020 17:51

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 18:00 chemist

Sample Name: BAC08

Lab Sample ID: 1283816

Compound Number : 12
Compound Name : Benzene
Scan Number : 338
Retention Time (minutes): 3.138
Relative Retention Time : -0.00187
Quant Ion : 78.00
Area (flag) : 6303
On-Column Amount (ng) : 0.4092

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:11.
Target 3.5 esignature user ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC09

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283817

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s05.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC09

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283817

Data file: /chem2/HP09671.i/20mar25a.b/zm25s05.d

Injection date and time: 25-MAR-2020 10:33

Data file Sample Info. Line: BAC09;1283817;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 10:42 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.598 (-0.006)	85	65	179159 (-1)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	750424 (-7)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	548414 (-4)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	294712 (-6)	50.00	

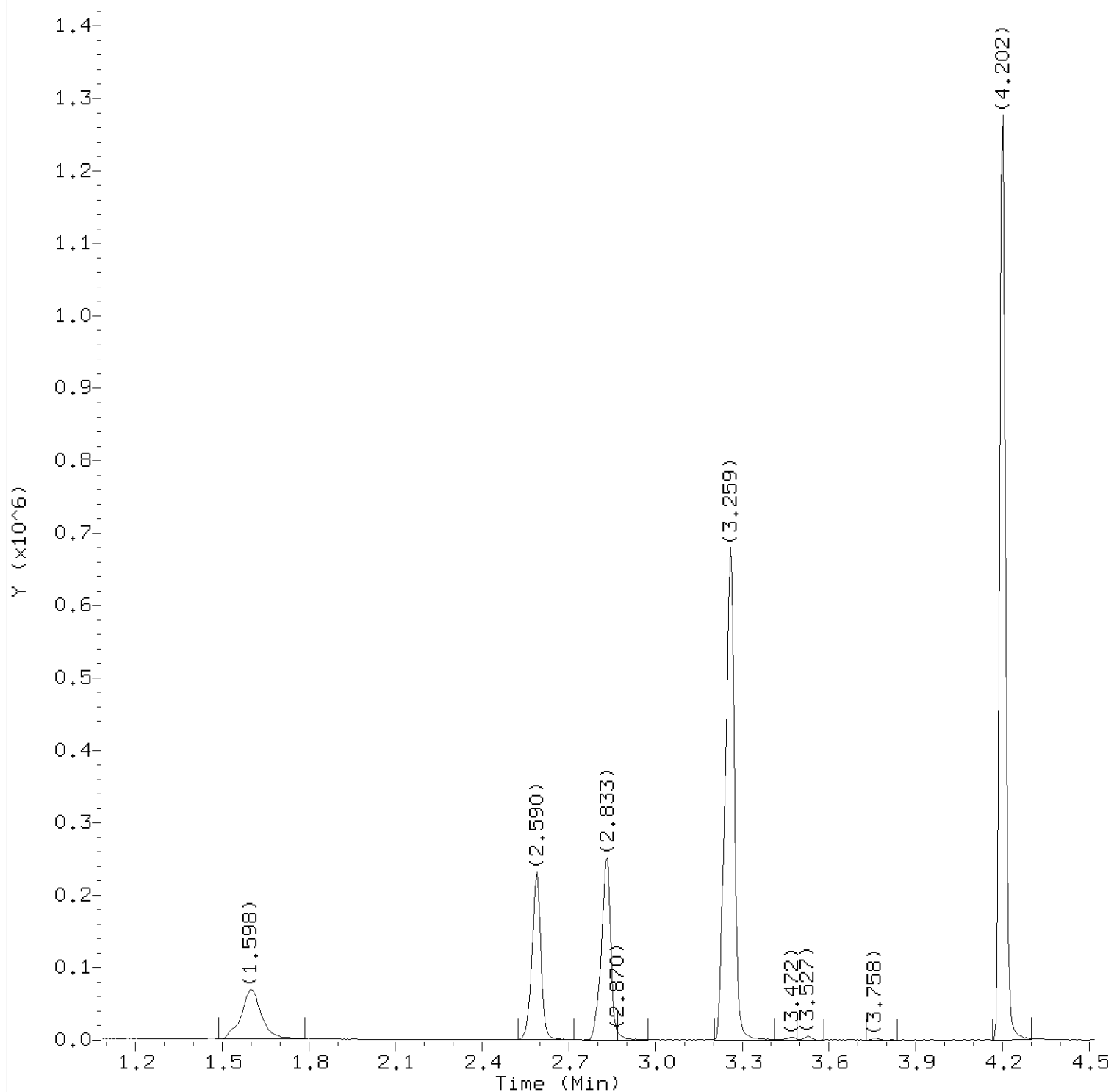
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.590 (0.000)	113	159512	54.250	109%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.833 (0.000)	102	47409	51.469	103%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	731185	49.839	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	253022	45.820	92%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s05.d
Injection date and time: 25-MAR-2020 10:33

Instrument ID: HP09671.i
Analyst ID: ads07818

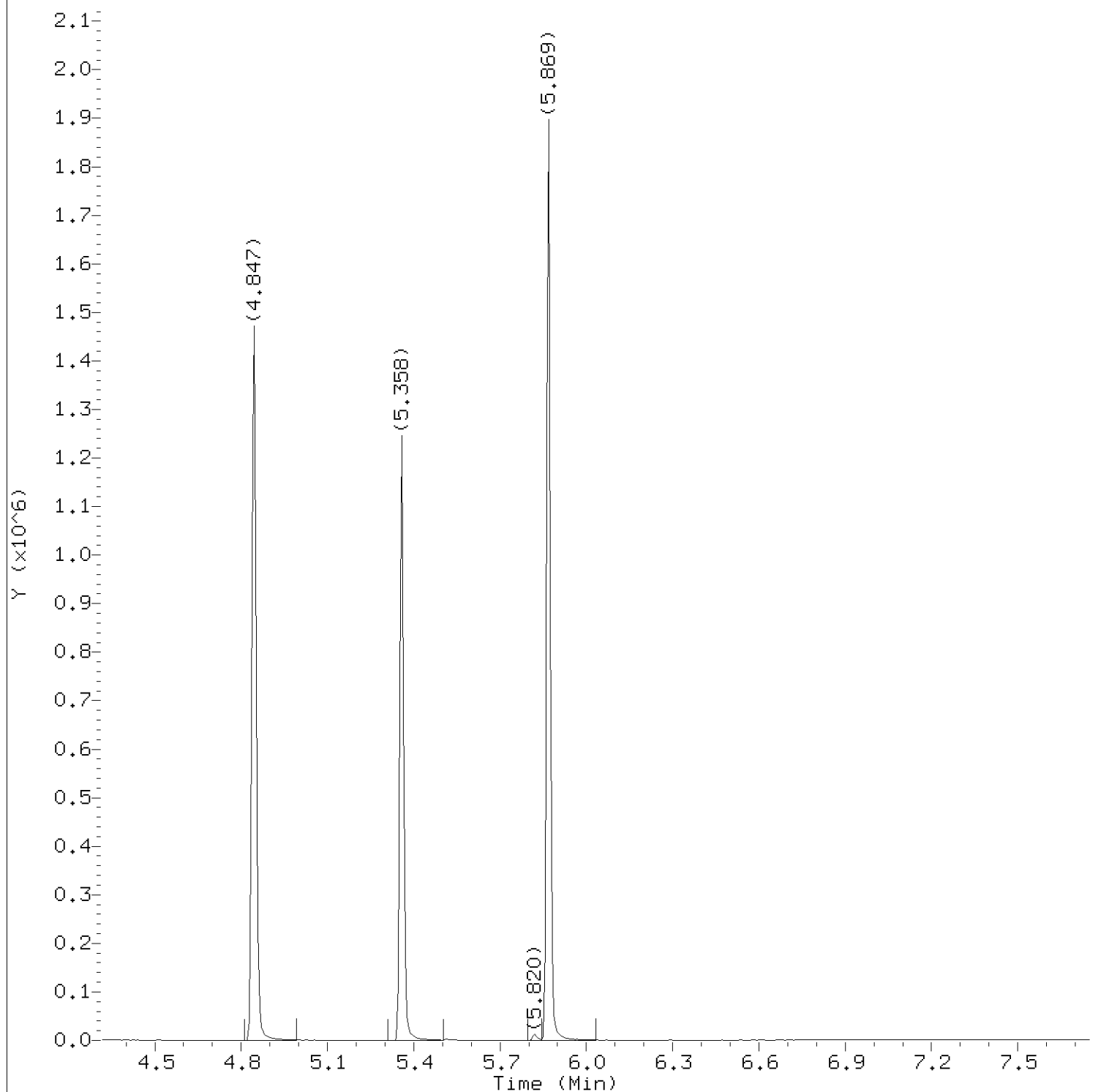
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 10:42 chemist

Sample Name: BAC09

Lab Sample ID: 1283817

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s05.d
Injection date and time: 25-MAR-2020 10:33

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 10:42 chemist

Sample Name: BAC09

Lab Sample ID: 1283817

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s05.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 10:33

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 10:42 chemist

Sample Name: BAC09

Lab Sample ID: 1283817

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.598	65	179159	250.000
7) \$Dibromofluoromethane	(2)	2.590	113	159512	54.250
10) \$1,2-Dichloroethane-d4	(2)	2.833	102	47409	51.469
14) *Fluorobenzene	(2)	3.259	96	750424	50.000
15) \$Toluene-d8	(3)	4.202	98	731185	49.839
19) *Chlorobenzene-d5	(3)	4.847	117	548414	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	253022	45.820
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	294712	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC10

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283820

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s11.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC10

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283820

Data file: /chem2/HP09671.i/20mar25a.b/zm25s11.d

Injection date and time: 25-MAR-2020 11:45

Data file Sample Info. Line: BAC10;1283820;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 11:53 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	180128 (0)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	734528 (-9)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	537458 (-6)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	288989 (-8)	50.00	

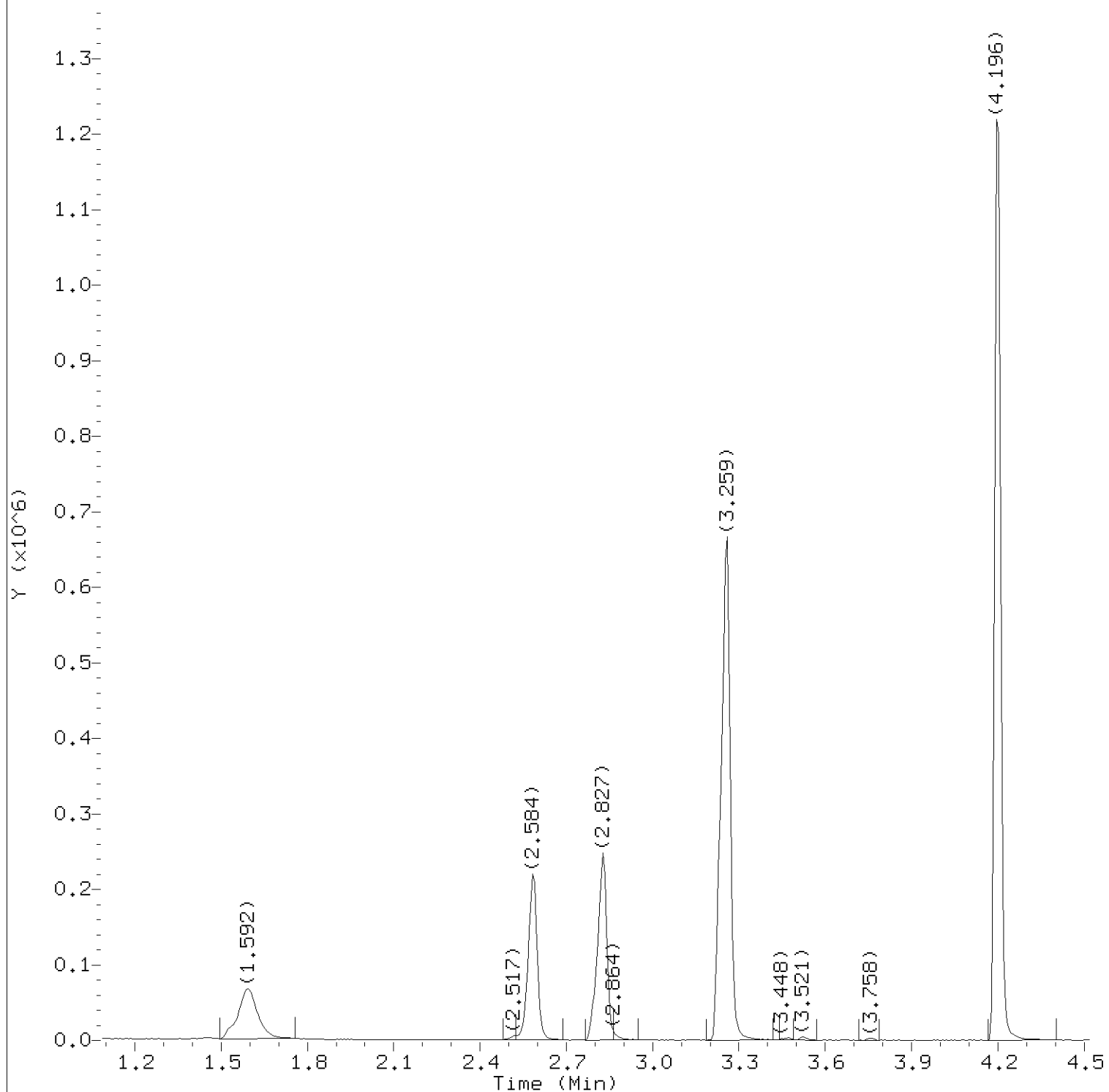
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.001)	113	155791	54.132	108%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	46596	51.680	103%		80 - 120
15) Toluene-d8	(3)	4.196 (0.001)	98	721427	50.176	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	250295	46.250	93%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit LOQ (in sample)
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2 1
12) Benzene	(2)			Not Detected					0.2 1
16) Toluene	(3)			Not Detected					0.2 1
20) Ethylbenzene	(3)			Not Detected					0.4 1
21) m+p-Xylene	(3)			Not Detected					1 5
22) o-Xylene	(3)			Not Detected					0.4 1
23) Xylene (Total)	(3)			Not Detected					1 6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s11.d
Injection date and time: 25-MAR-2020 11:45

Instrument ID: HP09671.i
Analyst ID: ads07818

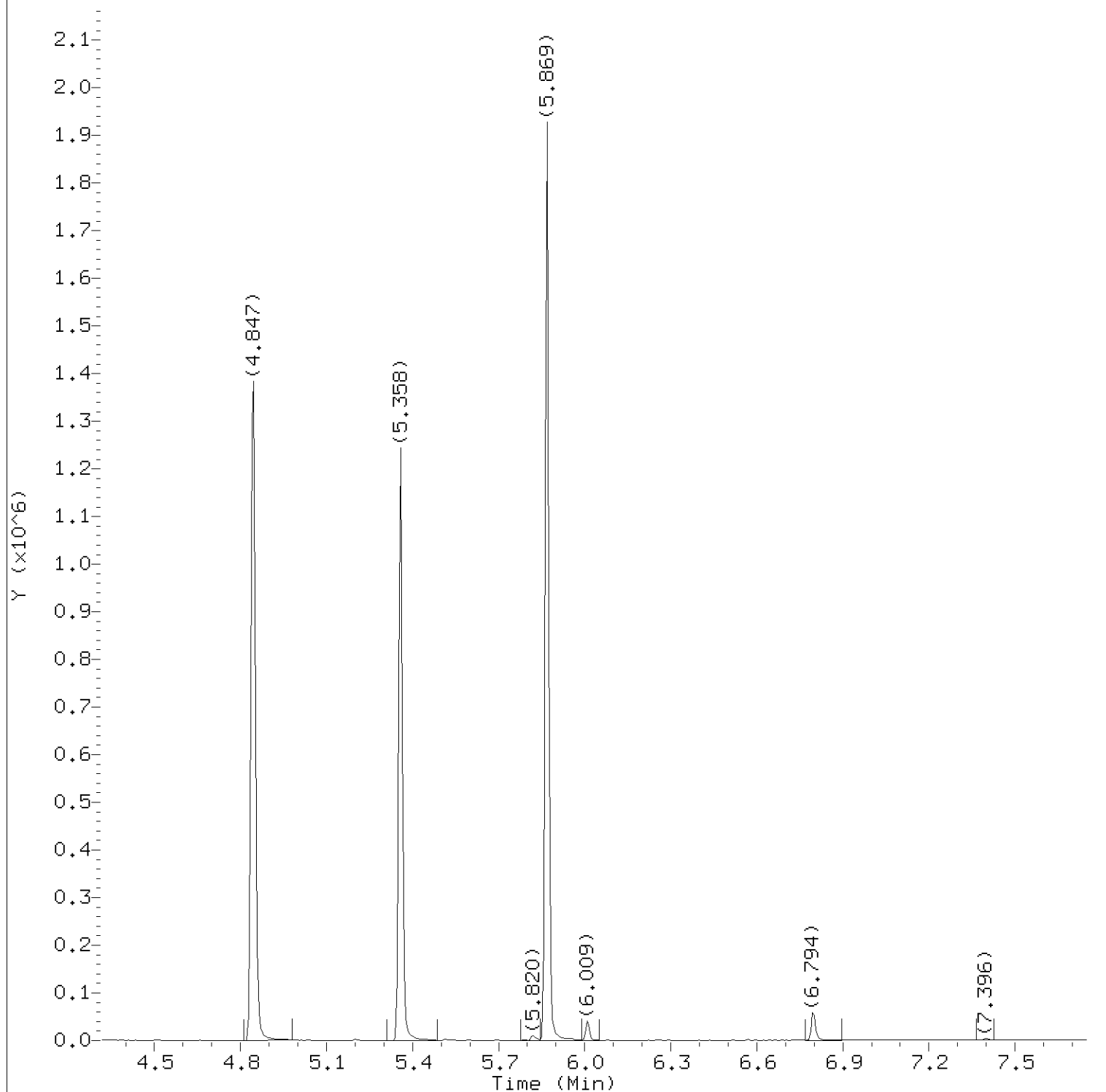
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 11:53 chemist

Sample Name: BAC10

Lab Sample ID: 1283820

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s11.d
Injection date and time: 25-MAR-2020 11:45

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 11:53 chemist

Sample Name: BAC10

Lab Sample ID: 1283820

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s11.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 11:45

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 11:53 chemist

Sample Name: BAC10

Lab Sample ID: 1283820

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.592	65	180128	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	155791	54.132
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	46596	51.680
14) *Fluorobenzene	(2)	3.259	96	734528	50.000
15) \$Toluene-d8	(3)	4.196	98	721427	50.176
19) *Chlorobenzene-d5	(3)	4.847	117	537458	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	250295	46.250
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	288989	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC11

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283821

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s13.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC11

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283821

Data file: /chem2/HP09671.i/20mar25a.b/zm25s13.d

Injection date and time: 25-MAR-2020 12:10

Data file Sample Info. Line: BAC11;1283821;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 12:19 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	169258 (-6)	250.00	
14) Fluorobenzene	3.253 (0.000)	357	96	728008 (-9)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	534358 (-6)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	286543 (-8)	50.00	

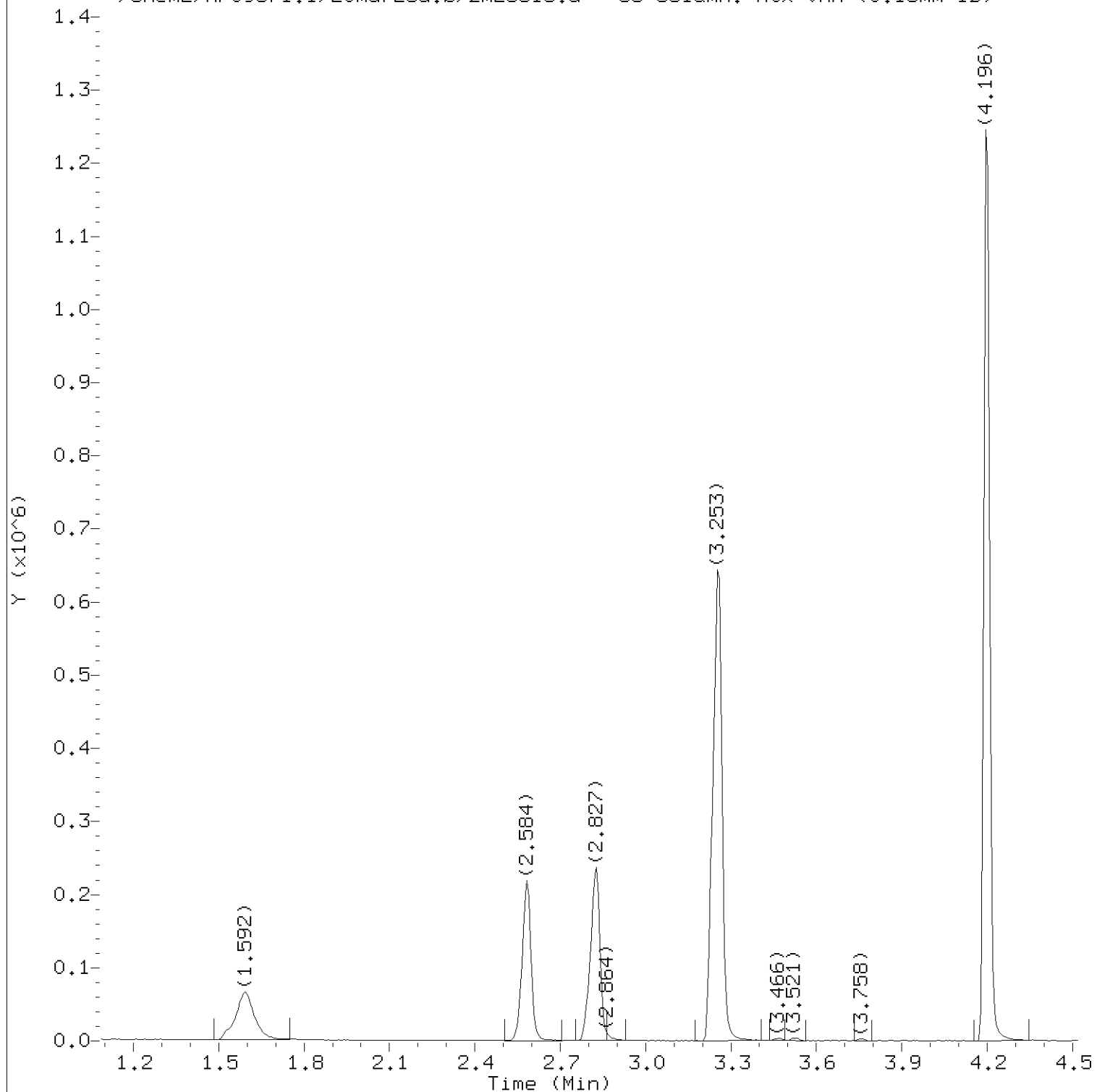
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.000)	113	153243	53.723	107%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.000)	102	46086	51.573	103%		80 - 120
15) Toluene-d8	(3)	4.196 (0.001)	98	714782	50.002	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	248519	46.189	92%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s13.d
Injection date and time: 25-MAR-2020 12:10

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m
Calibration date and time: 25-MAR-2020 09:06

Sublist used: 12787

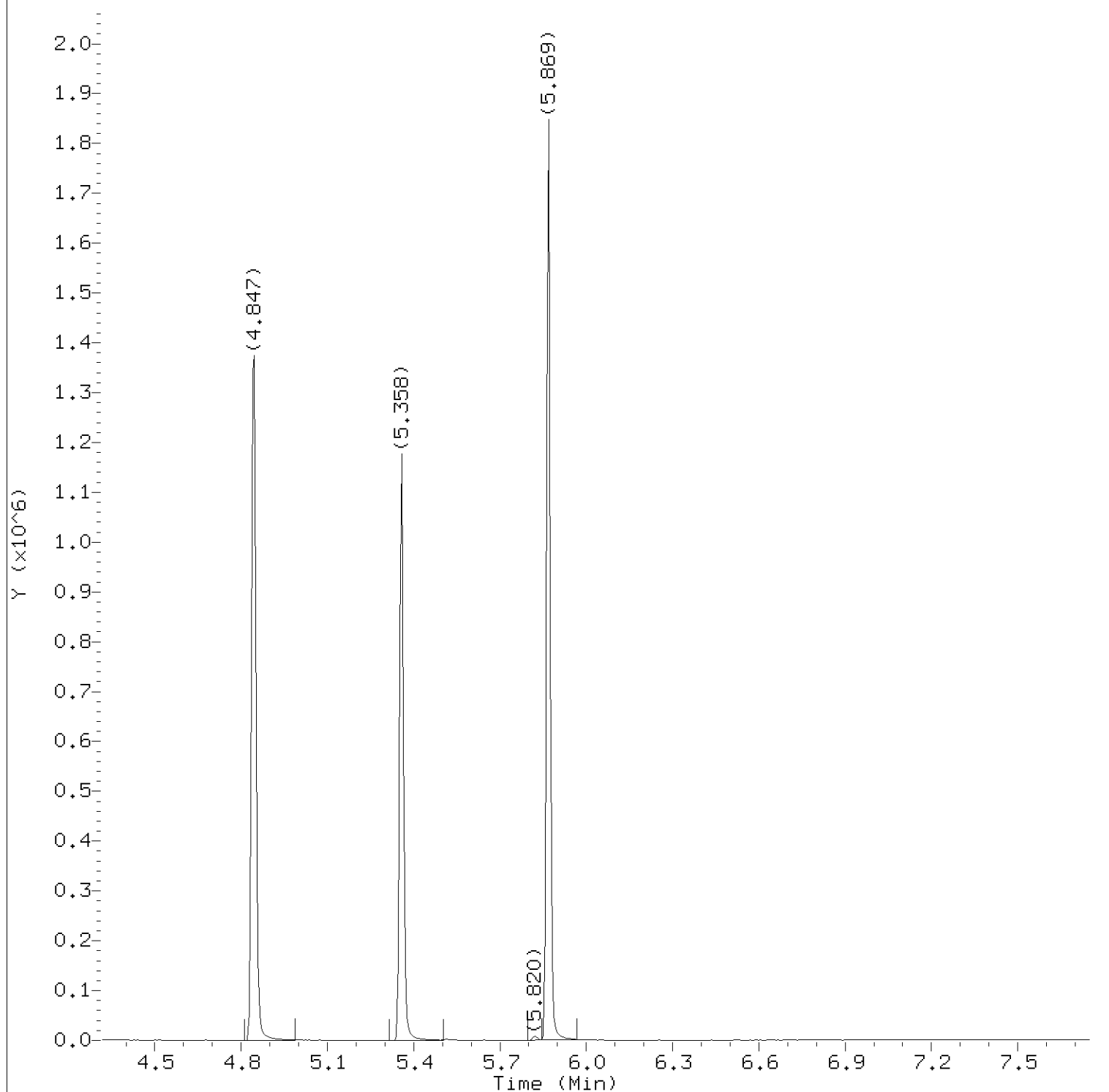
Date, time and analyst ID of latest file update: 25-Mar-2020 12:19 chemist

Sample Name: BAC11

Lab Sample ID: 1283821

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s13.d
Injection date and time: 25-MAR-2020 12:10

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 12:19 chemist

Sample Name: BAC11

Lab Sample ID: 1283821

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s13.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 12:10

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 12:19 chemist

Sample Name: BAC11

Lab Sample ID: 1283821

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.592	65	169258	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	153243	53.723
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	46086	51.573
14) *Fluorobenzene	(2)	3.253	96	728008	50.000
15) \$Toluene-d8	(3)	4.196	98	714782	50.002
19) *Chlorobenzene-d5	(3)	4.847	117	534358	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	248519	46.189
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	286543	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC12

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283822

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s15.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	3	U
71-43-2-----	Benzene	0.6		J
108-88-3-----	Toluene	0.7		J
100-41-4-----	Ethylbenzene	6		U
1330-20-7-----	Xylene (Total)			

BAC12

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283822

Data file: /chem2/HP09671.i/20mar25a.b/zm25s15.d

Injection date and time: 25-MAR-2020 12:34

Data file Sample Info. Line: BAC12;1283822;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 12:43 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.598 (-0.006)	85	65	185996 (3)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	739552 (-8)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	539954 (-5)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	298623 (-4)	50.00	

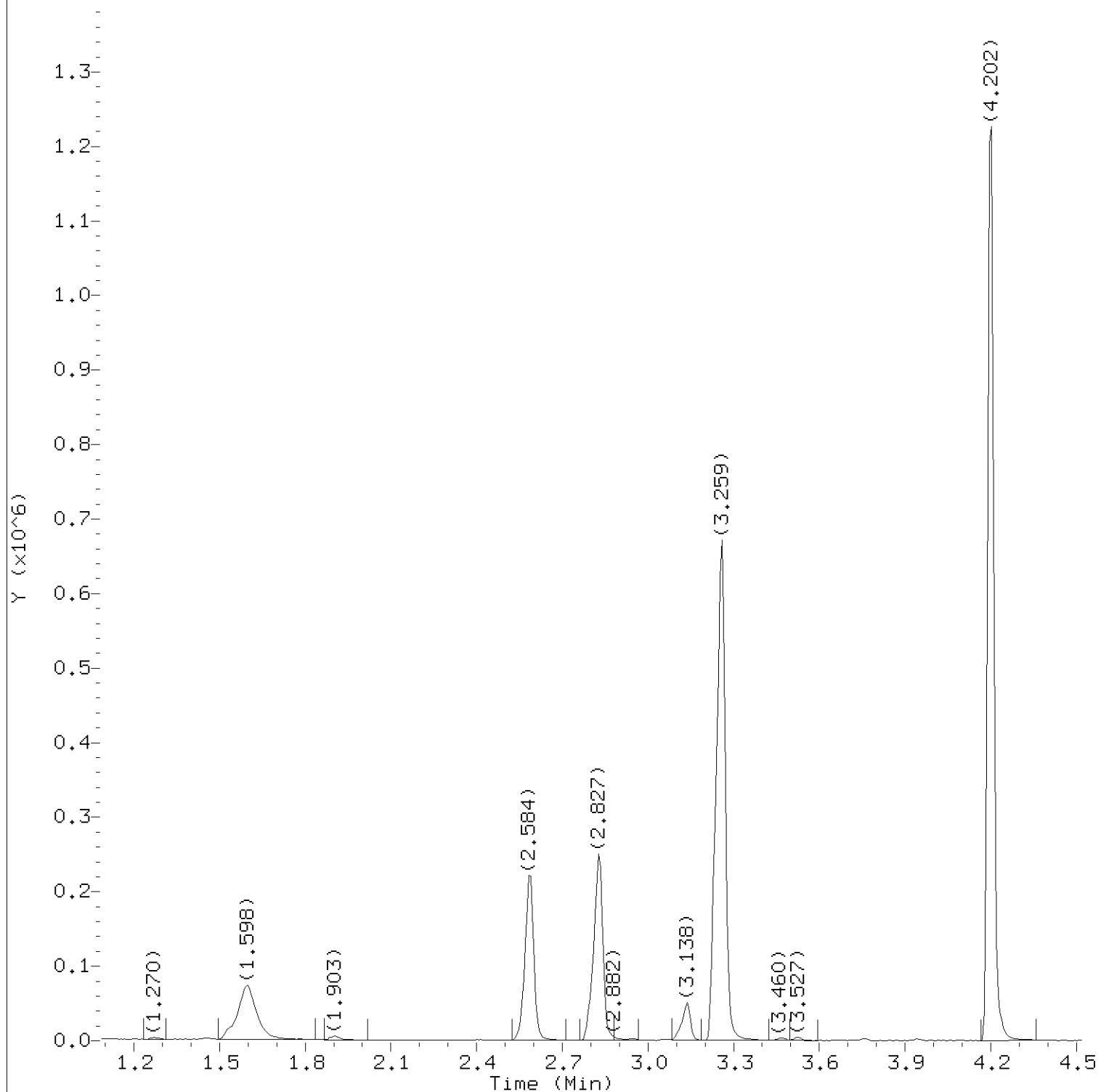
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.590 (0.000)	113	155947	53.817	108%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	47031	51.808	104%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	724499	50.157	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	256341	47.149	94%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)	3.138 (-0.000)	78	54558	3.436	3.44			0.2	1
16) Toluene	(3)	4.232 (0.000)	92	5812	0.583	0.58		J	0.2	1
20) Ethylbenzene	(3)	4.950 (-0.000)	91	12177	0.672	0.67		J	0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)	5.200 (-0.001)	106	4176	0.613	0.61		J	0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s15.d
Injection date and time: 25-MAR-2020 12:34

Instrument ID: HP09671.i
Analyst ID: ads07818

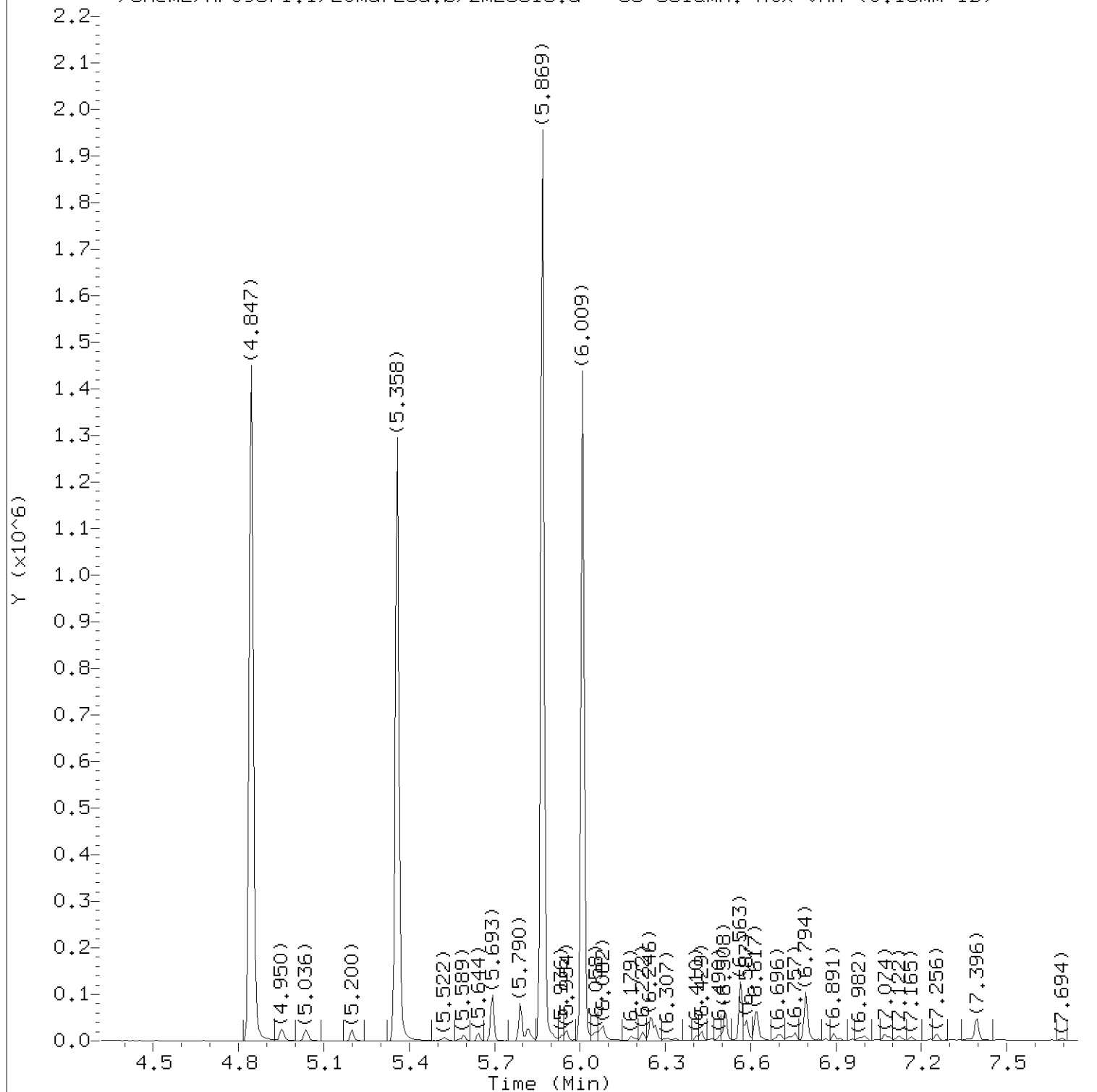
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Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 12:43 chemist

Sample Name: BAC12

Lab Sample ID: 1283822

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s15.d
Injection date and time: 25-MAR-2020 12:34

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 12:43 chemist

Sample Name: BAC12

Lab Sample ID: 1283822

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s15.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 12:34

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 12:43 chemist

Sample Name: BAC12

Lab Sample ID: 1283822

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.598	65	185996	250.000
7) \$Dibromofluoromethane	(2)	2.590	113	155947	53.817
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	47031	51.808
12) Benzene	(2)	3.138	78	54558	3.436
14) *Fluorobenzene	(2)	3.259	96	739552	50.000
15) \$Toluene-d8	(3)	4.202	98	724499	50.157
16) Toluene	(3)	4.233	92	5812	0.583
19) *Chlorobenzene-d5	(3)	4.847	117	539954	50.000
20) Ethylbenzene	(3)	4.950	91	12177	0.672
22) o-Xylene	(3)	5.200	106	4176	0.613
25) \$4-Bromofluorobenzene	(3)	5.358	95	256341	47.149
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	298623	50.000

* = Compound is an internal standard.

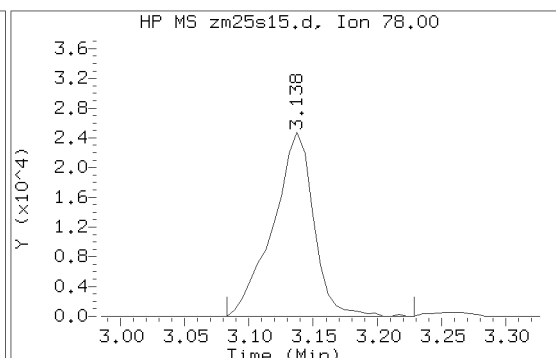
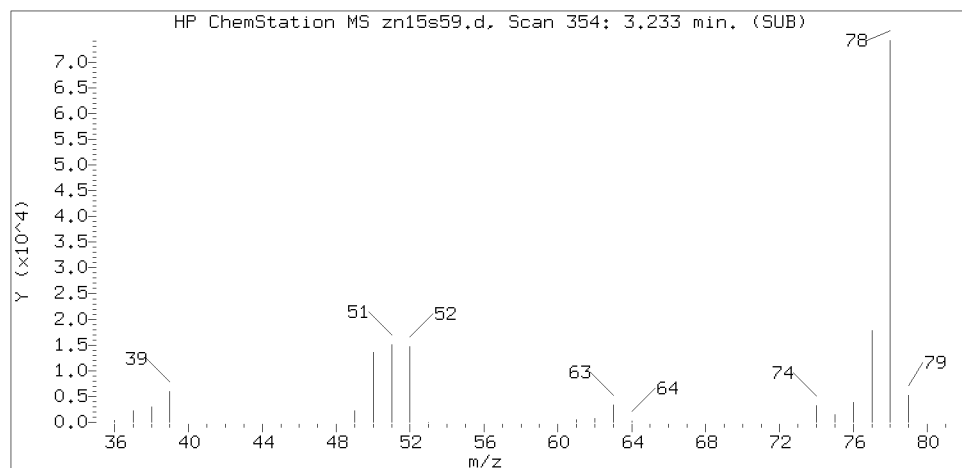
\$ = Compound is a surrogate standard.

page 1 of 1

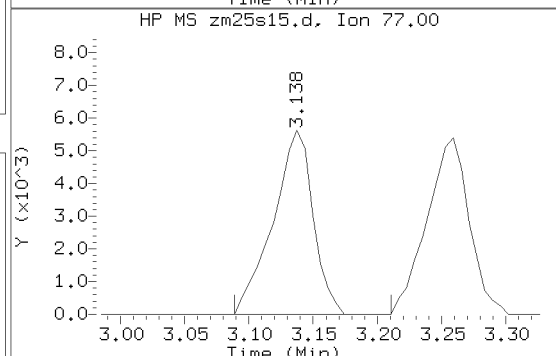
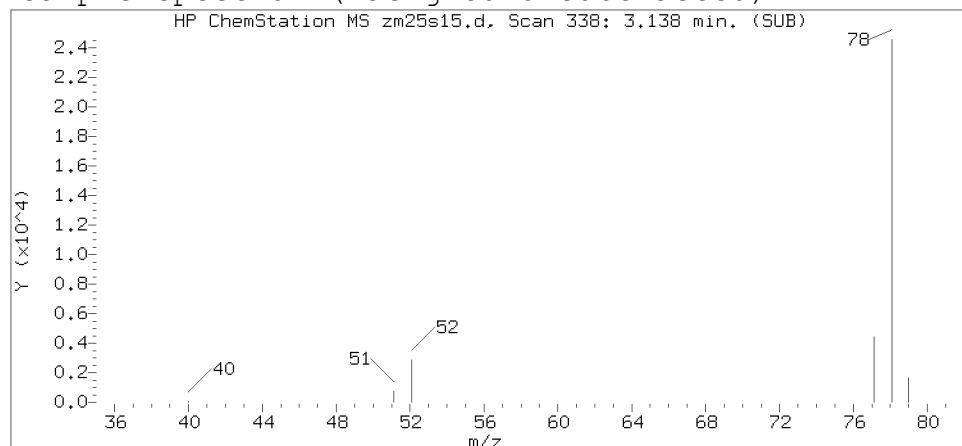
Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

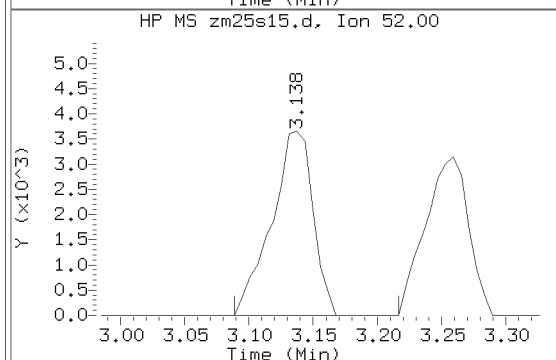
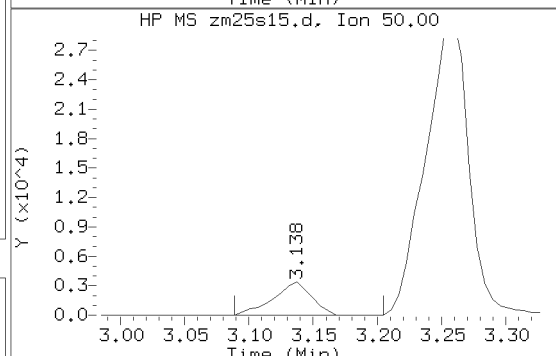
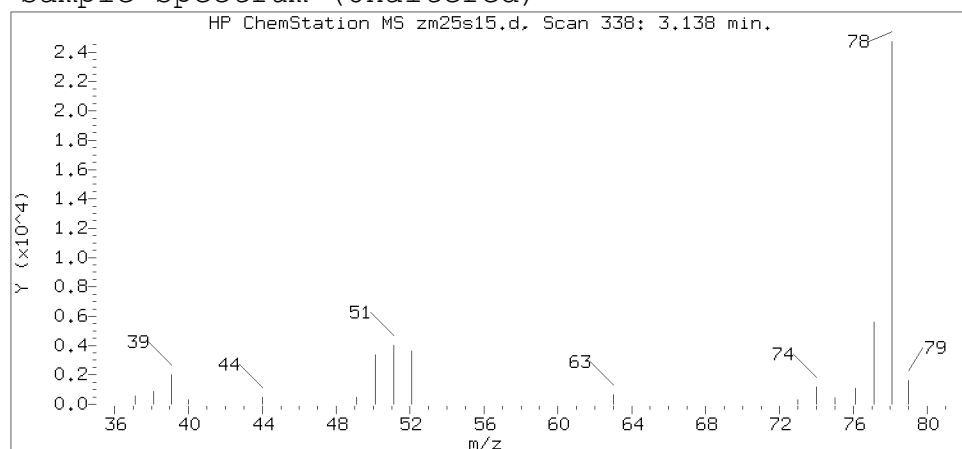
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem2/HP09671.i/20mar25a.b/zm25s15.d
Injection date and time: 25-MAR-2020 12:34

Instrument ID: HP09671.i
Analyst ID: ads07818

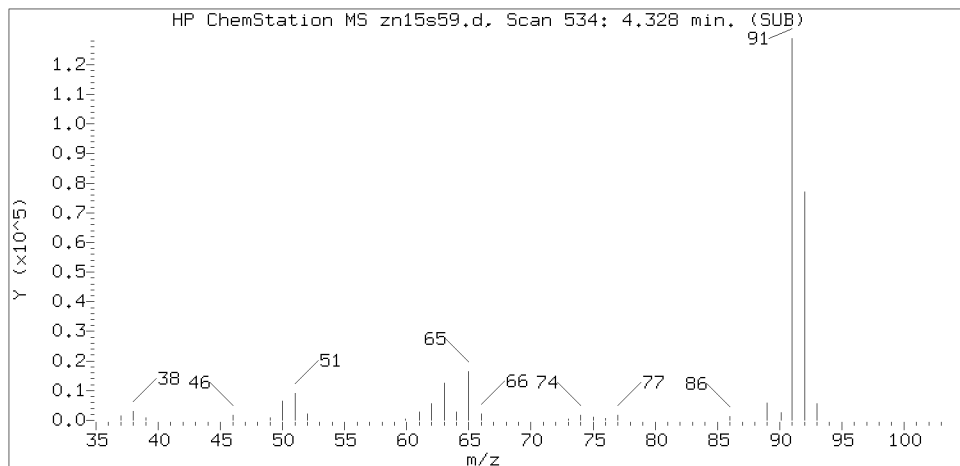
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 12:43 chemist

Sample Name: BAC12

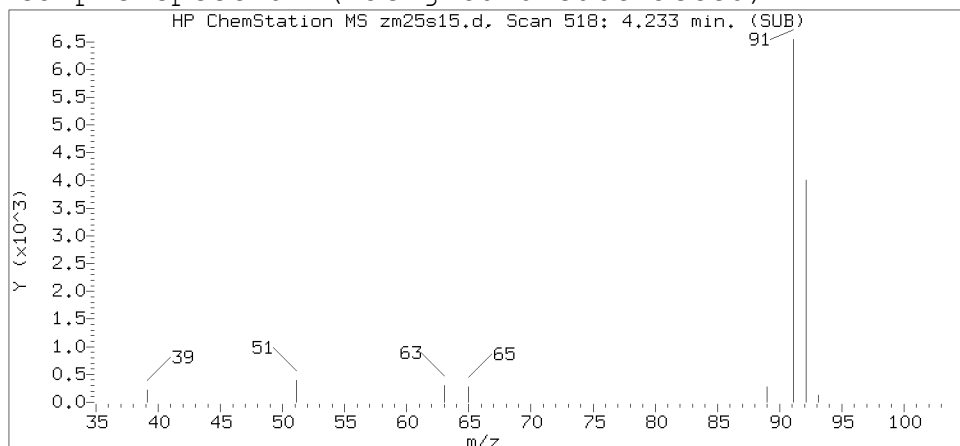
Lab Sample ID: 1283822

Compound Number : 12
Compound Name : Benzene
Scan Number : 338
Retention Time (minutes): 3.138
Relative Retention Time : -0.00007
Quant Ion : 78.00
Area (flag) : 54558
On-Column Amount (ng) : 3.4365

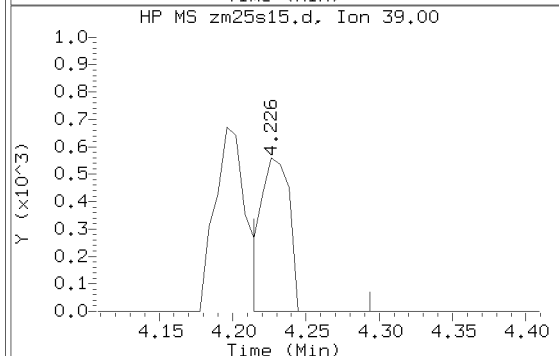
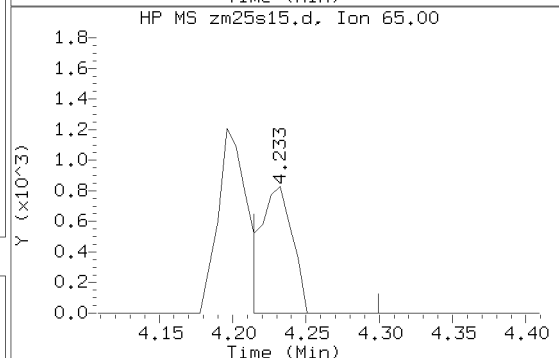
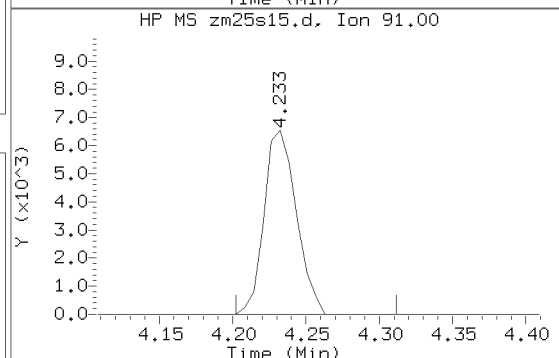
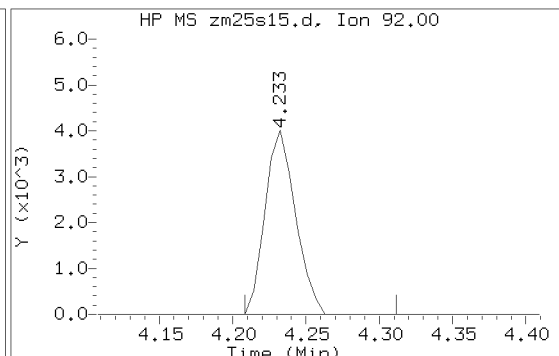
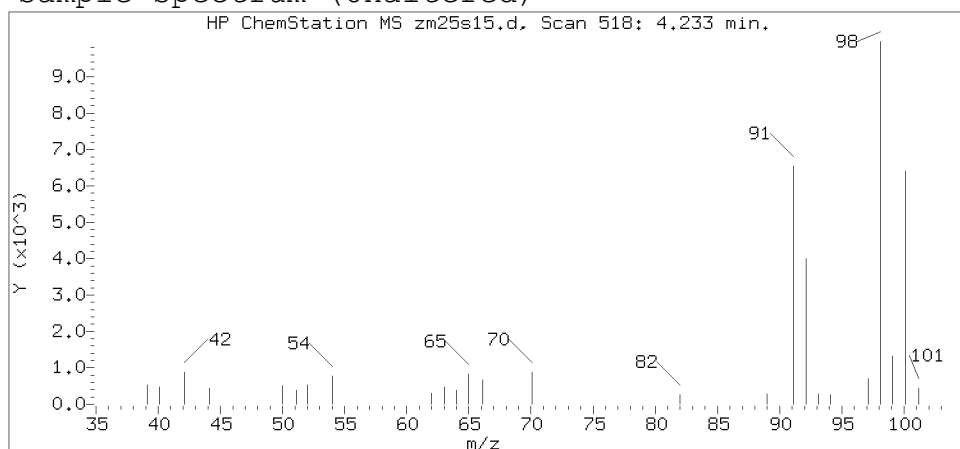
Reference Standard Spectrum for Toluene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem2/HP09671.i/20mar25a.b/zm25s15.d
Injection date and time: 25-MAR-2020 12:34

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 12:43 chemist

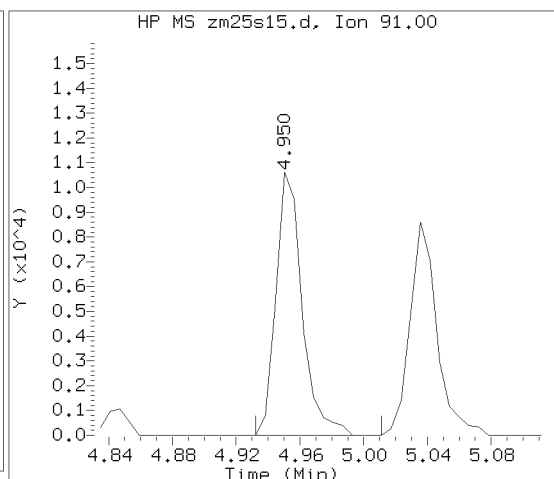
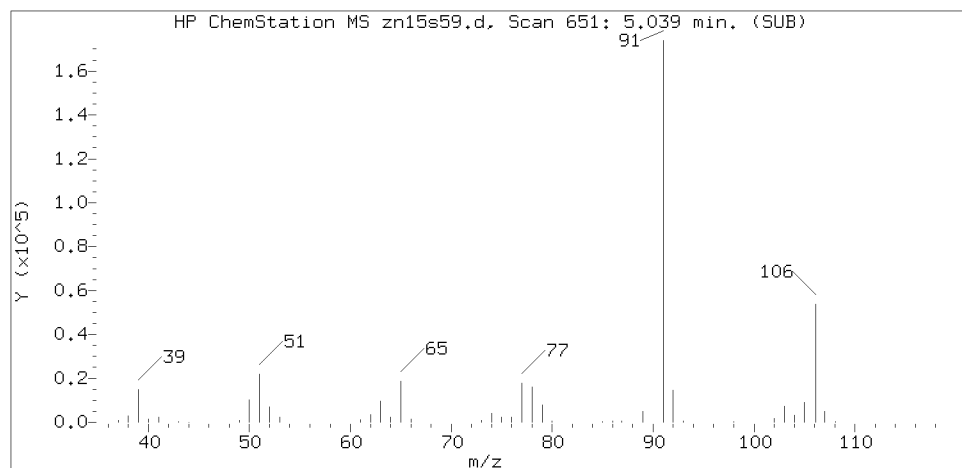
Sample Name: BAC12

Lab Sample ID: 1283822

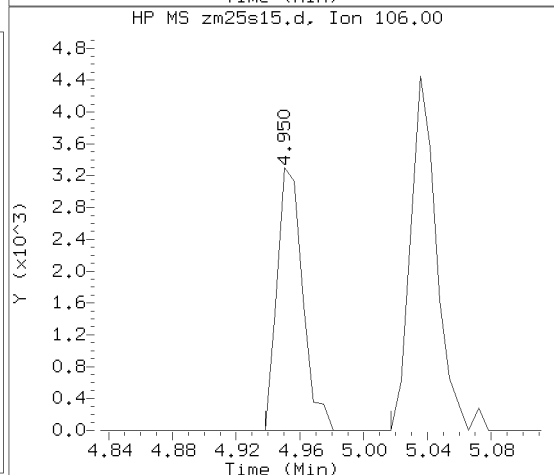
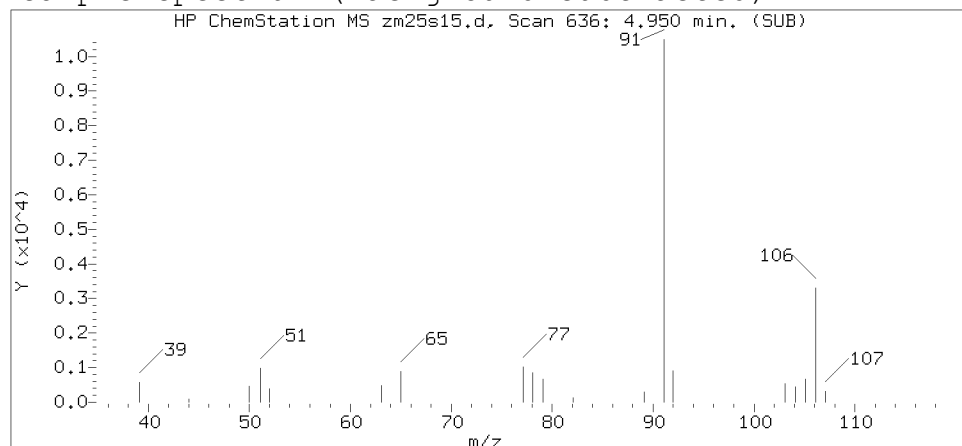
Compound Number : 16
Compound Name : Toluene
Scan Number : 518
Retention Time (minutes): 4.233
Relative Retention Time : 0.00000
Quant Ion : 92.00
Area (flag) : 5812
On-Column Amount (ng) : 0.5828

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10.
Target 3.5 esignature user: ads07818

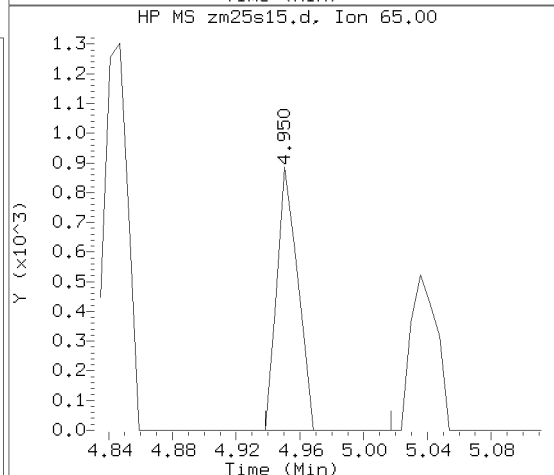
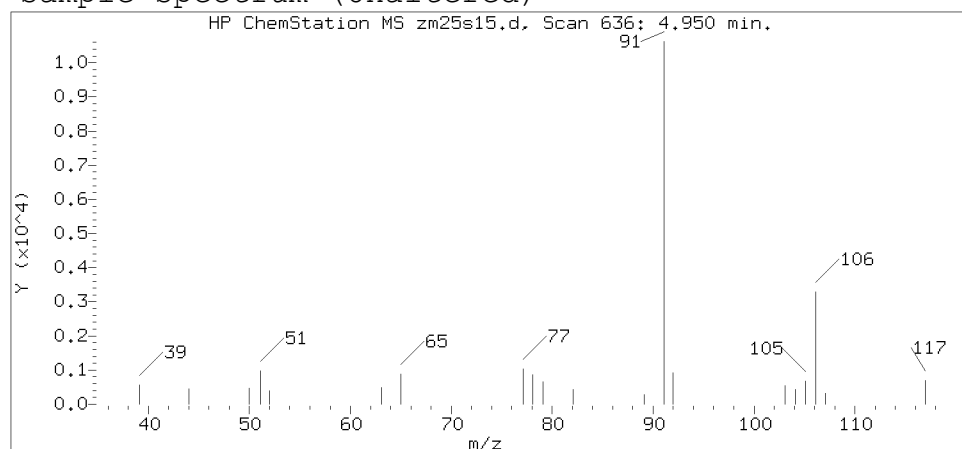
Reference Standard Spectrum for Ethylbenzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem2/HP09671.i/20mar25a.b/zm25s15.d
Injection date and time: 25-MAR-2020 12:34

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 12:43 chemist

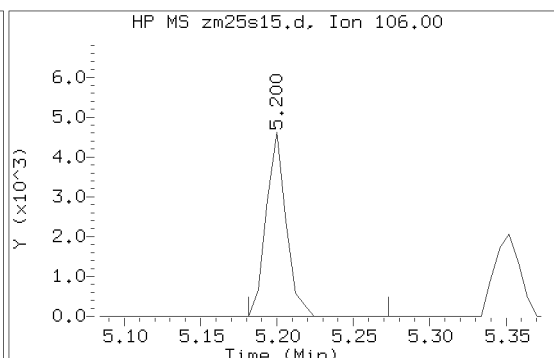
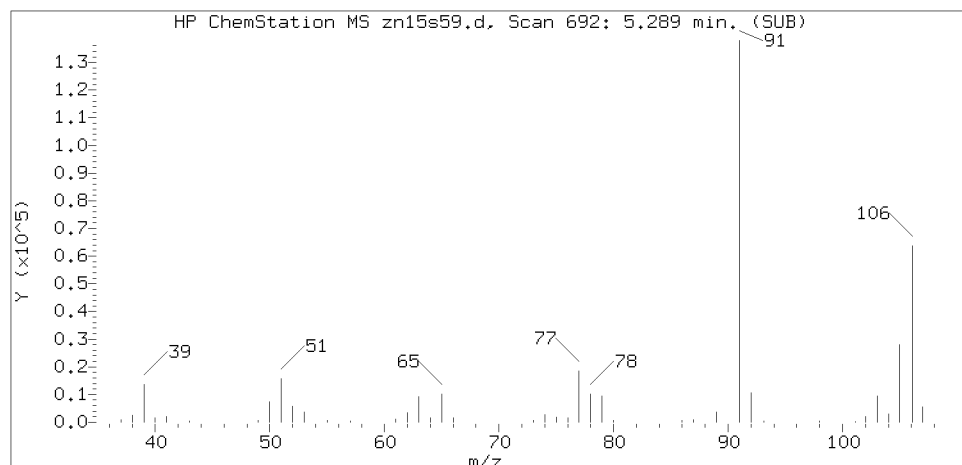
Sample Name: BAC12

Lab Sample ID: 1283822

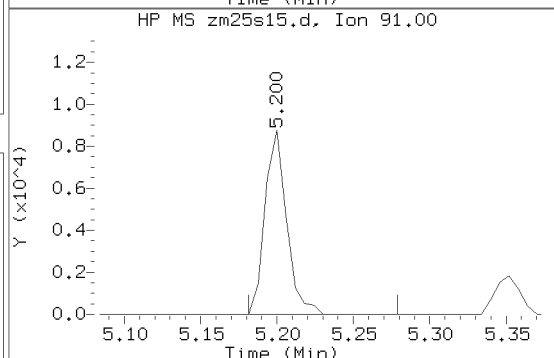
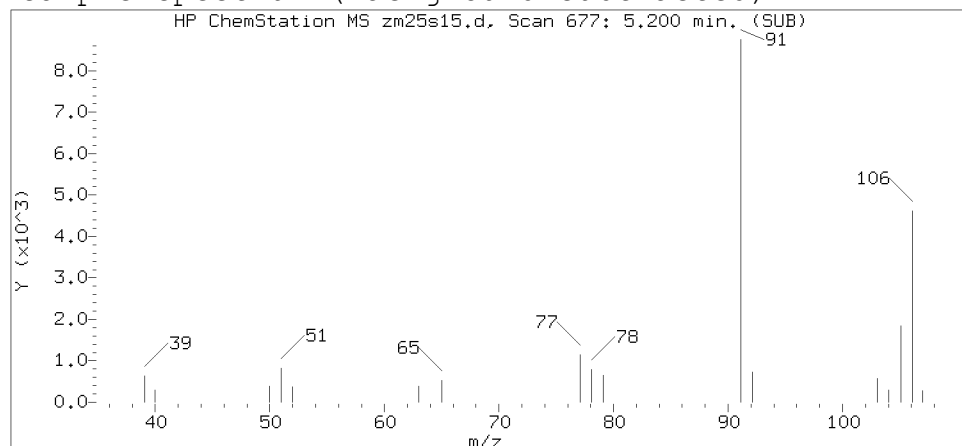
Compound Number : 20
Compound Name : Ethylbenzene
Scan Number : 636
Retention Time (minutes): 4.950
Relative Retention Time : -0.00000
Quant Ion : 91.00
Area (flag) : 12177
On-Column Amount (ng) : 0.6717

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10.
Target 3.5 esignature user: ads07818

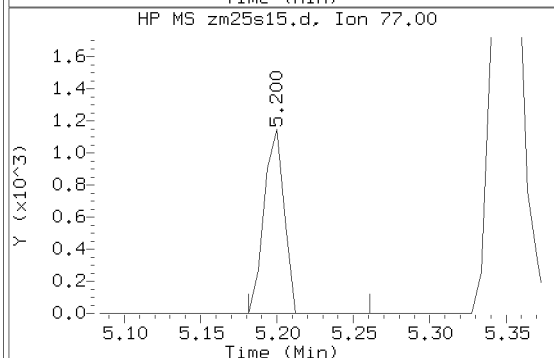
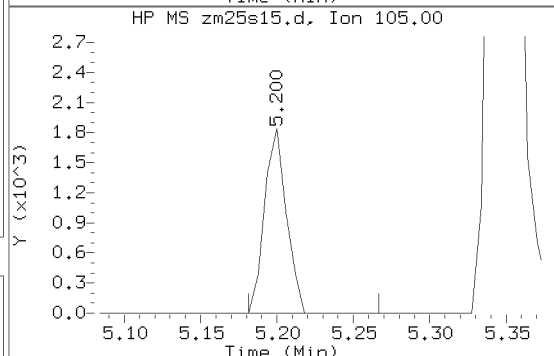
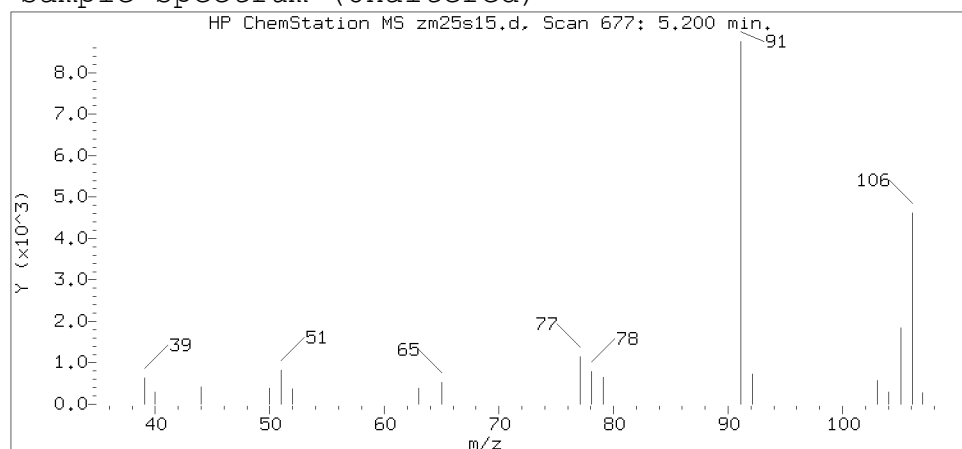
Reference Standard Spectrum for o-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem2/HP09671.i/20mar25a.b/zm25s15.d
Injection date and time: 25-MAR-2020 12:34

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 12:43 chemist

Sample Name: BAC12

Lab Sample ID: 1283822

Compound Number : 22
Compound Name : o-Xylene
Scan Number : 677
Retention Time (minutes): 5.200
Relative Retention Time : -0.00126
Quant Ion : 106.00
Area (flag) : 4176
On-Column Amount (ng) : 0.6125

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10.
Target 3.5 esignature user: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC13

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283823

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s17.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC13

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283823

Data file: /chem2/HP09671.i/20mar25a.b/zm25s17.d

Injection date and time: 25-MAR-2020 12:58

Data file Sample Info. Line: BAC13;1283823;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 13:07 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.598 (-0.006)	85	65	174525 (-3)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	727069 (-10)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	534130 (-6)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	282956 (-9)	50.00	

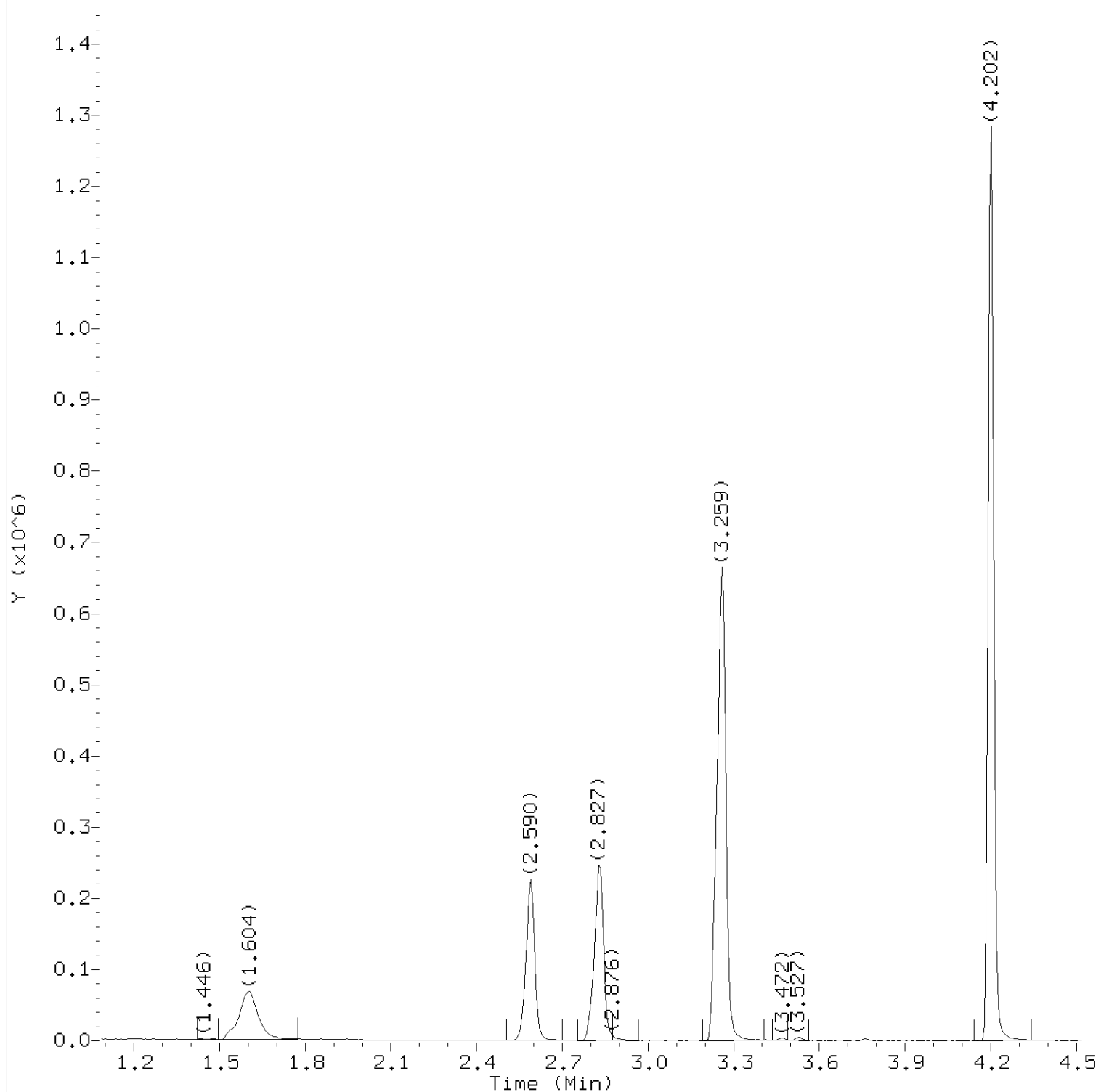
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.590 (0.000)	113	154594	54.266	109%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.833 (0.000)	102	46577	52.190	104%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	711334	49.783	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	247580	46.034	92%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s17.d
Injection date and time: 25-MAR-2020 12:58

Instrument ID: HP09671.i
Analyst ID: ads07818

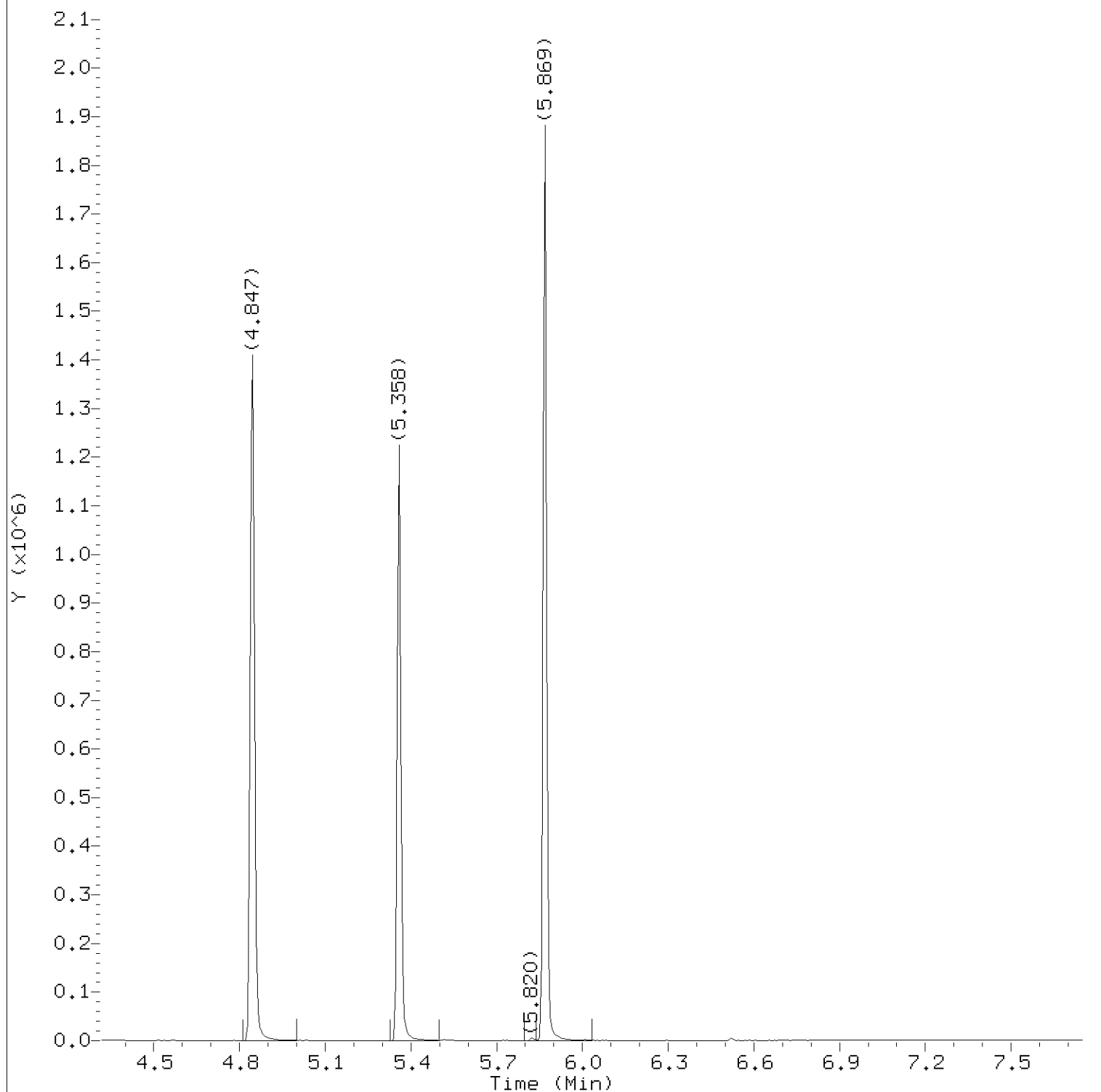
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 13:07 chemist

Sample Name: BAC13

Lab Sample ID: 1283823

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s17.d
Injection date and time: 25-MAR-2020 12:58

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 13:07 chemist

Sample Name: BAC13

Lab Sample ID: 1283823

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s17.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 12:58

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 13:07 chemist

Sample Name: BAC13

Lab Sample ID: 1283823

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.598	65	174525	250.000
7) \$Dibromofluoromethane	(2)	2.590	113	154594	54.266
10) \$1,2-Dichloroethane-d4	(2)	2.833	102	46577	52.190
14) *Fluorobenzene	(2)	3.259	96	727069	50.000
15) \$Toluene-d8	(3)	4.202	98	711334	49.783
19) *Chlorobenzene-d5	(3)	4.847	117	534130	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	247580	46.034
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	282956	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC14

Lab Name: Lancaster Laboratories

Contract: _____

Lab Code: LANCAS

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) WATER

Lab Sample ID: 1283824

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: HP09671.i/20mar25a.b/zm25s03.d

Level: (low/med) LOW

Date Received: 03/19/20

Moisture: not dec. _____

Date Analyzed: 03/25/20

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

BAC14

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283824

Data file: /chem2/HP09671.i/20mar25a.b/zm25s03.d

Injection date and time: 25-MAR-2020 10:08

Data file Sample Info. Line: BAC14;1283824;1;0;;GPY67;;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 10:17 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	186104 (3)	250.00	
14) Fluorobenzene	3.253 (0.000)	357	96	755268 (-6)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	554185 (-3)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	293426 (-6)	50.00	

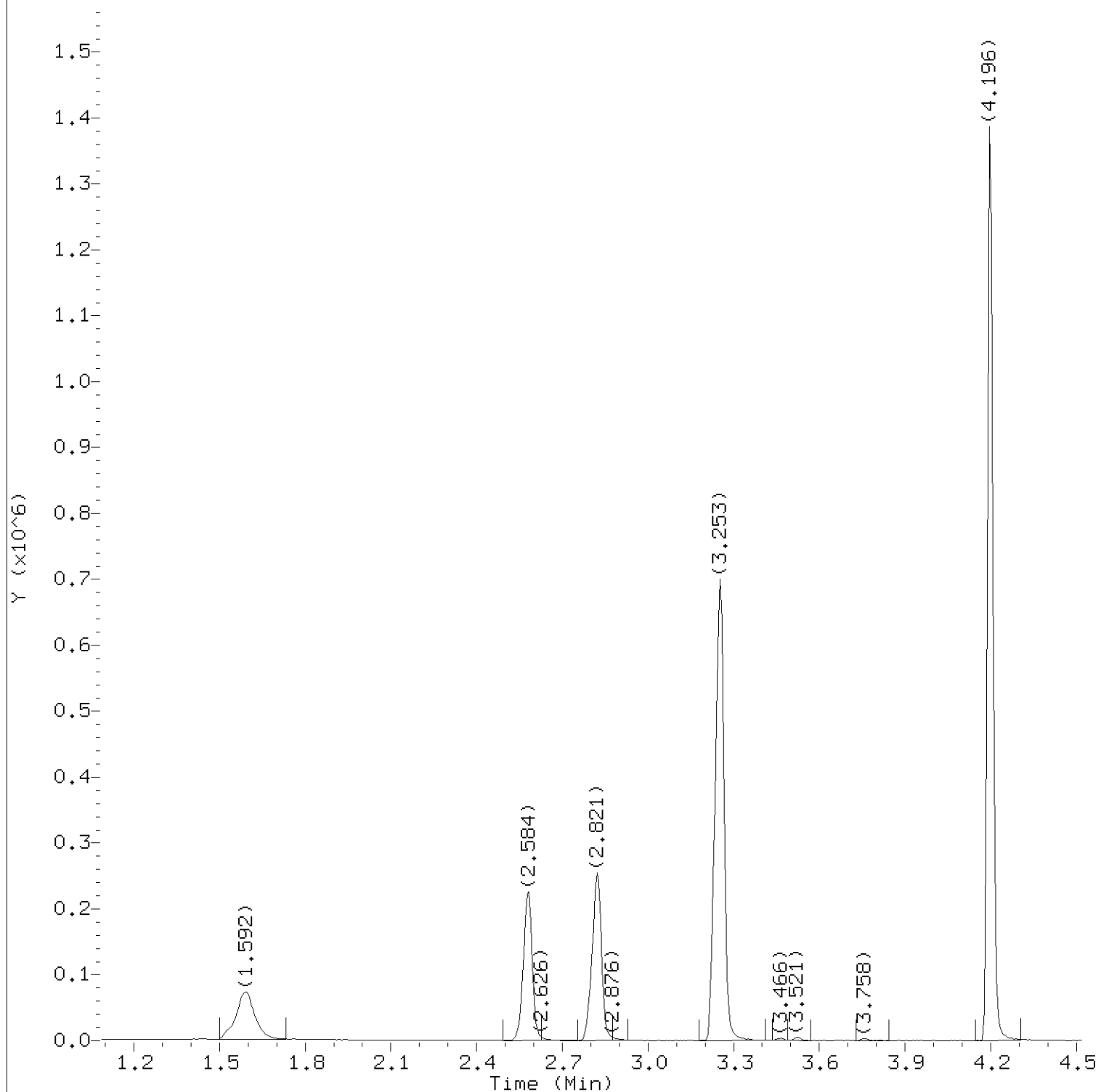
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.000)	113	159198	53.796	108%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.821 (0.002)	102	48291	52.089	104%		80 - 120
15) Toluene-d8	(3)	4.196 (0.001)	98	738267	49.798	100%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	256471	45.961	92%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s03.d
Injection date and time: 25-MAR-2020 10:08

Instrument ID: HP09671.i
Analyst ID: ads07818

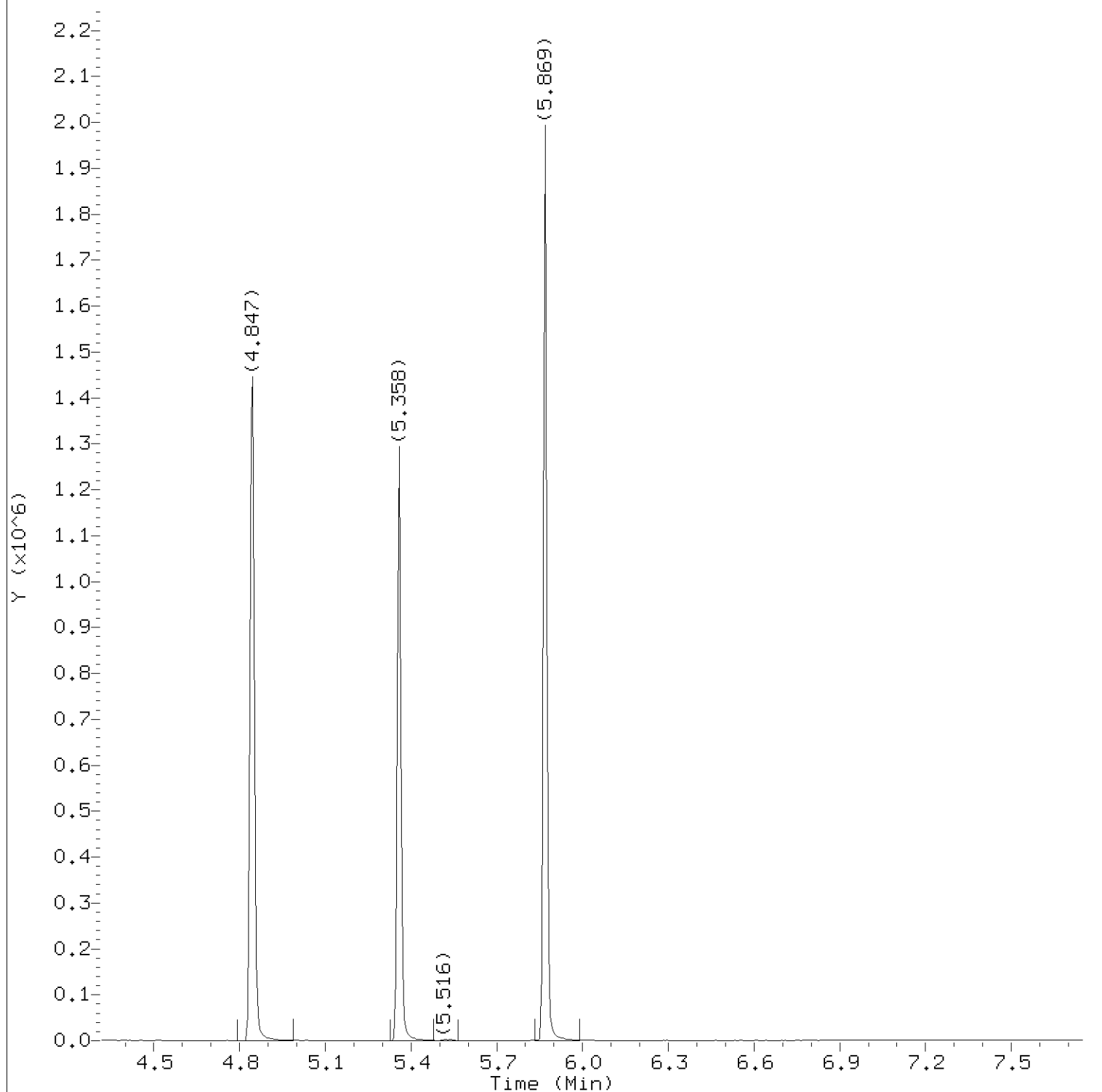
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 10:17 chemist

Sample Name: BAC14

Lab Sample ID: 1283824

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s03.d
Injection date and time: 25-MAR-2020 10:08

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 10:17 chemist

Sample Name: BAC14

Lab Sample ID: 1283824

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s03.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 10:08

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 10:17 chemist

Sample Name: BAC14

Lab Sample ID: 1283824

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.592	65	186104	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	159198	53.796
10) \$1,2-Dichloroethane-d4	(2)	2.821	102	48291	52.089
14) *Fluorobenzene	(2)	3.253	96	755268	50.000
15) \$Toluene-d8	(3)	4.196	98	738267	49.798
19) *Chlorobenzene-d5	(3)	4.847	117	554185	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	256471	45.961
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	293426	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Standards Data

Volatiles by GC/MS

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09671 **HP #21**

Data Directory Path is - D:\DATA\20jan20z\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
amd00492	zj20t01.D	50ngbfb	01/20/2020	08:06		
amd00492	zj20xx1.D	std	01/20/2020	08:20		
amd00492	zj20xx2.D	std	01/20/2020	08:32		
amd00492	zj20xx3.D	std	01/20/2020	08:45		
amd00492	zj20xx4.D	std	01/20/2020	08:57		
amd00492	zj20i01.D	VSTD200	01/20/2020	09:09		
amd00492	zj20i02.D	VSTD200	01/20/2020	09:21		
amd00492	zj20i03.D	VSTD100	01/20/2020	09:33		
amd00492	zj20i04.D	VSTD100	01/20/2020	09:45		
amd00492	zj20i05.D	VSTD050	01/20/2020	09:57		
amd00492	zj20i06.D	VSTD050	01/20/2020	10:09		
amd00492	zj20i07.D	VSTD020	01/20/2020	10:21		
amd00492	zj20i08.D	VSTD020	01/20/2020	10:33		
amd00492	zj20i09.D	VSTD010	01/20/2020	10:46		
amd00492	zj20i10.D	VSTD010	01/20/2020	10:58		
amd00492	zj20i11.D	VSTD002	01/20/2020	11:10		
amd00492	zj20i12.D	VSTD002	01/20/2020	11:22		
amd00492	zj20i13.D	VSTD001	01/20/2020	11:34		
amd00492	zj20i14.D	VSTD001	01/20/2020	11:46		
amd00492	zj20i15.D	VSTD0.5	01/20/2020	11:59		
amd00492	zj20i16.D	VSTD0.5	01/20/2020	12:11		
amd00492	zj20v01.D	ICVZ01	01/20/2020	12:23		
amd00492	zj20v02.D	ICVZ02	01/20/2020	12:35		
amd00492	zj20i23.D	VSTD100	01/20/2020	12:47		
amd00492	zj20i24.D	VSTD100	01/20/2020	12:59		
amd00492	zj20x01.D	blk	01/20/2020	13:12		
amd00492	zj20x02.D	blk	01/20/2020	13:24		
amd00492	zj20x03.D	blk	01/20/2020	13:36		
amd00492	zj20x04.D	blk	01/20/2020	13:48		
amd00492	zj20b01.D	VBLKZ01	01/20/2020	14:00		
amd00492	zj20b02.D	VBLKZ02	01/20/2020	14:12		
amd00492	zj20b03.D	VBLKZ03	01/20/2020	14:24		
amd00492	zj20b04.D	VBLKZ04	01/20/2020	14:36		
amd00492	zj20b05.D	VBLKZ05	01/20/2020	14:49		
amd00492	zj20b06.D	VBLKZ06	01/20/2020	15:01		
amd00492	zj20m01.D	MDLZ01	01/20/2020	15:13		
amd00492	zj20m02.D	MDLZ02	01/20/2020	15:25		
amd00492	zj20m03.D	MDLZ03	01/20/2020	15:37		
amd00492	zj20m04.D	MDLZ04	01/20/2020	15:49		
amd00492	zj20m05.D	MDLZ05	01/20/2020	16:02		
amd00492	zj20m06.D	MDLZ06	01/20/2020	16:14		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09671 **HP #21**

Data Directory Path is - D:\DATA\20mar25a\

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ads07818	ZM25x91.D	VLKZ91	03/25/2020	08:10	Z200851AA	
ads07818	ZM25x92.D	VLKZ92	03/25/2020	08:22	Z200852AA	
ads07818	ZM25C01.D	VSTD050	03/25/2020	08:34	Z200851AA	
ads07818	ZM25C02.D	VSTD050	03/25/2020	08:46	Z200852AA	
ads07818	ZM25S01.D	LCSZ91	03/25/2020	08:59	Z200851AA	
ads07818	ZM25S02.D	LCSZ92	03/25/2020	09:11	Z200852AA	
ads07818	ZM25B01.D	VLKZ91	03/25/2020	09:23	Z200851AA	
ads07818	ZM25B02.D	VLKZ92	03/25/2020	09:35	Z200852AA	
ads07818	ZM25S03.D	1283824	03/25/2020	10:08	Z200851AA	
ads07818	ZM25S04.D	1285389	03/25/2020	10:20	Z200852AA	
ads07818	ZM25S05.D	1283817	03/25/2020	10:33	Z200851AA	
ads07818	ZM25S06.D	1285467	03/25/2020	10:45	Z200852AA	
ads07818	ZM25S07.D	1283818MS	03/25/2020	10:57	Z200851AA	
ads07818	ZM25S08.D	1285467MS	03/25/2020	11:09	Z200852AA	
ads07818	ZM25S09.D	1283819MSD	03/25/2020	11:21	Z200851AA	
ads07818	ZM25S10.D	1285467MSD	03/25/2020	11:33	Z200852AA	
ads07818	ZM25S11.D	1283820	03/25/2020	11:45	Z200851AA	
ads07818	ZM25S12.D	1285468	03/25/2020	11:57	Z200852AA	10
ads07818	ZM25S13.D	1283821	03/25/2020	12:10	Z200851AA	
ads07818	ZM25S14.D	1285469	03/25/2020	12:22	Z200852AA	
ads07818	ZM25S15.D	1283822	03/25/2020	12:34	Z200851AA	
ads07818	ZM25S16.D	1285470	03/25/2020	12:46	Z200852AA	
ads07818	ZM25S17.D	1283823	03/25/2020	12:58	Z200851AA	
ads07818	ZM25S18.D	1285471	03/25/2020	13:10	Z200852AA	
ads07818	ZM25S19.D	1282212	03/25/2020	13:23	Z200851AA	10
ads07818	ZM25S20.D	1285472	03/25/2020	13:35	Z200852AA	10
ads07818	ZM25S21.D	1282212DL	03/25/2020	13:47	Z200851AA	100
ads07818	ZM25S22.D	1285473	03/25/2020	13:59	Z200852AA	
ads07818	ZM25S23.D	1282214	03/25/2020	14:11	Z200851AA	
ads07818	ZM25S24.D	1285474	03/25/2020	14:23	Z200852AA	10
ads07818	ZM25S25.D	1282215	03/25/2020	14:36	Z200851AA	
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ads07818	ZM25S27.D	1283809	03/25/2020	15:00	Z200851AA	
ads07818	ZM25S28.D	1285476	03/25/2020	15:12	Z200852AA	
ads07818	ZM25S29.D	1283810	03/25/2020	15:24	Z200851AA	
ads07818	ZM25S30.D	1285477	03/25/2020	15:36	Z200852AA	5
ads07818	ZM25S31.D	1283811	03/25/2020	15:49	Z200851AA	
ads07818	ZM25S32.D	1285478	03/25/2020	16:01	Z200852AA	
ads07818	ZM25S33.D	1283812	03/25/2020	16:13	Z200851AA	
ads07818	ZM25S34.D	1285479	03/25/2020	16:25	Z200852AA	
ads07818	ZM25S35.D	1283813	03/25/2020	16:38	Z200851AA	
ads07818	ZM25S36.D	1285480	03/25/2020	16:50	Z200852AA	
ads07818	ZM25S37.D	1283814	03/25/2020	17:02	Z200851AA	
ads07818	ZM25S38.D	1282176	03/25/2020	17:14	Z200852AA	
ads07818	ZM25S39.D	1283815	03/25/2020	17:26	Z200851AA	
ads07818	ZM25S40.D	1282177	03/25/2020	17:38	Z200852AA	5
ads07818	ZM25S41.D	1283816	03/25/2020	17:51	Z200851AA	
ads07818	ZM25S42.D	1282178	03/25/2020	18:03	Z200852AA	
ads07818	ZM25S43.D	1285280	03/25/2020	18:15	Z200851AA	
ads07818	ZM25S44.D	1282140	03/25/2020	18:27	Z200852AA	10
ads07818	ZM25S45.D	1285750	03/25/2020	18:39	Z200851AA	
ads07818	ZM25S46.D	1282141	03/25/2020	18:51	Z200852AA	

Data File: /chem2/HP09671.i/20jan20z.b/zj20t01.d

Page 1

Date : 20-JAN-2020 08:06

Client ID: bfbaug0219

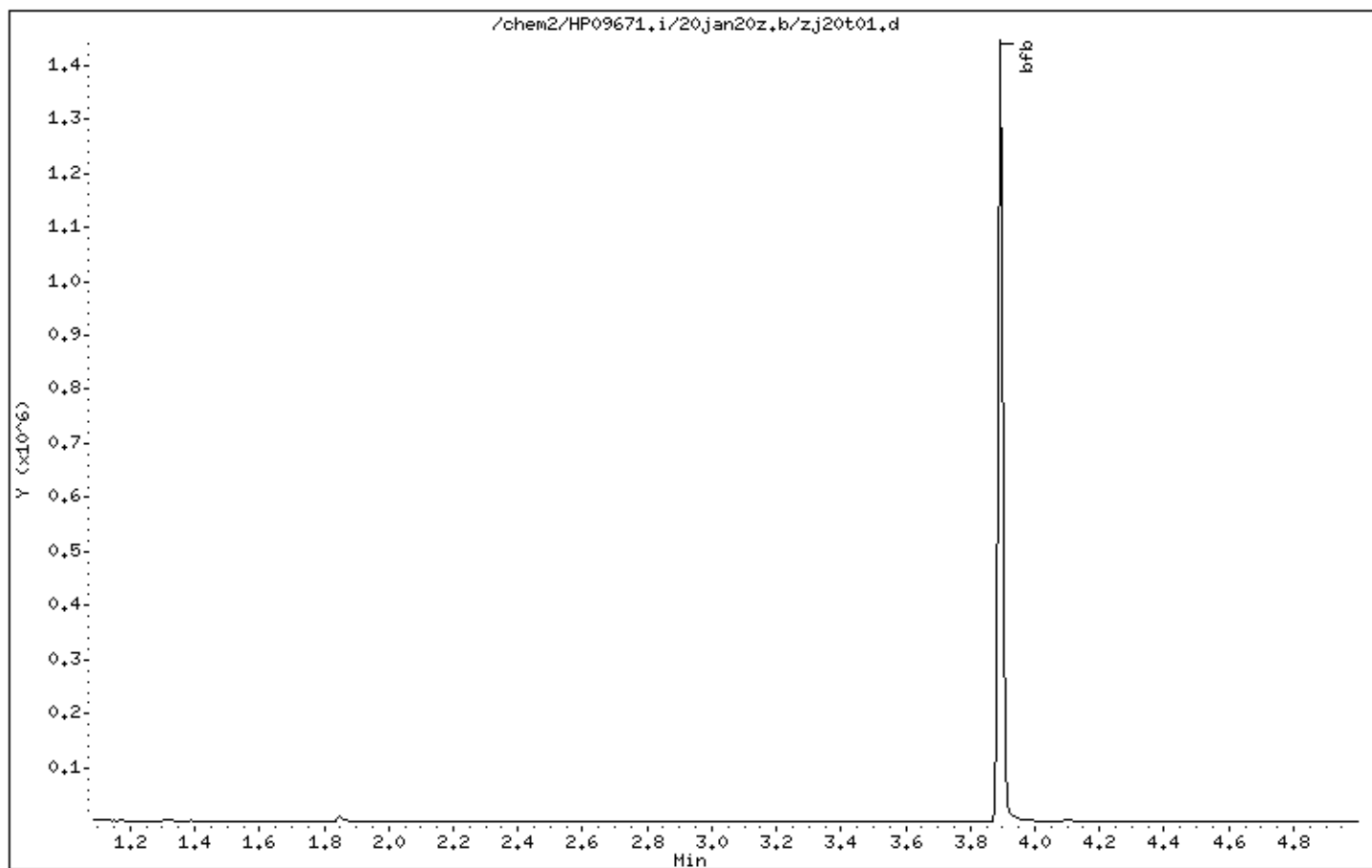
Instrument: HP09671.i

Sample Info: bfbaug0219;50ngbfb;1;3;;;;;

Operator: amd00492

Column phase: DB-VRX

Column diameter: 0,18

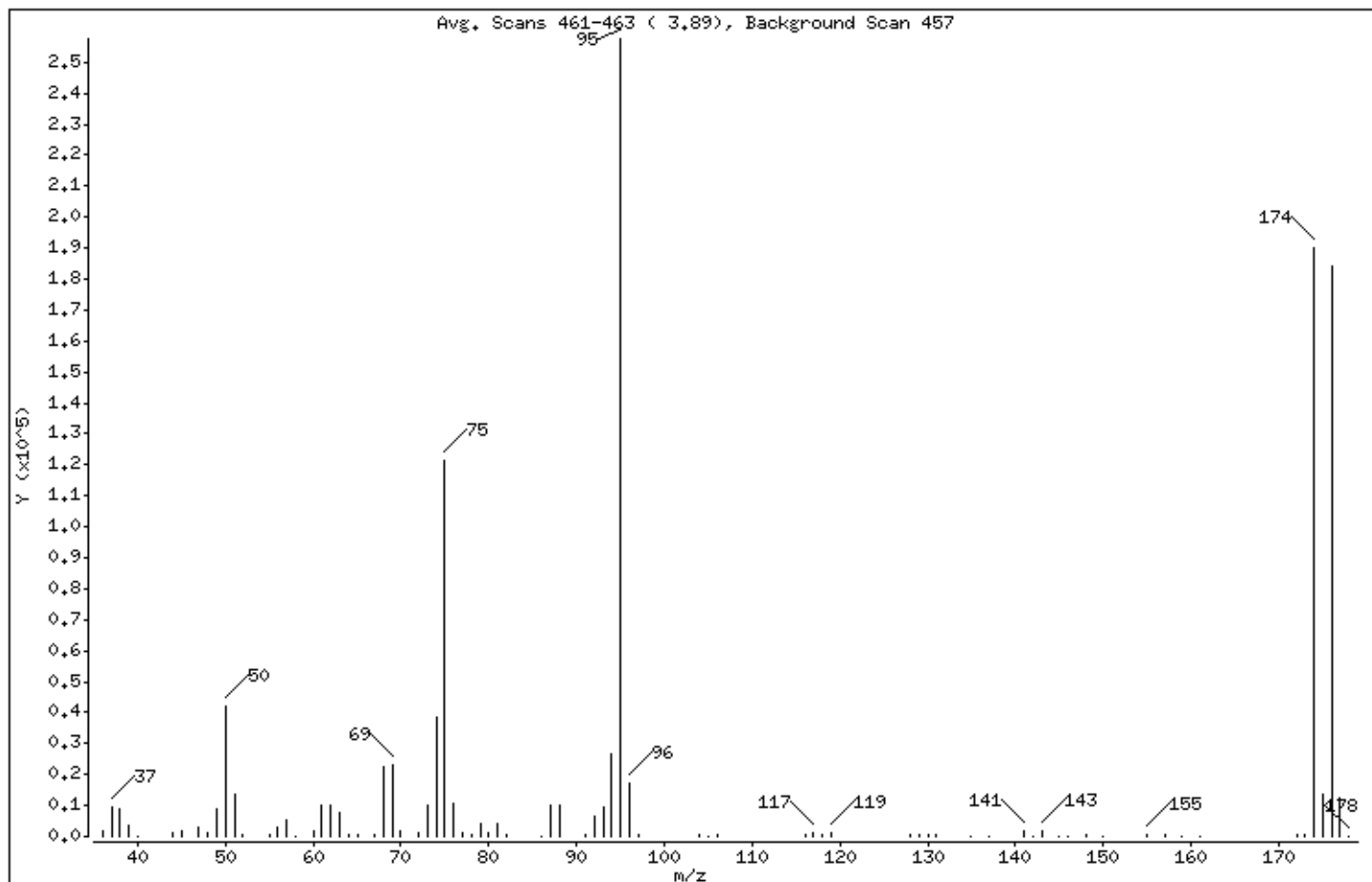


Instrument: HP09671.i

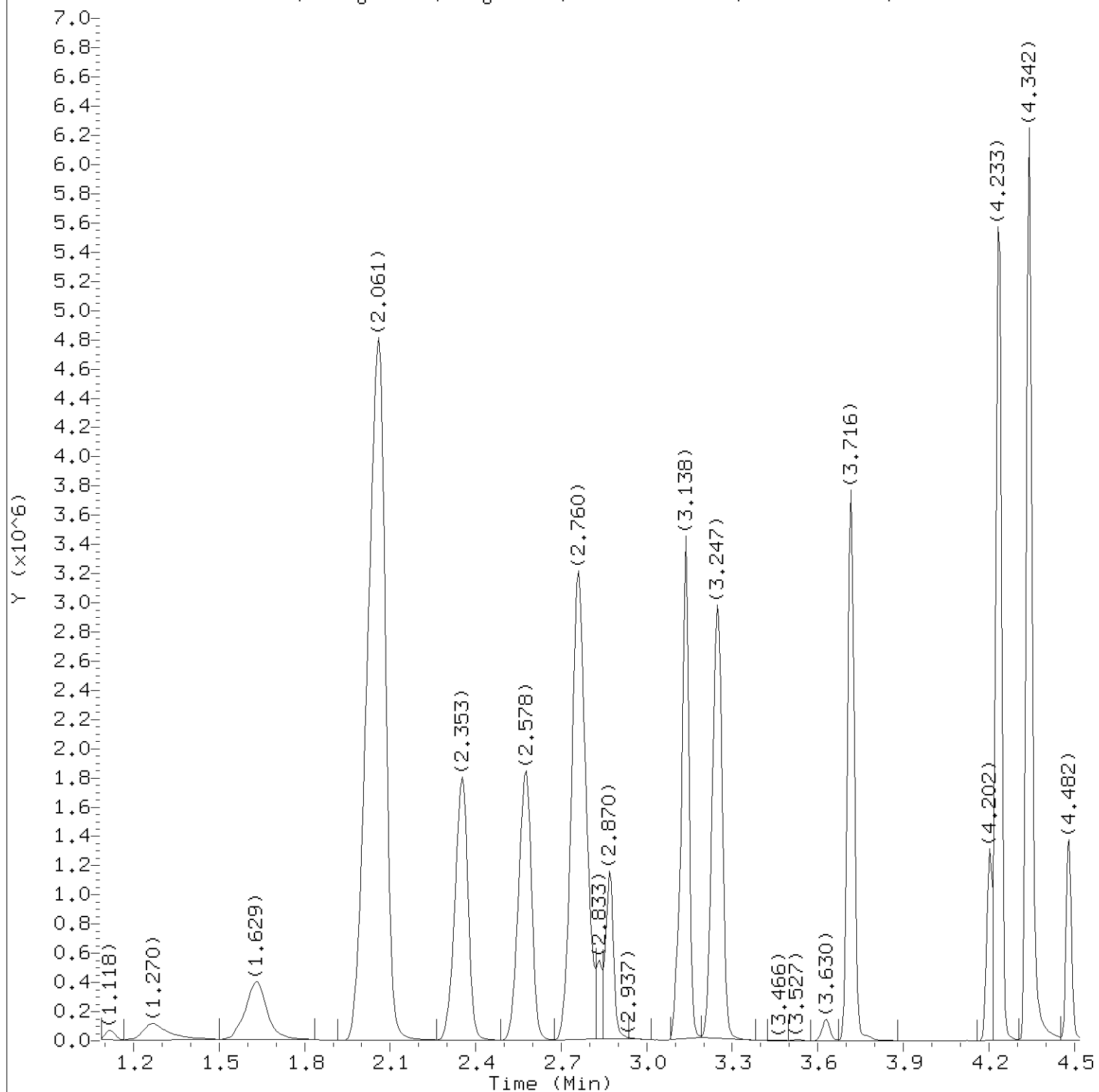
Operator: amd00492

Column diameter: 0.18

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	16.43
75	30.00 - 60.00% of mass 95	47.12
96	5.00 - 9.00% of mass 95	6.77
173	Less than 2.00% of mass 174	0.16 (0.21)
174	50.00 - 100.00% of mass 95	73.78
175	5.00 - 9.00% of mass 174	5.18 (7.02)
176	95.00 - 101.00% of mass 174	71.60 (97.04)
177	5.00 - 9.00% of mass 176	4.71 (6.58)



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d
Injection date and time: 20-JAN-2020 09:09

Instrument ID: HP09671.i
Analyst ID: amd00492

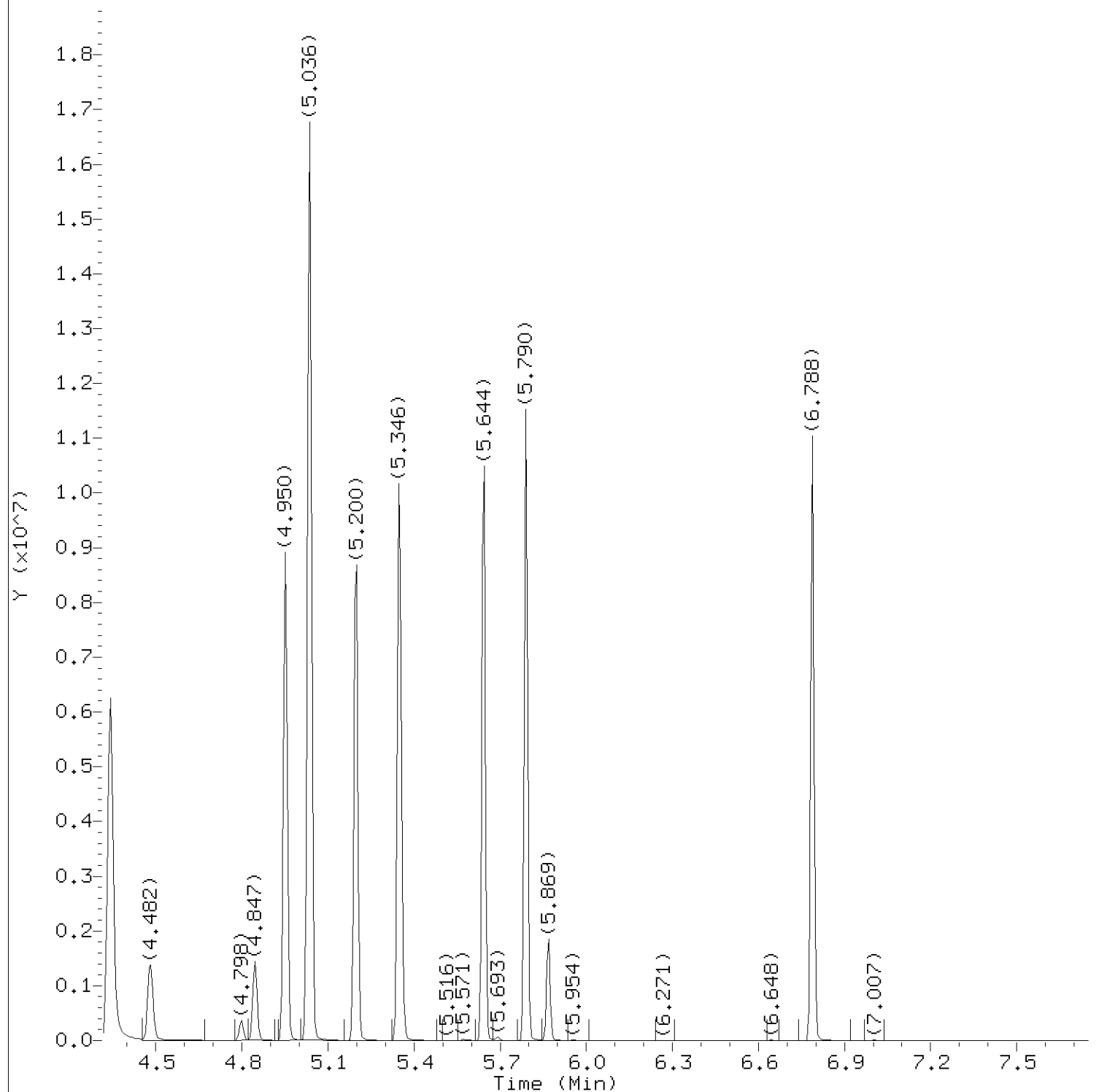
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d
Injection date and time: 20-JAN-2020 09:09

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d
Injection date and time: 20-JAN-2020 09:09

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.270	45	475690	4809.817
2) *t-Butyl alcohol-d10	(1)	1.604	65	208848	250.000
3) t-Butyl alcohol	(1)	1.635	59	949072	993.721
4) Methyl Tertiary Butyl Ether	(2)	2.061	73	10160048	966.441
5) di-Isopropyl ether	(2)	2.353	45	2418170	213.149
6) Ethyl t-butyl ether	(2)	2.572	59	2251013	218.455
7) \$Dibromofluoromethane	(2)	2.590	113	144049	49.499
7) \$Dibromofluoromethane	(2)	2.590	111	147977	49.595
8) t-Butyl Formate	(2)	2.760	57	1234603MA	590.585
9) t-Amyl Alcohol	(1)	2.785	73	586733	1383.569
10) \$1,2-Dichloroethane-d4	(2)	2.833	102	44926	49.278
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	212361	49.742
10) \$1,2-Dichloroethane-d4	(2)	2.833	104	27593	48.951
11) 1,2-Dichloroethane	(2)	2.870	62	991240	189.832
12) Benzene	(2)	3.138	78	3209485	201.294
13) t-Amyl methyl ether	(2)	3.247	87	533297	225.886
14) *Fluorobenzene	(2)	3.259	96	742718	50.000
15) \$Toluene-d8	(3)	4.202	98	710346	49.715
15) \$Toluene-d8	(3)	4.202	100	456175	49.868
16) Toluene	(3)	4.233	92	2022516	205.024
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	1869536	2799.407
18) 1,2-Dibromoethane	(3)	4.482	107	744877	217.171
19) *Chlorobenzene-d5	(3)	4.847	117	534108	50.000
20) Ethylbenzene	(3)	4.950	91	3827504	213.421
21) m+p-Xylene	(3)	5.036	106	3045584	430.250
22) o-Xylene	(3)	5.200	106	1493880	221.482
24) Isopropylbenzene	(3)	5.346	105	3732808	214.363
25) \$4-Bromofluorobenzene	(3)	5.358	95	275779	51.279
25) \$4-Bromofluorobenzene	(3)	5.358	174	205564	50.784
23) Xylene (Total)	(3)		106	4539464	651.732
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	3222486	230.912
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	3314405	229.756
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	280673	50.000
29) Naphthalene	(4)	6.788	128	4297157	229.717

M = Compound was manually integrated.

A = User selected an alternate hit.

* = Compound is an internal standard.

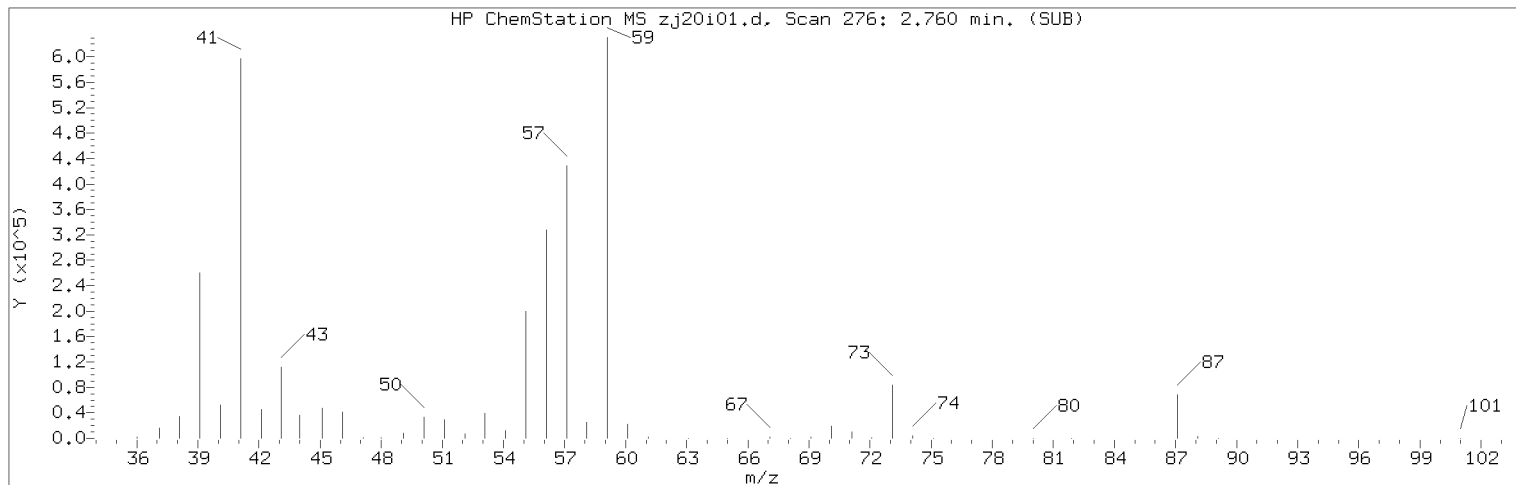
\$ = Compound is a surrogate standard.

page 1 of 1

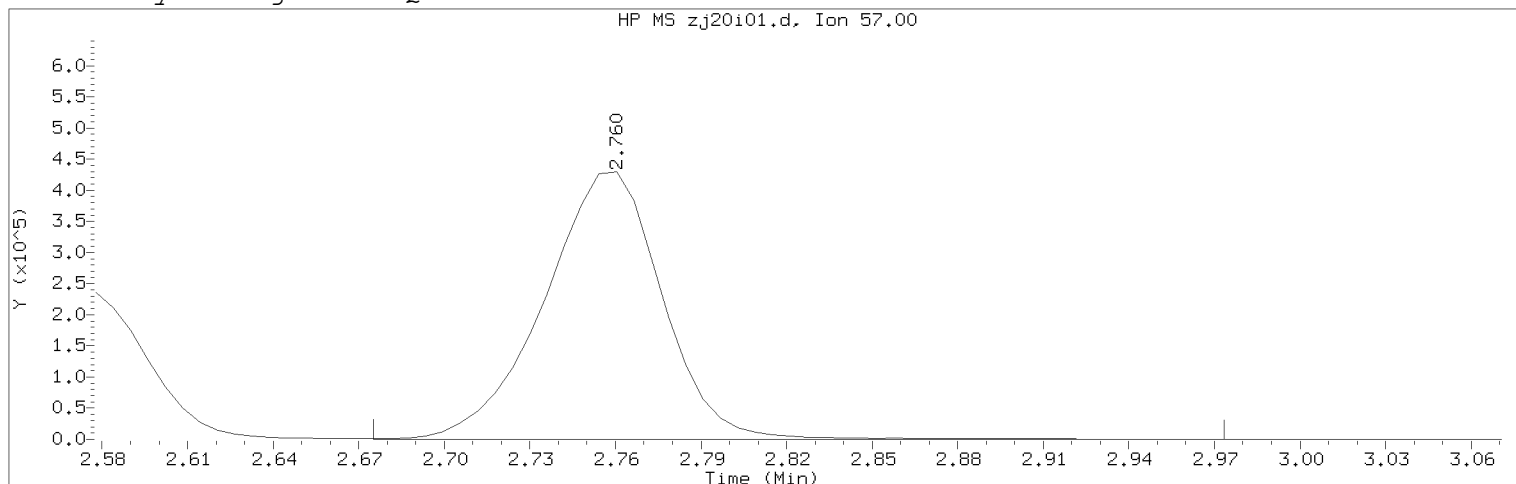
Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 09:09 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

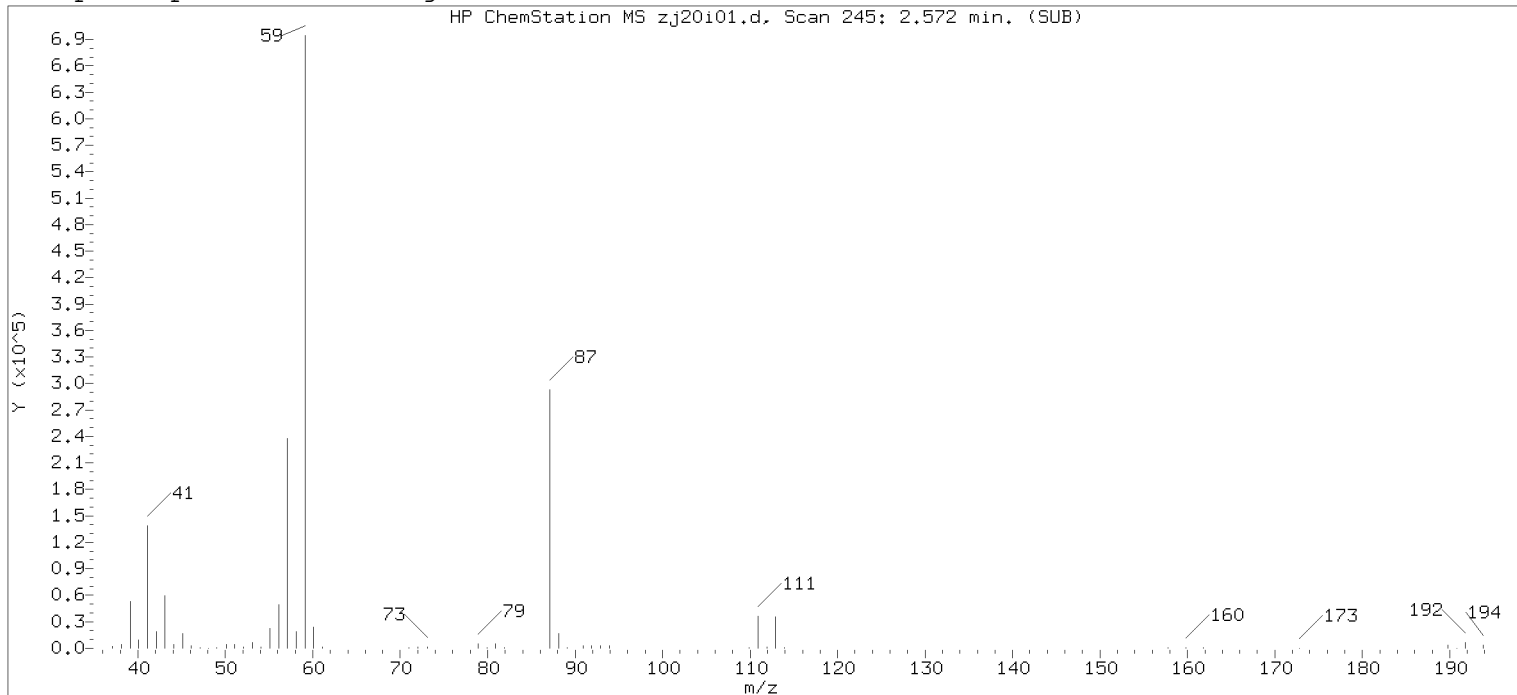
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 276
Retention Time (minutes): 2.760
Quant Ion : 57.00
Area (flag) : 1234603MA
On-Column Amount (ng) : 590.5849
Integration start scan : 261 Integration stop scan: 310
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

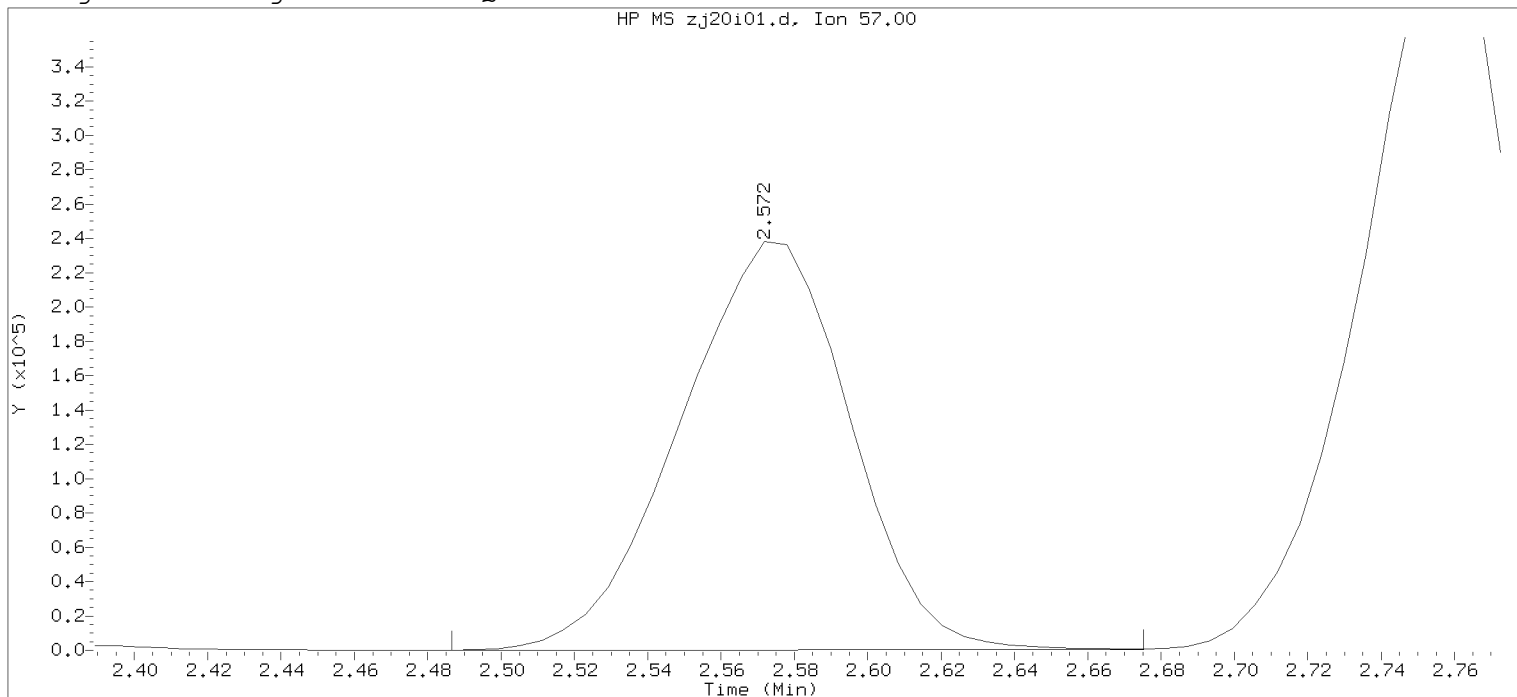
Analyst responsible for change: Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:33.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



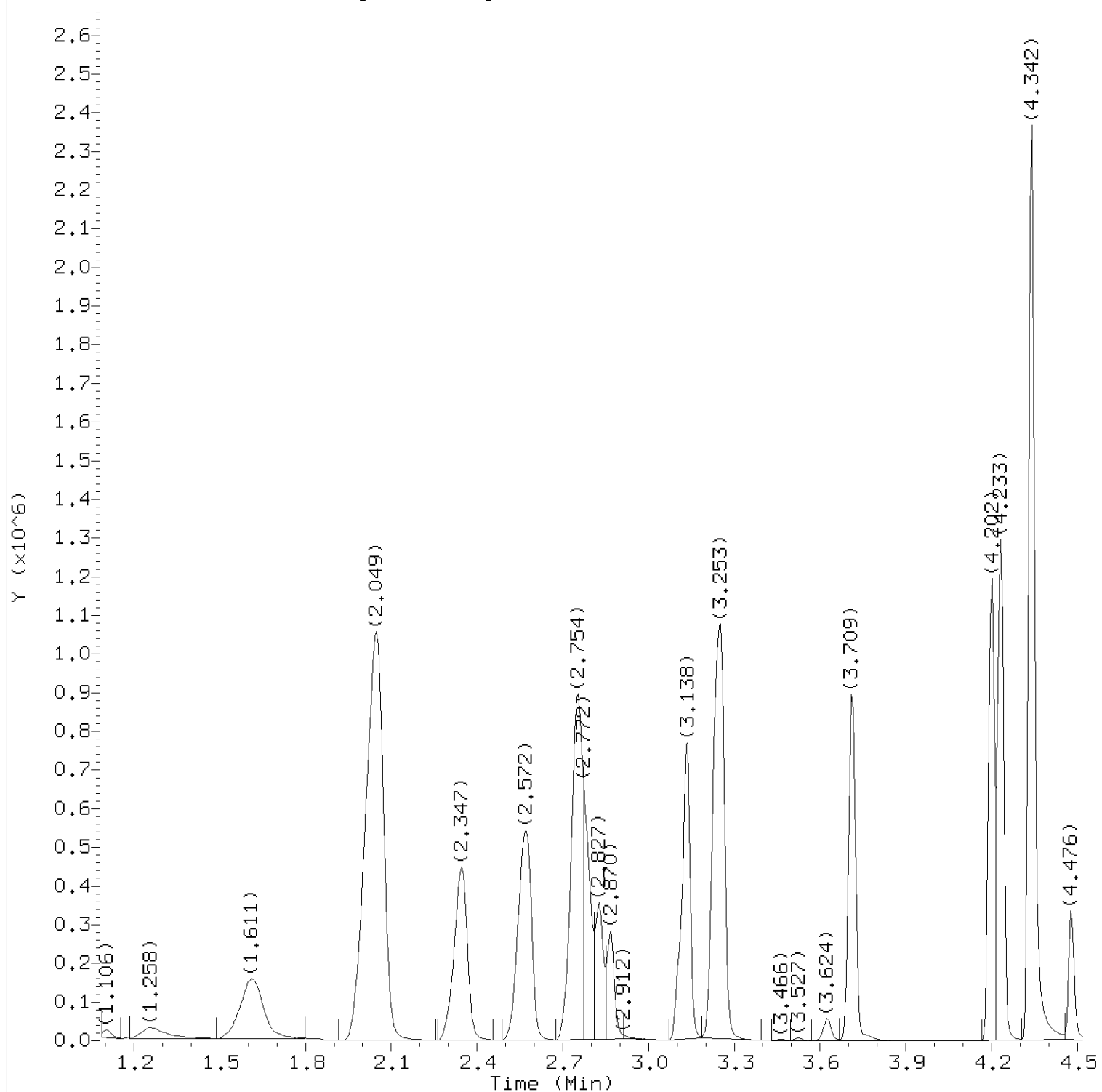
Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 09:09 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 11:30
Date, time and analyst ID of latest file update: 20-Jan-2020 11:30 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 245	
Retention Time (minutes)	: 2.572	
Quant Ion	: 57.00	
Area	: 769207	
On-column Amount (ng)	: 500.0000	
Integration start scan	: 230	Integration stop scan: 261
Y at integration start	: 0	Y at integration end: 384



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d
Injection date and time: 20-JAN-2020 09:57

Instrument ID: HP09671.i
Analyst ID: amd00492

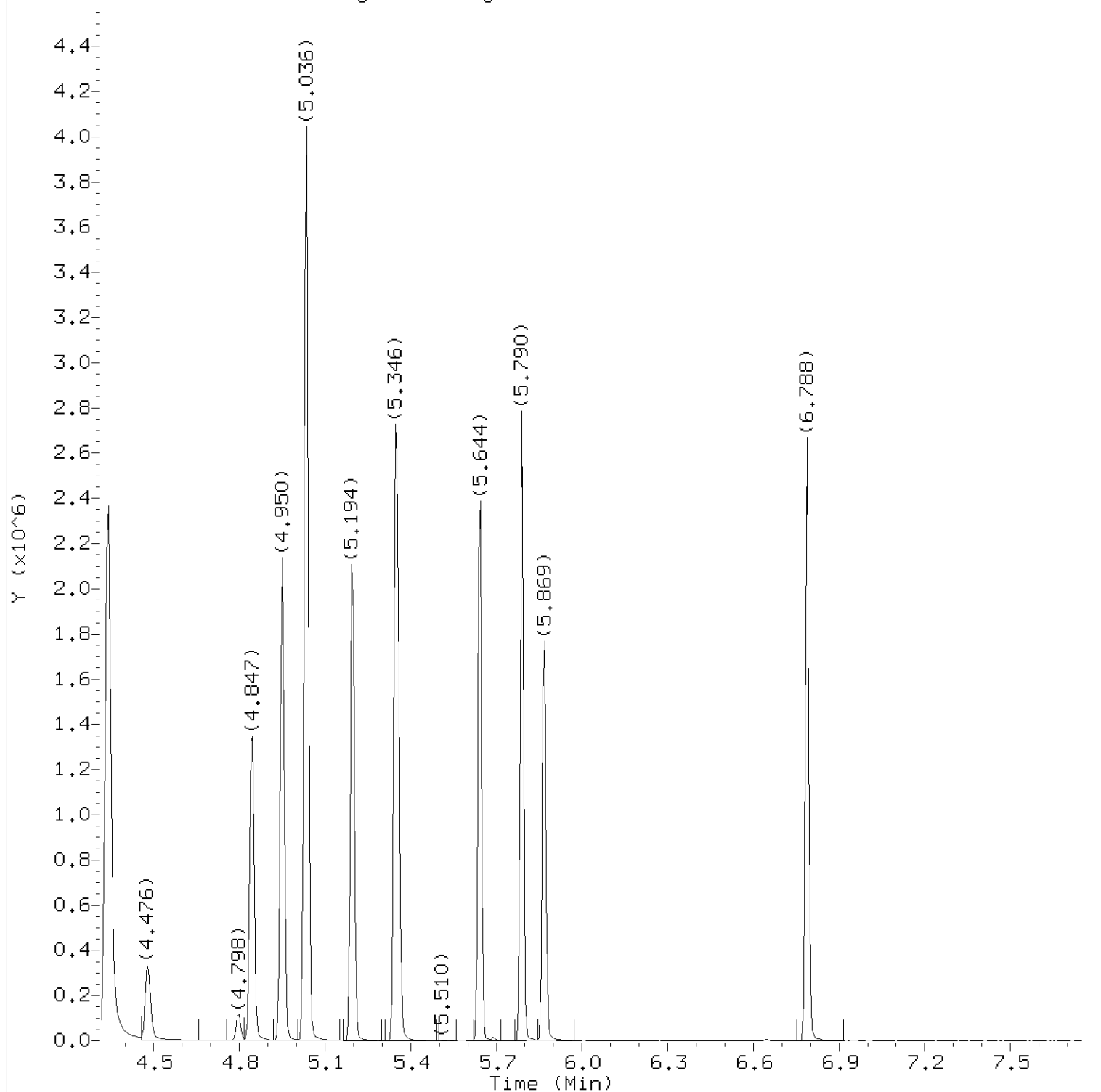
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Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d
Injection date and time: 20-JAN-2020 09:57

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d
 Injection date and time: 20-JAN-2020 09:57

Instrument ID: HP09671.i
 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
 Calibration date and time: 21-JAN-2020 05:07
 Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.264	45	122144	1234.732
2) *t-Butyl alcohol-d10	(1)	1.592	65	208898	250.000
3) t-Butyl alcohol	(1)	1.623	59	276616	289.560
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	2217797	210.325
5) di-Isopropyl ether	(2)	2.347	45	603864	53.067
6) Ethyl t-butyl ether	(2)	2.566	59	558811	54.068
7) \$Dibromofluoromethane	(2)	2.584	113	143296	49.092
7) \$Dibromofluoromethane	(2)	2.584	111	147194	49.184
8) t-Butyl Formate	(2)	2.748	57	299096A	142.726
9) t-Amyl Alcohol	(1)	2.779	73	226197	533.265
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	47157	51.570
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	219478	51.254
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	28381	50.197
11) 1,2-Dichloroethane	(2)	2.870	62	251073	47.938
12) Benzene	(2)	3.138	78	799166	49.971
13) t-Amyl methyl ether	(2)	3.241	87	129610	54.733
14) *Fluorobenzene	(2)	3.259	96	744962	50.000
15) \$Toluene-d8	(3)	4.202	98	713766	50.239
15) \$Toluene-d8	(3)	4.202	100	457650	50.314
16) Toluene	(3)	4.233	92	491329	50.090
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	739531	1107.094
18) 1,2-Dibromoethane	(3)	4.476	107	178051	52.207
19) *Chlorobenzene-d5	(3)	4.847	117	531084	50.000
20) Ethylbenzene	(3)	4.950	91	930350	52.172
21) m+p-Xylene	(3)	5.036	106	746251	106.023
22) o-Xylene	(3)	5.194	106	359590	53.616
24) Isopropylbenzene	(3)	5.346	105	914511	52.816
25) \$4-Bromofluorobenzene	(3)	5.358	95	271854	50.837
25) \$4-Bromofluorobenzene	(3)	5.358	174	204008	50.686
23) Xylene (Total)	(3)		106	1105841	159.639
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	766118	55.065
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	798096	55.494
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	279816	50.000
29) Naphthalene	(4)	6.788	128	1086631	58.267

A = User selected an alternate hit.

* = Compound is an internal standard.

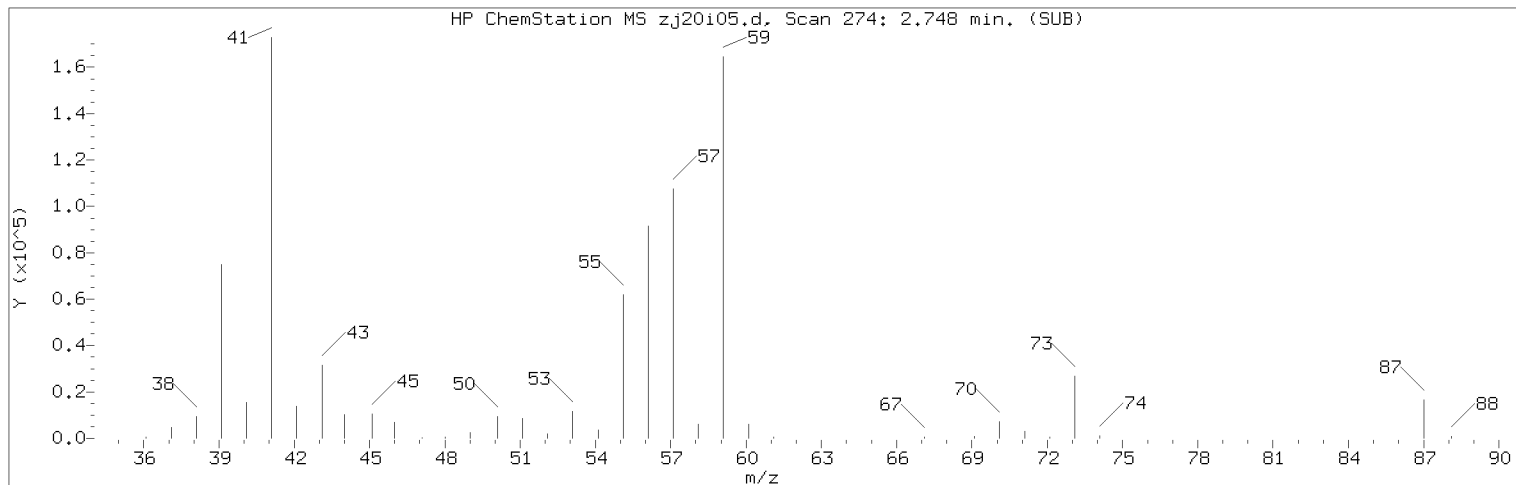
\$ = Compound is a surrogate standard.

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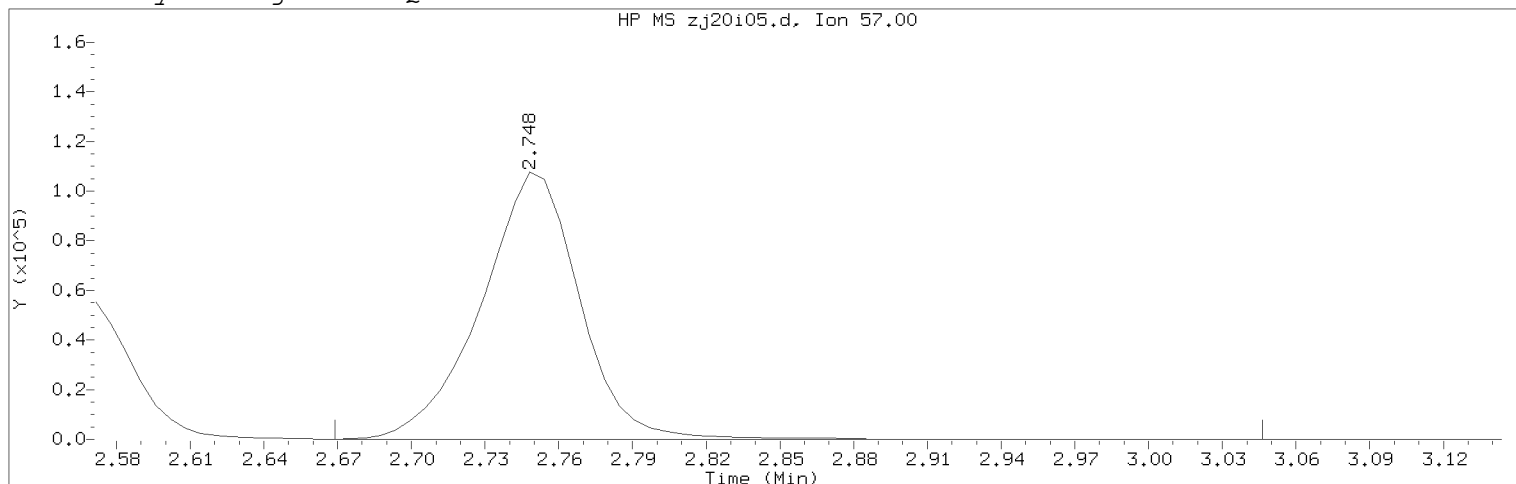
Digitally signed by Anita M. Dale
 on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 09:57

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 21-JAN-2020 05:07

Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 274	
Retention Time (minutes)	: 2.748	
Quant Ion	: 57.00	
Area (flag)	: 299096A	
On-Column Amount (ng)	: 142.7258	
Integration start scan	: 260	Integration stop scan: 322
Y at integration start	: 0	Y at integration end: 0

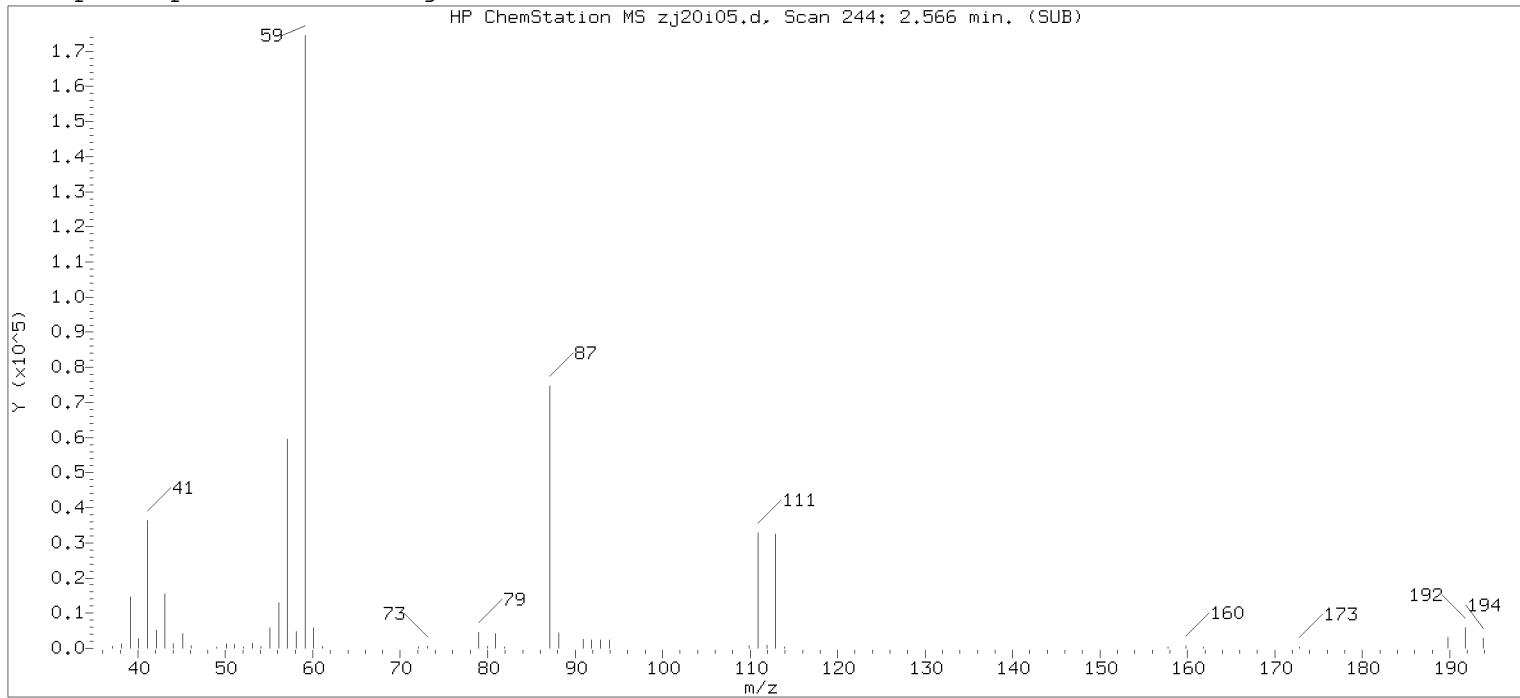
Reason for manual integration: improper integration

Analyst responsible for change:

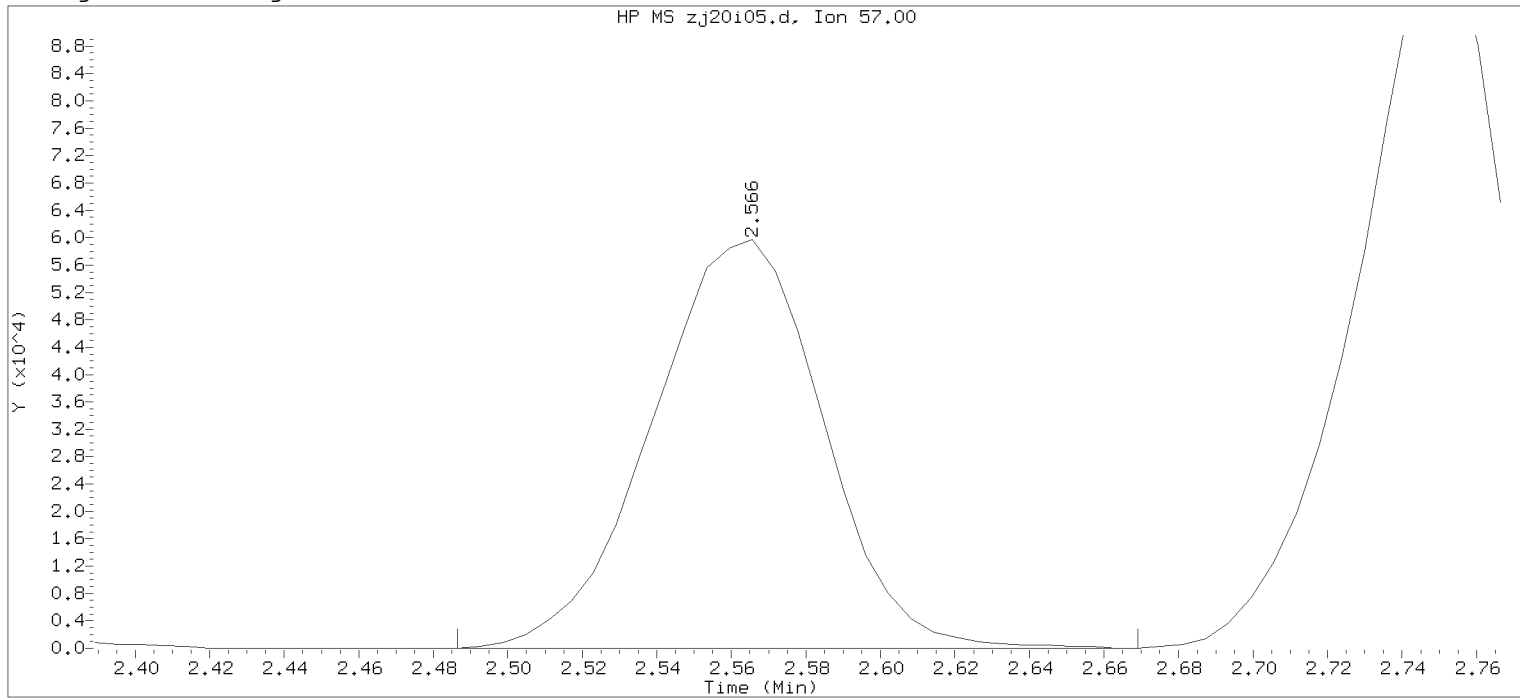
Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/21/2020 at 15:55.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



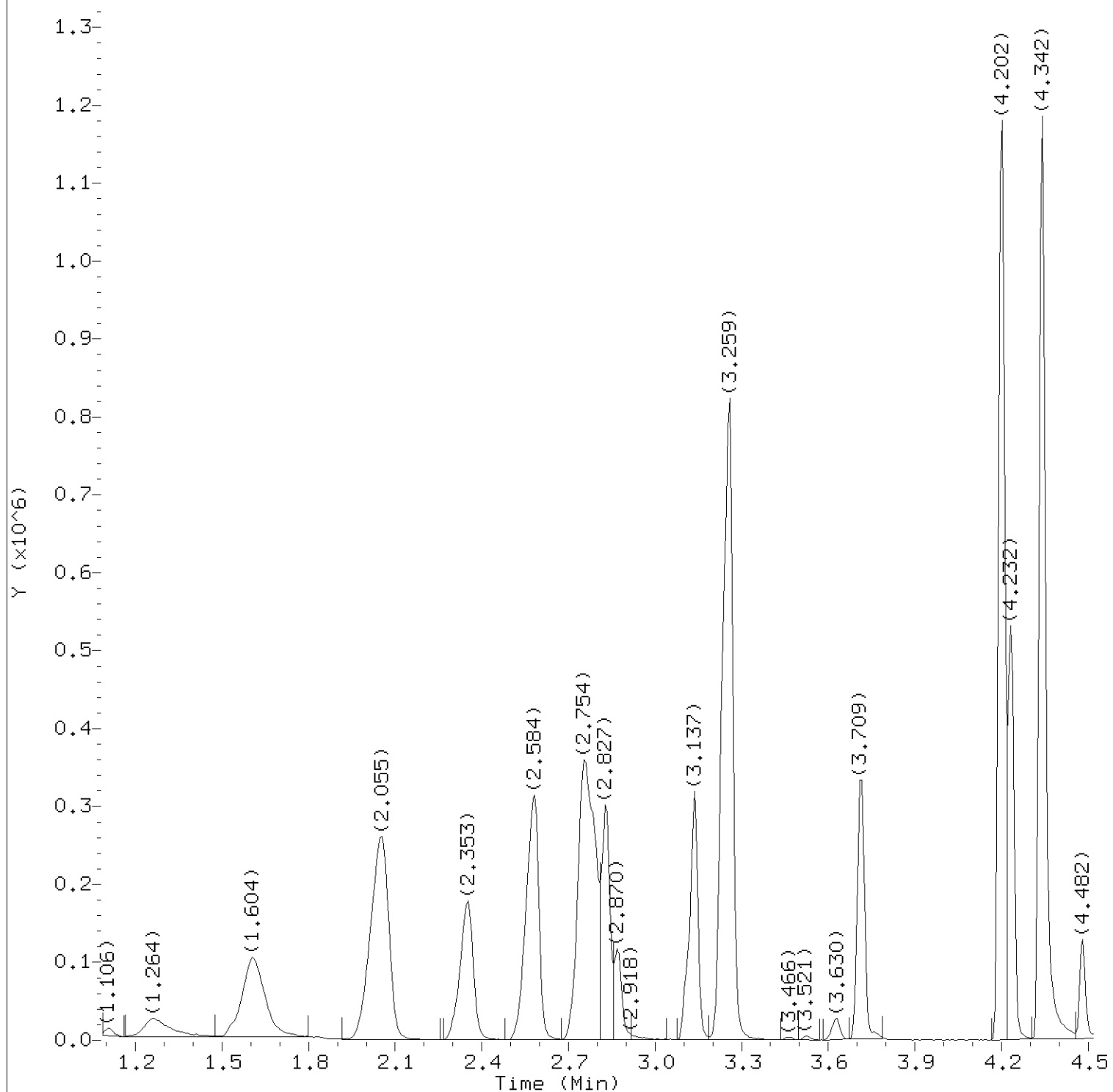
Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 09:57 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 11:30
Date, time and analyst ID of latest file update: 20-Jan-2020 11:30 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 244	
Retention Time (minutes)	: 2.566	
Quant Ion	: 57.00	
Area	: 190522	
On-column Amount (ng)	: 120.5778	
Integration start scan	: 230	Integration stop scan: 260
Y at integration start	: 0	Y at integration end: 0



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d
Injection date and time: 20-JAN-2020 10:21

Instrument ID: HP09671.i
Analyst ID: amd00492

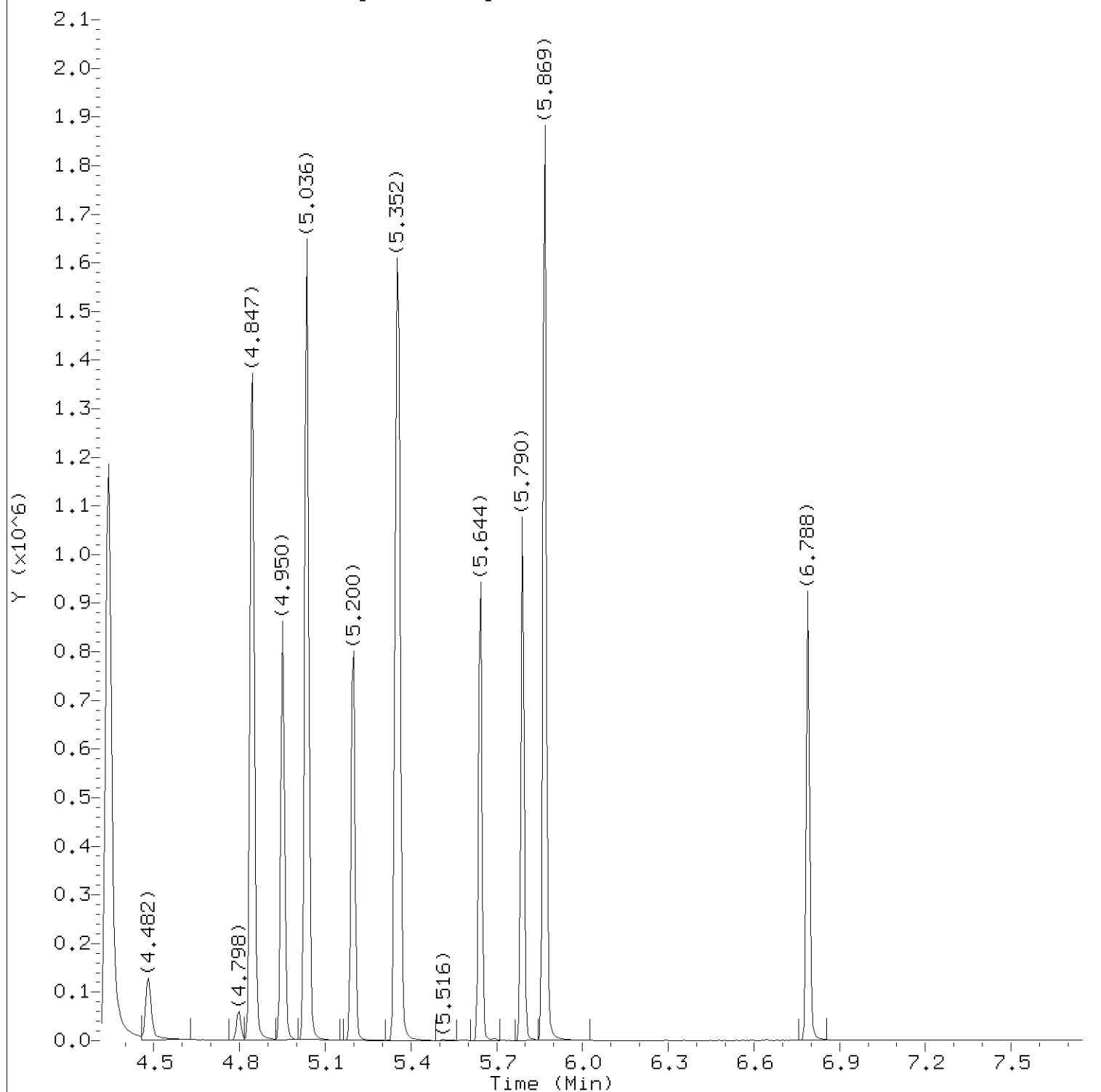
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d
Injection date and time: 20-JAN-2020 10:21

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d
Injection date and time: 20-JAN-2020 10:21

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.264	45	97309	973.760
2) *t-Butyl alcohol-d10	(1)	1.604	65	211026	250.000
3) t-Butyl alcohol	(1)	1.629	59	100826	104.480
4) Methyl Tertiary Butyl Ether	(2)	2.055	73	543329	51.909
5) di-Isopropyl ether	(2)	2.353	45	234469	20.758
6) Ethyl t-butyl ether	(2)	2.566	59	213886	20.848
7) \$Dibromofluoromethane	(2)	2.590	113	144453	49.856
7) \$Dibromofluoromethane	(2)	2.590	111	147587	49.681
8) t-Butyl Formate	(2)	2.754	57	108759A	52.283
9) t-Amyl Alcohol	(1)	2.785	73	113605	265.126
10) \$1,2-Dichloroethane-d4	(2)	2.833	102	45280	49.884
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	211228	49.693
10) \$1,2-Dichloroethane-d4	(2)	2.833	104	27944	49.790
11) 1,2-Dichloroethane	(2)	2.870	62	101949	19.610
12) Benzene	(2)	3.137	78	323773	20.395
13) t-Amyl methyl ether	(2)	3.241	87	48816	20.767
14) *Fluorobenzene	(2)	3.259	96	739482	50.000
15) \$Toluene-d8	(3)	4.202	98	709211	50.083
15) \$Toluene-d8	(3)	4.202	100	456371	50.339
16) Toluene	(3)	4.232	92	200071	20.464
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	378656	561.140
18) 1,2-Dibromoethane	(3)	4.482	107	69314	20.391
19) *Chlorobenzene-d5	(3)	4.847	117	529337	50.000
20) Ethylbenzene	(3)	4.950	91	367264	20.663
21) m+p-Xylene	(3)	5.036	106	297957	42.472
22) o-Xylene	(3)	5.200	106	139581	20.881
24) Isopropylbenzene	(3)	5.346	105	363057	21.037
25) \$4-Bromofluorobenzene	(3)	5.358	95	268957	50.461
25) \$4-Bromofluorobenzene	(3)	5.358	174	203777	50.796
23) Xylene (Total)	(3)		106	437538	63.353
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	291821	21.027
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	311660	21.725
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	279120	50.000
29) Naphthalene	(4)	6.788	128	393774	21.167

A = User selected an alternate hit.

* = Compound is an internal standard.

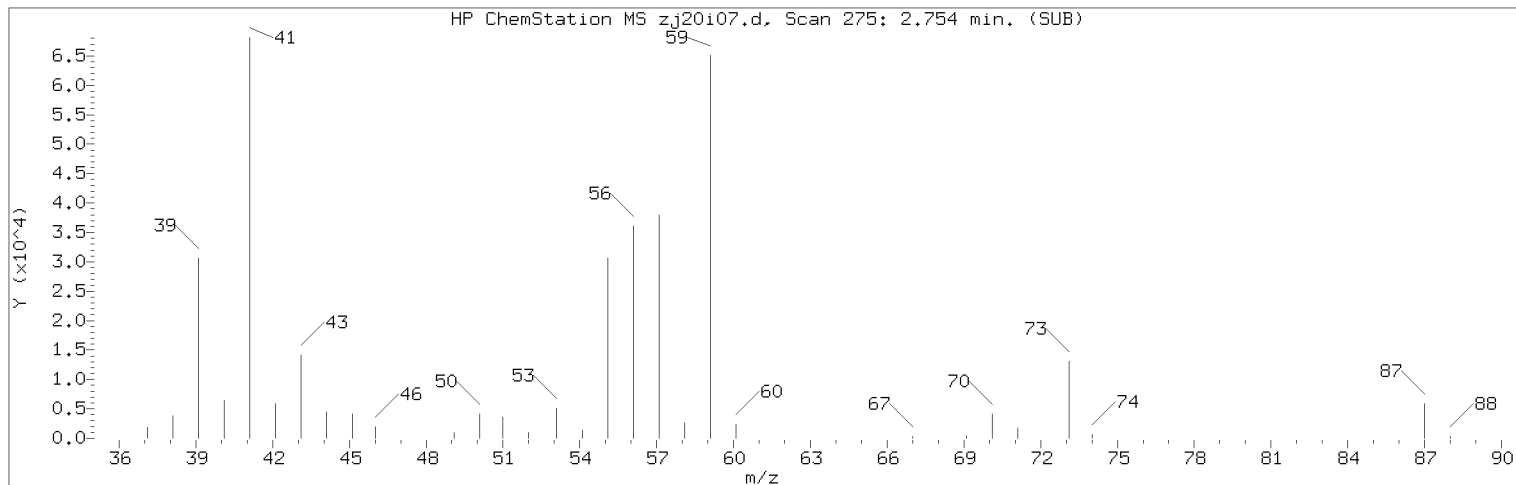
\$ = Compound is a surrogate standard.

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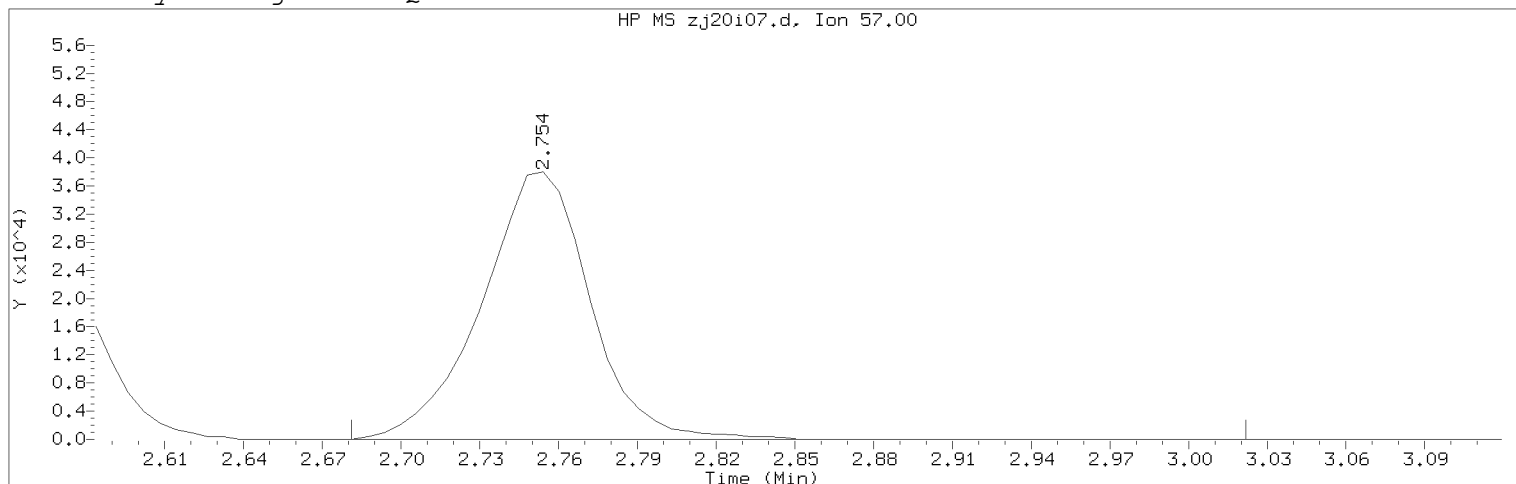
Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 10:21 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

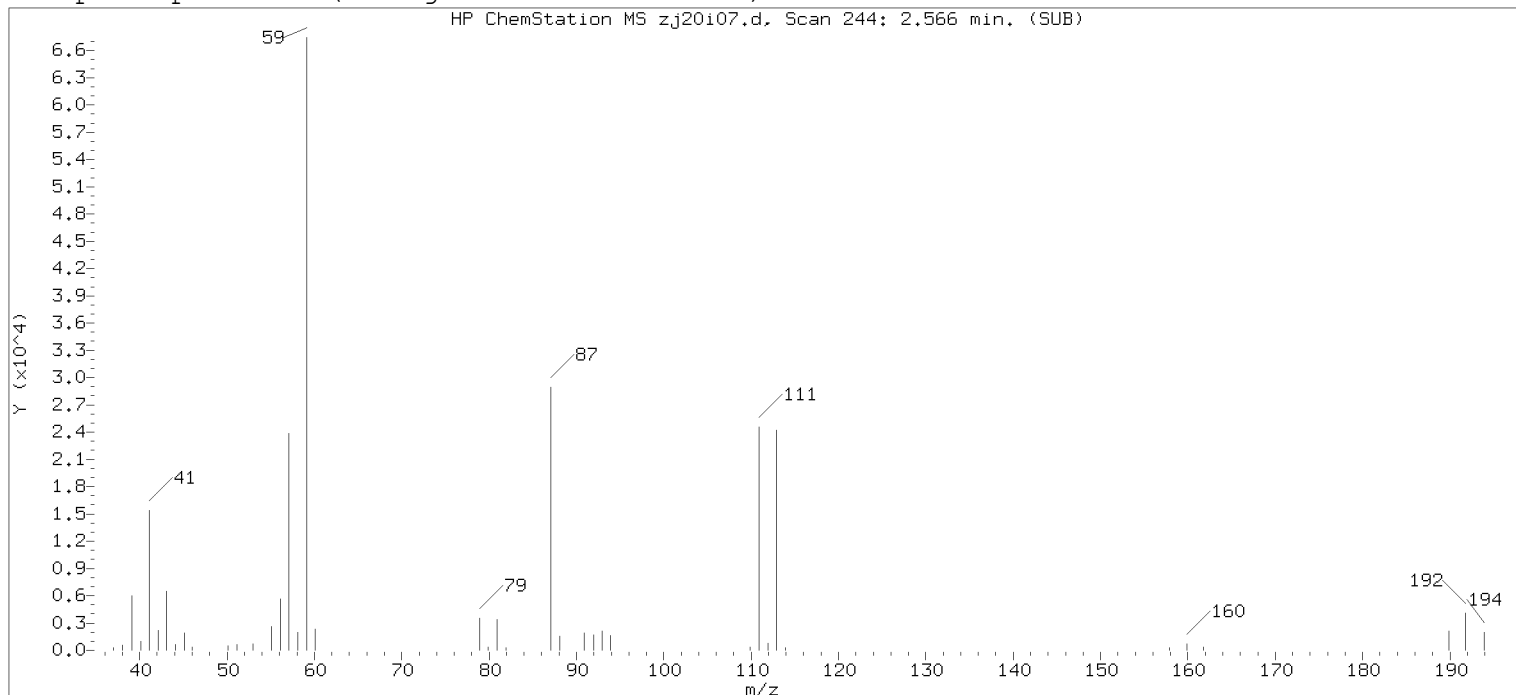
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 275
Retention Time (minutes): 2.754
Quant Ion : 57.00
Area (flag) : 108759A
On-Column Amount (ng) : 52.2834
Integration start scan : 262 Integration stop scan: 318
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

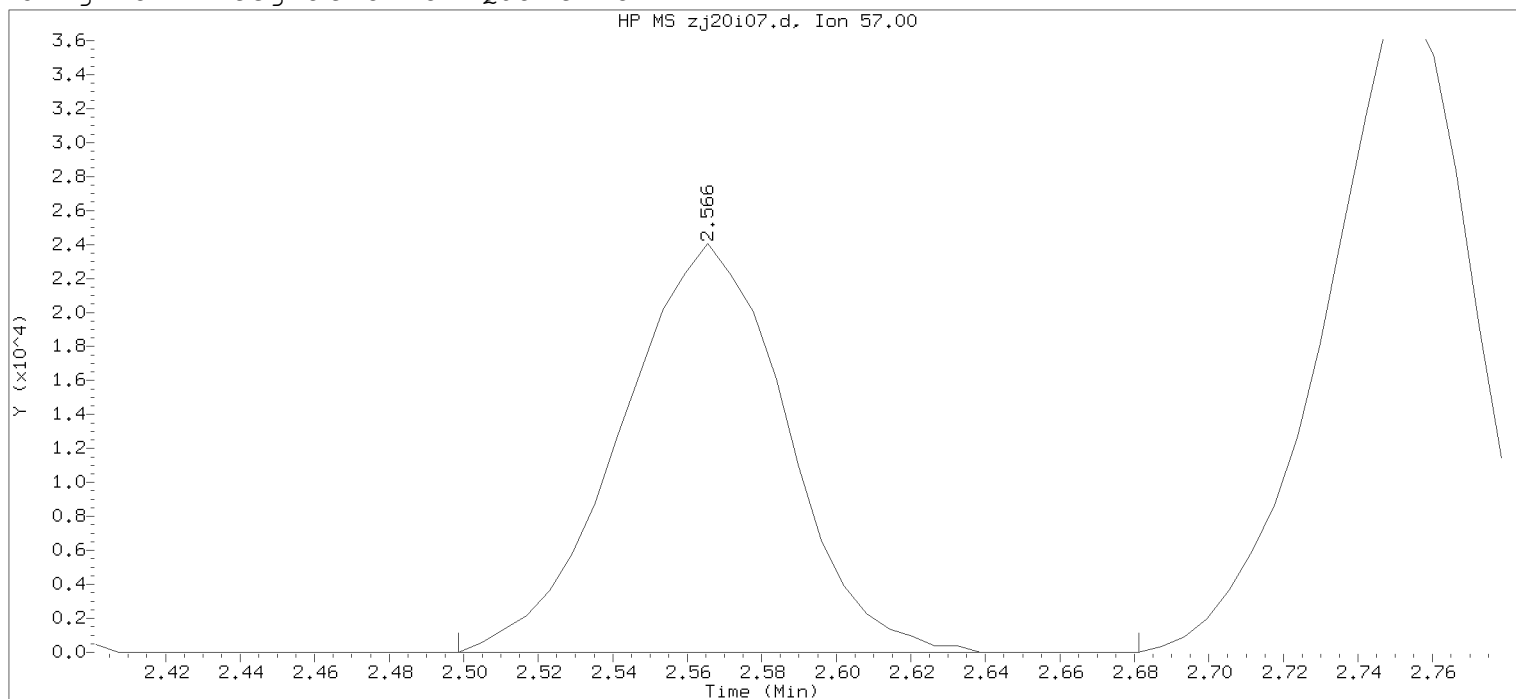
Analyst responsible for change: Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:48.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



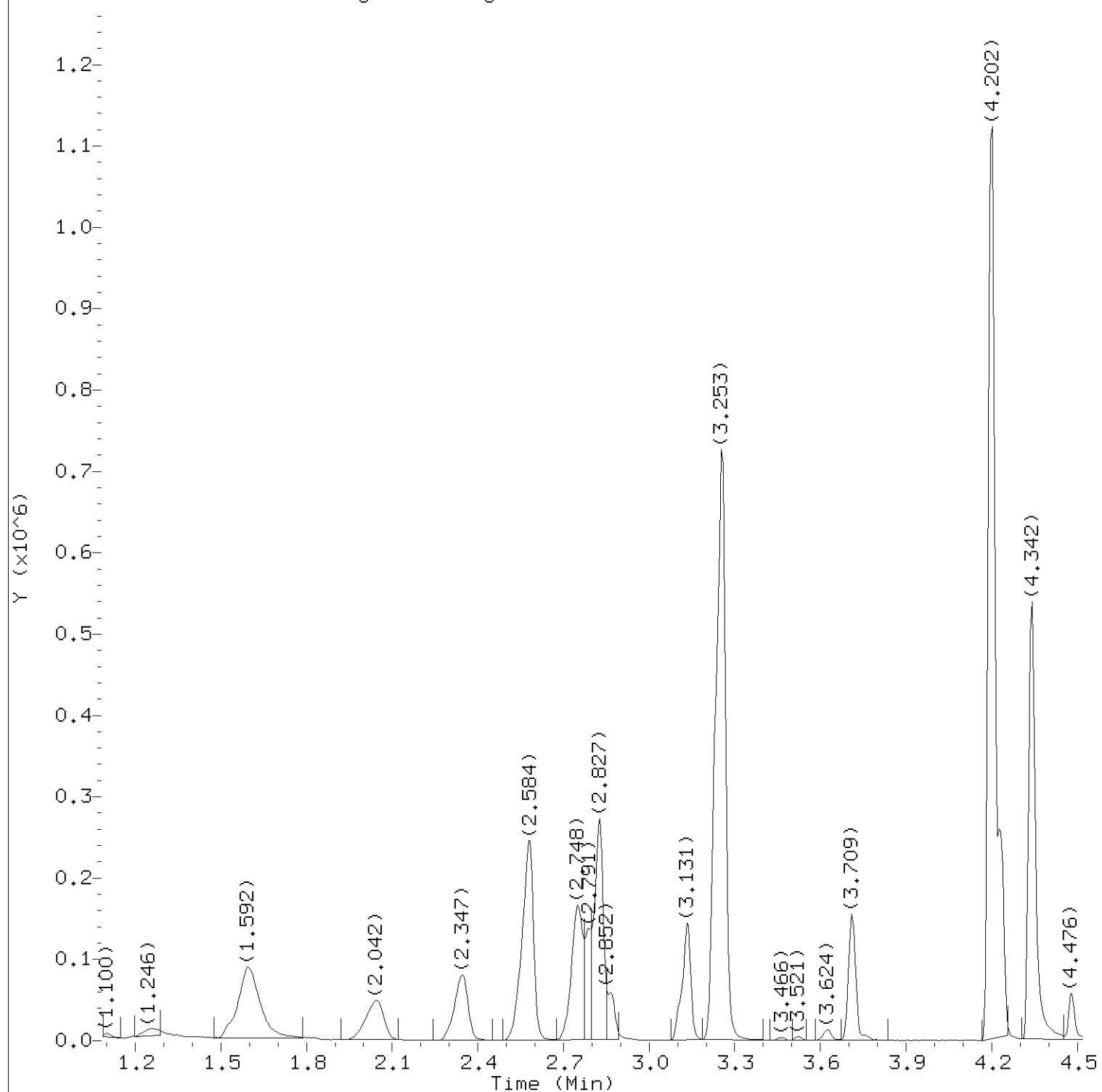
Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 10:21 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 11:30
Date, time and analyst ID of latest file update: 20-Jan-2020 11:30 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 244	
Retention Time (minutes)	: 2.566	
Quant Ion	: 57.00	
Area	: 74105	
On-column Amount (ng)	: 47.9068	
Integration start scan	: 232	Integration stop scan: 262
Y at integration start	: 0	Y at integration end: 0



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i09.d
Injection date and time: 20-JAN-2020 10:46

Instrument ID: HP09671.i
Analyst ID: amd00492

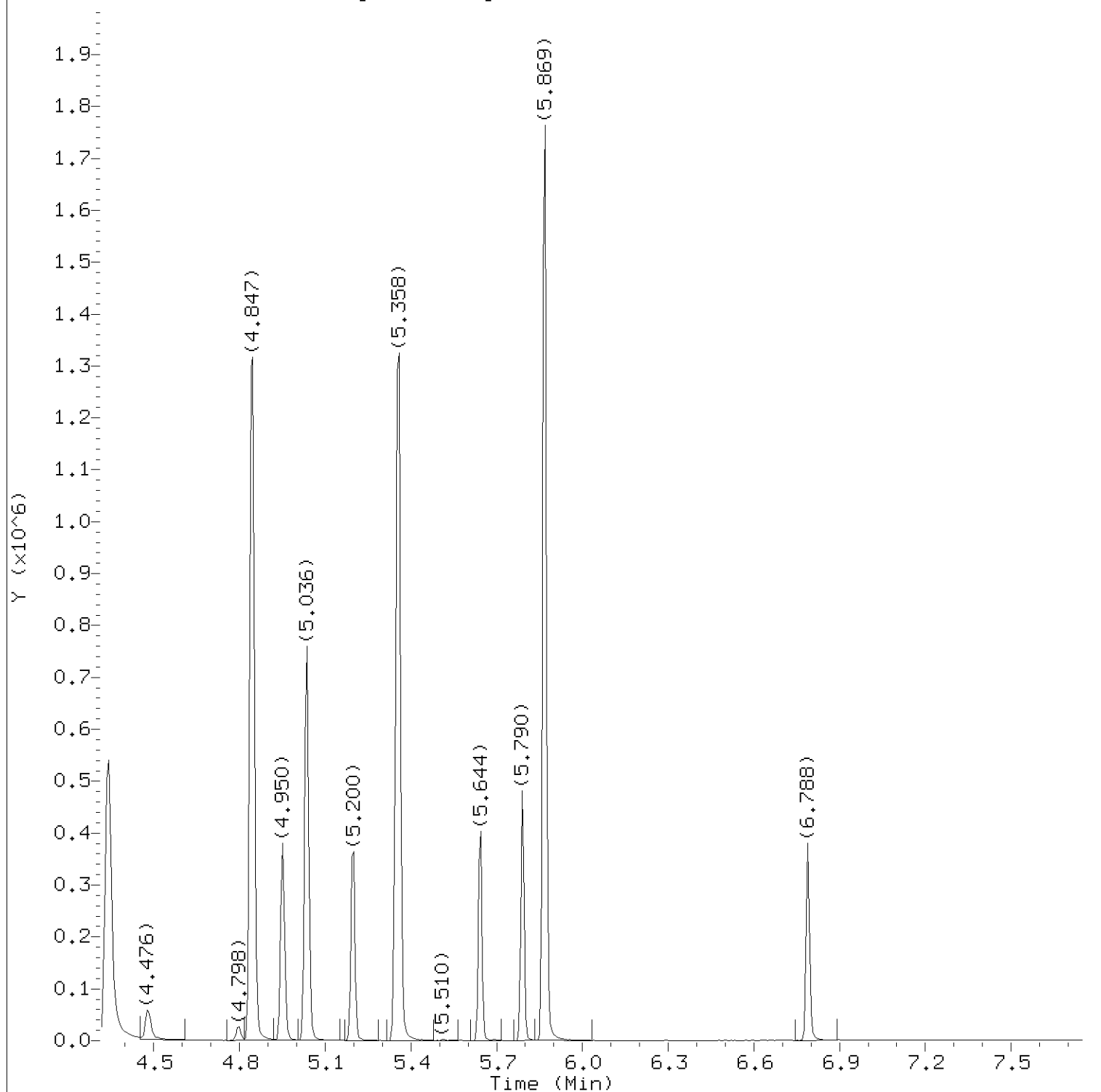
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i09.d
Injection date and time: 20-JAN-2020 10:46

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i09.d
Injection date and time: 20-JAN-2020 10:46

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	49374	493.374
2) *t-Butyl alcohol-d10	(1)	1.592	65	211328	250.000
3) t-Butyl alcohol	(1)	1.623	59	47592	49.246
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	100852	9.652
5) di-Isopropyl ether	(2)	2.347	45	108545	9.626
6) Ethyl t-butyl ether	(2)	2.560	59	98629	9.630
8) t-Butyl Formate	(2)	2.560	57	34187	16.463
7) \$Dibromofluoromethane	(2)	2.584	113	145118	50.172
7) \$Dibromofluoromethane	(2)	2.584	111	148857	50.196
9) t-Amyl Alcohol	(1)	2.785	73	42561	99.185
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	44878	49.527
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	210352	49.573
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	28291	50.496
11) 1,2-Dichloroethane	(2)	2.870	62	50029	9.640
12) Benzene	(2)	3.131	78	155298	9.800
13) t-Amyl methyl ether	(2)	3.235	87	22801	9.717
14) *Fluorobenzene	(2)	3.259	96	738198	50.000
15) \$Toluene-d8	(3)	4.202	98	711466	50.203
15) \$Toluene-d8	(3)	4.202	100	454727	50.119
16) Toluene	(3)	4.233	92	95920	9.803
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	183339	271.307
18) 1,2-Dibromoethane	(3)	4.482	107	32229	9.474
19) *Chlorobenzene-d5	(3)	4.847	117	529752	50.000
20) Ethylbenzene	(3)	4.950	91	172104	9.675
21) m+p-Xylene	(3)	5.036	106	139214	19.828
22) o-Xylene	(3)	5.200	106	65109	9.732
24) Isopropylbenzene	(3)	5.346	105	169128	9.792
25) \$4-Bromofluorobenzene	(3)	5.358	95	268134	50.267
25) \$4-Bromofluorobenzene	(3)	5.358	174	200739	50.000
23) Xylene (Total)	(3)		106	204323	29.561
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	132951	9.614
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	140680	9.841
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	278135	50.000
29) Naphthalene	(4)	6.788	128	170246	9.184

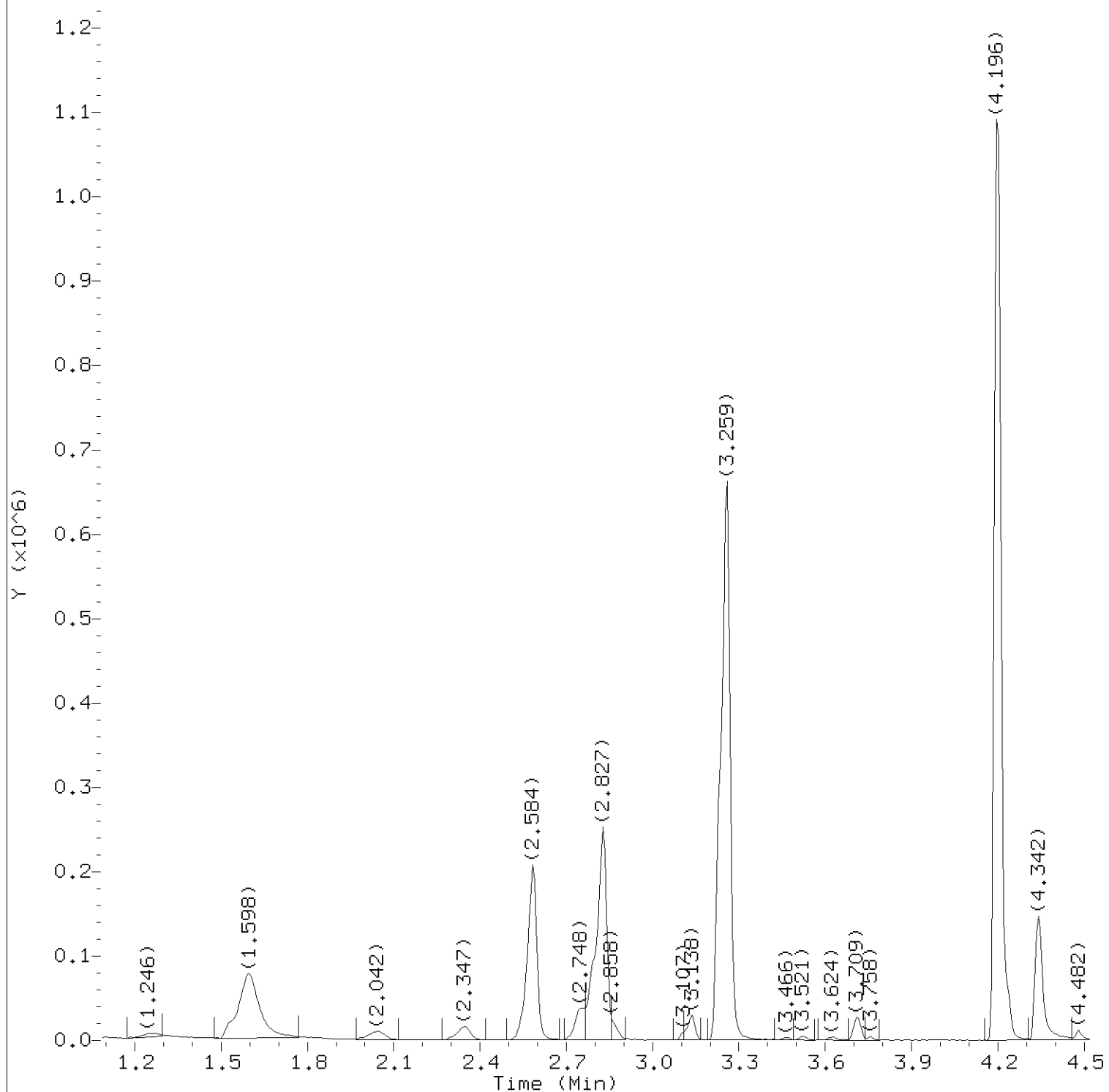
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

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Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d
Injection date and time: 20-JAN-2020 11:10

Instrument ID: HP09671.i
Analyst ID: amd00492

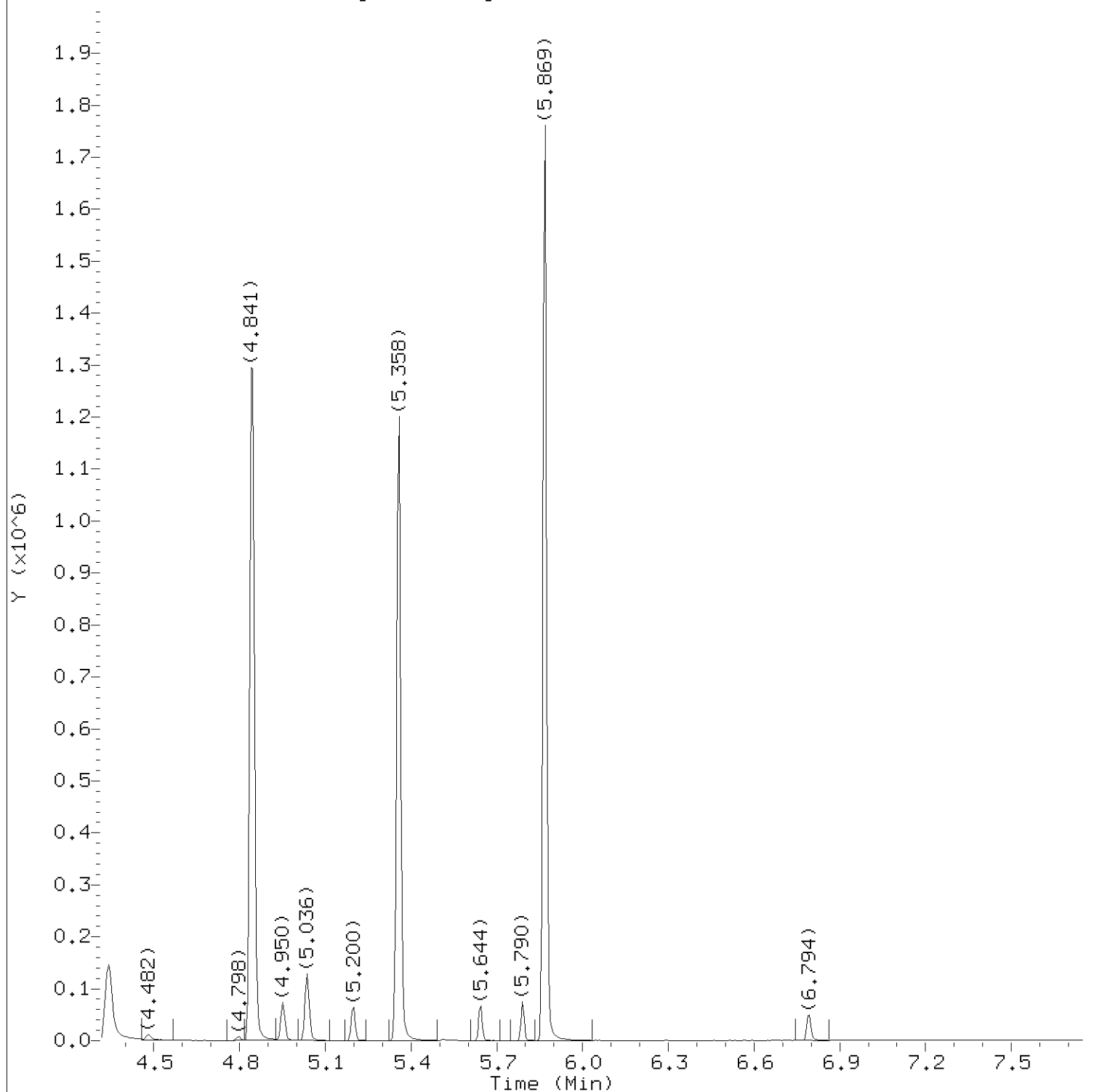
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d
Injection date and time: 20-JAN-2020 11:10

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d
Injection date and time: 20-JAN-2020 11:10

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.264	45	25727	256.253
2) *t-Butyl alcohol-d10	(1)	1.598	65	212009	250.000
3) t-Butyl alcohol	(1)	1.635	59	9133	9.420
4) Methyl Tertiary Butyl Ether	(2)	2.042	73	20650	2.026
5) di-Isopropyl ether	(2)	2.353	45	20914	1.902
6) Ethyl t-butyl ether	(2)	2.560	59	18133	1.815
7) \$Dibromofluoromethane	(2)	2.584	113	143261	50.783
7) \$Dibromofluoromethane	(2)	2.584	111	146167	50.536
8) t-Butyl Formate	(2)	2.748	57	8825A	4.357
9) t-Amyl Alcohol	(1)	2.785	73	15112	35.104
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	44297	50.123
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	206921	49.998
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	27703	50.698
11) 1,2-Dichloroethane	(2)	2.870	62	10920	2.157
12) Benzene	(2)	3.138	78	32264	2.087
13) t-Amyl methyl ether	(2)	3.241	87	4056	1.772
14) *Fluorobenzene	(2)	3.259	96	719981	50.000
15) \$Toluene-d8	(3)	4.196	98	697902	49.784
15) \$Toluene-d8	(3)	4.196	100	446007	49.694
16) Toluene	(3)	4.226	92	19542	2.019
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	52669	77.690
18) 1,2-Dibromoethane	(3)	4.482	107	6396	1.901
19) *Chlorobenzene-d5	(3)	4.847	117	524034	50.000
20) Ethylbenzene	(3)	4.950	91	33013	1.876
21) m+p-Xylene	(3)	5.036	106	25778	3.712
22) o-Xylene	(3)	5.200	106	11976	1.810
24) Isopropylbenzene	(3)	5.346	105	32000	1.873
25) \$4-Bromofluorobenzene	(3)	5.358	95	256667	48.643
25) \$4-Bromofluorobenzene	(3)	5.358	174	192631	48.504
23) Xylene (Total)	(3)		106	37754	5.521
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	22619	1.680
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	22690	1.631
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	270712	50.000
29) Naphthalene	(4)	6.794	128	28971	1.606

A = User selected an alternate hit.

* = Compound is an internal standard.

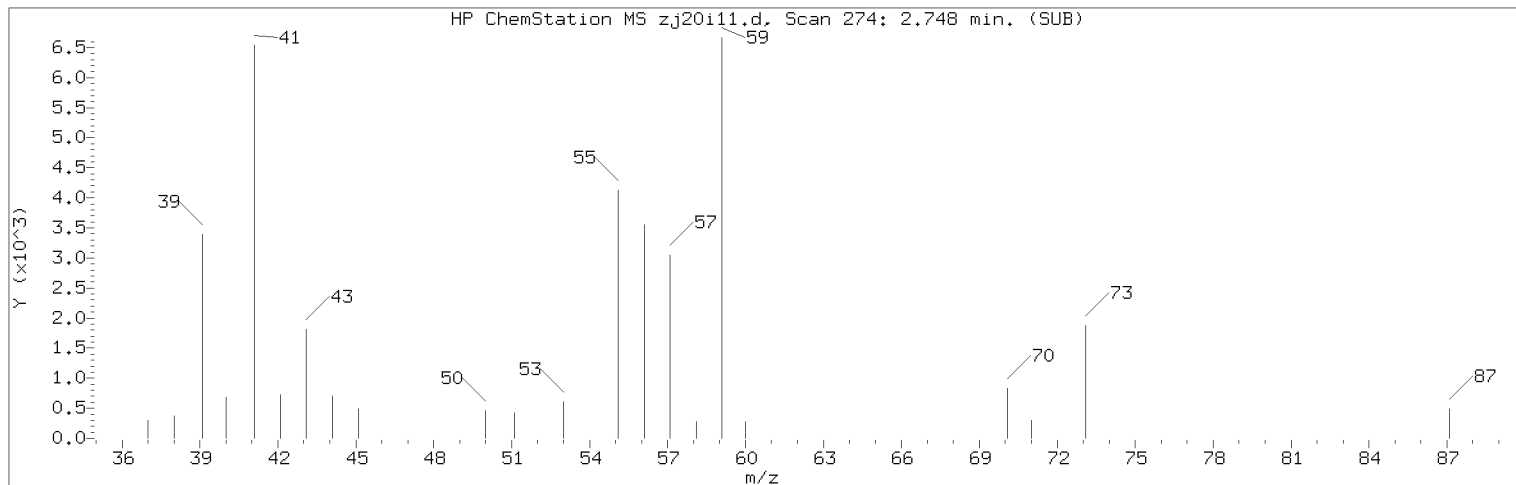
\$ = Compound is a surrogate standard.

page 1 of 1

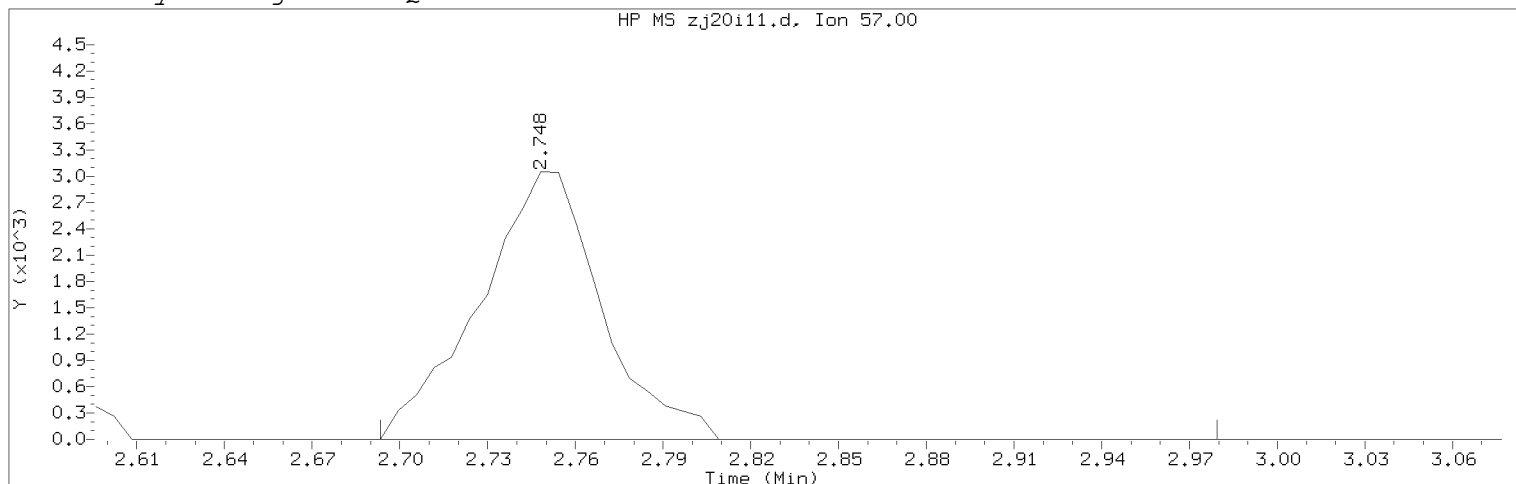
Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 11:10 Analyst ID: amd00492
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

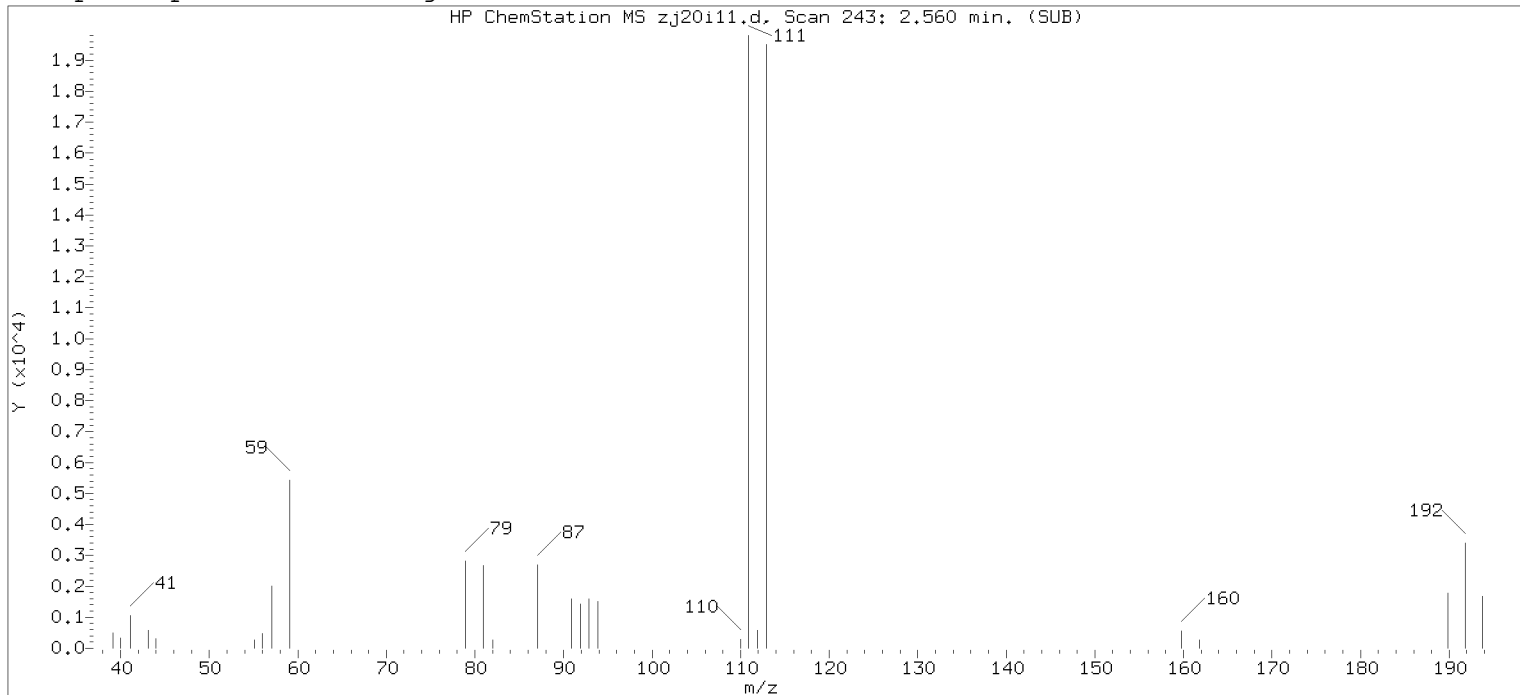
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 274
Retention Time (minutes): 2.748
Quant Ion : 57.00
Area (flag) : 8825A
On-Column Amount (ng) : 4.3573
Integration start scan : 264 Integration stop scan: 311
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

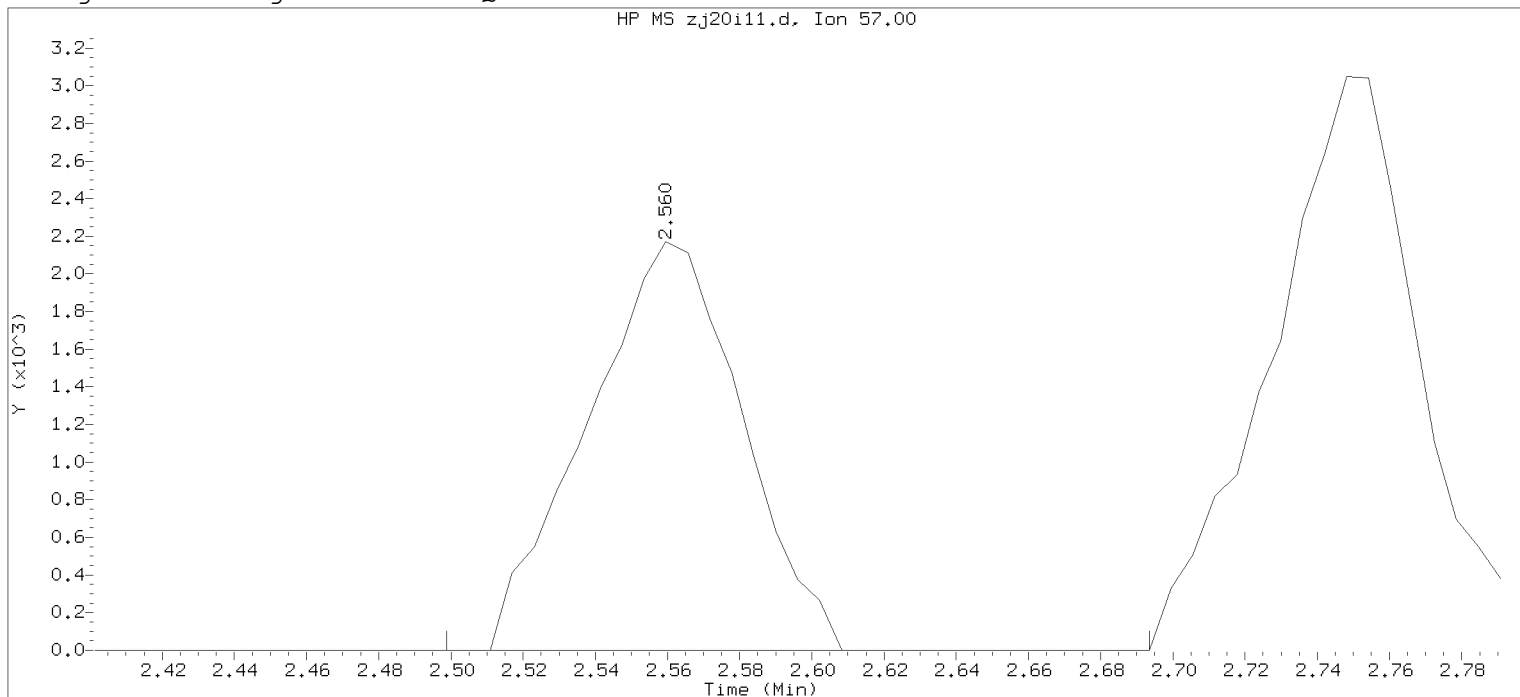
Analyst responsible for change: Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:54.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 11:10

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 20-JAN-2020 11:30

Date, time and analyst ID of latest file update: 20-Jan-2020 11:30 amd00492

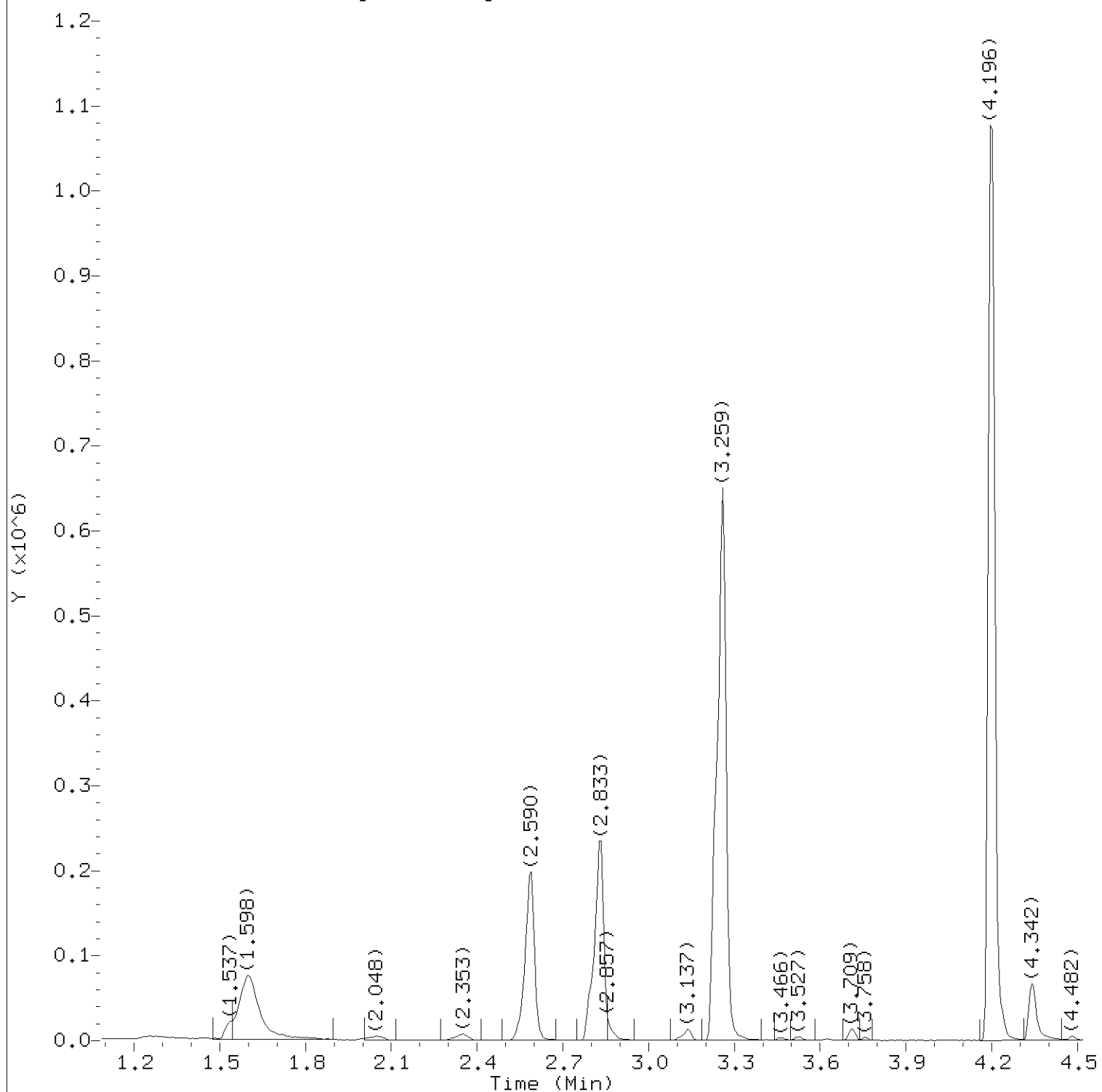
Sample Name: VSTD002

Lab Sample ID: VSTD002

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 243	
Retention Time (minutes)	: 2.560	
Quant Ion	: 57.00	
Area	: 6460	
On-column Amount (ng)	: 4.4813	
Integration start scan	: 232	Integration stop scan: 264
Y at integration start	: 0	Y at integration end: 0

Digitally signed by Anita M. Dale on 01/21/2020 at 05:10.

Target 3.5 esignature user GPN Page 470 of 609



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i13.d
Injection date and time: 20-JAN-2020 11:34

Instrument ID: HP09671.i
Analyst ID: amd00492

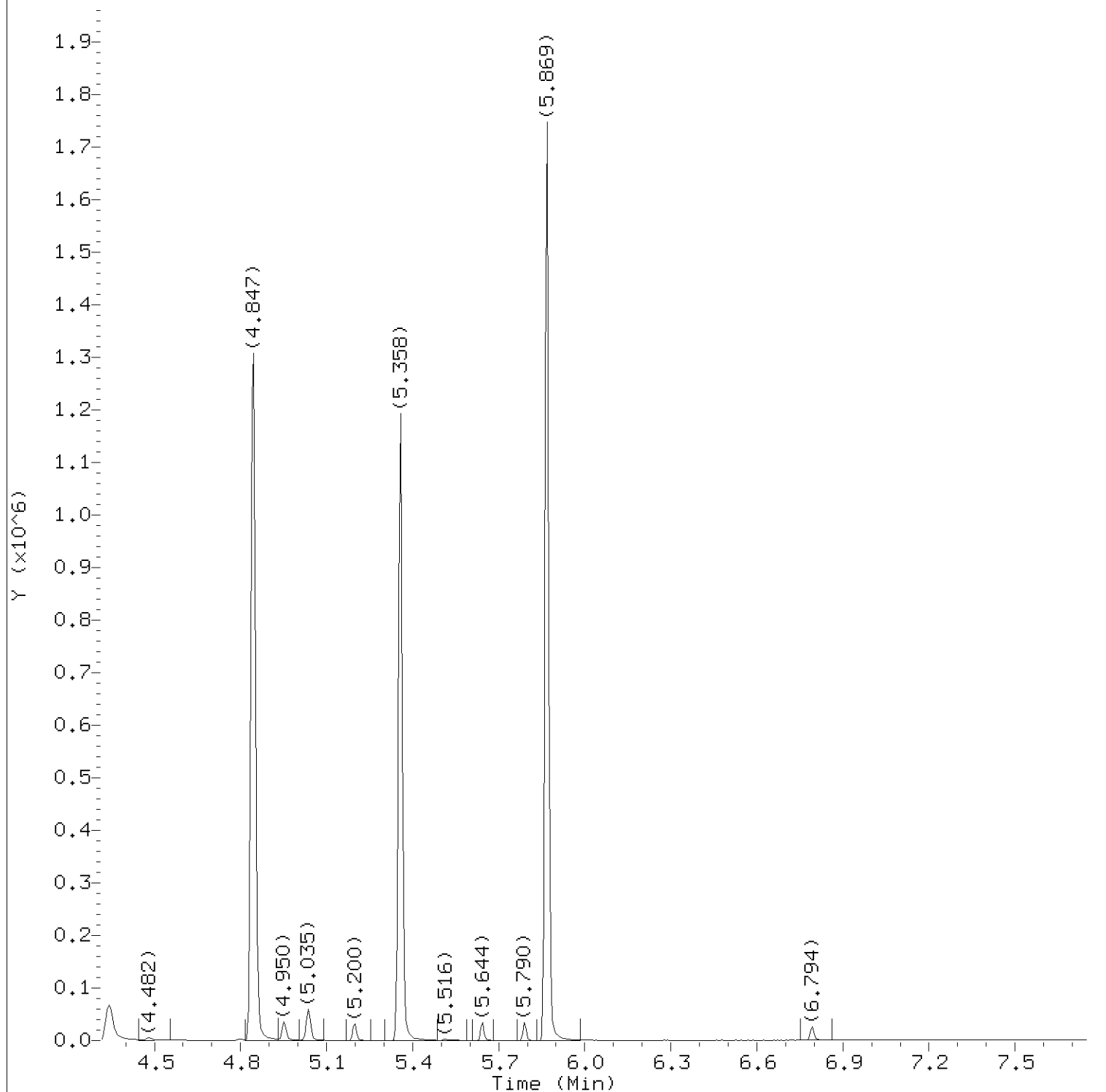
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD001

Lab Sample ID: VSTD001

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i13.d
Injection date and time: 20-JAN-2020 11:34

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD001

Lab Sample ID: VSTD001

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i13.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 11:34

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 21-JAN-2020 05:07

Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD001

Lab Sample ID: VSTD001

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	13630	137.948
2) *t-Butyl alcohol-d10	(1)	1.598	65	208649	250.000
3) t-Butyl alcohol	(1)	1.635	59	4361	4.571
4) Methyl Tertiary Butyl Ether	(2)	2.048	73	9623	0.964
5) di-Isopropyl ether	(2)	2.353	45	9960	0.924
6) Ethyl t-butyl ether	(2)	2.559	59	8759	0.895
7) \$Dibromofluoromethane	(2)	2.590	113	142128	51.409
7) \$Dibromofluoromethane	(2)	2.590	111	146045	51.523
10) \$1,2-Dichloroethane-d4	(2)	2.833	102	43297	49.990
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	204558	50.435
10) \$1,2-Dichloroethane-d4	(2)	2.833	104	27181	50.757
11) 1,2-Dichloroethane	(2)	2.876	62	5760	1.161
12) Benzene	(2)	3.137	78	15252	1.007
13) t-Amyl methyl ether	(2)	3.241	87	1897	0.846
14) *Fluorobenzene	(2)	3.259	96	705593	50.000
15) \$Toluene-d8	(3)	4.196	98	694018	50.283
15) \$Toluene-d8	(3)	4.196	100	440957	49.902
16) Toluene	(3)	4.226	92	9584	1.006
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	24112	36.139
18) 1,2-Dibromoethane	(3)	4.482	107	3143	0.949
19) *Chlorobenzene-d5	(3)	4.847	117	515943	50.000
20) Ethylbenzene	(3)	4.950	91	16562	0.956
21) m+p-Xylene	(3)	5.035	106	11962	1.749
22) o-Xylene	(3)	5.200	106	5739	0.881
24) Isopropylbenzene	(3)	5.346	105	15249	0.907
25) \$4-Bromofluorobenzene	(3)	5.358	95	249168	47.962
25) \$4-Bromofluorobenzene	(3)	5.358	174	190253	48.656
23) Xylene (Total)	(3)		106	17701	2.630
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	11067	0.840
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	10800	0.793
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	265108	50.000
29) Naphthalene	(4)	6.794	128	14753	0.835

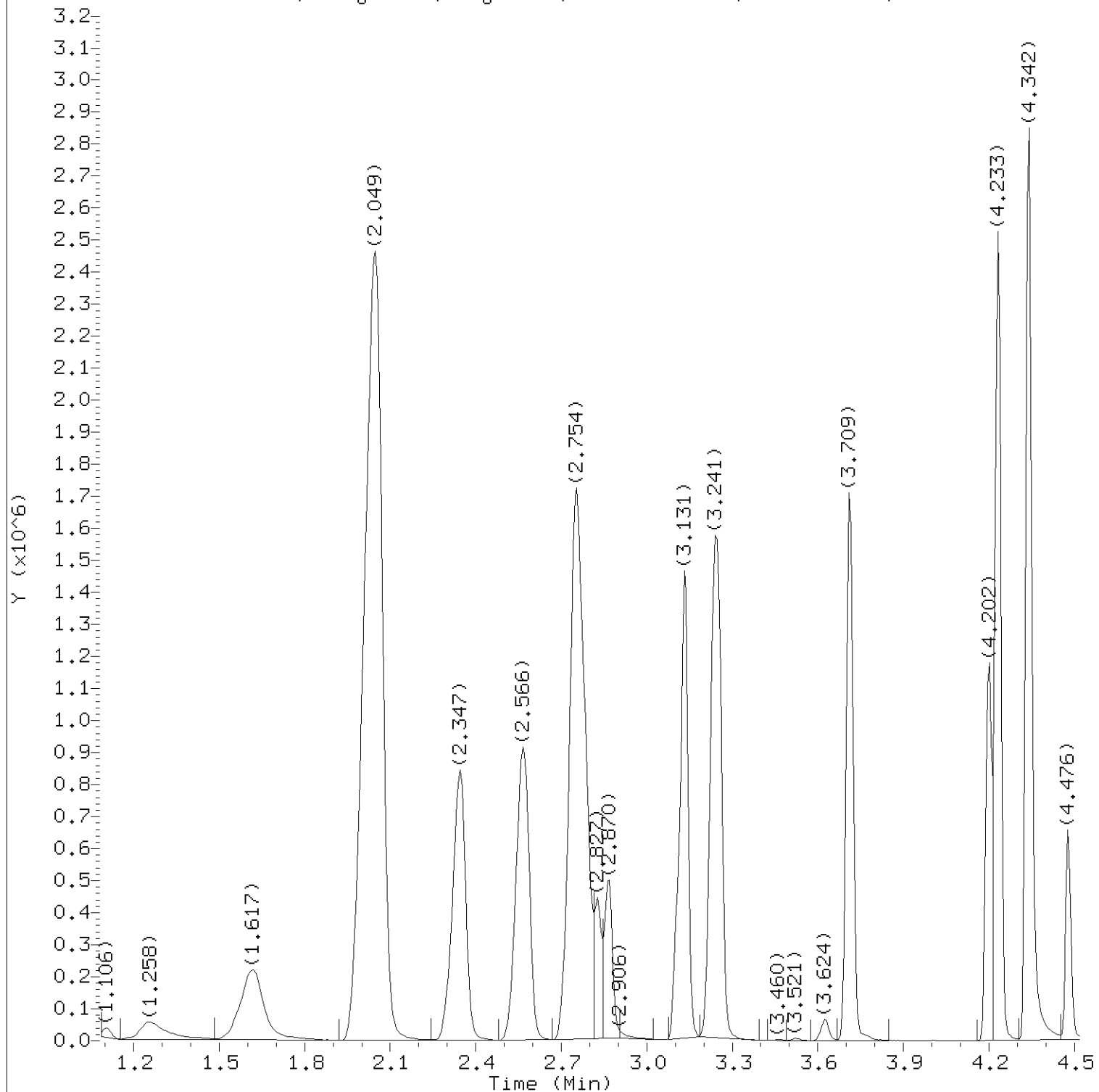
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d
Injection date and time: 20-JAN-2020 12:47

Instrument ID: HP09671.i
Analyst ID: amd00492

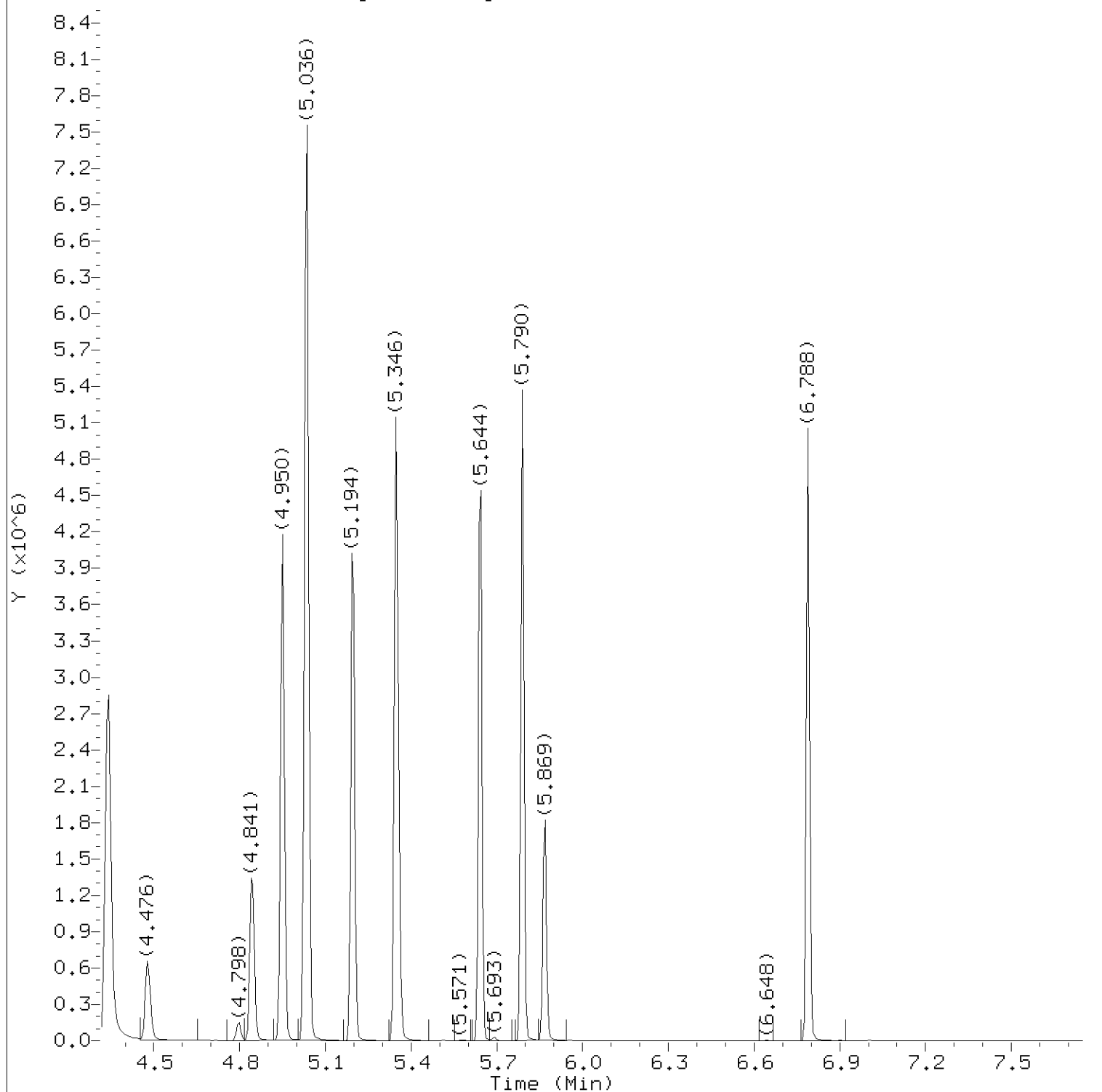
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d
Injection date and time: 20-JAN-2020 12:47

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d
 Injection date and time: 20-JAN-2020 12:47

Instrument ID: HP09671.i
 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
 Calibration date and time: 22-JAN-2020 04:42
 Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	236031	2402.870
2) *t-Butyl alcohol-d10	(1)	1.592	65	207431	250.000
3) t-Butyl alcohol	(1)	1.629	59	456370	481.104
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	5249435	500.951
5) di-Isopropyl ether	(2)	2.347	45	1127960	99.745
6) Ethyl t-butyl ether	(2)	2.566	59	1046110	101.851
7) \$Dibromofluoromethane	(2)	2.584	113	142681	49.188
7) \$Dibromofluoromethane	(2)	2.584	111	146575	49.284
8) t-Butyl Formate	(2)	2.748	57	576174MA	276.393
9) t-Amyl Alcohol	(1)	2.779	73	451596	1072.179
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	45098M	49.627
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	209814M	49.304
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	27594	49.111
11) 1,2-Dichloroethane	(2)	2.870	62	472506	90.782
12) Benzene	(2)	3.131	78	1499844	94.372
13) t-Amyl methyl ether	(2)	3.241	87	243326	103.398
14) *Fluorobenzene	(2)	3.259	96	740322	50.000
15) \$Toluene-d8	(3)	4.202	98	706193	49.692
15) \$Toluene-d8	(3)	4.202	100	452781	49.765
16) Toluene	(3)	4.233	92	936302	95.427
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	883812	1332.443
18) 1,2-Dibromoethane	(3)	4.476	107	342574	100.418
19) *Chlorobenzene-d5	(3)	4.847	117	531236	50.000
20) Ethylbenzene	(3)	4.950	91	1774233	99.466
21) m+p-Xylene	(3)	5.036	106	1419833	201.664
22) o-Xylene	(3)	5.194	106	682493	101.733
24) Isopropylbenzene	(3)	5.346	105	1728066	99.774
25) \$4-Bromofluorobenzene	(3)	5.358	95	270397	50.550
25) \$4-Bromofluorobenzene	(3)	5.358	174	203617	50.575
23) Xylene (Total)	(3)		106	2102326	303.397
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	1468346	105.160
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	1534324	106.303
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	280823	50.000
29) Naphthalene	(4)	6.788	128	2005391	107.147

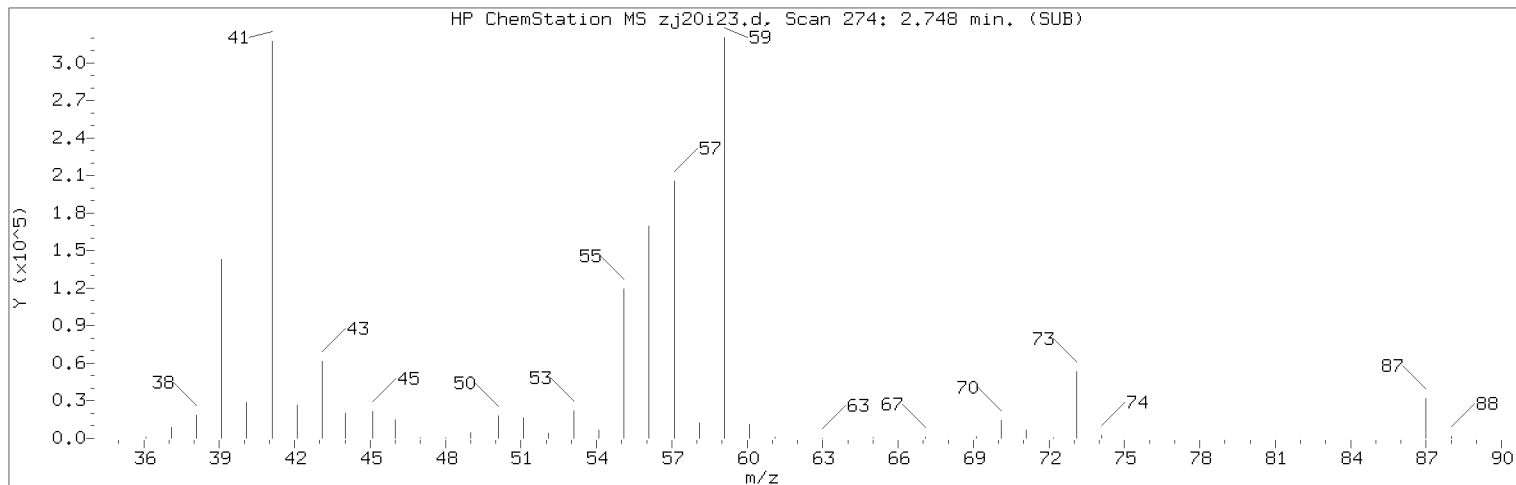
M = Compound was manually integrated.

A = User selected an alternate hit.

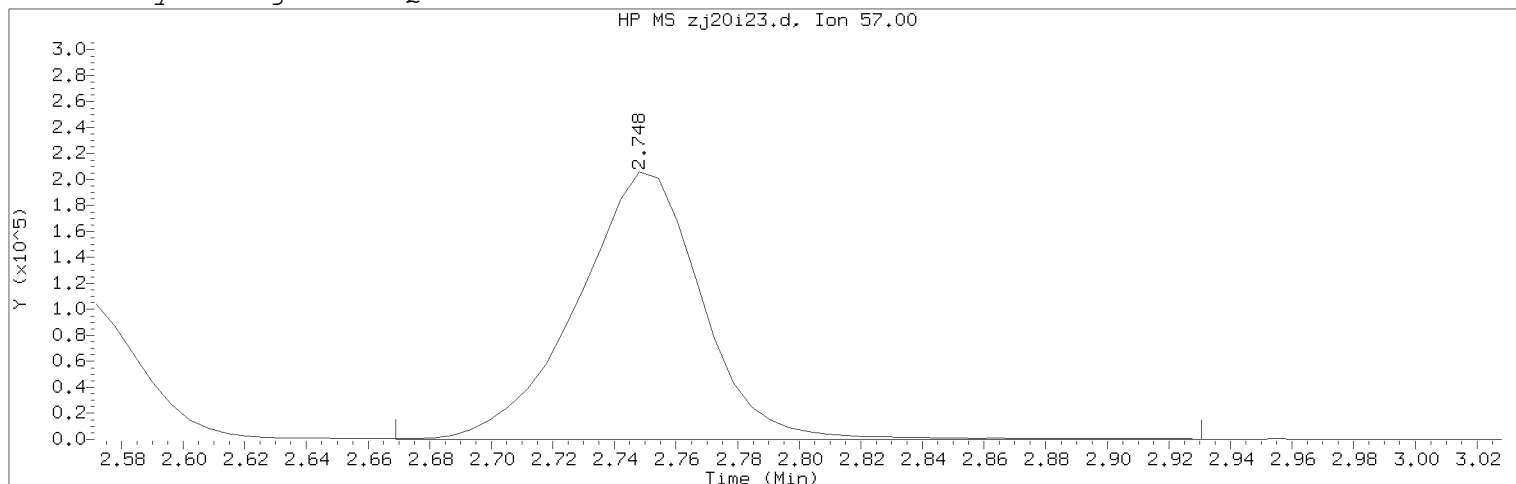
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 12:47

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 22-JAN-2020 04:42

Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 274	
Retention Time (minutes)	: 2.748	
Quant Ion	: 57.00	
Area (flag)	: 576174MA	
On-Column Amount (ng)	: 276.3926	
Integration start scan	: 260	Integration stop scan: 303
Y at integration start	: 0	Y at integration end: 0

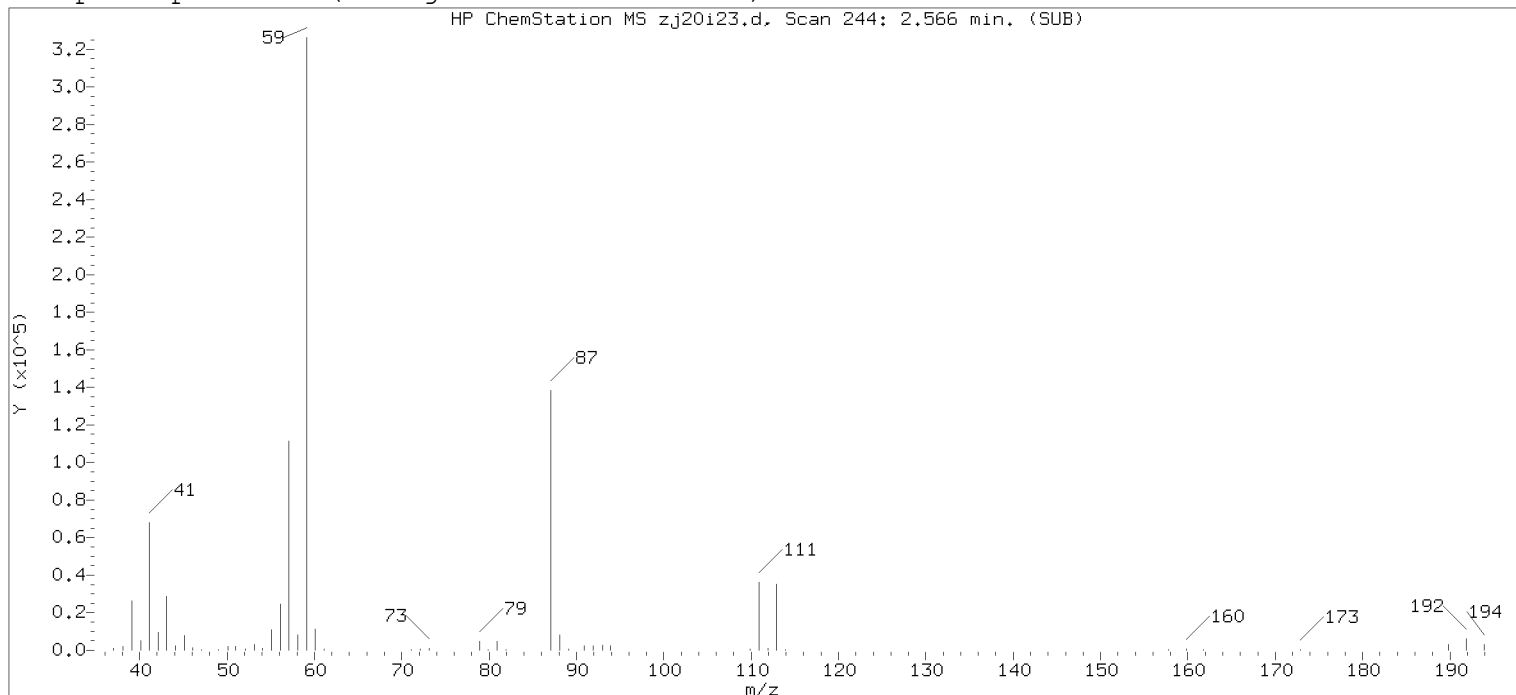
Reason for manual integration: improper integration

Analyst responsible for change:

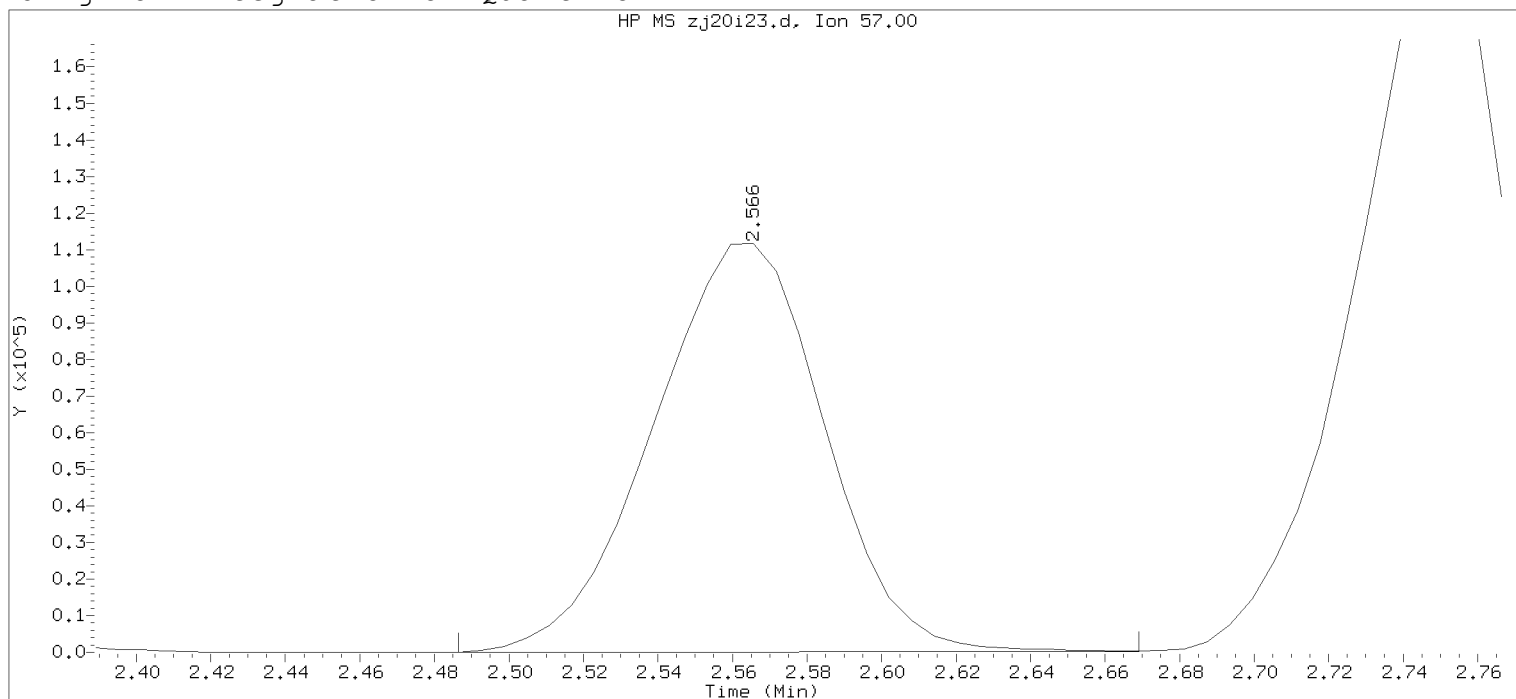
Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:40.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 12:47

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 20-JAN-2020 12:56

Date, time and analyst ID of latest file update: 20-Jan-2020 12:56 ajs00193

Sample Name: VSTD100

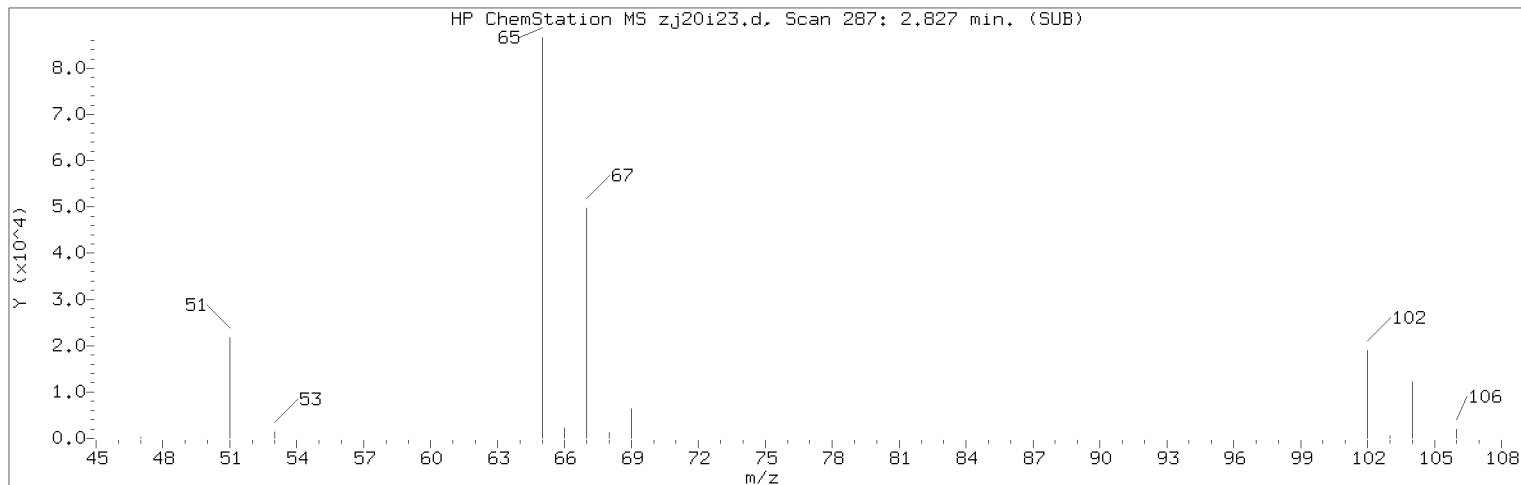
Lab Sample ID: VSTD100

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 244	
Retention Time (minutes)	: 2.566	
Quant Ion	: 57.00	
Area	: 356705	
On-column Amount (ng)	: 240.6271	
Integration start scan	: 230	Integration stop scan: 260
Y at integration start	: 0	Y at integration end: 163

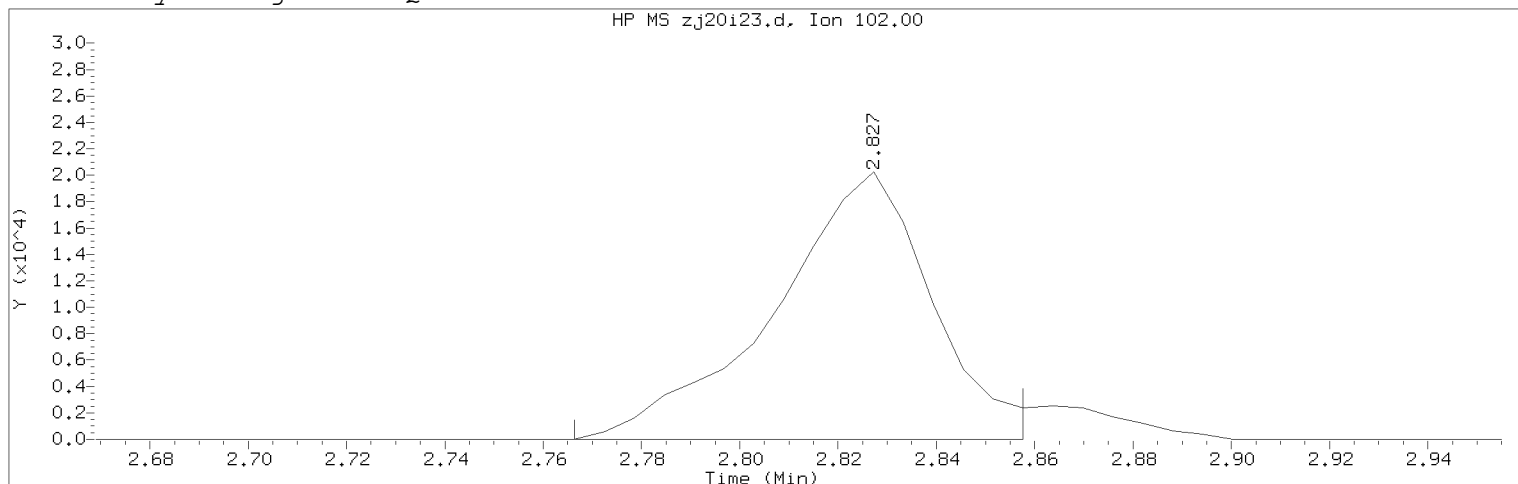
Digitally signed by Anita M. Dale on 01/22/2020 at 04:43.

Target 3.5 esignature user GPV67 Page 478 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 12:47

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 22-JAN-2020 04:42

Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

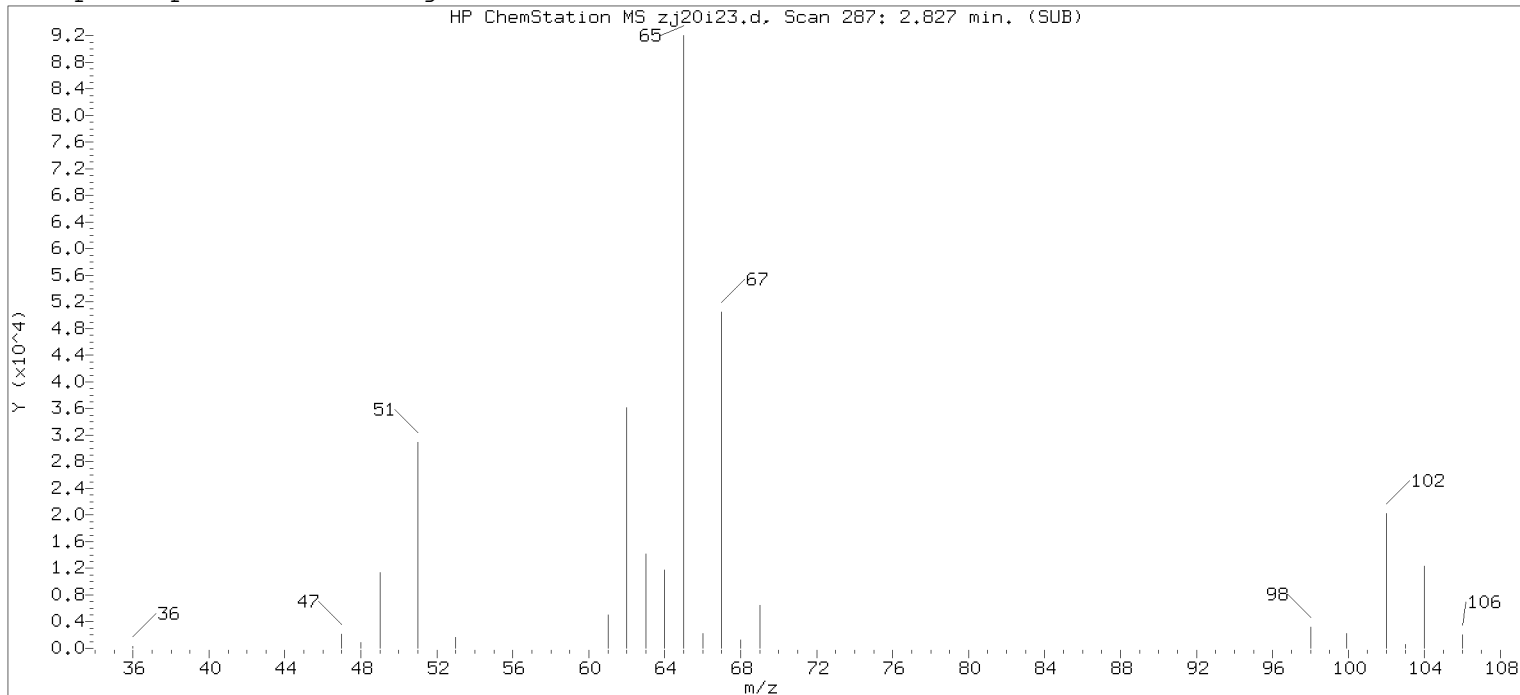
Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 287	
Retention Time (minutes)	: 2.827	
Quant Ion	: 102.00	
Area (flag)	: 45098M	
On-Column Amount (ng)	: 49.6272	
Integration start scan	: 276	Integration stop scan: 291
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

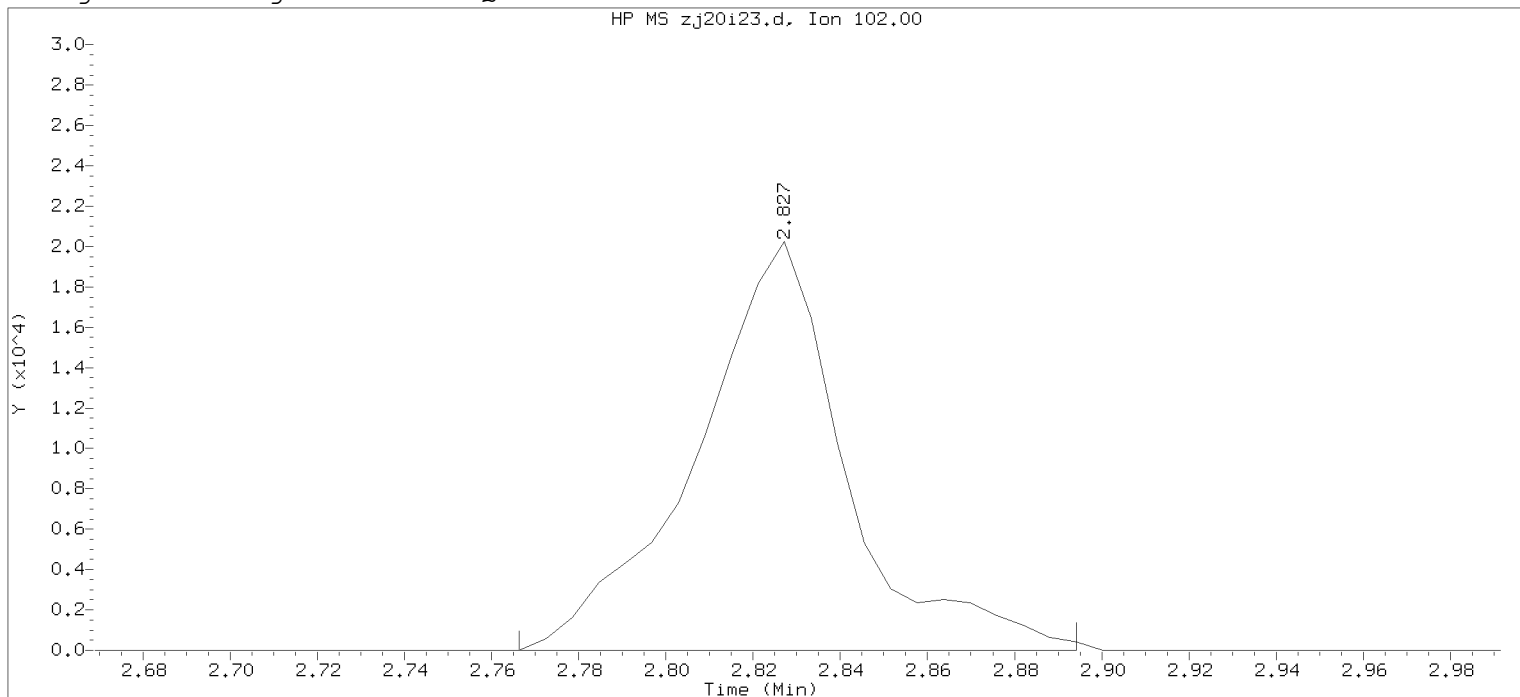
Analyst responsible for change: Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:40.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 12:47 Analyst ID: amd00492

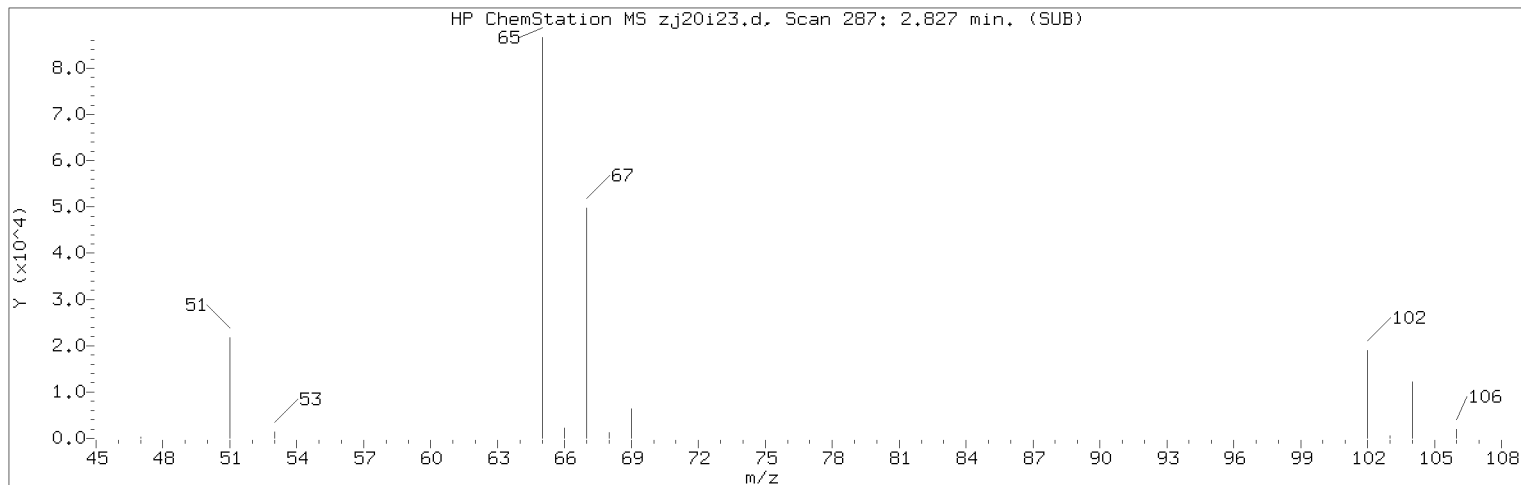
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 12:56
Date, time and analyst ID of latest file update: 20-Jan-2020 12:56 ajs00193

Sample Name: VSTD100

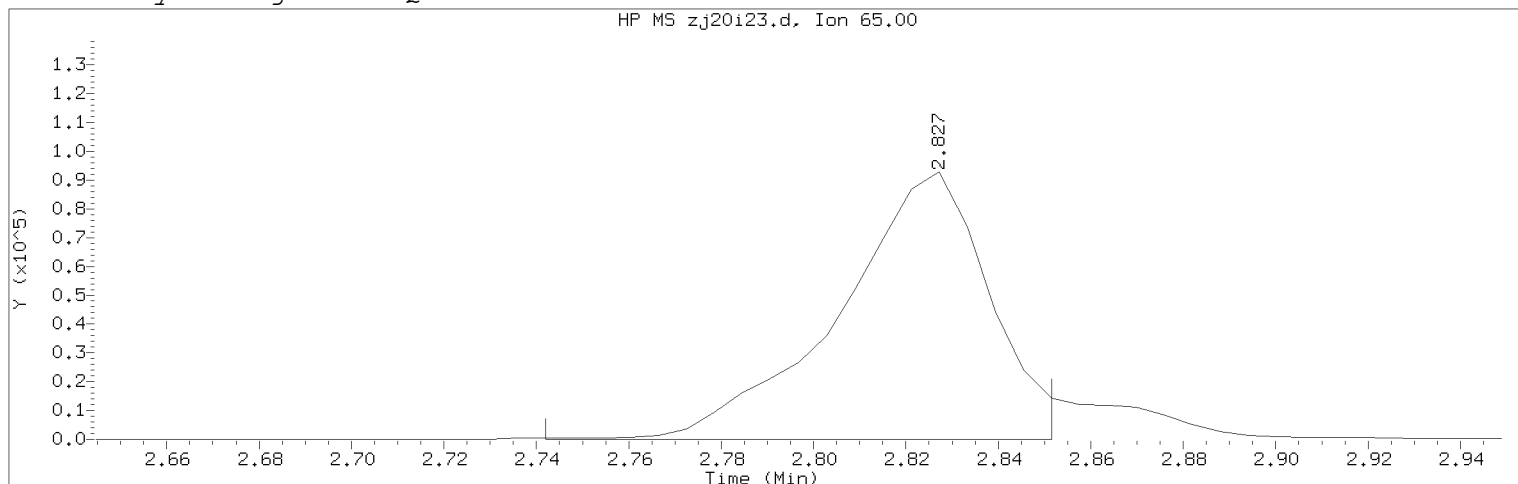
Lab Sample ID: VSTD100

Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 287	
Retention Time (minutes)	: 2.827	
Quant Ion	: 102.00	
Area	: 48255	
On-column Amount (ng)	: 52.4765	
Integration start scan	: 276	Integration stop scan: 297
Y at integration start	: 0	Y at integration end: 0

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 12:47

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 22-JAN-2020 04:42

Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

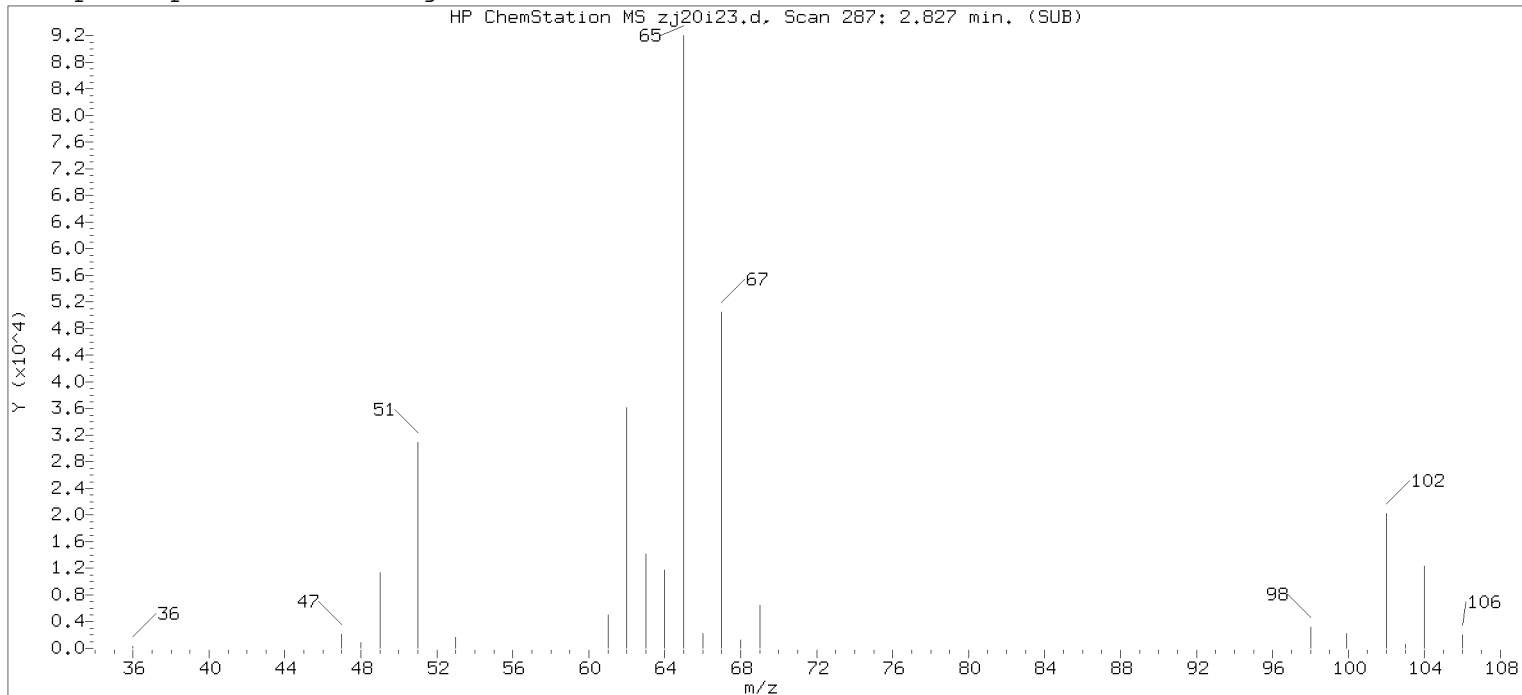
Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 287	
Retention Time (minutes)	: 2.827	
Quant Ion	: 65.00	
Area (flag)	: 209814M	
On-Column Amount (ng)	: 49.3044	
Integration start scan	: 272	Integration stop scan: 290
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

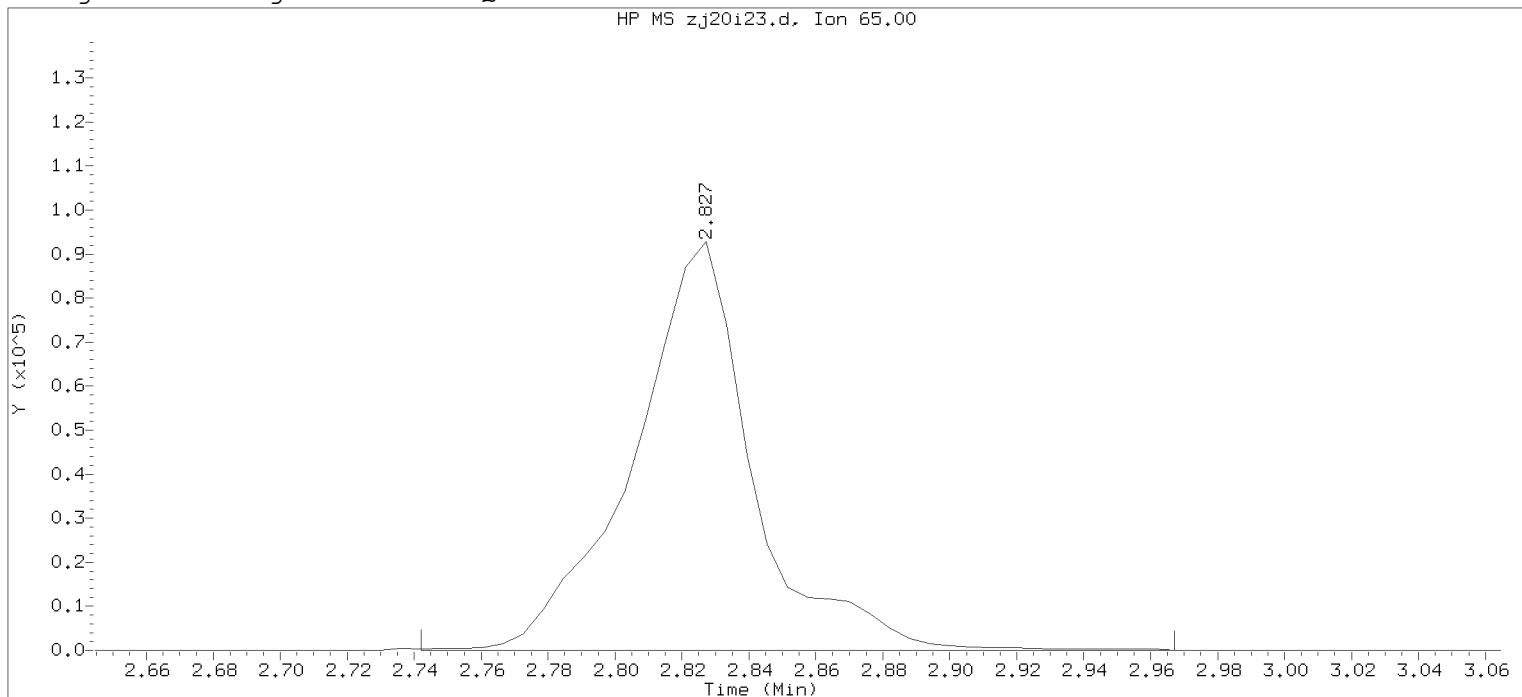
Analyst responsible for change: Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:40.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



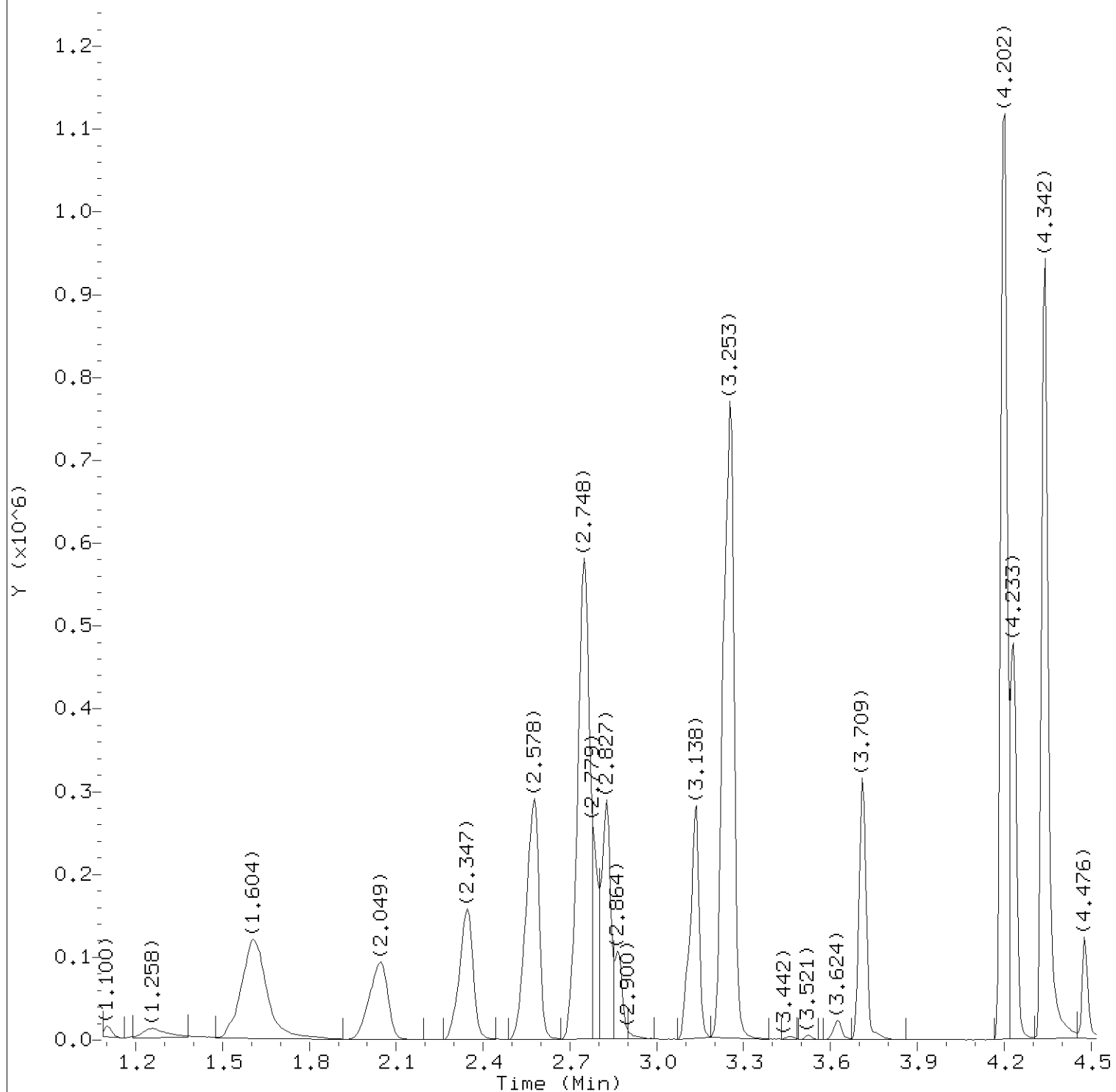
Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 12:47 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 12:56
Date, time and analyst ID of latest file update: 20-Jan-2020 12:56 ajs00193

Sample Name: VSTD100

Lab Sample ID: VSTD100

Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 287	
Retention Time (minutes)	: 2.827	
Quant Ion	: 65.00	
Area	: 230618	
On-column Amount (ng)	: 53.6039	
Integration start scan	: 272	Integration stop scan: 309
Y at integration start	: 0	Y at integration end: 0



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d
Injection date and time: 20-JAN-2020 12:23

Instrument ID: HP09671.i
Analyst ID: amd00492

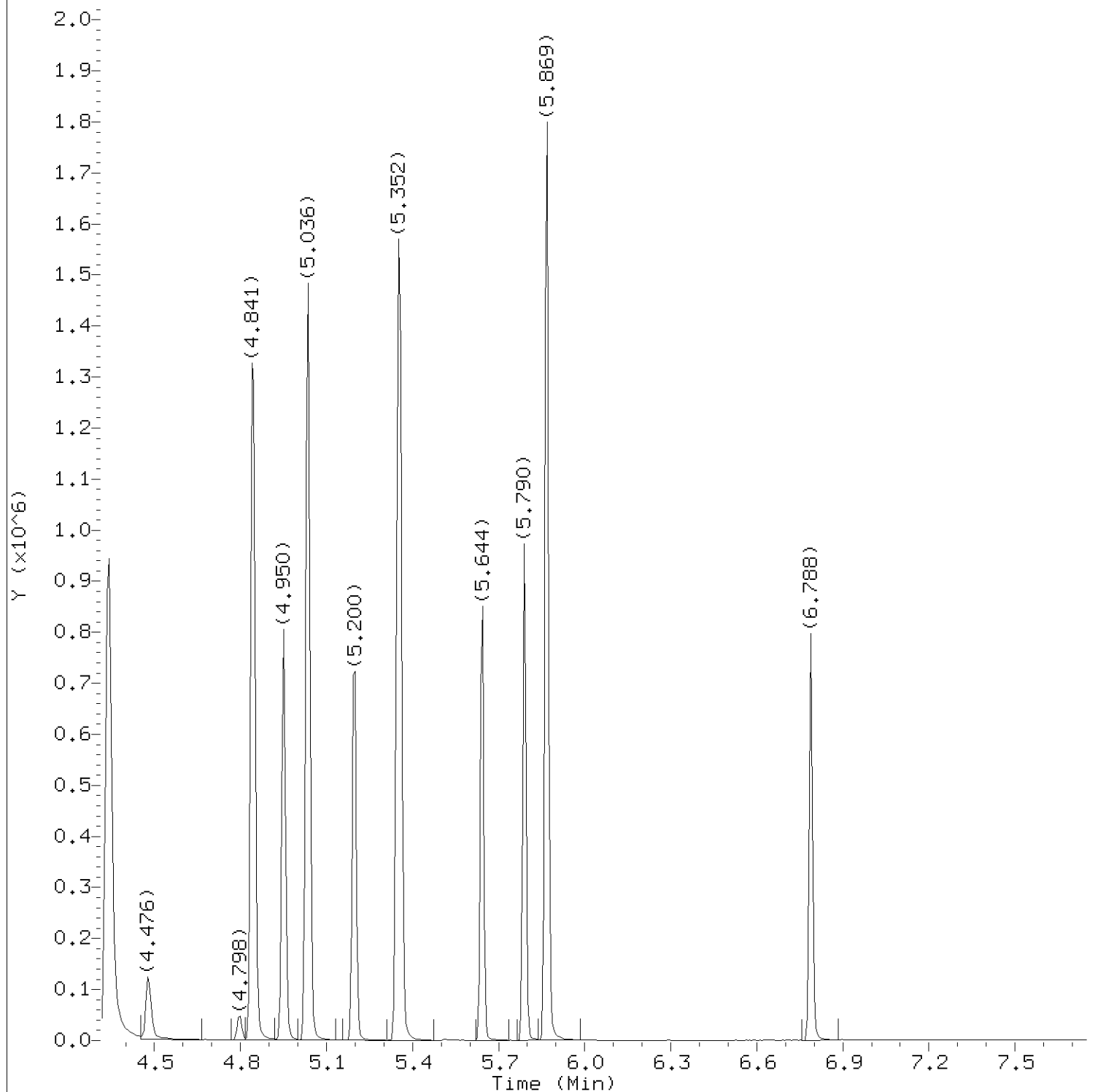
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:53
Date, time and analyst ID of latest file update: 22-Jan-2020 04:54 amd00492

Sample Name: ICVZ01

Lab Sample ID: ICVZ01

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:54.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d
Injection date and time: 20-JAN-2020 12:23

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:53
Date, time and analyst ID of latest file update: 22-Jan-2020 04:54 amd00492

Sample Name: ICVZ01

Lab Sample ID: ICVZ01

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:54.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d
Injection date and time: 20-JAN-2020 12:23

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:53
Date, time and analyst ID of latest file update: 22-Jan-2020 04:54 amd00492

Sample Name: ICSVZ01

Lab Sample ID: ICSVZ01

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	49276	505.530
2) *t-Butyl alcohol-d10	(1)	1.592	65	205837	250.000
3) t-Butyl alcohol	(1)	1.629	59	174954	185.864
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	191797	18.453
5) di-Isopropyl ether	(2)	2.347	45	210355	18.754
6) Ethyl t-butyl ether	(2)	2.560	59	193749	19.018
7) \$Dibromofluoromethane	(2)	2.584	113	140617	48.873
8) t-Butyl Formate	(2)	2.748	57	201755A	97.574
9) t-Amyl Alcohol	(1)	2.785	73	77511	185.452
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	45513	50.494
11) 1,2-Dichloroethane	(2)	2.870	62	96939	18.777
12) Benzene	(2)	3.138	78	303523	19.254
13) t-Amyl methyl ether	(2)	3.241	87	44978	19.269
14) *Fluorobenzene	(2)	3.259	96	734314	50.000
15) \$Toluene-d8	(3)	4.202	98	699707	50.332
16) Toluene	(3)	4.233	92	185805	19.359
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	312062	474.111
18) 1,2-Dibromoethane	(3)	4.476	107	64698	19.387
19) *Chlorobenzene-d5	(3)	4.847	117	519663	50.000
20) Ethylbenzene	(3)	4.950	91	337794	19.359
21) m+p-Xylene	(3)	5.036	106	279068	40.520
22) o-Xylene	(3)	5.200	106	130769	19.927
24) Isopropylbenzene	(3)	5.346	105	331051	19.540
25) \$4-Bromofluorobenzene	(3)	5.358	95	265685	50.775
23) Xylene (Total)	(3)		106	409837	60.446
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	264722	19.433
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	281840	20.015
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	273971	50.000
29) Naphthalene	(4)	6.788	128	334234	18.305

A = User selected an alternate hit.

* = Compound is an internal standard.

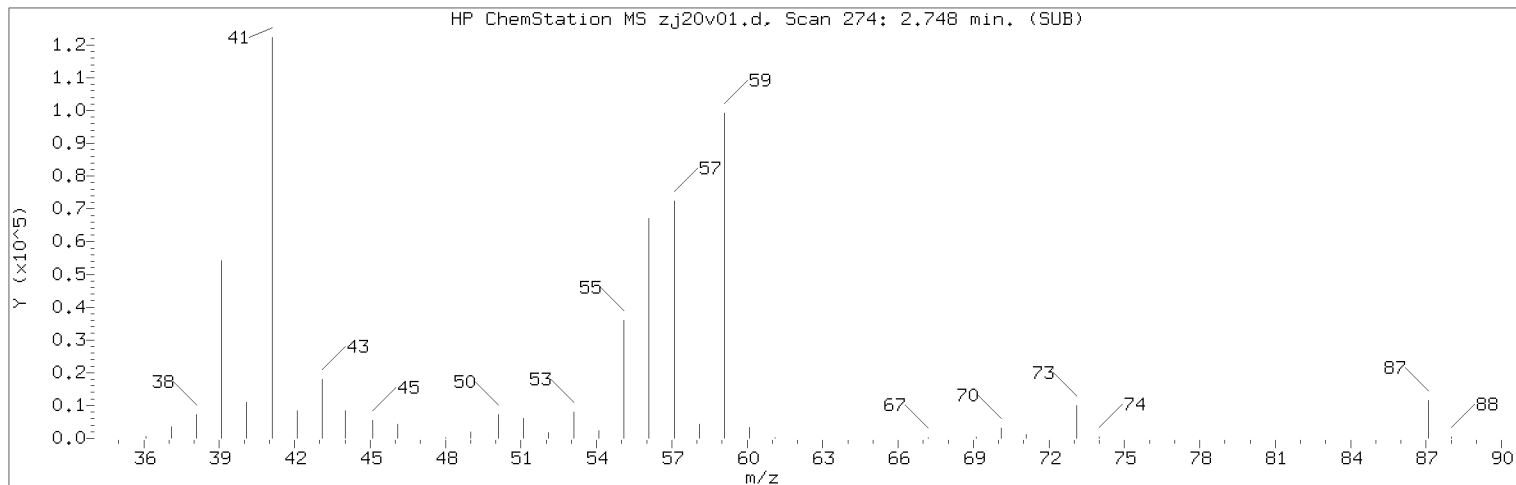
\$ = Compound is a surrogate standard.

page 1 of 1

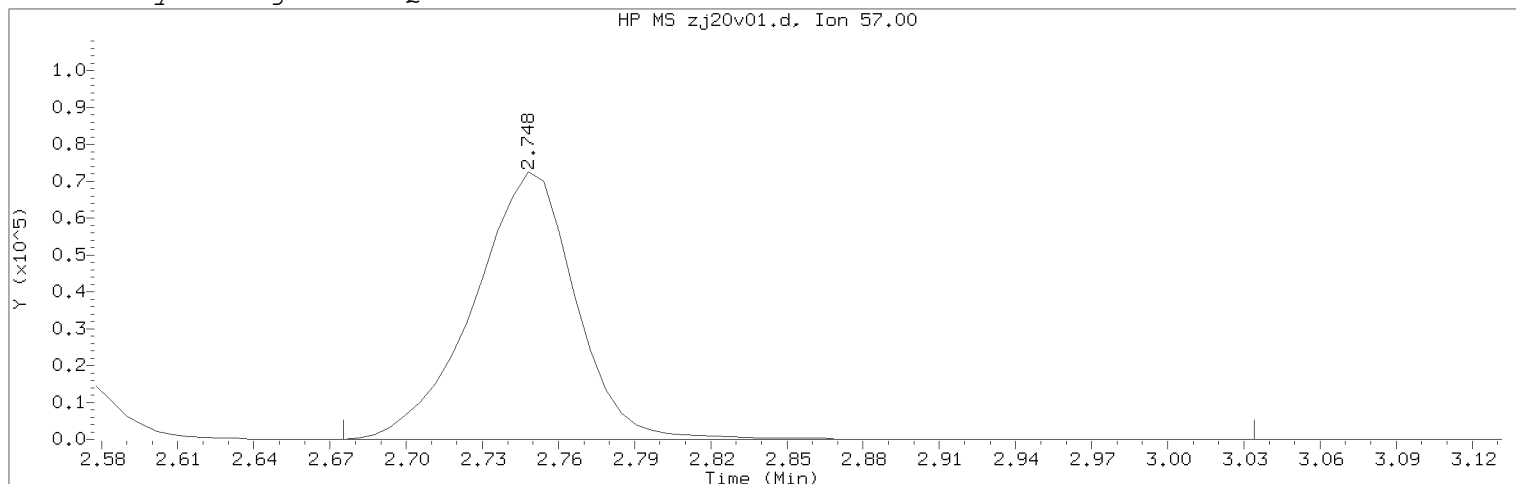
Digitally signed by Anita M. Dale
on 01/22/2020 at 04:54.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 12:23

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 22-JAN-2020 04:53

Date, time and analyst ID of latest file update: 22-Jan-2020 04:54 amd00492

Sample Name: ICVZ01

Lab Sample ID: ICVZ01

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 274	
Retention Time (minutes)	: 2.748	
Quant Ion	: 57.00	
Area (flag)	: 201755A	
On-Column Amount (ng)	: 97.5744	
Integration start scan	: 261	Integration stop scan: 320
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

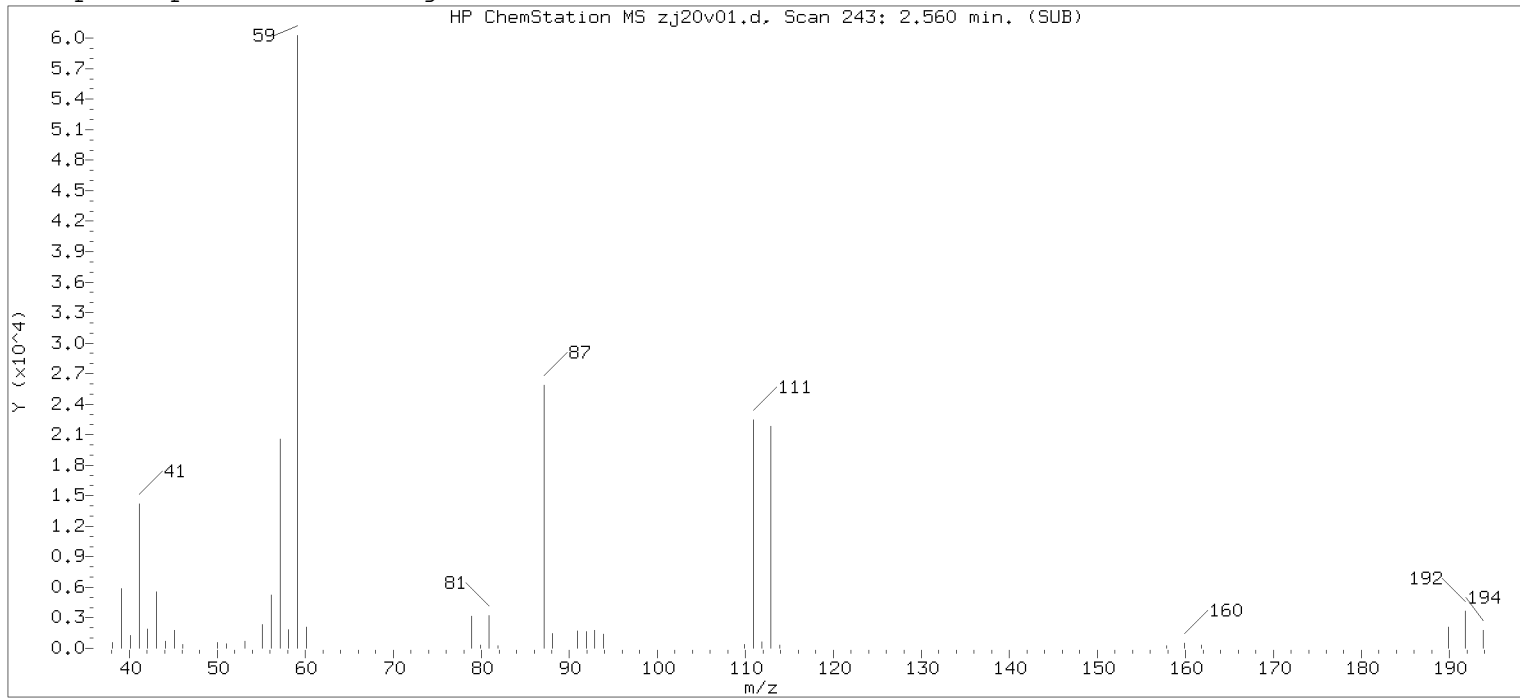
Analyst responsible for change:

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:54.
Target 3.5 esignature user ID: amd00492

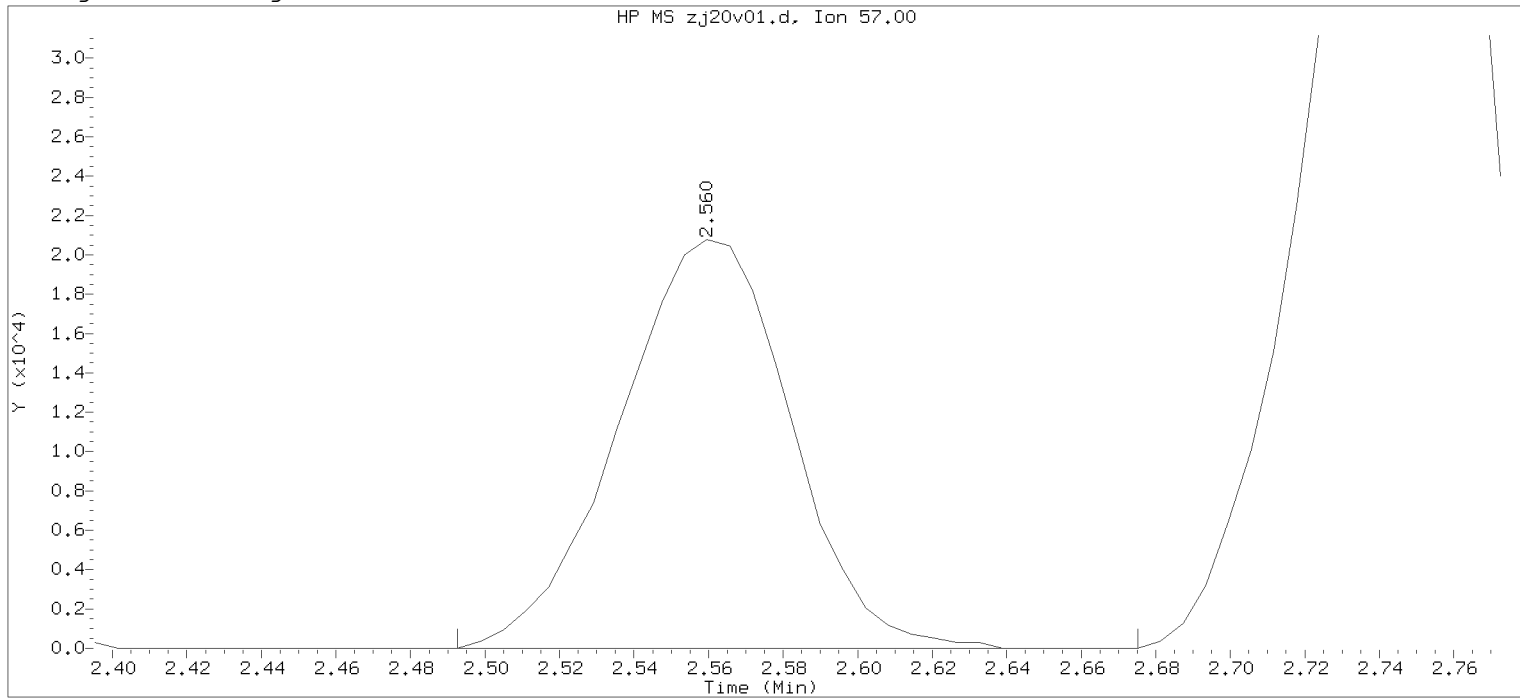
Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:58.

PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 12:23 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 12:07
Date, time and analyst ID of latest file update: 20-Jan-2020 12:32 ajs00193

Sample Name: ICVZ01

Lab Sample ID: ICVZ01

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 243	
Retention Time (minutes)	: 2.560	
Quant Ion	: 57.00	
Area	: 66312	
On-column Amount (ng)	: 45.0989	
Integration start scan	: 231	Integration stop scan: 261
Y at integration start	: 0	Y at integration end: 0

Page 1

Client ID: BFBJan28-20

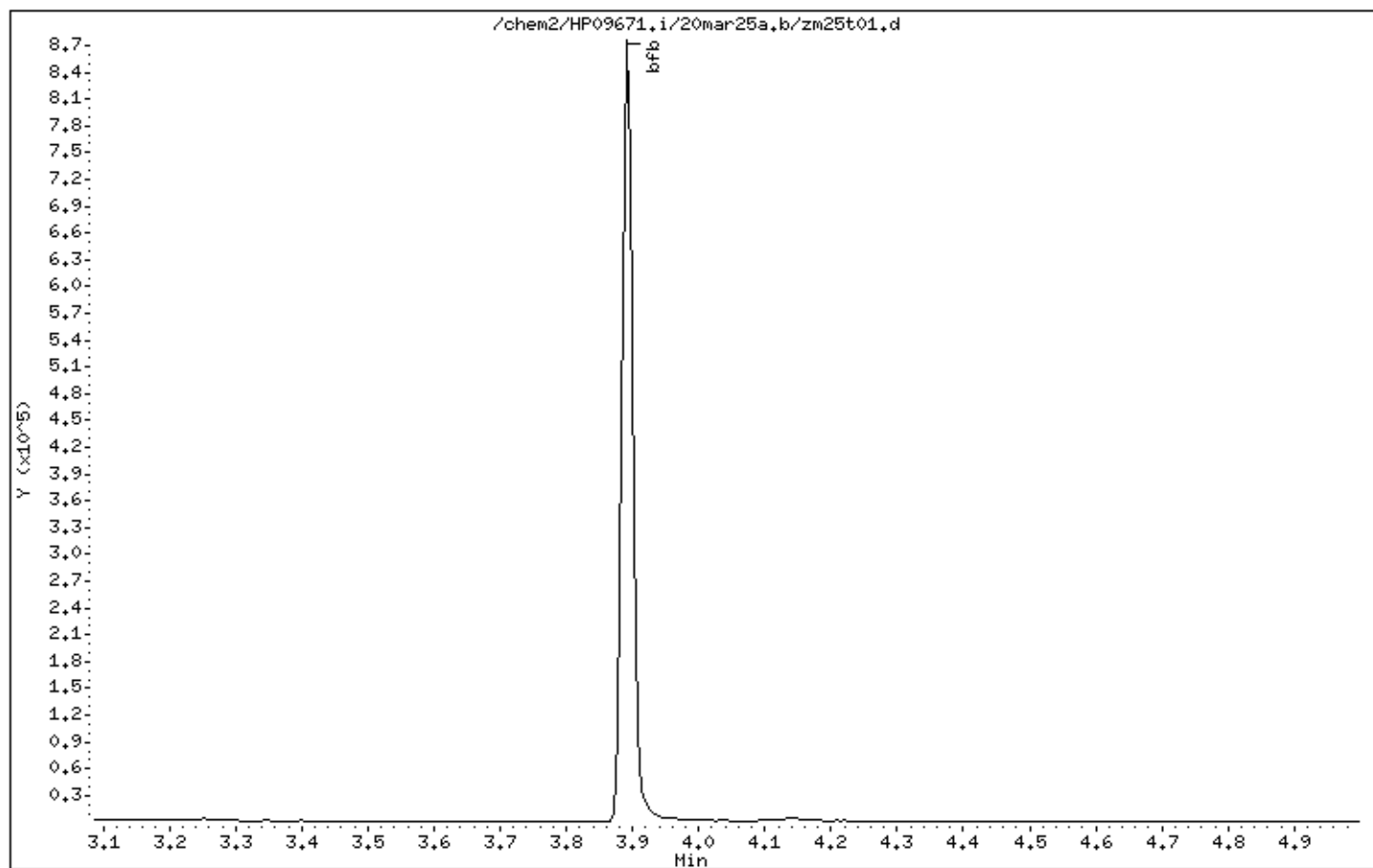
Instrument: HP09671.i

Sample Info: BFBJan28-20;50NGBFB;1;3; ; ; ; ;

Operator: ads07818

Column phase: DB-VRX

Column diameter: 0.18



Date : 25-MAR-2020 07:47

Client ID: BFBJan28-20

Instrument: HP09671.i

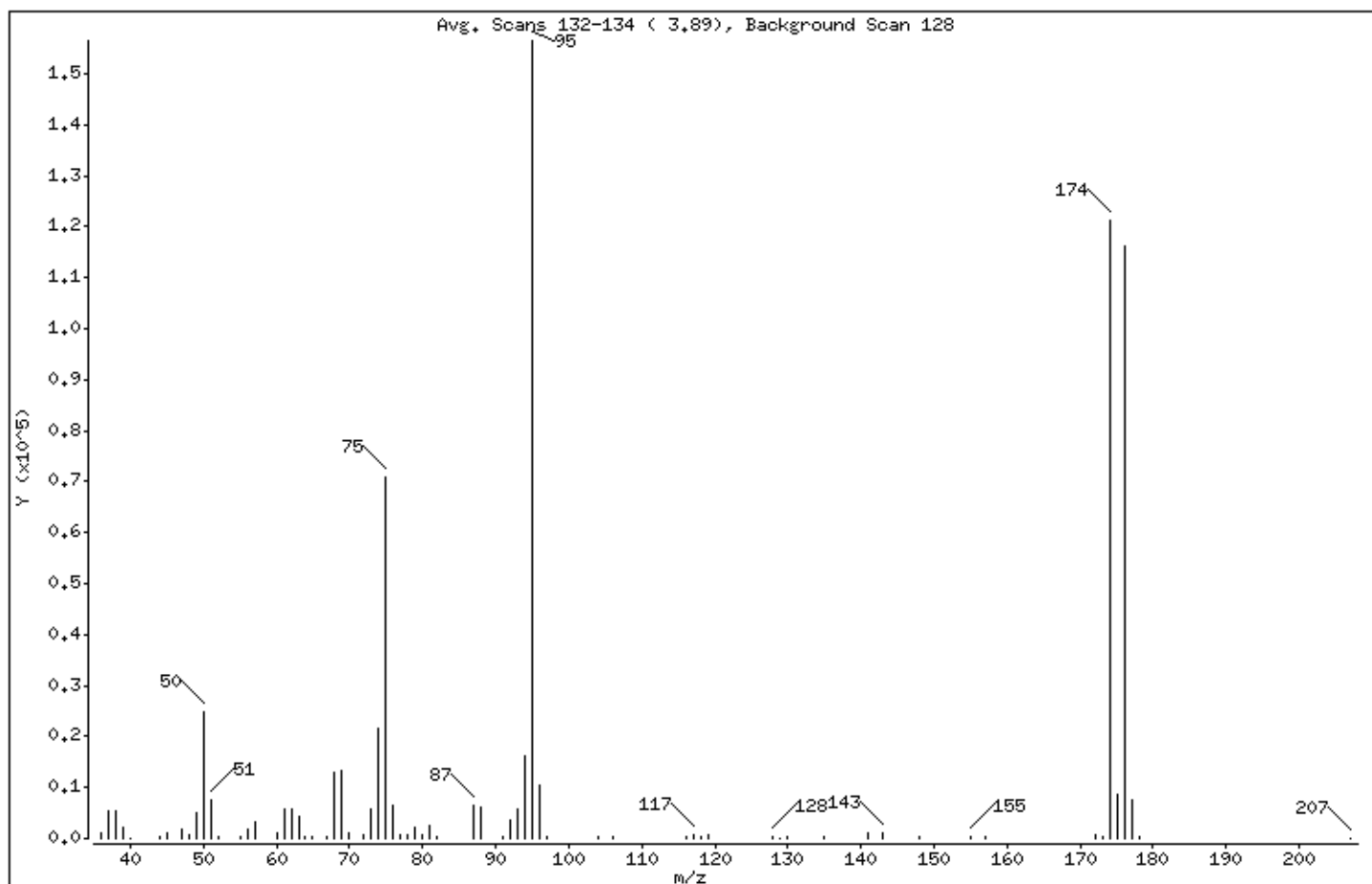
Sample Info: BFBJan28-20;50NGBFB;1;3;+;+;+;+;

Operator: ads07818

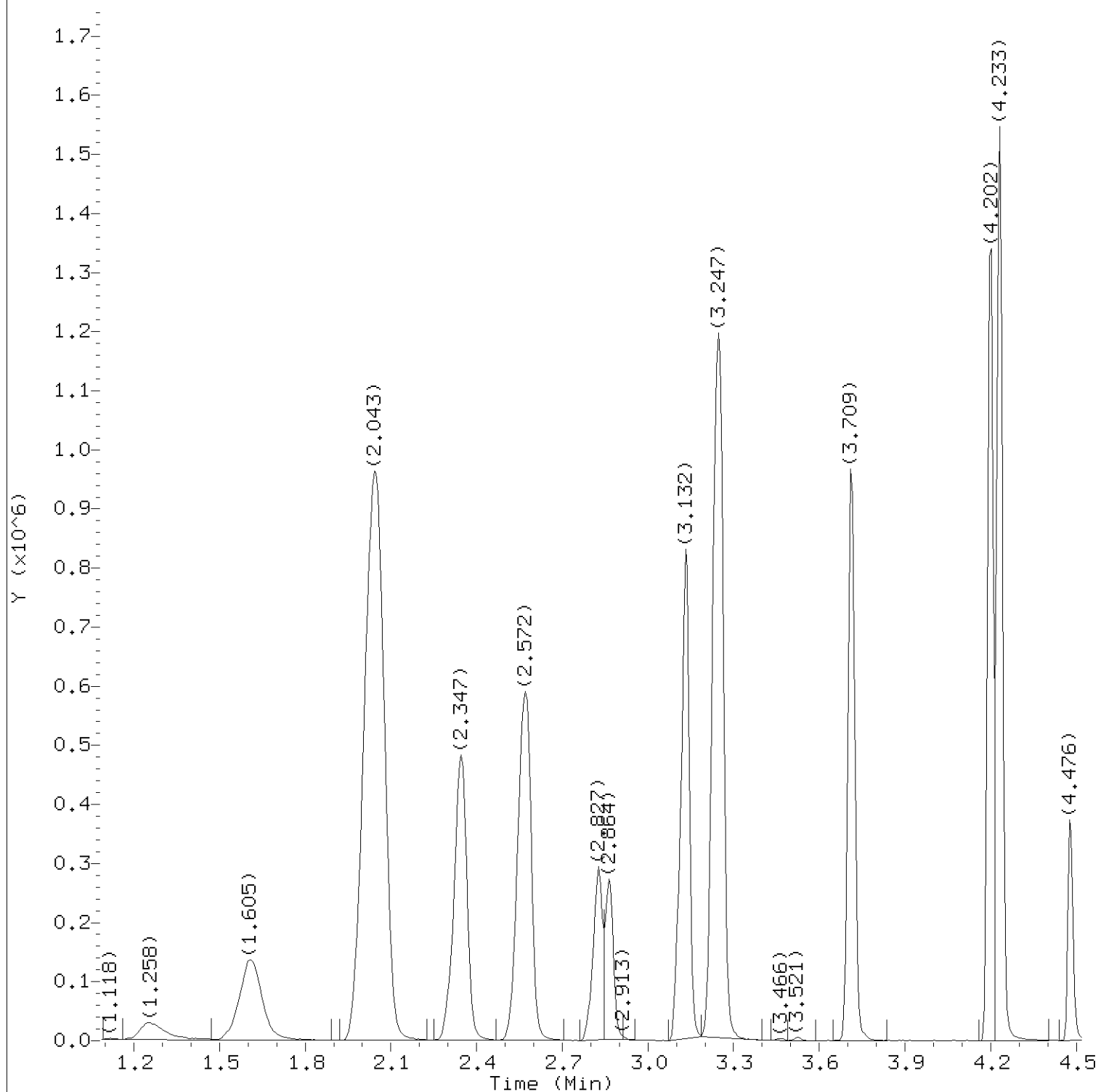
Column phase: DB-VRX

Column diameter: 0.18

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	15.82
75	30.00 - 60.00% of mass 95	45.26
96	5.00 - 9.00% of mass 95	6.65
173	Less than 2.00% of mass 174	0.31 (0.40)
174	50.00 - 100.00% of mass 95	77.53
175	5.00 - 9.00% of mass 174	5.49 (7.08)
176	95.00 - 101.00% of mass 174	74.15 (95.65)
177	5.00 - 9.00% of mass 176	4.87 (6.57)



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25c01.d
Injection date and time: 25-MAR-2020 08:34

Instrument ID: HP09671.i
Analyst ID: ads07818

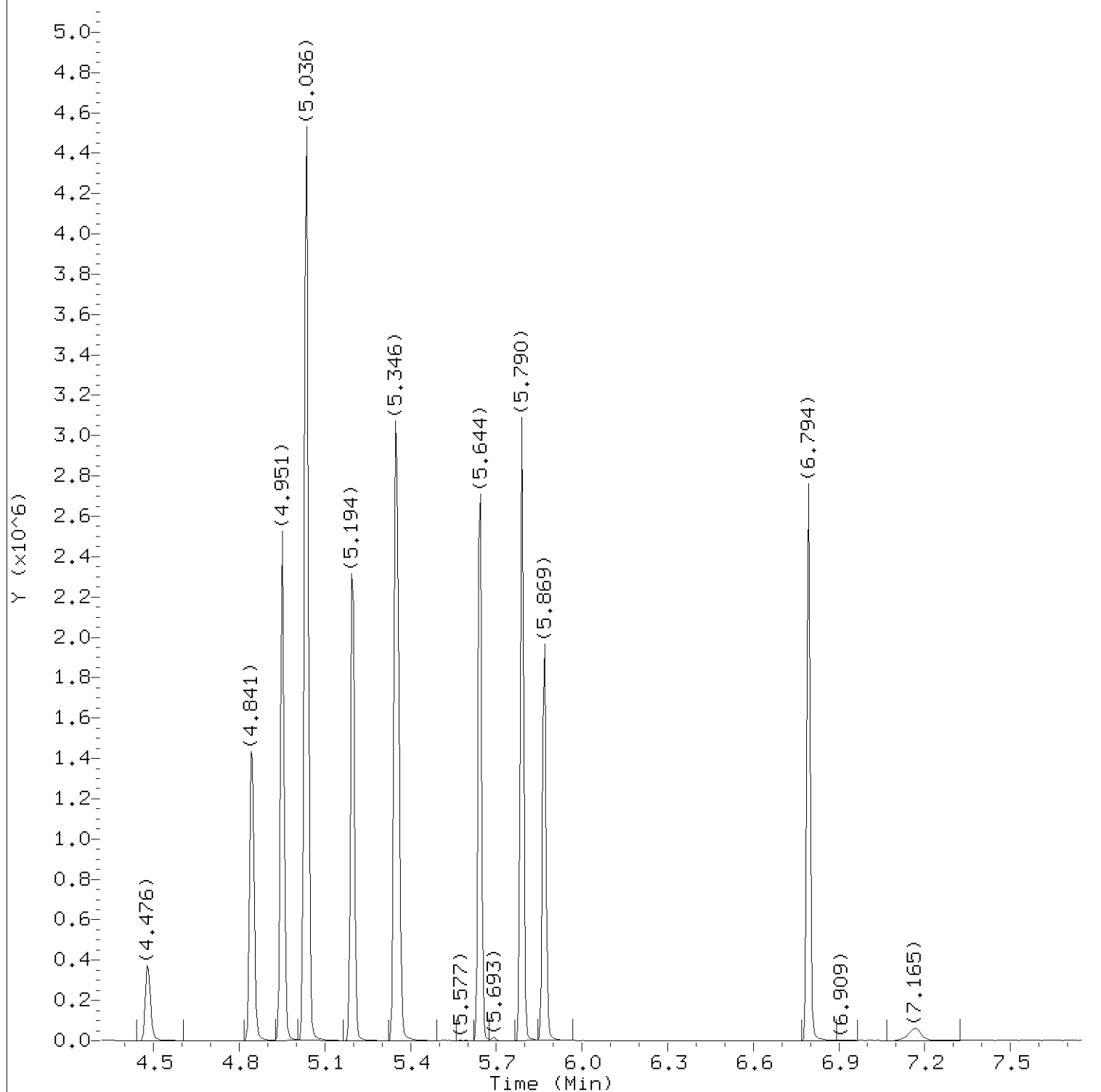
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 09:06 ads07818

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25c01.d
Injection date and time: 25-MAR-2020 08:34

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 09:06 ads07818

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 08:34

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 10943AC

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 09:06 ads07818

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	105379	1230.806
2) *t-Butyl alcohol-d10	(1)	1.592	65	180801	250.000
3) t-Butyl alcohol	(1)	1.623	59	223126	269.865
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	2330035	204.651
5) di-Isopropyl ether	(2)	2.347	45	638783	51.990
6) Ethyl t-butyl ether	(2)	2.566	59	604264	54.148
7) \$Dibromofluoromethane	(2)	2.584	113	162179	51.459
7) \$Dibromofluoromethane	(2)	2.584	111	166287	51.461
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	51309	51.968
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	225337	48.736
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	31266	51.216
11) 1,2-Dichloroethane	(2)	2.864	62	261640	46.267
12) Benzene	(2)	3.132	78	871943	50.496
13) t-Amyl methyl ether	(2)	3.241	87	143096	55.965
14) *Fluorobenzene	(2)	3.253	96	804362	50.000
15) \$Toluene-d8	(3)	4.202	98	772886	50.787
15) \$Toluene-d8	(3)	4.202	100	500056	51.325
16) Toluene	(3)	4.233	92	551827	52.521
18) 1,2-Dibromoethane	(3)	4.476	107	198882	54.442
19) *Chlorobenzene-d5	(3)	4.847	117	568867	50.000
20) Ethylbenzene	(3)	4.951	91	1028373	53.838
21) m+p-Xylene	(3)	5.036	106	838479	111.214
22) o-Xylene	(3)	5.194	106	404123	56.254
24) Isopropylbenzene	(3)	5.346	105	1042745	56.223
25) \$4-Bromofluorobenzene	(3)	5.358	95	288217	50.317
25) \$4-Bromofluorobenzene	(3)	5.358	174	231355	53.663
23) Xylene (Total)	(3)		106	1242603	167.469
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	873173	56.168
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	915012	56.940
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	312658	50.000
29) Naphthalene	(4)	6.794	128	1174351	56.356

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Raw QC Data

Volatiles by GC/MS

VBLKZ91

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKZ91

Data file: /chem2/HP09671.i/20mar25a.b/zm25b01.d
Data file Sample Info. Line: VBLKZ91;VBLKZ91;1;3;;;;;
Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Injection date and time: **25-MAR-2020 09:23**
Instrument ID: **HP09671.i** Batch: **Z200851AA**

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: **10943AC**
Calibration date and time (Last Method Edit): 25-MAR-2020 09:06
Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.598 (-0.006)	85	65	176790 (-2)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	760115 (-6)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	555996 (-2)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	295244 (-6)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.001)	113	159604	53.589	107%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	48264	51.729	103%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	747458	50.253	101%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	260683	46.564	93%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
1) Ethanol	(1)			Not Detected					280	750
3) t-Butyl alcohol	(1)			Not Detected					12	50
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
5) di-Isopropyl ether	(2)			Not Detected					0.2	1
6) Ethyl t-butyl ether	(2)			Not Detected					0.2	1
11) 1,2-Dichloroethane	(2)			Not Detected					0.3	1
12) Benzene	(2)			Not Detected					0.2	1
13) t-Amyl methyl ether	(2)			Not Detected					0.8	5
16) Toluene	(3)			Not Detected					0.2	1
18) 1,2-Dibromoethane	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6
24) Isopropylbenzene	(3)			Not Detected					0.2	5
26) 1,3,5-Trimethylbenzene	(4)			Not Detected					0.3	5
27) 1,2,4-Trimethylbenzene	(4)			Not Detected					1	5
29) Naphthalene	(4)			Not Detected					1	5

VBLKZ91

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKZ91

Data file: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Injection date and time: **25-MAR-2020 09:23**

Data file Sample Info. Line: VBLKZ91;VBLKZ91;1;3;;;;;

Instrument ID: **HP09671.i** Batch: **Z200851AA**

Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: **10943AC**

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo)

VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml

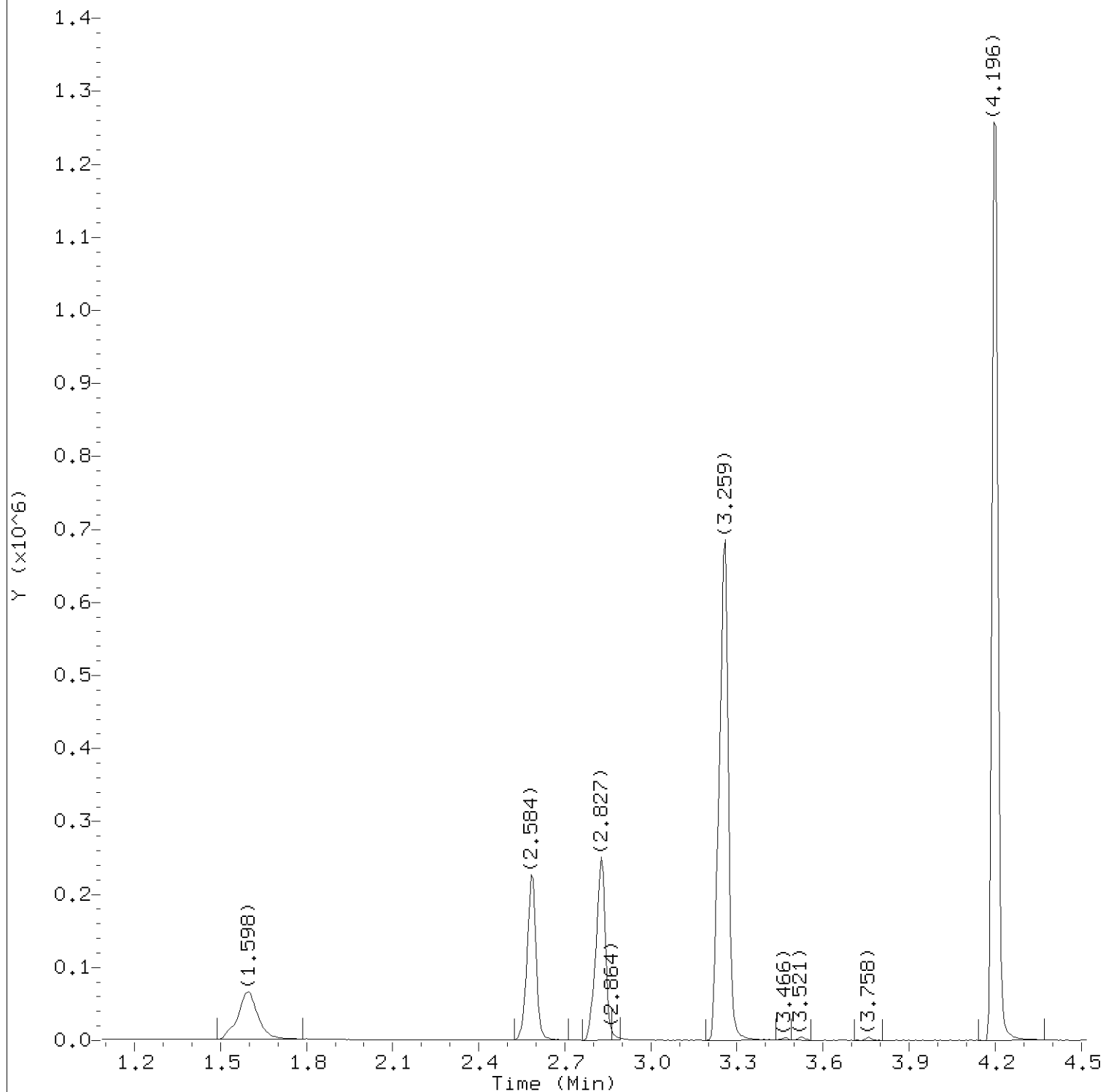
Sample Volume (Vo): 5 ml

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BLANK INTENTIONALLY

Total number of targets = 18

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:21. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25b01.d
Injection date and time: 25-MAR-2020 09:23

Instrument ID: HP09671.i
Analyst ID: ads07818

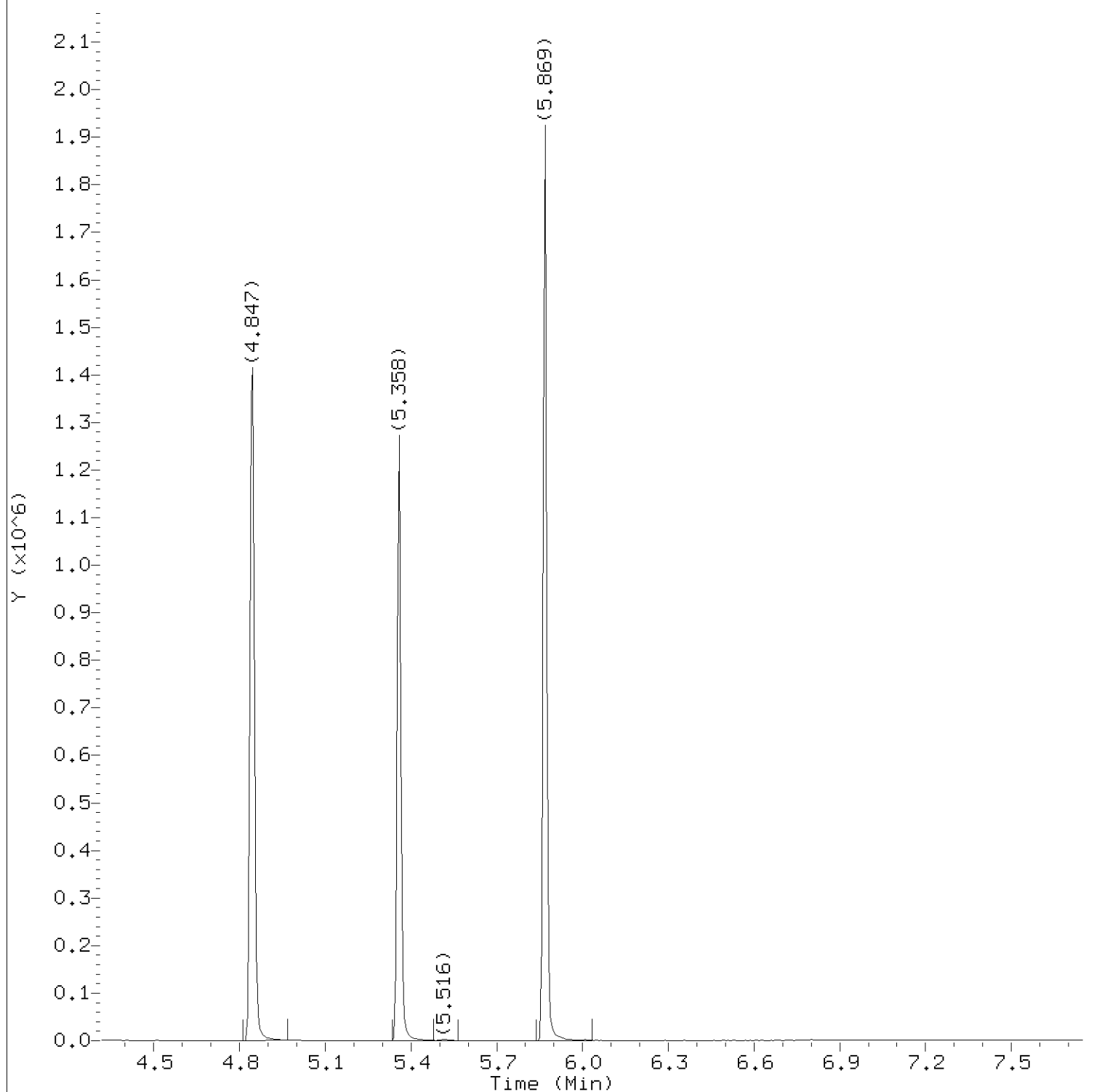
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Sample Name: VBLKZ91

Lab Sample ID: VBLKZ91

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25b01.d
Injection date and time: 25-MAR-2020 09:23

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m
Calibration date and time: 25-MAR-2020 09:06

Sublist used: 10943AC

Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Sample Name: VBLKZ91

Lab Sample ID: VBLKZ91

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 09:23

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 10943AC

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Sample Name: VBLKZ91

Lab Sample ID: VBLKZ91

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.598	65	176790	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	159604	53.589
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	48264	51.729
14) *Fluorobenzene	(2)	3.259	96	760115	50.000
15) \$Toluene-d8	(3)	4.202	98	747458	50.253
19) *Chlorobenzene-d5	(3)	4.847	117	555996	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	260683	46.564
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	295244	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC09MS

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283818

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s07.d

Level: (low/med) LOW Date Received: 03/19/20

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether		20	
71-43-2-----	Benzene		21	
108-88-3-----	Toluene		22	
100-41-4-----	Ethylbenzene		22	
1330-20-7-----	Xylene (Total)		70	

BAC09MS

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283818MS

Data file: /chem2/HP09671.i/20mar25a.b/zm25s07.d

Injection date and time: 25-MAR-2020 10:57

Data file Sample Info. Line: BAC09MS;1283818MS;1;3;MS;GPY67;;;zm25b01;T1 Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 11:06 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	173908 (-4)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	779574 (-3)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	550289 (-3)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	305142 (-2)	50.00	

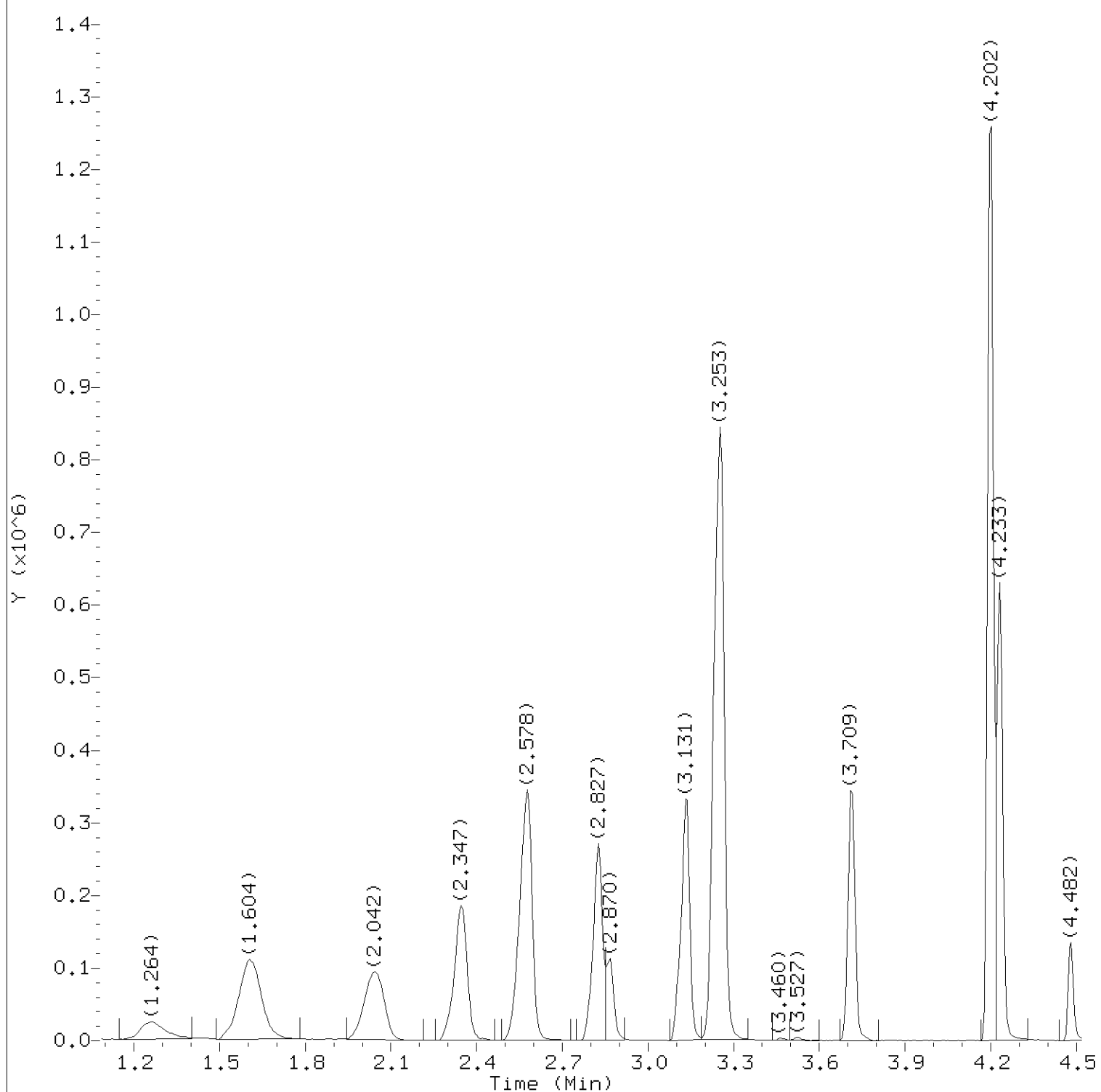
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.001)	113	159696	52.282	105%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	48955	51.159	102%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	746148	50.686	101%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	279620	50.465	101%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)	2.042 (0.003)	73	218935	19.841	19.84			0.2	1
12) Benzene	(2)	3.137 (-0.000)	78	357440	21.358	21.36			0.2	1
16) Toluene	(3)	4.232 (0.000)	92	225132	22.151	22.15			0.2	1
20) Ethylbenzene	(3)	4.950 (-0.000)	91	400537	21.677	21.68			0.4	1
21) m+p-Xylene	(3)	5.036 (0.000)	106	341431	46.816	46.82			1	5
22) o-Xylene	(3)	5.200 (-0.001)	106	160787	23.137	23.14			0.4	1
23) Xylene (Total)	(3)		106	502218	69.953	69.95			1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s07.d
Injection date and time: 25-MAR-2020 10:57

Instrument ID: HP09671.i
Analyst ID: ads07818

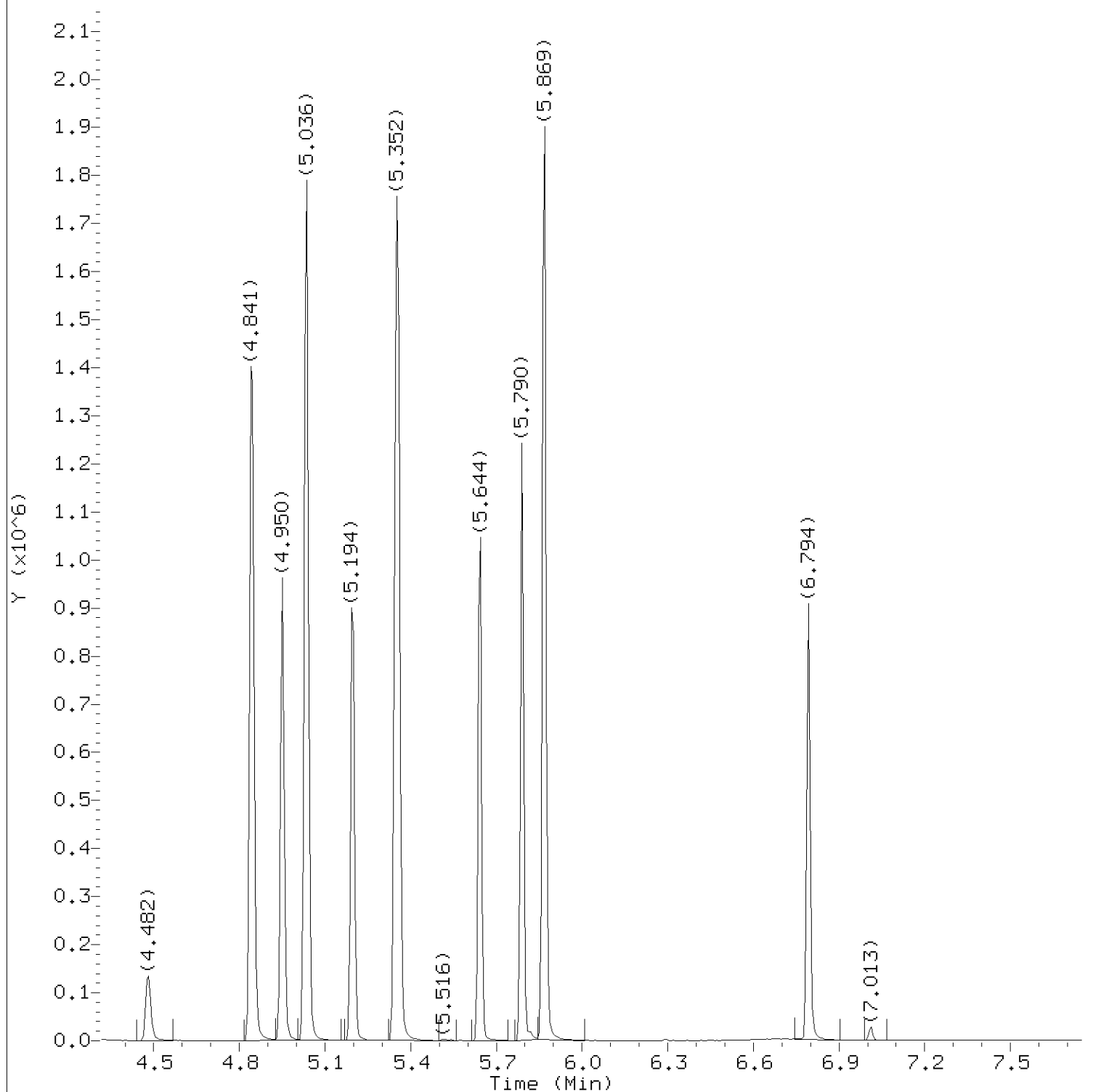
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 11:06 chemist

Sample Name: BAC09MS

Lab Sample ID: 1283818MS

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s07.d
Injection date and time: 25-MAR-2020 10:57

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 11:06 chemist

Sample Name: BAC09MS

Lab Sample ID: 1283818MS

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s07.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 10:57

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 11:06 chemist

Sample Name: BAC09MS

Lab Sample ID: 1283818MS

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.592	65	173908	250.000
4) Methyl Tertiary Butyl Ether	(2)	2.042	73	218935	19.841
7) \$Dibromofluoromethane	(2)	2.584	113	159696	52.282
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	48955	51.159
12) Benzene	(2)	3.137	78	357440	21.358
14) *Fluorobenzene	(2)	3.259	96	779574	50.000
15) \$Toluene-d8	(3)	4.202	98	746148	50.686
16) Toluene	(3)	4.233	92	225132	22.151
19) *Chlorobenzene-d5	(3)	4.847	117	550289	50.000
20) Ethylbenzene	(3)	4.950	91	400537	21.677
21) m+p-Xylene	(3)	5.036	106	341431	46.816
22) o-Xylene	(3)	5.200	106	160787	23.137
25) \$4-Bromofluorobenzene	(3)	5.358	95	279620	50.465
23) Xylene (Total)	(3)		106	502218	69.953
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	305142	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

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on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

GPY67 Page 204 of 609

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC09MSD

Lab Name: Lancaster Laboratories

Contract: _____

Lab Code: LANCAS

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) WATER

Lab Sample ID: 1283819

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: HP09671.i/20mar25a.b/zm25s09.d

Level: (low/med) LOW

Date Received: 03/19/20

Moisture: not dec. _____

Date Analyzed: 03/25/20

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q

1634-04-4-----	Methyl Tertiary Butyl Ether	20	
71-43-2-----	Benzene	21	
108-88-3-----	Toluene	22	
100-41-4-----	Ethylbenzene	22	
1330-20-7-----	Xylene (Total)	70	

BAC09MSD

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1283819MSD

Data file: /chem2/HP09671.i/20mar25a.b/zm25s09.d

Injection date and time: 25-MAR-2020 11:21

Data file Sample Info. Line: BAC09MSD;1283819MSD;1;3;MSD;GPY67;;;zm25b01;T Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 11:29 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	176361 (-2)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	780618 (-3)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	549046 (-3)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	304773 (-3)	50.00	

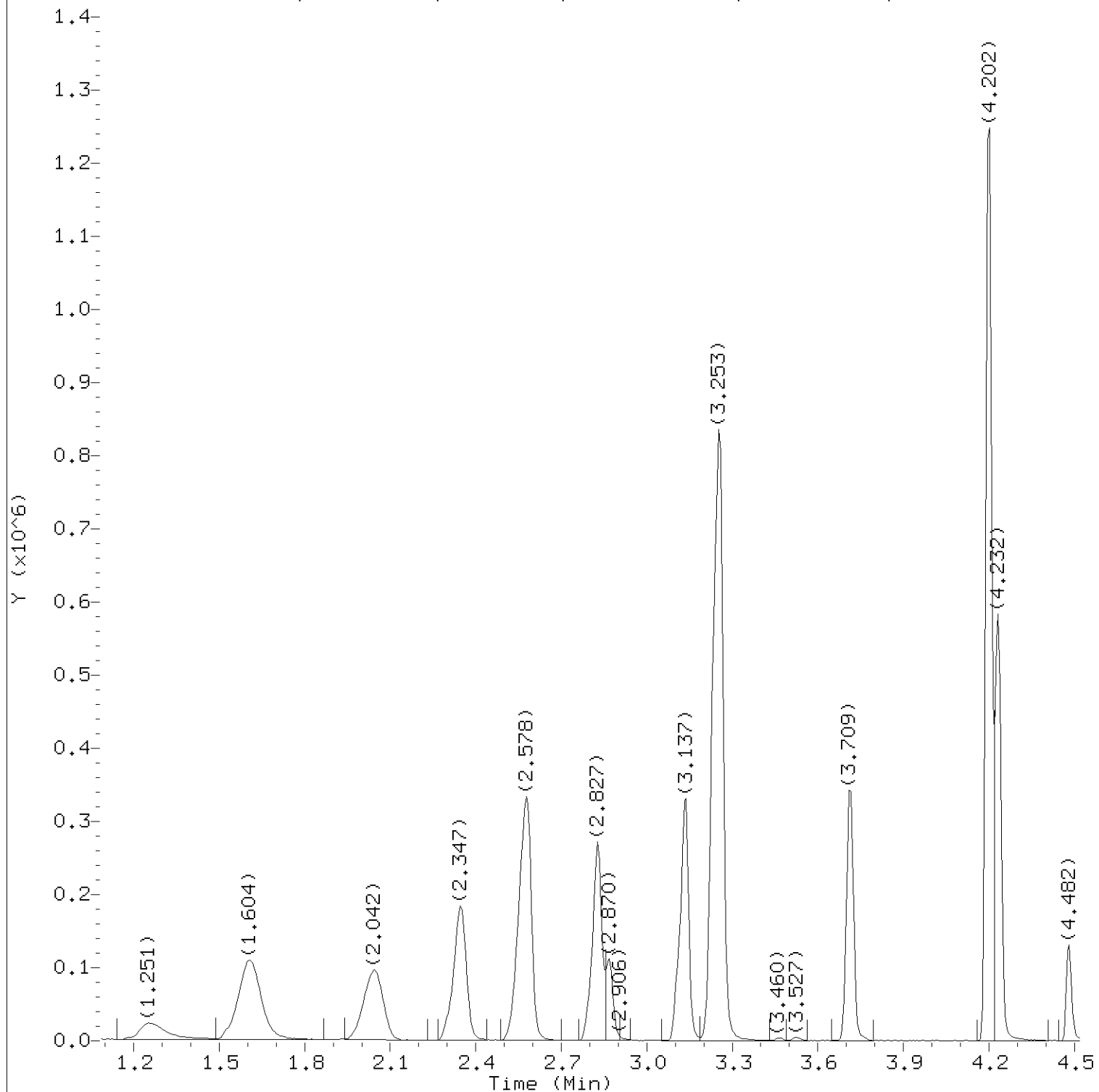
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.002)	113	157852	51.609	103%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	49576	51.740	103%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	745501	50.756	102%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	280166	50.677	101%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)	2.042 (0.003)	73	218471	19.772	19.77			0.2	1
12) Benzene	(2)	3.137 (-0.000)	78	357886	21.356	21.36			0.2	1
16) Toluene	(3)	4.232 (0.000)	92	222758	21.967	21.97			0.2	1
20) Ethylbenzene	(3)	4.950 (-0.000)	91	405425	21.991	21.99			0.4	1
21) m+p-Xylene	(3)	5.035 (-0.000)	106	339902	46.712	46.71			1	5
22) o-Xylene	(3)	5.200 (-0.001)	106	158656	22.882	22.88			0.4	1
23) Xylene (Total)	(3)		106	498558	69.594	69.59			1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s09.d
Injection date and time: 25-MAR-2020 11:21

Instrument ID: HP09671.i
Analyst ID: ads07818

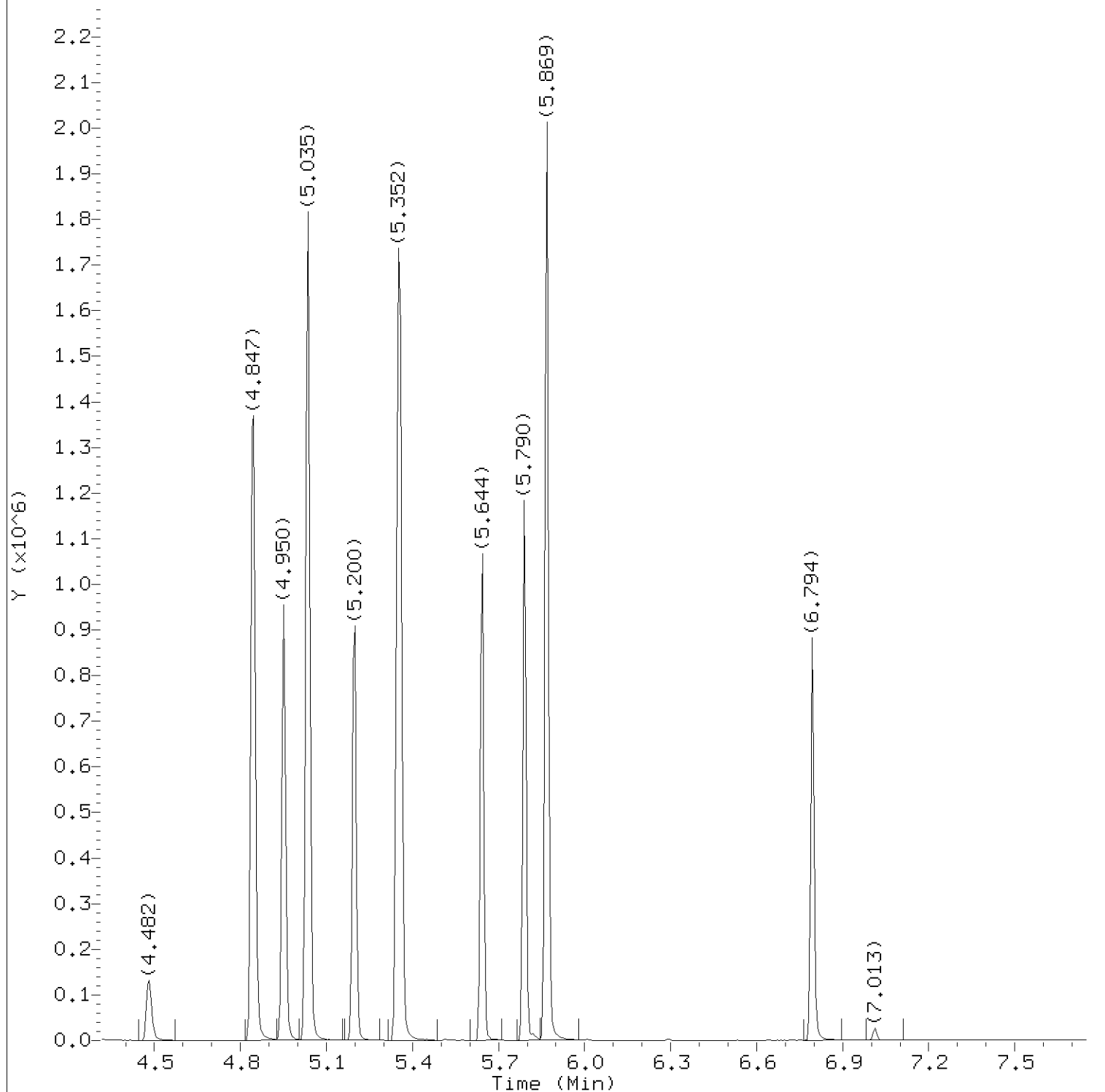
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 11:29 chemist

Sample Name: BAC09MSD

Lab Sample ID: 1283819MSD

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s09.d
Injection date and time: 25-MAR-2020 11:21

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 11:29 chemist

Sample Name: BAC09MSD

Lab Sample ID: 1283819MSD

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s09.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 11:21

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 11:29 chemist

Sample Name: BAC09MSD

Lab Sample ID: 1283819MSD

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.592	65	176361	250.000
4) Methyl Tertiary Butyl Ether	(2)	2.042	73	218471	19.772
7) \$Dibromofluoromethane	(2)	2.584	113	157852	51.609
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	49576	51.740
12) Benzene	(2)	3.137	78	357886	21.356
14) *Fluorobenzene	(2)	3.259	96	780618	50.000
15) \$Toluene-d8	(3)	4.202	98	745501	50.756
16) Toluene	(3)	4.232	92	222758	21.967
19) *Chlorobenzene-d5	(3)	4.847	117	549046	50.000
20) Ethylbenzene	(3)	4.950	91	405425	21.991
21) m+p-Xylene	(3)	5.035	106	339902	46.712
22) o-Xylene	(3)	5.200	106	158656	22.882
25) \$4-Bromofluorobenzene	(3)	5.358	95	280166	50.677
23) Xylene (Total)	(3)		106	498558	69.594
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	304773	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

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on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

GPY67 Page 209 of 609

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCSZ91

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: LCSZ91

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s01.d

Level: (low/med) LOW Date Received: _____

Moisture: not dec. _____ Date Analyzed: 03/25/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
64-17-5-----	Ethanol		1000	
75-65-0-----	t-Butyl alcohol		190	
1634-04-4-----	Methyl Tertiary Butyl Ether		20	
108-20-3-----	di-Isopropyl ether		19	
637-92-3-----	Ethyl t-butyl ether		20	
107-06-2-----	1,2-Dichloroethane		19	
71-43-2-----	Benzene		20	
994-05-8-----	t-Amyl methyl ether		21	
108-88-3-----	Toluene		21	
106-93-4-----	1,2-Dibromoethane		20	
100-41-4-----	Ethylbenzene		20	
179601-23-1-----	m+p-Xylene		43	
95-47-6-----	o-Xylene		22	
1330-20-7-----	Xylene (Total)		65	
98-82-8-----	Isopropylbenzene		21	
108-67-8-----	1,3,5-Trimethylbenzene		21	
95-63-6-----	1,2,4-Trimethylbenzene		21	
91-20-3-----	Naphthalene		20	

LCSZ91

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

LCSZ91

Data file: /chem2/HP09671.i/20mar25a.b/zm25s01.d

Injection date and time: 25-MAR-2020 08:59

Data file Sample Info. Line: LCSZ91;LCSZ91;1;3;LCS;;;zm25b01;

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	172847 (-4)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	780598 (-3)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	553022 (-3)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	305404 (-2)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.002)	113	159123	52.026	104%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	49357	51.512	103%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	750342	50.719	101%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	280010	50.285	101%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
1) Ethanol	(1)	1.258 (0.000)	45	83770	1023.438	1023.44			280	750
3) t-Butyl alcohol	(1)	1.622 (-0.000)	59	153591	194.312	194.31			12	50
4) Methyl Tertiary Butyl Ether	(2)	2.048 (0.001)	73	219594	19.875	19.87			0.2	1
5) di-Isopropyl ether	(2)	2.346 (0.001)	45	231403	19.407	19.41			0.2	1
6) Ethyl t-butyl ether	(2)	2.565 (0.001)	59	221399	20.444	20.44			0.2	1
11) 1,2-Dichloroethane	(2)	2.870 (-0.000)	62	101800	18.550	18.55			0.3	1
12) Benzene	(2)	3.137 (-0.000)	78	333661	19.911	19.91			0.2	1
13) t-Amyl methyl ether	(2)	3.241 (0.001)	87	51837	20.891	20.89			0.8	5
16) Toluene	(3)	4.232 (0.000)	92	210981	20.656	20.66			0.2	1
18) 1,2-Dibromoethane	(3)	4.482 (-0.001)	107	71257	20.065	20.06			0.2	1
20) Ethylbenzene	(3)	4.950 (-0.000)	91	377794	20.345	20.35			0.4	1
21) m+p-Xylene	(3)	5.035 (0.000)	106	316897	43.237	43.24			1	5
22) o-Xylene	(3)	5.200 (-0.001)	106	150654	21.572	21.57			0.4	1
23) Xylene (Total)	(3)		106	467551	64.809	64.81			1	6
24) Isopropylbenzene	(3)	5.346 (-0.000)	105	386051	21.411	21.41			0.2	5
26) 1,3,5-Trimethylbenzene	(4)	5.644 (-0.000)	105	314601	20.718	20.72			0.3	5
27) 1,2,4-Trimethylbenzene	(4)	5.790 (-0.000)	105	335634	21.382	21.38			1	5
29) Naphthalene	(4)	6.794 (-0.000)	128	400358	19.669	19.67			1	5

LCSZ91

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

LCSZ91

Data file: /chem2/HP09671.i/20mar25a.b/zm25s01.d

Injection date and time: **25-MAR-2020 08:59**

Data file Sample Info. Line: LCSZ91;LCSZ91;1;3;LCS;;;zm25b01;

Instrument ID: **HP09671.i** Batch: **Z200851AA**

Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: **10943AC**

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo)

VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml

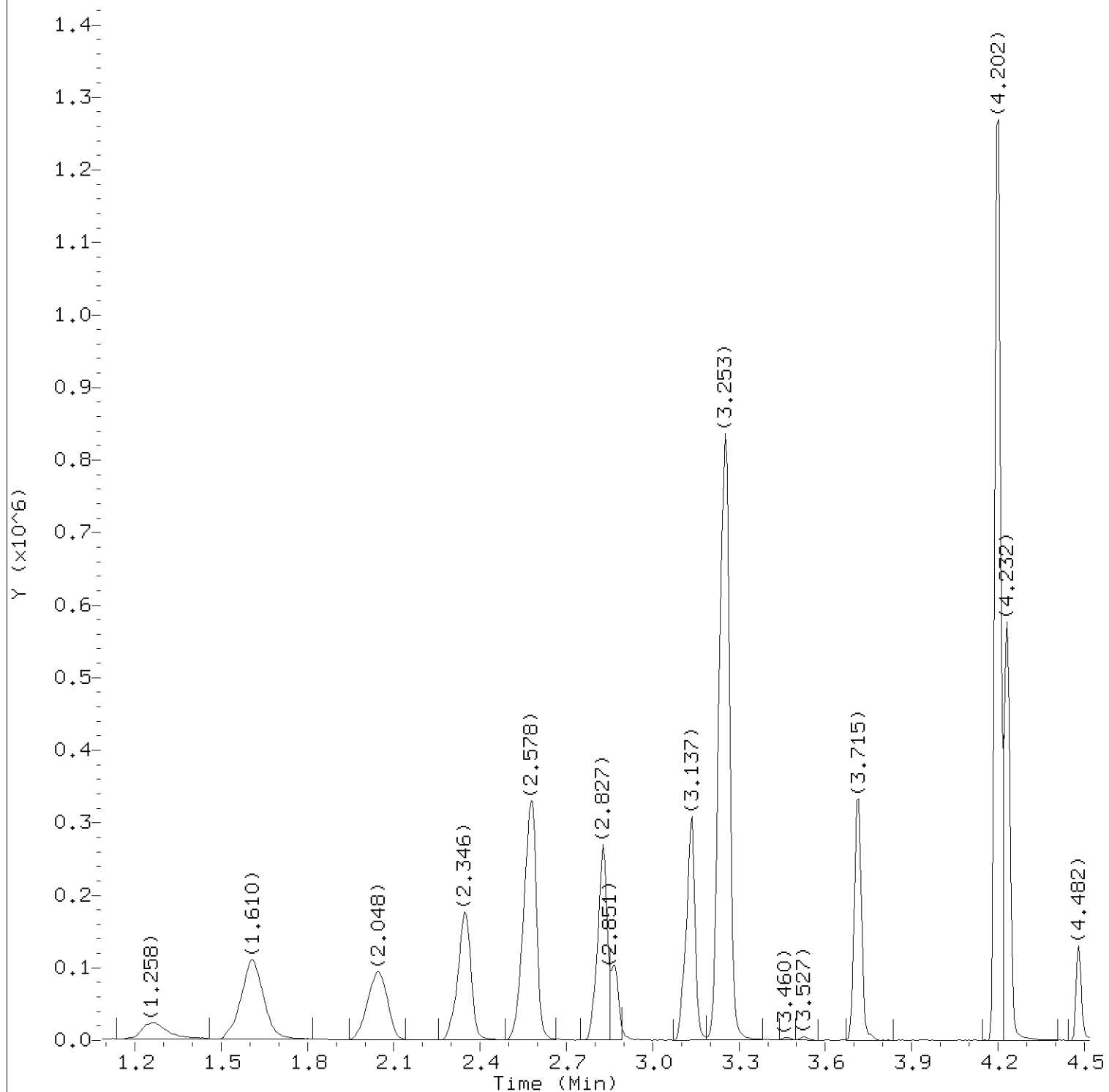
Sample Volume (Vo): 5 ml

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Total number of targets = 18

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 09:36. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:21. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s01.d
Injection date and time: 25-MAR-2020 08:59

Instrument ID: HP09671.i
Analyst ID: ads07818

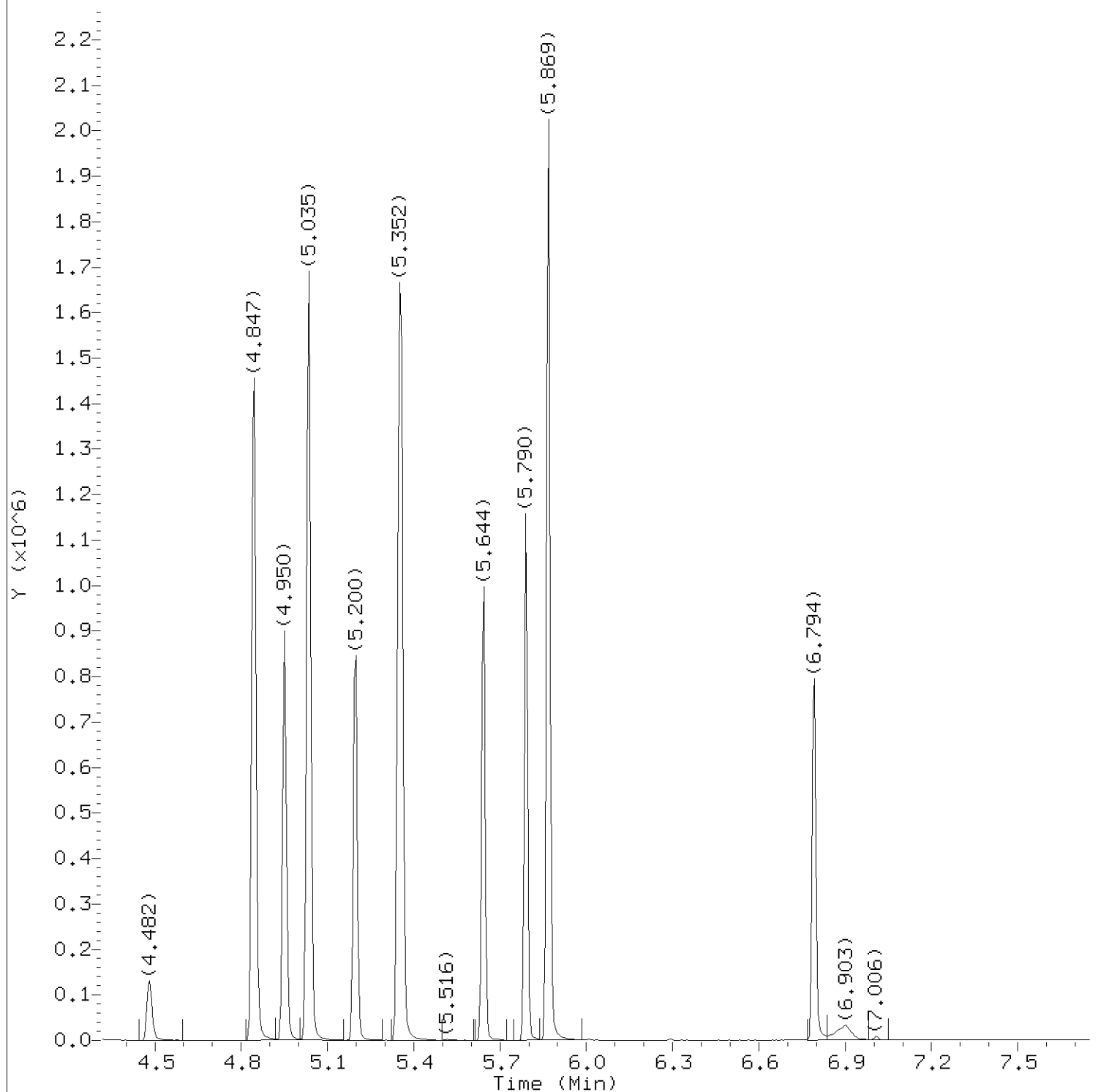
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Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Sample Name: LCSZ91

Lab Sample ID: LCSZ91

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 09:36.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s01.d
Injection date and time: 25-MAR-2020 08:59

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Sample Name: LCSZ91

Lab Sample ID: LCSZ91

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 09:36.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s01.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 08:59

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 10943AC

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Sample Name: LCSZ91

Lab Sample ID: LCSZ91

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	83770	1023.438
2) *t-Butyl alcohol-d10	(1)	1.592	65	172847	250.000
3) t-Butyl alcohol	(1)	1.623	59	153591	194.312
4) Methyl Tertiary Butyl Ether	(2)	2.048	73	219594	19.875
5) di-Isopropyl ether	(2)	2.346	45	231403	19.407
6) Ethyl t-butyl ether	(2)	2.565	59	221399	20.444
7) \$Dibromofluoromethane	(2)	2.584	113	159123	52.026
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	49357	51.512
11) 1,2-Dichloroethane	(2)	2.870	62	101800	18.550
12) Benzene	(2)	3.137	78	333661	19.911
13) t-Amyl methyl ether	(2)	3.241	87	51837	20.891
14) *Fluorobenzene	(2)	3.259	96	780598	50.000
15) \$Toluene-d8	(3)	4.202	98	750342	50.719
16) Toluene	(3)	4.232	92	210981	20.656
18) 1,2-Dibromoethane	(3)	4.482	107	71257	20.065
19) *Chlorobenzene-d5	(3)	4.847	117	553022	50.000
20) Ethylbenzene	(3)	4.950	91	377794	20.345
21) m+p-Xylene	(3)	5.035	106	316897	43.237
22) o-Xylene	(3)	5.200	106	150654	21.572
24) Isopropylbenzene	(3)	5.346	105	386051	21.411
25) \$4-Bromofluorobenzene	(3)	5.358	95	280010	50.285
23) Xylene (Total)	(3)		106	467551	64.809
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	314601	20.718
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	335634	21.382
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	305404	50.000
29) Naphthalene	(4)	6.794	128	400358	19.669

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

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on 03/26/2020 at 09:36.

Target 3.5 esignature user ID: ads07818

Semivolatiles by GC/MS-SIM Data

Case Narrative/Conformance Summary

Semivolatiles by GC/MS-SIM

Case Narrative/Conformance Summary

CLIENT: Brown & Caldwell
SDG: GPY67

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS-SIM

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
1283809	MW-1-20200317	X		1	
1283810	MW-10S-20200317	X		1	
1283811	MW-10D-20200317	X		1	
1283812	MW-8S-20200317	X		1	
1283813	MW-8D-20200317	X		1	
1283814	MW-11S-20200318	X		10; 1	
1283815	MW-11D-20200318	X		1	
1283816	MW-7S-20200318	X		1	
1283817	MW-7D-20200318	X		1	Unspiked
1283818	MW-7D-20200318-MS	X		1	Matrix Spike
1283819	MW-7D-20200318-MSD	X		1	Matrix Spike Duplicate
1283820	MW-14S-20200318	X		1	
1283821	MW-14D-20200318	X		1	
1283822	MW-4S-20200318	X		2; 1	
1283823	MW-4D-20200318	X		1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

Case Narrative/Conformance Summary

CLIENT: Brown & Caldwell
SDG: GPY67

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS-SIM

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

 Lancaster Laboratories Environmental	Document Title: GC/MS Semivolatiles Calculations		
	Eurofins Document Reference: 1-P-QM-FOR-9035346	Revision: 1	Historical Reference: N/A
	Effective date: Dec 2, 2015		Status: Effective

1. Relative Response Factor (RRF)

$$RRF = \frac{AX}{Ais} \times \frac{Cis}{Cx}$$

Where:

Ax = Area of the characteristic ion for the compound to be measured

Ais = Area of the characteristic ion for the specific internal standard to be measured

Cis = Concentration of the internal standard

Cx = Concentration of the compound to be measured

2. % Relative Standard Deviation (%RSD)

$$\%RSD = \frac{\text{standard deviation}}{\text{Mean}} \times 100$$

3. % Difference

$$\%D = \frac{RRFc - RRFi}{RRFi} \times 100$$

Where:

RRFc = Relative response factor from the continuing calibration standard

RRFi = Mean relative response factor from the initial calibration

 Lancaster Laboratories Environmental	Document Title: GC/MS Semivolatiles Calculations		
	Eurofins Document Reference: 1-P-QM-FOR-9035346	Revision: 1	Historical Reference: N/A
	Effective date: Dec 2, 2015		Status: Effective

4. Concentration

Concentration waters

$$(\mu g / L) = \frac{(Ax) (Is) (Df) (Vt)}{(Ais) (RRF) (Vo) (Vi)}$$

Where:

Ax, Ais, and RRF are as given in 1 above
Is = Amount of internal standard added in parts per billion (ng)
Df = Dilution factor
Vt = Volume of the concentrated extract (ul)
Vo = Volume of the water extracted (ml)
Vi = Volume of extract injection (ul)

Concentration soils

$$(\mu g / Kg) = \frac{(Ax) (Is) (Df) (Vt)}{(Ais) (RRF) (Ws) (Vi)}$$

Where:

Ax, Ais, and RRF are as given in 1 above
Is = Amount of internal standard added in parts per billion (ng)
Df = Dilution factor
Vt = Volume of the concentrated extract (μL)
Ws = Sample weight of the soil extracted (g)
Vi = Volume of extract injection (μL)

5. % Recovery

$$\%Rec = \frac{SSR - SR}{SA} \times 100$$

Where:

SSR = Spiked sample result
SR = Sample result
SA = Spike added

Quality Control and Calibration Summary Forms

Semivolatiles by GC/MS-SIM

Quality Control Reference List GC/MS Semivolatiles

CLIENT: Brown & Caldwell
SDG: GPY67

Fraction: Semivolatiles by GC/MS-SIM

Analysis	Batch Number	Sample Number	Analysis Date
PAHS (16) in Water SIM	20083WAF026	SBLKWF083	03/24/2020 18:54
		083WFLCS	03/24/2020 19:25
		1283809	03/24/2020 22:57
		1283810	03/24/2020 23:27
		1283811	03/24/2020 23:58
		1283812	03/25/2020 00:28
		1283813	03/25/2020 00:58
		1283814	03/25/2020 01:29
		1283814DL	03/25/2020 07:02
		1283815	03/25/2020 01:59
		1283816	03/25/2020 02:29
		1283817 UNSPK	03/25/2020 03:00
		1283818 MS	03/24/2020 21:26
		1283819 MSD	03/24/2020 21:56
		1283820	03/25/2020 03:30
		1283821	03/25/2020 04:01
		1283822	03/25/2020 04:31
		1283822DL	03/25/2020 07:32
		1283823	03/25/2020 05:01

Fraction: Semivolatiles by GC/MS-SIM

20083WAF026 / SBLKWF083 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Naphthalene	03/24/20	N.D.	ug/l	0.03	0.07
Acenaphthylene	03/24/20	N.D.	ug/l	0.01	0.05
Acenaphthene	03/24/20	N.D.	ug/l	0.01	0.05
Fluorene	03/24/20	N.D.	ug/l	0.01	0.05
Phenanthrene	03/24/20	N.D.	ug/l	0.03	0.07
Anthracene	03/24/20	N.D.	ug/l	0.01	0.05
Fluoranthene	03/24/20	N.D.	ug/l	0.01	0.05
Pyrene	03/24/20	N.D.	ug/l	0.01	0.05
Benzo(a)anthracene	03/24/20	N.D.	ug/l	0.01	0.05
Chrysene	03/24/20	N.D.	ug/l	0.01	0.05
Benzo(b)fluoranthene	03/24/20	N.D.	ug/l	0.01	0.05
Benzo(k)fluoranthene	03/24/20	N.D.	ug/l	0.01	0.05
Benzo(a)pyrene	03/24/20	N.D.	ug/l	0.01	0.05
Indeno(1,2,3-cd)pyrene	03/24/20	N.D.	ug/l	0.01	0.05
Dibenz(a,h)anthracene	03/24/20	N.D.	ug/l	0.02	0.07
Benzo(g,h,i)perylene	03/24/20	N.D.	ug/l	0.01	0.05

Fraction: Semivolatiles by GC/MS-SIM

Sample	1-Methylnaphthalene-d10		Benzo(a)pyrene-d12		Fluoranthene-d10	
	Spike Added	1 ug/l	Spike Added	1 ug/l	Spike Added	1 ug/l
	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
20083WAF026						
SBLKWF083	71	15 - 121	82	10 - 138	94	34 - 125
083WFLCS	79	15 - 121	84	10 - 138	95	34 - 125
1283809	72	15 - 121	62	10 - 138	86	34 - 125
1283810	77	15 - 121	78	10 - 138	90	34 - 125
1283811	71	15 - 121	78	10 - 138	100	34 - 125
1283812	70	15 - 121	60	10 - 138	86	34 - 125
1283813	65	15 - 121	66	10 - 138	87	34 - 125
1283814	84	15 - 121	81	10 - 138	83	34 - 125
1283814DL	92	15 - 121	62	10 - 138	91	34 - 125
1283815	71	15 - 121	60	10 - 138	85	34 - 125
1283816	72	15 - 121	67	10 - 138	91	34 - 125
1283817 UNSPK	73	15 - 121	69	10 - 138	96	34 - 125
1283818 MS	67	15 - 121	72	10 - 138	76	34 - 125
1283819 MSD	74	15 - 121	72	10 - 138	89	34 - 125
1283820	77	15 - 121	74	10 - 138	99	34 - 125
1283821	63	15 - 121	53	10 - 138	86	34 - 125
1283822	81	15 - 121	74	10 - 138	111	34 - 125
1283822DL	78	15 - 121	66	10 - 138	80	34 - 125
1283823	66	15 - 121	44	10 - 138	90	34 - 125

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS-SIM

UNSPK: 1283817 MS: 1283818 MSD: 1283819 Analyte	Batch: 20083WAF026 (Sample number(s): 1283809-1283823)								
	Spike Added ug/l MS/MSD	Unspiked Conc ug/l	MS Conc ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
Naphthalene	1.02 / 1.02	N.D.	0.693	0.720	68	71	37-114	4	30
Acenaphthylene	1.02 / 1.02	N.D.	0.538	0.619	52	61	48-103	14	30
Acenaphthene	1.02 / 1.02	N.D.	0.646	0.744	63	73	52-107	14	30
Fluorene	1.02 / 1.02	N.D.	0.640	0.746	62	73	55-112	15	30
Phenanthrene	1.02 / 1.02	N.D.	0.737	0.853	72	84	59-119	15	30
Anthracene	1.02 / 1.02	N.D.	0.731	0.817	71	80	61-118	11	30
Fluoranthene	1.02 / 1.02	N.D.	0.780	0.893	76	88	59-120	14	30
Pyrene	1.02 / 1.02	N.D.	0.648	0.737	63	73	50-122	13	30
Benzo(a)anthracene	1.02 / 1.02	N.D.	0.695	0.778	68	77	61-117	11	30
Chrysene	1.02 / 1.02	N.D.	0.777	0.827	76	81	61-117	6	30
Benzo(b)fluoranthene	1.02 / 1.02	N.D.	0.829	0.827	81	81	66-138	0	30
Benzo(k)fluoranthene	1.02 / 1.02	N.D.	0.791	0.796	77	78	58-142	1	30
Benzo(a)pyrene	1.02 / 1.02	N.D.	0.803	0.814	78	80	63-135	1	30
Indeno(1,2,3-cd)pyrene	1.02 / 1.02	N.D.	0.832	0.712	81	70	56-147	15	30
Dibenz(a,h)anthracene	1.02 / 1.02	N.D.	0.792	0.668	77	66	51-139	17	30
Benzo(g,h,i)perylene	1.02 / 1.02	N.D.	0.728	0.629	71	62	53-129	14	30

Comments:

(2) The unspiked sample result is greater than four times the spike added.

* = Out of Specification

Results are being reported on an as received basis.

SDG: GPY67
Matrix: LIQUID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS-SIM

LCS: 083WFLCS		Batch: 20083WAF026 (Sample number(s): 1283809-1283823)						
Analyte	Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Naphthalene	1.00	0.734	NA	73	NA	37-114	NA	NA
Acenaphthylene	1.00	0.651	NA	65	NA	48-103	NA	NA
Acenaphthene	1.00	0.767	NA	77	NA	52-107	NA	NA
Fluorene	1.00	0.773	NA	77	NA	55-112	NA	NA
Phenanthrene	1.00	0.854	NA	85	NA	59-119	NA	NA
Anthracene	1.00	0.903	NA	90	NA	61-118	NA	NA
Fluoranthene	1.00	0.941	NA	94	NA	59-120	NA	NA
Pyrene	1.00	0.762	NA	76	NA	50-122	NA	NA
Benzo(a)anthracene	1.00	0.852	NA	85	NA	61-117	NA	NA
Chrysene	1.00	0.882	NA	88	NA	61-117	NA	NA
Benzo(b)fluoranthene	1.00	0.921	NA	92	NA	66-138	NA	NA
Benzo(k)fluoranthene	1.00	0.896	NA	90	NA	58-142	NA	NA
Benzo(a)pyrene	1.00	0.910	NA	91	NA	63-135	NA	NA
Indeno(1,2,3-cd)pyrene	1.00	1.03	NA	103	NA	56-147	NA	NA
Dibenz(a,h)anthracene	1.00	0.956	NA	96	NA	51-139	NA	NA
Benzo(g,h,i)perylene	1.00	0.898	NA	90	NA	53-129	NA	NA

Fraction: Semivolatiles by GC/MS-SIM

14244: PAHS (16) in Water SIM Analyte Name	Default MDL	Default LOQ	Units
Naphthalene	0.03	0.07	ug/l
Acenaphthylene	0.01	0.05	ug/l
Acenaphthene	0.01	0.05	ug/l
Fluorene	0.01	0.05	ug/l
Phenanthrene	0.03	0.07	ug/l
Anthracene	0.01	0.05	ug/l
Fluoranthene	0.01	0.05	ug/l
Pyrene	0.01	0.05	ug/l
Benzo(a)anthracene	0.01	0.05	ug/l
Chrysene	0.01	0.05	ug/l
Benzo(b)fluoranthene	0.01	0.05	ug/l
Benzo(k)fluoranthene	0.01	0.05	ug/l
Benzo(a)pyrene	0.01	0.05	ug/l
Indeno(1,2,3-cd)pyrene	0.01	0.05	ug/l
Dibenz(a,h)anthracene	0.02	0.07	ug/l
Benzo(g,h,i)perylene	0.01	0.05	ug/l

3B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID: mc0100d.d DFTPP Injection Date: 03/04/20

Instrument ID: HP21585 DFTPP Injection Time: 19:28

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	78.7
68	Less than 2.0% of mass 69	0.96 (1.65)1
69	Mass 69 relative abundance	58.3
70	Less than 2.0% of mass 69	0.27 (0.46)1
127	10.0 - 80.00% of mass 198	52.8
197	Less than 2.0% of mass 198	1.05
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.76
275	10.0 - 60.0% of mass 198	24.3
365	Greater than 1.00% of mass 198	3.22
441	Present, and less than mass 443	11.1
442	Greater than 50.00% of mass 198	69.3
443	15.00 - 24.00% of mass 442	13.3 (19.2)2

1-Value is % mass 69

2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	RVSIM0130 - SST0.5	mc0101a.d	03/04/20	22:06
02	RVSIM0130 - SST0.25	mc0102.d	03/04/20	23:03
03	RVSIM0130 - SST0.1	mc0103.d	03/04/20	23:33
04	RVSIM0130 - SST0.05	mc0104.d	03/05/20	00:03
05	RVSIM0130 - SST0.01	mc0105.d	03/05/20	00:34
06	RVSIM0130 - SST0.0025	mc0106.d	03/05/20	01:04
07	RVSIM0130 - SST0.00125	mc0107.d	03/05/20	01:34
08	RVSICV0170 - SST0.50	mc0108.d	03/05/20	02:05
09	RVSICV3399 - SST0.50	mc0109.d	03/05/20	03:46

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID: mc1400.d DFTPP Injection Date: 03/24/20

Instrument ID: HP21585 DFTPP Injection Time: 17:04

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	37.8
68	Less than 2.0% of mass 69	0.67 (1.6)1
69	Mass 69 relative abundance	41.8
70	Less than 2.0% of mass 69	0.22 (0.52)1
127	10.0 - 80.00% of mass 198	44.9
197	Less than 2.0% of mass 198	0.32
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.72
275	10.0 - 60.0% of mass 198	26.8
365	Greater than 1.00% of mass 198	3.25
441	Present, and less than mass 443	12.0
442	Greater than 50.00% of mass 198	75.8
443	15.00 - 24.00% of mass 442	14.5 (19.1)2

1-Value is % mass 69

2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SIM0750 - SSTD.50	mc1401.d	03/24/20	17:26
02	SBLKWF083	mc1402.d	03/24/20	18:54
03	083WFLCS	mc1403.d	03/24/20	19:25
04	1282921RE	mc1404.d	03/24/20	19:55
05	1282923RE	mc1405.d	03/24/20	20:25
06	1285938	mc1406.d	03/24/20	20:56
07	1283818MS	mc1407.d	03/24/20	21:26
08	1283819MSD	mc1408.d	03/24/20	21:56
09	1283447	mc1409.d	03/24/20	22:27
10	1283809	mc1410.d	03/24/20	22:57
11	1283810	mc1411.d	03/24/20	23:27
12	1283811	mc1412.d	03/24/20	23:58
13	1283812	mc1413.d	03/25/20	00:28
14	1283813	mc1414.d	03/25/20	00:58
15	1283814	mc1415.d	03/25/20	01:29
16	1283815	mc1416.d	03/25/20	01:59
17	1283816	mc1417.d	03/25/20	02:29
18	1283817	mc1418.d	03/25/20	03:00

page 1 of 2

FORM V SV

5B

Instrument ID: HP21585 DFTPP Injection Time: 17:04

2-Value is % mass of 442

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	1283820	mc1419.d	03/25/20	03:30
20	1283821	mc1420.d	03/25/20	04:01
21	1283822	mc1421.d	03/25/20	04:31
22	1283823	mc1422.d	03/25/20	05:01

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID: mc1450.d DFTPP Injection Date: 03/25/20

Instrument ID: HP21585 DFTPP Injection Time: 06:08

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	42.4
68	Less than 2.0% of mass 69	0.77 (1.66)1
69	Mass 69 relative abundance	46.2
70	Less than 2.0% of mass 69	0.24 (0.52)1
127	10.0 - 80.00% of mass 198	47.6
197	Less than 2.0% of mass 198	0.52
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.89
275	10.0 - 60.0% of mass 198	25.3
365	Greater than 1.00% of mass 198	2.93
441	Present, and less than mass 443	10.3
442	Greater than 50.00% of mass 198	64.8
443	15.00 - 24.00% of mass 442	12.6 (19.5)2

1-Value is % mass 69

2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SIM0750 - SST.D.50	mc1451.d	03/25/20	06:24
02	1283814DL	mc1452.d	03/25/20	07:02
03	1283822DL	mc1453.d	03/25/20	07:32

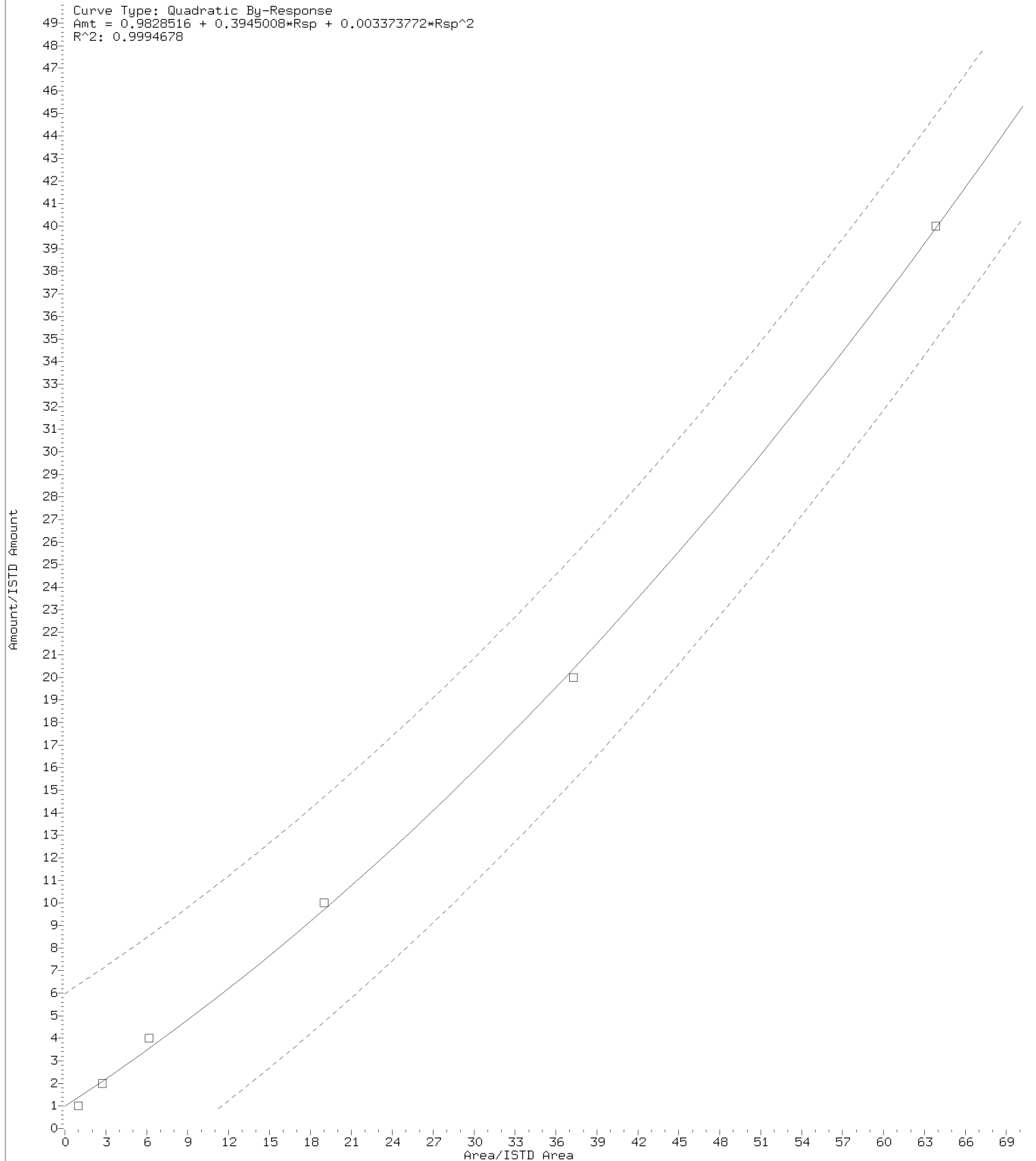
6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP21585 Calibration Date(s): 03/04/20 03/05/20
 Calibration Times: 22:06 01:04
 Min RRF for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:	RRF0.01 = mc0106.d	RRF0.05 = mc0105.d	RRF0.1 = mc0104.d							
RRF0.5 = mc0101a.d	RRF1 = mc0103.d	RRF2.5 = mc0102.d								
COMPOUND	RRF0.01	RRF0.05	RRF0.1	RRF0.5	RRF1	RRF2.5	RRF	RRF	% RSD	CAL. METHOD
1,4-Dioxane		0.601	0.677	0.692	0.692	0.698		0.672	6	AVG
N-Nitrosodimethylamine	0.884	0.806	0.982	1.043	1.076	1.088		0.980	12	AVG
bis(2-Chloroethyl)ether	0.505	0.365	0.430	0.442	0.444	0.447		0.439	10	AVG
Quinoline	0.569	0.501	0.533	0.560	0.574	0.569		0.551	5	AVG
Naphthalene	1.200	1.101	1.125	1.236	1.191	1.242		1.183	5	AVG
2-Methylnaphthalene	0.720	0.682	0.706	0.769	0.758	0.771		0.734	5	AVG
1-Methylnaphthalene	0.671	0.634	0.666	0.732	0.717	0.741		0.693	6	AVG
Acenaphthylene	2.530	2.380	2.633	2.752	2.818	2.804		2.653	7	AVG
Dimethylphthalate	1.674	1.789	1.843	1.891	1.864	1.874		1.823	4	AVG
Acenaphthene	1.558	1.444	1.488	1.463	1.460	1.462		1.479	3	AVG
Dibenzofuran	2.761	2.649	2.810	2.843	2.817	2.813		2.782	3	AVG
Diethylphthalate	1.561	1.725	1.804	1.926	1.932	1.937		1.814	8	AVG
Fluorene	1.772	1.681	1.870	1.945	1.990	1.987		1.874	7	AVG
N-Nitrosodiphenylamine (1)	0.457	0.433	0.466	0.505	0.518	0.434		0.469	8	AVG
Hexachlorobenzene	0.339	0.310	0.327	0.336	0.332	0.299		0.324	5	AVG
Phenanthrene	1.349	1.227	1.291	1.322	1.338	1.256		1.297	4	AVG
Anthracene	1.192	1.125	1.202	1.331	1.310	1.141		1.217	7	AVG
Di-n-butylphthalate	1.094	1.294	1.364	1.558	1.525	1.315		1.358	12	AVG
Fluoranthene	1.343	1.299	1.416	1.568	1.562	1.372		1.427	8	AVG
Pyrene	1.793	1.712	1.814	1.880	1.894	1.651		1.790	5	AVG
Butylbenzylphthalate	0.454	0.622	0.653	0.757	0.764	0.643		0.649	17	AVG
bis(2-Ethylhexyl)phthalate	0.665	0.865	0.932	1.142	1.161	0.957		0.954	19	AVG
Benzo(a)anthracene	1.603	1.451	1.507	1.565	1.589	1.371		1.514	6	AVG
Chrysene	1.640	1.533	1.618	1.630	1.621	1.373		1.569	7	AVG
Di-n-octylphthalate	1.001	1.371	1.542	1.901	1.864	1.595		1.546	22	2NDDEG
Benzo(b)fluoranthene	1.373	1.308	1.444	1.558	1.496	1.296		1.413	7	AVG
Benzo(k)fluoranthene	1.386	1.368	1.531	1.660	1.545	1.358		1.475	8	AVG
Benzo(e)pyrene	1.285	1.236	1.381	1.491	1.407	1.242		1.340	8	AVG
Benzo(a)pyrene	1.238	1.218	1.362	1.511	1.450	1.270		1.342	9	AVG
Perylene	1.492	1.354	1.455	1.528	1.472	1.274		1.429	7	AVG
Indeno(1,2,3-cd)pyrene	1.115	1.060	1.194	1.317	1.326	1.188		1.200	9	AVG
Dibenz(a,h)anthracene	1.215	1.207	1.378	1.526	1.501	1.303		1.355	10	AVG
Benzo(g,h,i)perylene	1.359	1.268	1.425	1.561	1.535	1.352		1.417	8	AVG
1-Methylnaphthalene-d10	0.503	0.475	0.494	0.534	0.529	0.537		0.512	5	AVG
Fluoranthene-d10	0.999	0.959	1.042	1.142	1.152	1.041		1.056	7	AVG
Benzo(a)pyrene-d12	0.840	0.826	0.949	1.074	1.045	0.916		0.942	11	AVG
Average %RSD									8	

(1) Cannot be separated from Diphenylamine
 4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
 Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
 Benzoic acid and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

32 Di-n-octylphthalate



Digitally signed by Chad A. Moline on 03/06/2020 at 09:56.
 Target 3.5 esignature user ID: cam01237

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

```
/chem/HP21585.i/20mar04.b/mc0101a.d  SSTD0.5
/chem/HP21585.i/20mar04.b/mc0102.d  SSTD2.5
/chem/HP21585.i/20mar04.b/mc0103.d  SSTD001
/chem/HP21585.i/20mar04.b/mc0104.d  SSTD0.10
/chem/HP21585.i/20mar04.b/mc0105.d  SSTD0.050
/chem/HP21585.i/20mar04.b/mc0106.d  SSTD0.01
```

Area Summary

File ID:
=====

Internal Standard Name	mc0101a.d	mc0102.d	mc0103.d	mc0104.d	mc0105.d	mc0106.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	18450	17464	22793	17528	19183	15746	18527	13	Yes
Naphthalene-d8	63212	62864	84165	62688	60213	54779	64654	16	Yes
Acenaphthene-d10	26999	27514	35792	25314	25297	22343	27210	17	Yes
Phenanthrene-d10	58317	66626	78539	55991	54166	47835	60246	18	Yes
Chrysene-d12	48974	57800	66019	44118	41561	36762	49206	22	Yes
Perylene-d12	49204	58676	70177	42539	41234	37291	49854	25	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:
=====

Internal Standard Name	mc0101a.d	mc0102.d	mc0103.d	mc0104.d	mc0105.d	mc0106.d	Avg. RT
1,4-Dichlorobenzene-d4	7.158	7.158	7.158	7.158	7.165	7.158	7.159
Naphthalene-d8	9.075	9.075	9.075	9.075	9.082	9.075	9.076
Acenaphthene-d10	11.815	11.815	11.815	11.815	11.811	11.815	11.814
Phenanthrene-d10	13.721	13.721	13.721	13.713	13.713	13.713	13.717
Chrysene-d12	17.901	17.901	17.894	17.894	17.893	17.894	17.896
Perylene-d12	20.394	20.401	20.394	20.386	20.386	20.386	20.391

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS

LAB CODE: LANCAS

INSTRUMENT: HP21585

Method: SW-846 8270D (SIM) MINI

File ID: mc0108.d

ICV SAMPLE ID: RVSICV0170

BATCH: 20MAR04026

Sample Name: SSTD0.50

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Naphthalene	.25	.23	-8	30	YES
Quinoline	.25	.22	-12	30	YES
2-Methylnaphthalene	.25	.21	-18	30	YES
1-Methylnaphthalene-d10	.25	.24	-5	30	YES
1-Methylnaphthalene	.25	.23	-9	30	YES
Dimethylphthalate	.25	.20	-21	30	YES
Acenaphthylene	.25	.23	-8	30	YES
Acenaphthene	.25	.21	-16	30	YES
Dibenzofuran	.25	.20	-21	30	YES
Diethylphthalate	.25	.19	-22	30	YES
Fluorene	.25	.21	-16	30	YES
Hexachlorobenzene	.25	.23	-8	30	YES
Phenanthrene	.25	.23	-8	30	YES
Anthracene	.25	.22	-12	30	YES
Di-n-butylphthalate	.25	.19	-26	30	YES
Fluoranthene-d10	.25	.22	-12	30	YES
Fluoranthene	.25	.23	-9	30	YES
Pyrene	.25	.23	-10	30	YES
Benzo(a)anthracene	.25	.23	-8	30	YES
Chrysene	.25	.22	-11	30	YES
Benzo(b)fluoranthene	.25	.24	-4	30	YES
Benzo(k)fluoranthene	.25	.24	-5	30	YES
Benzo(e)pyrene	.25	.26	4	30	YES
Benzo(a)pyrene-d12	.25	.22	-14	30	YES
Benzo(a)pyrene	.25	.25	1	30	YES
Indeno(1,2,3-cd)pyrene	.25	.26	6	30	YES
Dibenz(a,h)anthracene	.25	.24	-3	30	YES
Benzo(g,h,i)perylene	.25	.23	-7	30	YES
N-Nitrosodiphenylamine	.25	.19	-23	30	YES
Perylene	.25	.25	1	30	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS

LAB CODE: LANCAS

INSTRUMENT: HP21585

Method: SW-846 8270D (SIM) MINI

File ID: mc0109.d

ICV SAMPLE ID: RVSICV3399

BATCH: 20MAR04026

Sample Name: SSTD0.50

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	.50	.41	-17	30	YES
N-Nitrosodimethylamine	.50	.66	32	30	NO
bis(2-Chloroethyl)ether	.50	.71	42	30	NO
Butylbenzylphthalate	.50	.62	23	30	YES
bis(2-Ethylhexyl)phthalate	.50	.61	23	30	YES
Di-n-octylphthalate	.50	.61	21	30	YES

Comments: _____ NC = Could not calculate

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: HP21585 Calibration Date: 03/24/20 Time: 17:26

Lab File ID: mcl401.d Init. Calib. Date(s): 03/04/20 03/05/20

Init. Calib. Times(s): 22:06 01:04

Min RRF for SPCC(#) = 0.050

Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
=====	=====	=====	=====	=====	=====
1,4-Dioxane	0.672	0.639	0.480	.5	-5
N-Nitrosodimethylamine	0.980	0.947	0.480	.5	-3
bis(2-Chloroethyl)ether	0.439	0.393	0.450	.5	-10
Quinoline	0.551	0.594	0.540	.5	8
Naphthalene	1.183	1.234	0.520	.5	4
2-Methylnaphthalene	0.734	0.789	0.540	.5	7
1-Methylnaphthalene	0.693	0.758	0.550	.5	9
Acenaphthylene	2.653	2.431	0.460	.5	-8
Dimethylphthalate	1.822	1.637	2.250	2.5	-10
Acenaphthene	1.479	1.424	0.480	.5	-4
Dibenzofuran	2.782	2.625	0.470	.5	-6
Diethylphthalate	1.814	1.571	2.160	2.5	-13
Fluorene	1.874	1.740	0.460	.5	-7
N-Nitrosodiphenylamine (1)	0.469	0.469	0.500	.5	0
Hexachlorobenzene	0.324	0.287	0.440	.5	-12
Phenanthrene	1.297	1.217	0.470	.5	-6
Anthracene	1.217	1.239	0.510	.5	2
Di-n-butylphthalate	1.358	1.396	2.570	2.5	3
Fluoranthene	1.427	1.521	0.530	.5	7
Pyrene	1.791	1.464	0.410	.5	-18
Butylbenzylphthalate	0.649	0.641	2.470	2.5	-1
bis(2-Ethylhexyl)phthalate	0.954	0.964	2.530	2.5	1
Benzo(a)anthracene	1.514	1.385	0.460	.5	-9
Chrysene	1.569	1.481	0.470	.5	-6
Di-n-octylphthalate	1.546	1.532	1.950	2.5	-22
Benzo(b)fluoranthene	1.413	1.337	0.470	.5	-5
Benzo(k)fluoranthene	1.475	1.455	0.490	.5	-1
Benzo(e)pyrene	1.340	1.301	0.490	.5	-3
Benzo(a)pyrene	1.342	1.329	0.500	.5	-1
Perylene	1.429	1.347	0.470	.5	-6
Indeno(1,2,3-cd)pyrene	1.200	1.221	0.510	.5	2
Dibenz(a,h)anthracene	1.355	1.392	0.510	.5	3
Benzo(g,h,i)perylene	1.417	1.391	0.490	.5	-2
=====	=====	=====	=====	=====	=====
1-Methylnaphthalene-d10	0.512	0.590	0.580	.5	15
Fluoranthene-d10	1.056	1.214	0.580	.5	15

(1) Cannot be Separated from Diphenylamine

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: HP21585 Calibration Date: 03/24/20 Time: 17:26

Lab File ID: mcl401.d Init. Calib. Date(s): 03/04/20 03/05/20

Init. Calib. Times(s): 22:06 01:04

Min RRF for SPCC(#) = 0.050

Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
=====	=====	=====	=====	=====	=====
Benzo(a)pyrene-d12	0.942	1.037	0.550	.5	10
Average %Drift:					7

Continuing Calibration Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

```

/chem/HP21585.i/20mar04.b/mc0101a.d **
/chem/HP21585.i/20mar04.b/mc0102.d
/chem/HP21585.i/20mar04.b/mc0103.d
/chem/HP21585.i/20mar04.b/mc0104.d
/chem/HP21585.i/20mar04.b/mc0105.d
/chem/HP21585.i/20mar04.b/mc0106.d

```

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

```

/chem/HP21585.i/20mar24.b/mc1401.d

```

Area Summary

File ID:

=====

Internal Standard Name	mc1401.d	ICAL Area	Low Limit	High Limit	In Spec
=====	=====	=====	=====	=====	=====
1,4-Dichlorobenzene-d4	22825	18450	9225	36900	Yes
Naphthalene-d8	75721	63212	31606	126424	Yes
Acenaphthene-d10	37867	26999	13500	53998	Yes
Phenanthrene-d10	79345	58317	29158	116634	Yes
Chrysene-d12	84752	48974	24487	97948	Yes
Perylene-d12	94928	49204	24602	98408	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

=====

Internal Standard Name	mc1401.d	ICAL RT	In Spec
=====	=====	=====	=====
1,4-Dichlorobenzene-d4	7.096	7.158	Yes
Naphthalene-d8	8.992	9.075	Yes
Acenaphthene-d10	11.746	11.815	Yes
Phenanthrene-d10	13.651	13.721	Yes
Chrysene-d12	17.809	17.901	Yes
Perylene-d12	20.294	20.394	Yes

A "No" indicates the retention time is greater than 10 seconds from the RT of the referenced standard.

Comments: _____

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: HP21585 Calibration Date: 03/25/20 Time: 06:24

Lab File ID: mcl451.d Init. Calib. Date(s): 03/04/20 03/05/20

Init. Calib. Times(s): 22:06 01:04

Min RRF for SPCC(#) = 0.050

Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.672	0.667	0.500	.5	-1
N-Nitrosodimethylamine	0.980	0.967	0.490	.5	-1
bis(2-Chloroethyl) ether	0.439	0.390	0.440	.5	-11
Quinoline	0.551	0.579	0.520	.5	5
Naphthalene	1.183	1.299	0.550	.5	10
2-Methylnaphthalene	0.734	0.807	0.550	.5	10
1-Methylnaphthalene	0.693	0.794	0.570	.5	15
Acenaphthylene	2.653	2.437	0.460	.5	-8
Dimethylphthalate	1.822	1.652	2.270	2.5	-9
Acenaphthene	1.479	1.397	0.470	.5	-6
Dibenzofuran	2.782	2.590	0.470	.5	-7
Diethylphthalate	1.814	1.614	2.220	2.5	-11
Fluorene	1.874	1.739	0.460	.5	-7
N-Nitrosodiphenylamine (1)	0.469	0.494	0.530	.5	5
Hexachlorobenzene	0.324	0.288	0.440	.5	-11
Phenanthrene	1.297	1.229	0.470	.5	-5
Anthracene	1.217	1.244	0.510	.5	2
Di-n-butylphthalate	1.358	1.350	2.480	2.5	-1
Fluoranthene	1.427	1.493	0.520	.5	5
Pyrene	1.791	1.509	0.420	.5	-16
Butylbenzylphthalate	0.649	0.628	2.420	2.5	-3
bis(2-Ethylhexyl)phthalate	0.954	0.945	2.480	2.5	-1
Benzo(a)anthracene	1.514	1.372	0.450	.5	-9
Chrysene	1.569	1.499	0.480	.5	-4
Di-n-octylphthalate	1.546	1.463	1.870	2.5	-25
Benzo(b)fluoranthene	1.413	1.351	0.480	.5	-4
Benzo(k)fluoranthene	1.475	1.457	0.490	.5	-1
Benzo(e)pyrene	1.340	1.316	0.490	.5	-2
Benzo(a)pyrene	1.342	1.338	0.500	.5	0
Perylene	1.429	1.358	0.480	.5	-5
Indeno(1,2,3-cd)pyrene	1.200	1.212	0.500	.5	1
Dibenz(a,h)anthracene	1.355	1.400	0.520	.5	3
Benzo(g,h,i)perylene	1.417	1.397	0.490	.5	-1
1-Methylnaphthalene-d10	0.512	0.609	0.600	.5	19
Fluoranthene-d10	1.056	1.183	0.560	.5	12

(1) Cannot be Separated from Diphenylamine

```
Lab Name: Lancaster Laboratories      Contract:_____
```

```
Lab Code: LANCAS          Case No.:_____ SAS No.:_____ SDG No.:_____
```

```
Instrument ID: HP21585           Calibration Date: 03/25/20       Time: 06:24
```

```
Lab File ID: mc1451.d            Init. Calib. Date(s):   03/04/20         03/05/20
```

```
                                   Init. Calib. Times(s):  22:06             01:04
```

Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzo(a)pyrene-d12	0.942	1.047	0.560	.5	11
Average %Drift:					7

Continuing Calibration Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

```

/chem/HP21585.i/20mar04.b/mc0101a.d **
/chem/HP21585.i/20mar04.b/mc0102.d
/chem/HP21585.i/20mar04.b/mc0103.d
/chem/HP21585.i/20mar04.b/mc0104.d
/chem/HP21585.i/20mar04.b/mc0105.d
/chem/HP21585.i/20mar04.b/mc0106.d

```

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

```

/chem/HP21585.i/20mar25.b/mc1451.d

```

Area Summary

File ID:

=====

Internal Standard Name	mc1451.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	22410	18450	9225	36900	Yes
Naphthalene-d8	73793	63212	31606	126424	Yes
Acenaphthene-d10	38557	26999	13500	53998	Yes
Phenanthrene-d10	80072	58317	29158	116634	Yes
Chrysene-d12	80767	48974	24487	97948	Yes
Perylene-d12	92235	49204	24602	98408	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

=====

Internal Standard Name	mc1451.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	7.096	7.158	Yes
Naphthalene-d8	8.992	9.075	Yes
Acenaphthene-d10	11.746	11.815	Yes
Phenanthrene-d10	13.643	13.721	Yes
Chrysene-d12	17.801	17.901	Yes
Perylene-d12	20.294	20.394	Yes

A "No" indicates the retention time is greater than 10 seconds from the RT of the referenced standard.

Comments: _____

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1401.d Date Analyzed: 03/24/20

Instrument ID: HP21585 Time Analyzed: 17:26

	IS1(DCB)		IS2(NPT)		IS3(ANT)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	22825	7.096	75721	8.992	37867	11.746
UPPER LIMIT	45650	7.596	151442	9.492	75734	12.246
LOWER LIMIT	11413	6.596	37861	8.492	18934	11.246
=====	=====	=====	=====	=====	=====	=====
LLI SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 SBLKWF083	22681	7.096	76001	8.992	35550	11.745
02 083WFLCS	24061	7.096	80522	8.992	38825	11.745
03 1282921RE	22424	7.096	74333	8.992	35272	11.746
04 1282923RE	23025	7.096	80167	8.992	37201	11.746
05 1285938	21699	7.096	71865	8.992	33277	11.746
06 1283818MS	22885	7.096	77363	8.992	37055	11.746
07 1283819MSD	24437	7.096	82323	8.992	38486	11.746
08 1283447	22814	7.096	83084	8.992	38311	11.746
09 1283809	21787	7.096	72263	8.992	34958	11.745
10 1283810	21860	7.096	73636	8.992	35387	11.745
11 1283811	22064	7.096	72746	8.992	33086	11.745
12 1283812	22271	7.096	73089	8.992	35030	11.745
13 1283813	22511	7.096	75366	8.992	34471	11.746
14 1283814	24301	7.096	83765	8.992	46702	11.745
15 1283815	22090	7.096	79725	8.992	36506	11.746
16 1283816	21810	7.096	75394	8.992	35156	11.746
17 1283817	21660	7.083	75994	8.999	33850	11.741

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk

* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1401.d Date Analyzed: 03/24/20

Instrument ID: HP21585 Time Analyzed: 17:26

		IS4(PHN)		IS5(CRY)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	79345	13.651	84752	17.809	94928	20.294
	UPPER LIMIT	158690	14.151	169504	18.309	189856	20.794
	LOWER LIMIT	39673	13.151	42376	17.309	47464	19.794
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE NO.						
	=====	=====	=====	=====	=====	=====	=====
01	SBLKWF083	74094	13.650	69941	17.809	84041	20.294
02	083WFLCS	77136	13.643	75402	17.801	85882	20.294
03	1282921RE	76030	13.643	61687	17.801	82231	20.294
04	1282923RE	78836	13.643	65781	17.802	86167	20.294
05	1285938	68965	13.643	57954	17.802	81421	20.294
06	1283818MS	73136	13.643	70247	17.801	83119	20.294
07	1283819MSD	78258	13.643	76161	17.802	89834	20.294
08	1283447	78281	13.643	66348	17.802	89054	20.294
09	1283809	73205	13.643	61309	17.801	83705	20.294
10	1283810	73649	13.643	69498	17.801	91240	20.294
11	1283811	69420	13.643	65196	17.801	88400	20.294
12	1283812	71789	13.643	60201	17.801	85856	20.294
13	1283813	71762	13.643	64849	17.802	88734	20.294
14	1283814	84148	13.643	82771	17.801	94683	20.294
15	1283815	75499	13.643	74983	17.802	88871	20.294
16	1283816	73130	13.643	67398	17.802	87742	20.294
17	1283817	71314	13.642	64293	17.809	89976	20.294

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1401.d Date Analyzed: 03/24/20

Instrument ID: HP21585 Time Analyzed: 17:26

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	22825	7.096	75721	8.992	37867	11.746
	UPPER LIMIT	45650	7.596	151442	9.492	75734	12.246
	LOWER LIMIT	11413	6.596	37861	8.492	18934	11.246
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE NO.						
	=====	=====	=====	=====	=====	=====	=====
18	1283820	22975	7.096	77622	8.992	36888	11.745
19	1283821	22927	7.096	75609	8.992	35356	11.746
20	1283822	23306	7.096	82131	8.992	39433	11.746
21	1283823	22477	7.096	79357	8.992	39213	11.746

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1401.d Date Analyzed: 03/24/20

Instrument ID: HP21585 Time Analyzed: 17:26

		IS4(PHN)		IS5(CRY)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	79345	13.651	84752	17.809	94928	20.294
	UPPER LIMIT	158690	14.151	169504	18.309	189856	20.794
	LOWER LIMIT	39673	13.151	42376	17.309	47464	19.794
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE NO.						
	=====	=====	=====	=====	=====	=====	=====
18	1283820	76752	13.643	67983	17.801	90280	20.294
19	1283821	76573	13.643	65689	17.802	91150	20.294
20	1283822	62123	13.643	79253	17.802	92712	20.294
21	1283823	76941	13.643	68362	17.809	90510	20.294

IS4 (PHN) = Phenanthrene-d10

IS5 (CRY) = Chrysene-d12

IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk

* Values outside of QC limits.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1451.d Date Analyzed: 03/25/20

Instrument ID: HP21585 Time Analyzed: 06:24

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	22410	7.096	73793	8.992	38557	11.746
	UPPER LIMIT	44820	7.596	147586	9.492	77114	12.246
	LOWER LIMIT	11205	6.596	36897	8.492	19279	11.246
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE NO.						
	=====	=====	=====	=====	=====	=====	=====
01	1283814DL	21206	7.096	74990	8.992	36738	11.746
02	1283822DL	23694	7.096	84056	8.992	39355	11.746

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1451.d Date Analyzed: 03/25/20

Instrument ID: HP21585 Time Analyzed: 06:24

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	80072	13.643	80767	17.801	92235	20.294
	UPPER LIMIT	160144	14.143	161534	18.301	184470	20.794
	LOWER LIMIT	40036	13.143	40384	17.301	46118	19.794
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE NO.						
	=====	=====	=====	=====	=====	=====	=====
01	1283814DL	78160	13.643	67102	17.809	83171	20.294
02	1283822DL	82919	13.643	74861	17.801	95132	20.294
	=====	=====	=====	=====	=====	=====	=====

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

Sample Data

Semivolatiles by GC/MS-SIM

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC01

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283809

Sample wt/vol: 244 (g/mL)ML Lab File ID: mc1410.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/24/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		0.03	U
208-96-8-----	Acenaphthylene		0.01	U
83-32-9-----	Acenaphthene		0.01	U
86-73-7-----	Fluorene		0.01	U
85-01-8-----	Phenanthrene		0.03	U
120-12-7-----	Anthracene		0.01	U
206-44-0-----	Fluoranthene		0.01	U
129-00-0-----	Pyrene		0.01	U
56-55-3-----	Benzo (a) anthracene		0.01	U
218-01-9-----	Chrysene		0.01	U
205-99-2-----	Benzo (b) fluoranthene		0.01	U
207-08-9-----	Benzo (k) fluoranthene		0.01	U
50-32-8-----	Benzo (a) pyrene		0.01	U
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.01	U
53-70-3-----	Dibenz (a,h) anthracene		0.02	U
191-24-2-----	Benzo (g,h,i) perylene		0.01	U

FORM I SV-1

BAC01

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283809

Data file: /chem/HP21585.i/20mar24.b/mc1410.d

Injection date and time: 24-MAR-2020 22:57

Data file Sample Info. Line: BAC01;1283809;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 244 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	21787 (-5)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	72263 (-5)	0.25	
14) Acenaphthene-d10	11.745 (0.000)	750	164	34958 (-8)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	73205 (-8)	0.25	
29) Chrysene-d12	17.801 (0.008)	1591	240	61309 (-28)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	83705 (-12)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	26778	0.181	72%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	66669	0.216	86%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	49218	0.156	62%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)			Not Detected					0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

BAC01

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283809

Data file: /chem/HP21585.i/20mar24.b/mc1410.d

Injection date and time: **24-MAR-2020 22:57**

Data file Sample Info. Line: BAC01;1283809;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 244 ml

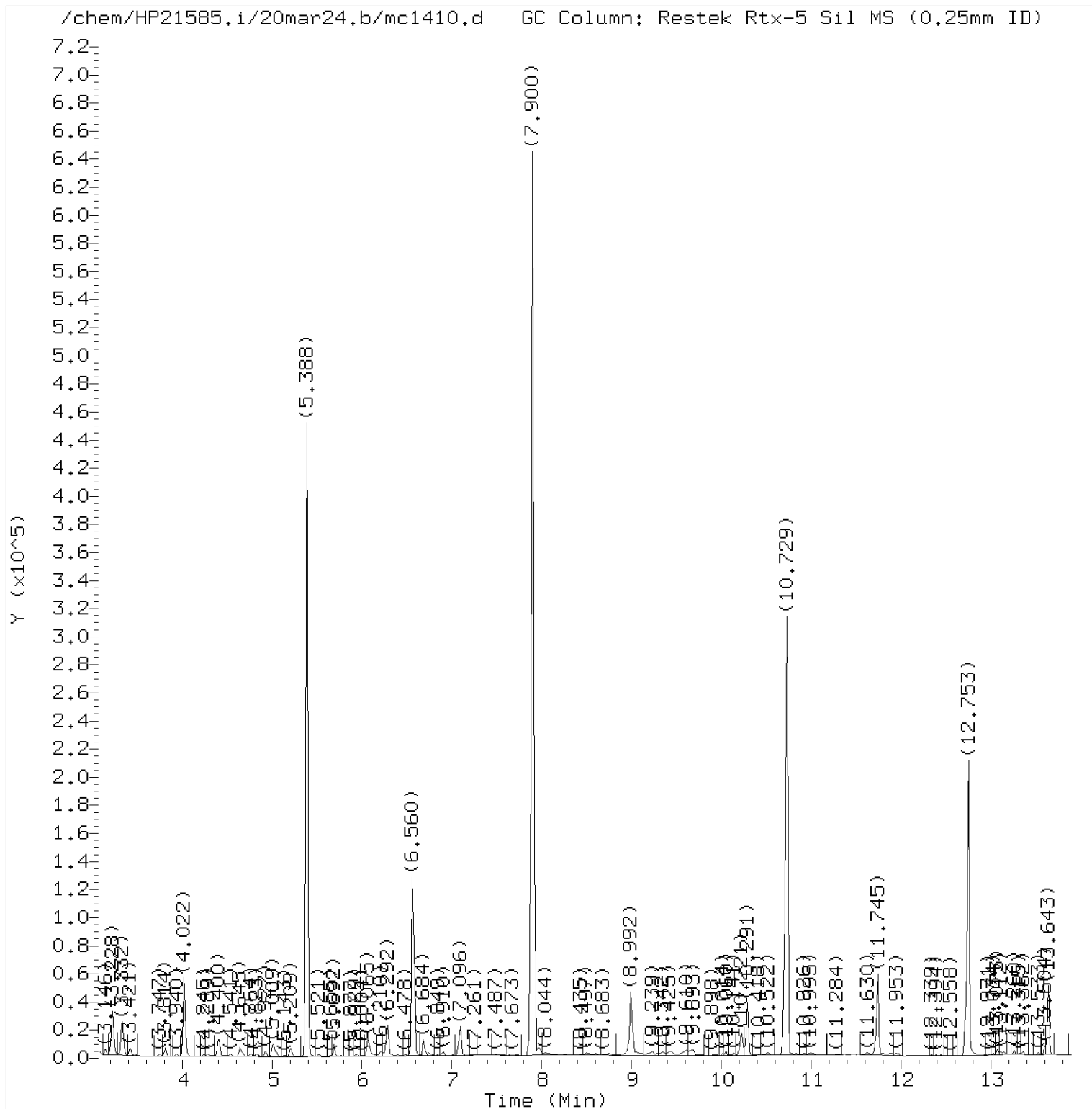
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1410.d
Injection date and time: 24-MAR-2020 22:57

Instrument ID: HP21585.i
Analyst ID: ceb05247

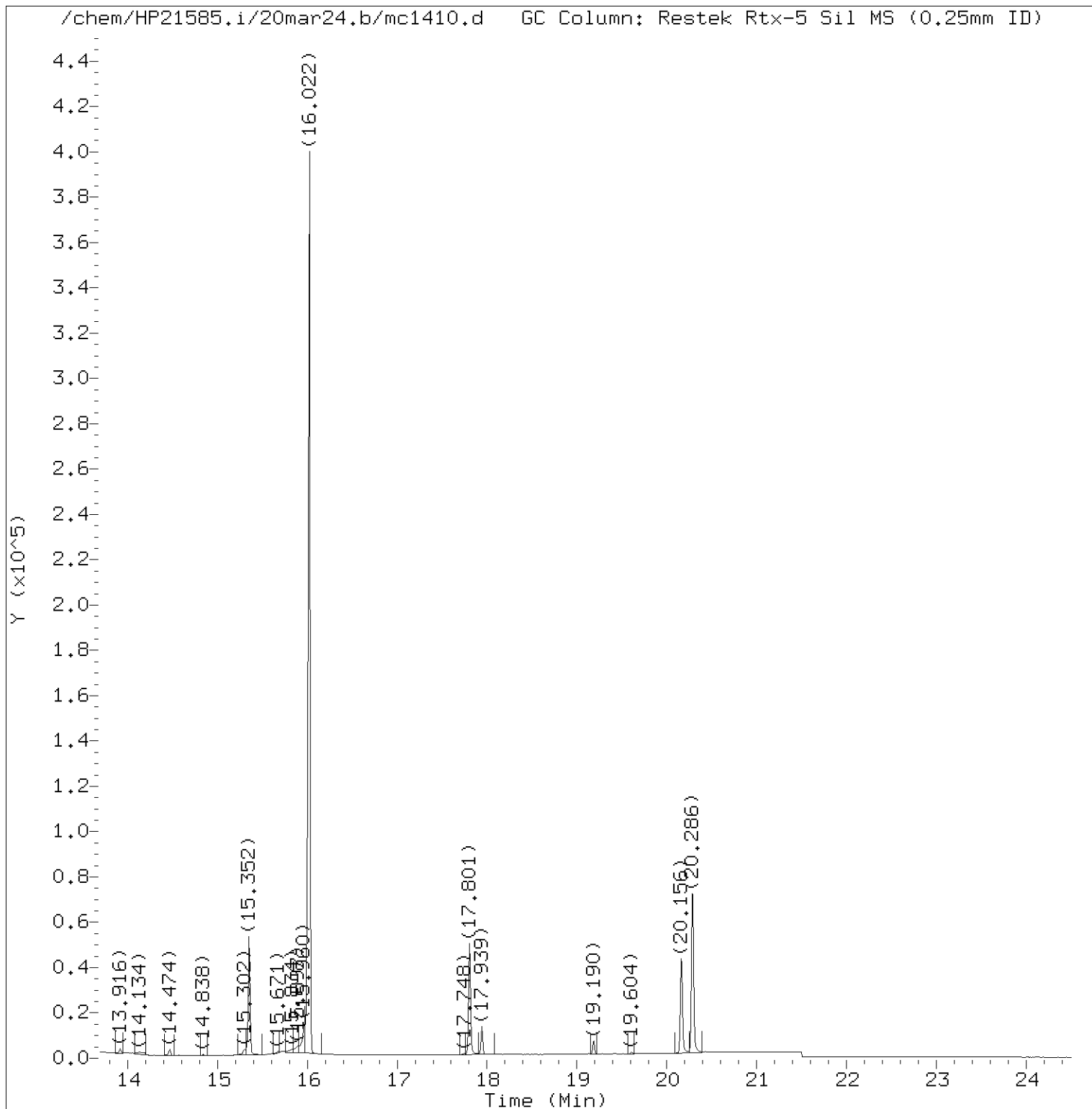
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC01

Lab Sample ID: 1283809

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:46.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1410.d
Injection date and time: 24-MAR-2020 22:57

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC01

Lab Sample ID: 1283809

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:46.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1410.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 22:57

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC01

Lab Sample ID: 1283809

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	21787	0.250
6) *Naphthalene-d8	(2)	8.992	136	72263	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	26778	0.181
14) *Acenaphthene-d10	(3)	11.745	164	34958	0.250
20) *Phenanthrene-d10	(4)	13.643	188	73205	0.250
24) \$Fluoranthene-d10	(4)	15.352	212	66669	0.216
29) *Chrysene-d12	(5)	17.801	240	61309	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	49218	0.156
38) *Perylene-d12	(6)	20.294	264	83705	0.250

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

on 03/25/2020 at 05:46.

Target 3.5 esignature user ID: jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC02

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283810

Sample wt/vol: 247 (g/mL)ML Lab File ID: mc1411.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/24/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		0.04	J
208-96-8-----	Acenaphthylene		0.01	U
83-32-9-----	Acenaphthene		0.01	U
86-73-7-----	Fluorene		0.01	U
85-01-8-----	Phenanthrene		0.03	U
120-12-7-----	Anthracene		0.01	U
206-44-0-----	Fluoranthene		0.03	J
129-00-0-----	Pyrene		0.03	J
56-55-3-----	Benzo (a) anthracene		0.02	J
218-01-9-----	Chrysene		0.03	J
205-99-2-----	Benzo (b) fluoranthene		0.04	J
207-08-9-----	Benzo (k) fluoranthene		0.01	J
50-32-8-----	Benzo (a) pyrene		0.03	J
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.02	J
53-70-3-----	Dibenz (a,h) anthracene		0.02	U
191-24-2-----	Benzo (g,h,i) perylene		0.02	J

FORM I SV-1

BAC02

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283810

Data file: /chem/HP21585.i/20mar24.b/mc1411.d

Injection date and time: 24-MAR-2020 23:27

Data file Sample Info. Line: BAC02;1283810;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 247 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	21860 (-4)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	73636 (-3)	0.25	
14) Acenaphthene-d10	11.745 (0.000)	750	164	35387 (-7)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	73649 (-7)	0.25	
29) Chrysene-d12	17.801 (0.008)	1591	240	69498 (-18)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	91240 (-4)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	28967	0.192	77%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	69836	0.225	90%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	66970	0.195	78%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033 (-0.000)	128	3482	0.010	0.04			0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)	15.383 (-0.000)	202	3539	0.008	0.03			0.003
26) Pyrene	(5)	15.734 (-0.000)	202	4148	0.008	0.03			0.003
28) Benzo (a)anthracene	(5)	17.786 (-0.000)	228	2447	0.006	0.02			0.003
30) Chrysene	(5)	17.847 (-0.000)	228	3428	0.008	0.03			0.003
33) Benzo (b)fluoranthene	(6)	19.673 (-0.000)	252	4844M	0.009	0.04			0.003
34) Benzo (k)fluoranthene	(6)	19.711 (0.000)	252	1843M	0.003	0.01			0.003
37) Benzo (a)pyrene	(6)	20.202 (0.000)	252	3487	0.007	0.03			0.003
39) Indeno (1,2,3-cd)pyrene	(6)	22.042 (-0.000)	276	2629	0.006	0.02			0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)	22.523 (-0.000)	276	3102	0.006	0.02			0.003

M = Compound was manually integrated.

BAC02

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283810

Data file: /chem/HP21585.i/20mar24.b/mc1411.d

Injection date and time: **24-MAR-2020 23:27**

Data file Sample Info. Line: BAC02;1283810;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 247 ml

Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745

Target Revision 3.5

Instrument ID: HP21585.i
Analyst ID: ceb05247

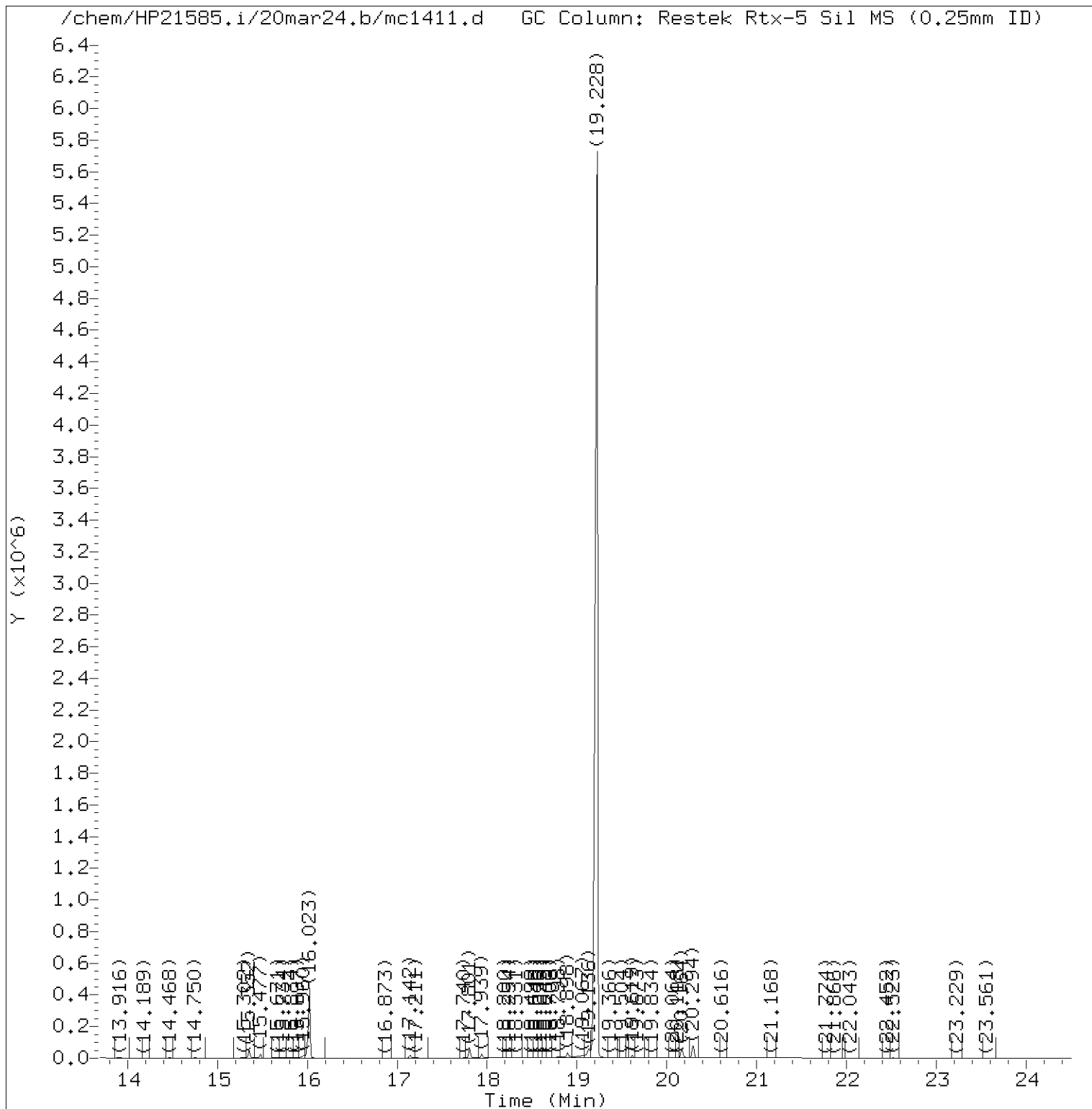
Sample Name: BAC02

Lab Sample ID: 1283810

Target 3.5 esignature user ID: jmc00346

Target 3.5 esignature user ID: jmg00346

page 1 of 2



Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1411.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 23:27

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

Lab Sample ID: 1283810

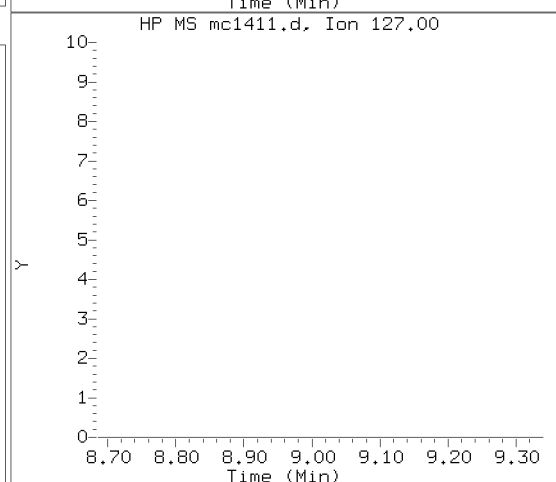
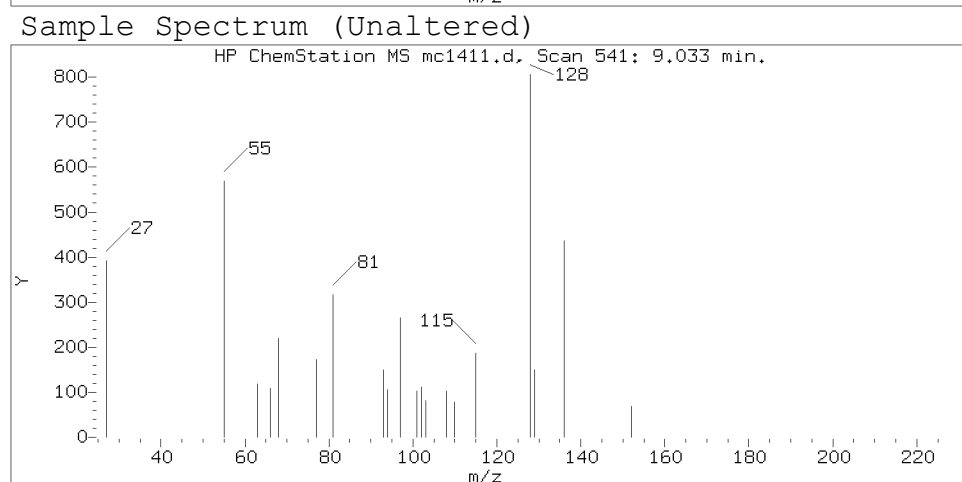
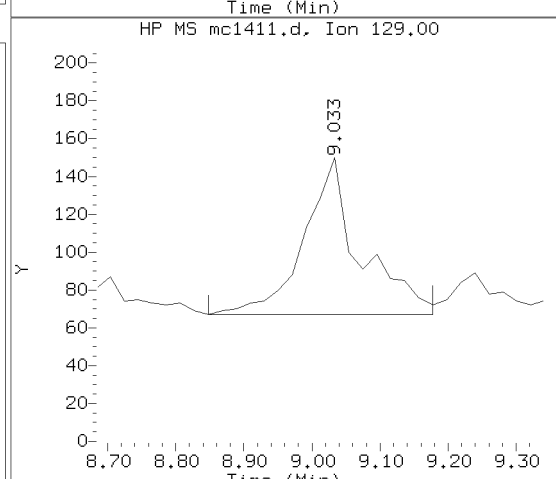
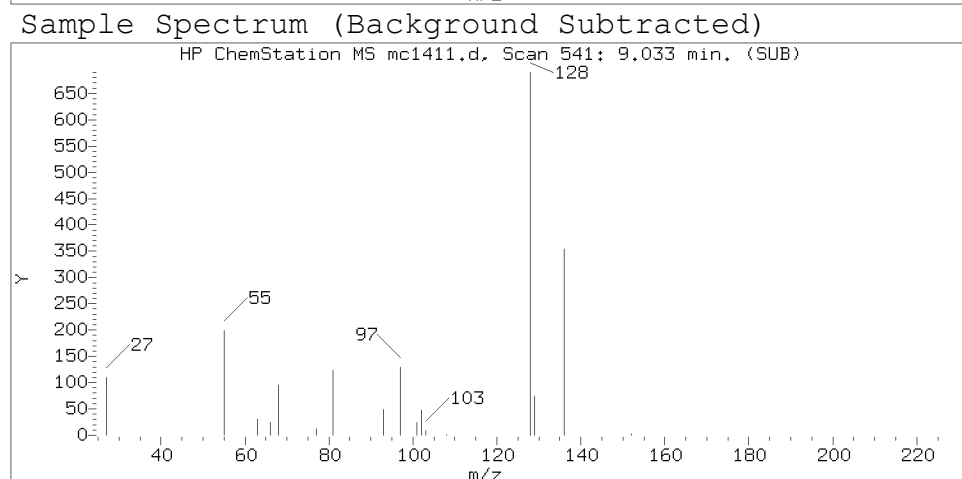
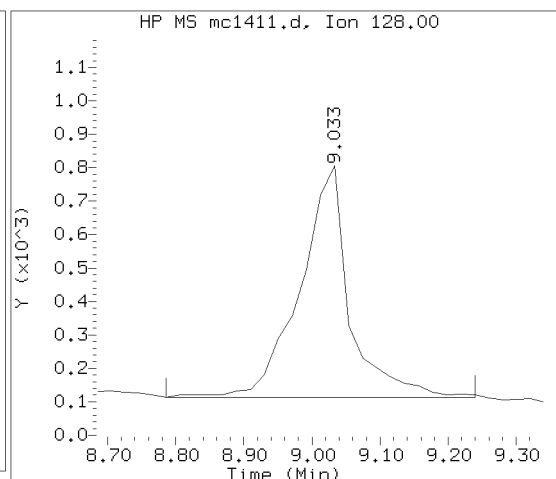
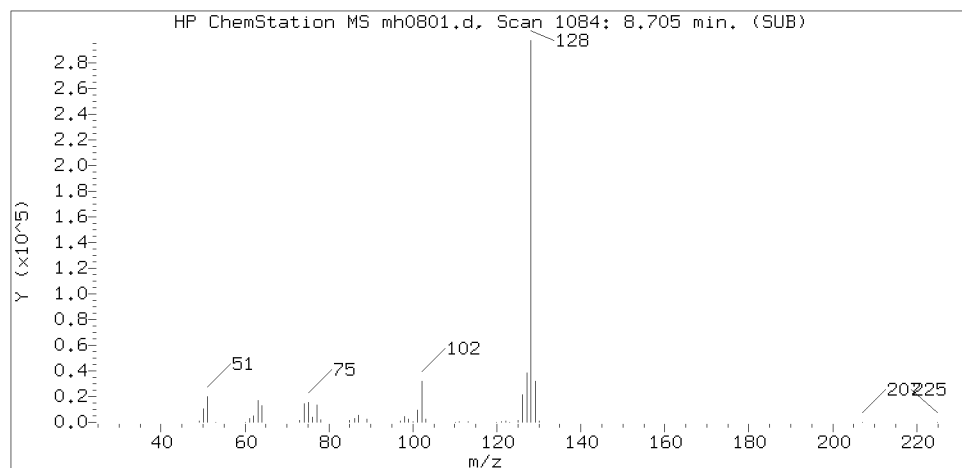
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	21860	0.250
6) *Naphthalene-d8	(2)	8.992	136	73636	0.250
7) Naphthalene	(2)	9.033	128	3482	0.010
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	28967	0.192
14) *Acenaphthene-d10	(3)	11.745	164	35387	0.250
20) *Phenanthrene-d10	(4)	13.643	188	73649	0.250
24) \$Fluoranthene-d10	(4)	15.352	212	69836	0.225
25) Fluoranthene	(4)	15.383	202	3539	0.008
26) Pyrene	(5)	15.734	202	4148	0.008
28) Benzo(a)anthracene	(5)	17.786	228	2447	0.006
29) *Chrysene-d12	(5)	17.801	240	69498	0.250
30) Chrysene	(5)	17.847	228	3428	0.008
33) Benzo(b)fluoranthene	(6)	19.673	252	4844M	0.009
34) Benzo(k)fluoranthene	(6)	19.711	252	1843M	0.003
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	66970	0.195
37) Benzo(a)pyrene	(6)	20.202	252	3487	0.007
38) *Perylene-d12	(6)	20.294	264	91240	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.043	276	2629	0.006
41) Benzo(g,h,i)perylene	(6)	22.523	276	3102	0.006

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Reference Standard Spectrum for Naphthalene



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

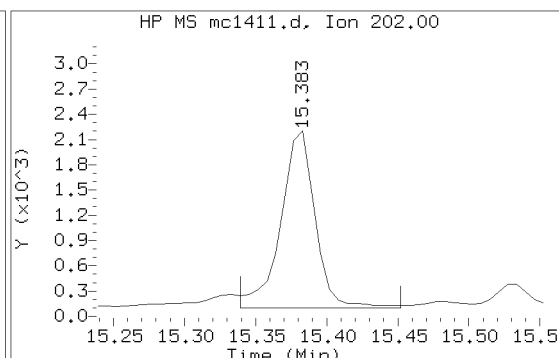
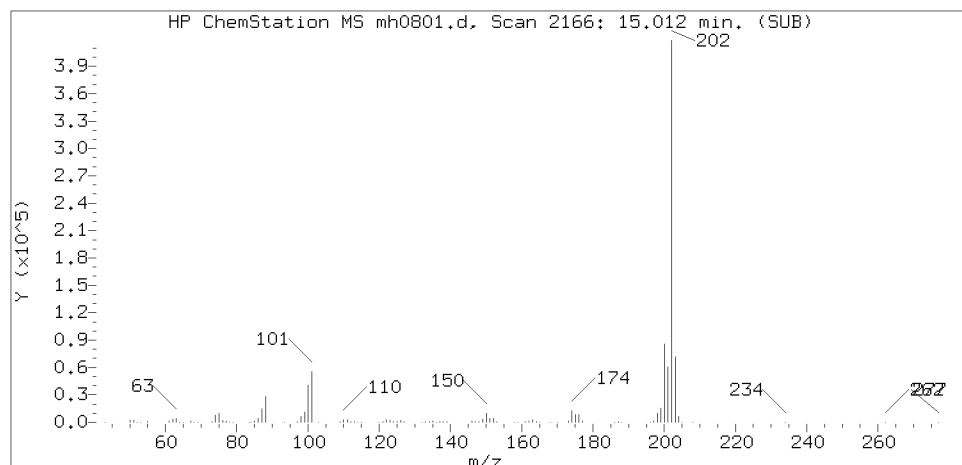
Lab Sample ID: 1283810

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 541
Retention Time (minutes) : 9.033
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 3482
On-column Amount (ng/ul) : 0.0100

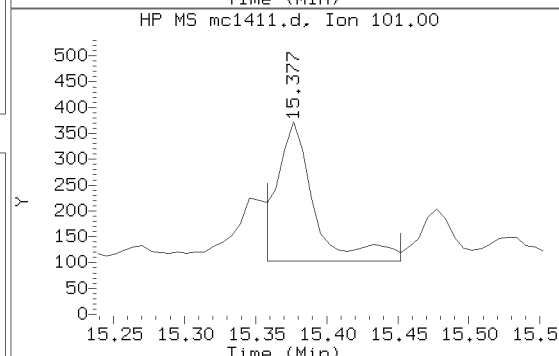
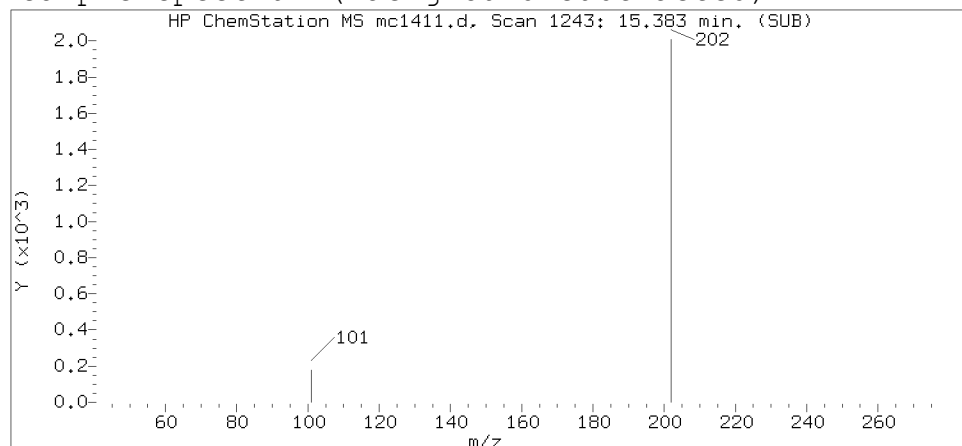
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346
Page 263 of 609

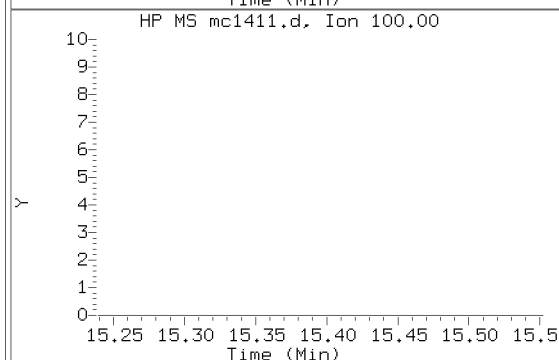
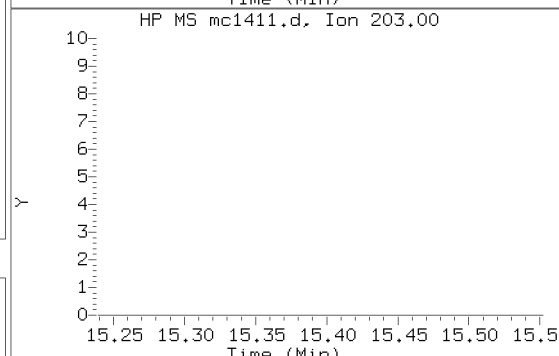
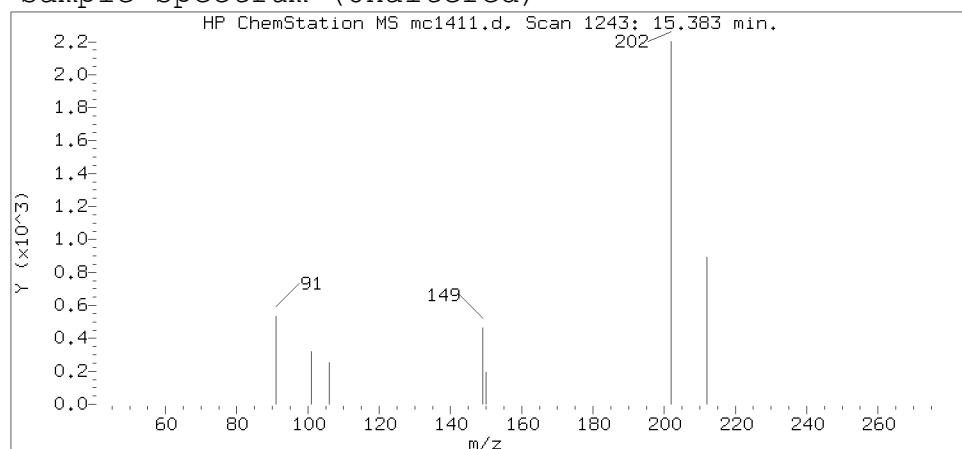
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

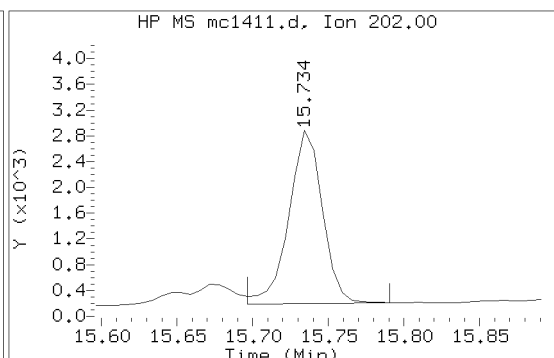
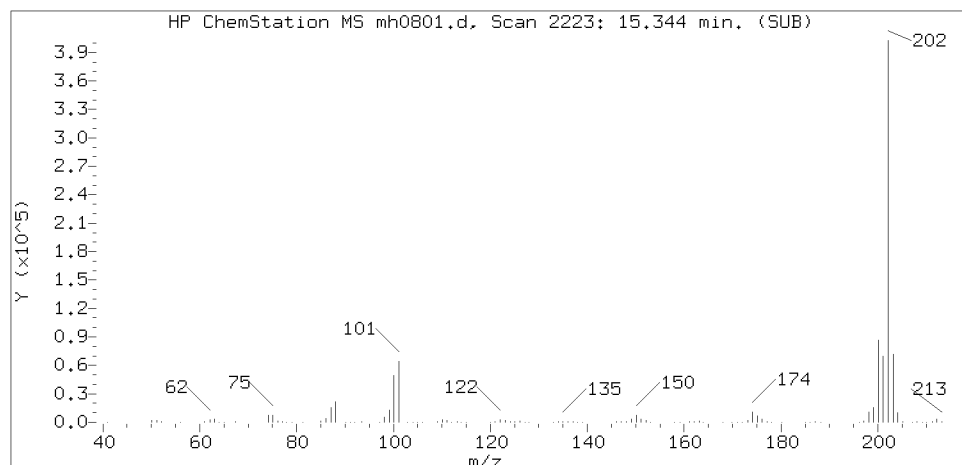
Lab Sample ID: 1283810

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1243
Retention Time (minutes) : 15.383
Relative Retention Time : -0.00065
Quant Ion : 202.00
Area (flag) : 3539
On-column Amount (ng/ul) : 0.0084

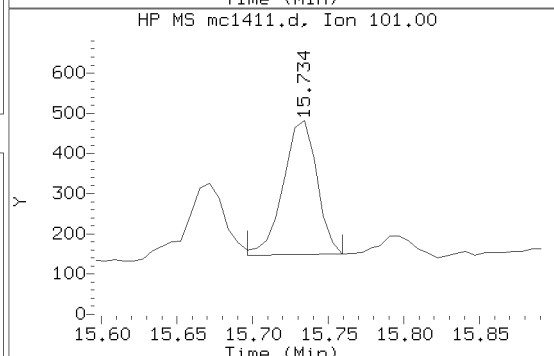
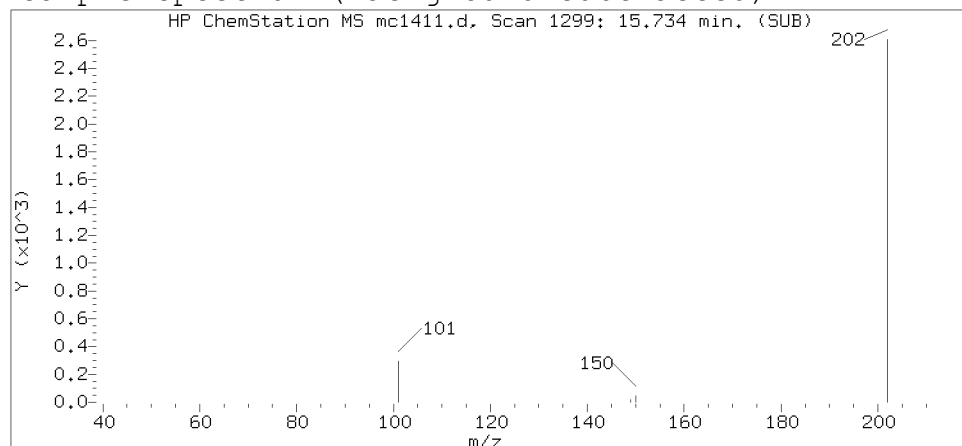
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346 Page 264 of 609

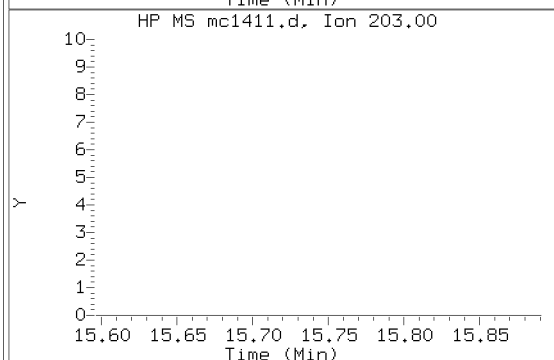
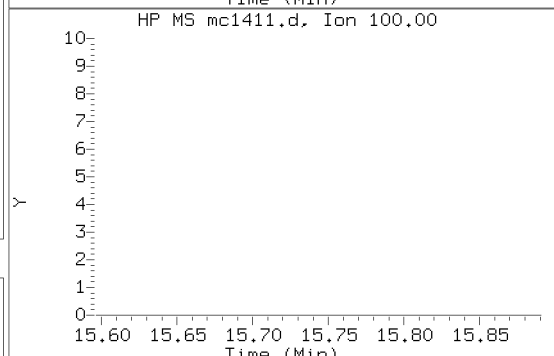
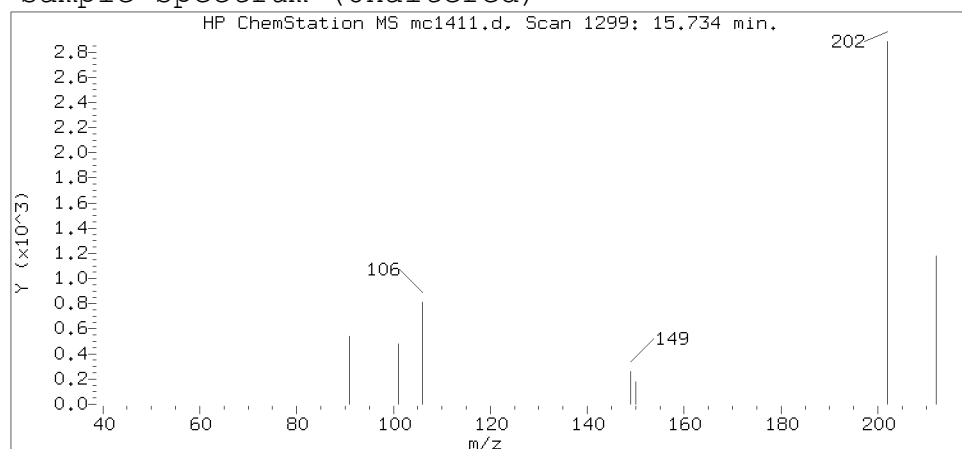
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

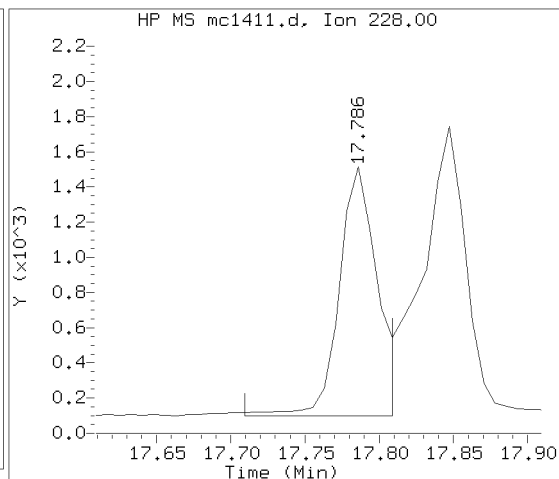
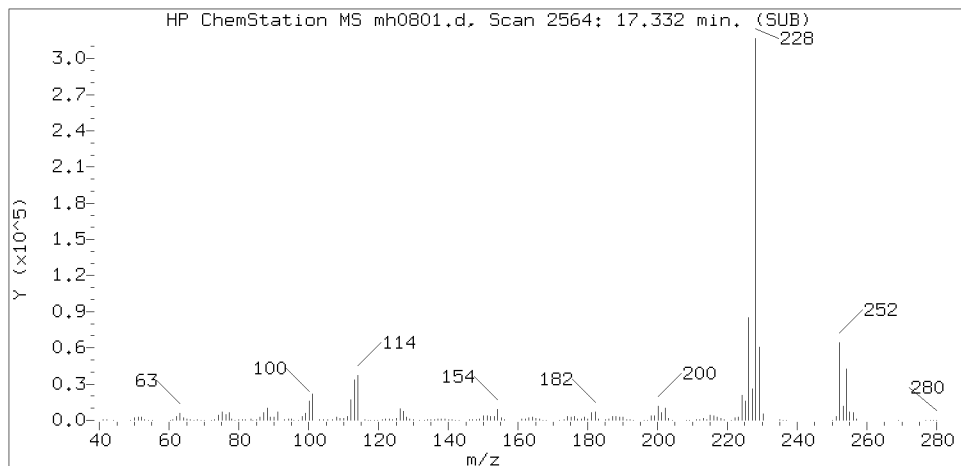
Sample Name: BAC02

Lab Sample ID: 1283810

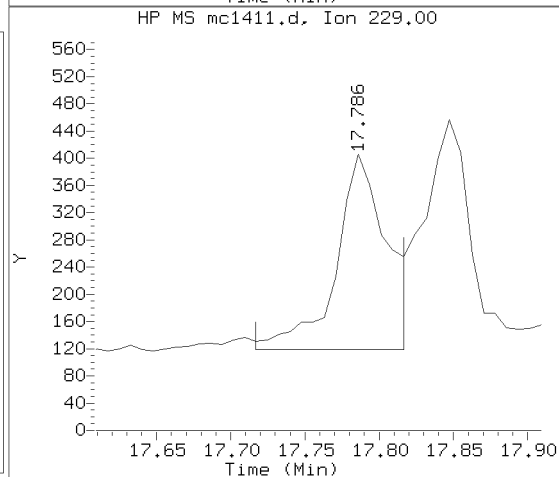
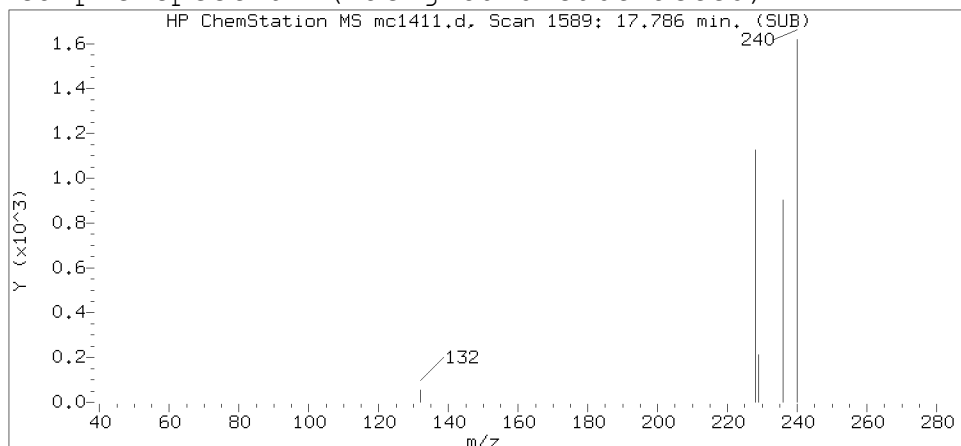
Compound Number : 26
Compound Name : Pyrene
Scan Number : 1299
Retention Time (minutes) : 15.734
Relative Retention Time : -0.00003
Quant Ion : 202.00
Area (flag) : 4148
On-column Amount (ng/ul) : 0.0083

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Target 3.5 esignature user jmg00346

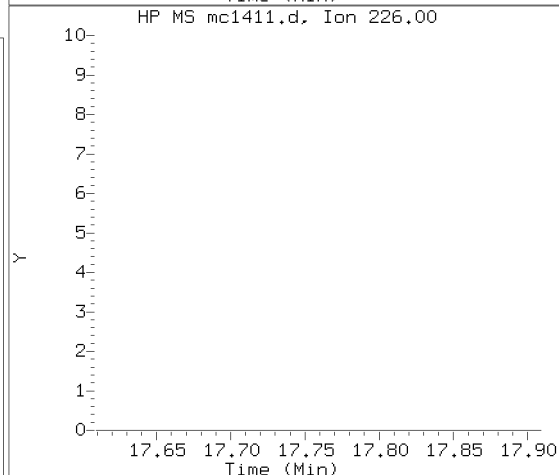
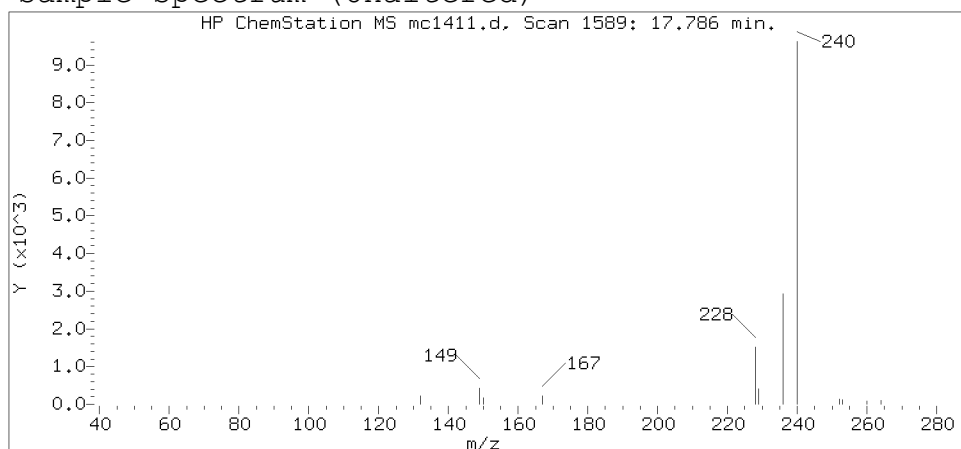
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

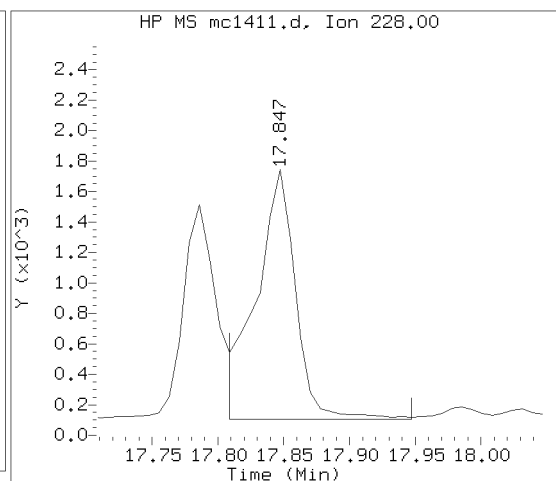
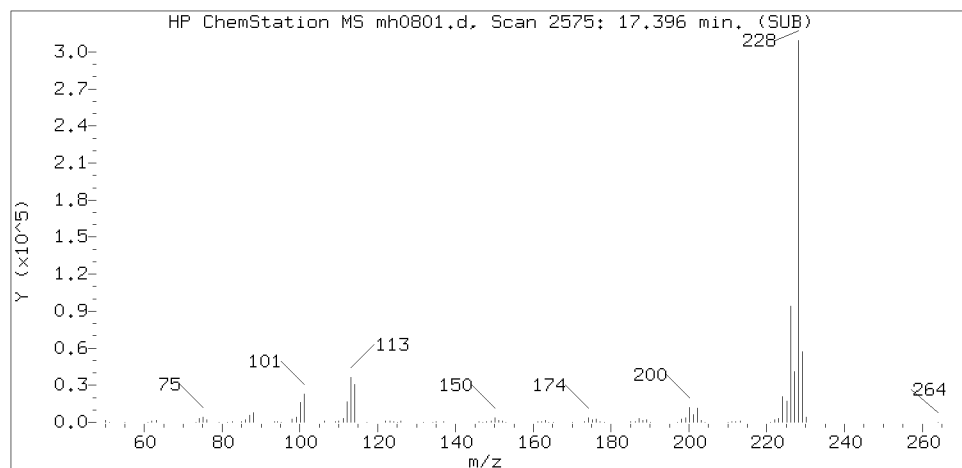
Lab Sample ID: 1283810

Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1589
Retention Time (minutes) : 17.786
Relative Retention Time : -0.00043
Quant Ion : 228.00
Area (flag) : 2447
On-column Amount (ng/ul) : 0.0058

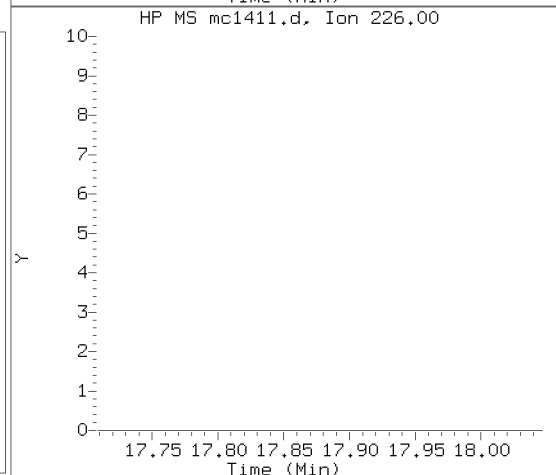
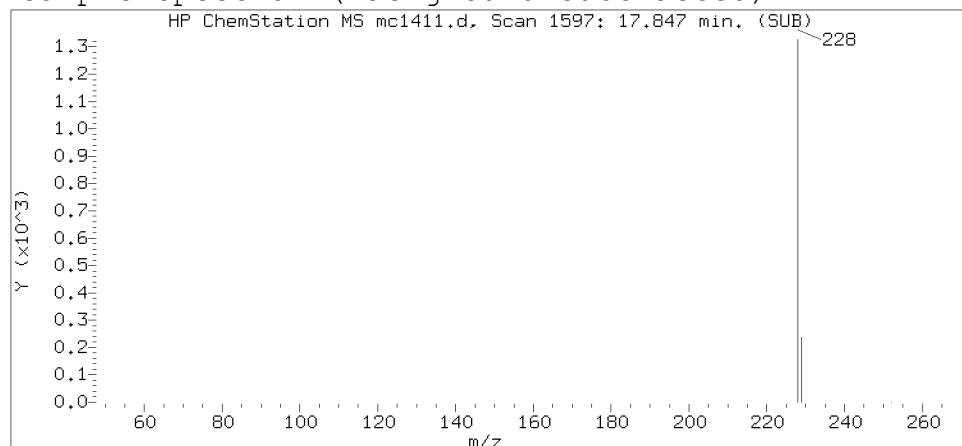
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346

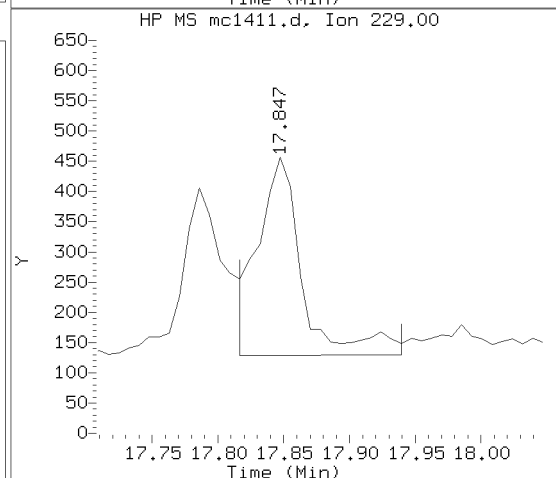
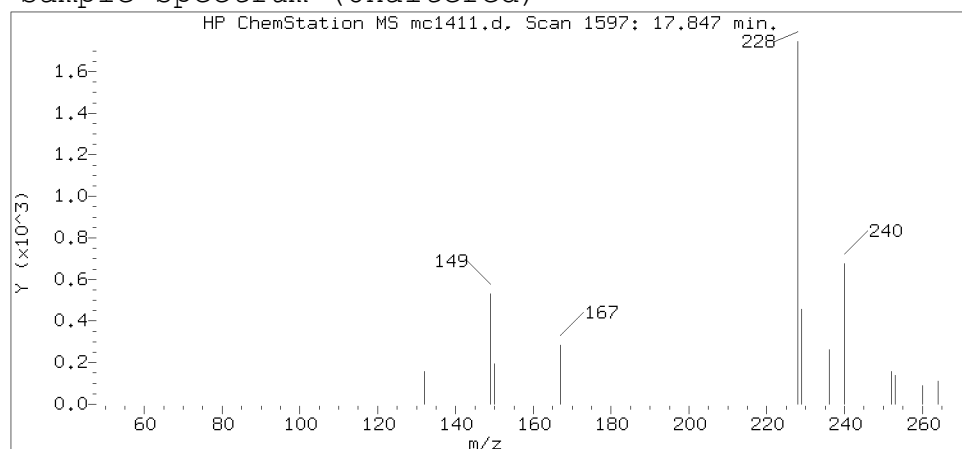
Reference Standard Spectrum for Chrysene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

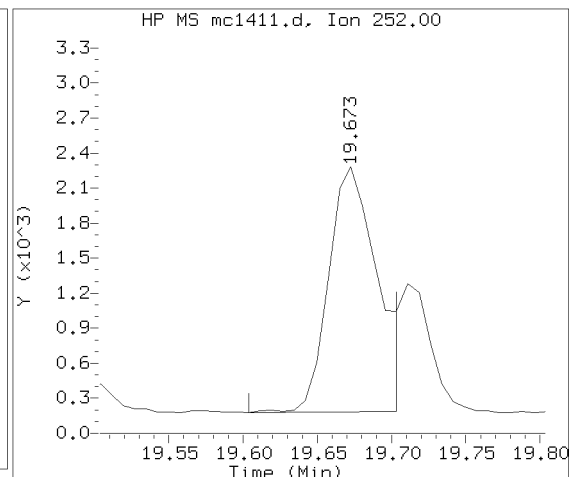
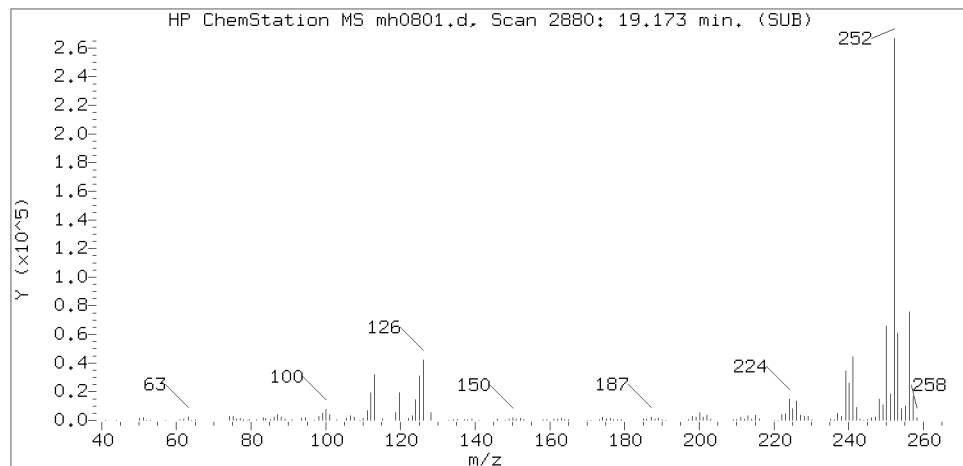
Sample Name: BAC02

Lab Sample ID: 1283810

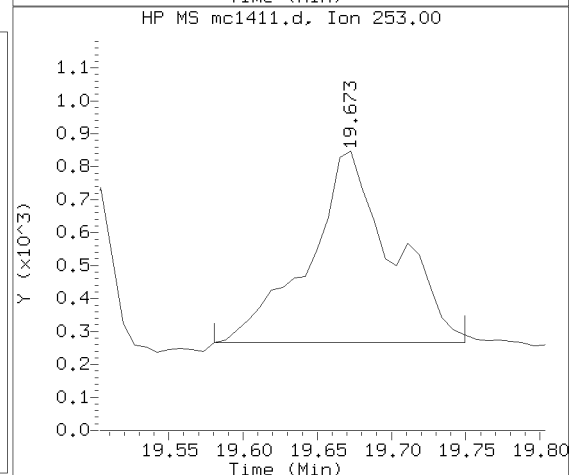
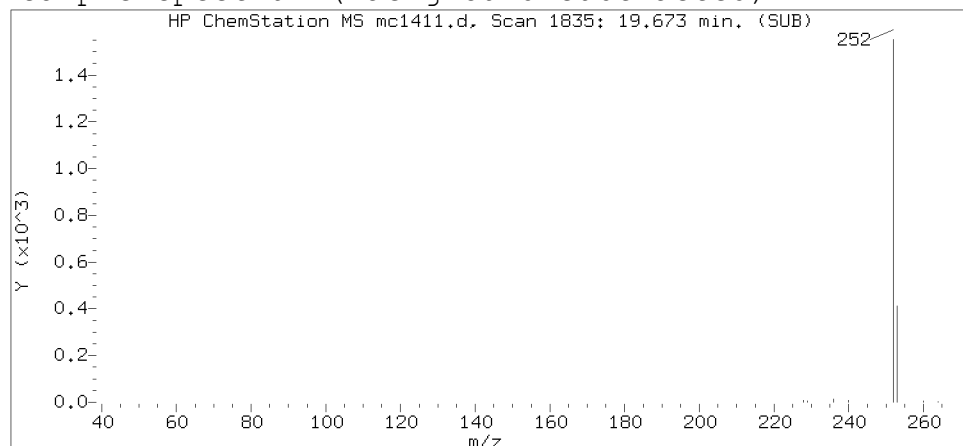
Compound Number : 30
Compound Name : Chrysene
Scan Number : 1597
Retention Time (minutes) : 17.847
Relative Retention Time : -0.00043
Quant Ion : 228.00
Area (flag) : 3428
On-column Amount (ng/ul) : 0.0079

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.
Target 3.5 esignature user jmg00346

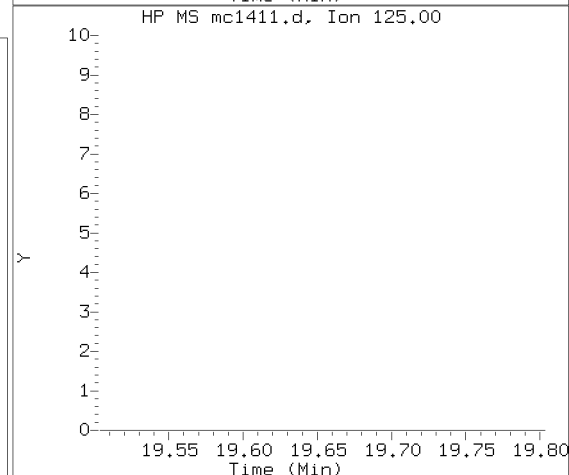
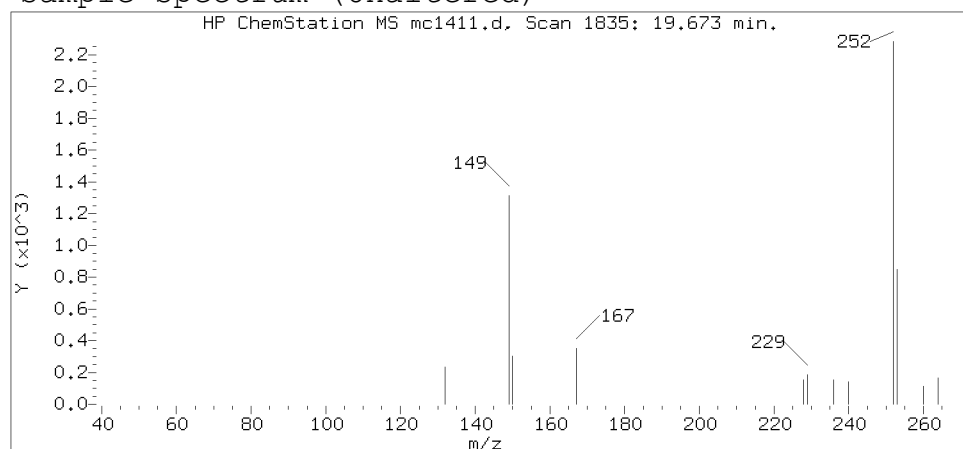
Reference Standard Spectrum for Benzo(b)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

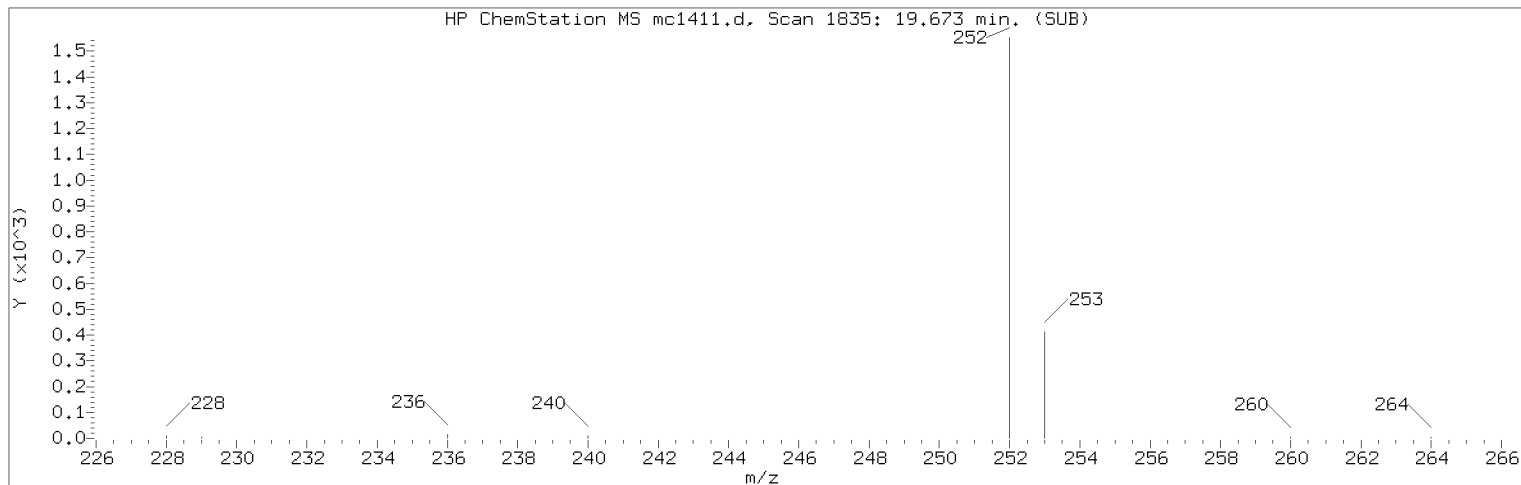
Lab Sample ID: 1283810

Compound Number : 33
Compound Name : Benzo(b)fluoranthene
Scan Number : 1835
Retention Time (minutes) : 19.673
Relative Retention Time : -0.00038
Quant Ion : 252.00
Area (flag) : 4844M
On-column Amount (ng/ul) : 0.0094

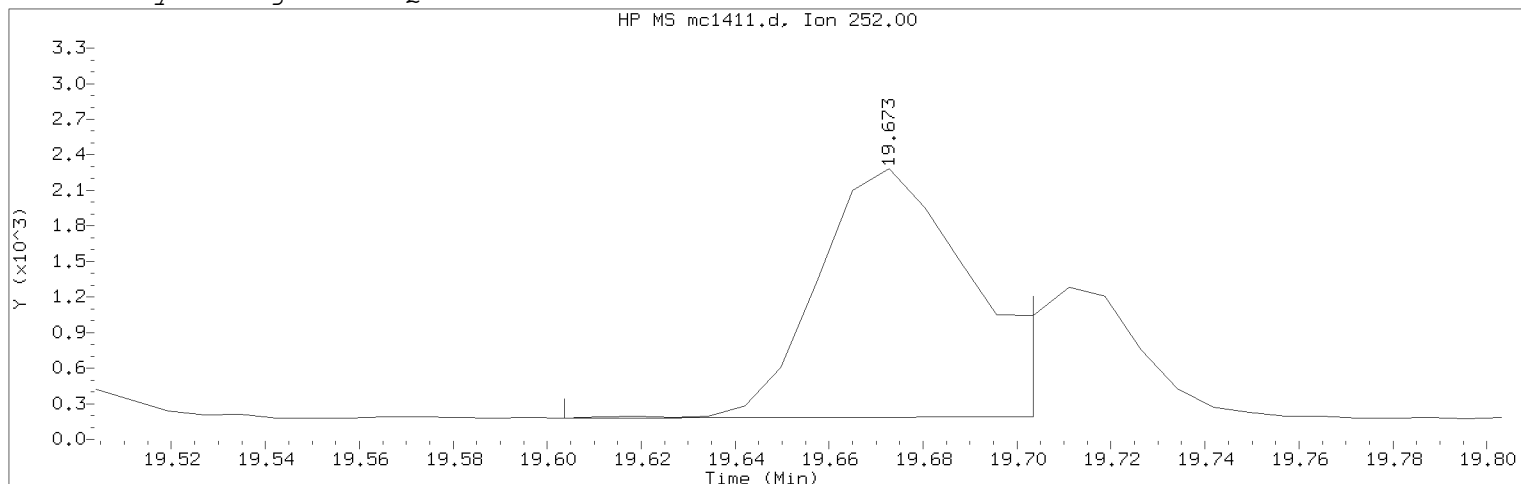
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346 Page 268 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1411.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 23:27

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

Lab Sample ID: 1283810

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1835	
Retention Time (minutes)	: 19.673	
Quant Ion	: 252.00	
Area (flag)	: 4844M	
On-column Amount (ng/ul)	: 0.0094	
Integration start scan	: 1825	Integration stop scan: 1838
Y at integration start	: 177	Y at integration end: 187

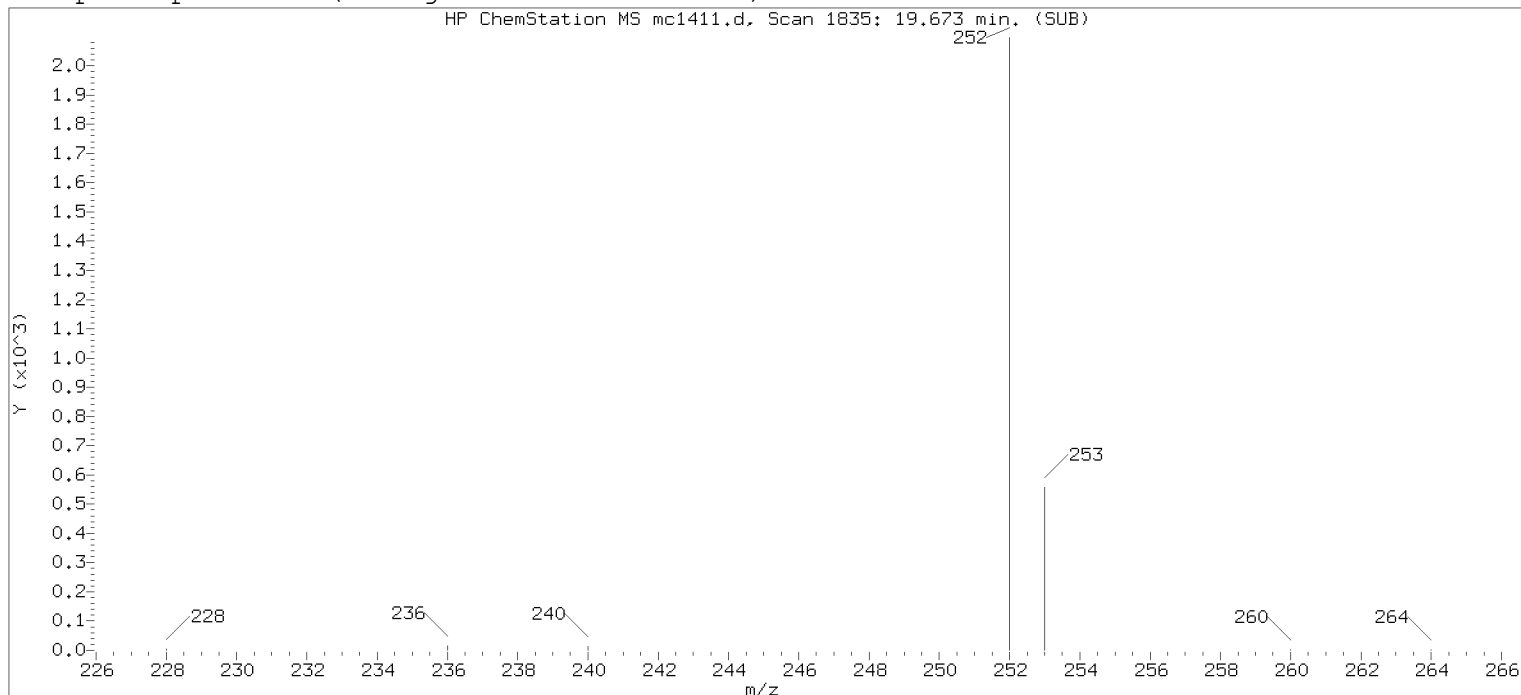
Reason for manual integration: improper integration

Analyst responsible for change:

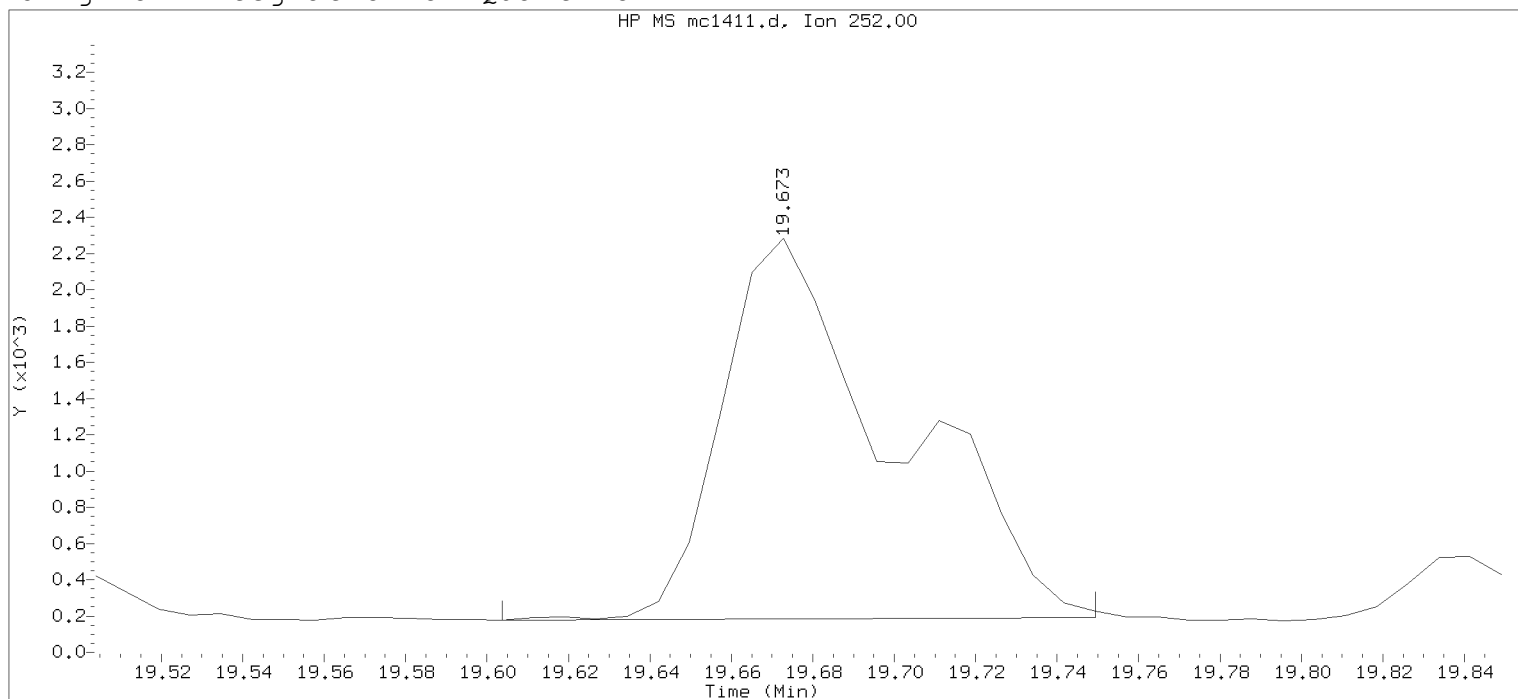
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:46.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1411.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 23:27

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC02

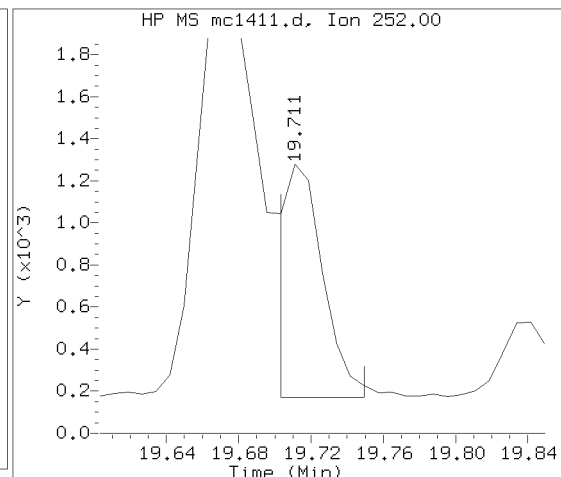
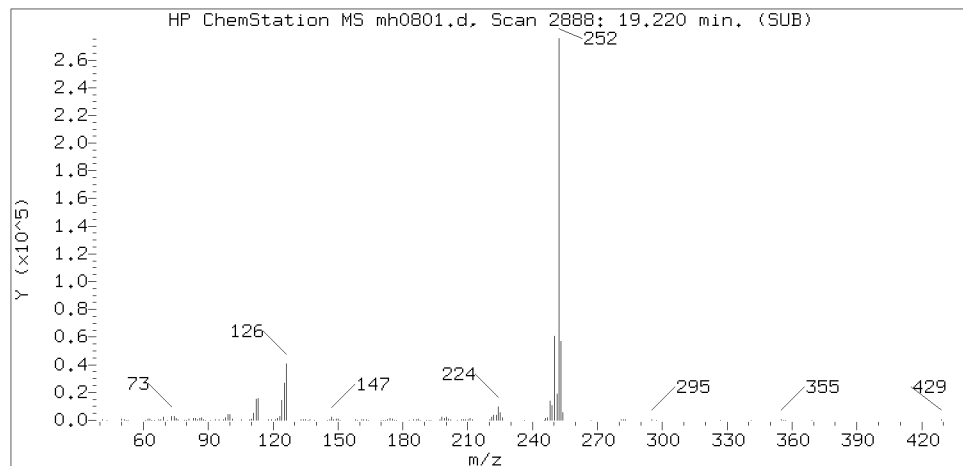
Lab Sample ID: 1283810

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1835	
Retention Time (minutes)	: 19.673	
Quant Ion	: 252.00	
Area	: 6228	
On-column Amount (ng/ul)	: 0.0121	
Integration start scan	: 1825	Integration stop scan: 1844
Y at integration start	: 177	Y at integration end: 192

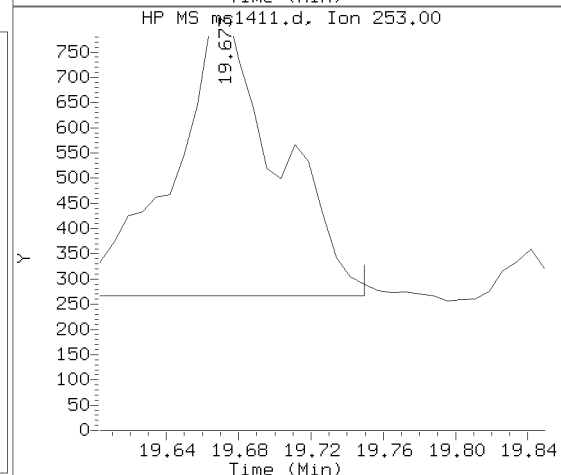
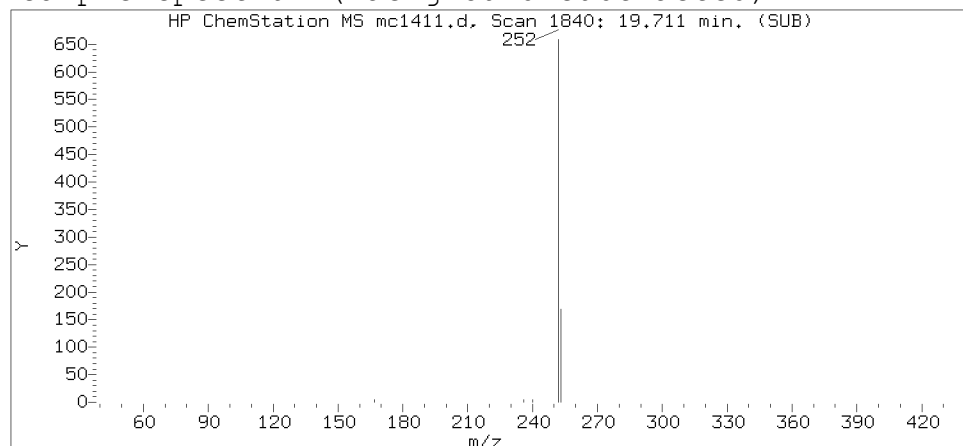
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user GPV67j Page 270 of 609

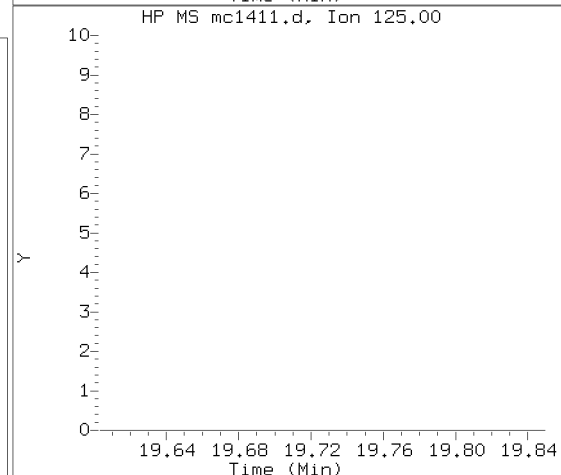
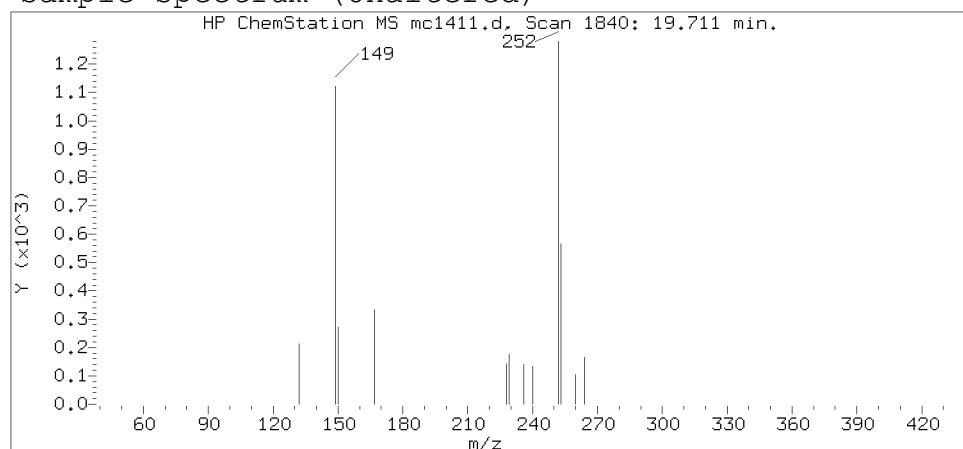
Reference Standard Spectrum for Benzo(k)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

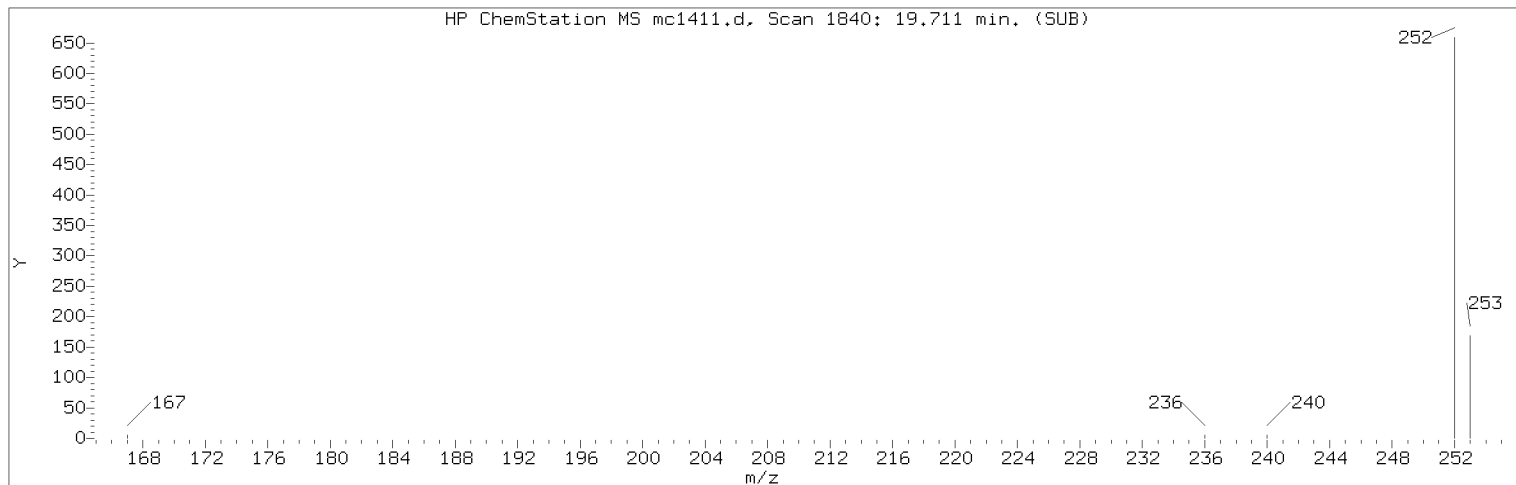
Lab Sample ID: 1283810

Compound Number : 34
Compound Name : Benzo(k)fluoranthene
Scan Number : 1840
Retention Time (minutes) : 19.711
Relative Retention Time : 0.00000
Quant Ion : 252.00
Area (flag) : 1843M
On-column Amount (ng/ul) : 0.0034

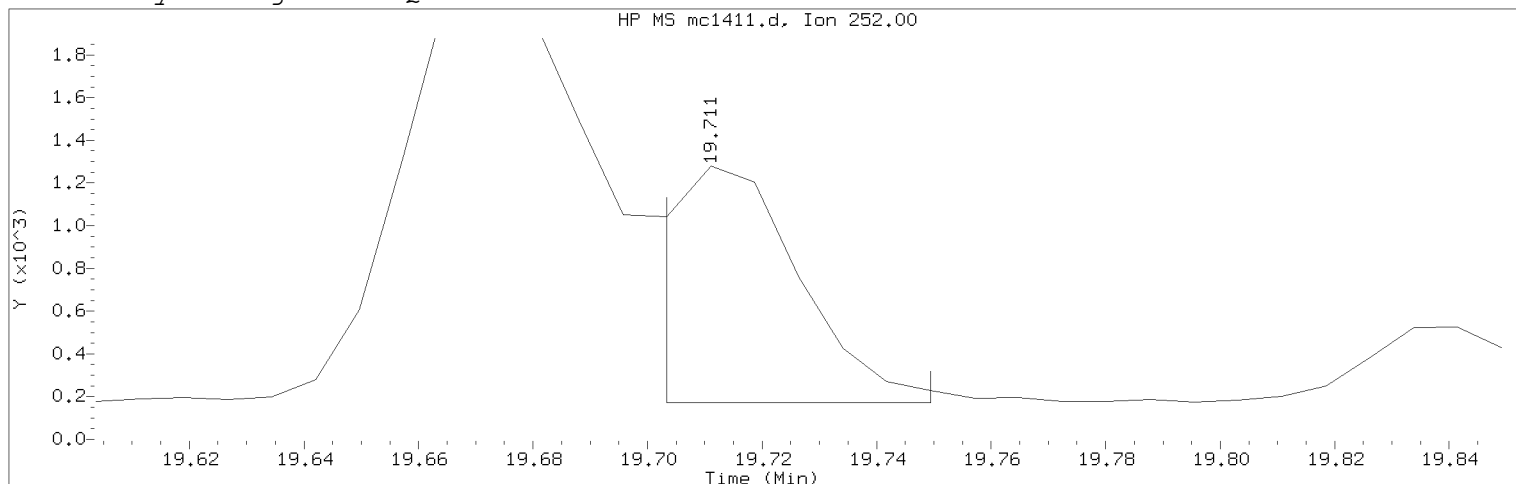
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1411.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 23:27

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

Lab Sample ID: 1283810

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1840	
Retention Time (minutes)	: 19.711	
Quant Ion	: 252.00	
Area (flag)	: 1843M	
On-column Amount (ng/ul)	: 0.0034	
Integration start scan	: 1838	Integration stop scan: 1844
Y at integration start	: 172	Y at integration end: 172

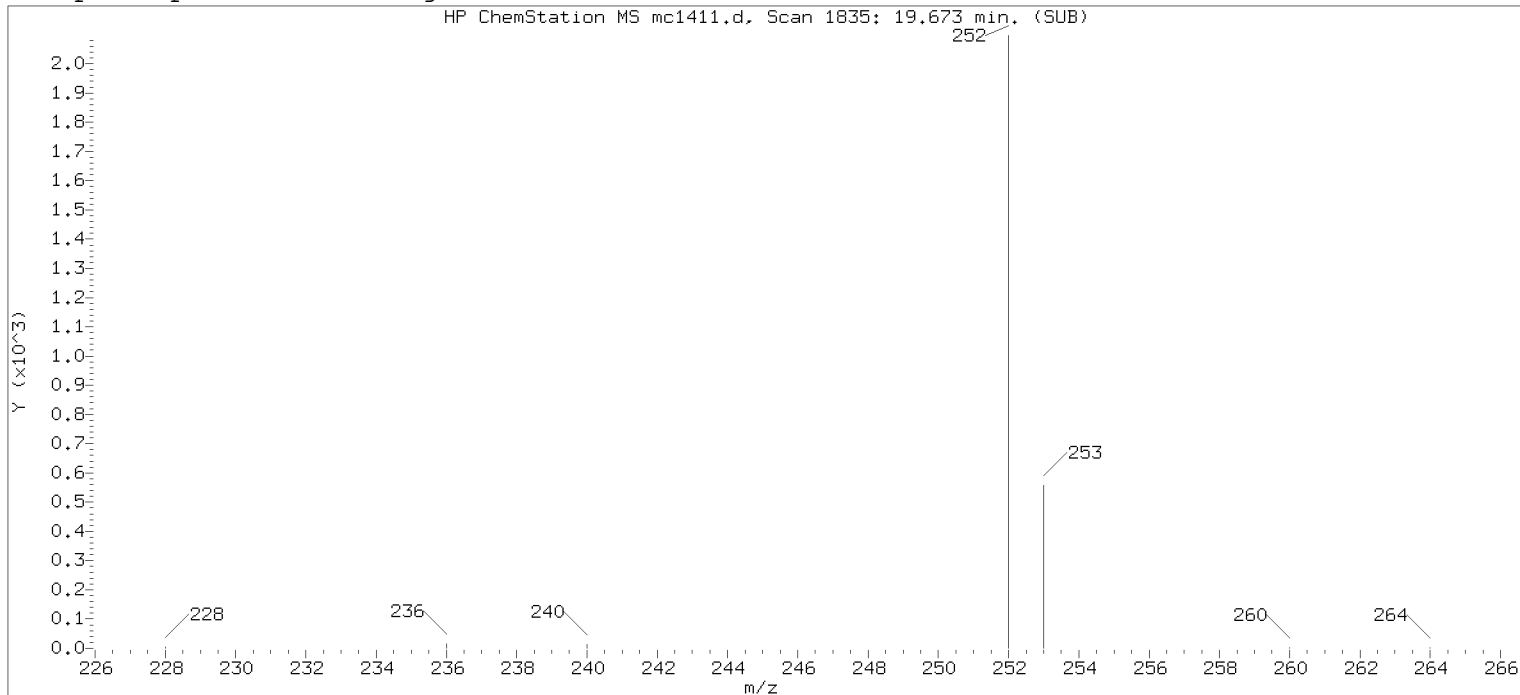
Reason for manual integration: improper integration

Analyst responsible for change:

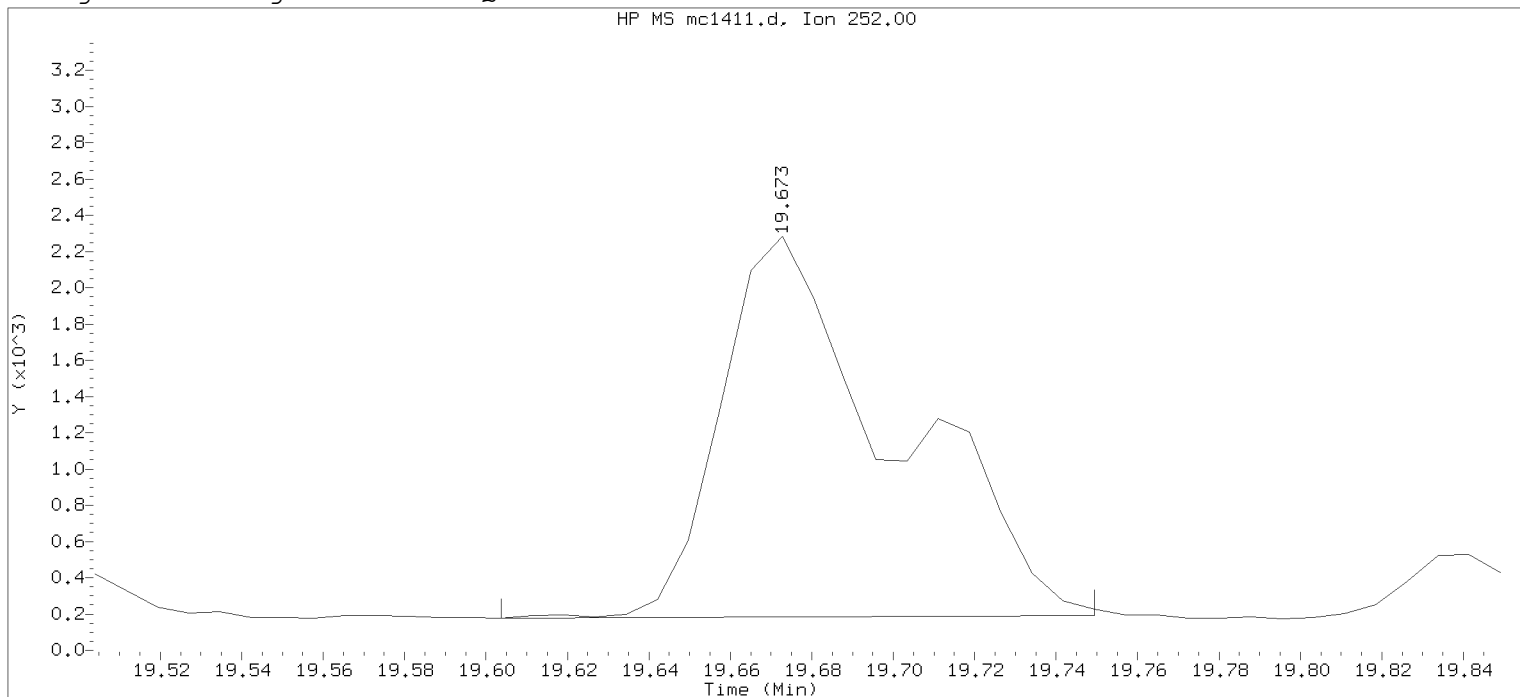
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:46.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1411.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 23:27

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC02

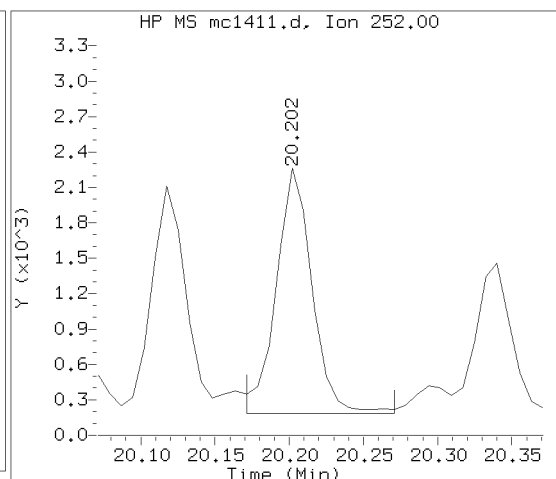
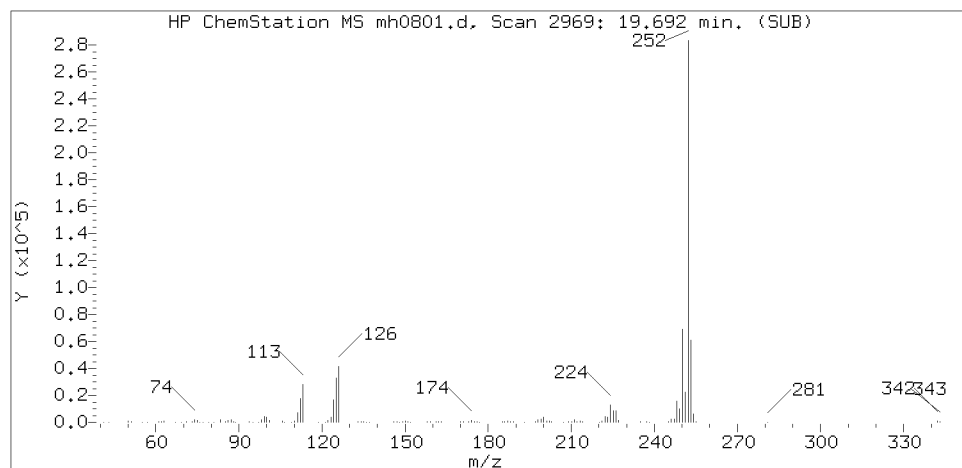
Lab Sample ID: 1283810

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1835	
Retention Time (minutes)	: 19.673	
Quant Ion	: 252.00	
Area	: 6228	
On-column Amount (ng/ul)	: 0.0116	
Integration start scan	: 1825	Integration stop scan: 1844
Y at integration start	: 177	Y at integration end: 192

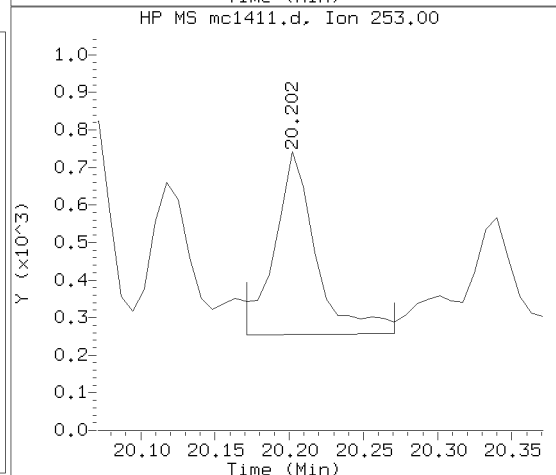
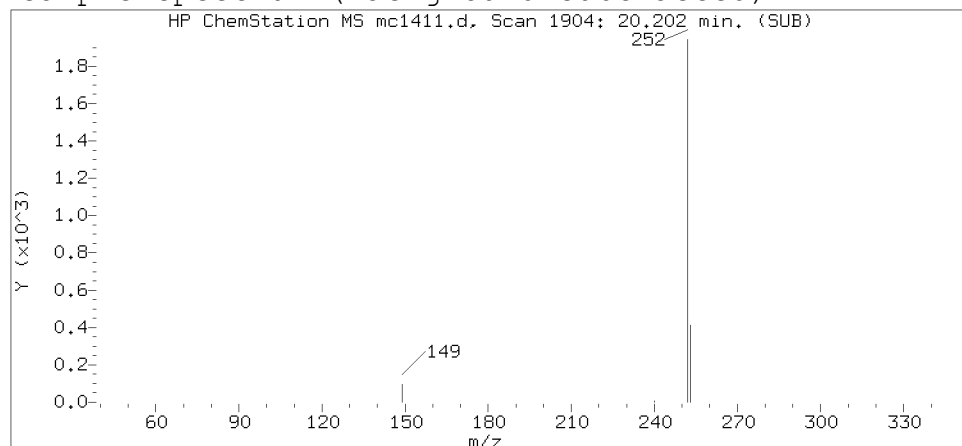
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user GPV67j Page 273 of 609

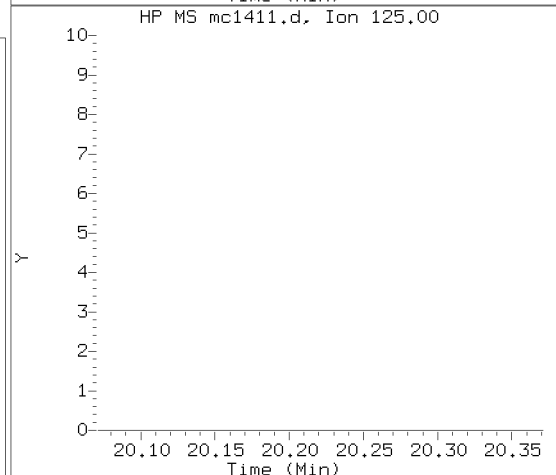
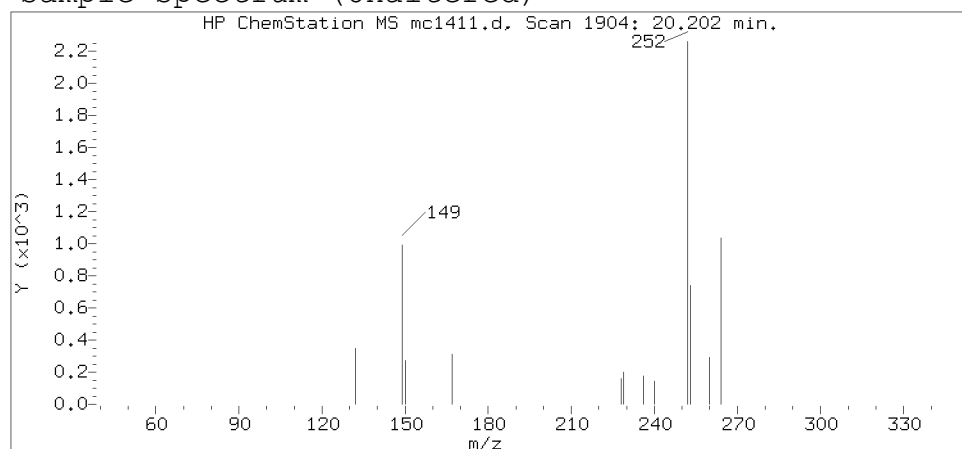
Reference Standard Spectrum for Benzo(a)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

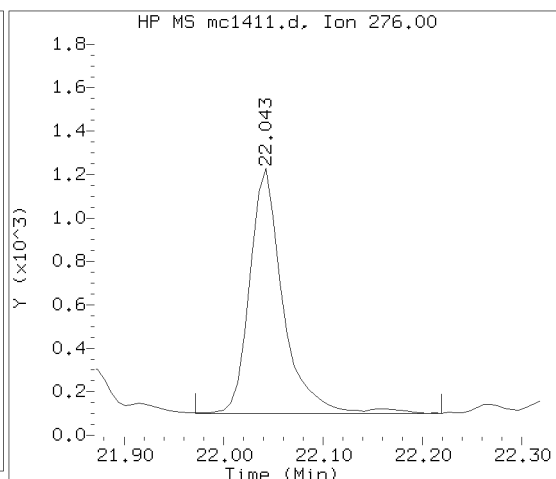
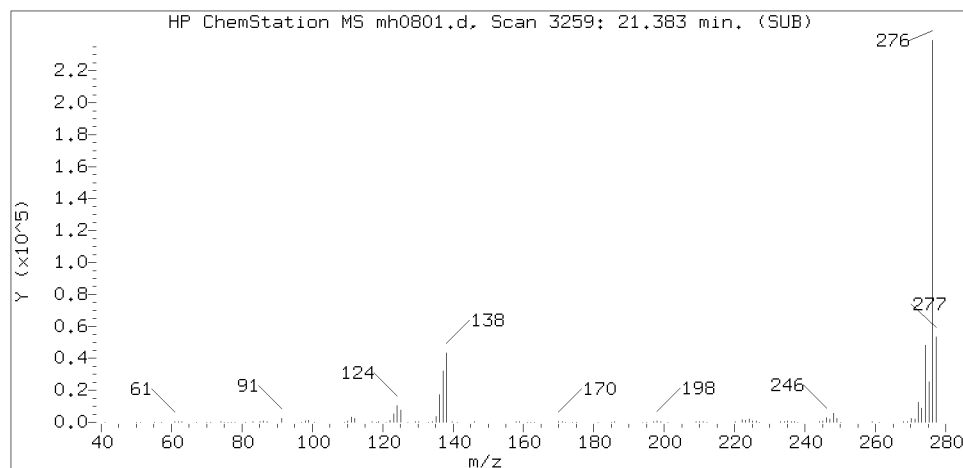
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

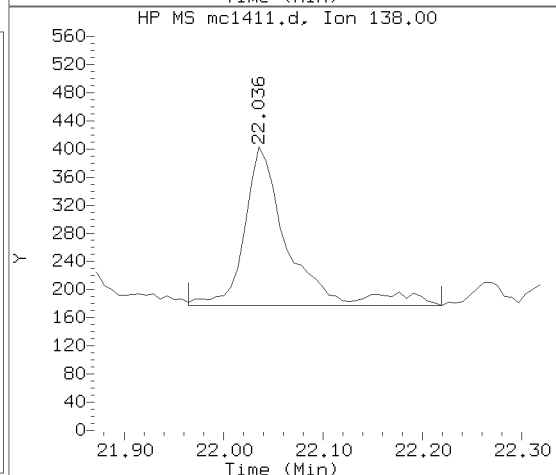
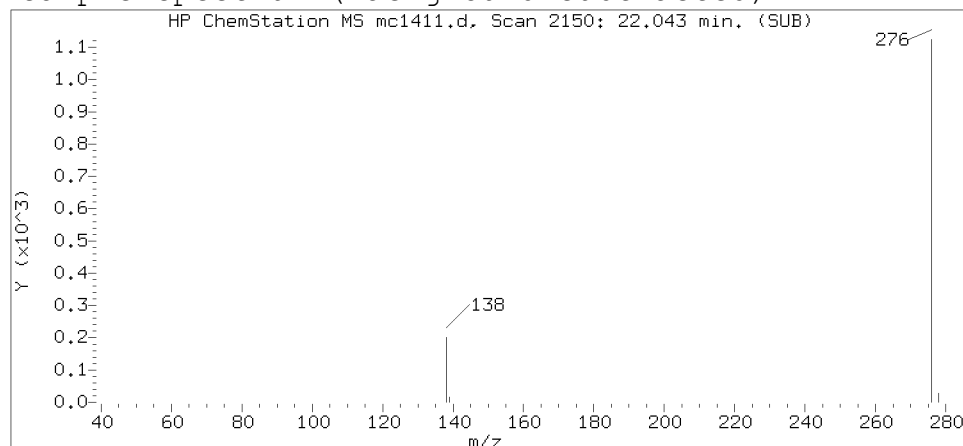
Lab Sample ID: 1283810

Compound Number : 37
Compound Name : Benzo(a)pyrene
Scan Number : 1904
Retention Time (minutes) : 20.202
Relative Retention Time : 0.00000
Quant Ion : 252.00
Area (flag) : 3487
On-column Amount (ng/ul) : 0.0071

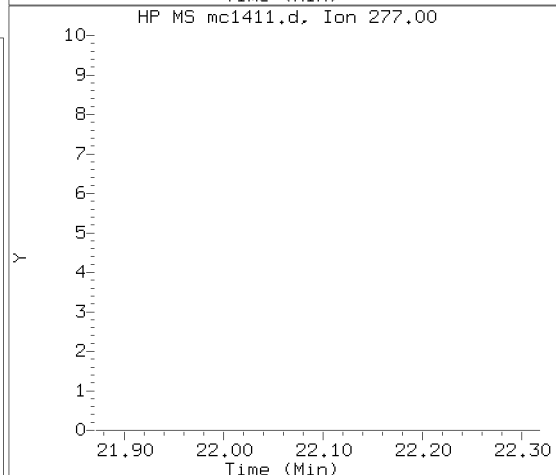
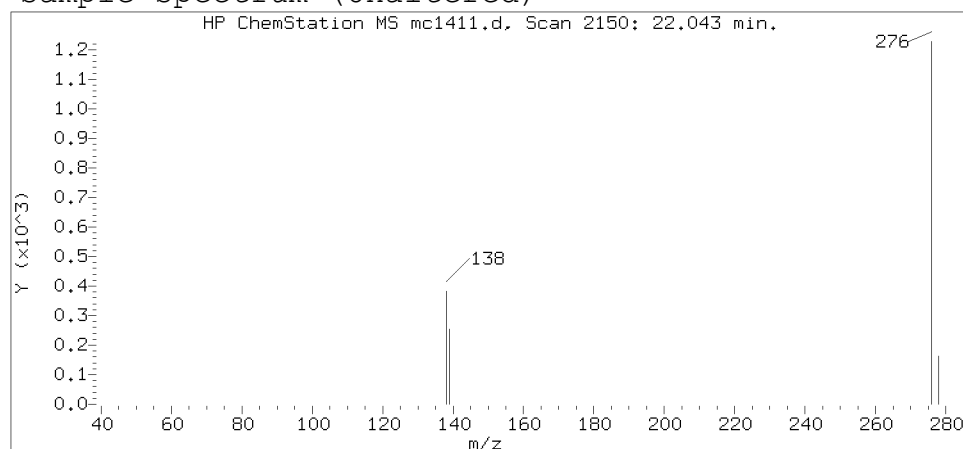
Reference Standard Spectrum for Indeno(1,2,3-cd)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

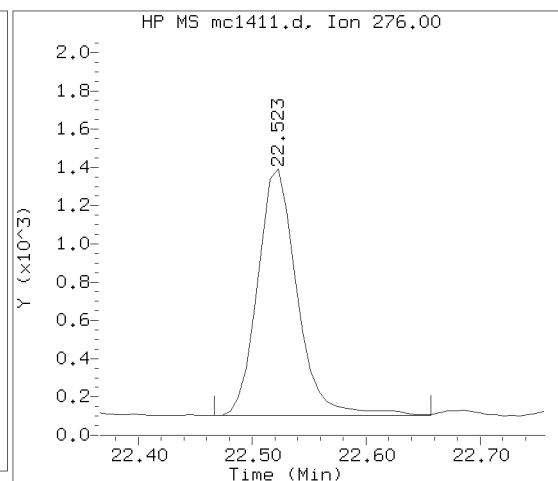
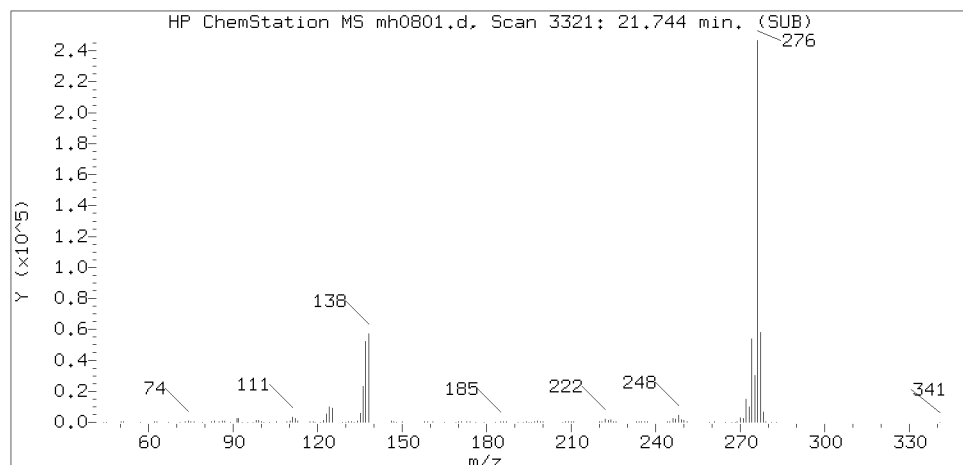
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

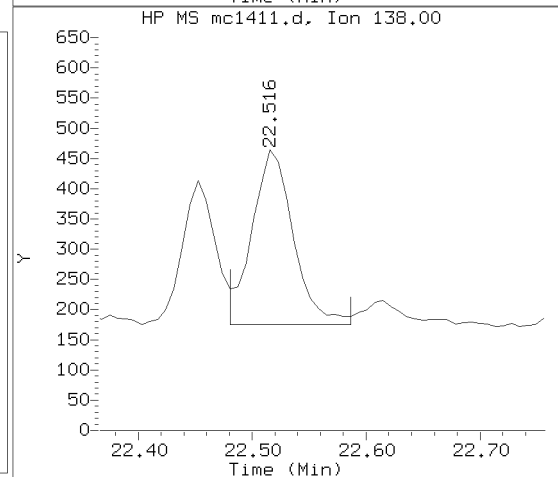
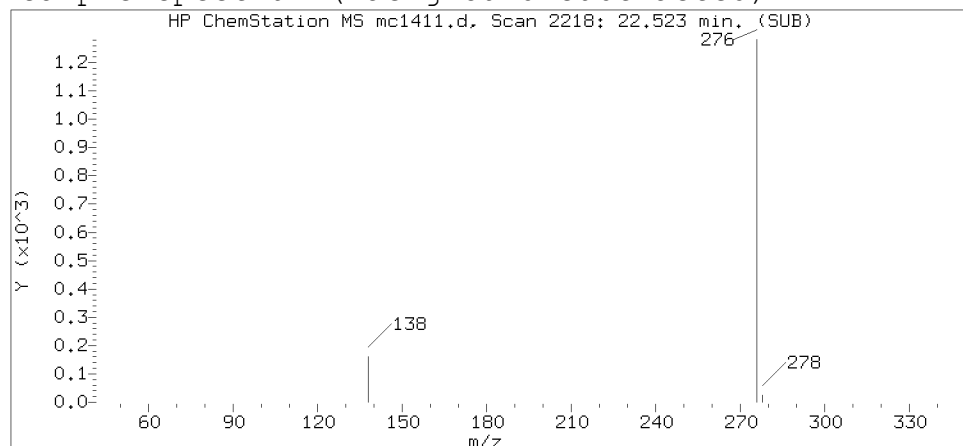
Lab Sample ID: 1283810

Compound Number : 39
Compound Name : Indeno(1,2,3-cd)pyrene
Scan Number : 2150
Retention Time (minutes) : 22.043
Relative Retention Time : -0.00000
Quant Ion : 276.00
Area (flag) : 2629
On-column Amount (ng/ul) : 0.0060

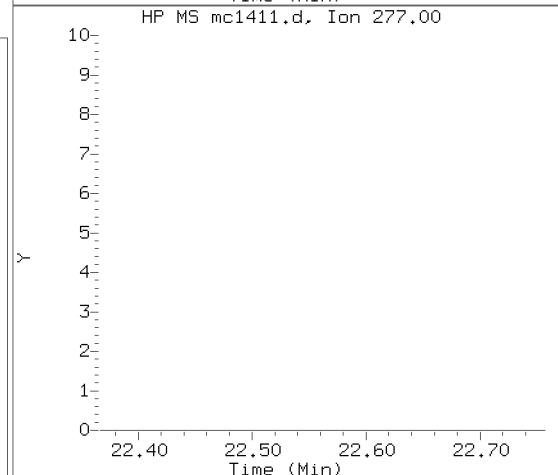
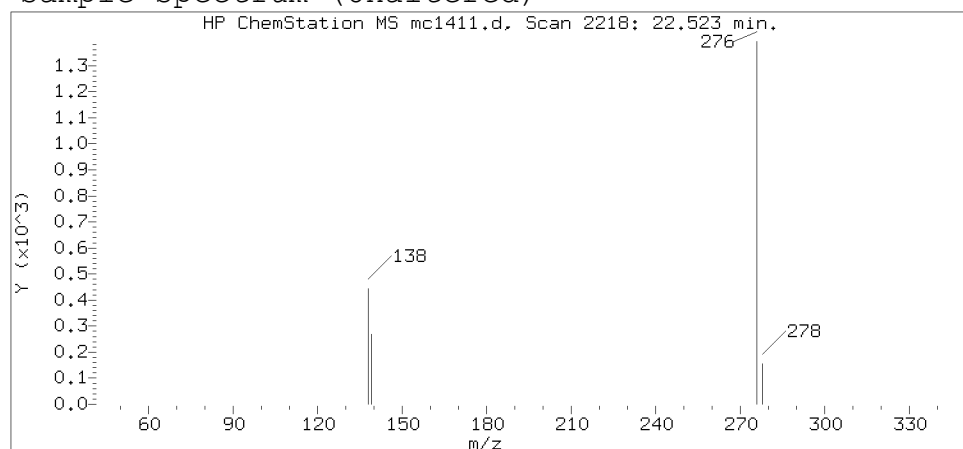
Reference Standard Spectrum for Benzo(g,h,i)perylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1411.d
Injection date and time: 24-MAR-2020 23:27

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC02

Lab Sample ID: 1283810

Compound Number : 41
Compound Name : Benzo(g,h,i)perylene
Scan Number : 2218
Retention Time (minutes) : 22.523
Relative Retention Time : -0.00000
Quant Ion : 276.00
Area (flag) : 3102
On-column Amount (ng/ul) : 0.0060

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC03

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283811

Sample wt/vol: 243 (g/mL)ML Lab File ID: mc1412.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/24/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	0.03	U	
208-96-8-----	Acenaphthylene	0.01	U	
83-32-9-----	Acenaphthene	0.01	U	
86-73-7-----	Fluorene	0.01	U	
85-01-8-----	Phenanthrene	0.03	U	
120-12-7-----	Anthracene	0.01	U	
206-44-0-----	Fluoranthene	0.04	J	
129-00-0-----	Pyrene	0.04	J	
56-55-3-----	Benzo (a) anthracene	0.03	J	
218-01-9-----	Chrysene	0.05	J	
205-99-2-----	Benzo (b) fluoranthene	0.04	J	
207-08-9-----	Benzo (k) fluoranthene	0.02	J	
50-32-8-----	Benzo (a) pyrene	0.04	J	
193-39-5-----	Indeno (1,2,3-cd) pyrene	0.04	J	
53-70-3-----	Dibenz (a,h) anthracene	0.02	U	
191-24-2-----	Benzo (g,h,i) perylene	0.03	J	

FORM I SV-1

BAC03

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283811

Data file: /chem/HP21585.i/20mar24.b/mc1412.d

Injection date and time: 24-MAR-2020 23:58

Data file Sample Info. Line: BAC03;1283811;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 243 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	22064 (-3)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	72746 (-4)	0.25	
14) Acenaphthene-d10	11.745 (0.000)	750	164	33086 (-13)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	69420 (-13)	0.25	
29) Chrysene-d12	17.801 (0.008)	1591	240	65196 (-23)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	88400 (-7)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	26592	0.179	71%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	73073	0.249	100%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	64887	0.195	78%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)			Not Detected					0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)	15.383 (-0.000)	202	3963	0.010	0.04			0.003
26) Pyrene	(5)	15.734 (-0.000)	202	5065	0.011	0.04			0.003
28) Benzo (a)anthracene	(5)	17.786 (-0.000)	228	2987	0.008	0.03			0.003
30) Chrysene	(5)	17.847 (-0.000)	228	5009	0.012	0.05			0.003
33) Benzo (b)fluoranthene	(6)	19.673 (-0.000)	252	5297	0.011	0.04			0.003
34) Benzo (k)fluoranthene	(6)	19.711 (0.000)	252	2679	0.005	0.02			0.003
37) Benzo (a)pyrene	(6)	20.202 (0.000)	252	4888	0.010	0.04			0.003
39) Indeno (1,2,3-cd)pyrene	(6)	22.043 (-0.000)	276	3740	0.009	0.04			0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)	22.523 (0.000)	276	4090	0.008	0.03			0.003

BAC03

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283811

Data file: /chem/HP21585.i/20mar24.b/mc1412.d

Injection date and time: **24-MAR-2020 23:58**

Data file Sample Info. Line: BAC03;1283811;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 243 ml

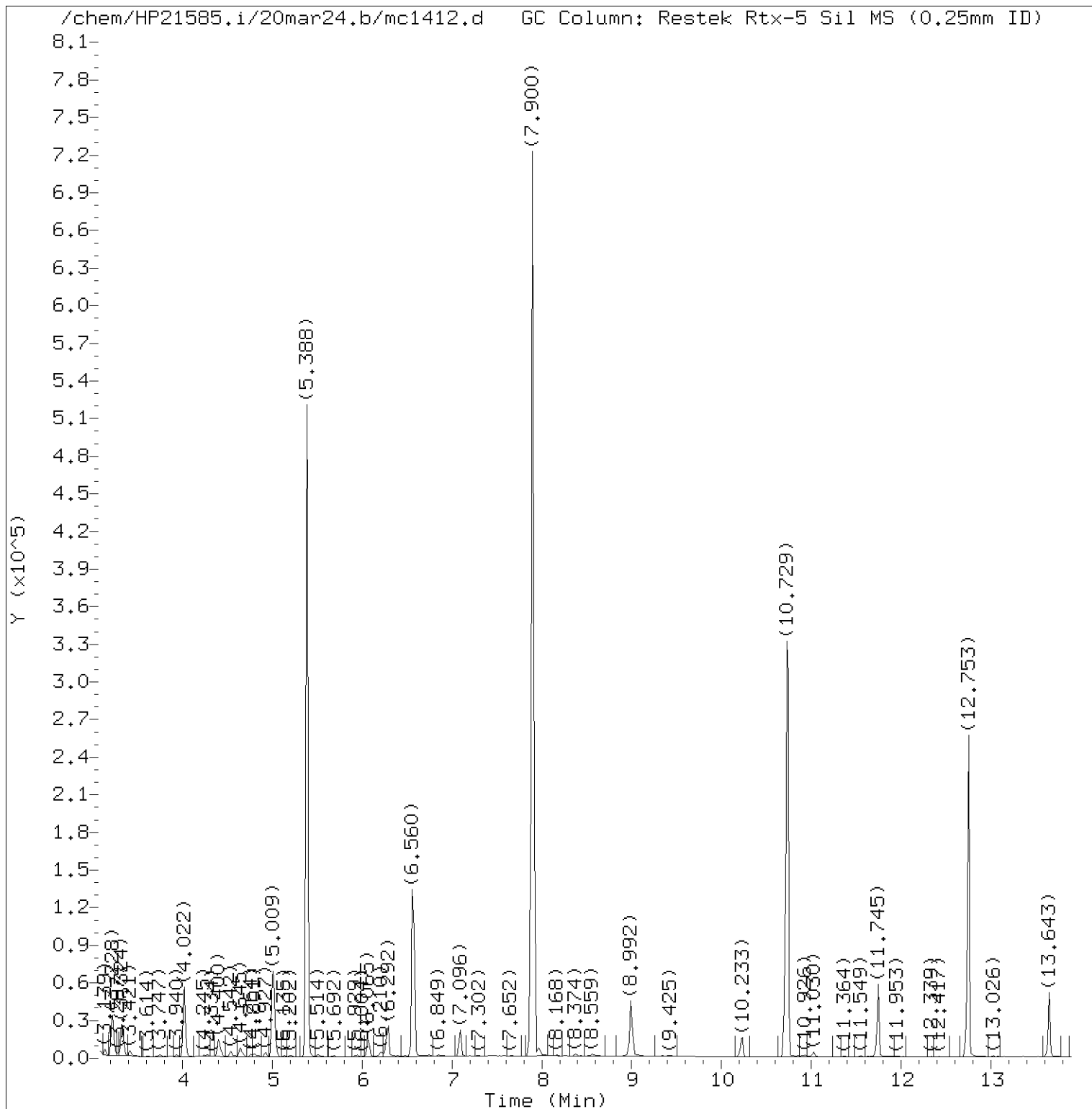
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

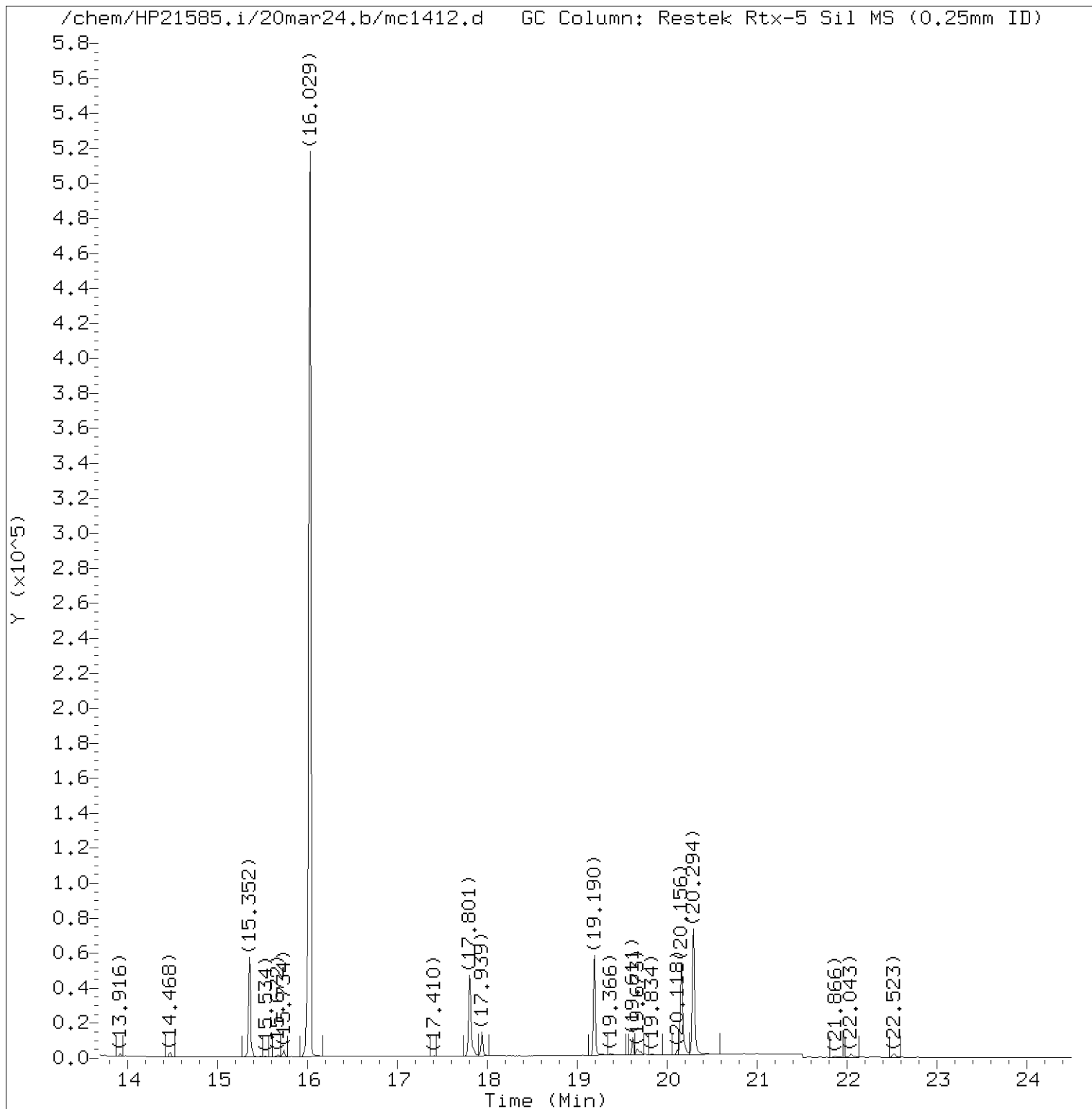
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC03

Lab Sample ID: 1283811

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:46.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC03

Lab Sample ID: 1283811

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:46.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1412.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 23:58

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC03

Lab Sample ID: 1283811

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	22064	0.250
6) *Naphthalene-d8	(2)	8.992	136	72746	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	26592	0.179
14) *Acenaphthene-d10	(3)	11.745	164	33086	0.250
20) *Phenanthrene-d10	(4)	13.643	188	69420	0.250
24) \$Fluoranthene-d10	(4)	15.352	212	73073	0.249
25) Fluoranthene	(4)	15.383	202	3963	0.010
26) Pyrene	(5)	15.734	202	5065	0.011
28) Benzo(a)anthracene	(5)	17.786	228	2987	0.008
29) *Chrysene-d12	(5)	17.801	240	65196	0.250
30) Chrysene	(5)	17.847	228	5009	0.012
33) Benzo(b)fluoranthene	(6)	19.673	252	5297	0.011
34) Benzo(k)fluoranthene	(6)	19.711	252	2679	0.005
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	64887	0.195
37) Benzo(a)pyrene	(6)	20.202	252	4888	0.010
38) *Perylene-d12	(6)	20.294	264	88400	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.043	276	3740	0.009
41) Benzo(g,h,i)perylene	(6)	22.523	276	4090	0.008

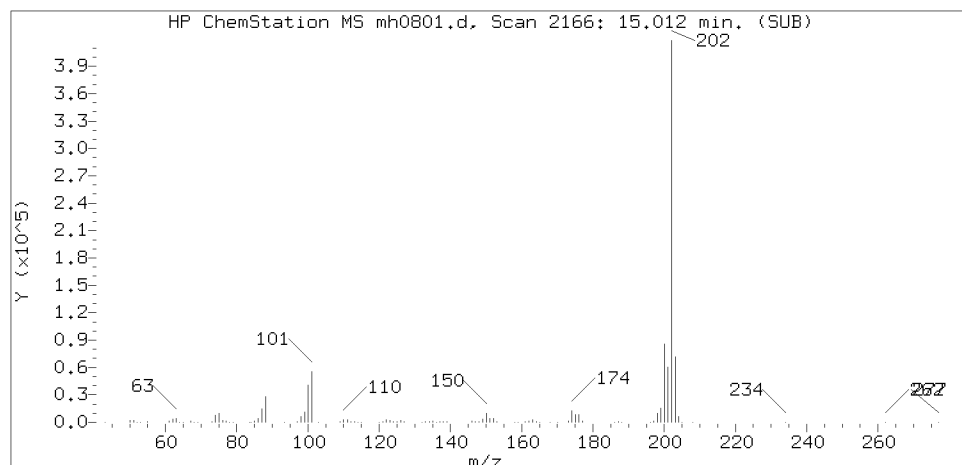
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

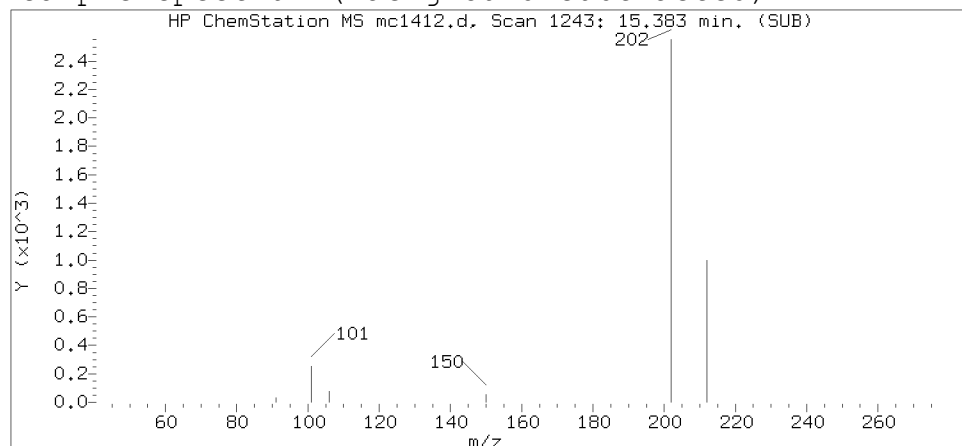
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:46.

Target 3.5 esignature user ID: jmg00346

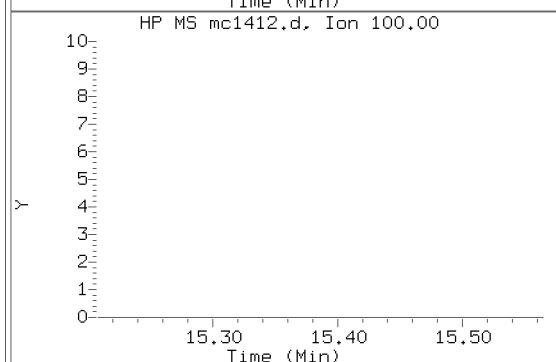
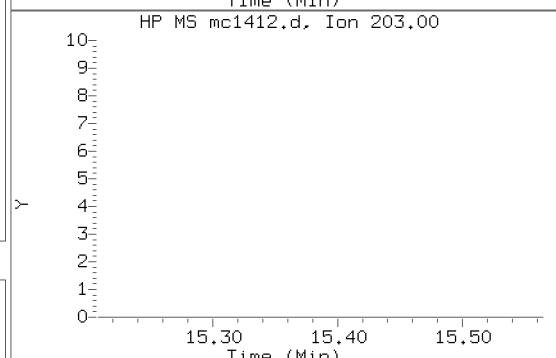
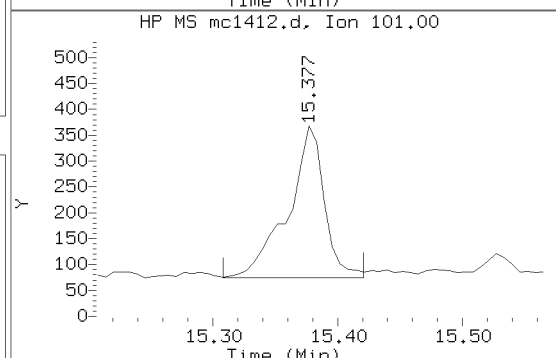
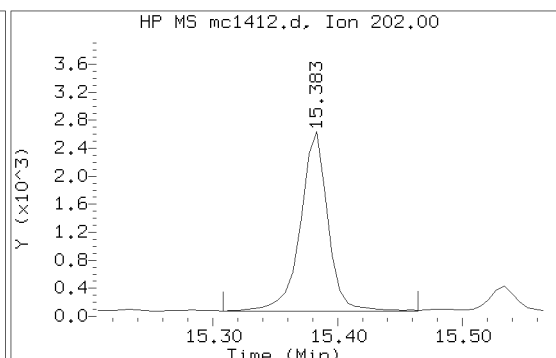
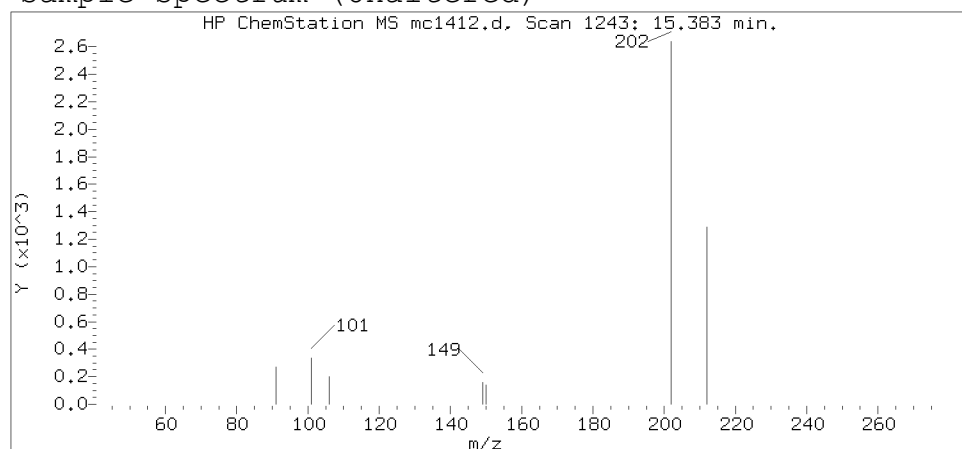
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC03

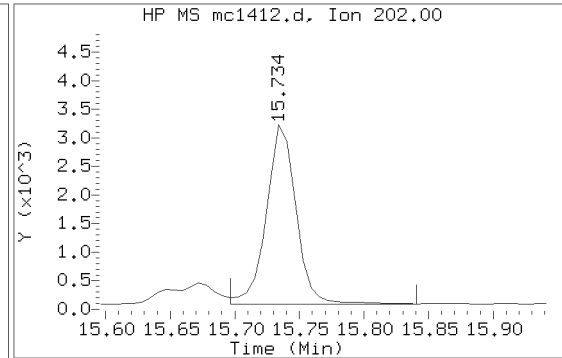
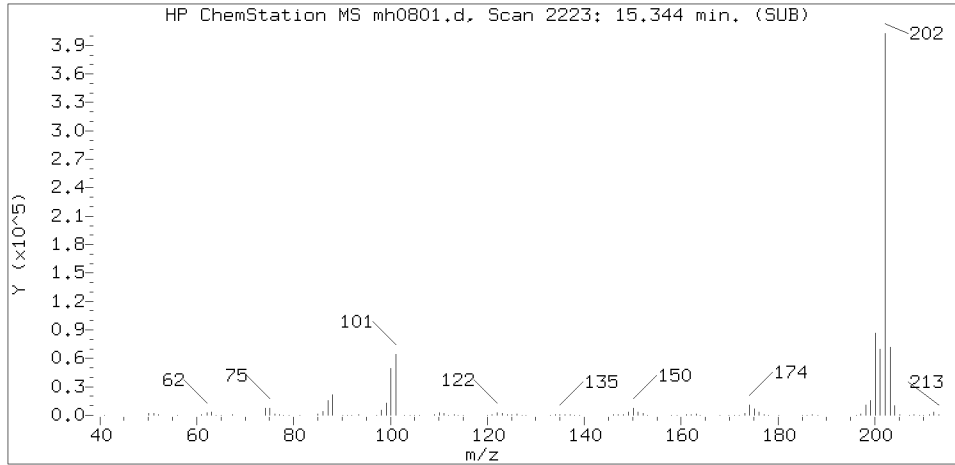
Lab Sample ID: 1283811

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1243
Retention Time (minutes) : 15.383
Relative Retention Time : -0.00064
Quant Ion : 202.00
Area (flag) : 3963
On-column Amount (ng/ul) : 0.0100

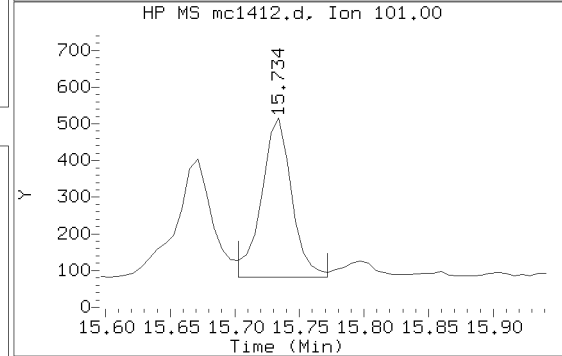
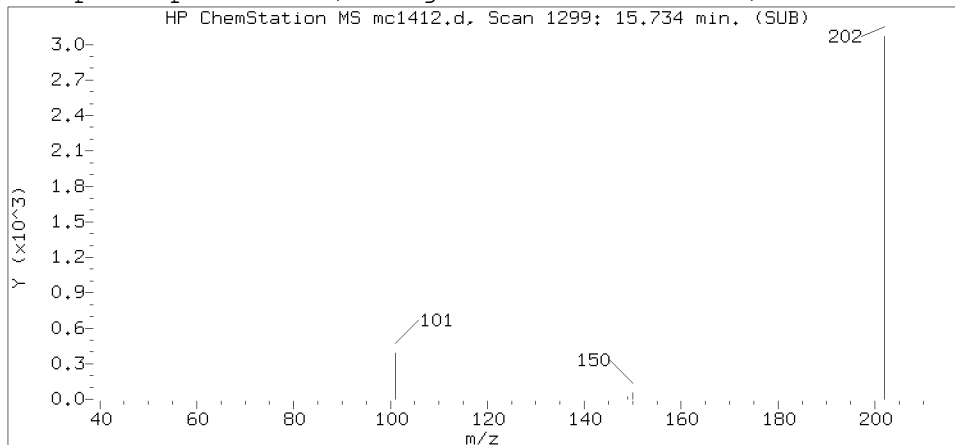
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346 Page 283 of 609

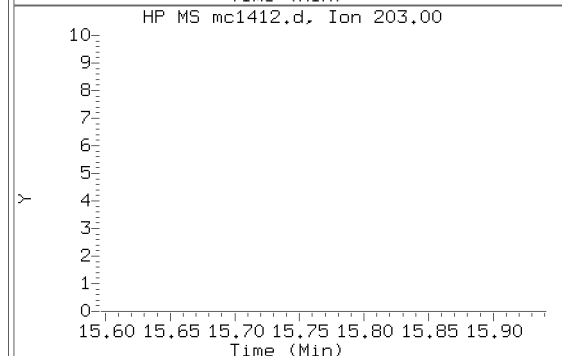
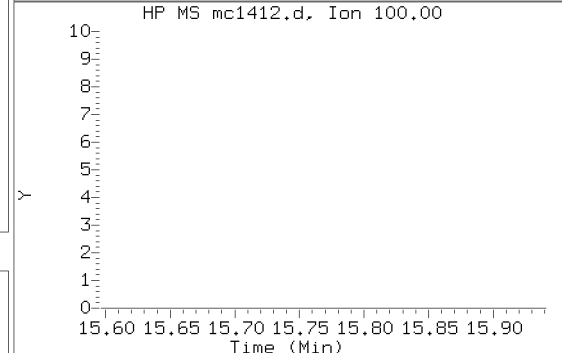
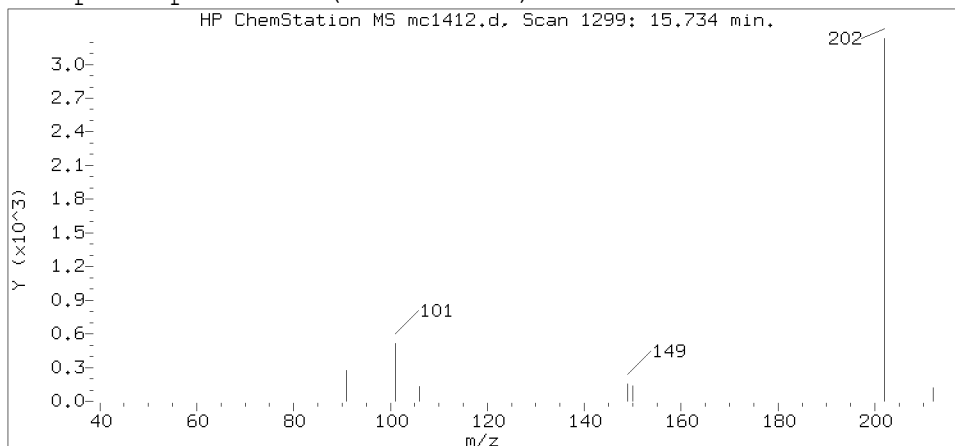
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

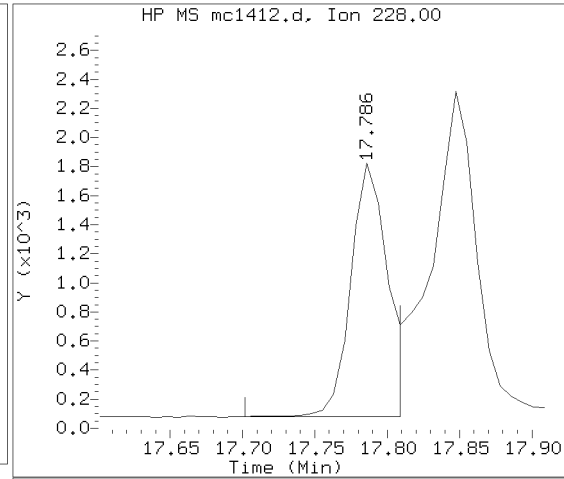
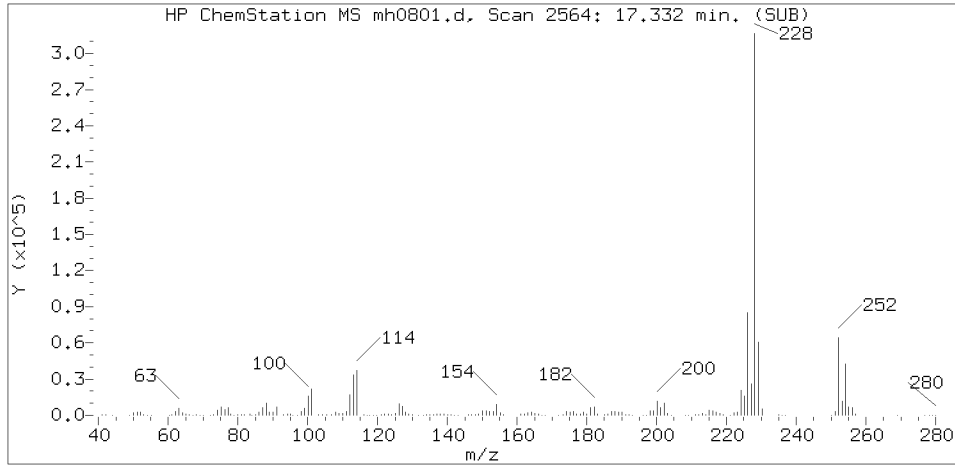
Sample Name: BAC03

Lab Sample ID: 1283811

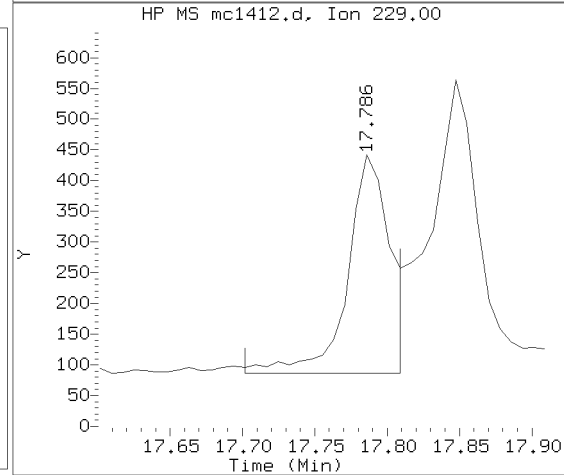
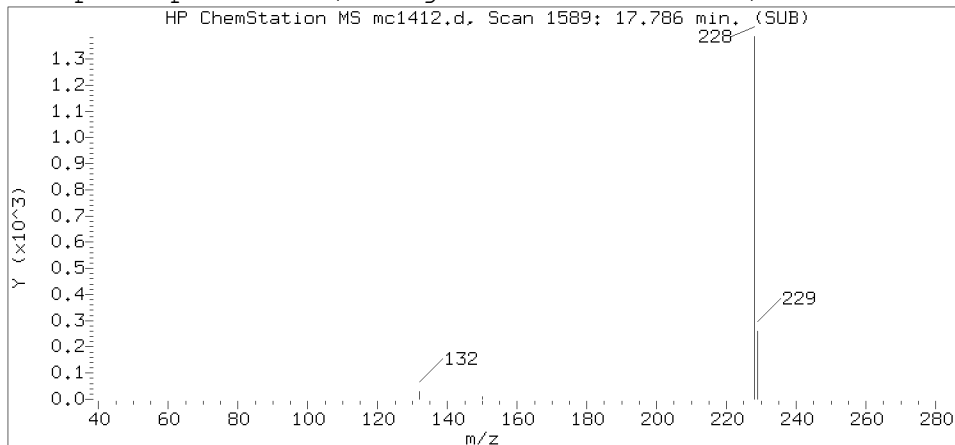
Compound Number : 26
Compound Name : Pyrene
Scan Number : 1299
Retention Time (minutes) : 15.734
Relative Retention Time : -0.00003
Quant Ion : 202.00
Area (flag) : 5065
On-column Amount (ng/ul) : 0.0108

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Target 3.5 esignature user jmg00346

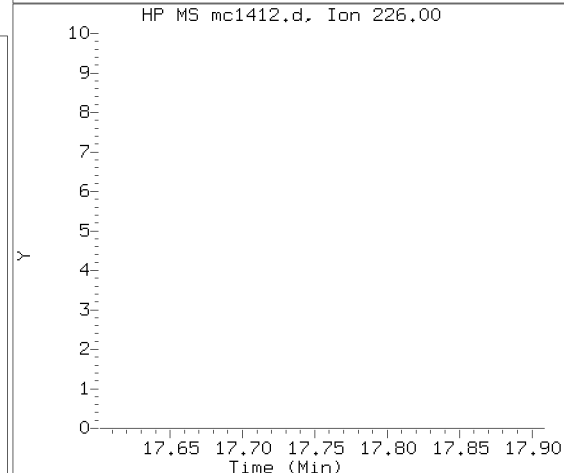
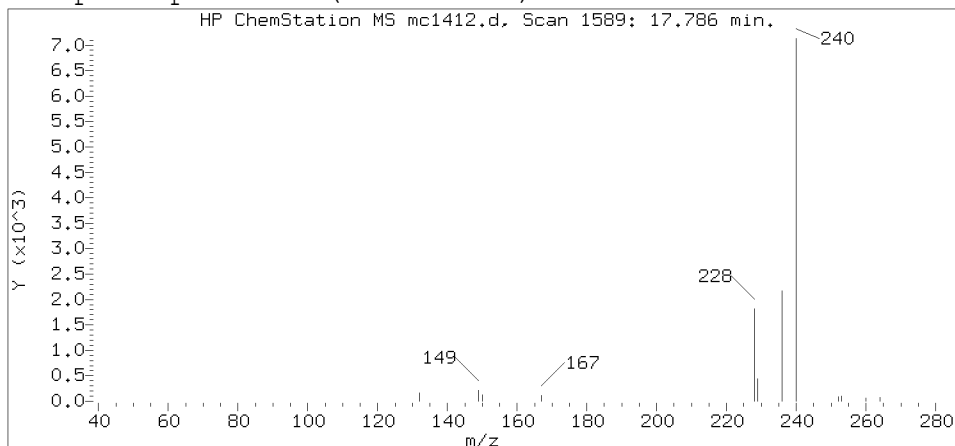
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

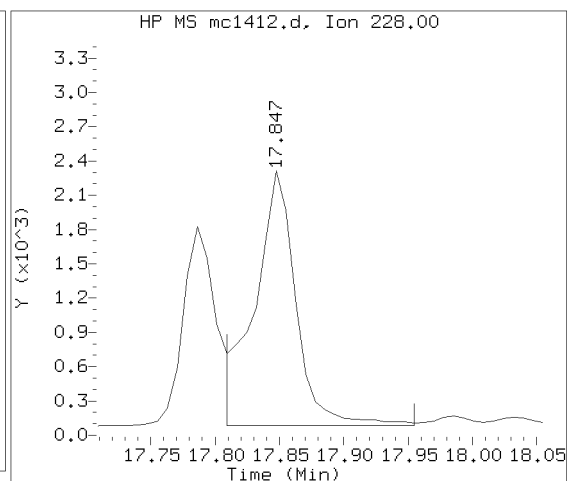
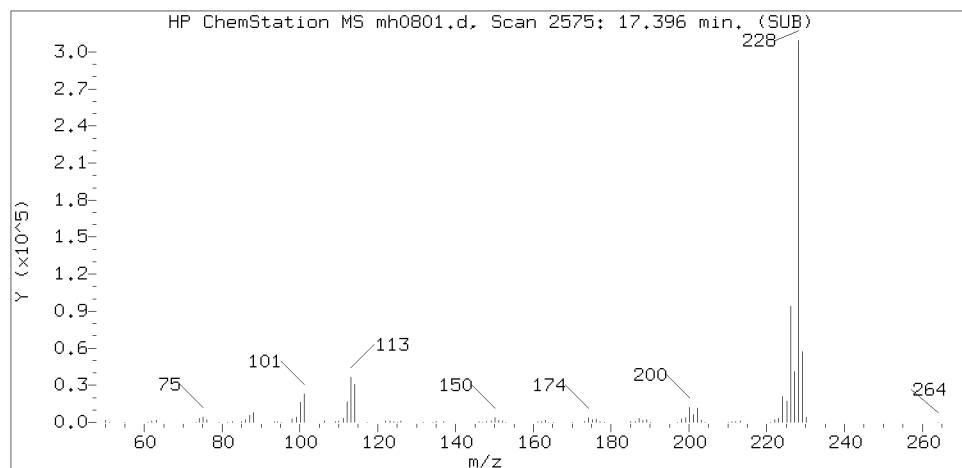
Sample Name: BAC03

Lab Sample ID: 1283811

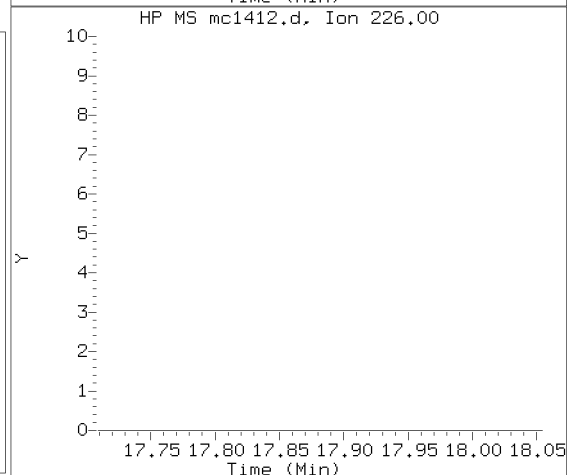
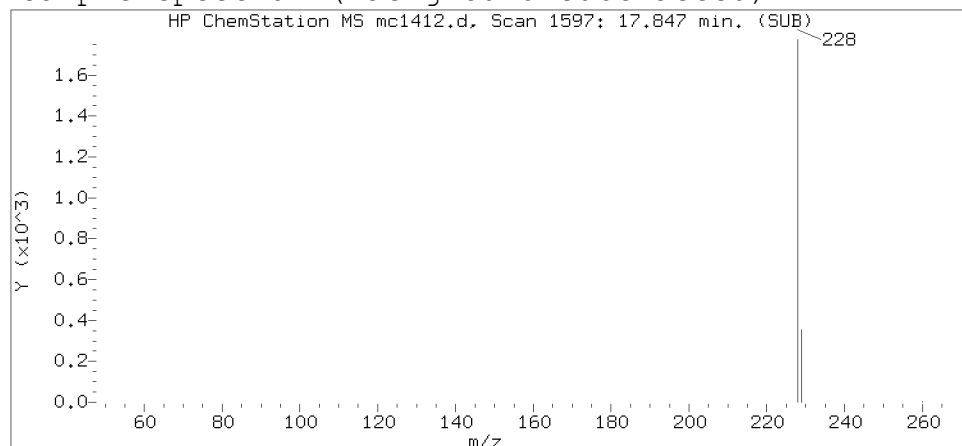
Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1589
Retention Time (minutes) : 17.786
Relative Retention Time :-0.00043
Quant Ion : 228.00
Area (flag) : 2987
On-column Amount (ng/ul) : 0.0076

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Target 3.5 esignature user jmg00346

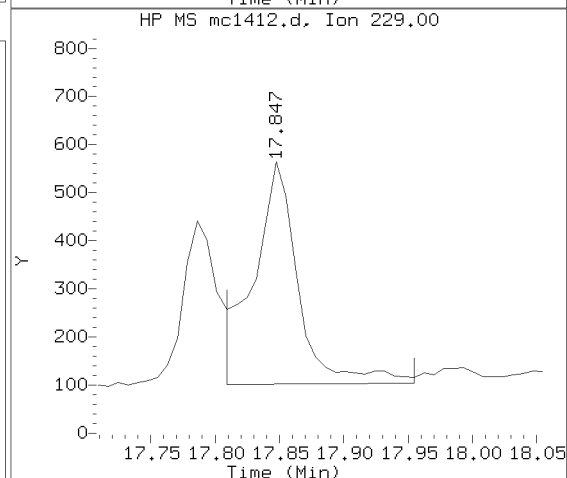
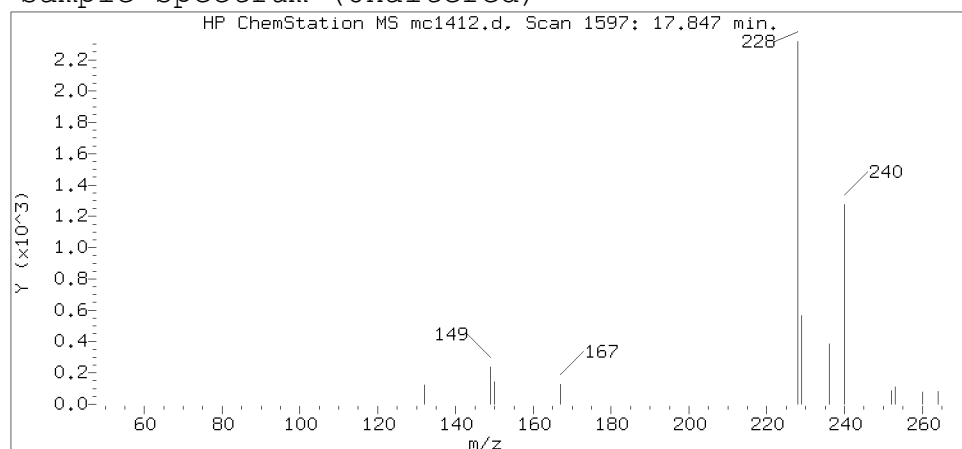
Reference Standard Spectrum for Chrysene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

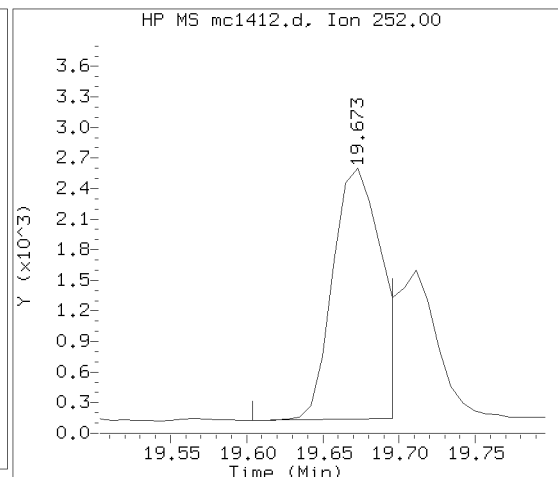
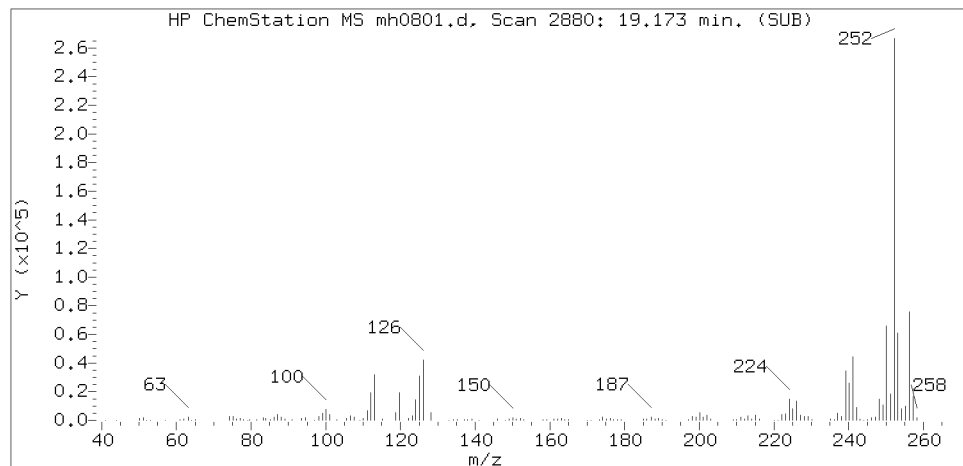
Sample Name: BAC03

Lab Sample ID: 1283811

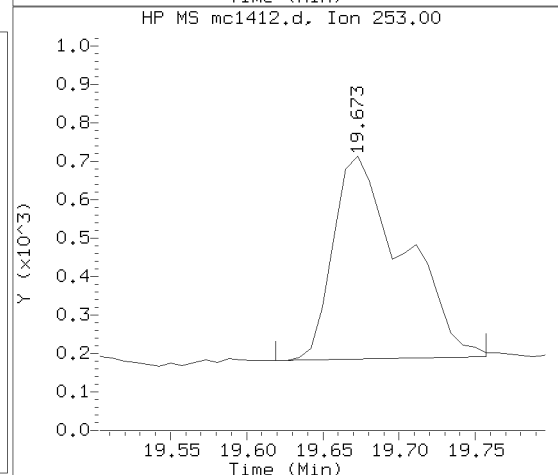
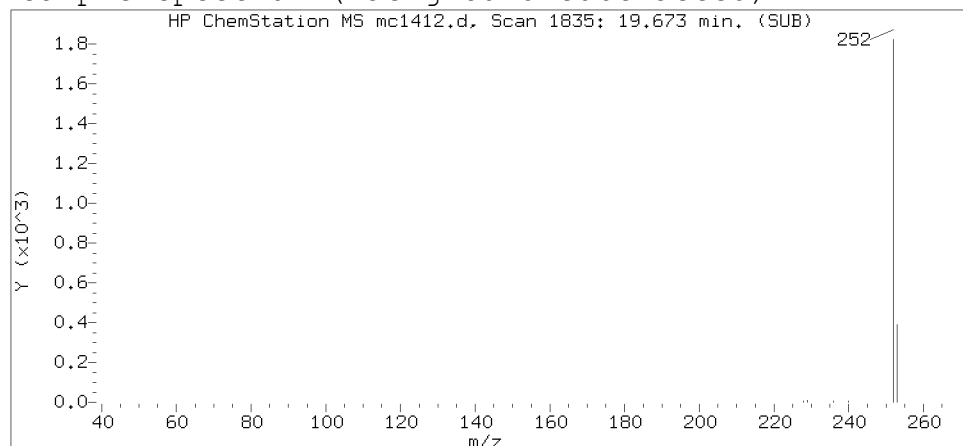
Compound Number : 30
Compound Name : Chrysene
Scan Number : 1597
Retention Time (minutes) : 17.847
Relative Retention Time : -0.00043
Quant Ion : 228.00
Area (flag) : 5009
On-column Amount (ng/ul) : 0.0122

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Target 3.5 esignature user jmg00346

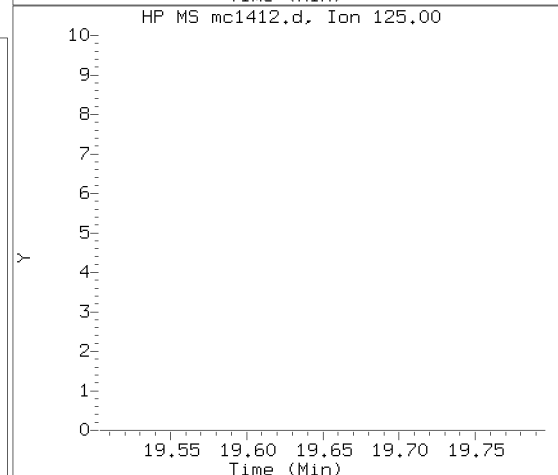
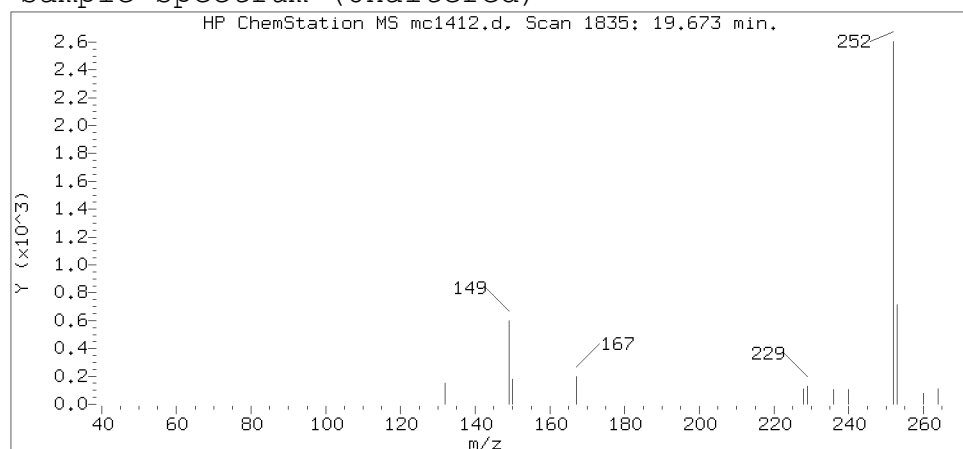
Reference Standard Spectrum for Benzo(b)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

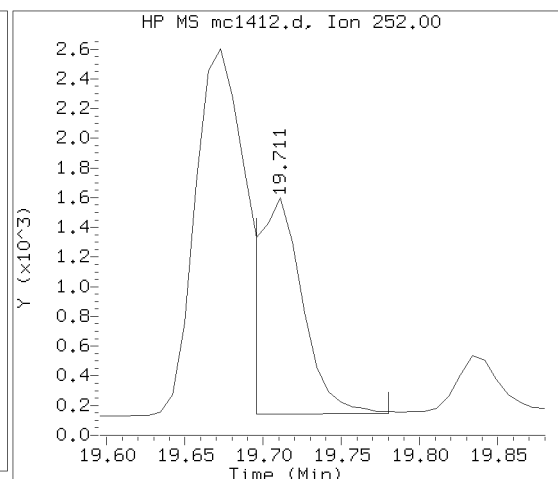
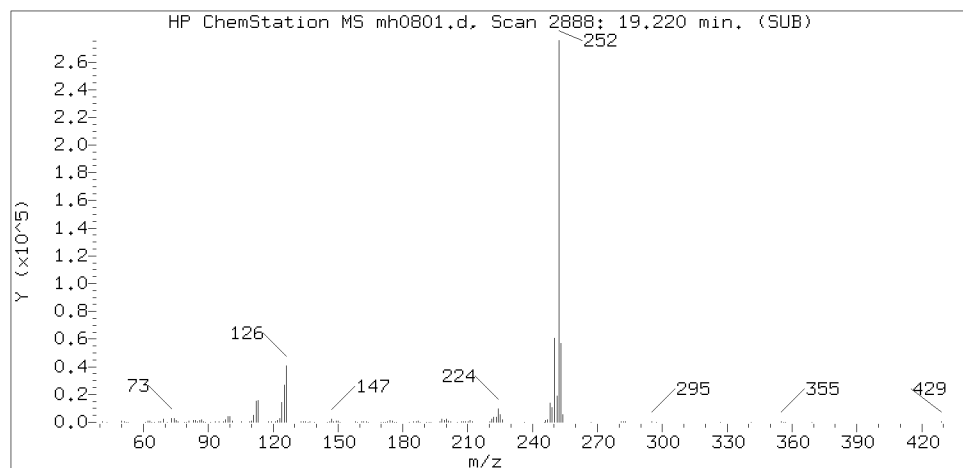
Sample Name: BAC03

Lab Sample ID: 1283811

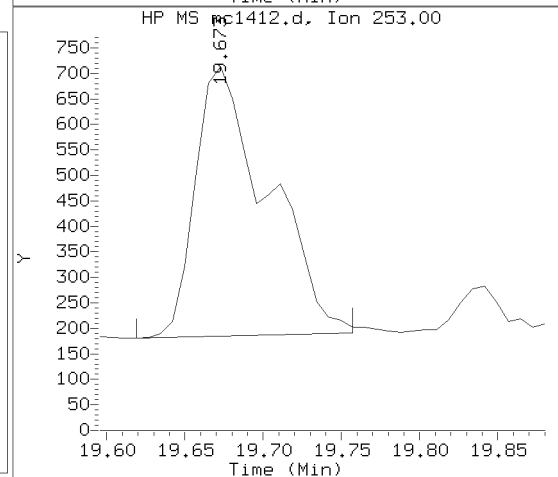
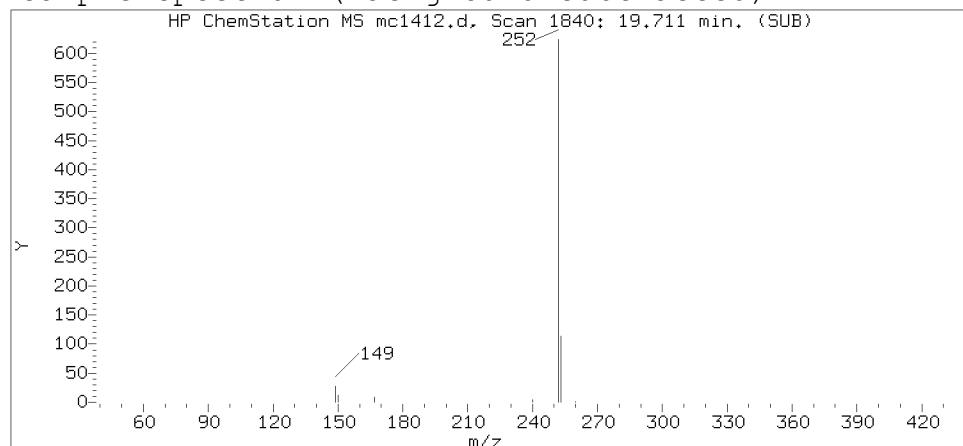
Compound Number : 33
Compound Name : Benzo(b)fluoranthene
Scan Number : 1835
Retention Time (minutes) : 19.673
Relative Retention Time : -0.00038
Quant Ion : 252.00
Area (flag) : 5297
On-column Amount (ng/ul) : 0.0106

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Target 3.5 esignature user jmg00346

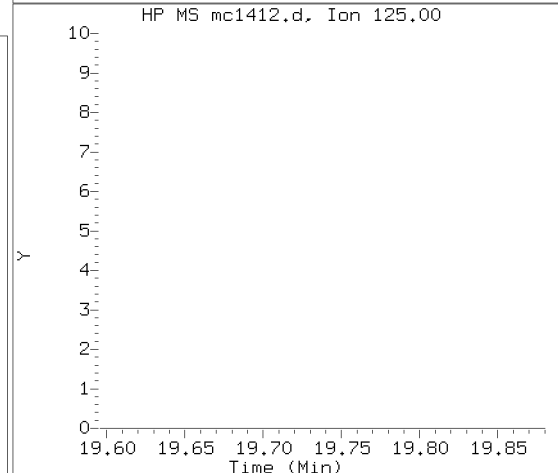
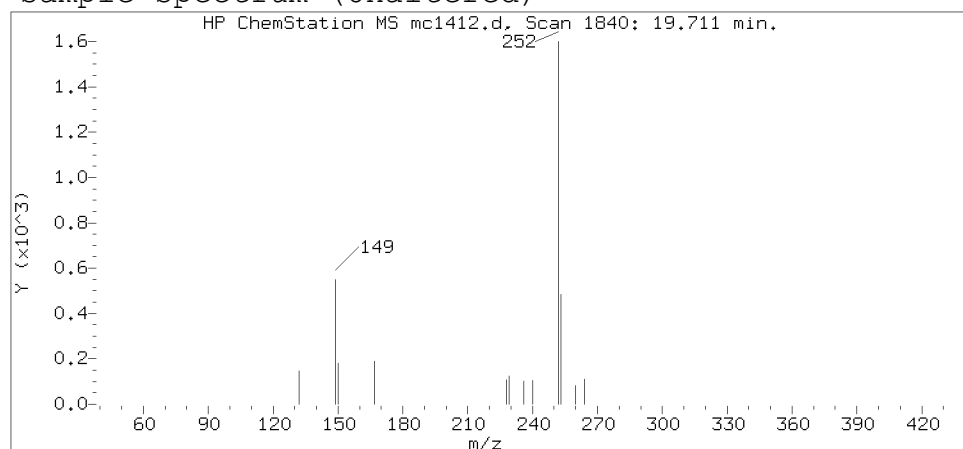
Reference Standard Spectrum for Benzo(k)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC03

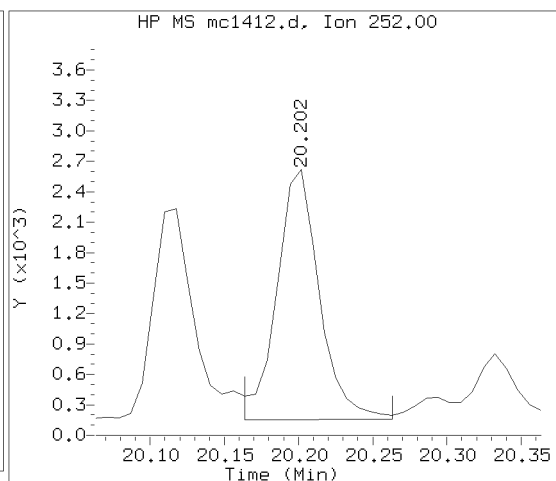
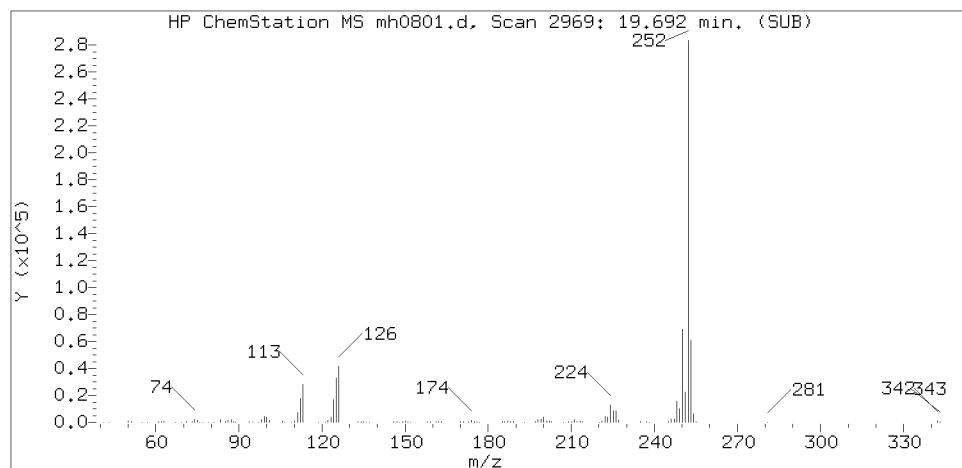
Lab Sample ID: 1283811

Compound Number : 34
Compound Name : Benzo(k)fluoranthene
Scan Number : 1840
Retention Time (minutes) : 19.711
Relative Retention Time : 0.00000
Quant Ion : 252.00
Area (flag) : 2679
On-column Amount (ng/ul) : 0.0051

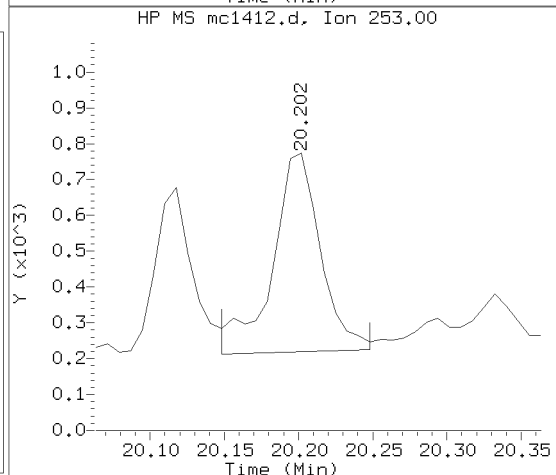
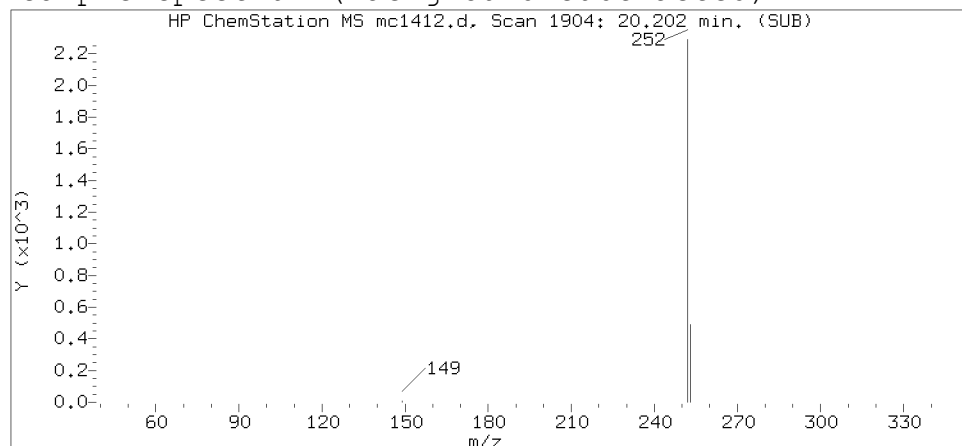
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346

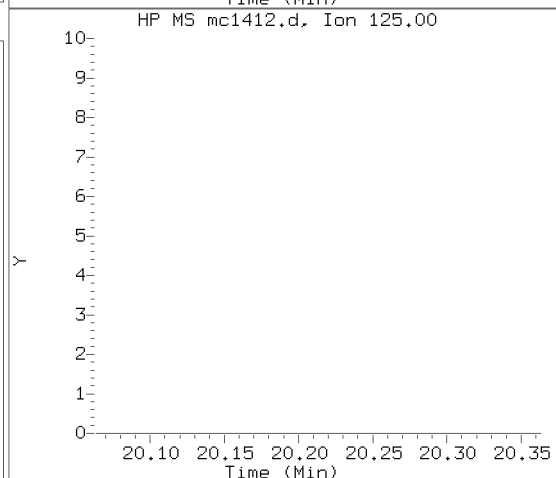
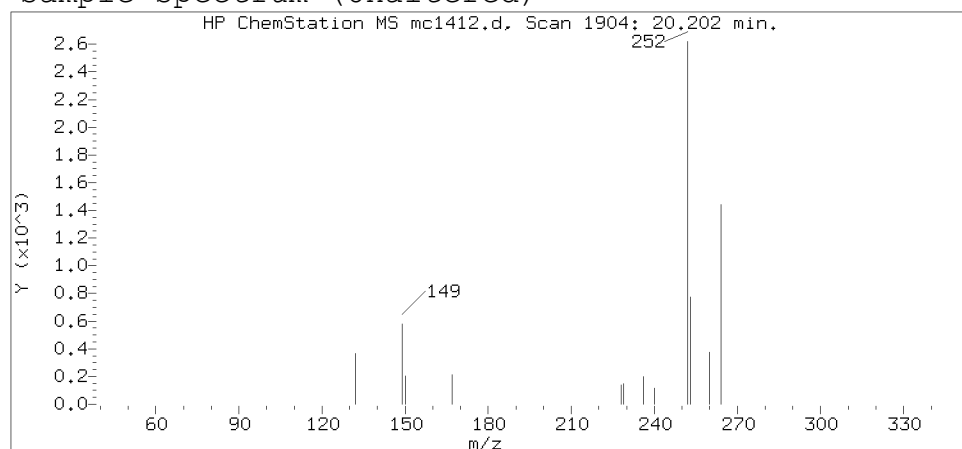
Reference Standard Spectrum for Benzo(a)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC03

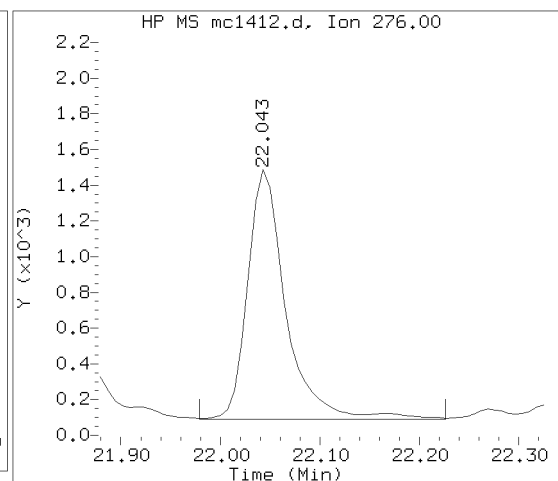
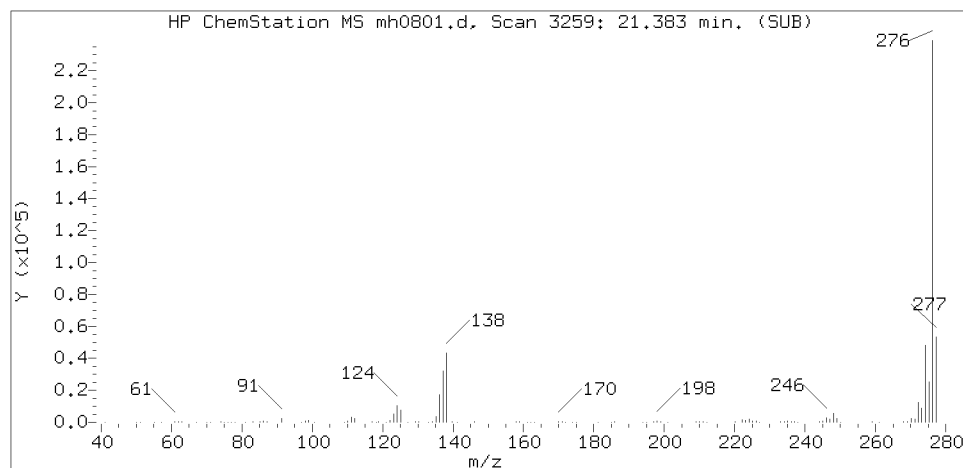
Lab Sample ID: 1283811

Compound Number : 37
Compound Name : Benzo(a)pyrene
Scan Number : 1904
Retention Time (minutes) : 20.202
Relative Retention Time : 0.00000
Quant Ion : 252.00
Area (flag) : 4888
On-column Amount (ng/ul) : 0.0103

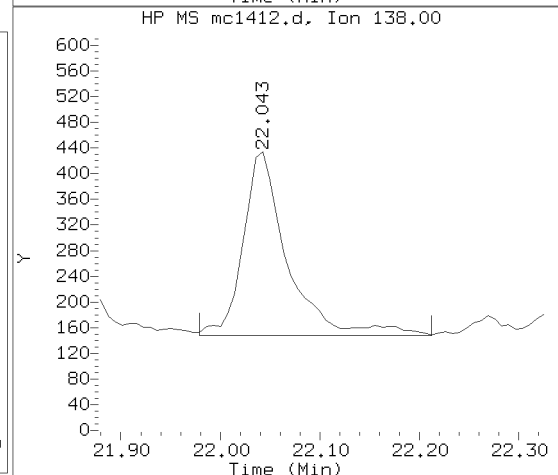
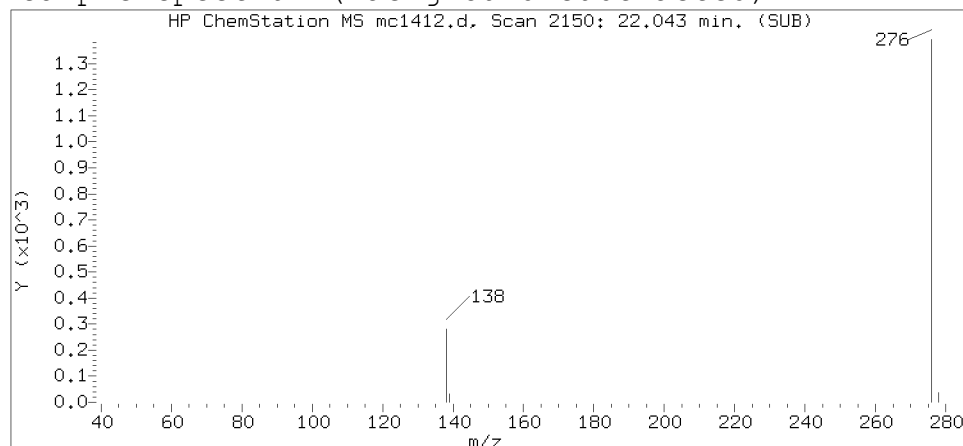
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346
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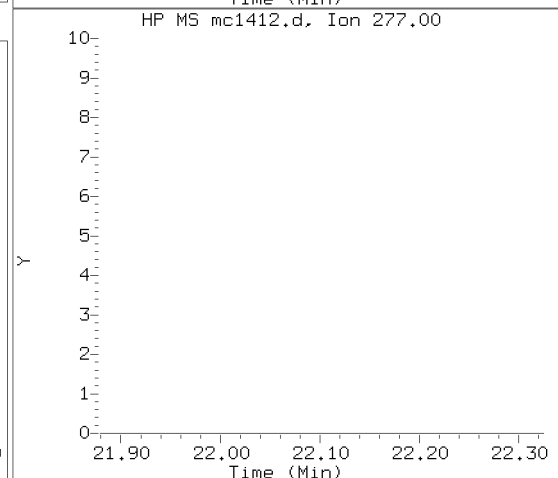
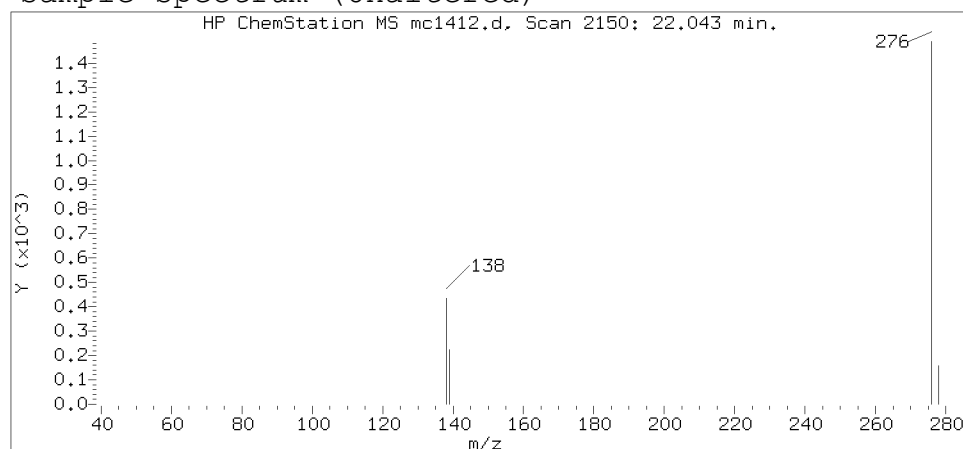
Reference Standard Spectrum for Indeno(1,2,3-cd)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC03

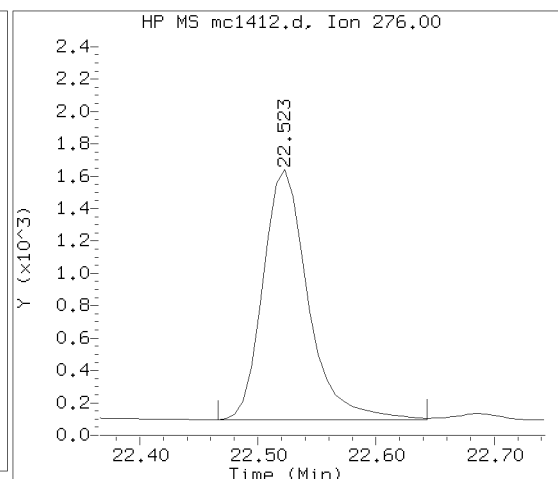
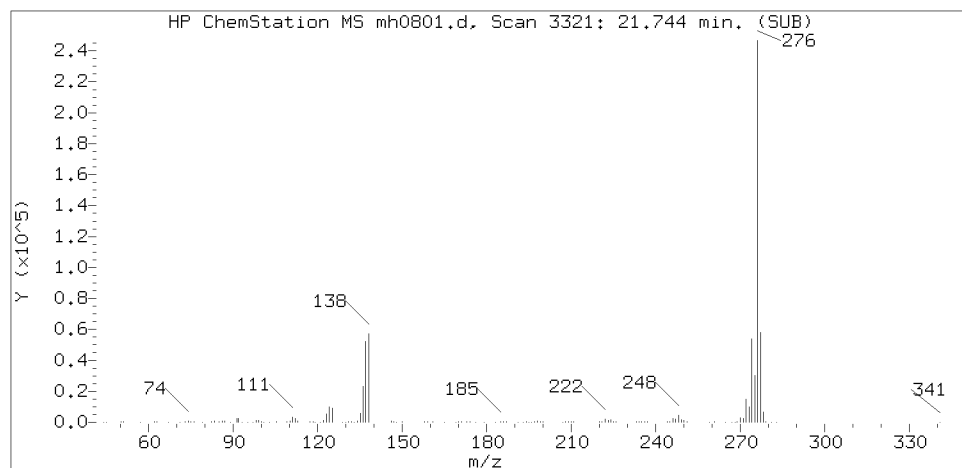
Lab Sample ID: 1283811

Compound Number : 39
Compound Name : Indeno(1,2,3-cd)pyrene
Scan Number : 2150
Retention Time (minutes) : 22.043
Relative Retention Time : -0.00000
Quant Ion : 276.00
Area (flag) : 3740
On-column Amount (ng/ul) : 0.0088

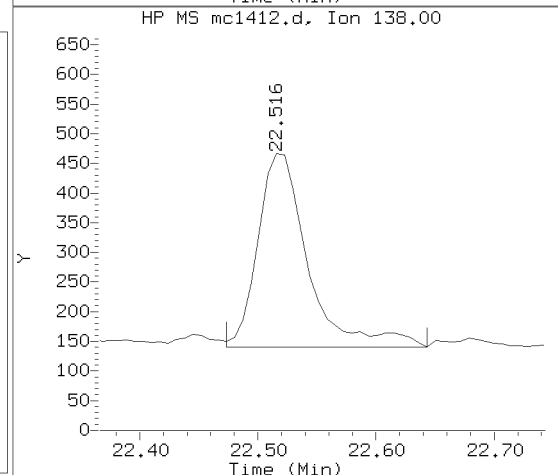
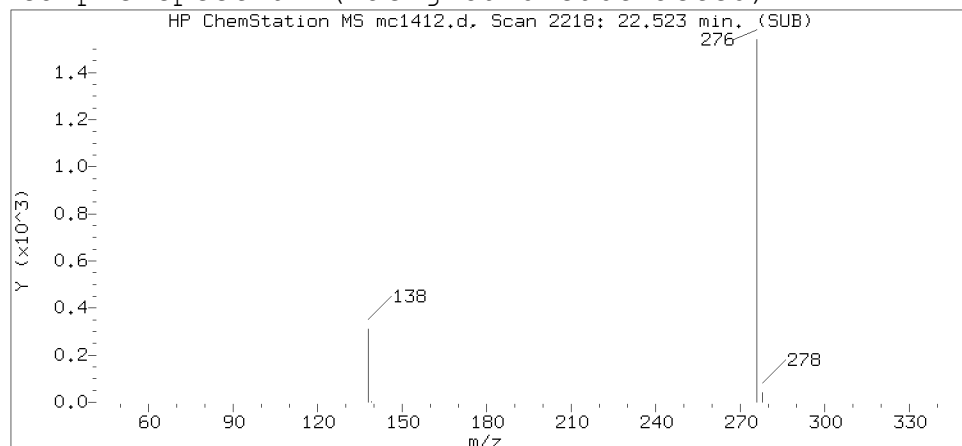
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user jmg00346
Page 290 of 609

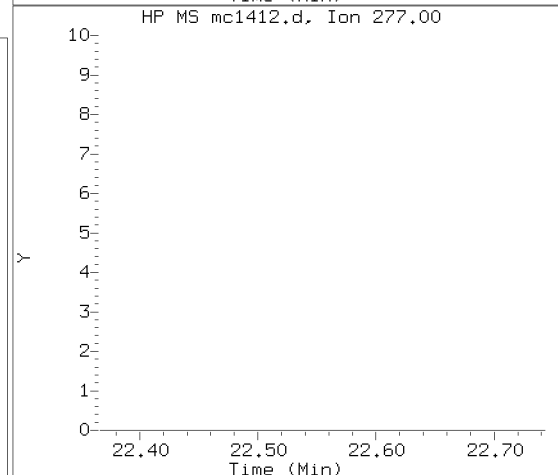
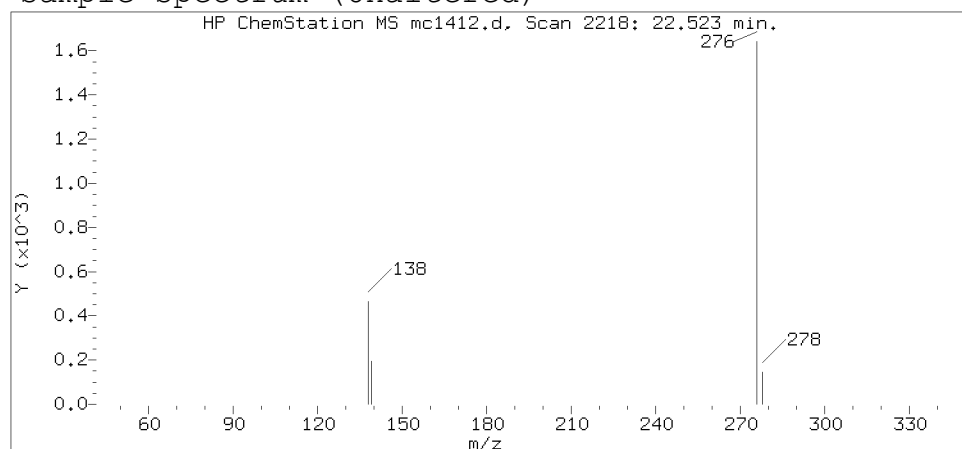
Reference Standard Spectrum for Benzo(g,h,i)perylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1412.d
Injection date and time: 24-MAR-2020 23:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 jmg00346

Sample Name: BAC03

Lab Sample ID: 1283811

Compound Number : 41
Compound Name : Benzo(g,h,i)perylene
Scan Number : 2218
Retention Time (minutes) : 22.523
Relative Retention Time : 0.00000
Quant Ion : 276.00
Area (flag) : 4090
On-column Amount (ng/ul) : 0.0082

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Target 3.5 esignature user jmg00346
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC04

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283812

Sample wt/vol: 242 (g/mL)ML Lab File ID: mc1413.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	0.03	U	
208-96-8-----	Acenaphthylene	0.01	U	
83-32-9-----	Acenaphthene	0.09		
86-73-7-----	Fluorene	0.01	U	
85-01-8-----	Phenanthrene	0.03	U	
120-12-7-----	Anthracene	0.01	U	
206-44-0-----	Fluoranthene	0.01	U	
129-00-0-----	Pyrene	0.01	U	
56-55-3-----	Benzo (a) anthracene	0.01	U	
218-01-9-----	Chrysene	0.01	U	
205-99-2-----	Benzo (b) fluoranthene	0.01	U	
207-08-9-----	Benzo (k) fluoranthene	0.01	U	
50-32-8-----	Benzo (a) pyrene	0.01	U	
193-39-5-----	Indeno (1,2,3-cd) pyrene	0.01	U	
53-70-3-----	Dibenz (a,h) anthracene	0.02	U	
191-24-2-----	Benzo (g,h,i) perylene	0.01	U	

FORM I SV-1

BAC04

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283812

Data file: /chem/HP21585.i/20mar24.b/mc1413.d

Injection date and time: 25-MAR-2020 00:28

Data file Sample Info. Line: BAC04;1283812;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 04:37 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 242 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	22271 (-2)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	73089 (-3)	0.25	
14) Acenaphthene-d10	11.745 (0.000)	750	164	35030 (-7)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	71789 (-10)	0.25	
29) Chrysene-d12	17.801 (0.008)	1591	240	60201 (-29)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	85856 (-10)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	26258	0.175	70%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	65007	0.214	86%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	48644	0.150	60%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)			Not Detected					0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)	11.780 (0.000)	154	4285M	0.021	0.09			0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

M = Compound was manually integrated.

BAC04

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283812

Data file: /chem/HP21585.i/20mar24.b/mc1413.d

Injection date and time: **25-MAR-2020 00:28**

Data file Sample Info. Line: BAC04;1283812;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 04:37 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 242 ml

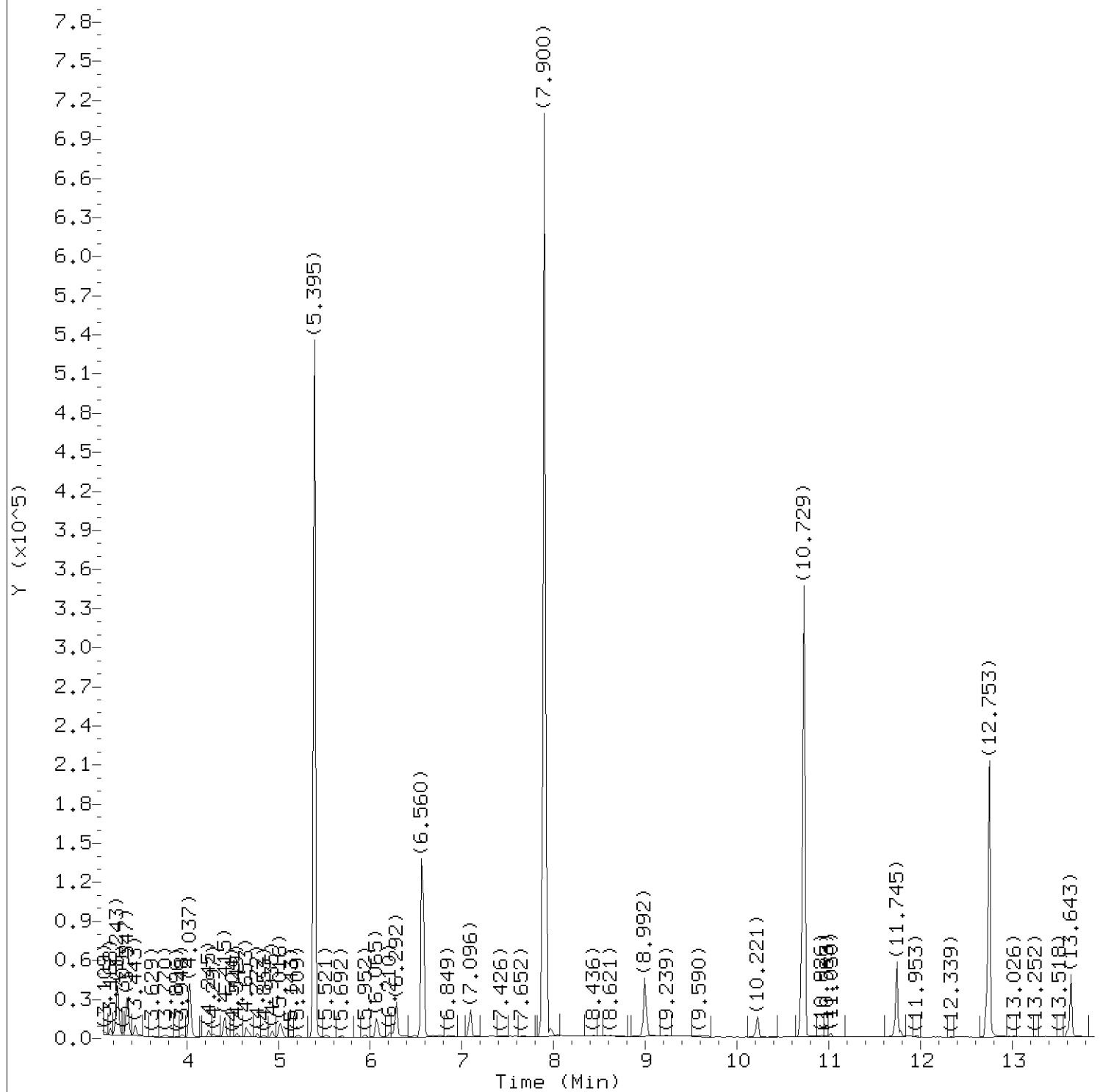
Volume Injected (Vi): 2 ul

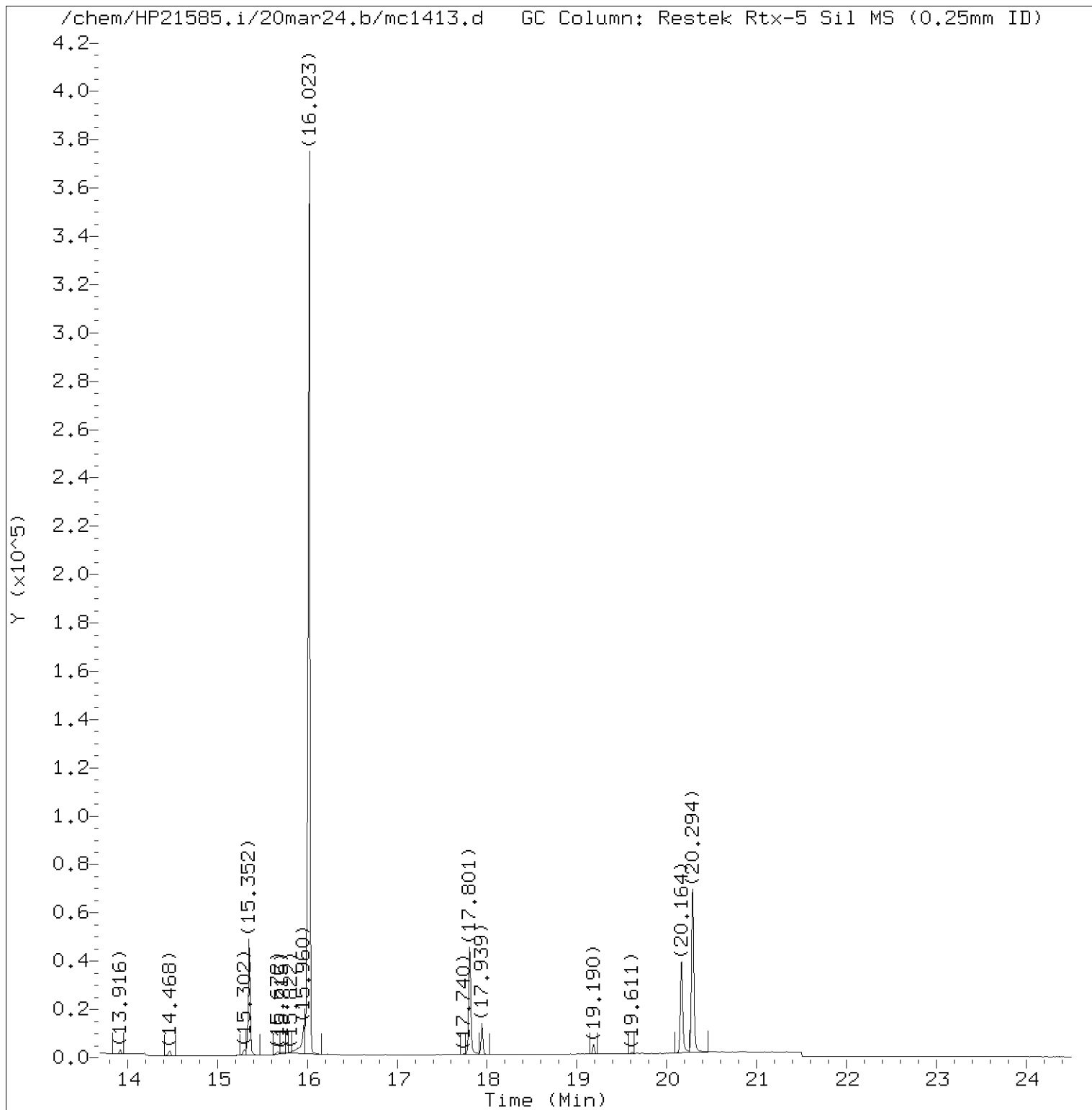
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Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745





Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1413.d
Injection date and time: 25-MAR-2020 00:28

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:37 jmg00346

Sample Name: BAC04

Lab Sample ID: 1283812

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:46.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1413.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 00:28

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:37 jmg00346

Sample Name: BAC04

Lab Sample ID: 1283812

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	22271	0.250
6) *Naphthalene-d8	(2)	8.992	136	73089	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	26258	0.175
14) *Acenaphthene-d10	(3)	11.745	164	35030	0.250
15) Acenaphthene	(3)	11.780	154	4285M	0.021
20) *Phenanthrene-d10	(4)	13.643	188	71789	0.250
24) \$Fluoranthene-d10	(4)	15.352	212	65007	0.214
29) *Chrysene-d12	(5)	17.801	240	60201	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	48644	0.150
38) *Perylene-d12	(6)	20.294	264	85856	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

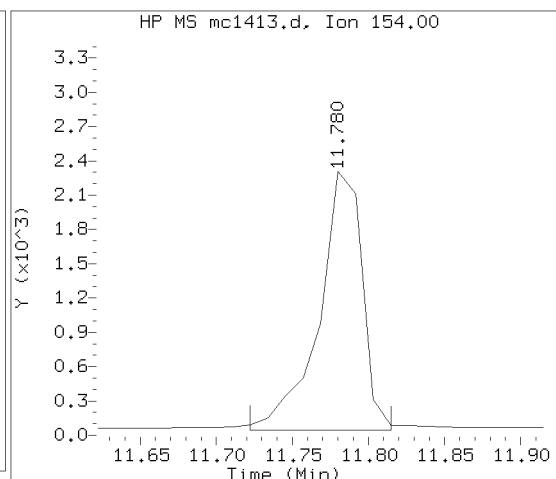
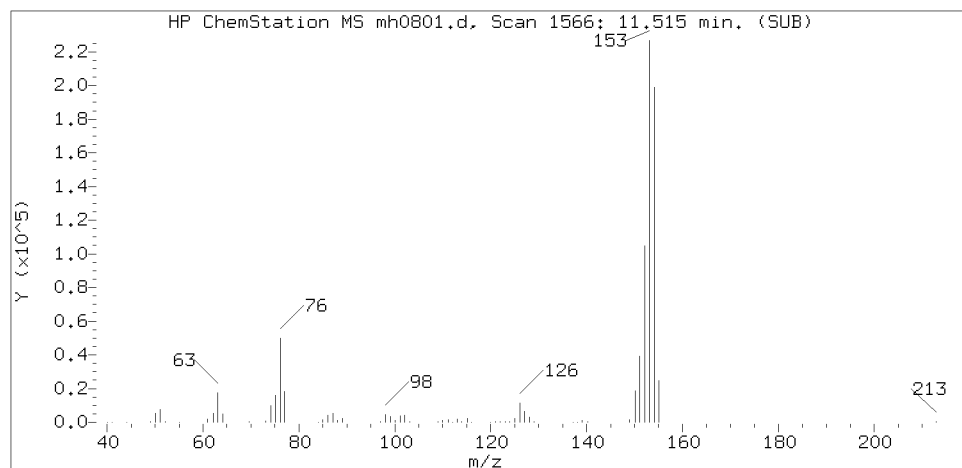
on 03/25/2020 at 05:46.

Target 3.5 esignature user ID: jmg00346

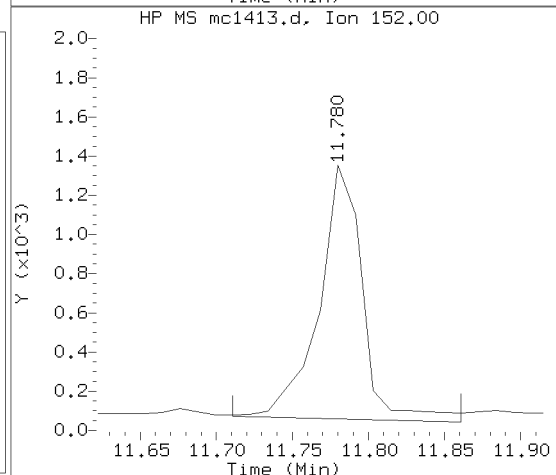
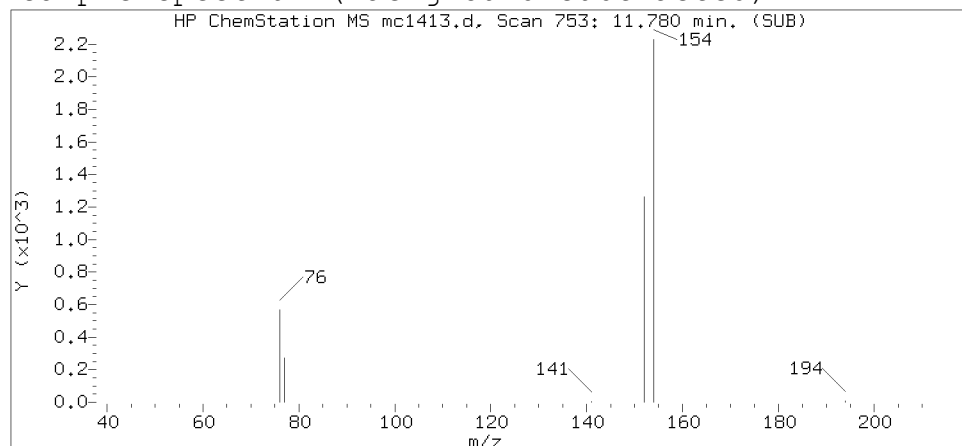
GPY67 Page 297 of 609

page 1 of 1

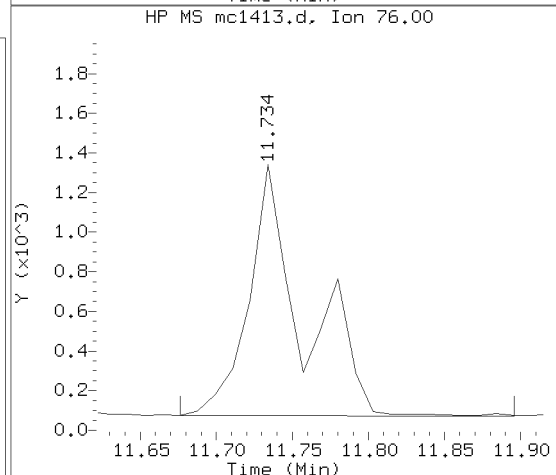
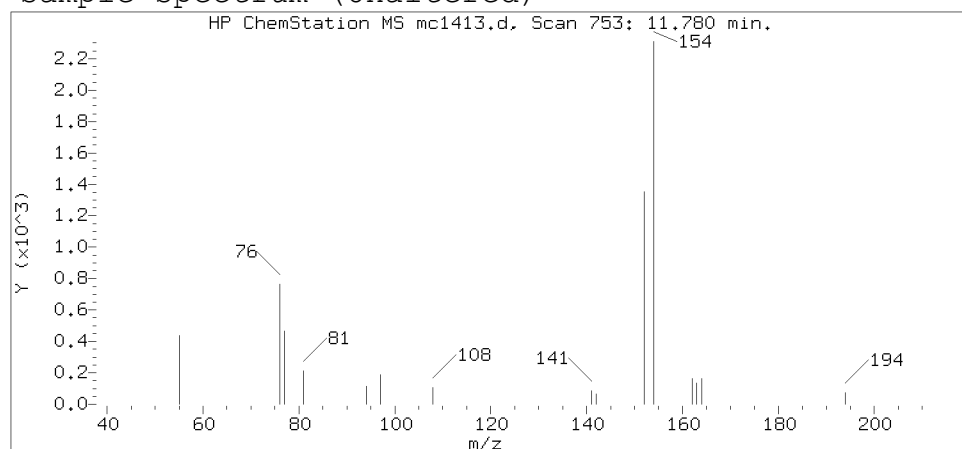
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1413.d
Injection date and time: 25-MAR-2020 00:28

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:37 jmg00346

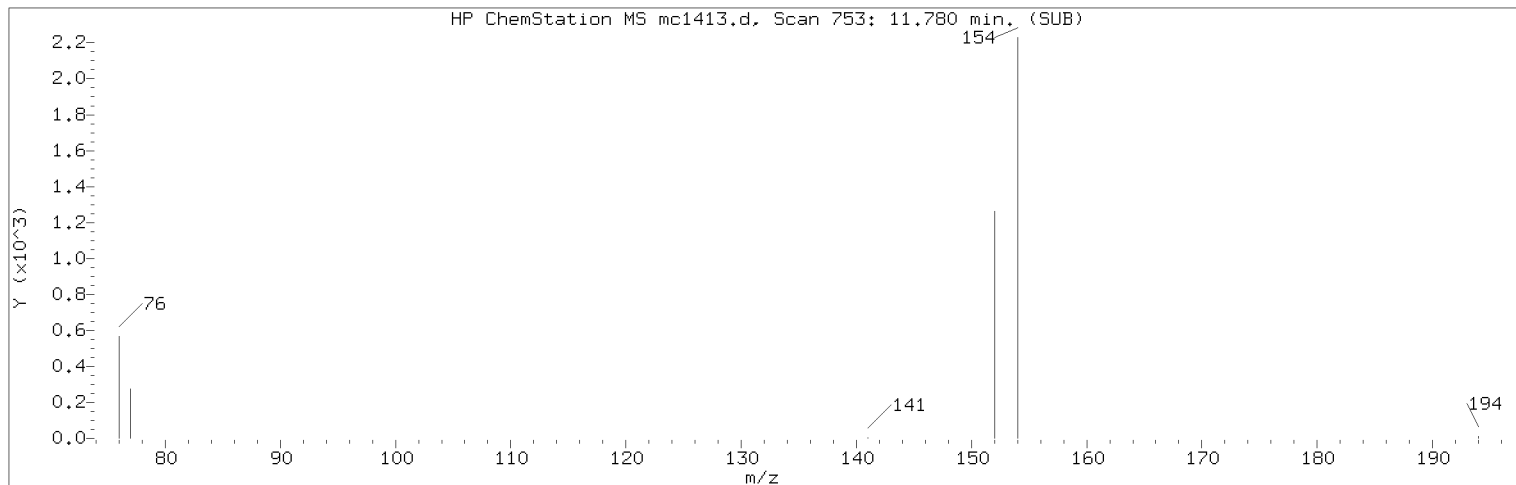
Sample Name: BAC04

Lab Sample ID: 1283812

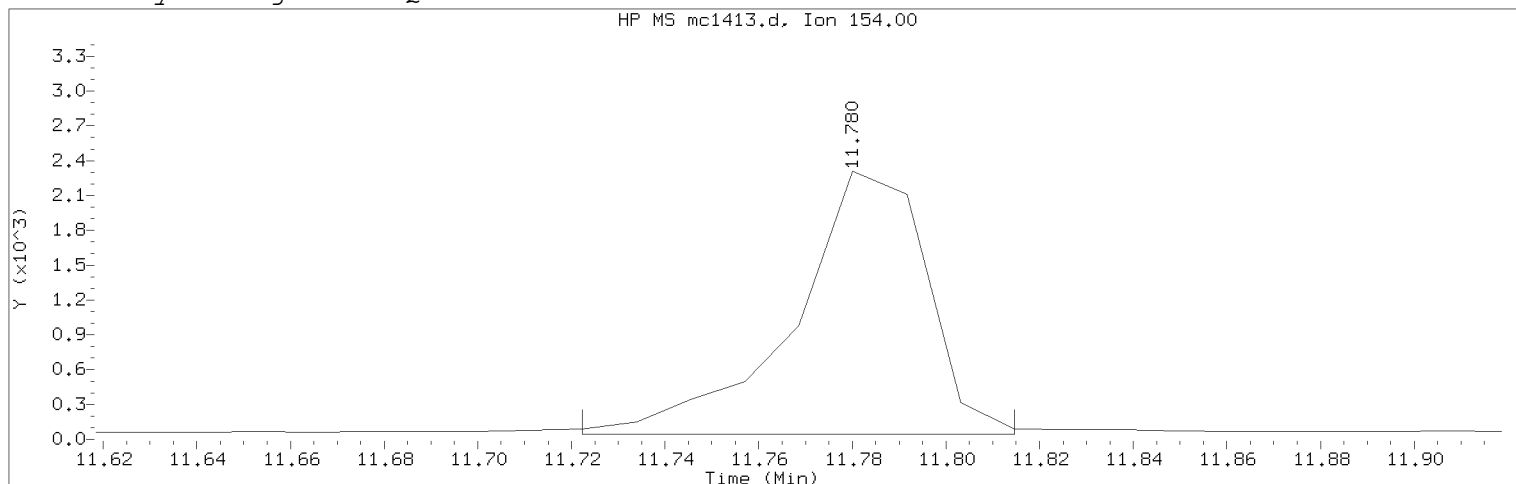
Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 753
Retention Time (minutes) : 11.780
Relative Retention Time : 0.00098
Quant Ion : 154.00
Area (flag) : 4285M
On-column Amount (ng/ul) : 0.0207

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1413.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 00:28

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:37 jmg00346

Sample Name: BAC04

Lab Sample ID: 1283812

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area (flag)	: 4285M	
On-column Amount (ng/ul)	: 0.0207	
Integration start scan	: 747	Integration stop scan: 755
Y at integration start	: 46	Y at integration end: 46

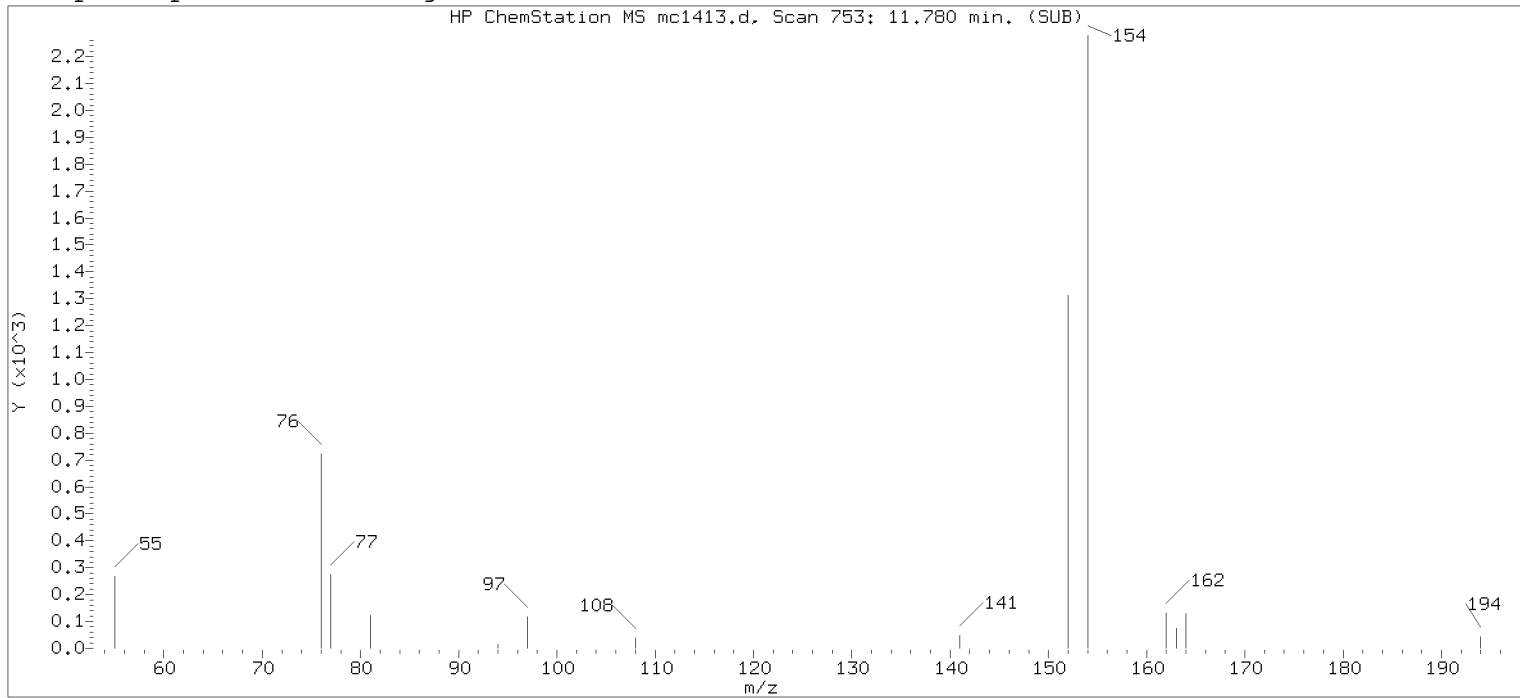
Reason for manual integration: improper integration

Analyst responsible for change:

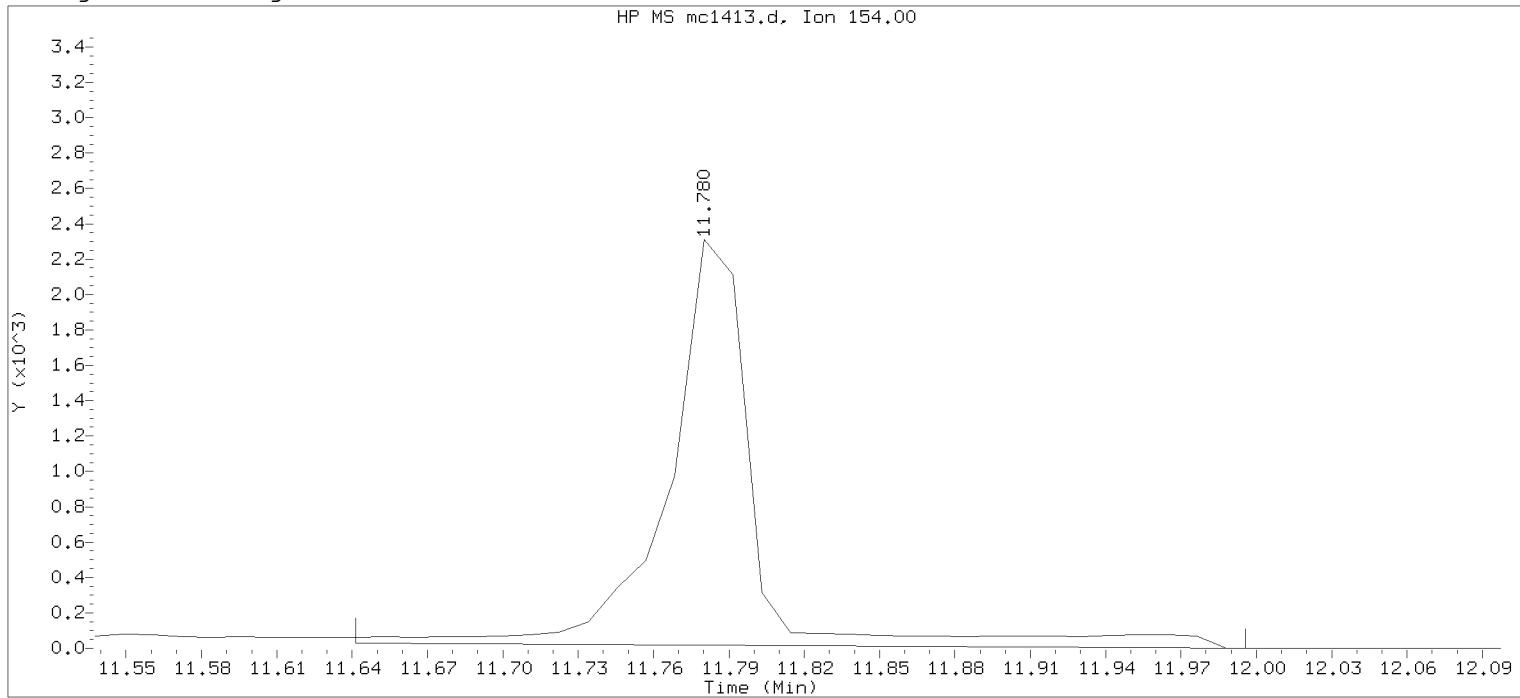
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:46.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1413.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 00:28

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC04

Lab Sample ID: 1283812

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area	: 5179	
On-column Amount (ng/ul)	: 0.0250	
Integration start scan	: 740	Integration stop scan: 771
Y at integration start	: 30	Y at integration end: 0

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:46.

Target 3.5 esignature user GPV67j Page 300 of 609

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC05

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283813

Sample wt/vol: 248 (g/mL)ML Lab File ID: mc1414.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	0.03	U	
208-96-8-----	Acenaphthylene	0.01	U	
83-32-9-----	Acenaphthene	0.01	U	
86-73-7-----	Fluorene	0.01	U	
85-01-8-----	Phenanthrene	0.03	U	
120-12-7-----	Anthracene	0.01	U	
206-44-0-----	Fluoranthene	0.01	U	
129-00-0-----	Pyrene	0.01	U	
56-55-3-----	Benzo (a) anthracene	0.01	U	
218-01-9-----	Chrysene	0.01	U	
205-99-2-----	Benzo (b) fluoranthene	0.01	U	
207-08-9-----	Benzo (k) fluoranthene	0.01	U	
50-32-8-----	Benzo (a) pyrene	0.01	U	
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.01	U	
53-70-3-----	Dibenz (a,h) anthracene	0.02	U	
191-24-2-----	Benzo (g,h,i) perylene	0.01	U	

FORM I SV-1

BAC05

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283813

Data file: /chem/HP21585.i/20mar24.b/mc1414.d

Injection date and time: 25-MAR-2020 00:58

Data file Sample Info. Line: BAC05;1283813;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 04:38 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 248 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	22511 (-1)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	75366 (0)	0.25	
14) Acenaphthene-d10	11.746 (0.000)	750	164	34471 (-9)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	71762 (-10)	0.25	
29) Chrysene-d12	17.802 (0.007)	1591	240	64849 (-23)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	88734 (-7)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.222 (0.001)	152	25145	0.163	65%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	65697	0.217	87%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	55004	0.165	66%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)			Not Detected					0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

BAC05

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283813

Data file: /chem/HP21585.i/20mar24.b/mc1414.d

Injection date and time: **25-MAR-2020 00:58**

Data file Sample Info. Line: BAC05;1283813;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 04:38 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 248 ml

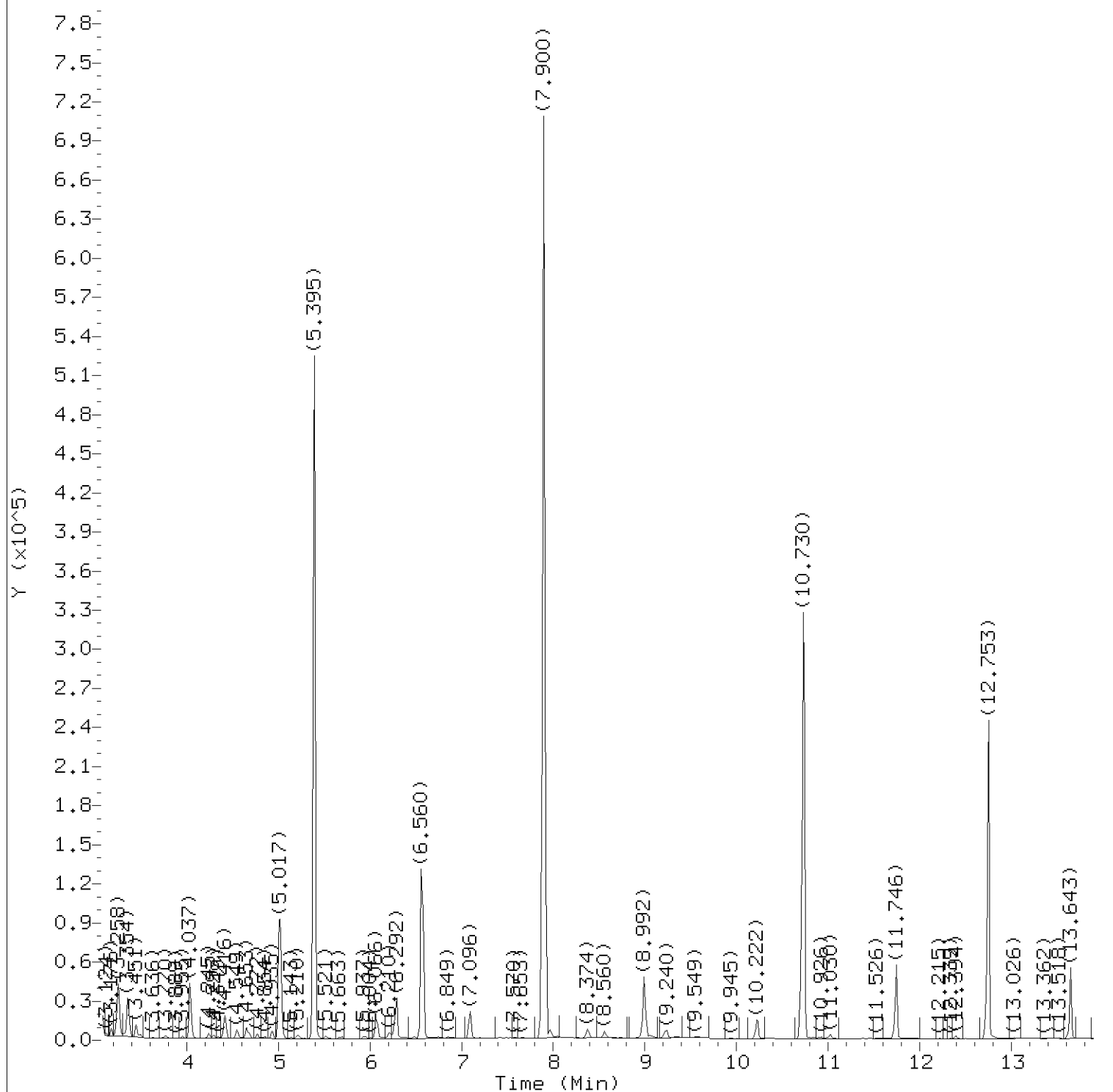
Volume Injected (Vi): 2 ul

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Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1414.d
Injection date and time: 25-MAR-2020 00:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

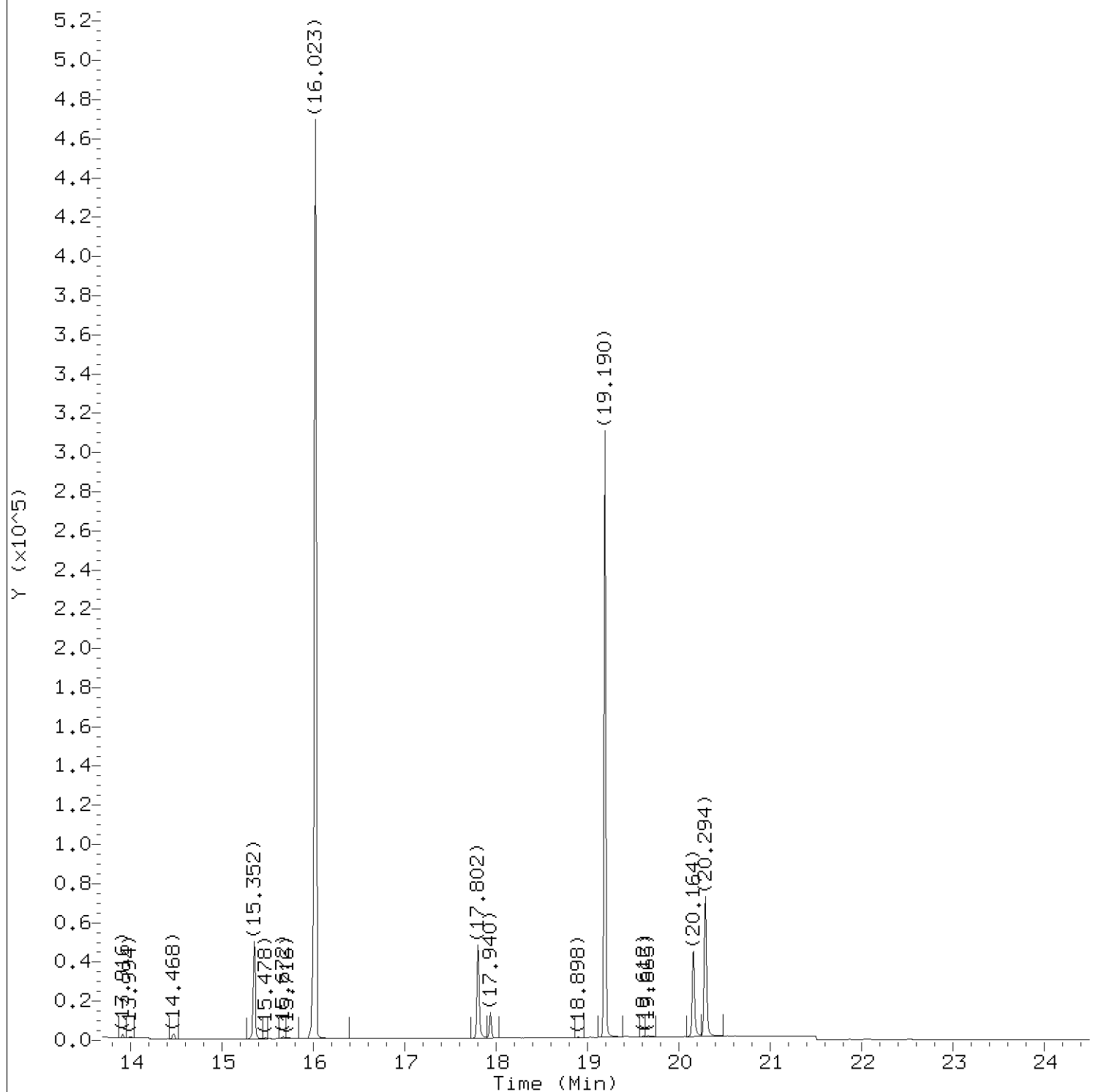
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:38 jmg00346

Sample Name: BAC05

Lab Sample ID: 1283813

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1414.d
Injection date and time: 25-MAR-2020 00:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m
Calibration date and time: 24-MAR-2020 19:16

Sublist used: 21331

Date, time and analyst ID of latest file update: 25-Mar-2020 04:38 jmg00346

Sample Name: BAC05

Lab Sample ID: 1283813

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1414.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 00:58

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:38 jmg00346

Sample Name: BAC05

Lab Sample ID: 1283813

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	22511	0.250
6) *Naphthalene-d8	(2)	8.992	136	75366	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.222	152	25145	0.163
14) *Acenaphthene-d10	(3)	11.746	164	34471	0.250
20) *Phenanthrene-d10	(4)	13.643	188	71762	0.250
24) \$Fluoranthene-d10	(4)	15.352	212	65697	0.217
29) *Chrysene-d12	(5)	17.802	240	64849	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	55004	0.165
38) *Perylene-d12	(6)	20.294	264	88734	0.250

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC06

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283814

Sample wt/vol: 247 (g/mL)ML Lab File ID: mc1415.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		7	
208-96-8-----	Acenaphthylene		0.01	U
83-32-9-----	Acenaphthene		44	E
86-73-7-----	Fluorene		7	
85-01-8-----	Phenanthrene		11	E
120-12-7-----	Anthracene		3	
206-44-0-----	Fluoranthene		3	
129-00-0-----	Pyrene		4	
56-55-3-----	Benzo (a) anthracene		0.4	
218-01-9-----	Chrysene		0.3	
205-99-2-----	Benzo (b) fluoranthene		0.1	
207-08-9-----	Benzo (k) fluoranthene		0.05	
50-32-8-----	Benzo (a) pyrene		0.2	
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.06	
53-70-3-----	Dibenz (a,h) anthracene		0.02	U
191-24-2-----	Benzo (g,h,i) perylene		0.06	

FORM I SV-1

BAC06

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283814

Data file: /chem/HP21585.i/20mar24.b/mc1415.d

Injection date and time: 25-MAR-2020 01:29

Data file Sample Info. Line: BAC06;1283814;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 10:09 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 247 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	24301 (6)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	83765M (11)	0.25	
14) Acenaphthene-d10	11.745 (0.000)	750	164	46702 (23)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	84148 (6)	0.25	
29) Chrysene-d12	17.801 (0.008)	1591	240	82771 (-2)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	94683 (0)	0.25	

M = Internal Standard was manually integrated

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	35993	0.210	84%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	73559	0.207	83%		34 - 125
36) Benzo(a)pyrene-d12	(6)	20.164 (0.000)	264	72347	0.203	81%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033 (-0.000)	128	657436	1.659	6.72			0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)	11.792 (-0.000)	154	3000909	10.861	43.97		E	0.003
18) Fluorene	(3)	12.448 (-0.000)	166	591330	1.689	6.84			0.003
21) Phenanthrene	(4)	13.674 (-0.000)	178	1239958	2.840	11.50		E	0.008
22) Anthracene	(4)	13.744 (-0.000)	178	294729	0.720	2.91			0.003
25) Fluoranthene	(4)	15.383 (-0.000)	202	404732	0.843	3.41			0.003
26) Pyrene	(5)	15.740 (-0.000)	202	540309	0.911	3.69			0.003
28) Benzo(a)anthracene	(5)	17.786 (-0.000)	228	48774	0.097	0.39			0.003
30) Chrysene	(5)	17.847 (-0.000)	228	42992	0.083	0.34			0.003
33) Benzo(b)fluoranthene	(6)	19.665 (0.000)	252	18259	0.034	0.14			0.003
34) Benzo(k)fluoranthene	(6)	19.711 (0.000)	252	7454	0.013	0.05			0.003
37) Benzo(a)pyrene	(6)	20.202 (0.000)	252	19346	0.038	0.15			0.003
39) Indeno(1,2,3-cd)pyrene	(6)	22.036 (0.000)	276	7196M	0.016	0.06			0.003
40) Dibenz(a,h)anthracene	(6)			Not Detected					0.005
41) Benzo(g,h,i)perylene	(6)	22.523 (0.000)	276	7758	0.014	0.06			0.003

E = Compound concentration above calibration range. M = Compound was manually integrated.

BAC06

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283814

Data file: /chem/HP21585.i/20mar24.b/mc1415.d

Injection date and time: **25-MAR-2020 01:29**

Data file Sample Info. Line: BAC06;1283814;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 10:09 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 247 ml

Volume Injected (Vi): 2 ul

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Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 10:10. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 10:22. PARALLAX ID: reb00745

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC06DL

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283814

Sample wt/vol: 247 (g/mL)ML Lab File ID: mc1452.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:			Q
		(ug/L or ug/Kg) MDL	UG/L		
91-20-3-----	Naphthalene		8		D
208-96-8-----	Acenaphthylene		0.1	U	
83-32-9-----	Acenaphthene		56		D
86-73-7-----	Fluorene		13		D
85-01-8-----	Phenanthrene		15		D
120-12-7-----	Anthracene		4		D
206-44-0-----	Fluoranthene		4		D
129-00-0-----	Pyrene		5		D
56-55-3-----	Benzo (a) anthracene		0.4	J	D
218-01-9-----	Chrysene		0.4	J	D
205-99-2-----	Benzo (b) fluoranthene		0.1	J	D
207-08-9-----	Benzo (k) fluoranthene		0.1	U	
50-32-8-----	Benzo (a) pyrene		0.1	J	D
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.1	U	
53-70-3-----	Dibenz (a,h) anthracene		0.2	U	
191-24-2-----	Benzo (g,h,i) perylene		0.1	U	

FORM I SV-1

BAC06DL Lancaster Laboratories, Inc. 1283814DL

Analysis Summary for GC/MS Semivolatiles

Data file: /chem/HP21585.i/20mar25.b/mc1452.d Injection date and time: 25-MAR-2020 07:02
 Data file Sample Info. Line: BAC06DL;1283814DL;1;0;SAMPLE;;;T2 Instrument ID: HP21585.i Batch: 20083WAF
 Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar25.b/rvsm8270d.m Sublist used: 21331
 Calibration date and time (Last Method Edit): 25-MAR-2020 07:03
 Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar25.b/mc1451.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 10 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
 Sample Volume (Vo): 247 ml Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	21206 (-5)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	74990 (2)	0.25	
14) Acenaphthene-d10	11.746 (0.000)	750	164	36738 (-5)	0.25	
20) Phenanthrene-d10	13.643 (0.000)	983	188	78160 (-2)	0.25	
29) Chrysene-d12	17.809 (-0.008)	1592	240	67102 (-17)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	83171 (-10)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	3517	0.023	92%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	7524	0.023	91%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	4871	0.016	62%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033 (0.000)	128	68953	0.194	7.87			0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)	11.792 (0.000)	154	301712	1.388	56.20			0.003
18) Fluorene	(3)	12.448 (-0.000)	166	85729	0.311	12.60			0.003
21) Phenanthrene	(4)	13.674 (-0.000)	178	150407	0.371	15.01			0.008
22) Anthracene	(4)	13.744 (-0.000)	178	37414	0.098	3.98			0.003
25) Fluoranthene	(4)	15.383 (-0.000)	202	43766	0.098	3.97			0.003
26) Pyrene	(5)	15.734 (0.000)	202	57535	0.120	4.85			0.003
28) Benzo (a)anthracene	(5)	17.786 (0.000)	228	3892	0.010	0.39			0.003
30) Chrysene	(5)	17.848 (0.000)	228	3956	0.009	0.38			0.003
33) Benzo (b)fluoranthene	(6)	19.673 (-0.000)	252	1360M	0.003	0.12			0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)	20.202 (-0.000)	252	1365	0.003	0.12			0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

M = Compound was manually integrated.

BAC06DL

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283814DL

Data file: /chem/HP21585.i/20mar25.b/mc1452.d

Injection date and time: **25-MAR-2020 07:02**

Data file Sample Info. Line: BAC06DL;1283814DL;1;0;SAMPLE;;;T2

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 25-MAR-2020 07:03

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar25.b/mc1451.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 10

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 247 ml

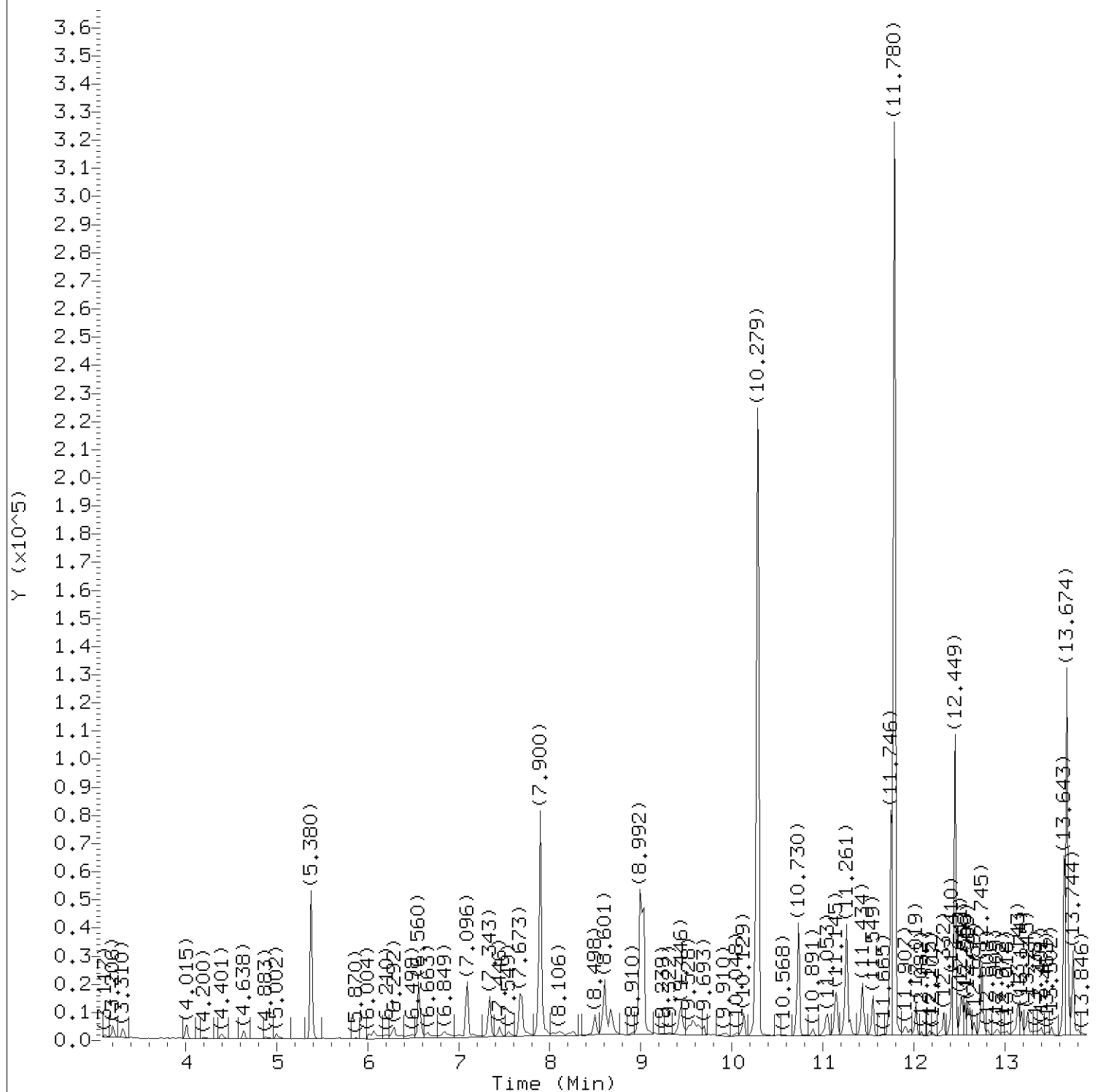
Volume Injected (Vi): 2 ul

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Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

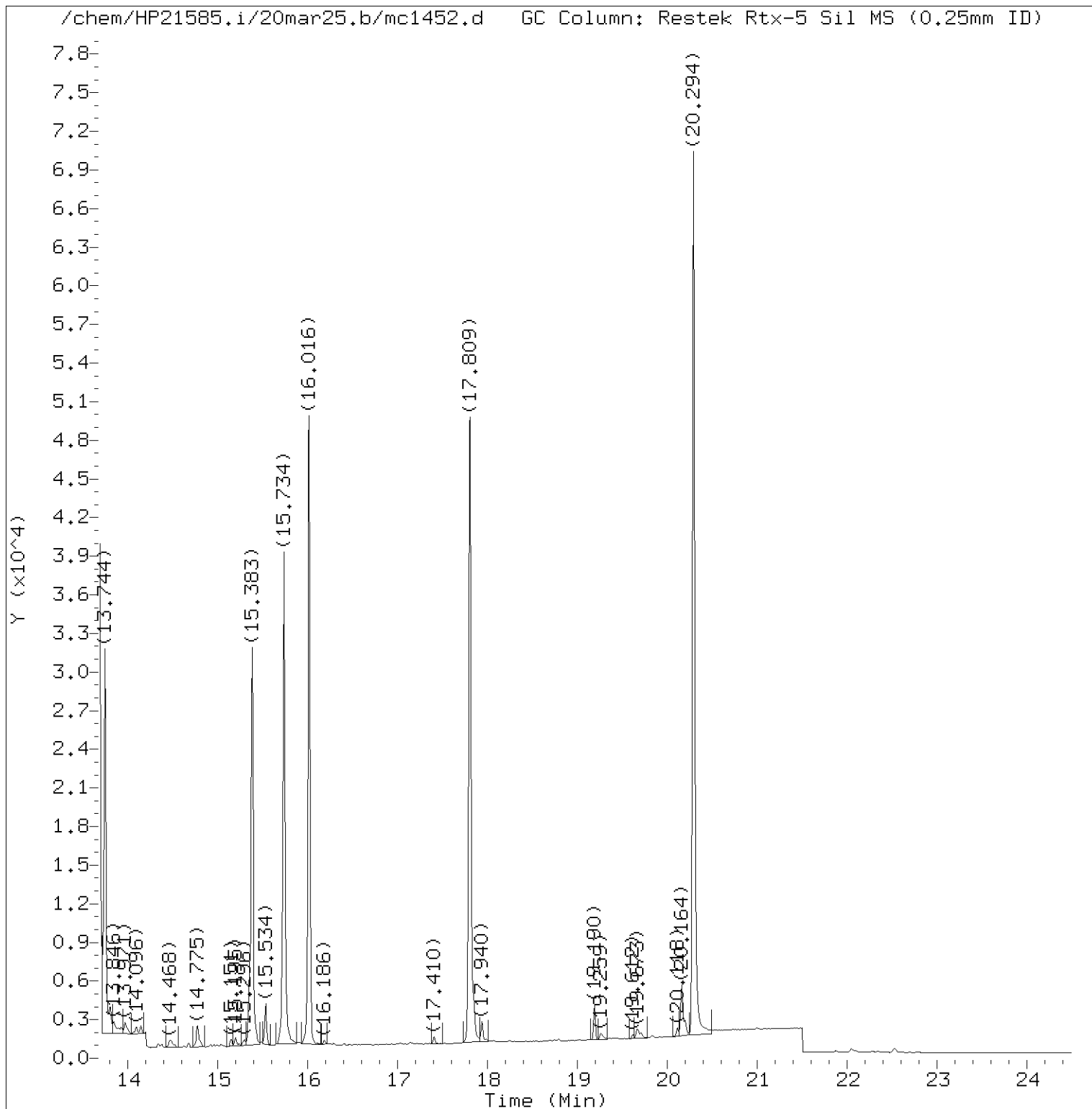
Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

Sample Name: BAC06DL

Lab Sample ID: 1283814DL

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 08:29.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

Sample Name: BAC06DL

Lab Sample ID: 1283814DL

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 08:29.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1452.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 07:02

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 07:03

Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

Sample Name: BAC06DL

Lab Sample ID: 1283814DL

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	21206	0.250
6) *Naphthalene-d8	(2)	8.992	136	74990	0.250
7) Naphthalene	(2)	9.033	128	68953	0.194
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	3517	0.023
14) *Acenaphthene-d10	(3)	11.746	164	36738	0.250
15) Acenaphthene	(3)	11.792	154	301712	1.388
18) Fluorene	(3)	12.449	166	85729	0.311
20) *Phenanthrene-d10	(4)	13.643	188	78160	0.250
21) Phenanthrene	(4)	13.674	178	150407	0.371
22) Anthracene	(4)	13.744	178	37414	0.098
24) \$Fluoranthene-d10	(4)	15.352	212	7524	0.023
25) Fluoranthene	(4)	15.383	202	43766	0.098
26) Pyrene	(5)	15.734	202	57535	0.120
28) Benzo(a)anthracene	(5)	17.786	228	3892	0.010
29) *Chrysene-d12	(5)	17.809	240	67102	0.250
30) Chrysene	(5)	17.848	228	3956	0.009
33) Benzo(b)fluoranthene	(6)	19.673	252	1360M	0.003
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	4871	0.016
37) Benzo(a)pyrene	(6)	20.202	252	1365	0.003
38) *Perylene-d12	(6)	20.294	264	83171	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

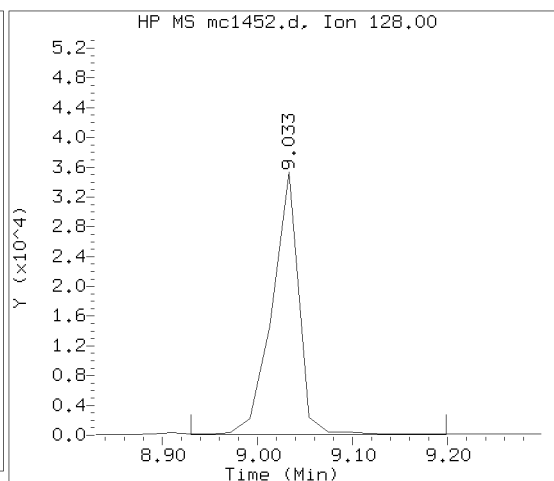
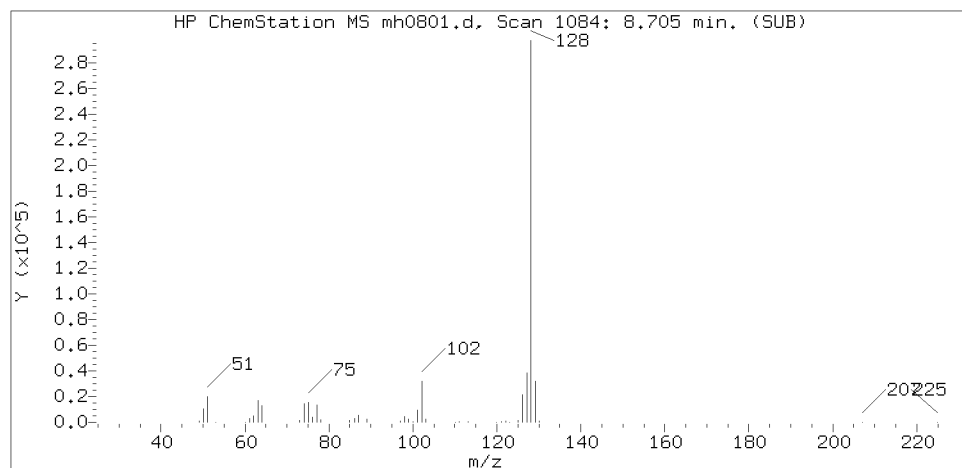
\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

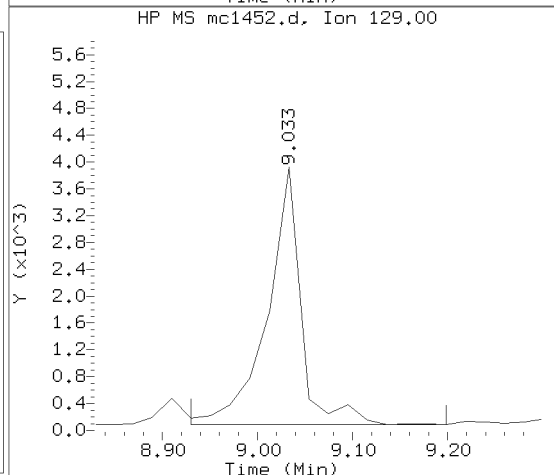
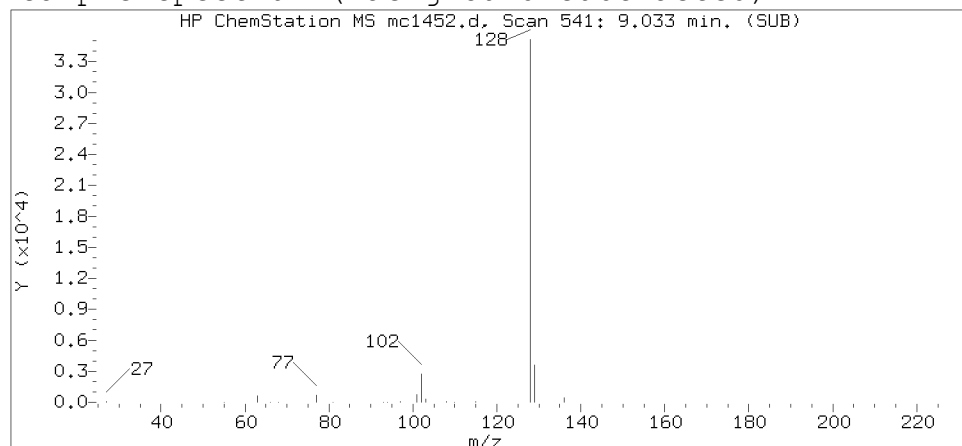
on 03/25/2020 at 08:29.

Target 3.5 esignature user ID: jmg00346

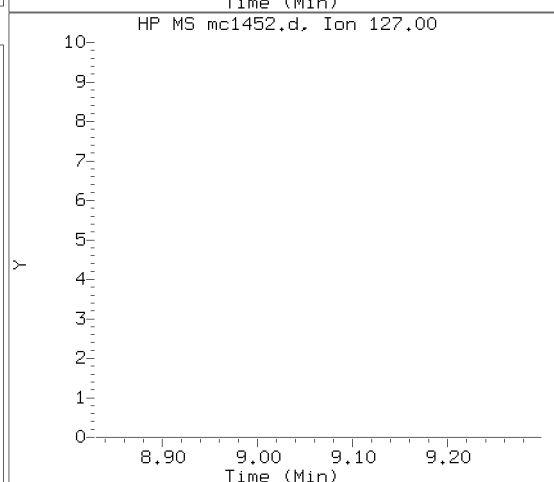
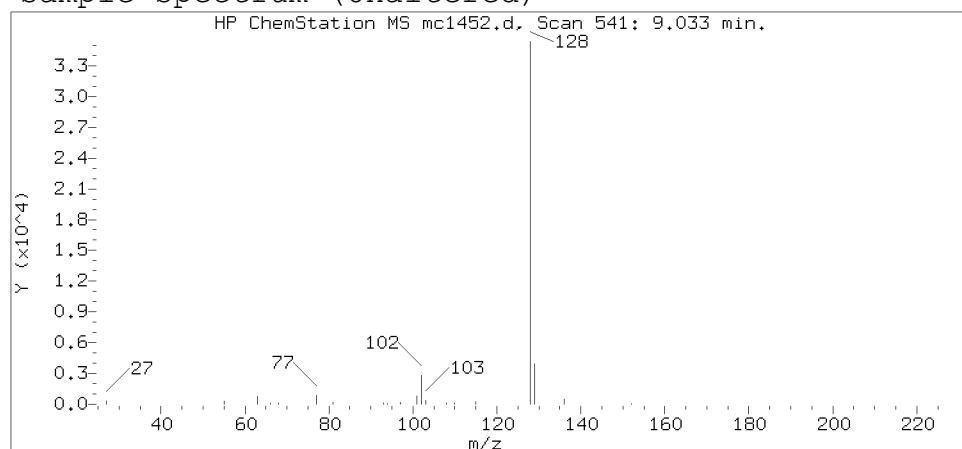
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

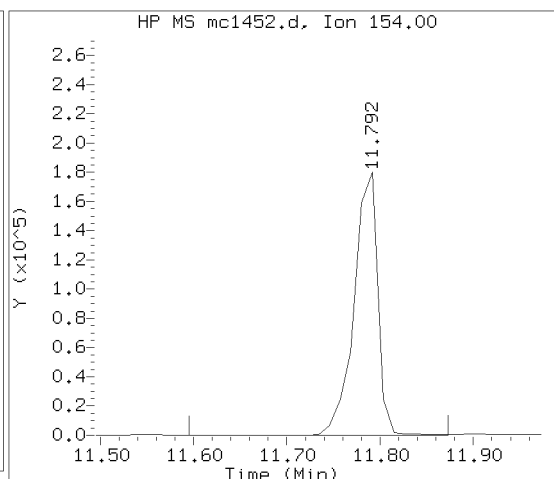
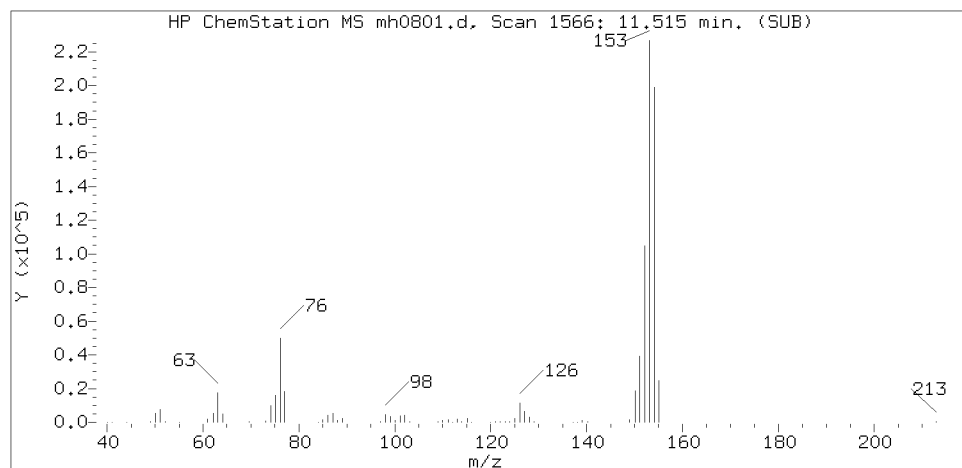
Sample Name: BAC06DL

Lab Sample ID: 1283814DL

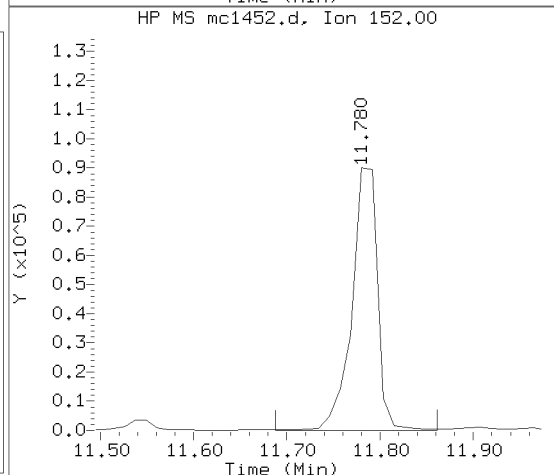
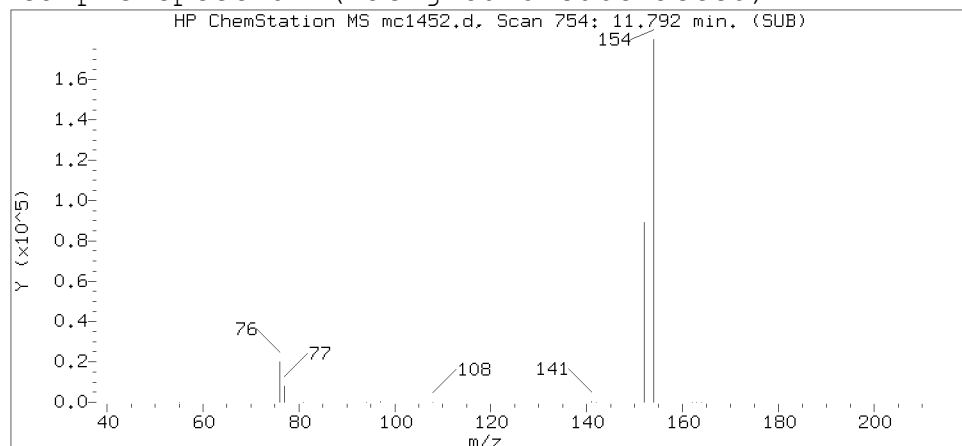
Compound Number : 7
Compound Name : Naphthalene
Scan Number : 541
Retention Time (minutes) : 9.033
Relative Retention Time : 0.00000
Quant Ion : 128.00
Area (flag) : 68953
On-column Amount (ng/ul) : 0.1943

Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.
Target 3.5 esignature user jmg00346

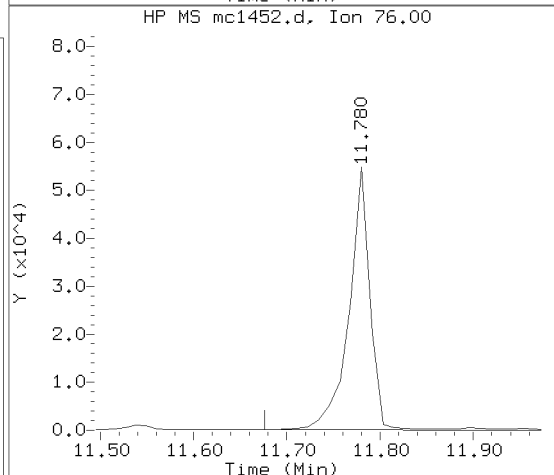
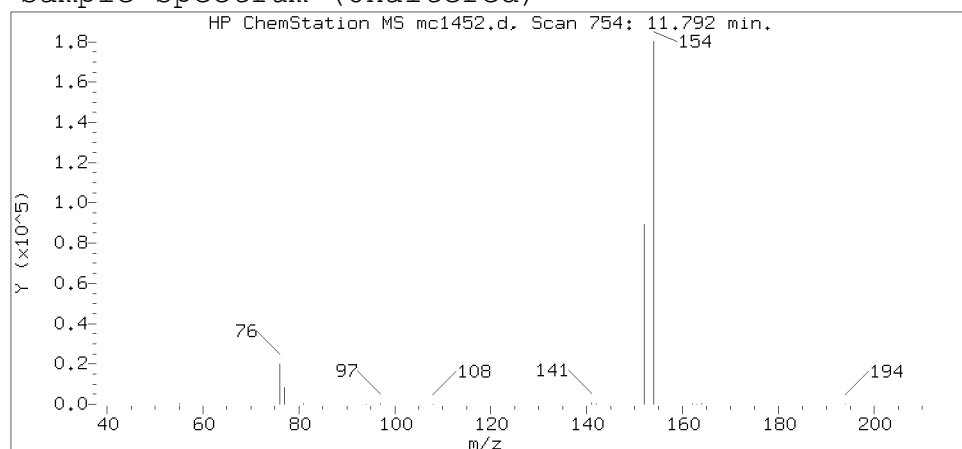
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

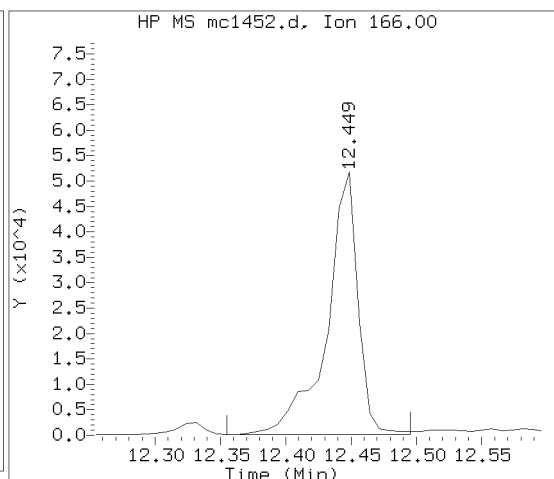
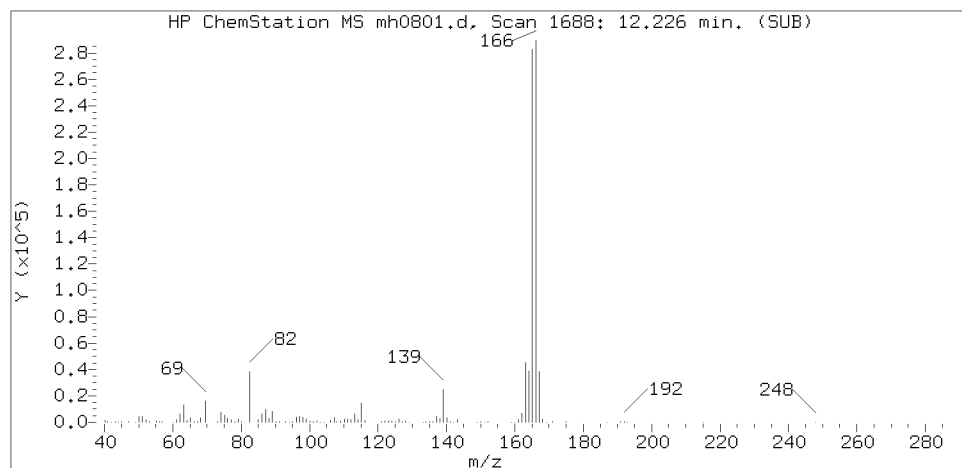
Sample Name: BAC06DL

Lab Sample ID: 1283814DL

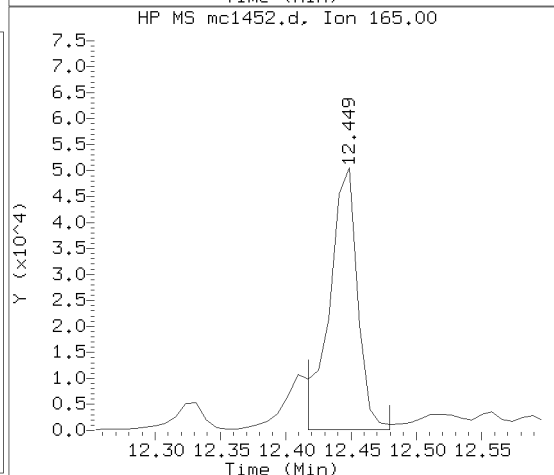
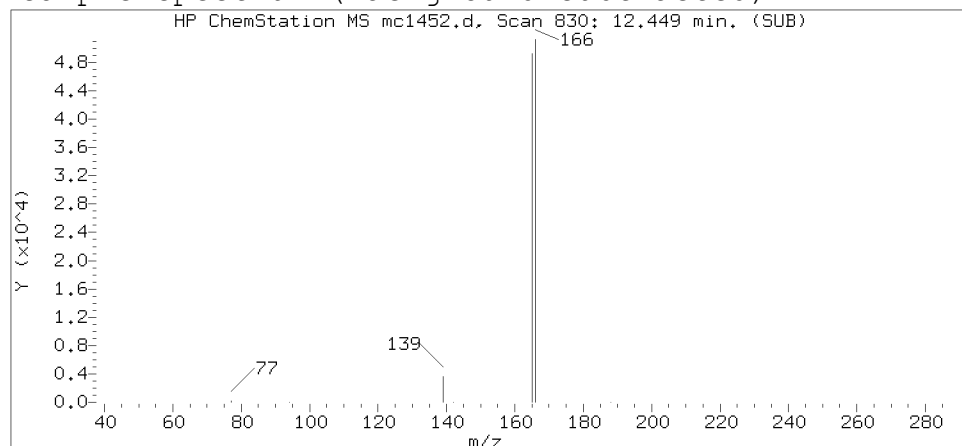
Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 754
Retention Time (minutes) : 11.792
Relative Retention Time : 0.00000
Quant Ion : 154.00
Area (flag) : 301712
On-column Amount (ng/ul) : 1.3881

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Target 3.5 esignature user jmg00346

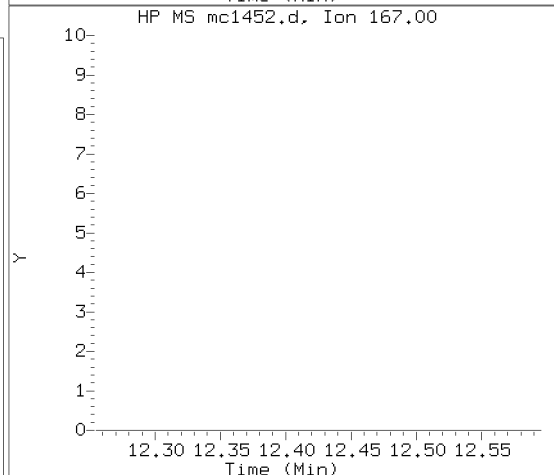
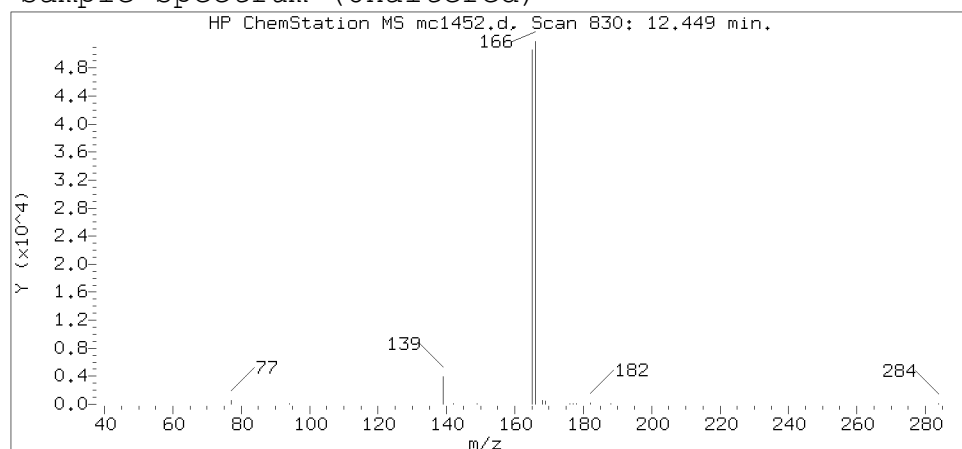
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

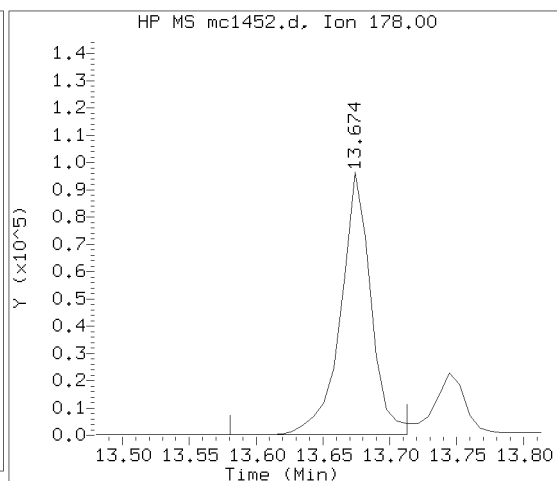
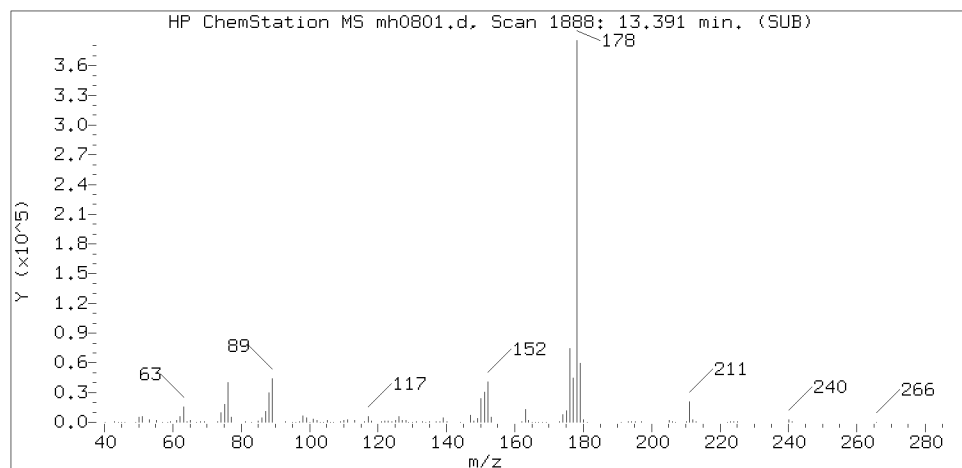
Sample Name: BAC06DL

Lab Sample ID: 1283814DL

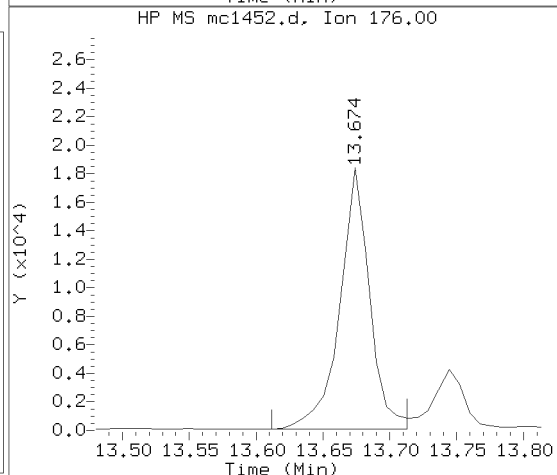
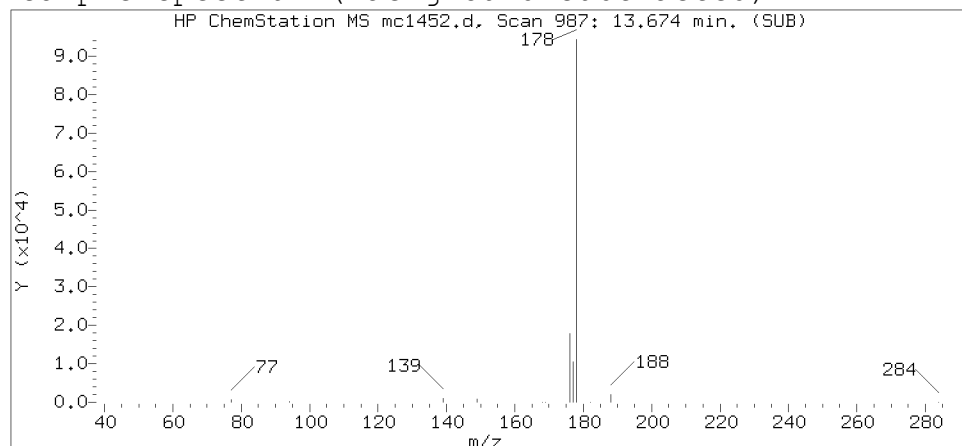
Compound Number : 18
Compound Name : Fluorene
Scan Number : 830
Retention Time (minutes) : 12.449
Relative Retention Time : -0.00000
Quant Ion : 166.00
Area (flag) : 85729
On-column Amount (ng/ul) : 0.3113

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Target 3.5 esignature user jmg00346

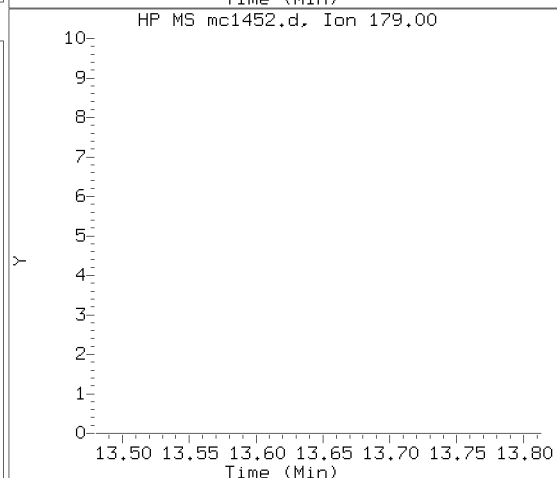
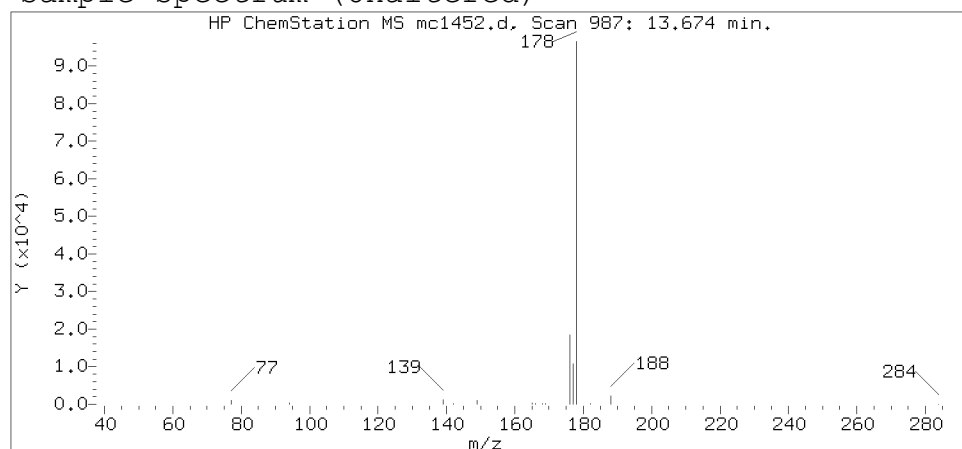
Reference Standard Spectrum for Phenanthrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

Sample Name: BAC06DL

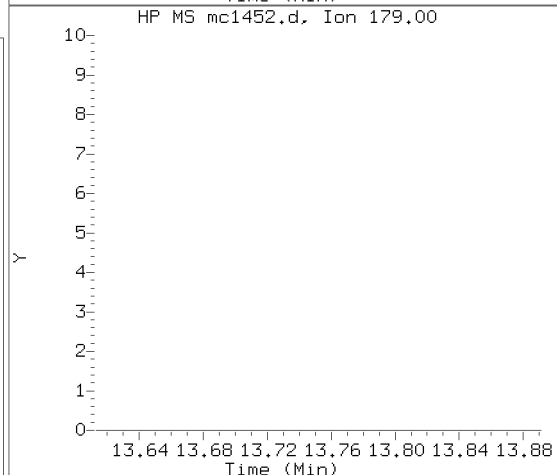
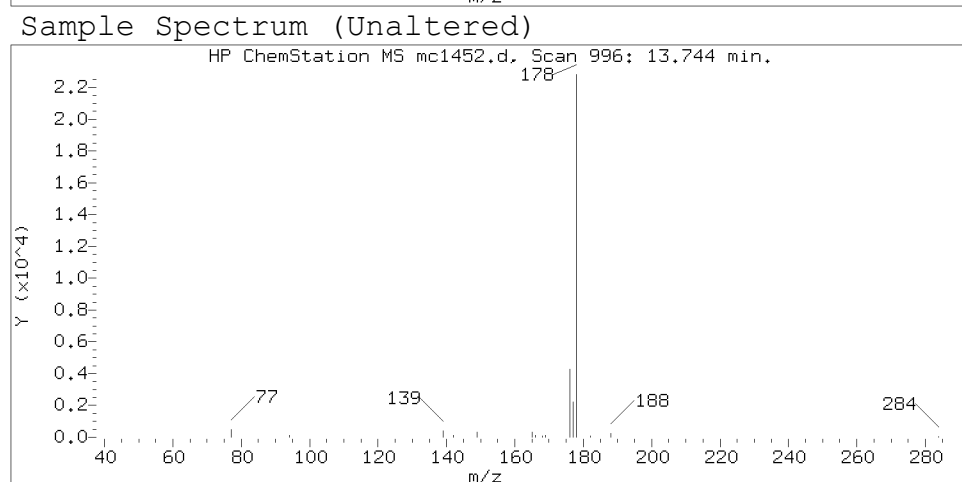
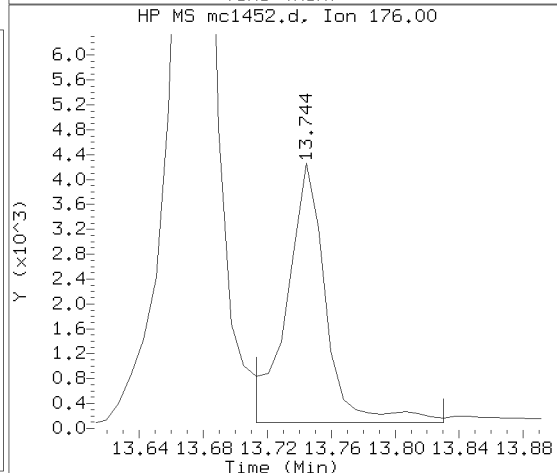
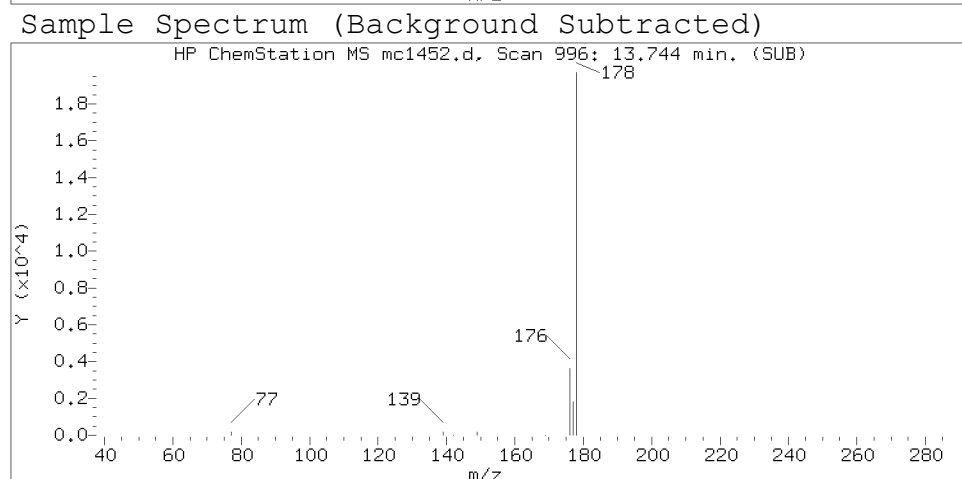
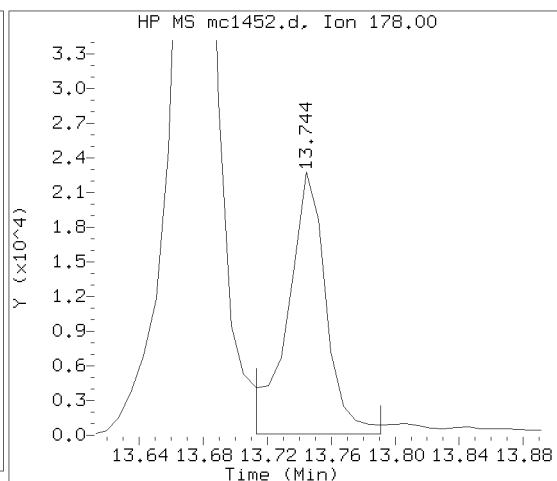
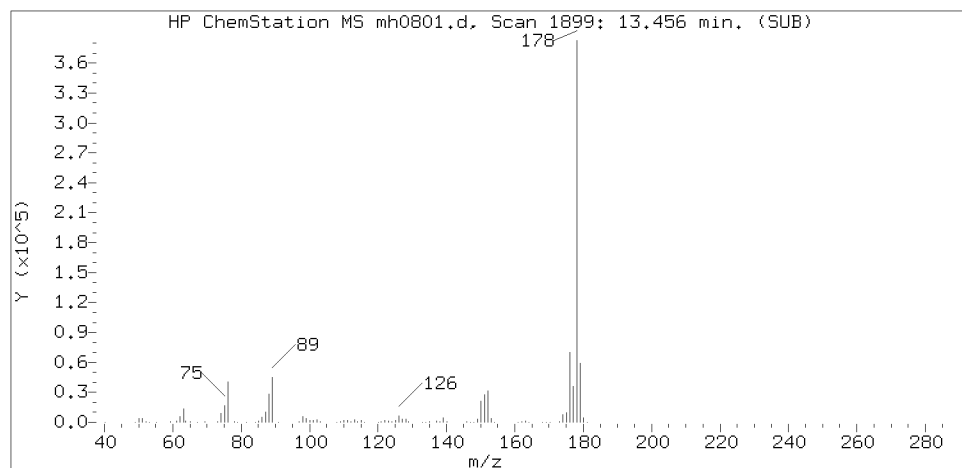
Lab Sample ID: 1283814DL

Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 987
Retention Time (minutes) : 13.674
Relative Retention Time :-0.00000
Quant Ion : 178.00
Area (flag) : 150407
On-column Amount (ng/ul) : 0.3708

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Target 3.5 esignature user jmg00346
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Reference Standard Spectrum for Anthracene



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

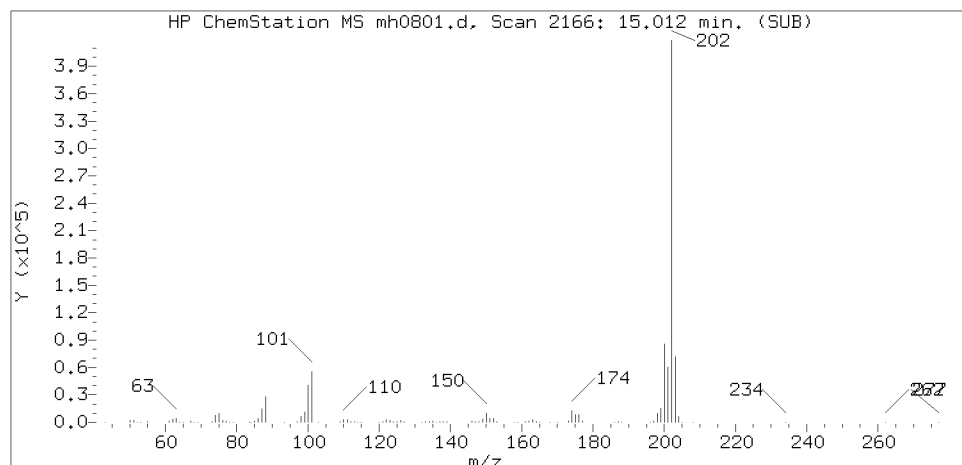
Sample Name: BAC06DL

Lab Sample ID: 1283814DL

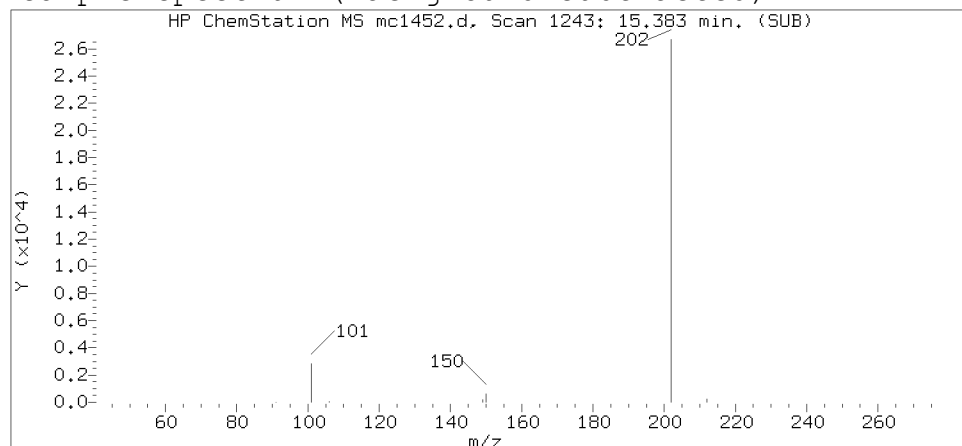
Compound Number : 22
Compound Name : Anthracene
Scan Number : 996
Retention Time (minutes) : 13.744
Relative Retention Time : -0.00000
Quant Ion : 178.00
Area (flag) : 37414
On-column Amount (ng/ul) : 0.0984

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Target 3.5 esignature user jmg00346

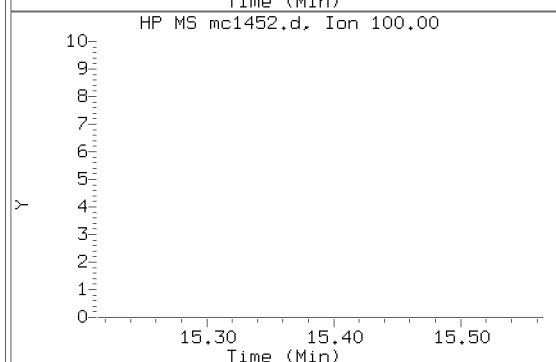
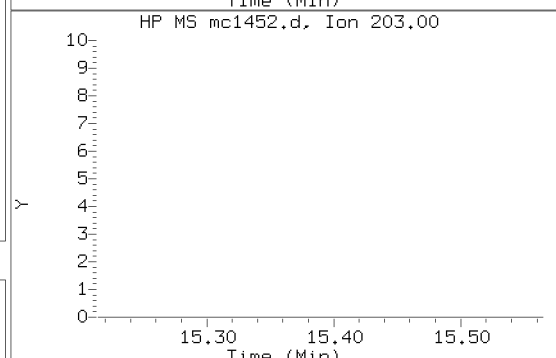
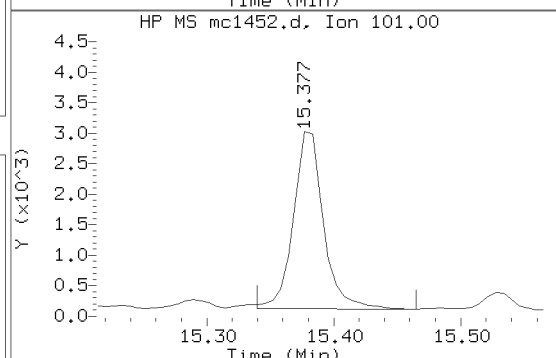
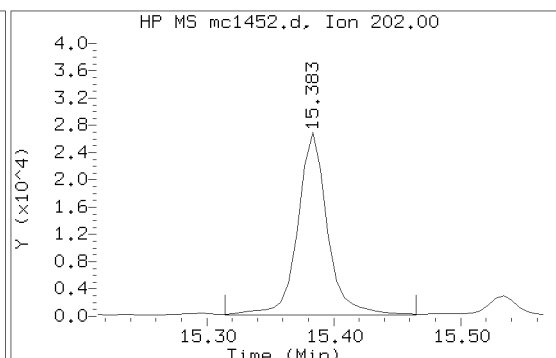
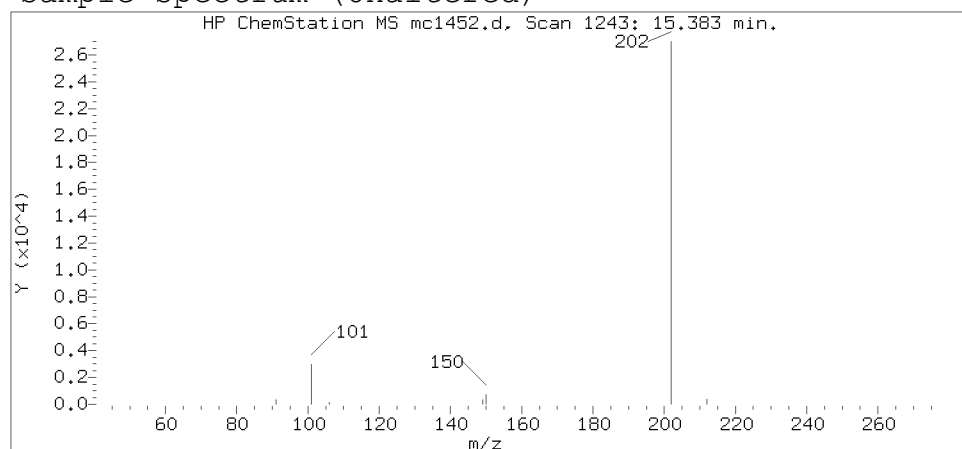
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

Sample Name: BAC06DL

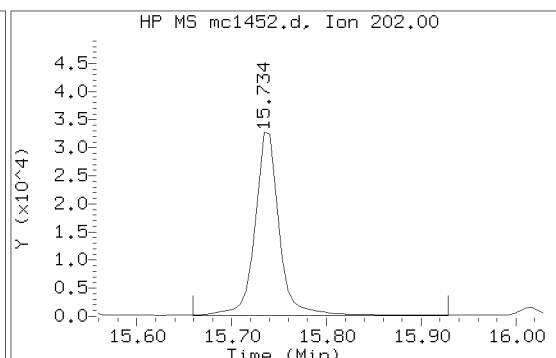
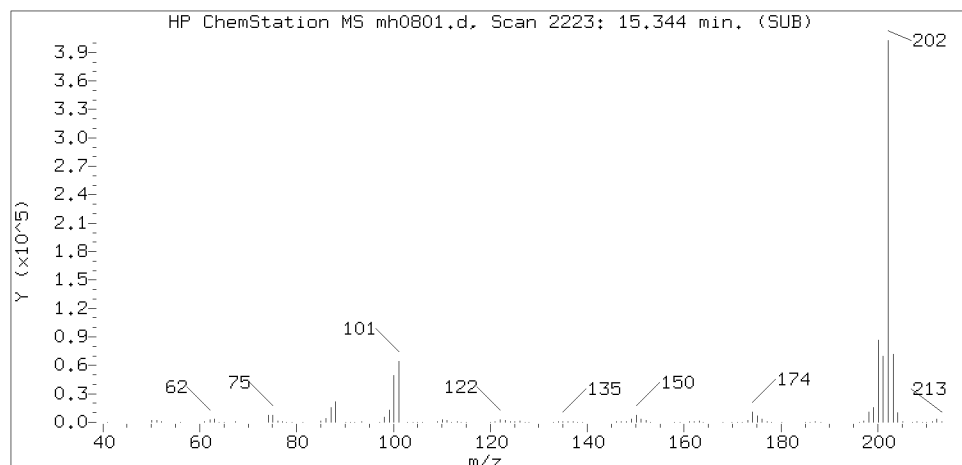
Lab Sample ID: 1283814DL

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1243
Retention Time (minutes) : 15.383
Relative Retention Time : -0.00000
Quant Ion : 202.00
Area (flag) : 43766
On-column Amount (ng/ul) : 0.0981

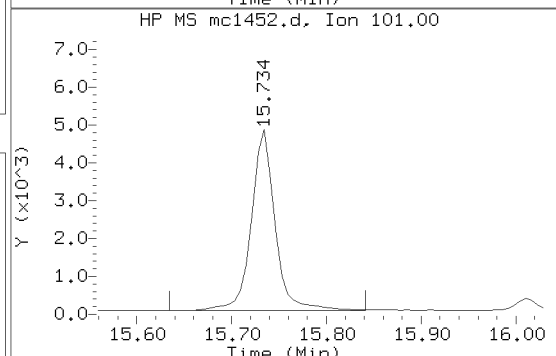
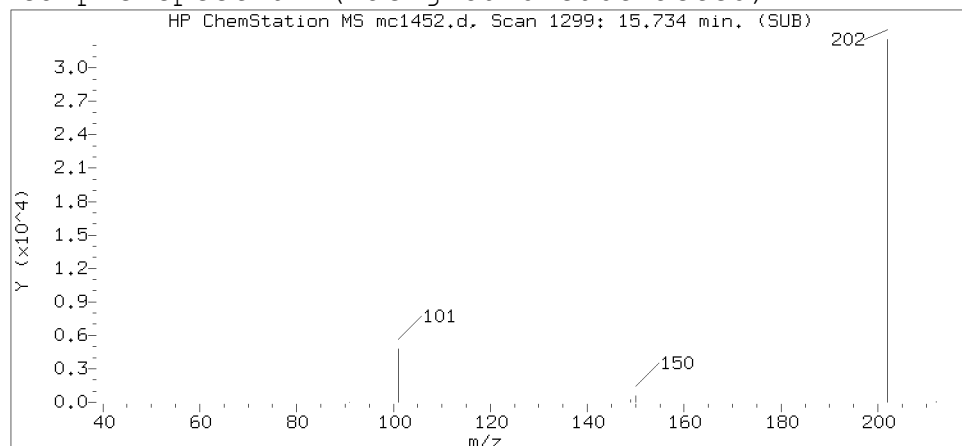
Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.

Target 3.5 esignature user jmg00346
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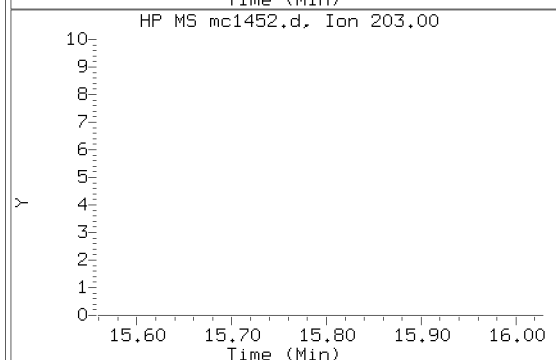
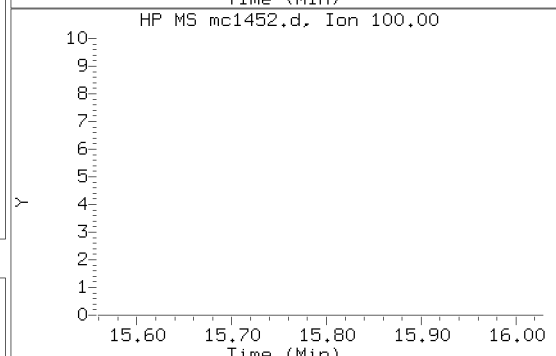
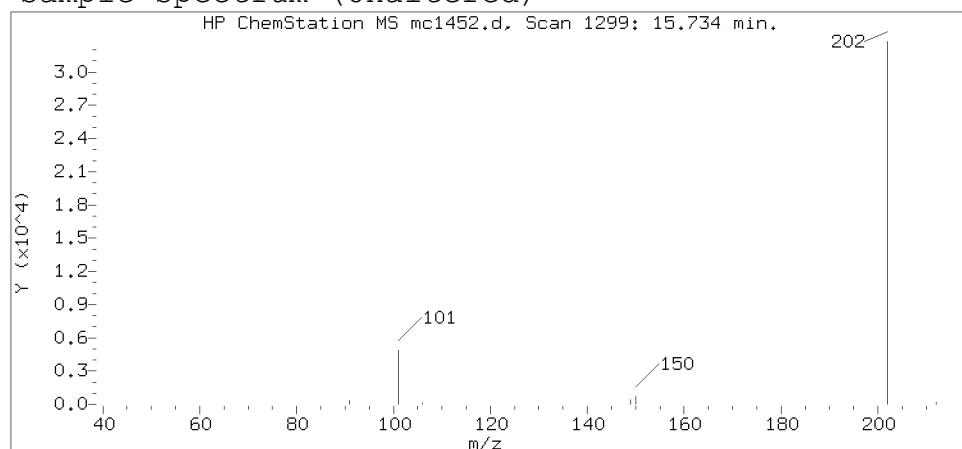
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

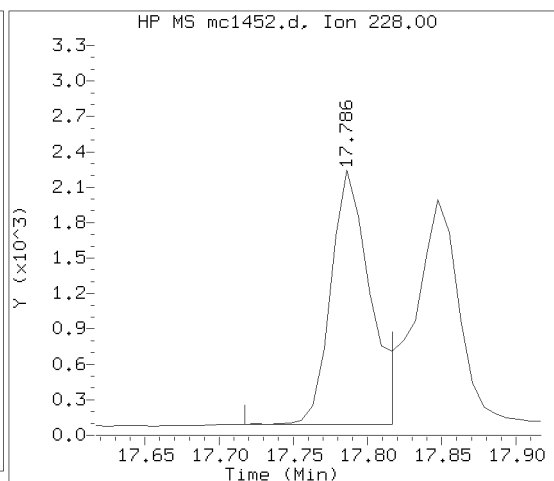
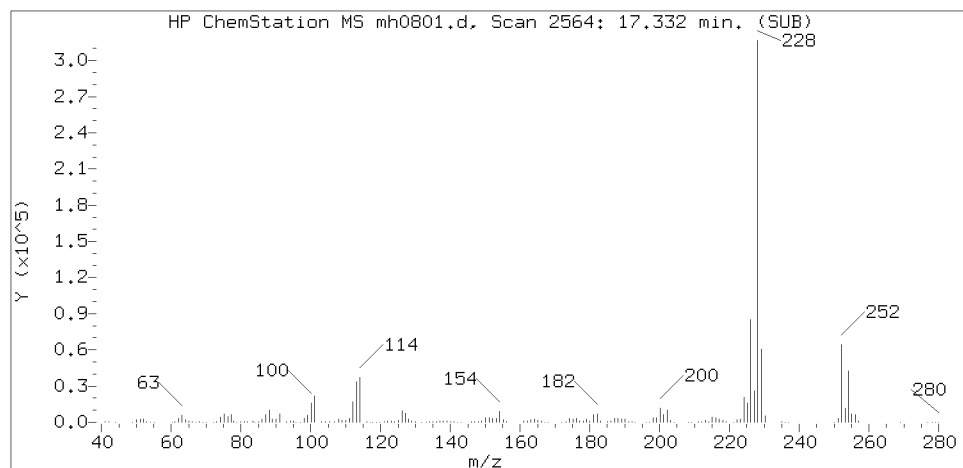
Sample Name: BAC06DL

Lab Sample ID: 1283814DL

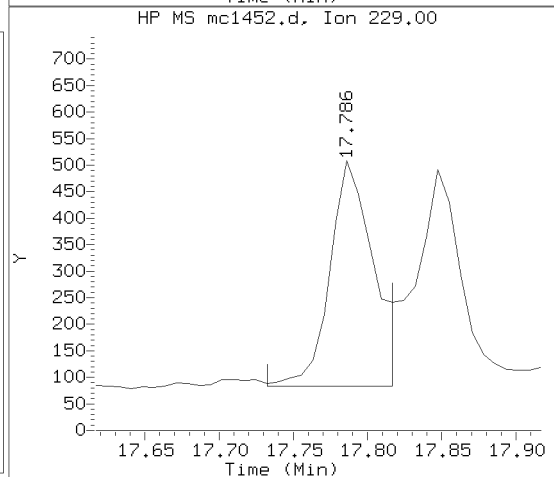
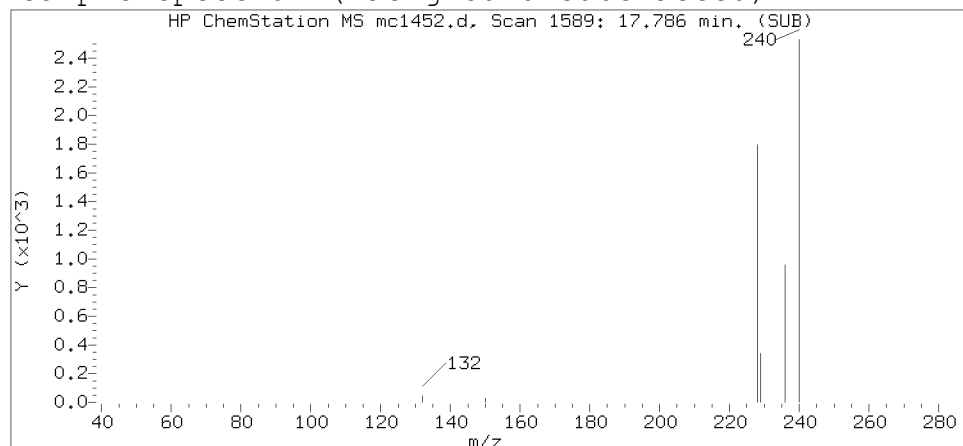
Compound Number : 26
Compound Name : Pyrene
Scan Number : 1299
Retention Time (minutes) : 15.734
Relative Retention Time : 0.00073
Quant Ion : 202.00
Area (flag) : 57535
On-column Amount (ng/ul) : 0.1197

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Target 3.5 esignature user=jmg00346

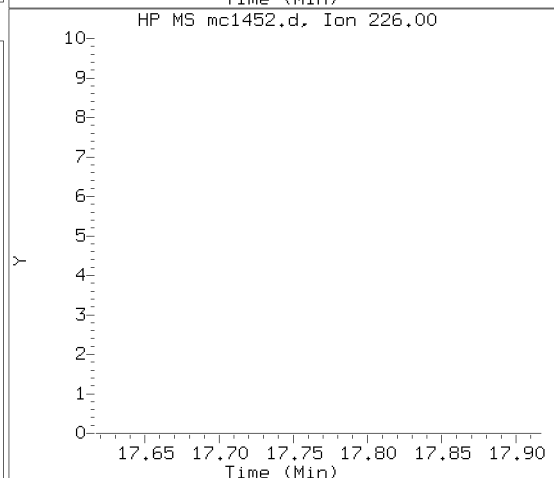
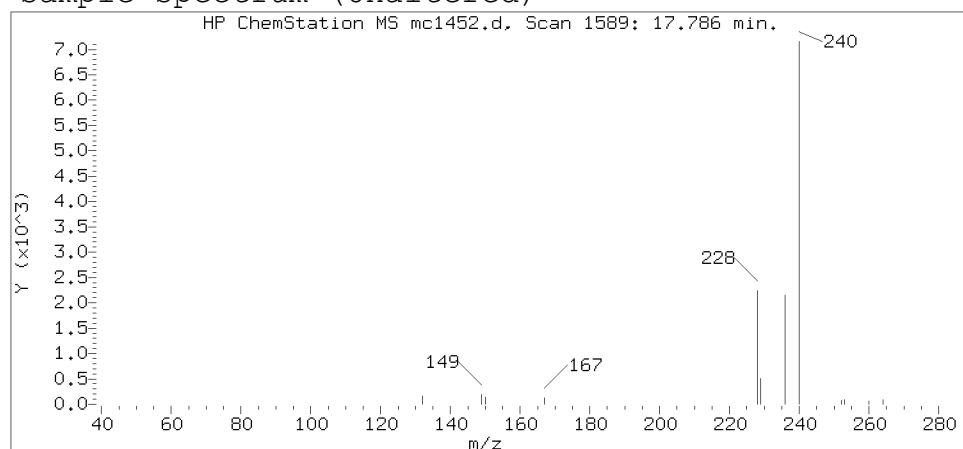
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

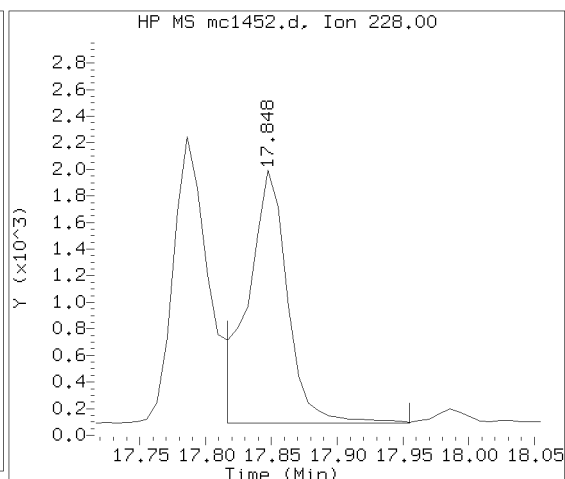
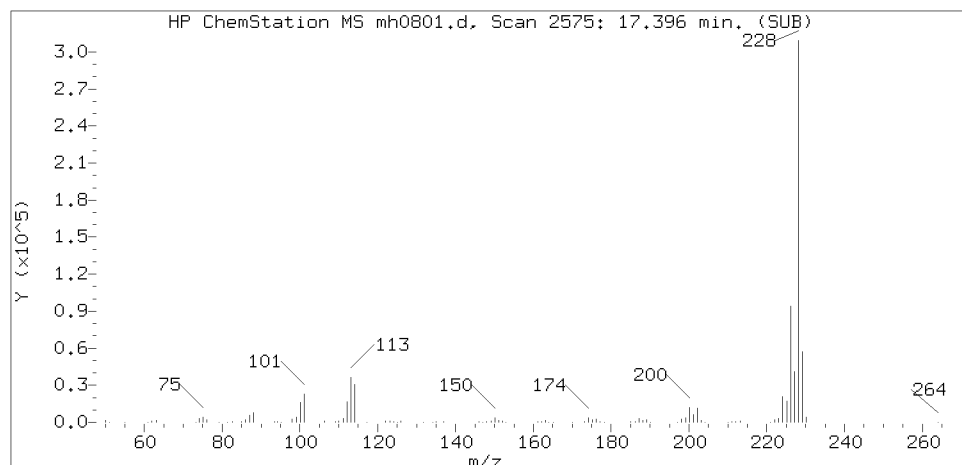
Sample Name: BAC06DL

Lab Sample ID: 1283814DL

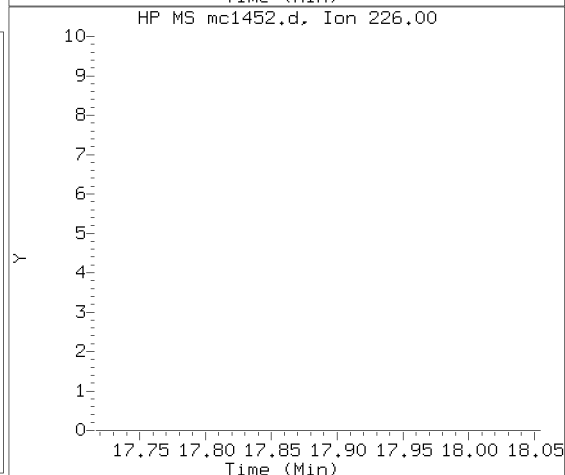
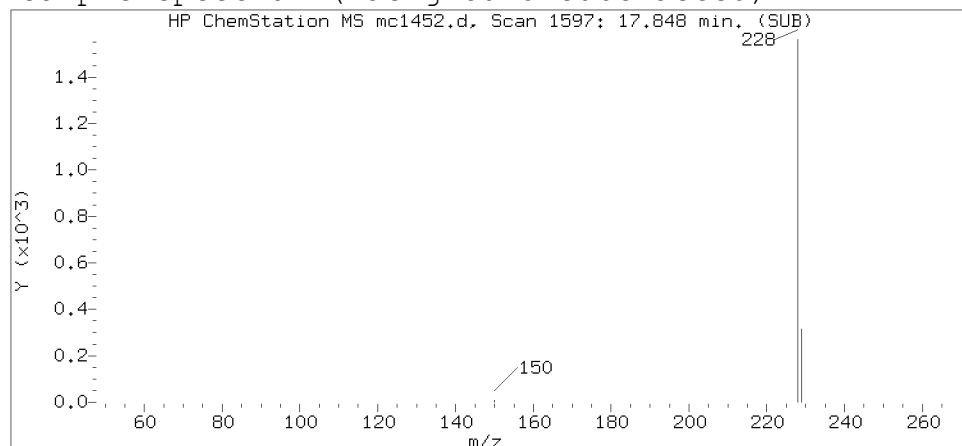
Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1589
Retention Time (minutes) : 17.786
Relative Retention Time : 0.00043
Quant Ion : 228.00
Area (flag) : 3892
On-column Amount (ng/ul) : 0.0096

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Target 3.5 esignature user jmg00346

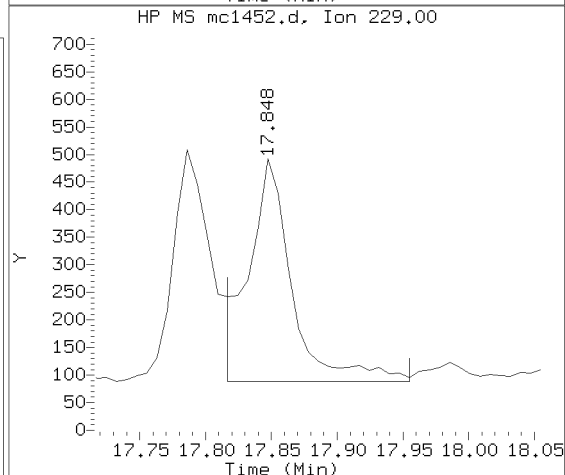
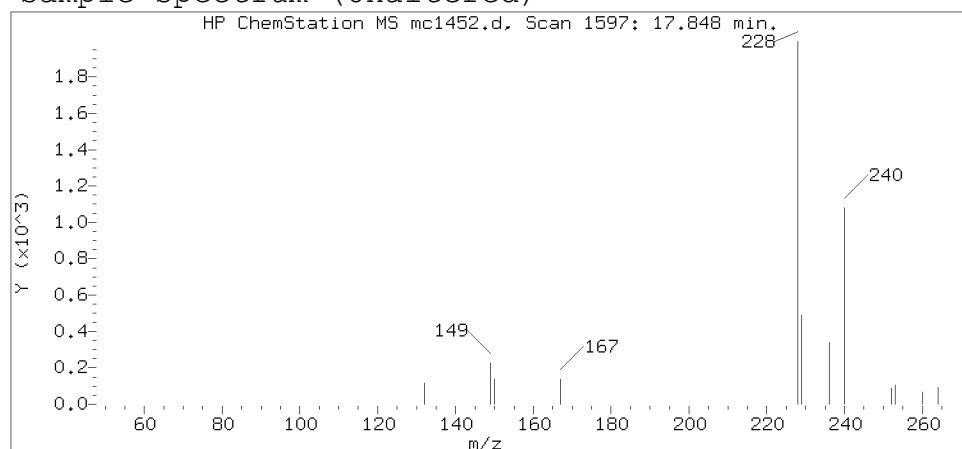
Reference Standard Spectrum for Chrysene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

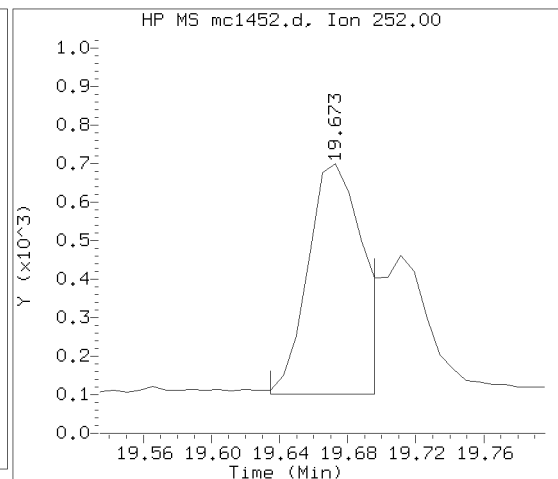
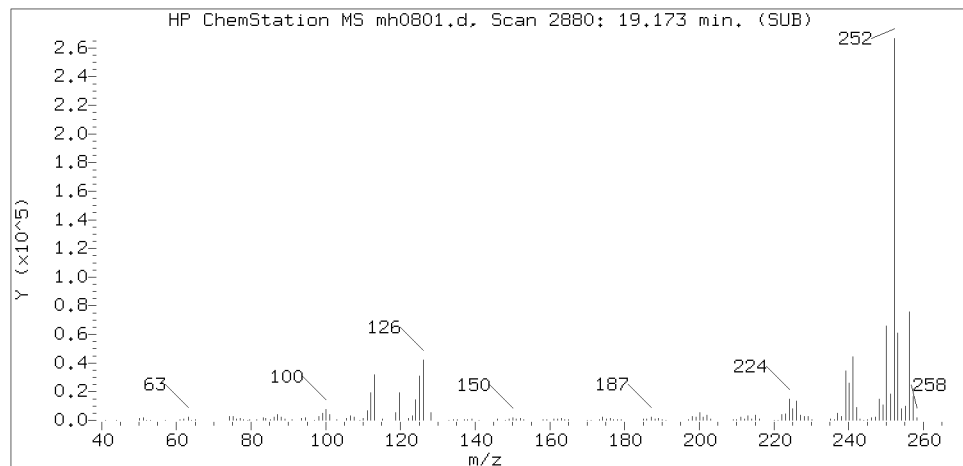
Sample Name: BAC06DL

Lab Sample ID: 1283814DL

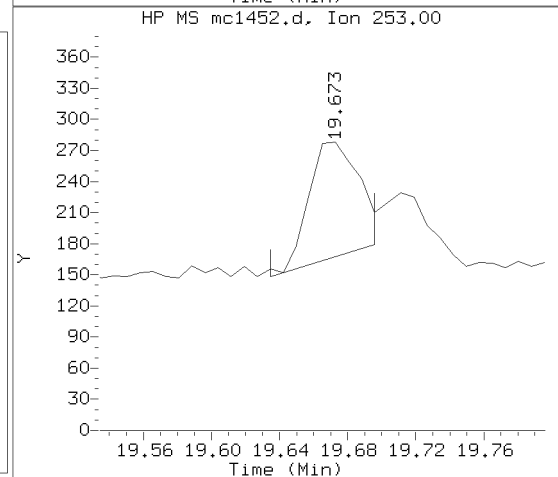
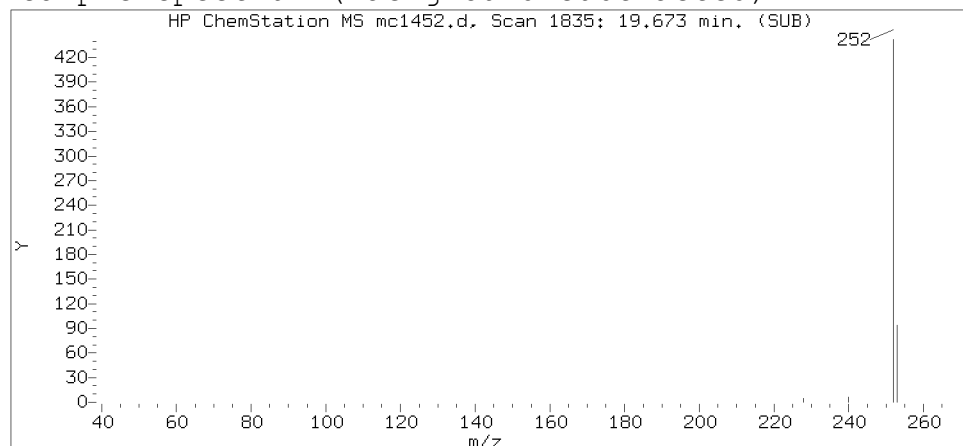
Compound Number : 30
Compound Name : Chrysene
Scan Number : 1597
Retention Time (minutes) : 17.848
Relative Retention Time : 0.00043
Quant Ion : 228.00
Area (flag) : 3956
On-column Amount (ng/ul) : 0.0094

Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.
Target 3.5 esignature user jmg00346

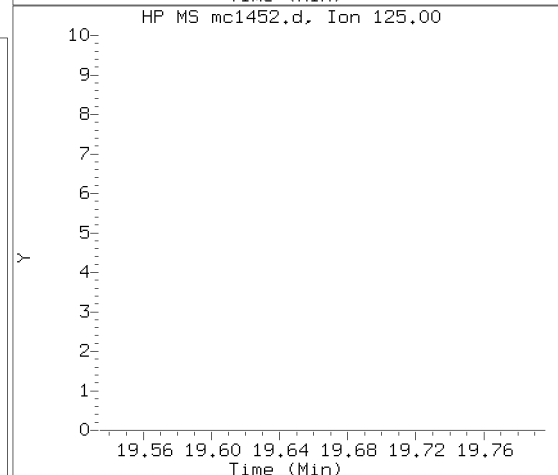
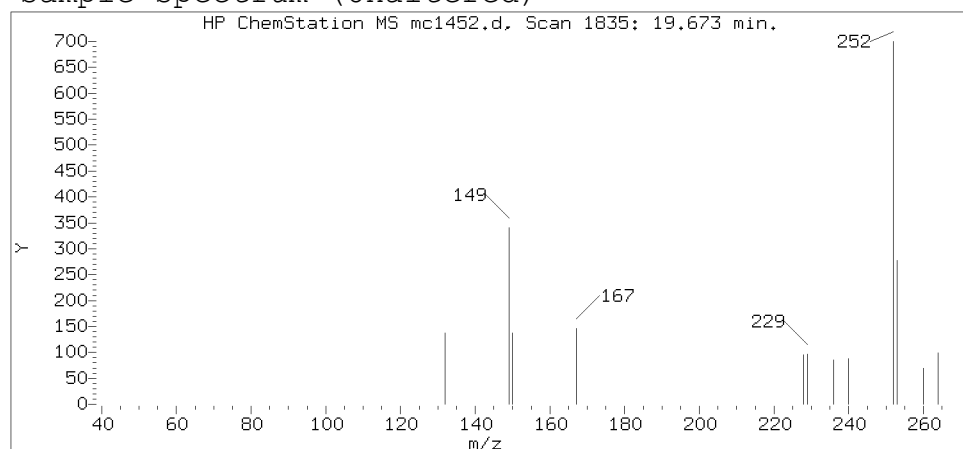
Reference Standard Spectrum for Benzo(b)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

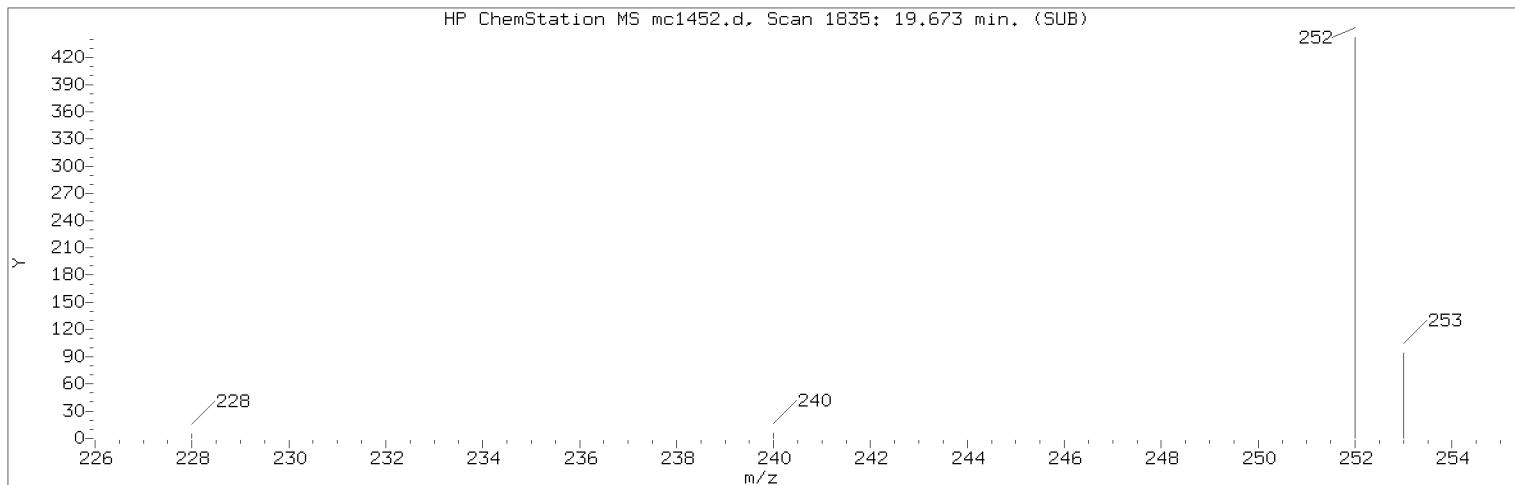
Sample Name: BAC06DL

Lab Sample ID: 1283814DL

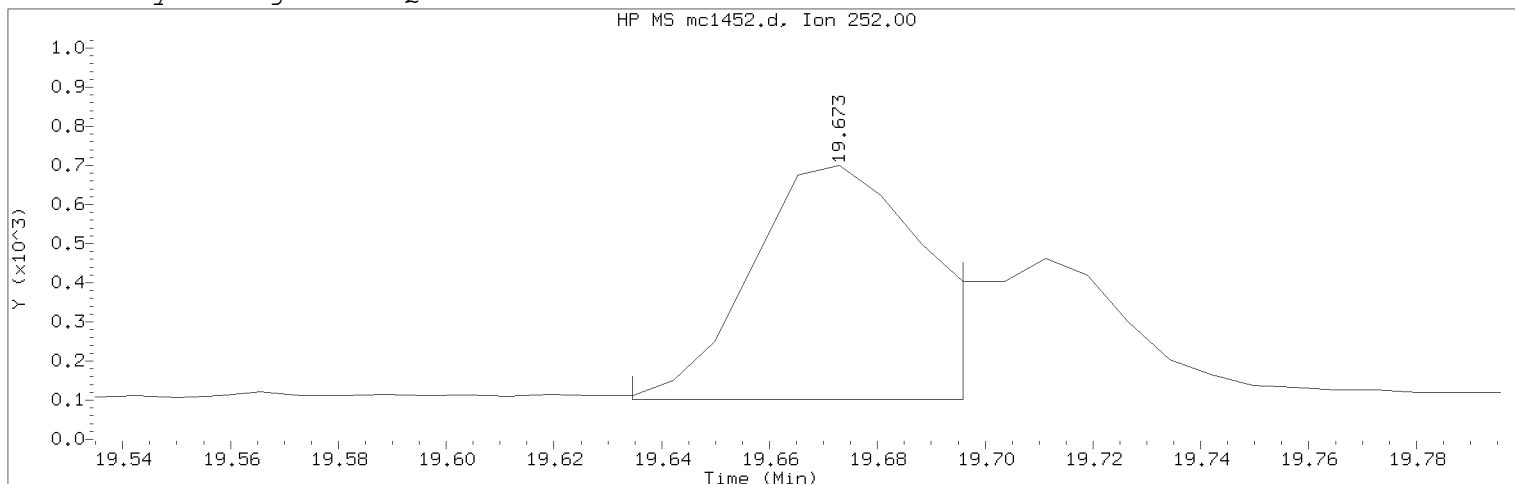
Compound Number : 33
Compound Name : Benzo(b)fluoranthene
Scan Number : 1835
Retention Time (minutes) : 19.673
Relative Retention Time : -0.00038
Quant Ion : 252.00
Area (flag) : 1360M
On-column Amount (ng/ul) : 0.0029

Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.
Target 3.5 esignature user=jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar25.b/mc1452.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 07:02

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 07:03

Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

Sample Name: BAC06DL

Lab Sample ID: 1283814DL

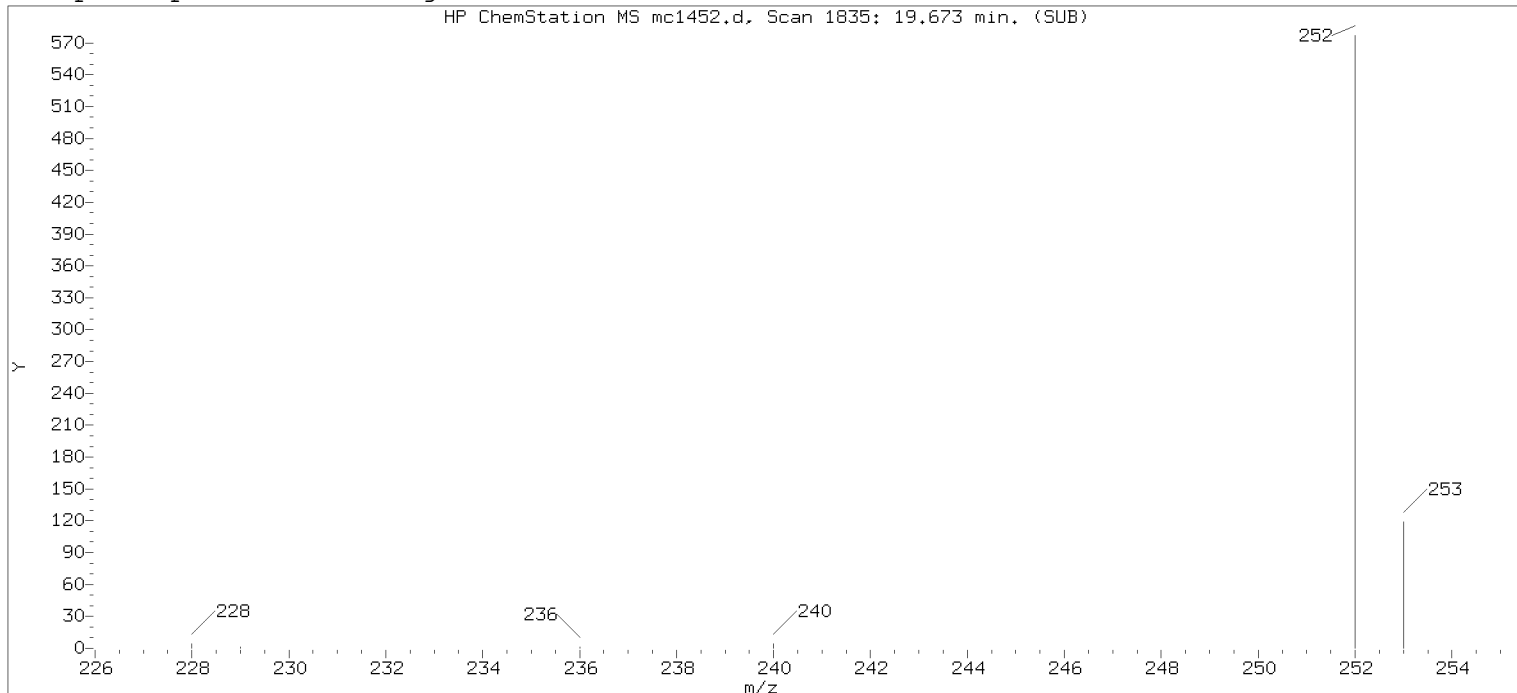
Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1835	
Retention Time (minutes)	: 19.673	
Quant Ion	: 252.00	
Area (flag)	: 1360M	
On-column Amount (ng/ul)	: 0.0029	
Integration start scan	: 1829	Integration stop scan: 1837
Y at integration start	: 102	Y at integration end: 102

Reason for manual integration: improper integration

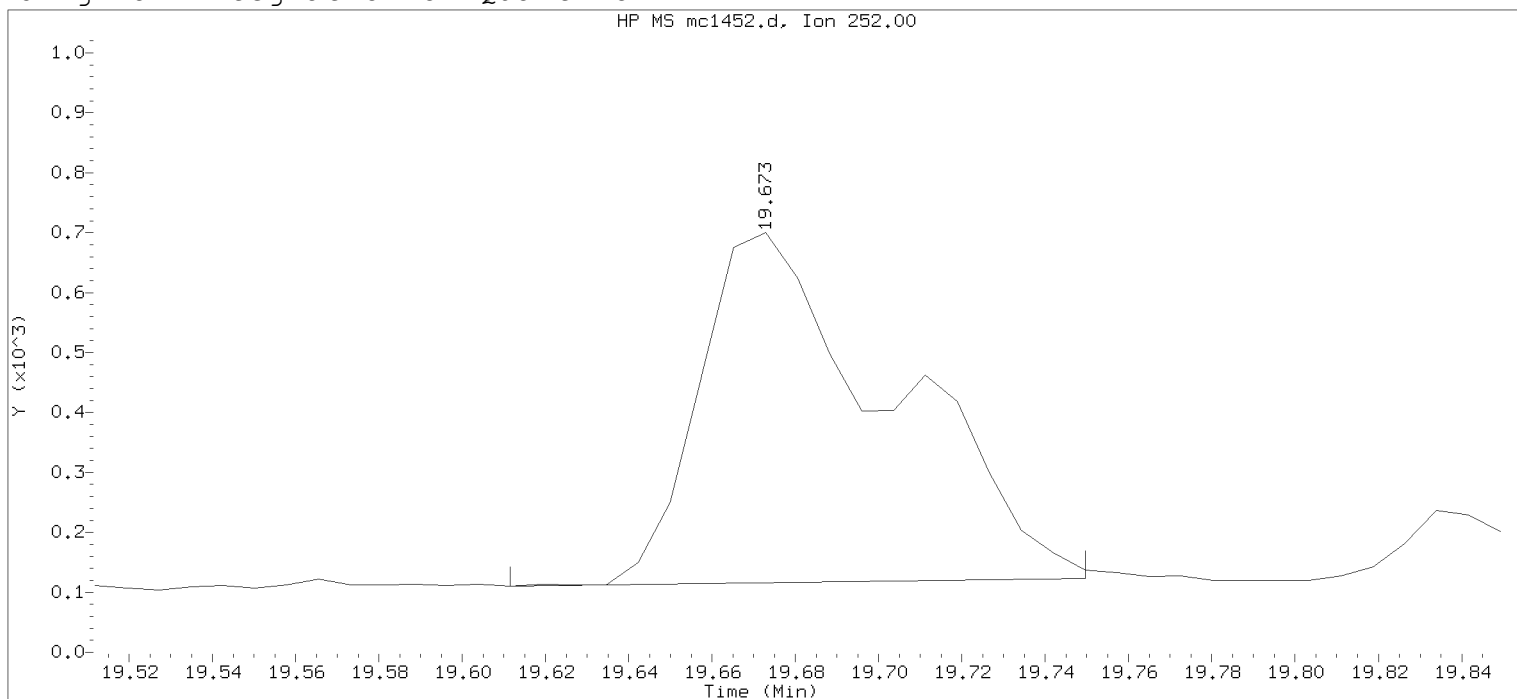
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/25/2020 at 08:29.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar25.b/mc1452.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 07:02

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 25-MAR-2020 07:03

Date, time and analyst ID of latest file update: 25-Mar-2020 07:38 Unknown

Sample Name: BAC06DL

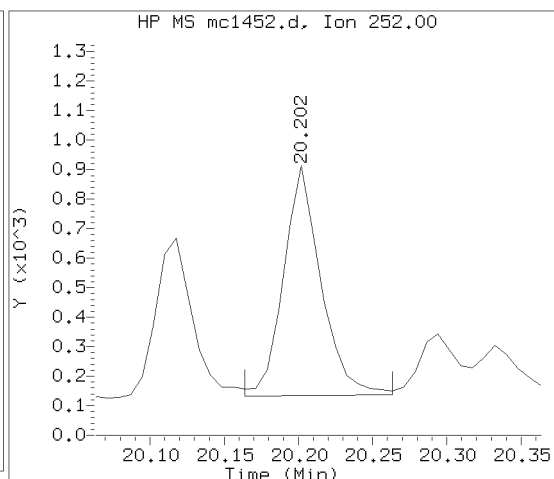
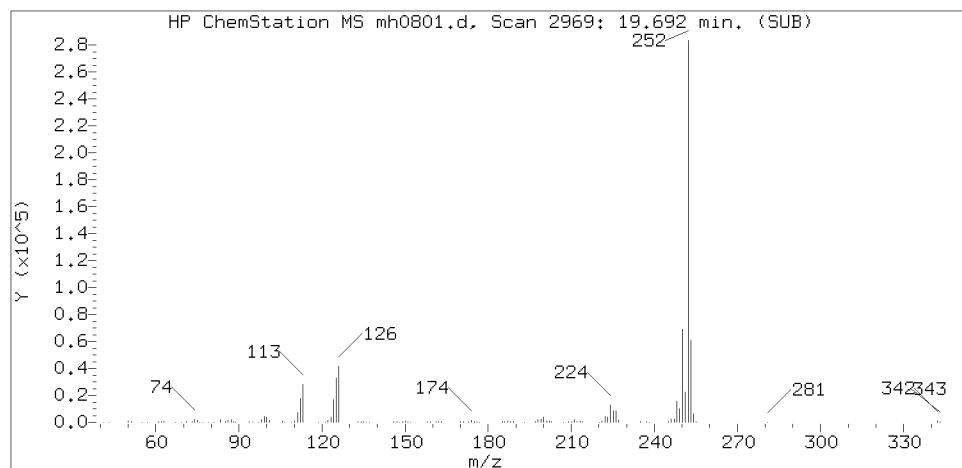
Lab Sample ID: 1283814DL

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1835	
Retention Time (minutes)	: 19.673	
Quant Ion	: 252.00	
Area	: 1878	
On-column Amount (ng/ul)	: 0.0040	
Integration start scan	: 1826	Integration stop scan: 1844
Y at integration start	: 110	Y at integration end: 123

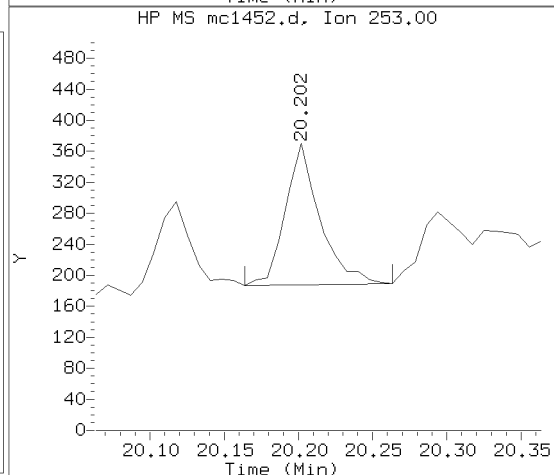
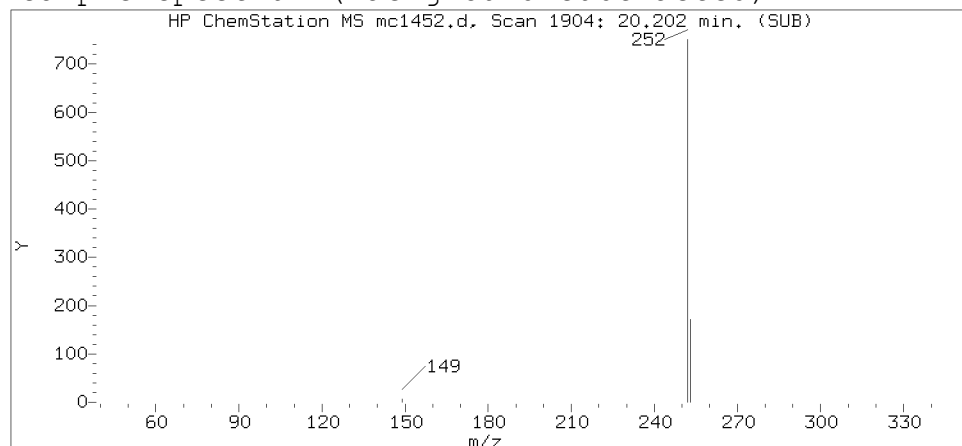
Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.

Target 3.5 esignature user GPV67j Page 328 of 609

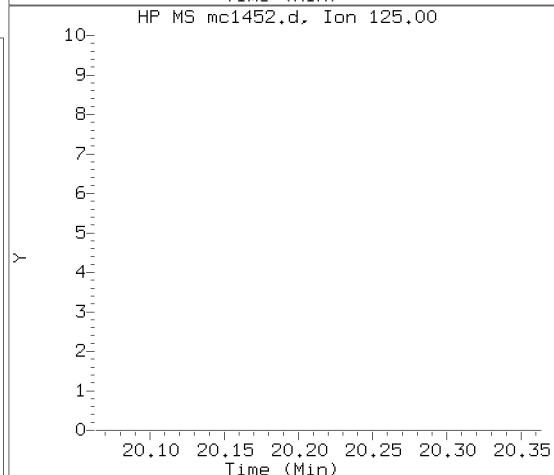
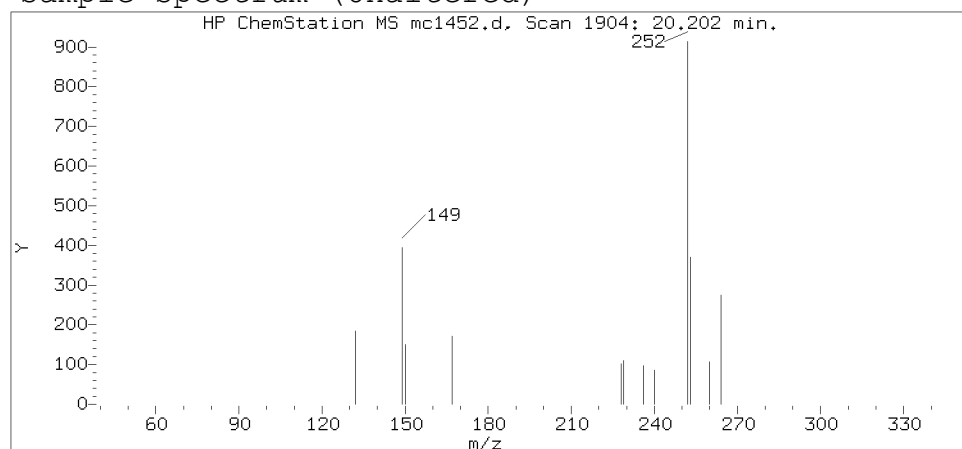
Reference Standard Spectrum for Benzo(a)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1452.d
Injection date and time: 25-MAR-2020 07:02

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:28 jmg00346

Sample Name: BAC06DL

Lab Sample ID: 1283814DL

Compound Number : 37
Compound Name : Benzo(a)pyrene
Scan Number : 1904
Retention Time (minutes) : 20.202
Relative Retention Time : -0.00000
Quant Ion : 252.00
Area (flag) : 1365
On-column Amount (ng/ul) : 0.0031

Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.
Target 3.5 esignature user jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC07

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283815

Sample wt/vol: 244 (g/mL)ML Lab File ID: mc1416.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		0.2	
208-96-8-----	Acenaphthylene		0.01	J
83-32-9-----	Acenaphthene		0.06	
86-73-7-----	Fluorene		0.05	J
85-01-8-----	Phenanthrene		0.2	
120-12-7-----	Anthracene		0.05	
206-44-0-----	Fluoranthene		0.2	
129-00-0-----	Pyrene		0.2	
56-55-3-----	Benzo (a) anthracene		0.1	
218-01-9-----	Chrysene		0.1	
205-99-2-----	Benzo (b) fluoranthene		0.1	
207-08-9-----	Benzo (k) fluoranthene		0.05	J
50-32-8-----	Benzo (a) pyrene		0.09	
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.05	
53-70-3-----	Dibenz (a,h) anthracene		0.02	U
191-24-2-----	Benzo (g,h,i) perylene		0.04	J

FORM I SV-1

BAC07

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283815

Data file: /chem/HP21585.i/20mar24.b/mc1416.d

Injection date and time: 25-MAR-2020 01:59

Data file Sample Info. Line: BAC07;1283815;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 244 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096(0.000)	447	152	22090 (-3)	0.25	
6) Naphthalene-d8	8.992(0.000)	539	136	79725 (5)	0.25	
14) Acenaphthene-d10	11.746(0.000)	750	164	36506 (-4)	0.25	
20) Phenanthrene-d10	13.643(0.008)	983	188	75499 (-5)	0.25	
29) Chrysene-d12	17.802(0.008)	1591	240	74983 (-12)	0.25	
38) Perylene-d12	20.294(0.000)	1916	264	88871 (-6)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233(0.000)	152	29023	0.178	71%		15 - 121
24) Fluoranthene-d10	(4)	15.352(0.000)	212	67387	0.211	85%		34 - 125
36) Benzo(a)pyrene-d12	(6)	20.156(0.000)	264	50370	0.150	60%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033(0.000)	128	14991	0.040	0.16			0.008
13) Acenaphthylene	(3)	11.549(-0.000)	152	1266M	0.003	0.01			0.003
15) Acenaphthene	(3)	11.780(0.000)	154	3025M	0.014	0.06			0.003
18) Fluorene	(3)	12.441(0.000)	166	3068	0.011	0.05			0.003
21) Phenanthrene	(4)	13.674(-0.000)	178	14355	0.037	0.15			0.008
22) Anthracene	(4)	13.744(-0.000)	178	4717	0.013	0.05			0.003
25) Fluoranthene	(4)	15.383(-0.000)	202	24987	0.058	0.24			0.003
26) Pyrene	(5)	15.734(-0.000)	202	20706	0.039	0.16			0.003
28) Benzo(a)anthracene	(5)	17.786(-0.000)	228	14793	0.033	0.13			0.003
30) Chrysene	(5)	17.848(-0.000)	228	15162	0.032	0.13			0.003
33) Benzo(b)fluoranthene	(6)	19.665(-0.000)	252	14841	0.030	0.12			0.003
34) Benzo(k)fluoranthene	(6)	19.711(-0.000)	252	5986	0.011	0.05			0.003
37) Benzo(a)pyrene	(6)	20.202(-0.000)	252	10216	0.021	0.09			0.003
39) Indeno(1,2,3-cd)pyrene	(6)	22.043(0.000)	276	5381M	0.013	0.05			0.003
40) Dibenz(a,h)anthracene	(6)			Not Detected					0.005
41) Benzo(g,h,i)perylene	(6)	22.523(0.000)	276	5018	0.010	0.04			0.003

M = Compound was manually integrated.

BAC07

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283815

Data file: /chem/HP21585.i/20mar24.b/mc1416.d

Injection date and time: **25-MAR-2020 01:59**

Data file Sample Info. Line: BAC07;1283815;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 244 ml

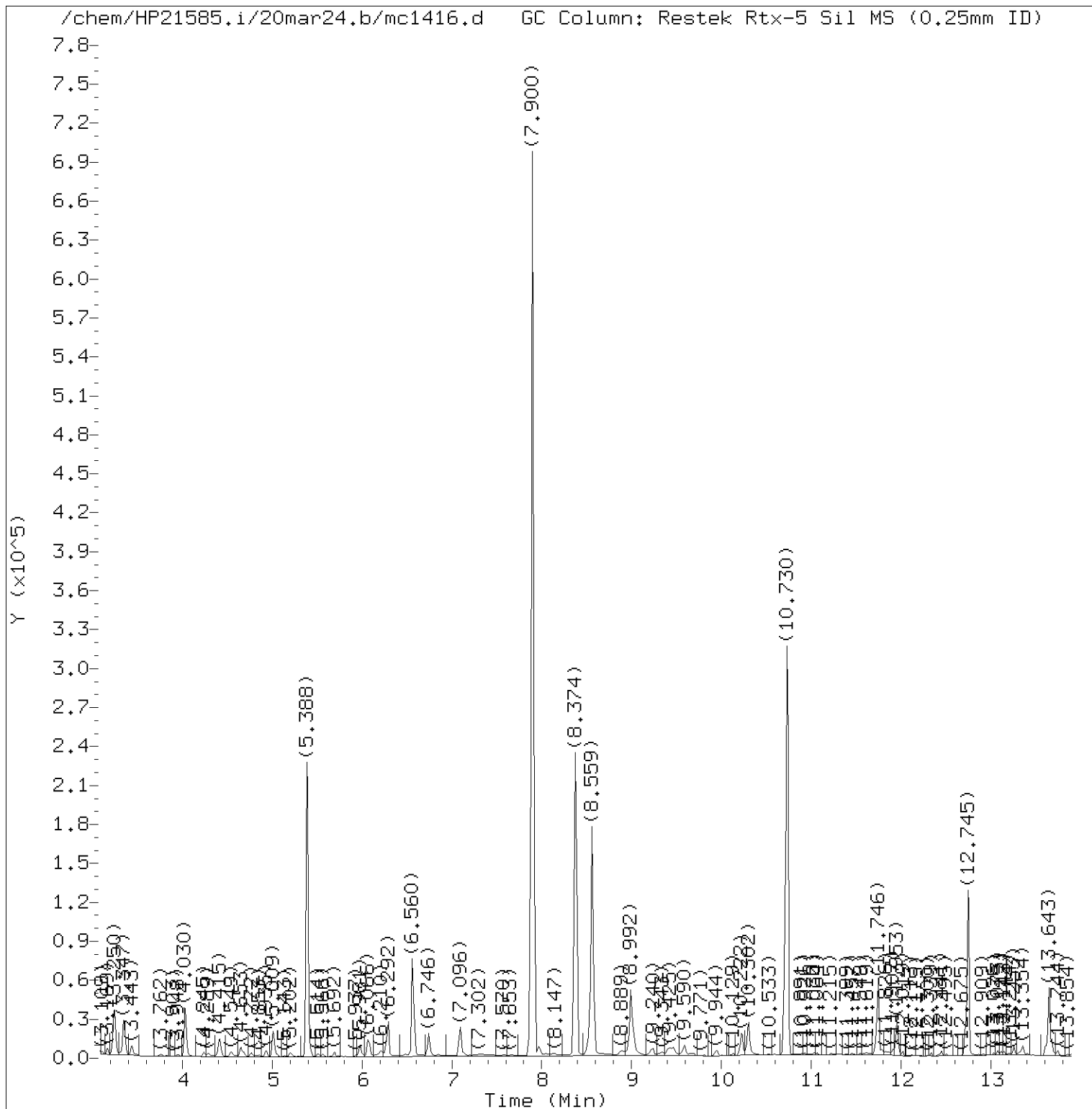
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

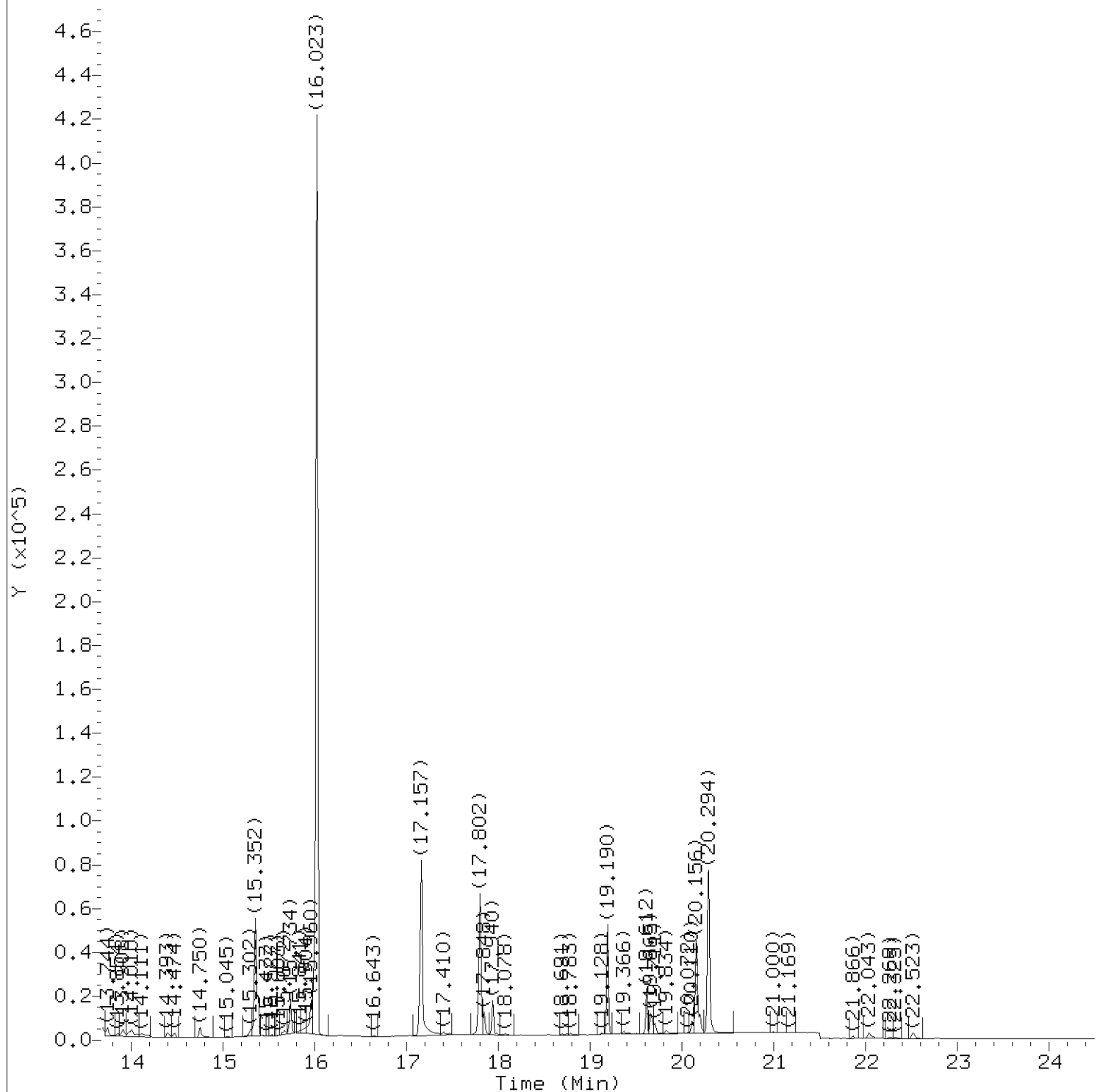
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

Lab Sample ID: 1283815

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346



Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1416.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 01:59

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

Lab Sample ID: 1283815

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	22090	0.250
6) *Naphthalene-d8	(2)	8.992	136	79725	0.250
7) Naphthalene	(2)	9.033	128	14991	0.040
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	29023	0.178
13) Acenaphthylene	(3)	11.549	152	1266M	0.003
14) *Acenaphthene-d10	(3)	11.746	164	36506	0.250
15) Acenaphthene	(3)	11.780	154	3025M	0.014
18) Fluorene	(3)	12.441	166	3068	0.011
20) *Phenanthrene-d10	(4)	13.643	188	75499	0.250
21) Phenanthrene	(4)	13.674	178	14355	0.037
22) Anthracene	(4)	13.744	178	4717	0.013
24) \$Fluoranthene-d10	(4)	15.352	212	67387	0.211
25) Fluoranthene	(4)	15.383	202	24987	0.058
26) Pyrene	(5)	15.734	202	20706	0.039
28) Benzo(a)anthracene	(5)	17.786	228	14793	0.033
29) *Chrysene-d12	(5)	17.802	240	74983	0.250
30) Chrysene	(5)	17.848	228	15162	0.032
33) Benzo(b)fluoranthene	(6)	19.665	252	14841	0.030
34) Benzo(k)fluoranthene	(6)	19.711	252	5986	0.011
36) \$Benzo(a)pyrene-d12	(6)	20.156	264	50370	0.150
37) Benzo(a)pyrene	(6)	20.202	252	10216	0.021
38) *Perylene-d12	(6)	20.294	264	88871	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.043	276	5381M	0.013
41) Benzo(g,h,i)perylene	(6)	22.523	276	5018	0.010

M = Compound was manually integrated.

* = Compound is an internal standard.

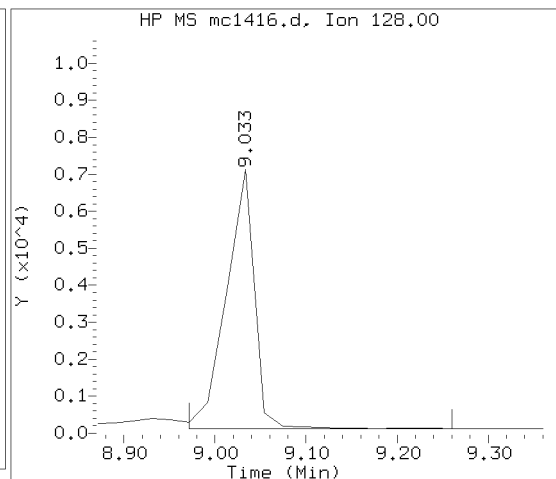
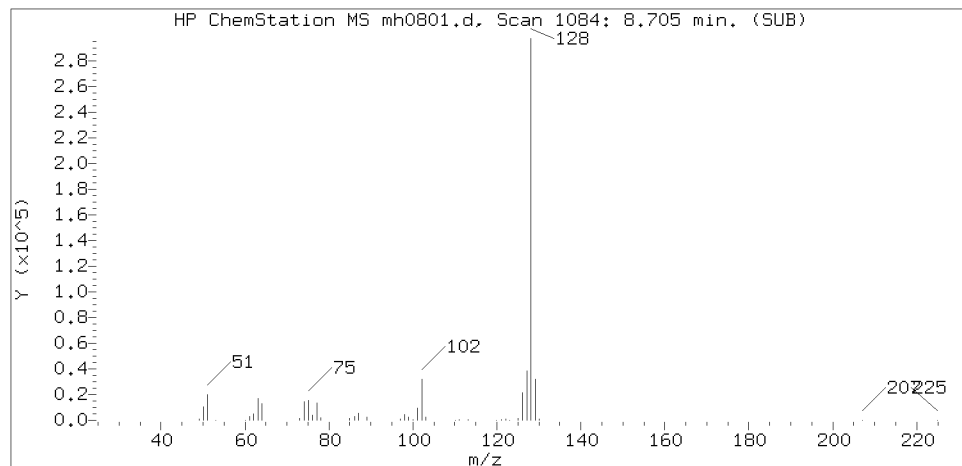
\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

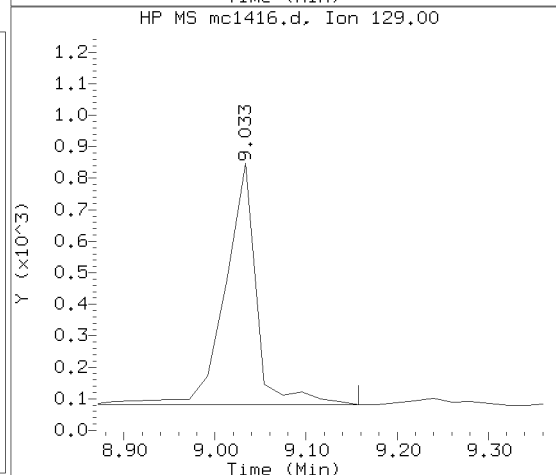
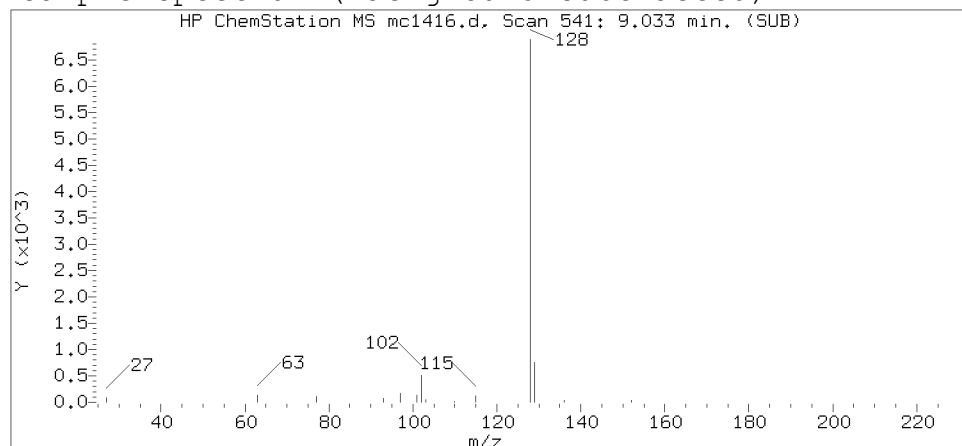
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

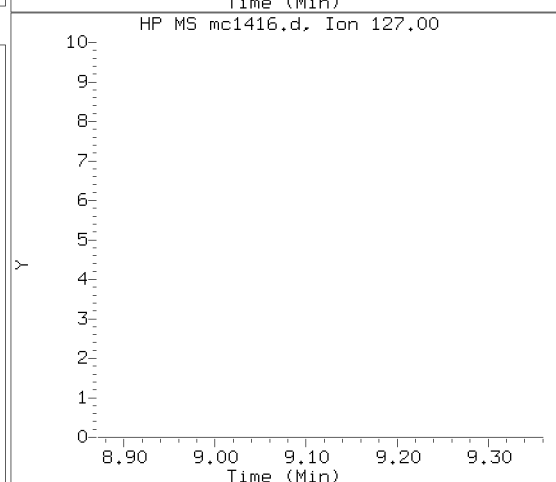
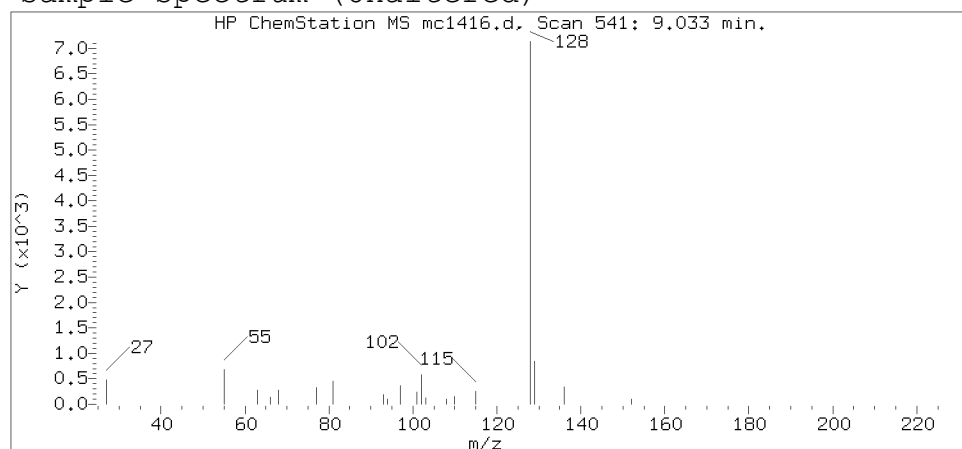
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

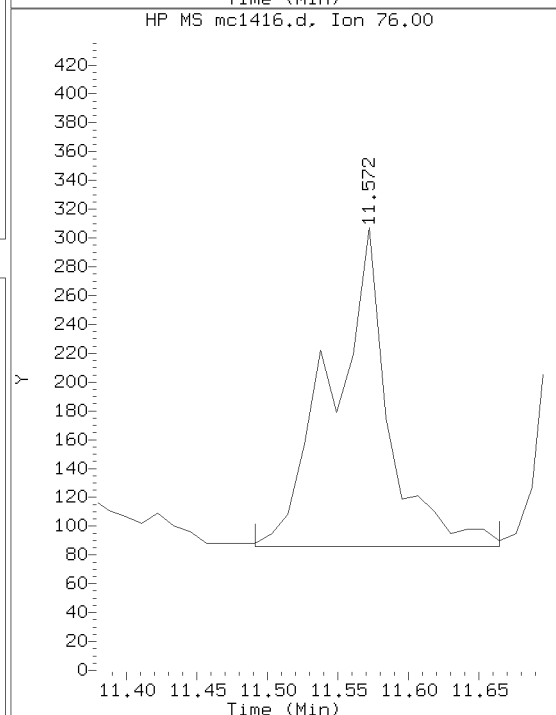
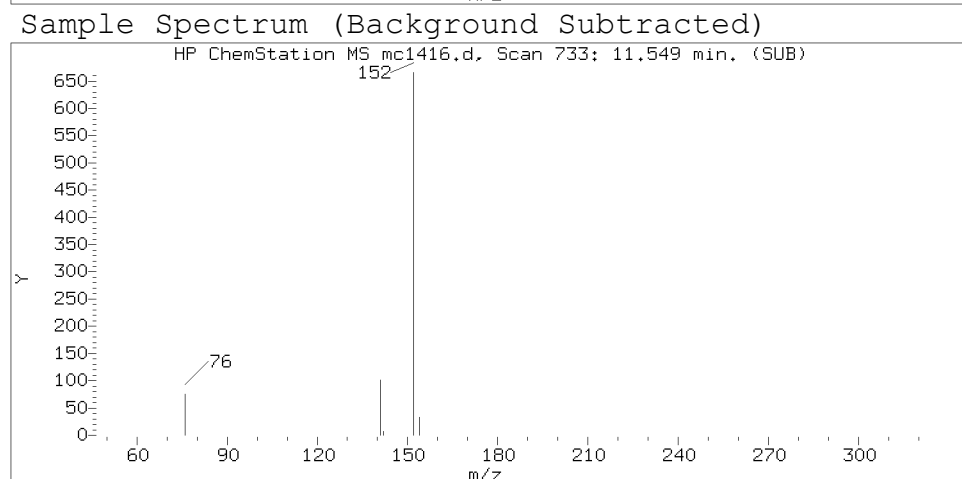
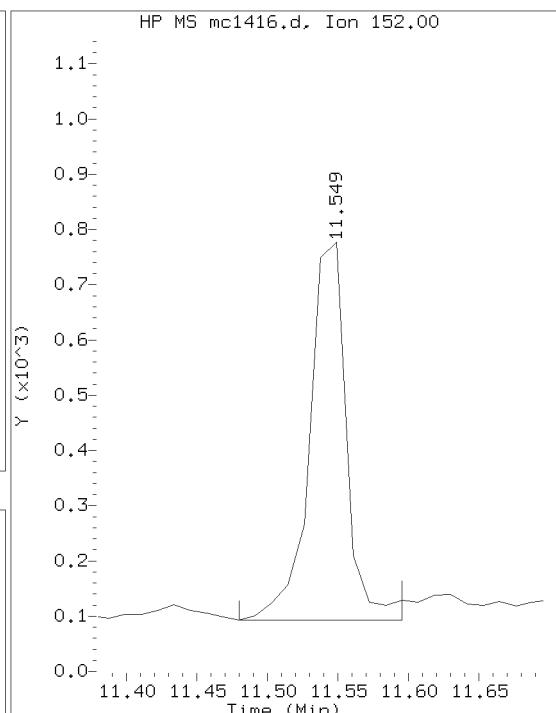
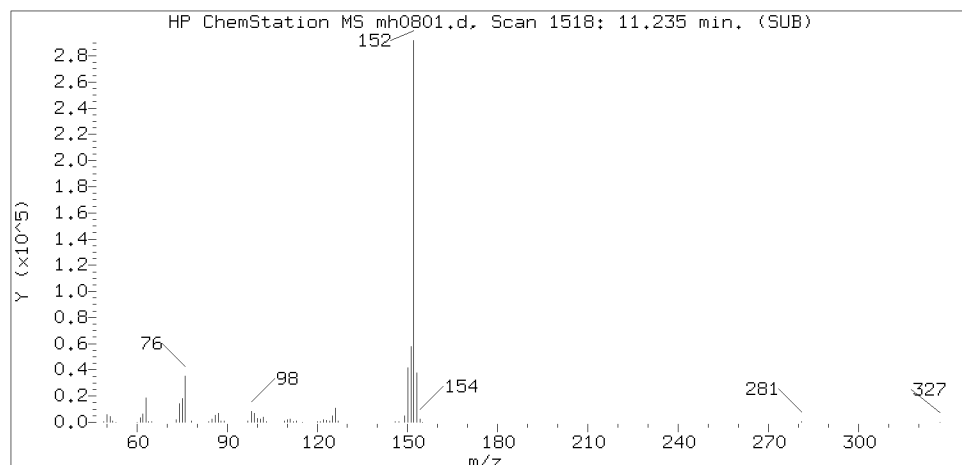
Sample Name: BAC07

Lab Sample ID: 1283815

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 541
Retention Time (minutes) : 9.033
Relative Retention Time : 0.00000
Quant Ion : 128.00
Area (flag) : 14991
On-column Amount (ng/ul) : 0.0397

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

Reference Standard Spectrum for Acenaphthylene



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

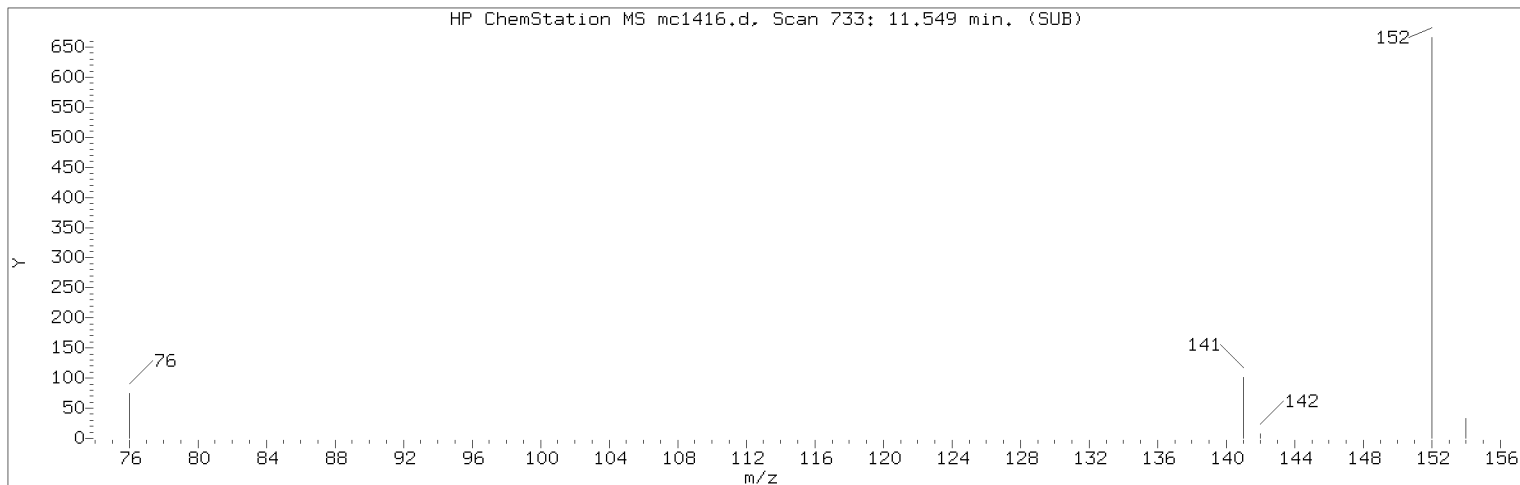
Sample Name: BAC07

Lab Sample ID: 1283815

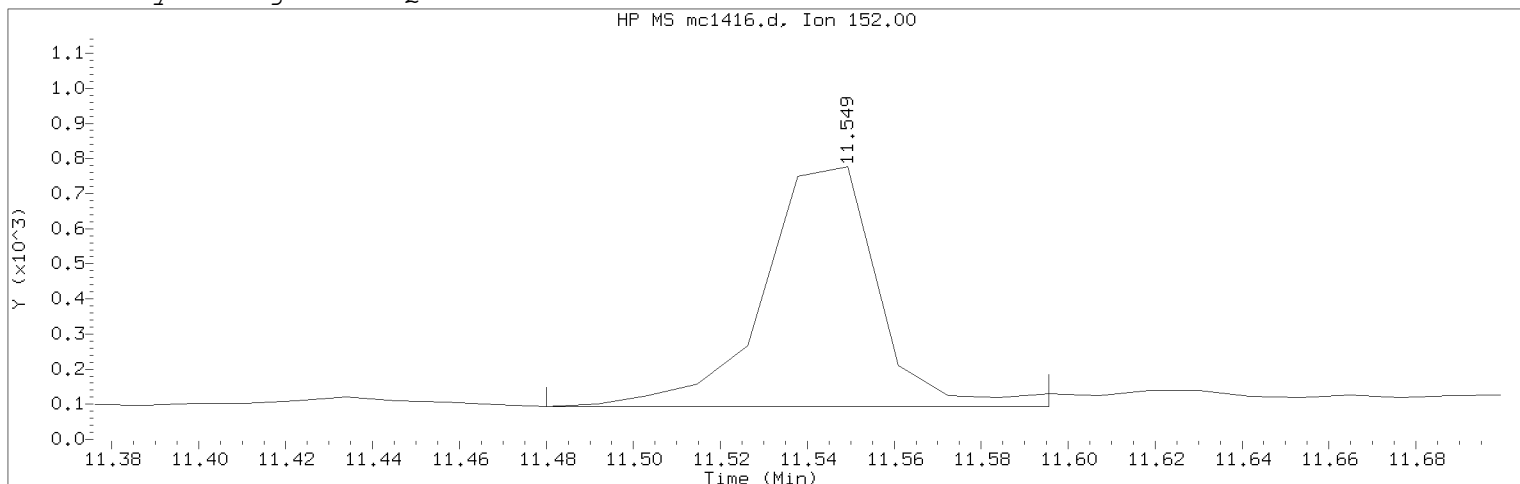
Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 733
Retention Time (minutes) : 11.549
Relative Retention Time :-0.00000
Quant Ion : 152.00
Area (flag) : 1266M
On-column Amount (ng/ul) : 0.0033

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1416.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 01:59

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

Lab Sample ID: 1283815

Compound Number	: 13	
Compound Name	: Acenaphthylene	
Scan Number	: 733	
Retention Time (minutes)	: 11.549	
Quant Ion	: 152.00	
Area (flag)	: 1266M	
On-column Amount (ng/ul)	: 0.0033	
Integration start scan	: 726	Integration stop scan: 736
Y at integration start	: 93	Y at integration end: 93

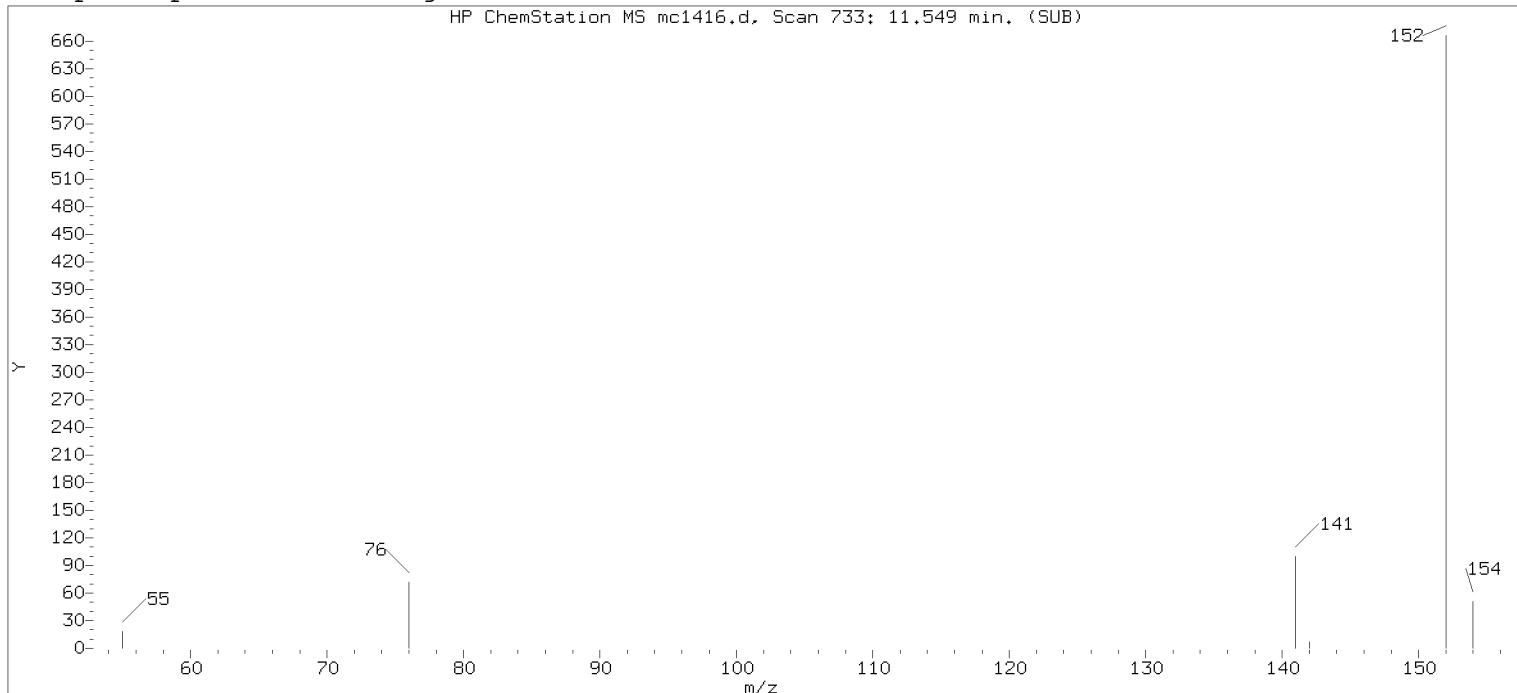
Reason for manual integration: improper integration

Analyst responsible for change:

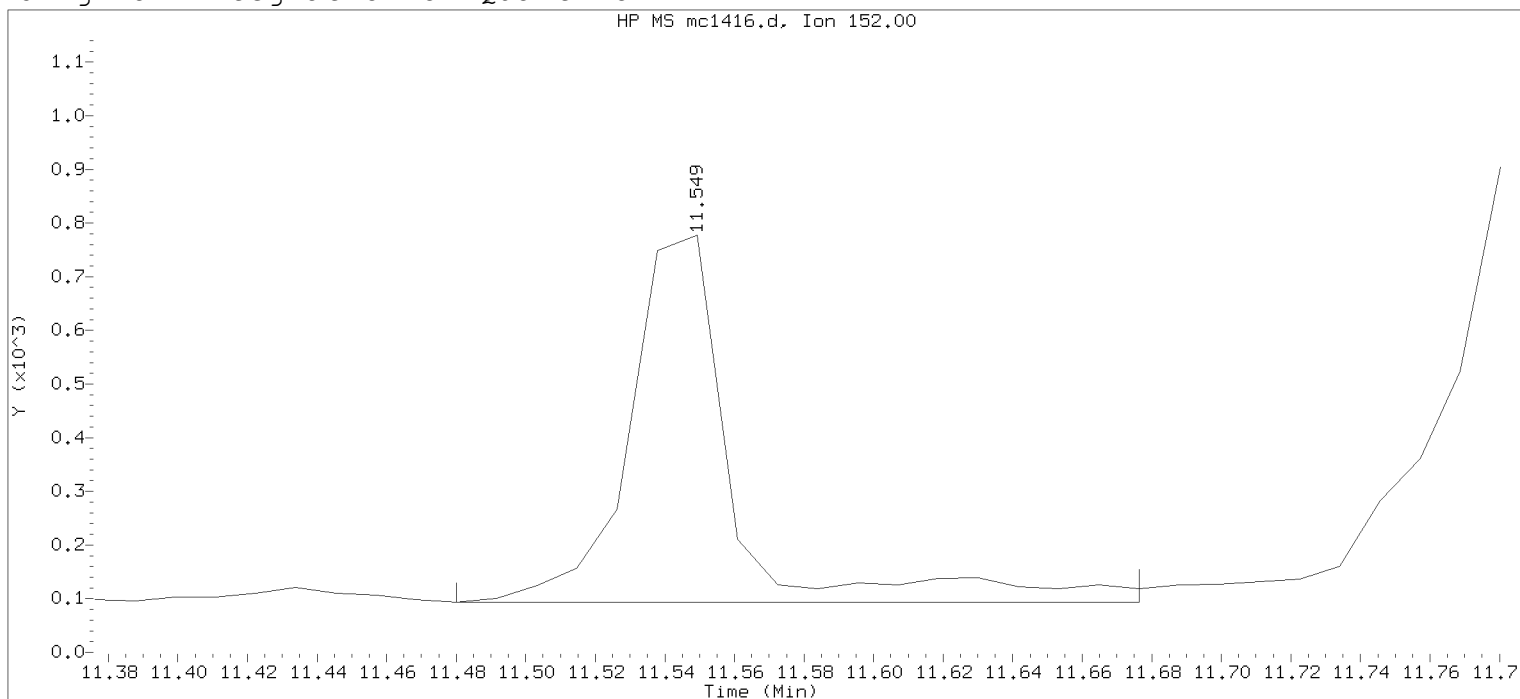
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1416.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 01:59

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC07

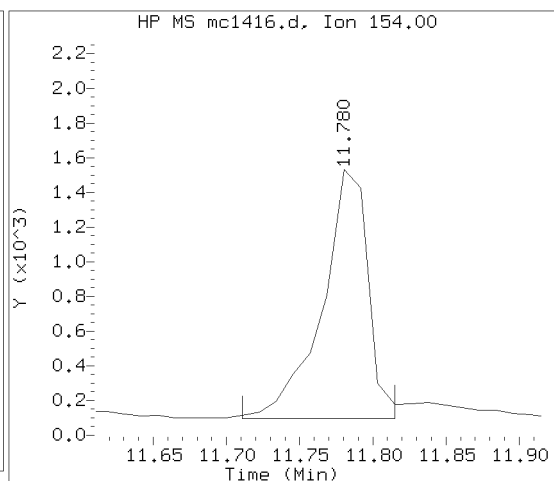
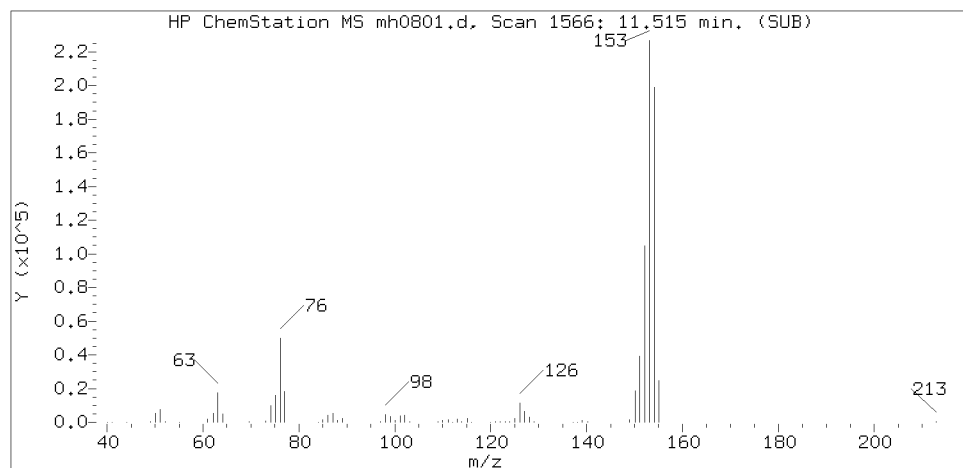
Lab Sample ID: 1283815

Compound Number	: 13	
Compound Name	: Acenaphthylene	
Scan Number	: 733	
Retention Time (minutes)	: 11.549	
Quant Ion	: 152.00	
Area	: 1421	
On-column Amount (ng/ul)	: 0.0037	
Integration start scan	: 726	Integration stop scan: 743
Y at integration start	: 93	Y at integration end: 93

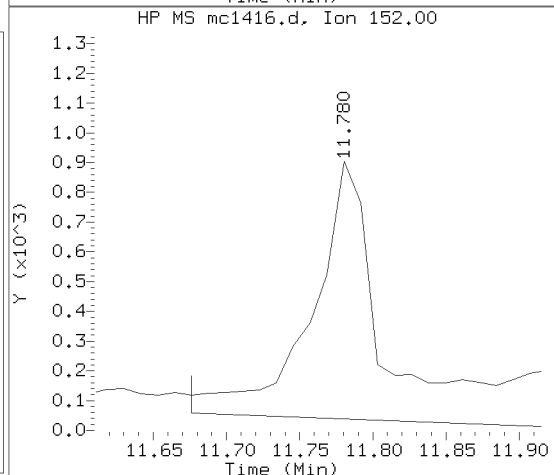
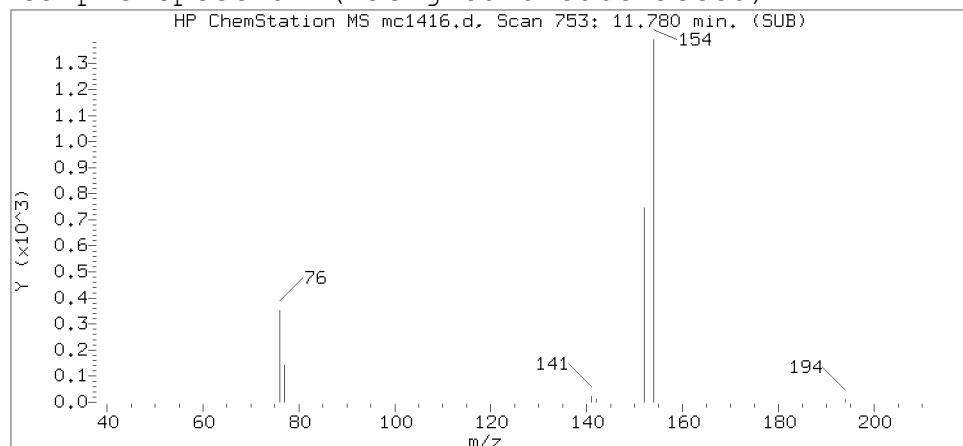
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user GPV67j Page 339 of 609

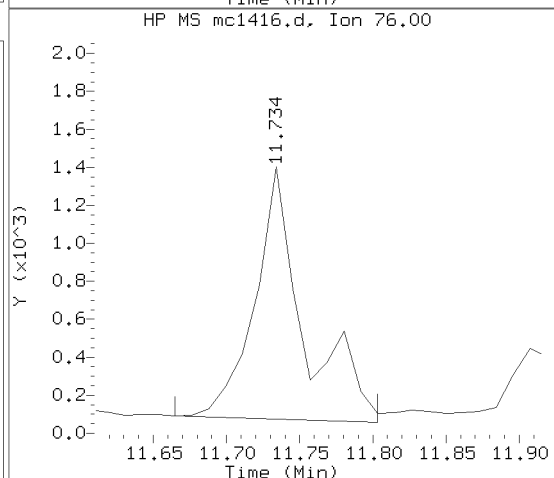
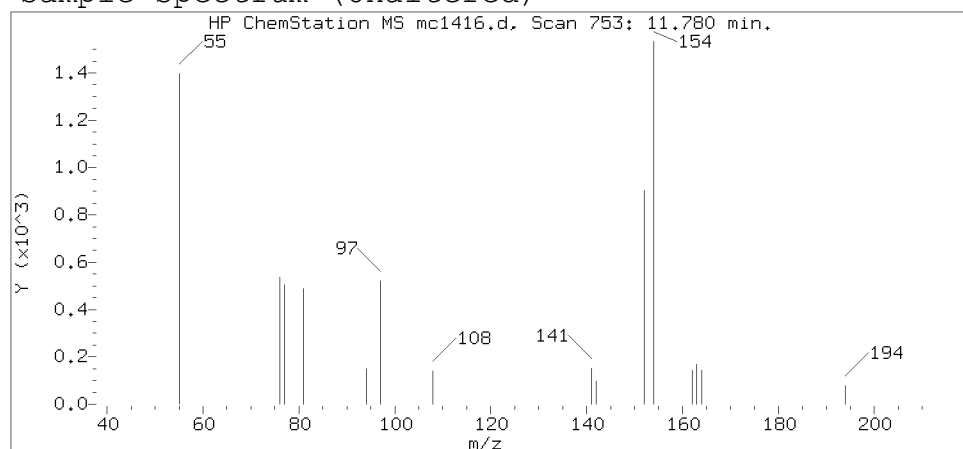
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

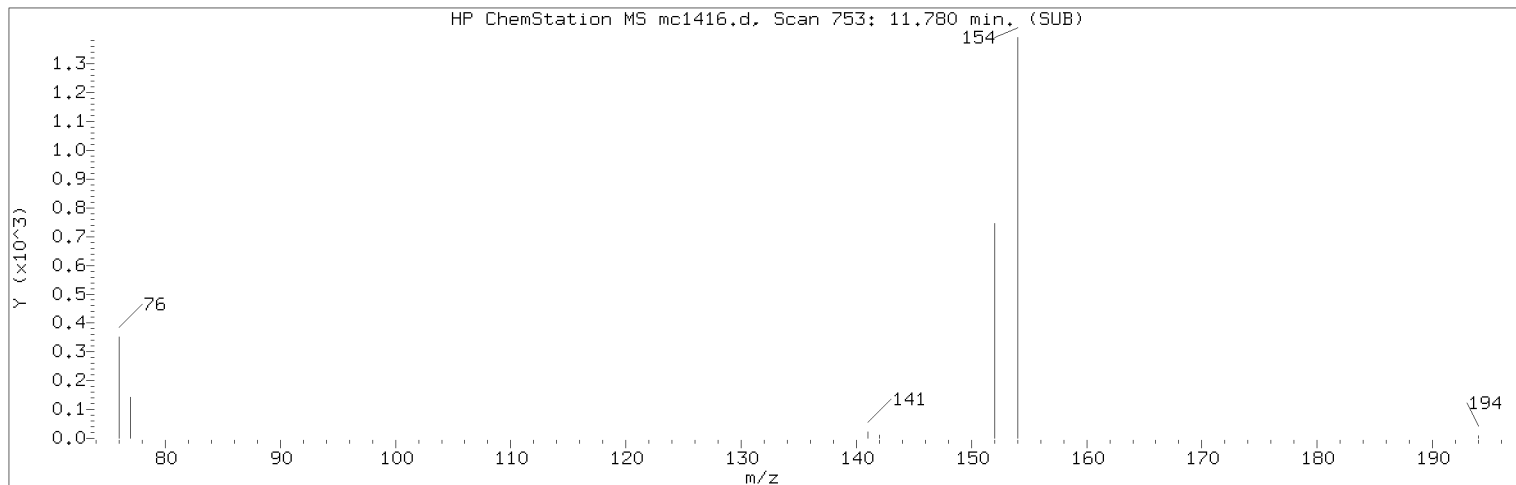
Sample Name: BAC07

Lab Sample ID: 1283815

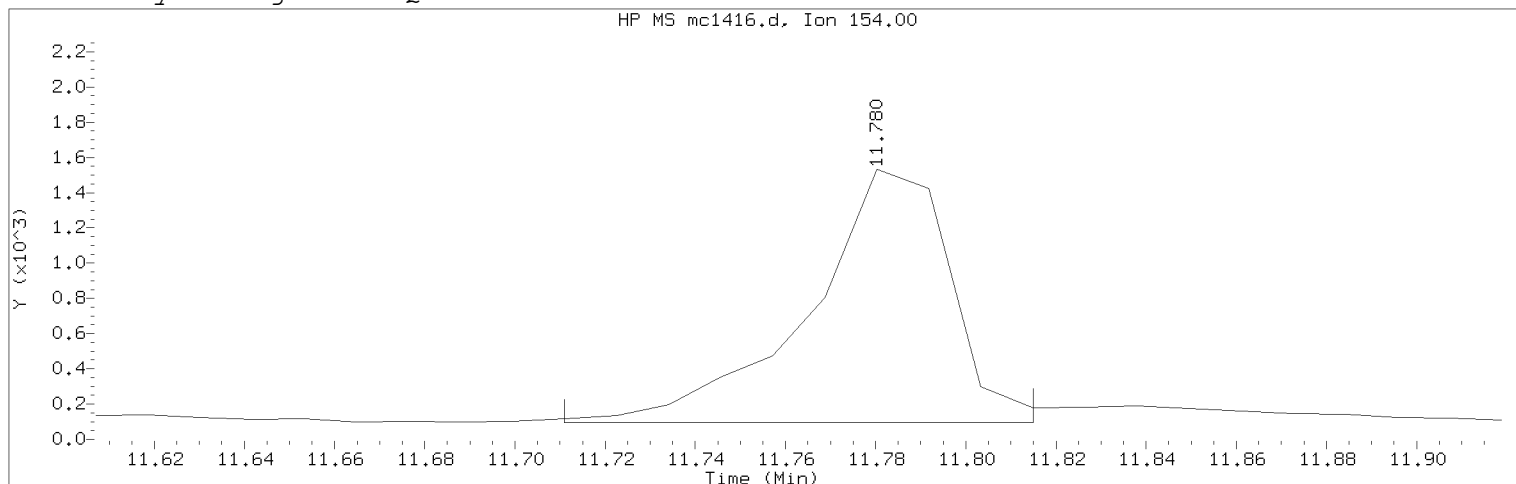
Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 753
Retention Time (minutes) : 11.780
Relative Retention Time : 0.00098
Quant Ion : 154.00
Area (flag) : 3025M
On-column Amount (ng/ul) : 0.0140

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1416.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 01:59

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

Lab Sample ID: 1283815

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area (flag)	: 3025M	
On-column Amount (ng/ul)	: 0.0140	
Integration start scan	: 746	Integration stop scan: 755
Y at integration start	: 95	Y at integration end: 95

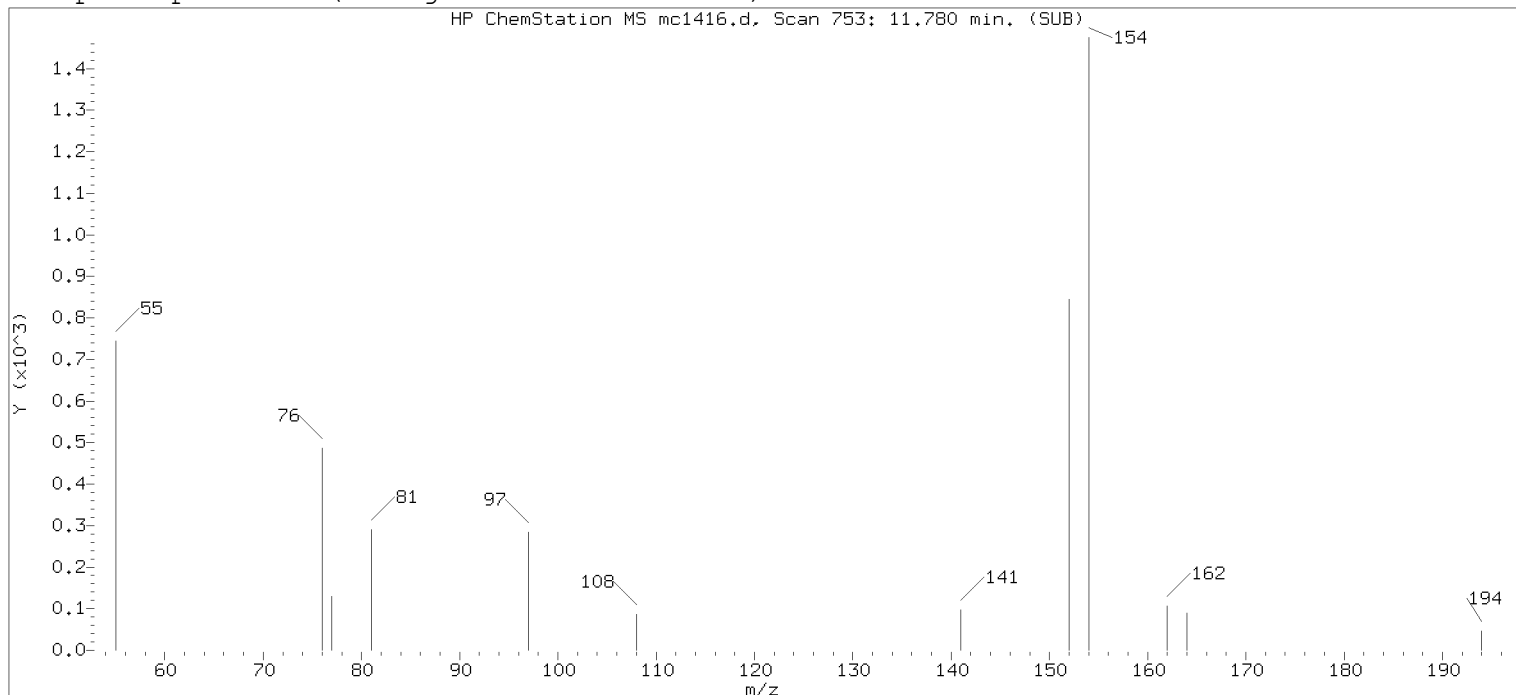
Reason for manual integration: improper integration

Analyst responsible for change:

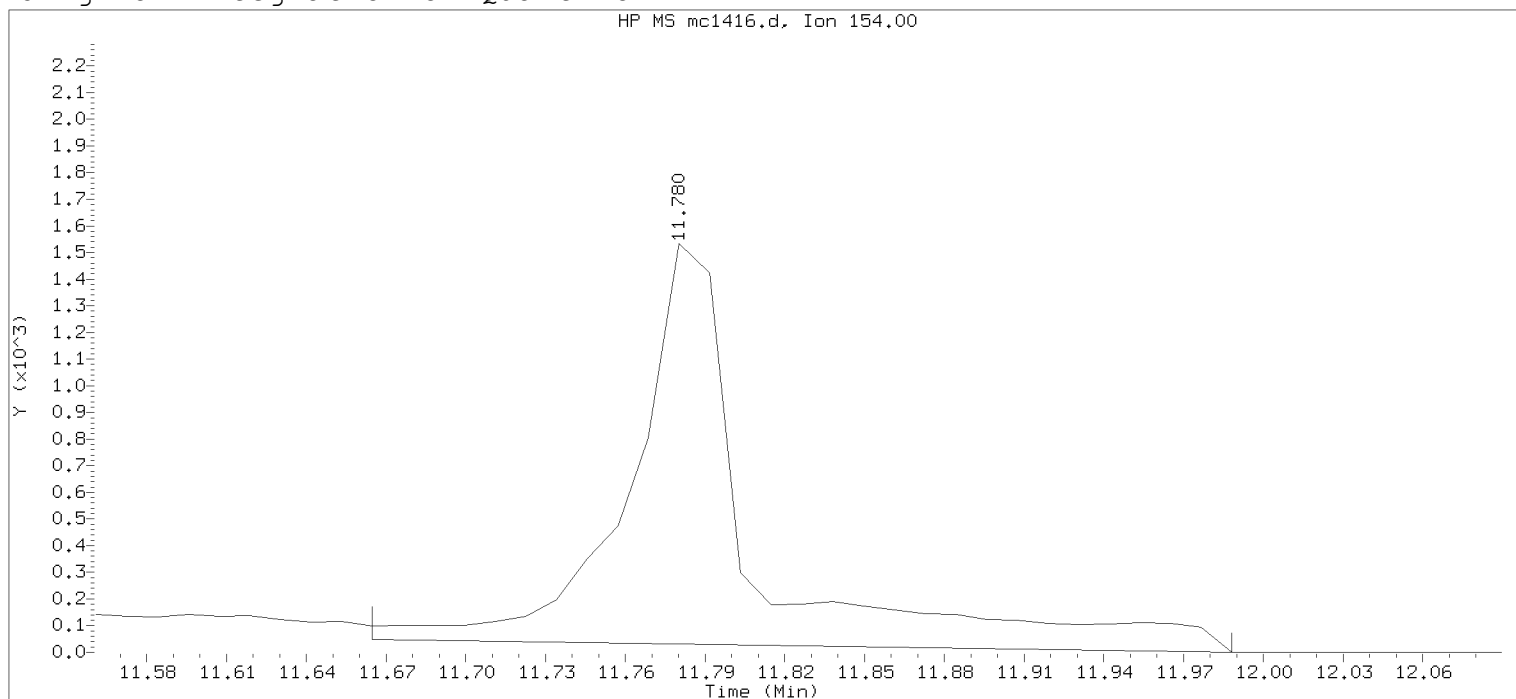
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1416.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 01:59

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC07

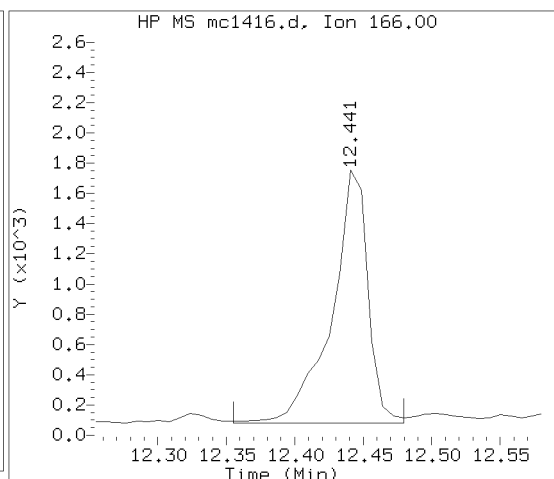
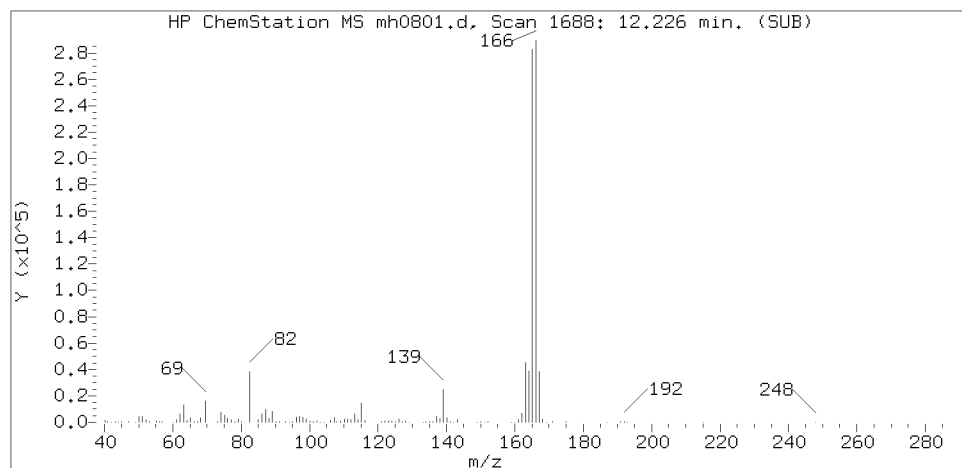
Lab Sample ID: 1283815

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area	: 4640	
On-column Amount (ng/ul)	: 0.0215	
Integration start scan	: 742	Integration stop scan: 770
Y at integration start	: 49	Y at integration end: 0

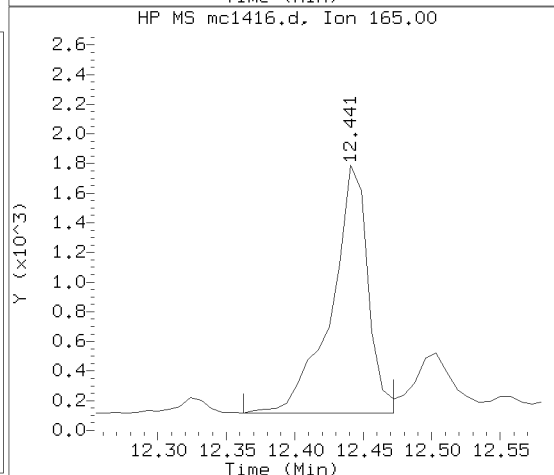
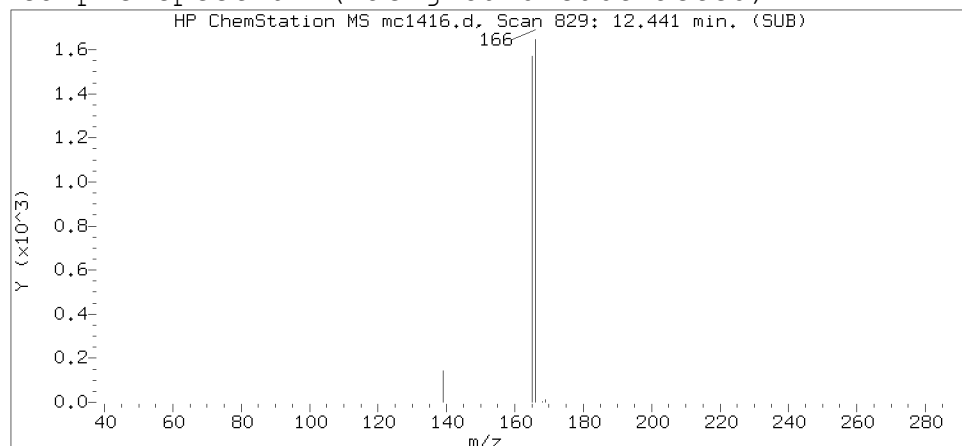
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user GPV67 Page 342 of 609

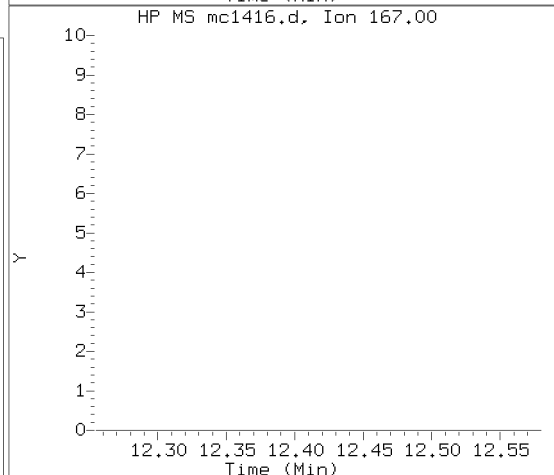
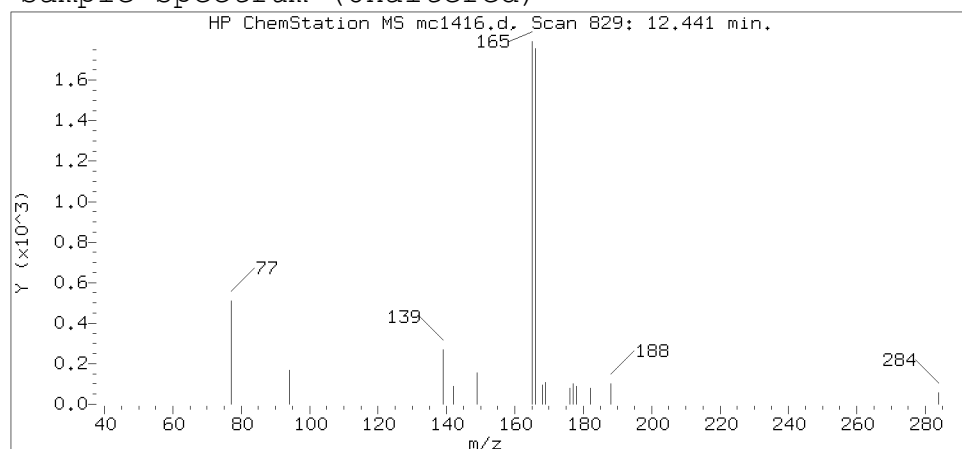
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

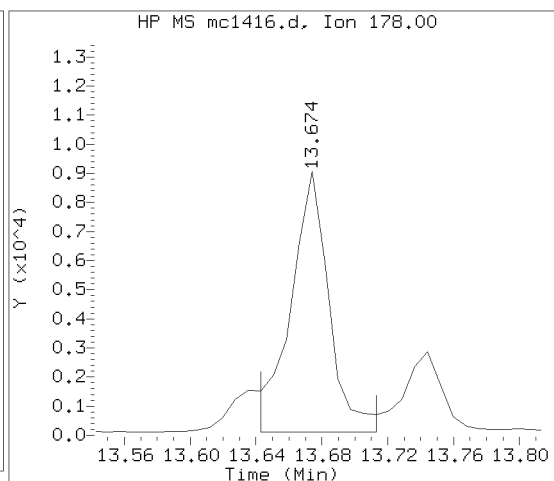
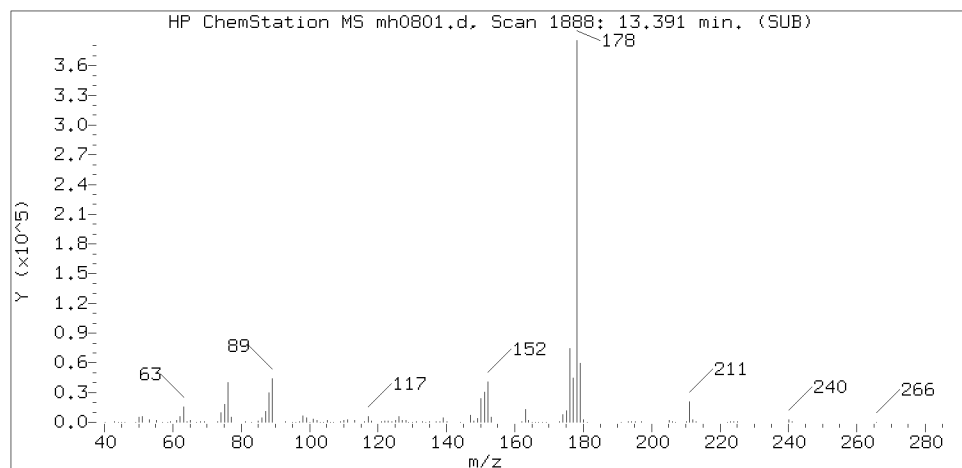
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

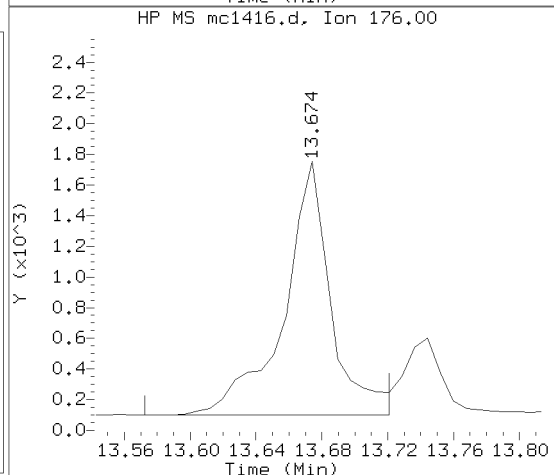
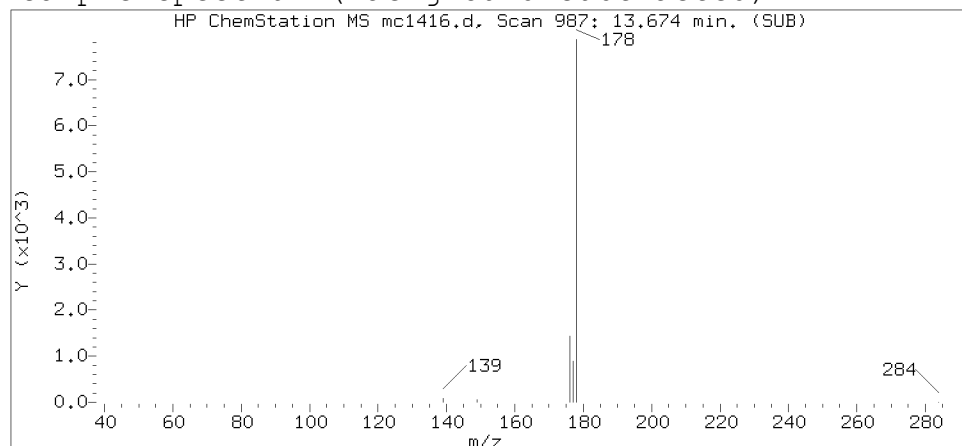
Lab Sample ID: 1283815

Compound Number : 18
Compound Name : Fluorene
Scan Number : 829
Retention Time (minutes) : 12.441
Relative Retention Time : 0.00066
Quant Ion : 166.00
Area (flag) : 3068
On-column Amount (ng/ul) : 0.0112

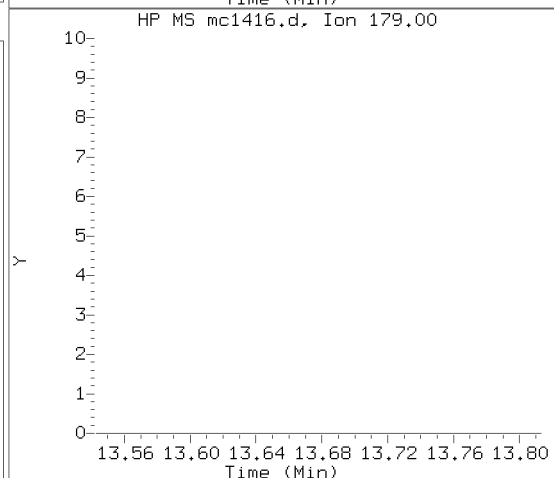
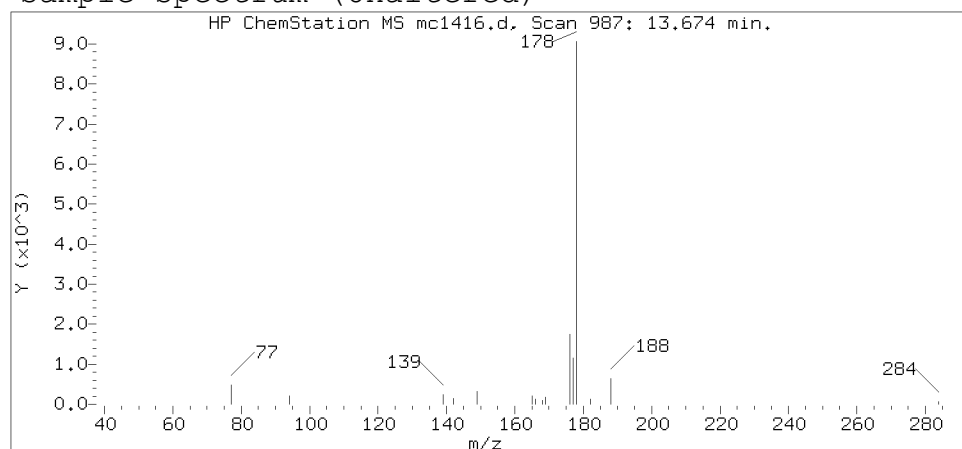
Reference Standard Spectrum for Phenanthrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

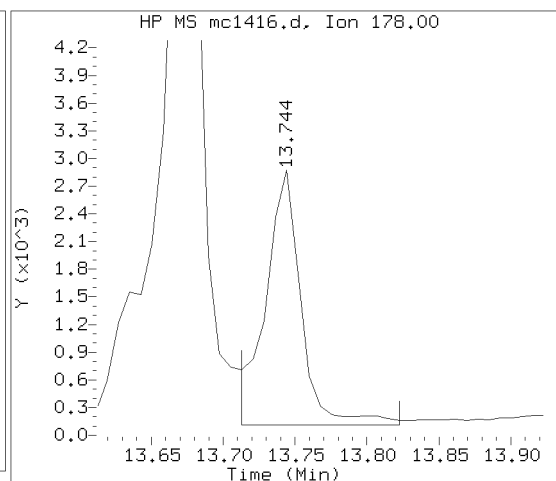
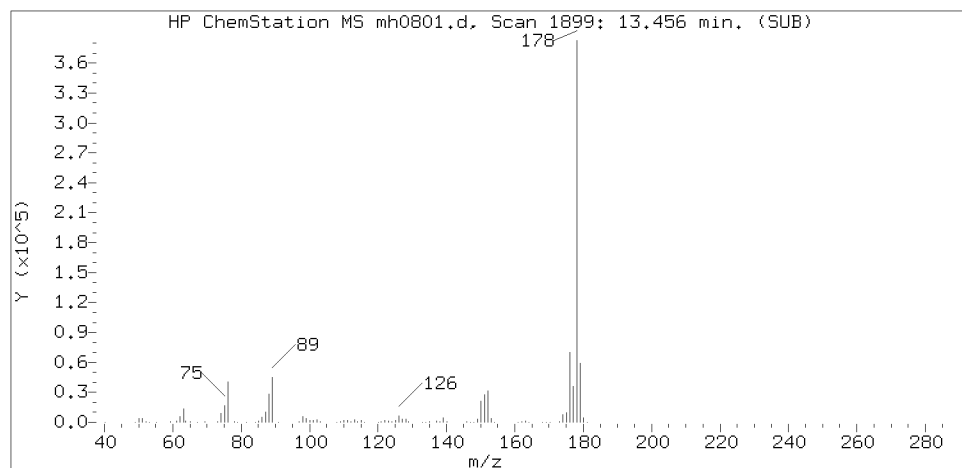
Lab Sample ID: 1283815

Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 987
Retention Time (minutes) : 13.674
Relative Retention Time : -0.00057
Quant Ion : 178.00
Area (flag) : 14355
On-column Amount (ng/ul) : 0.0366

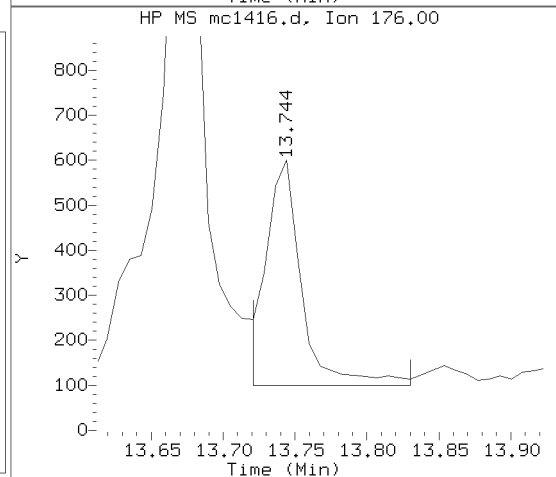
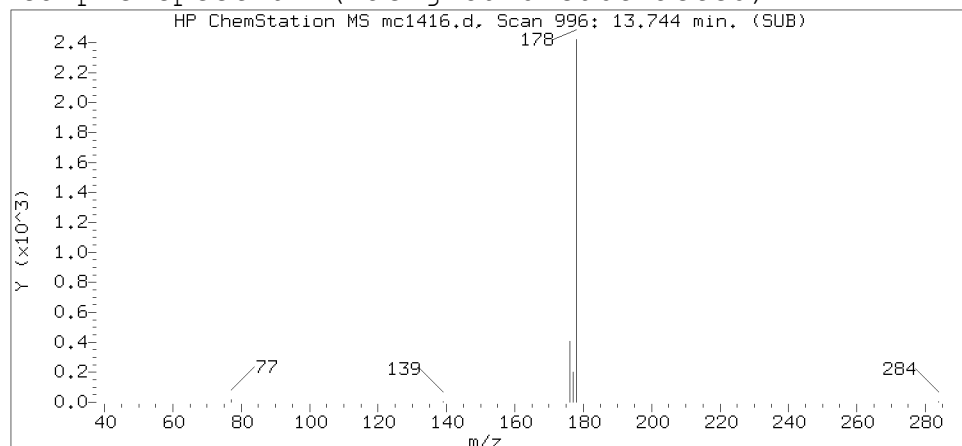
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346 Page 344 of 609

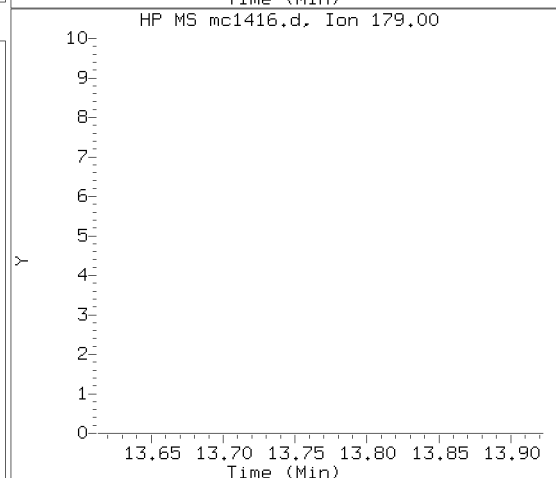
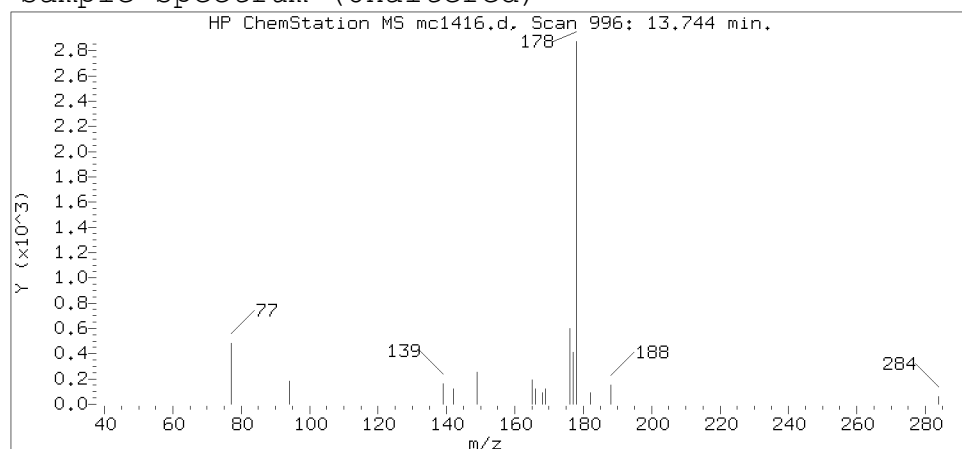
Reference Standard Spectrum for Anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

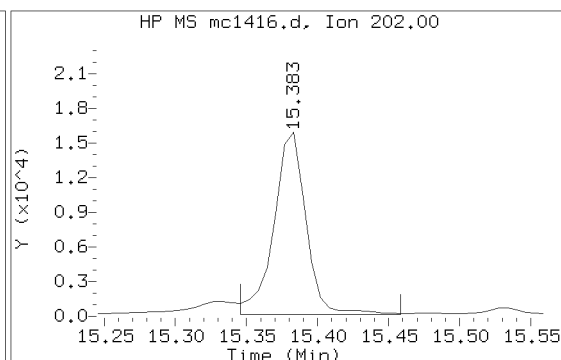
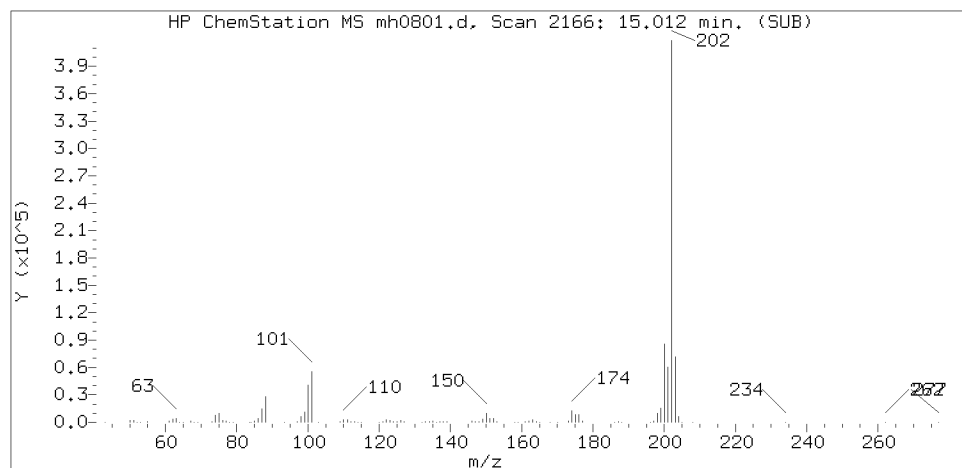
Sample Name: BAC07

Lab Sample ID: 1283815

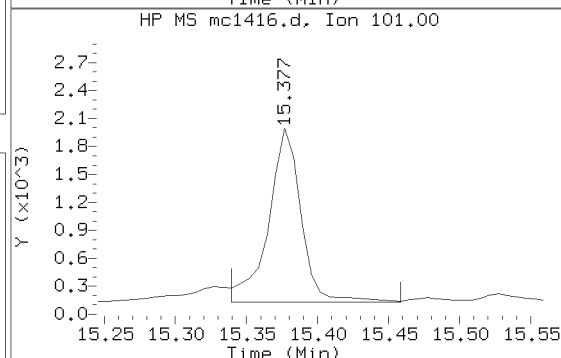
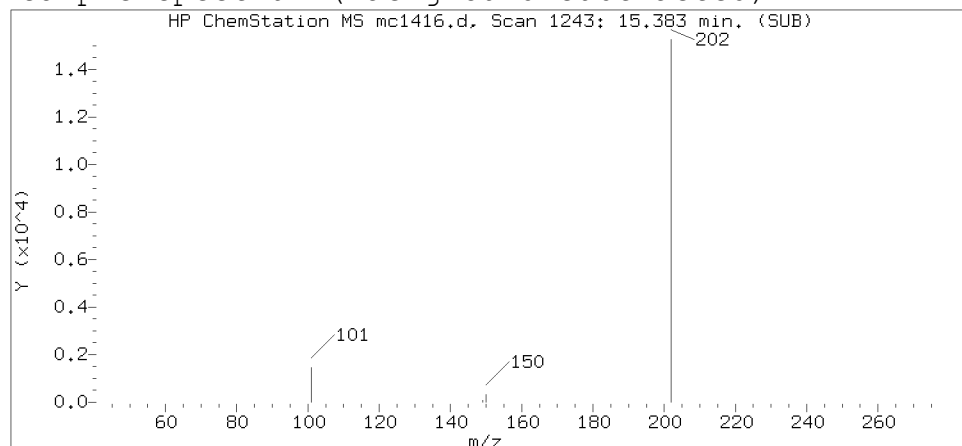
Compound Number : 22
Compound Name : Anthracene
Scan Number : 996
Retention Time (minutes) : 13.744
Relative Retention Time :-0.00058
Quant Ion : 178.00
Area (flag) : 4717
On-column Amount (ng/ul) : 0.0128

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Target 3.5 esignature user jmg00346

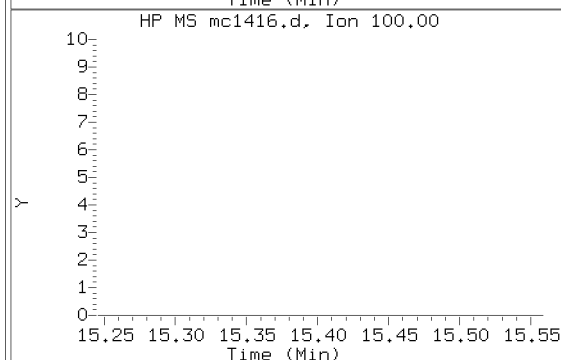
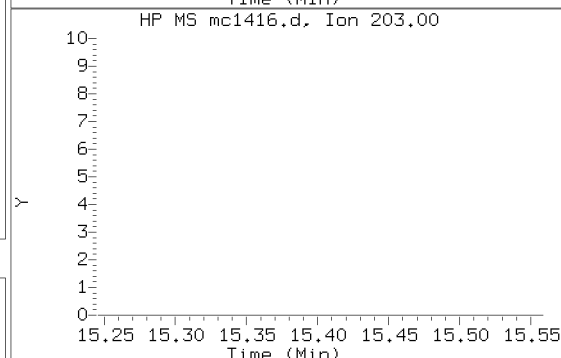
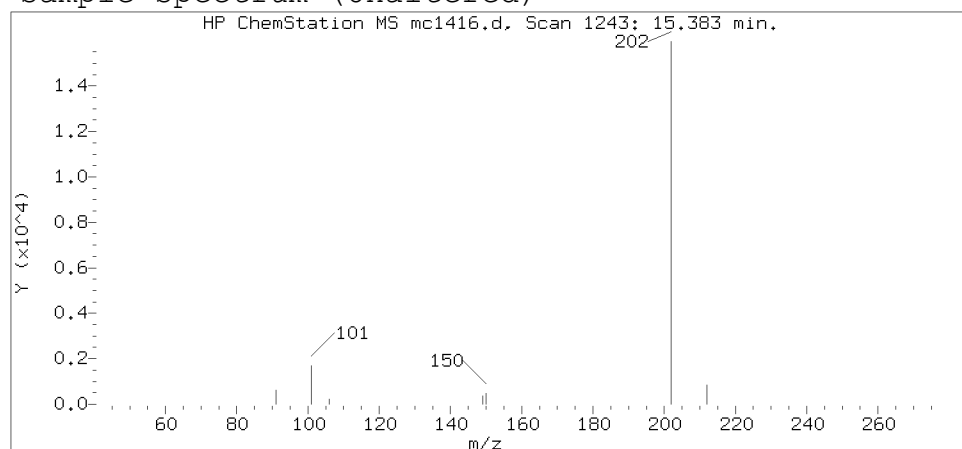
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

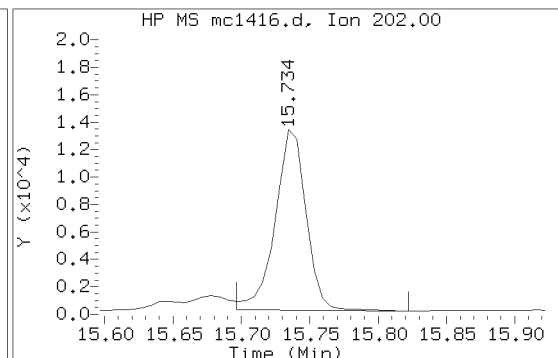
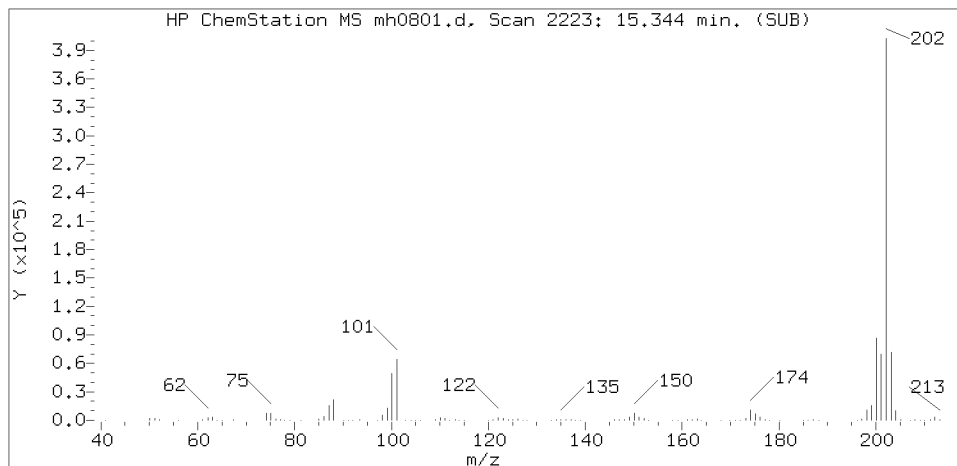
Lab Sample ID: 1283815

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1243
Retention Time (minutes) : 15.383
Relative Retention Time : -0.00064
Quant Ion : 202.00
Area (flag) : 24987
On-column Amount (ng/ul) : 0.0580

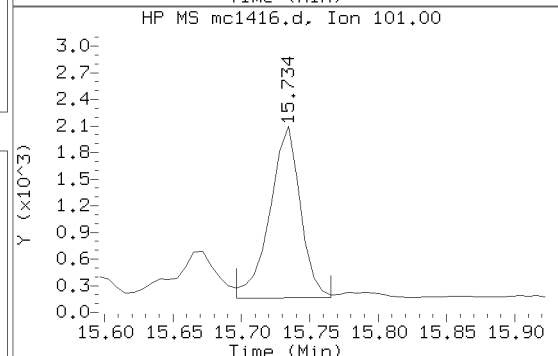
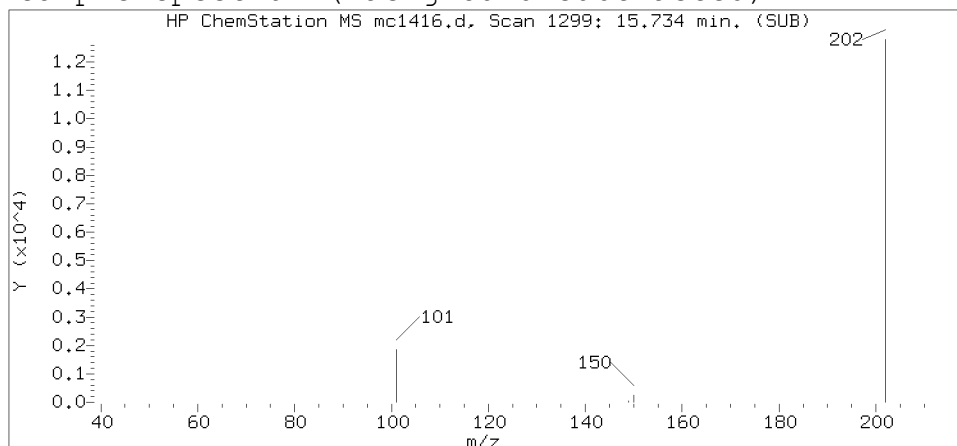
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346 Page 346 of 609

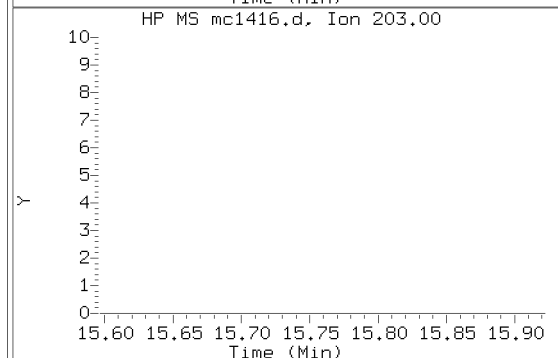
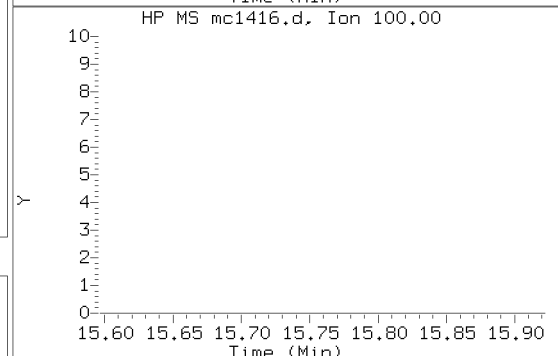
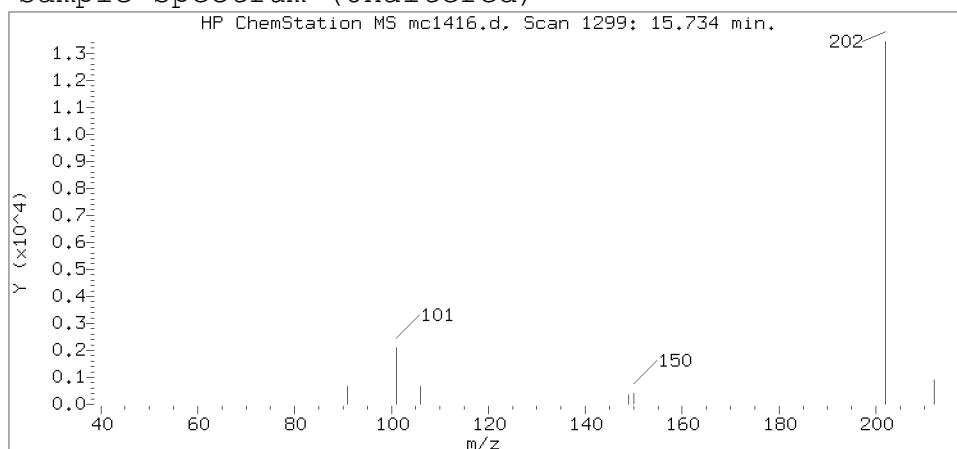
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

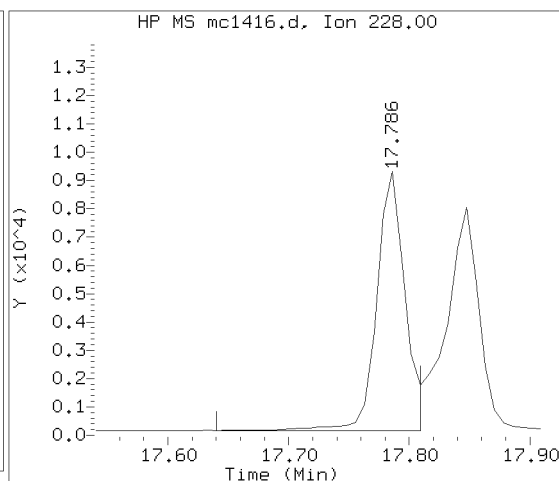
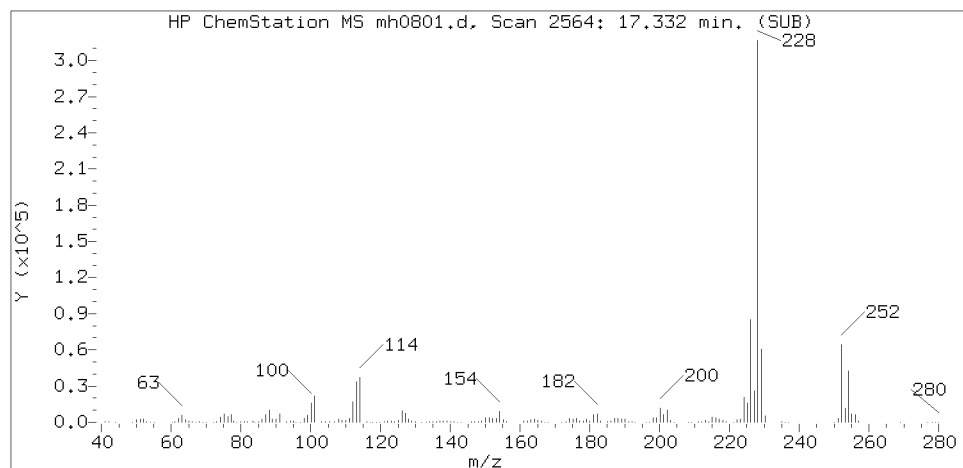
Sample Name: BAC07

Lab Sample ID: 1283815

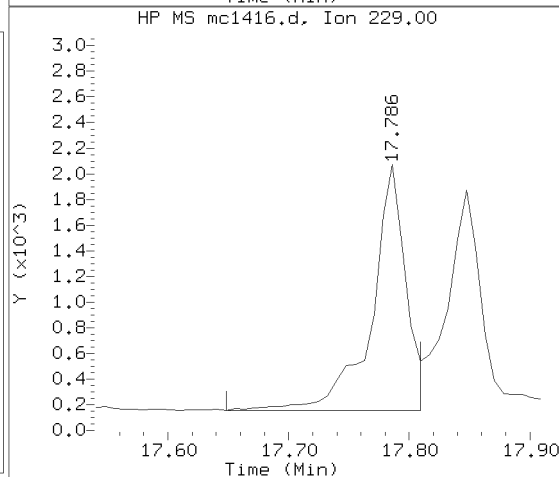
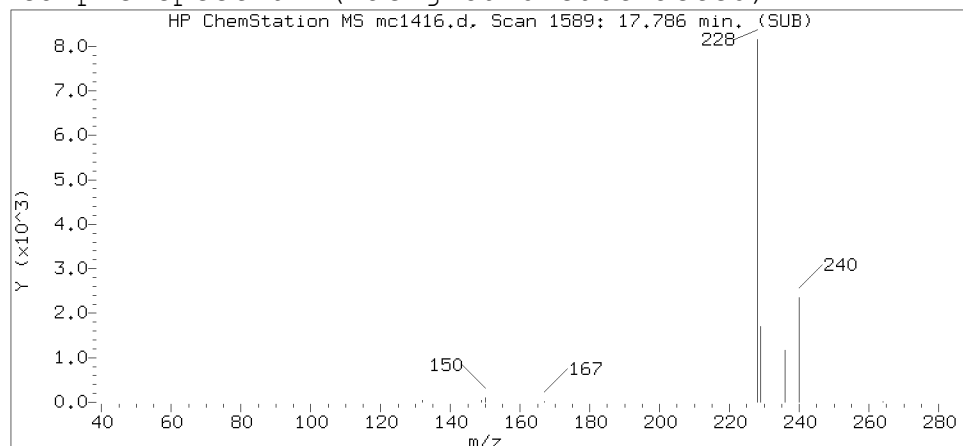
Compound Number : 26
Compound Name : Pyrene
Scan Number : 1299
Retention Time (minutes) : 15.734
Relative Retention Time :-0.00003
Quant Ion : 202.00
Area (flag) : 20706
On-column Amount (ng/ul) : 0.0386

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Target 3.5 esignature user=jmg00346

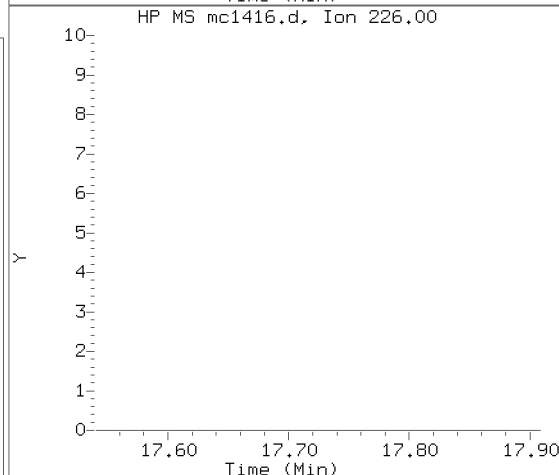
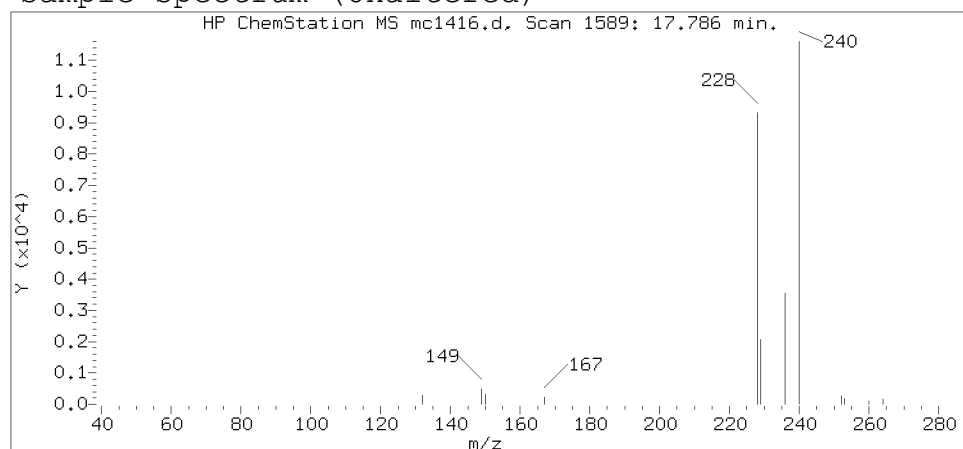
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

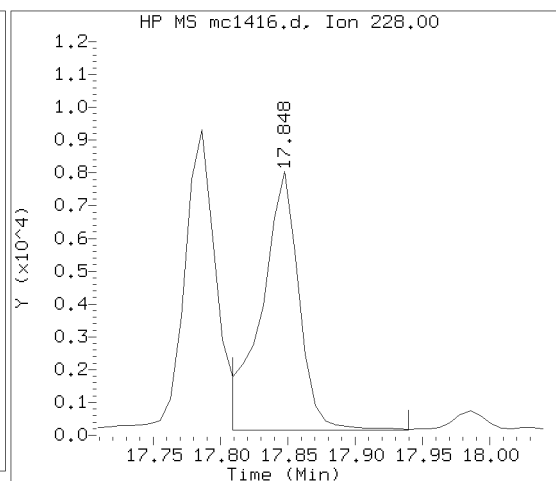
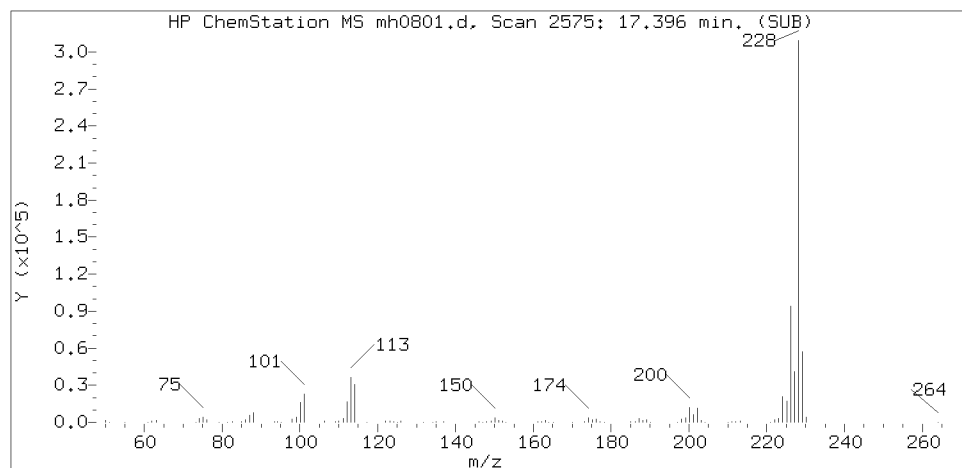
Lab Sample ID: 1283815

Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1589
Retention Time (minutes) : 17.786
Relative Retention Time : -0.00043
Quant Ion : 228.00
Area (flag) : 14793
On-column Amount (ng/ul) : 0.0326

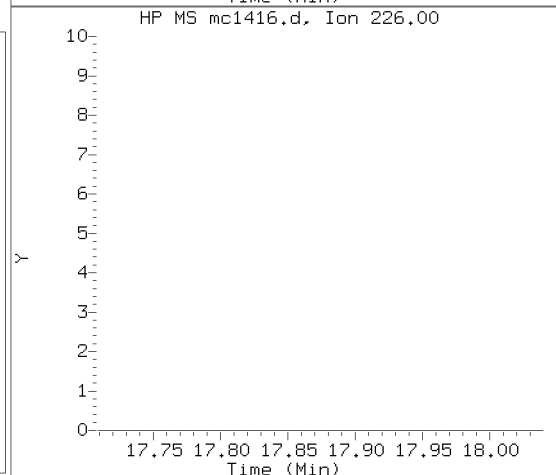
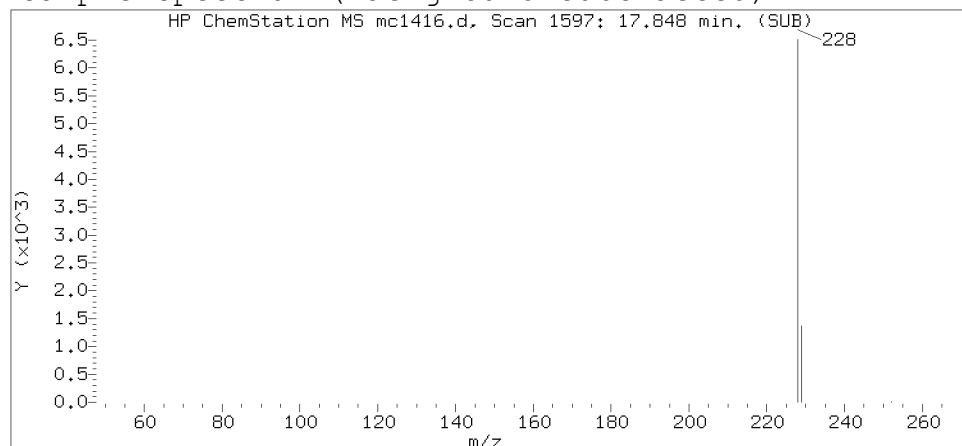
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346

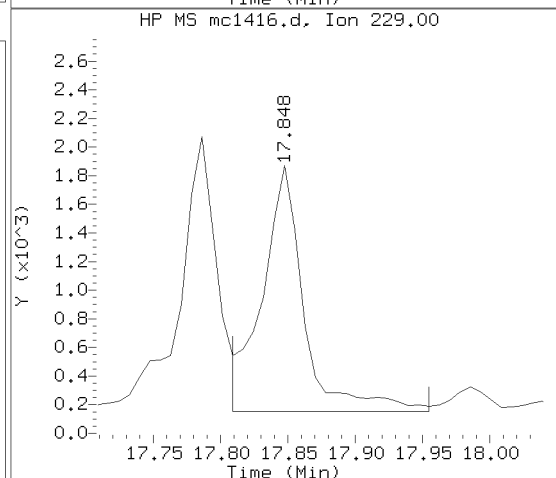
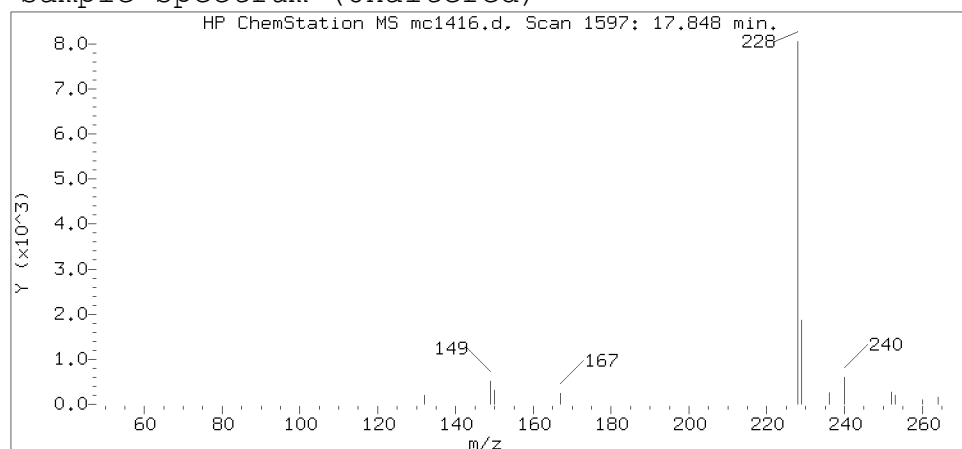
Reference Standard Spectrum for Chrysene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

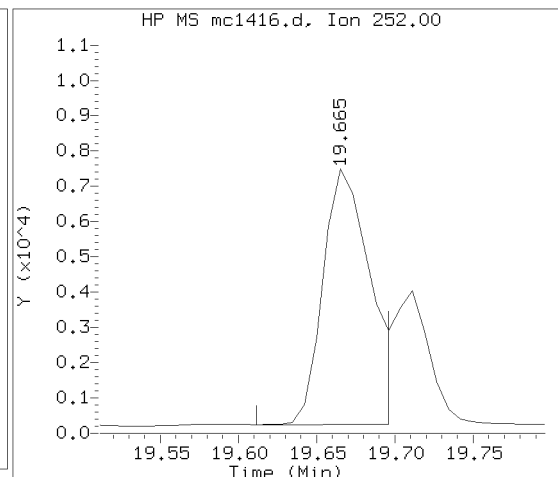
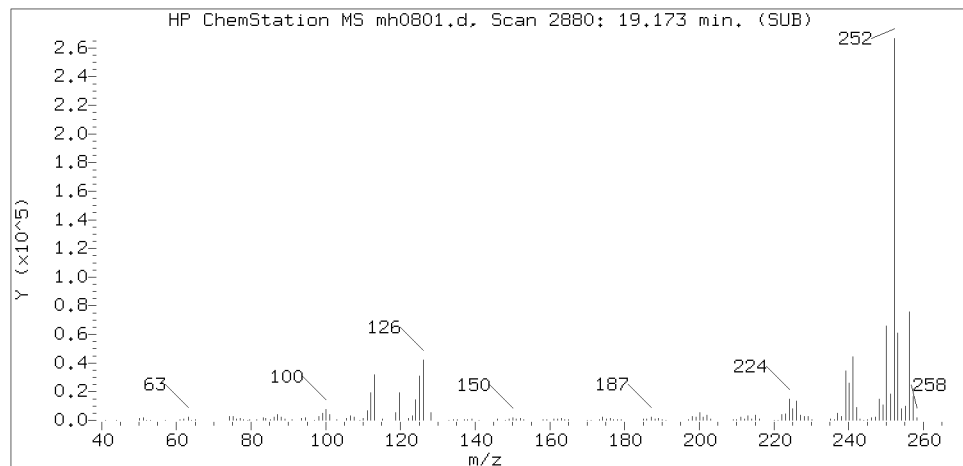
Sample Name: BAC07

Lab Sample ID: 1283815

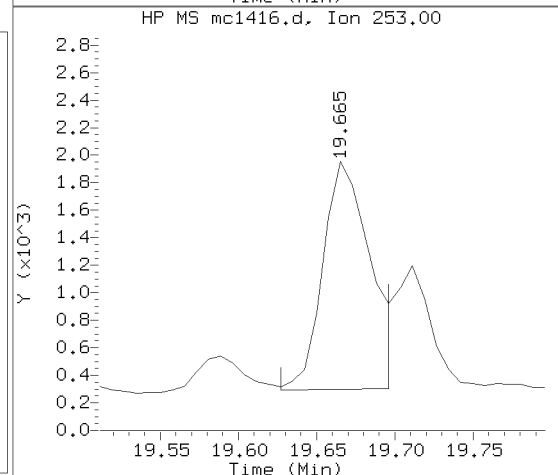
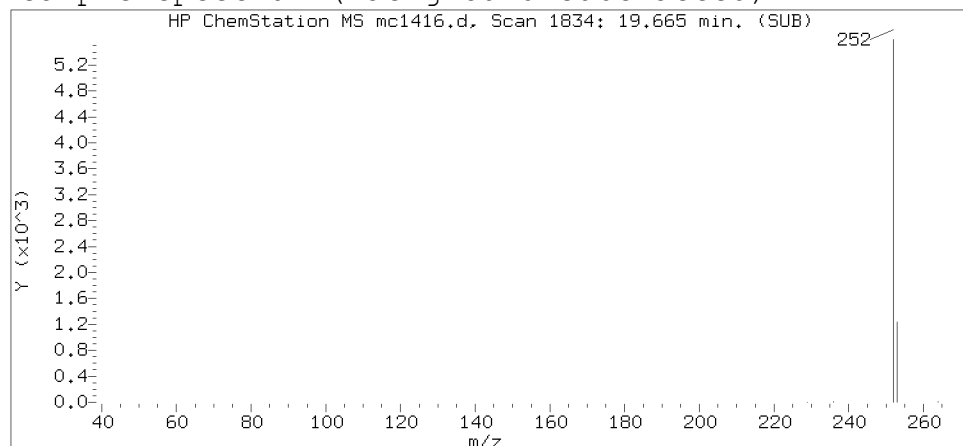
Compound Number : 30
Compound Name : Chrysene
Scan Number : 1597
Retention Time (minutes) : 17.848
Relative Retention Time : -0.00043
Quant Ion : 228.00
Area (flag) : 15162
On-column Amount (ng/ul) : 0.0322

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

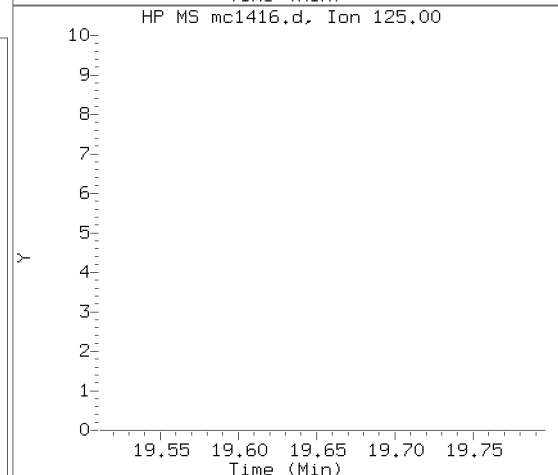
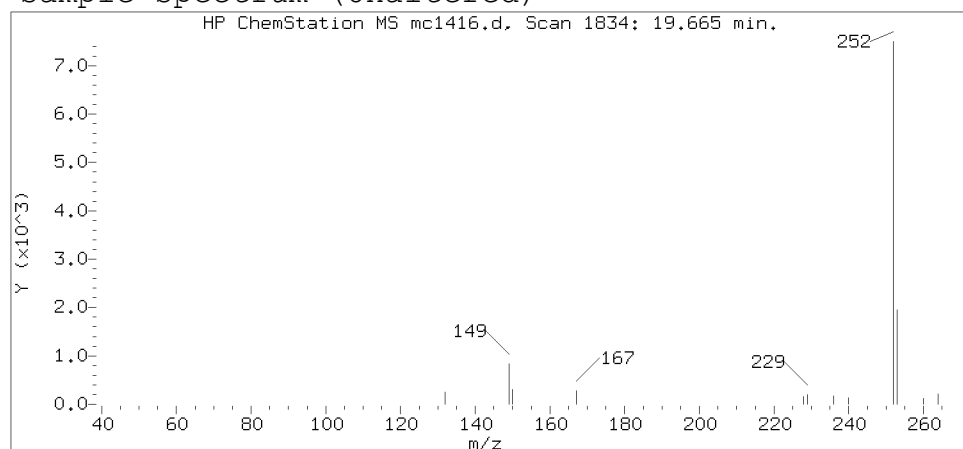
Reference Standard Spectrum for Benzo(b)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

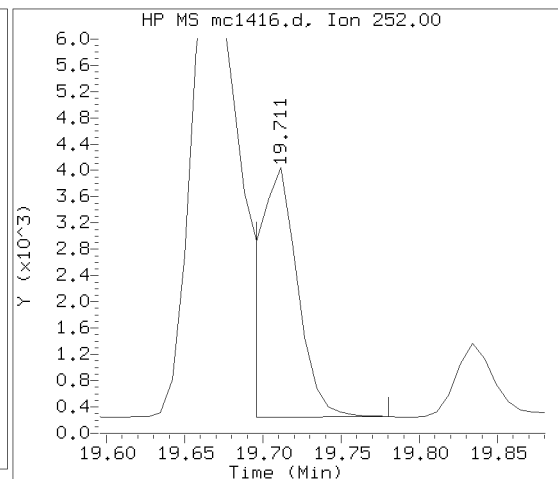
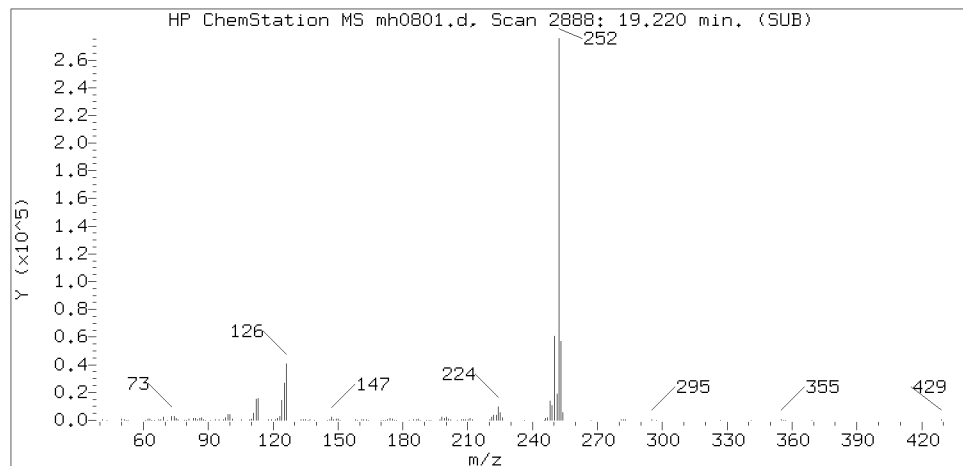
Sample Name: BAC07

Lab Sample ID: 1283815

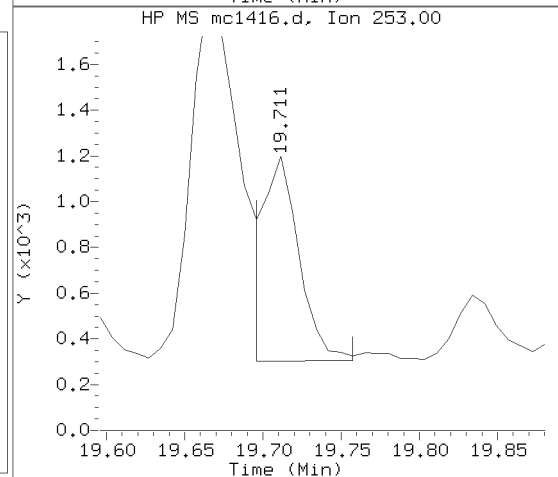
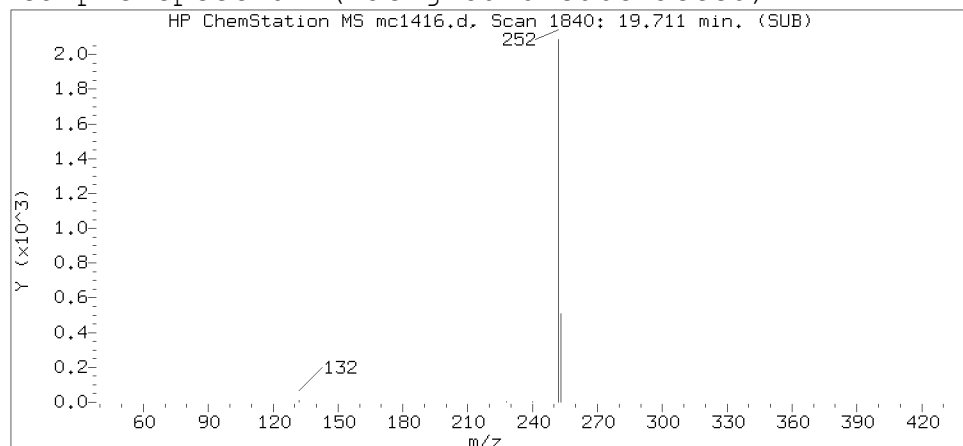
Compound Number : 33
Compound Name : Benzo(b)fluoranthene
Scan Number : 1834
Retention Time (minutes) : 19.665
Relative Retention Time : -0.00000
Quant Ion : 252.00
Area (flag) : 14841
On-column Amount (ng/ul) : 0.0296

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Target 3.5 esignature user jmg00346

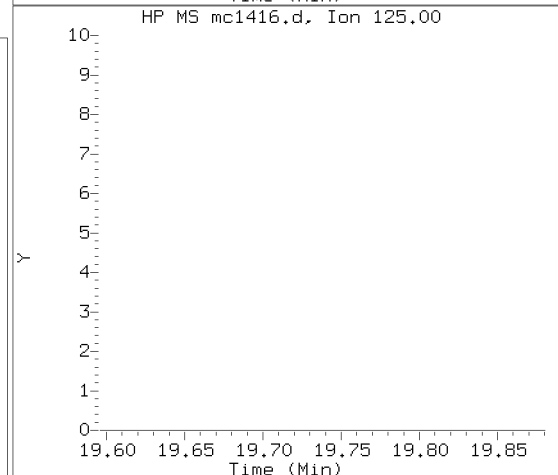
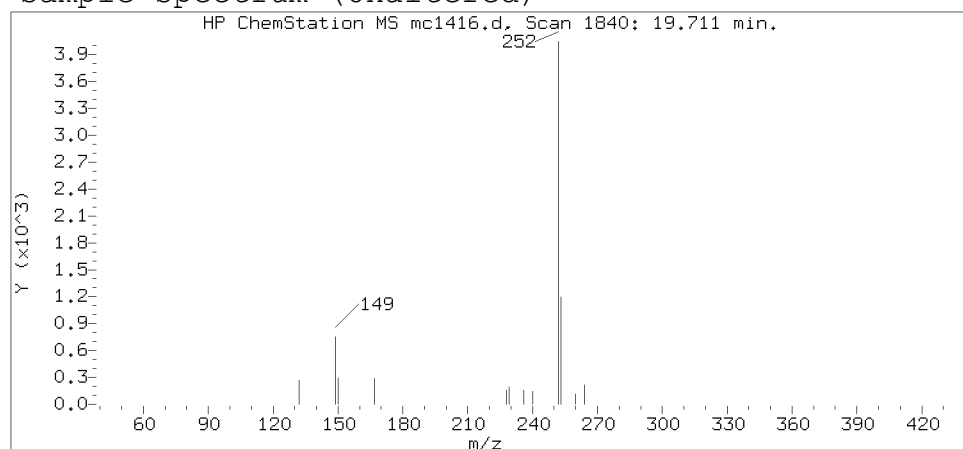
Reference Standard Spectrum for Benzo(k)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

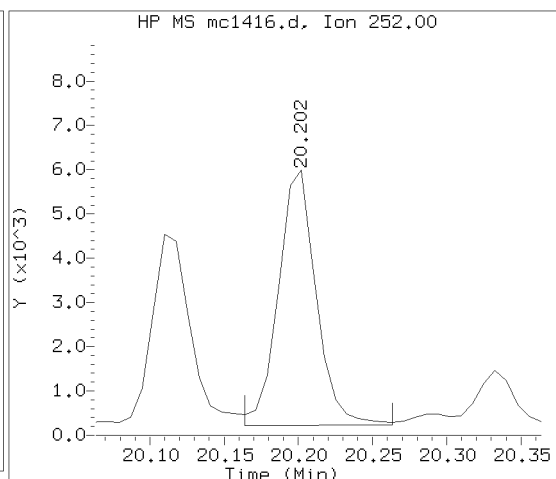
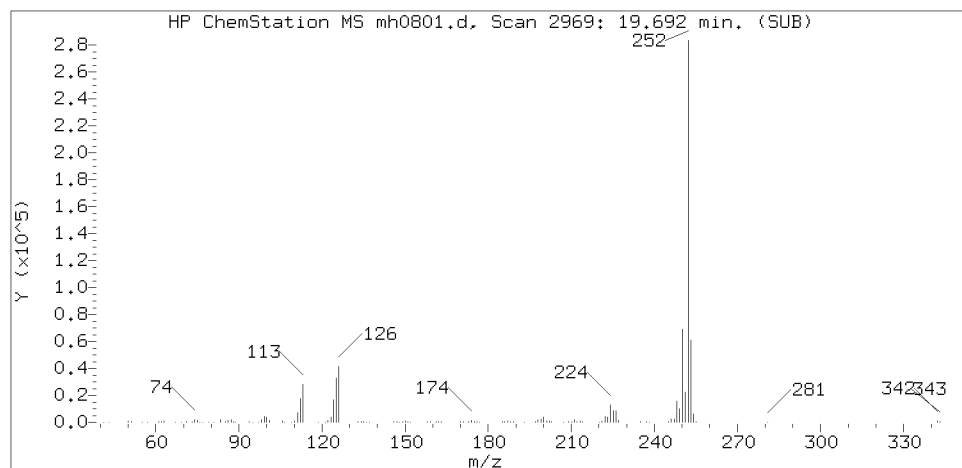
Lab Sample ID: 1283815

Compound Number : 34
Compound Name : Benzo(k)fluoranthene
Scan Number : 1840
Retention Time (minutes) : 19.711
Relative Retention Time :-0.00000
Quant Ion : 252.00
Area (flag) : 5986
On-column Amount (ng/ul) : 0.0114

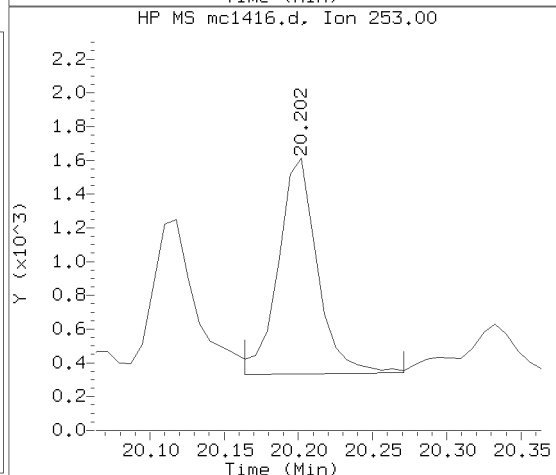
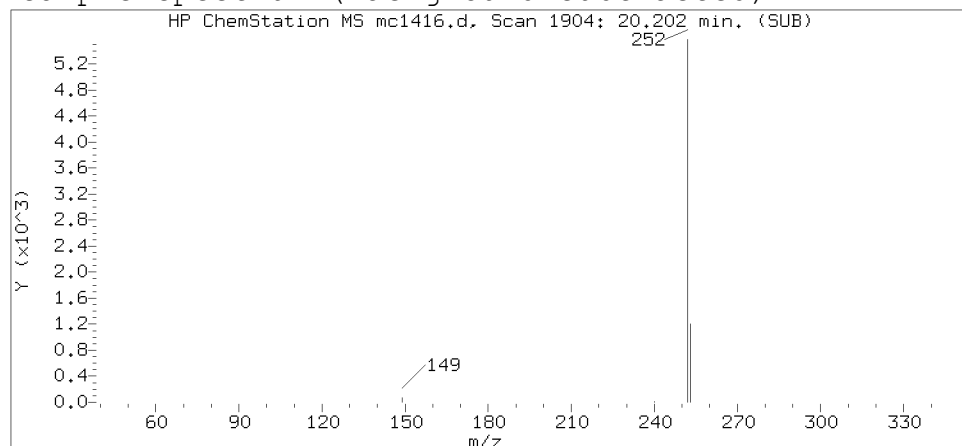
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346
Page 351 of 609

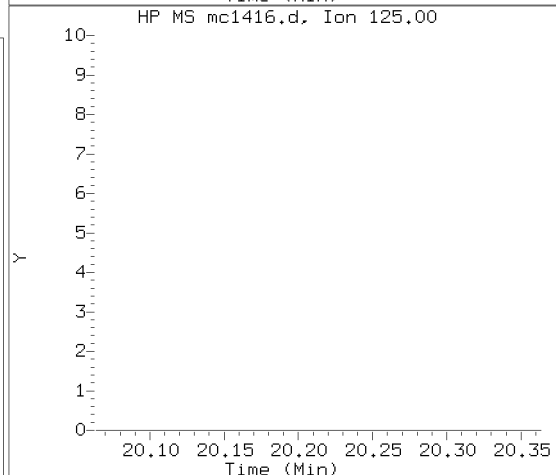
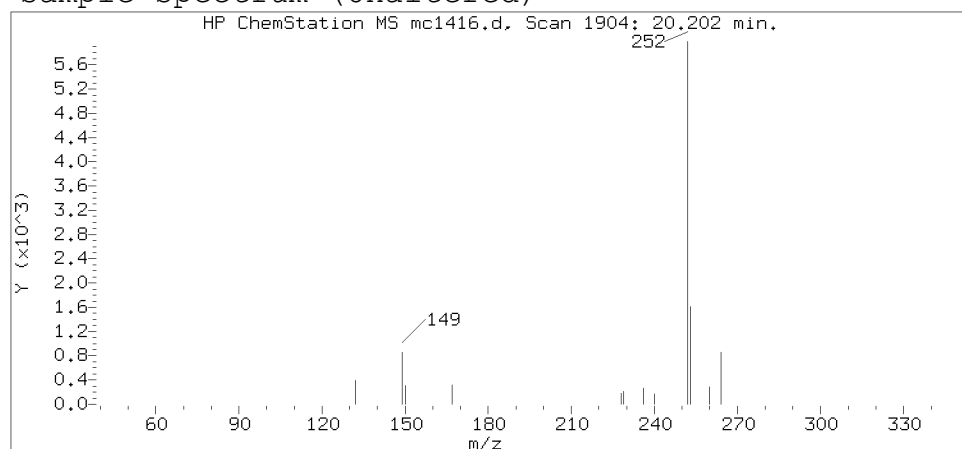
Reference Standard Spectrum for Benzo(a)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

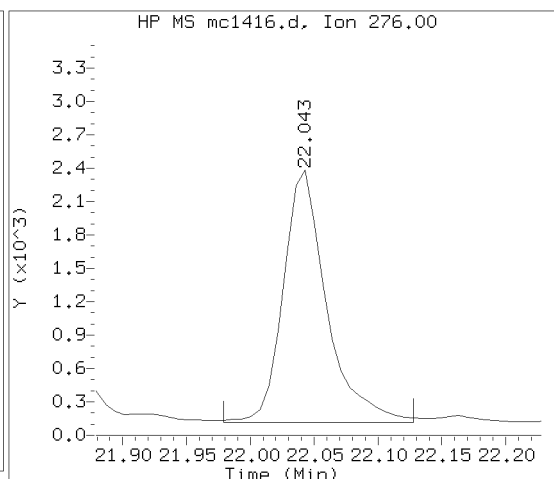
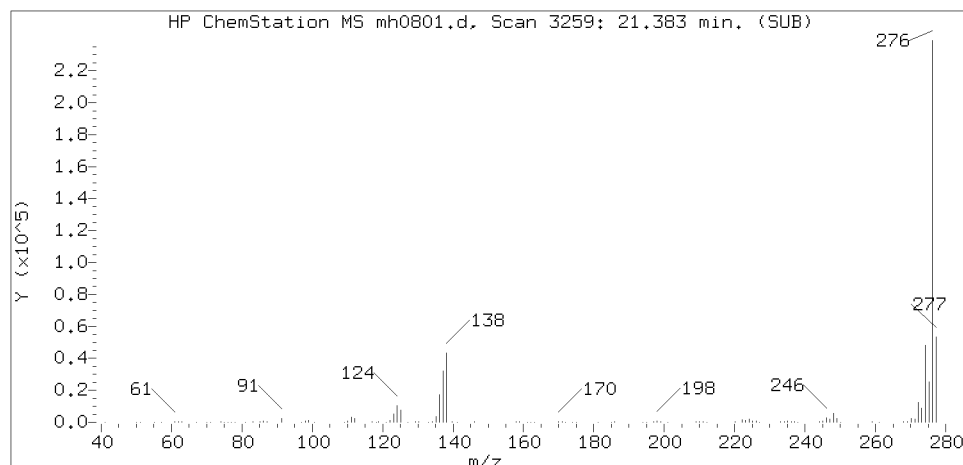
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

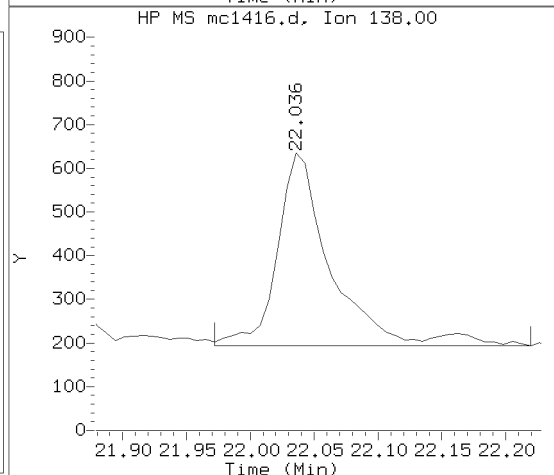
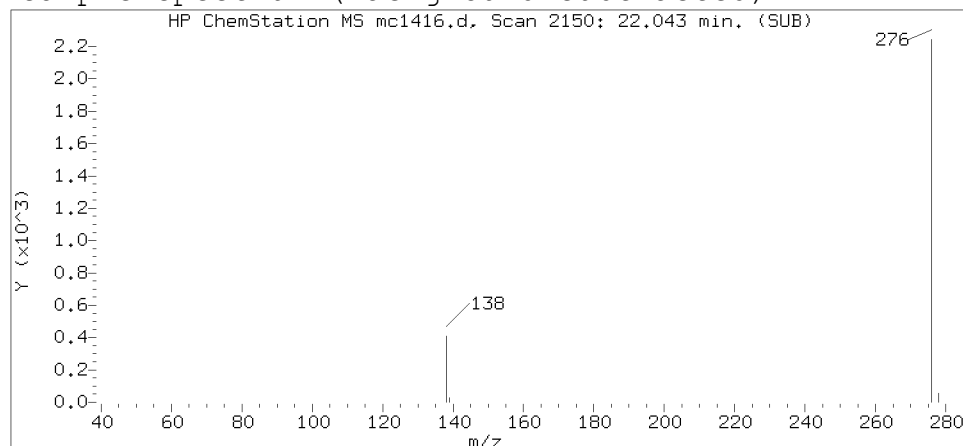
Lab Sample ID: 1283815

Compound Number : 37
Compound Name : Benzo(a)pyrene
Scan Number : 1904
Retention Time (minutes) : 20.202
Relative Retention Time : -0.00000
Quant Ion : 252.00
Area (flag) : 10216
On-column Amount (ng/ul) : 0.0214

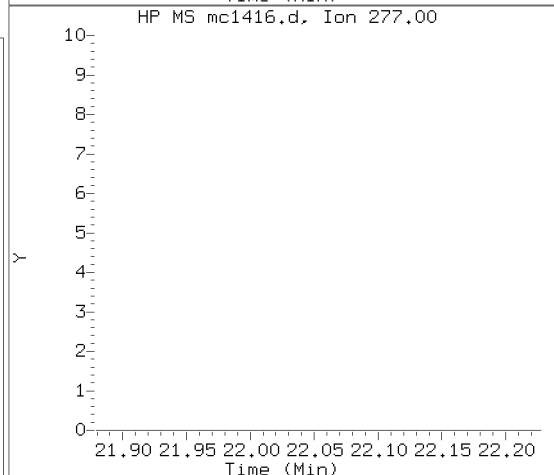
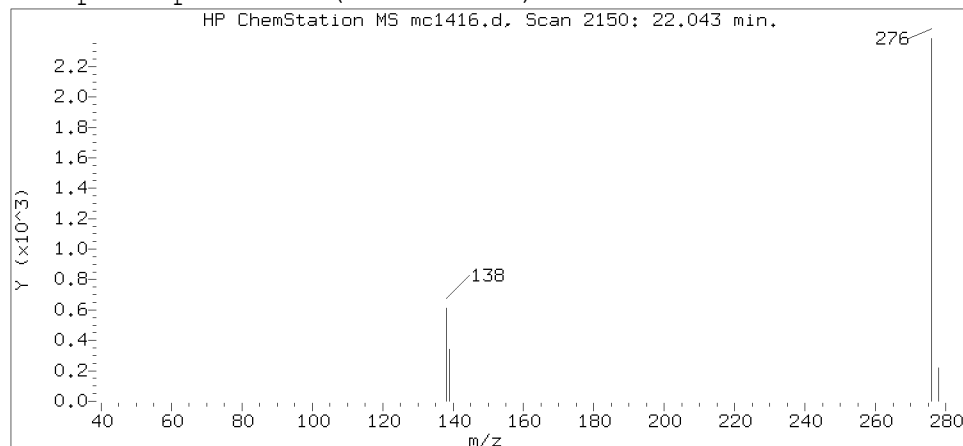
Reference Standard Spectrum for Indeno(1,2,3-cd)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

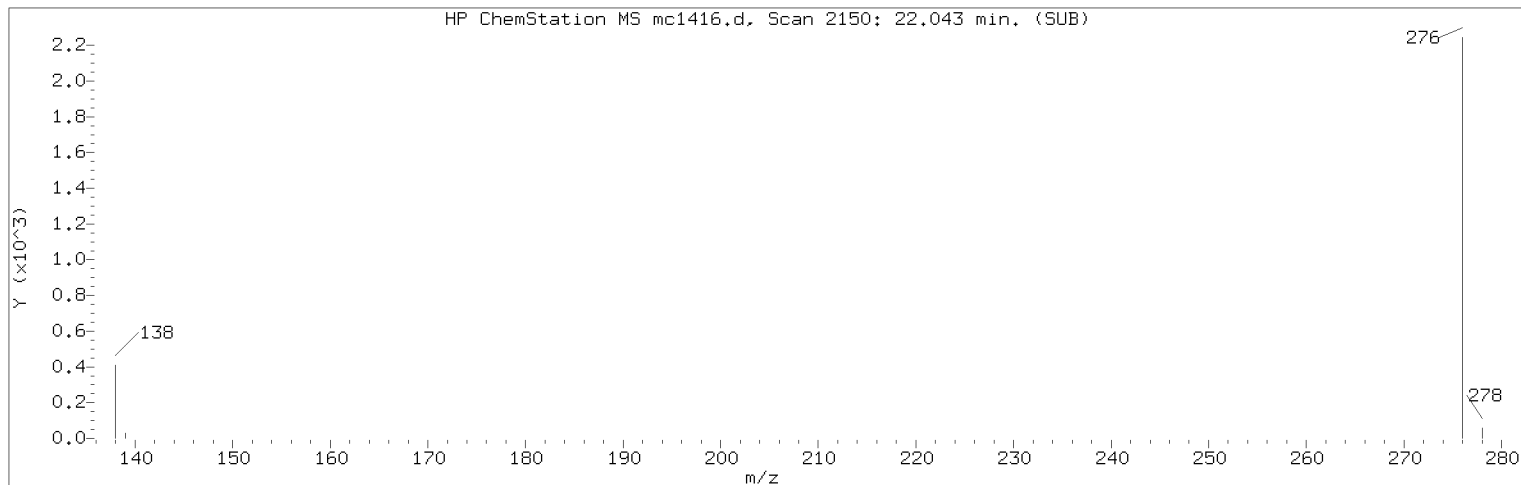
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

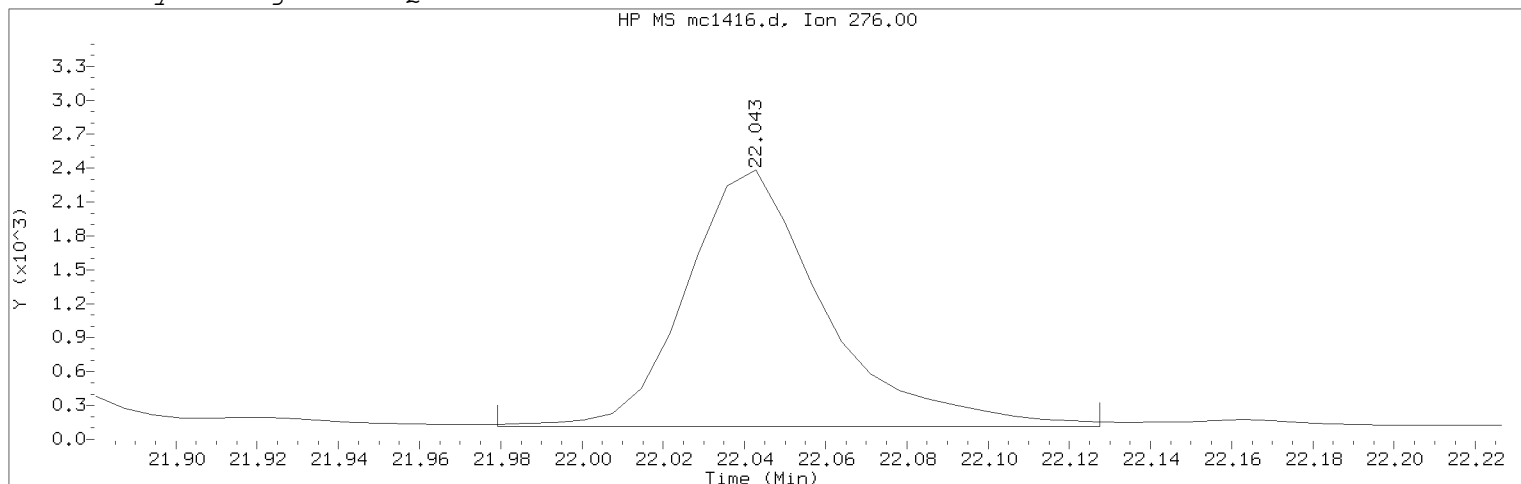
Lab Sample ID: 1283815

Compound Number : 39
Compound Name : Indeno(1,2,3-cd)pyrene
Scan Number : 2150
Retention Time (minutes) : 22.043
Relative Retention Time : 0.00000
Quant Ion : 276.00
Area (flag) : 5381M
On-column Amount (ng/ul) : 0.0126

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1416.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 01:59

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

Lab Sample ID: 1283815

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2150	
Retention Time (minutes)	: 22.043	
Quant Ion	: 276.00	
Area (flag)	: 5381M	
On-column Amount (ng/ul)	: 0.0126	
Integration start scan	: 2140	Integration stop scan: 2161
Y at integration start	: 115	Y at integration end: 115

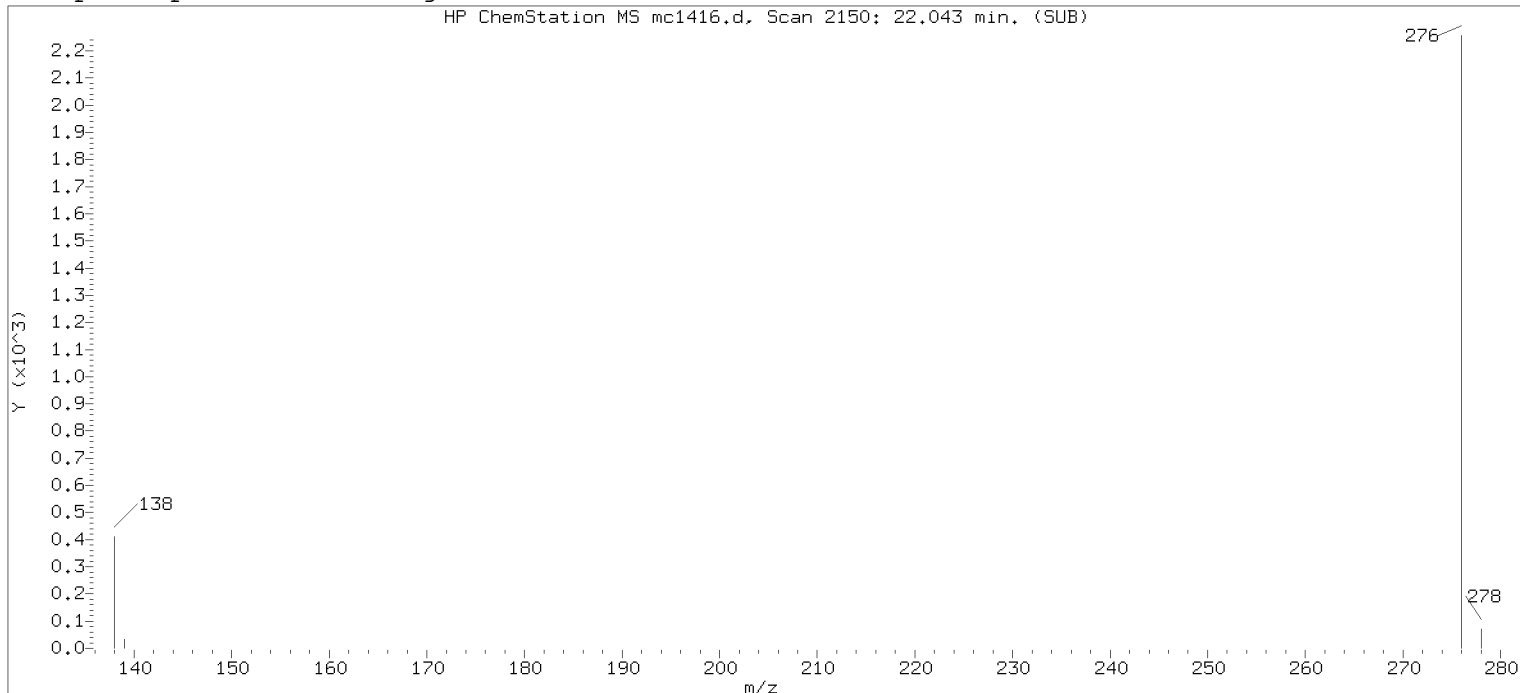
Reason for manual integration: improper integration

Analyst responsible for change:

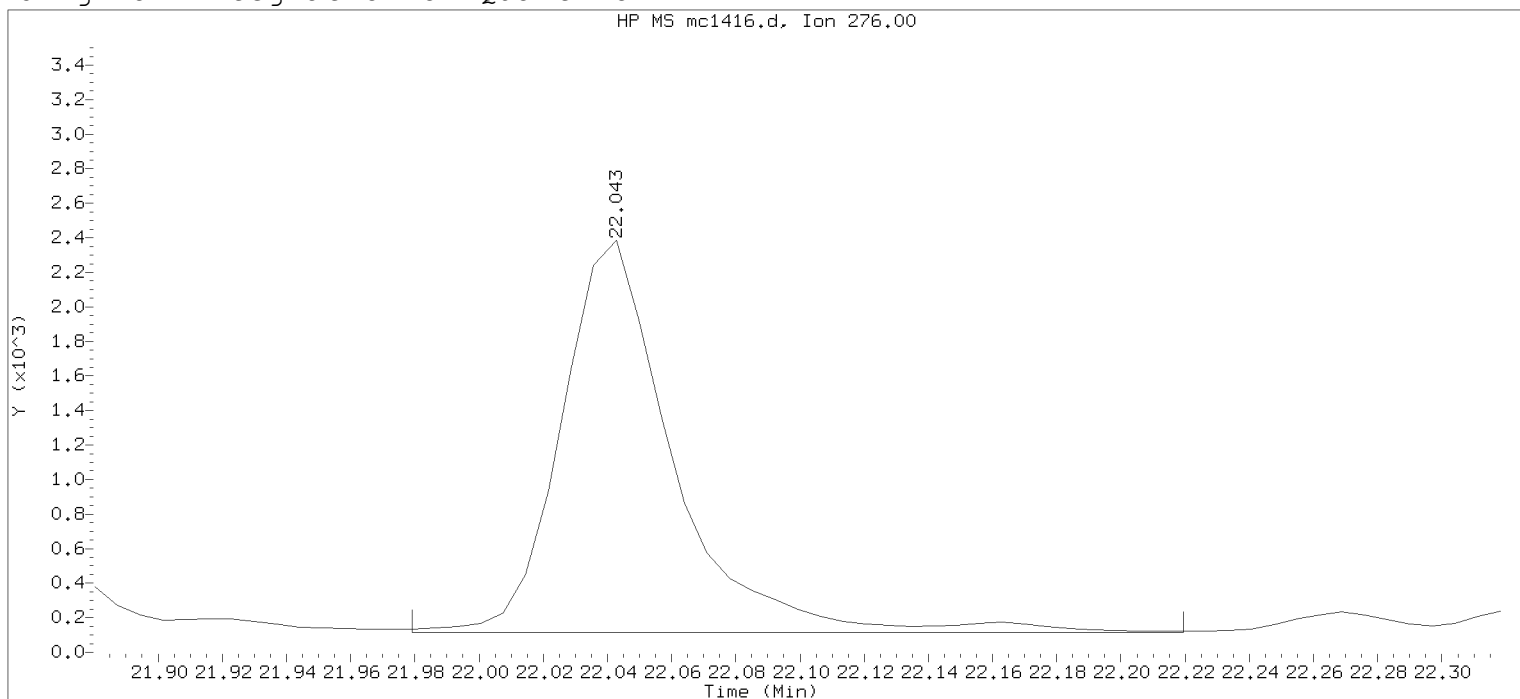
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1416.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 01:59

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC07

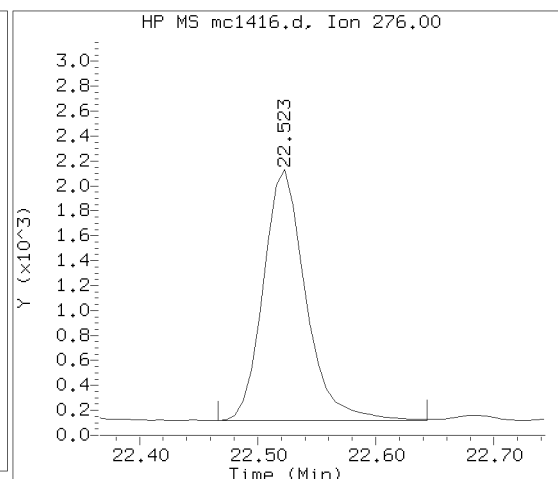
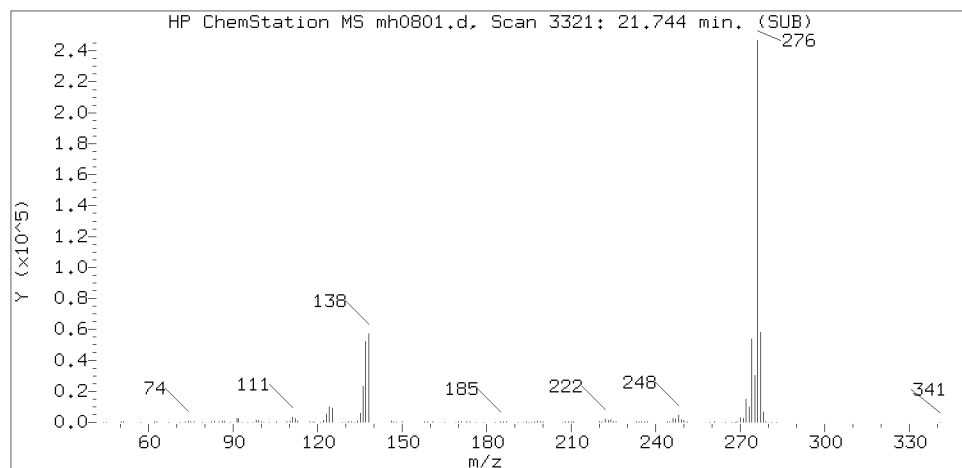
Lab Sample ID: 1283815

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2150	
Retention Time (minutes)	: 22.043	
Quant Ion	: 276.00	
Area	: 5535	
On-column Amount (ng/ul)	: 0.0130	
Integration start scan	: 2140	Integration stop scan: 2174
Y at integration start	: 115	Y at integration end: 115

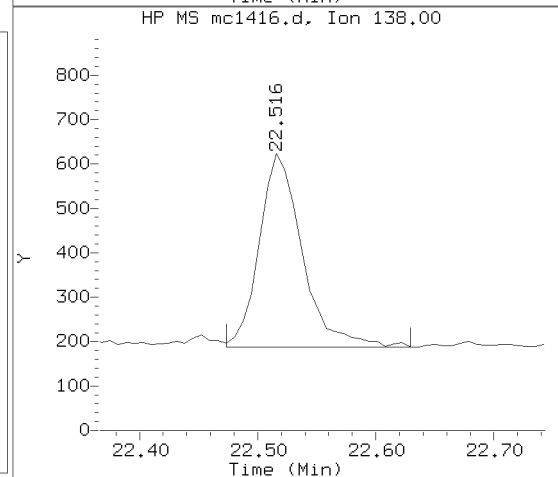
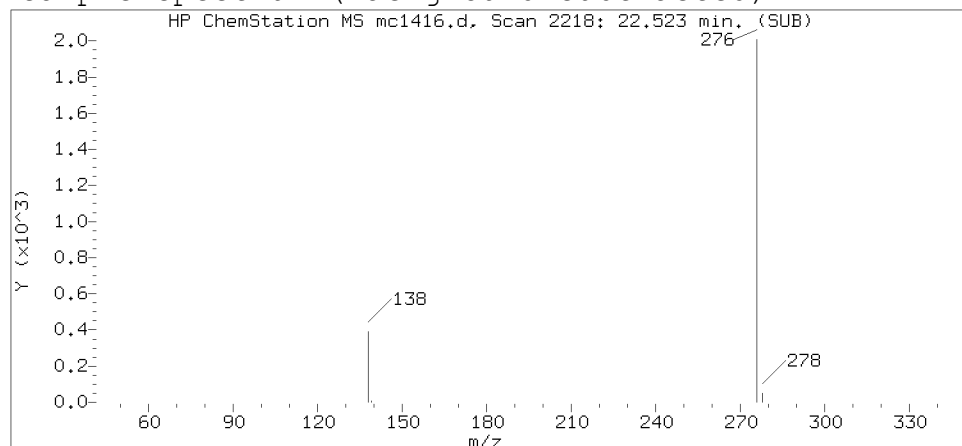
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user GPV67j Page 355 of 609

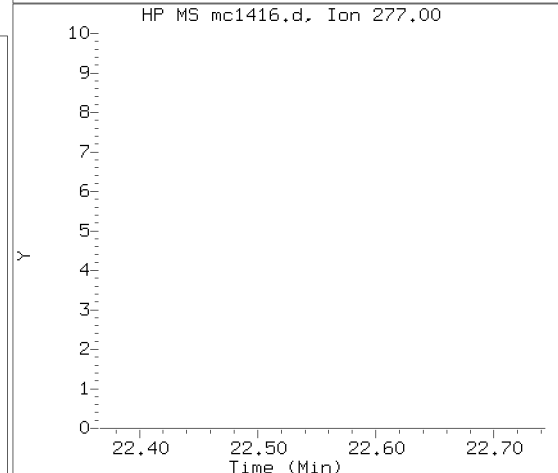
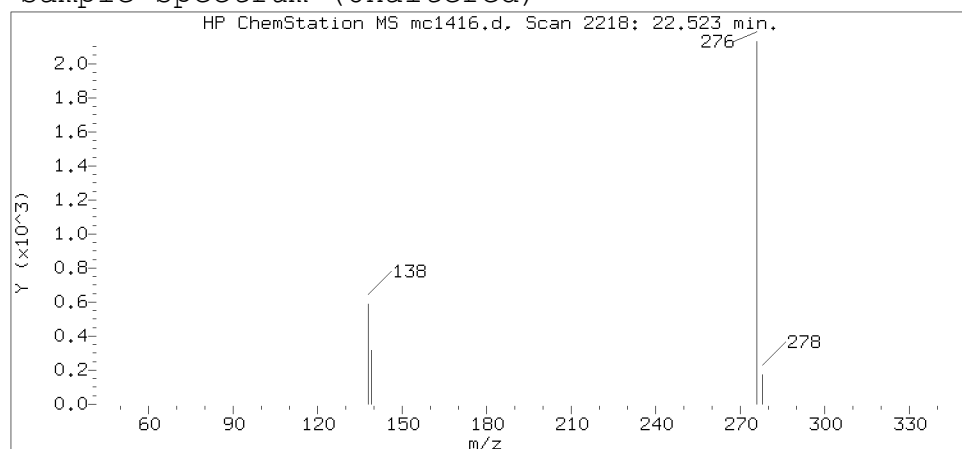
Reference Standard Spectrum for Benzo(g,h,i)perylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1416.d
Injection date and time: 25-MAR-2020 01:59

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:40 jmg00346

Sample Name: BAC07

Lab Sample ID: 1283815

Compound Number : 41
Compound Name : Benzo(g,h,i)perylene
Scan Number : 2218
Retention Time (minutes) : 22.523
Relative Retention Time : 0.00000
Quant Ion : 276.00
Area (flag) : 5018
On-column Amount (ng/ul) : 0.0100

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC08

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283816

Sample wt/vol: 246 (g/mL)ML Lab File ID: mc1417.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		0.2	
208-96-8-----	Acenaphthylene		0.01	U
83-32-9-----	Acenaphthene		0.08	
86-73-7-----	Fluorene		0.02	J
85-01-8-----	Phenanthrene		0.03	U
120-12-7-----	Anthracene		0.02	J
206-44-0-----	Fluoranthene		0.01	U
129-00-0-----	Pyrene		0.01	U
56-55-3-----	Benzo (a) anthracene		0.01	U
218-01-9-----	Chrysene		0.01	U
205-99-2-----	Benzo (b) fluoranthene		0.01	U
207-08-9-----	Benzo (k) fluoranthene		0.01	U
50-32-8-----	Benzo (a) pyrene		0.01	U
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.01	U
53-70-3-----	Dibenz (a,h) anthracene		0.02	U
191-24-2-----	Benzo (g,h,i) perylene		0.01	U

FORM I SV-1

BAC08

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283816

Data file: /chem/HP21585.i/20mar24.b/mc1417.d

Injection date and time: 25-MAR-2020 02:29

Data file Sample Info. Line: BAC08;1283816;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	21810 (-4)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	75394 (0)	0.25	
14) Acenaphthene-d10	11.746 (0.000)	750	164	35156 (-7)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	73130 (-8)	0.25	
29) Chrysene-d12	17.802 (0.008)	1591	240	67398 (-20)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	87742 (-8)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	27617	0.179	72%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	70312	0.228	91%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	55098	0.167	67%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033 (0.000)	128	21799	0.061	0.25			0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)	11.780 (0.000)	154	4229M	0.020	0.08			0.003
18) Fluorene	(3)	12.441 (0.000)	166	1549	0.006	0.02			0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)	13.744 (-0.000)	178	1857M	0.005	0.02			0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

M = Compound was manually integrated.

BAC08

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283816

Data file: /chem/HP21585.i/20mar24.b/mc1417.d

Injection date and time: **25-MAR-2020 02:29**

Data file Sample Info. Line: BAC08;1283816;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml

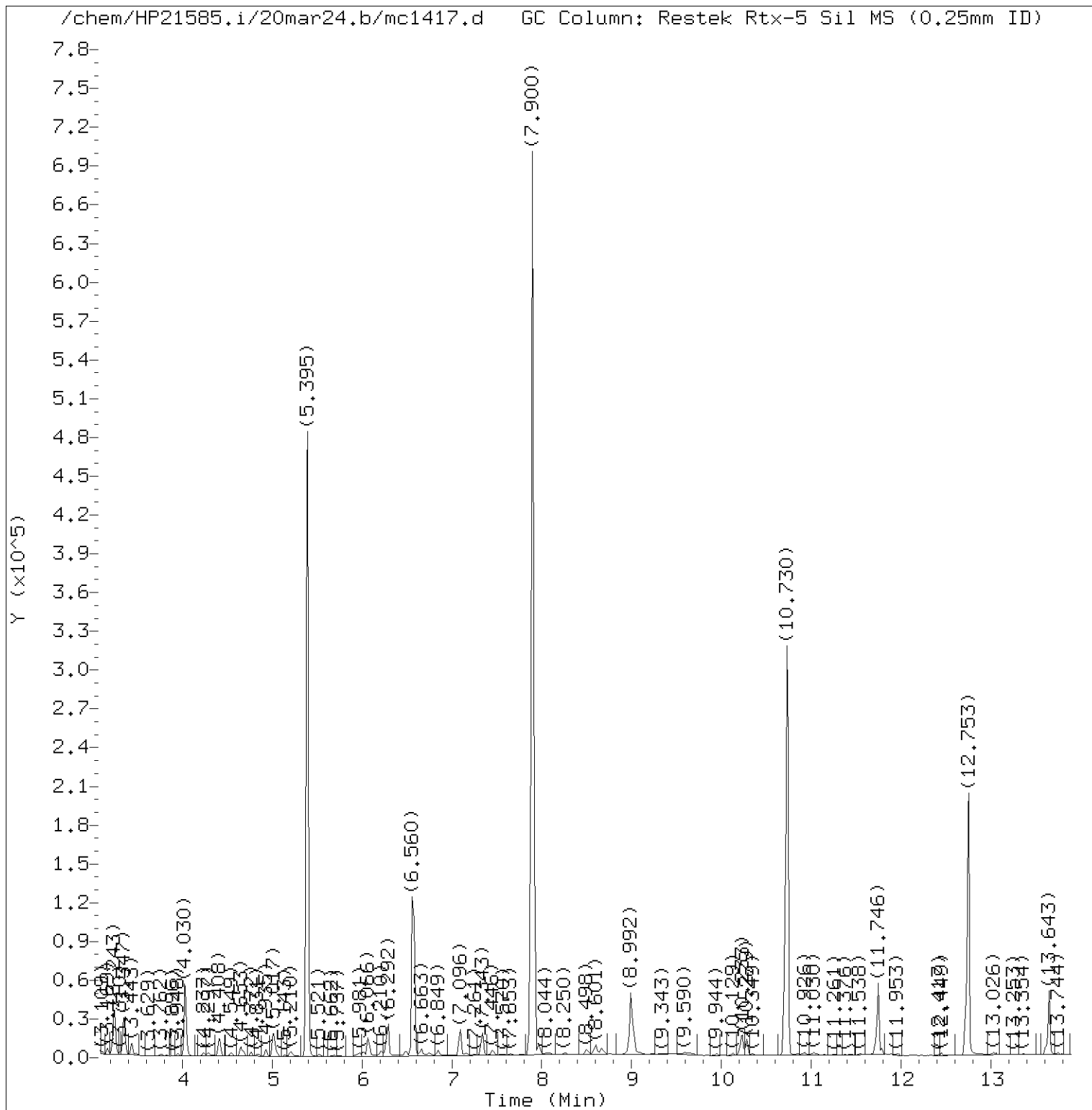
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1417.d
Injection date and time: 25-MAR-2020 02:29

Instrument ID: HP21585.i
Analyst ID: ceb05247

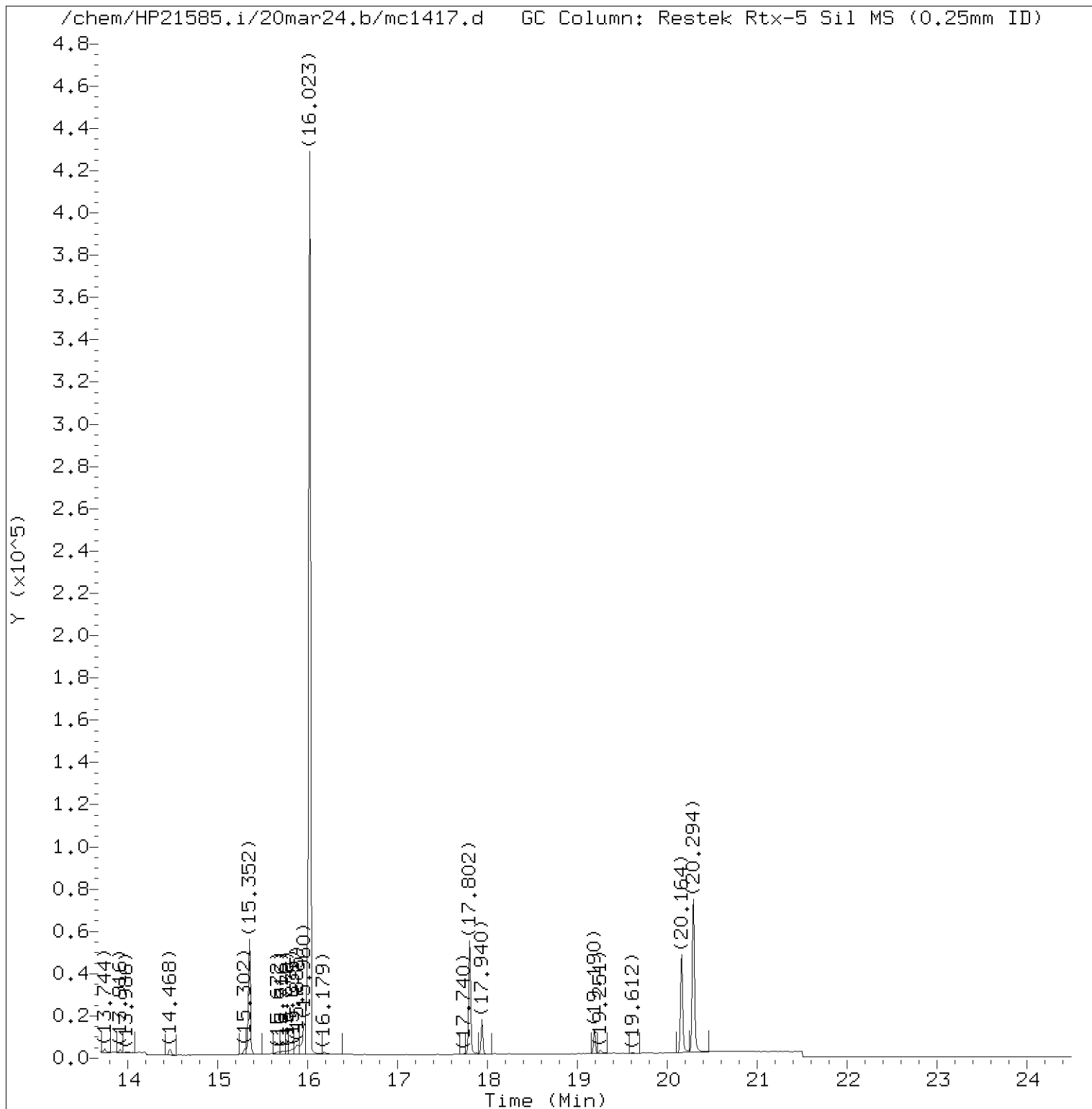
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Sample Name: BAC08

Lab Sample ID: 1283816

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1417.d
Injection date and time: 25-MAR-2020 02:29

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Sample Name: BAC08

Lab Sample ID: 1283816

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1417.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 02:29

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Sample Name: BAC08

Lab Sample ID: 1283816

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	21810	0.250
6) *Naphthalene-d8	(2)	8.992	136	75394	0.250
7) Naphthalene	(2)	9.033	128	21799	0.061
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	27617	0.179
14) *Acenaphthene-d10	(3)	11.746	164	35156	0.250
15) Acenaphthene	(3)	11.780	154	4229M	0.020
18) Fluorene	(3)	12.441	166	1549	0.006
20) *Phenanthrene-d10	(4)	13.643	188	73130	0.250
22) Anthracene	(4)	13.744	178	1857M	0.005
24) \$Fluoranthene-d10	(4)	15.352	212	70312	0.228
29) *Chrysene-d12	(5)	17.802	240	67398	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	55098	0.167
38) *Perylene-d12	(6)	20.294	264	87742	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

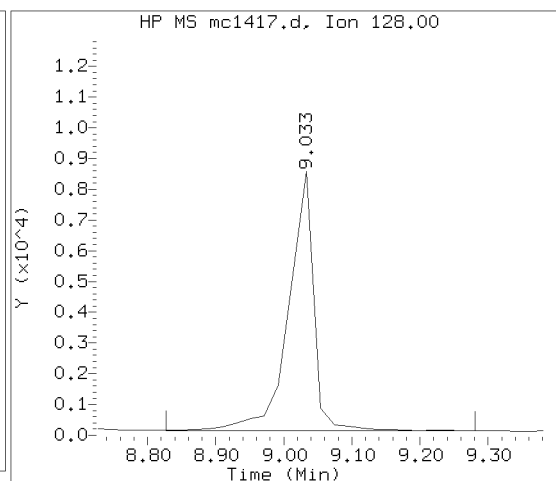
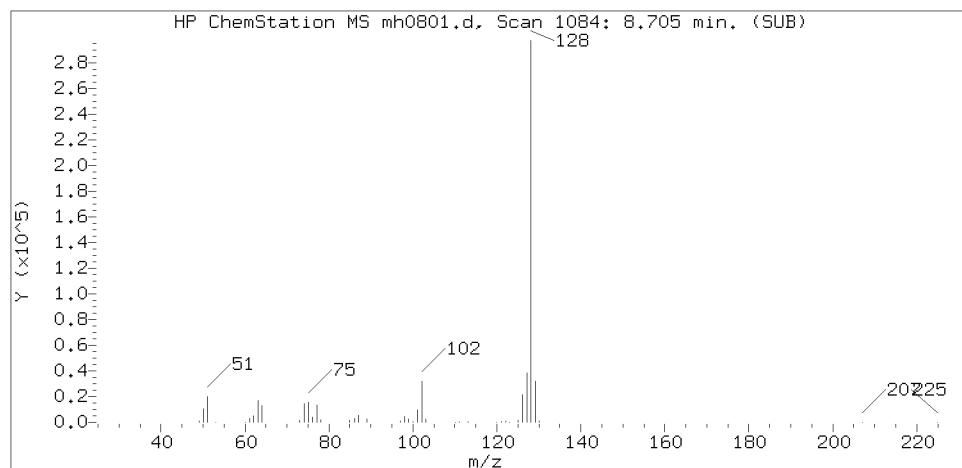
\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

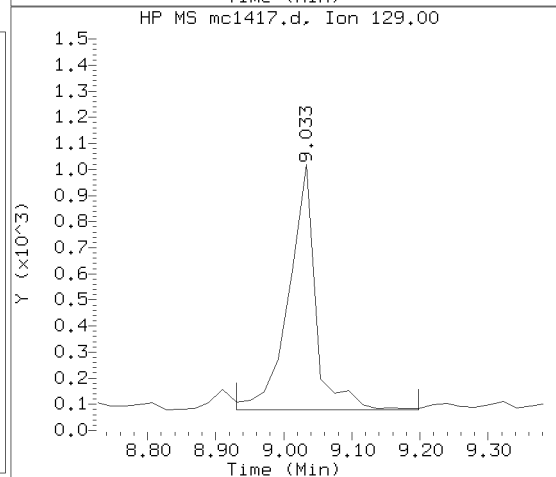
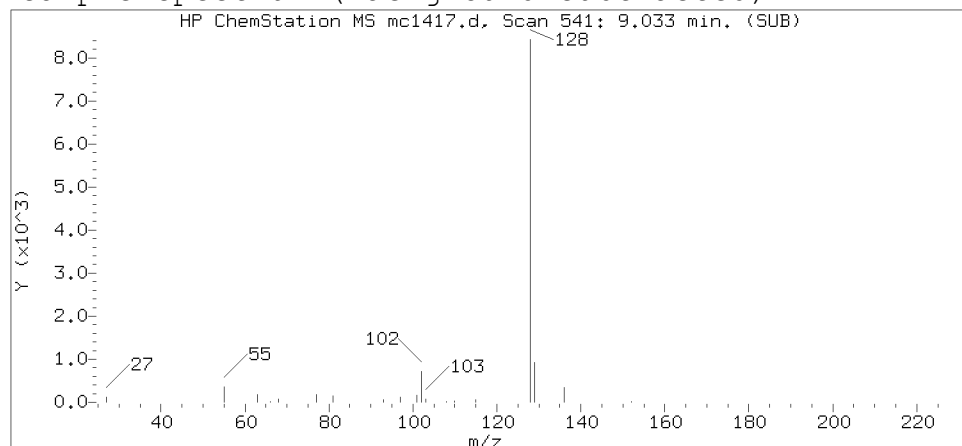
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

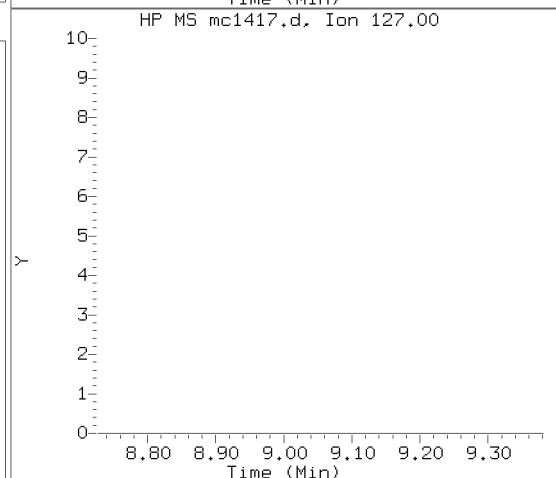
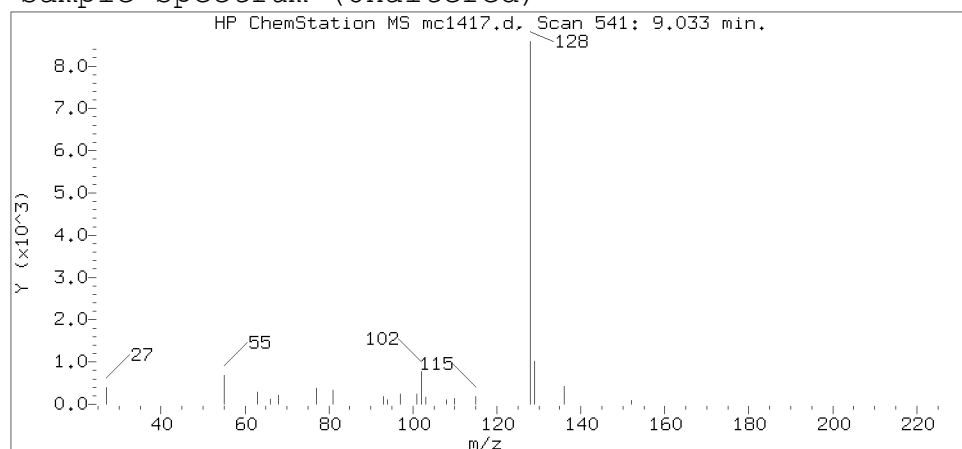
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1417.d
Injection date and time: 25-MAR-2020 02:29

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Sample Name: BAC08

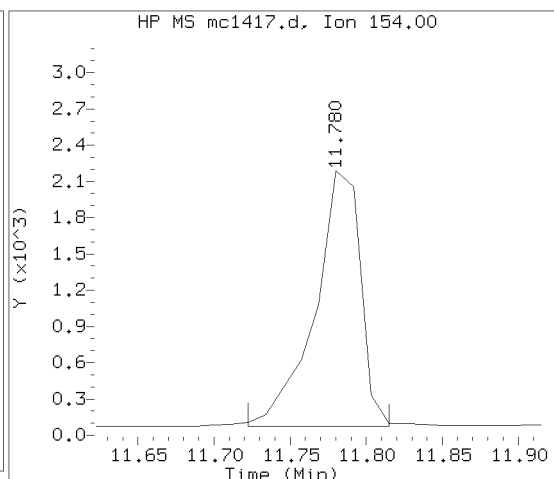
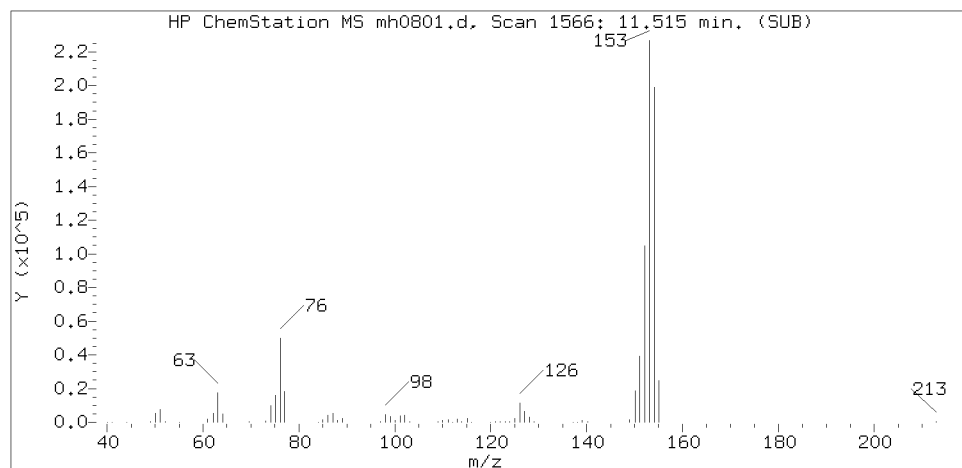
Lab Sample ID: 1283816

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 541
Retention Time (minutes) : 9.033
Relative Retention Time : 0.00000
Quant Ion : 128.00
Area (flag) : 21799
On-column Amount (ng/ul) : 0.0611

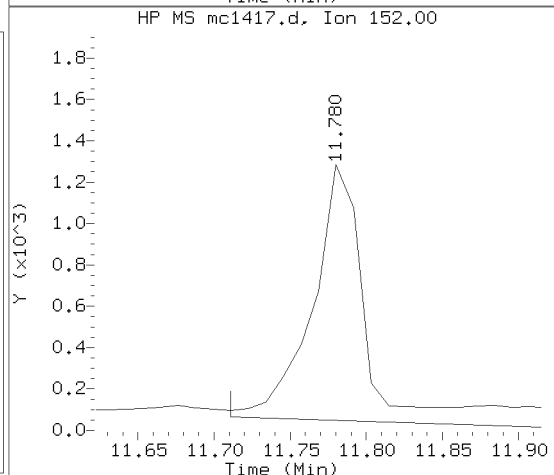
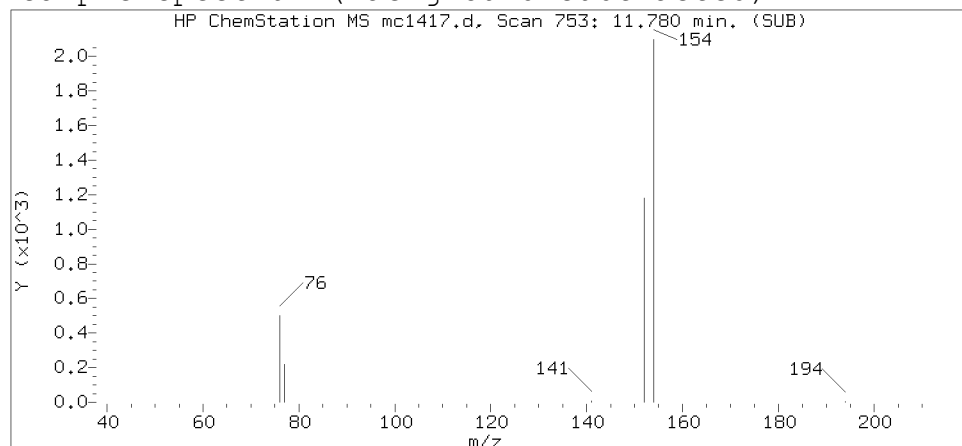
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346
Page 363 of 609

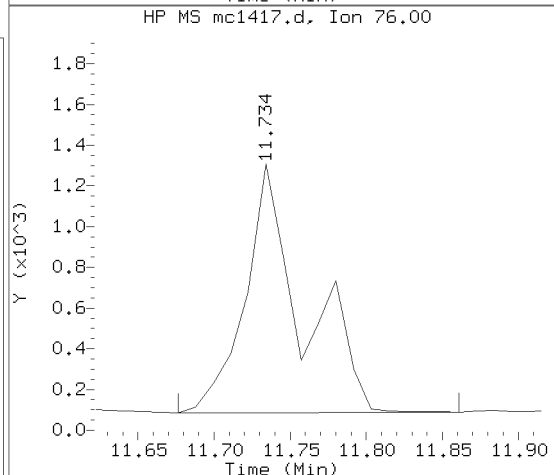
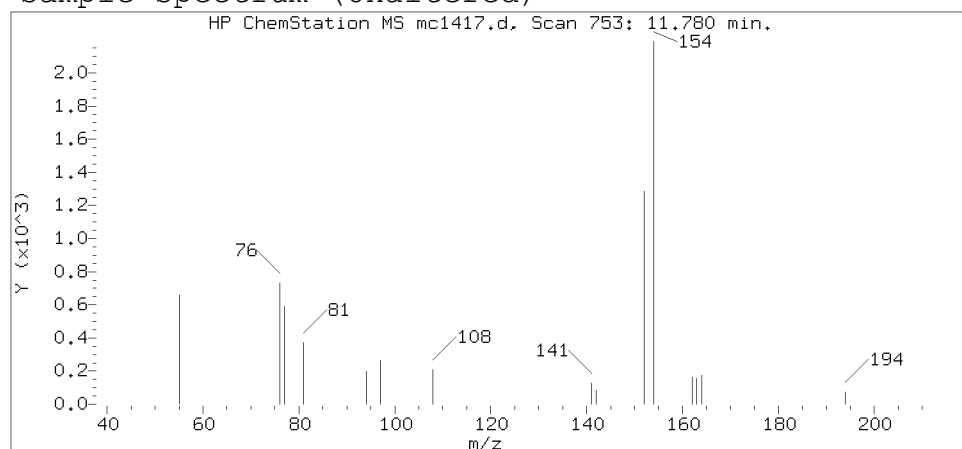
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1417.d
Injection date and time: 25-MAR-2020 02:29

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Sample Name: BAC08

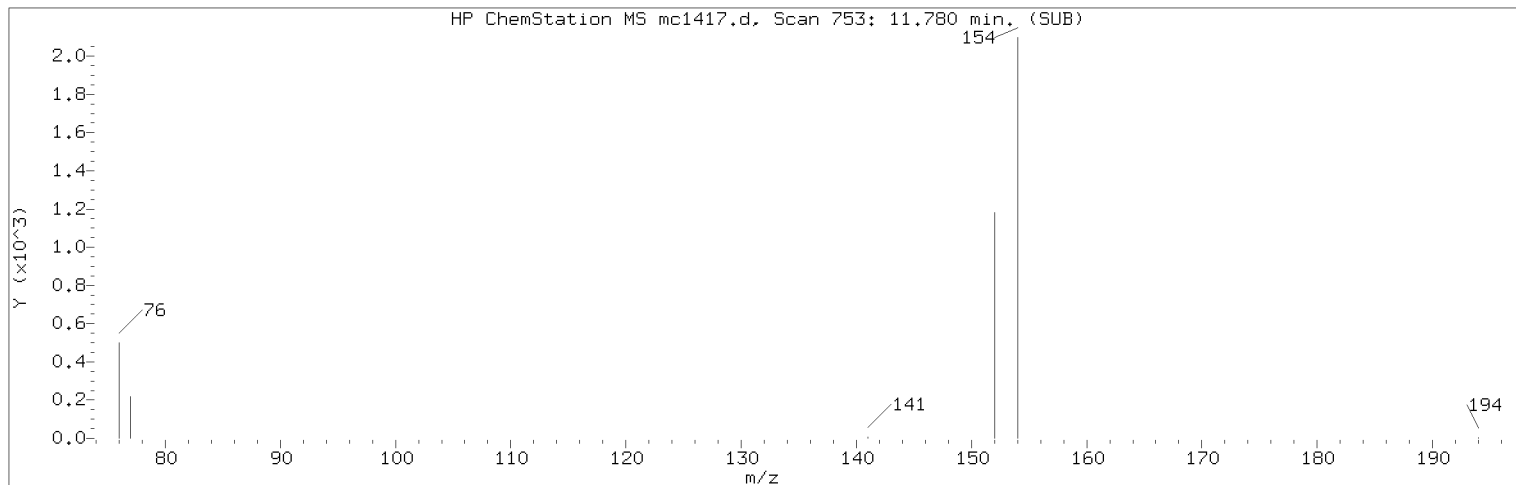
Lab Sample ID: 1283816

Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 753
Retention Time (minutes) : 11.780
Relative Retention Time : 0.00098
Quant Ion : 154.00
Area (flag) : 4229M
On-column Amount (ng/ul) : 0.0203

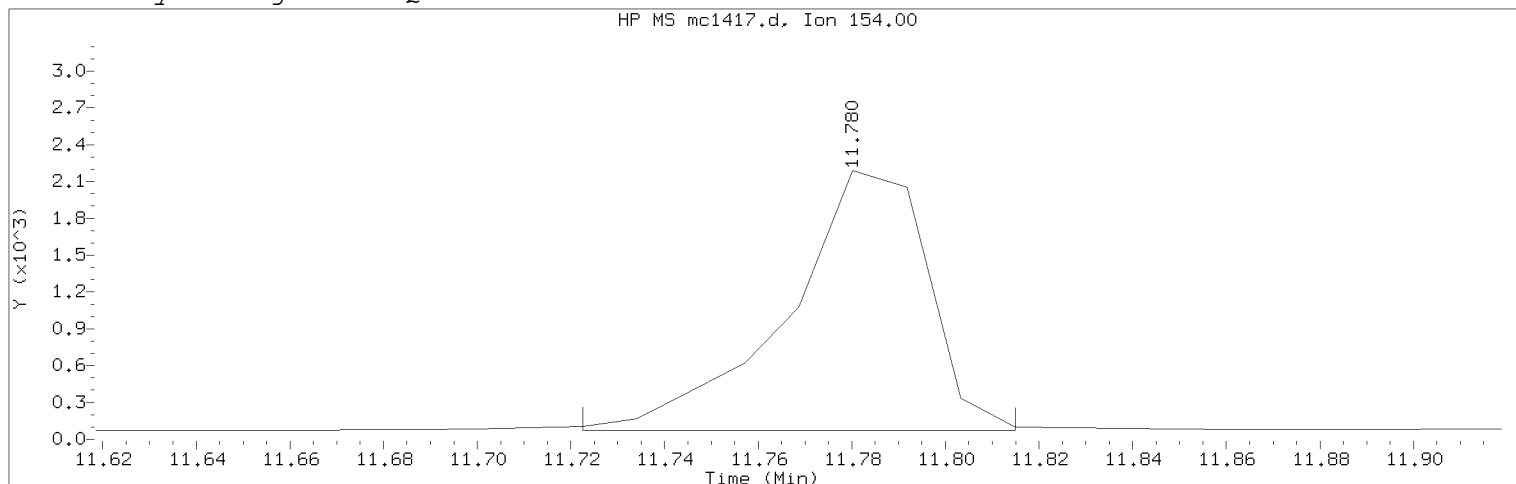
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346
Page 364 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1417.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 02:29

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Sample Name: BAC08

Lab Sample ID: 1283816

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area (flag)	: 4229M	
On-column Amount (ng/ul)	: 0.0203	
Integration start scan	: 747	Integration stop scan: 755
Y at integration start	: 73	Y at integration end: 73

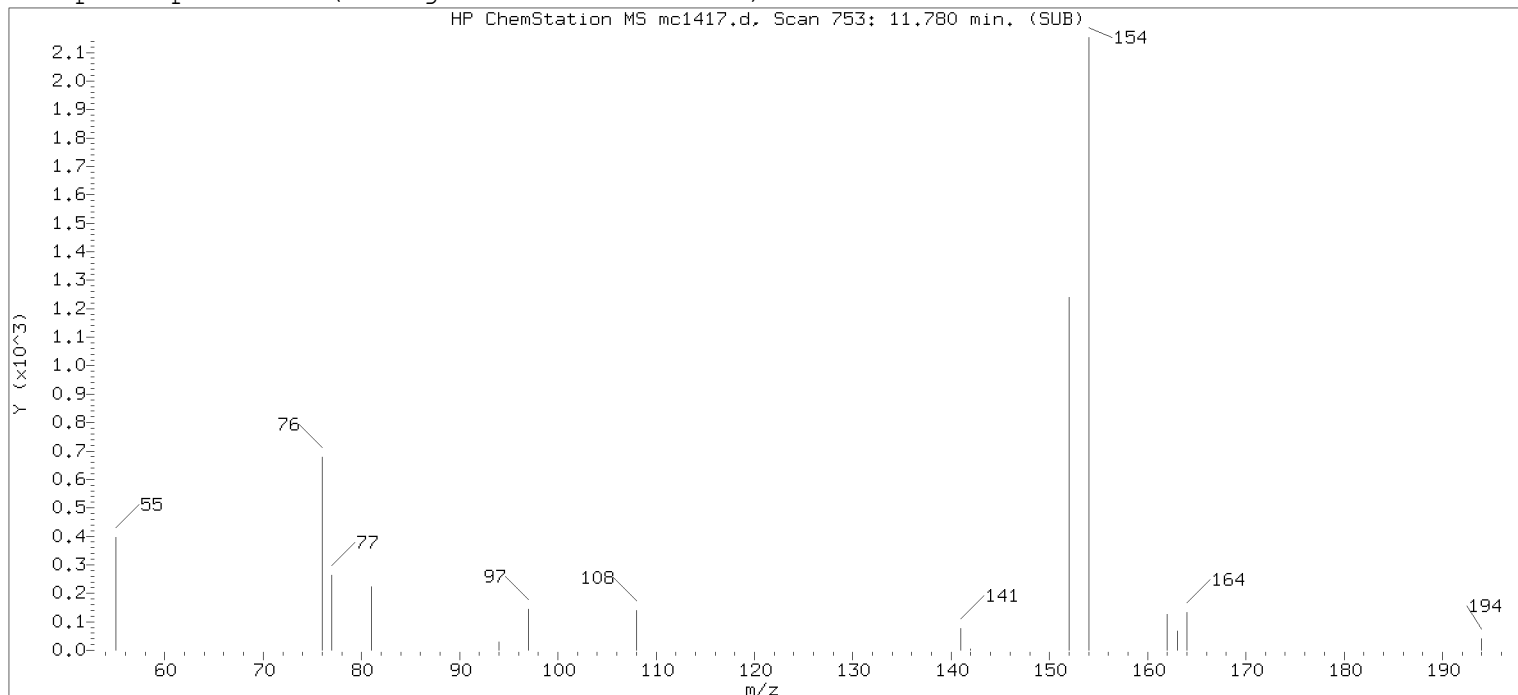
Reason for manual integration: improper integration

Analyst responsible for change:

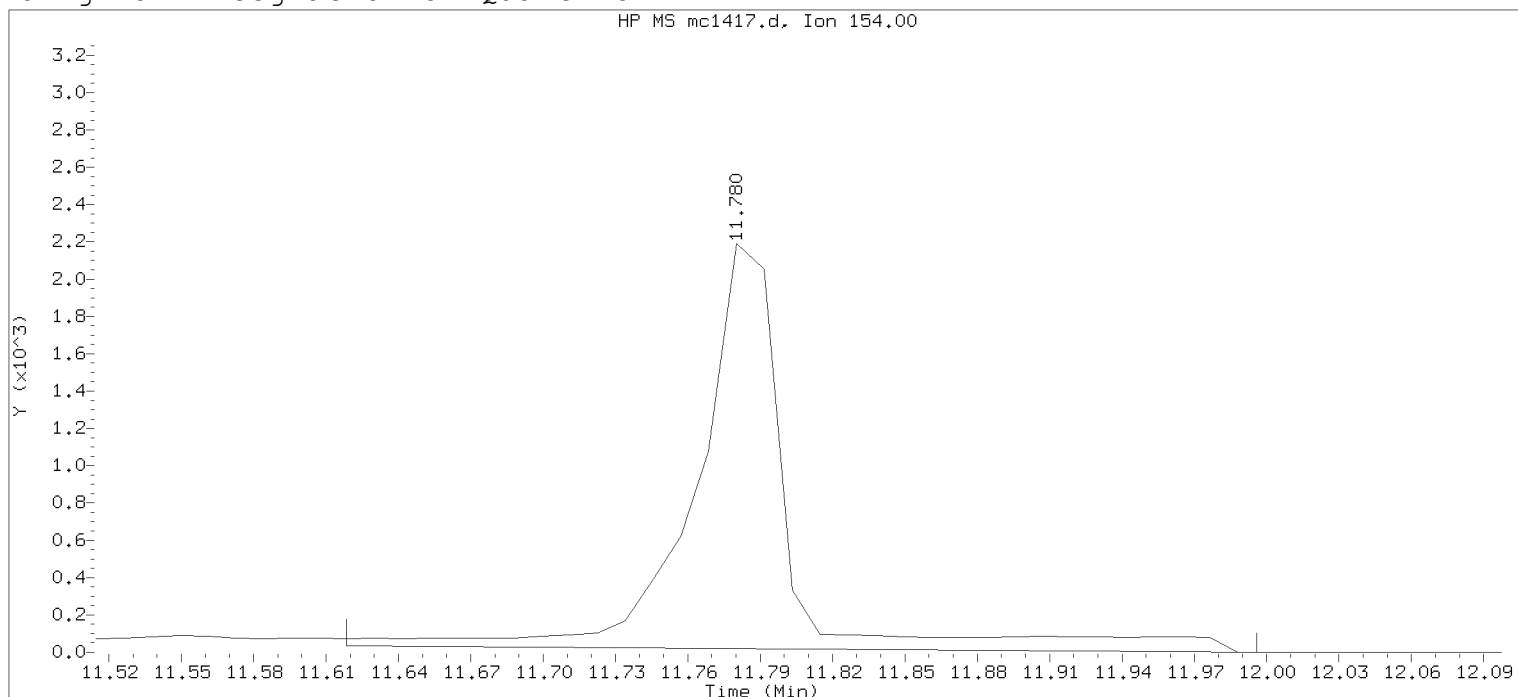
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1417.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 02:29

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC08

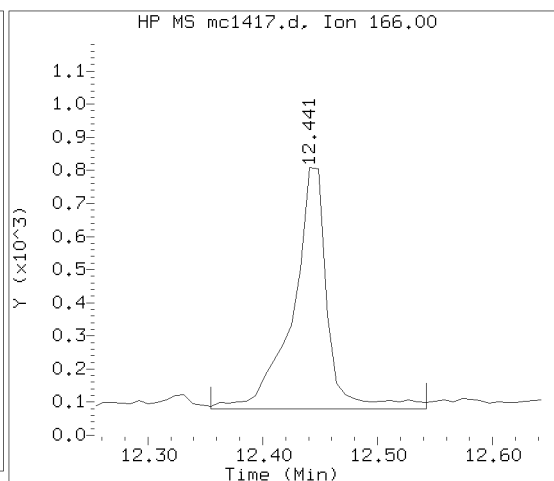
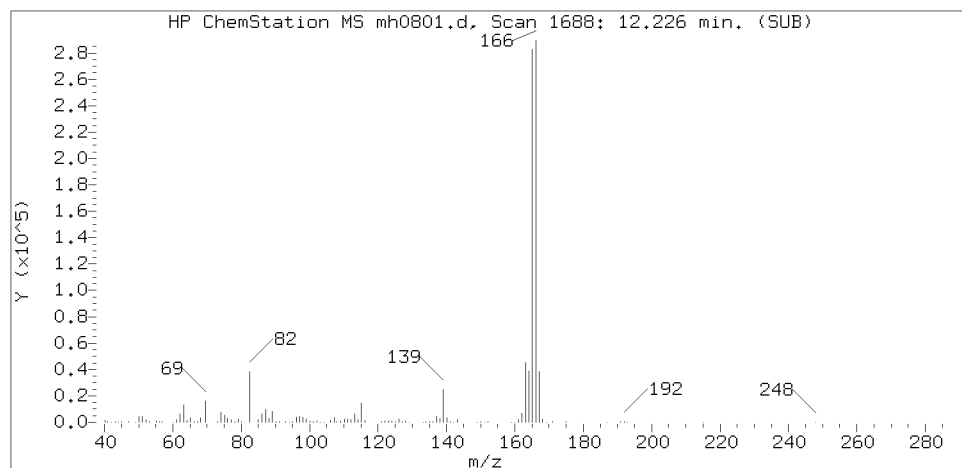
Lab Sample ID: 1283816

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area	: 5443	
On-column Amount (ng/ul)	: 0.0262	
Integration start scan	: 738	Integration stop scan: 771
Y at integration start	: 36	Y at integration end: 0

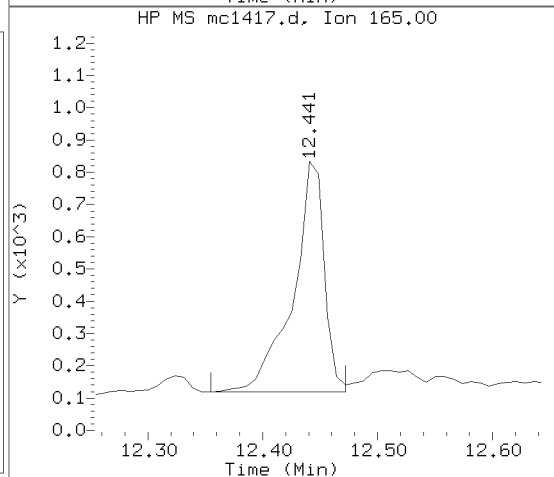
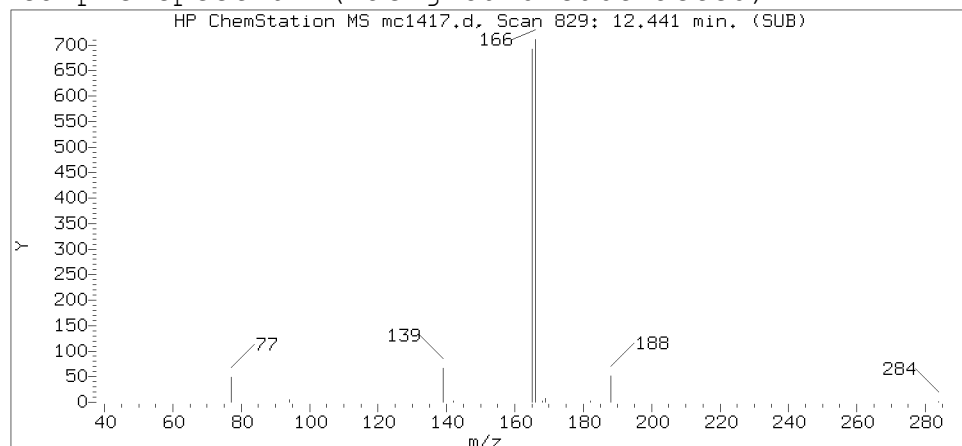
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user GPV67j Page 366 of 609

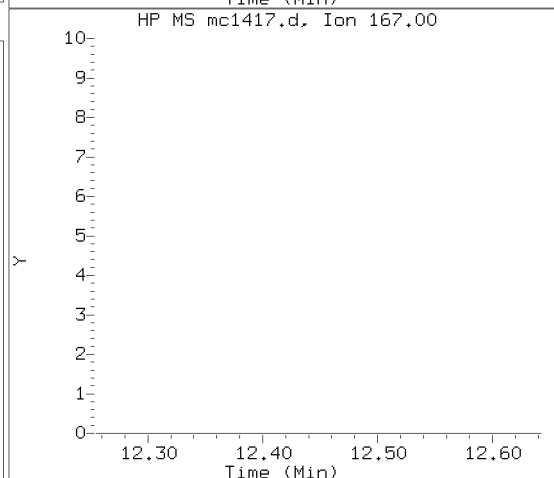
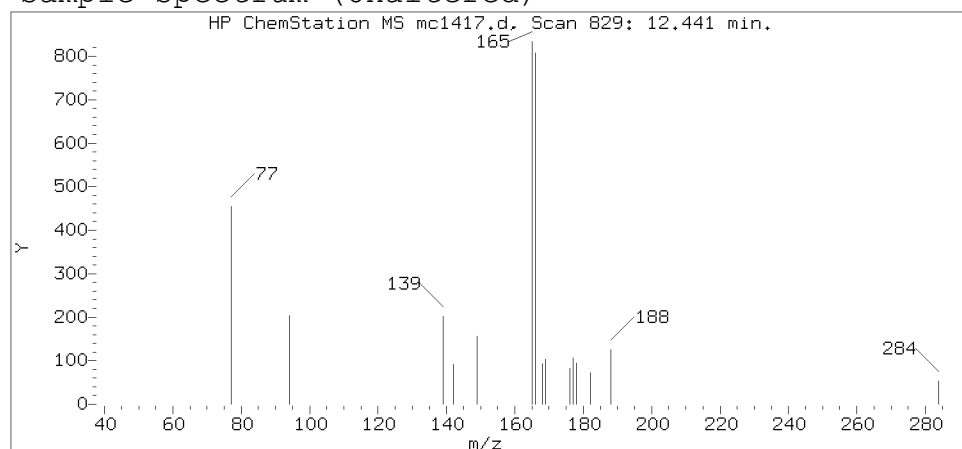
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1417.d
Injection date and time: 25-MAR-2020 02:29

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

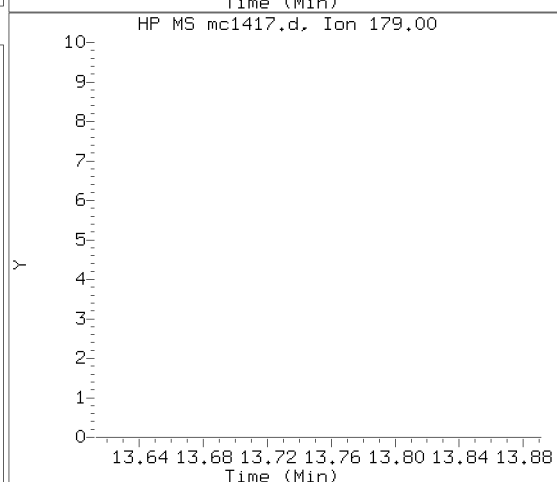
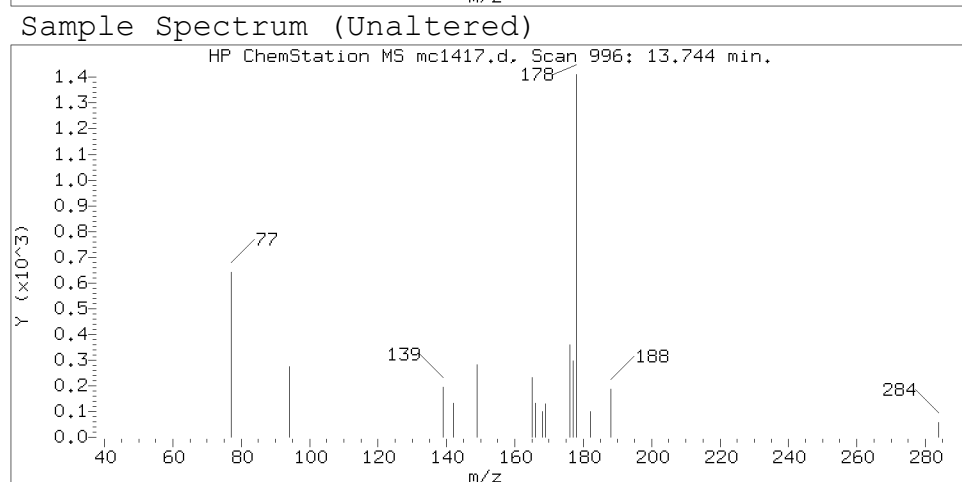
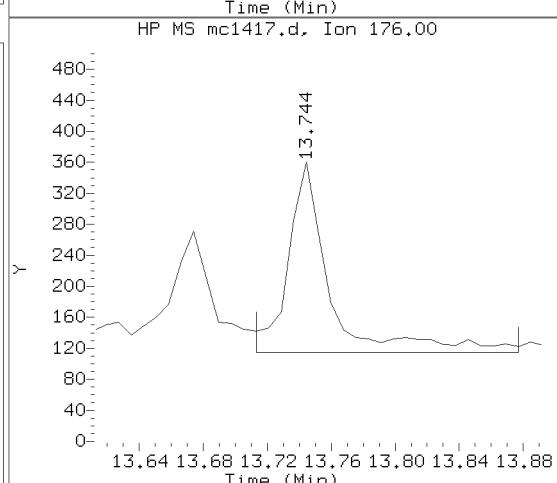
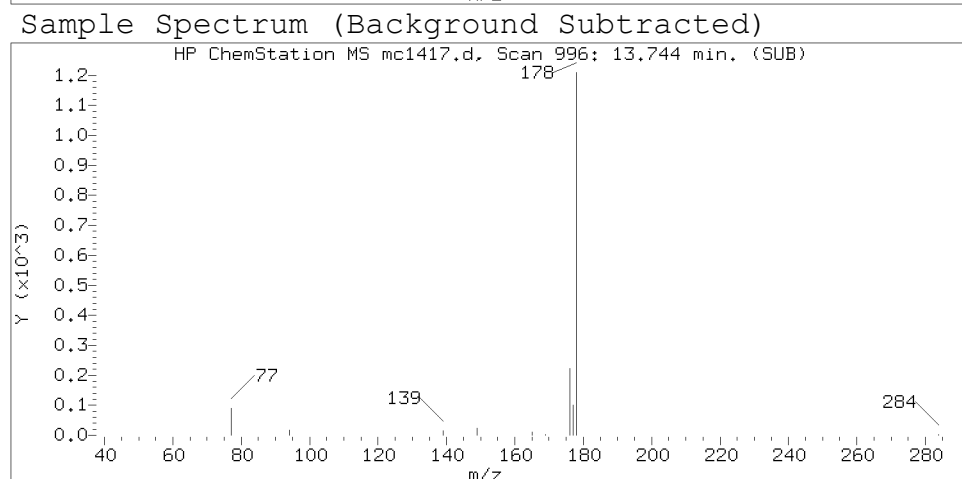
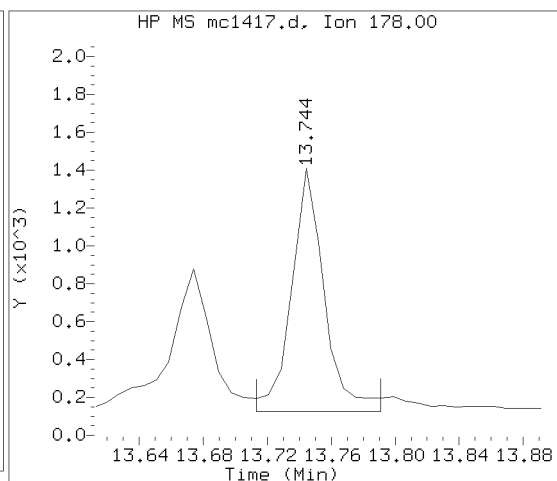
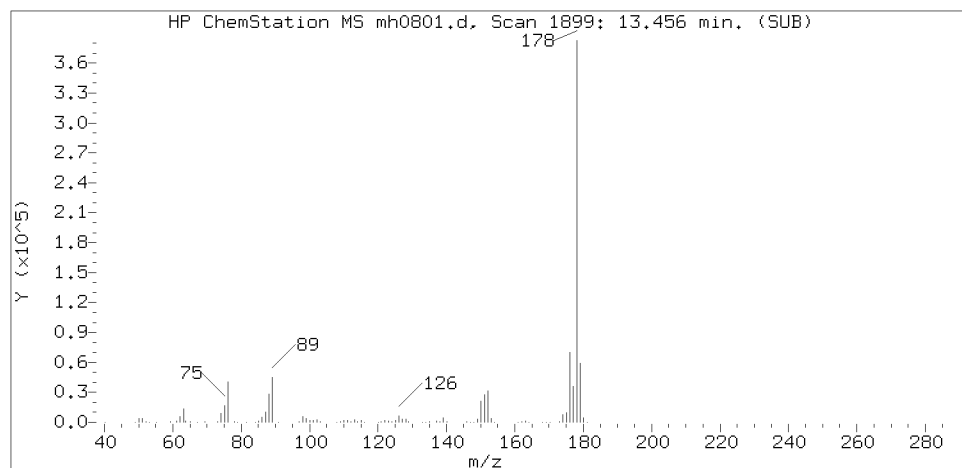
Sample Name: BAC08

Lab Sample ID: 1283816

Compound Number : 18
Compound Name : Fluorene
Scan Number : 829
Retention Time (minutes) : 12.441
Relative Retention Time : 0.00066
Quant Ion : 166.00
Area (flag) : 1549
On-column Amount (ng/ul) : 0.0059

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

Reference Standard Spectrum for Anthracene



Data File: /chem/HP21585.i/20mar24.b/mc1417.d
Injection date and time: 25-MAR-2020 02:29

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Sample Name: BAC08

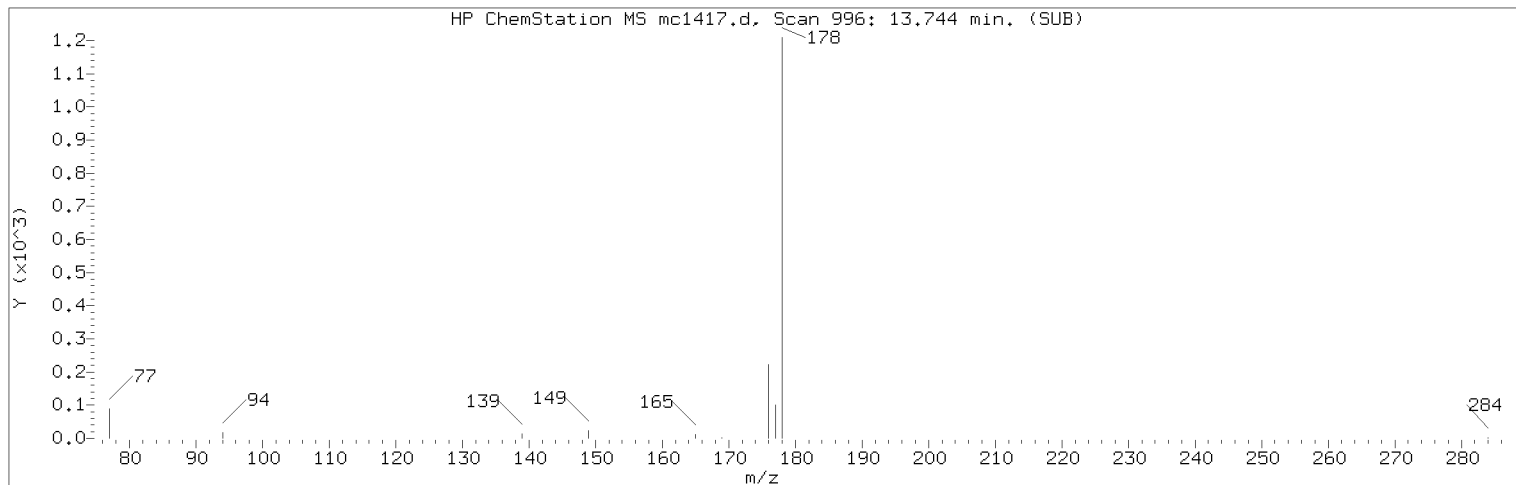
Lab Sample ID: 1283816

Compound Number : 22
Compound Name : Anthracene
Scan Number : 996
Retention Time (minutes) : 13.744
Relative Retention Time : -0.00058
Quant Ion : 178.00
Area (flag) : 1857M
On-column Amount (ng/ul) : 0.0052

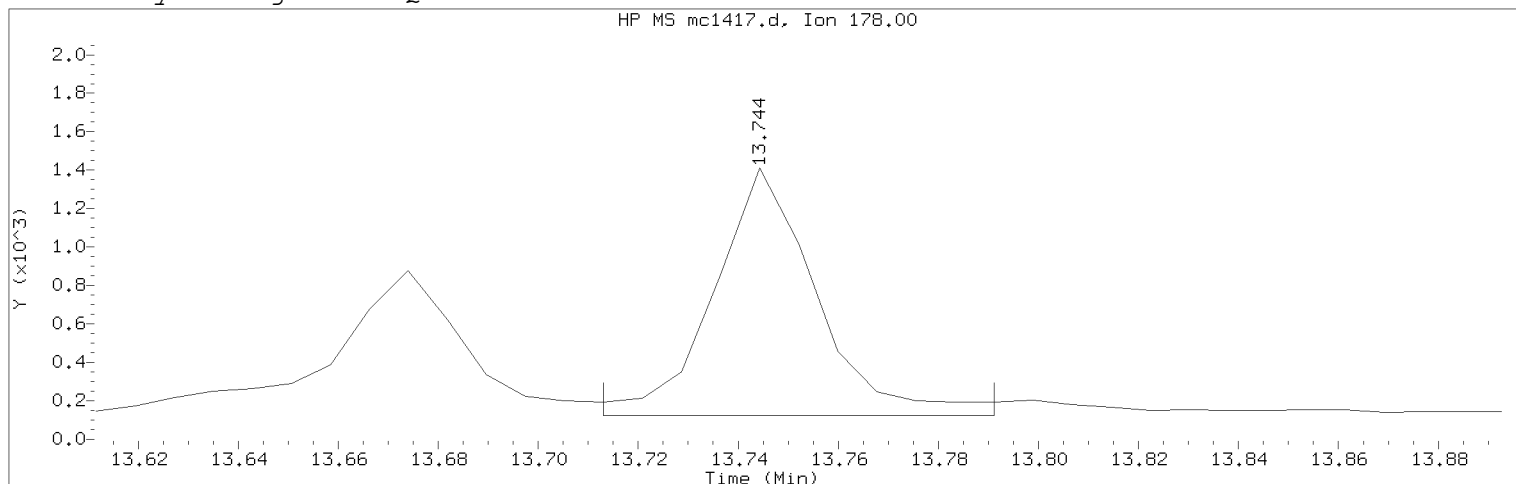
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346
GPY67 Page 368 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1417.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 02:29

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:41 jmg00346

Sample Name: BAC08

Lab Sample ID: 1283816

Compound Number	: 22	
Compound Name	: Anthracene	
Scan Number	: 996	
Retention Time (minutes)	: 13.744	
Quant Ion	: 178.00	
Area (flag)	: 1857M	
On-column Amount (ng/ul)	: 0.0052	
Integration start scan	: 991	Integration stop scan: 1001
Y at integration start	: 125	Y at integration end: 125

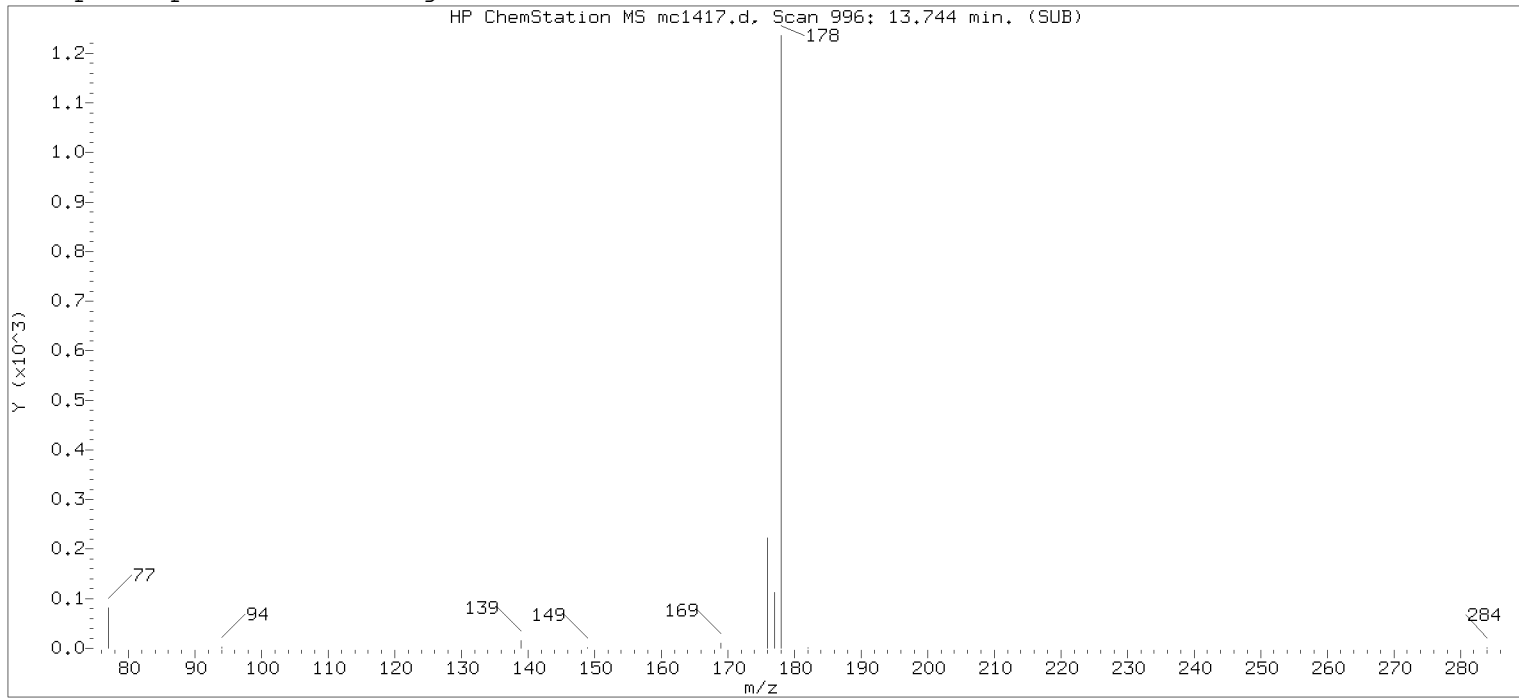
Reason for manual integration: improper integration

Analyst responsible for change:

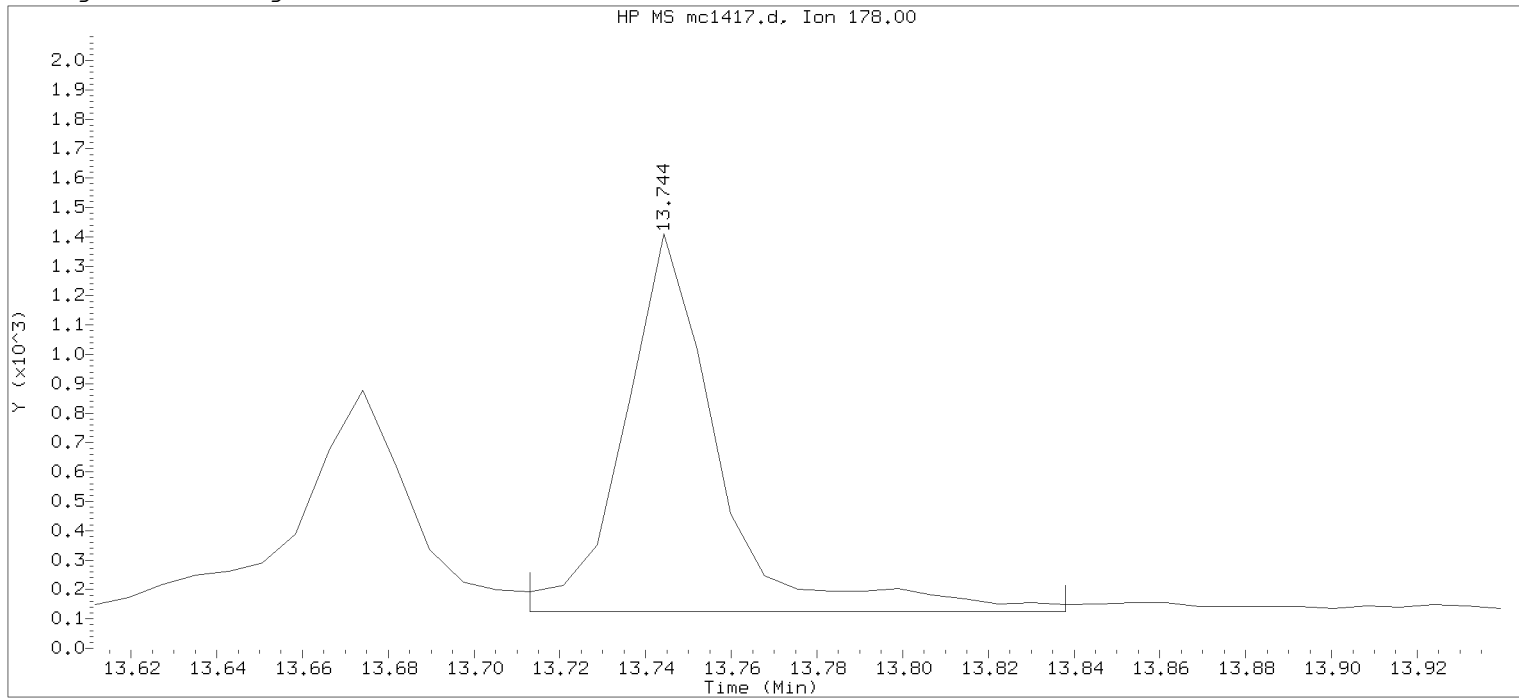
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1417.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 02:29

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC08

Lab Sample ID: 1283816

Compound Number : 22
 Compound Name : Anthracene
 Scan Number : 996
 Retention Time (minutes) : 13.744
 Quant Ion : 178.00
 Area : 1956
 On-column Amount (ng/ul) : 0.0055
 Integration start scan : 991
 Y at integration start : 125

Integration stop scan: 1007
 Y at integration end: 125

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
 Target 3.5 esignature user GPV67j Page 370 of 609

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC09

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283817

Sample wt/vol: 246 (g/mL)ML Lab File ID: mc1418.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	0.03	U	
208-96-8-----	Acenaphthylene	0.01	U	
83-32-9-----	Acenaphthene	0.01	U	
86-73-7-----	Fluorene	0.01	U	
85-01-8-----	Phenanthrene	0.03	U	
120-12-7-----	Anthracene	0.01	U	
206-44-0-----	Fluoranthene	0.01	U	
129-00-0-----	Pyrene	0.01	U	
56-55-3-----	Benzo (a) anthracene	0.01	U	
218-01-9-----	Chrysene	0.01	U	
205-99-2-----	Benzo (b) fluoranthene	0.01	U	
207-08-9-----	Benzo (k) fluoranthene	0.01	U	
50-32-8-----	Benzo (a) pyrene	0.01	U	
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.01	U	
53-70-3-----	Dibenz (a,h) anthracene	0.02	U	
191-24-2-----	Benzo (g,h,i) perylene	0.01	U	

FORM I SV-1

BAC09

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283817

Data file: /chem/HP21585.i/20mar24.b/mc1418.d

Injection date and time: 25-MAR-2020 03:00

Data file Sample Info. Line: BAC09;1283817;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 25-MAR-2020 10:03

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.083 (0.013)	447	152	21660 (-5)	0.25	
6) Naphthalene-d8	8.999 (-0.007)	540	136	75994 (0)	0.25	
14) Acenaphthene-d10	11.741 (0.004)	750	164	33850 (-11)	0.25	
20) Phenanthrene-d10	13.642 (0.008)	983	188	71314 (-10)	0.25	
29) Chrysene-d12	17.809 (0.000)	1592	240	64293 (-24)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	89976 (-5)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.229 (0.001)	152	28342	0.182	73%		15 - 121
24) Fluoranthene-d10	(4)	15.351 (0.000)	212	72233	0.240	96%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.163 (0.000)	264	58136	0.172	69%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)			Not Detected					0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

BAC09

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283817

Data file: /chem/HP21585.i/20mar24.b/mc1418.d

Injection date and time: **25-MAR-2020 03:00**

Data file Sample Info. Line: BAC09;1283817;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 25-MAR-2020 10:03

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml

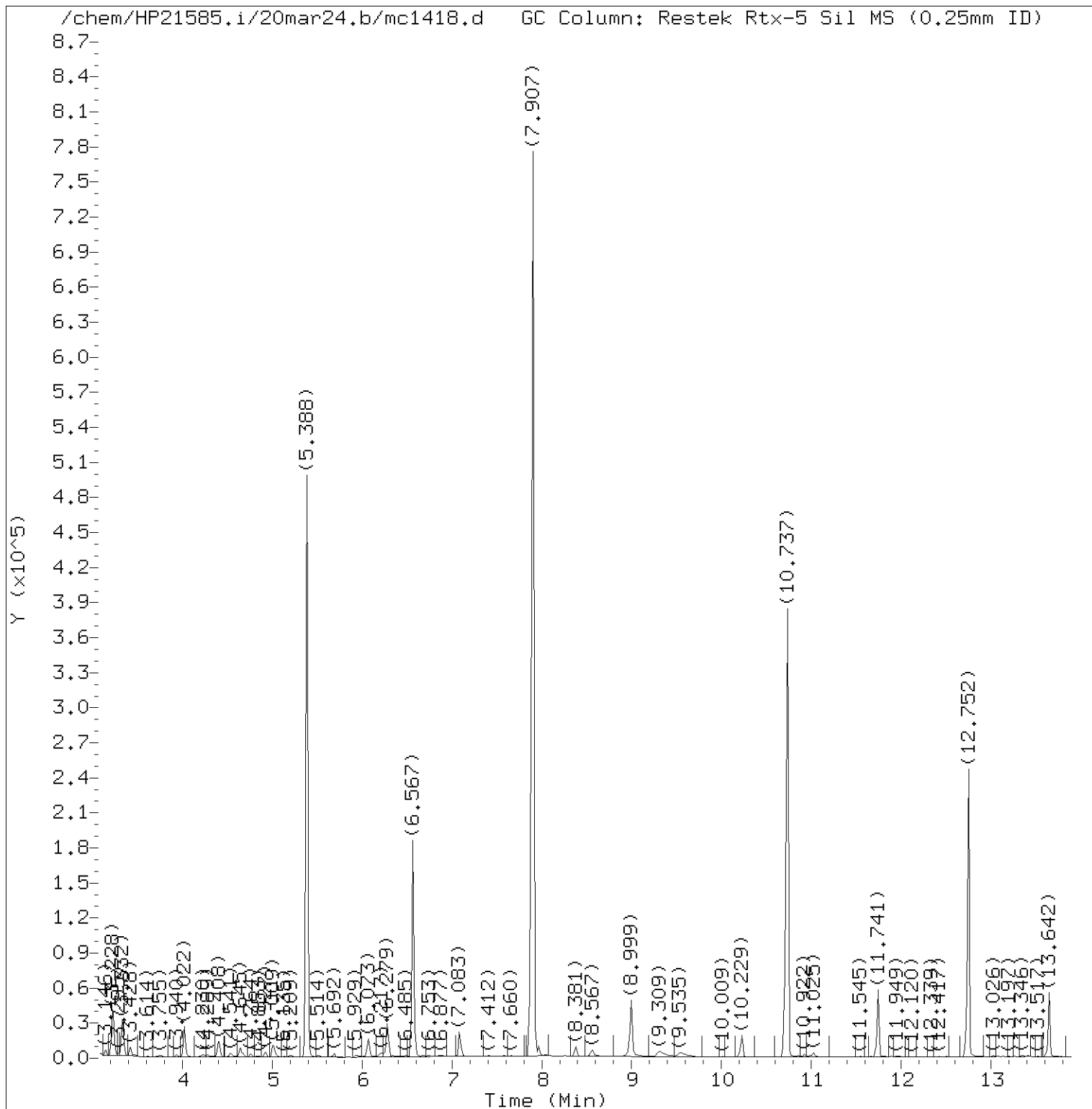
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 10:12. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 10:22. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1418.d
Injection date and time: 25-MAR-2020 03:00

Instrument ID: HP21585.i
Analyst ID: ceb05247

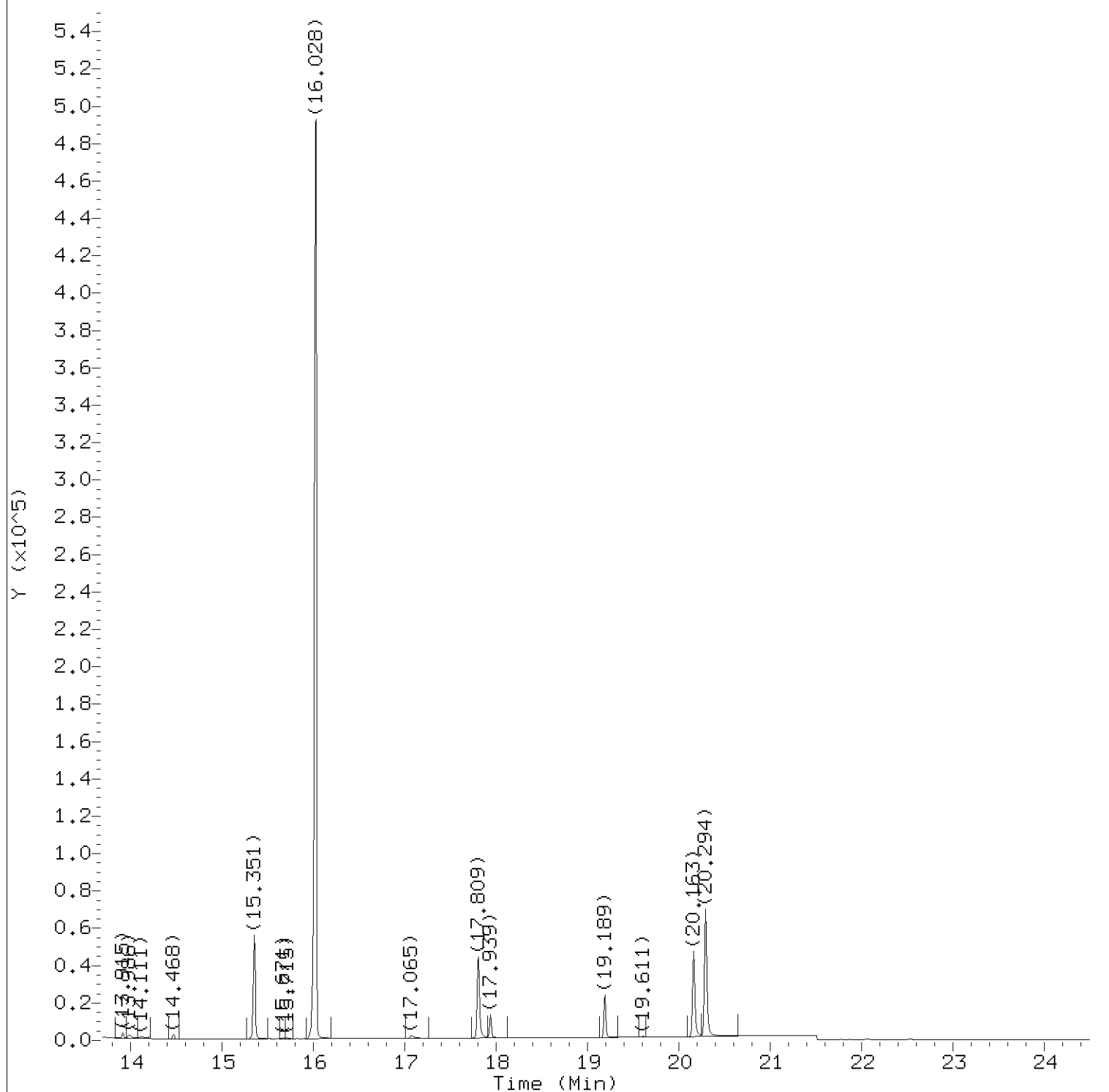
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 10:03
Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09

Lab Sample ID: 1283817

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 10:12.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1418.d
Injection date and time: 25-MAR-2020 03:00

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 10:03
Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09

Lab Sample ID: 1283817

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 10:12.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1418.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 03:00

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 10:03

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09

Lab Sample ID: 1283817

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.083	152	21660	0.250
6) *Naphthalene-d8	(2)	8.999	136	75994	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.229	152	28342	0.182
14) *Acenaphthene-d10	(3)	11.741	164	33850	0.250
20) *Phenanthrene-d10	(4)	13.642	188	71314	0.250
24) \$Fluoranthene-d10	(4)	15.351	212	72233	0.240
29) *Chrysene-d12	(5)	17.809	240	64293	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.163	264	58136	0.172
38) *Perylene-d12	(6)	20.294	264	89976	0.250

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

on 03/25/2020 at 10:12.

Target 3.5 esignature user ID: jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC10

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283820

Sample wt/vol: 228 (g/mL)ML Lab File ID: mc1419.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg)	MDL	UG/L
91-20-3-----	Naphthalene	0.03		U
208-96-8-----	Acenaphthylene	0.03		J
83-32-9-----	Acenaphthene	0.4		
86-73-7-----	Fluorene	0.01		U
85-01-8-----	Phenanthrene	0.03		U
120-12-7-----	Anthracene	0.02		J
206-44-0-----	Fluoranthene	0.01		U
129-00-0-----	Pyrene	0.01		U
56-55-3-----	Benzo (a) anthracene	0.01		U
218-01-9-----	Chrysene	0.01		U
205-99-2-----	Benzo (b) fluoranthene	0.01		U
207-08-9-----	Benzo (k) fluoranthene	0.01		U
50-32-8-----	Benzo (a) pyrene	0.01		U
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.01		U
53-70-3-----	Dibenz (a,h) anthracene	0.02		U
191-24-2-----	Benzo (g,h,i) perylene	0.01		U

FORM I SV-1

BAC10

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283820

Data file: /chem/HP21585.i/20mar24.b/mc1419.d

Injection date and time: 25-MAR-2020 03:30

Data file Sample Info. Line: BAC10;1283820;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 04:42 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 228 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	22975 (1)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	77622 (3)	0.25	
14) Acenaphthene-d10	11.745 (0.000)	750	164	36888 (-3)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	76752 (-3)	0.25	
29) Chrysene-d12	17.801 (0.008)	1591	240	67983 (-20)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	90280 (-5)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	30558	0.192	77%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	80320	0.248	99%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	62593	0.184	74%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)			Not Detected					0.008
13) Acenaphthylene	(3)	11.538 (0.000)	152	2430	0.006	0.03			0.003
15) Acenaphthene	(3)	11.780 (0.000)	154	17619M	0.081	0.35			0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)	13.744 (-0.000)	178	1515	0.004	0.02			0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

M = Compound was manually integrated.

BAC10

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283820

Data file: /chem/HP21585.i/20mar24.b/mc1419.d

Injection date and time: **25-MAR-2020 03:30**

Data file Sample Info. Line: BAC10;1283820;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 04:42 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 228 ml

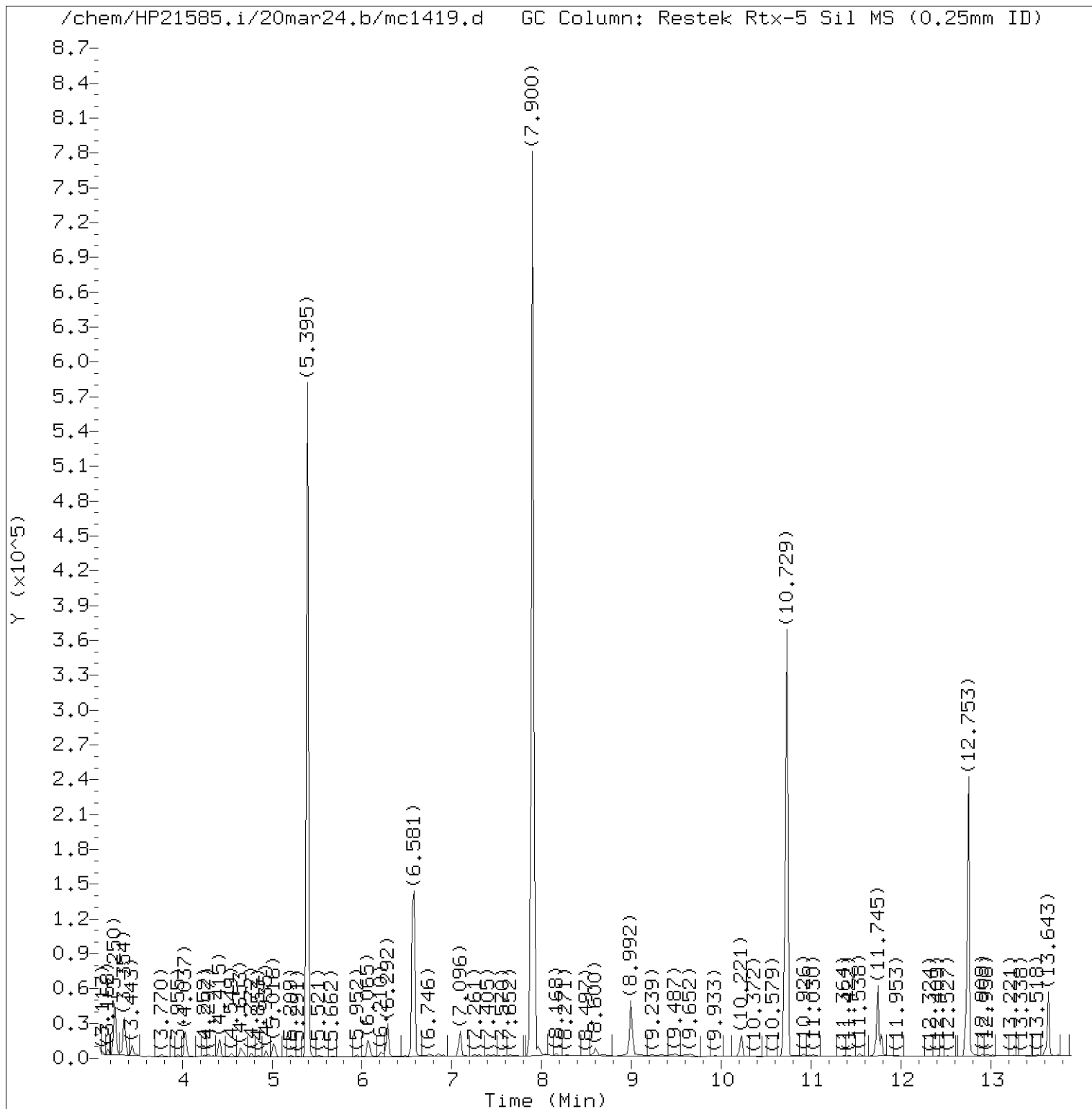
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1419.d
Injection date and time: 25-MAR-2020 03:30

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:42 jmg00346

Sample Name: BAC10

Lab Sample ID: 1283820

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

The chromatogram displays detector response (Y-axis, scaled by $\times 10^5$) against time in minutes (X-axis). The Y-axis ranges from 0.0 to 5.4 with major ticks every 0.2 units. The X-axis ranges from 14 to 24 minutes with major ticks every 1 minute. The baseline is relatively flat with minor noise. Several distinct peaks are observed and labeled with their retention times in minutes:

- 13.916
- 14.474
- 15.352
- 15.521
- 15.636
- 15.807
- 16.023 (the highest peak, reaching approximately 5.4 on the Y-axis)
- 16.186
- 17.801
- 17.939
- 19.182
- 19.604
- 20.164
- 20.294

Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1419.d
Injection date and time: 25-MAR-2020 03:30

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:42 jmq00346

Sample Name: BAC10

Lab Sample ID: 1283820

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

Target 3.5 esignature user ID: jmc00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1419.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 03:30

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:42 jmg00346

Sample Name: BAC10

Lab Sample ID: 1283820

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	22975	0.250
6) *Naphthalene-d8	(2)	8.992	136	77622	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	30558	0.192
13) Acenaphthylene	(3)	11.538	152	2430	0.006
14) *Acenaphthene-d10	(3)	11.745	164	36888	0.250
15) Acenaphthene	(3)	11.780	154	17619M	0.081
20) *Phenanthrene-d10	(4)	13.643	188	76752	0.250
22) Anthracene	(4)	13.744	178	1515	0.004
24) \$Fluoranthene-d10	(4)	15.352	212	80320	0.248
29) *Chrysene-d12	(5)	17.801	240	67983	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	62593	0.184
38) *Perylene-d12	(6)	20.294	264	90280	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

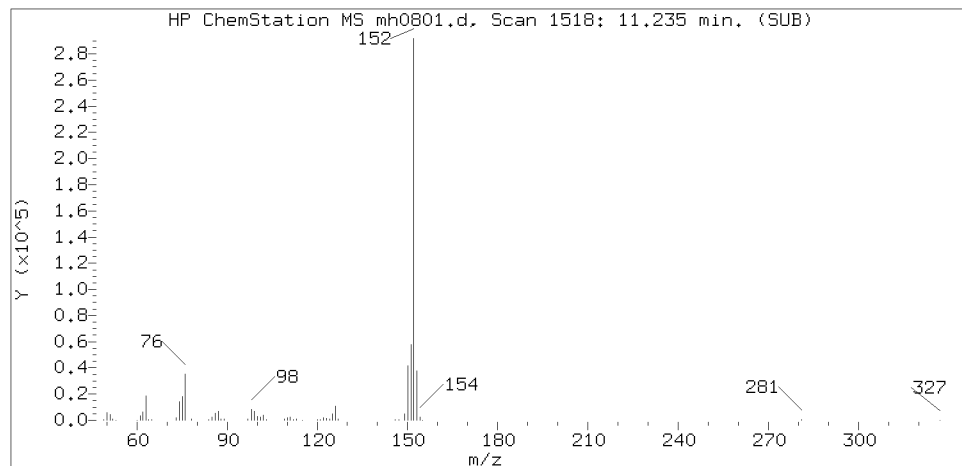
\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

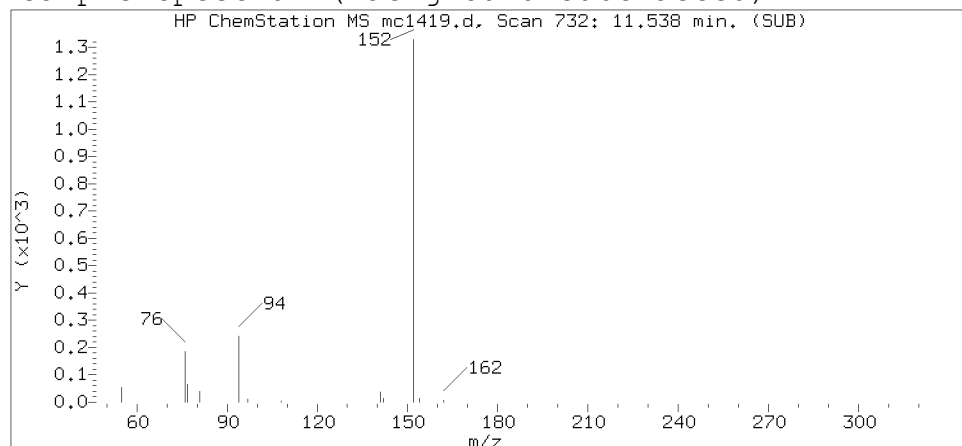
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

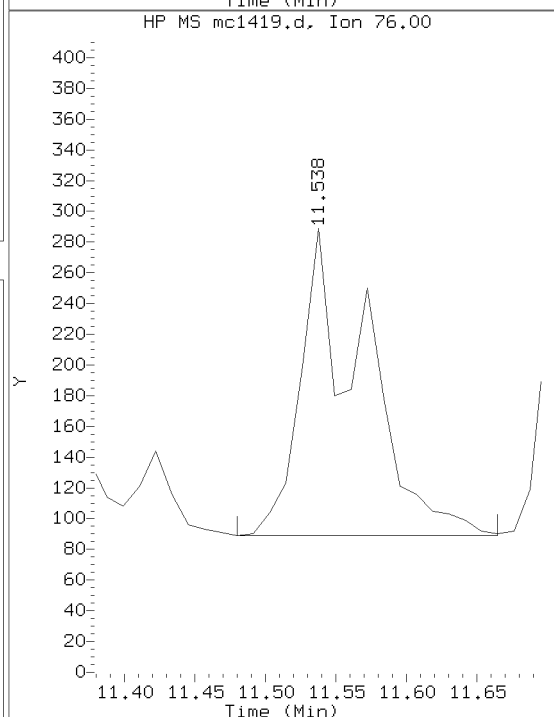
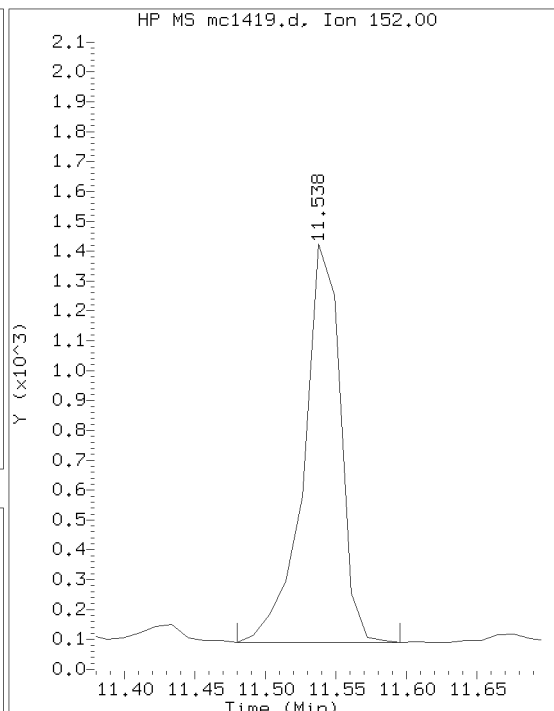
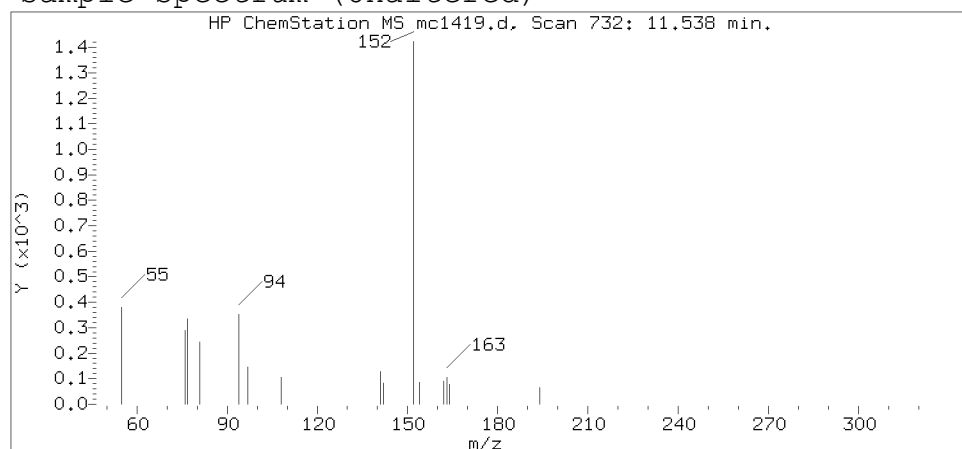
Reference Standard Spectrum for Acenaphthylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1419.d
Injection date and time: 25-MAR-2020 03:30

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:42 jmg00346

Sample Name: BAC10

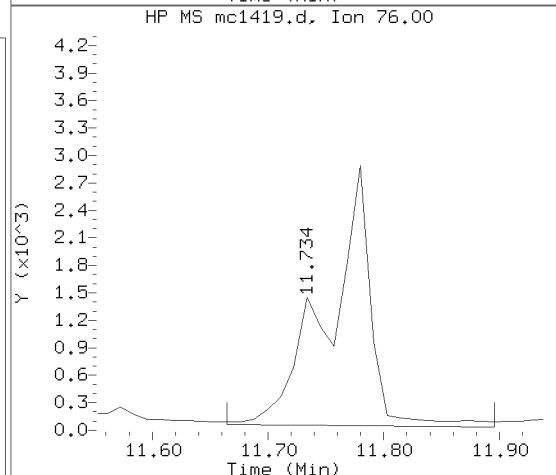
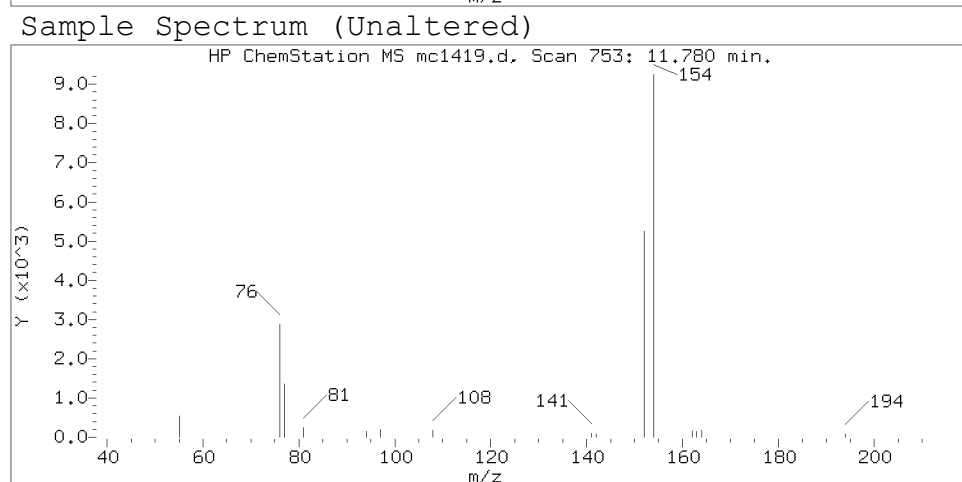
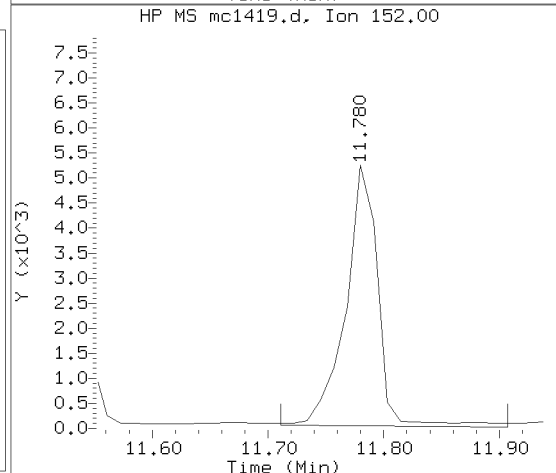
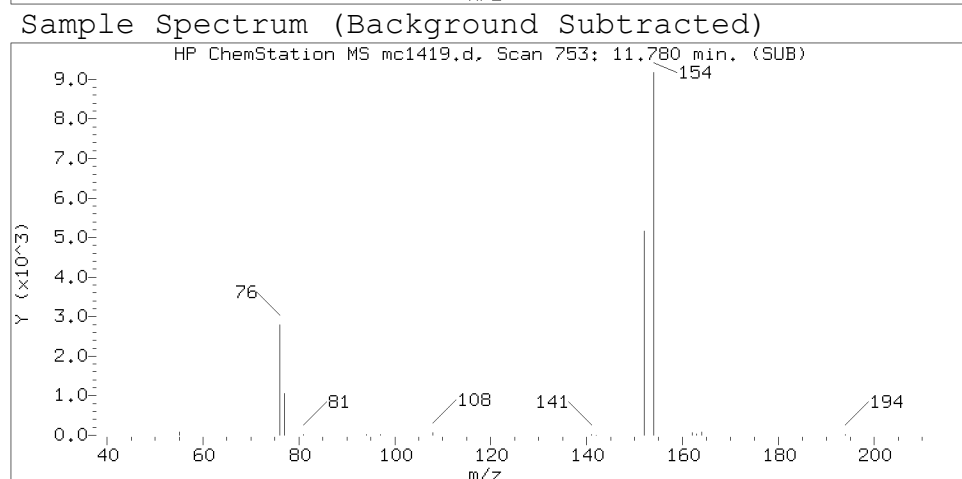
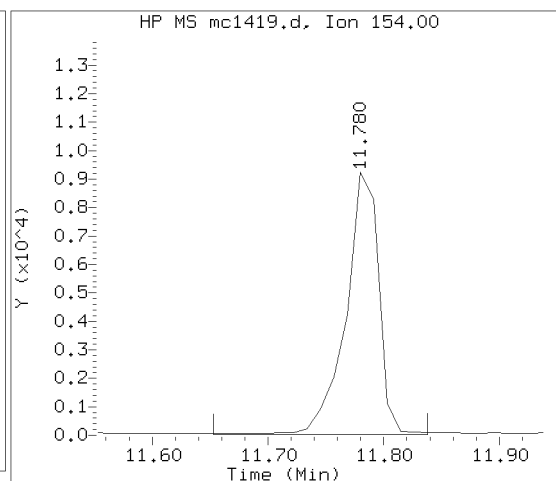
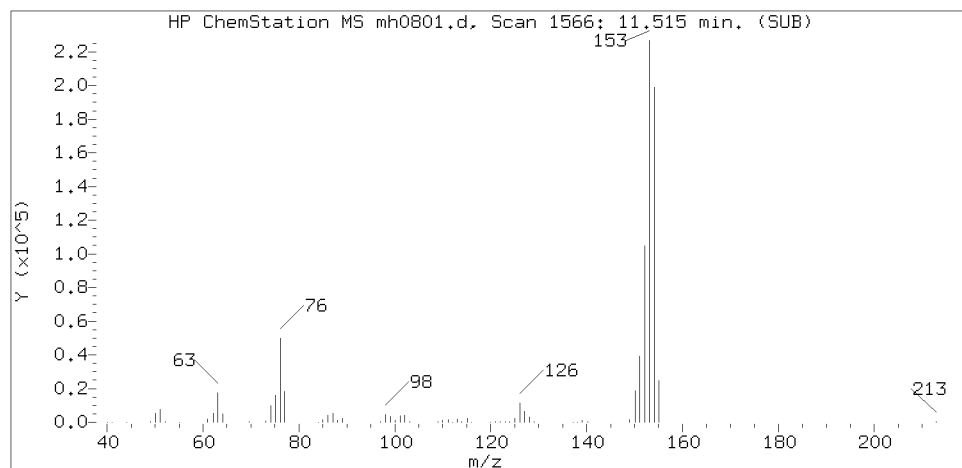
Lab Sample ID: 1283820

Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 732
Retention Time (minutes) : 11.538
Relative Retention Time : 0.00098
Quant Ion : 152.00
Area (flag) : 2430
On-column Amount (ng/ul) : 0.0062

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346
Page 383 of 609

Reference Standard Spectrum for Acenaphthene



Data File: /chem/HP21585.i/20mar24.b/mc1419.d
Injection date and time: 25-MAR-2020 03:30

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:42 jmg00346

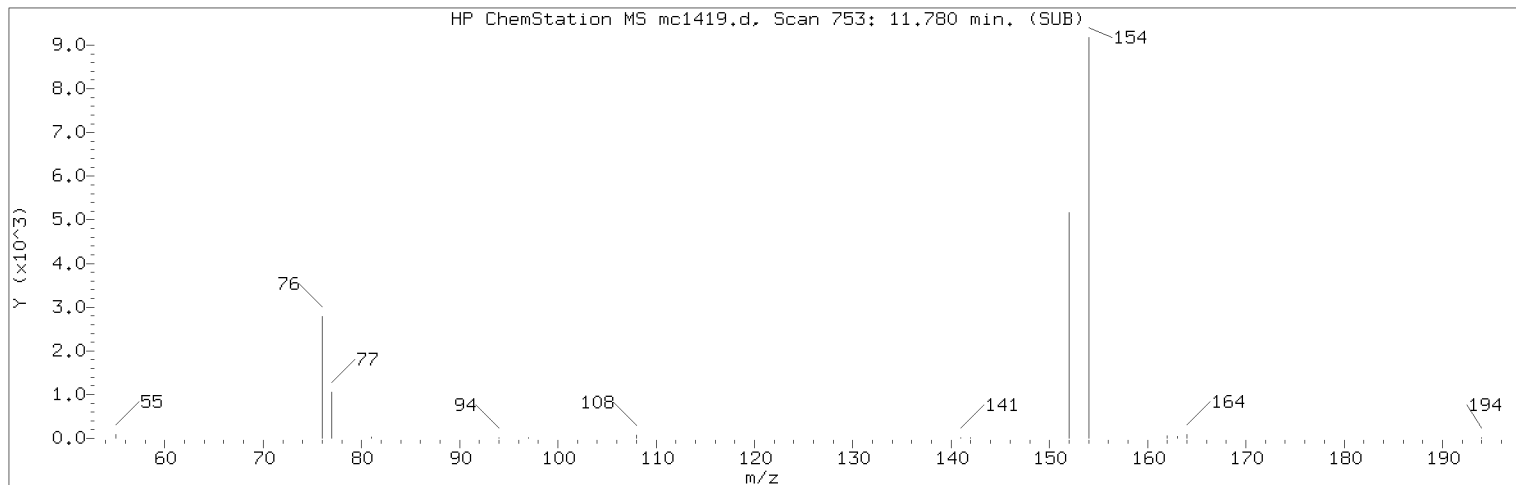
Sample Name: BAC10

Lab Sample ID: 1283820

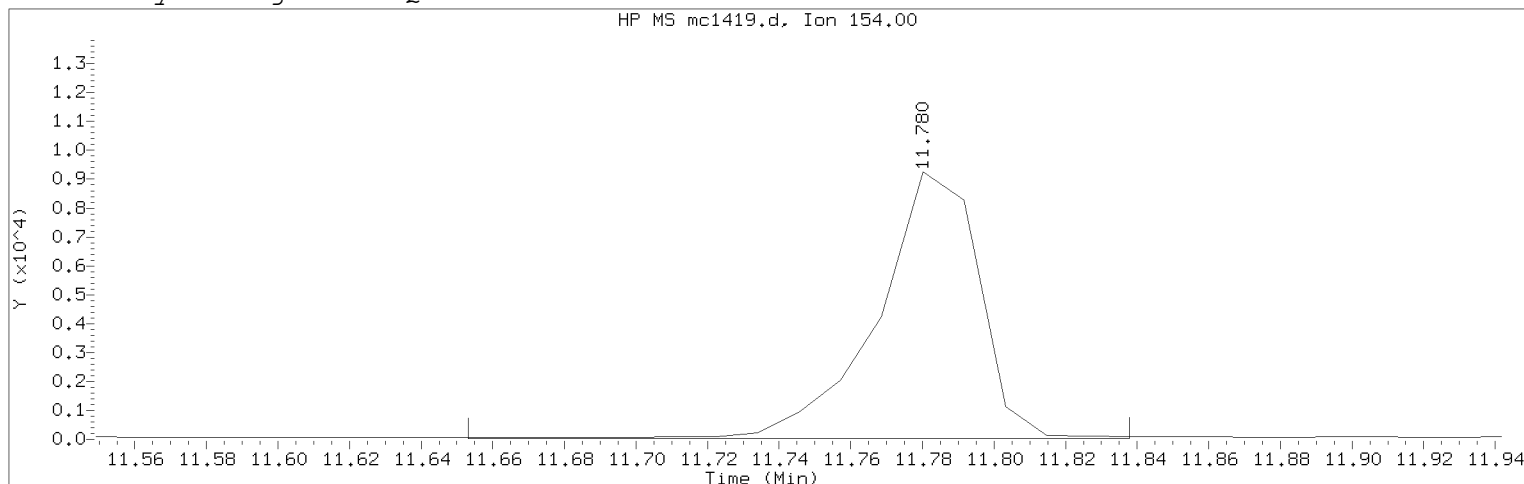
Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 753
Retention Time (minutes) : 11.780
Relative Retention Time : 0.00098
Quant Ion : 154.00
Area (flag) : 17619M
On-column Amount (ng/ul) : 0.0807

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1419.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 03:30

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:42 jmg00346

Sample Name: BAC10

Lab Sample ID: 1283820

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area (flag)	: 17619M	
On-column Amount (ng/ul)	: 0.0807	
Integration start scan	: 741	Integration stop scan: 757
Y at integration start	: 31	Y at integration end: 15

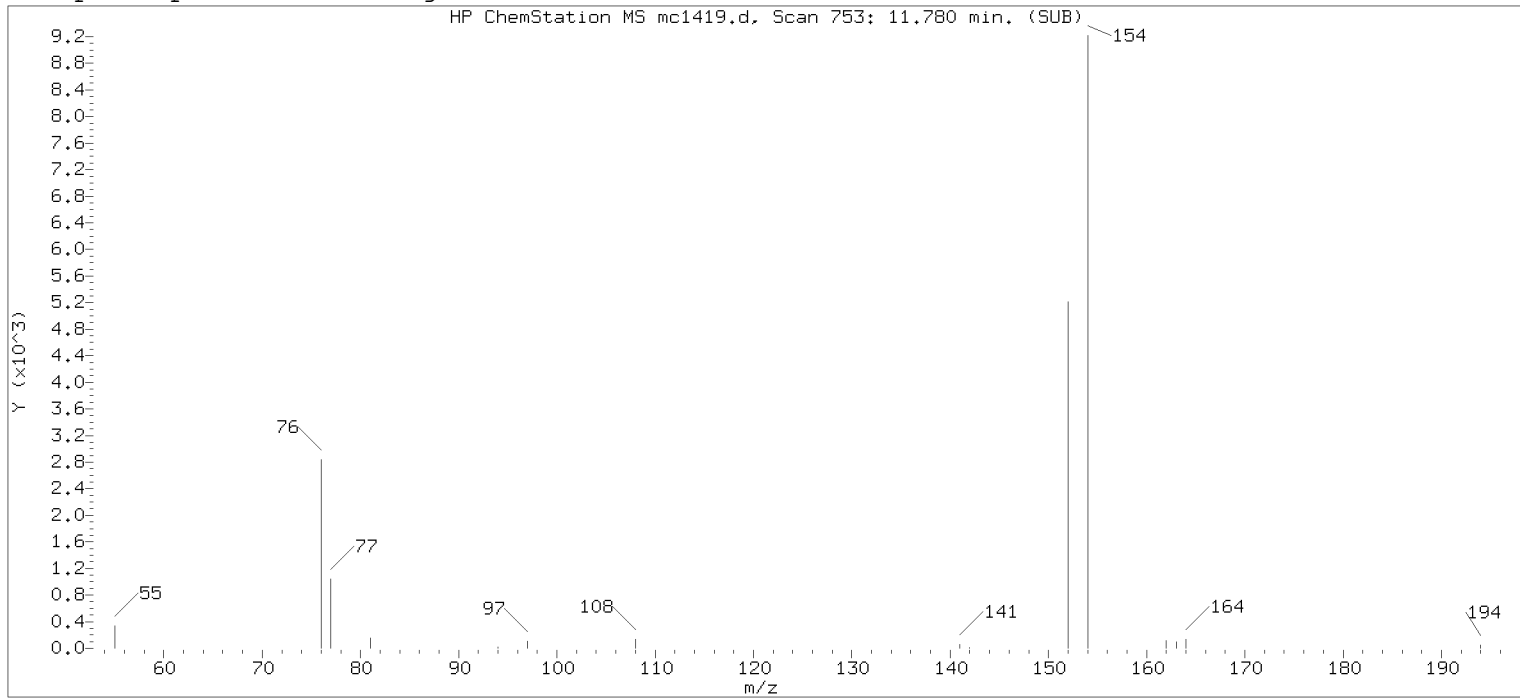
Reason for manual integration: improper integration

Analyst responsible for change:

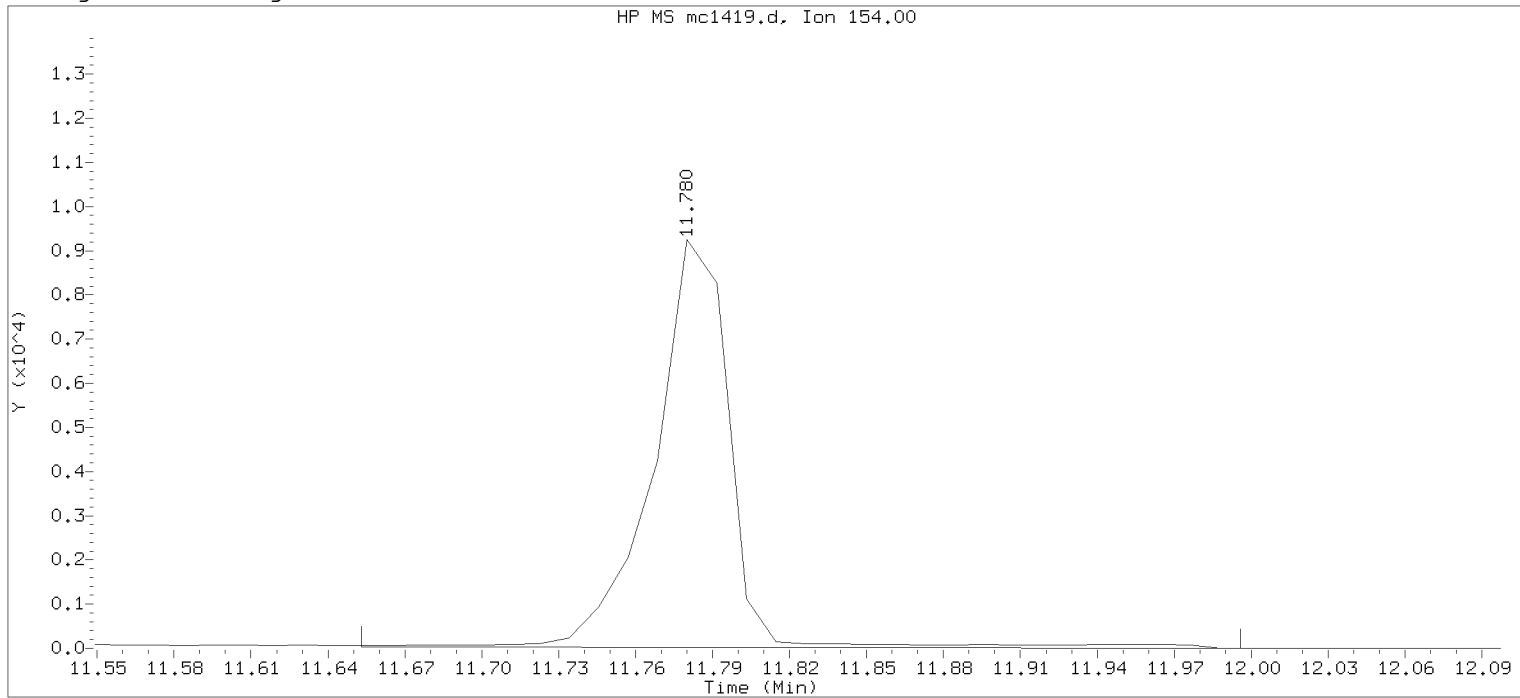
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1419.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 03:30

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC10

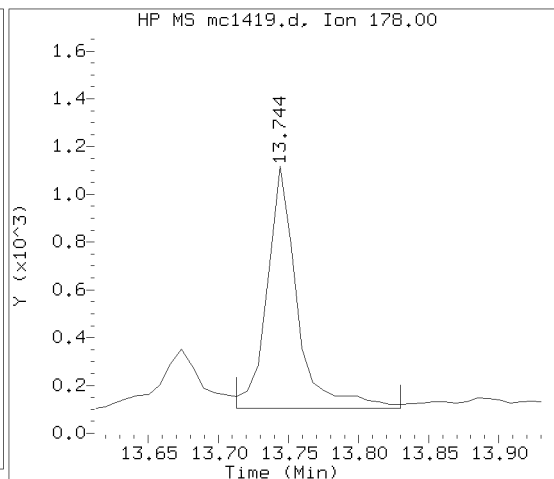
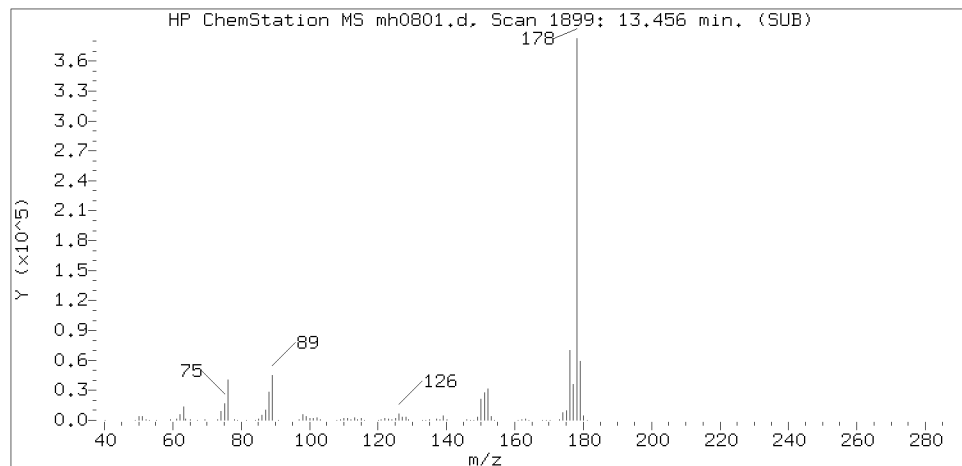
Lab Sample ID: 1283820

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area	: 18079	
On-column Amount (ng/ul)	: 0.0828	
Integration start scan	: 741	Integration stop scan: 771
Y at integration start	: 31	Y at integration end: 0

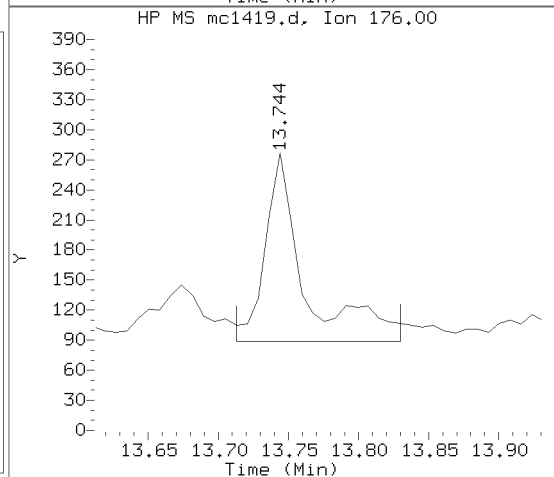
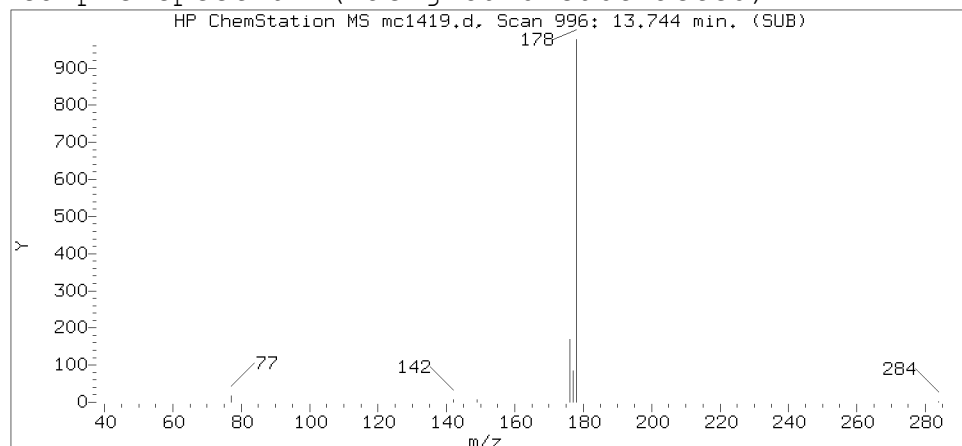
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user GPV67j Page 386 of 609

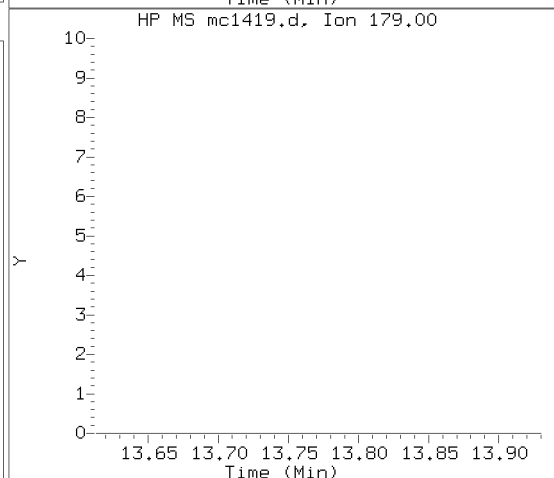
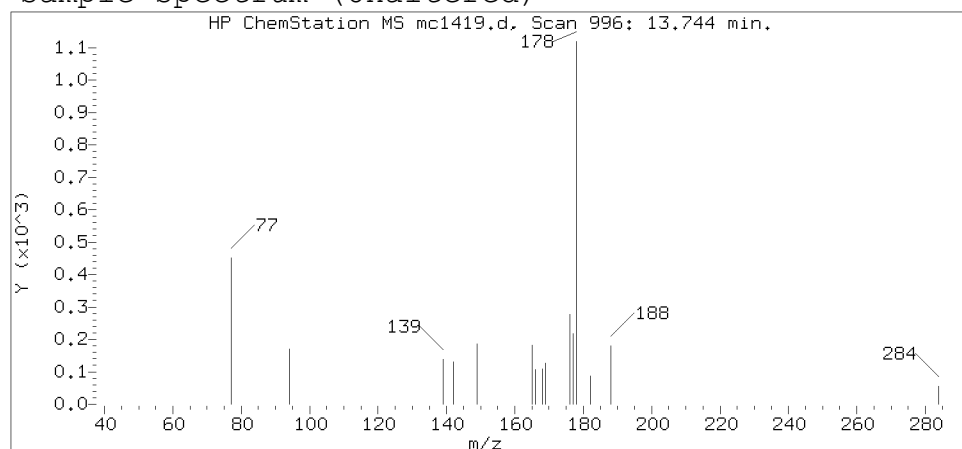
Reference Standard Spectrum for Anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1419.d
Injection date and time: 25-MAR-2020 03:30

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:42 jmg00346

Sample Name: BAC10

Lab Sample ID: 1283820

Compound Number : 22
Compound Name : Anthracene
Scan Number : 996
Retention Time (minutes) : 13.744
Relative Retention Time : -0.00058
Quant Ion : 178.00
Area (flag) : 1515
On-column Amount (ng/ul) : 0.0041

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC11

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 1283821
 Sample wt/vol: 236 (g/mL)ML Lab File ID: mc1420.d
 Level: (low/med) LOW Date Received: 03/19/20
 % Moisture: not dec: dec: Date Extracted: 03/24/20
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20
 Injection Volume: 2 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	0.03	J	
208-96-8-----	Acenaphthylene	0.01	U	
83-32-9-----	Acenaphthene	0.01	U	
86-73-7-----	Fluorene	0.01	U	
85-01-8-----	Phenanthrene	0.03	U	
120-12-7-----	Anthracene	0.01	U	
206-44-0-----	Fluoranthene	0.01	J	
129-00-0-----	Pyrene	0.01	U	
56-55-3-----	Benzo (a) anthracene	0.01	U	
218-01-9-----	Chrysene	0.01	U	
205-99-2-----	Benzo (b) fluoranthene	0.01	U	
207-08-9-----	Benzo (k) fluoranthene	0.01	U	
50-32-8-----	Benzo (a) pyrene	0.01	U	
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.01	U	
53-70-3-----	Dibenz (a,h) anthracene	0.02	U	
191-24-2-----	Benzo (g,h,i) perylene	0.01	U	

FORM I SV-1

BAC11

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283821

Data file: /chem/HP21585.i/20mar24.b/mc1420.d

Injection date and time: 25-MAR-2020 04:01

Data file Sample Info. Line: BAC11;1283821;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 04:43 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 236 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	22927 (0)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	75609 (0)	0.25	
14) Acenaphthene-d10	11.746 (0.000)	750	164	35356 (-7)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	76573 (-3)	0.25	
29) Chrysene-d12	17.802 (0.008)	1591	240	65689 (-22)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	91150 (-4)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	24513	0.158	63%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	69201	0.214	86%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	45820	0.133	53%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033 (0.000)	128	2788M	0.008	0.03			0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)	15.383 (-0.000)	202	1133	0.003	0.01			0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

M = Compound was manually integrated.

BAC11

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283821

Data file: /chem/HP21585.i/20mar24.b/mc1420.d

Injection date and time: **25-MAR-2020 04:01**

Data file Sample Info. Line: BAC11;1283821;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 04:43 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 236 ml

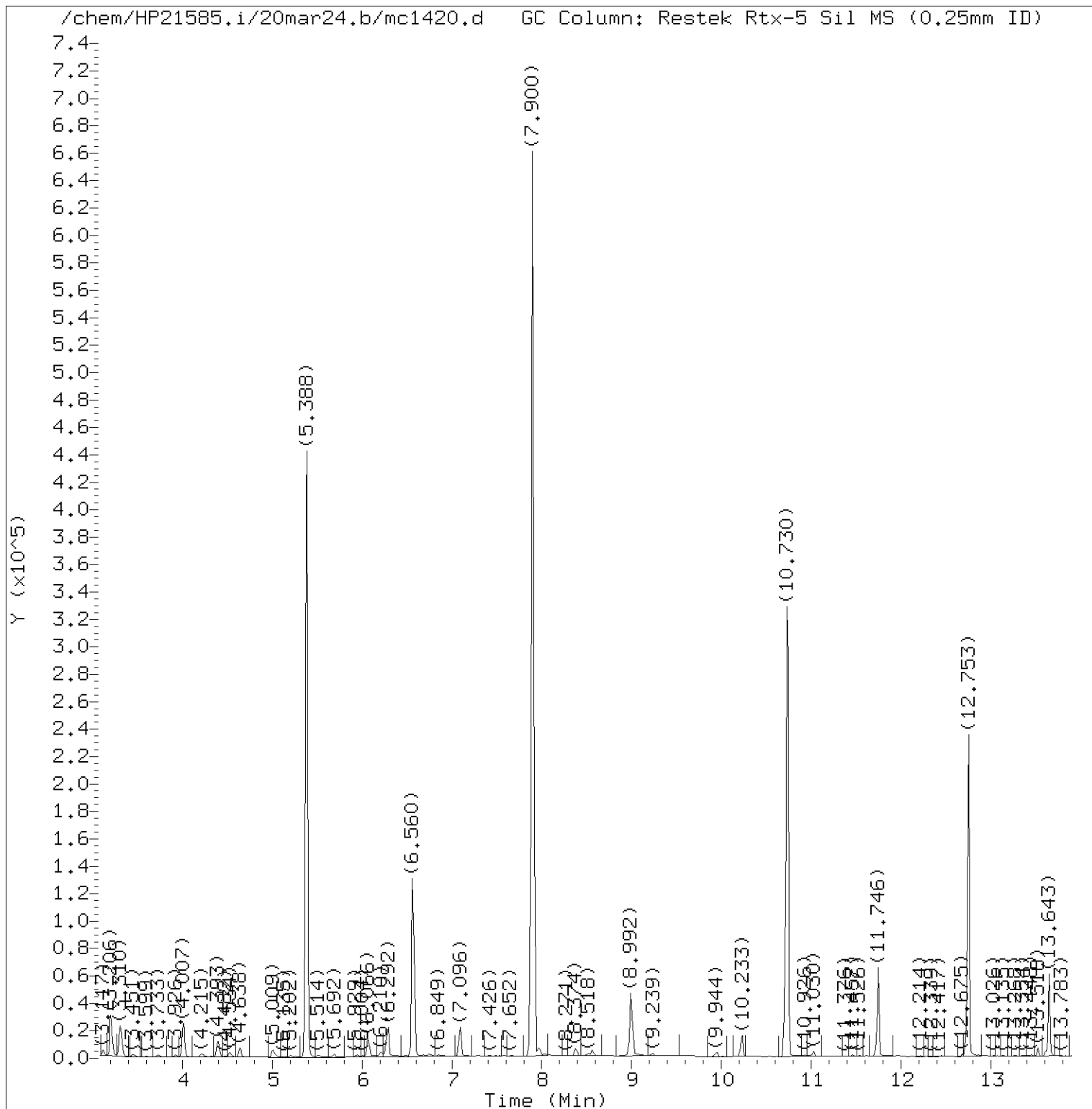
Volume Injected (Vi): 2 ul

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Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1420.d
Injection date and time: 25-MAR-2020 04:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

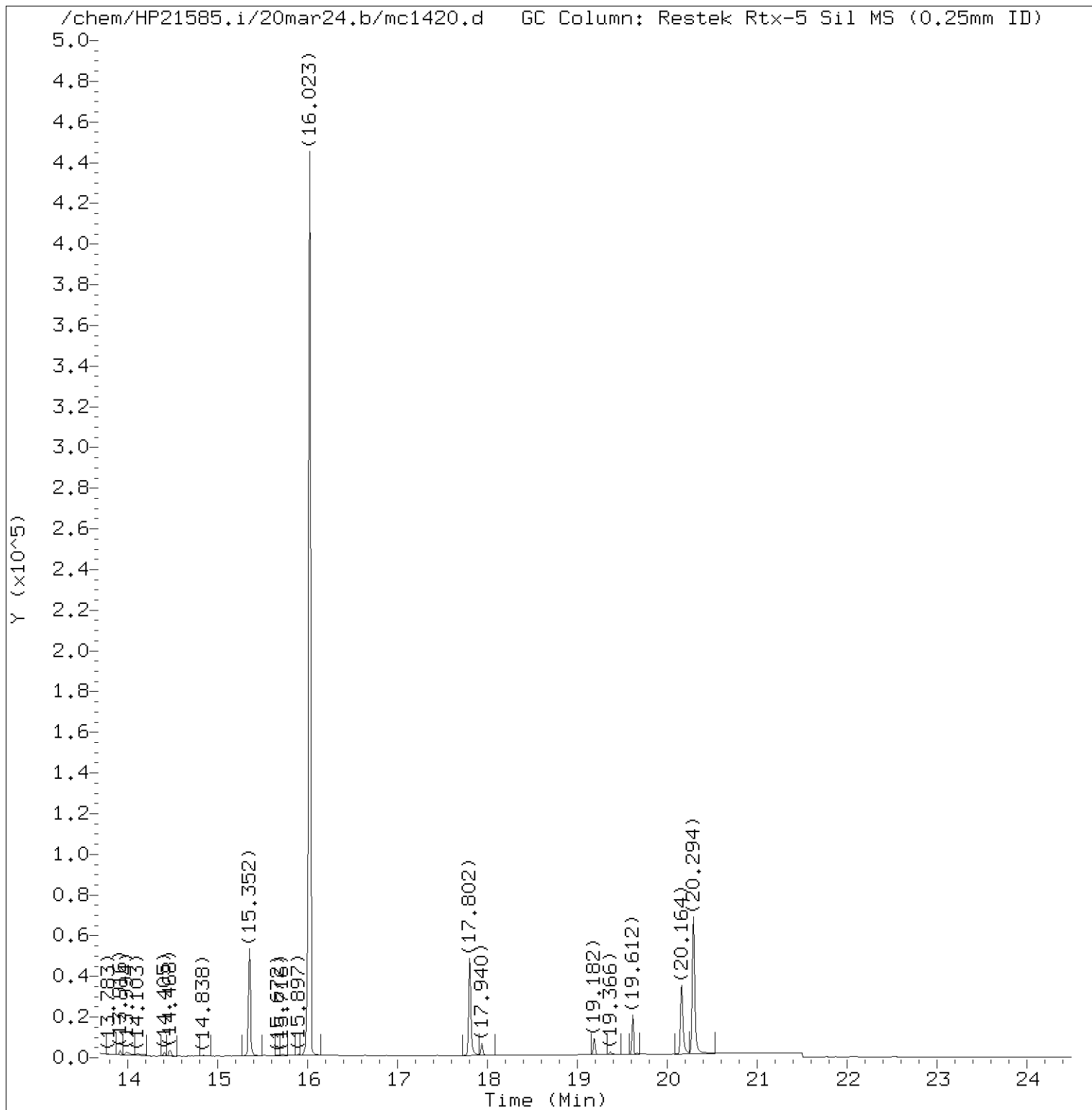
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:43 jmg00346

Sample Name: BAC11

Lab Sample ID: 1283821

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1420.d
Injection date and time: 25-MAR-2020 04:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:43 jmg00346

Sample Name: BAC11

Lab Sample ID: 1283821

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1420.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 04:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:43 jmg00346

Sample Name: BAC11

Lab Sample ID: 1283821

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	22927	0.250
6) *Naphthalene-d8	(2)	8.992	136	75609	0.250
7) Naphthalene	(2)	9.033	128	2788M	0.008
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	24513	0.158
14) *Acenaphthene-d10	(3)	11.746	164	35356	0.250
20) *Phenanthrene-d10	(4)	13.643	188	76573	0.250
24) \$Fluoranthene-d10	(4)	15.352	212	69201	0.214
25) Fluoranthene	(4)	15.383	202	1133	0.003
29) *Chrysene-d12	(5)	17.802	240	65689	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	45820	0.133
38) *Perylene-d12	(6)	20.294	264	91150	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

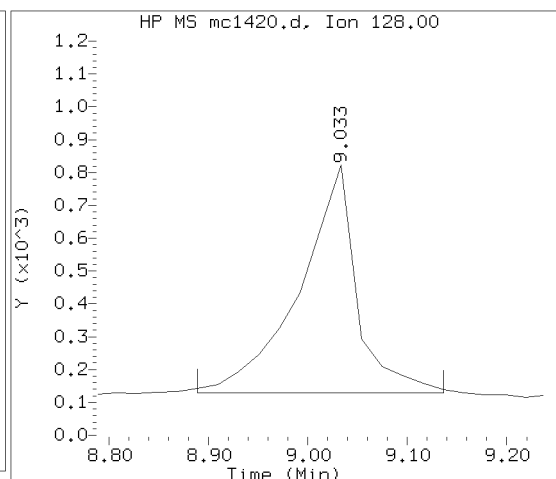
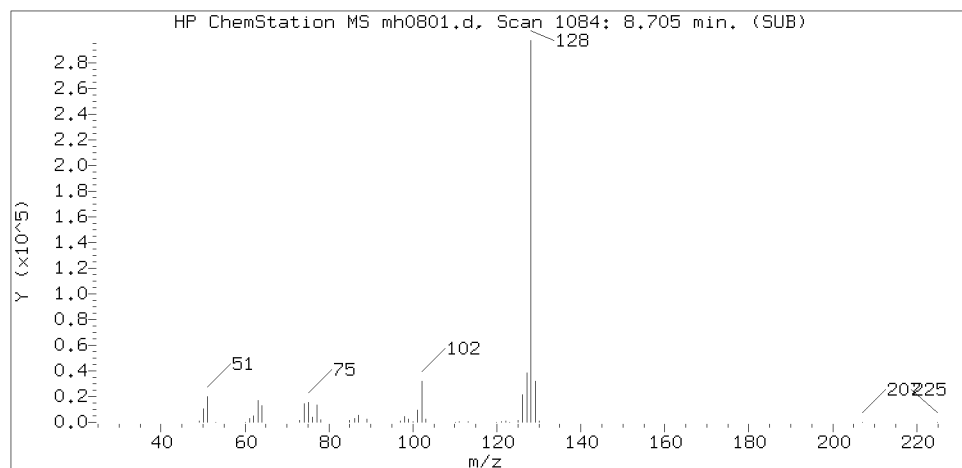
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

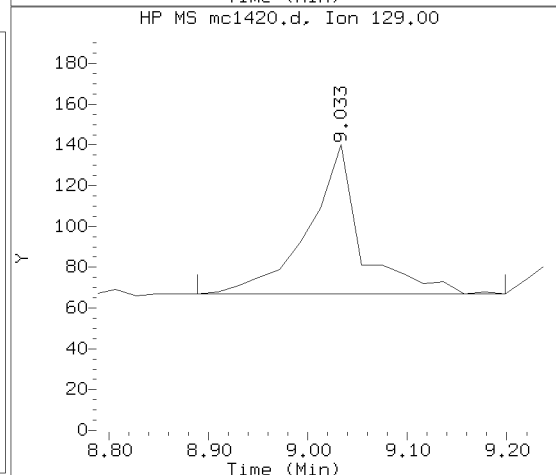
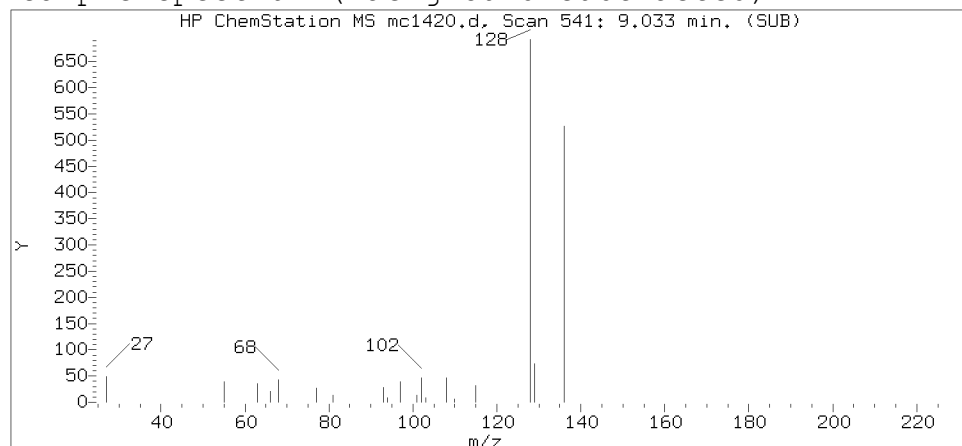
GPY67 Page 393 of 609

page 1 of 1

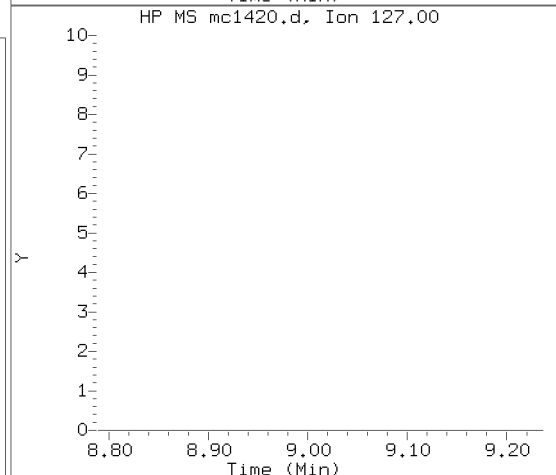
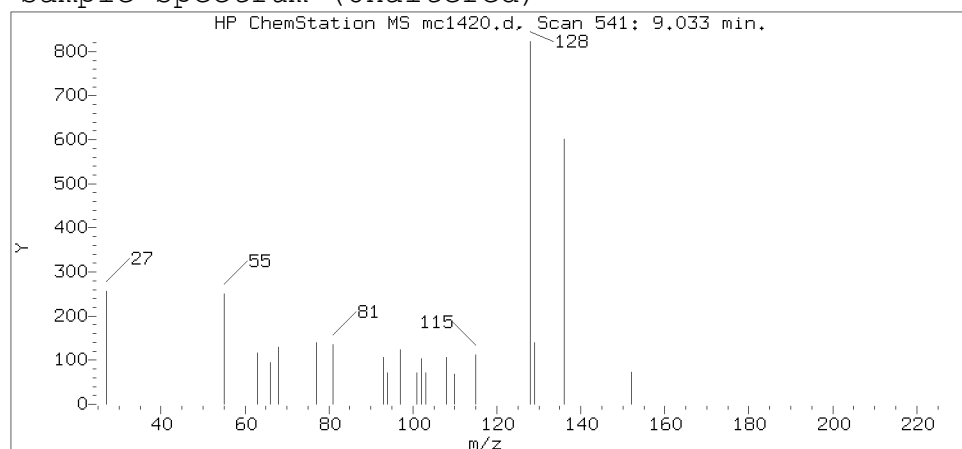
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1420.d
Injection date and time: 25-MAR-2020 04:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:43 jmg00346

Sample Name: BAC11

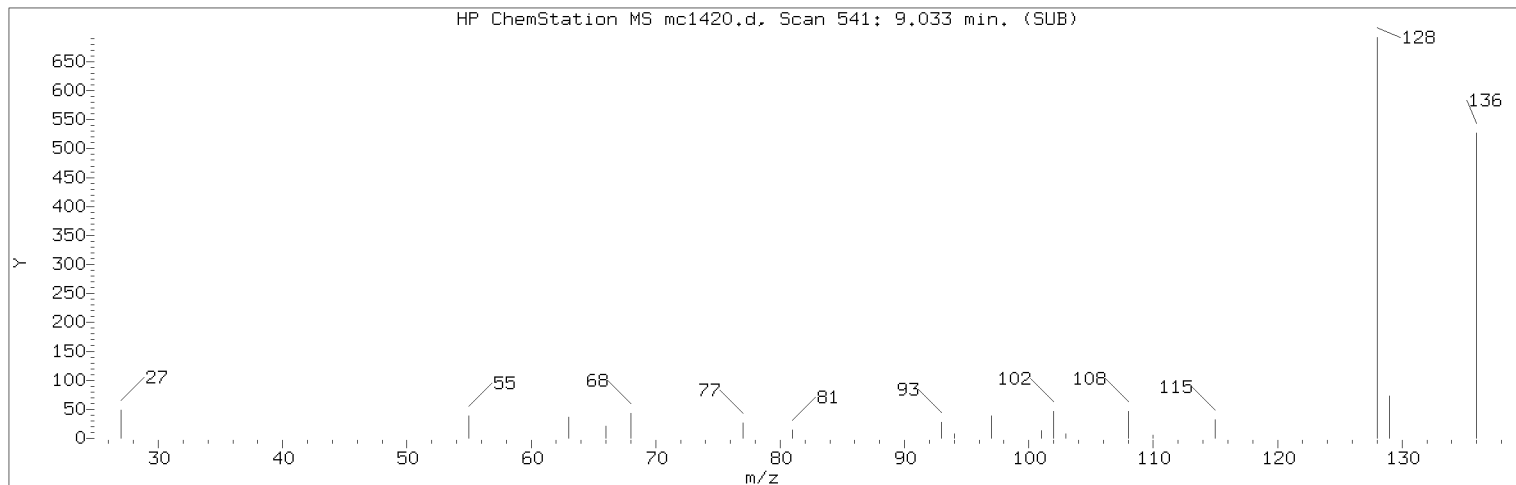
Lab Sample ID: 1283821

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 541
Retention Time (minutes) : 9.033
Relative Retention Time : 0.00000
Quant Ion : 128.00
Area (flag) : 2788M
On-column Amount (ng/ul) : 0.0078

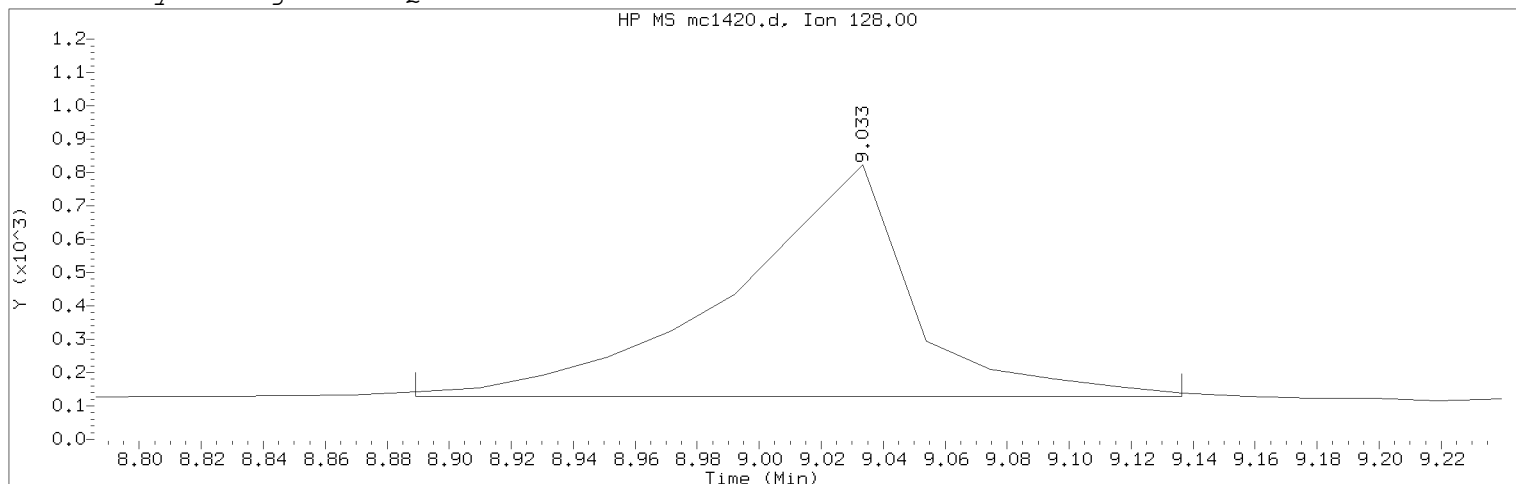
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346
Page 394 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1420.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 04:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:43 jmg00346

Sample Name: BAC11

Lab Sample ID: 1283821

Compound Number	: 7	
Compound Name	: Naphthalene	
Scan Number	: 541	
Retention Time (minutes)	: 9.033	
Quant Ion	: 128.00	
Area (flag)	: 2788M	
On-column Amount (ng/ul)	: 0.0078	
Integration start scan	: 533	Integration stop scan: 545
Y at integration start	: 129	Y at integration end: 129

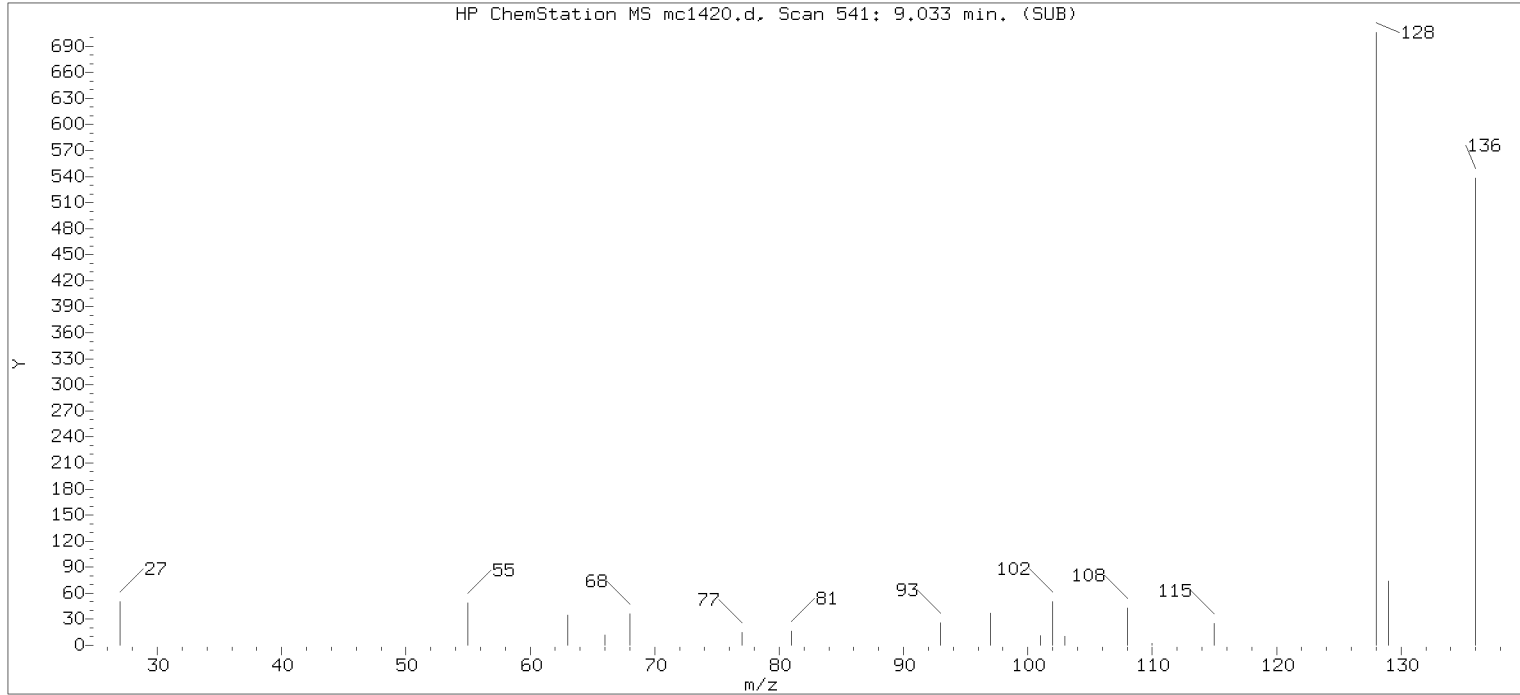
Reason for manual integration: improper integration

Analyst responsible for change:

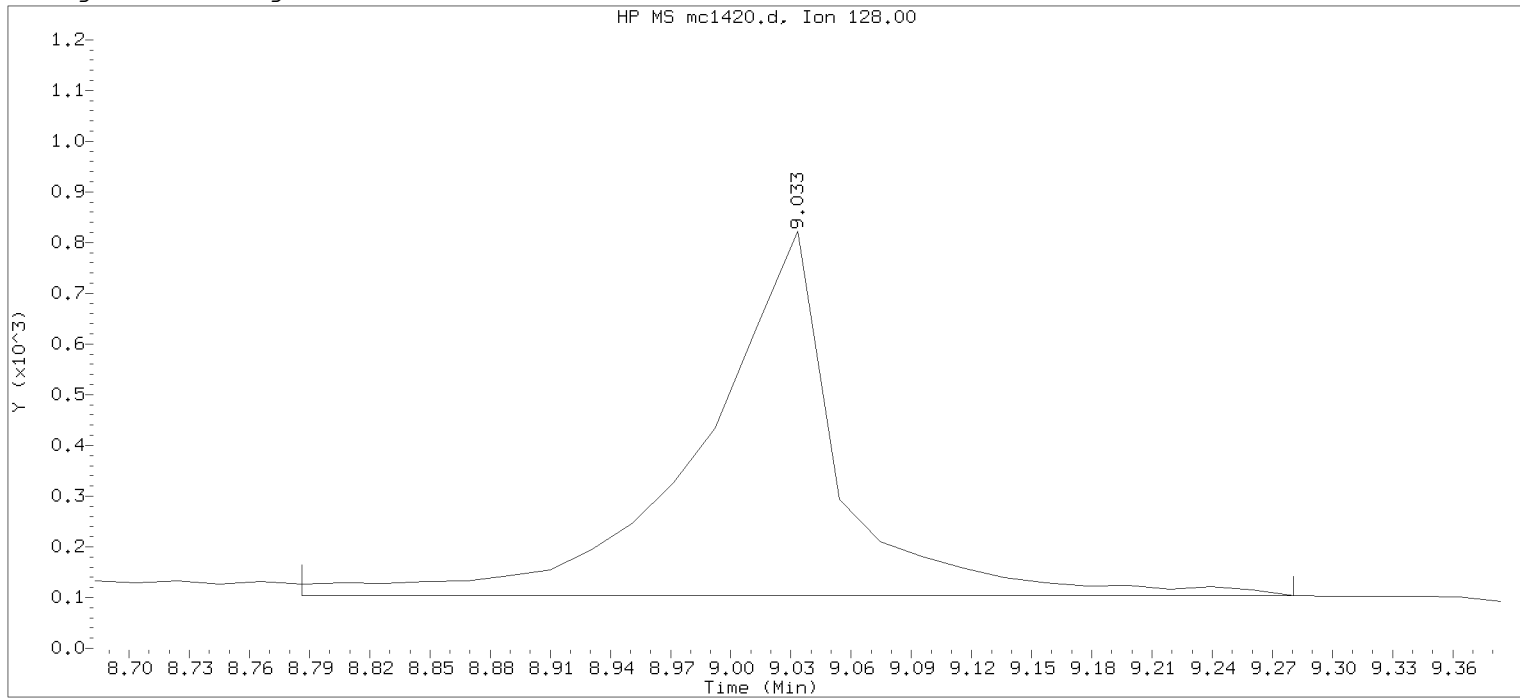
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1420.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 04:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:36 Unknown

Sample Name: BAC11

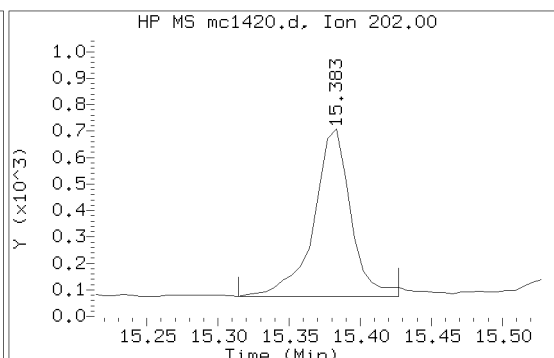
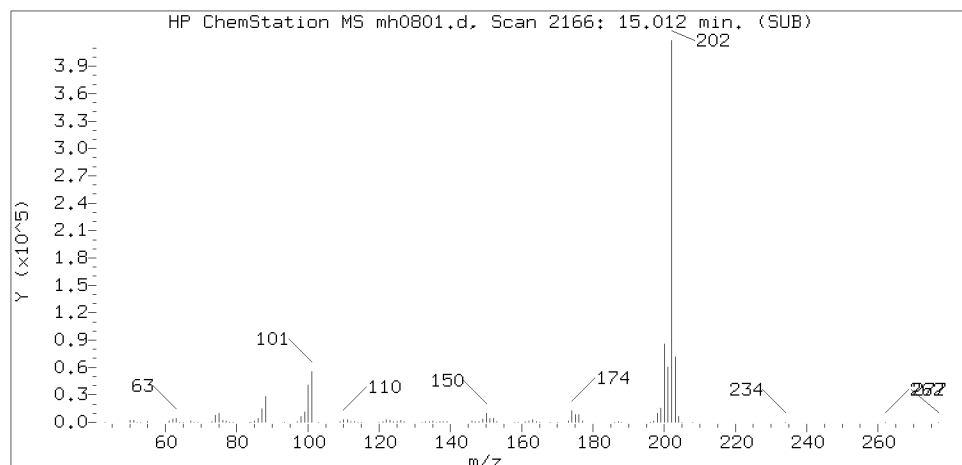
Lab Sample ID: 1283821

Compound Number	: 7	
Compound Name	: Naphthalene	
Scan Number	: 541	
Retention Time (minutes)	: 9.033	
Quant Ion	: 128.00	
Area	: 3462	
On-column Amount (ng/ul)	: 0.0097	
Integration start scan	: 528	Integration stop scan: 552
Y at integration start	: 104	Y at integration end: 104

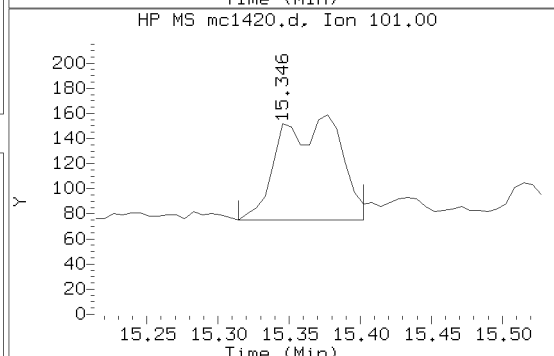
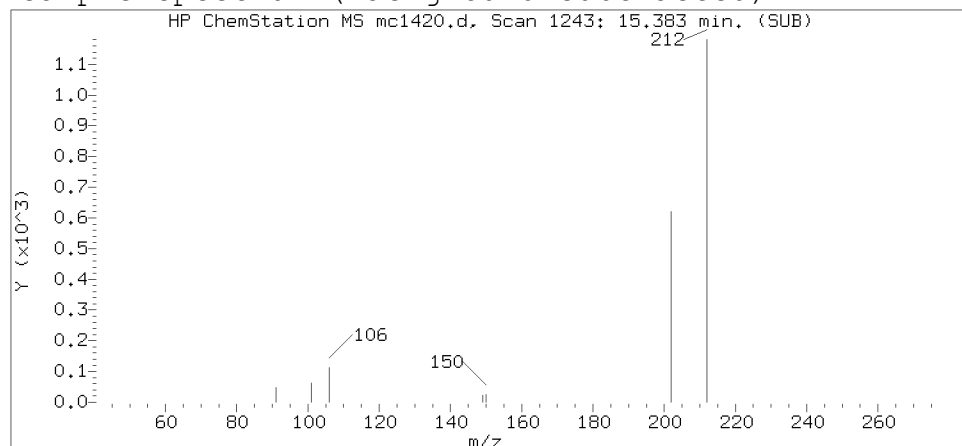
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user GPV67j Page 396 of 609

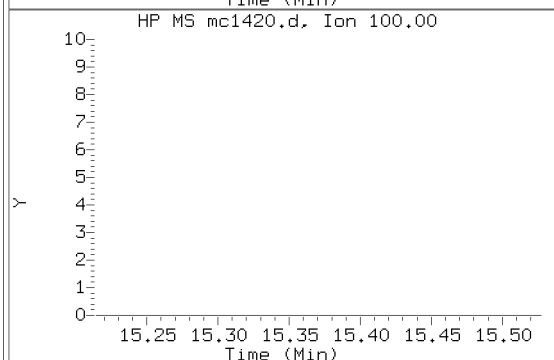
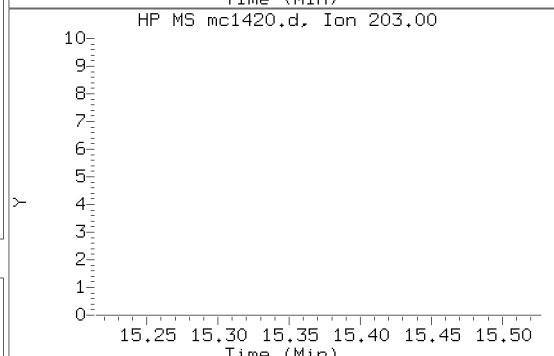
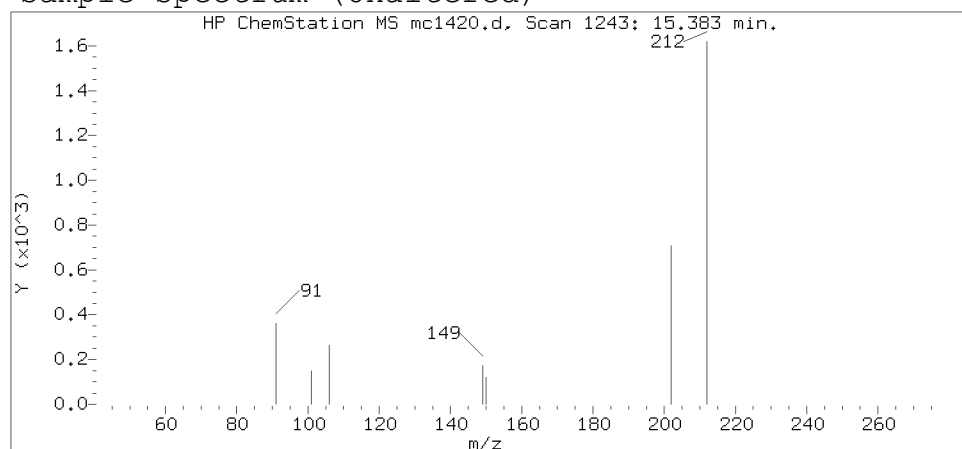
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1420.d
Injection date and time: 25-MAR-2020 04:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 04:43 jmg00346

Sample Name: BAC11

Lab Sample ID: 1283821

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1243
Retention Time (minutes) : 15.383
Relative Retention Time : -0.00065
Quant Ion : 202.00
Area (flag) : 1133
On-column Amount (ng/ul) : 0.0026

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user: jmg00346
Page 397 of 609

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC12

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283822

Sample wt/vol: 243 (g/mL)ML Lab File ID: mc1421.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		2	
208-96-8-----	Acenaphthylene	0.01		U
83-32-9-----	Acenaphthene	12		E
86-73-7-----	Fluorene	2		
85-01-8-----	Phenanthrene	0.09		
120-12-7-----	Anthracene	0.2		
206-44-0-----	Fluoranthene	0.05		J
129-00-0-----	Pyrene	0.6		
56-55-3-----	Benzo (a) anthracene	0.01		U
218-01-9-----	Chrysene	0.01		U
205-99-2-----	Benzo (b) fluoranthene	0.01		U
207-08-9-----	Benzo (k) fluoranthene	0.01		U
50-32-8-----	Benzo (a) pyrene	0.01		U
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.01		U
53-70-3-----	Dibenz (a,h) anthracene	0.02		U
191-24-2-----	Benzo (g,h,i) perylene	0.01		U

FORM I SV-1

BAC12

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283822

Data file: /chem/HP21585.i/20mar24.b/mc1421.d

Injection date and time: 25-MAR-2020 04:31

Data file Sample Info. Line: BAC12;1283822;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 243 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	23306 (2)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	82131 (8)	0.25	
14) Acenaphthene-d10	11.746 (0.000)	750	164	39433 (4)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	62123 (-22)	0.25	
29) Chrysene-d12	17.802 (0.008)	1591	240	79253 (-6)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	92712 (-2)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	34215	0.203	81%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	72571	0.277	111%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	64772	0.185	74%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033 (-0.000)	128	153857	0.396	1.63			0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)	11.780 (0.000)	154	699219	2.997	12.33		E	0.003
18) Fluorene	(3)	12.441 (0.000)	166	145751	0.493	2.03			0.003
21) Phenanthrene	(4)	13.674 (-0.000)	178	7177M	0.022	0.09			0.008
22) Anthracene	(4)	13.744 (-0.000)	178	13057	0.043	0.18			0.003
25) Fluoranthene	(4)	15.383 (-0.000)	202	3937	0.011	0.05			0.003
26) Pyrene	(5)	15.734 (-0.000)	202	89162	0.157	0.65			0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

E = Compound concentration above calibration range. M = Compound was manually integrated.

BAC12

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283822

Data file: /chem/HP21585.i/20mar24.b/mc1421.d

Injection date and time: **25-MAR-2020 04:31**

Data file Sample Info. Line: BAC12;1283822;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 243 ml

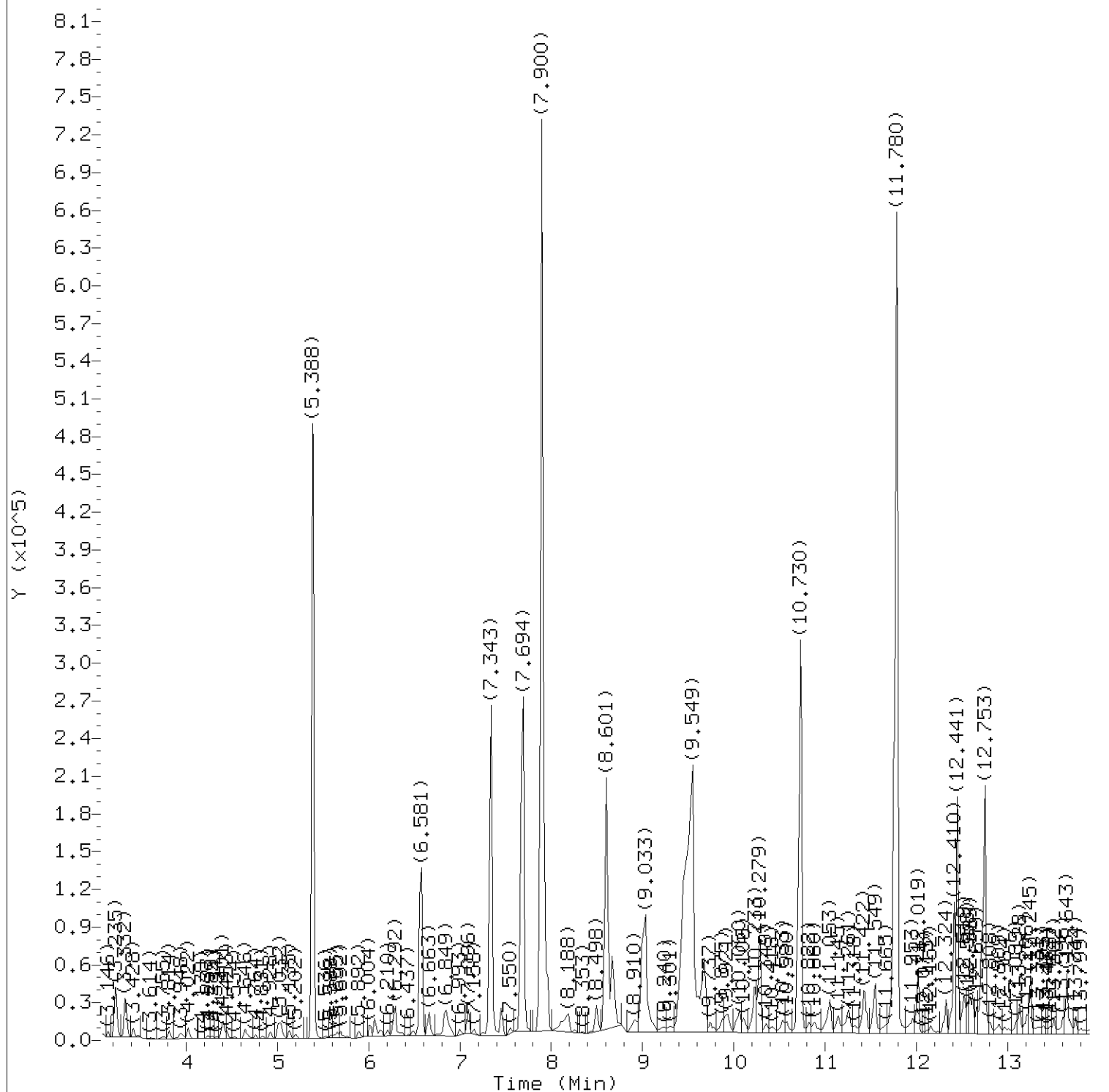
Volume Injected (Vi): 2 ul

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Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1421.d
Injection date and time: 25-MAR-2020 04:31

Instrument ID: HP21585.i
Analyst ID: ceb05247

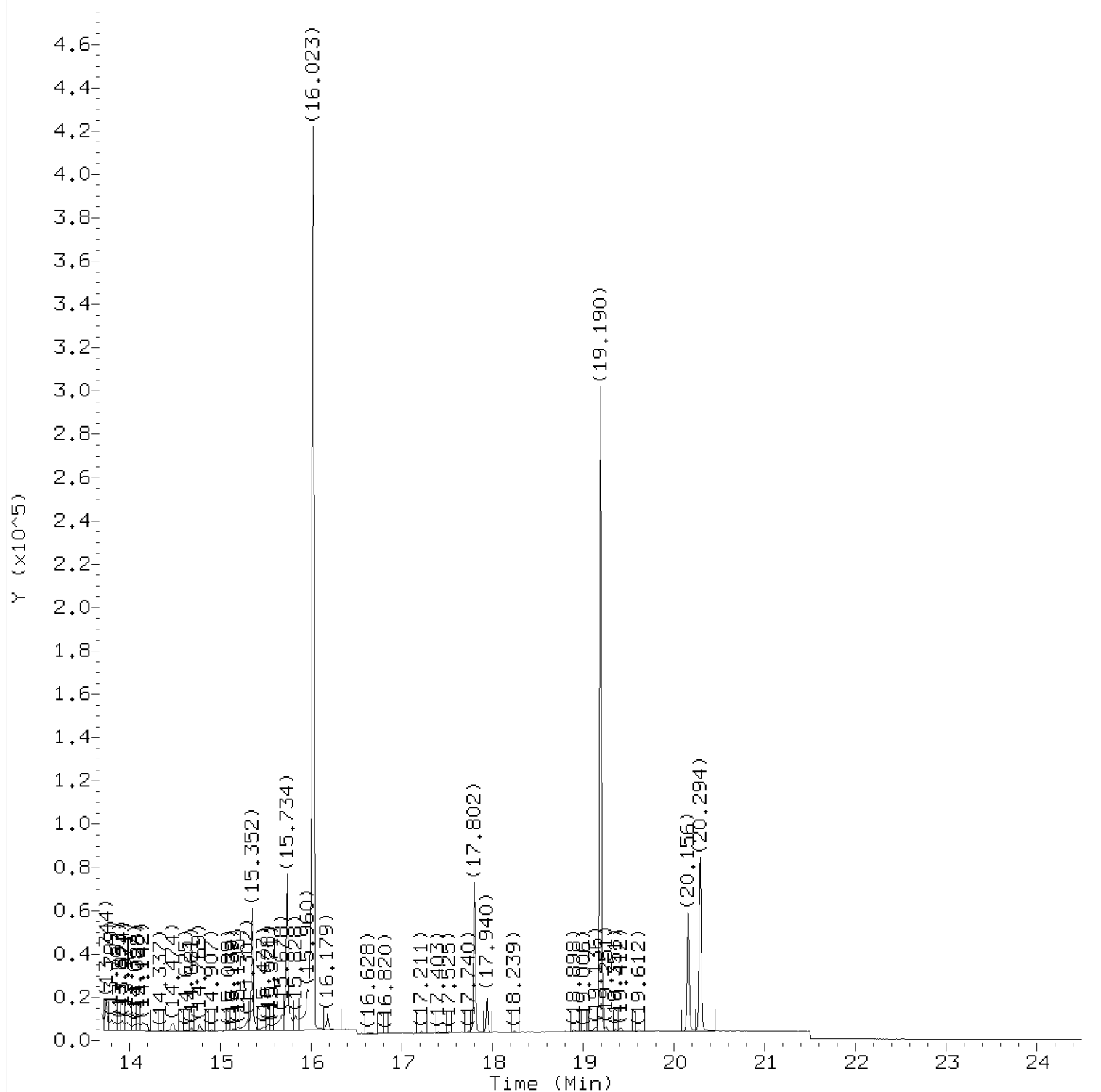
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Sample Name: BAC12

Lab Sample ID: 1283822

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1421.d
Injection date and time: 25-MAR-2020 04:31

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Sample Name: BAC12

Lab Sample ID: 1283822

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1421.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 04:31

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Sample Name: BAC12

Lab Sample ID: 1283822

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	23306	0.250
6) *Naphthalene-d8	(2)	8.992	136	82131	0.250
7) Naphthalene	(2)	9.033	128	153857	0.396
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	34215	0.203
14) *Acenaphthene-d10	(3)	11.746	164	39433	0.250
15) Acenaphthene	(3)	11.780	154	699219	2.997
18) Fluorene	(3)	12.441	166	145751	0.493
20) *Phenanthrene-d10	(4)	13.643	188	62123	0.250
21) Phenanthrene	(4)	13.674	178	7177M	0.022
22) Anthracene	(4)	13.744	178	13057	0.043
24) \$Fluoranthene-d10	(4)	15.352	212	72571	0.277
25) Fluoranthene	(4)	15.383	202	3937	0.011
26) Pyrene	(5)	15.734	202	89162	0.157
29) *Chrysene-d12	(5)	17.802	240	79253	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	64772	0.185
38) *Perylene-d12	(6)	20.294	264	92712	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

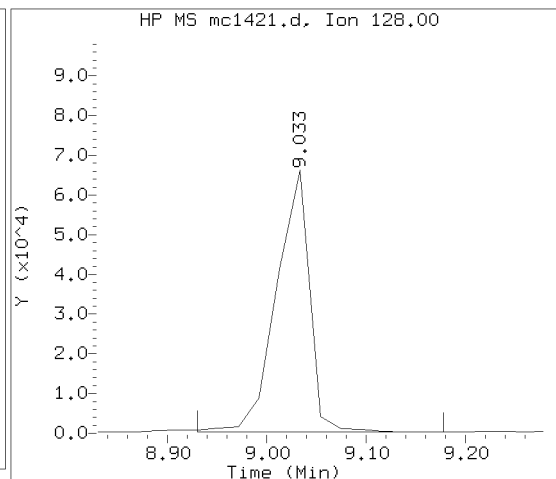
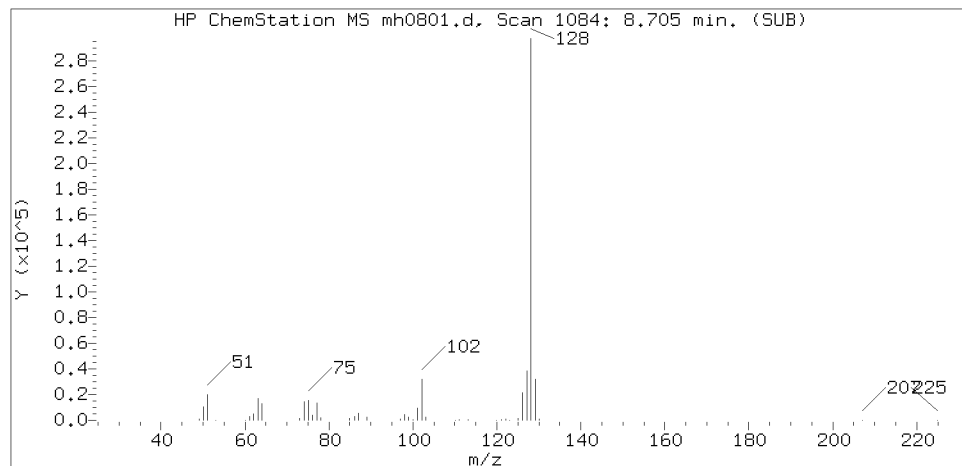
\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

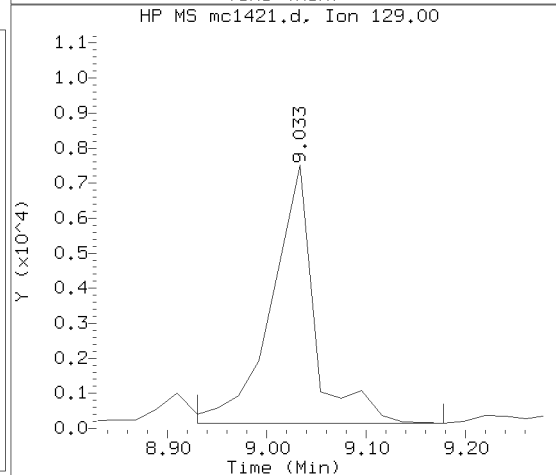
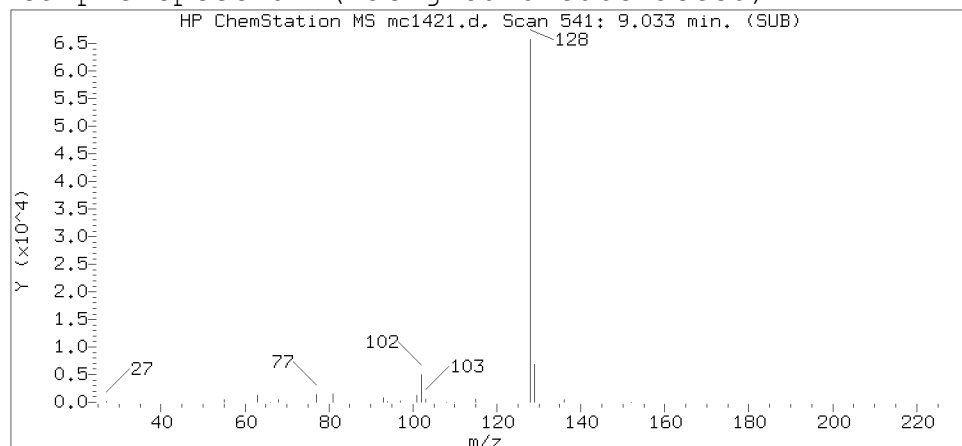
on 03/25/2020 at 05:47.

Target 3.5 esignature user ID: jmg00346

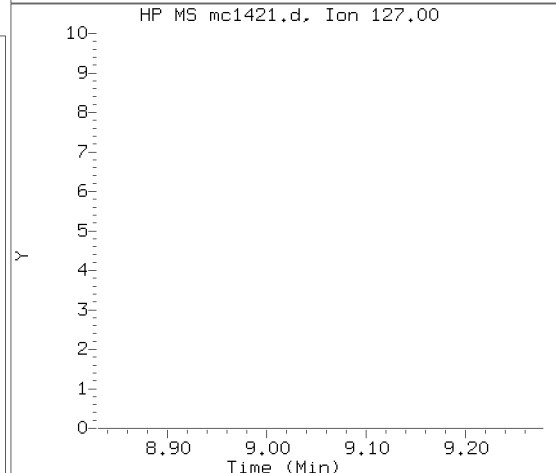
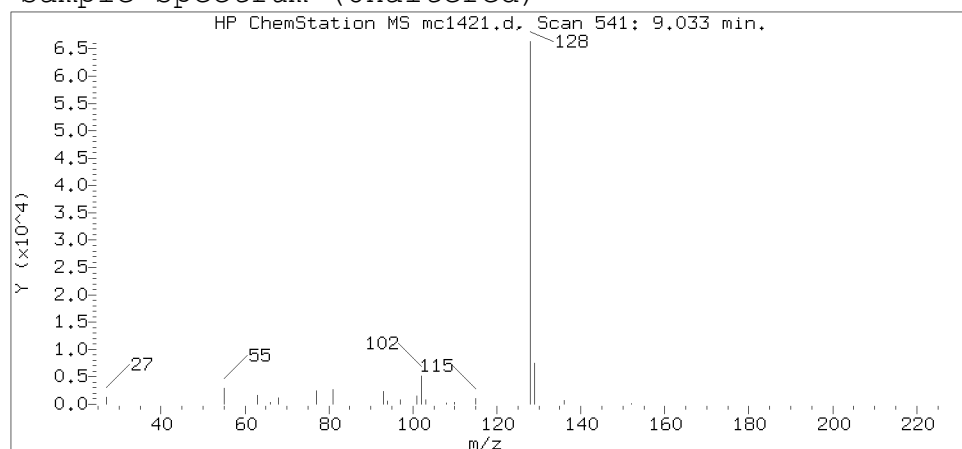
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1421.d
Injection date and time: 25-MAR-2020 04:31

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Sample Name: BAC12

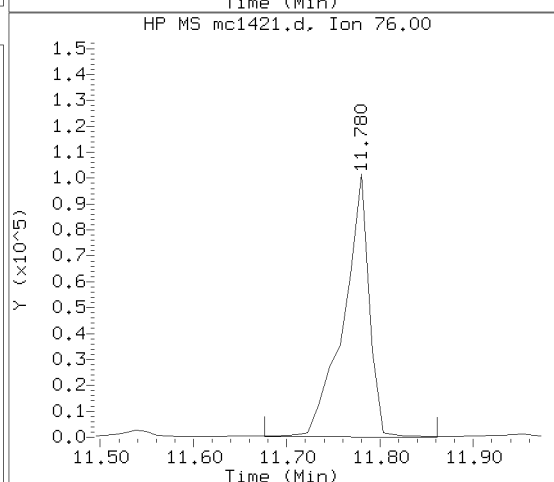
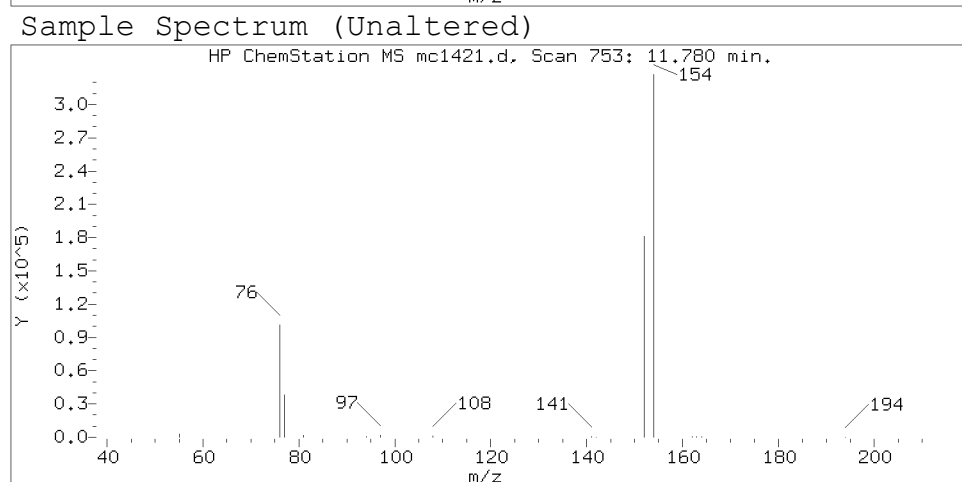
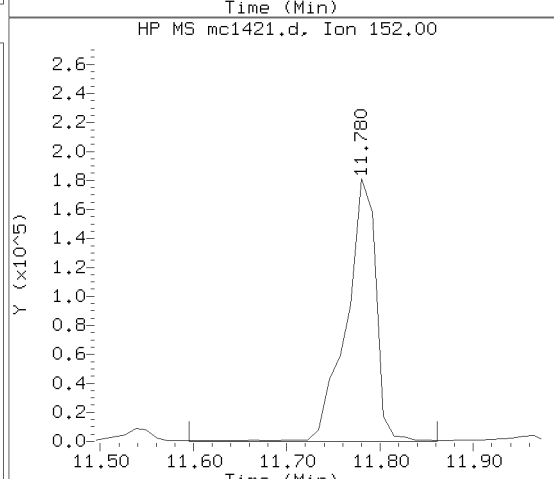
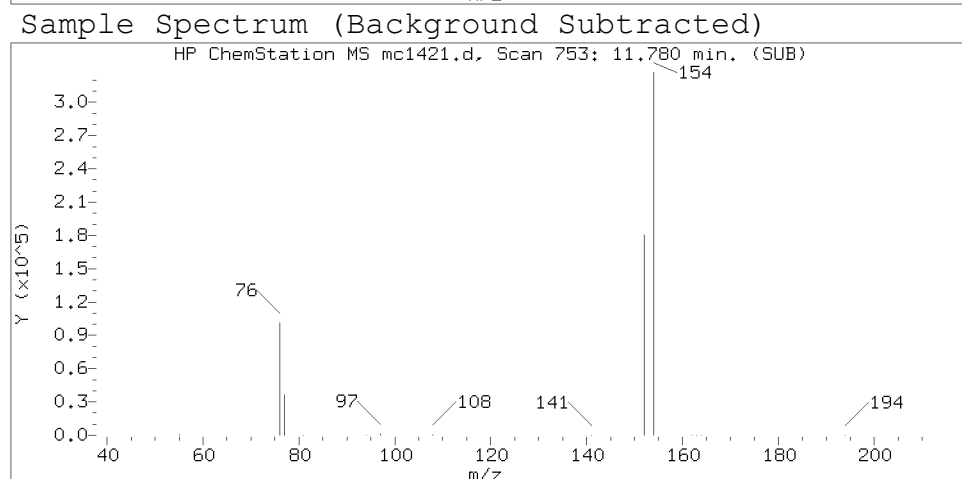
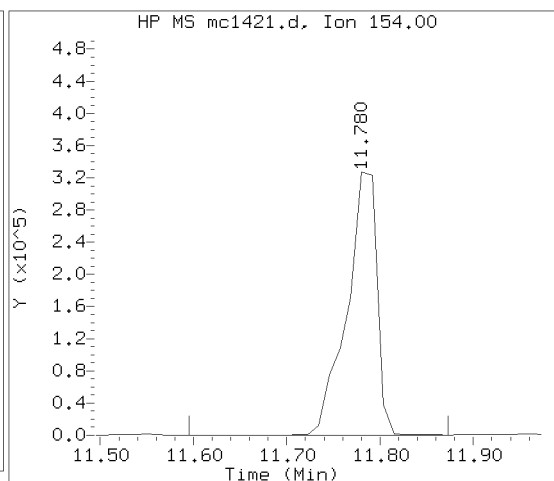
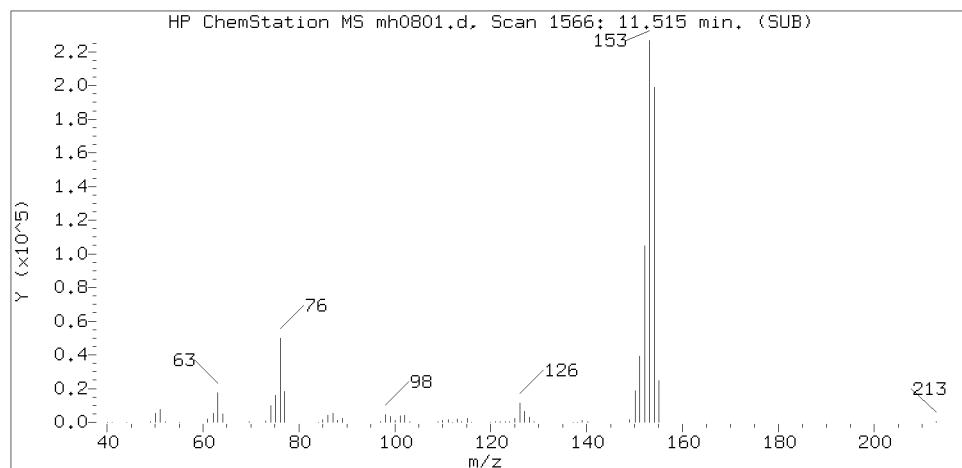
Lab Sample ID: 1283822

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 541
Retention Time (minutes) : 9.033
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 153857
On-column Amount (ng/ul) : 0.3959

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346
Page 404 of 609

Reference Standard Spectrum for Acenaphthene



Data File: /chem/HP21585.i/20mar24.b/mc1421.d
Injection date and time: 25-MAR-2020 04:31

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

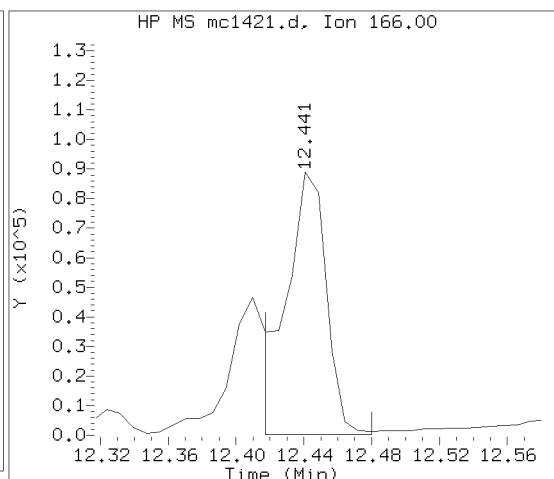
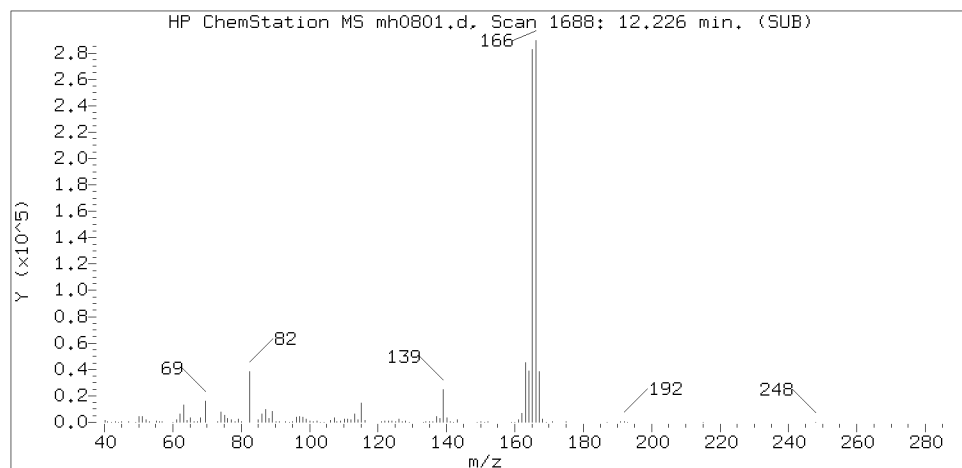
Sample Name: BAC12

Lab Sample ID: 1283822

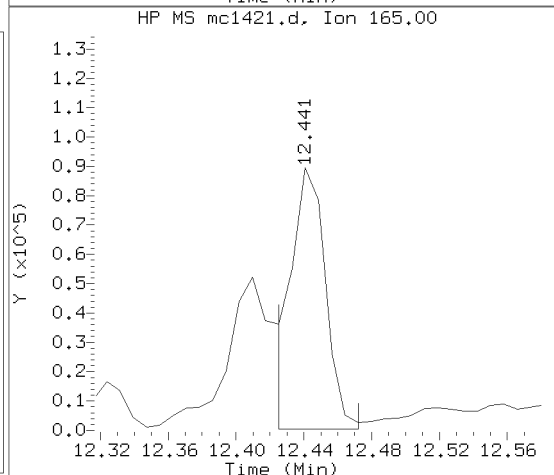
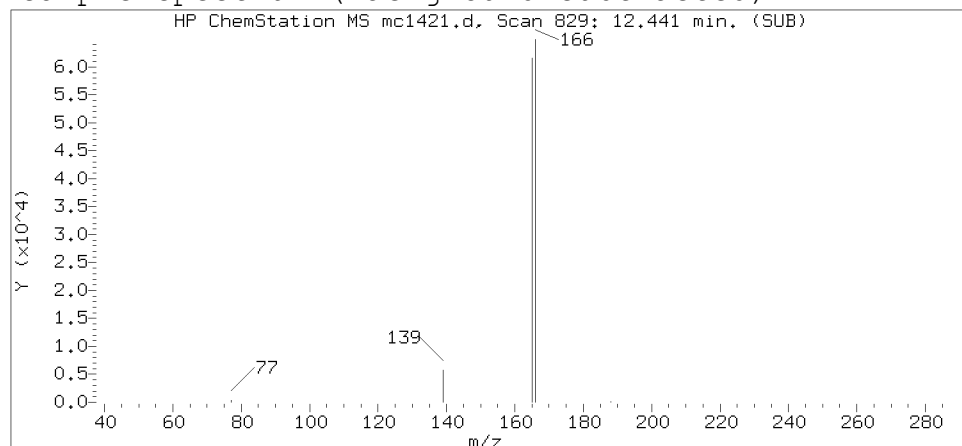
Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 753
Retention Time (minutes) : 11.780
Relative Retention Time : 0.00098
Quant Ion : 154.00
Area (flag) : 699219
On-column Amount (ng/ul) : 2.9970

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Target 3.5 esignature user jmg00346

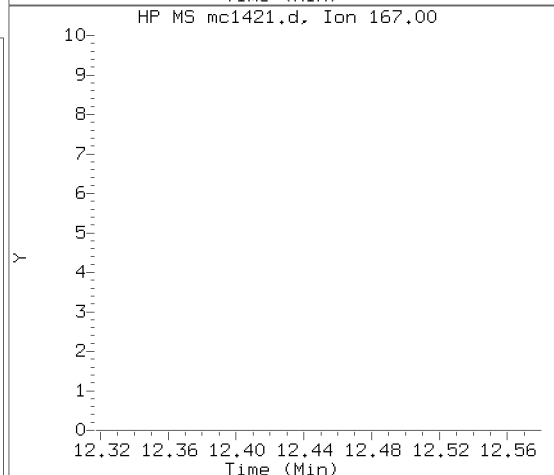
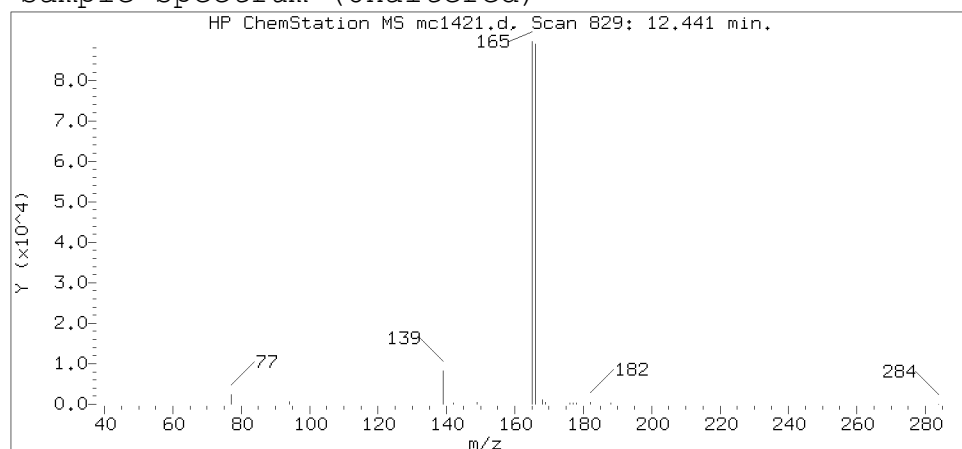
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1421.d
Injection date and time: 25-MAR-2020 04:31

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

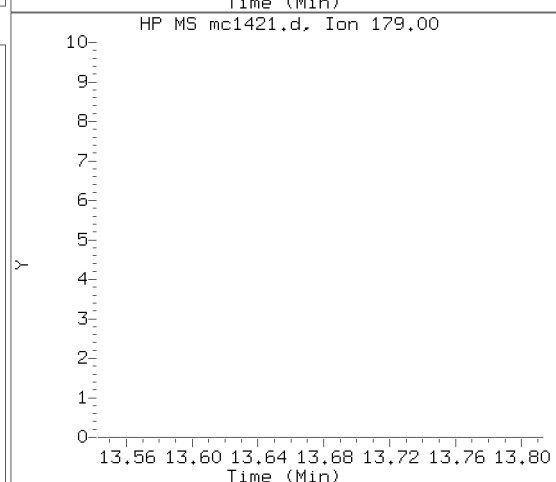
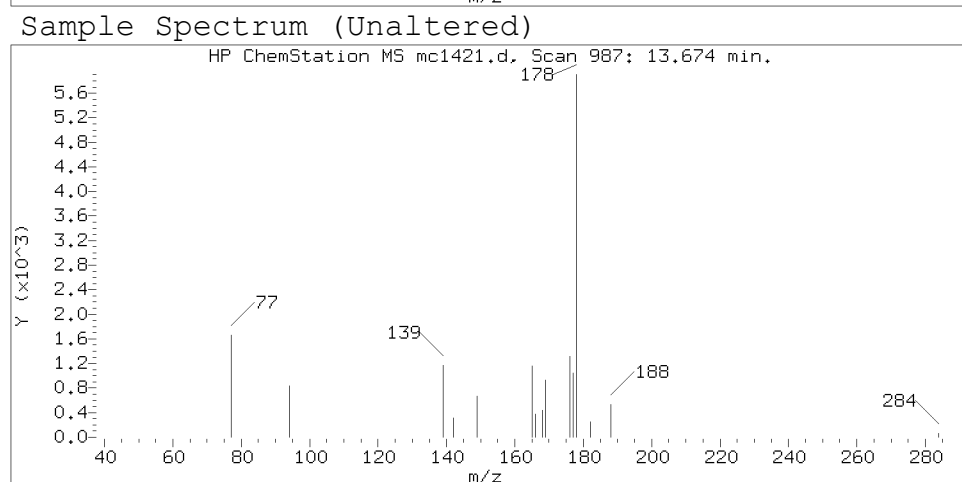
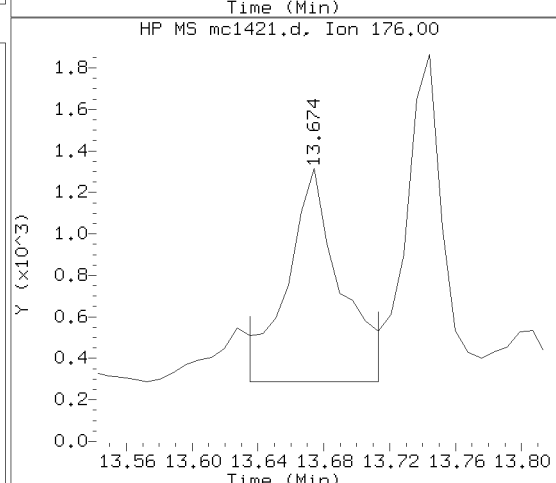
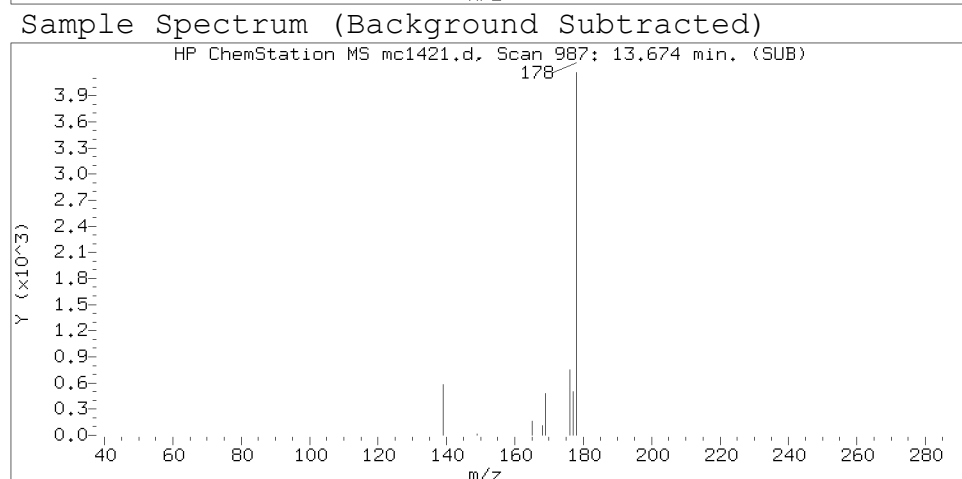
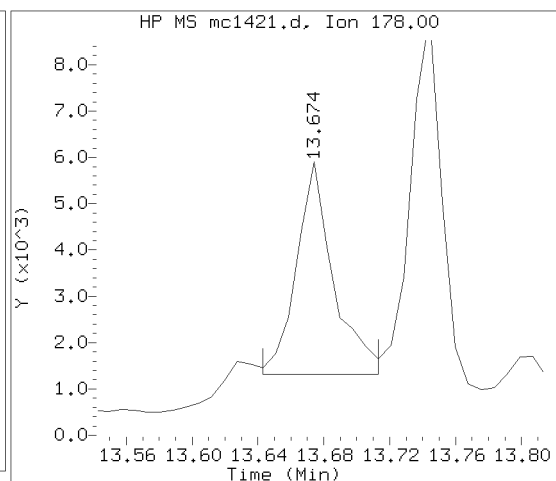
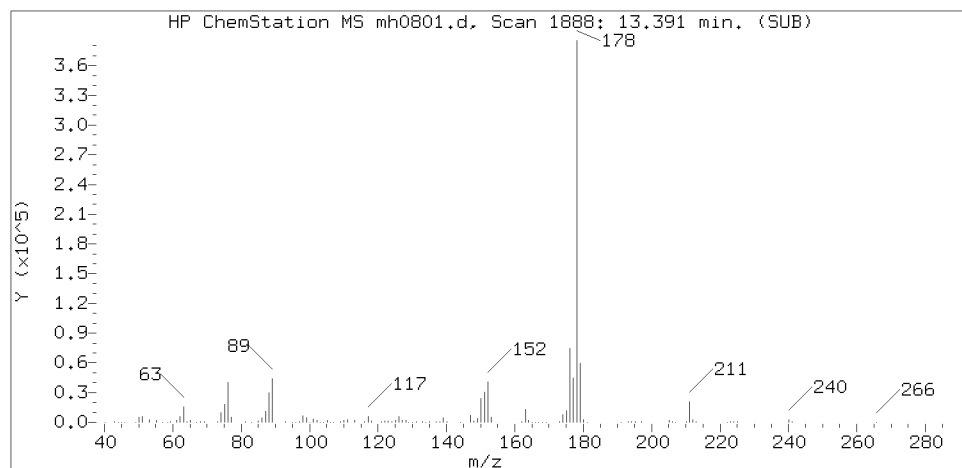
Sample Name: BAC12

Lab Sample ID: 1283822

Compound Number : 18
Compound Name : Fluorene
Scan Number : 829
Retention Time (minutes) : 12.441
Relative Retention Time : 0.00066
Quant Ion : 166.00
Area (flag) : 145751
On-column Amount (ng/ul) : 0.4930

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

Reference Standard Spectrum for Phenanthrene



Data File: /chem/HP21585.i/20mar24.b/mc1421.d
Injection date and time: 25-MAR-2020 04:31

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

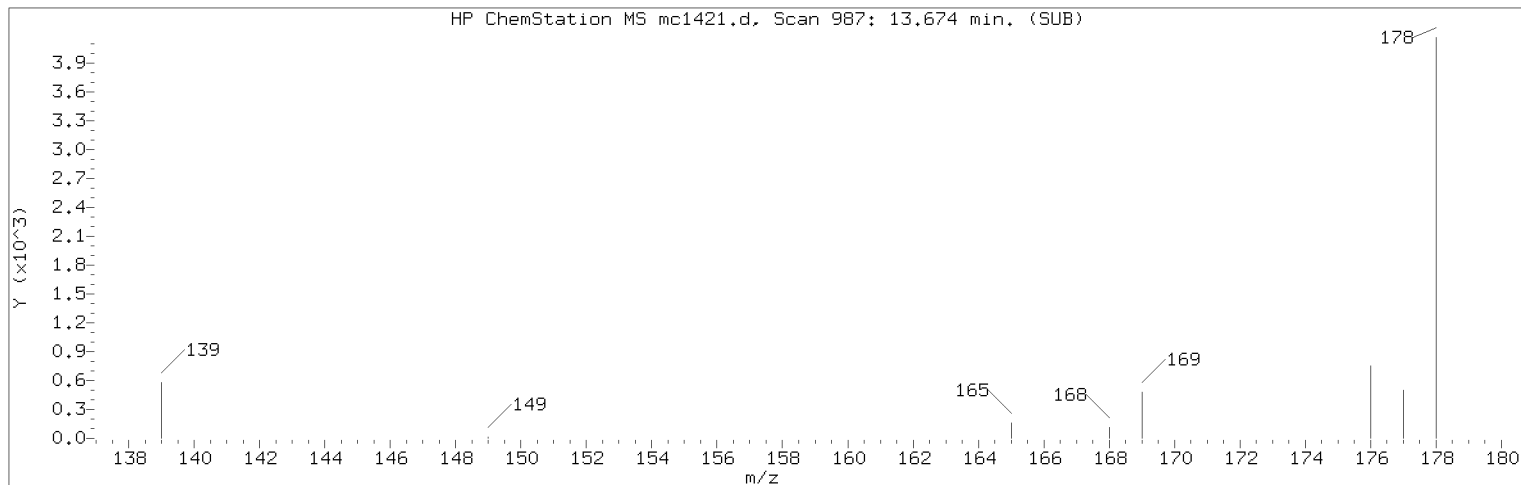
Sample Name: BAC12

Lab Sample ID: 1283822

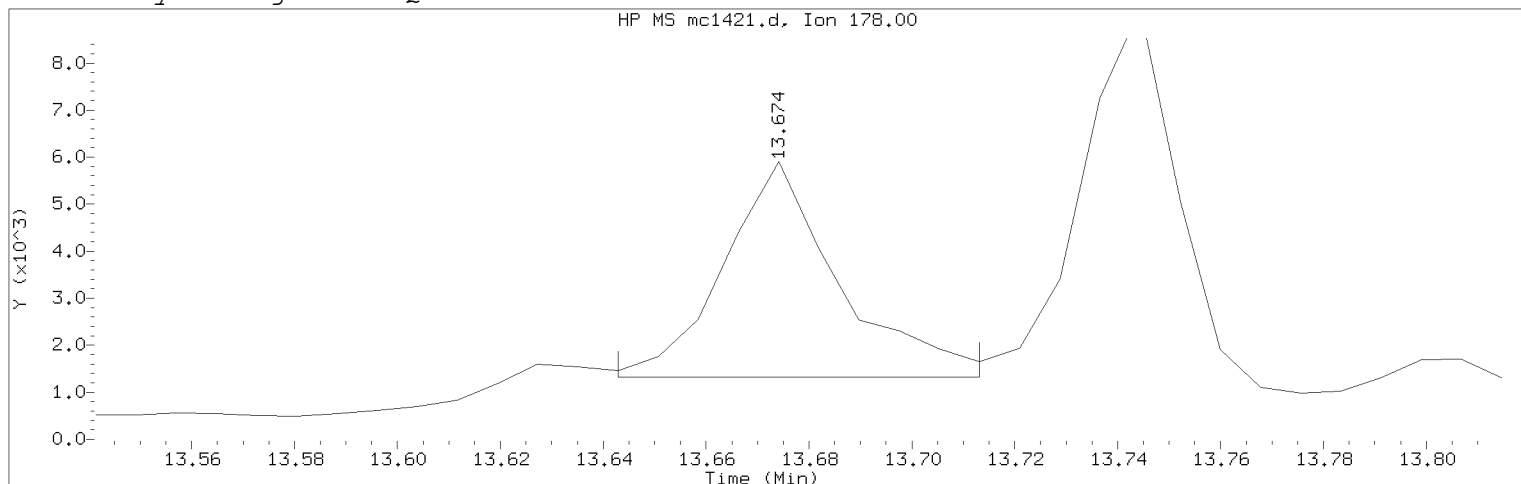
Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 987
Retention Time (minutes) : 13.674
Relative Retention Time : -0.00057
Quant Ion : 178.00
Area (flag) : 7177M
On-column Amount (ng/ul) : 0.0223

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1421.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 04:31

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Sample Name: BAC12

Lab Sample ID: 1283822

Compound Number	: 21	
Compound Name	: Phenanthrene	
Scan Number	: 987	
Retention Time (minutes)	: 13.674	
Quant Ion	: 178.00	
Area (flag)	: 7177M	
On-column Amount (ng/ul)	: 0.0223	
Integration start scan	: 982	Integration stop scan: 991
Y at integration start	: 1323	Y at integration end: 1323

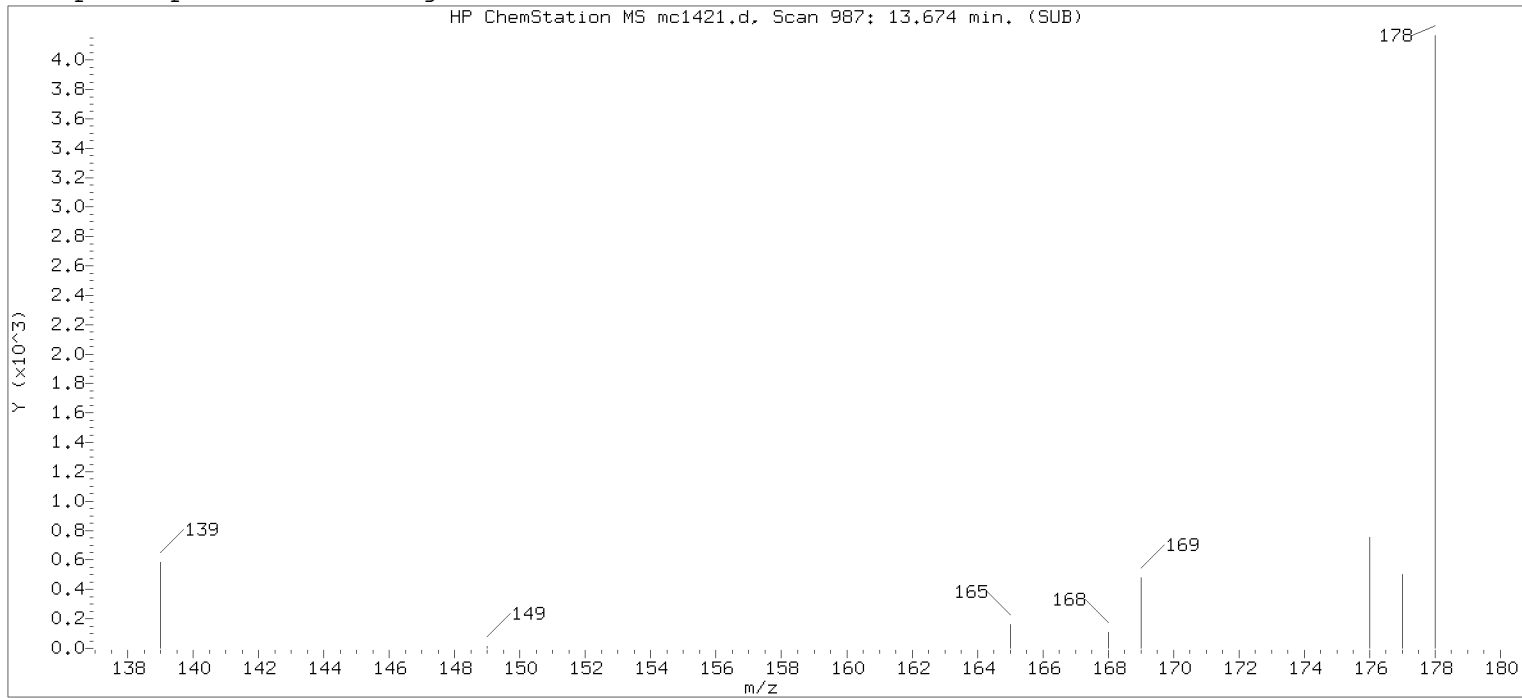
Reason for manual integration: improper integration

Analyst responsible for change:

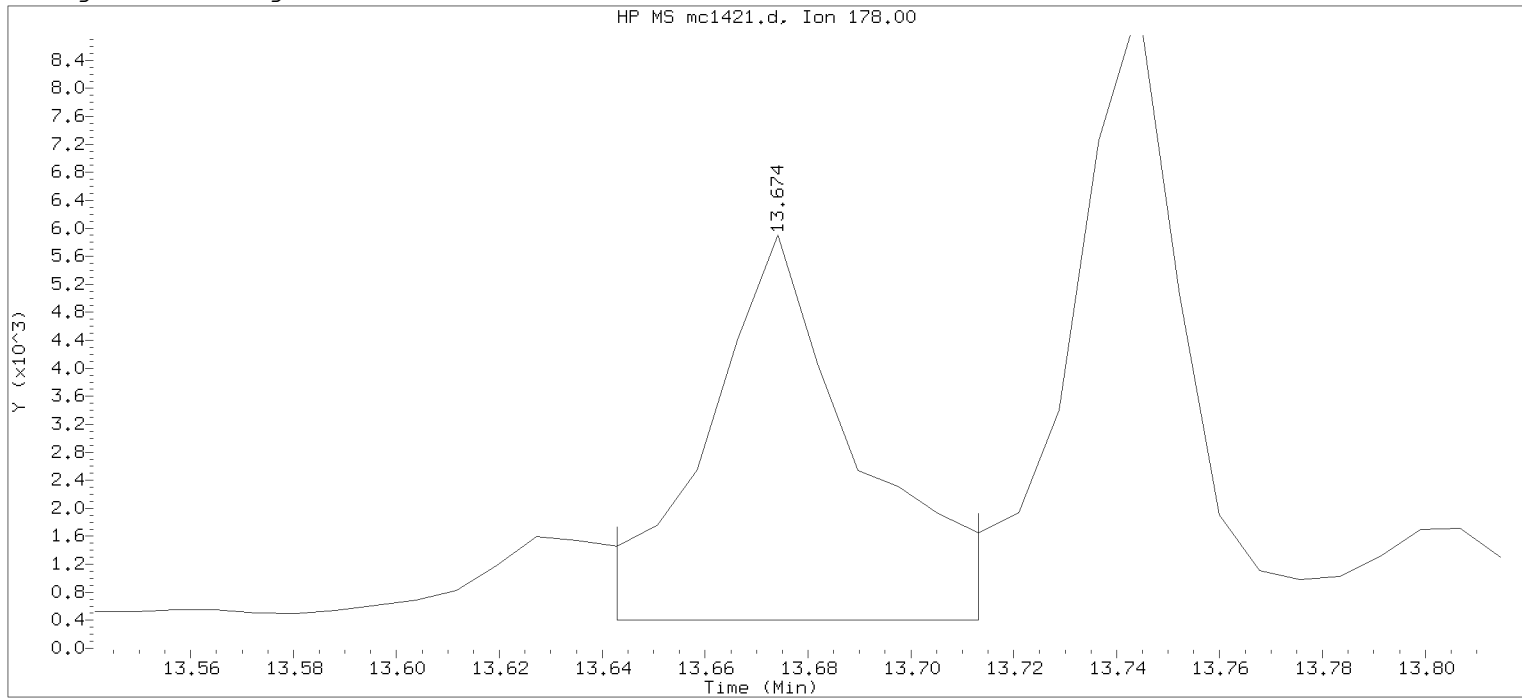
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:47.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1421.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 04:31

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:06 Unknown

Sample Name: BAC12

Lab Sample ID: 1283822

Compound Number : 21

Compound Name : Phenanthrene

Scan Number : 987

Retention Time (minutes) : 13.674

Quant Ion : 178.00

Area : 10960

On-column Amount (ng/ul) : 0.0340

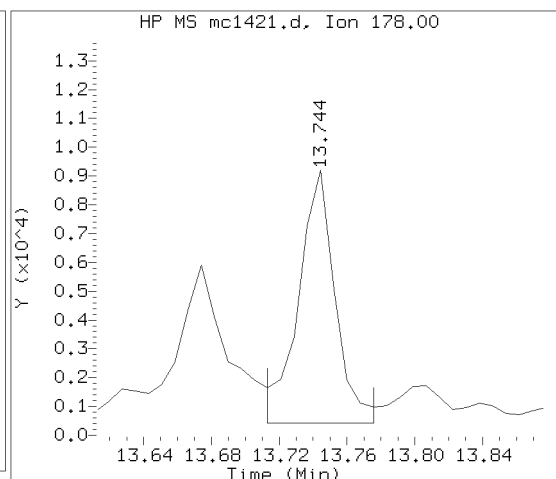
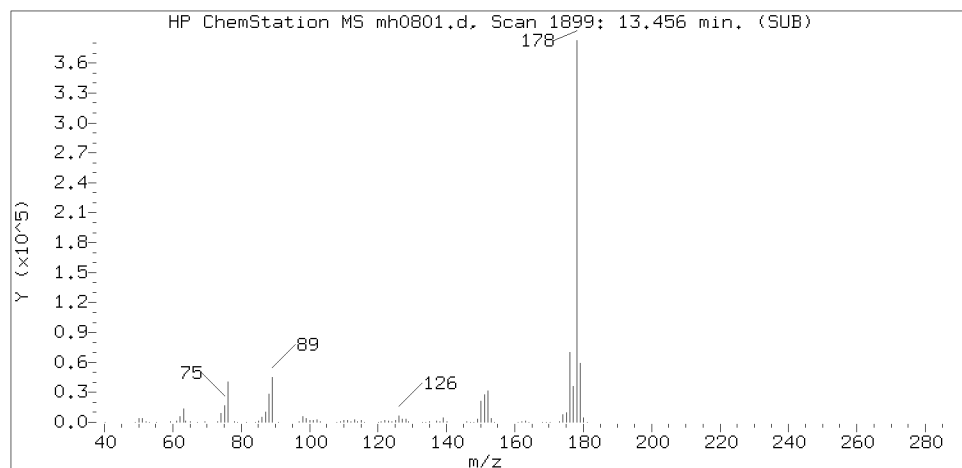
Integration start scan : 982 Integration stop scan: 991

Y at integration start : 400 Y at integration end: 400

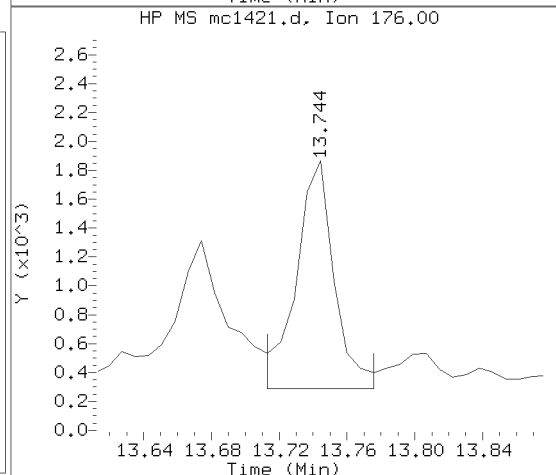
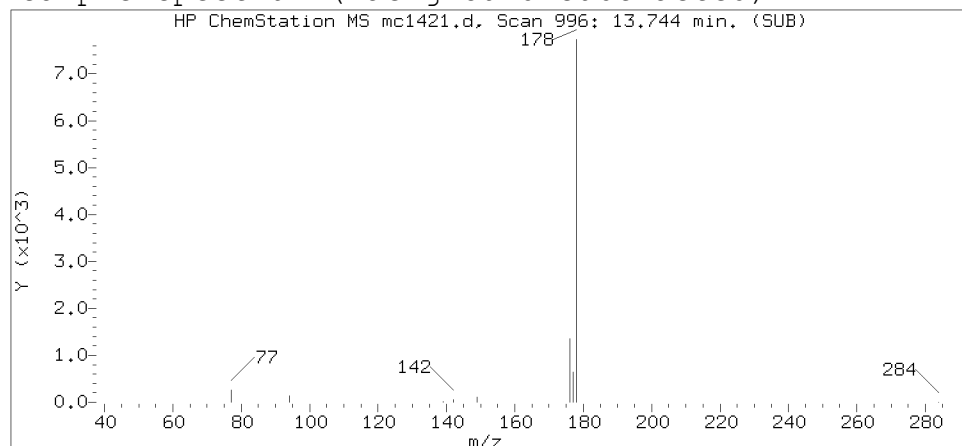
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user GPV67j Page 409 of 609

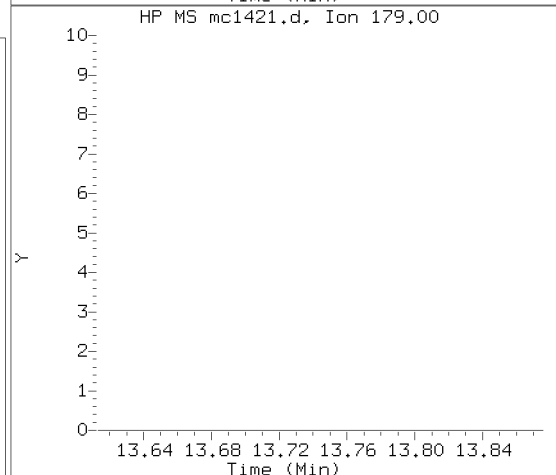
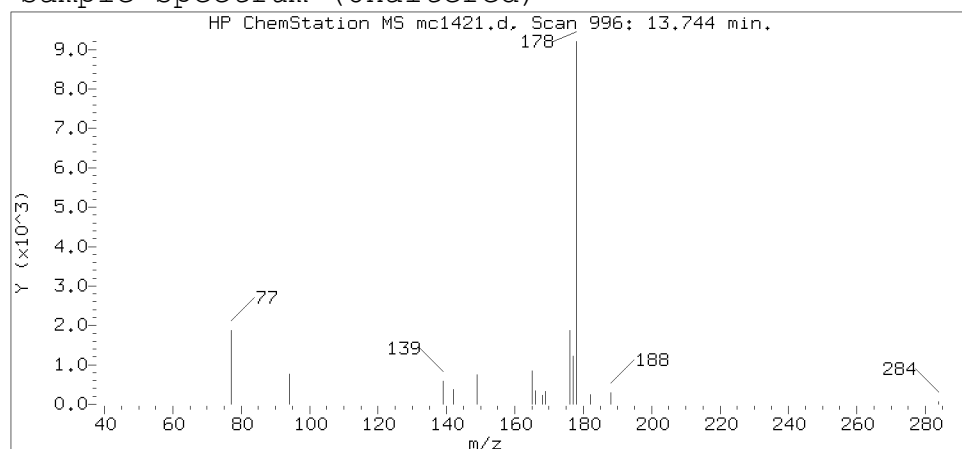
Reference Standard Spectrum for Anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1421.d
Injection date and time: 25-MAR-2020 04:31

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Sample Name: BAC12

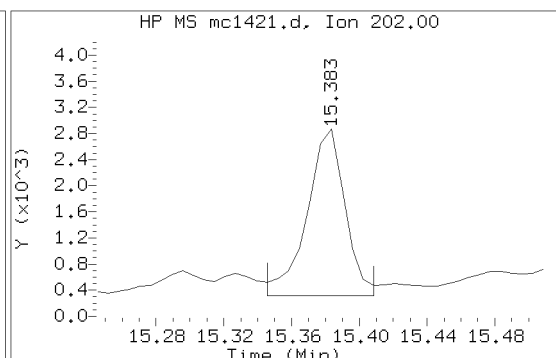
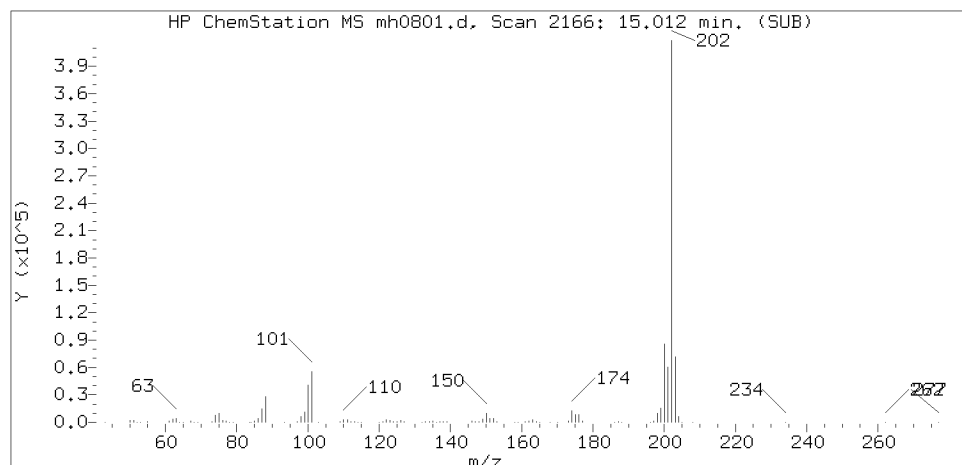
Lab Sample ID: 1283822

Compound Number : 22
Compound Name : Anthracene
Scan Number : 996
Retention Time (minutes) : 13.744
Relative Retention Time : -0.00058
Quant Ion : 178.00
Area (flag) : 13057
On-column Amount (ng/ul) : 0.0432

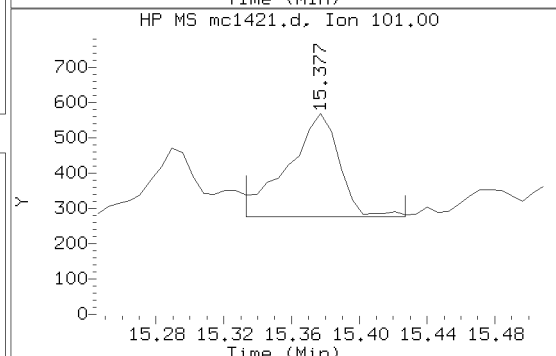
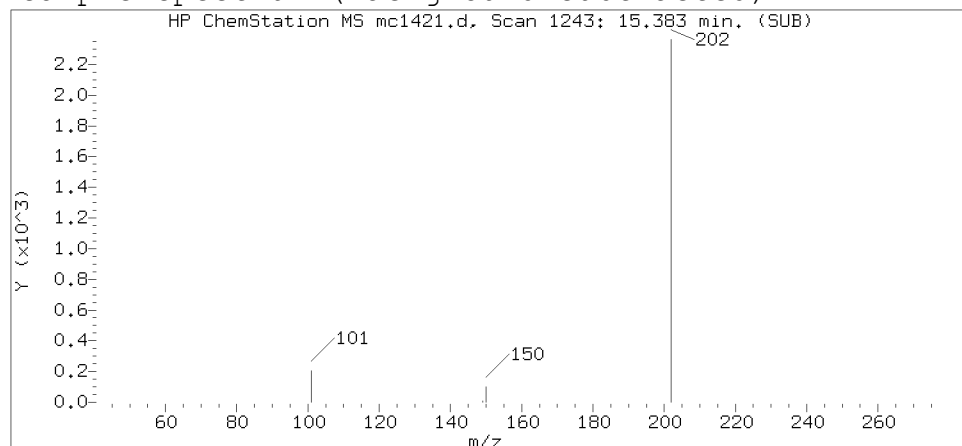
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346
Page 410 of 609

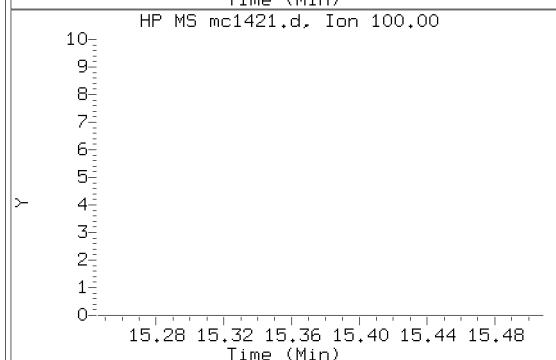
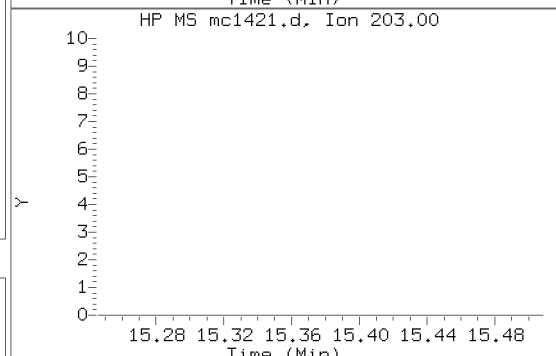
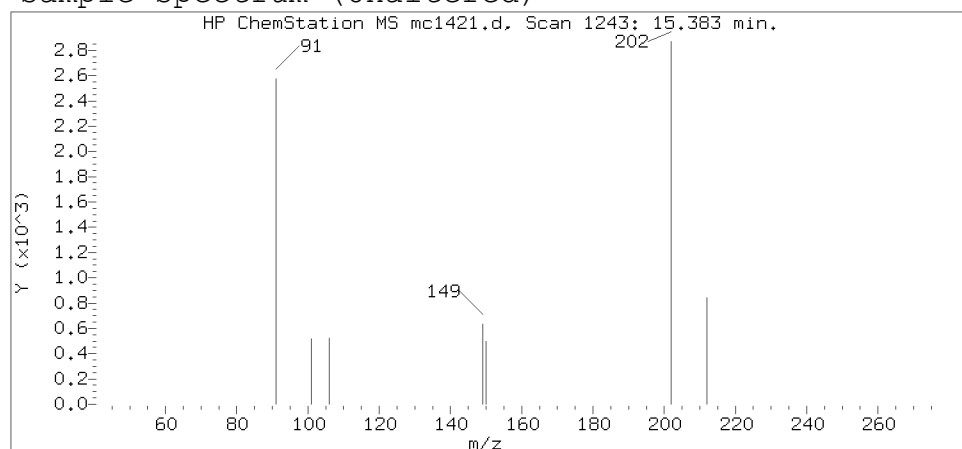
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1421.d
Injection date and time: 25-MAR-2020 04:31

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Sample Name: BAC12

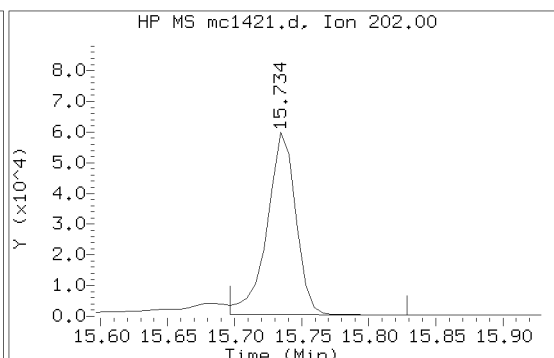
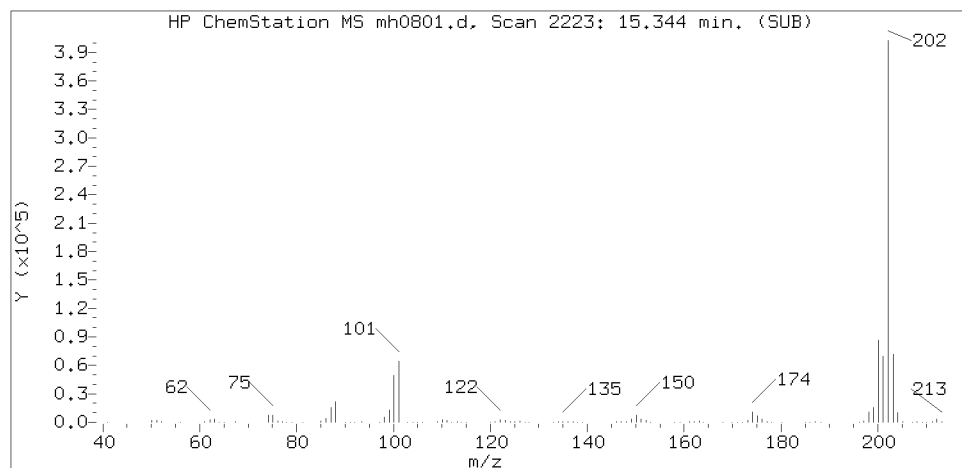
Lab Sample ID: 1283822

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1243
Retention Time (minutes) : 15.383
Relative Retention Time : -0.00064
Quant Ion : 202.00
Area (flag) : 3937
On-column Amount (ng/ul) : 0.0111

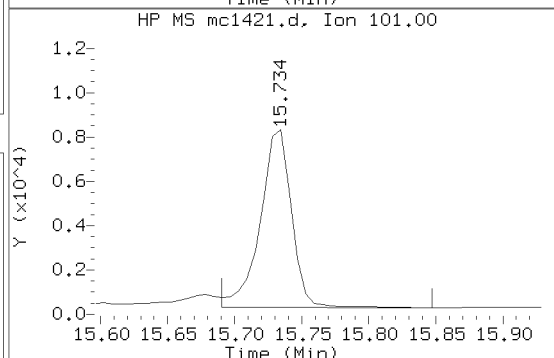
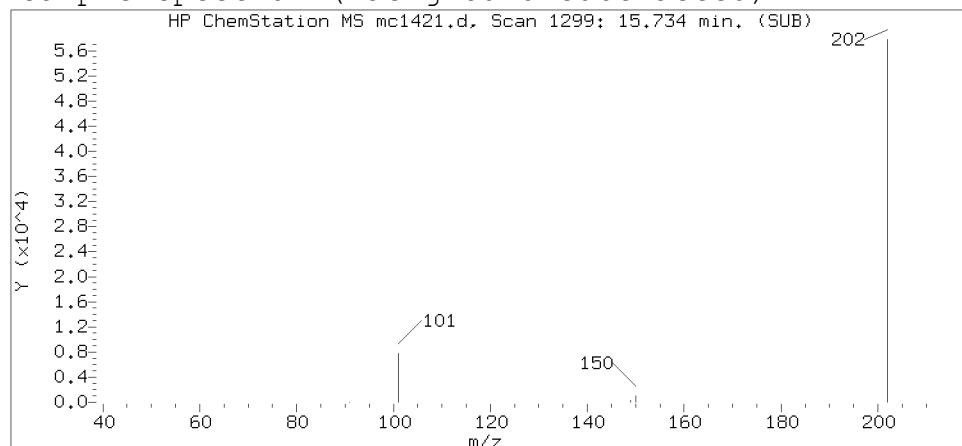
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:47.

Target 3.5 esignature user jmg00346 Page 411 of 609

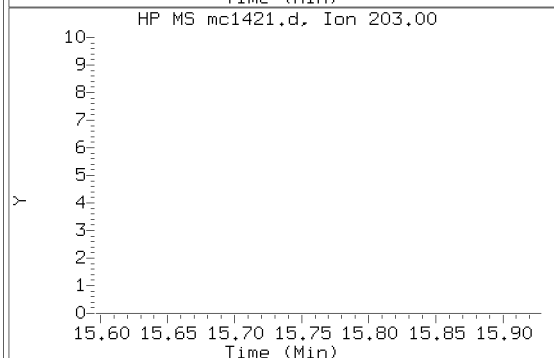
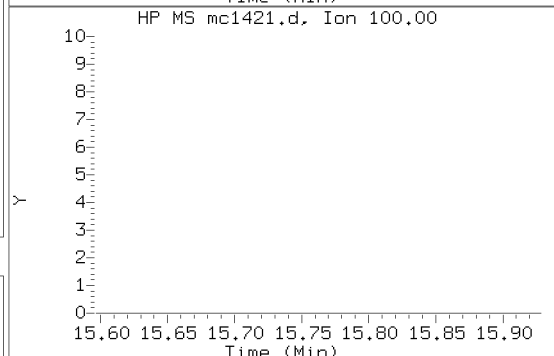
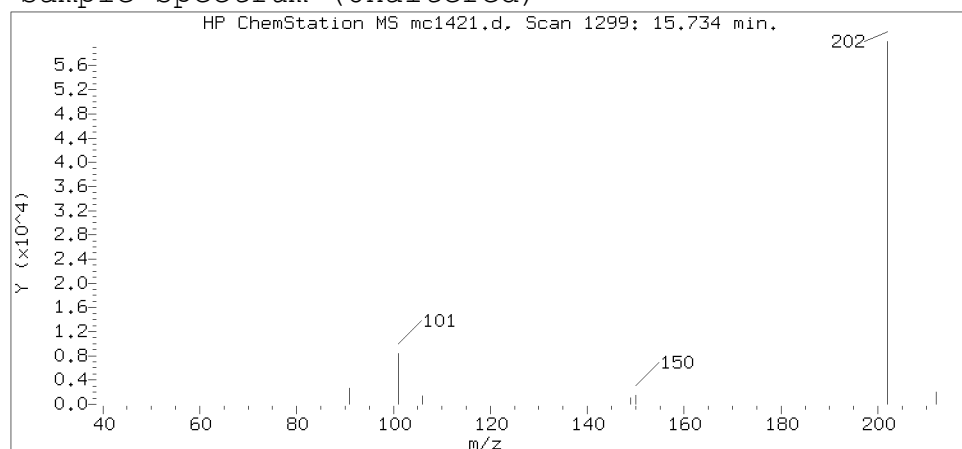
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1421.d
Injection date and time: 25-MAR-2020 04:31

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:10 jmg00346

Sample Name: BAC12

Lab Sample ID: 1283822

Compound Number : 26
Compound Name : Pyrene
Scan Number : 1299
Retention Time (minutes) : 15.734
Relative Retention Time : -0.00003
Quant Ion : 202.00
Area (flag) : 89162
On-column Amount (ng/ul) : 0.1571

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC12DL

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283822

Sample wt/vol: 243 (g/mL)ML Lab File ID: mc1453.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		2	D
208-96-8-----	Acenaphthylene	0.02		U
83-32-9-----	Acenaphthene	12		D
86-73-7-----	Fluorene	2		D
85-01-8-----	Phenanthrene	0.07		J D
120-12-7-----	Anthracene	0.1		D
206-44-0-----	Fluoranthene	0.03		J D
129-00-0-----	Pyrene	0.7		D
56-55-3-----	Benzo (a) anthracene	0.02		U
218-01-9-----	Chrysene	0.02		U
205-99-2-----	Benzo (b) fluoranthene	0.02		U
207-08-9-----	Benzo (k) fluoranthene	0.02		U
50-32-8-----	Benzo (a) pyrene	0.02		U
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.02		U
53-70-3-----	Dibenz (a,h) anthracene	0.04		U
191-24-2-----	Benzo (g,h,i) perylene	0.02		U

FORM I SV-1

BAC12DL Lancaster Laboratories, Inc. 1283822DL

Analysis Summary for GC/MS Semivolatiles

Data file: /chem/HP21585.i/20mar25.b/mc1453.d Injection date and time: 25-MAR-2020 07:32
 Data file Sample Info. Line: BAC12DL;1283822DL;1;0;SAMPLE;;;T2 Instrument ID: HP21585.i Batch: 20083WAF
 Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
 Calibration date and time (Last Method Edit): 25-MAR-2020 07:03
 Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar25.b/mc1451.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 2 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
 Sample Volume (Vo): 243 ml Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	23694 (6)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	84056 (14)	0.25	
14) Acenaphthene-d10	11.746 (0.000)	750	164	39355 (2)	0.25	
20) Phenanthrene-d10	13.643 (0.000)	983	188	82919 (4)	0.25	
29) Chrysene-d12	17.801 (0.000)	1591	240	74861 (-7)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	95132 (3)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	16766	0.097	78%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	35095	0.100	80%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.156 (0.000)	264	29643	0.083	66%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033 (0.000)	128	79135	0.199	1.64			0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)	11.780 (0.000)	154	348081	1.495	12.30			0.003
18) Fluorene	(3)	12.441 (0.000)	166	78467	0.266	2.19			0.003
21) Phenanthrene	(4)	13.674 (-0.000)	178	3688M	0.009	0.07			0.008
22) Anthracene	(4)	13.744 (-0.000)	178	6546	0.016	0.13			0.003
25) Fluoranthene	(4)	15.383 (-0.000)	202	1999	0.004	0.03			0.003
26) Pyrene	(5)	15.734 (0.000)	202	42927	0.080	0.66			0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

M = Compound was manually integrated.

BAC12DL

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283822DL

Data file: /chem/HP21585.i/20mar25.b/mc1453.d

Injection date and time: **25-MAR-2020 07:32**

Data file Sample Info. Line: BAC12DL;1283822DL;1;0;SAMPLE;;;T2

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 25-MAR-2020 07:03

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar25.b/mc1451.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 2

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 243 ml

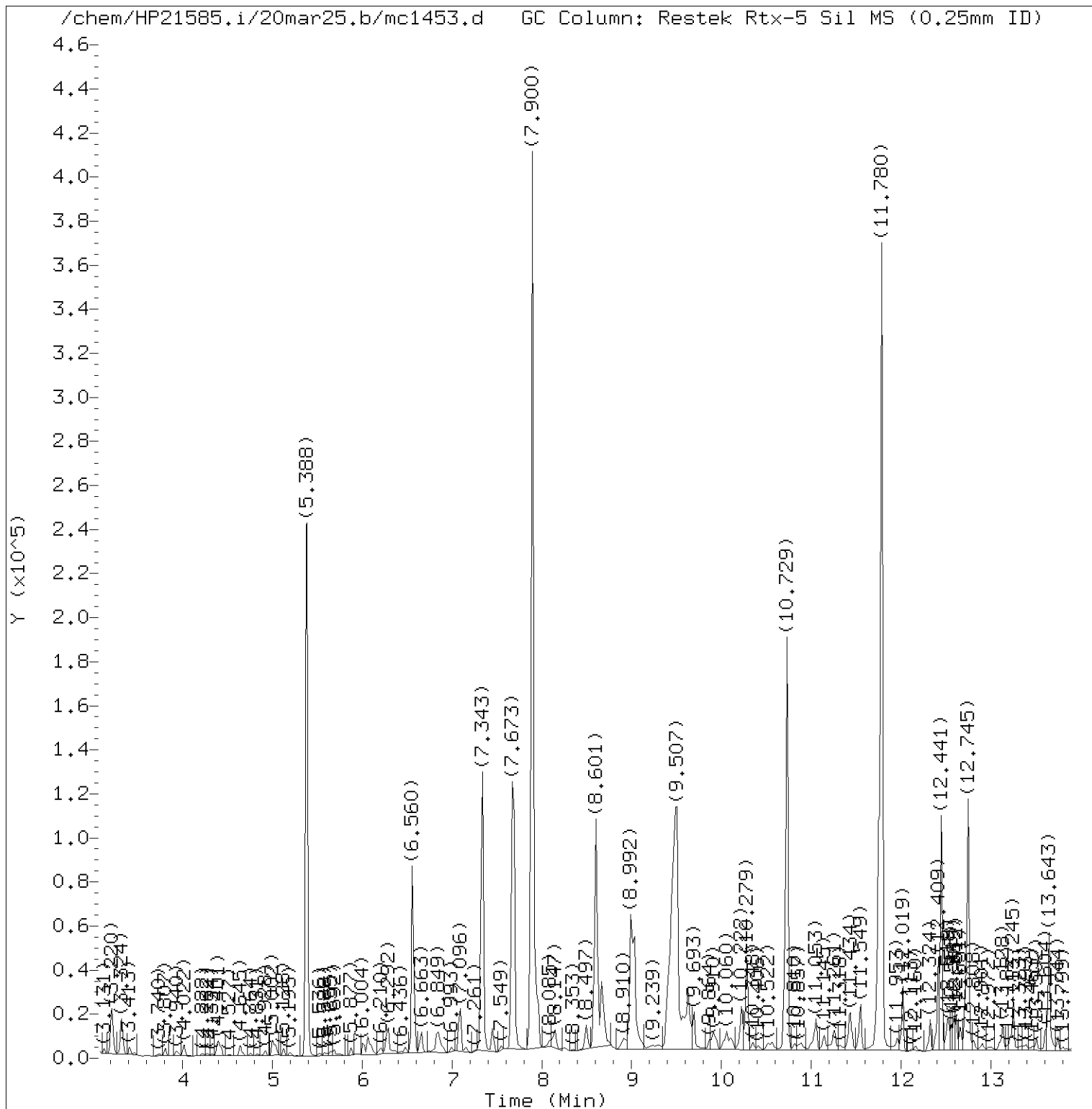
Volume Injected (Vi): 2 ul

THIS SPACE
WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1453.d
Injection date and time: 25-MAR-2020 07:32

Instrument ID: HP21585.i
Analyst ID: ceb05247

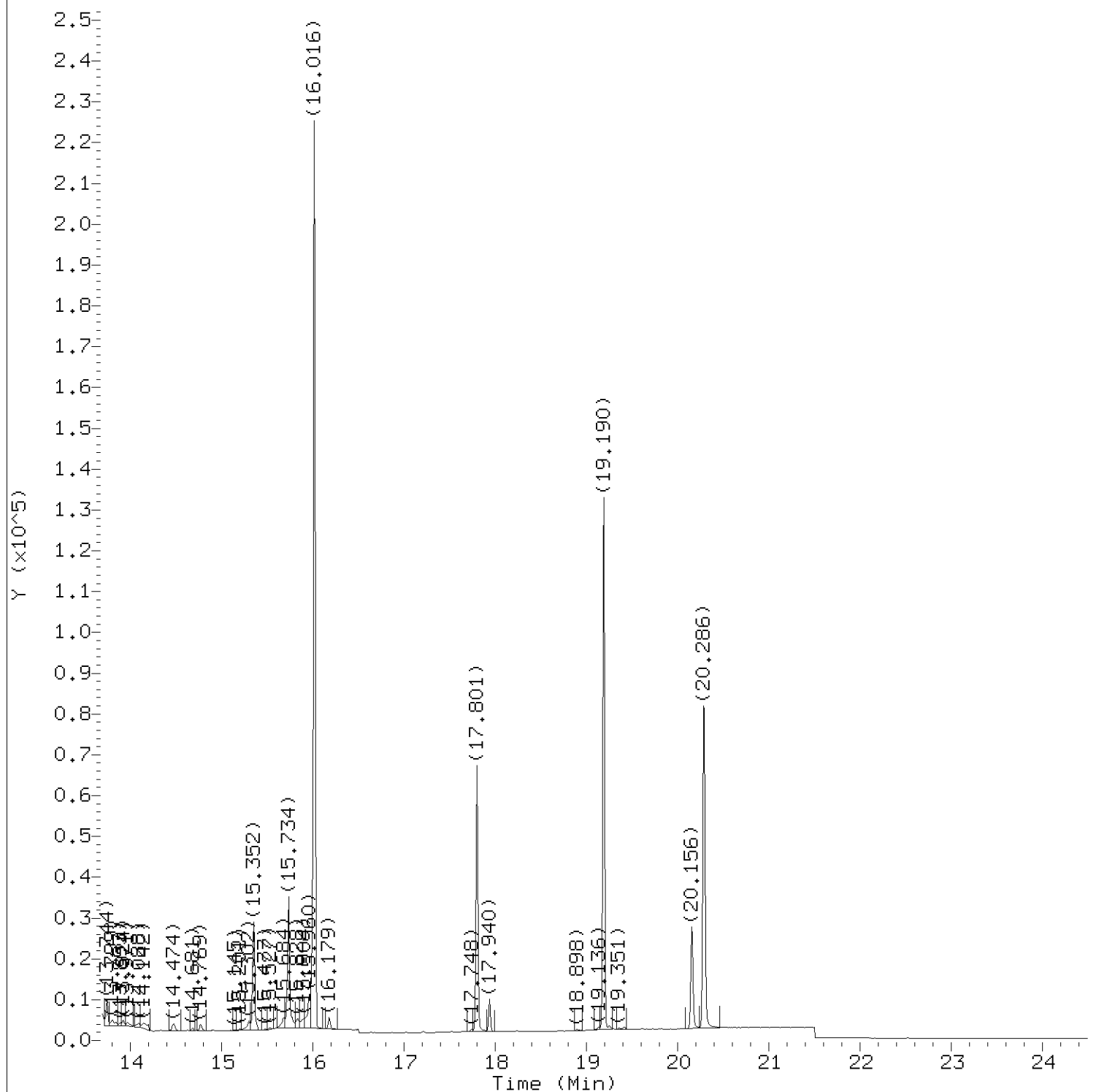
Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

Sample Name: BAC12DL

Lab Sample ID: 1283822DL

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 08:29.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1453.d
Injection date and time: 25-MAR-2020 07:32

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m
Calibration date and time: 25-MAR-2020 07:03

Sublist used: 21331

Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

Sample Name: BAC12DL

Lab Sample ID: 1283822DL

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 08:29.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1453.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 07:32

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 07:03

Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

Sample Name: BAC12DL

Lab Sample ID: 1283822DL

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	23694	0.250
6) *Naphthalene-d8	(2)	8.992	136	84056	0.250
7) Naphthalene	(2)	9.033	128	79135	0.199
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	16766	0.097
14) *Acenaphthene-d10	(3)	11.746	164	39355	0.250
15) Acenaphthene	(3)	11.780	154	348081	1.495
18) Fluorene	(3)	12.441	166	78467	0.266
20) *Phenanthrene-d10	(4)	13.643	188	82919	0.250
21) Phenanthrene	(4)	13.674	178	3688M	0.009
22) Anthracene	(4)	13.744	178	6546	0.016
24) \$Fluoranthene-d10	(4)	15.352	212	35095	0.100
25) Fluoranthene	(4)	15.383	202	1999	0.004
26) Pyrene	(5)	15.734	202	42927	0.080
29) *Chrysene-d12	(5)	17.801	240	74861	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.156	264	29643	0.083
38) *Perylene-d12	(6)	20.294	264	95132	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

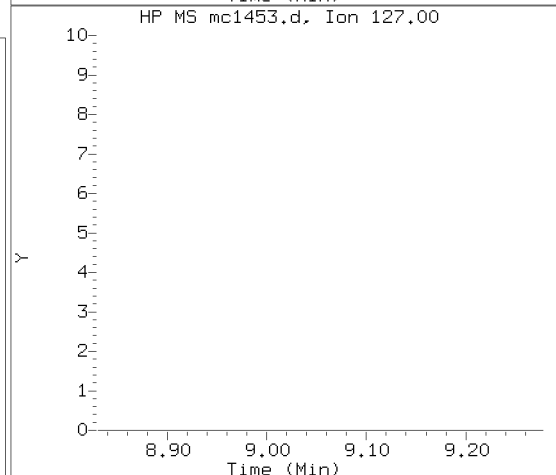
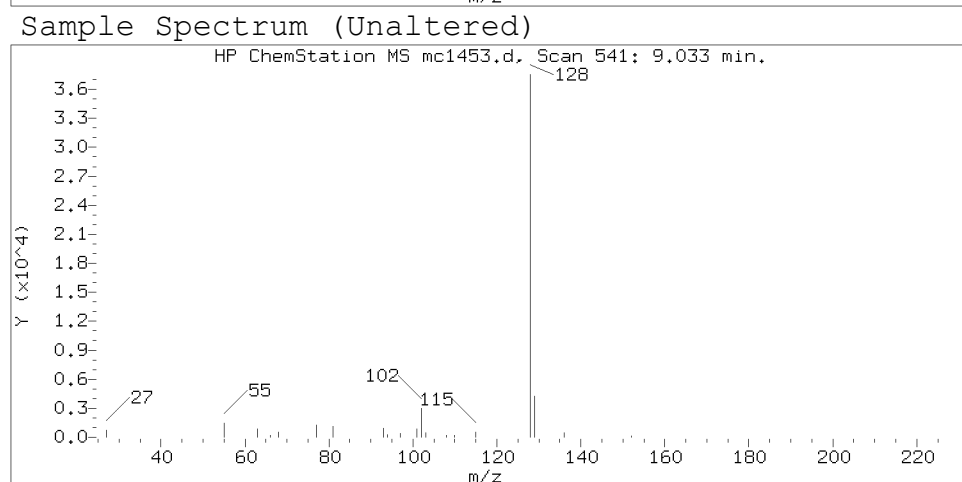
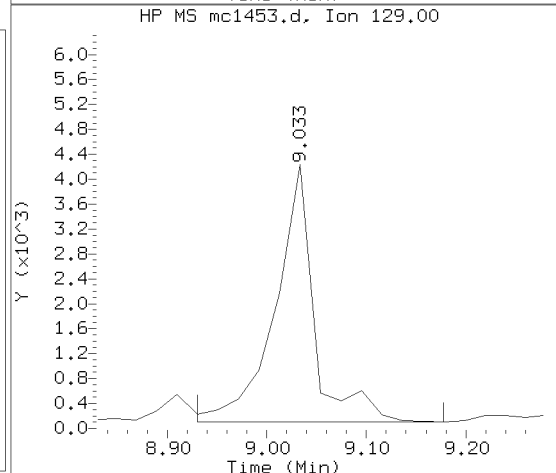
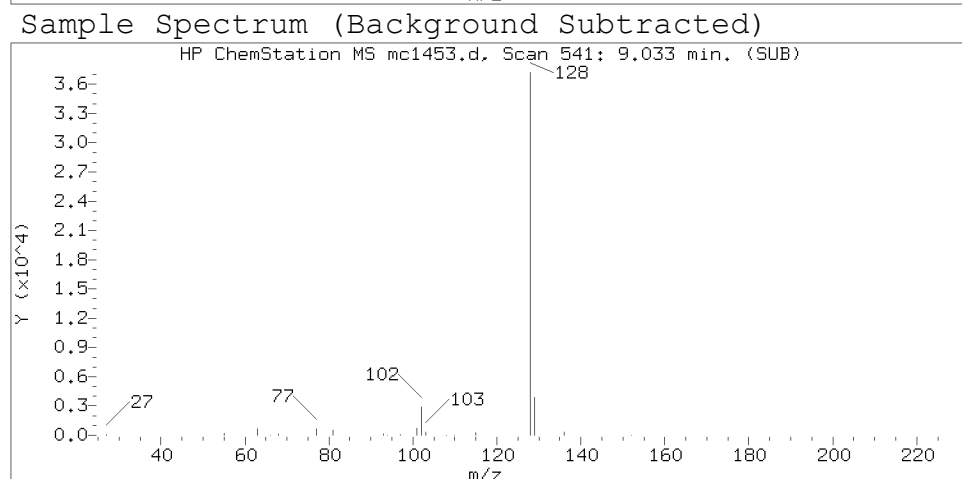
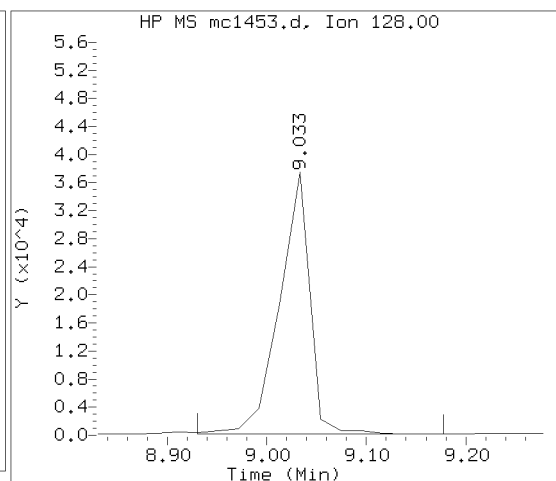
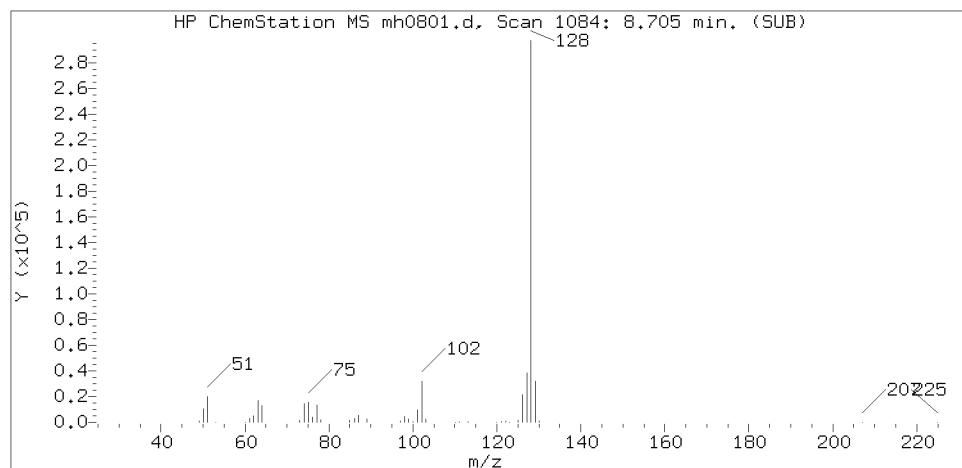
on 03/25/2020 at 08:29.

Target 3.5 esignature user ID: jmg00346

GPY67 Page 418 of 609

page 1 of 1

Reference Standard Spectrum for Naphthalene



Data File: /chem/HP21585.i/20mar25.b/mc1453.d
Injection date and time: 25-MAR-2020 07:32

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

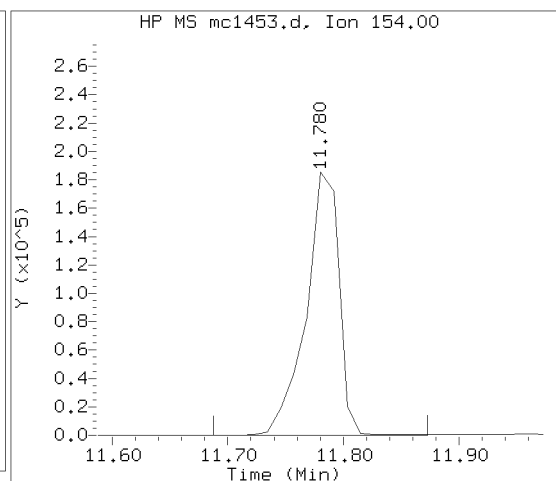
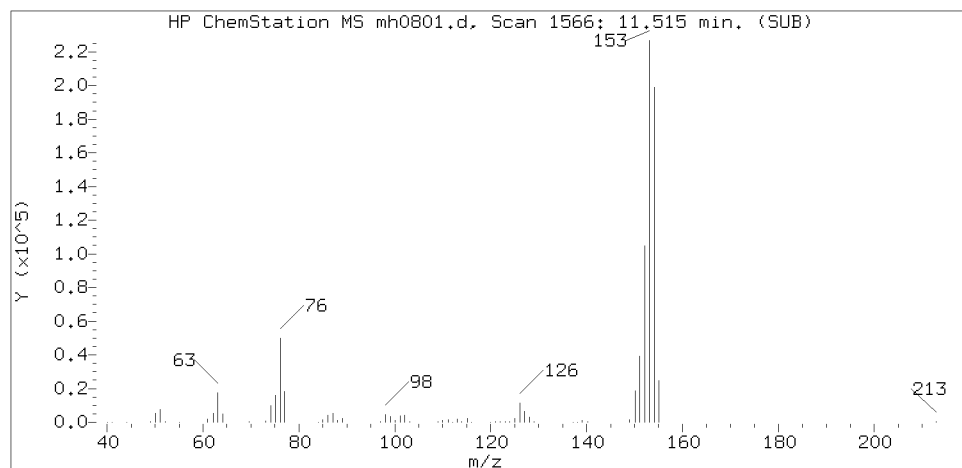
Sample Name: BAC12DL

Lab Sample ID: 1283822DL

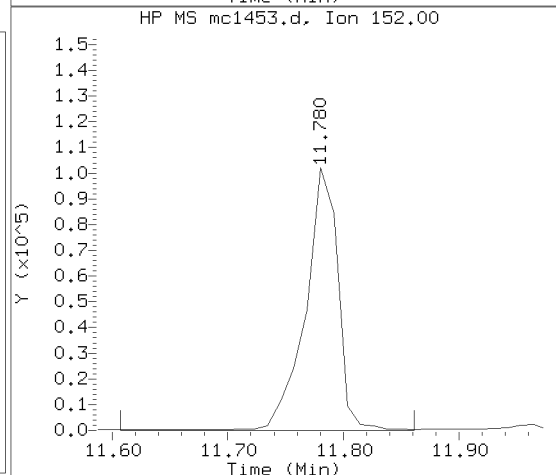
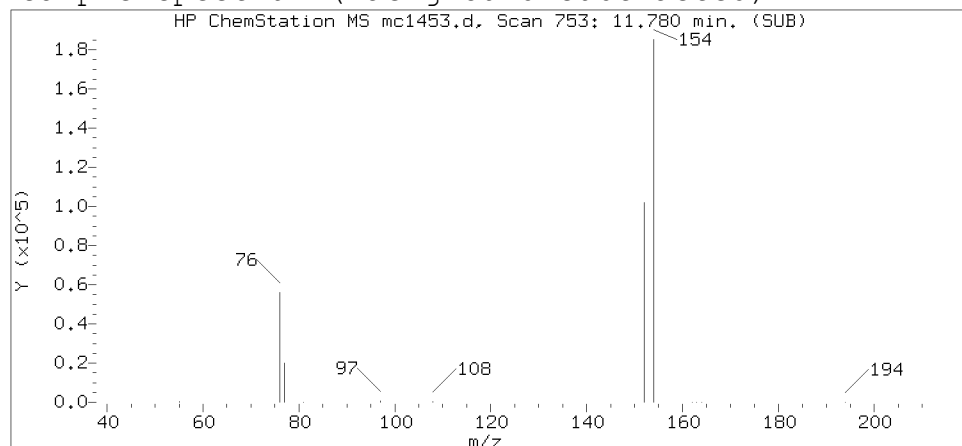
Compound Number : 7
Compound Name : Naphthalene
Scan Number : 541
Retention Time (minutes) : 9.033
Relative Retention Time : 0.00000
Quant Ion : 128.00
Area (flag) : 79135
On-column Amount (ng/ul) : 0.1990

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Target 3.5 esignature user jmg00346

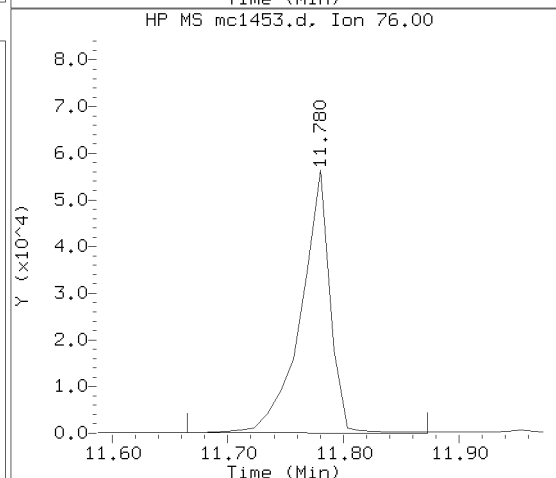
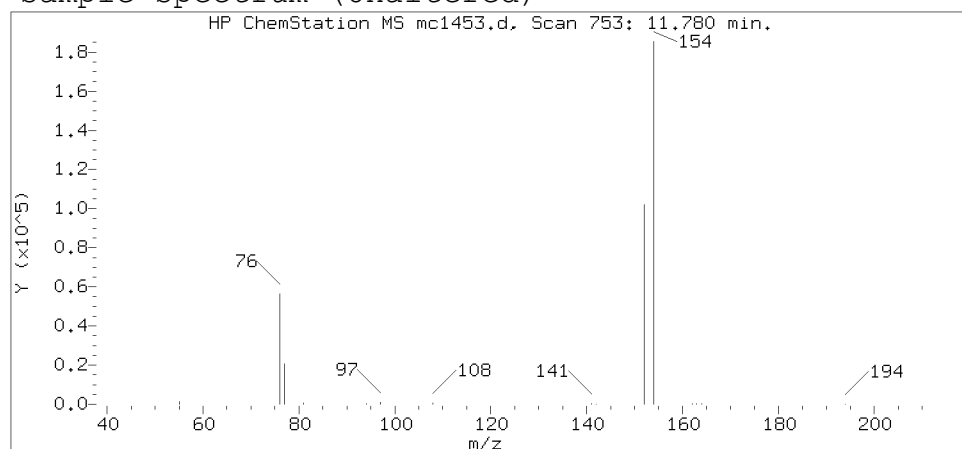
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1453.d
Injection date and time: 25-MAR-2020 07:32

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

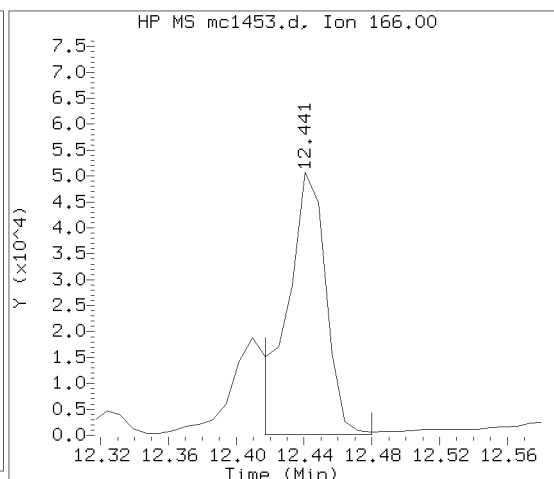
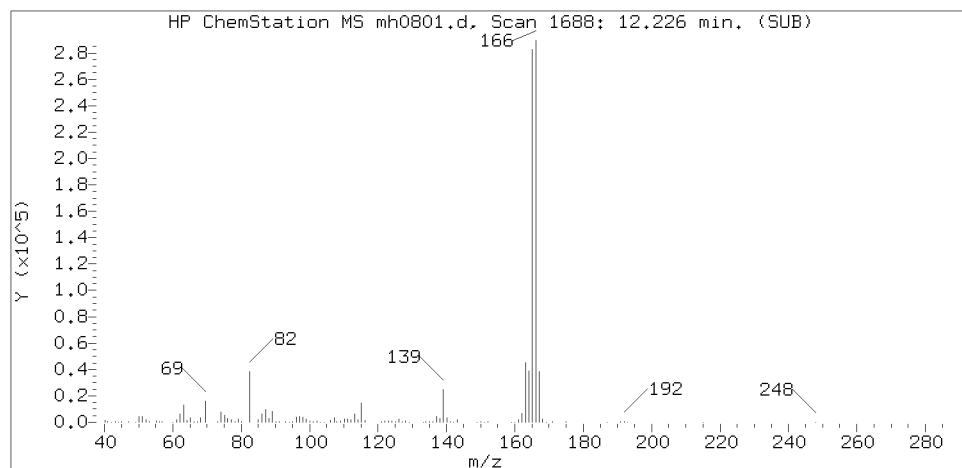
Sample Name: BAC12DL

Lab Sample ID: 1283822DL

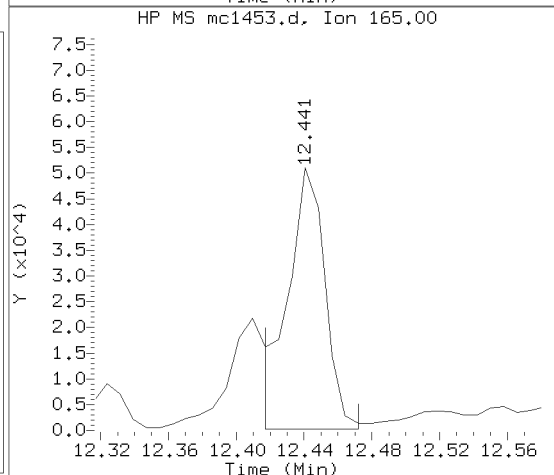
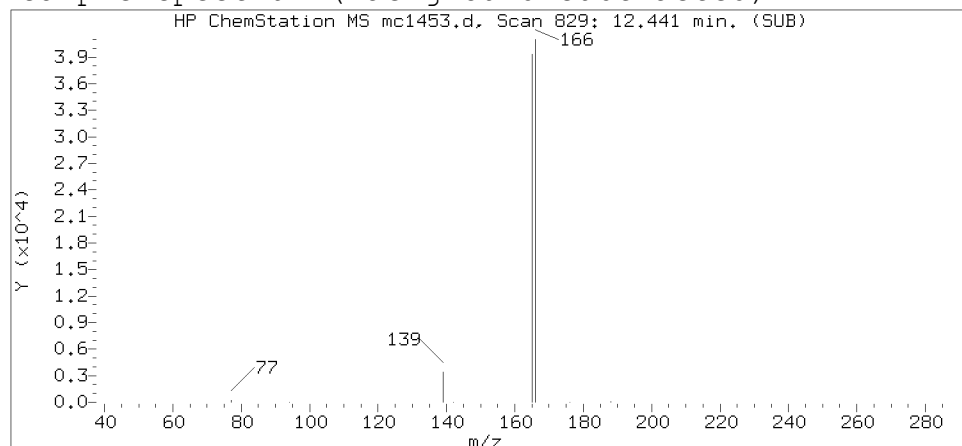
Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 753
Retention Time (minutes) : 11.780
Relative Retention Time : 0.00098
Quant Ion : 154.00
Area (flag) : 348081
On-column Amount (ng/ul) : 1.4949

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Target 3.5 esignature user=jmg00346

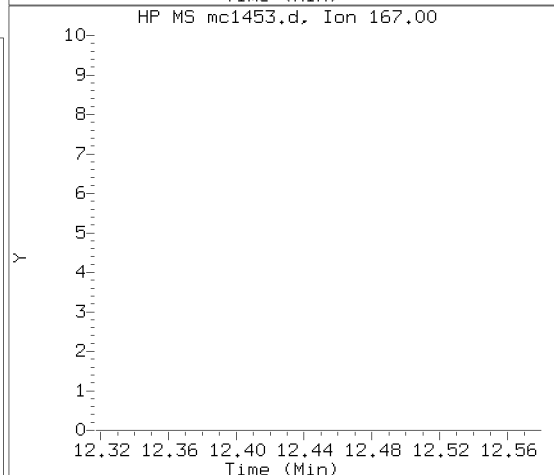
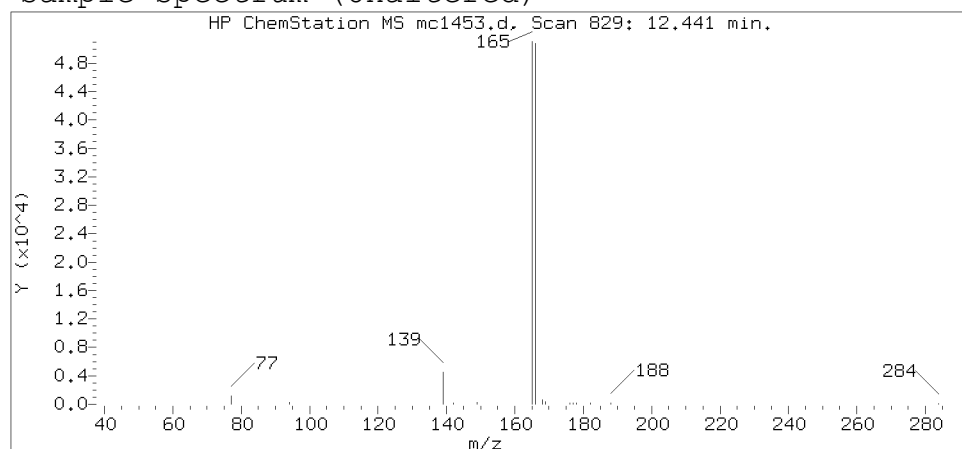
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1453.d
Injection date and time: 25-MAR-2020 07:32

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

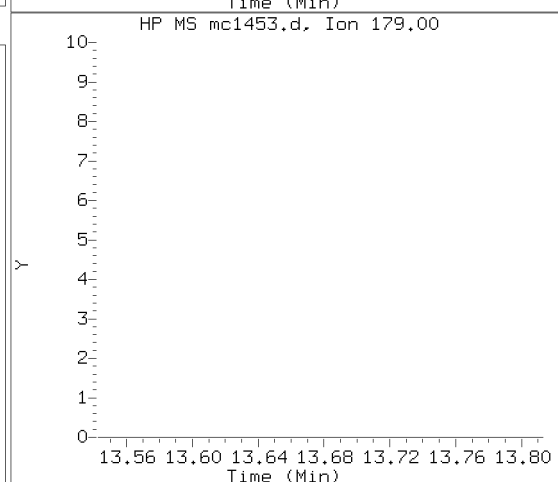
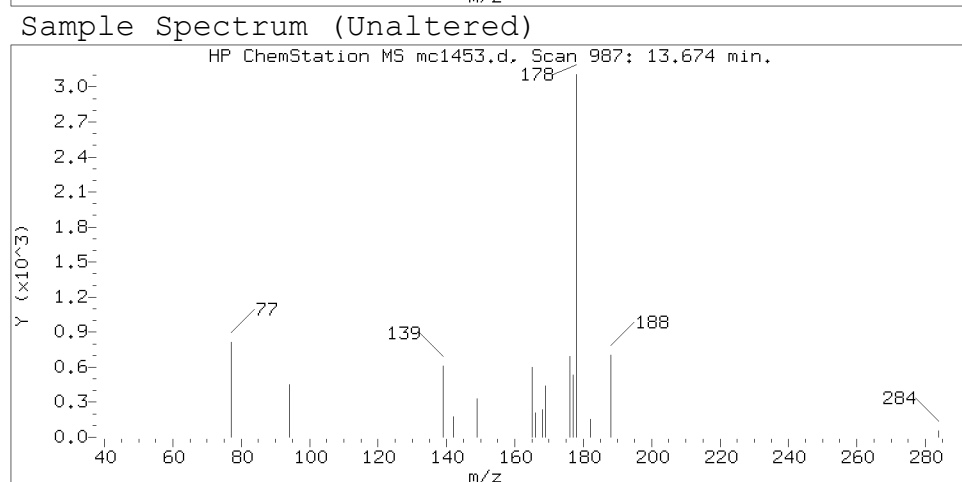
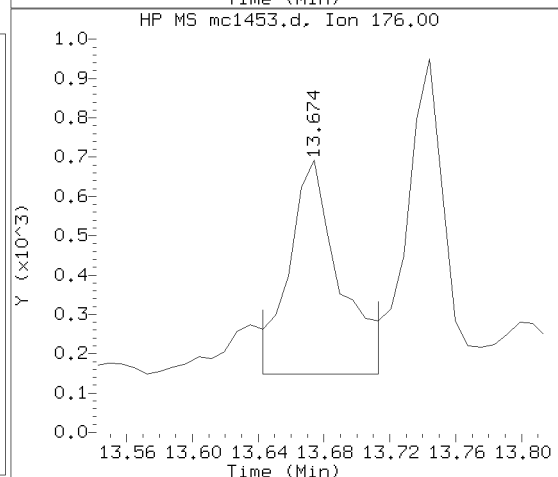
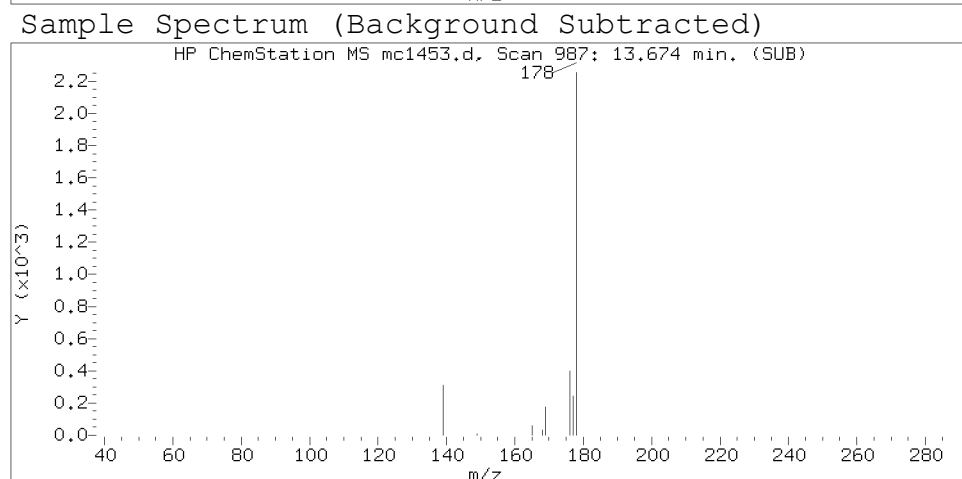
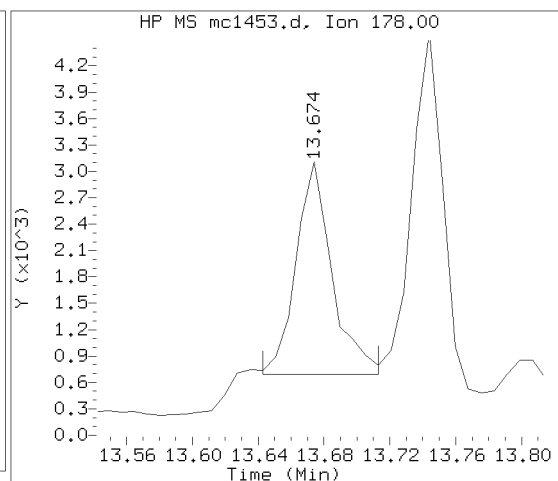
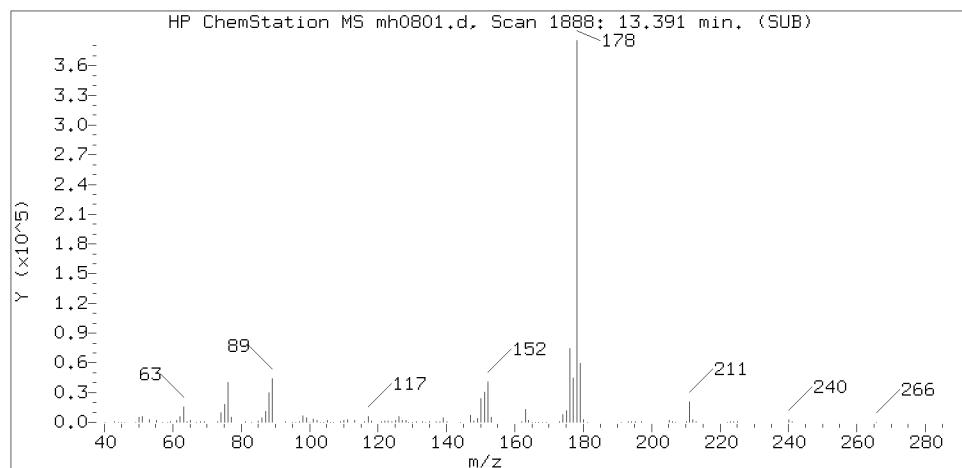
Sample Name: BAC12DL

Lab Sample ID: 1283822DL

Compound Number : 18
Compound Name : Fluorene
Scan Number : 829
Retention Time (minutes) : 12.441
Relative Retention Time : 0.00066
Quant Ion : 166.00
Area (flag) : 78467
On-column Amount (ng/ul) : 0.2659

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Target 3.5 esignature user jmg00346

Reference Standard Spectrum for Phenanthrene



Data File: /chem/HP21585.i/20mar25.b/mc1453.d
Injection date and time: 25-MAR-2020 07:32

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

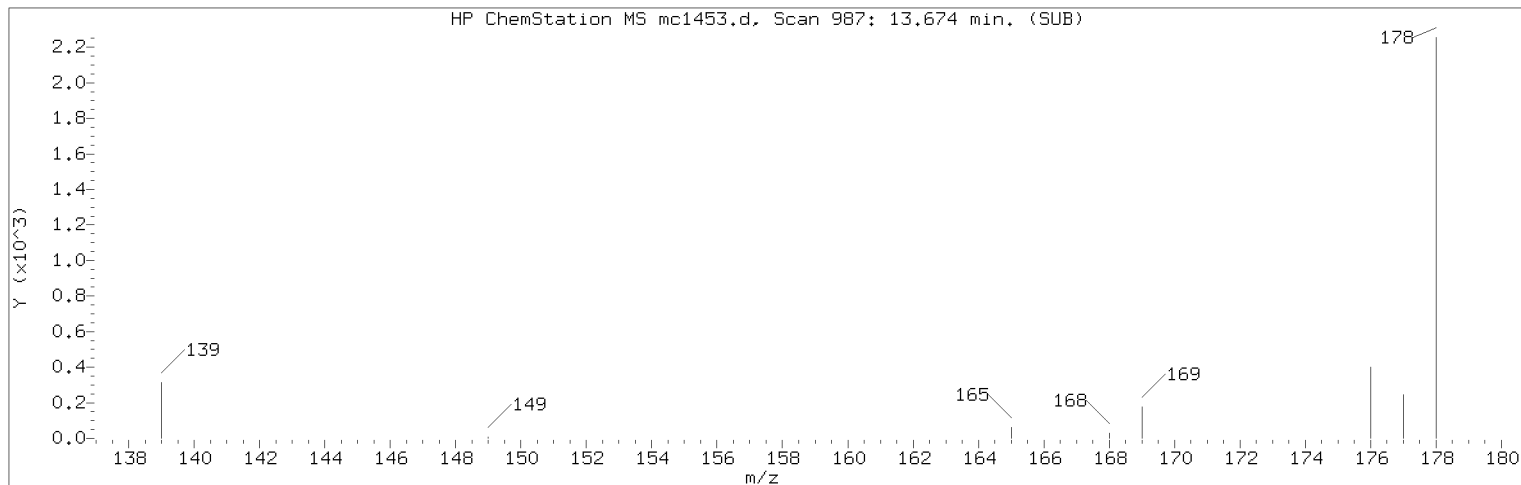
Sample Name: BAC12DL

Lab Sample ID: 1283822DL

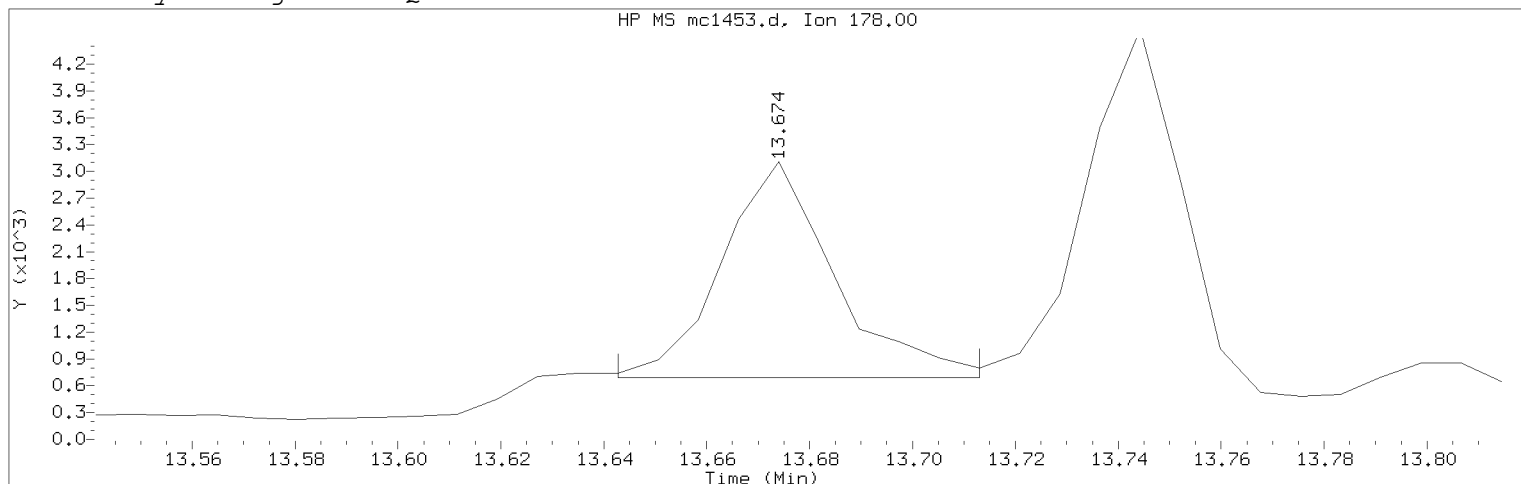
Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 987
Retention Time (minutes) : 13.674
Relative Retention Time :-0.00000
Quant Ion : 178.00
Area (flag) : 3688M
On-column Amount (ng/ul) : 0.0086

Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar25.b/mc1453.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 07:32

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 07:03

Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

Sample Name: BAC12DL

Lab Sample ID: 1283822DL

Compound Number	: 21	
Compound Name	: Phenanthrene	
Scan Number	: 987	
Retention Time (minutes)	: 13.674	
Quant Ion	: 178.00	
Area (flag)	: 3688M	
On-column Amount (ng/ul)	: 0.0086	
Integration start scan	: 982	Integration stop scan: 991
Y at integration start	: 691	Y at integration end: 691

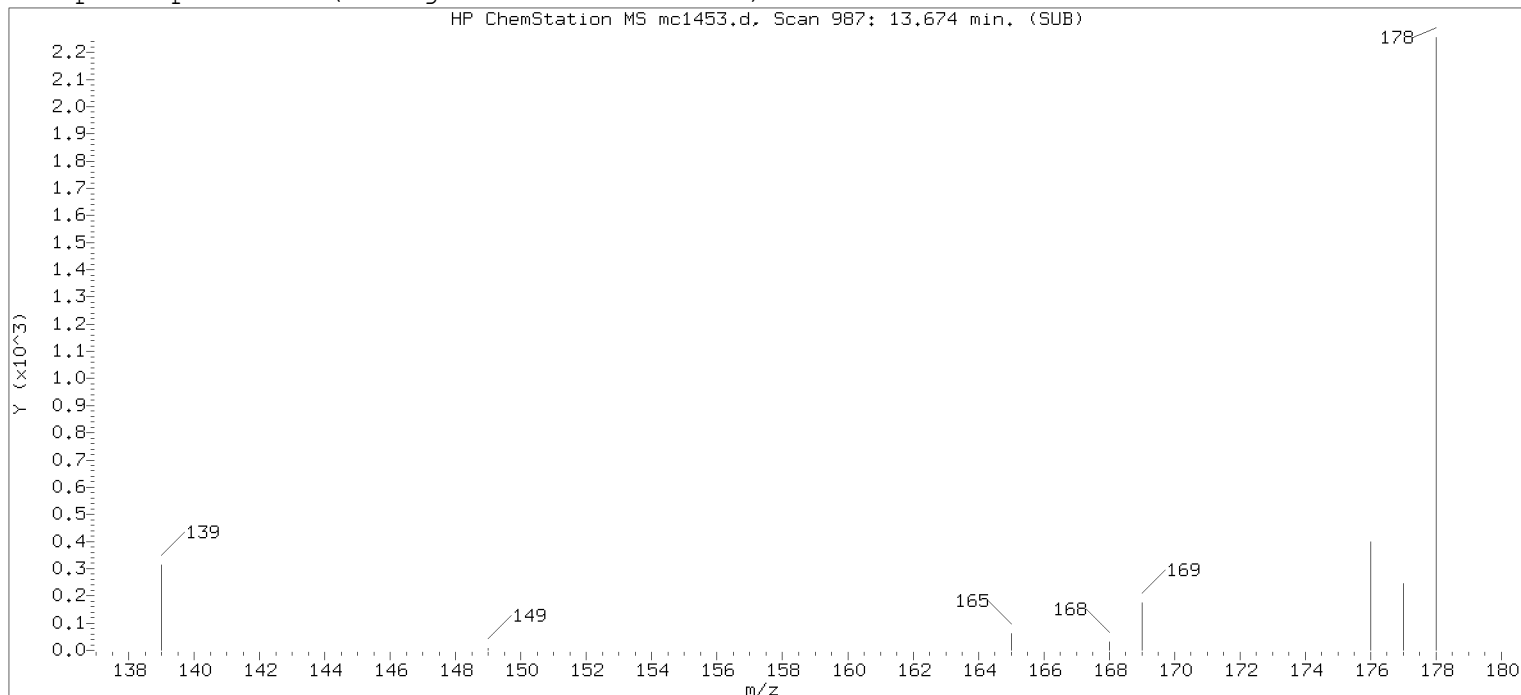
Reason for manual integration: improper integration

Analyst responsible for change:

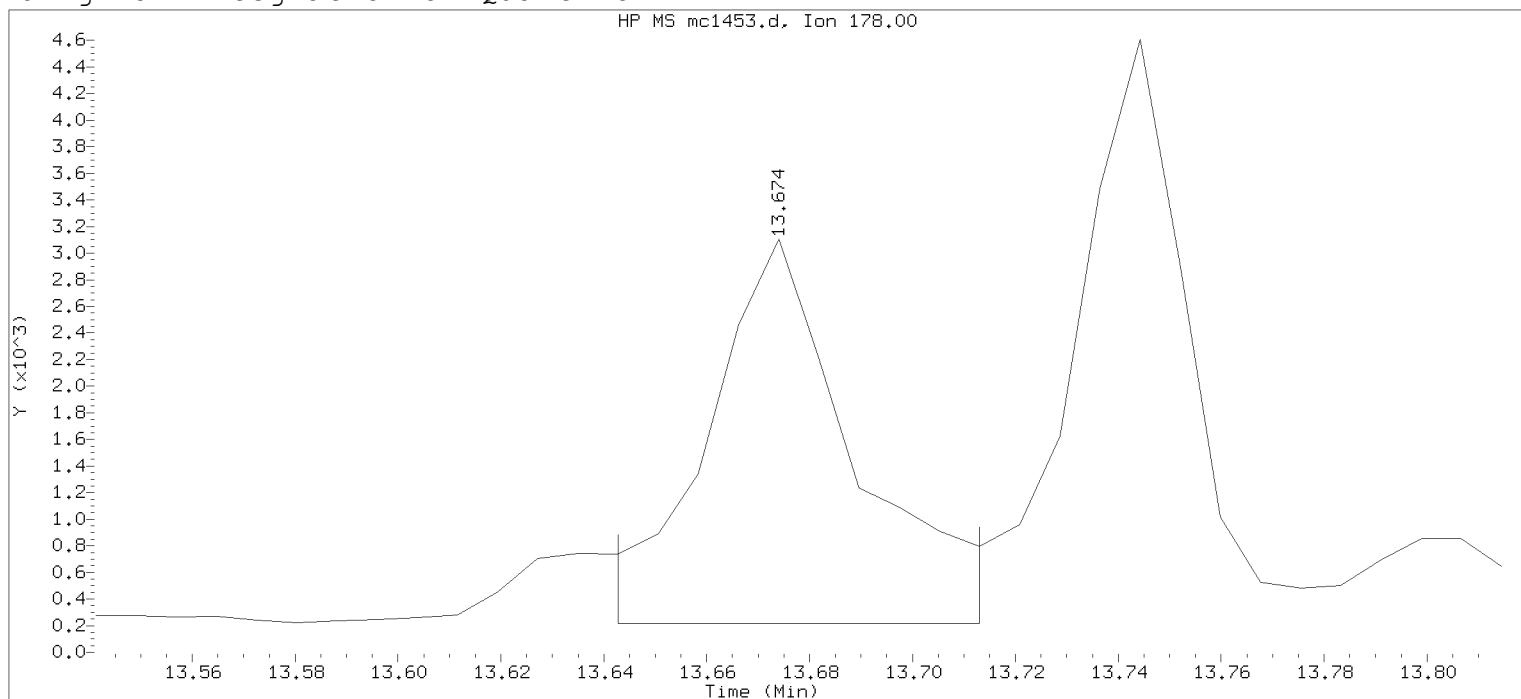
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 08:29.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar25.b/mc1453.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 07:32

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 25-MAR-2020 07:03

Date, time and analyst ID of latest file update: 25-Mar-2020 08:08 Unknown

Sample Name: BAC12DL

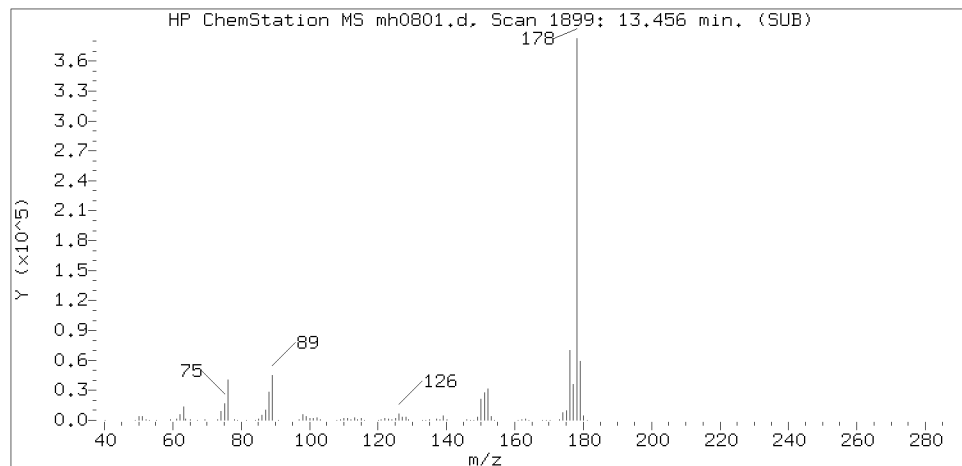
Lab Sample ID: 1283822DL

Compound Number	: 21	
Compound Name	: Phenanthrene	
Scan Number	: 987	
Retention Time (minutes)	: 13.674	
Quant Ion	: 178.00	
Area	: 5658	
On-column Amount (ng/ul)	: 0.0132	
Integration start scan	: 982	Integration stop scan: 991
Y at integration start	: 215	Y at integration end: 215

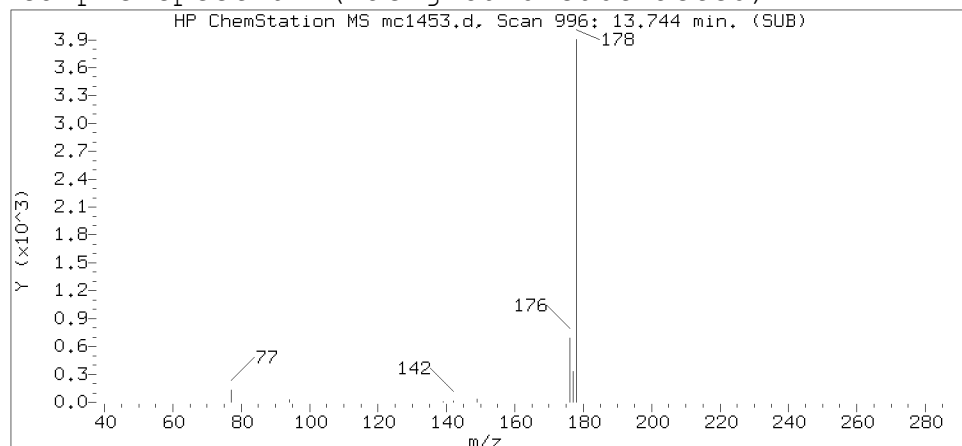
Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.

Target 3.5 esignature user GPV67j Page 424 of 609

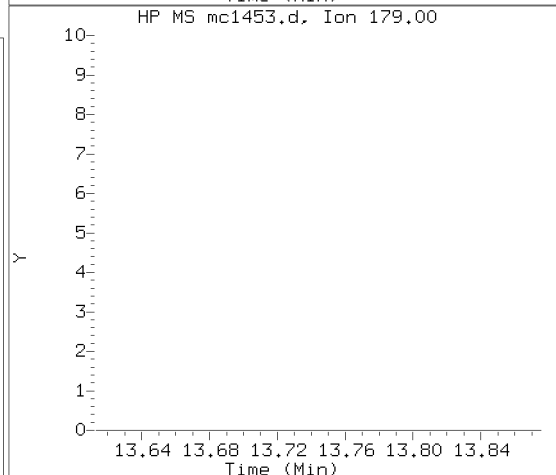
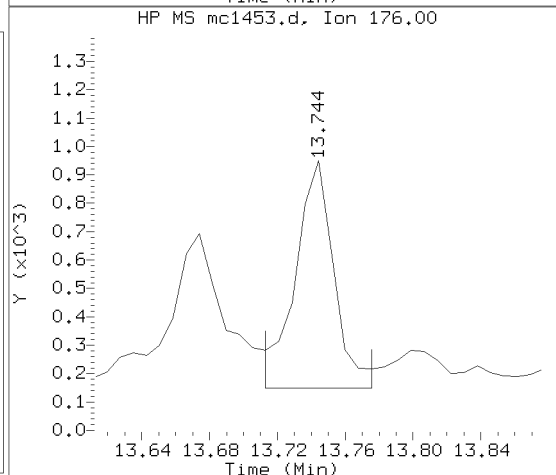
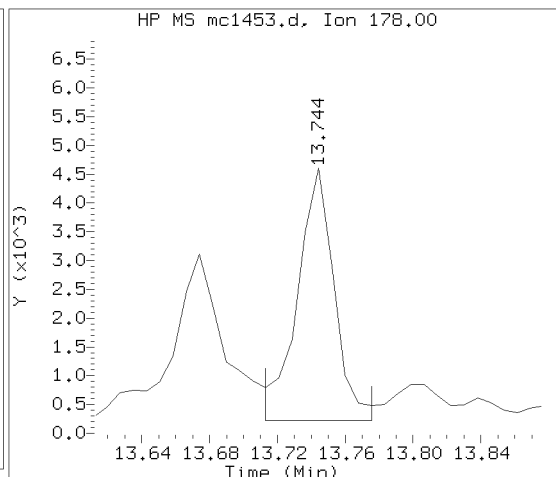
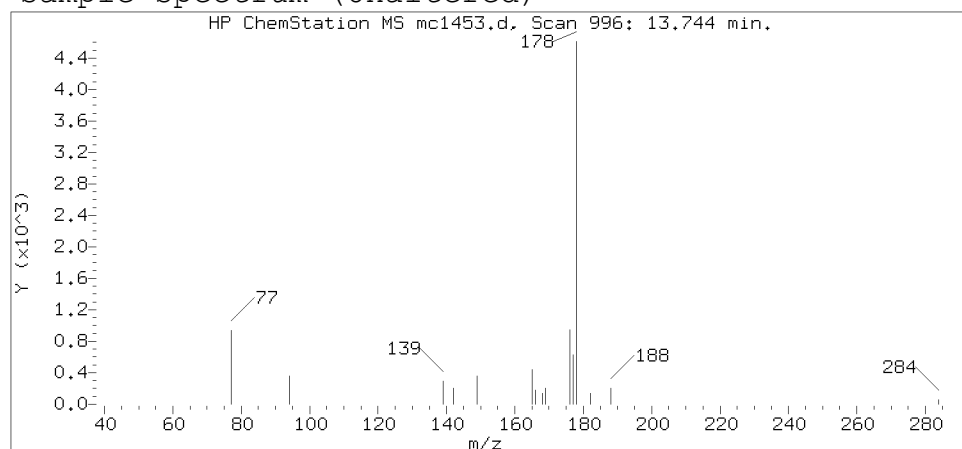
Reference Standard Spectrum for Anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1453.d
Injection date and time: 25-MAR-2020 07:32

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

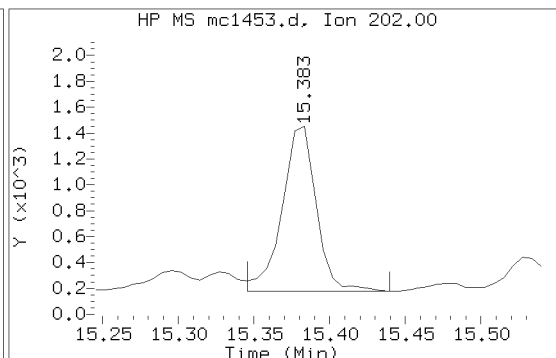
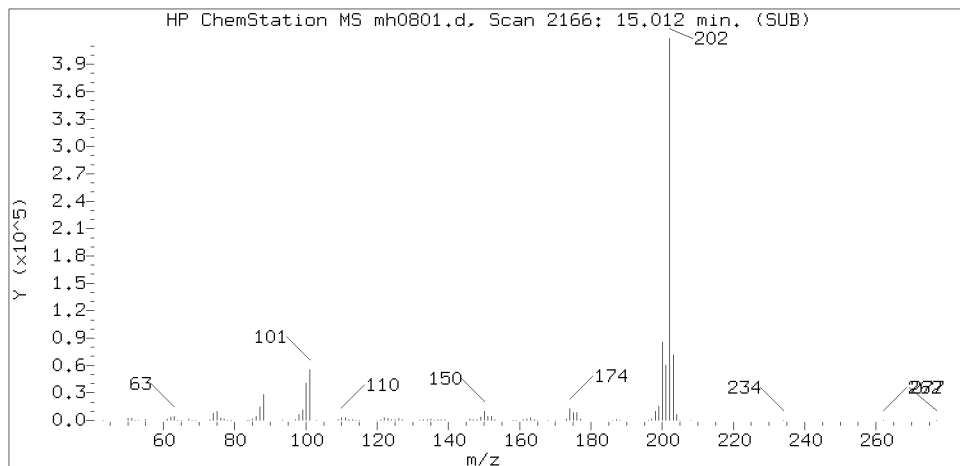
Sample Name: BAC12DL

Lab Sample ID: 1283822DL

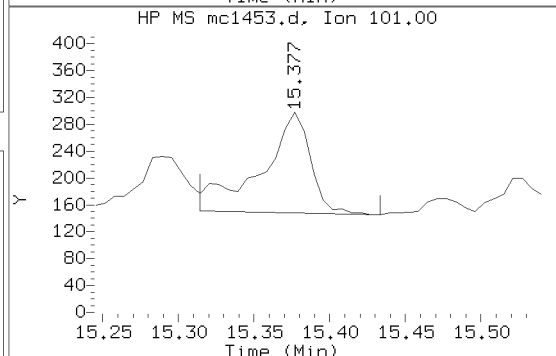
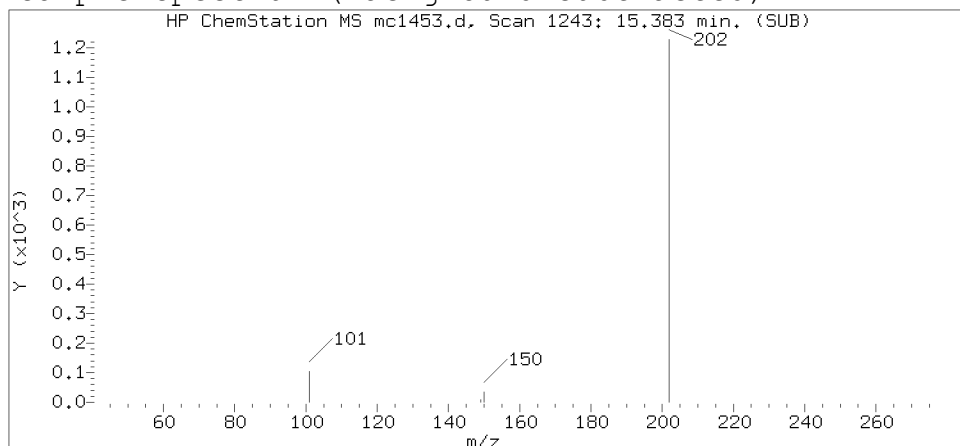
Compound Number : 22
Compound Name : Anthracene
Scan Number : 996
Retention Time (minutes) : 13.744
Relative Retention Time : -0.00000
Quant Ion : 178.00
Area (flag) : 6546
On-column Amount (ng/ul) : 0.0162

Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.
Target 3.5 esignature user jmg00346

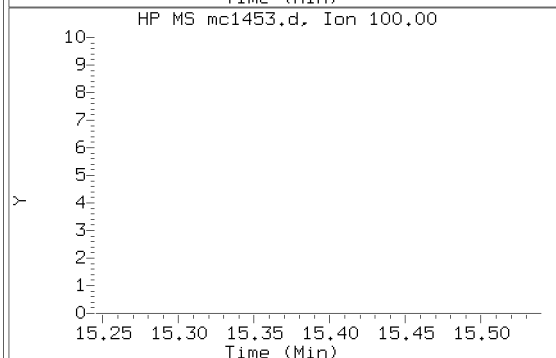
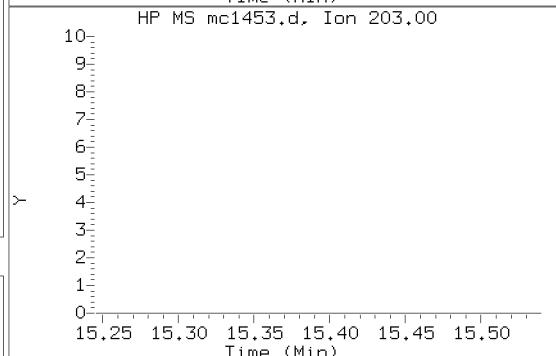
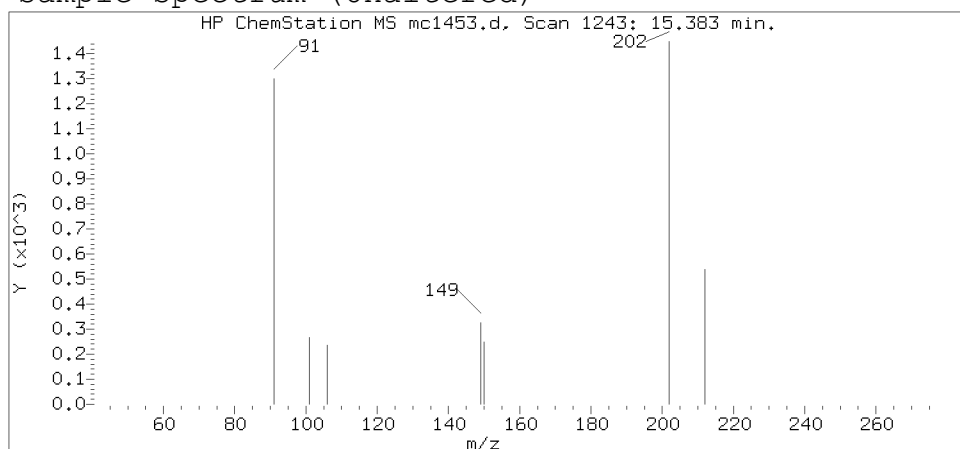
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1453.d
Injection date and time: 25-MAR-2020 07:32

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

Sample Name: BAC12DL

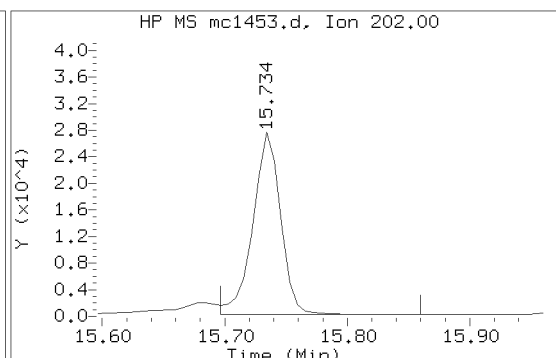
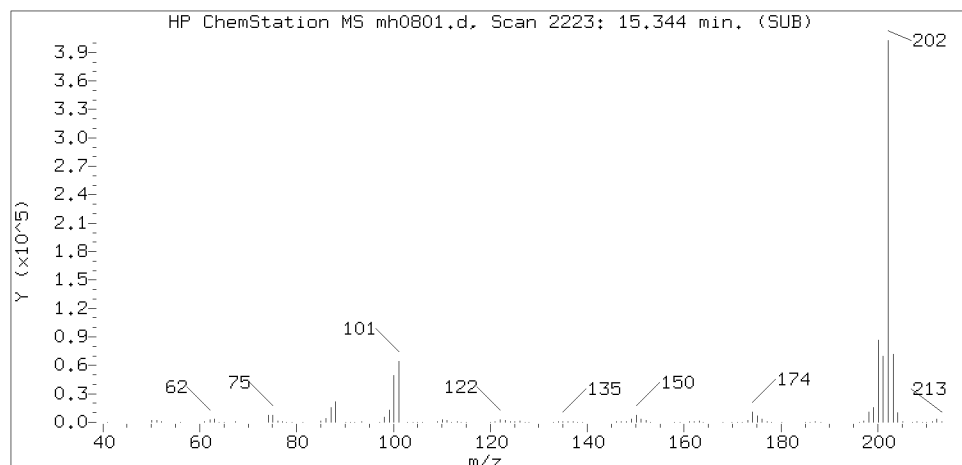
Lab Sample ID: 1283822DL

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1243
Retention Time (minutes) : 15.383
Relative Retention Time : -0.00000
Quant Ion : 202.00
Area (flag) : 1999
On-column Amount (ng/ul) : 0.0042

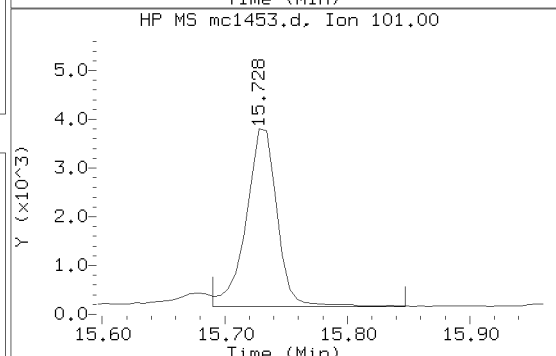
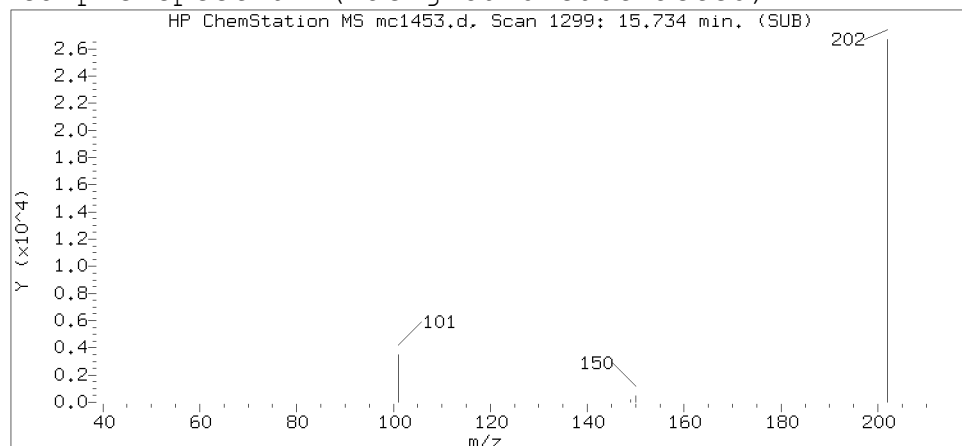
Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.

Target 3.5 esignature user jmg00346 Page 426 of 609

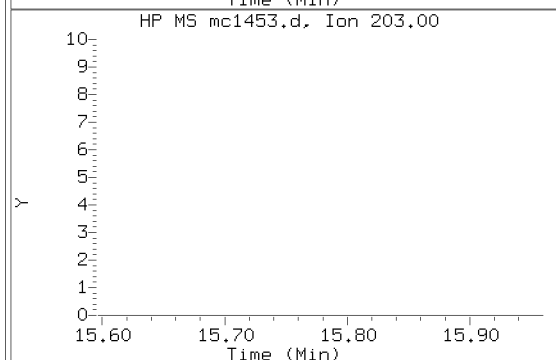
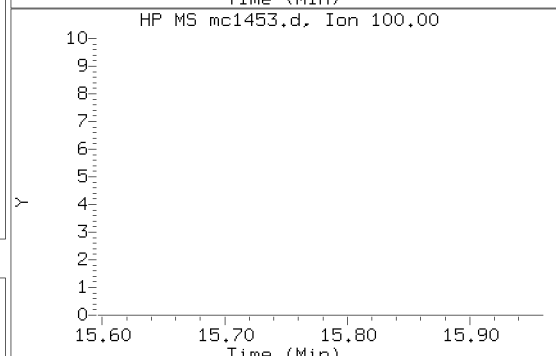
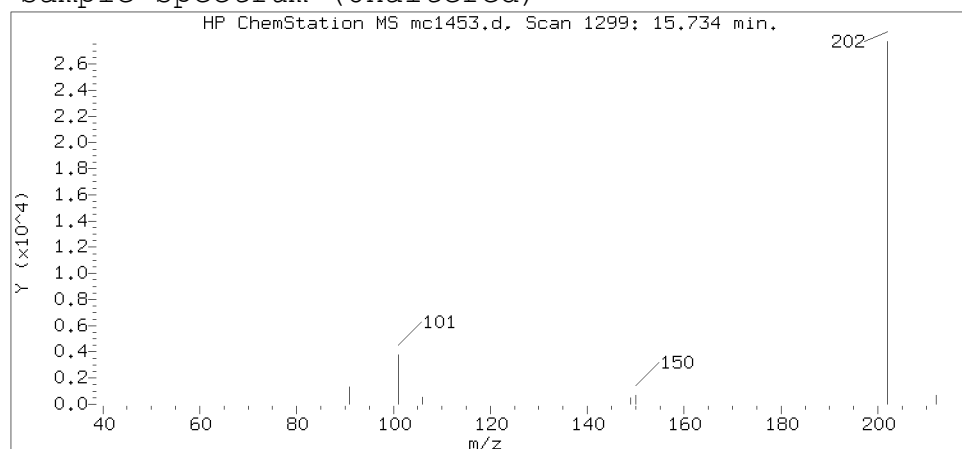
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar25.b/mc1453.d
Injection date and time: 25-MAR-2020 07:32

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 08:29 jmg00346

Sample Name: BAC12DL

Lab Sample ID: 1283822DL

Compound Number : 26
Compound Name : Pyrene
Scan Number : 1299
Retention Time (minutes) : 15.734
Relative Retention Time : 0.00035
Quant Ion : 202.00
Area (flag) : 42927
On-column Amount (ng/ul) : 0.0801

Digitally signed by Joseph M. Gambler on 03/25/2020 at 08:29.
Target 3.5 esignature user jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC13

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1283823

Sample wt/vol: 244 (g/mL)ML Lab File ID: mc1422.d

Level: (low/med) LOW Date Received: 03/19/20

% Moisture: not dec: dec: Date Extracted: 03/24/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/25/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	0.04	J	
208-96-8-----	Acenaphthylene	0.02	J	
83-32-9-----	Acenaphthene	0.01	J	
86-73-7-----	Fluorene	0.05	J	
85-01-8-----	Phenanthrene	0.04	J	
120-12-7-----	Anthracene	0.01	U	
206-44-0-----	Fluoranthene	0.02	J	
129-00-0-----	Pyrene	0.02	J	
56-55-3-----	Benzo (a) anthracene	0.01	U	
218-01-9-----	Chrysene	0.01	U	
205-99-2-----	Benzo (b) fluoranthene	0.01	U	
207-08-9-----	Benzo (k) fluoranthene	0.01	U	
50-32-8-----	Benzo (a) pyrene	0.01	U	
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.01	U	
53-70-3-----	Dibenz (a,h) anthracene	0.02	U	
191-24-2-----	Benzo (g,h,i) perylene	0.01	U	

FORM I SV-1

BAC13

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283823

Data file: /chem/HP21585.i/20mar24.b/mc1422.d

Injection date and time: 25-MAR-2020 05:01

Data file Sample Info. Line: BAC13;1283823;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 244 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	22477 (-2)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	79357 (5)	0.25	
14) Acenaphthene-d10	11.746 (0.000)	750	164	39213M (4)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	76941 (-3)	0.25	
29) Chrysene-d12	17.809 (0.000)	1592	240	68362 (-19)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	90510 (-5)	0.25	

M = Internal Standard was manually integrated

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	26856	0.165	66%		15 - 121
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	73403	0.226	90%		34 - 125
36) Benzo(a)pyrene-d12	(6)	20.164 (0.000)	264	37922	0.111	44%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033 (-0.000)	128	3225M	0.009	0.04			0.008
13) Acenaphthylene	(3)	11.538 (0.000)	152	2131	0.005	0.02			0.003
15) Acenaphthene	(3)	11.780 (0.000)	154	732M	0.003	0.01			0.003
18) Fluorene	(3)	12.449 (0.000)	166	3231M	0.011	0.05			0.003
21) Phenanthrene	(4)	13.674 (-0.000)	178	4379	0.011	0.04			0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)	15.383 (-0.000)	202	1680	0.004	0.02			0.003
26) Pyrene	(5)	15.734 (0.000)	202	1905	0.004	0.02			0.003
28) Benzo(a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo(b)fluoranthene	(6)			Not Detected					0.003
34) Benzo(k)fluoranthene	(6)			Not Detected					0.003
37) Benzo(a)pyrene	(6)			Not Detected					0.003
39) Indeno(1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz(a,h)anthracene	(6)			Not Detected					0.005
41) Benzo(g,h,i)perylene	(6)			Not Detected					0.003

M = Compound was manually integrated.

BAC13

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283823

Data file: /chem/HP21585.i/20mar24.b/mc1422.d

Injection date and time: **25-MAR-2020 05:01**

Data file Sample Info. Line: BAC13;1283823;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 24-MAR-2020 19:16

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 244 ml

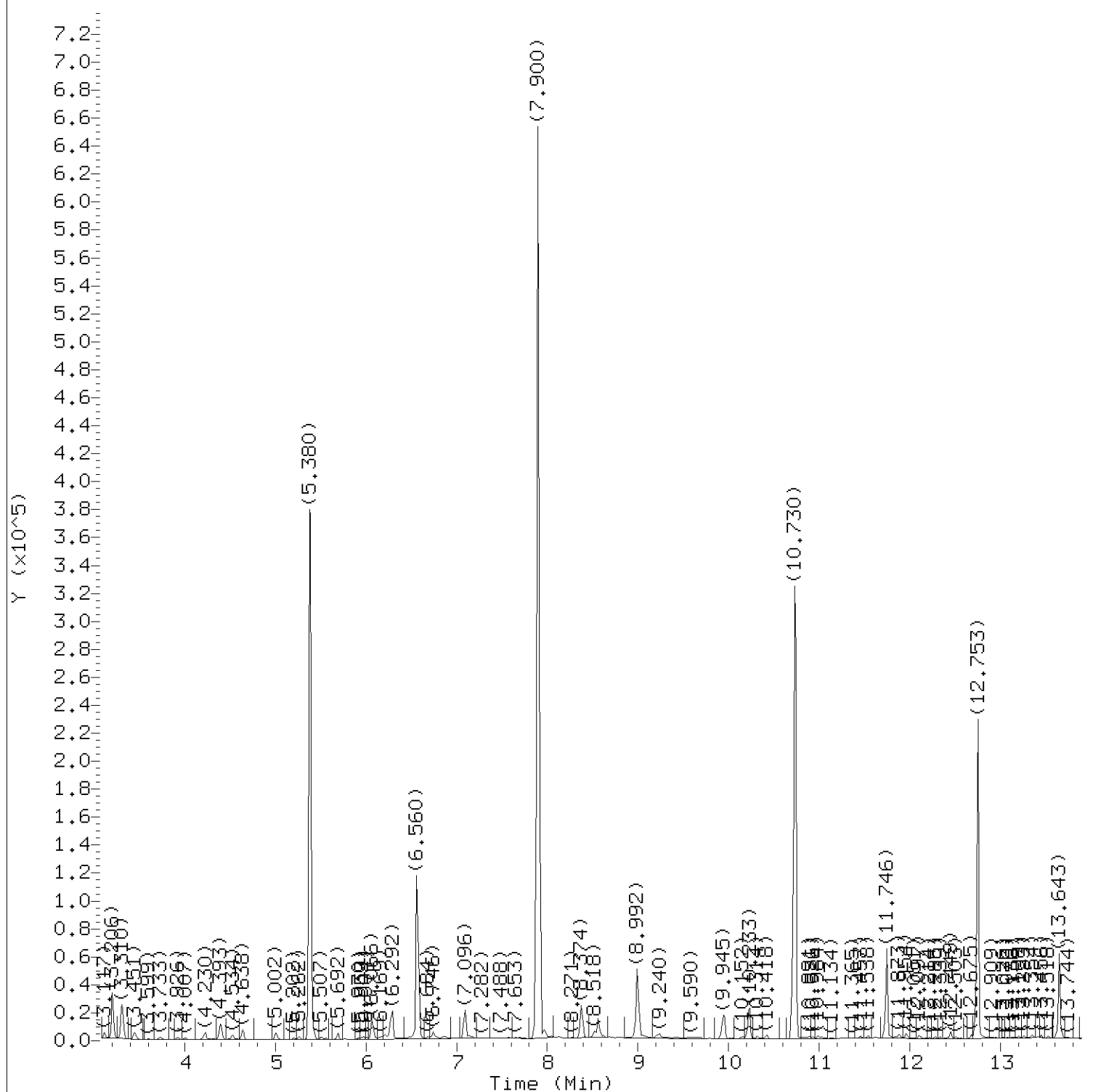
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1422.d
Injection date and time: 25-MAR-2020 05:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

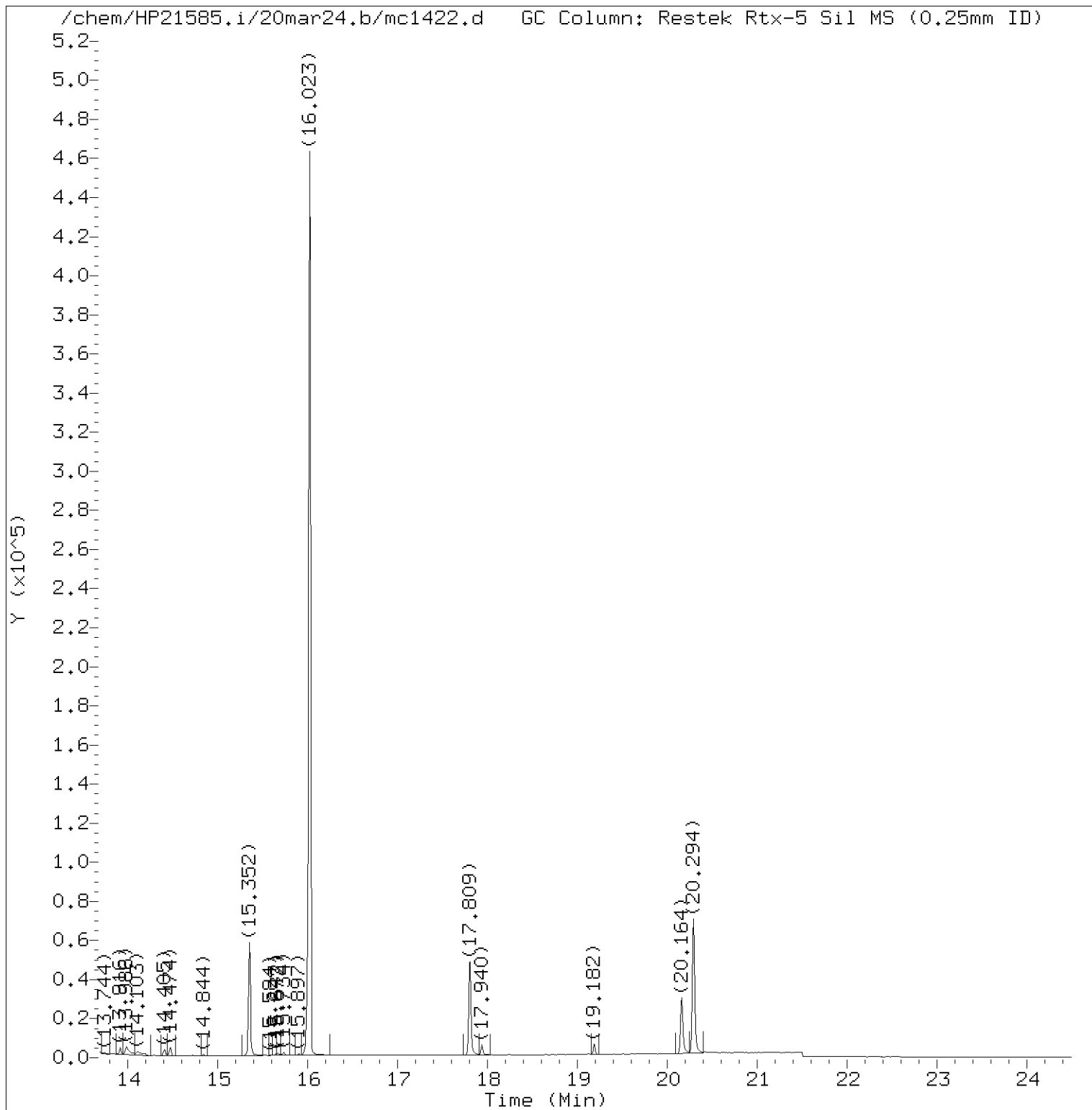
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

Lab Sample ID: 1283823

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:48.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1422.d
Injection date and time: 25-MAR-2020 05:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

Lab Sample ID: 1283823

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:48.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1422.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 05:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

Lab Sample ID: 1283823

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	22477	0.250
6) *Naphthalene-d8	(2)	8.992	136	79357	0.250
7) Naphthalene	(2)	9.033	128	3225M	0.009
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	26856	0.165
13) Acenaphthylene	(3)	11.538	152	2131	0.005
14) *Acenaphthene-d10	(3)	11.746	164	39213M	0.250
15) Acenaphthene	(3)	11.780	154	732M	0.003
18) Fluorene	(3)	12.449	166	3231M	0.011
20) *Phenanthrene-d10	(4)	13.643	188	76941	0.250
21) Phenanthrene	(4)	13.674	178	4379	0.011
24) \$Fluoranthene-d10	(4)	15.352	212	73403	0.226
25) Fluoranthene	(4)	15.383	202	1680	0.004
26) Pyrene	(5)	15.734	202	1905	0.004
29) *Chrysene-d12	(5)	17.809	240	68362	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	37922	0.111
38) *Perylene-d12	(6)	20.294	264	90510	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

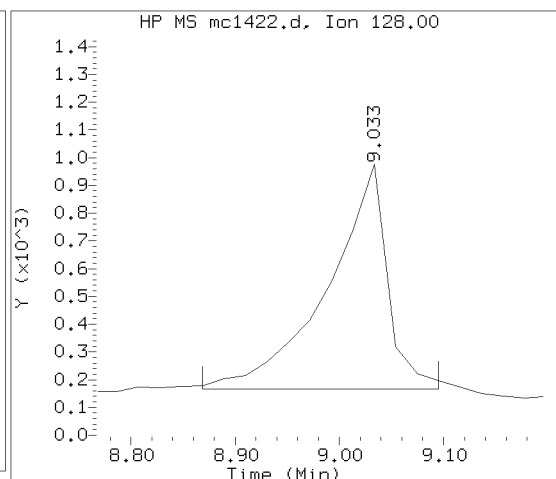
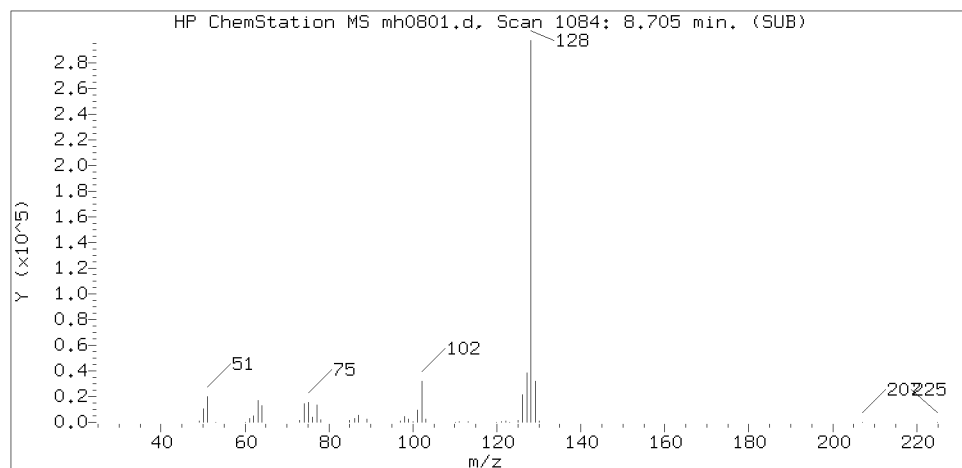
on 03/25/2020 at 05:48.

Target 3.5 esignature user ID: jmg00346

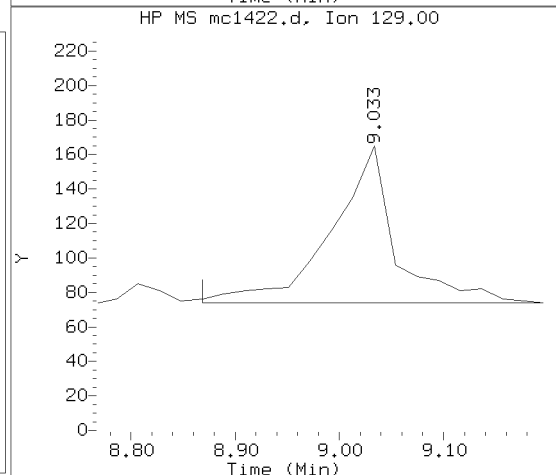
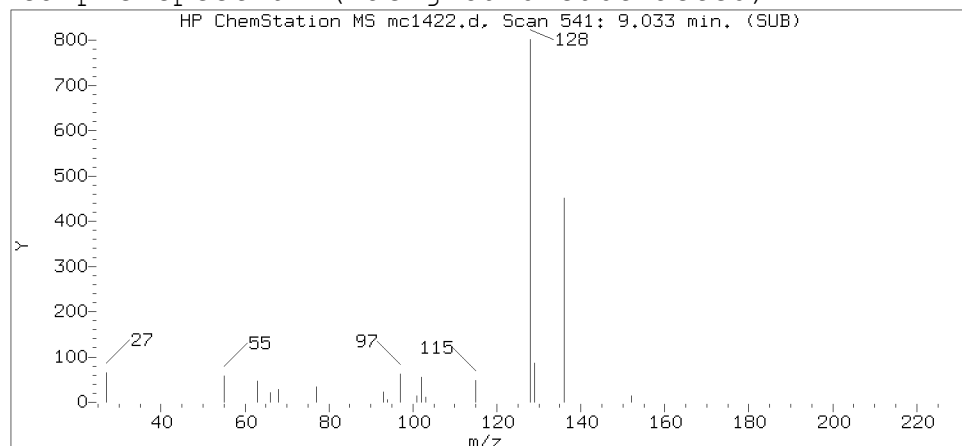
GPY67 Page 433 of 609

page 1 of 1

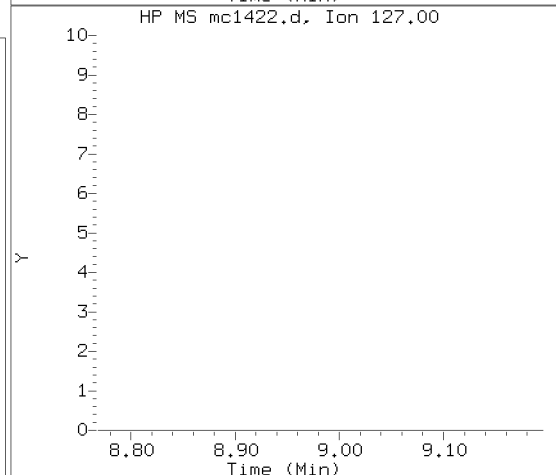
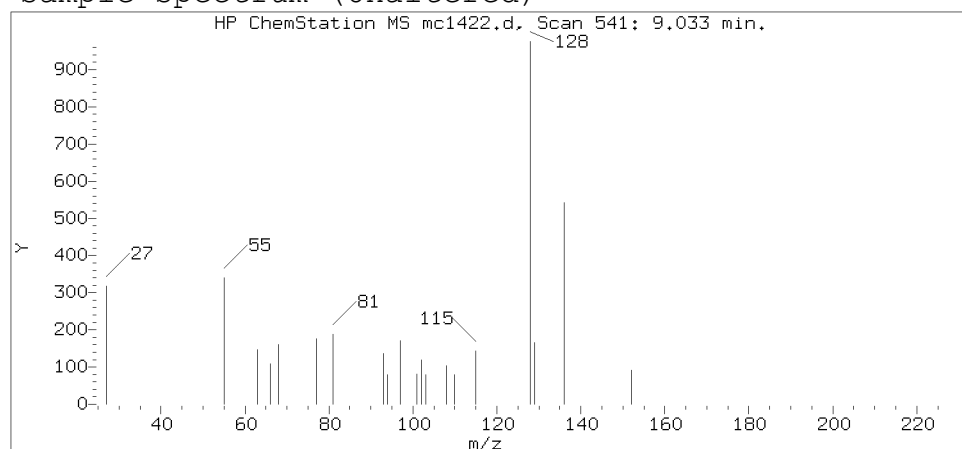
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1422.d
Injection date and time: 25-MAR-2020 05:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

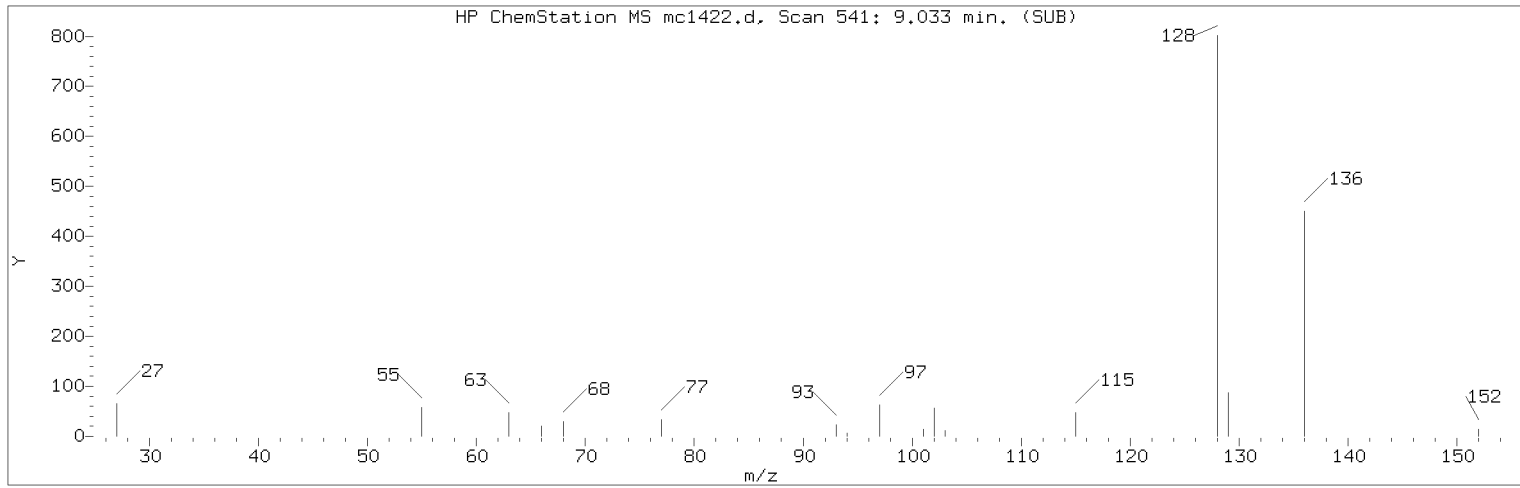
Sample Name: BAC13

Lab Sample ID: 1283823

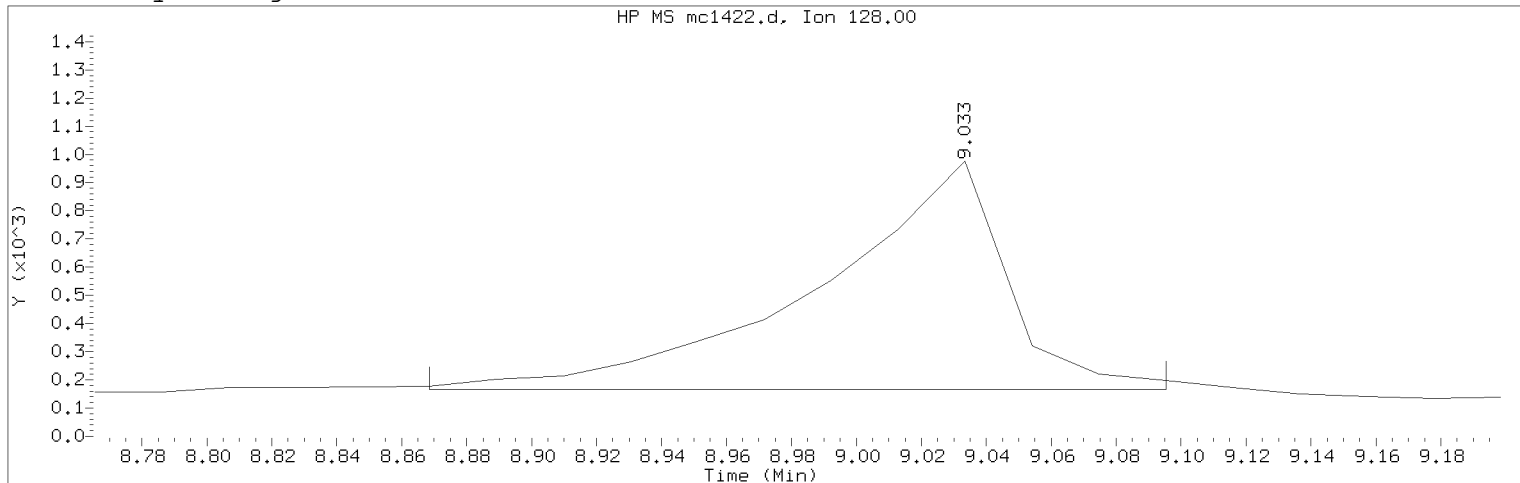
Compound Number : 7
Compound Name : Naphthalene
Scan Number : 541
Retention Time (minutes) : 9.033
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 3225M
On-column Amount (ng/ul) : 0.0086

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1422.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 05:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

Lab Sample ID: 1283823

Compound Number : 7

Compound Name : Naphthalene

Scan Number : 541

Retention Time (minutes) : 9.033

Quant Ion : 128.00

Area (flag) : 3225M

On-column Amount (ng/ul) : 0.0086

Integration start scan : 532

Integration stop scan: 543

Y at integration start : 167

Y at integration end: 167

Reason for manual integration: improper integration

Analyst responsible for change:

Digitally signed by Joseph M. Gambler

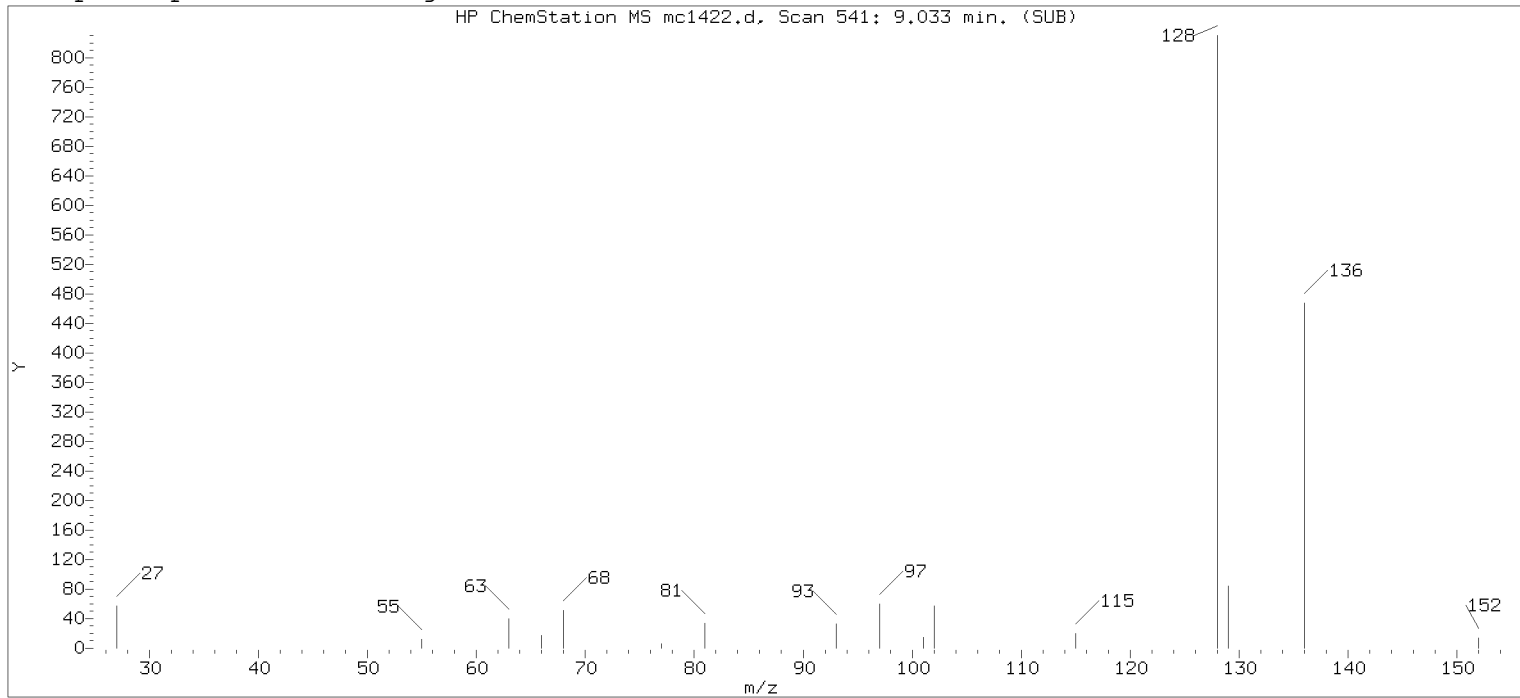
on 03/25/2020 at 05:48.

Target 3.5 esignature user ID: jmg00346

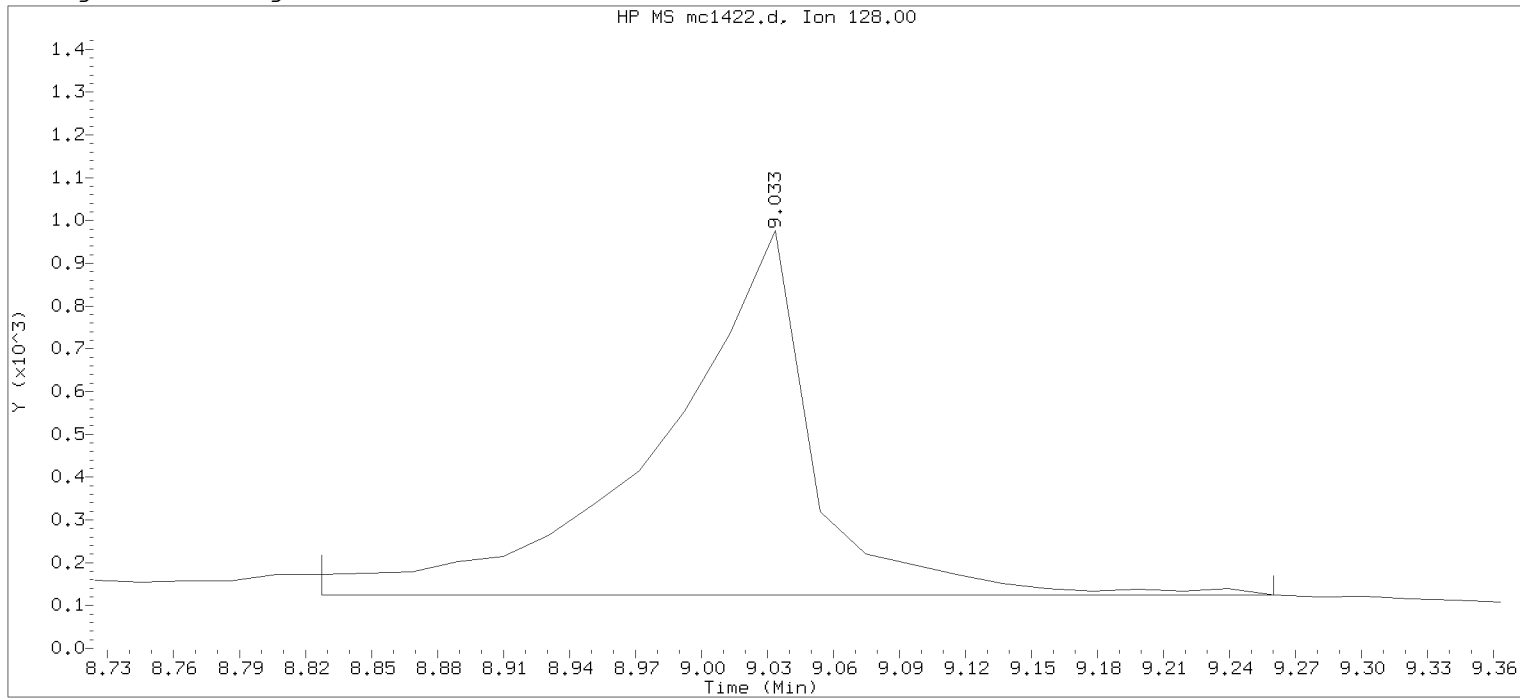
Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.

PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1422.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 05:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:36 Unknown

Sample Name: BAC13

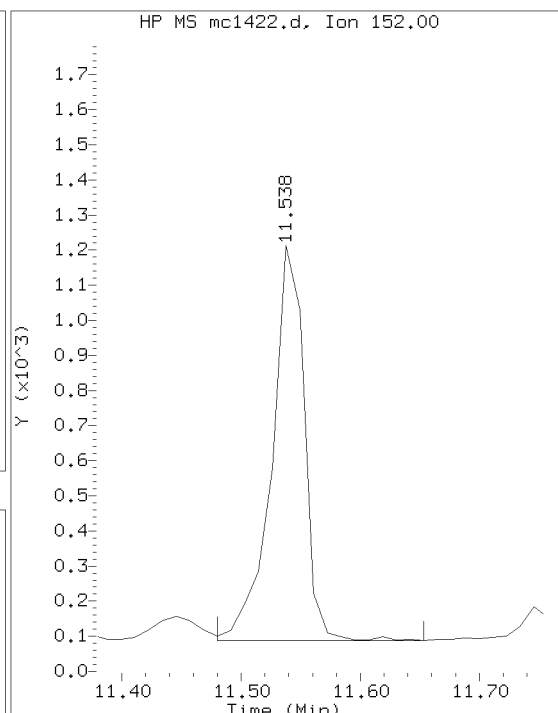
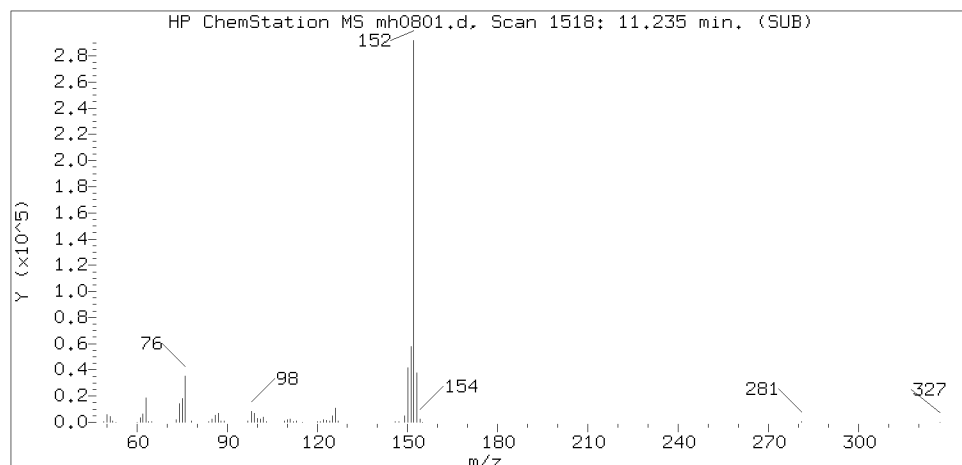
Lab Sample ID: 1283823

Compound Number	: 7	
Compound Name	: Naphthalene	
Scan Number	: 541	
Retention Time (minutes)	: 9.033	
Quant Ion	: 128.00	
Area	: 4107	
On-column Amount (ng/ul)	: 0.0109	
Integration start scan	: 530	Integration stop scan: 551
Y at integration start	: 125	Y at integration end: 125

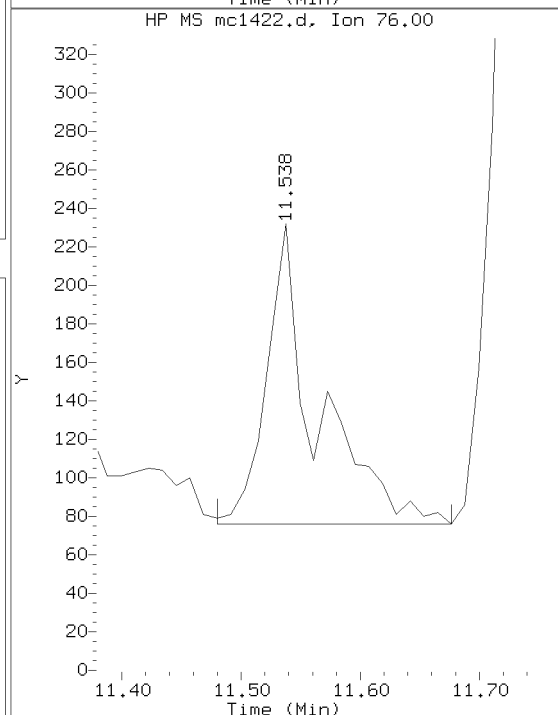
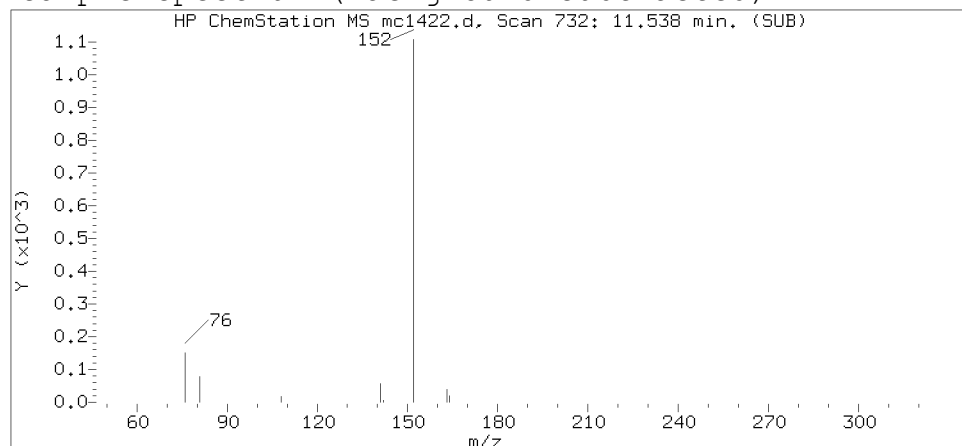
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.

Target 3.5 esignature user GPV67 Page 436 of 609

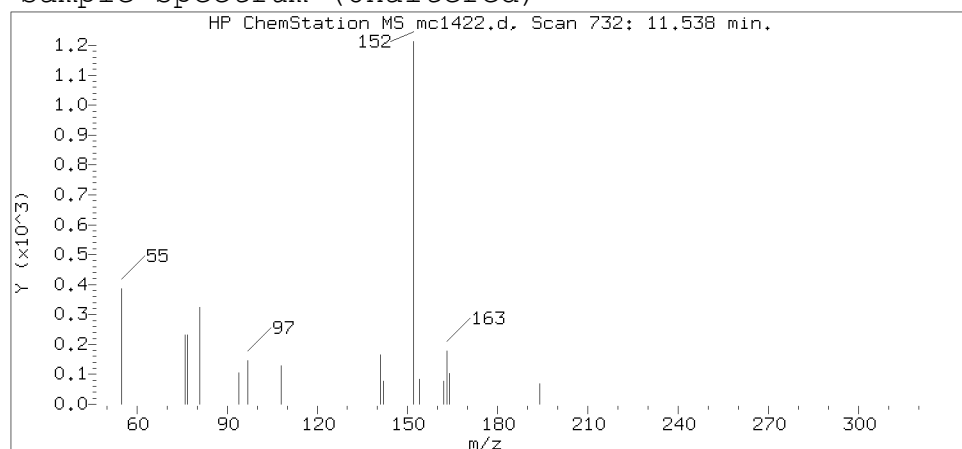
Reference Standard Spectrum for Acenaphthylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1422.d
Injection date and time: 25-MAR-2020 05:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

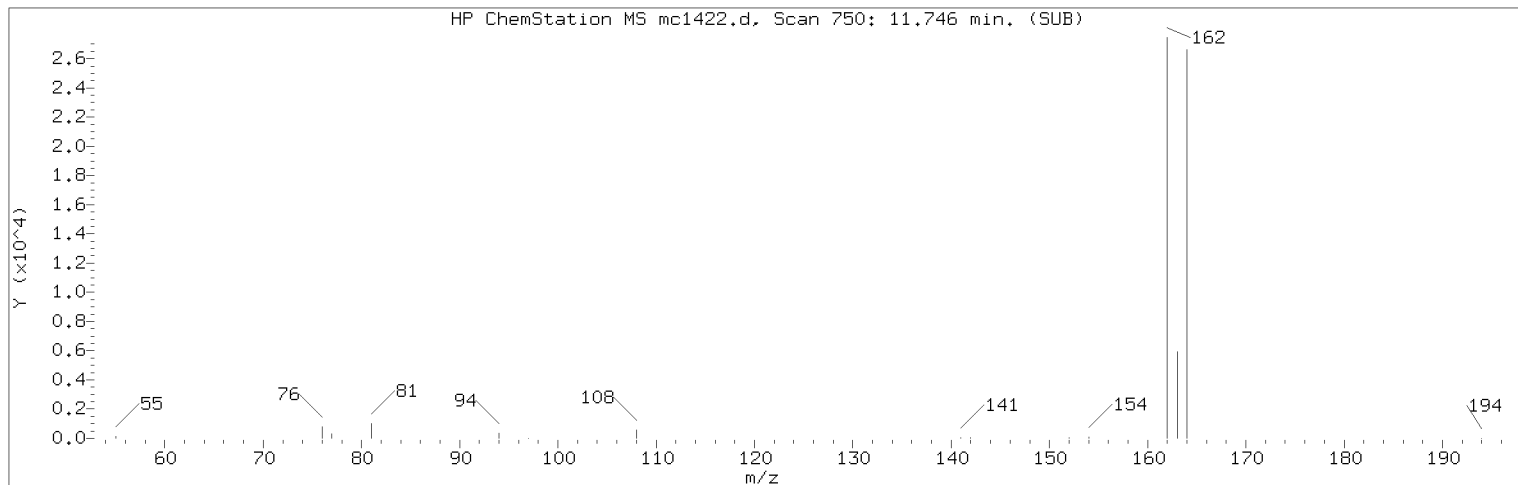
Sample Name: BAC13

Lab Sample ID: 1283823

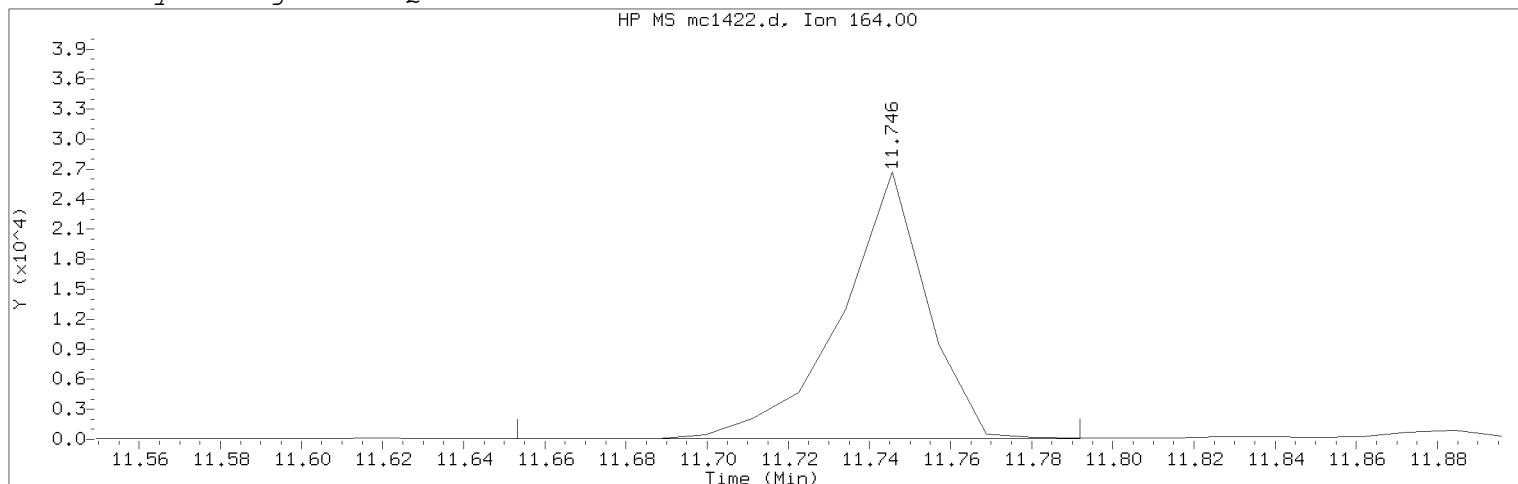
Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 732
Retention Time (minutes) : 11.538
Relative Retention Time : 0.00098
Quant Ion : 152.00
Area (flag) : 2131
On-column Amount (ng/ul) : 0.0051

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1422.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 05:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

Lab Sample ID: 1283823

Compound Number	: 14	
Compound Name	: Acenaphthene-d10	
Scan Number	: 750	
Retention Time (minutes)	: 11.746	
Quant Ion	: 164.00	
Area (flag)	: 39213M	
On-column Amount (ng/ul)	: 0.2500	
Integration start scan	: 741	Integration stop scan: 753
Y at integration start	: 63	Y at integration end: 65

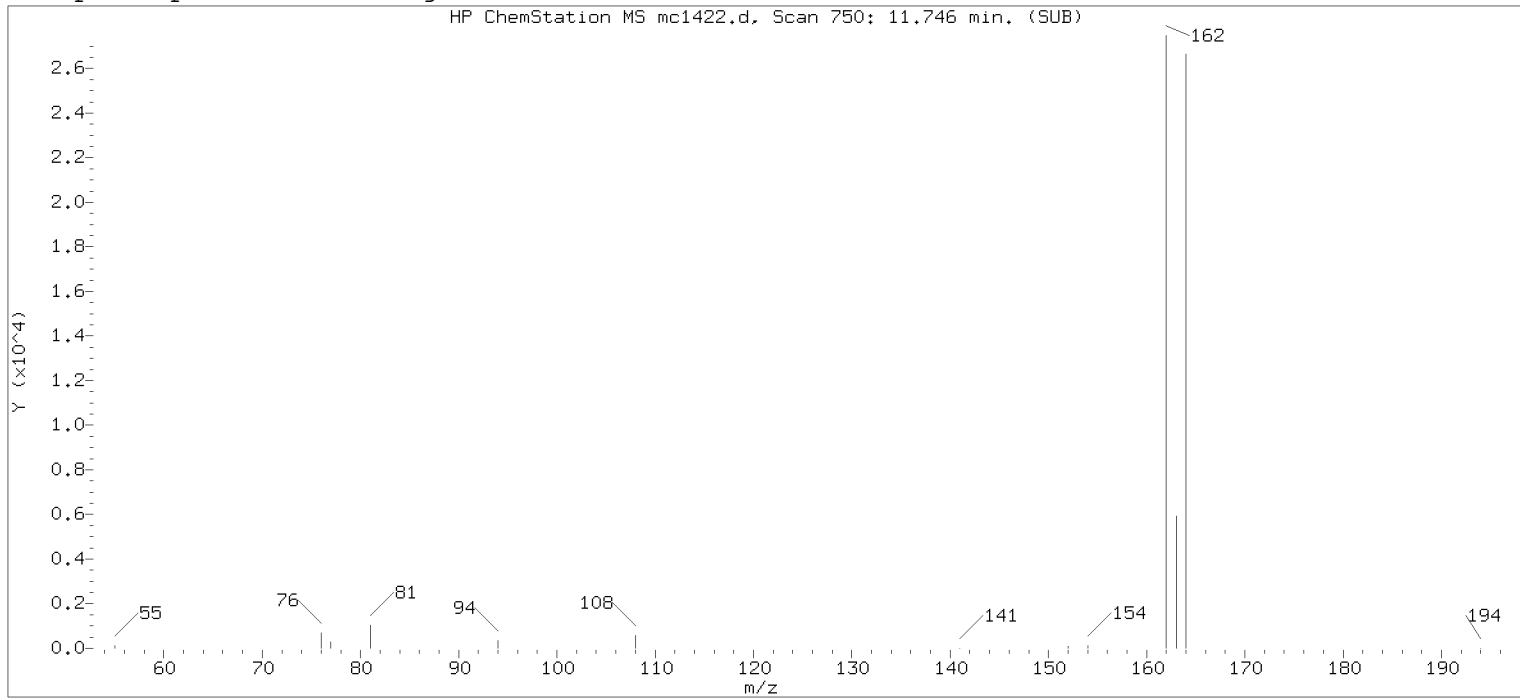
Reason for manual integration: improper integration

Analyst responsible for change:

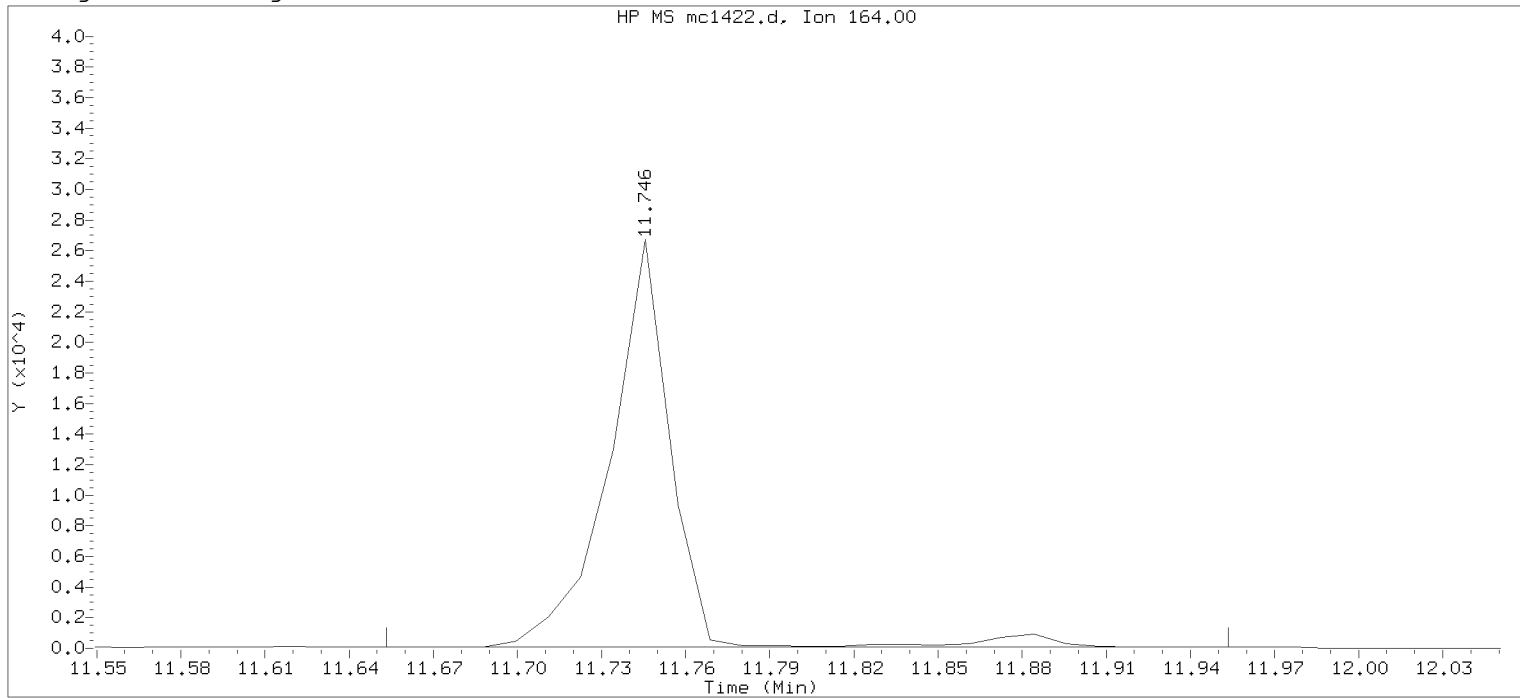
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:48.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1422.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 05:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:36 Unknown

Sample Name: BAC13

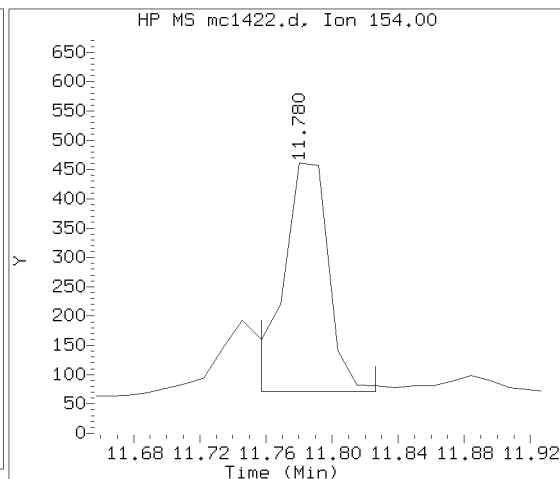
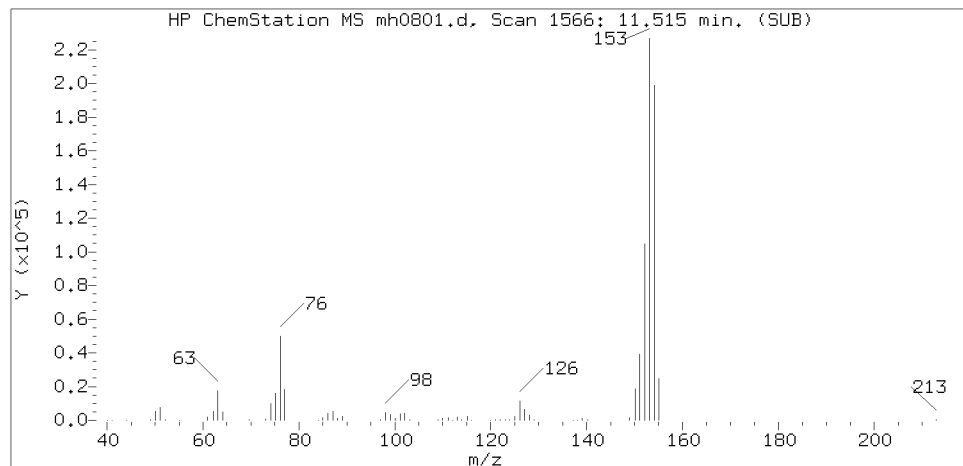
Lab Sample ID: 1283823

Compound Number	: 14	
Compound Name	: Acenaphthene-d10	
Scan Number	: 750	
Retention Time (minutes)	: 11.746	
Quant Ion	: 164.00	
Area	: 36551	
On-column Amount (ng/ul)	: 0.2500	
Integration start scan	: 741	Integration stop scan: 767
Y at integration start	: 63	Y at integration end: 69

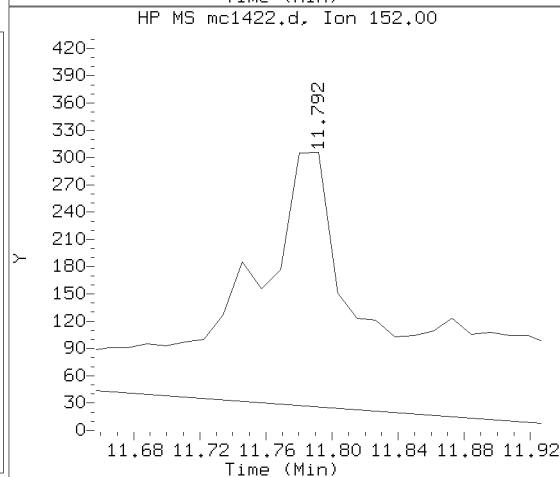
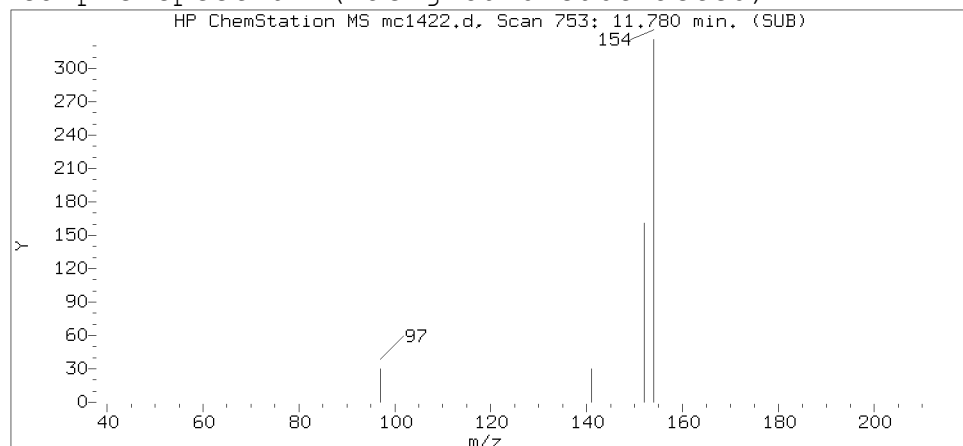
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.

Target 3.5 esignature user GPV67j Page 439 of 609

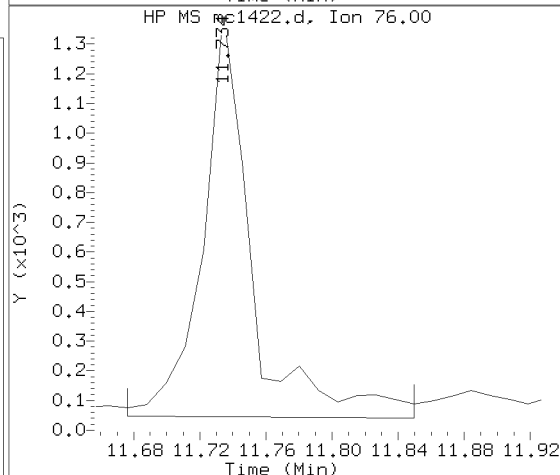
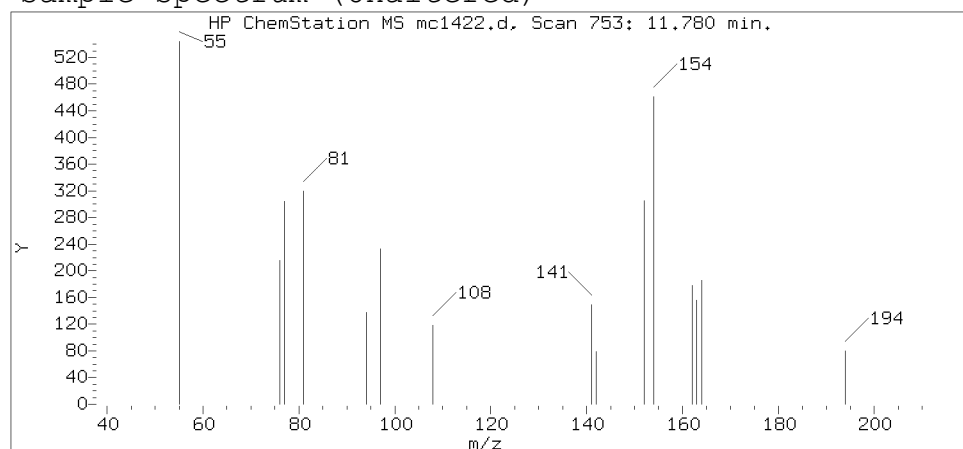
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1422.d
Injection date and time: 25-MAR-2020 05:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

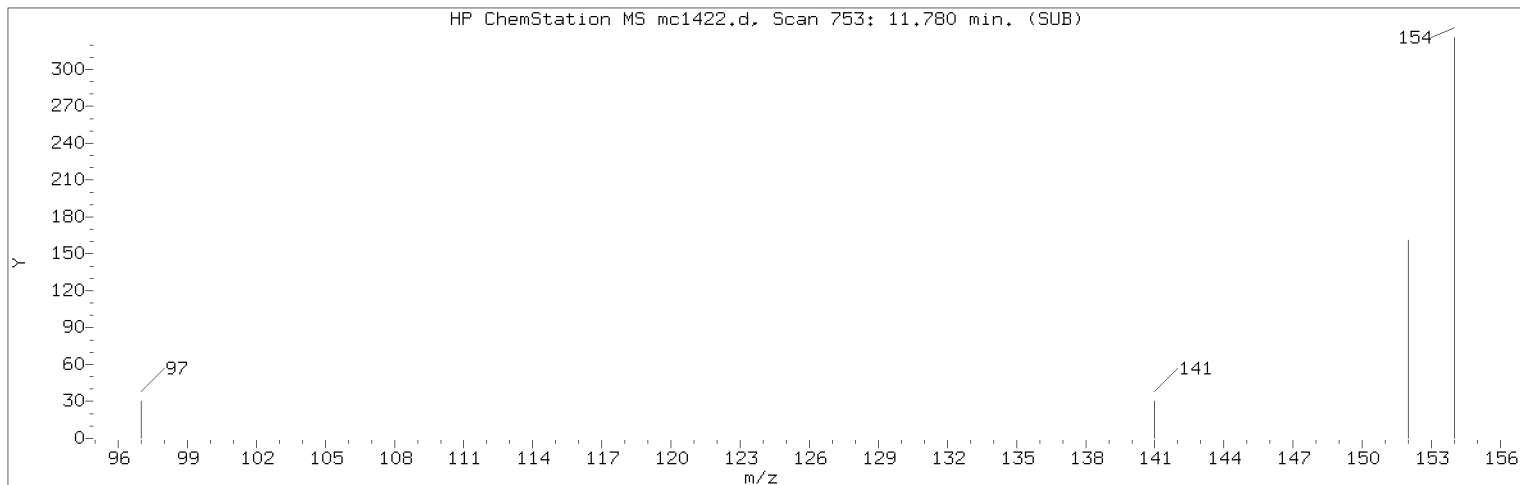
Sample Name: BAC13

Lab Sample ID: 1283823

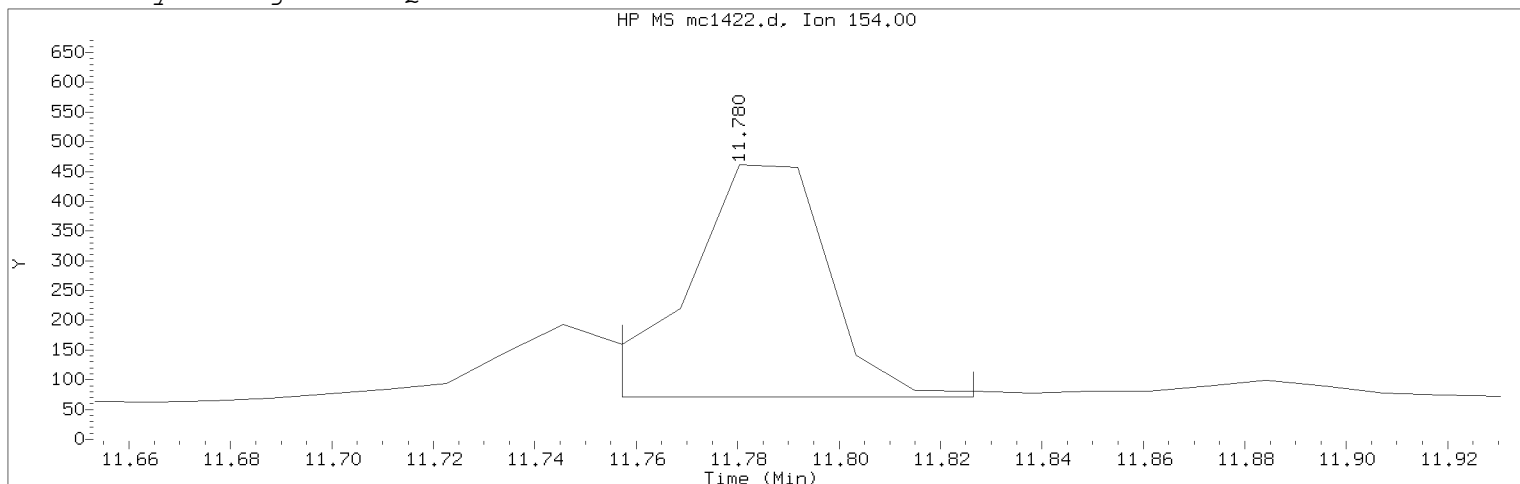
Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 753
Retention Time (minutes) : 11.780
Relative Retention Time : 0.00098
Quant Ion : 154.00
Area (flag) : 732M
On-column Amount (ng/ul) : 0.0032

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1422.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 05:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

Lab Sample ID: 1283823

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area (flag)	: 732M	
On-column Amount (ng/ul)	: 0.0032	
Integration start scan	: 750	Integration stop scan: 756
Y at integration start	: 71	Y at integration end: 71

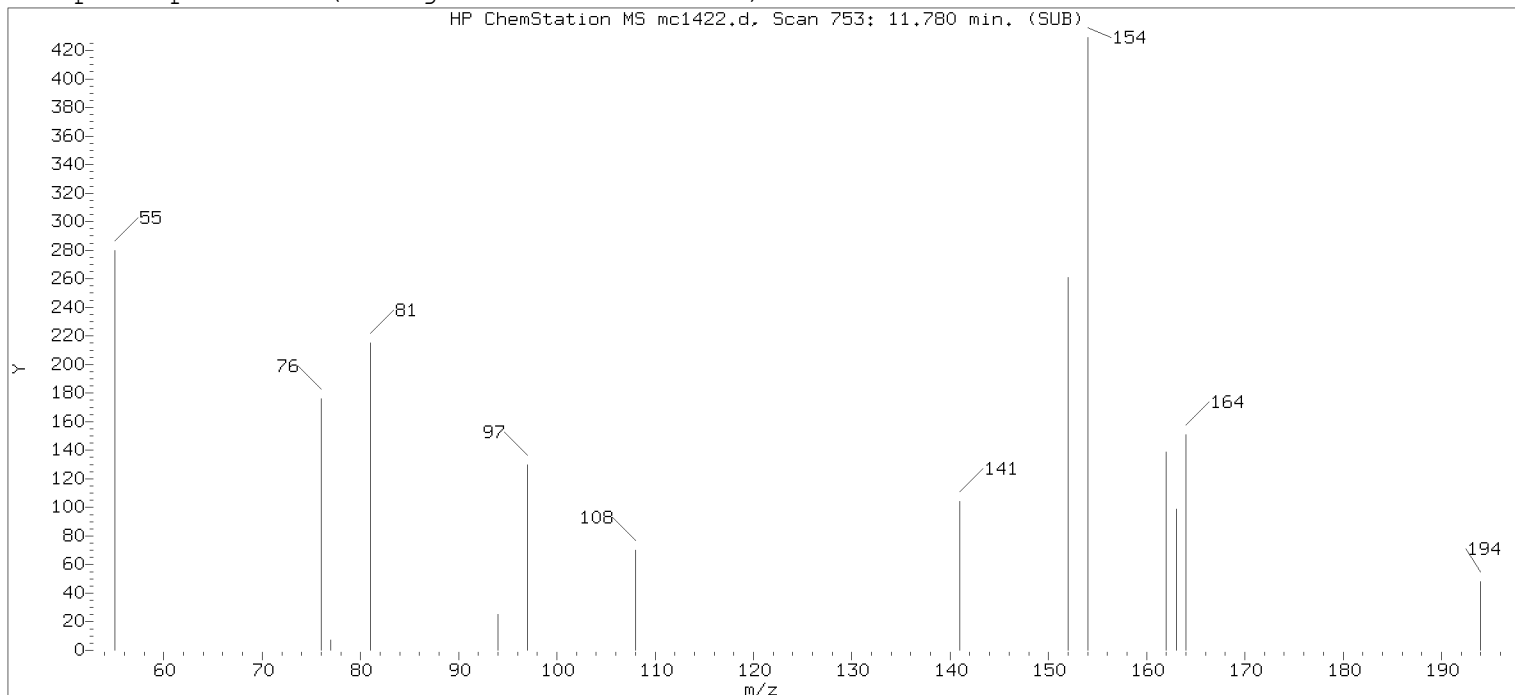
Reason for manual integration: improper integration

Analyst responsible for change:

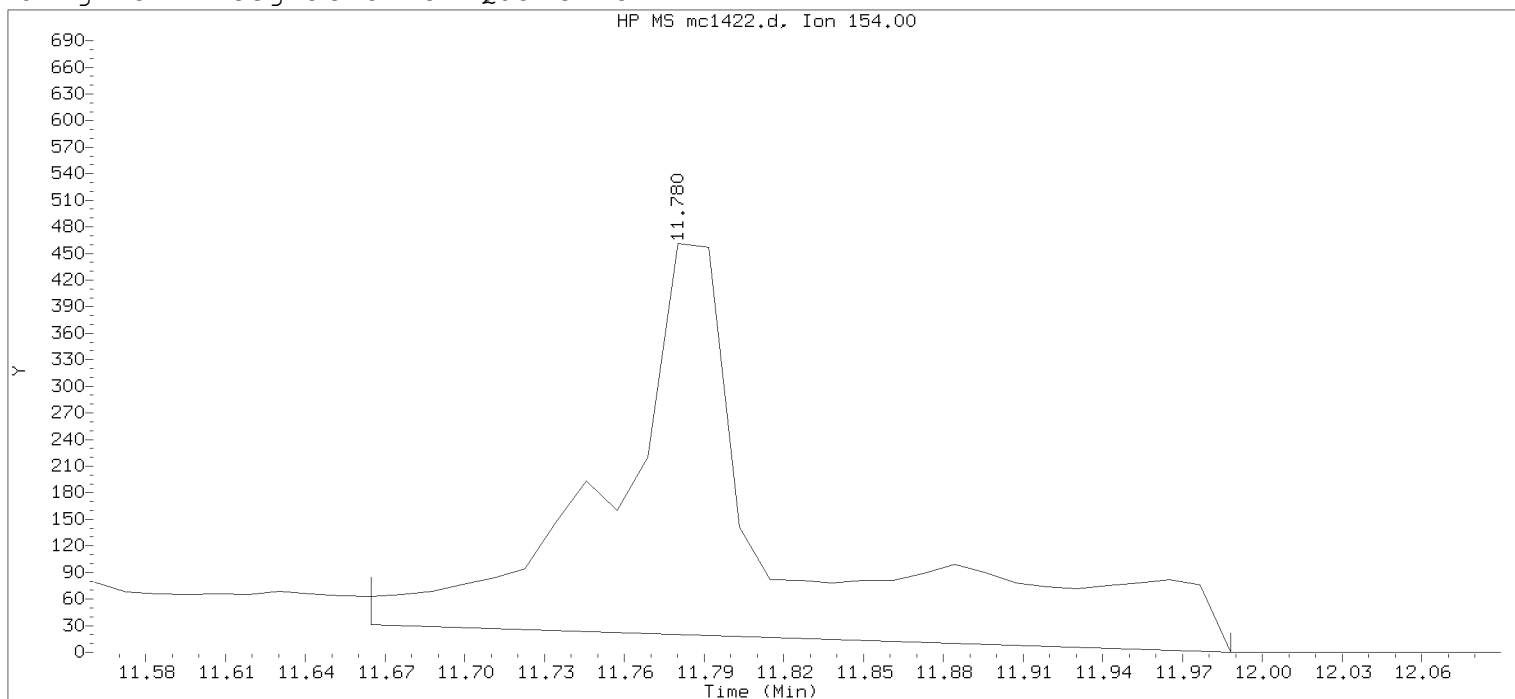
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:48.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1422.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 05:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:36 Unknown

Sample Name: BAC13

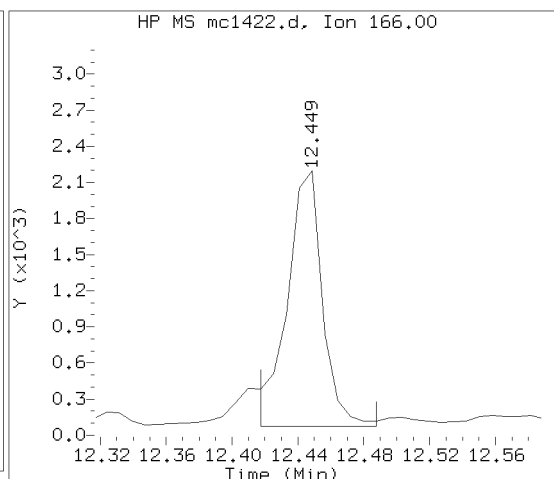
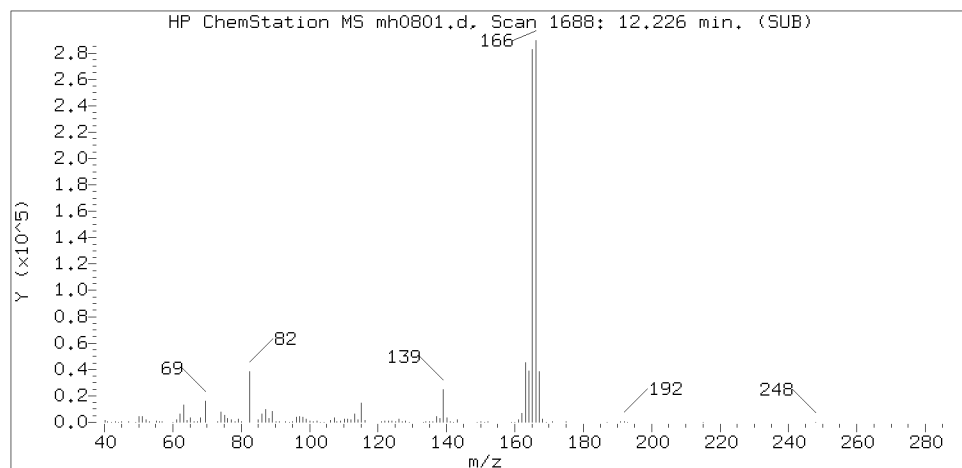
Lab Sample ID: 1283823

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 753	
Retention Time (minutes)	: 11.780	
Quant Ion	: 154.00	
Area	: 1962	
On-column Amount (ng/ul)	: 0.0091	
Integration start scan	: 742	Integration stop scan: 770
Y at integration start	: 31	Y at integration end: 0

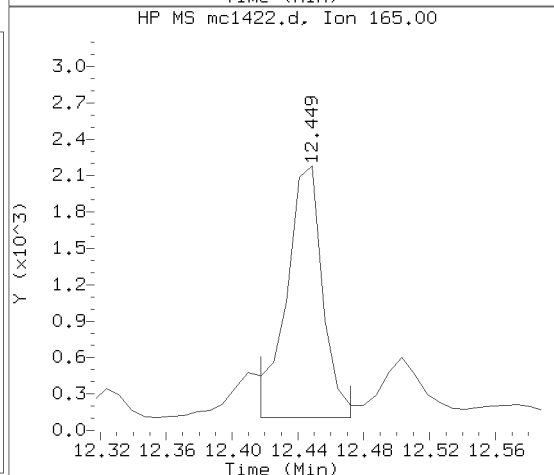
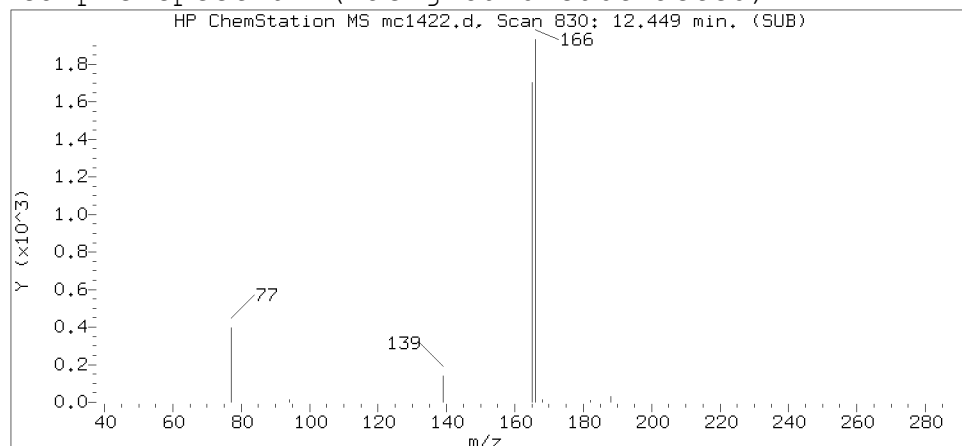
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.

Target 3.5 esignature user GPV67j Page 442 of 609

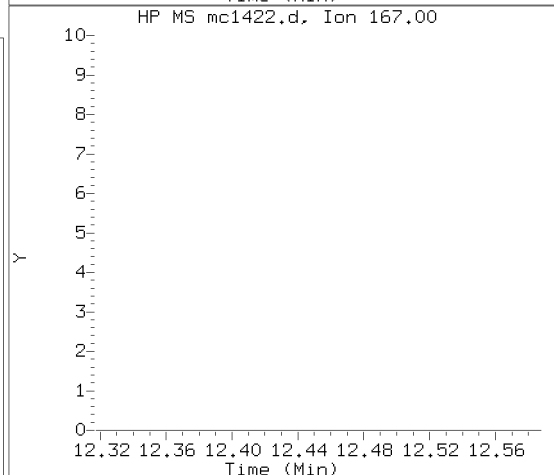
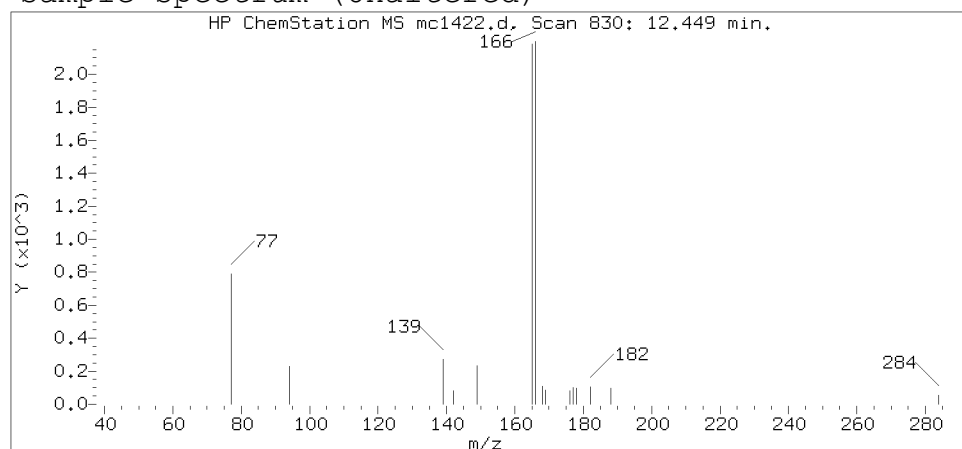
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1422.d
Injection date and time: 25-MAR-2020 05:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

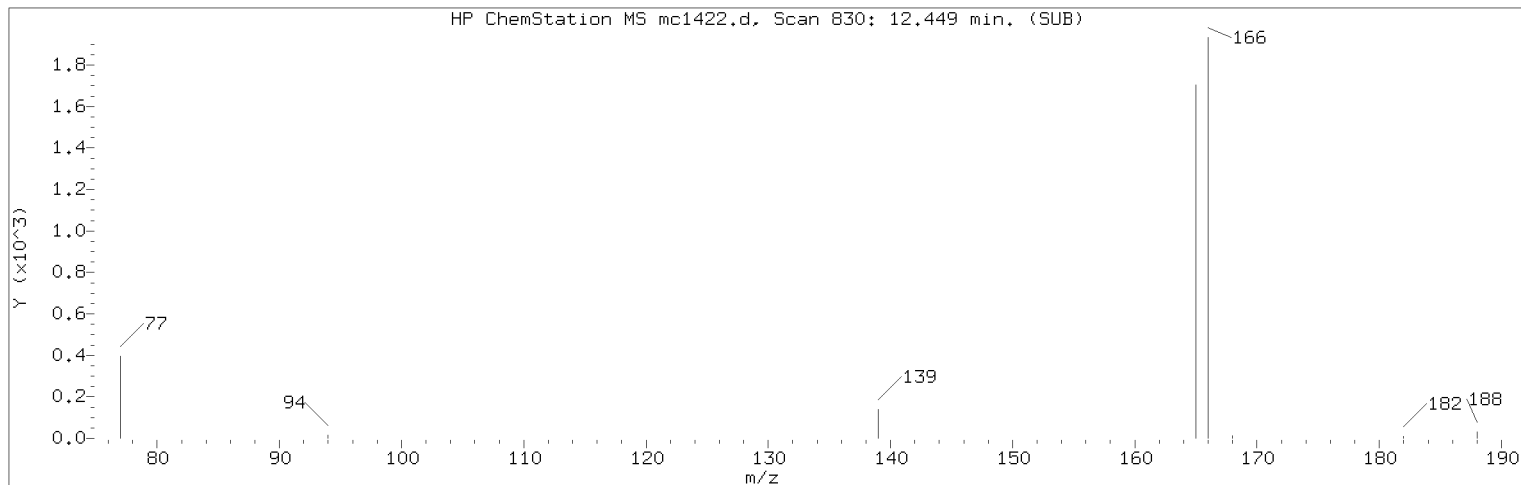
Lab Sample ID: 1283823

Compound Number : 18
Compound Name : Fluorene
Scan Number : 830
Retention Time (minutes) : 12.449
Relative Retention Time : 0.00000
Quant Ion : 166.00
Area (flag) : 3231M
On-column Amount (ng/ul) : 0.0110

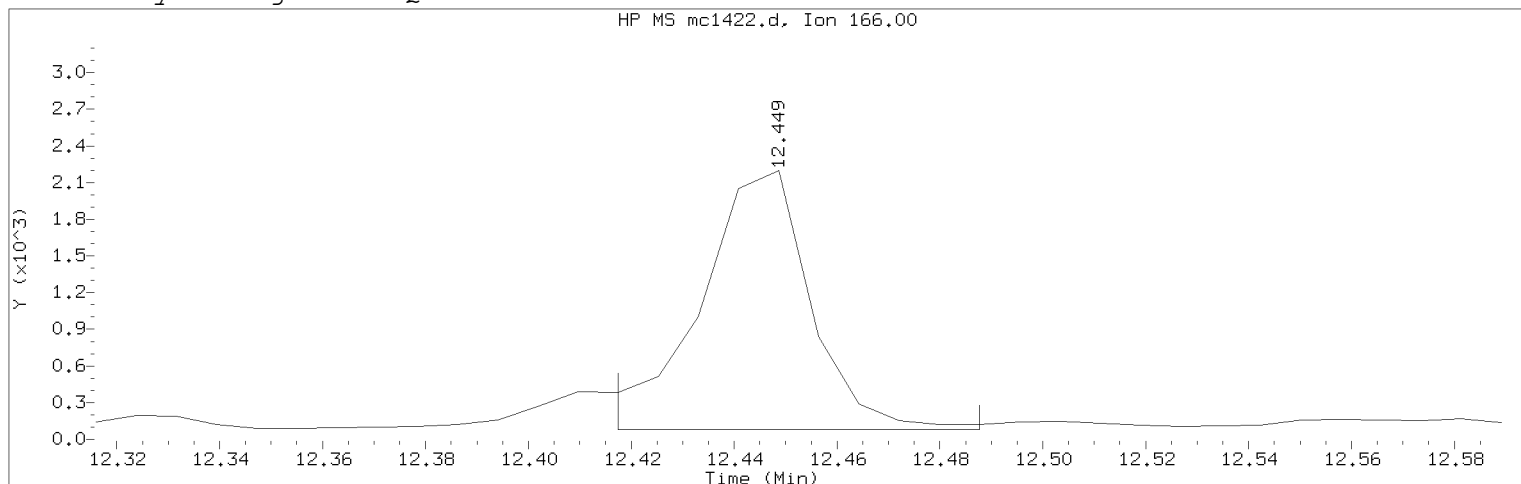
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.

Target 3.5 esignature user jmg00346
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Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1422.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 05:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

Lab Sample ID: 1283823

Compound Number	: 18	
Compound Name	: Fluorene	
Scan Number	: 830	
Retention Time (minutes)	: 12.449	
Quant Ion	: 166.00	
Area (flag)	: 3231M	
On-column Amount (ng/ul)	: 0.0110	
Integration start scan	: 825	Integration stop scan: 834
Y at integration start	: 77	Y at integration end: 77

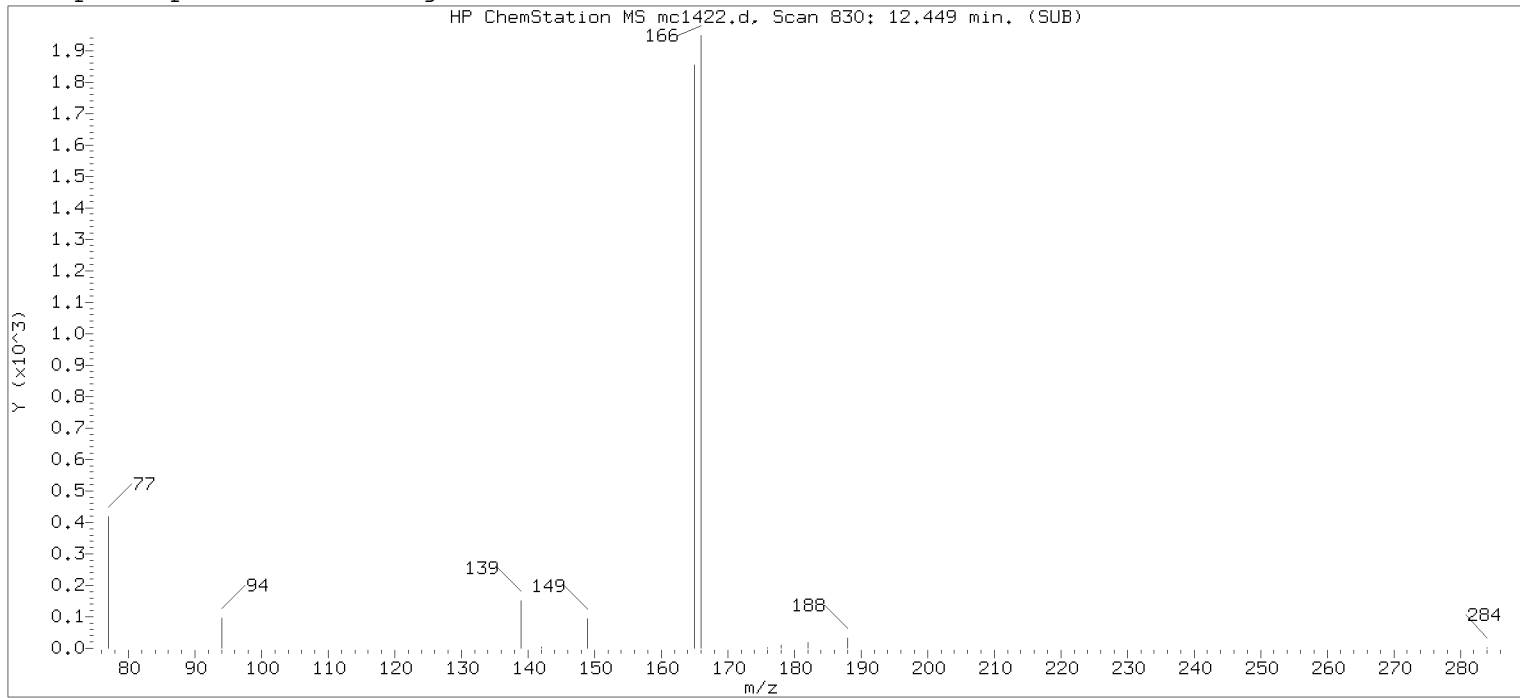
Reason for manual integration: improper integration

Analyst responsible for change:

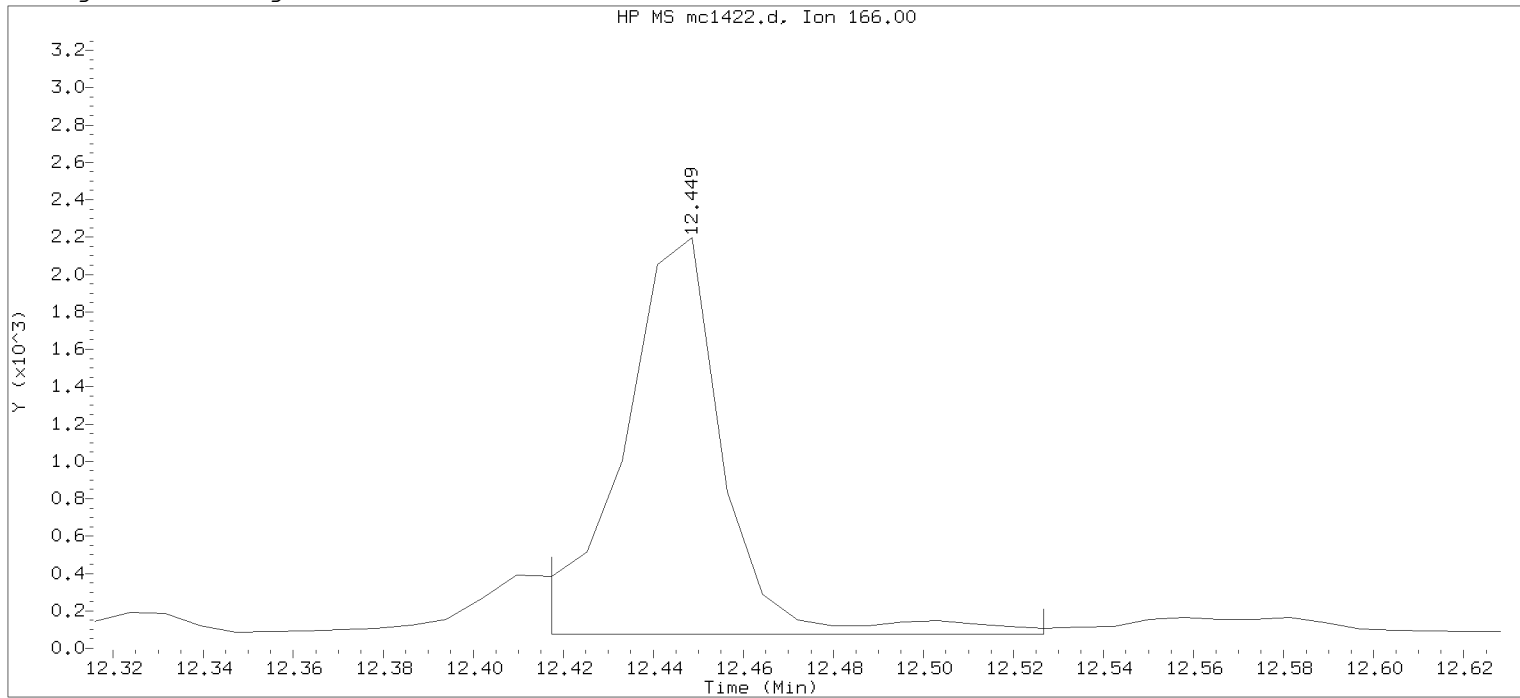
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 05:48.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1422.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 05:01

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 05:36 Unknown

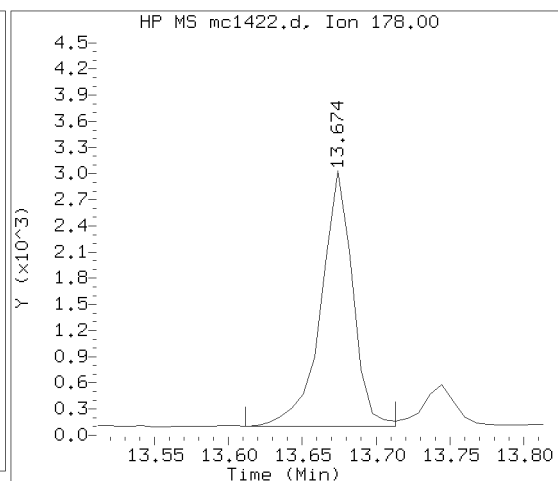
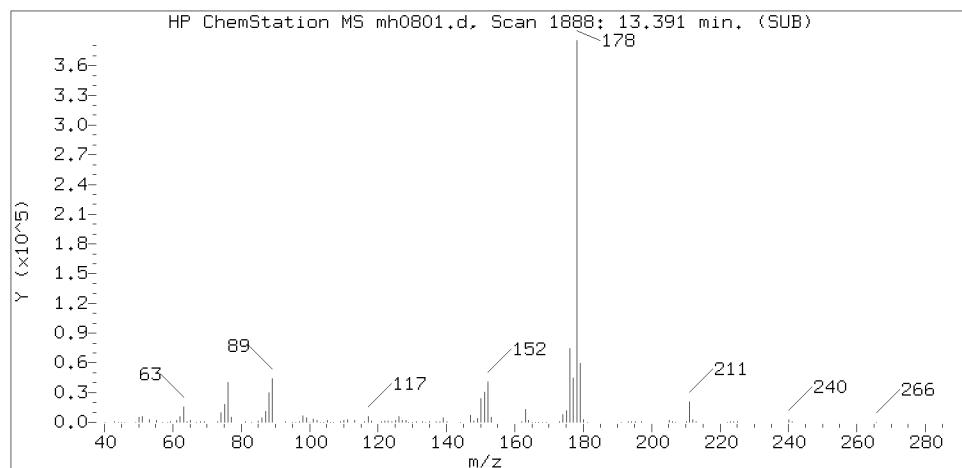
Sample Name: BAC13

Lab Sample ID: 1283823

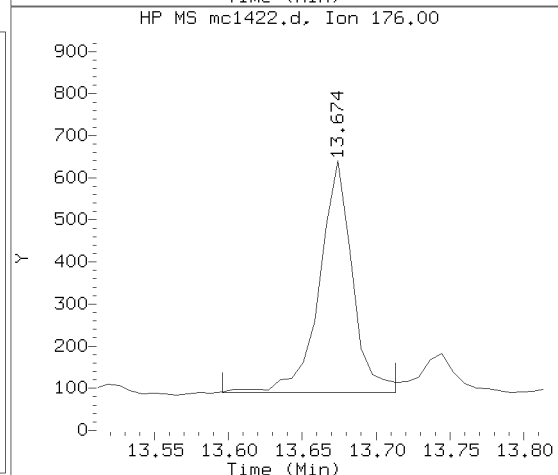
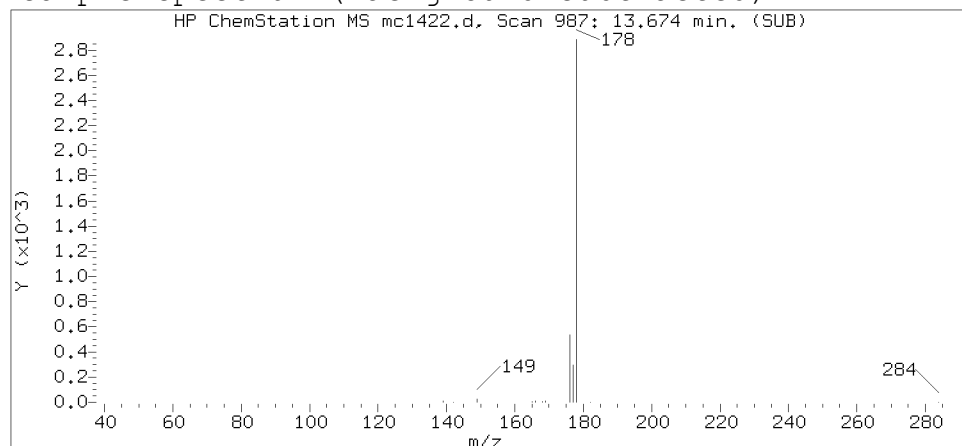
Compound Number : 18
 Compound Name : Fluorene
 Scan Number : 830
 Retention Time (minutes) : 12.449
 Quant Ion : 166.00
 Area : 3273
 On-column Amount (ng/ul) : 0.0119
 Integration start scan : 825
 Y at integration start : 77

Integration stop scan: 839
 Y at integration end: 77

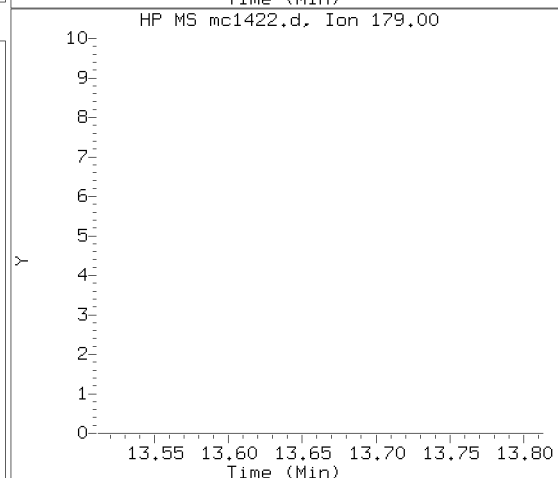
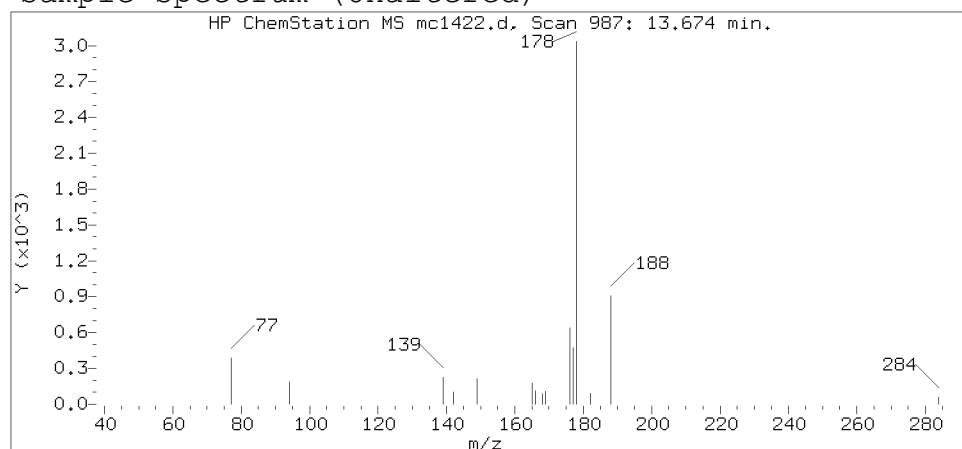
Reference Standard Spectrum for Phenanthrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1422.d
Injection date and time: 25-MAR-2020 05:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

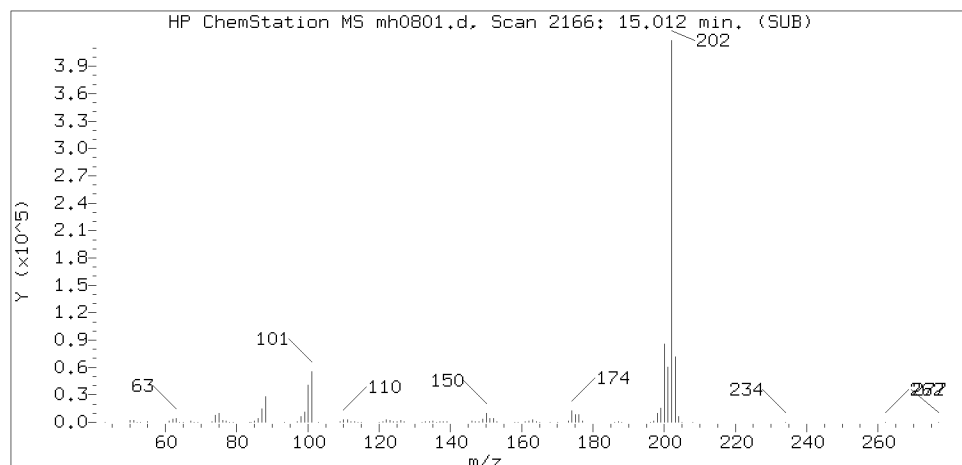
Lab Sample ID: 1283823

Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 987
Retention Time (minutes) : 13.674
Relative Retention Time : -0.00057
Quant Ion : 178.00
Area (flag) : 4379
On-column Amount (ng/ul) : 0.0110

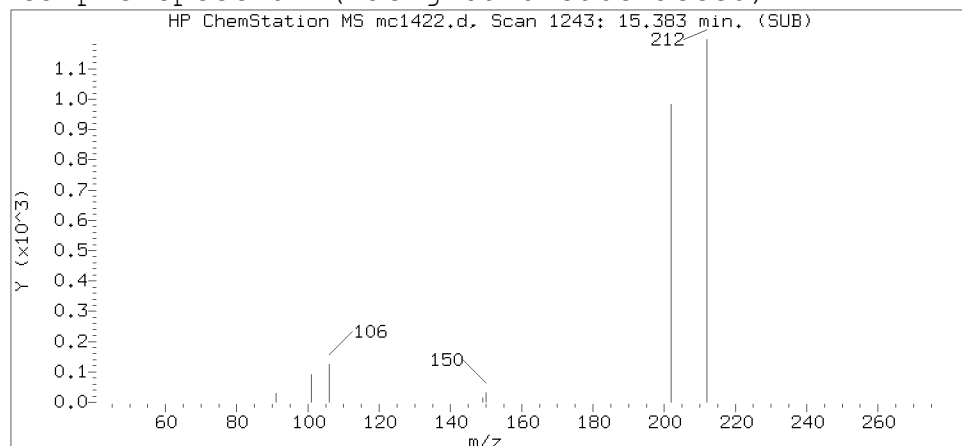
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.

Target 3.5 esignature user jmg00346 Page 446 of 609

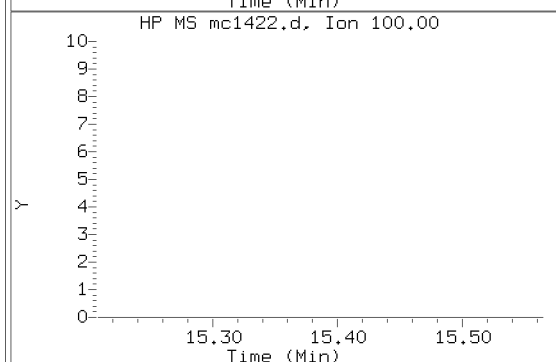
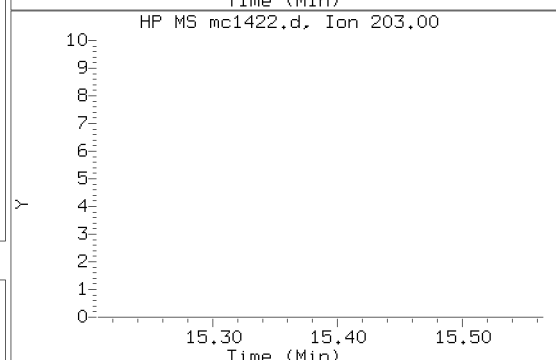
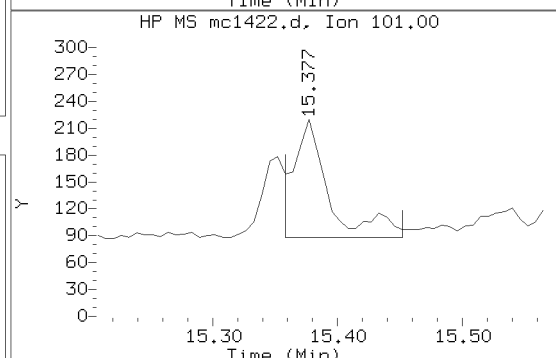
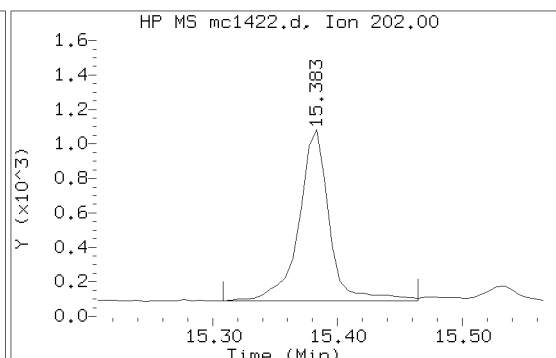
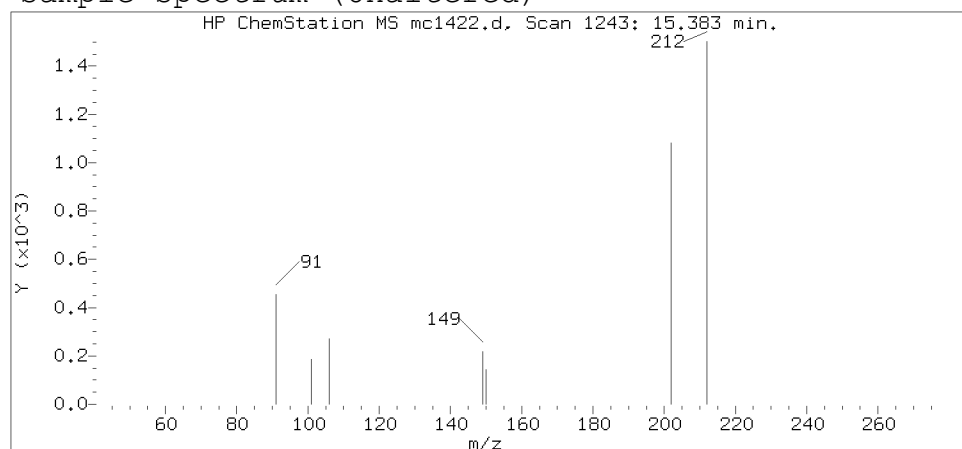
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1422.d
Injection date and time: 25-MAR-2020 05:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

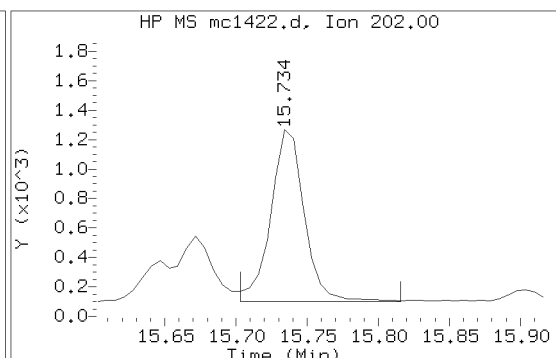
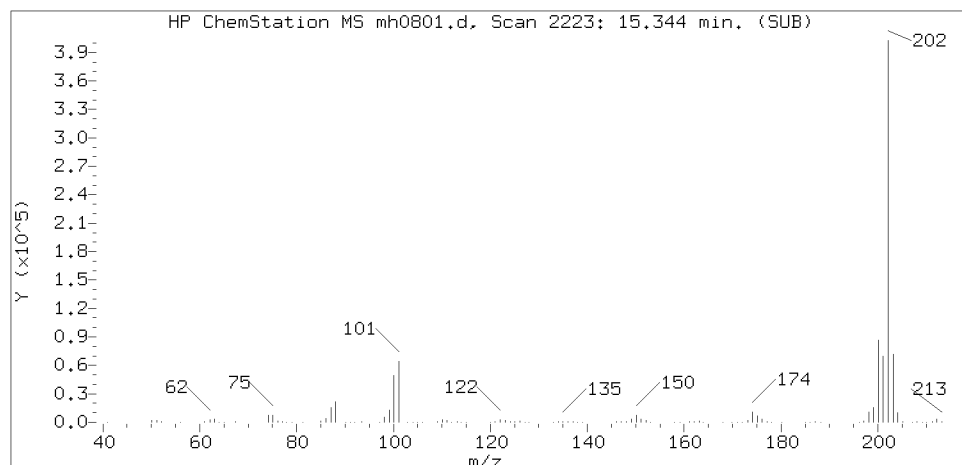
Lab Sample ID: 1283823

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1243
Retention Time (minutes) : 15.383
Relative Retention Time : -0.00064
Quant Ion : 202.00
Area (flag) : 1680
On-column Amount (ng/ul) : 0.0038

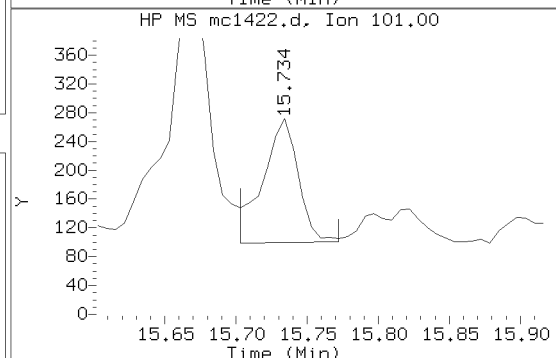
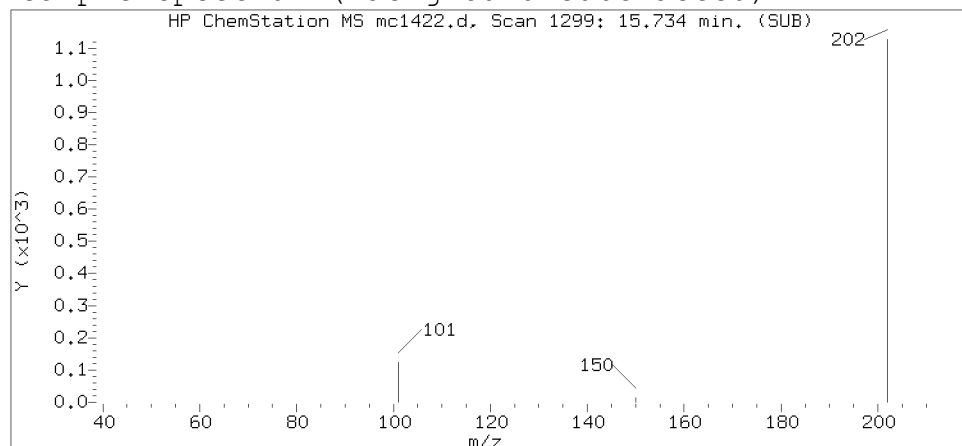
Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.

Target 3.5 esignature user jmg00346 Page 447 of 609

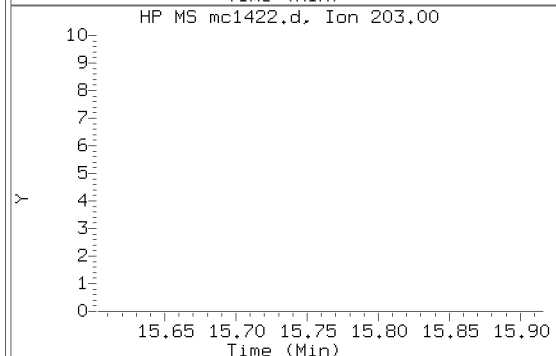
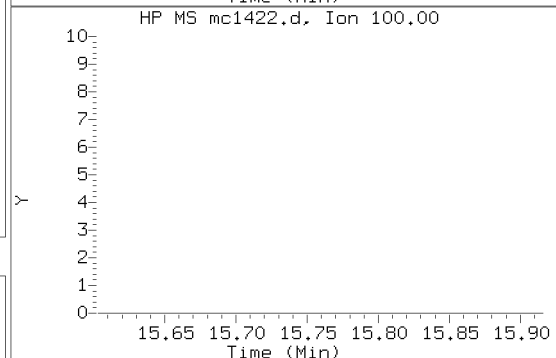
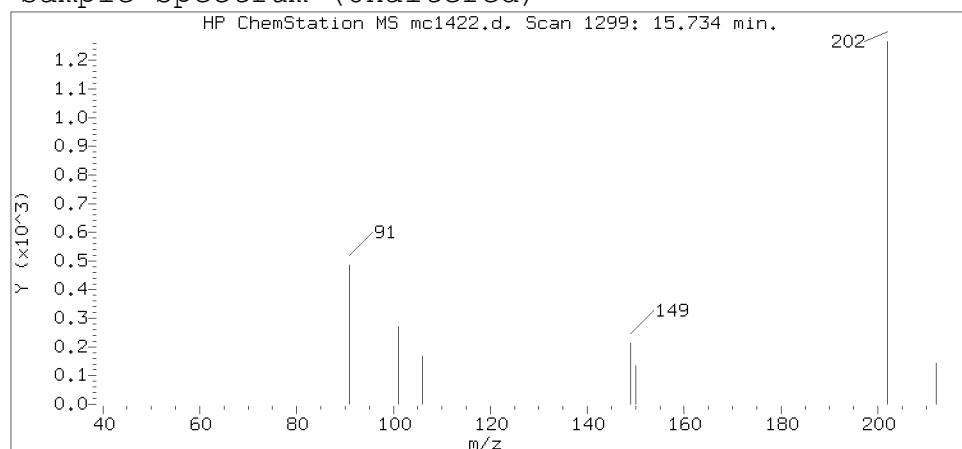
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1422.d
Injection date and time: 25-MAR-2020 05:01

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 24-MAR-2020 19:16
Date, time and analyst ID of latest file update: 25-Mar-2020 05:42 jmg00346

Sample Name: BAC13

Lab Sample ID: 1283823

Compound Number : 26
Compound Name : Pyrene
Scan Number : 1299
Retention Time (minutes) : 15.734
Relative Retention Time : 0.00035
Quant Ion : 202.00
Area (flag) : 1905
On-column Amount (ng/ul) : 0.0039

Digitally signed by Joseph M. Gambler on 03/25/2020 at 05:48.
Target 3.5 esignature user=jmg00346

Standards Data

Semivolatiles by GC/MS-SIM

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP21585 **HP #13**

Data Directory Path is - D:\data\20mar04\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ceb05247	MC0100.D	RVDFTPP0430	03/04/2020	18:05		
ceb05247	MC0100a.D	RVDFTPP0430	03/04/2020	18:20		
ceb05247	MC0100b.D	RVDFTPP0430	03/04/2020	18:37		
ceb05247	MC0100c.D	RVDFTPP0430	03/04/2020	19:06		
ceb05247	MC0100d.D	RVDFTPP0430	03/04/2020	19:28		
ceb05247	MC0101.D	RVSIM0130	03/04/2020	19:45		
ceb05247	MC0101a.D	RVSIM0130	03/04/2020	22:06		
ceb05247	MC0102.D	RVSIM0130	03/04/2020	23:03		
ceb05247	MC0103.D	RVSIM0130	03/04/2020	23:33		
ceb05247	MC0104.D	RVSIM0130	03/05/2020	00:03		
ceb05247	MC0105.D	RVSIM0130	03/05/2020	00:34		
ceb05247	MC0106.D	RVSIM0130	03/05/2020	01:04		
ceb05247	MC0107.D	RVSIM0130	03/05/2020	01:34		
ceb05247	MC0108.D	RVSICV0170	03/05/2020	02:05		
ceb05247	MC0109.D	RVSICV3399	03/05/2020	03:46		

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP21585 **HP #13**

Data Directory Path is - D:\data\20mar24\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ceb05247	MC1400.D	RVDFTPP0430	03/24/2020	17:04		
ceb05247	MC1401.D	SIM0750	03/24/2020	17:26		
ceb05247	MC1402.D	SBLKWF083	03/24/2020	18:54	20083WAF	
ceb05247	MC1403.D	083WFLCS	03/24/2020	19:25	20083WAF	
ceb05247	MC1404.D	1282921RE	03/24/2020	19:55	20083WAF	
ceb05247	MC1405.D	1282923RE	03/24/2020	20:25	20083WAF	
ceb05247	MC1406.D	1285938	03/24/2020	20:56	20083WAF	
ceb05247	MC1407.D	1283447	03/24/2020	21:26	20083WAF	
ceb05247	MC1408.D	1283809	03/24/2020	21:56	20083WAF	
ceb05247	MC1409.D	1283810	03/24/2020	22:27	20083WAF	
ceb05247	MC1410.D	1283811	03/24/2020	22:57	20083WAF	
ceb05247	MC1411.D	1283812	03/24/2020	23:27	20083WAF	
ceb05247	MC1412.D	1283813	03/24/2020	23:58	20083WAF	
ceb05247	MC1413.D	1283814	03/25/2020	00:28	20083WAF	
ceb05247	MC1414.D	1283815	03/25/2020	00:58	20083WAF	
ceb05247	MC1415.D	1283816	03/25/2020	01:29	20083WAF	
ceb05247	MC1416.D	1283817	03/25/2020	01:59	20083WAF	
ceb05247	MC1417.D	1283818	03/25/2020	02:29	20083WAF	
ceb05247	MC1418.D	1283819	03/25/2020	03:00	20083WAF	
ceb05247	MC1419.D	1283820	03/25/2020	03:30	20083WAF	
ceb05247	MC1420.D	1283821	03/25/2020	04:01	20083WAF	
ceb05247	MC1421.D	1283822	03/25/2020	04:31	20083WAF	
ceb05247	MC1422.D	1283823	03/25/2020	05:01	20083WAF	

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP21585 **HP #13**

Data Directory Path is - D:\data\20mar25\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ceb05247	MC1450.D	RVDFTPP0430	03/25/2020	06:08		
ceb05247	MC1451.D	SIM0750	03/25/2020	06:24		
ceb05247	MC1452.D	1283814DL	03/25/2020	07:02	20083WAF	10
ceb05247	MC1453.D	1283822DL	03/25/2020	07:32	20083WAF	2

Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

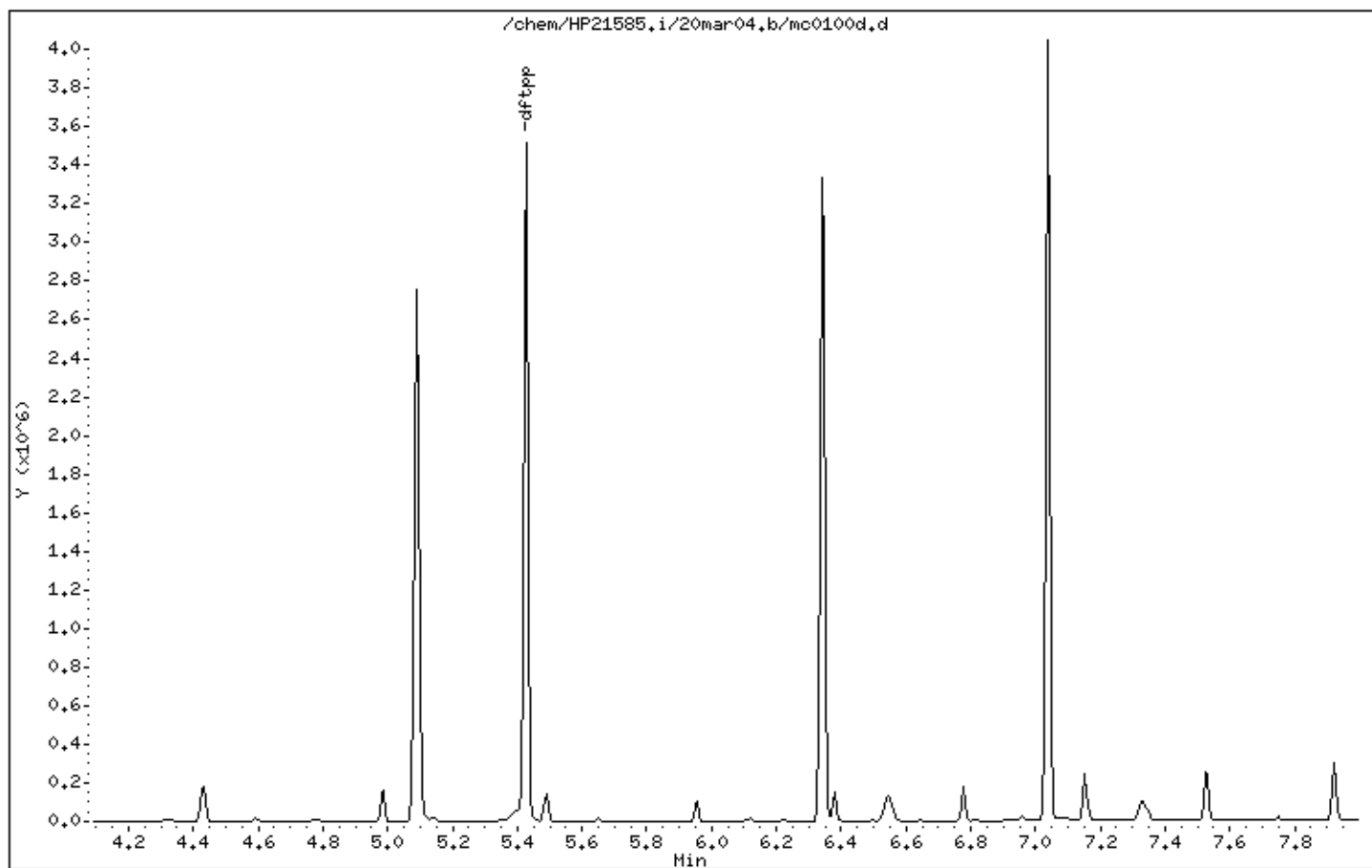
Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18



Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

Instrument: HP21585.i

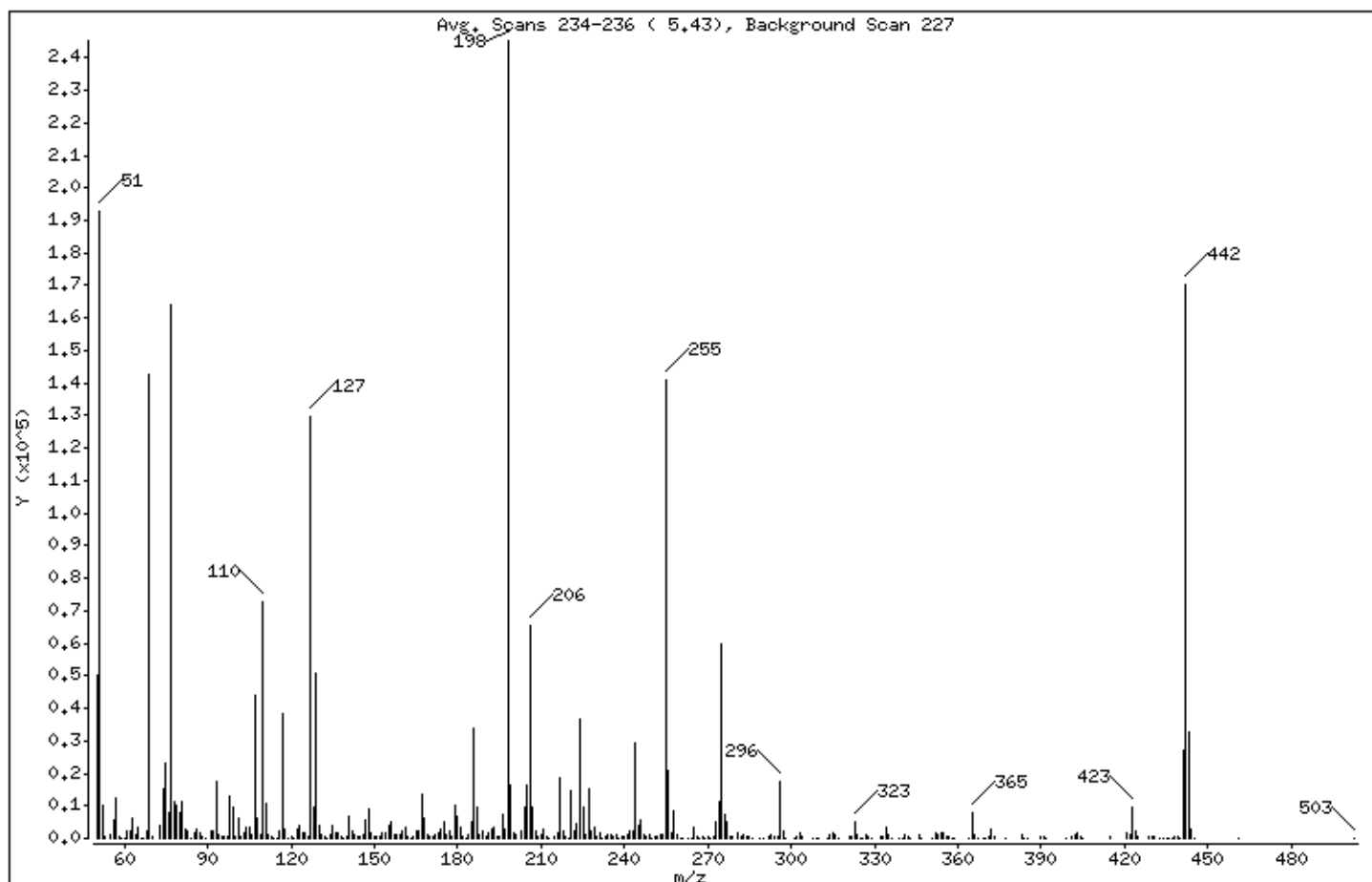
Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	78.74
68	Less than 2.00% of mass 69	0.96 (1.65)
69	Mass 69 relative abundance	58.25
70	Less than 2.00% of mass 69	0.27 (0.46)
127	10.00 - 80.00% of mass 198	52.81
197	Less than 2.00% of mass 198	1.05
199	5.00 - 9.00% of mass 198	6.76
275	10.00 - 60.00% of mass 198	24.32
365	Greater than 1.00% of mass 198	3.22
441	0.01 - 24.00% of mass 442	11.13 (16.06)
442	50.00 - 99.99% of mass 198	69.34
443	15.00 - 24.00% of mass 442	13.33 (19.22)

Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc0100d.d

Spectrum: Avg. Scans 234-236 (5.43), Background Scan 227

Location of Maximum: 198.00

Number of points: 326

m/z	Y	m/z	Y	m/z	Y	m/z	Y

50.00	49960	136.00	1625	220.00	132	314.00	887
51.00	193088	137.00	1944	221.00	14461	315.00	1825
52.00	9954	138.00	412	222.00	2448	316.00	1015
53.00	455	139.00	236	223.00	4455	317.00	91
55.00	961	140.00	643	224.00	36752	321.00	561

56.00	5483	141.00	6515	225.00	9359	322.00	329
57.00	12583	142.00	2056	226.00	1129	323.00	5027
58.00	637	143.00	1252	227.00	15085	324.00	1089
59.00	270	144.00	387	228.00	2166	325.00	42
60.00	173	145.00	451	229.00	3403	326.00	192

61.00	2034	146.00	1280	230.00	449	327.00	1012
62.00	2314	147.00	5537	231.00	1418	328.00	548
63.00	6447	148.00	9047	232.00	223	329.00	55
64.00	888	149.00	1415	233.00	370	332.00	435
65.00	3264	150.00	486	234.00	1030	333.00	462

66.00	215	151.00	791	235.00	1090	334.00	3620
67.00	259	152.00	399	236.00	662	335.00	919
68.00	2353	153.00	1928	237.00	1263	336.00	105
69.00	142848	154.00	1667	238.00	184	339.00	261
70.00	652	155.00	3743	239.00	579	340.00	54

73.00	3805	156.00	4939	240.00	500	341.00	1004
74.00	15149	157.00	976	241.00	955	342.00	345
75.00	23040	158.00	1080	242.00	2109	343.00	191
76.00	8107	159.00	1008	243.00	2332	346.00	1159
77.00	164224	160.00	2163	244.00	29136	347.00	237

78.00	11038	161.00	3165	245.00	3734	351.00	131
79.00	10075	162.00	768	246.00	5376	352.00	1465
80.00	8143	163.00	238	247.00	1195	353.00	1175
81.00	11035	164.00	328	248.00	368	354.00	1666
82.00	2906	165.00	2436	249.00	1200	355.00	1414

83.00	2530	166.00	2019	250.00	250	356.00	422
84.00	192	167.00	13795	251.00	372	357.00	300
85.00	1817	168.00	6402	252.00	484	358.00	167
86.00	3080	169.00	1116	253.00	977	359.00	113
87.00	1537	170.00	516	254.00	886	364.00	61

Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc0100d.d

Spectrum: Avg. Scans 234-236 (5.43), Background Scan 227

Location of Maximum: 198.00

Number of points: 326

m/z	Y	m/z	Y	m/z	Y	m/z	Y

88.00	613	171.00	541	255.00	140864	365.00	7890
89.00	234	172.00	1125	256.00	20656	366.00	1096
91.00	2321	173.00	1561	257.00	1508	367.00	59
92.00	2499	174.00	2734	258.00	8339	369.00	149
93.00	17400	175.00	4929	259.00	1223	370.00	257

94.00	1246	176.00	1324	260.00	197	371.00	441
95.00	316	177.00	2214	261.00	195	372.00	2827
96.00	759	178.00	745	263.00	55	373.00	763
97.00	410	179.00	10020	264.00	254	377.00	83
98.00	13125	180.00	6573	265.00	3470	383.00	901

99.00	9306	181.00	3120	266.00	632	384.00	155
100.00	769	182.00	455	267.00	277	385.00	91
101.00	5956	183.00	273	268.00	297	390.00	282
102.00	304	184.00	867	269.00	157	391.00	318
103.00	1716	185.00	4820	270.00	315	392.00	233

104.00	3380	186.00	33720	271.00	234	399.00	134
105.00	3399	187.00	9585	272.00	562	401.00	298
106.00	983	188.00	968	273.00	4859	402.00	1233
107.00	43896	189.00	2240	274.00	11111	403.00	1761
108.00	6208	190.00	336	275.00	59640	404.00	689

109.00	1115	191.00	1411	276.00	7587	405.00	114
110.00	72448	192.00	3067	277.00	4811	415.00	379
111.00	10879	193.00	3510	278.00	787	421.00	1587
112.00	1301	194.00	631	279.00	542	422.00	1350
113.00	586	195.00	667	281.00	1800	423.00	9366

114.00	159	196.00	7582	282.00	561	424.00	2147
115.00	224	197.00	2570	283.00	869	425.00	309
116.00	2135	198.00	245248	284.00	366	429.00	661
117.00	38080	199.00	16584	285.00	797	430.00	412
118.00	2690	200.00	1552	286.00	54	431.00	451

119.00	278	201.00	1048	289.00	166	433.00	191
120.00	479	203.00	2048	290.00	238	434.00	54
121.00	59	204.00	9533	292.00	295	435.00	242
122.00	2728	205.00	16258	293.00	976	436.00	261
123.00	3961	206.00	65328	294.00	330	437.00	177

Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18

Data File: mc0100d.d

Spectrum: Avg. Scans 234-236 (5.43), Background Scan 227

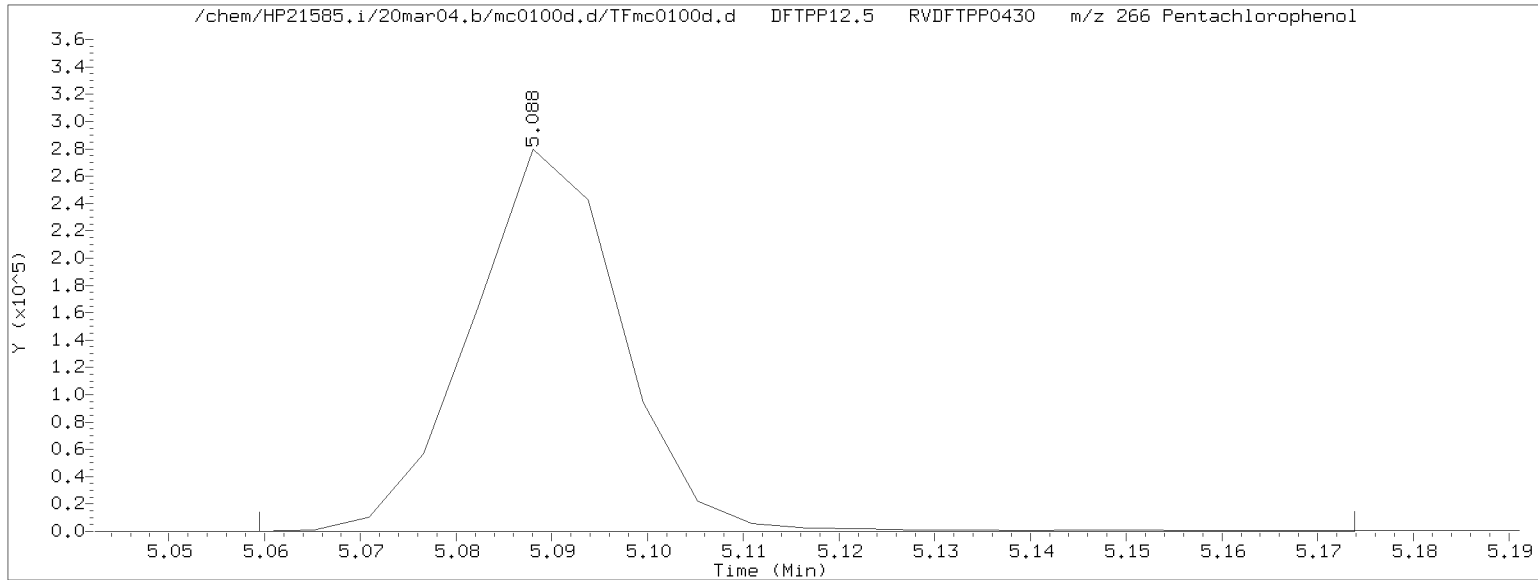
Location of Maximum: 198.00

Number of points: 326

m/z	Y	m/z	Y	m/z	Y	m/z	Y
124.00	1750	207.00	9723	295.00	612	438.00	296
125.00	1630	208.00	2165	296.00	17336	439.00	323
126.00	840	209.00	744	297.00	2445	440.00	262
127.00	129528	210.00	1146	298.00	176	441.00	27304
128.00	9815	211.00	2627	301.00	217	442.00	170048
129.00	50920	212.00	622	302.00	285	443.00	32688
130.00	3917	213.00	161	303.00	1973	444.00	2961
131.00	1137	215.00	787	304.00	519	445.00	143
132.00	437	216.00	1534	308.00	204	461.00	51
133.00	223	217.00	18608	309.00	78	503.00	170
134.00	1336	218.00	2296	310.00	274		
135.00	3895	219.00	495	313.00	129		

Assessment of GC Column Performance and Injection Port Inertness for

Instrument ID: HP21585.i Injection Date: 04-MAR-2020 19:28 Operator: ceb05247



Pentachlorophenol EICP peak height = 279872 EICP peak height at 10% = 27987 Pentachlorophenol EICP area = 305083

Pentachlorophenol EICP peak apex (min.) = 5.088

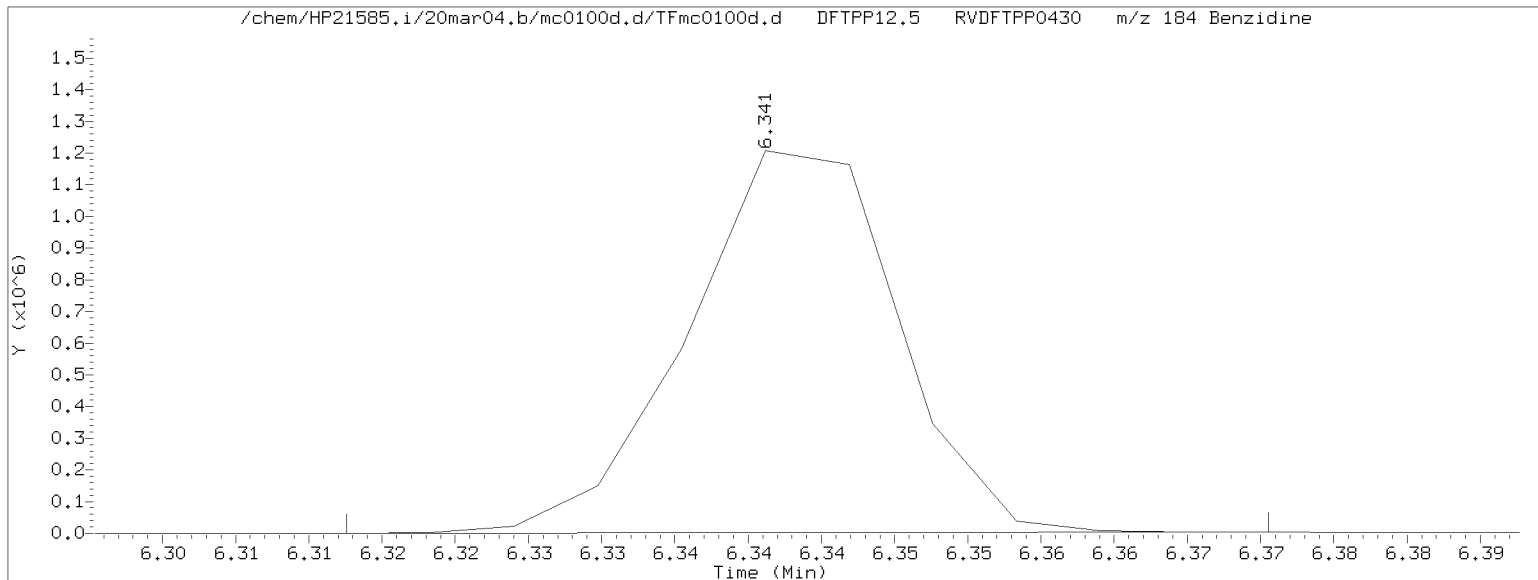
RT at 10% of front half of EICP (min.) = 5.073

RT at 10% of back half of EICP (min.) = 5.105

'Front' peak width (min.) = 0.014983333

'Tailing' peak width (min.) = 0.016700000

$$\text{PCP tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.016700000}{0.014983333} = 1.115$$



Benzidine EICP peak height = 1206402 EICP peak height at 10% = 120640 Benzidine EICP area = 1202803

Benzidine EICP peak apex (min.) = 6.341

RT at 10% of front half of EICP (min.) = 6.329

RT at 10% of back half of EICP (min.) = 6.357

'Front' peak width (min.) = 0.012650000

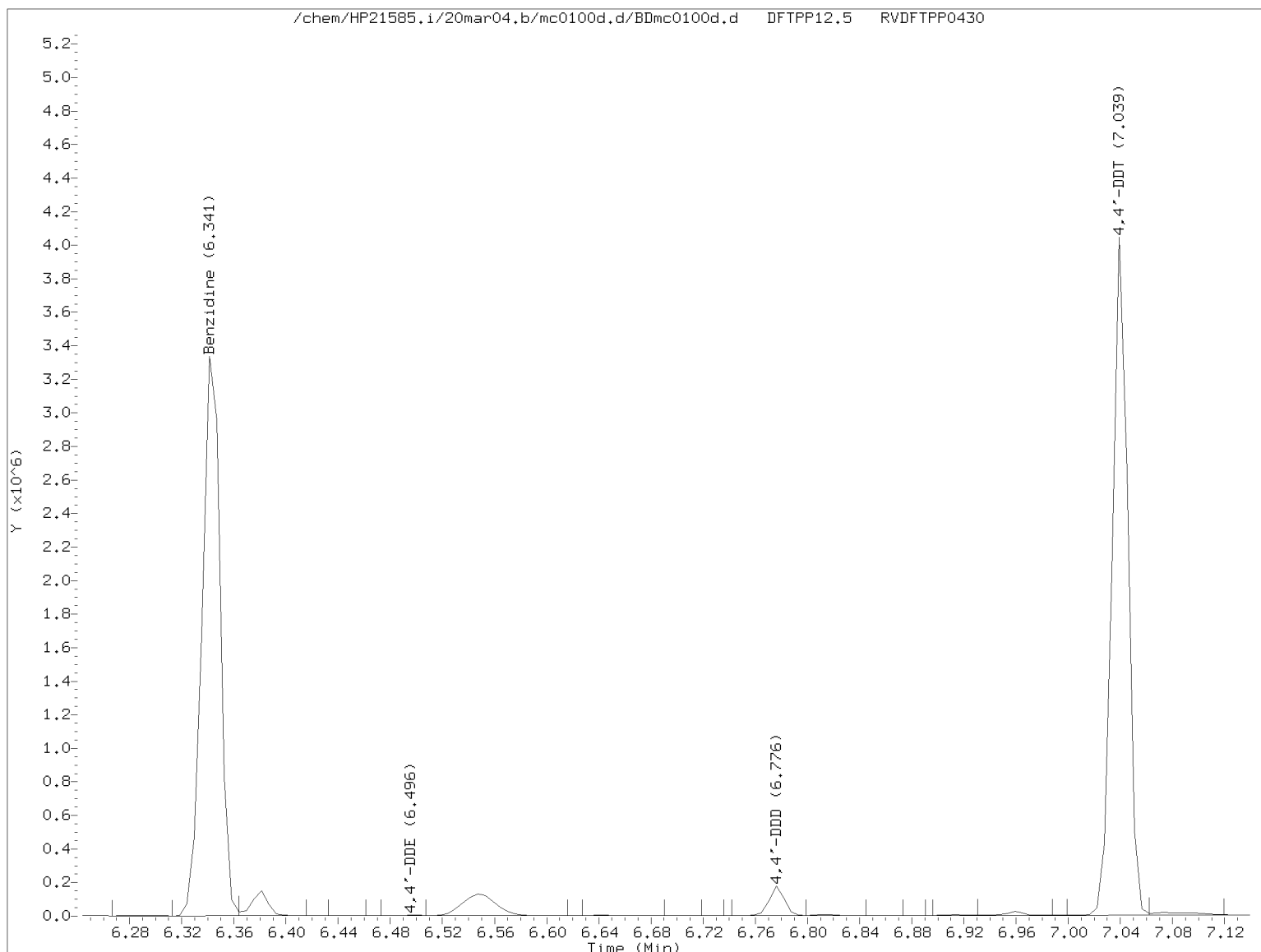
'Tailing' peak width (min.) = 0.015600000

$$\text{Benzidine tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.015600000}{0.012650000} = 1.233$$

page 1 of 2
printed on 03/04/2020 at 19:47

Assessment of GC Column Performance and Injection Port Inertness for

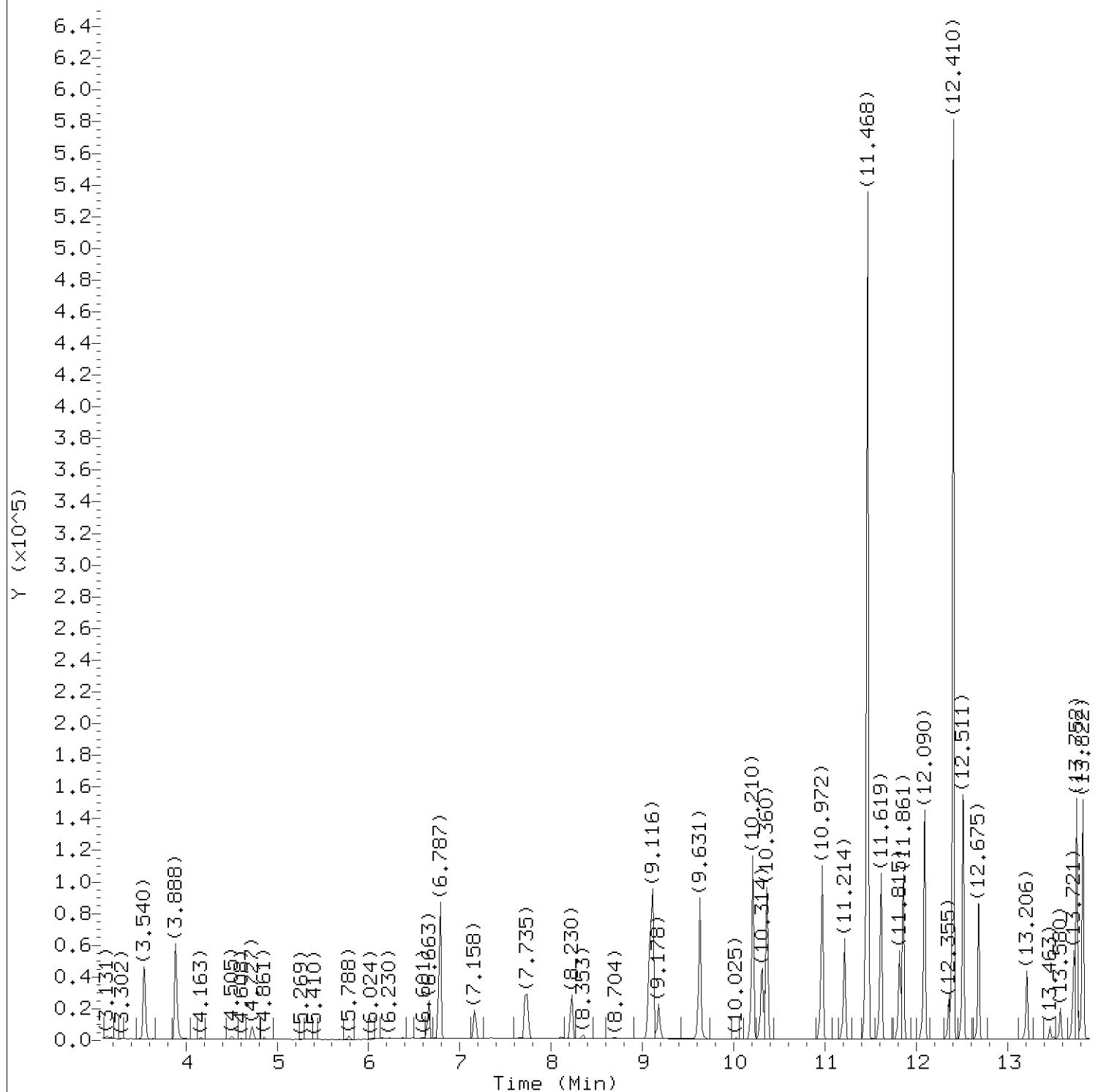
Instrument ID: HP21585.i Injection Date: 04-MAR-2020 19:28 Operator: ceb05247



$$\% \text{ 4,4'-DDT breakdown} = \frac{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area}}{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area} + 4,4'\text{-DDT TIC area}} \times 100$$

$$\% \text{ 4,4'-DDT breakdown} = \frac{3422 + 138380}{3422 + 138380 + 3353571} \times 100 = 4.1$$

page 2 of 2
printed on 03/04/2020 at 19:48



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0101a.d
Injection date and time: 04-MAR-2020 22:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

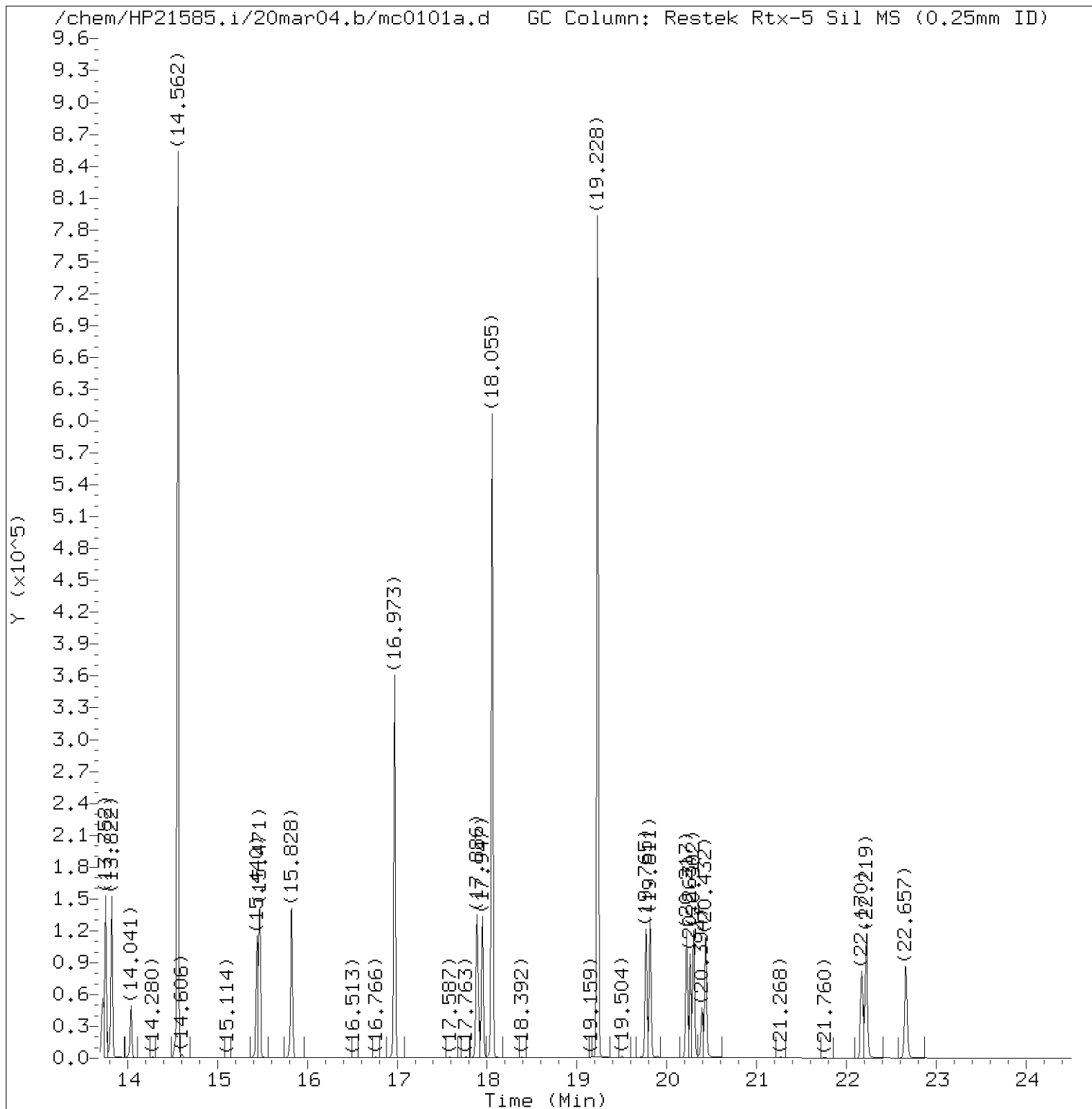
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST0.5

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0101a.d
Injection date and time: 04-MAR-2020 22:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.5

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0101a.d
 Injection date and time: 04-MAR-2020 22:06

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.5

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.547	88	25551	0.500
2) N-Nitrosodimethylamine	(1)	3.888	74	38472	0.500
4) bis(2-Chloroethyl)ether	(2)	6.787	93	55825	0.500
5)*1,4-Dichlorobenzene-d4	(1)	7.158	152	18450	0.250
6)*Naphthalene-d8	(2)	9.075	136	63212	0.250
7) Naphthalene	(2)	9.116	128	156281	0.500
8) Quinoline	(2)	9.631	129	70798	0.500
9) 2-Methylnaphthalene	(2)	10.210	142	97194	0.500
10)\$1-Methylnaphthalene-d10	(2)	10.314	152	67470	0.500
11) 1-Methylnaphthalene	(2)	10.360	142	92555	0.500
12) Dimethylphthalate	(3)	11.468	163	510530	2.500
13) Acenaphthylene	(3)	11.619	152	148606	0.500
14)*Acenaphthene-d10	(3)	11.815	164	26999	0.250
15) Acenaphthene	(3)	11.861	154	79005	0.500
16) Dibenzofuran	(3)	12.090	168	153533	0.500
17) Diethylphthalate	(3)	12.402	149	520010	2.500
18) Fluorene	(3)	12.511	166	105029	0.500
43) N-Nitrosodiphenylamine	(4)	12.683	169	58946	0.500
19) Hexachlorobenzene	(4)	13.206	284	39223	0.500
20)*Phenanthrene-d10	(4)	13.721	188	58317	0.250
21) Phenanthrene	(4)	13.752	178	154202	0.500
22) Anthracene	(4)	13.822	178	155263	0.500
23) Di-n-butylphthalate	(4)	14.562	149	908446	2.500
24)\$Fluoranthene-d10	(4)	15.440	212	133179	0.500
25) Fluoranthene	(4)	15.471	202	182907	0.500
26) Pyrene	(5)	15.828	202	184172	0.500
27) Butylbenzylphthalate	(5)	16.973	149	370884	2.500
28) Benzo(a)anthracene	(5)	17.886	228	153283	0.500
29)*Chrysene-d12	(5)	17.901	240	48974	0.250
30) Chrysene	(5)	17.947	228	159682	0.500
31) bis(2-Ethylhexyl)phthalate	(5)	18.055	149	559076	2.500
32) Di-n-octylphthalate	(6)	19.228	149	935489	2.500
33) Benzo(b)fluoranthene	(6)	19.765	252	153276	0.500
34) Benzo(k)fluoranthene	(6)	19.811	252	163351	0.500
35) Benzo(e)pyrene	(6)	20.217	252	146761	0.500
36)\$Benzo(a)pyrene-d12	(6)	20.263	264	105698	0.500
37) Benzo(a)pyrene	(6)	20.302	252	148723	0.500
38)*Perylene-d12	(6)	20.394	264	49204	0.250
45) Perylene	(6)	20.432	252	150411	0.500
39) Indeno(1,2,3-cd)pyrene	(6)	22.170	276	129571M	0.500

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0101a.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 22:06

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.5

Lab Sample ID: RVSIM0130

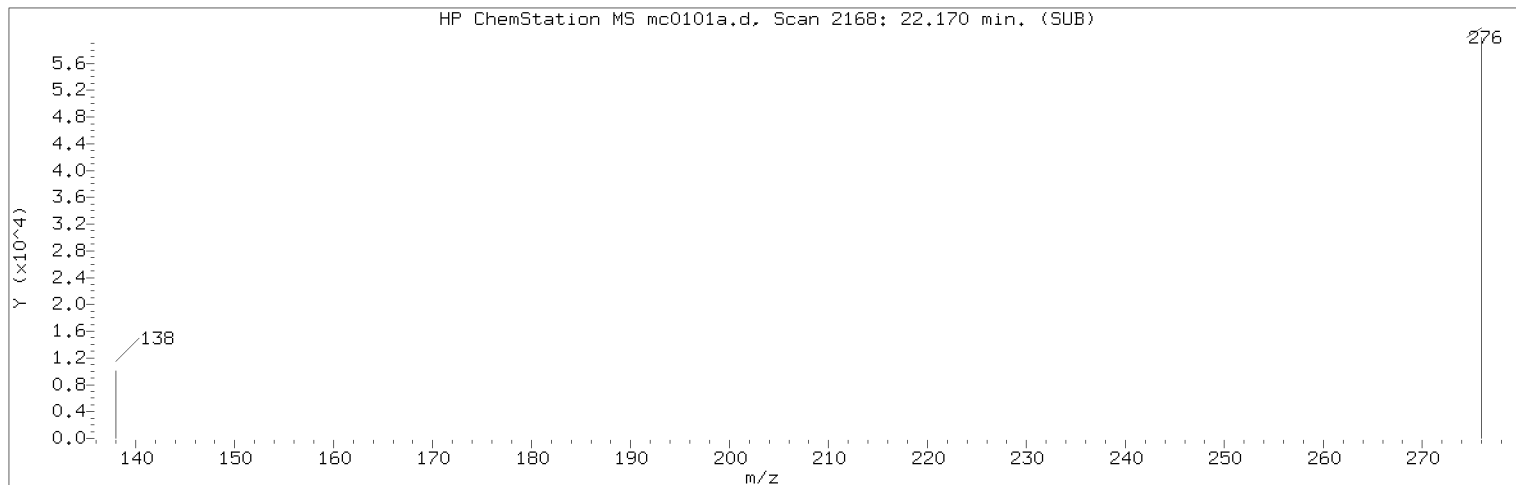
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.219	278	150158	0.500
41) Benzo(g,h,i)perylene	(6)	22.664	276	153641	0.500

Digitally signed by Joseph M. Gambler

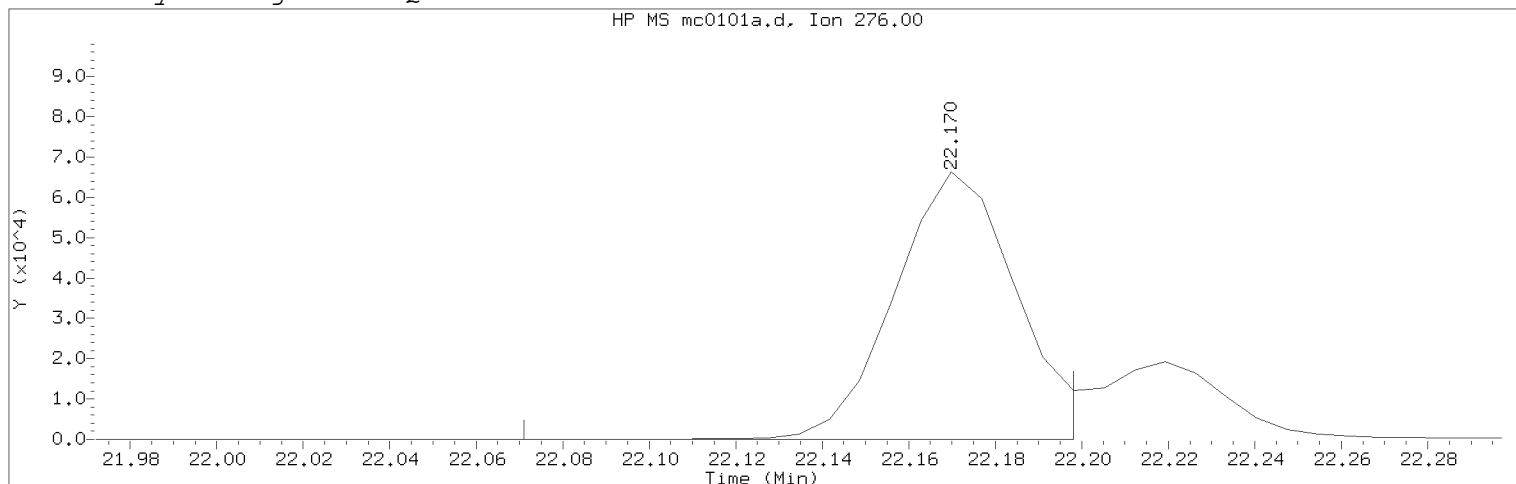
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0101a.d Instrument ID: HP21585.i
Injection date and time: 04-MAR-2020 22:06 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST0.5 Lab Sample ID: RVSIM0130

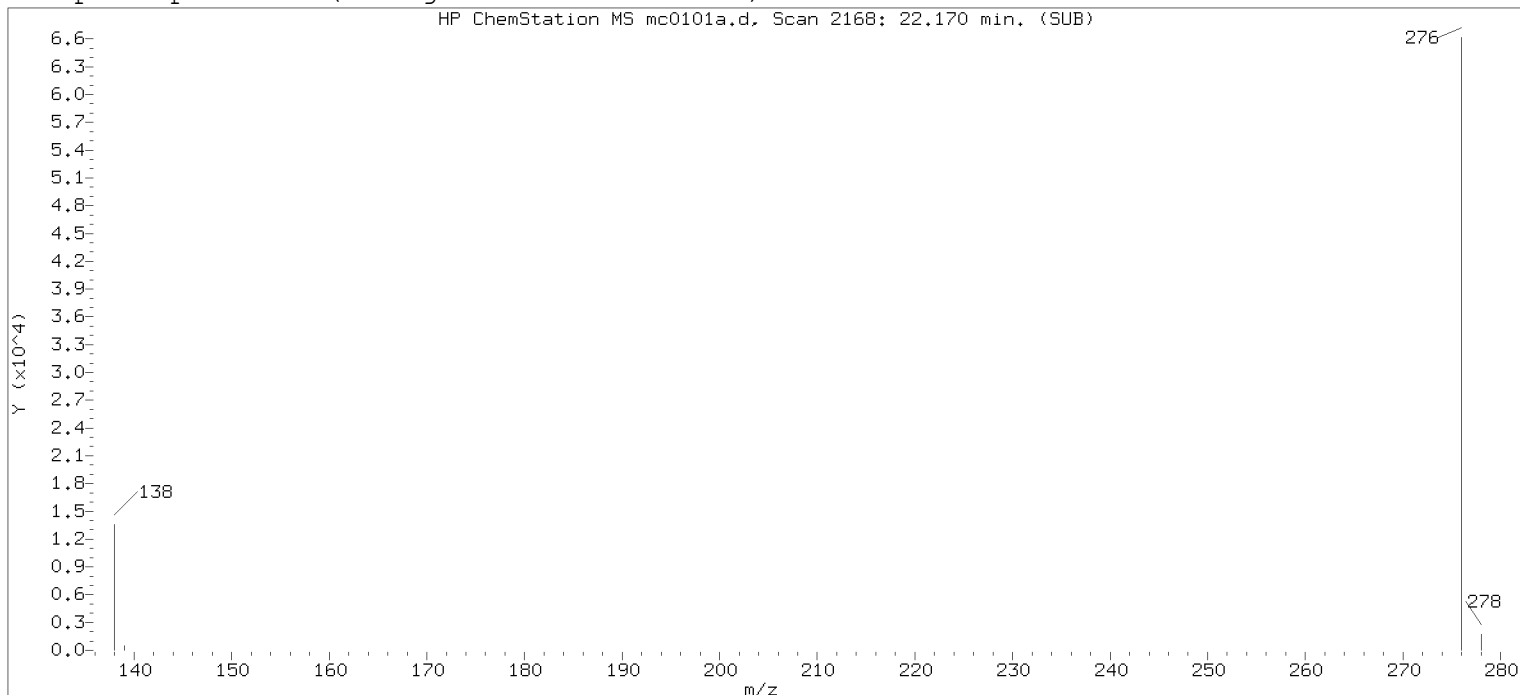
Compound Number : 39
Compound Name : Indeno(1,2,3-cd)pyrene
Scan Number : 2168
Retention Time (minutes) : 22.170
Quant Ion : 276.00
Area (flag) : 129571M
On-Column Amount (ng/ul) : 0.5000
Integration start scan : 2153 Integration stop scan: 2171
Y at integration start : 48 Y at integration end: 48

Reason for manual integration: improper integration

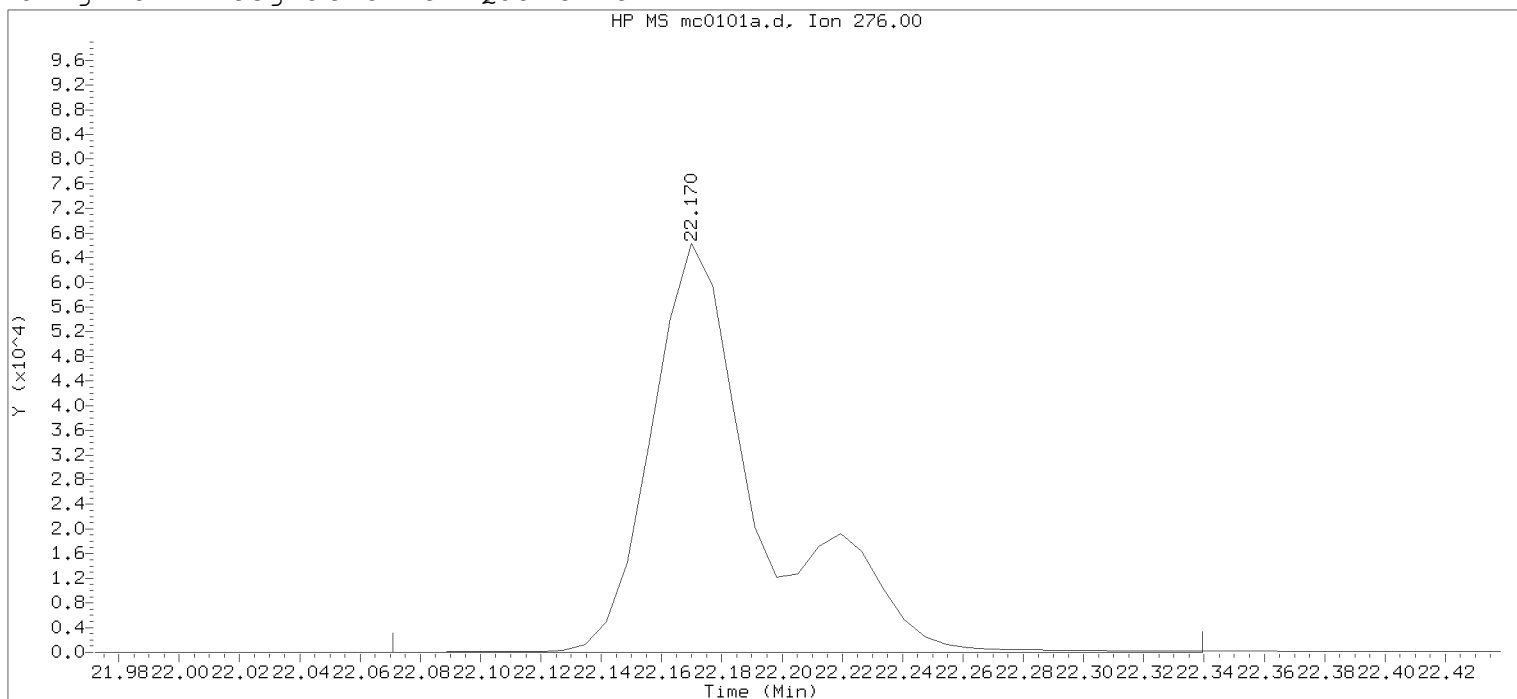
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion

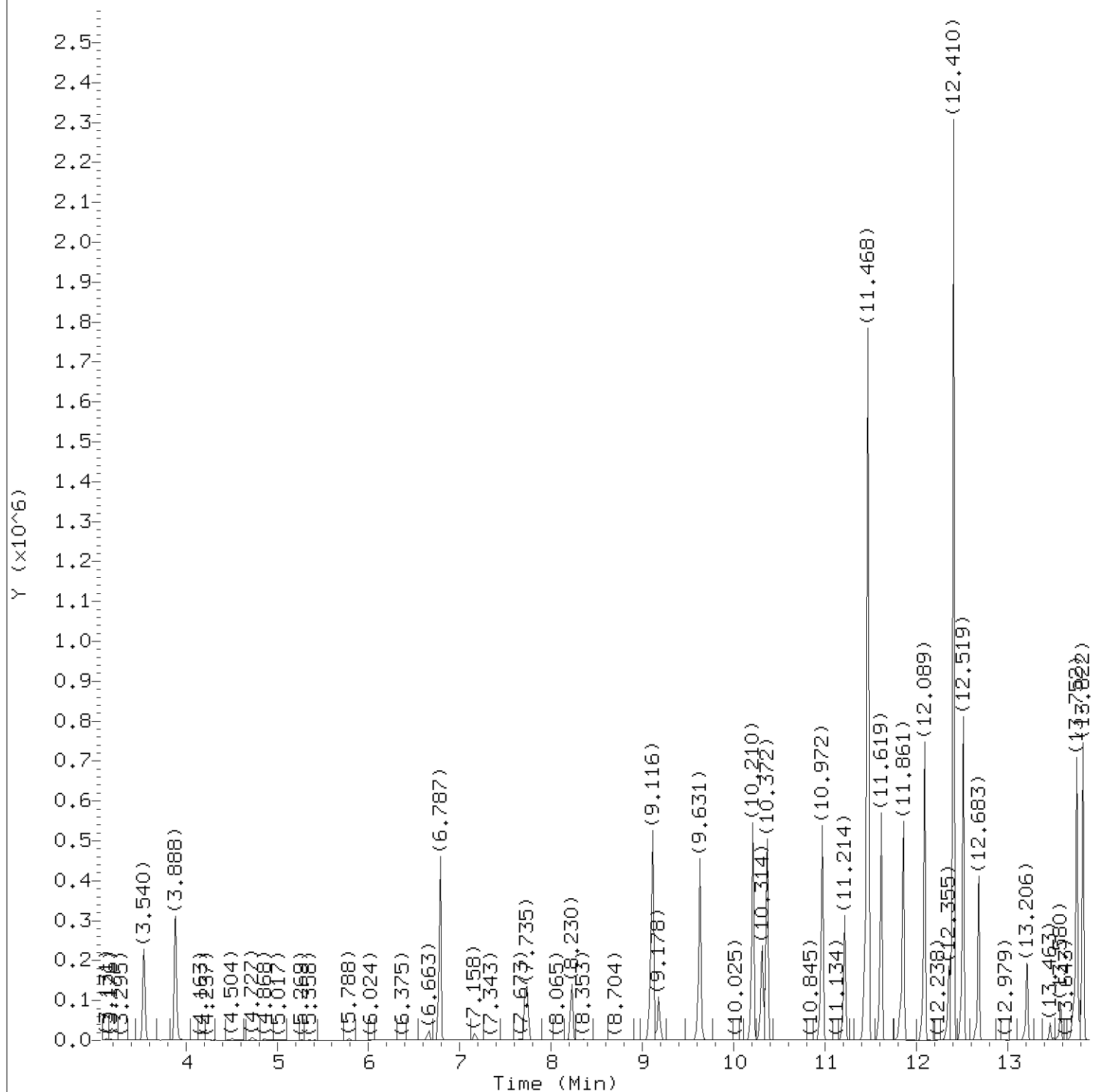


Data File: /chem/HP21585.i/20mar04.b/mc0101a.d Instrument ID: HP21585.i
Injection date and time: 04-MAR-2020 22:06 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:29
Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.5 Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2168	
Retention Time (minutes)	: 22.170	
Quant Ion	: 276.00	
Area	: 166872	
On-column Amount (ng/ul)	: 0.6261	
Integration start scan	: 2153	Integration stop scan: 2191
Y at integration start	: 48	Y at integration end: 48



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0102.d
Injection date and time: 04-MAR-2020 23:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

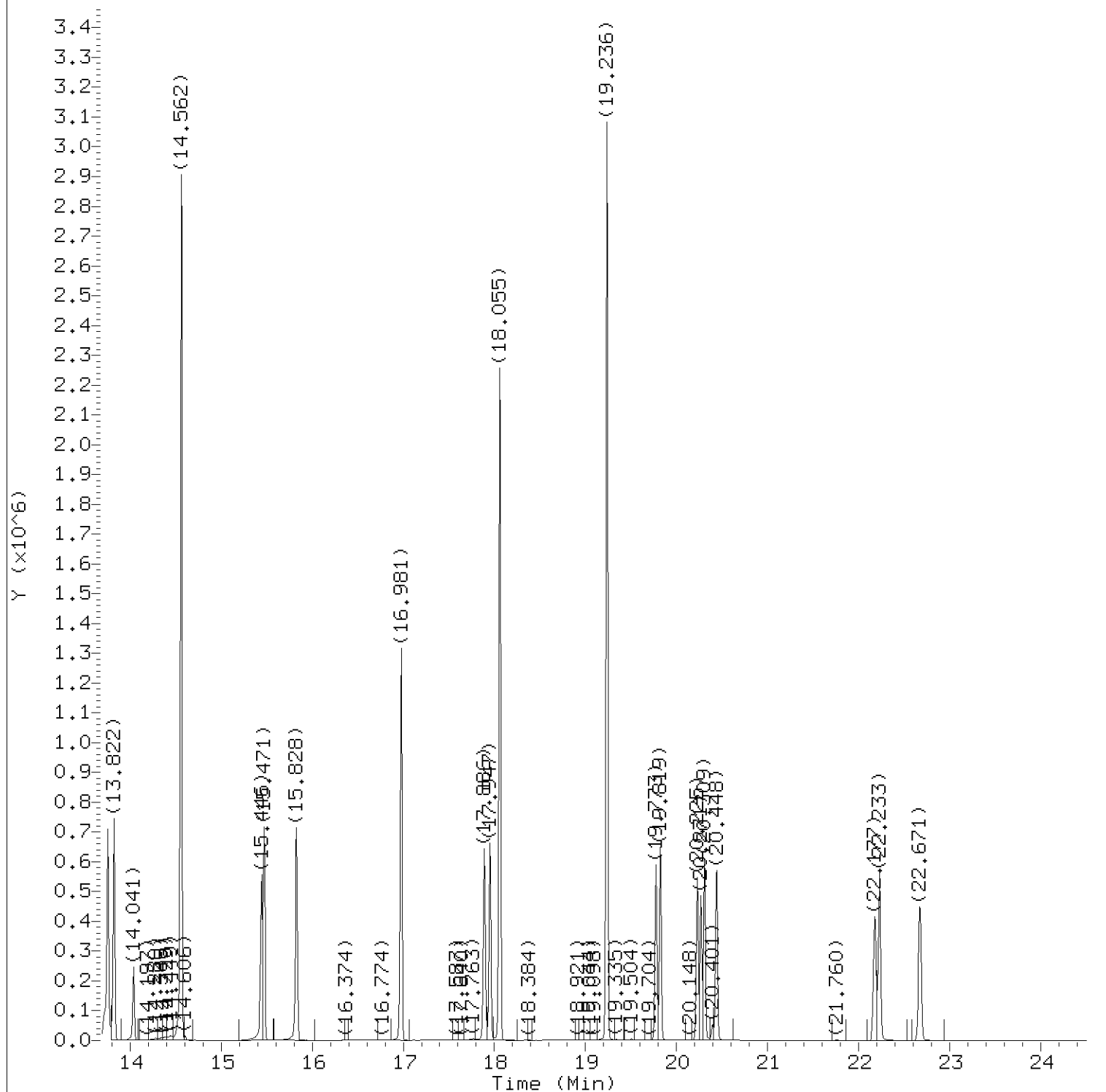
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0102.d
Injection date and time: 04-MAR-2020 23:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0102.d
 Injection date and time: 04-MAR-2020 23:03

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.540	88	121933	2.510
2) N-Nitrosodimethylamine	(1)	3.888	74	190091	2.554
4) bis(2-Chloroethyl)ether	(2)	6.787	93	281118	2.516
5)*1,4-Dichlorobenzene-d4	(1)	7.158	152	17464	0.250
6)*Naphthalene-d8	(2)	9.075	136	62864	0.250
7) Naphthalene	(2)	9.116	128	780989	2.506
8) Quinoline	(2)	9.631	129	357889	2.521
9) 2-Methylnaphthalene	(2)	10.210	142	484953	2.504
10)\$1-Methylnaphthalene-d10	(2)	10.314	152	337685	2.508
11) 1-Methylnaphthalene	(2)	10.372	142	465980	2.516
12) Dimethylphthalate	(3)	11.468	163	2062243	9.955
13) Acenaphthylene	(3)	11.619	152	771602	2.524
14)*Acenaphthene-d10	(3)	11.815	164	27514	0.250
15) Acenaphthene	(3)	11.861	154	402290	2.499
16) Dibenzofuran	(3)	12.089	168	773851	2.486
17) Diethylphthalate	(3)	12.410	149	2131898	10.029
18) Fluorene	(3)	12.519	166	546613	2.526
43) N-Nitrosodiphenylamine	(4)	12.683	169	288983	2.309
19) Hexachlorobenzene	(4)	13.213	284	198994	2.352
20)*Phenanthrene-d10	(4)	13.721	188	66626	0.250
21) Phenanthrene	(4)	13.752	178	836727	2.436
22) Anthracene	(4)	13.822	178	760118	2.308
23) Di-n-butylphthalate	(4)	14.562	149	3504104	9.154
24)\$Fluoranthene-d10	(4)	15.446	212	693753	2.385
25) Fluoranthene	(4)	15.471	202	914239	2.333
26) Pyrene	(5)	15.828	202	953992	2.337
27) Butylbenzylphthalate	(5)	16.981	149	1486013	9.182
28) Benzo(a)anthracene	(5)	17.886	228	792352	2.335
29)*Chrysene-d12	(5)	17.901	240	57800	0.250
30) Chrysene	(5)	17.947	228	793852	2.286
31) bis(2-Ethylhexyl)phthalate	(5)	18.055	149	2212909	9.121
32) Di-n-octylphthalate	(6)	19.236	149	3744665	9.126
33) Benzo(b)fluoranthene	(6)	19.773	252	760666	2.271
34) Benzo(k)fluoranthene	(6)	19.819	252	796961	2.250
35) Benzo(e)pyrene	(6)	20.225	252	728731	2.272
36)\$Benzo(a)pyrene-d12	(6)	20.271	264	537576	2.302
37) Benzo(a)pyrene	(6)	20.309	252	745386	2.283
38)*Perylene-d12	(6)	20.401	264	58676	0.250
45) Perylene	(6)	20.448	252	747249	2.273
39) Indeno(1,2,3-cd)pyrene	(6)	22.177	276	697356M	2.372

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0102.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

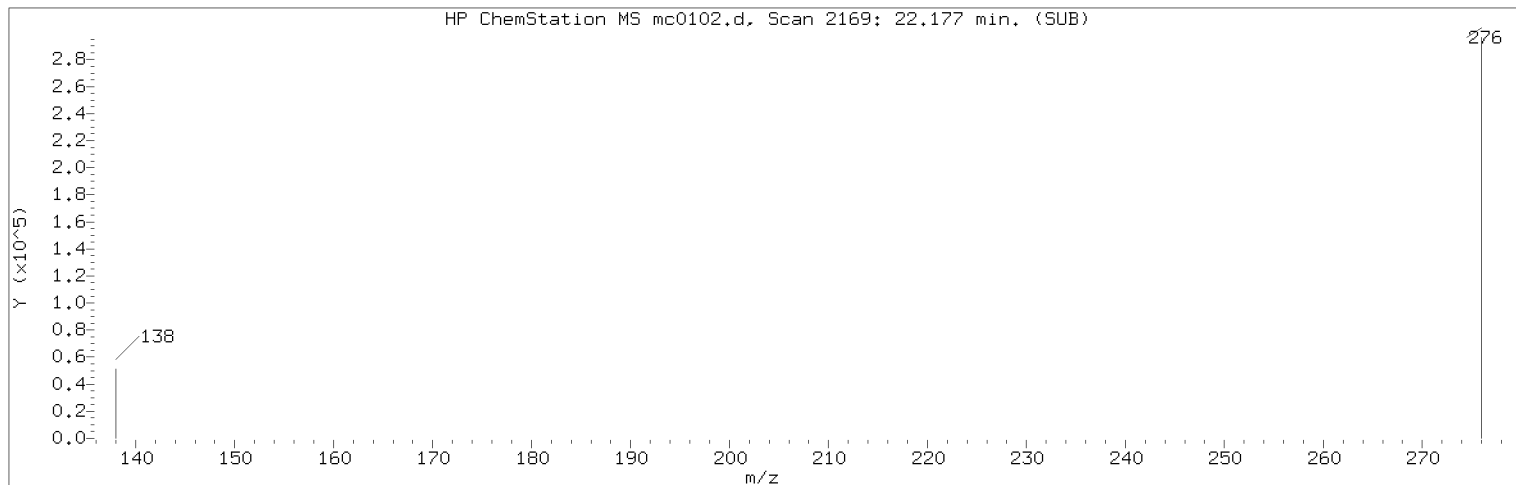
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.233	278	764708	2.303
41) Benzo(g,h,i)perylene	(6)	22.678	276	793386	2.321

Digitally signed by Joseph M. Gambler

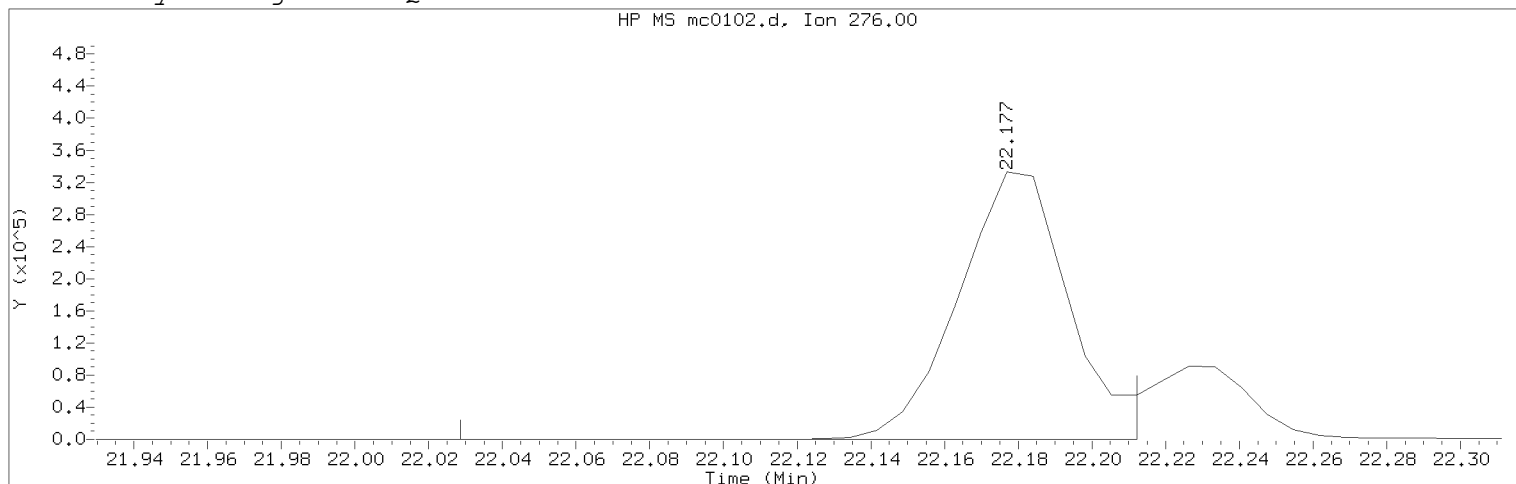
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0102.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2169	
Retention Time (minutes)	: 22.177	
Quant Ion	: 276.00	
Area (flag)	: 697356M	
On-Column Amount (ng/ul)	: 2.3721	
Integration start scan	: 2147	Integration stop scan: 2173
Y at integration start	: 105	Y at integration end: 105

Reason for manual integration: improper integration

Analyst responsible for change:

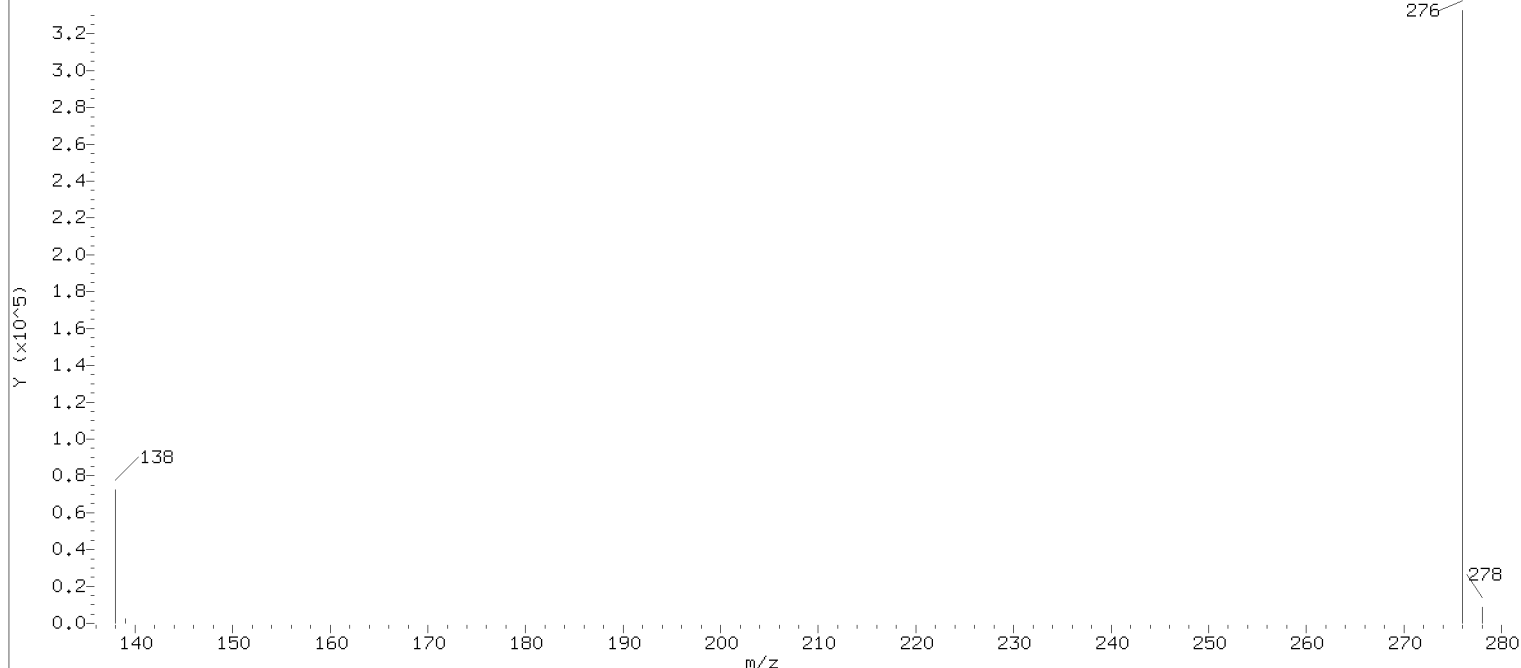
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

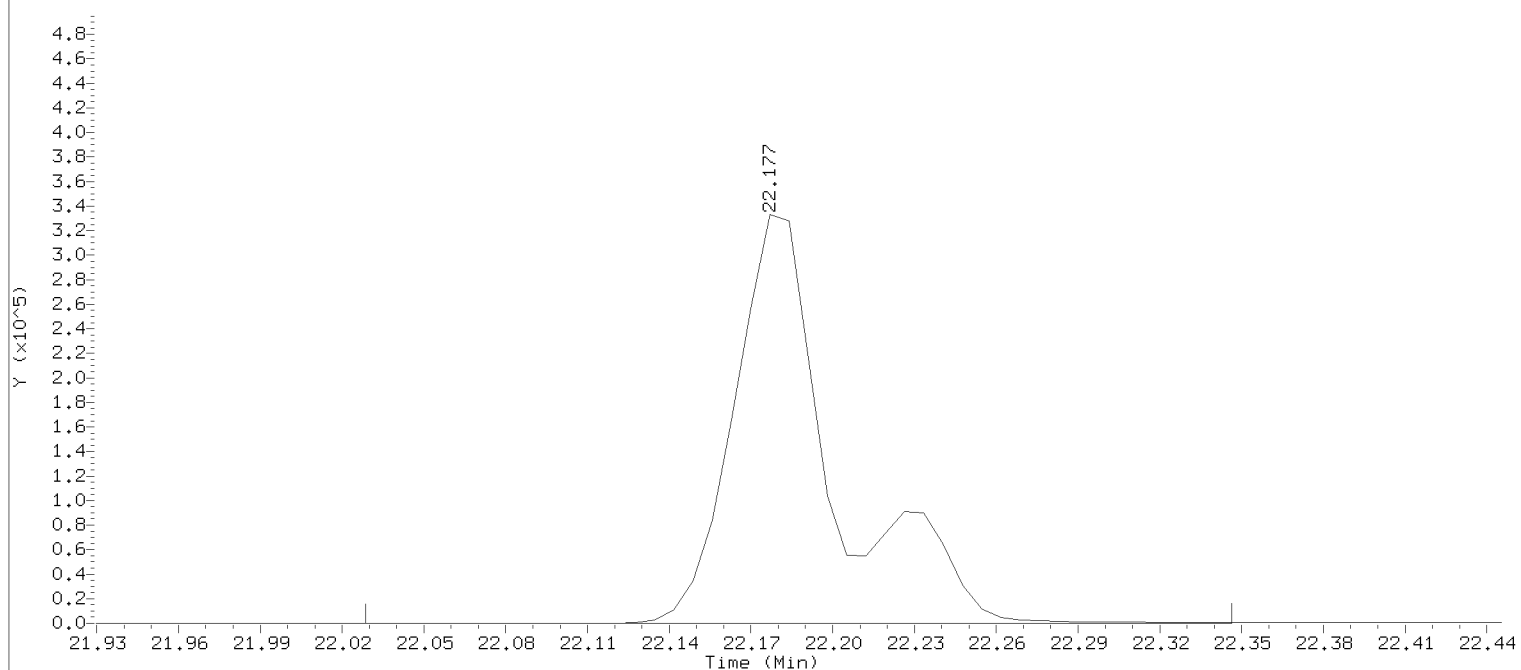
Sample Spectrum (Background Subtracted)

HP ChemStation MS mc0102.d, Scan 2169: 22.177 min. (SUB)



Original Integration of Quant Ion

HP MS mc0102.d, Ion 276.00



Data File: /chem/HP21585.i/20mar04.b/mc0102.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

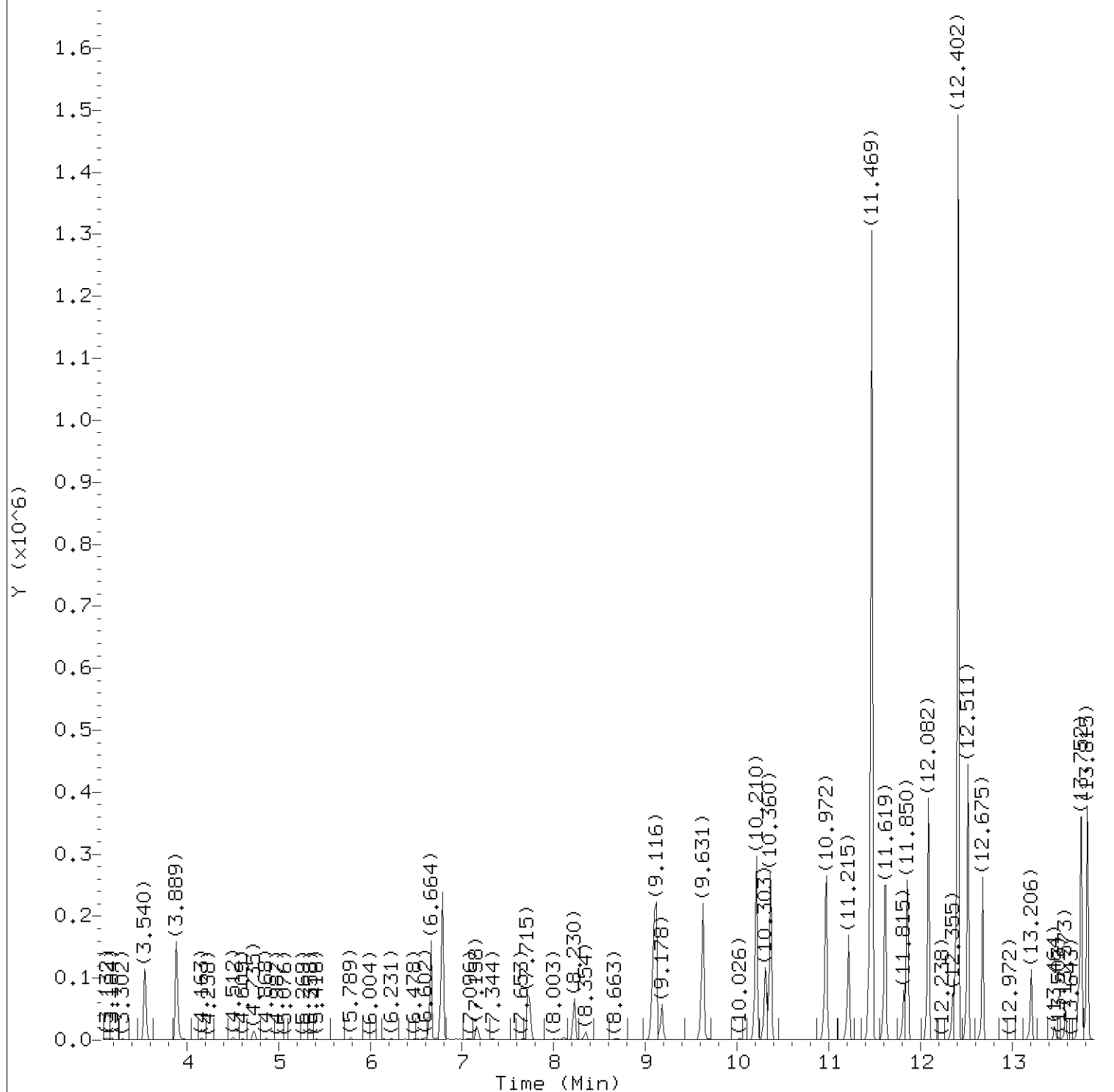
Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2169	
Retention Time (minutes)	: 22.177	
Quant Ion	: 276.00	
Area	: 857315	
On-column Amount (ng/ul)	: 2.6491	
Integration start scan	: 2147	Integration stop scan: 2192
Y at integration start	: 105	Y at integration end: 105

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV67jmg Page 471 of 609



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0103.d
Injection date and time: 04-MAR-2020 23:33

Instrument ID: HP21585.i
Analyst ID: ceb05247

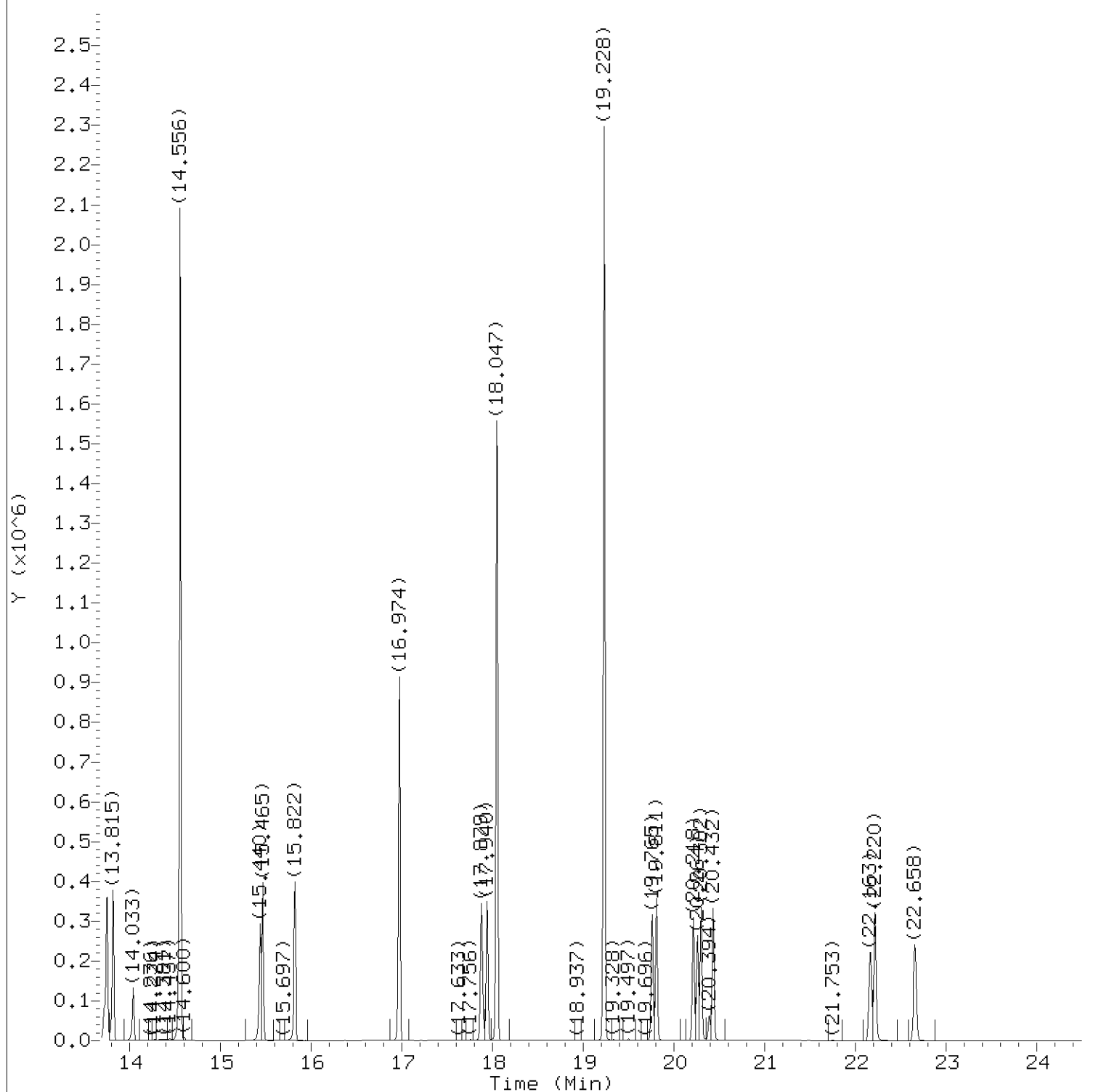
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0103.d
Injection date and time: 04-MAR-2020 23:33

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST001

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0103.d
 Injection date and time: 04-MAR-2020 23:33

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.547	88	63049	0.996
2) N-Nitrosodimethylamine	(1)	3.889	74	98084	1.006
4) bis(2-Chloroethyl)ether	(2)	6.787	93	149504	1.000
5)*1,4-Dichlorobenzene-d4	(1)	7.158	152	22793	0.250
6)*Naphthalene-d8	(2)	9.075	136	84165	0.250
7) Naphthalene	(2)	9.116	128	401117	0.974
8) Quinoline	(2)	9.631	129	193333	1.011
9) 2-Methylnaphthalene	(2)	10.210	142	255204	0.989
10)\$1-Methylnaphthalene-d10	(2)	10.303	152	177980	0.992
11) 1-Methylnaphthalene	(2)	10.360	142	241280	0.982
12) Dimethylphthalate	(3)	11.469	163	1334261	4.967
13) Acenaphthylene	(3)	11.619	152	403498	1.010
14)*Acenaphthene-d10	(3)	11.815	164	35792	0.250
15) Acenaphthene	(3)	11.861	154	208964	0.999
16) Dibenzofuran	(3)	12.082	168	403304	0.997
17) Diethylphthalate	(3)	12.402	149	1382951	5.001
18) Fluorene	(3)	12.511	166	284938	1.008
43) N-Nitrosodiphenylamine	(4)	12.675	169	162766	1.067
19) Hexachlorobenzene	(4)	13.206	284	104174	1.029
20)*Phenanthrene-d10	(4)	13.721	188	78539	0.250
21) Phenanthrene	(4)	13.752	178	420318	1.025
22) Anthracene	(4)	13.815	178	411416	1.039
23) Di-n-butylphthalate	(4)	14.556	149	2395635	5.202
24)\$Fluoranthene-d10	(4)	15.440	212	361948	1.036
25) Fluoranthene	(4)	15.465	202	490824	1.041
26) Pyrene	(5)	15.822	202	500074	1.047
27) Butylbenzylphthalate	(5)	16.974	149	1008365	5.294
28) Benzo(a)anthracene	(5)	17.879	228	419715	1.054
29)*Chrysene-d12	(5)	17.894	240	66019	0.250
30) Chrysene	(5)	17.940	228	427963	1.051
31) bis(2-Ethylhexyl)phthalate	(5)	18.047	149	1532973	5.343
32) Di-n-octylphthalate	(6)	19.228	149	2616329	5.216
33) Benzo(b)fluoranthene	(6)	19.765	252	419840	1.032
34) Benzo(k)fluoranthene	(6)	19.811	252	433817	1.016
35) Benzo(e)pyrene	(6)	20.218	252	394835	1.019
36)\$Benzo(a)pyrene-d12	(6)	20.264	264	293443	1.033
37) Benzo(a)pyrene	(6)	20.302	252	407030	1.028
38)*Perylene-d12	(6)	20.394	264	70177	0.250
45) Perylene	(6)	20.432	252	413173	1.033
39) Indeno(1,2,3-cd)pyrene	(6)	22.170	276	372186M	1.038

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0103.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:33

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

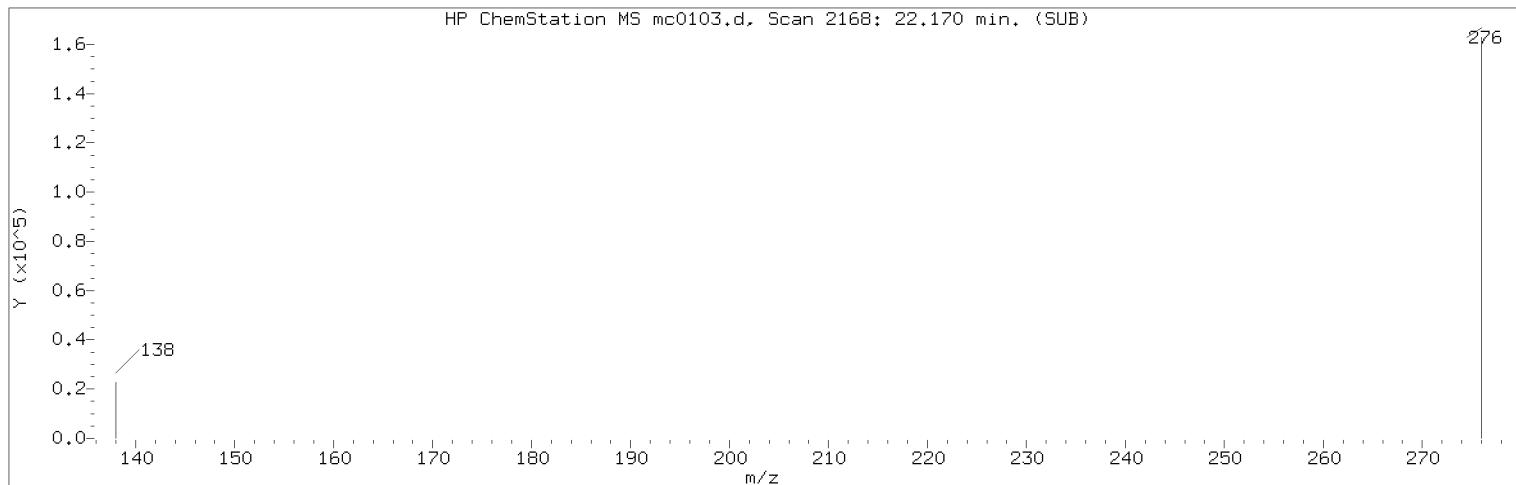
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.220	278	421208	1.040
41) Benzo(g,h,i)perylene	(6)	22.658	276	430843	1.035

Digitally signed by Joseph M. Gambler

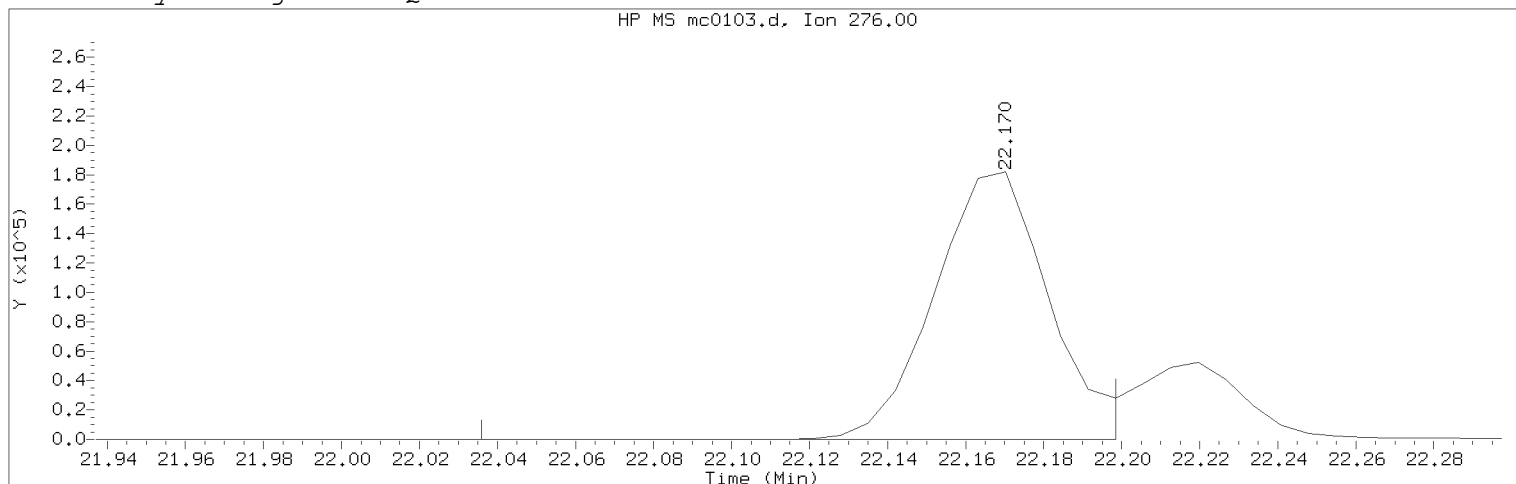
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0103.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:33

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

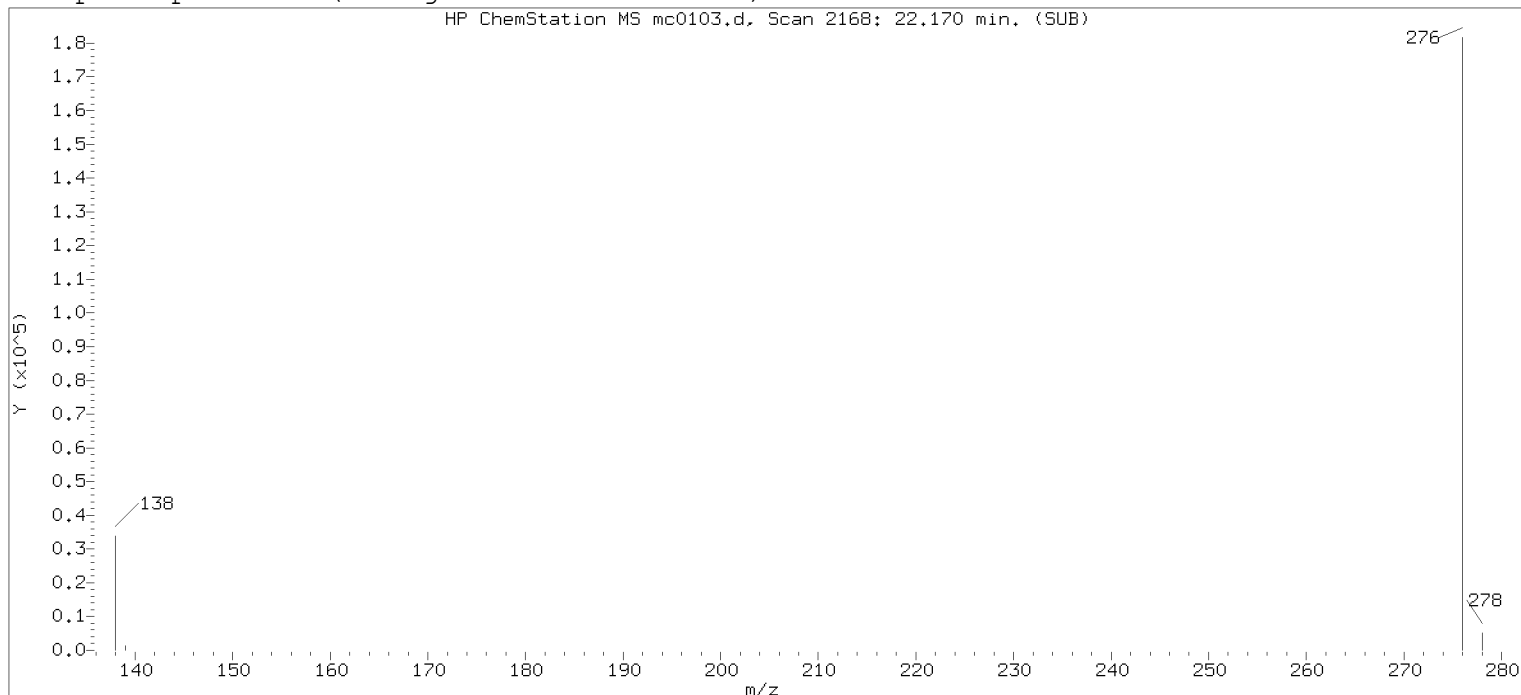
Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2168	
Retention Time (minutes)	: 22.170	
Quant Ion	: 276.00	
Area (flag)	: 372186M	
On-Column Amount (ng/ul)	: 1.0383	
Integration start scan	: 2148	Integration stop scan: 2171
Y at integration start	: 60	Y at integration end: 60

Reason for manual integration: improper integration

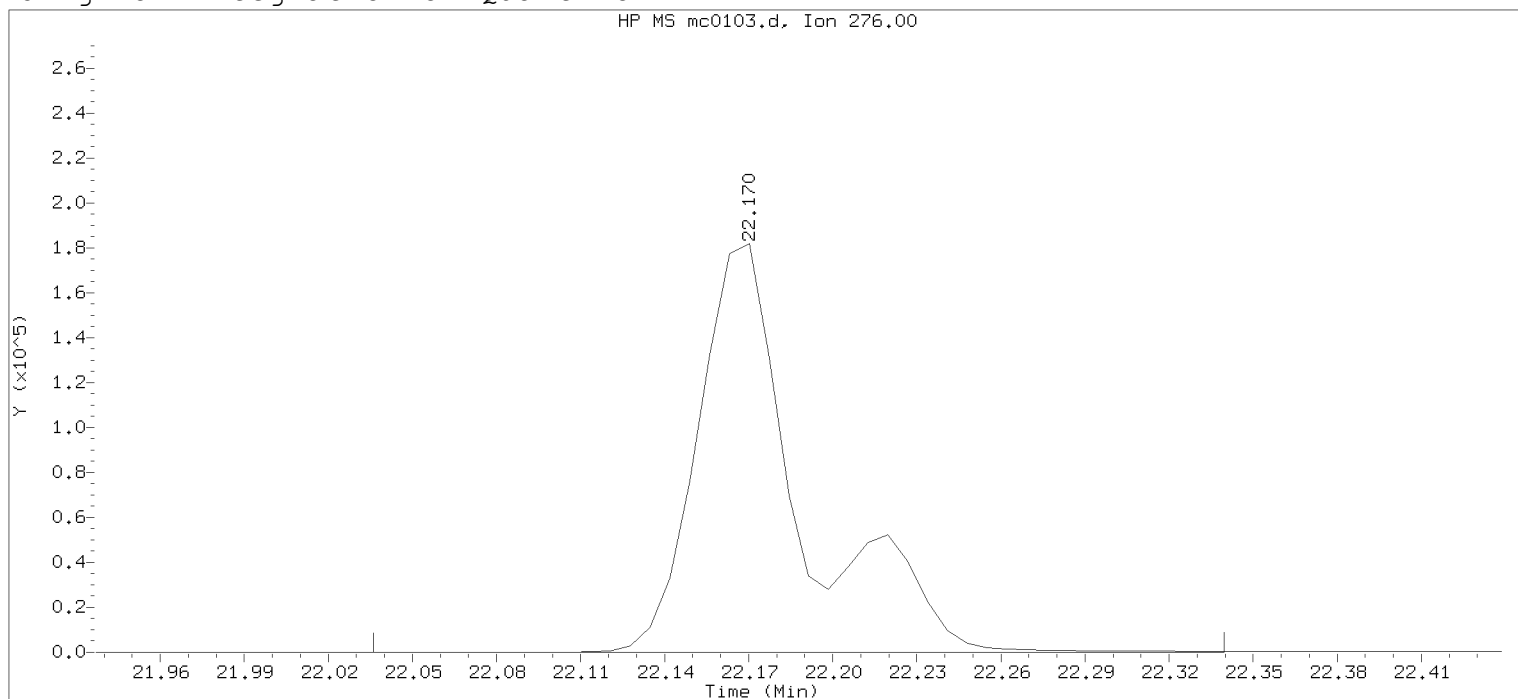
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0103.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:33

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

Compound Number : 39

Compound Name : Indeno(1,2,3-cd)pyrene

Scan Number : 2168

Retention Time (minutes) : 22.170

Quant Ion : 276.00

Area : 467331

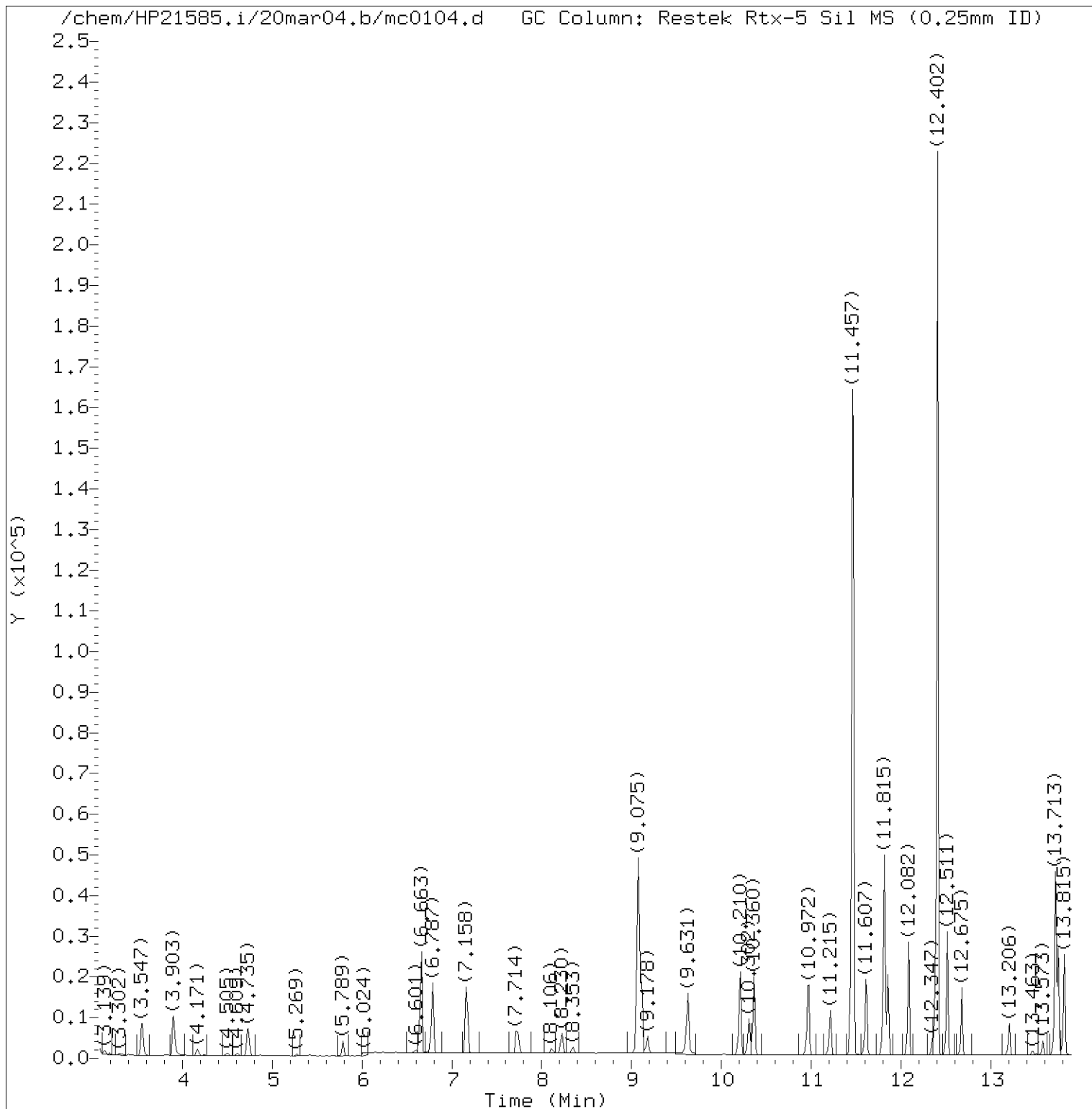
On-column Amount (ng/ul) : 1.1597

Integration start scan : 2148 Integration stop scan: 2191

Y at integration start : 60 Y at integration end: 60

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV67 Page 477 of 609



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0104.d
Injection date and time: 05-MAR-2020 00:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

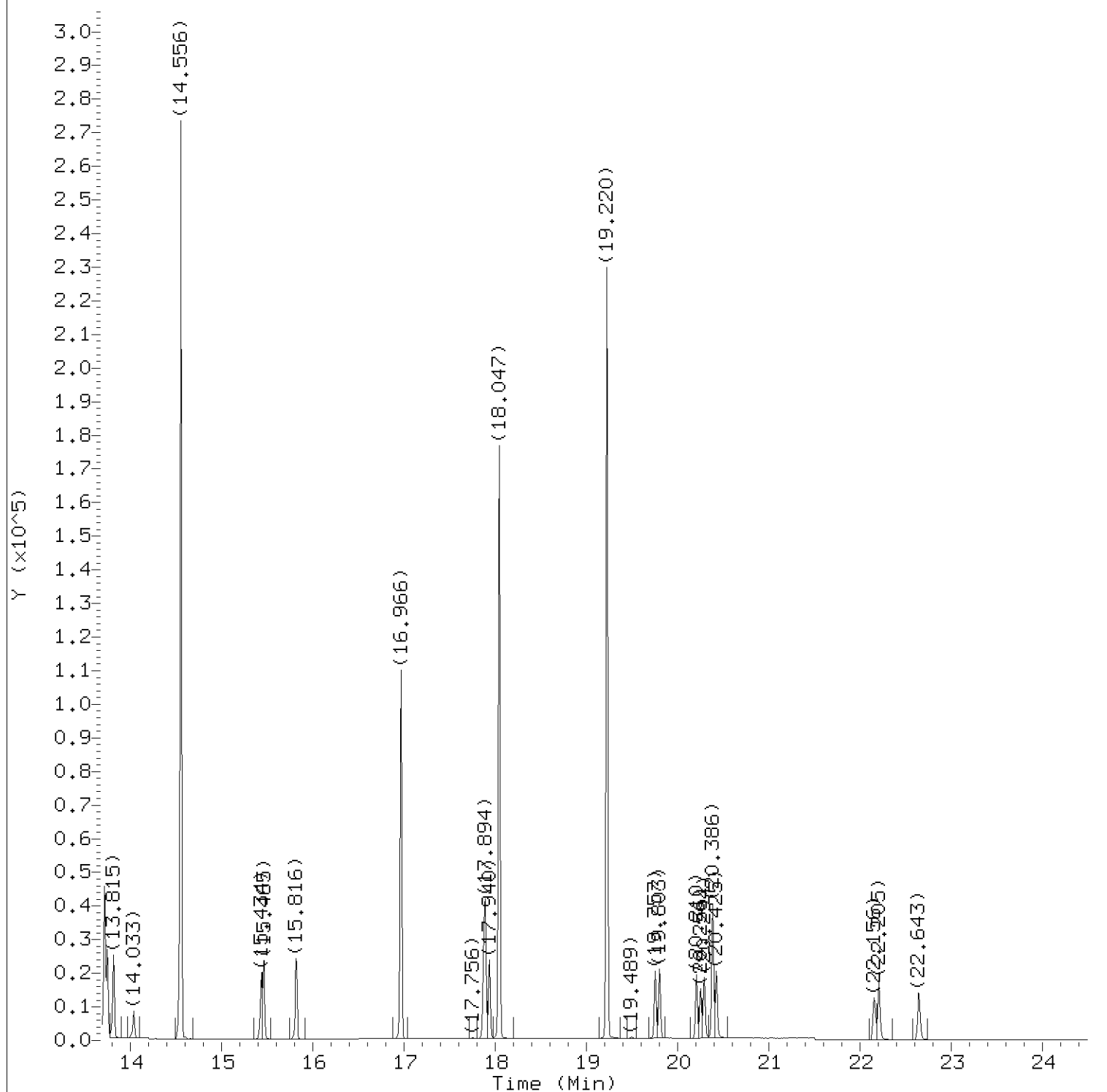
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.10

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0104.d
Injection date and time: 05-MAR-2020 00:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.10

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0104.d
 Injection date and time: 05-MAR-2020 00:03

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.10

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.555	88	4749	0.098
2) N-Nitrosodimethylamine	(1)	3.903	74	6883	0.094
4) bis(2-Chloroethyl)ether	(2)	6.787	93	10771	0.097
5) *1,4-Dichlorobenzene-d4	(1)	7.158	152	17528	0.250
6) *Naphthalene-d8	(2)	9.075	136	62688	0.250
7) Naphthalene	(2)	9.116	128	28213	0.094
8) Quinoline	(2)	9.631	129	13356	0.095
9) 2-Methylnaphthalene	(2)	10.210	142	17707	0.094
10) \$1-Methylnaphthalene-d10	(2)	10.302	152	12375	0.094
11) 1-Methylnaphthalene	(2)	10.360	142	16697	0.093
12) Dimethylphthalate	(3)	11.469	163	186663	0.987
13) Acenaphthylene	(3)	11.607	152	26662	0.096
14) *Acenaphthene-d10	(3)	11.815	164	25314	0.250
15) Acenaphthene	(3)	11.850	154	15067	0.101
16) Dibenzofuran	(3)	12.082	168	28452	0.100
17) Diethylphthalate	(3)	12.402	149	182671	0.950
18) Fluorene	(3)	12.511	166	18936	0.096
43) N-Nitrosodiphenylamine	(4)	12.675	169	10439	0.097
19) Hexachlorobenzene	(4)	13.206	284	7313	0.101
20) *Phenanthrene-d10	(4)	13.713	188	55991	0.250
21) Phenanthrene	(4)	13.744	178	28924	0.099
22) Anthracene	(4)	13.815	178	26910	0.096
23) Di-n-butylphthalate	(4)	14.556	149	305441	0.947
24) \$Fluoranthene-d10	(4)	15.434	212	23335	0.095
25) Fluoranthene	(4)	15.465	202	31710	0.096
26) Pyrene	(5)	15.816	202	32007	0.100
27) Butylbenzylphthalate	(5)	16.966	149	115263	0.927
28) Benzo(a)anthracene	(5)	17.878	228	26595	0.100
29) *Chrysene-d12	(5)	17.894	240	44118	0.250
30) Chrysene	(5)	17.940	228	28561	0.104
31) bis(2-Ethylhexyl)phthalate	(5)	18.047	149	164526	0.890
32) Di-n-octylphthalate	(6)	19.220	149	262445	0.894
33) Benzo(b)fluoranthene	(6)	19.757	252	24579	0.100
34) Benzo(k)fluoranthene	(6)	19.803	252	26058	0.101
35) Benzo(e)pyrene	(6)	20.210	252	23492	0.100
36) \$Benzo(a)pyrene-d12	(6)	20.256	264	16143	0.095
37) Benzo(a)pyrene	(6)	20.294	252	23183	0.097
38) *Perylene-d12	(6)	20.386	264	42539	0.250
45) Perylene	(6)	20.425	252	24762	0.102
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	20311M	0.095

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0104.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.10

Lab Sample ID: RVSIM0130

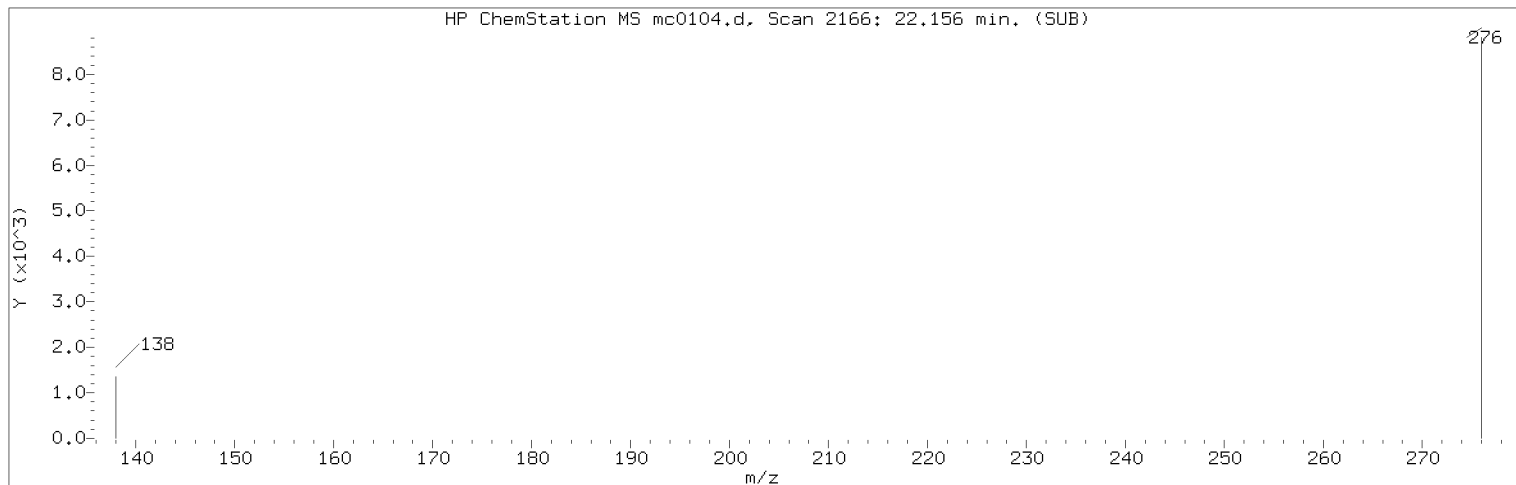
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.212	278	23439	0.097
41) Benzo(g,h,i)perylene	(6)	22.650	276	24239	0.097

Digitally signed by Joseph M. Gambler

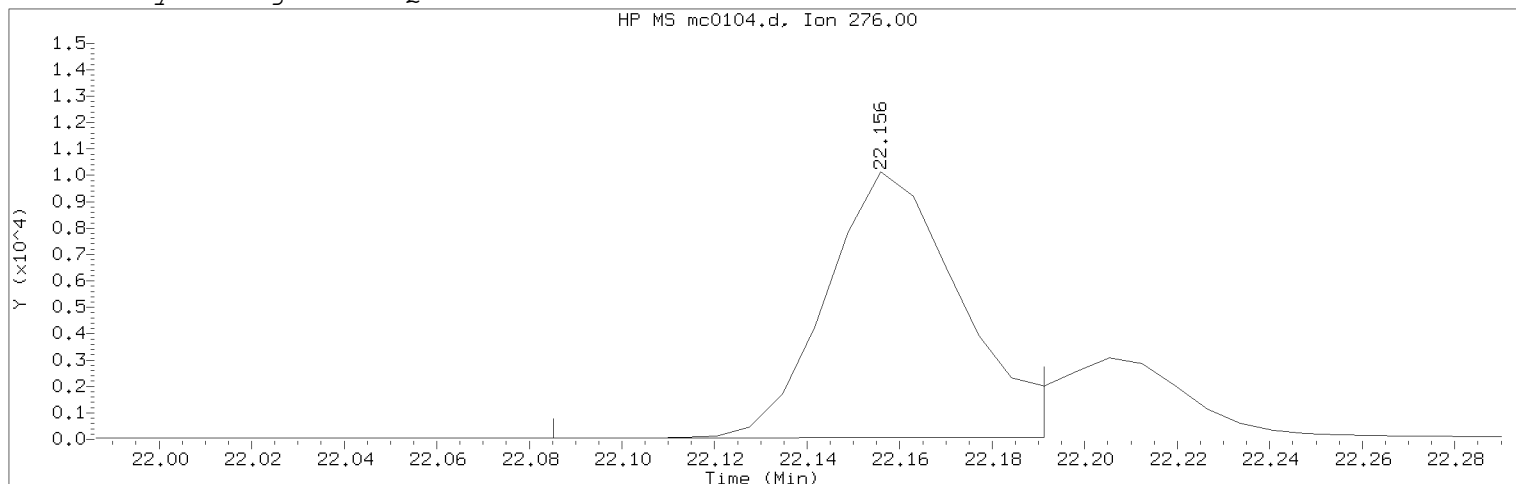
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0104.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.10

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 20311M	
On-Column Amount (ng/ul)	: 0.0950	
Integration start scan	: 2155	Integration stop scan: 2170
Y at integration start	: 51	Y at integration end: 61

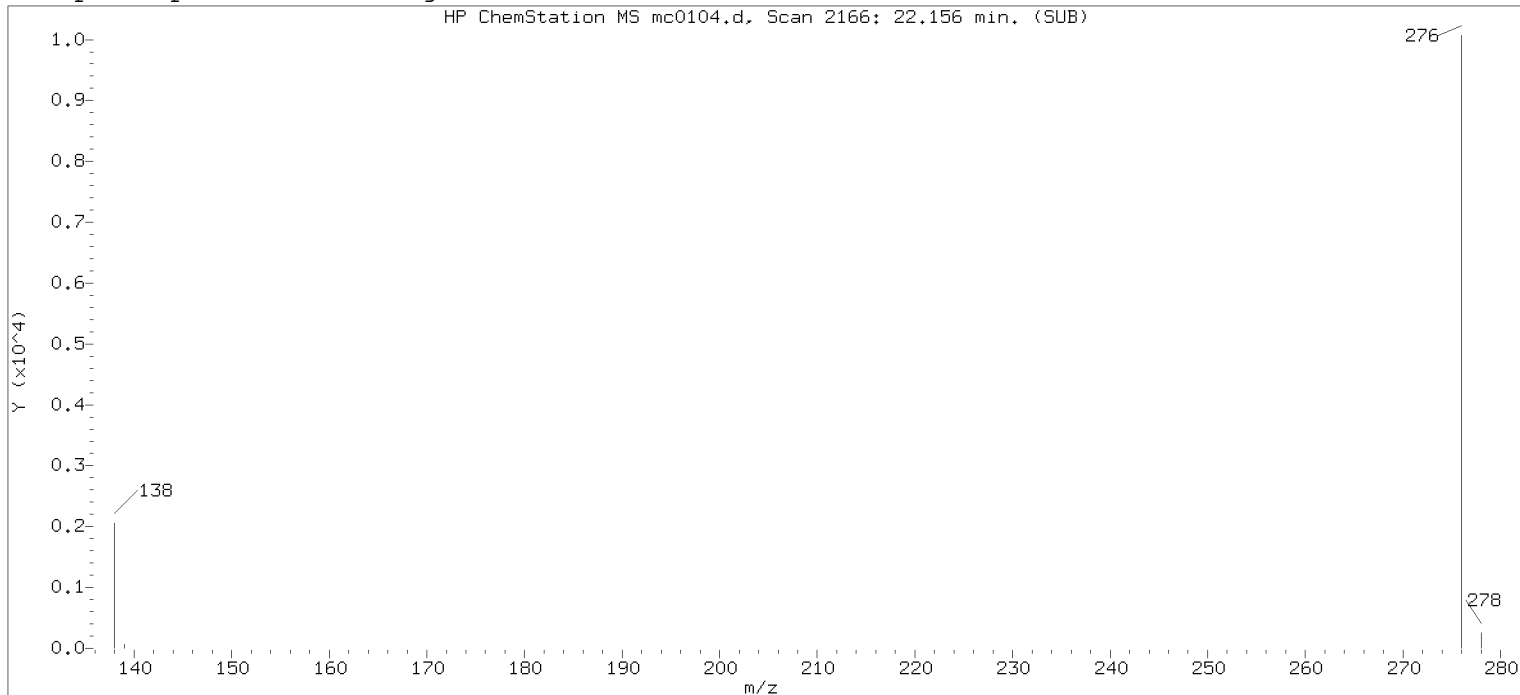
Reason for manual integration: improper integration

Analyst responsible for change:

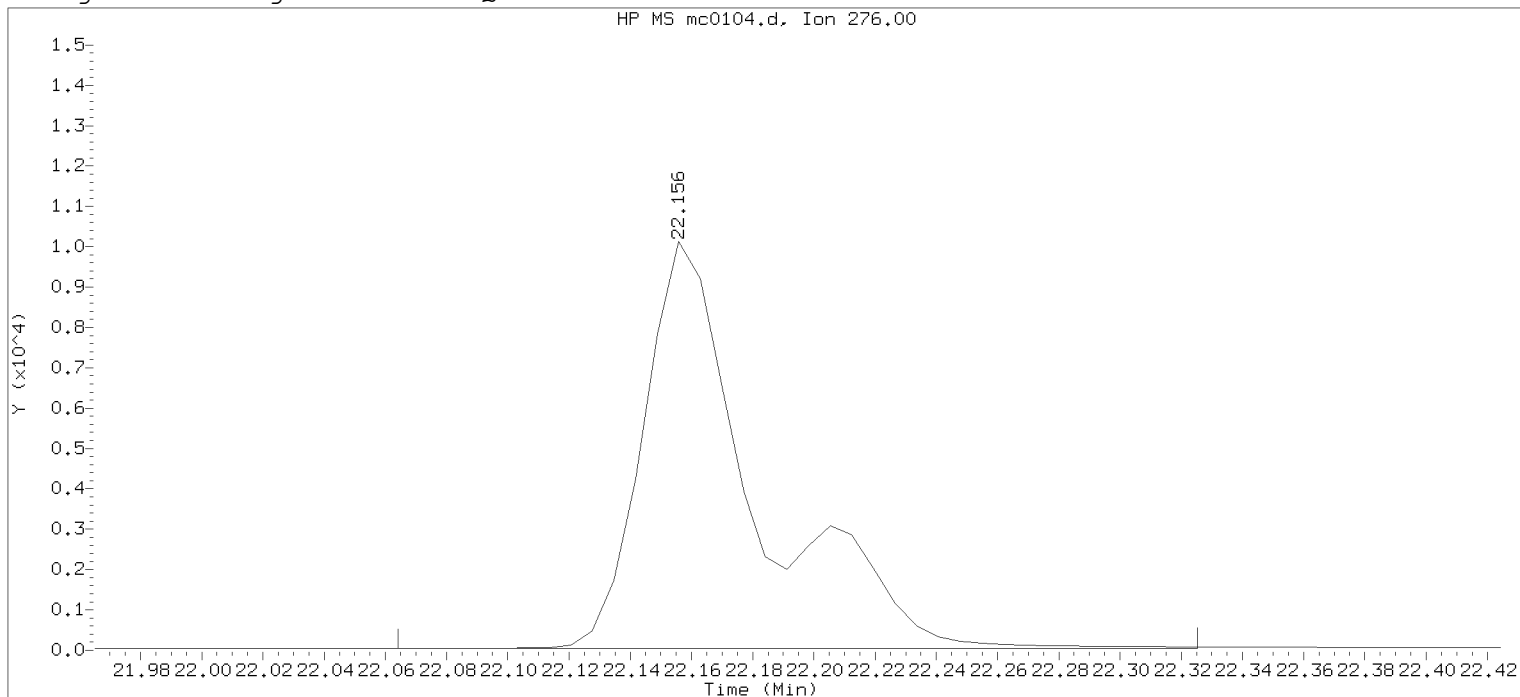
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0104.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

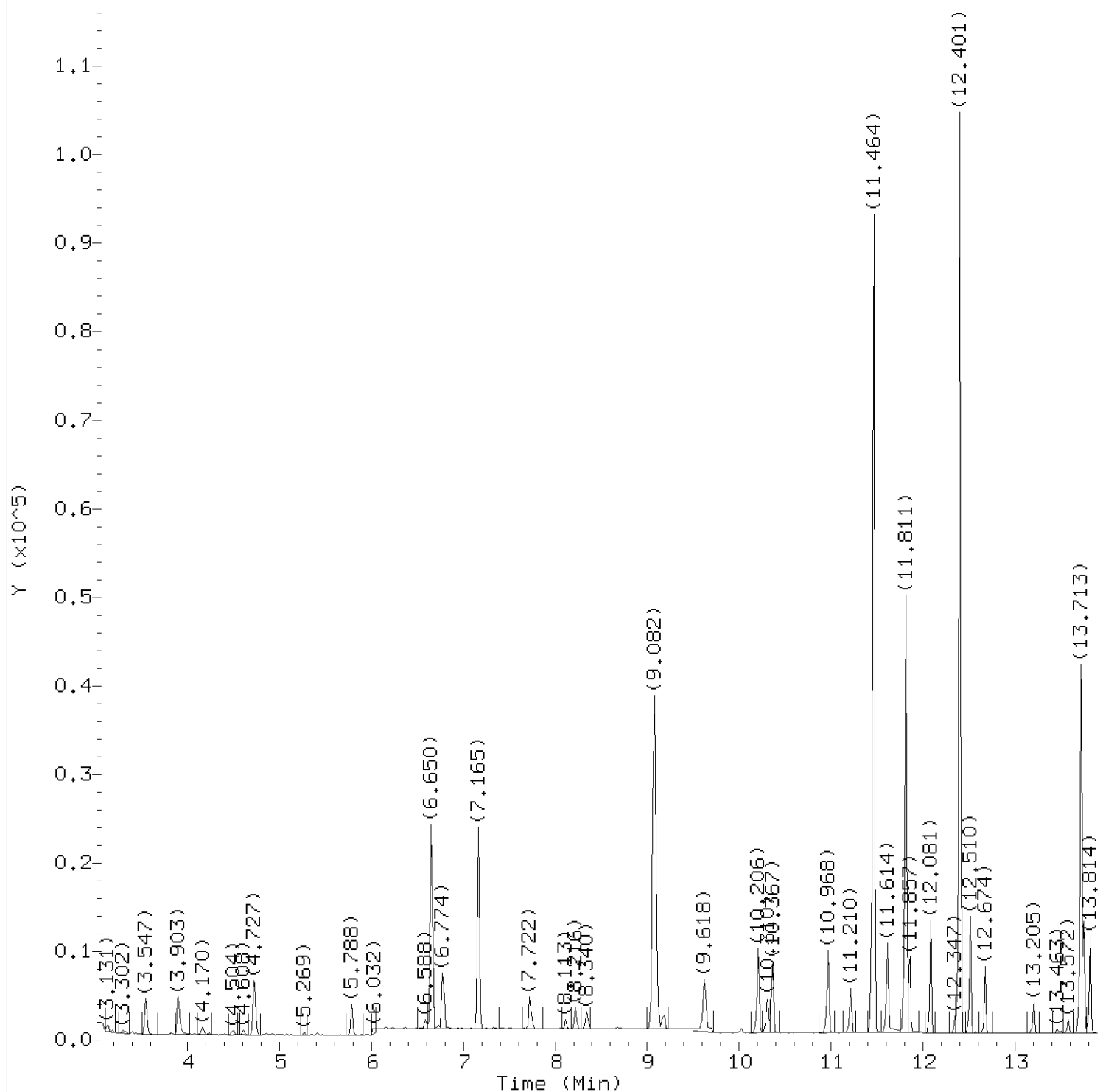
Sample Name: SSTD0.10

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 25947	
On-column Amount (ng/ul)	: 0.1033	
Integration start scan	: 2152	Integration stop scan: 2189
Y at integration start	: 48	Y at integration end: 48

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV67 Page 483 of 609



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0105.d
Injection date and time: 05-MAR-2020 00:34

Instrument ID: HP21585.i
Analyst ID: ceb05247

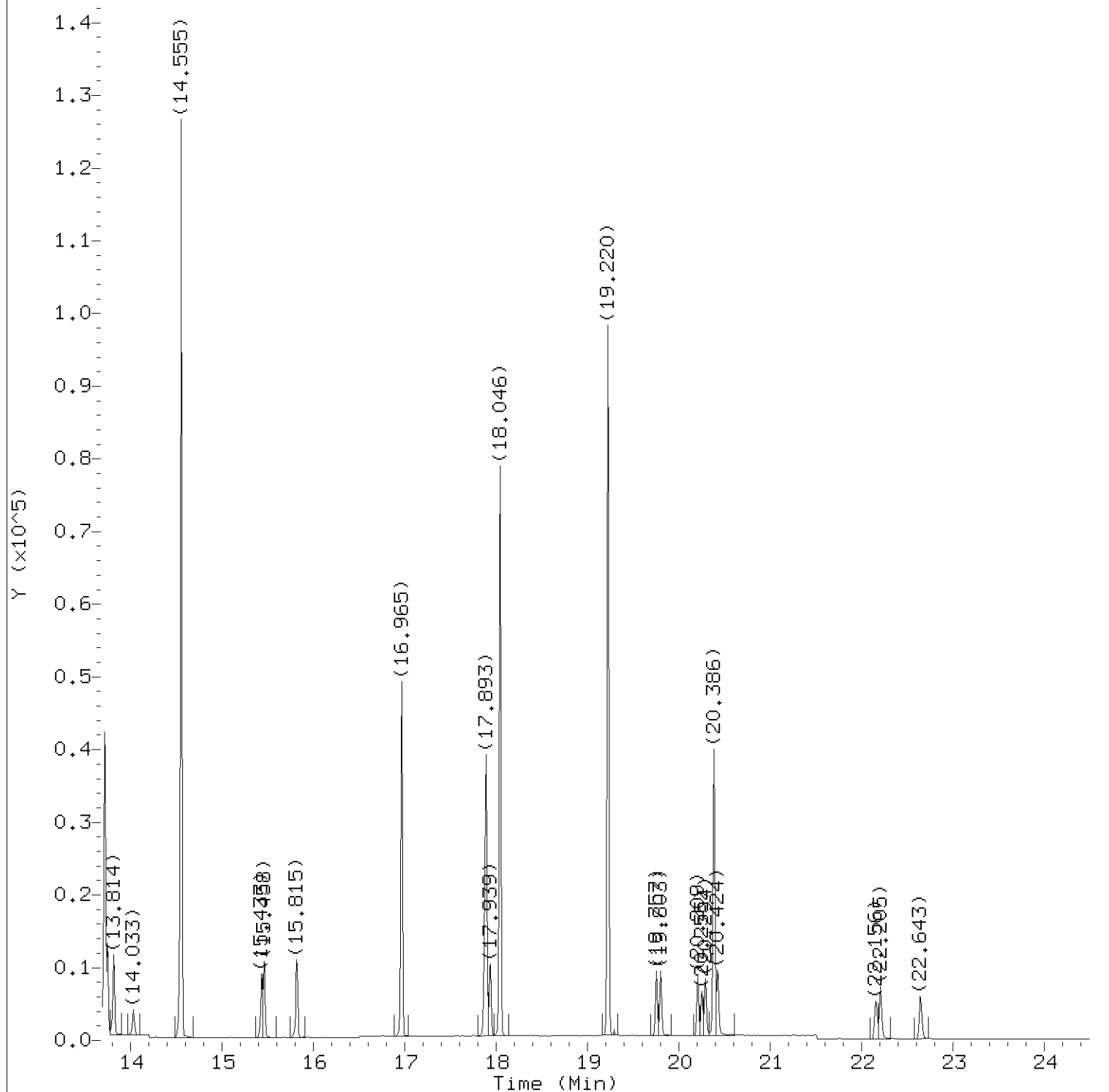
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST00.050

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0105.d
Injection date and time: 05-MAR-2020 00:34

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m
Calibration date and time: 05-MAR-2020 03:33

Sublist used: all1

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST00.050

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0105.d
 Injection date and time: 05-MAR-2020 00:34

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.050

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.547	88	2304	0.045
2) N-Nitrosodimethylamine	(1)	3.903	74	3093	0.040
4) bis(2-Chloroethyl)ether	(2)	6.794	93	4392	0.043
5)*1,4-Dichlorobenzene-d4	(1)	7.165	152	19183	0.250
6)*Naphthalene-d8	(2)	9.082	136	60213	0.250
7) Naphthalene	(2)	9.102	128	13264	0.047
8) Quinoline	(2)	9.638	129	6033	0.046
9) 2-Methylnaphthalene	(2)	10.206	142	8218	0.046
10)\$1-Methylnaphthalene-d10	(2)	10.310	152	5715	0.046
11) 1-Methylnaphthalene	(2)	10.367	142	7640	0.045
12) Dimethylphthalate	(3)	11.464	163	90498	0.483
13) Acenaphthylene	(3)	11.614	152	12040	0.044
14)*Acenaphthene-d10	(3)	11.811	164	25297	0.250
15) Acenaphthene	(3)	11.857	154	7308	0.049
16) Dibenzofuran	(3)	12.081	168	13404	0.048
17) Diethylphthalate	(3)	12.401	149	87289	0.463
18) Fluorene	(3)	12.510	166	8506	0.044
43) N-Nitrosodiphenylamine	(4)	12.674	169	4691	0.046
19) Hexachlorobenzene	(4)	13.205	284	3362	0.048
20)*Phenanthrene-d10	(4)	13.713	188	54166	0.250
21) Phenanthrene	(4)	13.744	178	13296	0.048
22) Anthracene	(4)	13.814	178	12183	0.046
23) Di-n-butylphthalate	(4)	14.555	149	140157	0.458
24)\$Fluoranthene-d10	(4)	15.433	212	10385	0.045
25) Fluoranthene	(4)	15.464	202	14071	0.045
26) Pyrene	(5)	15.815	202	14230	0.048
27) Butylbenzylphthalate	(5)	16.965	149	51704	0.452
28) Benzo(a)anthracene	(5)	17.878	228	12065	0.048
29)*Chrysene-d12	(5)	17.893	240	41561	0.250
30) Chrysene	(5)	17.939	228	12744	0.049
31) bis(2-Ethylhexyl)phthalate	(5)	18.046	149	71887	0.428
32) Di-n-octylphthalate	(6)	19.220	149	113084	0.414
33) Benzo(b)fluoranthene	(6)	19.757	252	10787	0.046
34) Benzo(k)fluoranthene	(6)	19.803	252	11284	0.046
35) Benzo(e)pyrene	(6)	20.209	252	10193	0.046
36)\$Benzo(a)pyrene-d12	(6)	20.255	264	6813	0.043
37) Benzo(a)pyrene	(6)	20.294	252	10046	0.045
38)*Perylene-d12	(6)	20.386	264	41234	0.250
45) Perylene	(6)	20.424	252	11166	0.048
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	8745M	0.044

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0105.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.050

Lab Sample ID: RVSIM0130

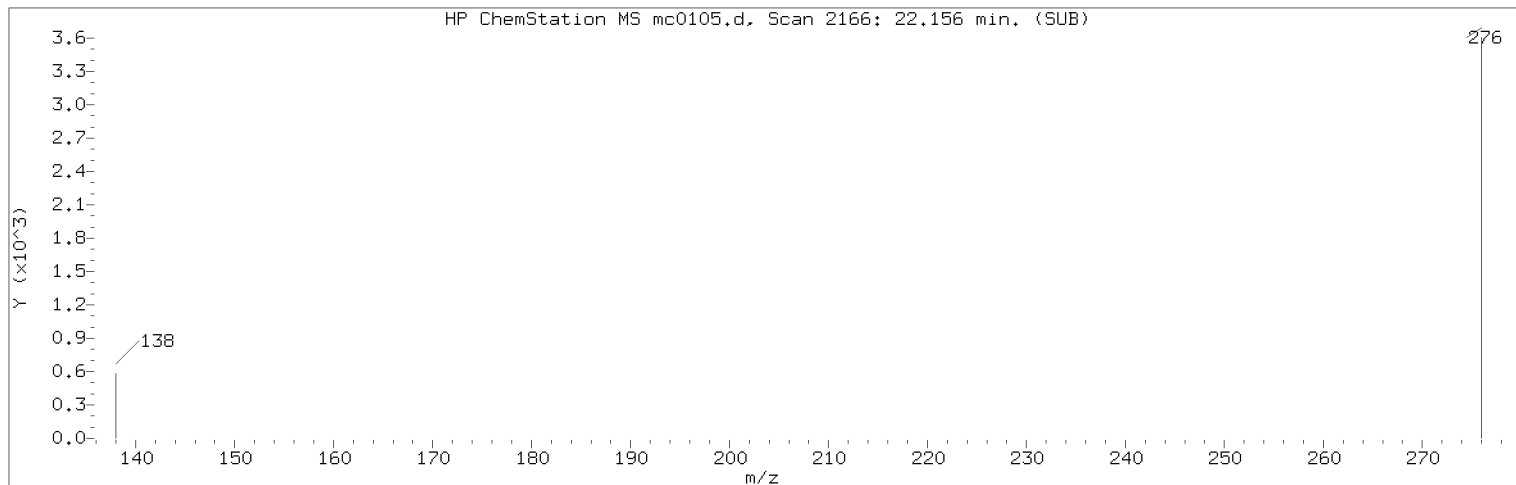
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.212	278	9950	0.044
41) Benzo(g,h,i)perylene	(6)	22.643	276	10455	0.044

Digitally signed by Joseph M. Gambler

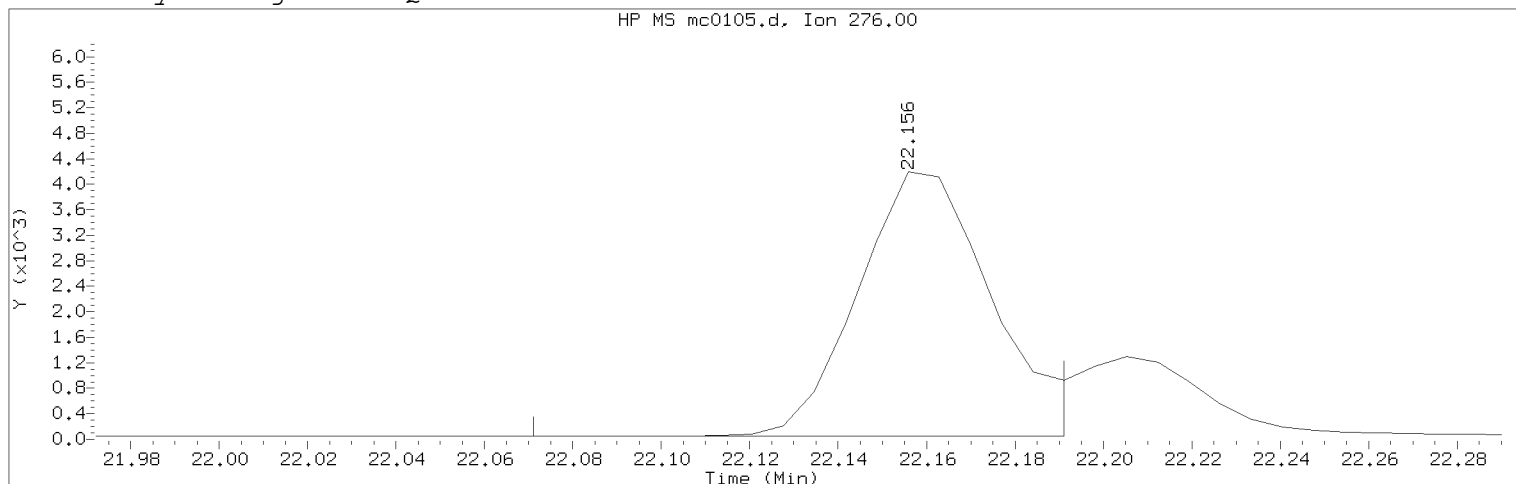
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0105.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.050

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 8745M	
On-Column Amount (ng/ul)	: 0.0436	
Integration start scan	: 2153	Integration stop scan: 2170
Y at integration start	: 48	Y at integration end: 48

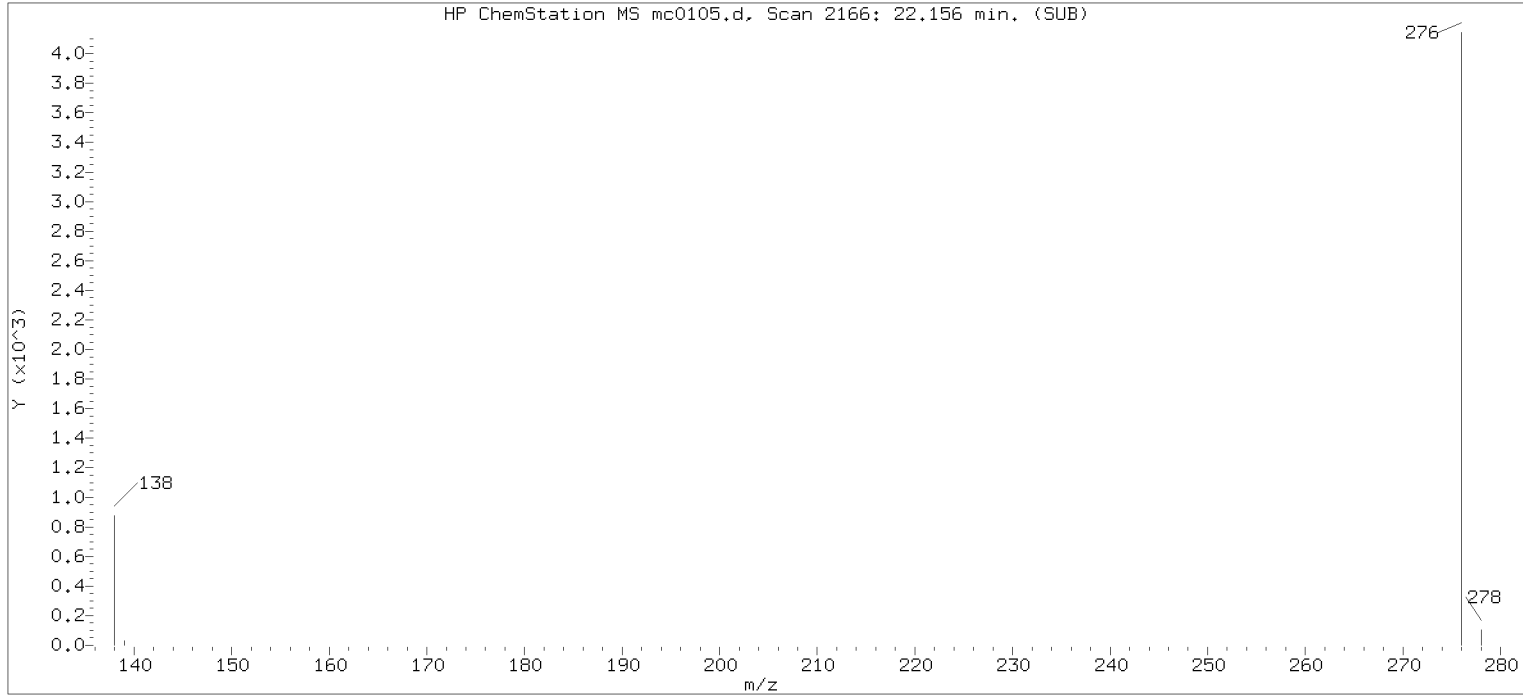
Reason for manual integration: improper integration

Analyst responsible for change:

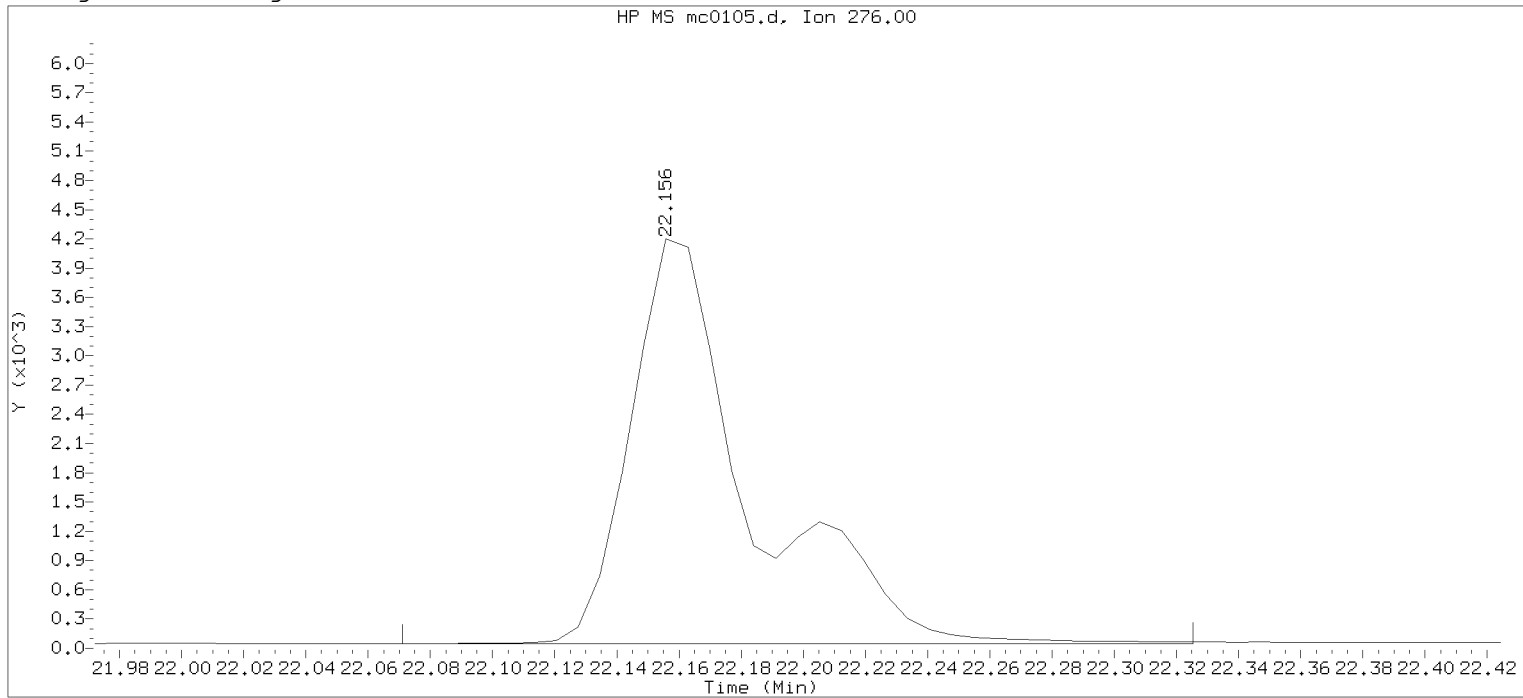
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0105.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

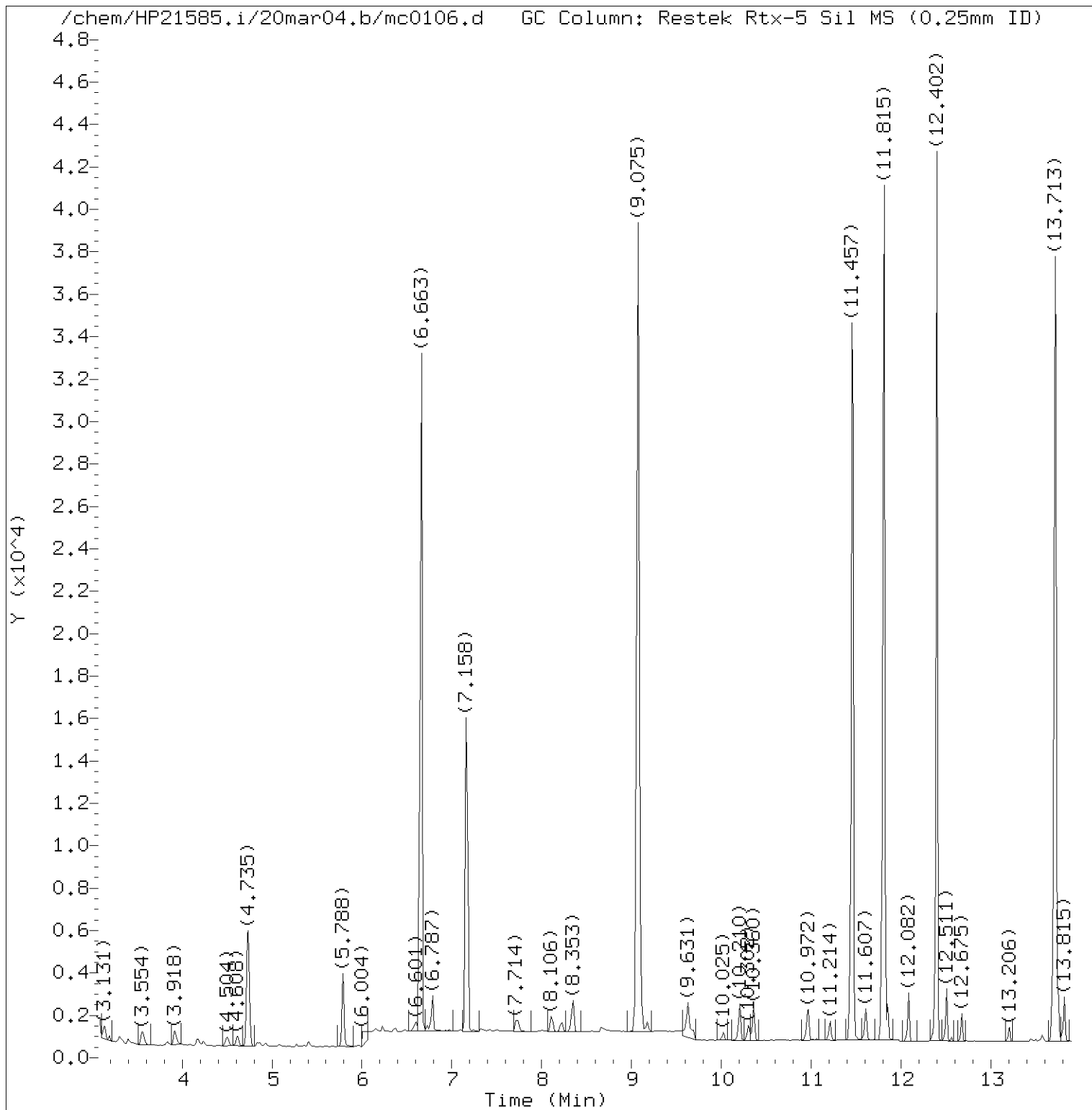
Sample Name: SSTD0.050

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 11159	
On-column Amount (ng/ul)	: 0.0451	
Integration start scan	: 2153	Integration stop scan: 2189
Y at integration start	: 48	Y at integration end: 48

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV67 Page 489 of 609



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0106.d
Injection date and time: 05-MAR-2020 01:04

Instrument ID: HP21585.i
Analyst ID: ceb05247

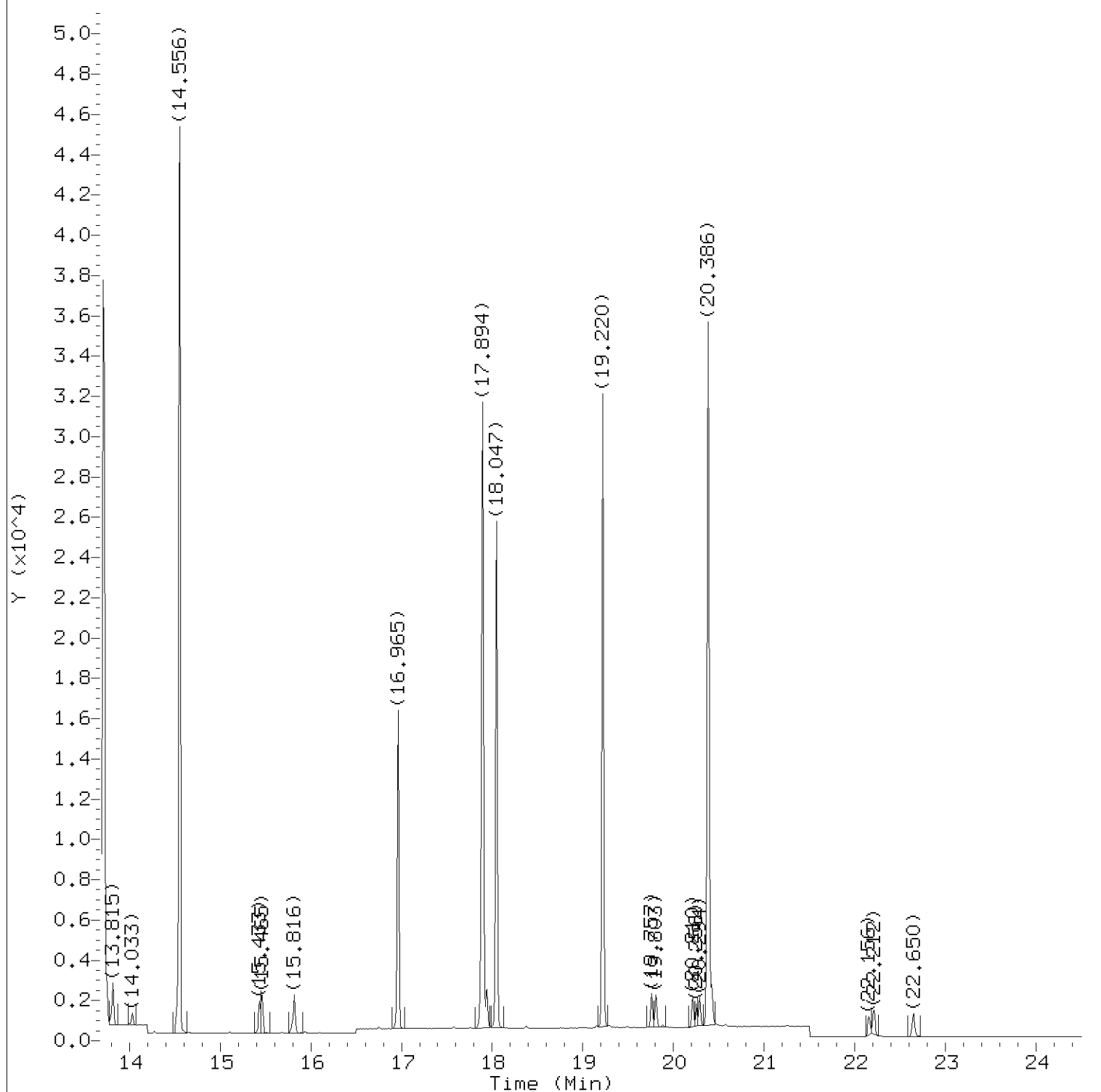
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0106.d
Injection date and time: 05-MAR-2020 01:04

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m
Calibration date and time: 05-MAR-2020 03:33

Sublist used: all1

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST00.01

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0106.d
 Injection date and time: 05-MAR-2020 01:04

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.01

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.554	88	465M	0.011
2) N-Nitrosodimethylamine	(1)	3.918	74	557M	0.009
4) bis(2-Chloroethyl)ether	(2)	6.787	93	1106	0.012
5)*1,4-Dichlorobenzene-d4	(1)	7.158	152	15746	0.250
6)*Naphthalene-d8	(2)	9.075	136	54779	0.250
7) Naphthalene	(2)	9.116	128	2630	0.010
8) Quinoline	(2)	9.631	129	1247M	0.010
9) 2-Methylnaphthalene	(2)	10.210	142	1577	0.010
10)\$1-Methylnaphthalene-d10	(2)	10.302	152	1103	0.010
11) 1-Methylnaphthalene	(2)	10.360	142	1470	0.010
12) Dimethylphthalate	(3)	11.468	163	37409	0.230
13) Acenaphthylene	(3)	11.607	152	2261	0.010
14)*Acenaphthene-d10	(3)	11.815	164	22343	0.250
15) Acenaphthene	(3)	11.849	154	1392M	0.011
16) Dibenzofuran	(3)	12.082	168	2468M	0.010
17) Diethylphthalate	(3)	12.402	149	34878	0.215
18) Fluorene	(3)	12.511	166	1584	0.009
43) N-Nitrosodiphenylamine	(4)	12.675	169	874	0.010
19) Hexachlorobenzene	(4)	13.206	284	649	0.010
20)*Phenanthrene-d10	(4)	13.713	188	47835	0.250
21) Phenanthrene	(4)	13.744	178	2582	0.010
22) Anthracene	(4)	13.815	178	2280	0.010
23) Di-n-butylphthalate	(4)	14.556	149	52309	0.201
24)\$Fluoranthene-d10	(4)	15.433	212	1912	0.009
25) Fluoranthene	(4)	15.465	202	2570	0.009
26) Pyrene	(5)	15.822	202	2636	0.010
27) Butylbenzylphthalate	(5)	16.965	149	16706	0.175
28) Benzo(a)anthracene	(5)	17.878	228	2357	0.011
29)*Chrysene-d12	(5)	17.894	240	36762	0.250
30) Chrysene	(5)	17.940	228	2411	0.010
31) bis(2-Ethylhexyl)phthalate	(5)	18.047	149	24449	0.174
32) Di-n-octylphthalate	(6)	19.220	149	37342	0.162
33) Benzo(b)fluoranthene	(6)	19.757	252	2048	0.010
34) Benzo(k)fluoranthene	(6)	19.803	252	2067	0.009
35) Benzo(e)pyrene	(6)	20.210	252	1917	0.010
36)\$Benzo(a)pyrene-d12	(6)	20.256	264	1253	0.009
37) Benzo(a)pyrene	(6)	20.294	252	1846	0.009
38)*Perylene-d12	(6)	20.386	264	37291	0.250
45) Perylene	(6)	20.424	252	2226	0.010
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	1663M	0.009

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

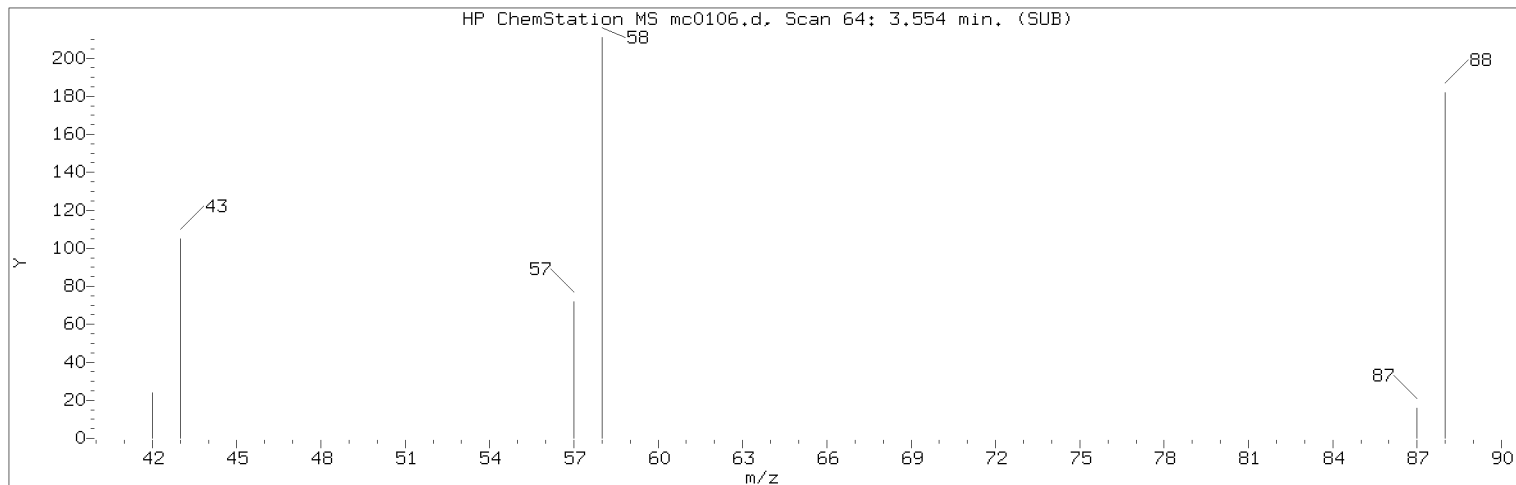
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.212	278	1813	0.009
41) Benzo(g,h,i)perylene	(6)	22.650	276	2027	0.010

Digitally signed by Joseph M. Gambler

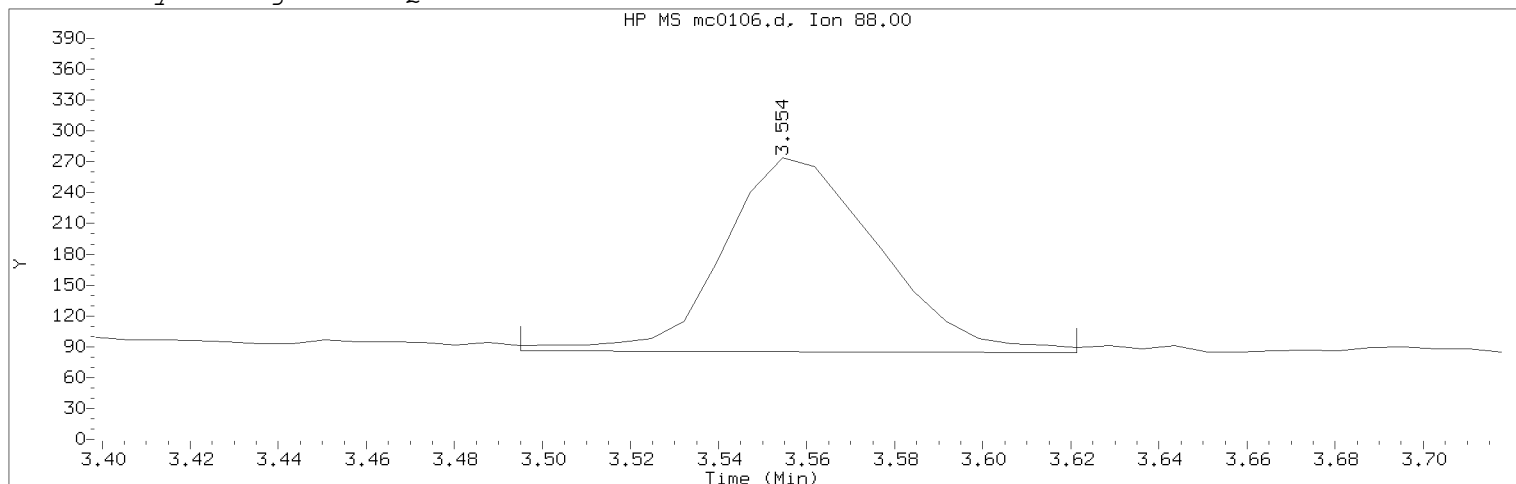
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

Compound Number	: 1	
Compound Name	: 1,4-Dioxane	
Scan Number	: 64	
Retention Time (minutes)	: 3.554	
Quant Ion	: 88.00	
Area (flag)	: 465M	
On-Column Amount (ng/ul)	: 0.0110	
Integration start scan	: 55	Integration stop scan: 72
Y at integration start	: 86	Y at integration end: 84

Reason for manual integration: improper integration

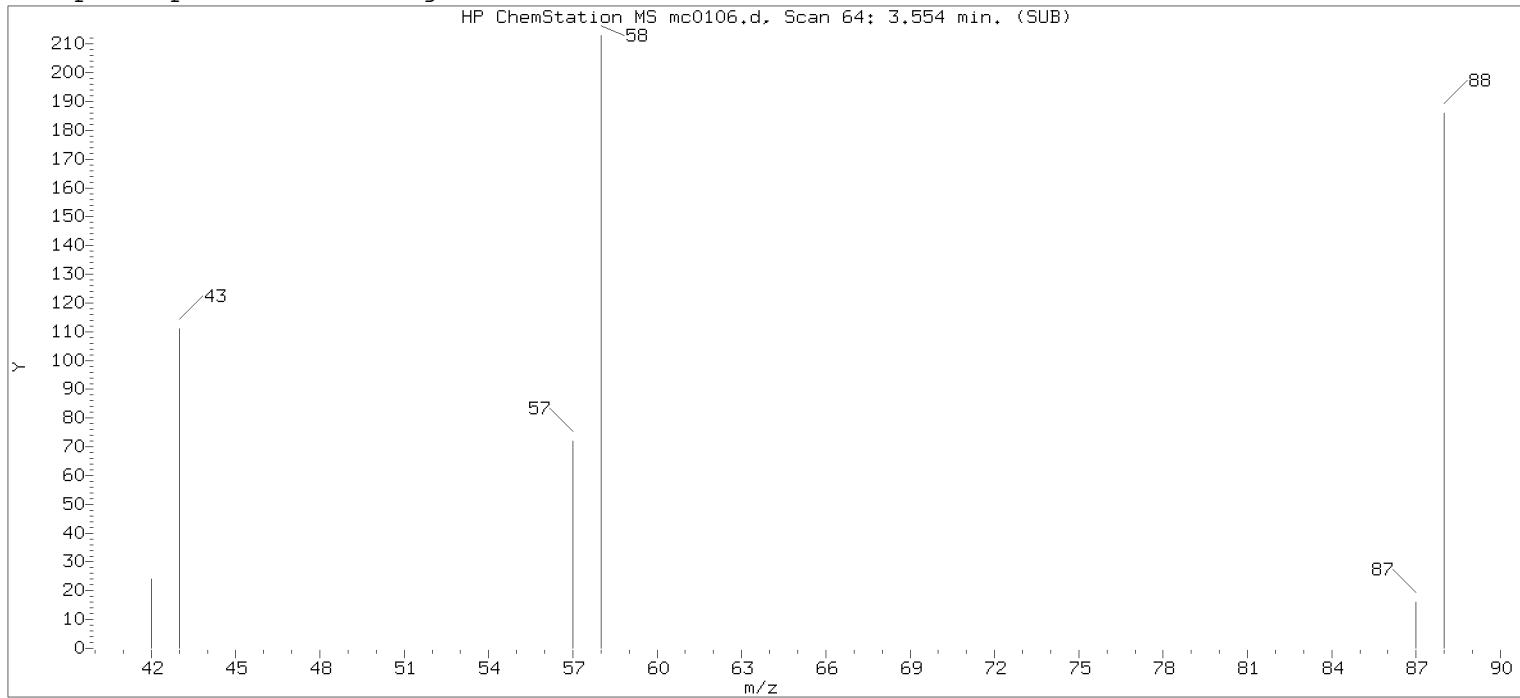
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

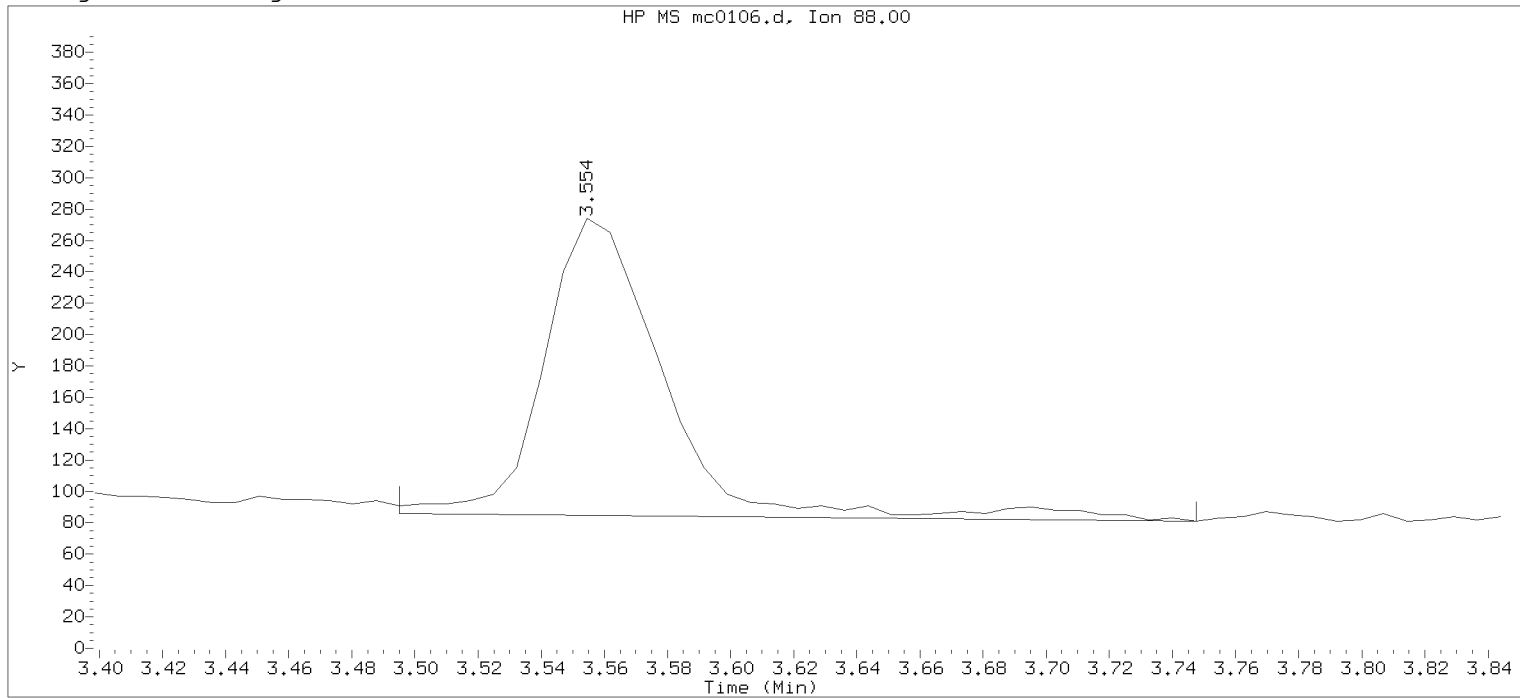
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.01

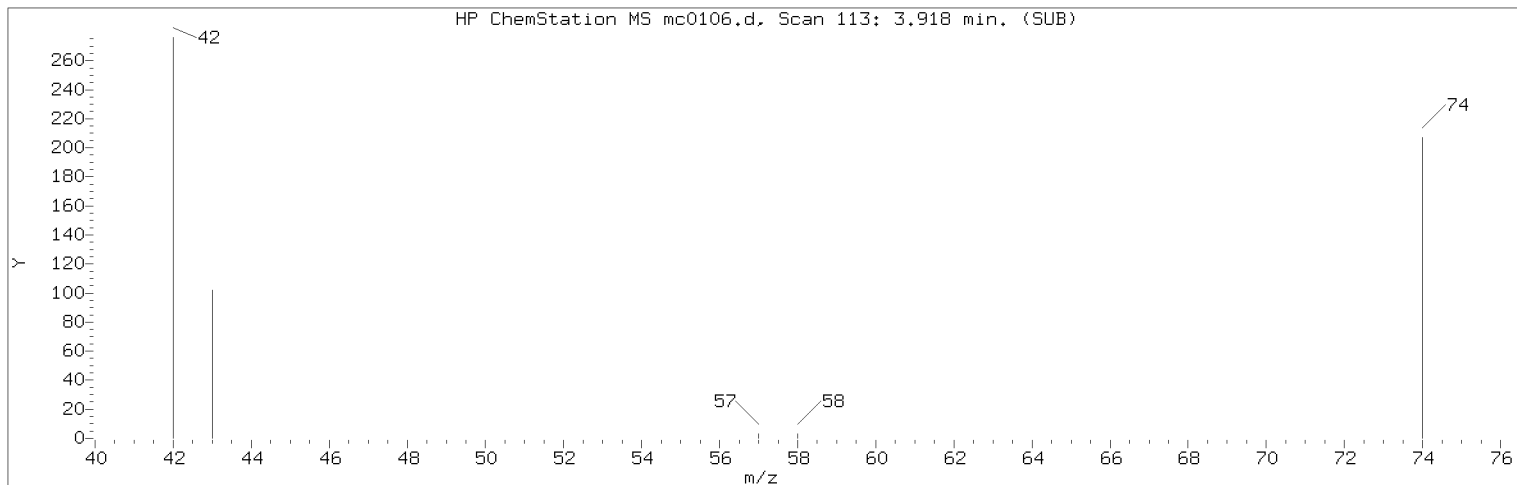
Lab Sample ID: RVSIM0130

Compound Number	: 1	
Compound Name	: 1,4-Dioxane	
Scan Number	: 64	
Retention Time (minutes)	: 3.554	
Quant Ion	: 88.00	
Area	: 499	
On-column Amount (ng/ul)	: 0.0118	
Integration start scan	: 55	Integration stop scan: 89
Y at integration start	: 86	Y at integration end: 81

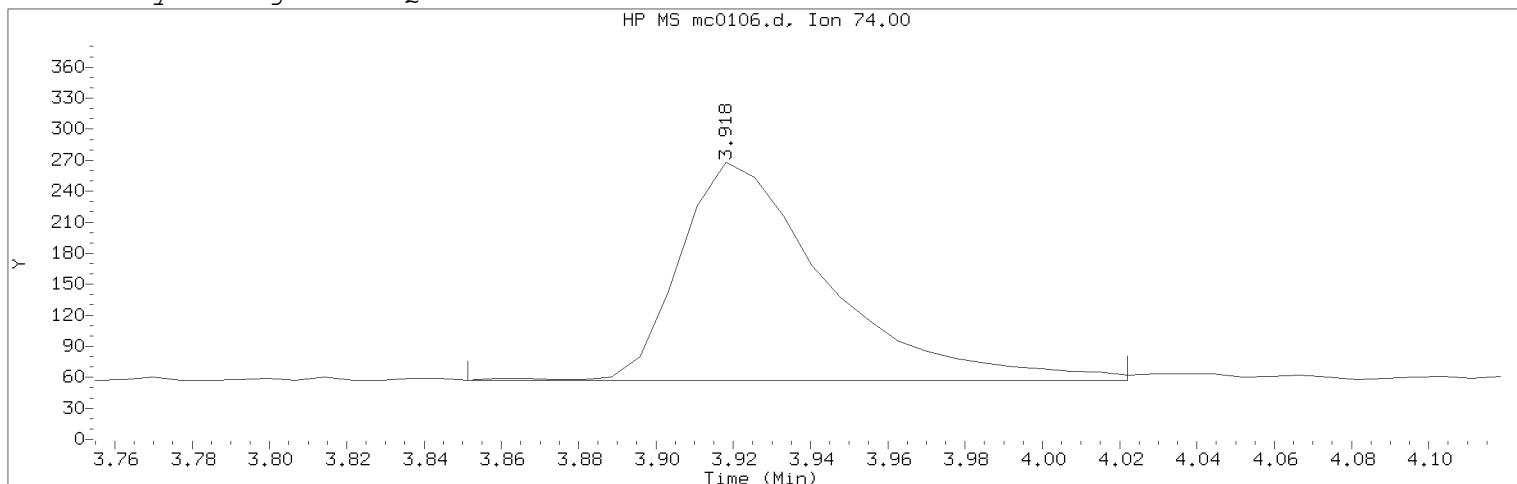
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV67 Page 495 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

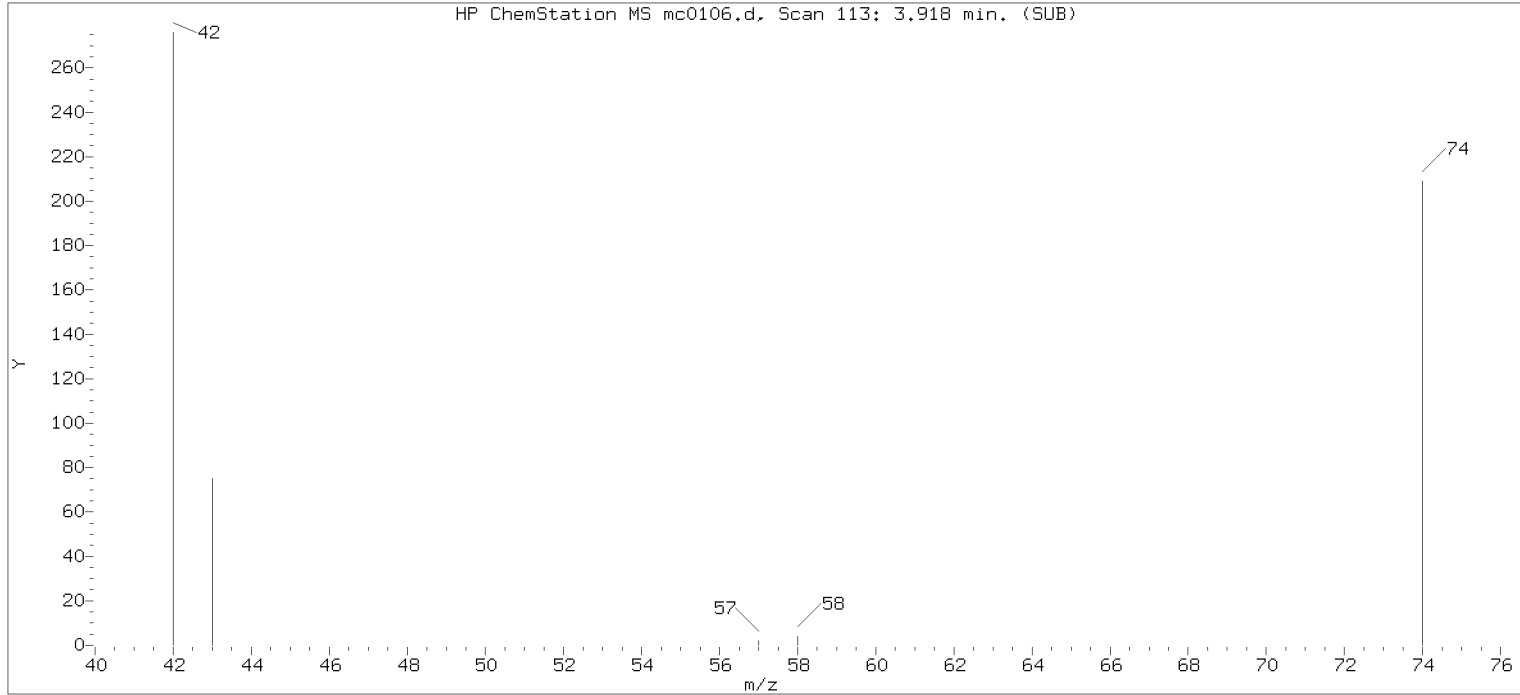
Compound Number	: 2	
Compound Name	: N-Nitrosodimethylamine	
Scan Number	: 113	
Retention Time (minutes)	: 3.918	
Quant Ion	: 74.00	
Area (flag)	: 557M	
On-Column Amount (ng/ul)	: 0.0090	
Integration start scan	: 103	Integration stop scan: 126
Y at integration start	: 57	Y at integration end: 57

Reason for manual integration: improper integration

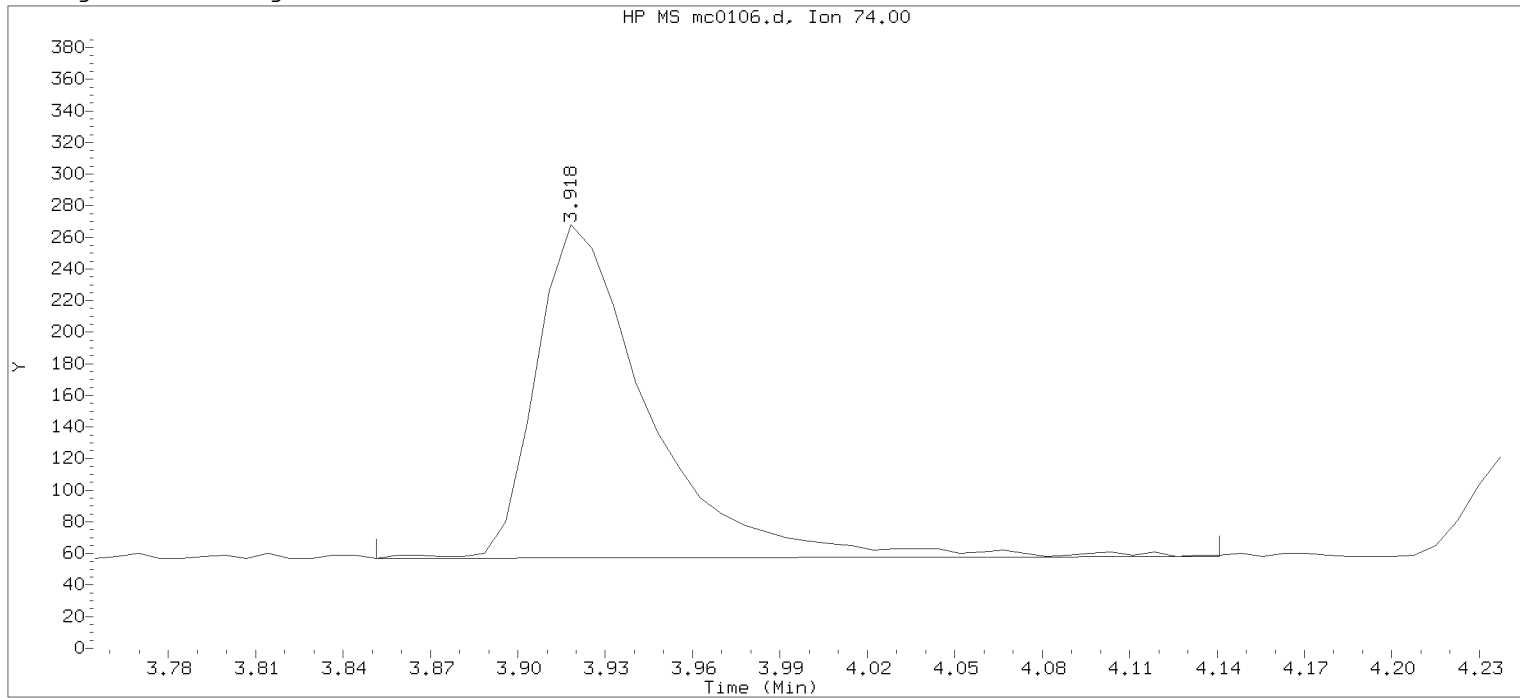
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.01

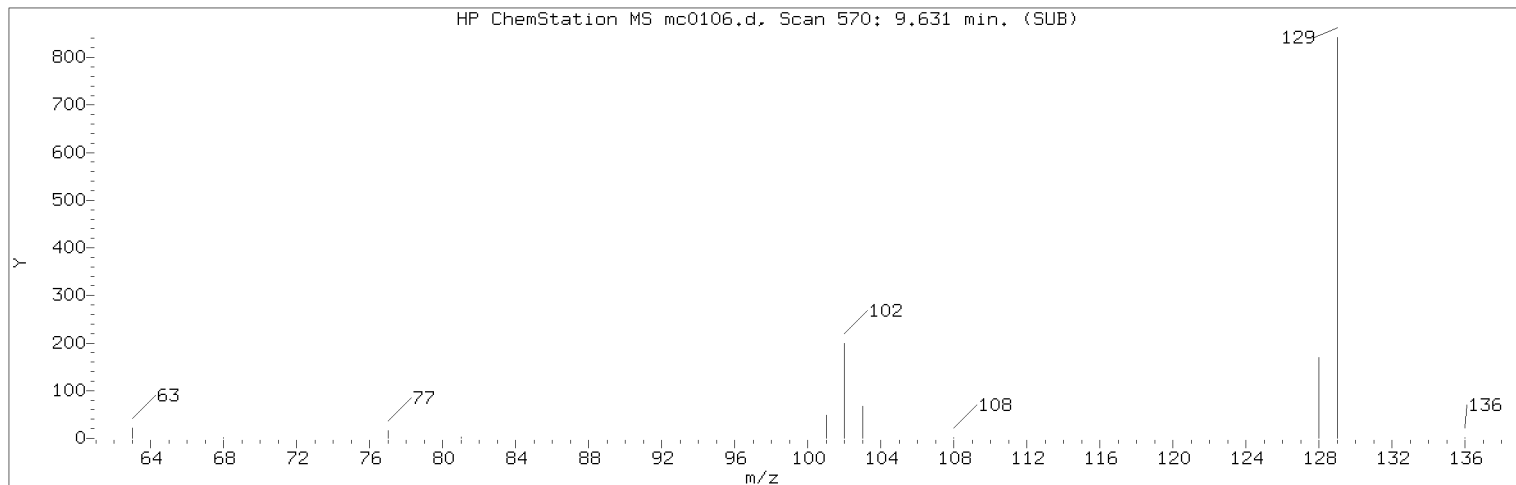
Lab Sample ID: RVSIM0130

Compound Number	: 2	
Compound Name	: N-Nitrosodimethylamine	
Scan Number	: 113	
Retention Time (minutes)	: 3.918	
Quant Ion	: 74.00	
Area	: 572	
On-column Amount (ng/ul)	: 0.0202	
Integration start scan	: 103	Integration stop scan: 142
Y at integration start	: 57	Y at integration end: 58

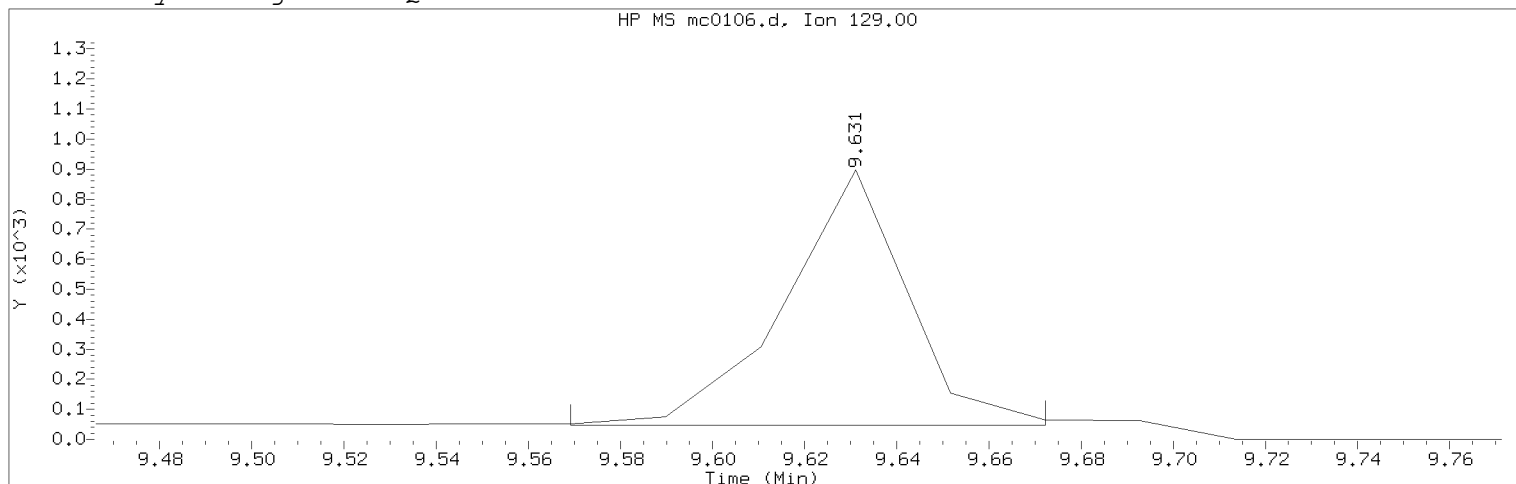
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV67jmg Page 497 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.01

Lab Sample ID: RVSIM0130

Compound Number	: 8	
Compound Name	: Quinoline	
Scan Number	: 570	
Retention Time (minutes)	: 9.631	
Quant Ion	: 129.00	
Area (flag)	: 1247M	
On-Column Amount (ng/ul)	: 0.0103	
Integration start scan	: 566	Integration stop scan: 571
Y at integration start	: 47	Y at integration end: 47

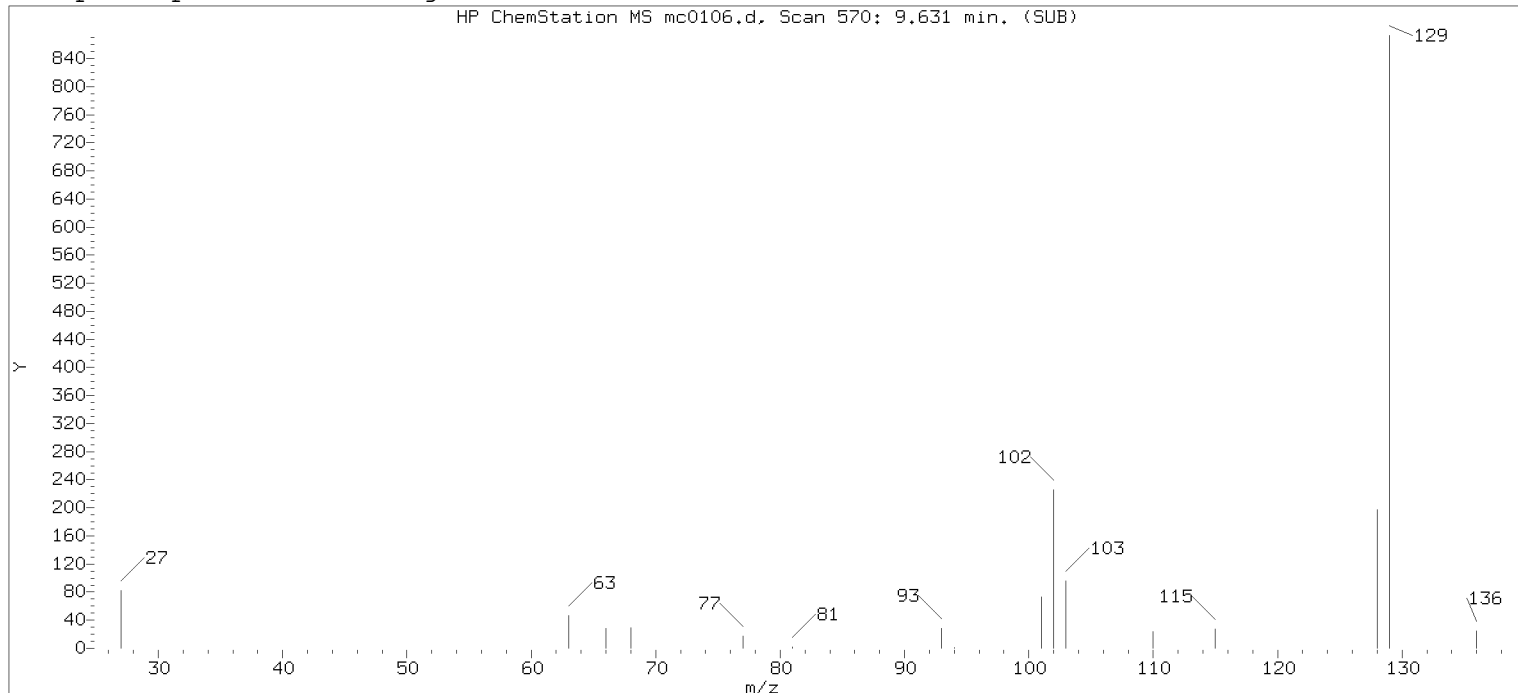
Reason for manual integration: improper integration

Analyst responsible for change:

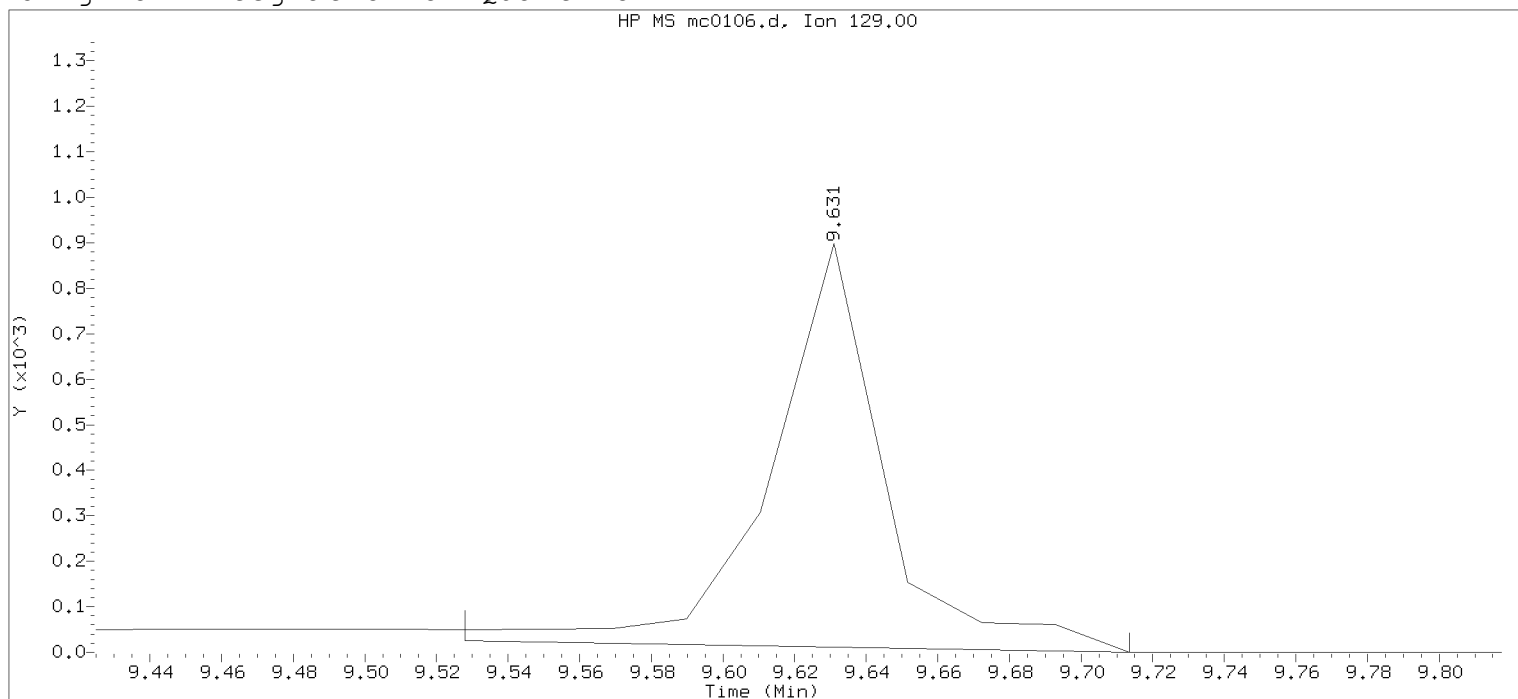
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.01

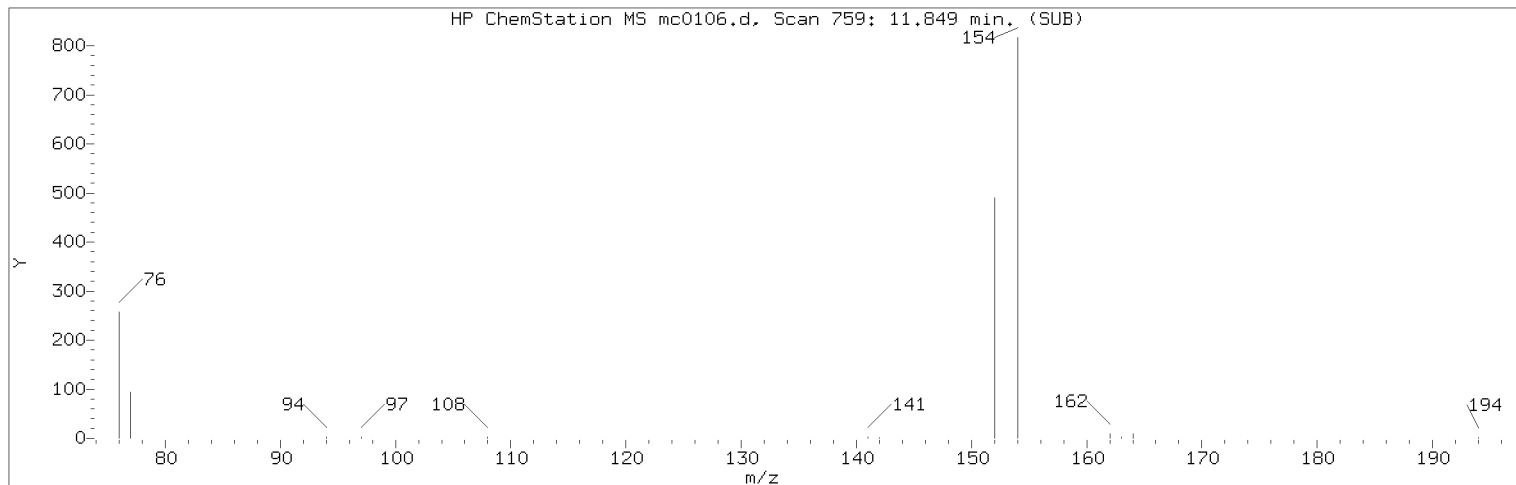
Lab Sample ID: RVSIM0130

Compound Number	: 8	
Compound Name	: Quinoline	
Scan Number	: 570	
Retention Time (minutes)	: 9.631	
Quant Ion	: 129.00	
Area	: 1533	
On-column Amount (ng/ul)	: 0.0154	
Integration start scan	: 564	Integration stop scan: 573
Y at integration start	: 25	Y at integration end: 0

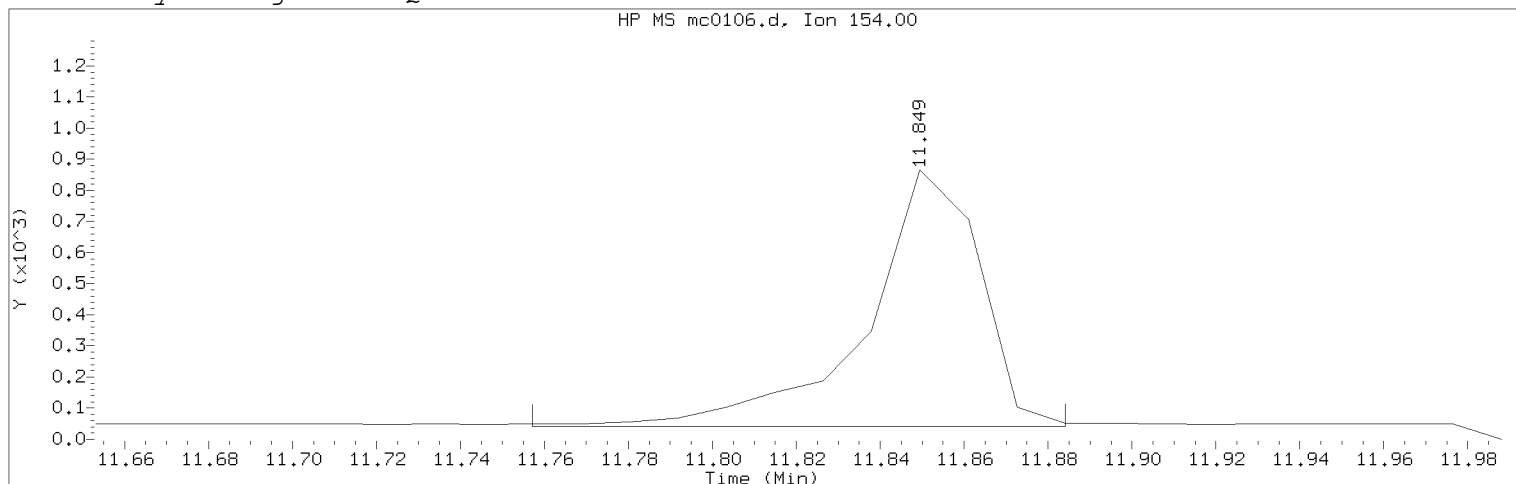
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV67 Page 499 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 759	
Retention Time (minutes)	: 11.849	
Quant Ion	: 154.00	
Area (flag)	: 1392M	
On-Column Amount (ng/ul)	: 0.0105	
Integration start scan	: 750	Integration stop scan: 761
Y at integration start	: 42	Y at integration end: 42

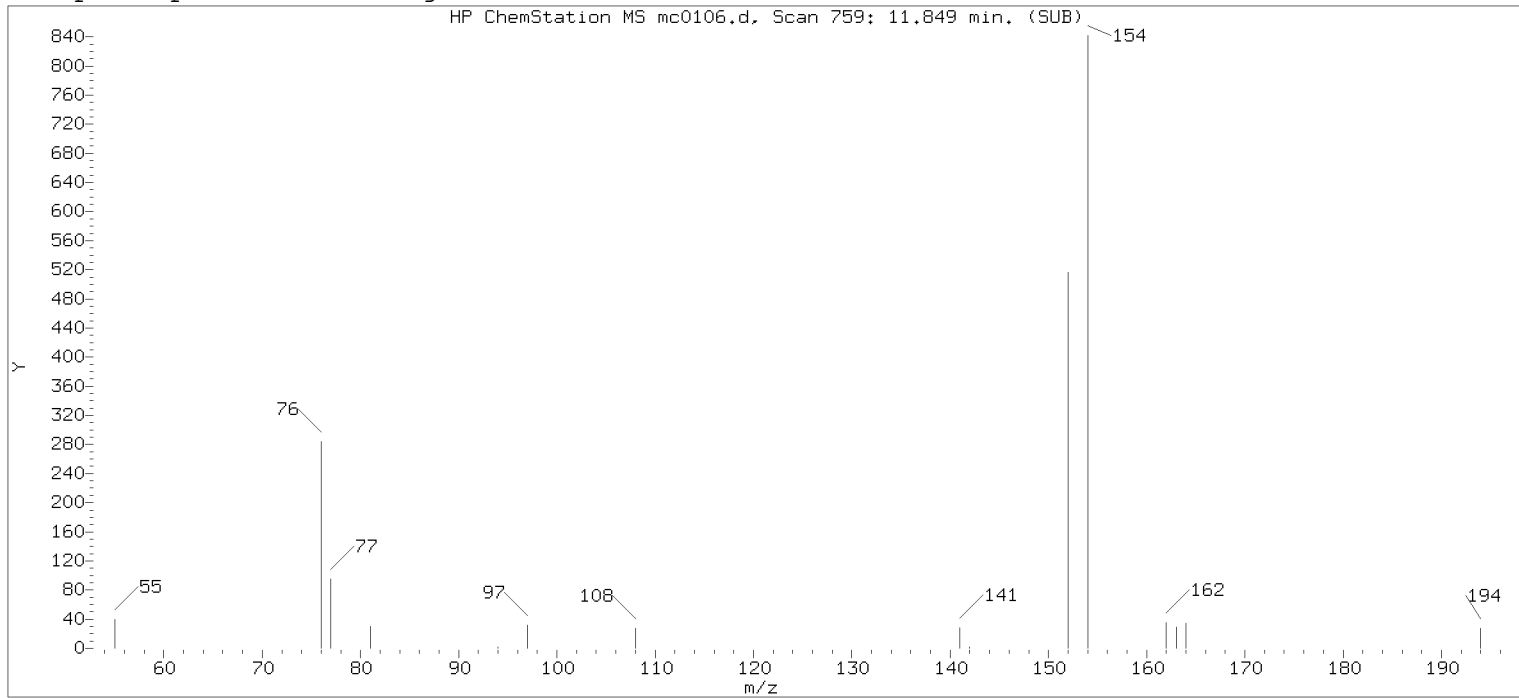
Reason for manual integration: improper integration

Analyst responsible for change:

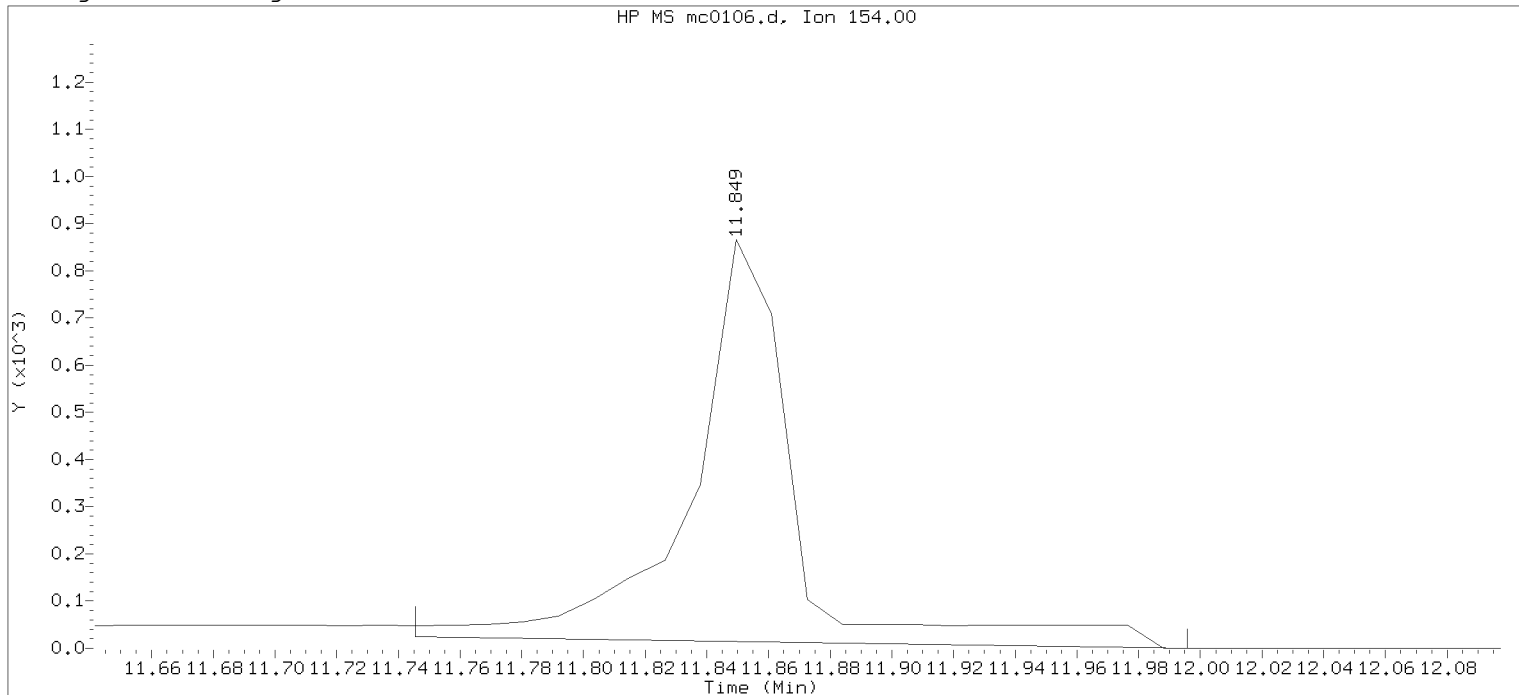
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.01

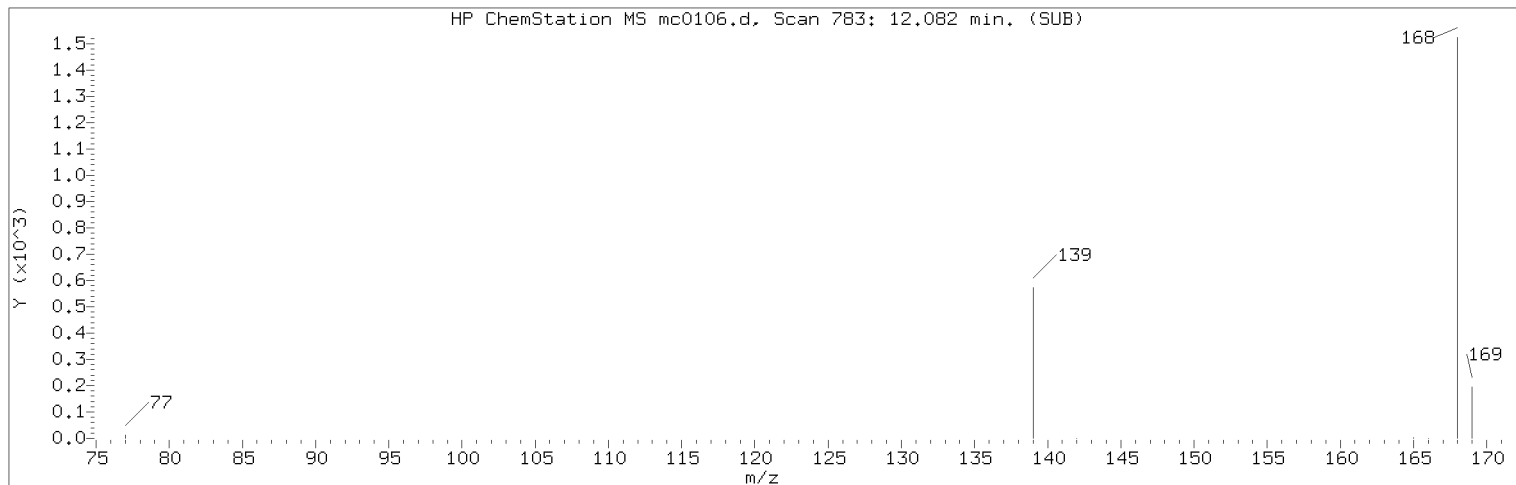
Lab Sample ID: RVSIM0130

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 759	
Retention Time (minutes)	: 11.849	
Quant Ion	: 154.00	
Area	: 1795	
On-column Amount (ng/ul)	: 0.0129	
Integration start scan	: 749	Integration stop scan: 771
Y at integration start	: 24	Y at integration end: 0

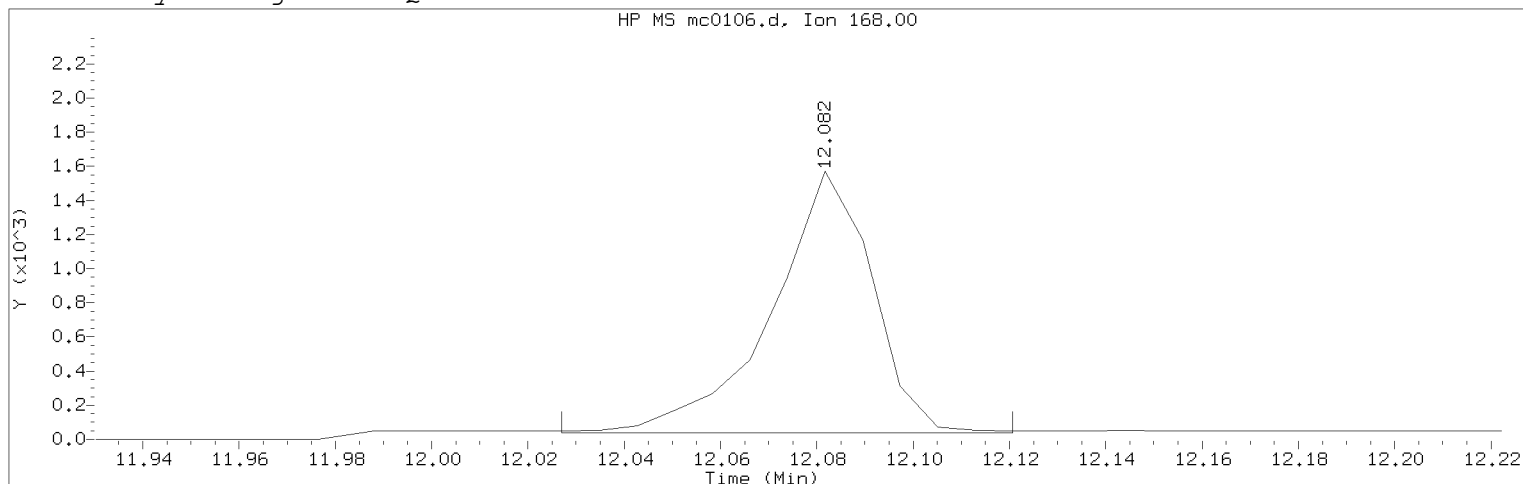
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV67 Page 501 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

Compound Number	: 16	
Compound Name	: Dibenzofuran	
Scan Number	: 783	
Retention Time (minutes)	: 12.082	
Quant Ion	: 168.00	
Area (flag)	: 2468M	
On-Column Amount (ng/ul)	: 0.0099	
Integration start scan	: 775	Integration stop scan: 787
Y at integration start	: 39	Y at integration end: 39

Reason for manual integration: improper integration

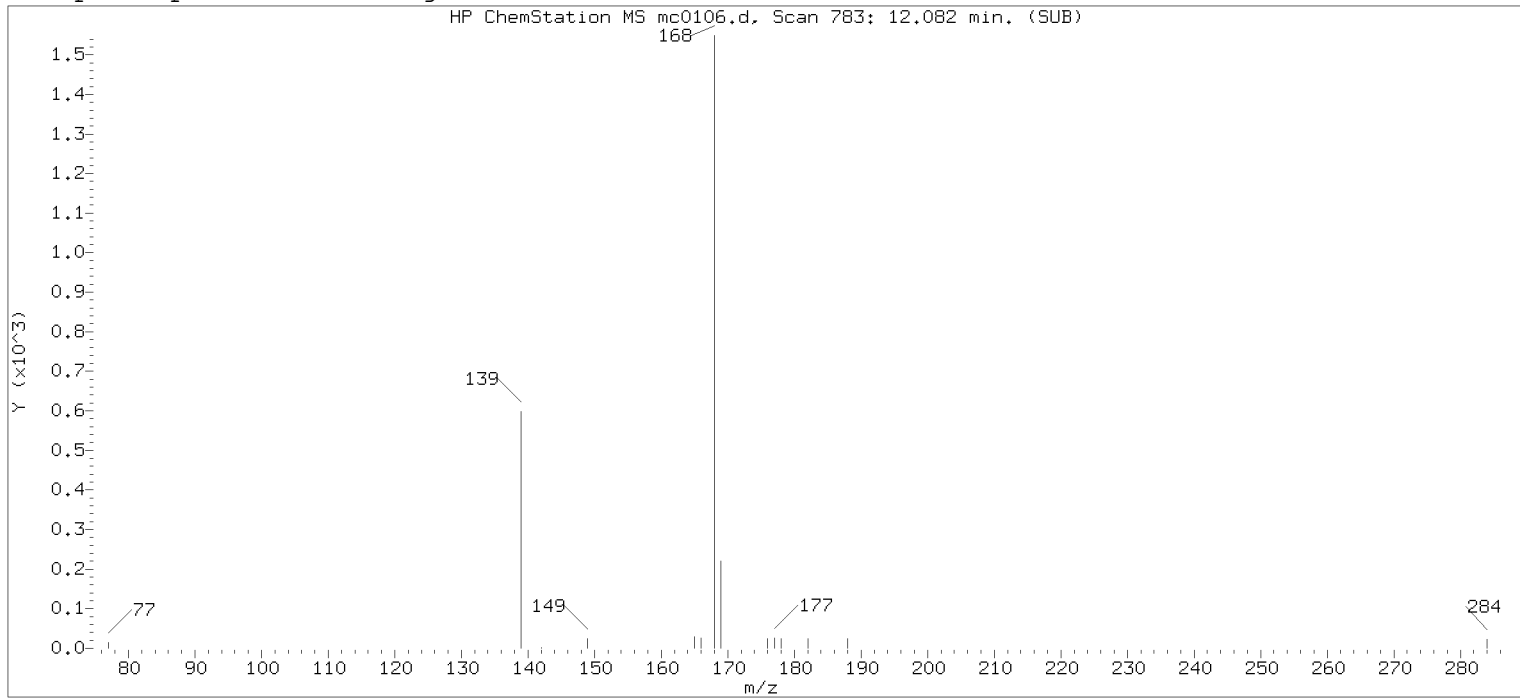
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

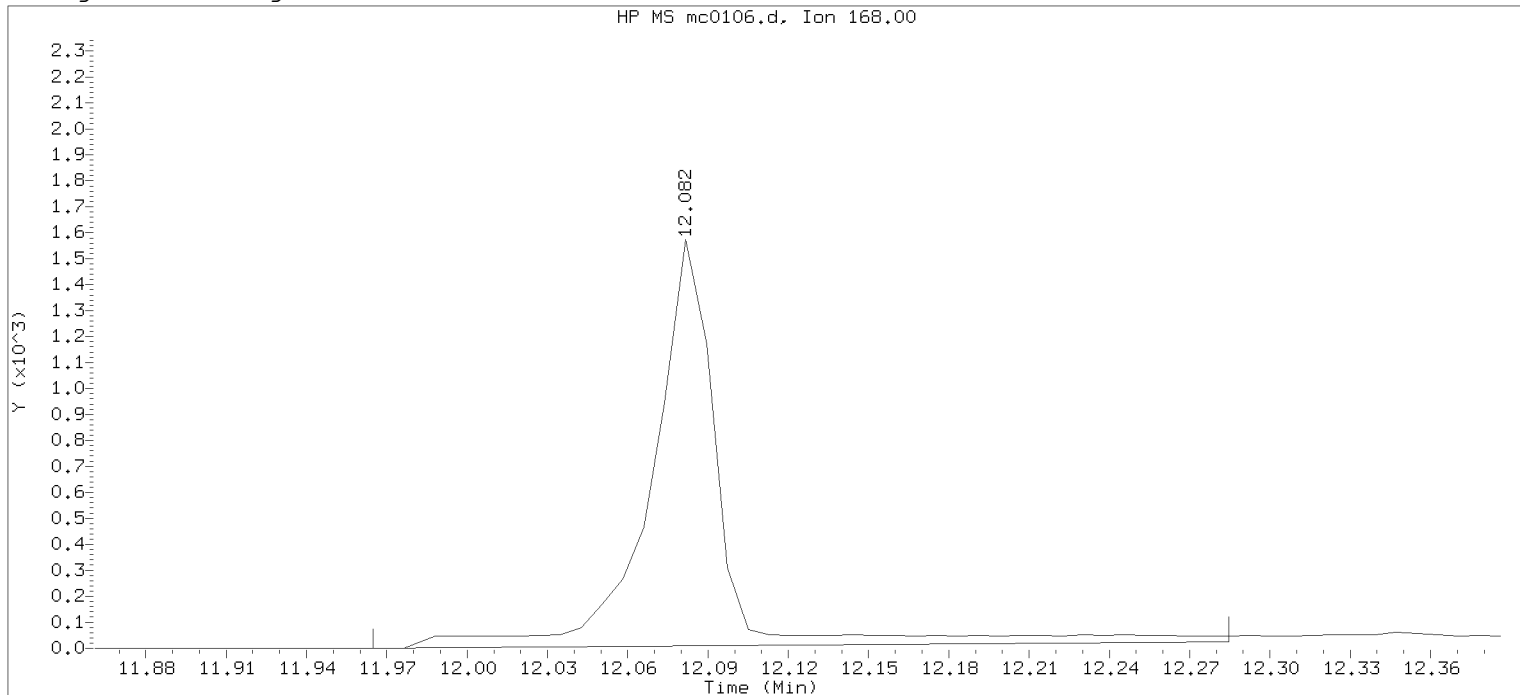
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

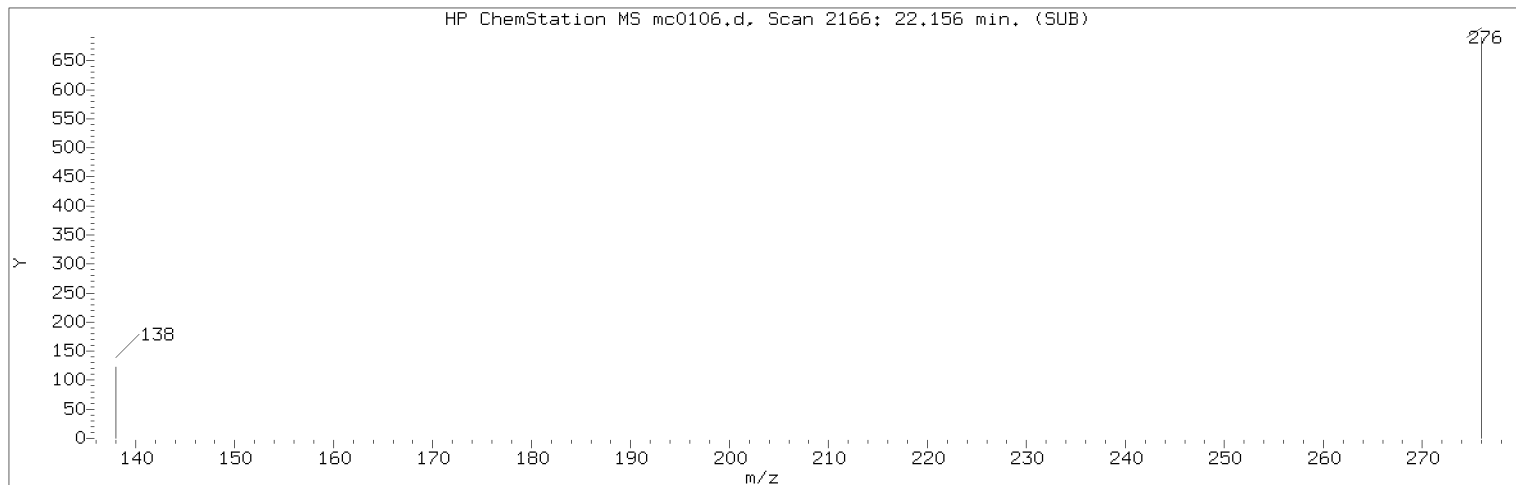
Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.01

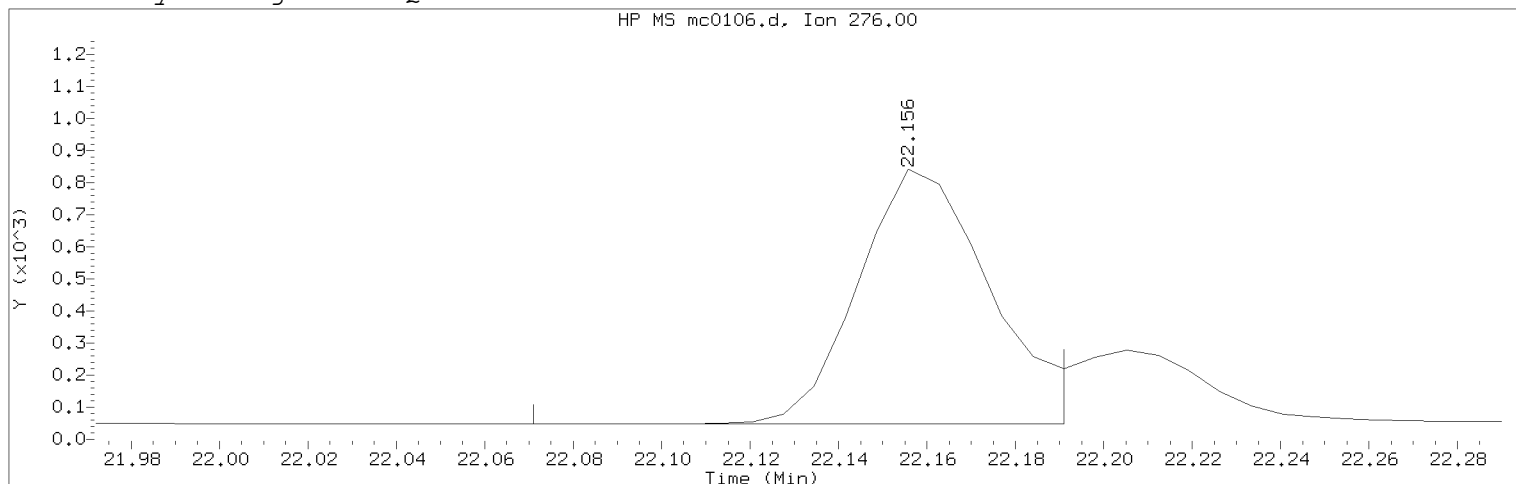
Lab Sample ID: RVSIM0130

Compound Number	: 16	
Compound Name	: Dibenzofuran	
Scan Number	: 783	
Retention Time (minutes)	: 12.082	
Quant Ion	: 168.00	
Area	: 3120	
On-column Amount (ng/ul)	: 0.0120	
Integration start scan	: 768	Integration stop scan: 808
Y at integration start	: 0	Y at integration end: 24

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 1663M	
On-Column Amount (ng/ul)	: 0.0093	
Integration start scan	: 2153	Integration stop scan: 2170
Y at integration start	: 47	Y at integration end: 47

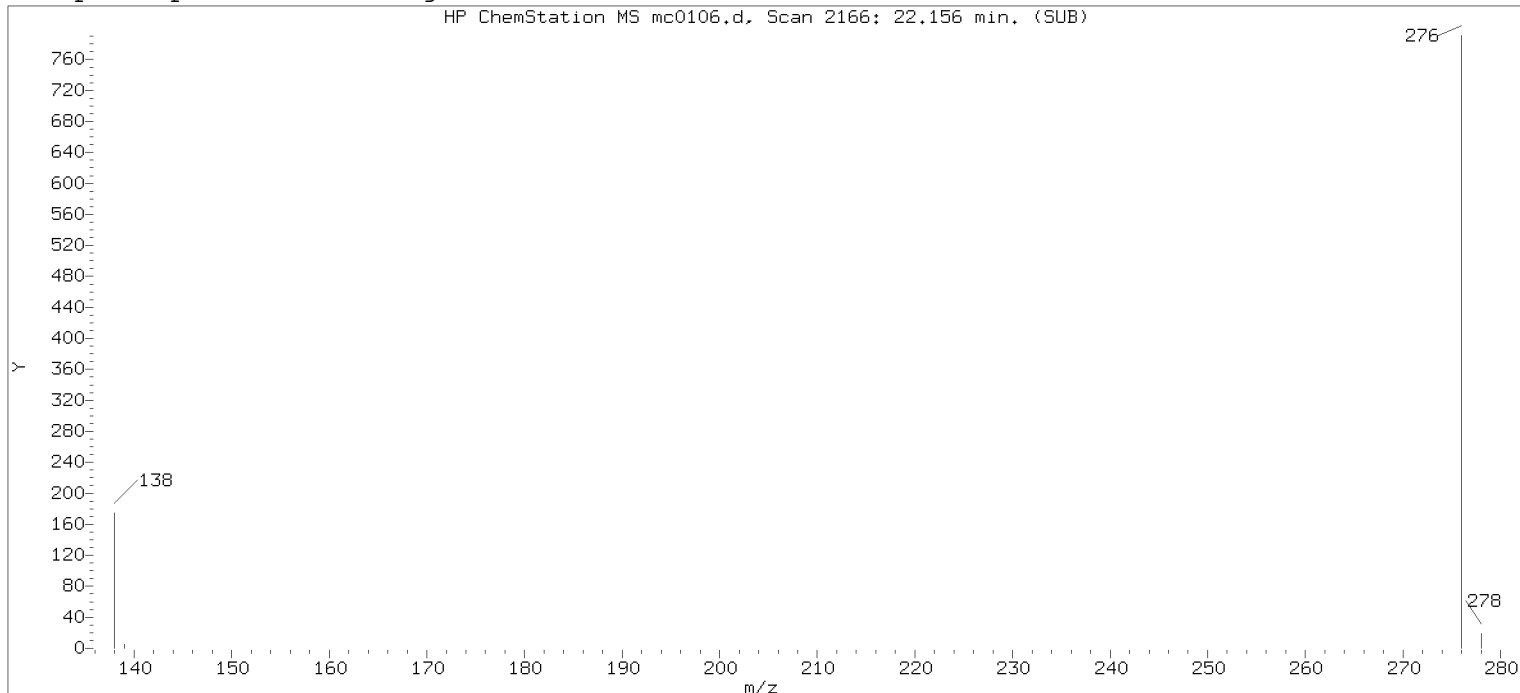
Reason for manual integration: improper integration

Analyst responsible for change:

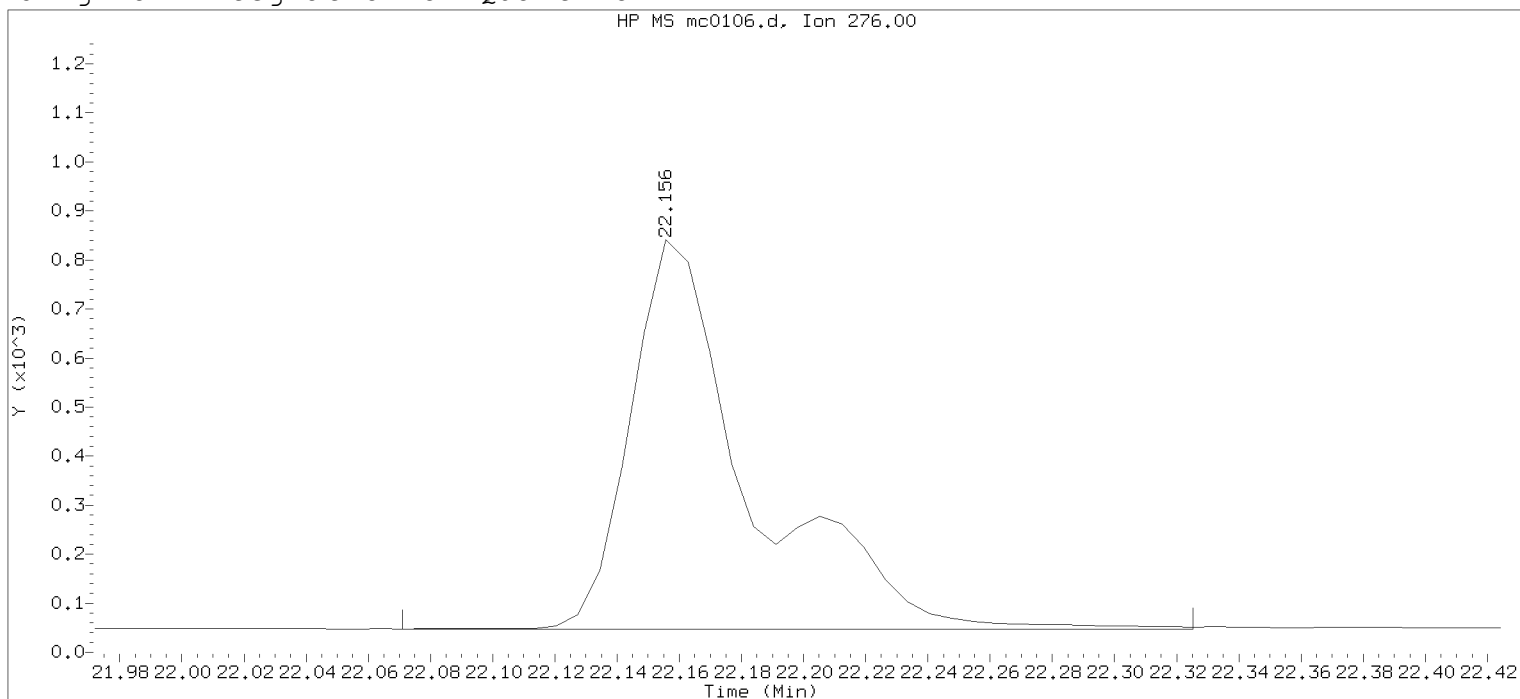
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

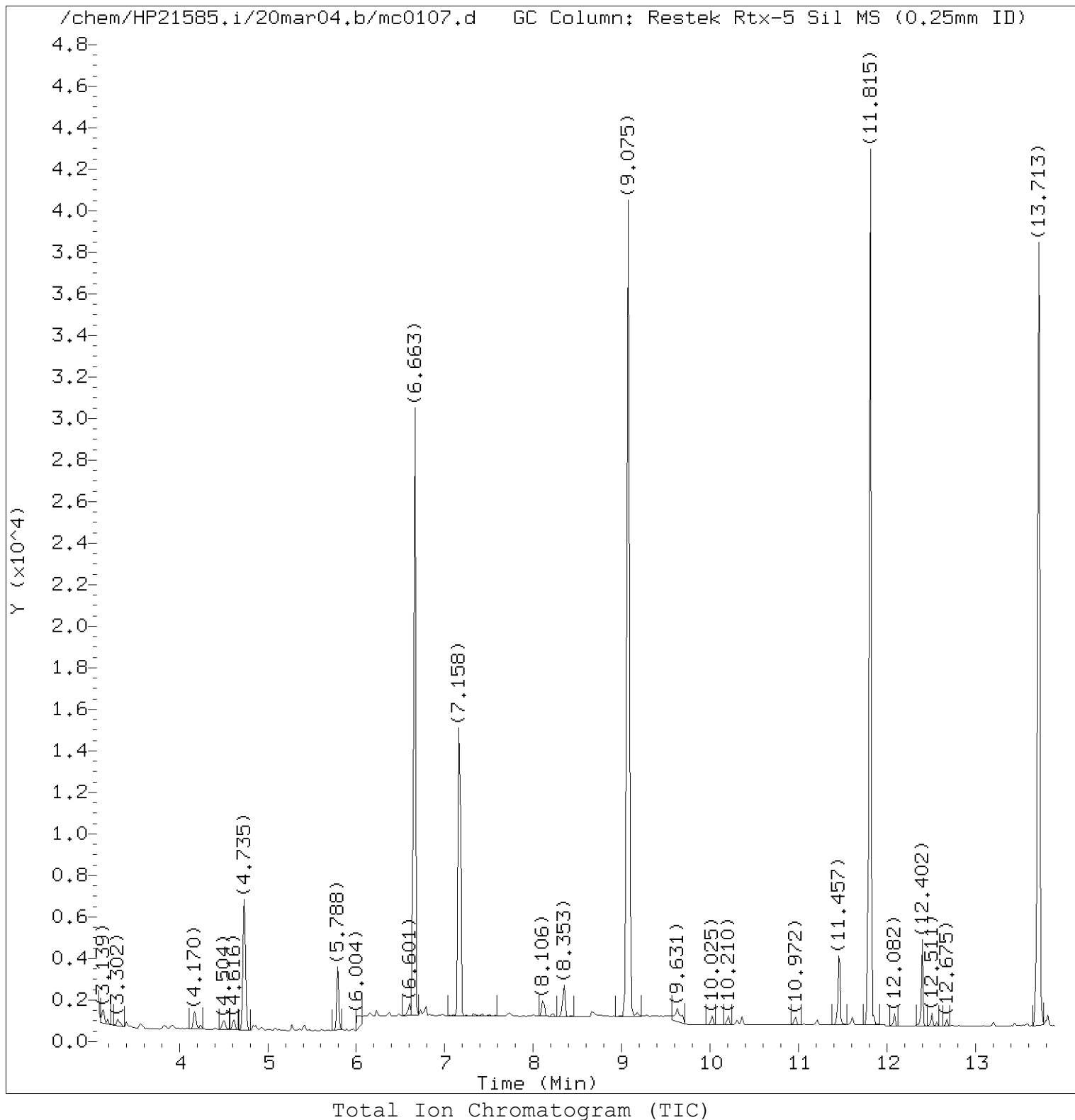
Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 2138	
On-column Amount (ng/ul)	: 0.0094	
Integration start scan	: 2153	Integration stop scan: 2189
Y at integration start	: 47	Y at integration end: 47

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV67jmg Page 505 of 609



Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0107.d
Injection date and time: 05-MAR-2020 01:34

Instrument ID: HP21585.i
Analyst ID: ceb05247

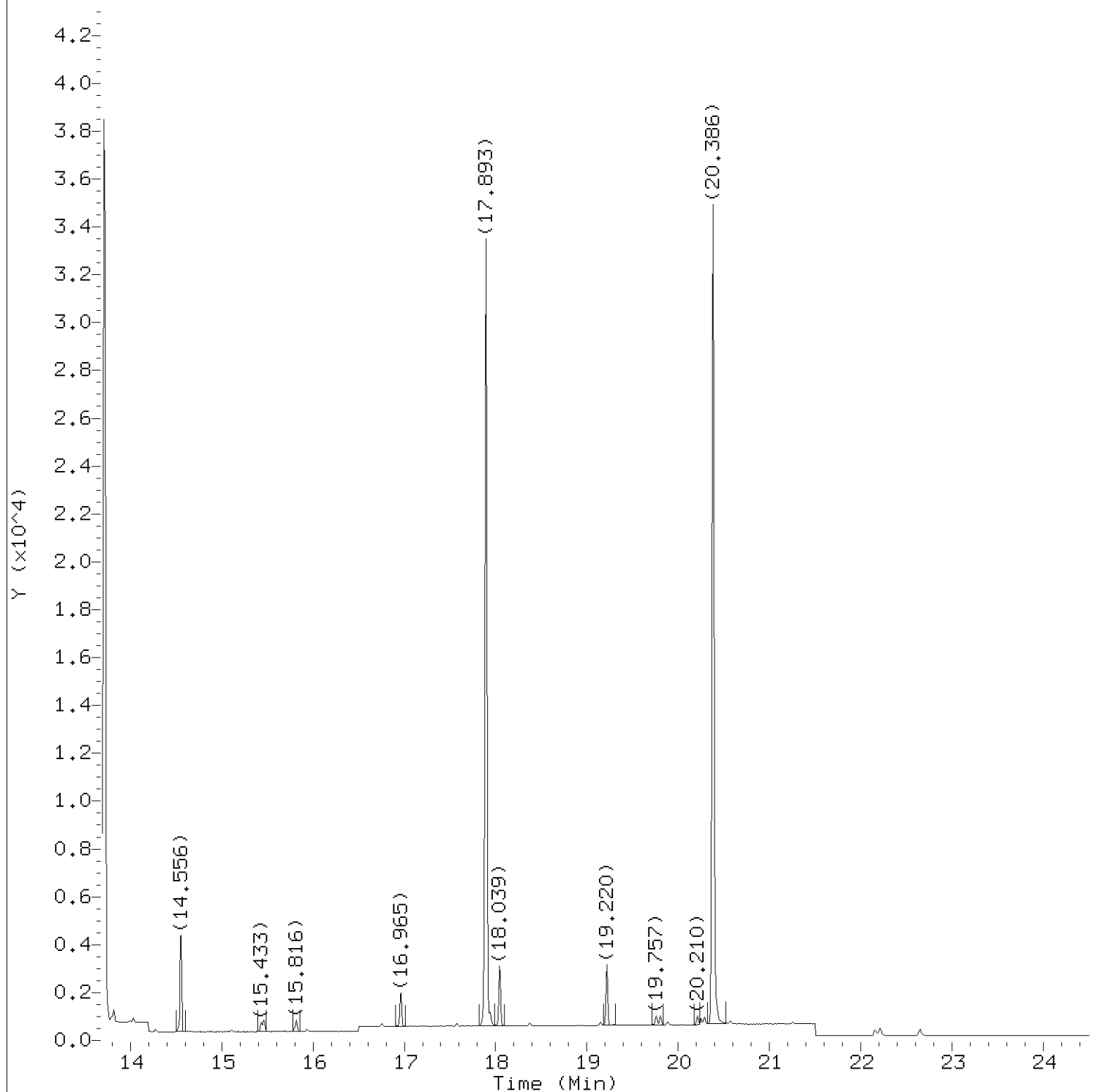
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:35
Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0107.d
Injection date and time: 05-MAR-2020 01:34

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:35
Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0107.d
 Injection date and time: 05-MAR-2020 01:34

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:35
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.562	88	141M	0.003
2) N-Nitrosodimethylamine	(1)	3.926	74	150	0.002
4) bis(2-Chloroethyl)ether	(2)	6.787	93	351M	0.004
5)*1,4-Dichlorobenzene-d4	(1)	7.178	152	16207	0.250
6)*Naphthalene-d8	(2)	9.075	136	56134	0.250
7) Naphthalene	(2)	9.116	128	686	0.003
8) Quinoline	(2)	9.631	129	325M	0.003
9) 2-Methylnaphthalene	(2)	10.210	142	385	0.002
10)\$1-Methylnaphthalene-d10	(2)	10.302	152	289	0.003
11) 1-Methylnaphthalene	(2)	10.360	142	360	0.002
12) Dimethylphthalate	(3)	11.468	163	3760	0.023
13) Acenaphthylene	(3)	11.607	152	569	0.002
14)*Acenaphthene-d10	(3)	11.815	164	22000	0.250
15) Acenaphthene	(3)	11.849	154	342M	0.003
16) Dibenzofuran	(3)	12.082	168	631M	0.003
17) Diethylphthalate	(3)	12.402	149	3478	0.022
18) Fluorene	(3)	12.511	166	397	0.002
43) N-Nitrosodiphenylamine	(4)	12.675	169	232	0.003
19) Hexachlorobenzene	(4)	13.206	284	167	0.003
20)*Phenanthrene-d10	(4)	13.713	188	48794	0.250
21) Phenanthrene	(4)	13.744	178	700	0.003
22) Anthracene	(4)	13.814	178	571	0.002
23) Di-n-butylphthalate	(4)	14.556	149	4831	0.018
24)\$Fluoranthene-d10	(4)	15.433	212	490	0.002
25) Fluoranthene	(4)	15.465	202	643	0.002
26) Pyrene	(5)	15.822	202	664	0.002
27) Butylbenzylphthalate	(5)	16.965	149	1616	0.017
28) Benzo(a)anthracene	(5)	17.878	228	673	0.003
29)*Chrysene-d12	(5)	17.893	240	37726	0.250
30) Chrysene	(5)	17.939	228	603	0.003
31) bis(2-Ethylhexyl)phthalate	(5)	18.039	149	2472	0.017
32) Di-n-octylphthalate	(6)	19.220	149	3074	0.254
33) Benzo(b)fluoranthene	(6)	19.757	252	508M	0.002
34) Benzo(k)fluoranthene	(6)	19.803	252	485M	0.002
35) Benzo(e)pyrene	(6)	20.210	252	472	0.002
36)\$Benzo(a)pyrene-d12	(6)	20.256	264	299	0.002
37) Benzo(a)pyrene	(6)	20.294	252	427	0.002
38)*Perylene-d12	(6)	20.386	264	36527	0.250
45) Perylene	(6)	20.424	252	535M	0.003
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	383M	0.002

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:44.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

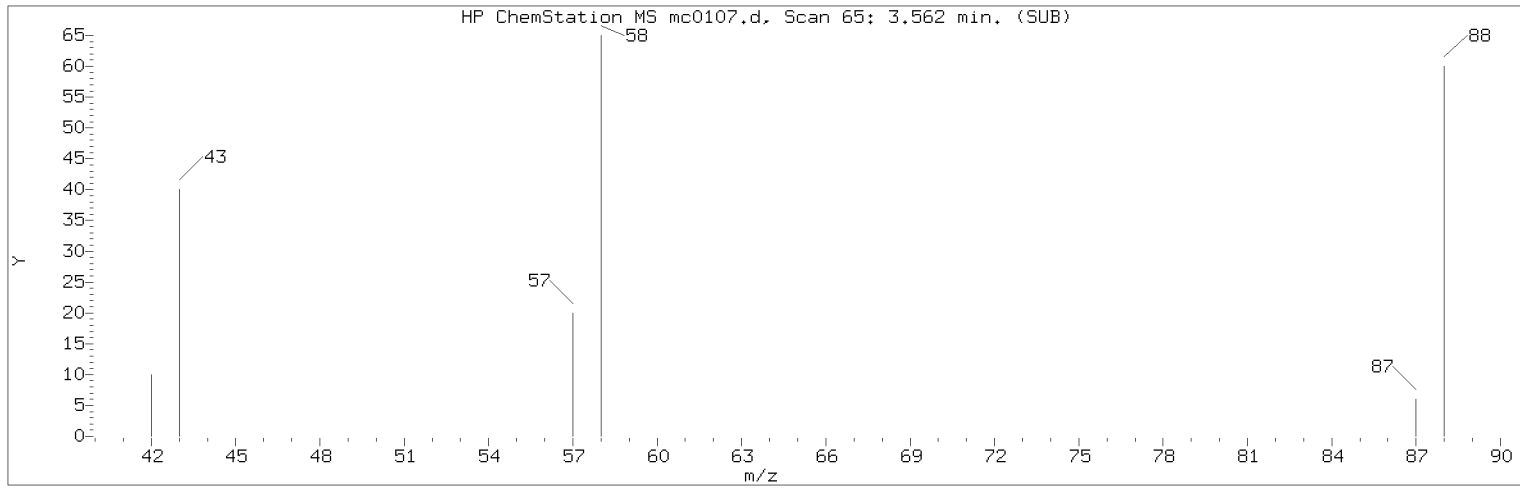
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.212	278	420	0.002
41) Benzo(g,h,i)perylene	(6)	22.650	276	469	0.002

Digitally signed by Joseph M. Gambler

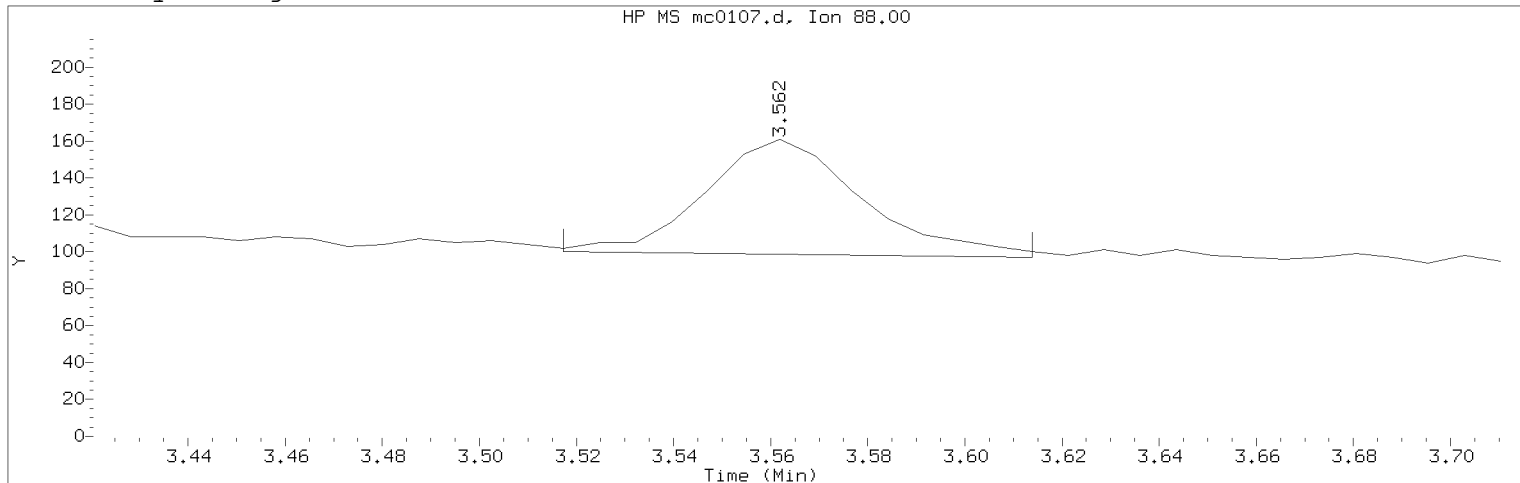
on 03/05/2020 at 03:44.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 1	
Compound Name	: 1,4-Dioxane	
Scan Number	: 65	
Retention Time (minutes)	: 3.562	
Quant Ion	: 88.00	
Area (flag)	: 141M	
On-Column Amount (ng/ul)	: 0.0032	
Integration start scan	: 58	Integration stop scan: 71
Y at integration start	: 100	Y at integration end: 97

Reason for manual integration: improper integration

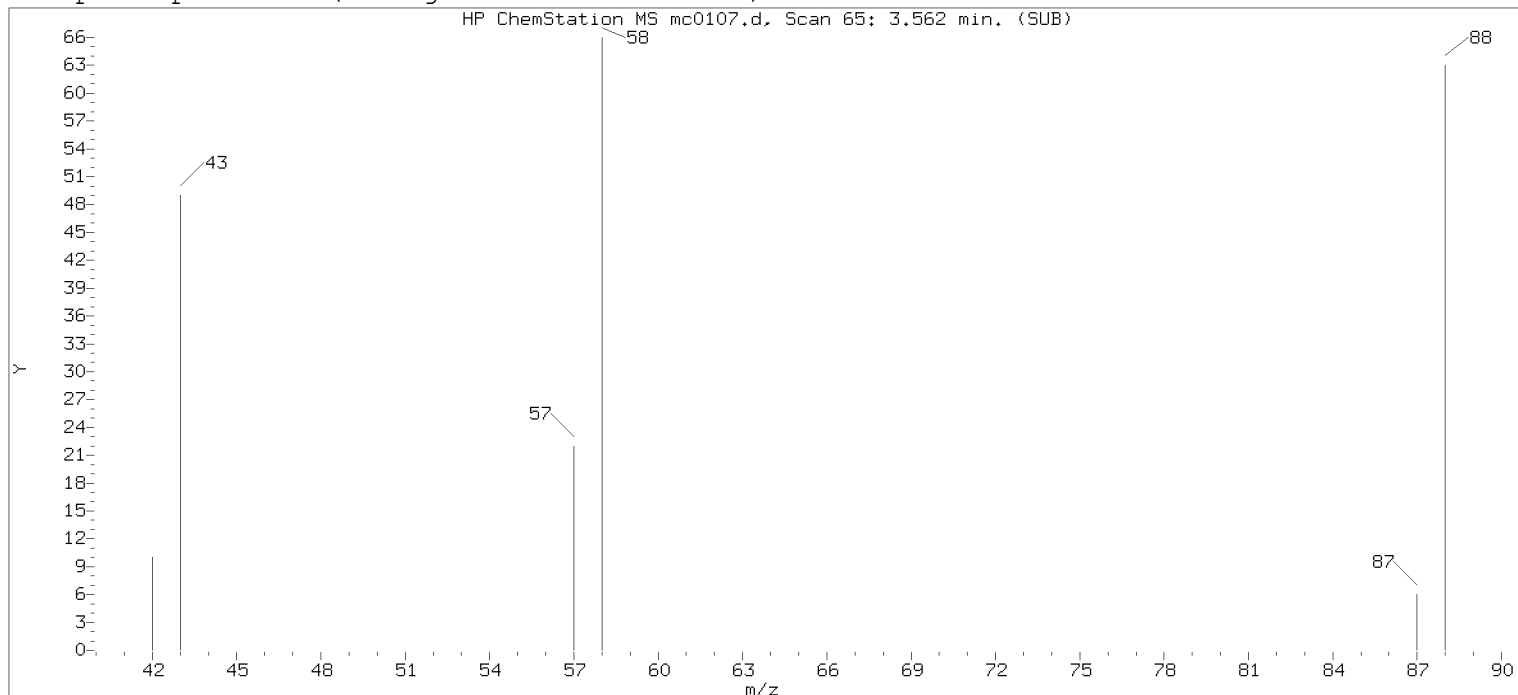
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

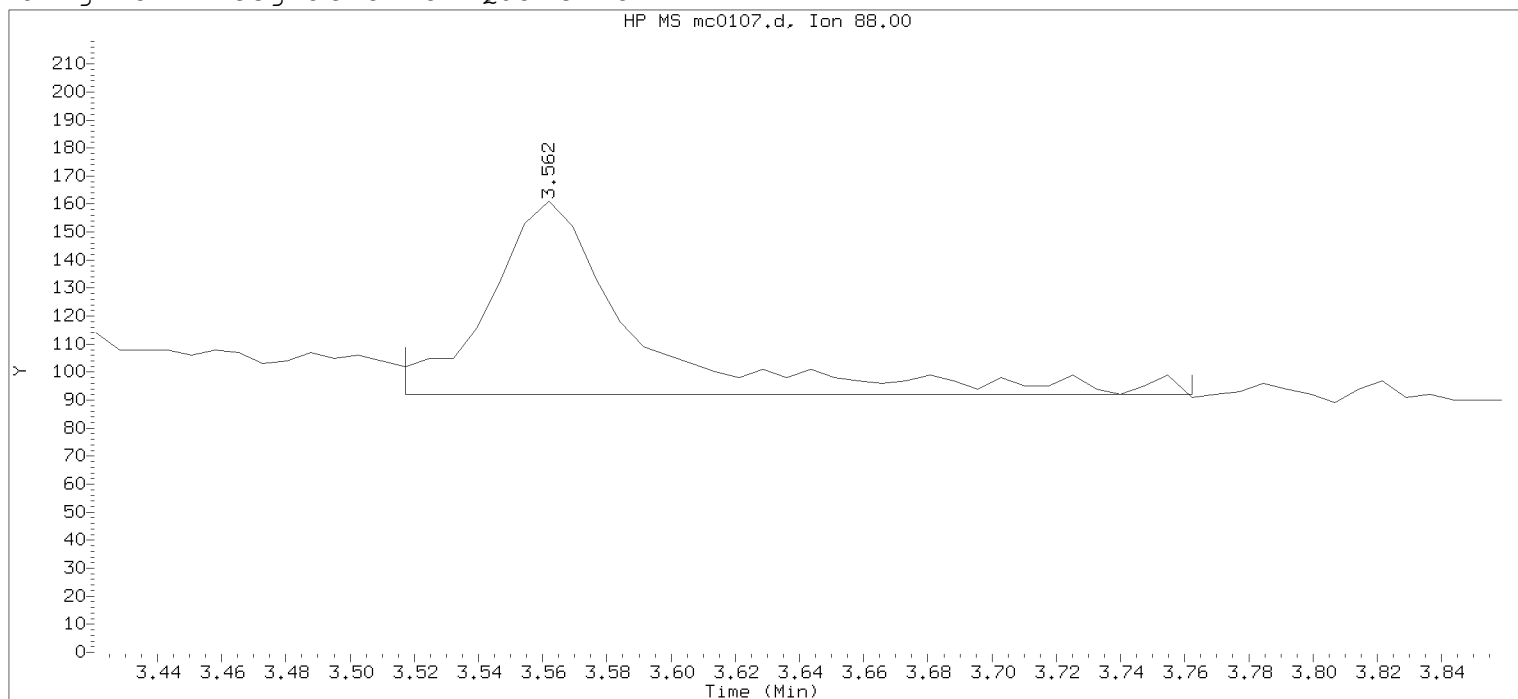
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.0025

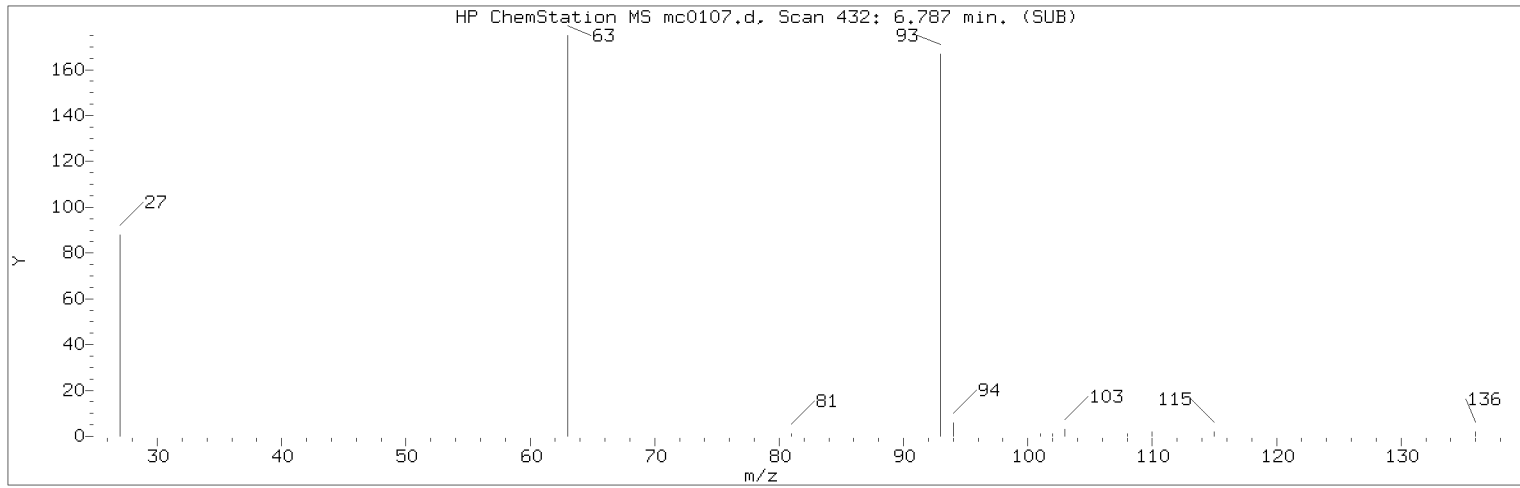
Lab Sample ID: RVSIM0130

Compound Number	: 1	
Compound Name	: 1,4-Dioxane	
Scan Number	: 65	
Retention Time (minutes)	: 3.562	
Quant Ion	: 88.00	
Area	: 221	
On-column Amount (ng/ul)	: 0.0051	
Integration start scan	: 58	Integration stop scan: 91
Y at integration start	: 92	Y at integration end: 92

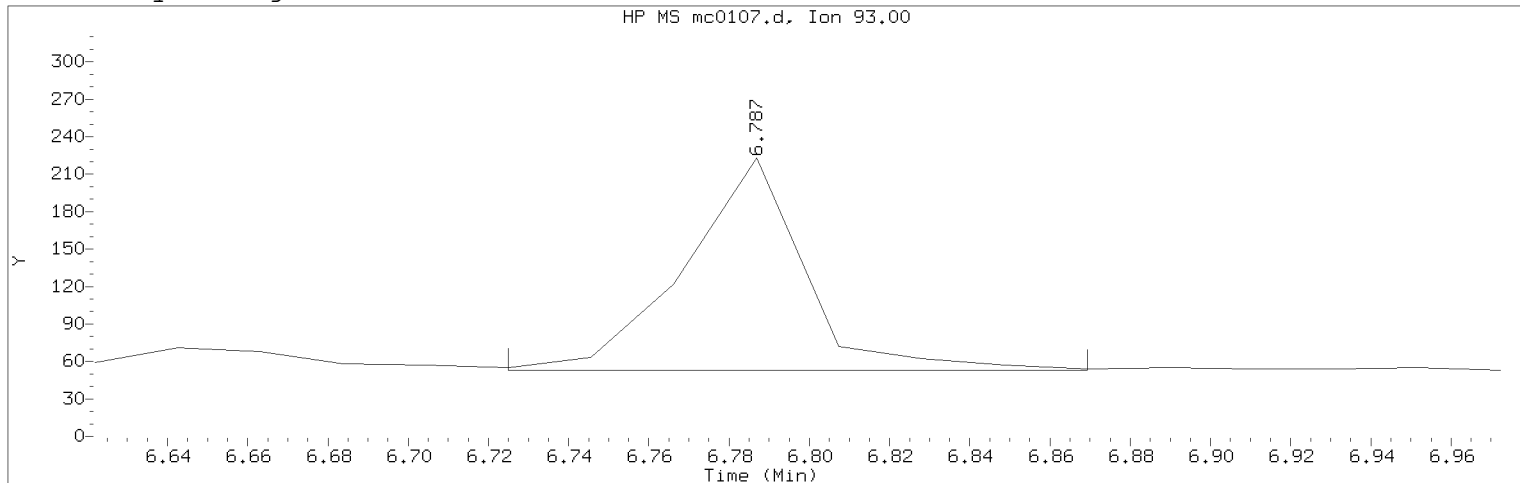
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV67j Page 511 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 4	
Compound Name	: bis(2-Chloroethyl)ether	
Scan Number	: 432	
Retention Time (minutes)	: 6.787	
Quant Ion	: 93.00	
Area (flag)	: 351M	
On-Column Amount (ng/ul)	: 0.0036	
Integration start scan	: 428	Integration stop scan: 435
Y at integration start	: 53	Y at integration end: 53

Reason for manual integration: improper integration

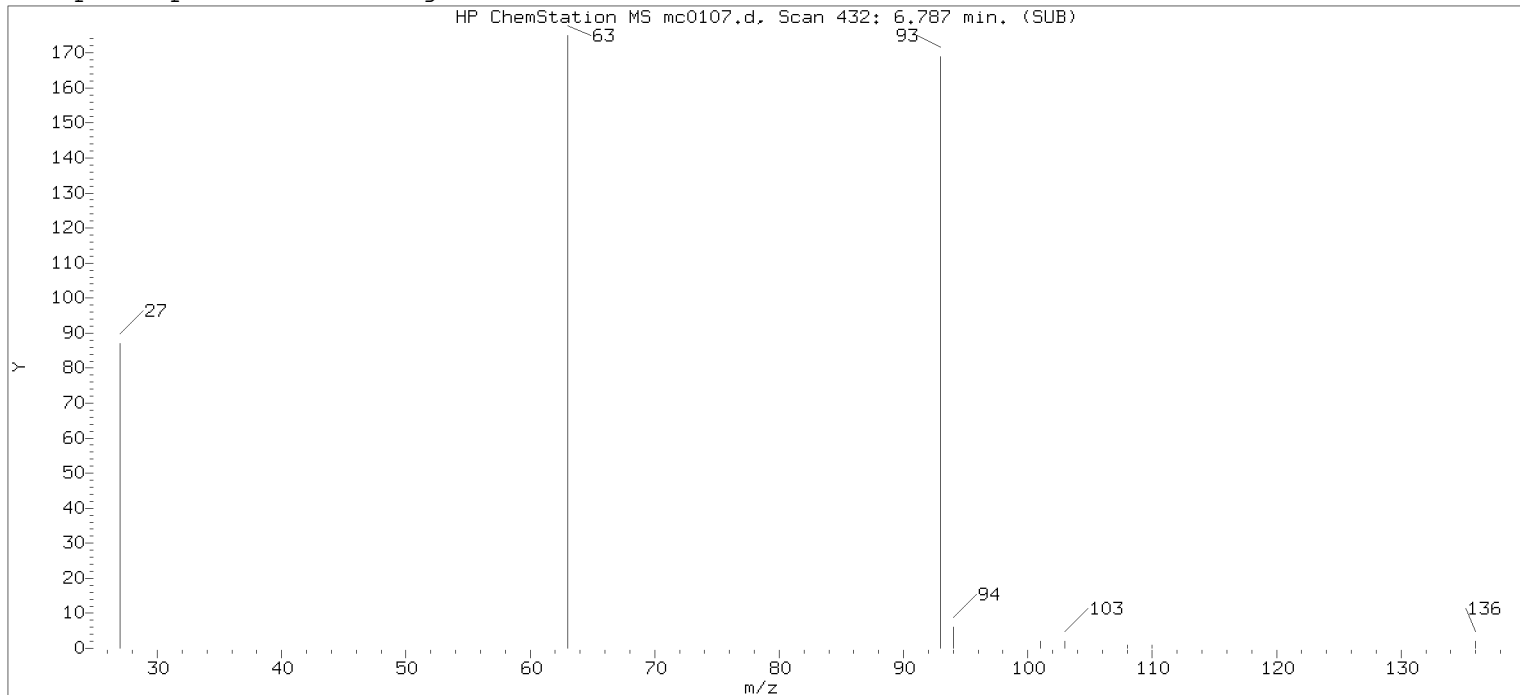
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

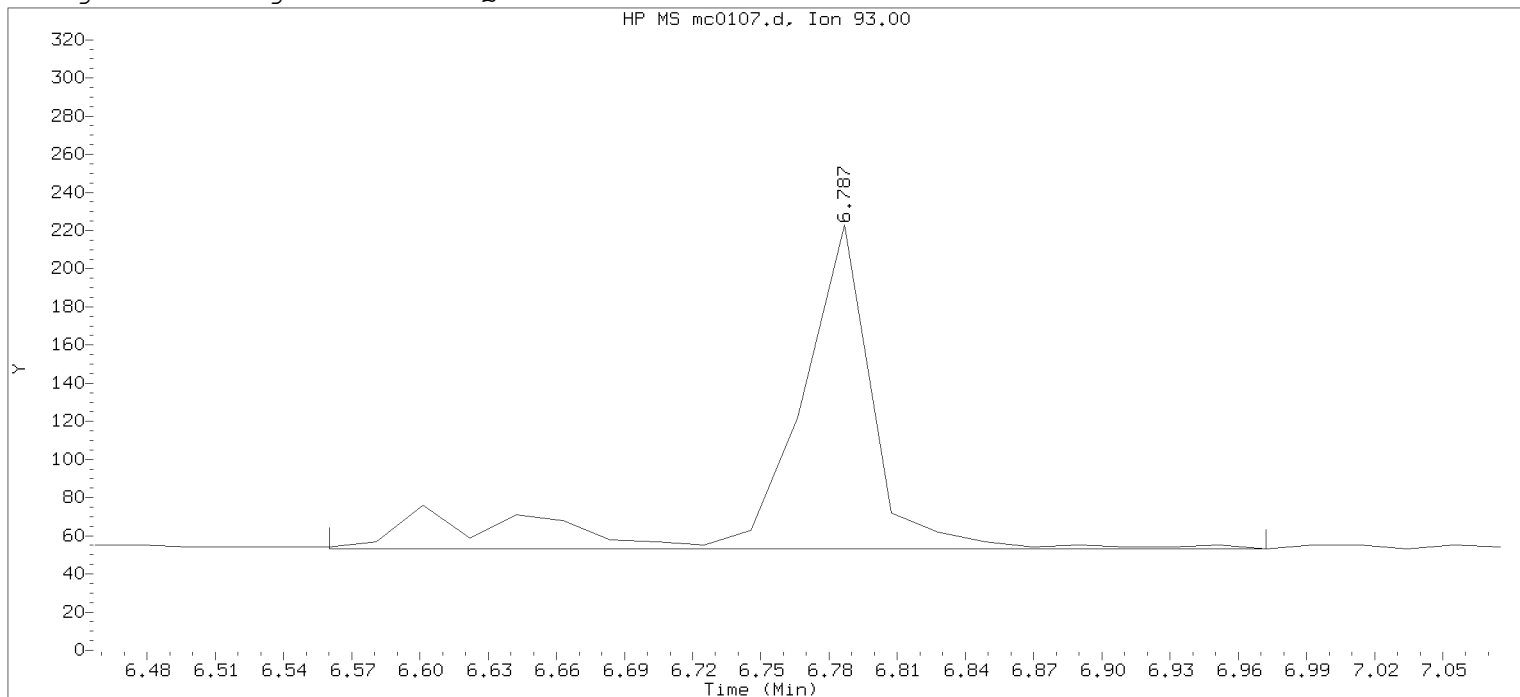
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SST0.0025

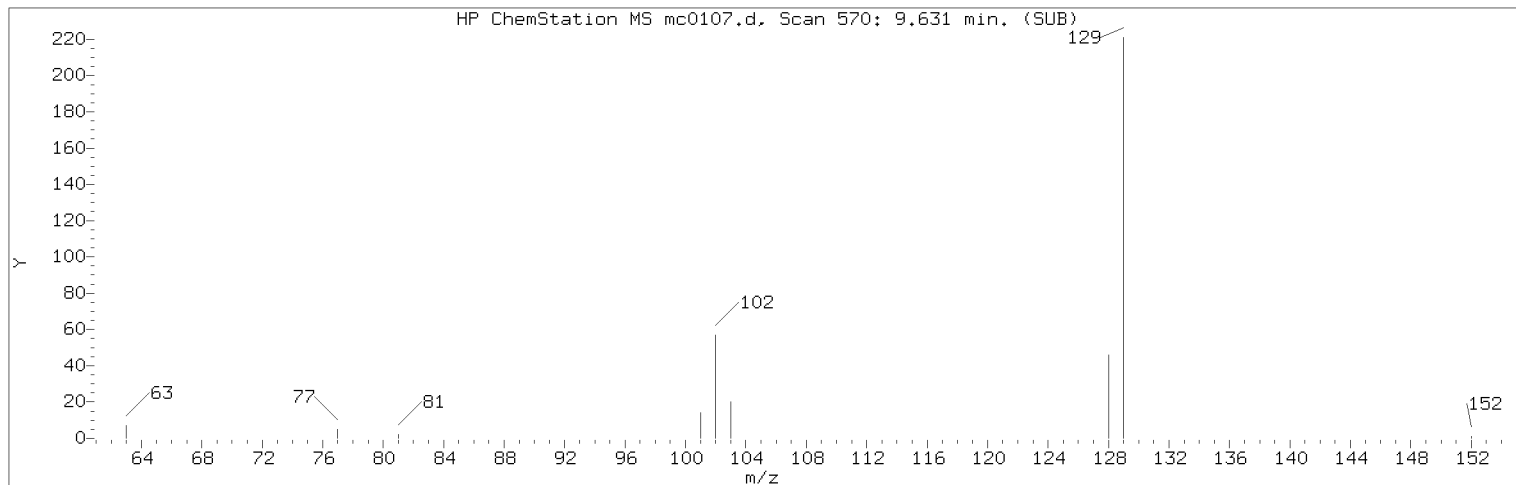
Lab Sample ID: RVSIM0130

Compound Number	: 4	
Compound Name	: bis(2-Chloroethyl)ether	
Scan Number	: 432	
Retention Time (minutes)	: 6.787	
Quant Ion	: 93.00	
Area	: 451	
On-column Amount (ng/ul)	: 0.0046	
Integration start scan	: 420	Integration stop scan: 440
Y at integration start	: 53	Y at integration end: 53

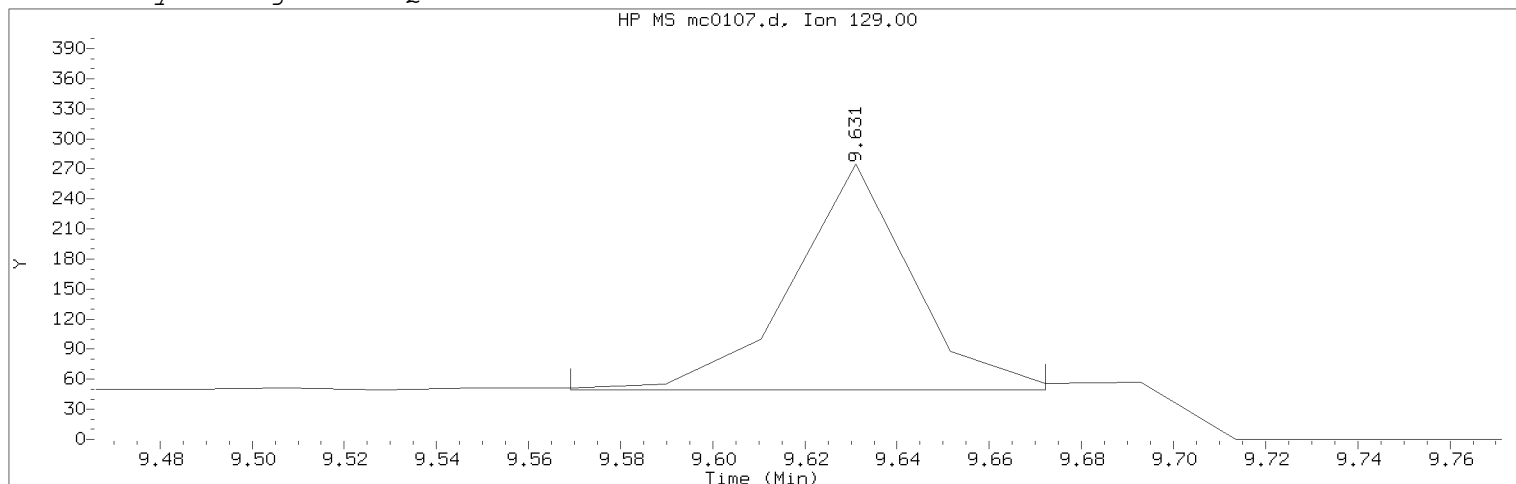
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV67j Page 513 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 8	
Compound Name	: Quinoline	
Scan Number	: 570	
Retention Time (minutes)	: 9.631	
Quant Ion	: 129.00	
Area (flag)	: 325M	
On-Column Amount (ng/ul)	: 0.0026	
Integration start scan	: 566	Integration stop scan: 571
Y at integration start	: 49	Y at integration end: 49

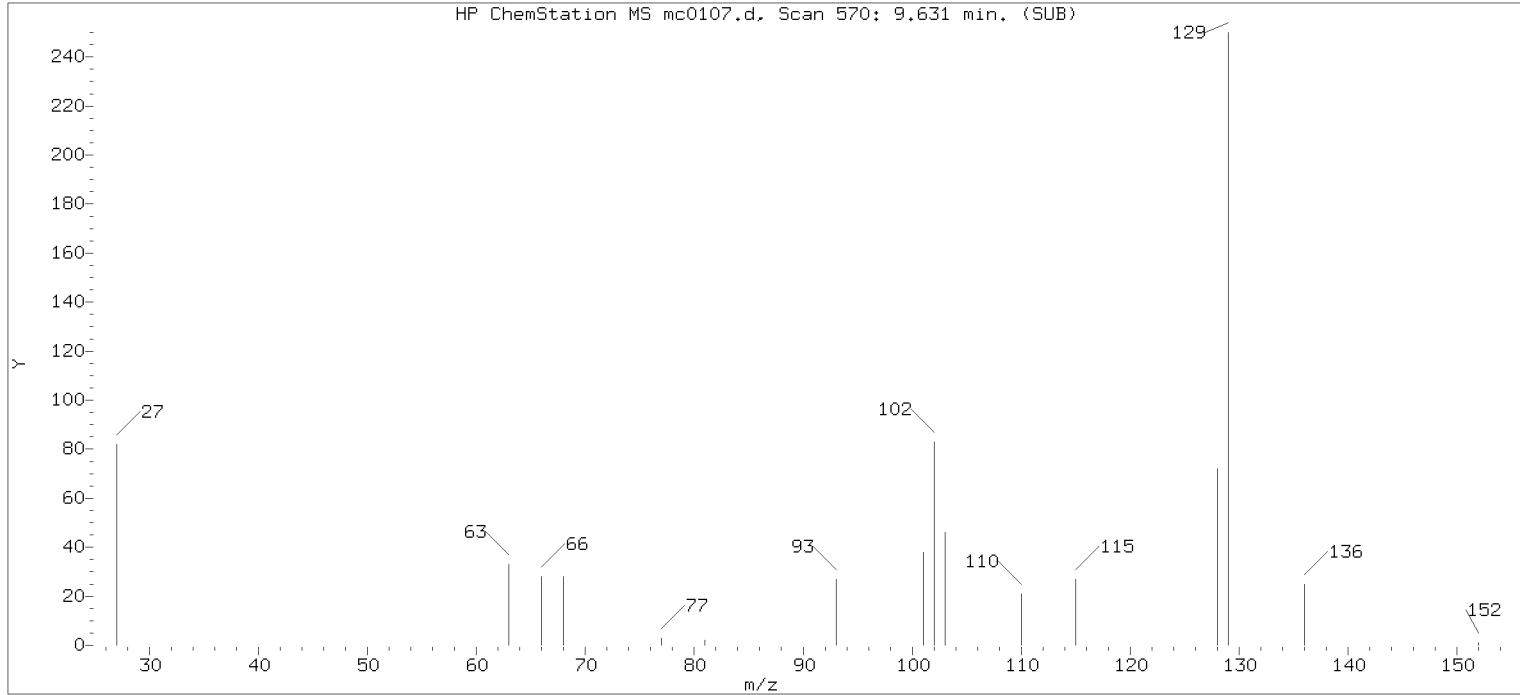
Reason for manual integration: improper integration

Analyst responsible for change:

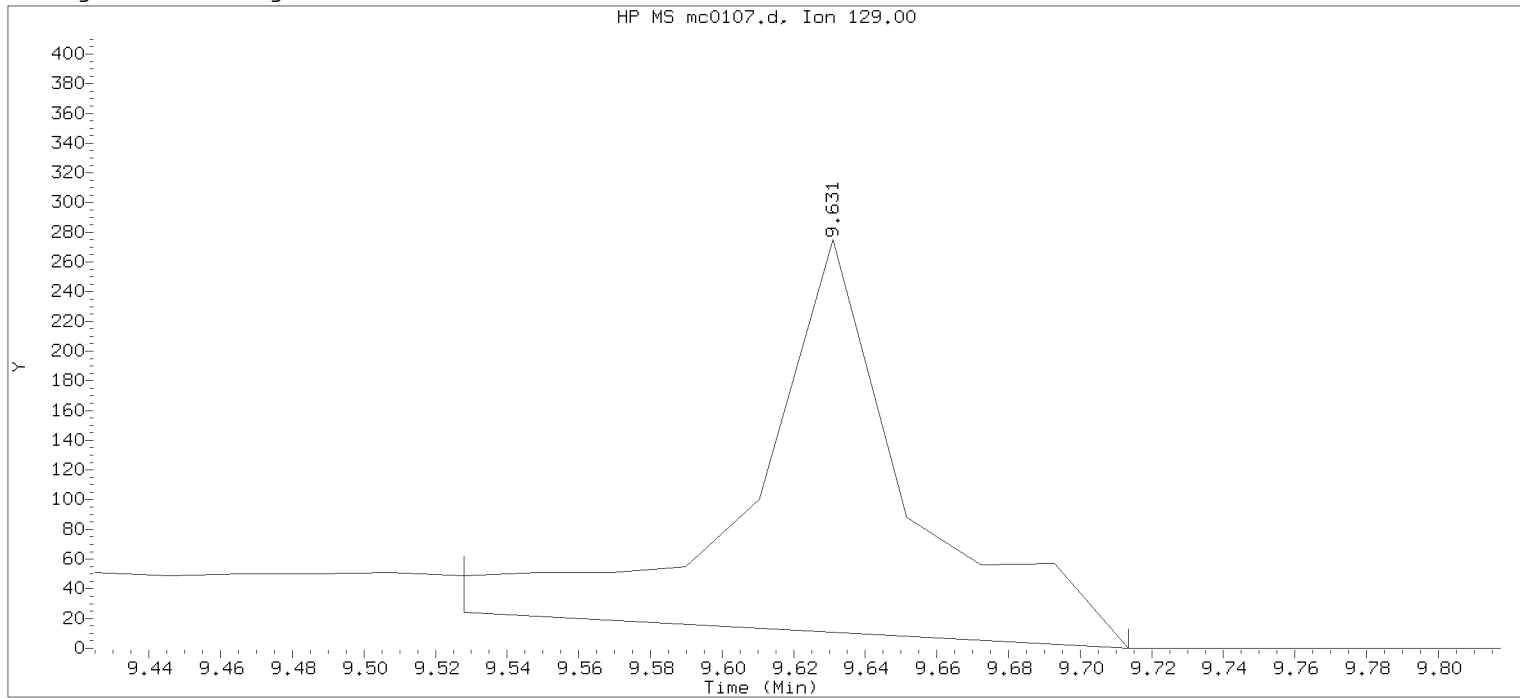
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

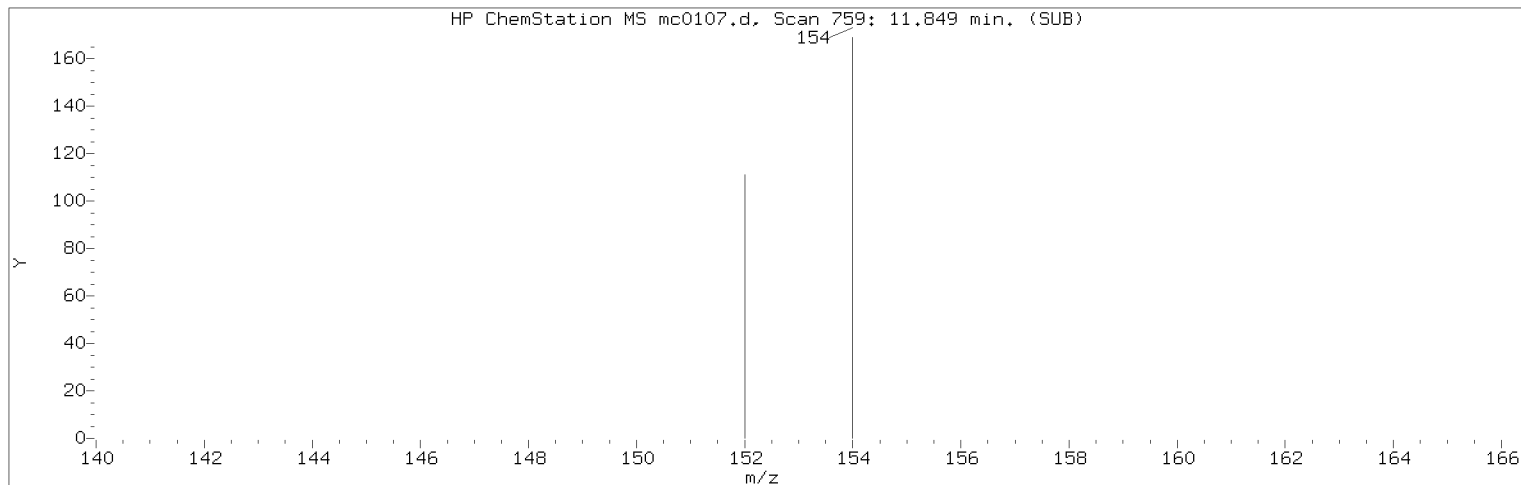
Sample Name: SST0.0025

Lab Sample ID: RVSIM0130

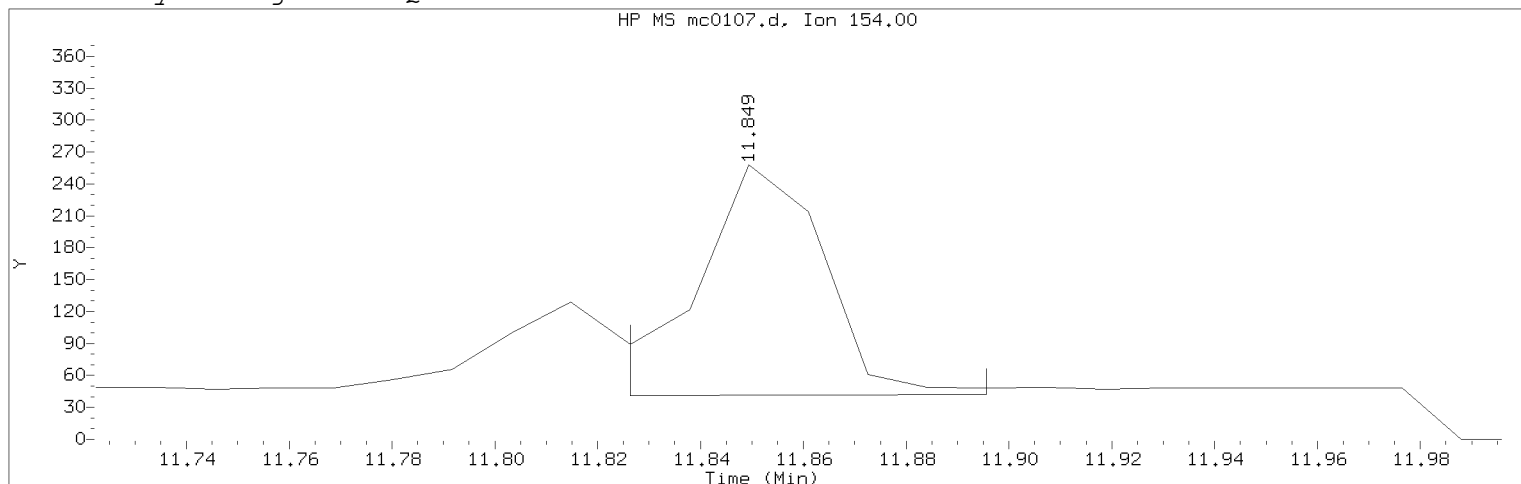
Compound Number : 8
 Compound Name : Quinoline
 Scan Number : 570
 Retention Time (minutes) : 9.631
 Quant Ion : 129.00
 Area : 632
 On-column Amount (ng/ul) : 0.0051
 Integration start scan : 564
 Y at integration start : 24

Integration stop scan: 573
 Y at integration end: 0

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 759	
Retention Time (minutes)	: 11.849	
Quant Ion	: 154.00	
Area (flag)	: 342M	
On-Column Amount (ng/ul)	: 0.0026	
Integration start scan	: 756	Integration stop scan: 762
Y at integration start	: 41	Y at integration end: 42

Reason for manual integration: improper integration

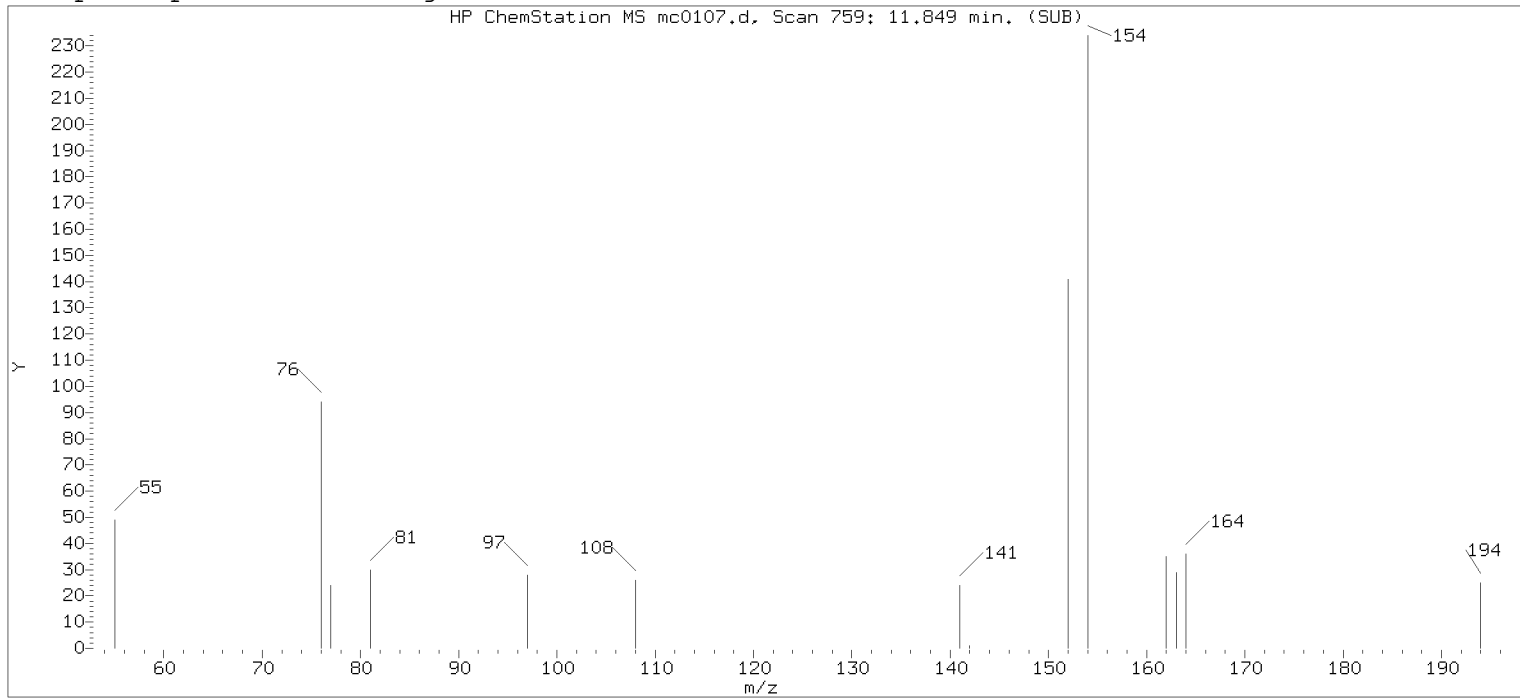
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

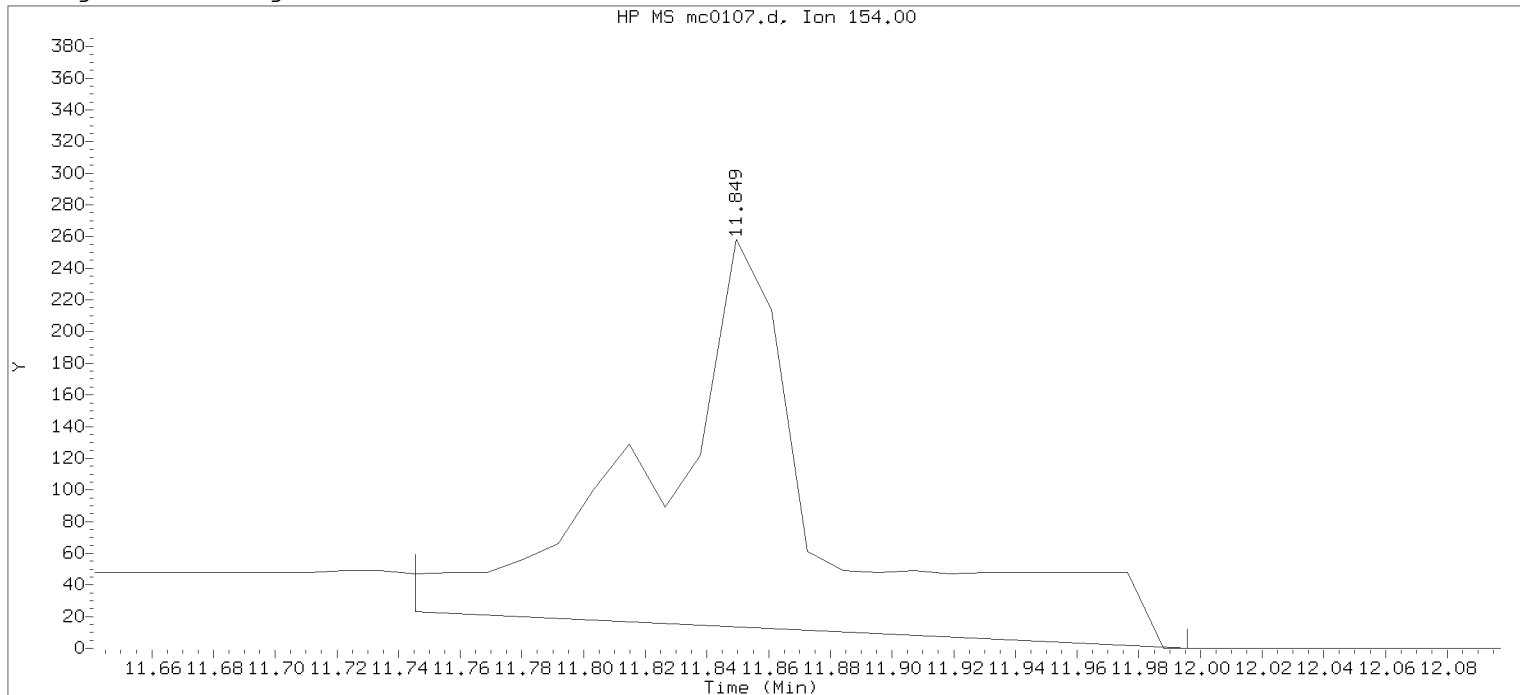
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.0025

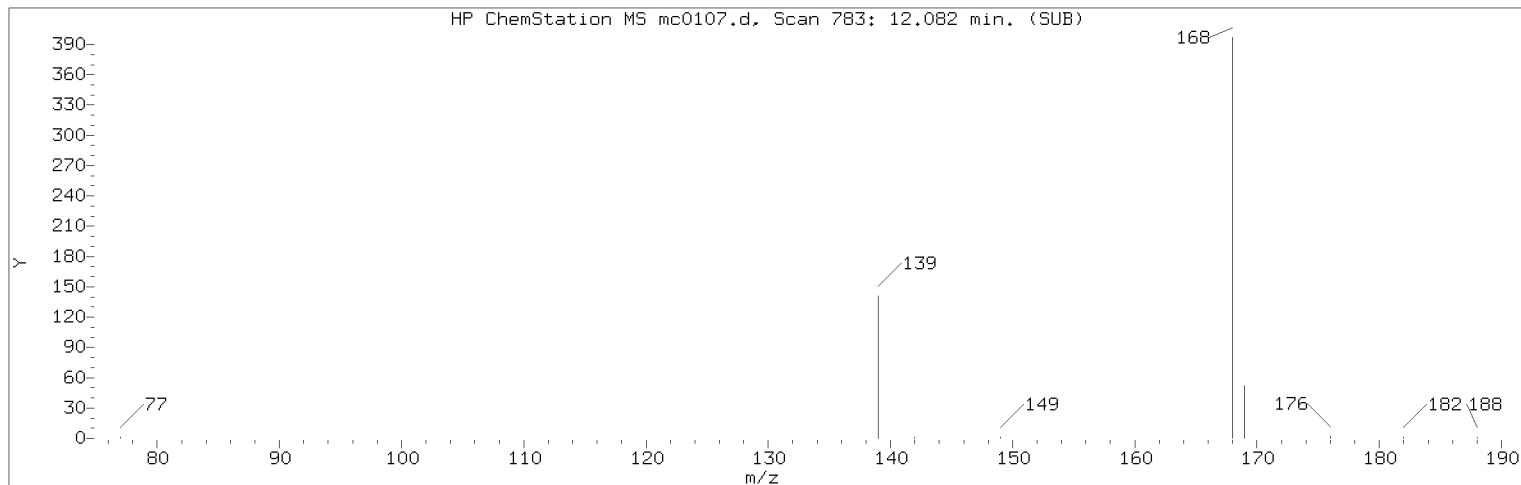
Lab Sample ID: RVSIM0130

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 759	
Retention Time (minutes)	: 11.849	
Quant Ion	: 154.00	
Area	: 866	
On-column Amount (ng/ul)	: 0.0067	
Integration start scan	: 749	Integration stop scan: 771
Y at integration start	: 23	Y at integration end: 0

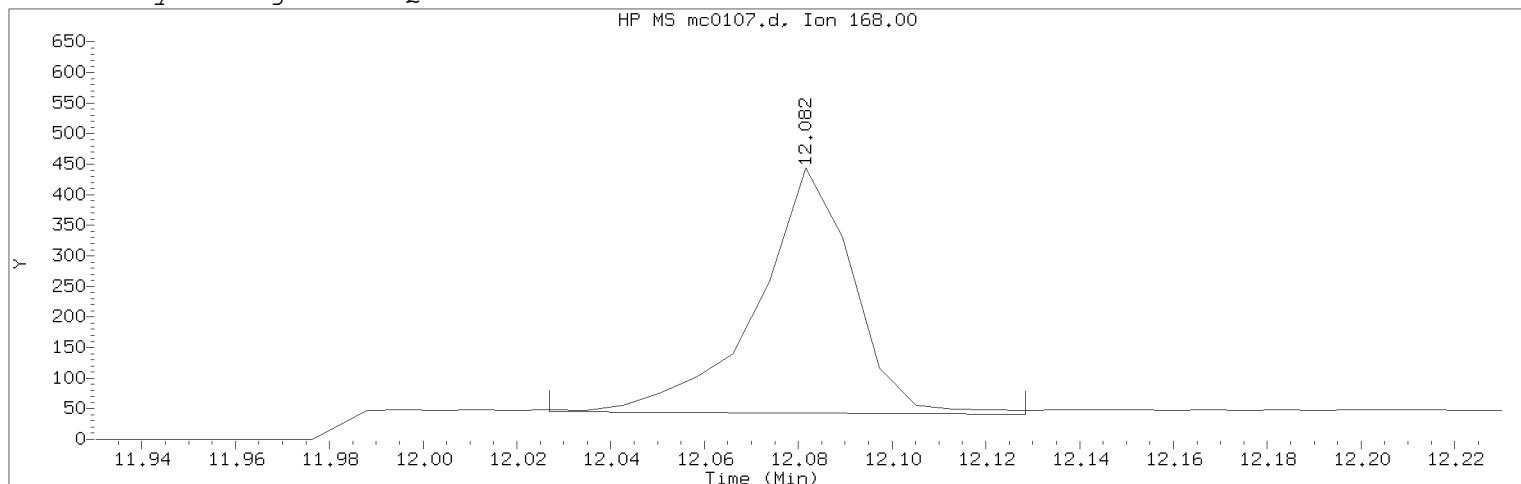
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV67jmg Page 517 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 16	
Compound Name	: Dibenzofuran	
Scan Number	: 783	
Retention Time (minutes)	: 12.082	
Quant Ion	: 168.00	
Area (flag)	: 631M	
On-Column Amount (ng/ul)	: 0.0026	
Integration start scan	: 775	Integration stop scan: 788
Y at integration start	: 45	Y at integration end: 41

Reason for manual integration: improper integration

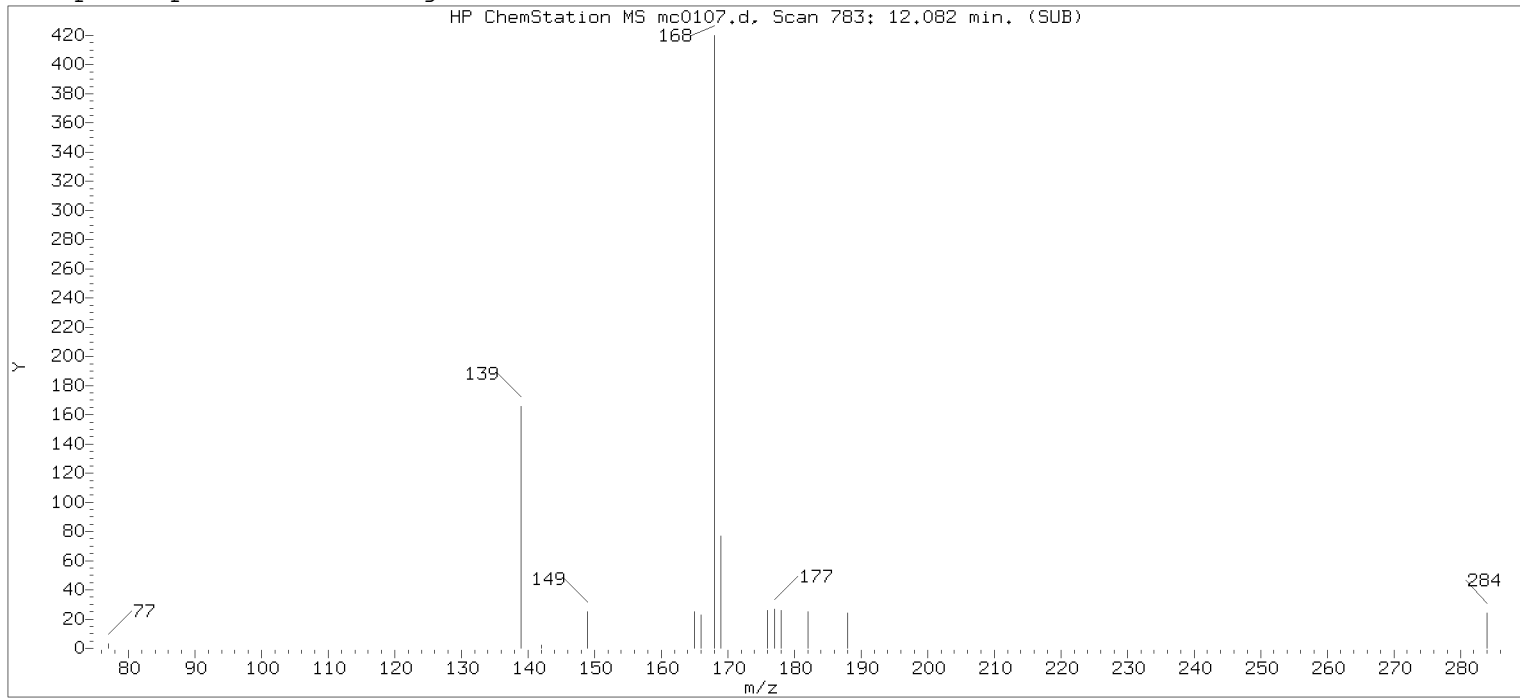
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

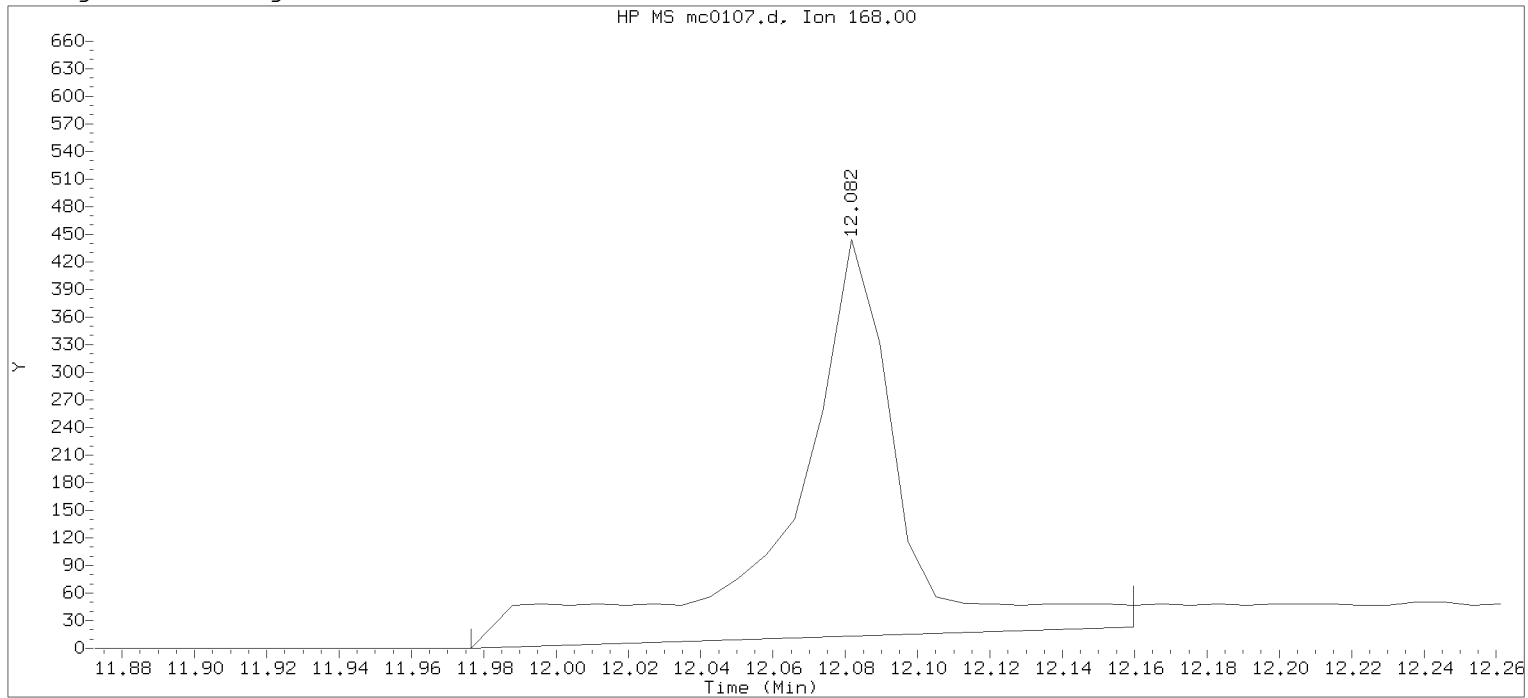
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

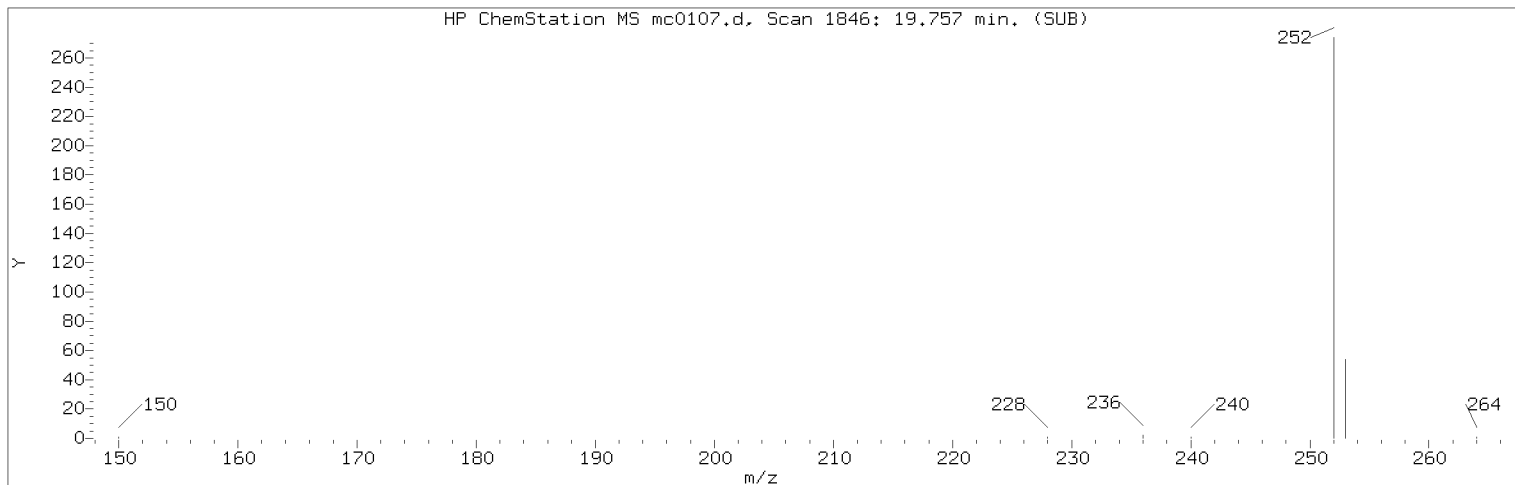
Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.0025

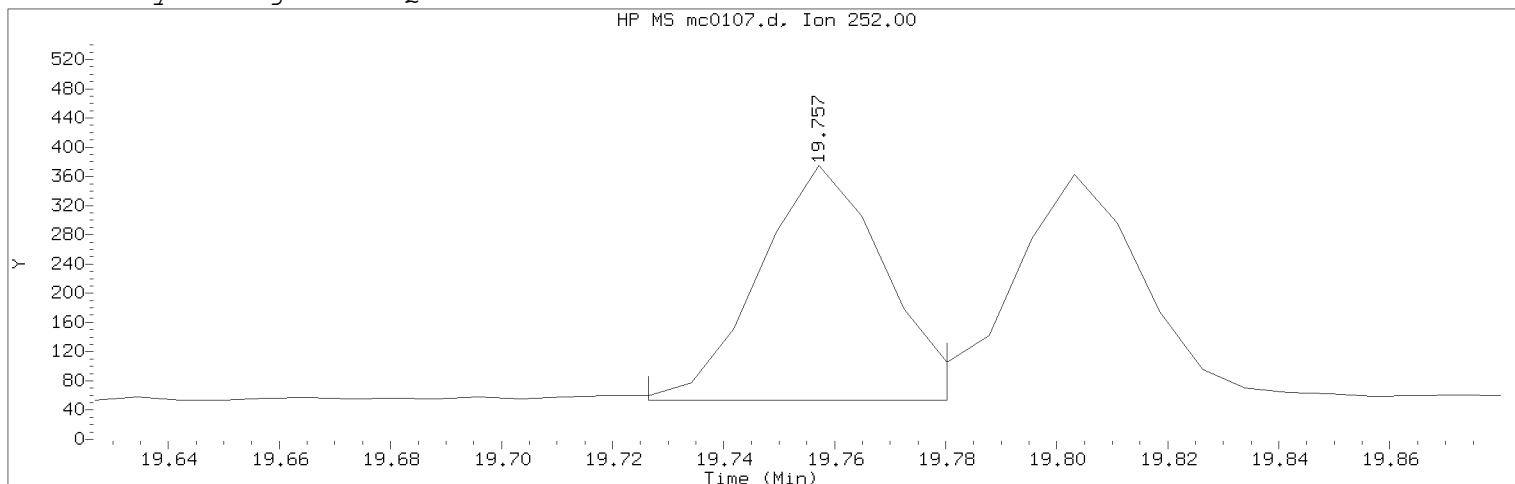
Lab Sample ID: RVSIM0130

Compound Number	: 16	
Compound Name	: Dibenzofuran	
Scan Number	: 783	
Retention Time (minutes)	: 12.082	
Quant Ion	: 168.00	
Area	: 1012	
On-column Amount (ng/ul)	: 0.0041	
Integration start scan	: 769	Integration stop scan: 792
Y at integration start	: 0	Y at integration end: 23

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

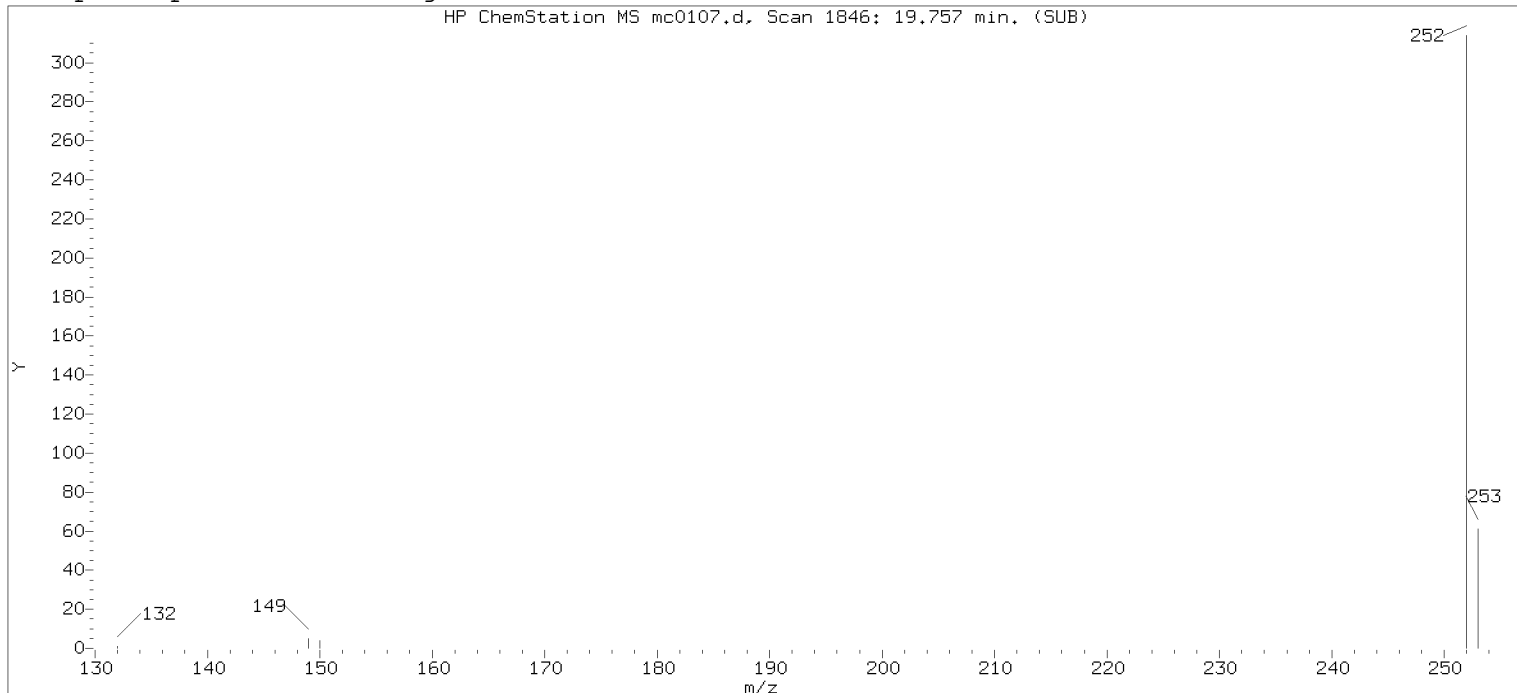
Compound Number : 33
Compound Name : Benzo(b)fluoranthene
Scan Number : 1846
Retention Time (minutes) : 19.757
Quant Ion : 252.00
Area (flag) : 508M
On-Column Amount (ng/ul) : 0.0025
Integration start scan : 1841 Integration stop scan: 1848
Y at integration start : 54 Y at integration end: 54

Reason for manual integration: improper integration

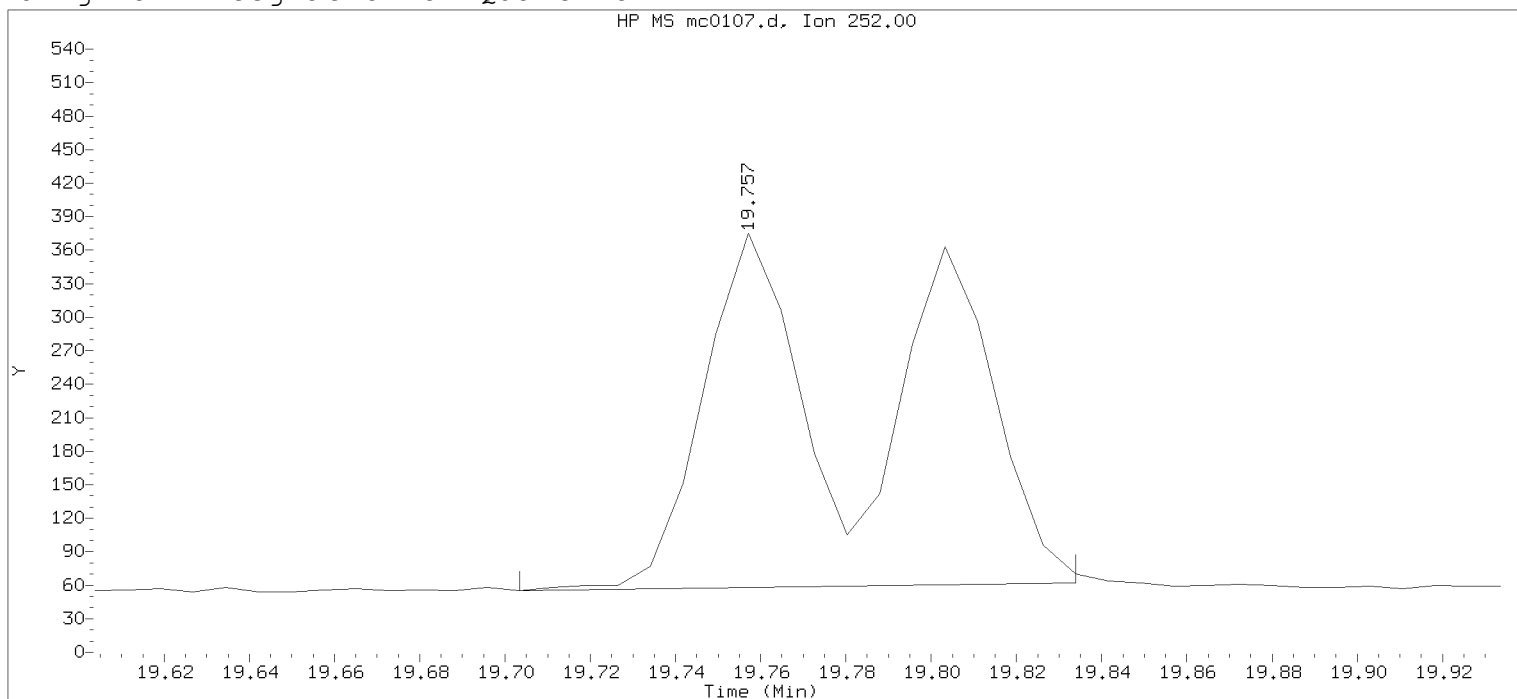
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTDO.0025

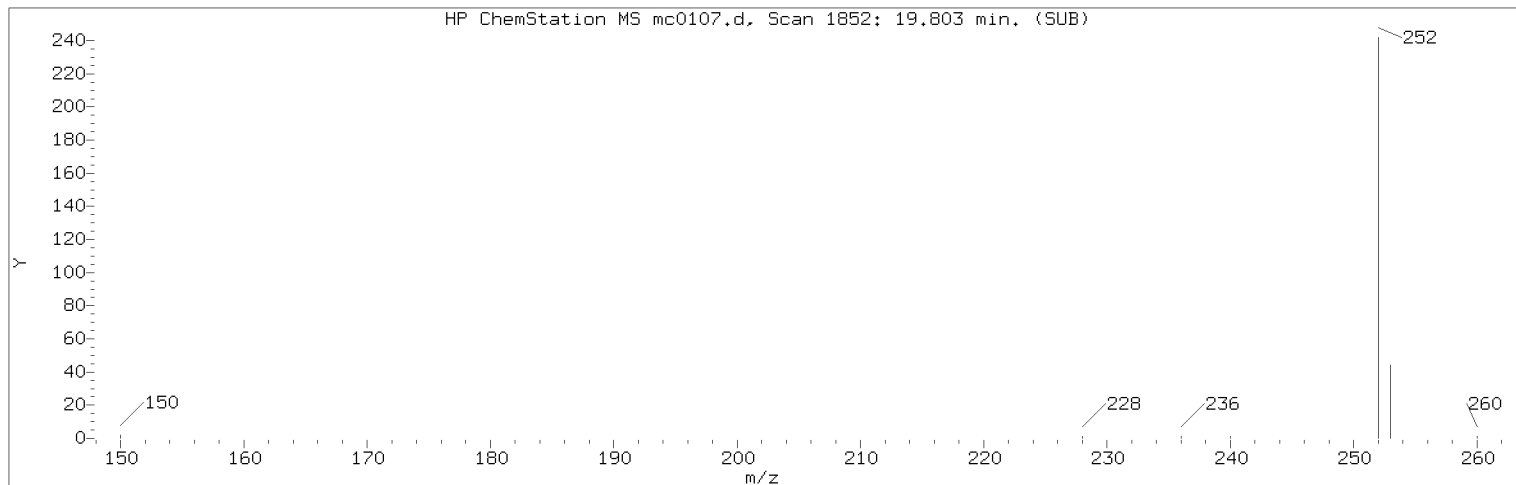
Lab Sample ID: RVSIM0130

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1846	
Retention Time (minutes)	: 19.757	
Quant Ion	: 252.00	
Area	: 953	
On-column Amount (ng/ul)	: 0.0046	
Integration start scan	: 1838	Integration stop scan: 1855
Y at integration start	: 55	Y at integration end: 62

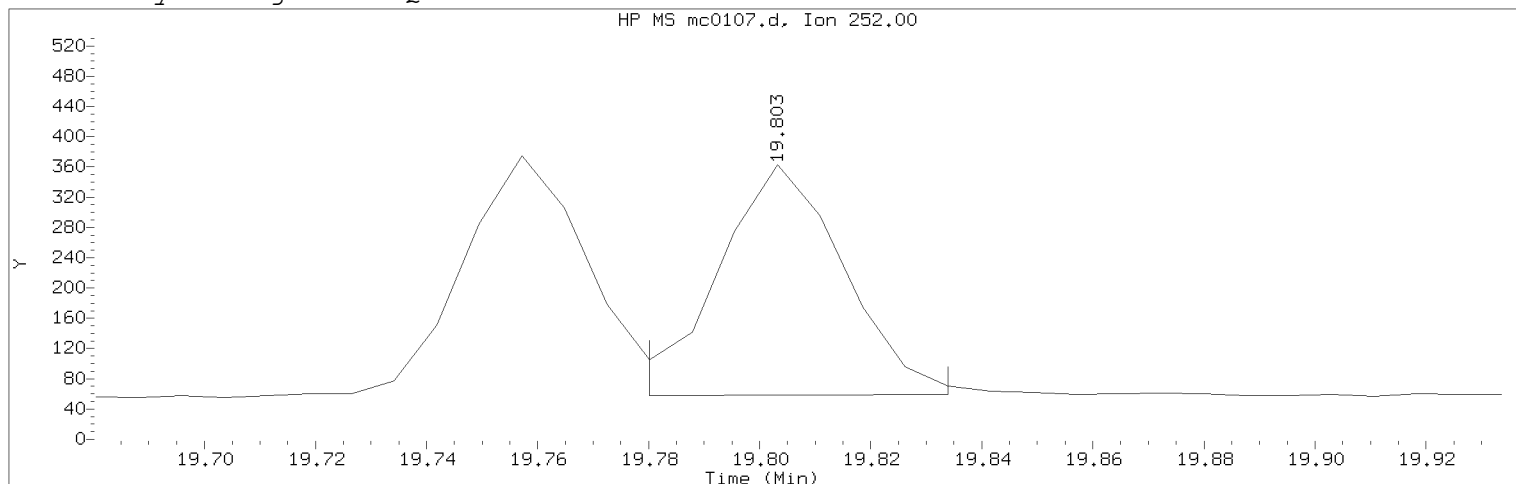
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV67j Page 521 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number : 34
 Compound Name : Benzo(k)fluoranthene
 Scan Number : 1852
 Retention Time (minutes) : 19.803
 Quant Ion : 252.00
 Area (flag) : 485M
 On-Column Amount (ng/ul) : 0.0023
 Integration start scan : 1848 Integration stop scan: 1855
 Y at integration start : 58 Y at integration end: 59

Reason for manual integration: improper integration

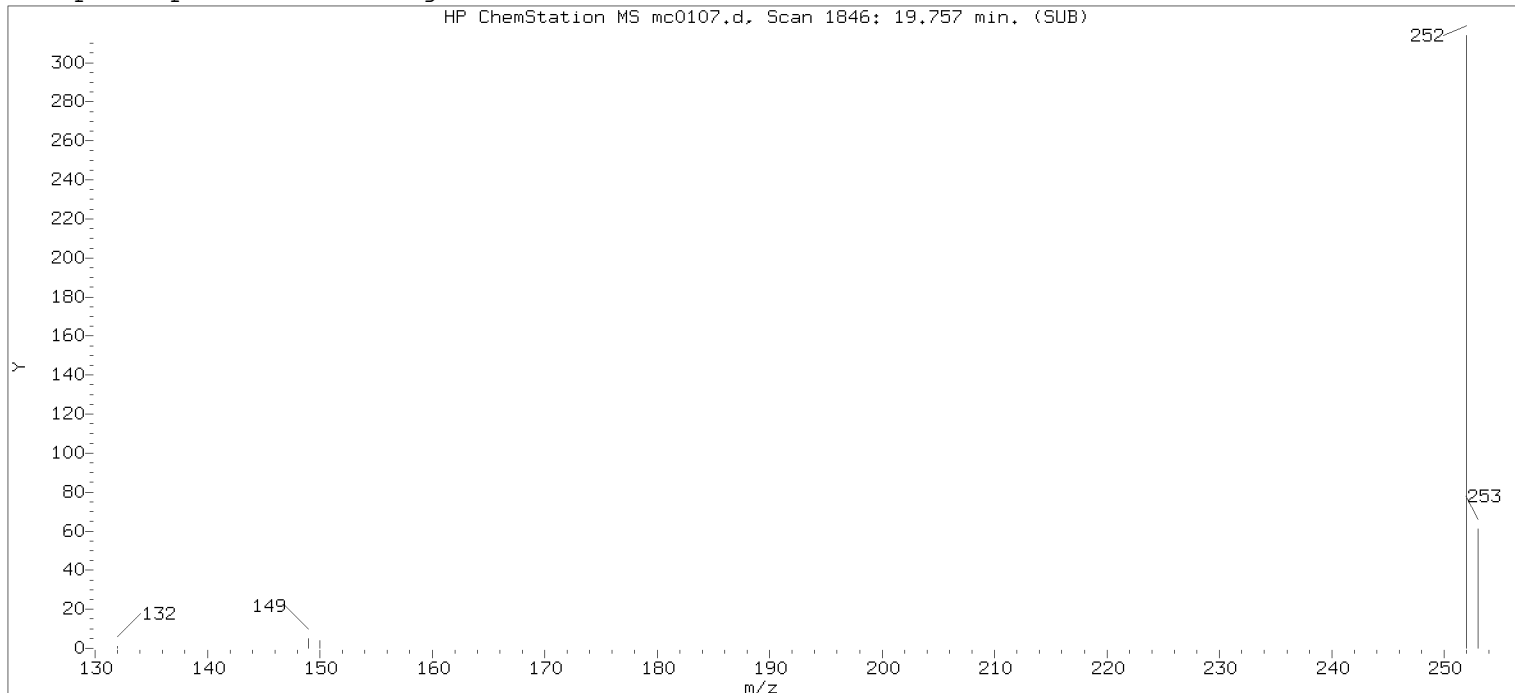
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:44.
 Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
 PARALLAX ID: cam01237

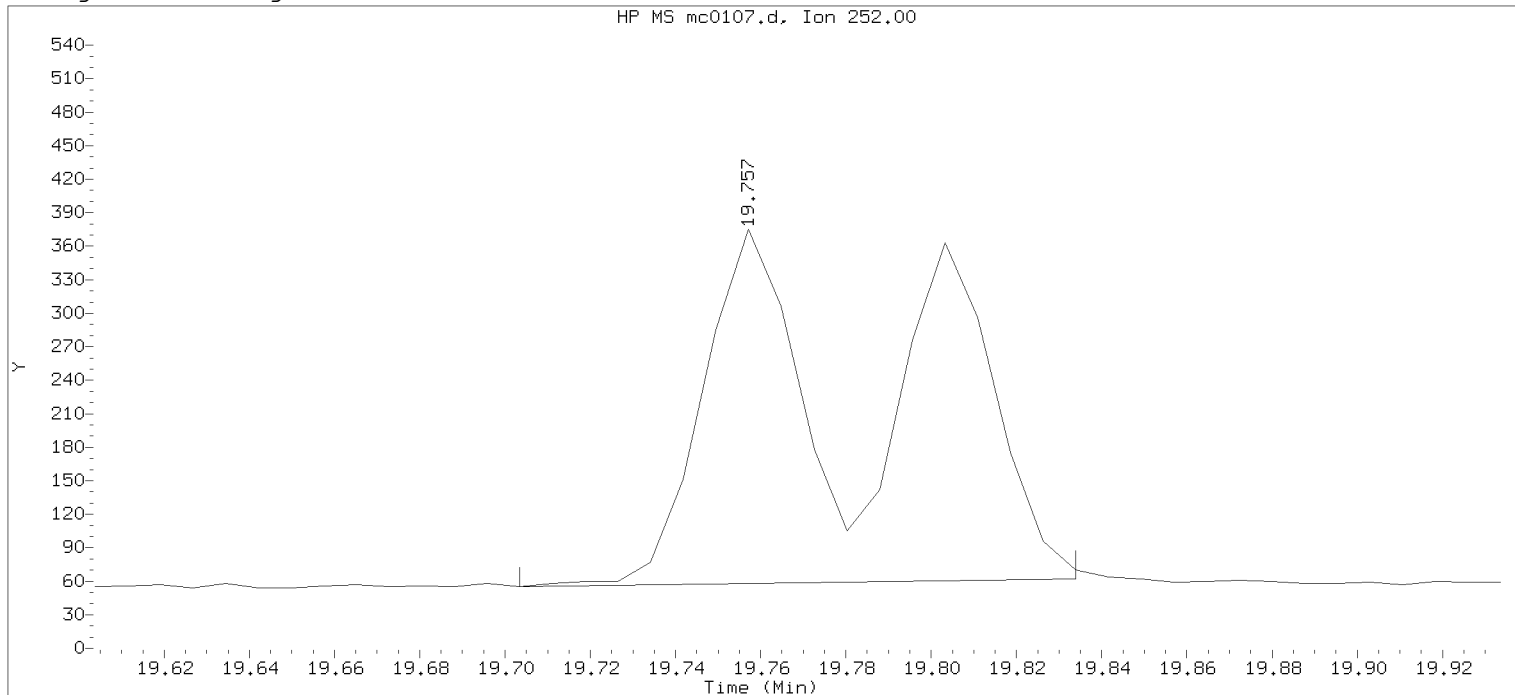
Sample Spectrum (Background Subtracted)

HP ChemStation MS mc0107.d, Scan 1846: 19.757 min. (SUB)



Original Integration of Quant Ion

HP MS mc0107.d, Ion 252.00



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTDO.0025

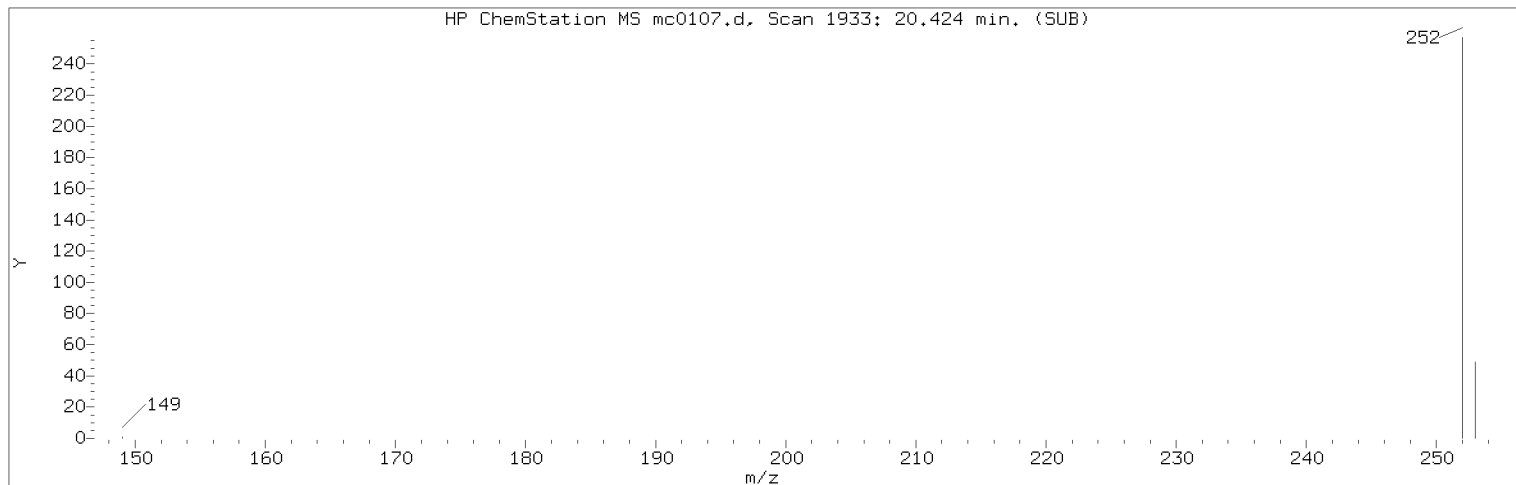
Lab Sample ID: RVSIM0130

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1846	
Retention Time (minutes)	: 19.757	
Quant Ion	: 252.00	
Area	: 953	
On-column Amount (ng/ul)	: 0.0044	
Integration start scan	: 1838	Integration stop scan: 1855
Y at integration start	: 55	Y at integration end: 62

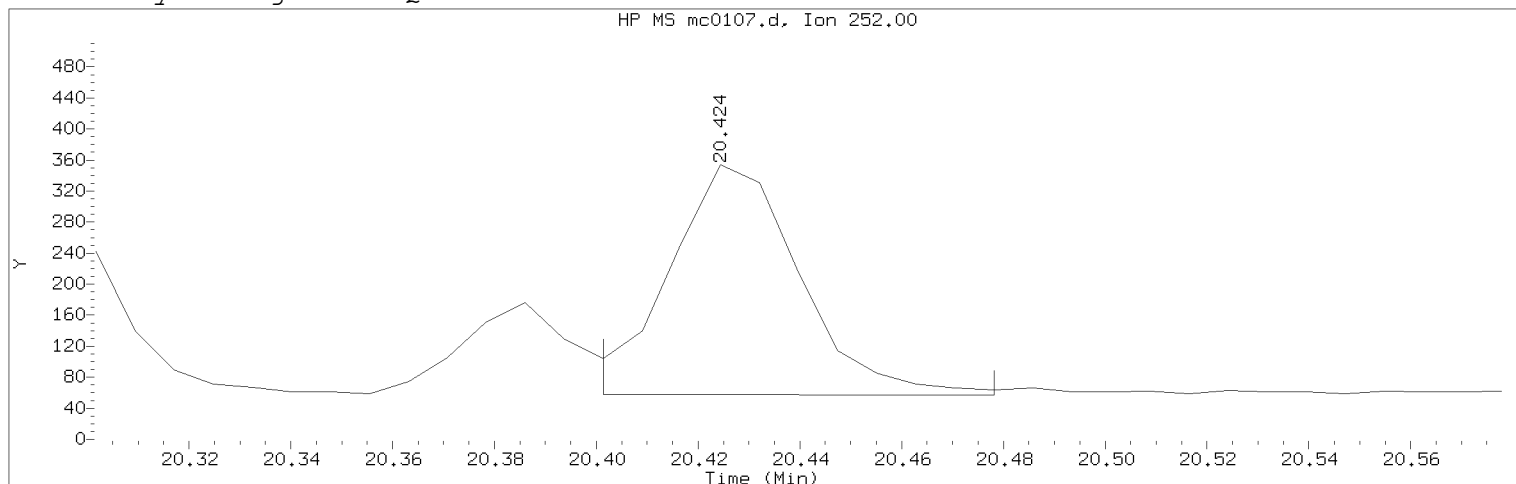
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV67j Page 523 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

Compound Number : 45
Compound Name : Perylene
Scan Number : 1933
Retention Time (minutes) : 20.424
Quant Ion : 252.00
Area (flag) : 535M
On-Column Amount (ng/ul) : 0.0026
Integration start scan : 1929
Y at integration start : 58

Integration stop scan: 1939
Y at integration end: 57

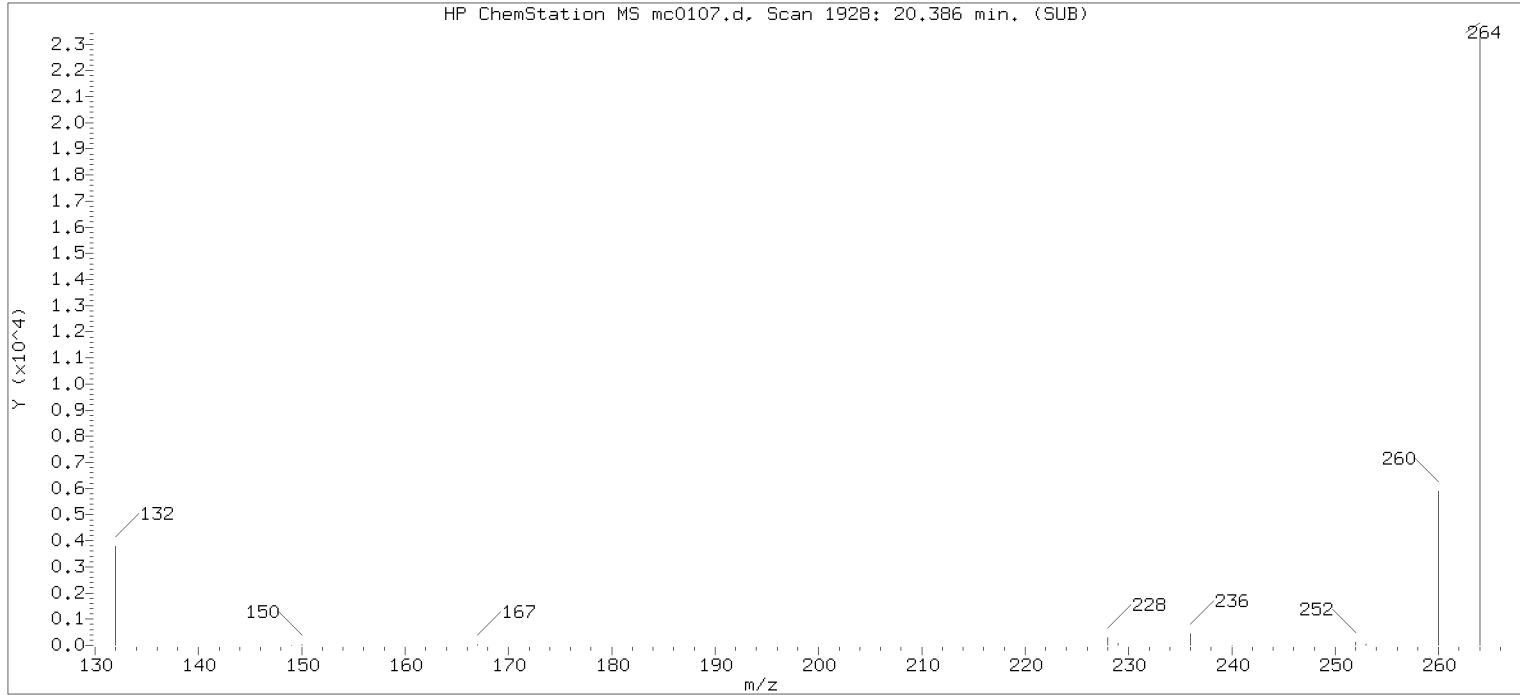
Reason for manual integration: improper integration

Analyst responsible for change:

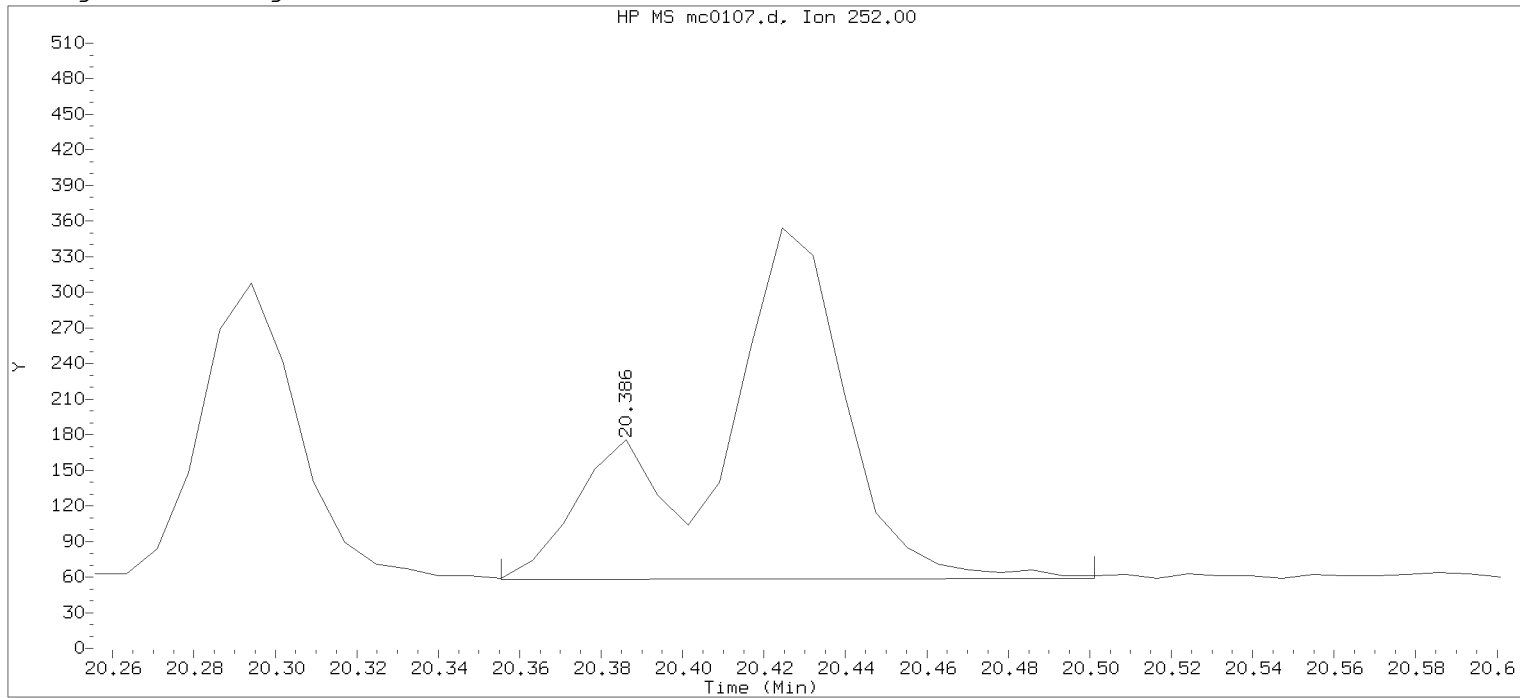
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

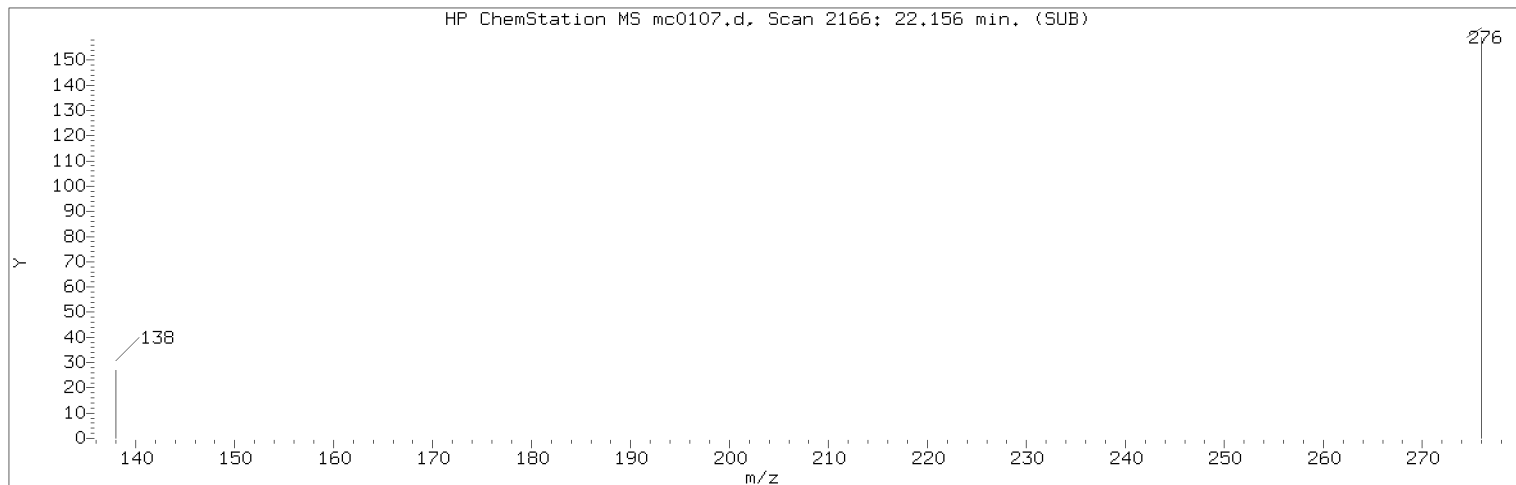
Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

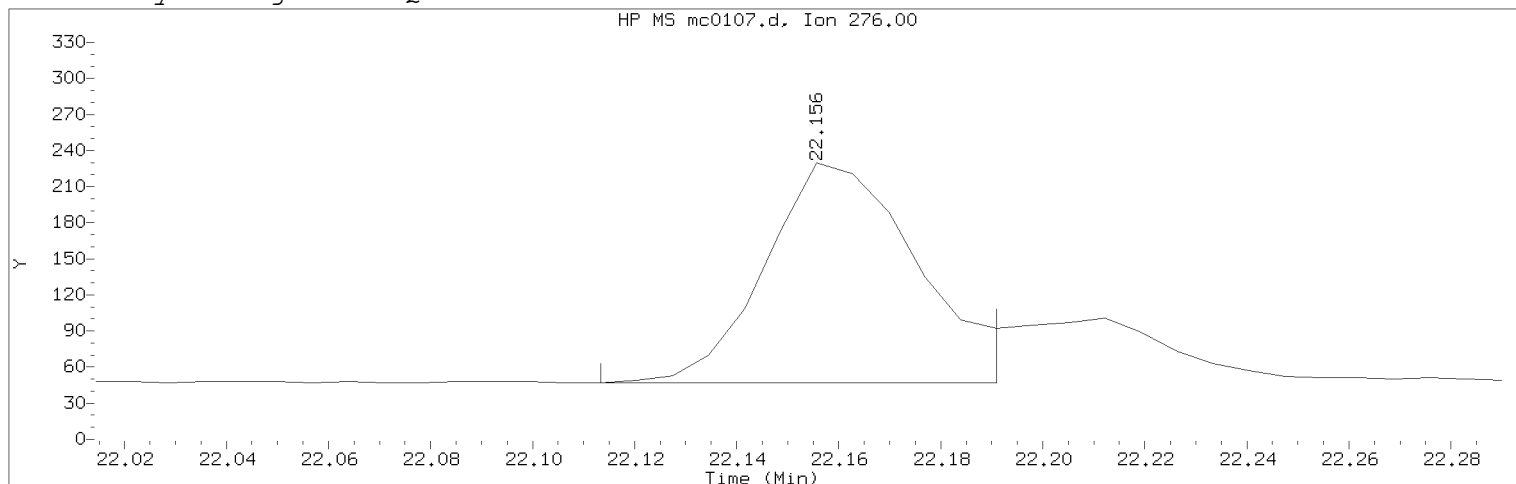
Compound Number : 45
 Compound Name : Perylene
 Scan Number : 1928
 Retention Time (minutes) : 20.386
 Quant Ion : 252.00
 Area : 693
 On-column Amount (ng/ul) : 0.0033
 Integration start scan : 1923
 Y at integration start : 58

Integration stop scan: 1942
 Y at integration end: 59

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 383M	
On-Column Amount (ng/ul)	: 0.0022	
Integration start scan	: 2159	Integration stop scan: 2170
Y at integration start	: 47	Y at integration end: 47

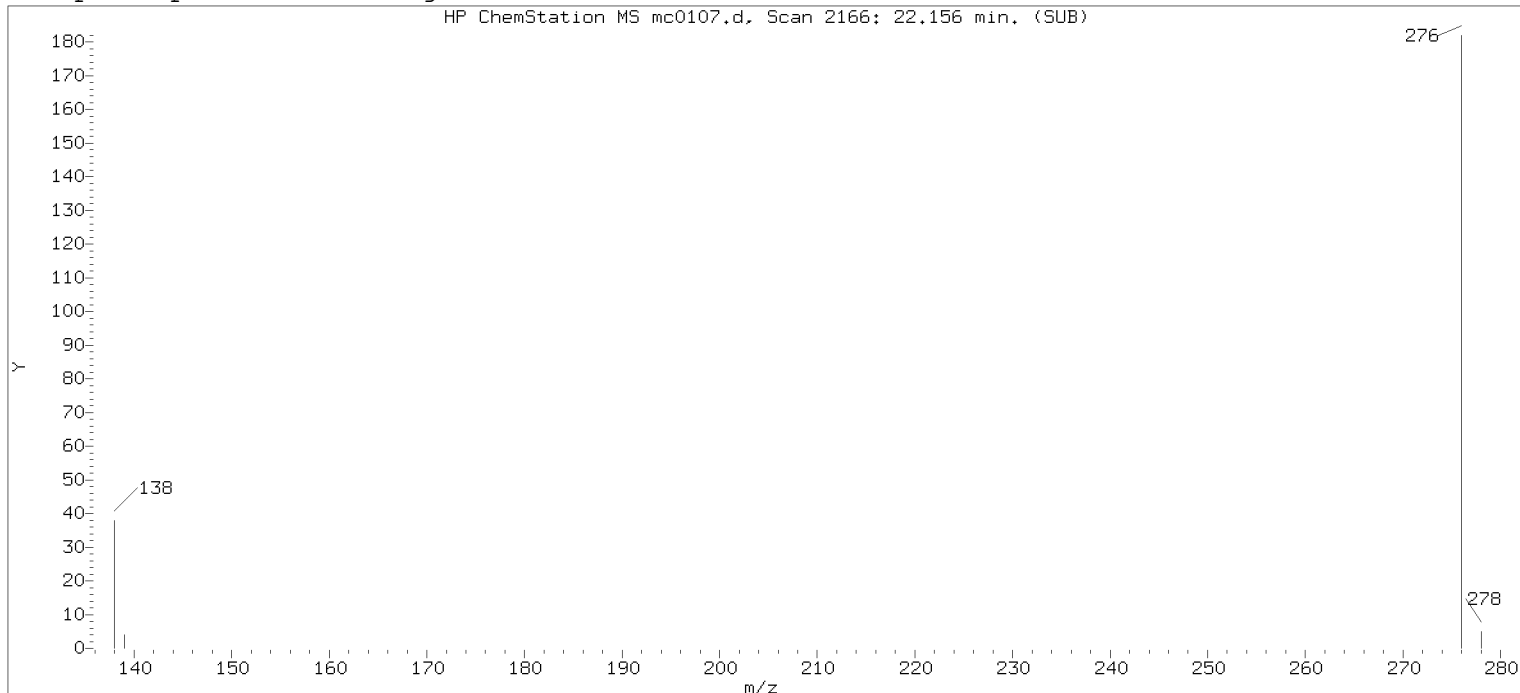
Reason for manual integration: improper integration

Analyst responsible for change:

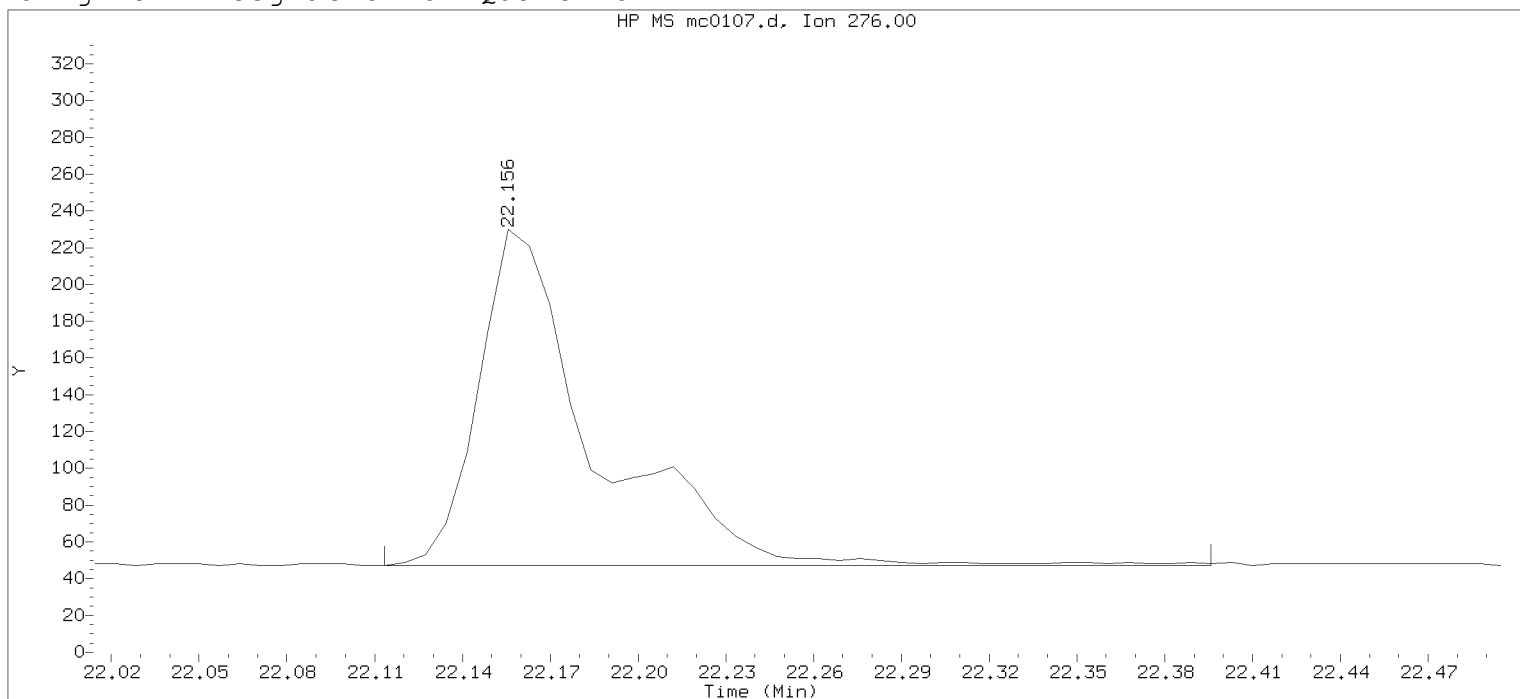
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

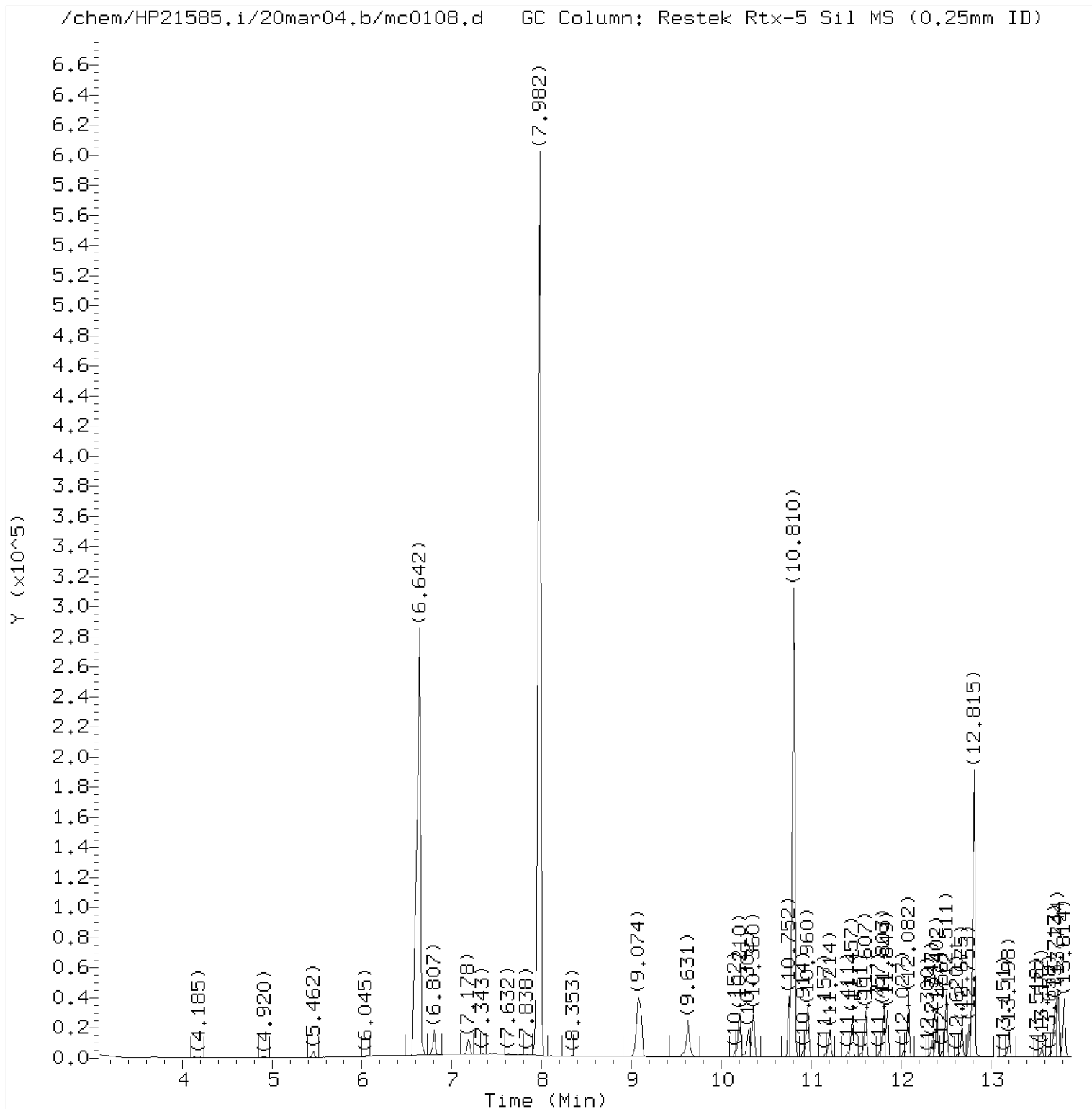
Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 506	
On-column Amount (ng/ul)	: 0.0029	
Integration start scan	: 2159	Integration stop scan: 2199
Y at integration start	: 47	Y at integration end: 47

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV67j Page 527 of 609



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0108.d
Injection date and time: 05-MAR-2020 02:05

Instrument ID: HP21585.i
Analyst ID: ceb05247

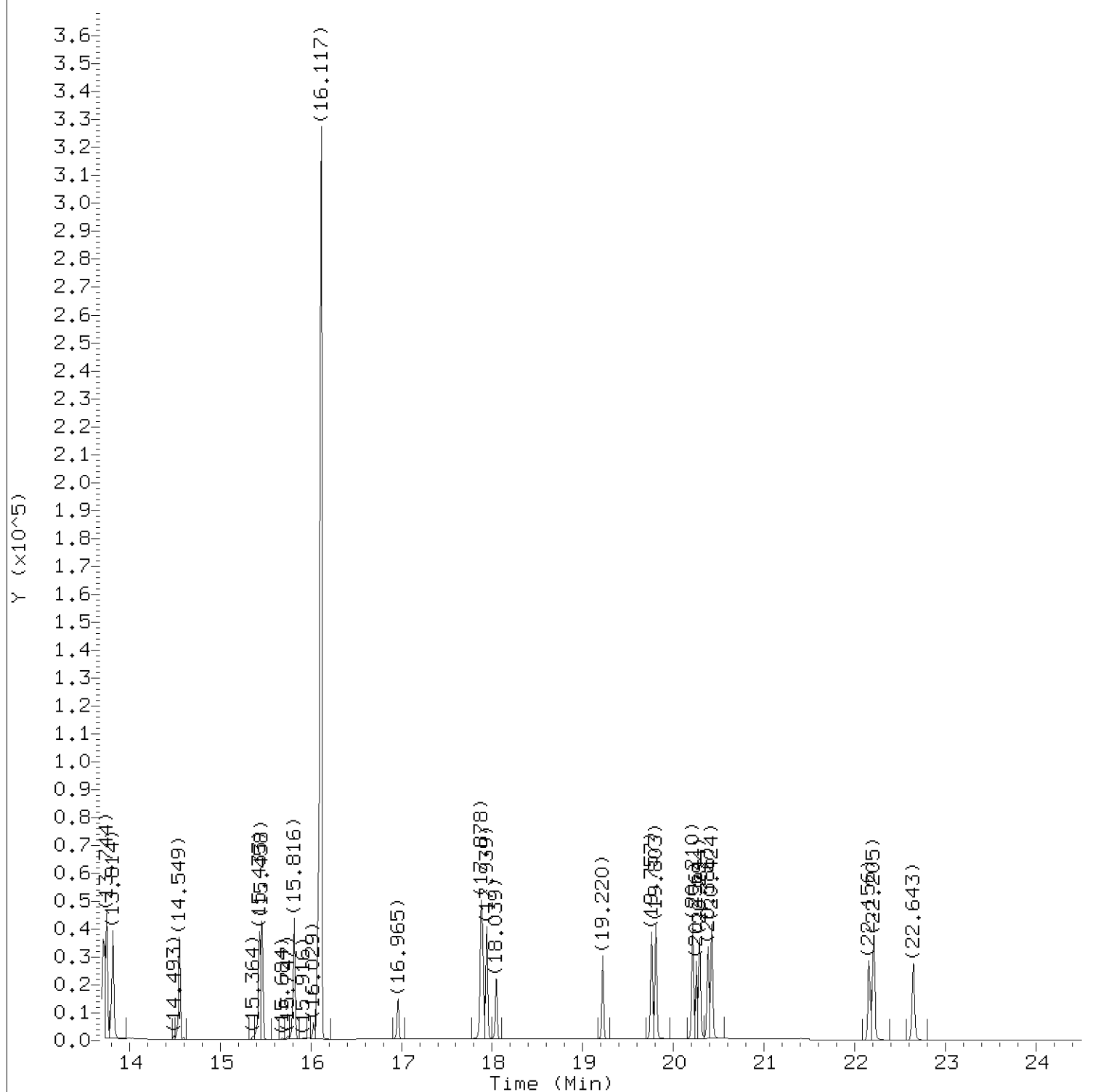
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1x
Calibration date and time: 11-MAR-2020 03:51
Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV0170

Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0108.d
Injection date and time: 05-MAR-2020 02:05

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1x
Calibration date and time: 11-MAR-2020 03:51
Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SST0.50

Lab Sample ID: RVSICV0170

Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: RVSICV0170

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.199	152	13683MA	0.250
6) *Naphthalene-d8	(2)	9.074	136	52470	0.250
7) Naphthalene	(2)	9.116	128	57185	0.230
9) 2-Methylnaphthalene	(2)	10.210	142	31691	0.206
11) 1-Methylnaphthalene	(2)	10.360	142	33274	0.229
12) Dimethylphthalate	(3)	11.457	163	32097	0.198
13) Acenaphthylene	(3)	11.607	152	53880	0.229
14) *Acenaphthene-d10	(3)	11.815	164	22191	0.250
15) Acenaphthene	(3)	11.849	154	27679	0.211
17) Diethylphthalate	(3)	12.402	149	31334	0.195
18) Fluorene	(3)	12.511	166	34741	0.209
43) N-Nitrosodiphenylamine	(4)	12.675	169	16949	0.191
19) Hexachlorobenzene	(4)	13.206	284	14035	0.230
20) *Phenanthrene-d10	(4)	13.713	188	47216	0.250
21) Phenanthrene	(4)	13.744	178	56641	0.231
22) Anthracene	(4)	13.814	178	50771	0.221
23) Di-n-butylphthalate	(4)	14.549	149	47632	0.186
25) Fluoranthene	(4)	15.465	202	61026	0.226
26) Pyrene	(5)	15.816	202	60320	0.226
28) Benzo(a)anthracene	(5)	17.870	228	51720	0.229
29) *Chrysene-d12	(5)	17.893	240	37293	0.250
30) Chrysene	(5)	17.939	228	52317	0.223
33) Benzo(b)fluoranthene	(6)	19.757	252	48429	0.240
34) Benzo(k)fluoranthene	(6)	19.803	252	49980	0.237
37) Benzo(a)pyrene	(6)	20.294	252	48518	0.253
38) *Perylene-d12	(6)	20.386	264	35706	0.250
45) Perylene	(6)	20.424	252	51335	0.251
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	45249M	0.264
40) Dibenz(a,h)anthracene	(6)	22.205	278	46930	0.243
41) Benzo(g,h,i)perylene	(6)	22.643	276	47288	0.234

M = Compound was manually integrated.

A = User selected an alternate hit.

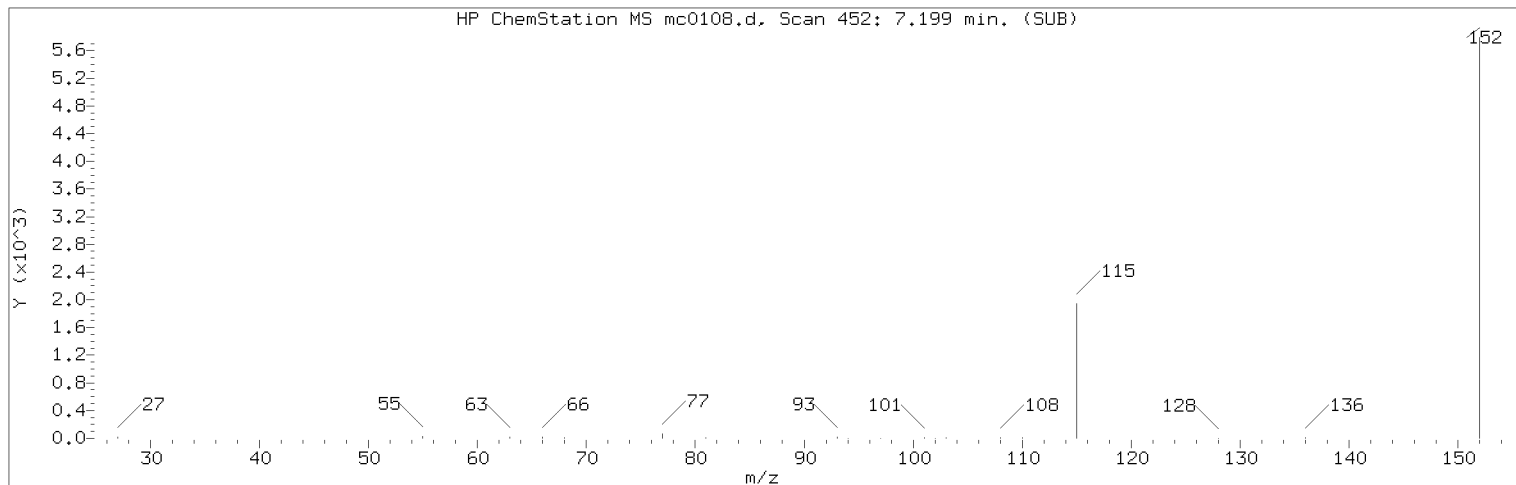
* = Compound is an internal standard.

Digitally signed by Joseph M. Gambler

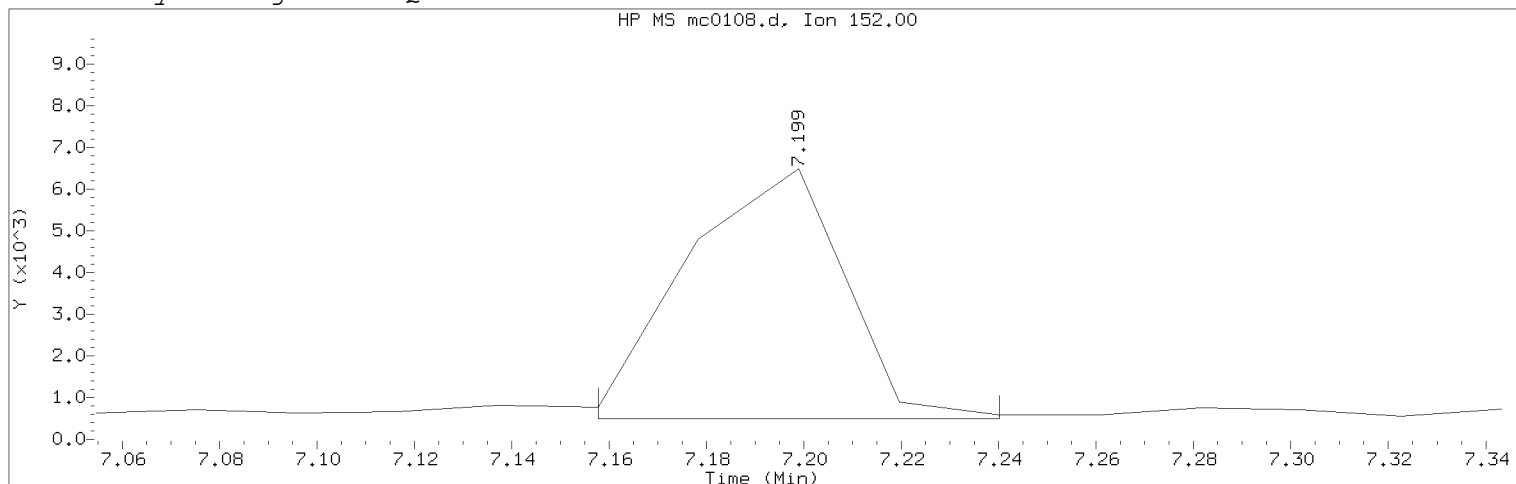
on 03/11/2020 at 03:53.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SST0.50

Lab Sample ID: RVSICV0170

Compound Number	: 5	
Compound Name	: 1,4-Dichlorobenzene-d4	
Scan Number	: 452	
Retention Time (minutes)	: 7.199	
Quant Ion	: 152.00	
Area (flag)	: 13683MA	
On-Column Amount (ng/ul)	: 0.2500	
Integration start scan	: 449	Integration stop scan: 453
Y at integration start	: 489	Y at integration end: 497

Reason for manual integration: improper integration

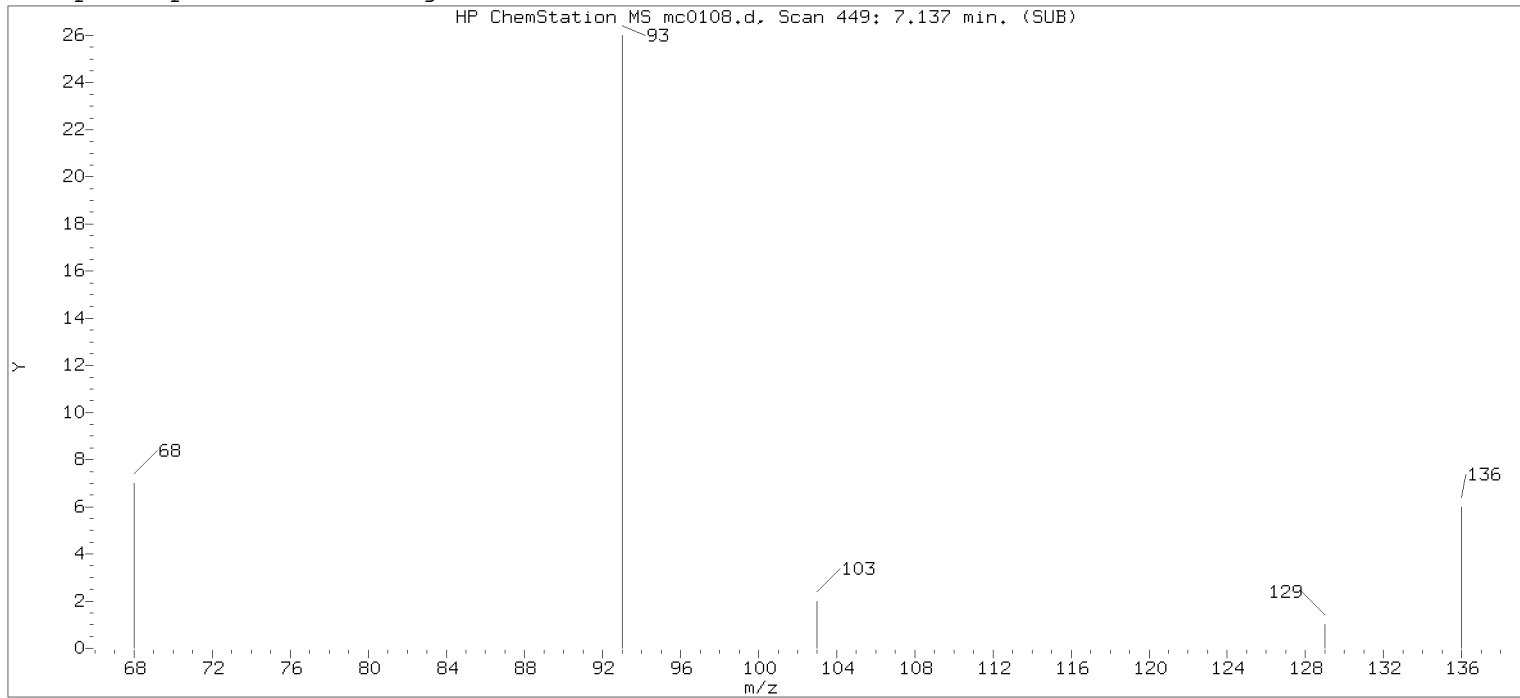
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

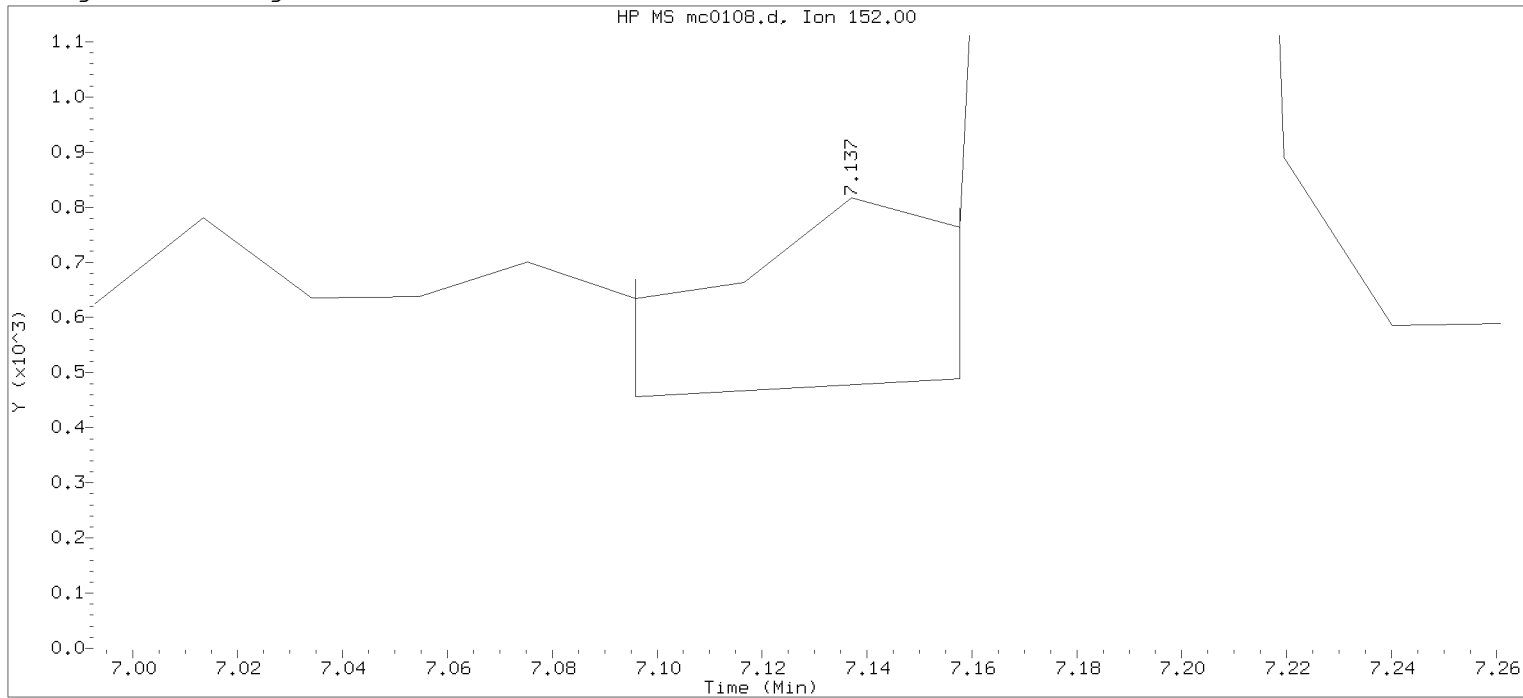
Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: icvall1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.50

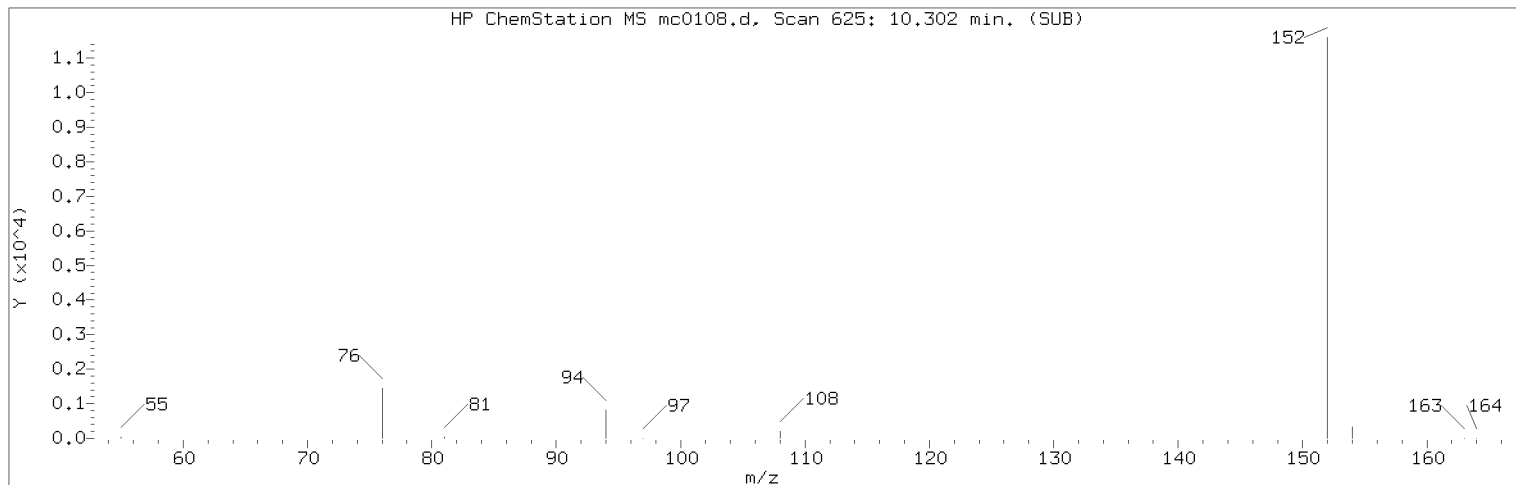
Lab Sample ID: RVSICV0170

Compound Number	: 5	
Compound Name	: 1,4-Dichlorobenzene-d4	
Scan Number	: 449	
Retention Time (minutes)	: 7.137	
Quant Ion	: 152.00	
Area	: 941	
On-column Amount (ng/ul)	: 0.2500	
Integration start scan	: 446	Integration stop scan: 449
Y at integration start	: 456	Y at integration end: 489

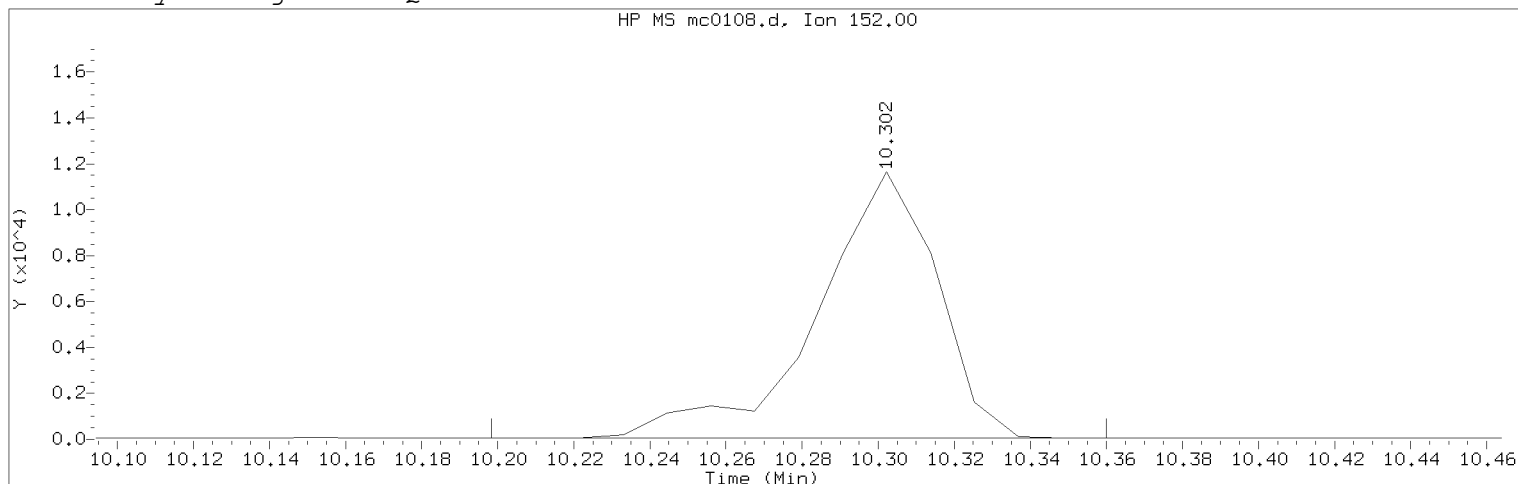
Digitally signed by Joseph M. Gambler on 03/11/2020 at 03:53.

Target 3.5 esignature user GPV67j Page 532 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: RVSICV0170

Compound Number	: 10	
Compound Name	: 1-Methylnaphthalene-d10	
Scan Number	: 625	
Retention Time (minutes)	: 10.302	
Quant Ion	: 152.00	
Area (flag)	: 25385M	
On-Column Amount (ng/ul)	: 0.2363	
Integration start scan	: 615	Integration stop scan: 629
Y at integration start	: 51	Y at integration end: 58

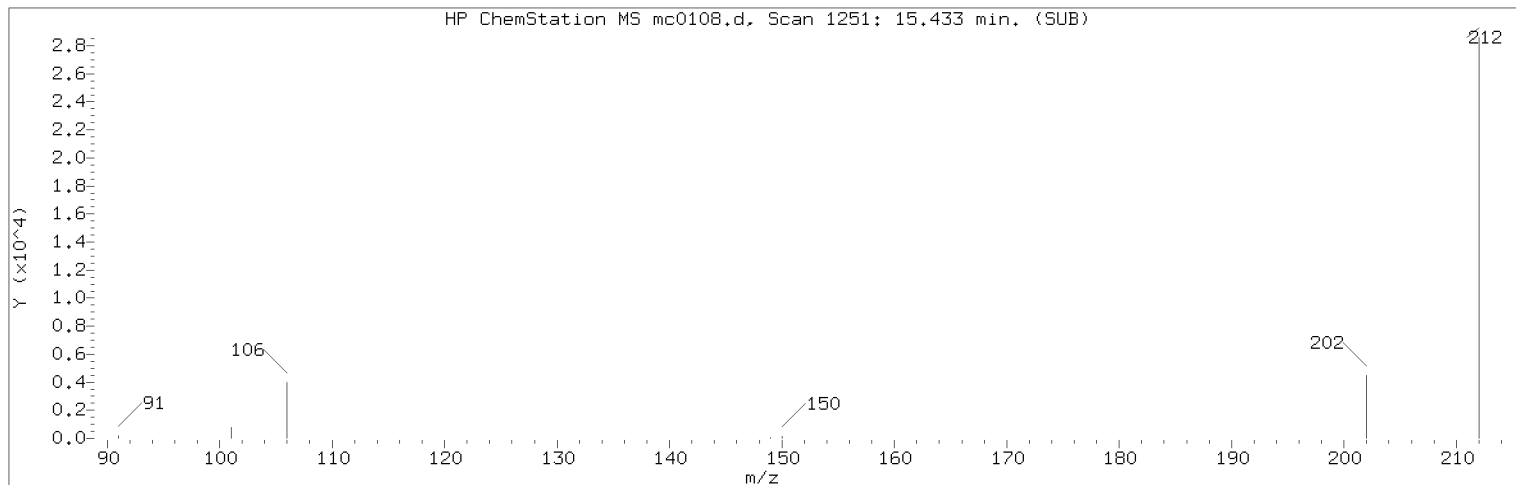
Reason for manual integration: compound not in processing sublist

Analyst responsible for change:

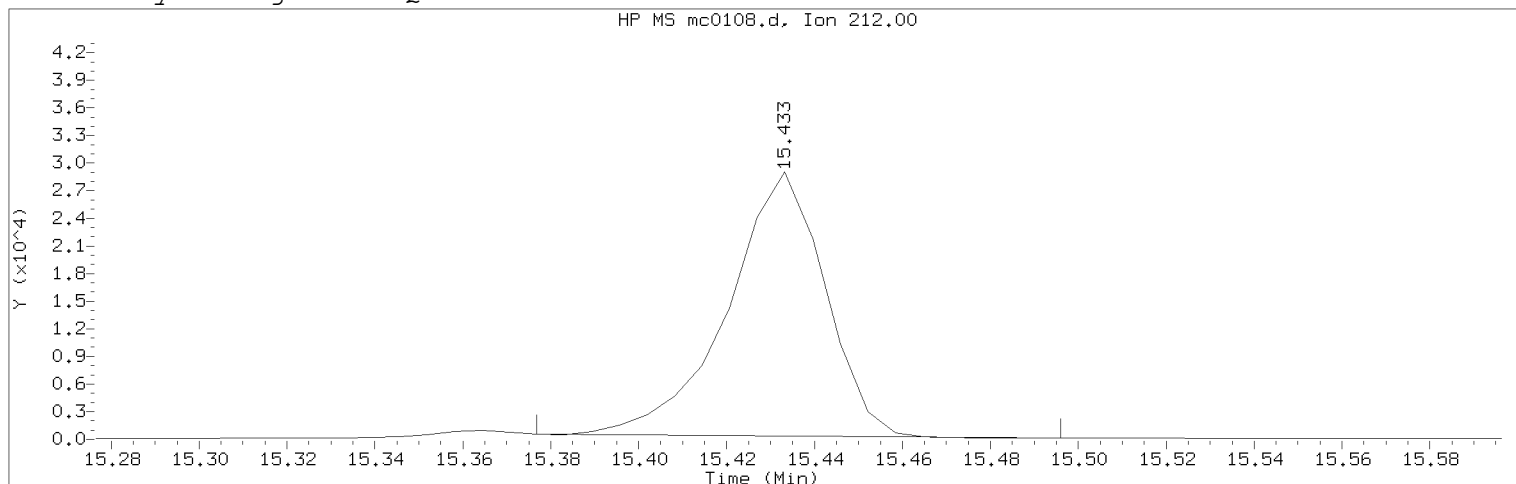
Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV0170

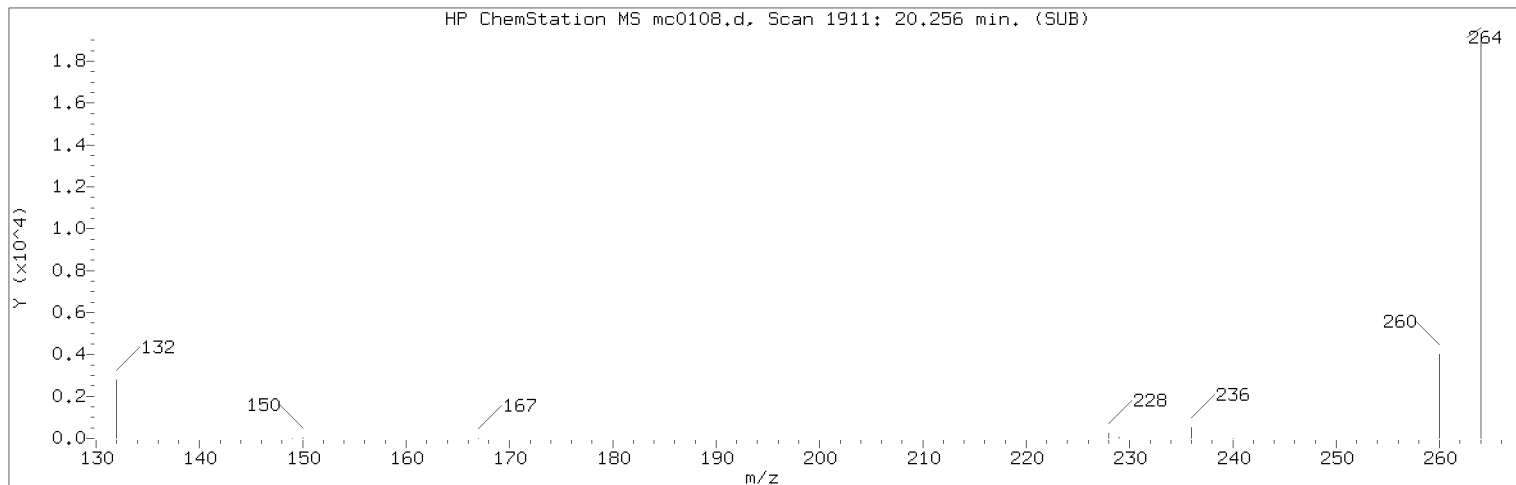
Compound Number	: 24	
Compound Name	: Fluoranthene-d10	
Scan Number	: 1251	
Retention Time (minutes)	: 15.433	
Quant Ion	: 212.00	
Area (flag)	: 43750M	
On-Column Amount (ng/ul)	: 0.2194	
Integration start scan	: 1241	Integration stop scan: 1260
Y at integration start	: 537	Y at integration end: 130

Reason for manual integration: compound not in processing sublist

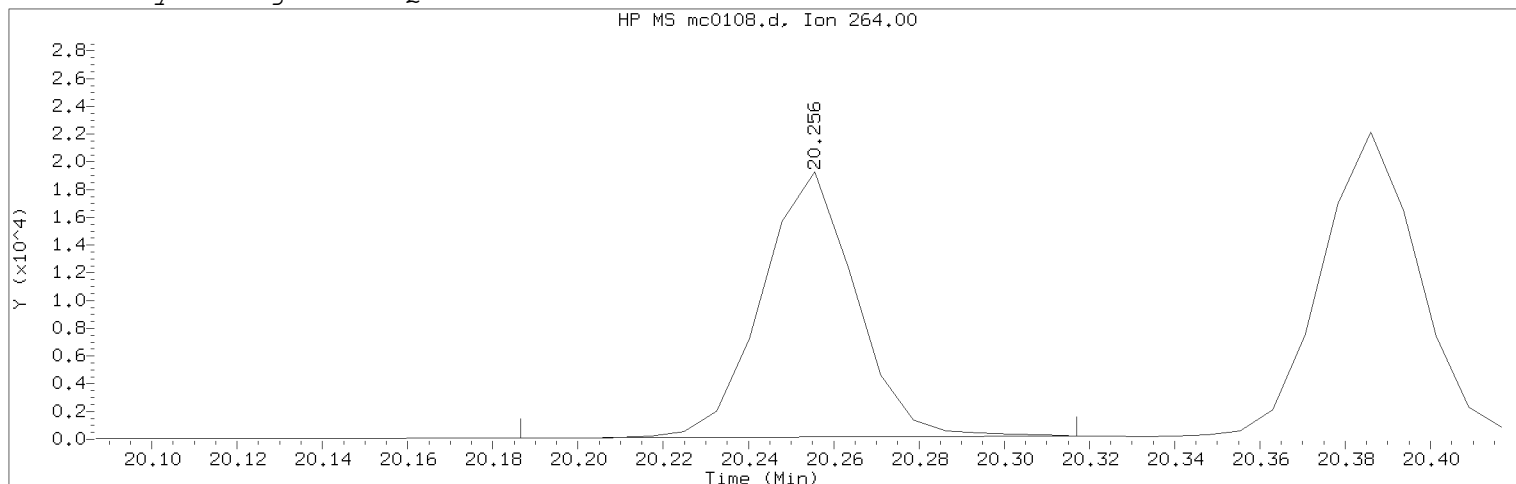
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV0170

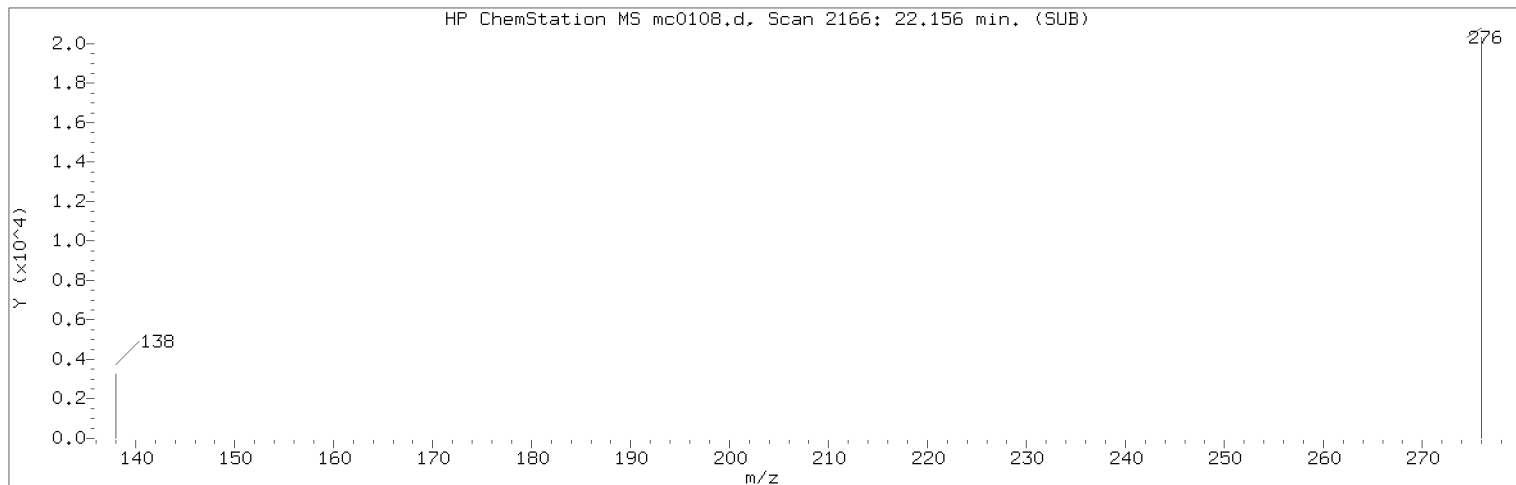
Compound Number	: 36	
Compound Name	: Benzo(a)pyrene-d12	
Scan Number	: 1911	
Retention Time (minutes)	: 20.256	
Quant Ion	: 264.00	
Area (flag)	: 29073M	
On-Column Amount (ng/ul)	: 0.2161	
Integration start scan	: 1901	Integration stop scan: 1918
Y at integration start	: 77	Y at integration end: 235

Reason for manual integration: compound not in processing sublist

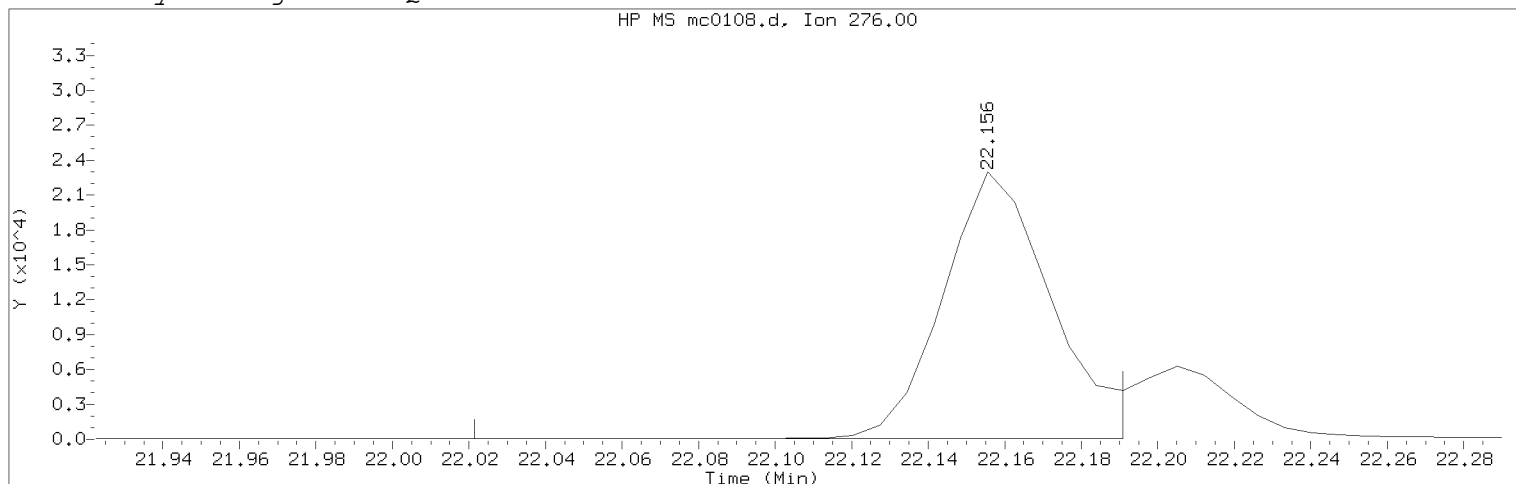
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV0170

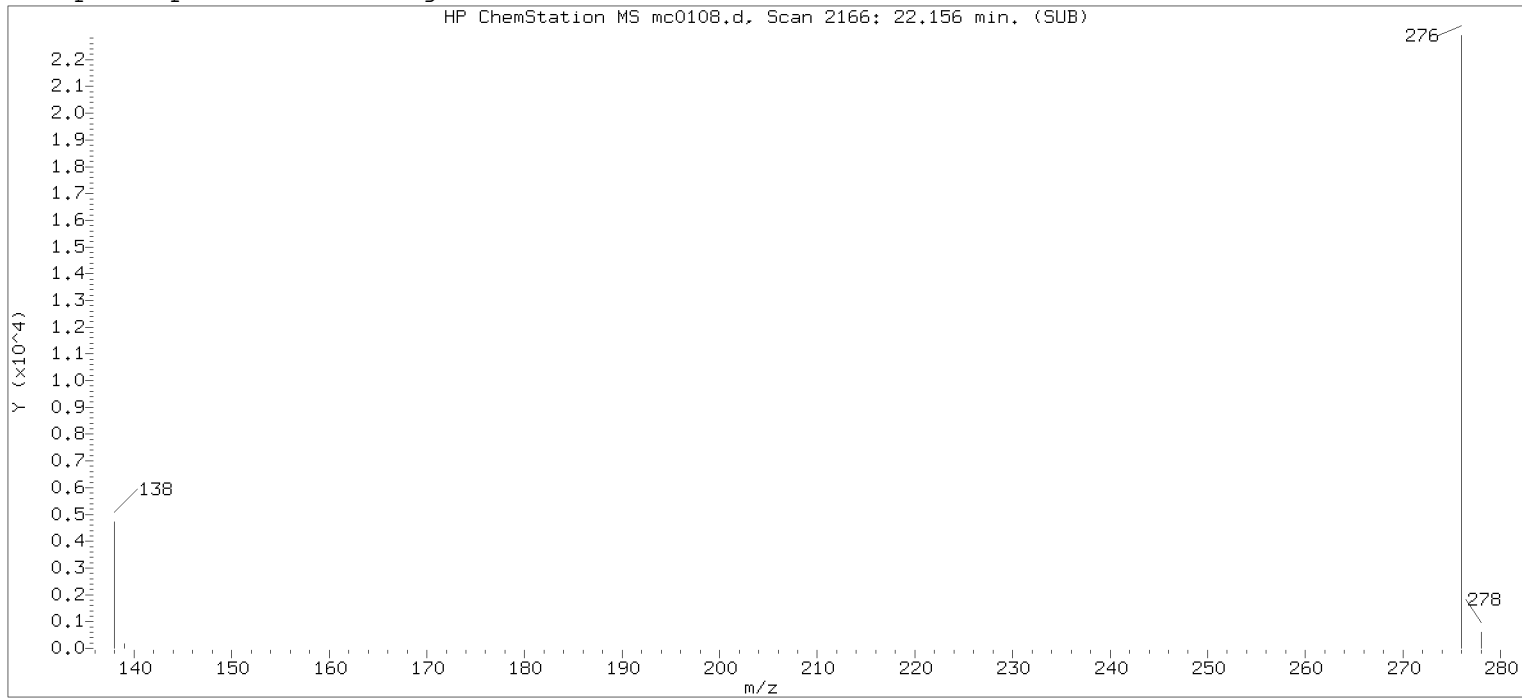
Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 45249M	
On-Column Amount (ng/ul)	: 0.2640	
Integration start scan	: 2146	Integration stop scan: 2170
Y at integration start	: 49	Y at integration end: 49

Reason for manual integration: improper integration

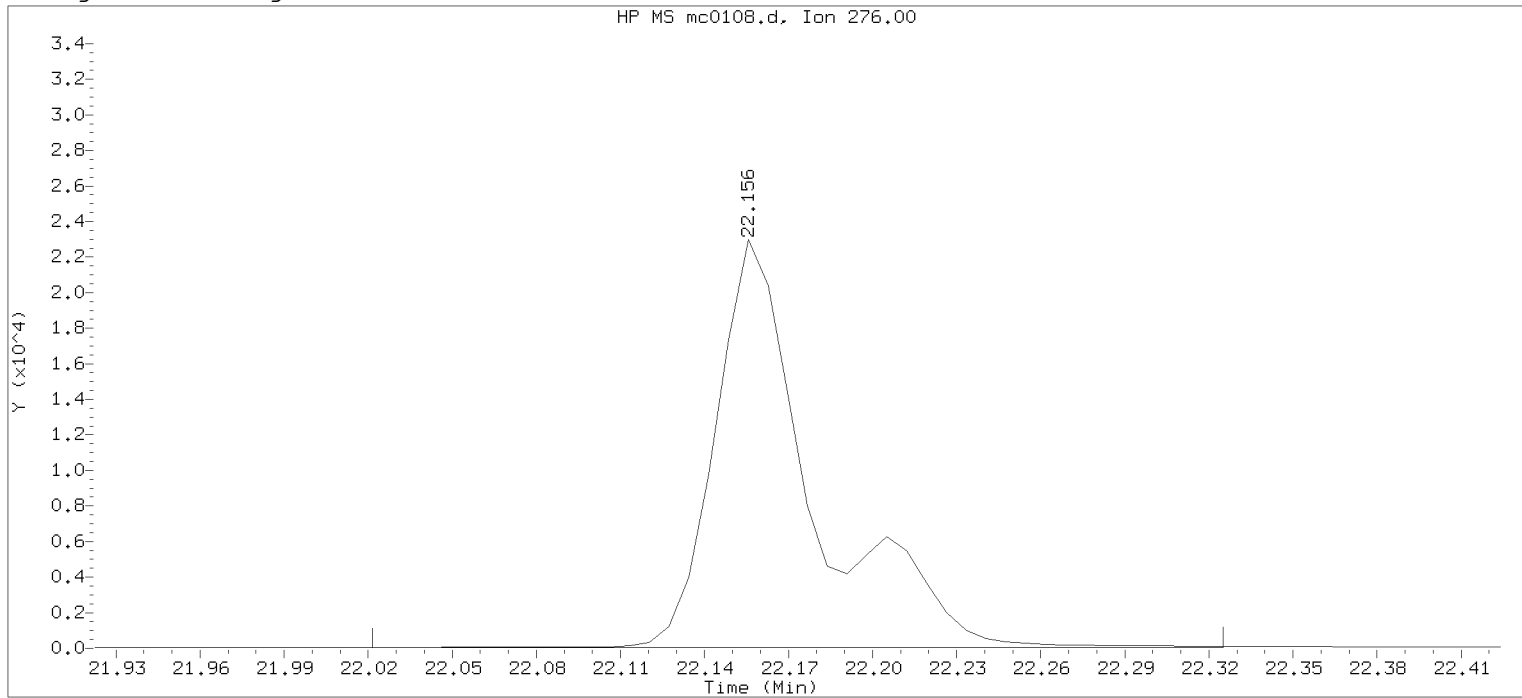
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: icvall1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

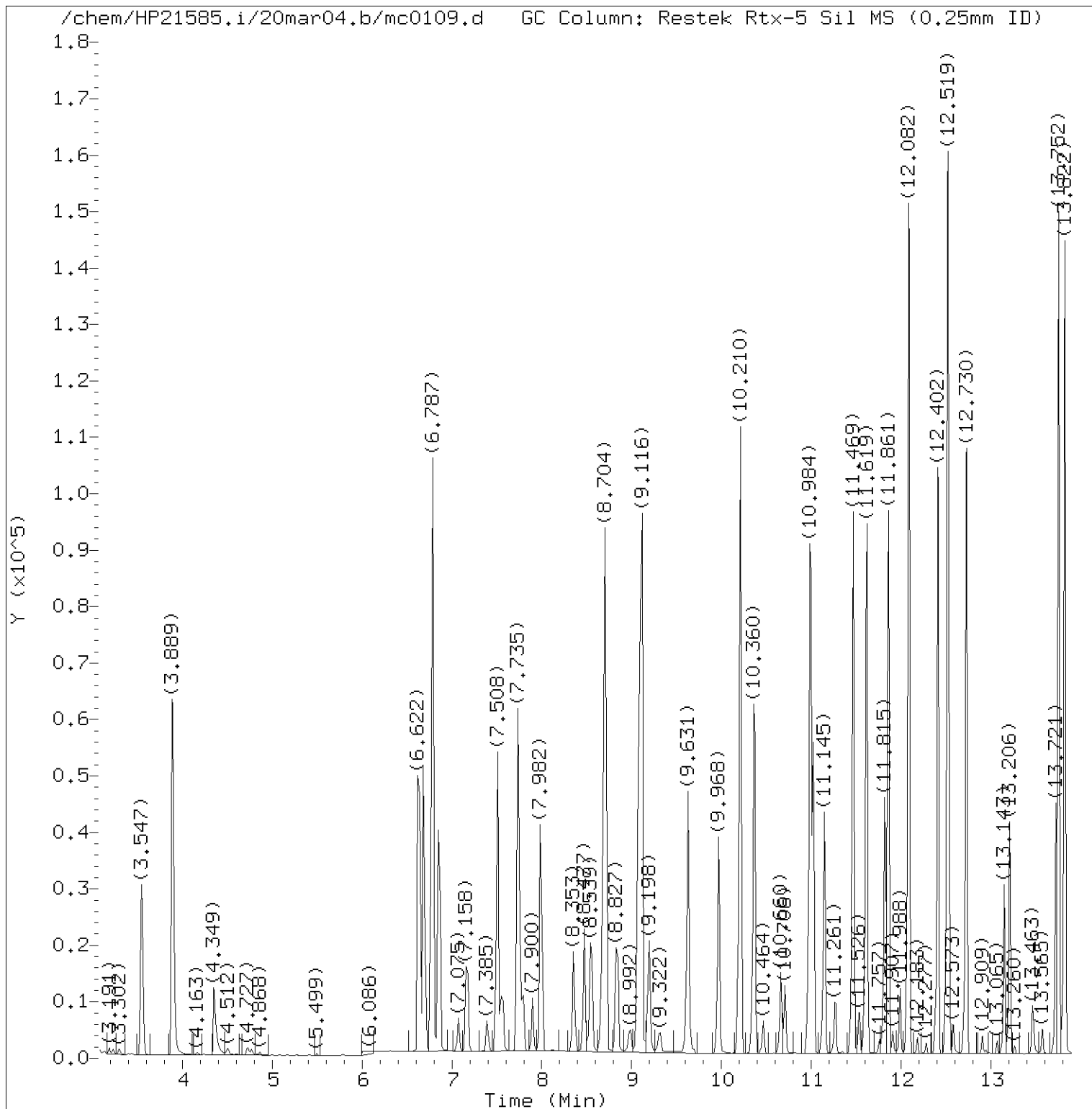
Sample Name: SSTD0.50

Lab Sample ID: RVSICV0170

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 56055	
On-column Amount (ng/ul)	: 0.3271	
Integration start scan	: 2146	Integration stop scan: 2189
Y at integration start	: 49	Y at integration end: 49

Digitally signed by Joseph M. Gambler on 03/11/2020 at 03:53.

Target 3.5 esignature user GPV67 Page 537 of 609



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0109.d
Injection date and time: 05-MAR-2020 03:46

Instrument ID: HP21585.i
Analyst ID: ceb05247

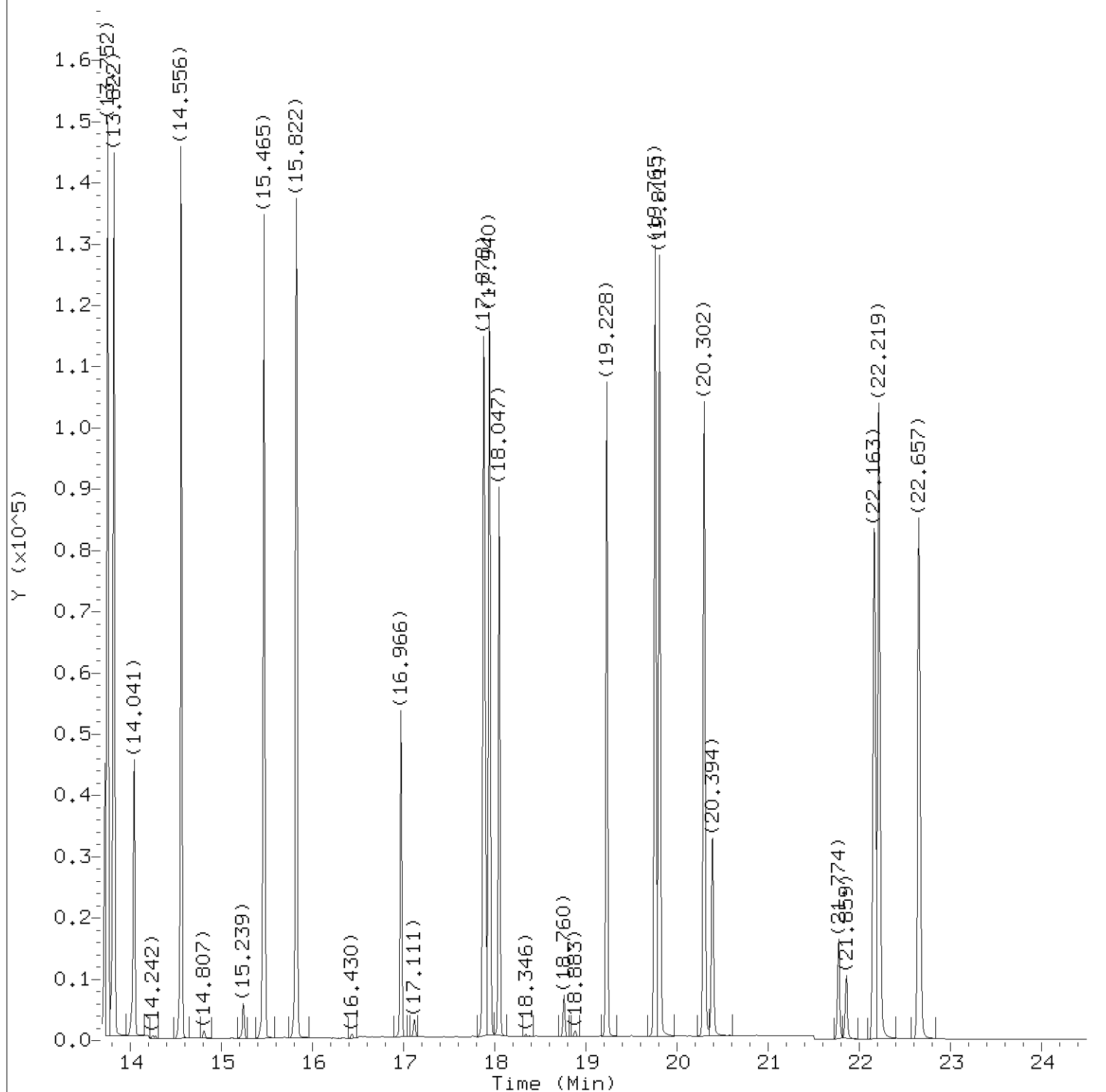
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: pass
Calibration date and time: 06-MAR-2020 10:33
Date, time and analyst ID of latest file update: 06-Mar-2020 10:33 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV3399

Digitally signed by Joseph M. Gambler
on 03/06/2020 at 10:33.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0109.d
Injection date and time: 05-MAR-2020 03:46

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m
Calibration date and time: 06-MAR-2020 10:33

Sublist used: pass

Date, time and analyst ID of latest file update: 06-Mar-2020 10:33 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: RVSICV3399

Digitally signed by Joseph M. Gambler
on 03/06/2020 at 10:33.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0109.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 03:46

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: pass

Calibration date and time: 06-MAR-2020 10:33

Date, time and analyst ID of latest file update: 06-Mar-2020 10:33 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV3399

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.547	88	16579	0.414
2) N-Nitrosodimethylamine	(1)	3.896	74	38478	0.659
4) bis(2-Chloroethyl)ether	(2)	6.787	93	64518M	0.708
5) *1,4-Dichlorobenzene-d4	(1)	7.158	152	14901	0.250
6) *Naphthalene-d8	(2)	9.075	136	51950	0.250
14) *Acenaphthene-d10	(3)	11.815	164	21671	0.250
20) *Phenanthrene-d10	(4)	13.721	188	43705	0.250
27) Butylbenzylphthalate	(5)	16.966	149	55442	0.617
29) *Chrysene-d12	(5)	17.901	240	34643	0.250
31) bis(2-Ethylhexyl)phthalate	(5)	18.047	149	81155	0.614
32) Di-n-octylphthalate	(6)	19.228	149	126472	0.606
38) *Perylene-d12	(6)	20.394	264	35645	0.250

M = Compound was manually integrated.

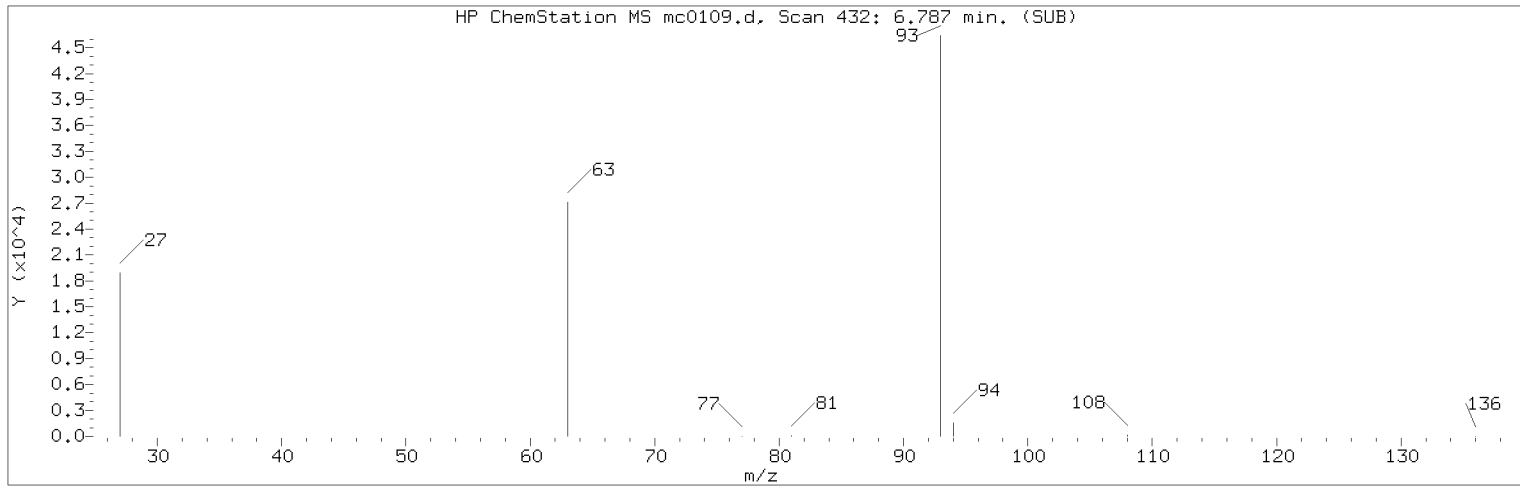
* = Compound is an internal standard.

Digitally signed by Joseph M. Gambler

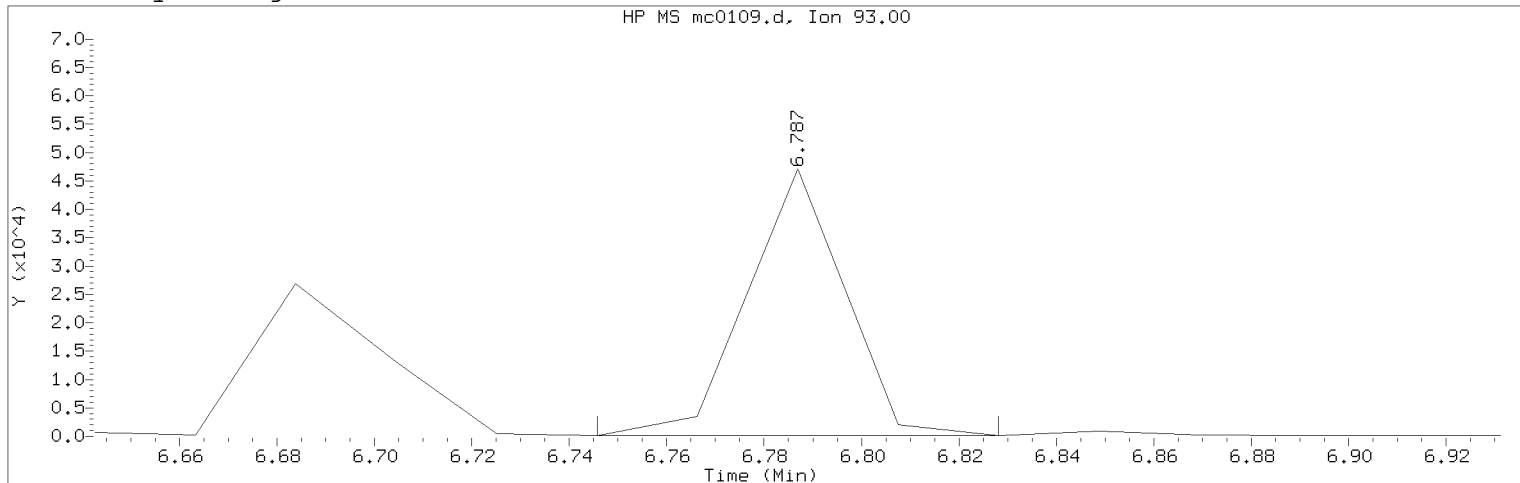
on 03/06/2020 at 10:33.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0109.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 03:46

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: pass

Calibration date and time: 06-MAR-2020 10:33

Date, time and analyst ID of latest file update: 06-Mar-2020 10:33 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: RVSICV3399

Compound Number	: 4	
Compound Name	: bis(2-Chloroethyl)ether	
Scan Number	: 432	
Retention Time (minutes)	: 6.787	
Quant Ion	: 93.00	
Area (flag)	: 64518M	
On-Column Amount (ng/ul)	: 0.7078	
Integration start scan	: 429	Integration stop scan: 433
Y at integration start	: 164	Y at integration end: 150

Reason for manual integration: improper integration

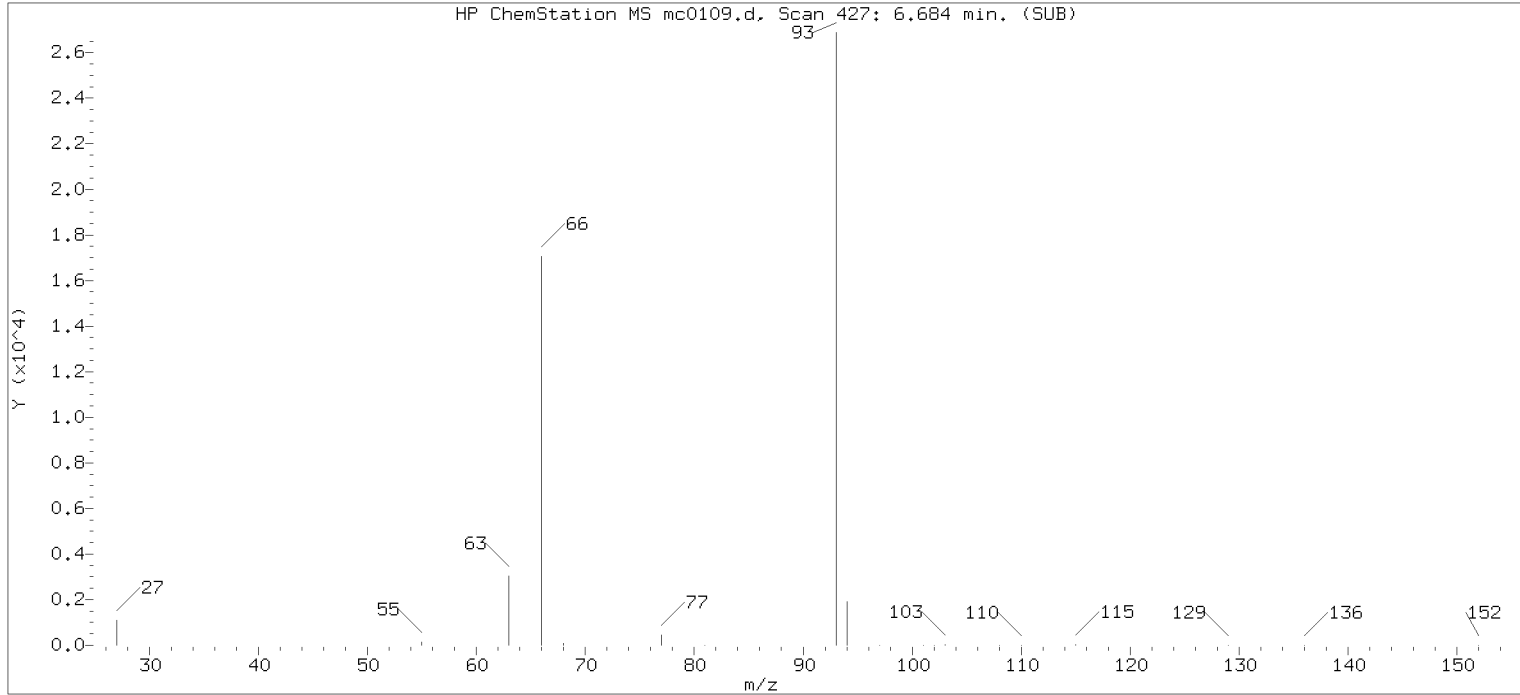
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/06/2020 at 10:33.
Target 3.5 esignature user ID: jmg00346

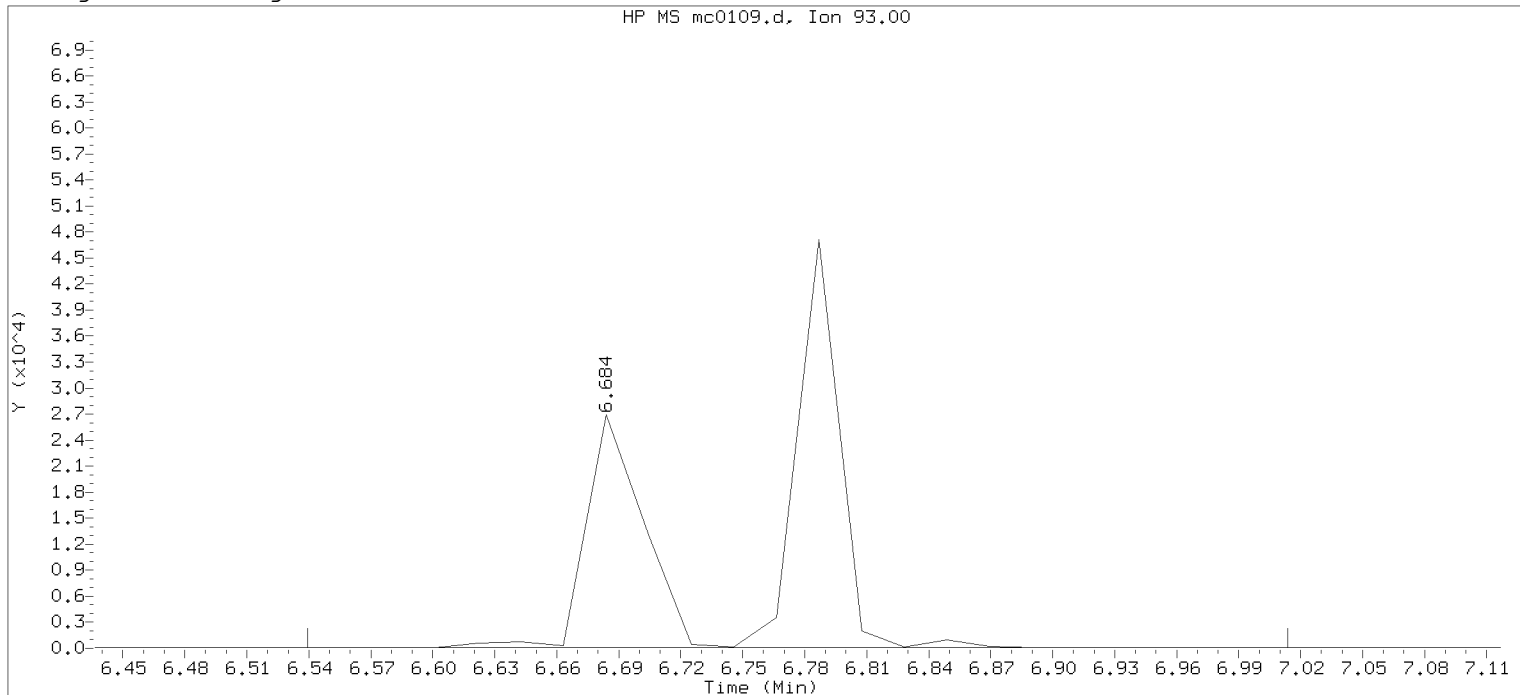
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:47.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0109.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 03:46

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 04:21 Unknown

Sample Name: SST0.50

Lab Sample ID: RVSICV3399

Compound Number	: 4	
Compound Name	: bis(2-Chloroethyl)ether	
Scan Number	: 427	
Retention Time (minutes)	: 6.684	
Quant Ion	: 93.00	
Area	: 118244	
On-column Amount (ng/ul)	: 1.2972	
Integration start scan	: 419	Integration stop scan: 442
Y at integration start	: 54	Y at integration end: 54

Digitally signed by Joseph M. Gambler on 03/06/2020 at 10:33.

Target 3.5 esignature user GPV67 Page 542 of 609

Date : 24-MAR-2020 17:04

Client ID: DFTPP12.5

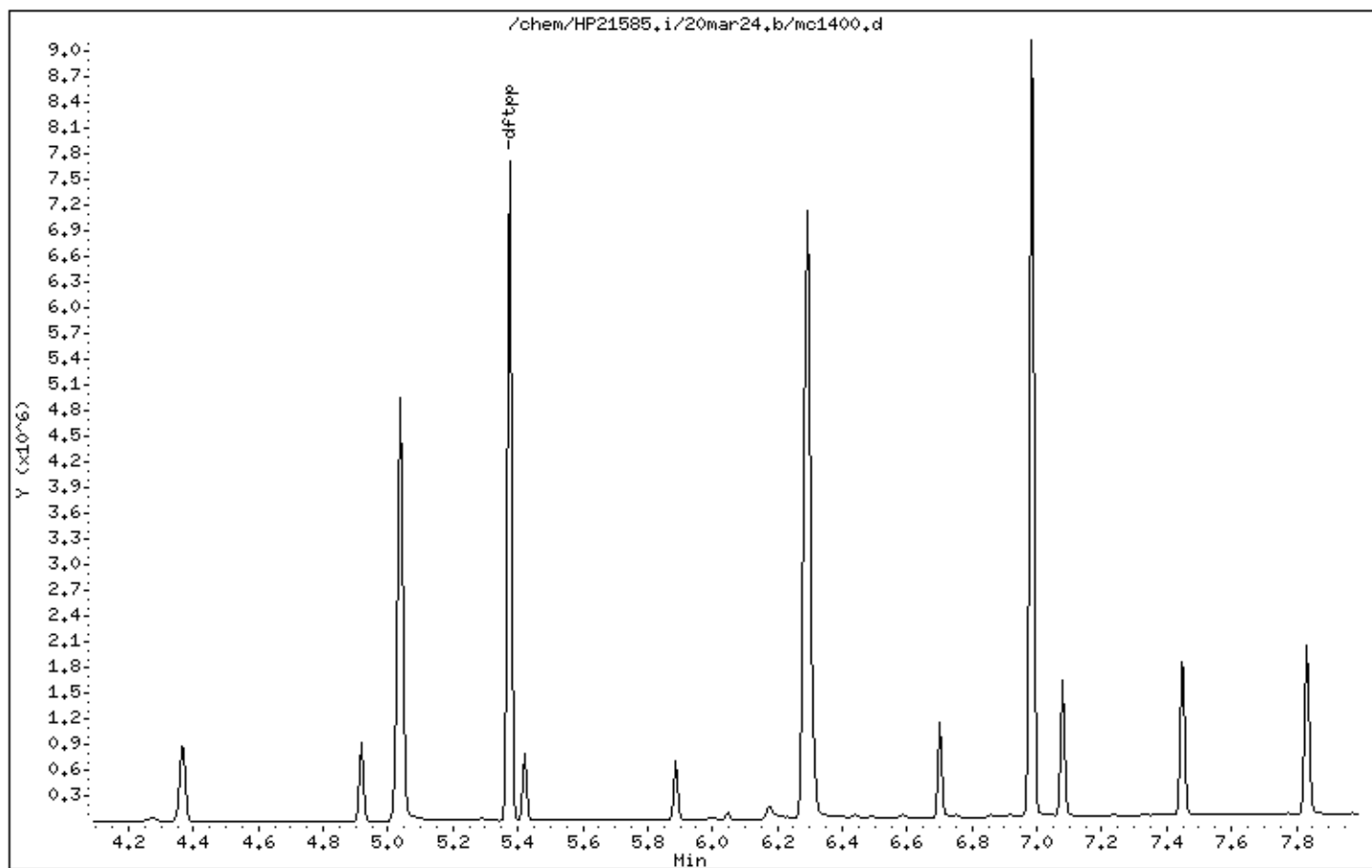
Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18



Date : 24-MAR-2020 17:04

Client ID: DFTPP12.5

Instrument: HP21585.i

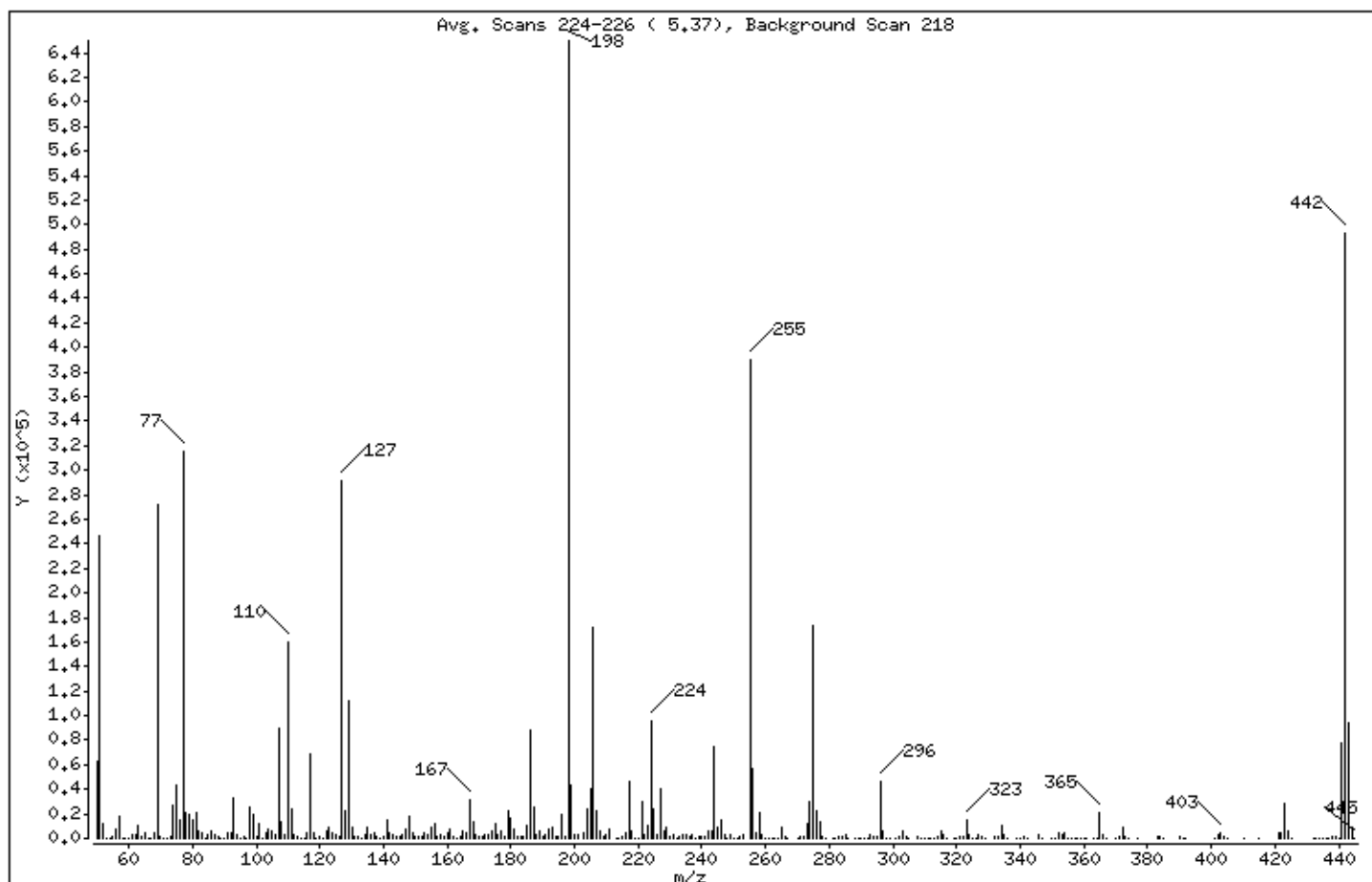
Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	37.85
68	Less than 2.00% of mass 69	0.67 (1.60)
69	Mass 69 relative abundance	41.80
70	Less than 2.00% of mass 69	0.22 (0.52)
127	10.00 - 80.00% of mass 198	44.86
197	Less than 2.00% of mass 198	0.32
199	5.00 - 9.00% of mass 198	6.72
275	10.00 - 60.00% of mass 198	26.76
365	Greater than 1.00% of mass 198	3.25
441	0.01 - 24.00% of mass 442	12.03 (15.88)
442	50.00 - 99.99% of mass 198	75.80
443	15.00 - 24.00% of mass 442	14.46 (19.08)

Date : 24-MAR-2020 17:04

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc1400.d

Spectrum: Avg. Scans 224-226 (5.37), Background Scan 218

Location of Maximum: 198.00

Number of points: 335

m/z	Y	m/z	Y	m/z	Y	m/z	Y

50.00	63088	134.00	3255	220.00	109	312.00	105
51.00	245952	135.00	9376	221.00	29888	313.00	579
52.00	12242	136.00	3565	222.00	3721	314.00	1895
53.00	613	137.00	4164	223.00	10638	315.00	5277
54.00	134	138.00	892	224.00	96072	316.00	2857

55.00	1142	139.00	699	225.00	24168	317.00	607
56.00	7510	140.00	1603	226.00	2814	319.00	55
57.00	17552	141.00	14881	227.00	40152	320.00	152
58.00	563	142.00	4432	228.00	6047	321.00	1580
59.00	242	143.00	3370	229.00	8759	322.00	819

60.00	408	144.00	888	230.00	1217	323.00	15303
61.00	3107	145.00	835	231.00	3330	324.00	2865
62.00	3721	146.00	2956	232.00	598	325.00	337
63.00	10310	147.00	7992	233.00	840	326.00	362
64.00	1489	148.00	17456	234.00	2563	327.00	3023

65.00	5066	149.00	3790	235.00	2936	328.00	1432
66.00	453	150.00	836	236.00	2085	329.00	235
67.00	319	151.00	2031	237.00	2876	332.00	1356
68.00	4359	152.00	1319	238.00	475	333.00	1484
69.00	271616	153.00	4764	239.00	1753	334.00	9785

70.00	1408	154.00	3656	240.00	1354	335.00	2465
71.00	280	155.00	8346	241.00	2202	336.00	218
72.00	216	156.00	11745	242.00	5365	339.00	320
73.00	1641	157.00	2139	243.00	5718	340.00	184
74.00	27576	158.00	2795	244.00	74200	341.00	1677

75.00	42720	159.00	2226	245.00	9692	342.00	542
76.00	15328	160.00	4963	246.00	14198	346.00	3413
77.00	315712	161.00	7457	247.00	2702	347.00	576
78.00	21016	162.00	2087	248.00	608	350.00	141
79.00	18968	163.00	632	249.00	2915	351.00	314

80.00	15328	164.00	856	250.00	713	352.00	4822
81.00	21040	165.00	5606	251.00	661	353.00	3165
82.00	5291	166.00	5207	252.00	820	354.00	4752
83.00	4941	167.00	31432	253.00	2324	355.00	740
84.00	478	168.00	13590	255.00	390080	356.00	58

Date : 24-MAR-2020 17:04

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc1400.d

Spectrum: Avg. Scans 224-226 (5.37), Background Scan 218

Location of Maximum: 198.00

Number of points: 335

m/z	Y	m/z	Y	m/z	Y	m/z	Y

85.00	3667	169.00	2303	256.00	56168	357.00	63
86.00	5857	170.00	1046	257.00	4530	358.00	50
87.00	2504	171.00	1522	258.00	21416	359.00	419
88.00	1070	172.00	2575	259.00	3587	360.00	59
89.00	673	173.00	3685	260.00	690	361.00	52

90.00	171	174.00	6620	261.00	671	363.00	136
91.00	4337	175.00	12134	262.00	64	364.00	260
92.00	4980	176.00	3303	263.00	194	365.00	21096
93.00	32784	177.00	5563	264.00	560	366.00	2695
94.00	2341	178.00	2013	265.00	8917	367.00	151

95.00	577	179.00	23144	266.00	1017	370.00	563
96.00	1311	180.00	15805	267.00	56	371.00	1248
97.00	300	181.00	7482	270.00	562	372.00	8276
98.00	25368	182.00	1278	271.00	902	373.00	2069
99.00	19088	183.00	789	272.00	1392	374.00	245

100.00	1912	184.00	1871	273.00	11895	377.00	101
101.00	11985	185.00	11117	274.00	29264	383.00	1977
102.00	587	186.00	87568	275.00	173888	384.00	756
103.00	3895	187.00	24656	276.00	22936	385.00	222
104.00	7604	188.00	2277	277.00	13232	390.00	1028

105.00	6606	189.00	5524	278.00	2127	391.00	706
106.00	2347	190.00	992	279.00	526	392.00	536
107.00	88904	191.00	2573	281.00	1	401.00	622
108.00	13723	192.00	7777	282.00	288	402.00	3369
109.00	2359	193.00	8377	283.00	1630	403.00	4813

110.00	159232	194.00	1880	284.00	1170	404.00	1785
111.00	23640	195.00	1563	285.00	2527	405.00	163
112.00	2755	196.00	19768	286.00	454	410.00	141
113.00	1107	197.00	2058	288.00	113	415.00	243
114.00	303	198.00	649856	289.00	609	421.00	4211

115.00	481	199.00	43688	290.00	453	422.00	4167
116.00	4889	200.00	3456	291.00	332	423.00	29000
117.00	69384	201.00	3218	292.00	655	424.00	6042
118.00	4875	203.00	4826	293.00	3300	425.00	628
119.00	576	204.00	23680	294.00	883	432.00	54

Date : 24-MAR-2020 17:04

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18

Data File: mc1400.d

Spectrum: Avg. Scans 224-226 (5,37), Background Scan 218

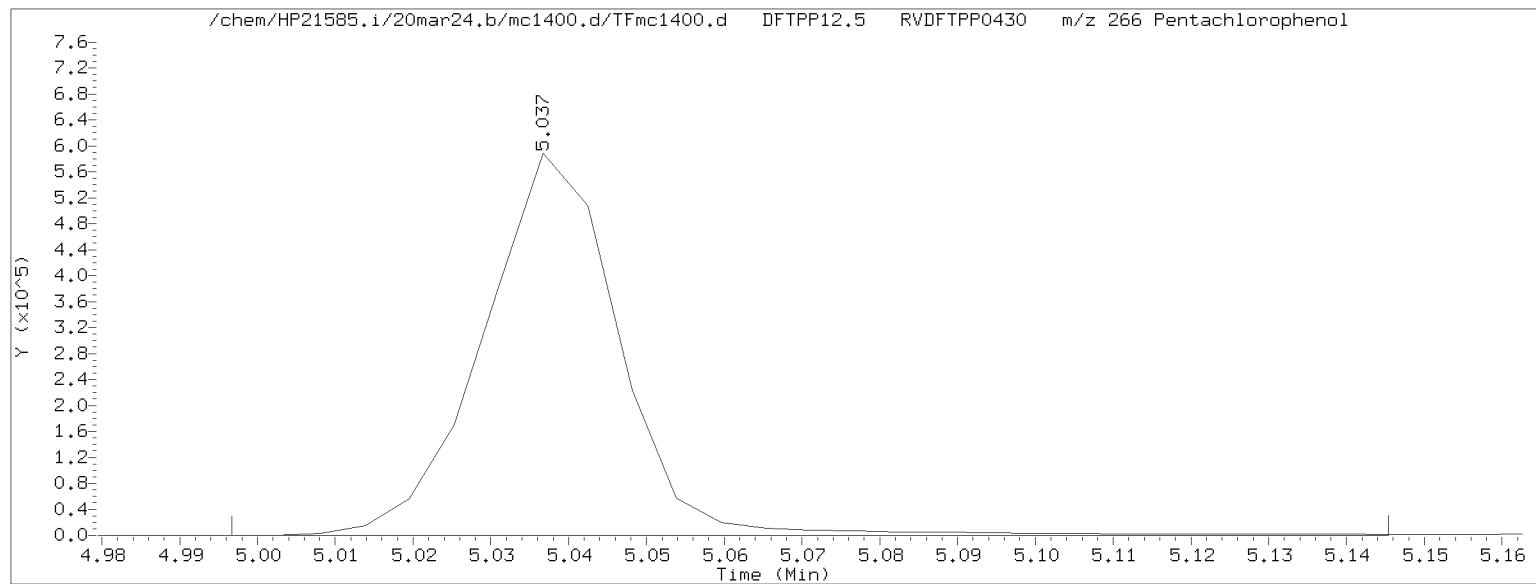
Location of Maximum: 198,00

Number of points: 335

m/z	Y	m/z	Y	m/z	Y	m/z	Y
120,00	1050	205,00	40584	295,00	1449	433,00	171
121,00	470	206,00	172544	296,00	45672	434,00	255
122,00	5277	207,00	22568	297,00	6457	435,00	229
123,00	8856	208,00	5938	298,00	478	436,00	550
124,00	4114	209,00	1605	299,00	131	437,00	372
125,00	3426	210,00	2593	301,00	593	438,00	1060
126,00	1117	211,00	6765	302,00	926	439,00	939
127,00	291520	213,00	510	303,00	5486	440,00	646
128,00	22432	214,00	156	304,00	1352	441,00	78208
129,00	112624	215,00	1986	305,00	167	442,00	492608
130,00	9251	216,00	3769	308,00	773	443,00	94000
131,00	1755	217,00	46200	309,00	411	444,00	8556
132,00	1093	218,00	5933	310,00	637	445,00	550
133,00	269	219,00	610	311,00	125		

Assessment of GC Column Performance and Injection Port Inertness for

Instrument ID: HP21585.i Injection Date: 24-MAR-2020 17:04 Operator: ceb05247



Pentachlorophenol EICP peak height = 588818 EICP peak height at 10% = 58882 Pentachlorophenol EICP area = 714830

Pentachlorophenol EICP peak apex (min.) = 5.037

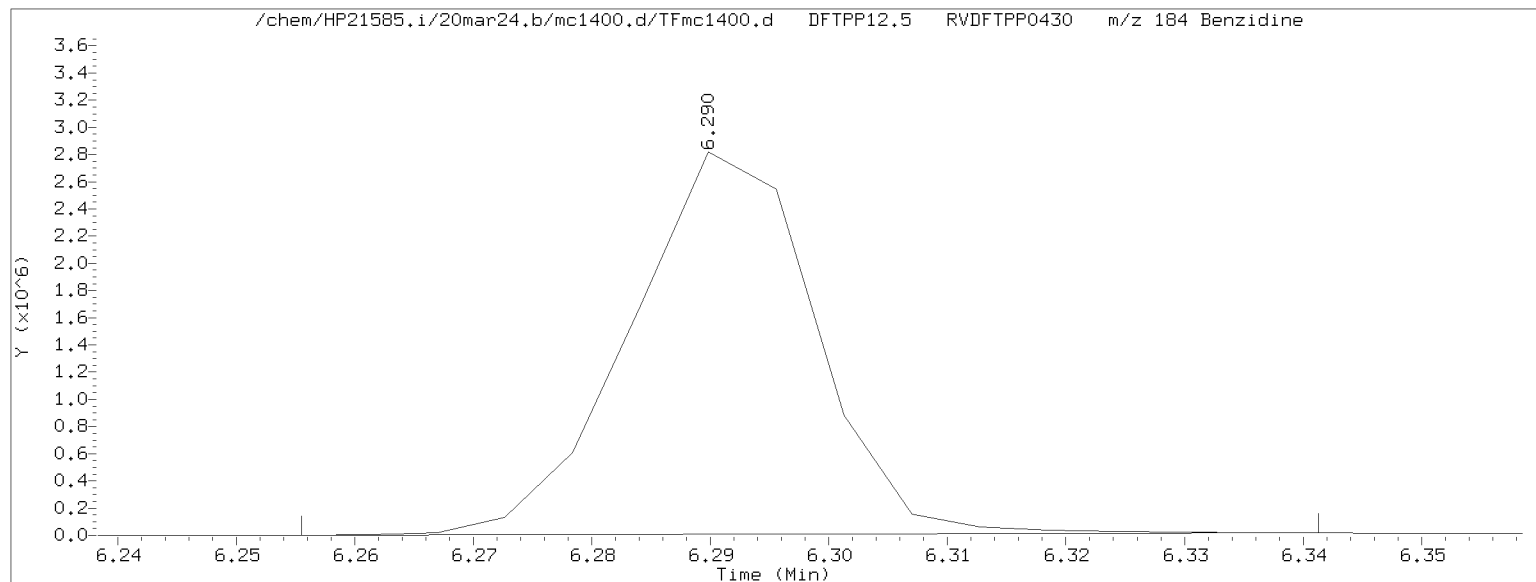
RT at 10% of front half of EICP (min.) = 5.020

RT at 10% of back half of EICP (min.) = 5.054

'Front' peak width (min.) = 0.017033333

'Tailing' peak width (min.) = 0.017100000

$$\text{PCP tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.017100000}{0.017033333} = 1.004$$



Benzidine EICP peak height = 2810889 EICP peak height at 10% = 281089 Benzidine EICP area = 3053261

Benzidine EICP peak apex (min.) = 6.290

RT at 10% of front half of EICP (min.) = 6.275

RT at 10% of back half of EICP (min.) = 6.306

'Front' peak width (min.) = 0.015266667

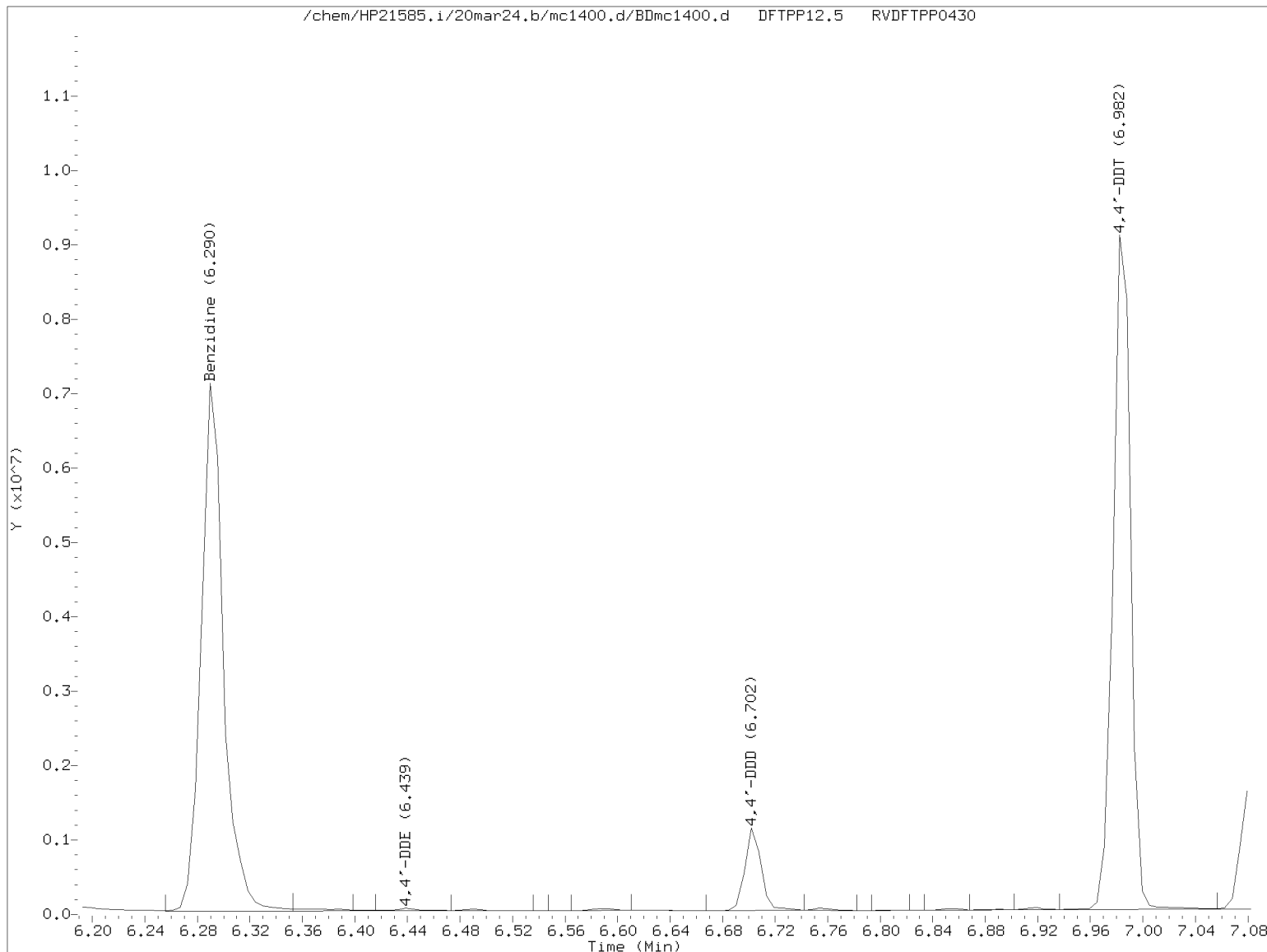
'Tailing' peak width (min.) = 0.016100000

$$\text{Benzidine tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.016100000}{0.015266667} = 1.055$$

page 1 of 2
printed on 03/24/2020 at 17:24

Assessment of GC Column Performance and Injection Port Inertness for

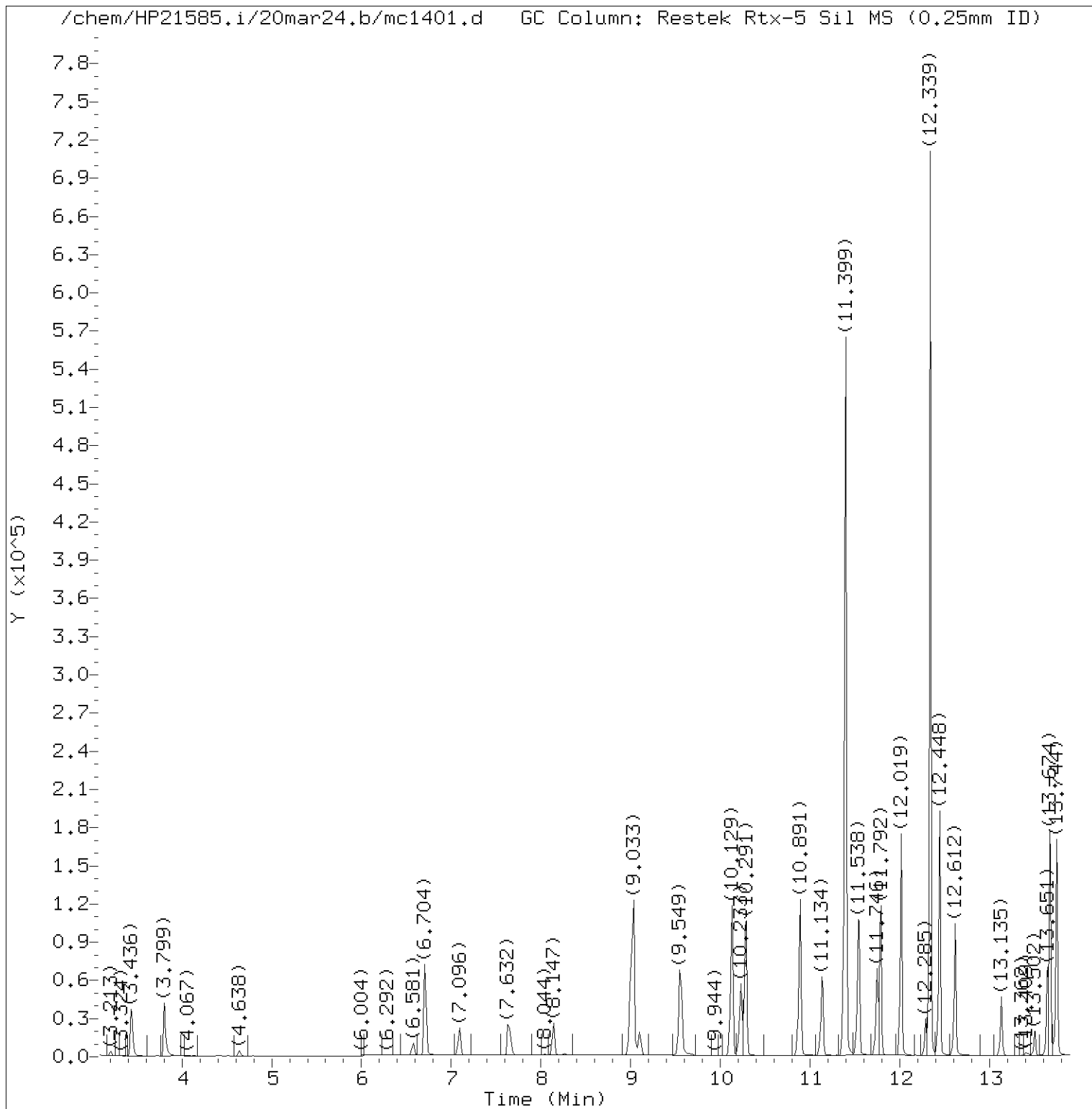
Instrument ID: HP21585.i Injection Date: 24-MAR-2020 17:04 Operator: ceb05247



$$\% \text{ 4,4'-DDT breakdown} = \frac{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area}}{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area} + 4,4'\text{-DDT TIC area}} \times 100$$

$$\% \text{ 4,4'-DDT breakdown} = \frac{47004 + 944735}{47004 + 944735 + 8554022} \times 100 = 10.4$$

page 2 of 2
printed on 03/24/2020 at 17:24



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1401.d
Injection date and time: 24-MAR-2020 17:26

Instrument ID: HP21585.i
Analyst ID: ceb05247

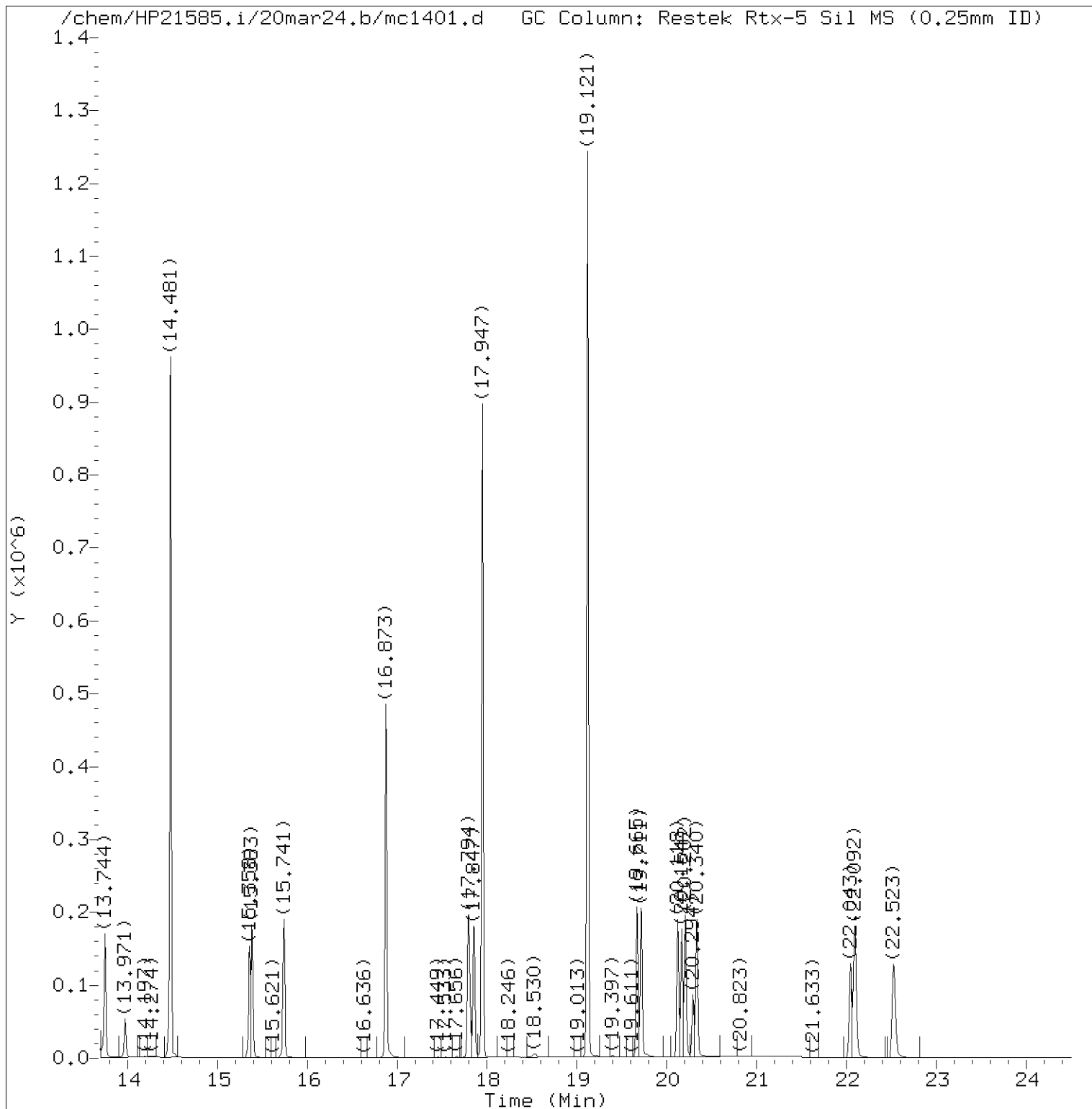
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 24-MAR-2020 18:10
Date, time and analyst ID of latest file update: 24-Mar-2020 18:10 art12405

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Digitally signed by Ashley R. Transue
on 03/24/2020 at 18:33.

Target 3.5 esignature user ID: art12405



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1401.d
Injection date and time: 24-MAR-2020 17:26

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 24-MAR-2020 18:10
Date, time and analyst ID of latest file update: 24-Mar-2020 18:10 art12405

Sample Name: SSTDO.50

Lab Sample ID: SIM0750

Digitally signed by Ashley R. Transue
on 03/24/2020 at 18:33.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1401.d
 Injection date and time: 24-MAR-2020 17:26

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 24-MAR-2020 18:10
 Date, time and analyst ID of latest file update: 24-Mar-2020 18:10 art12405

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.443	88	29174	0.475
2) N-Nitrosodimethylamine	(1)	3.799	74	43248	0.483
4) bis(2-Chloroethyl)ether	(2)	6.704	93	59532	0.448
5)*1,4-Dichlorobenzene-d4	(1)	7.096	152	22825	0.250
6)*Naphthalene-d8	(2)	8.992	136	75721	0.250
7) Naphthalene	(2)	9.033	128	186860	0.522
8) Quinoline	(2)	9.569	129	89908	0.539
9) 2-Methylnaphthalene	(2)	10.129	142	119535	0.537
10)\$1-Methylnaphthalene-d10	(2)	10.233	152	89403	0.577
11) 1-Methylnaphthalene	(2)	10.291	142	114787	0.546
12) Dimethylphthalate	(3)	11.399	163	619919	2.246
13) Acenaphthylene	(3)	11.549	152	184099	0.458
14)*Acenaphthene-d10	(3)	11.746	164	37867	0.250
15) Acenaphthene	(3)	11.792	154	107866	0.481
16) Dibenzofuran	(3)	12.019	168	198825	0.472
17) Diethylphthalate	(3)	12.339	149	594758	2.164
18) Fluorene	(3)	12.448	166	131740	0.464
43) N-Nitrosodiphenylamine	(4)	12.612	169	74347	0.500
19) Hexachlorobenzene	(4)	13.135	284	45470	0.442
20)*Phenanthrene-d10	(4)	13.651	188	79345	0.250
21) Phenanthrene	(4)	13.674	178	193069	0.469
22) Anthracene	(4)	13.744	178	196645	0.509
23) Di-n-butylphthalate	(4)	14.481	149	1108019	2.571
24)\$Fluoranthene-d10	(4)	15.358	212	192708	0.575
25) Fluoranthene	(4)	15.383	202	241410	0.533
26) Pyrene	(5)	15.741	202	248236	0.409
27) Butylbenzylphthalate	(5)	16.873	149	543474	2.471
28) Benzo(a)anthracene	(5)	17.786	228	234720	0.457
29)*Chrysene-d12	(5)	17.809	240	84752	0.250
30) Chrysene	(5)	17.847	228	251112	0.472
31) bis(2-Ethylhexyl)phthalate	(5)	17.947	149	816971	2.527
32) Di-n-octylphthalate	(6)	19.121	149	1453905	1.954
33) Benzo(b)fluoranthene	(6)	19.665	252	253894	0.473
34) Benzo(k)fluoranthene	(6)	19.711	252	276245	0.493
35) Benzo(e)pyrene	(6)	20.118	252	247076	0.485
36)\$Benzo(a)pyrene-d12	(6)	20.164	264	196949	0.551
37) Benzo(a)pyrene	(6)	20.202	252	252314	0.495
38)*Perylene-d12	(6)	20.294	264	94928	0.250
45) Perylene	(6)	20.340	252	255784	0.471
39) Indeno(1,2,3-cd)pyrene	(6)	22.043	276	231826M	0.509

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Ashley R. Transue
 on 03/24/2020 at 18:33.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1401.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 17:26

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 24-MAR-2020 18:10

Date, time and analyst ID of latest file update: 24-Mar-2020 18:10 art12405

Sample Name: SSTDO.50

Lab Sample ID: SIM0750

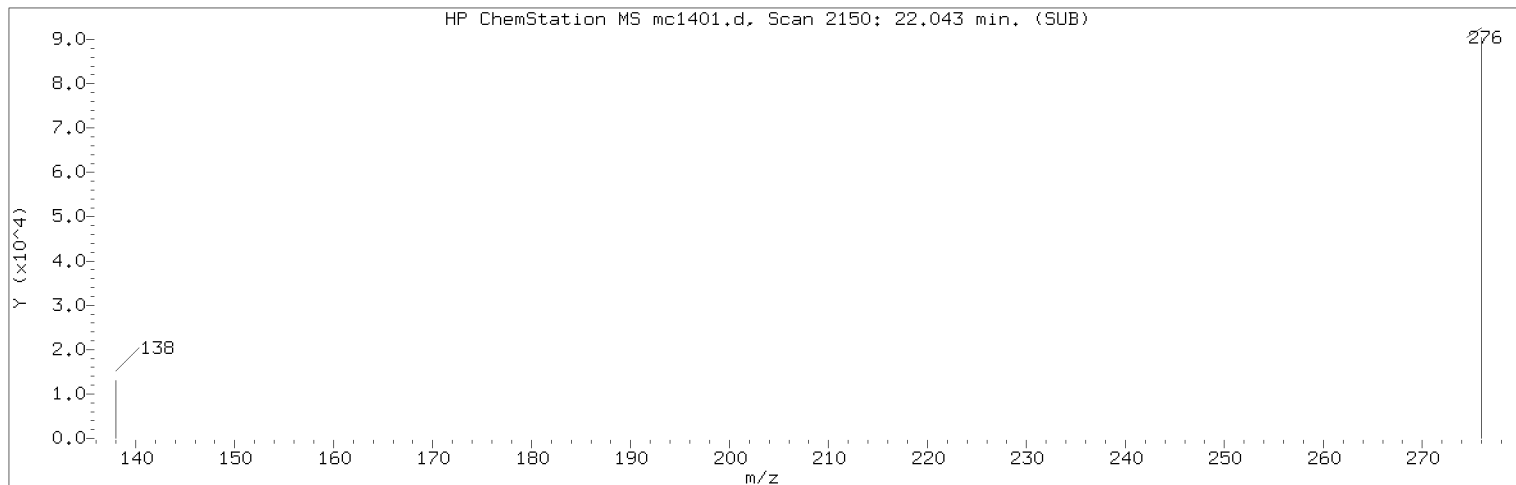
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.092	278	264287	0.514
41) Benzo(g,h,i)perylene	(6)	22.523	276	264086	0.491

Digitally signed by Ashley R. Transue

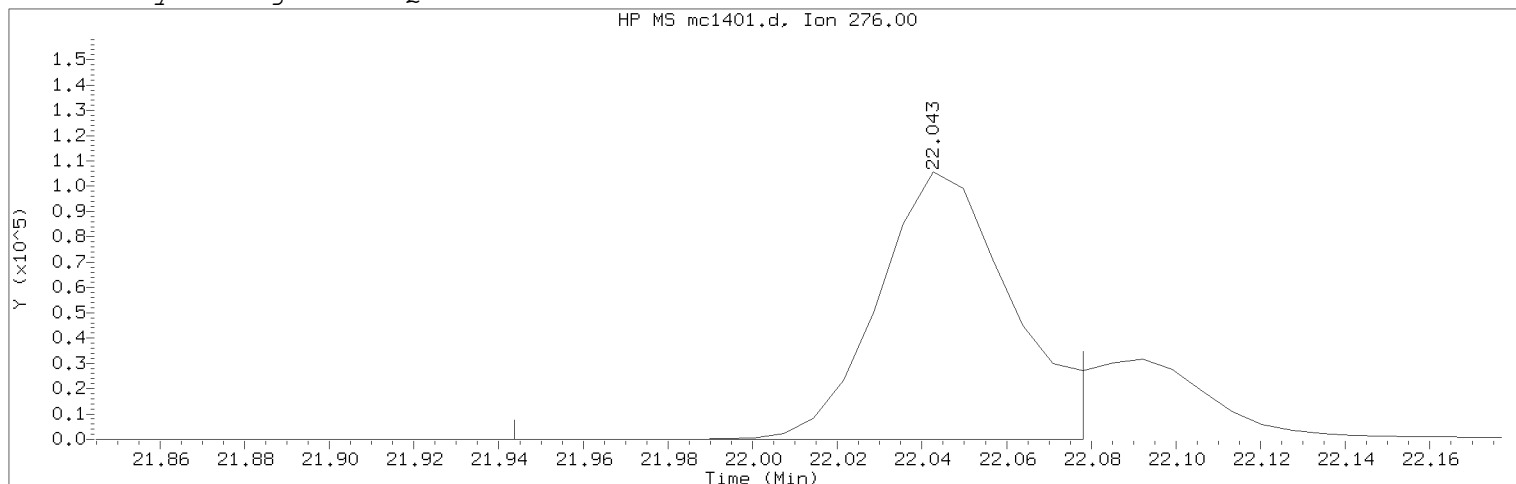
on 03/24/2020 at 18:33.

Target 3.5 esignature user ID: art12405

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1401.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 17:26

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 24-MAR-2020 18:10

Date, time and analyst ID of latest file update: 24-Mar-2020 18:10 art12405

Sample Name: SSTDO.50

Lab Sample ID: SIM0750

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2150	
Retention Time (minutes)	: 22.043	
Quant Ion	: 276.00	
Area (flag)	: 231826M	
On-Column Amount (ng/ul)	: 0.5088	
Integration start scan	: 2135	Integration stop scan: 2154
Y at integration start	: 74	Y at integration end: 74

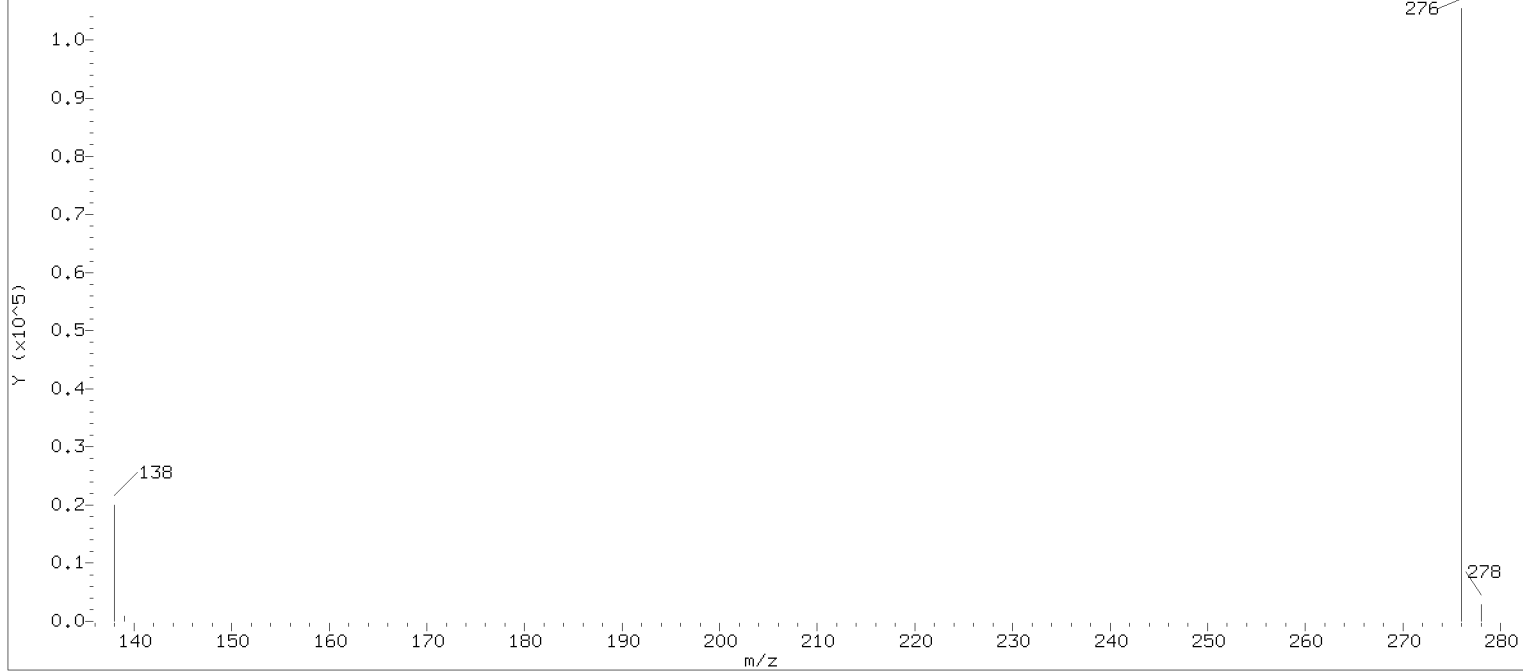
Reason for manual integration: improper integration

Analyst responsible for change: Digitally signed by Ashley R. Transue
on 03/24/2020 at 18:33.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.
PARALLAX ID: reb00745

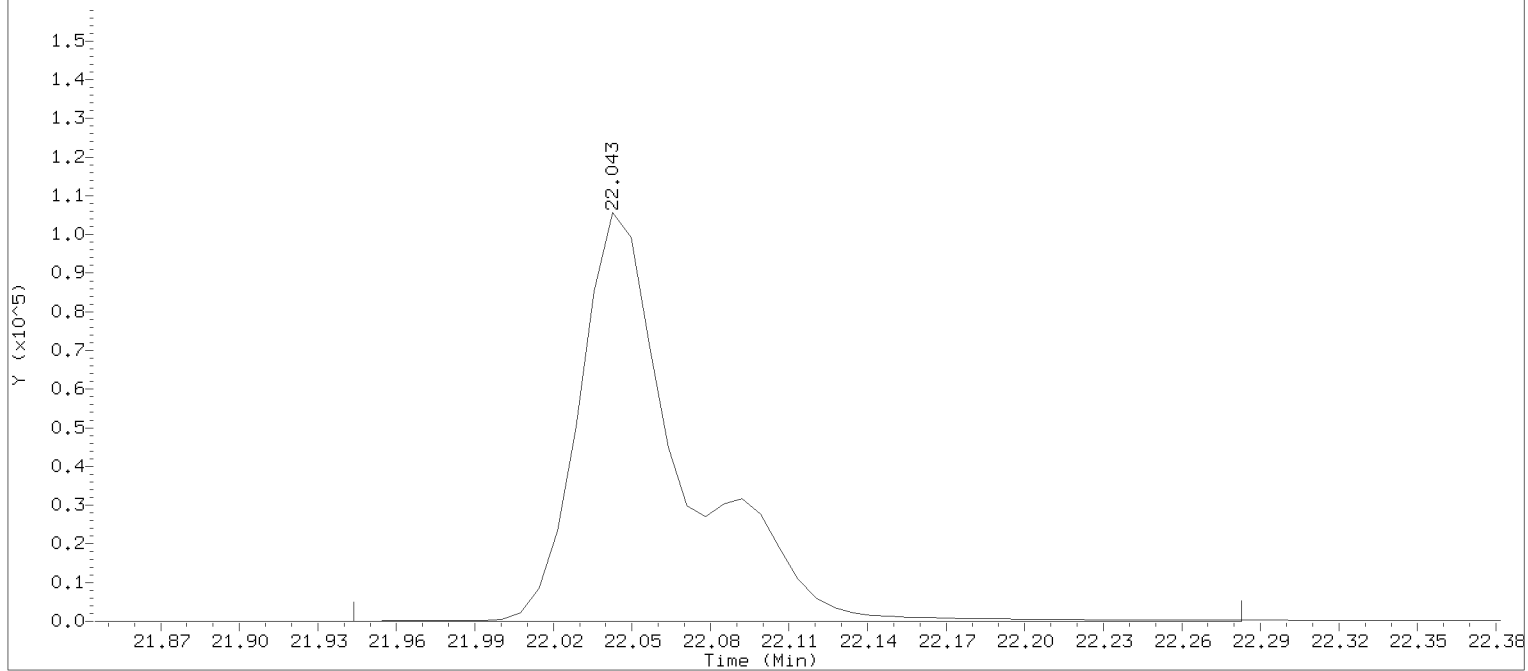
Sample Spectrum (Background Subtracted)

HP ChemStation MS mc1401.d, Scan 2150: 22.043 min. (SUB)



Original Integration of Quant Ion

HP MS mc1401.d, Ion 276.00



Data File: /chem/HP21585.i/20mar24.b/mc1401.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 17:26

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 24-MAR-2020 18:02

Date, time and analyst ID of latest file update: 24-Mar-2020 18:02 Unknown

Sample Name: SSTDO.50

Lab Sample ID: SIM0750

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2150	
Retention Time (minutes)	: 22.043	
Quant Ion	: 276.00	
Area	: 291832	
On-column Amount (ng/ul)	: 0.6405	
Integration start scan	: 2135	Integration stop scan: 2183
Y at integration start	: 74	Y at integration end: 74

Digitally signed by Ashley R. Transue on 03/24/2020 at 18:33.
Target 3.5 esignature user GPV67a Page 555 of 609

Date : 25-MAR-2020 06:08

Client ID: DFTPP12.5

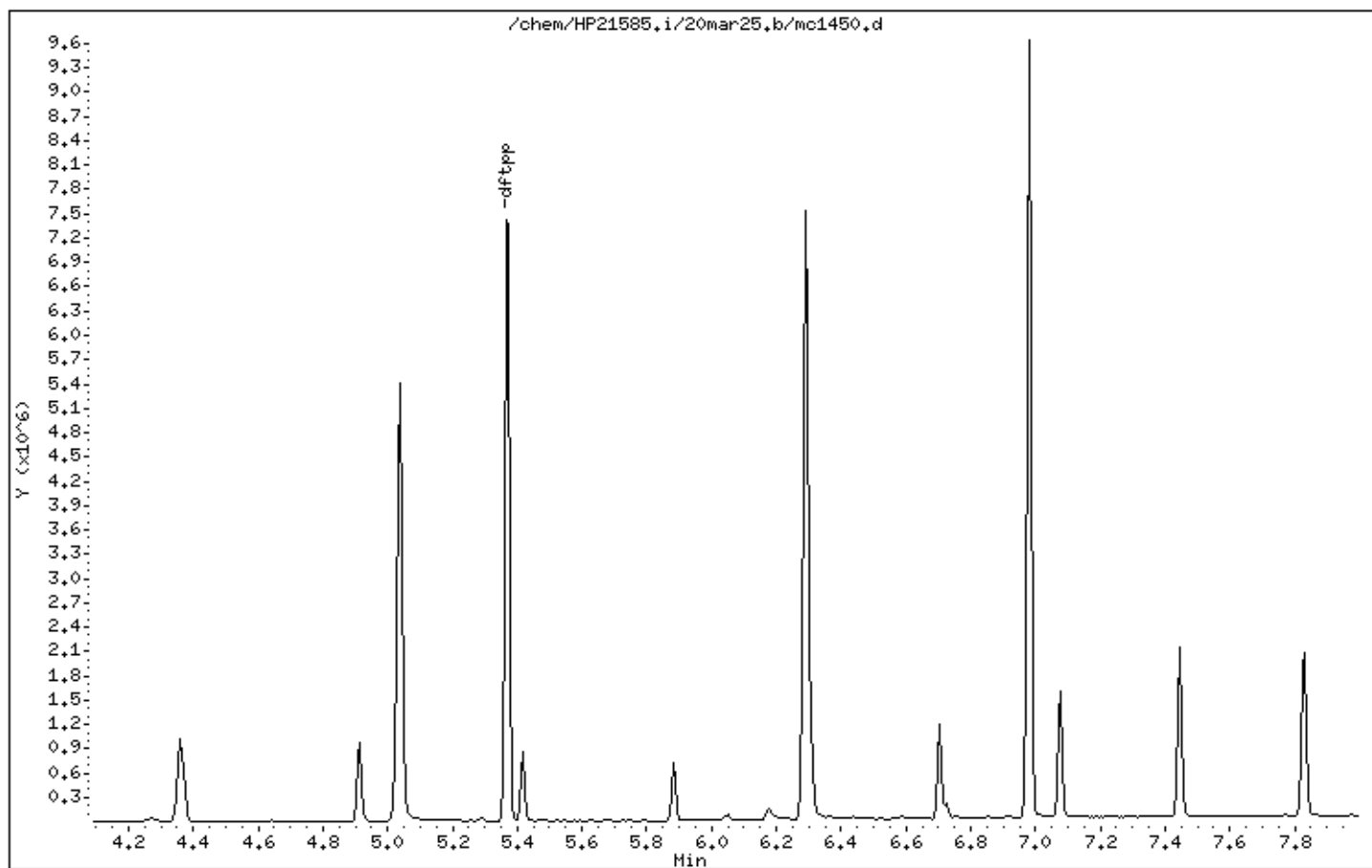
Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18



Date : 25-MAR-2020 06:08

Client ID: DFTPP12.5

Instrument: HP21585.i

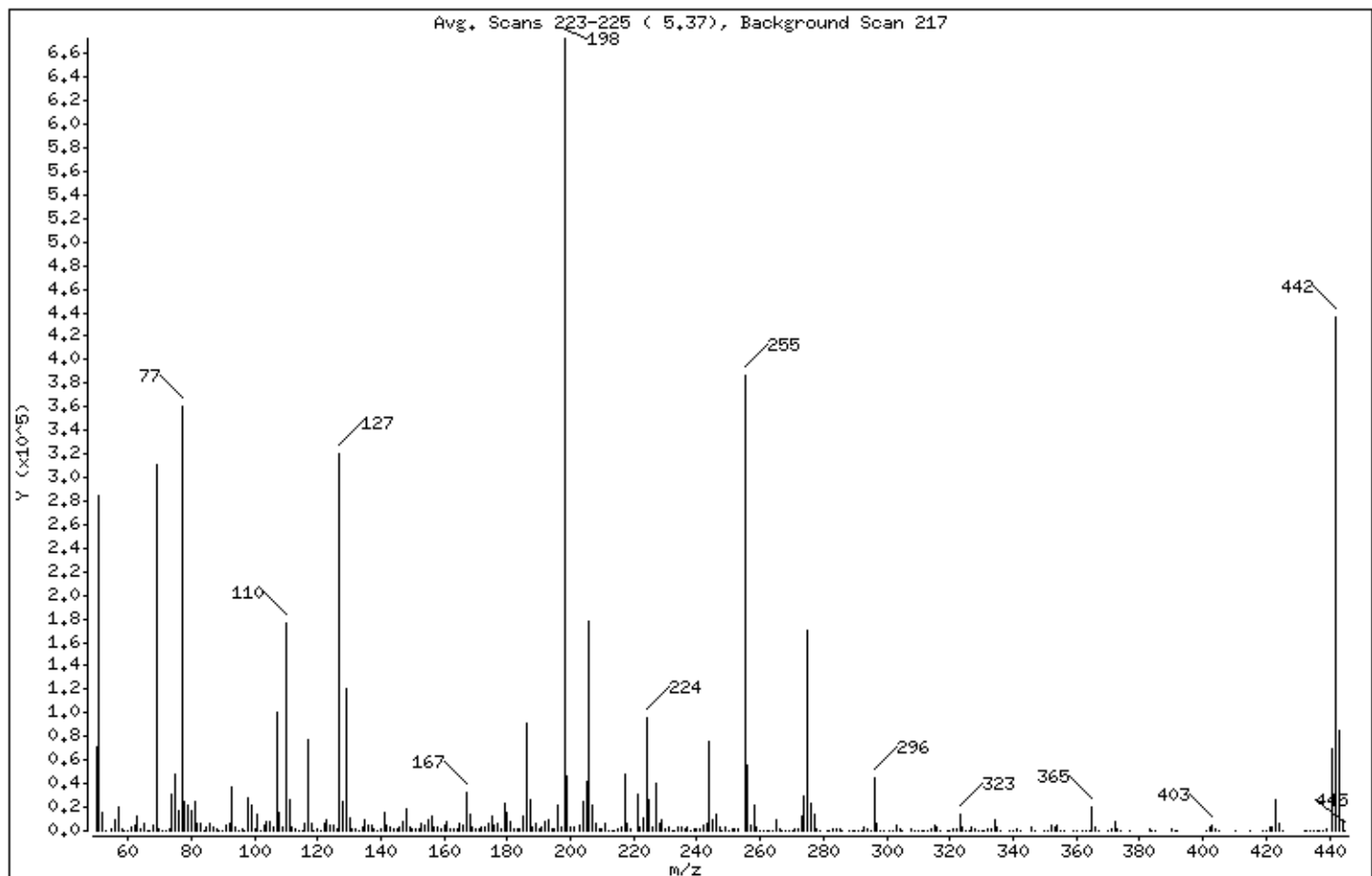
Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	42.38
68	Less than 2.00% of mass 69	0.77 (1.66)
69	Mass 69 relative abundance	46.19
70	Less than 2.00% of mass 69	0.24 (0.52)
127	10.00 - 80.00% of mass 198	47.56
197	Less than 2.00% of mass 198	0.52
199	5.00 - 9.00% of mass 198	6.89
275	10.00 - 60.00% of mass 198	25.34
365	Greater than 1.00% of mass 198	2.93
441	0.01 - 24.00% of mass 442	10.33 (15.96)
442	50.00 - 99.99% of mass 198	64.75
443	15.00 - 24.00% of mass 442	12.62 (19.49)

Date : 25-MAR-2020 06:08

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc1450.d

Spectrum: Avg. Scans 223-225 (5.37), Background Scan 217

Location of Maximum: 198.00

Number of points: 337

m/z	Y	m/z	Y	m/z	Y	m/z	Y

50.00	71896	136.00	3948	223.00	11345	314.00	2222
51.00	285120	137.00	4965	224.00	96368	315.00	4773
52.00	14872	138.00	1182	225.00	25528	316.00	2592
53.00	677	139.00	734	226.00	2870	317.00	489
55.00	1469	140.00	1799	227.00	40632	319.00	114

56.00	8832	141.00	15973	228.00	6125	320.00	177
57.00	20112	142.00	5282	229.00	8575	321.00	1352
58.00	973	143.00	3646	230.00	1268	322.00	844
59.00	331	144.00	902	231.00	3413	323.00	13947
60.00	164	145.00	1022	232.00	539	324.00	2734

61.00	3617	146.00	2640	233.00	744	325.00	353
62.00	4155	147.00	8072	234.00	2669	326.00	296
63.00	11674	148.00	19096	235.00	2861	327.00	2692
64.00	1662	149.00	3715	236.00	1826	328.00	1451
65.00	5761	150.00	1004	237.00	2953	329.00	215

66.00	483	151.00	2080	238.00	539	330.00	57
67.00	296	152.00	1304	239.00	1520	331.00	53
68.00	5156	153.00	5457	240.00	1230	332.00	1097
69.00	310784	154.00	3928	241.00	2199	333.00	1377
70.00	1619	155.00	8985	242.00	5252	334.00	8943

71.00	51	156.00	13029	243.00	5724	335.00	2541
72.00	210	157.00	2813	244.00	75648	336.00	276
73.00	2093	158.00	3061	245.00	9994	339.00	212
74.00	31336	159.00	2202	246.00	13784	340.00	215
75.00	48320	160.00	5306	247.00	2756	341.00	1961

76.00	16752	161.00	7453	248.00	732	342.00	544
77.00	360448	162.00	2087	249.00	2933	346.00	2874
78.00	24688	163.00	784	250.00	610	347.00	576
79.00	22072	164.00	898	251.00	821	350.00	168
80.00	16880	165.00	6328	252.00	943	351.00	273

81.00	24032	166.00	5090	253.00	2012	352.00	4280
82.00	5781	167.00	33232	255.00	386432	353.00	3152
83.00	5619	168.00	13922	256.00	55440	354.00	4494
84.00	527	169.00	2735	257.00	4307	355.00	688
85.00	3713	170.00	1082	258.00	21320	356.00	74

Date : 25-MAR-2020 06:08

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc1450.d

Spectrum: Avg. Scans 223-225 (5.37), Background Scan 217

Location of Maximum: 198.00

Number of points: 337

m/z	Y	m/z	Y	m/z	Y	m/z	Y

86.00	6591	171.00	1504	259.00	3172	359.00	397
87.00	3058	172.00	2942	260.00	561	360.00	71
88.00	1136	173.00	3695	261.00	651	362.00	52
89.00	678	174.00	6675	262.00	135	363.00	69
90.00	159	175.00	12901	263.00	181	364.00	246

91.00	4944	176.00	4188	264.00	539	365.00	19704
92.00	5851	177.00	6058	265.00	8900	366.00	2655
93.00	37016	178.00	2273	266.00	1302	367.00	217
94.00	2696	179.00	23848	267.00	450	370.00	445
95.00	584	180.00	15948	268.00	173	371.00	1213

96.00	1679	181.00	7907	269.00	131	372.00	7432
97.00	697	182.00	1496	270.00	542	373.00	2039
98.00	28496	183.00	869	271.00	906	374.00	304
99.00	21384	184.00	2098	272.00	1292	377.00	243
100.00	1777	185.00	12825	273.00	11971	383.00	2078

101.00	13598	186.00	91120	274.00	28920	384.00	565
102.00	745	187.00	26144	275.00	170432	385.00	149
103.00	4218	188.00	2685	276.00	22976	390.00	1141
104.00	8052	189.00	5935	277.00	13261	391.00	769
105.00	7829	190.00	963	278.00	2056	392.00	615

106.00	2715	191.00	2618	279.00	587	401.00	535
107.00	99920	192.00	7709	281.00	25	402.00	2908
108.00	14743	193.00	8819	282.00	467	403.00	4579
109.00	2799	194.00	2010	283.00	1283	404.00	1666
110.00	176256	195.00	1288	284.00	1247	405.00	190

111.00	26712	196.00	21264	285.00	2183	410.00	61
112.00	3118	197.00	3530	286.00	452	415.00	257
113.00	1006	198.00	672832	288.00	151	419.00	60
114.00	299	199.00	46328	289.00	521	420.00	63
115.00	620	200.00	3765	290.00	481	421.00	3684

116.00	5611	201.00	3264	291.00	401	422.00	3437
117.00	77776	203.00	5066	292.00	717	423.00	25672
118.00	5714	204.00	24208	293.00	3231	424.00	5525
119.00	612	205.00	42424	294.00	930	425.00	583
120.00	1140	206.00	177728	295.00	152	432.00	51

Date : 25-MAR-2020 06:08

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18

Data File: mc1450.d

Spectrum: Avg. Scans 223-225 (5,37), Background Scan 217

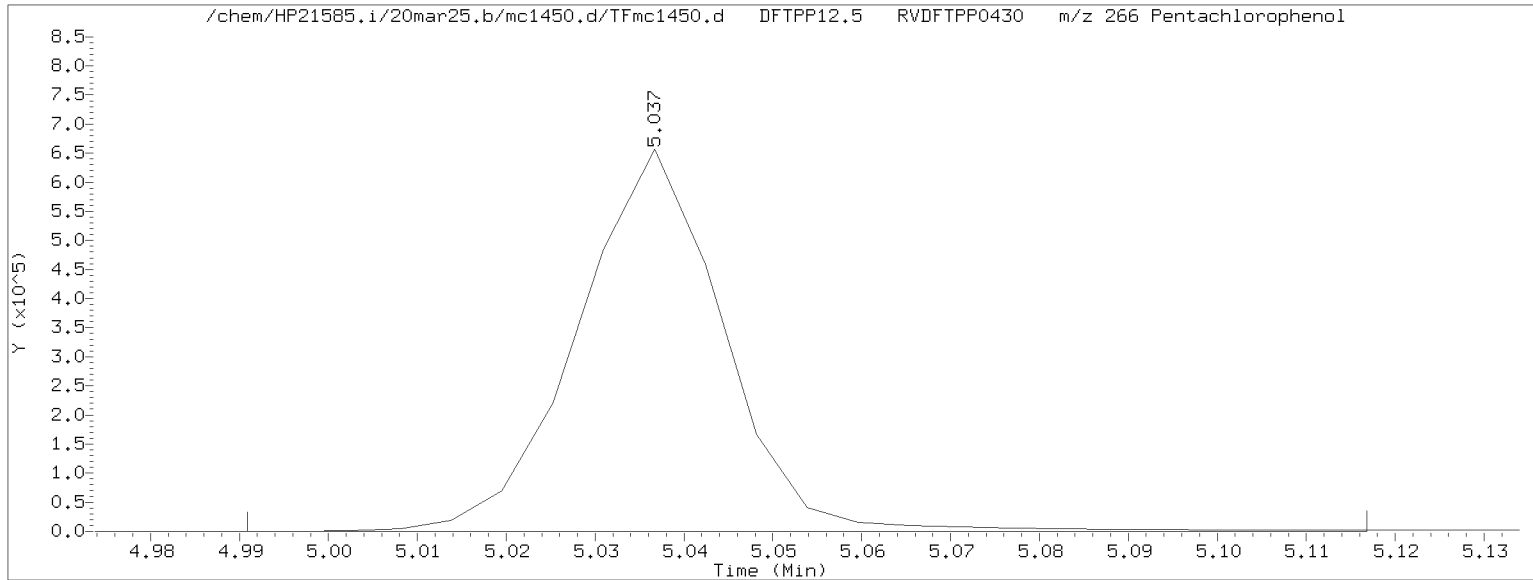
Location of Maximum: 198,00

Number of points: 337

m/z	Y	m/z	Y	m/z	Y	m/z	Y
121,00	543	207,00	22232	296,00	44904	433,00	143
122,00	6510	208,00	6191	297,00	6057	434,00	92
123,00	9435	209,00	2081	298,00	480	435,00	188
124,00	4174	210,00	1765	299,00	56	436,00	477
125,00	3906	211,00	6934	301,00	671	437,00	576
126,00	2041	212,00	533	302,00	716	438,00	185
127,00	320000	213,00	548	303,00	4871	439,00	1209
128,00	25344	214,00	196	304,00	1253	441,00	69520
129,00	121296	215,00	2181	305,00	158	442,00	435648
130,00	10912	216,00	3809	308,00	776	443,00	84920
131,00	1889	217,00	47480	309,00	376	444,00	7431
132,00	1032	218,00	5852	310,00	595	445,00	538
133,00	286	219,00	786	311,00	110		
134,00	3482	221,00	31672	312,00	179		
135,00	9818	222,00	3055	313,00	453		

Assessment of GC Column Performance and Injection Port Inertness for

Instrument ID: HP21585.i Injection Date: 25-MAR-2020 06:08 Operator: ceb05247



Pentachlorophenol EICP peak height = 657024 EICP peak height at 10% = 65702 Pentachlorophenol EICP area = 749445

Pentachlorophenol EICP peak apex (min.) = 5.037

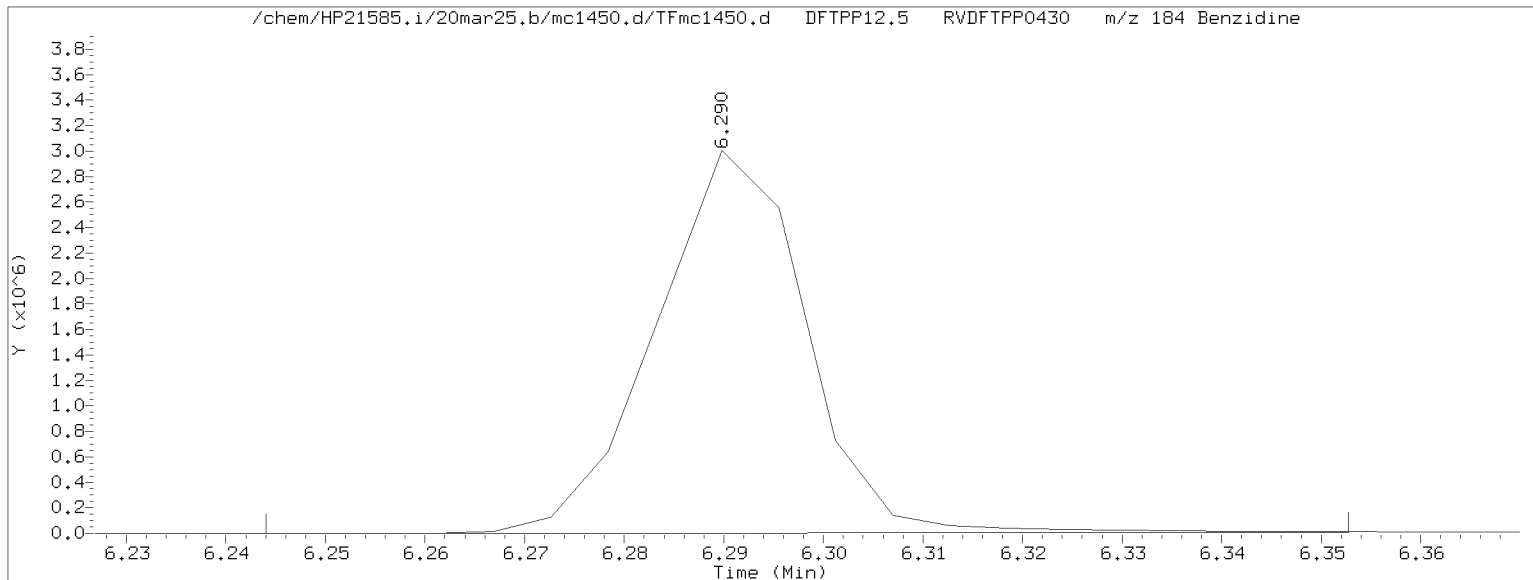
RT at 10% of front half of EICP (min.) = 5.019

RT at 10% of back half of EICP (min.) = 5.053

'Front' peak width (min.) = 0.0175166667

'Tailing' peak width (min.) = 0.0160166667

$$\text{PCP tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.0160166667}{0.0175166667} = 0.914$$



Benzidine EICP peak height = 2999782 EICP peak height at 10% = 299978 Benzidine EICP area = 3151808

Benzidine EICP peak apex (min.) = 6.290

RT at 10% of front half of EICP (min.) = 6.275

RT at 10% of back half of EICP (min.) = 6.305

'Front' peak width (min.) = 0.0151666667

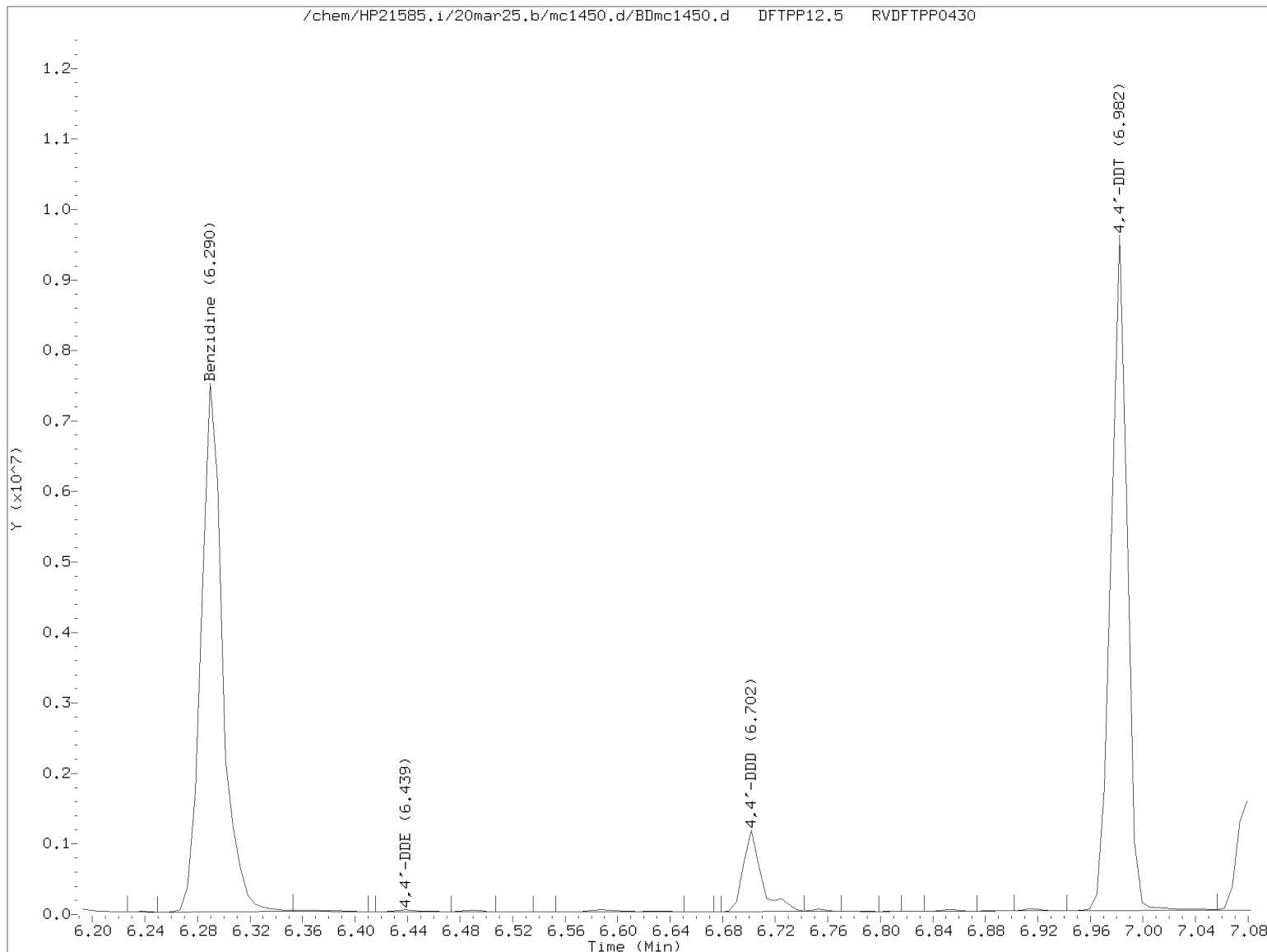
'Tailing' peak width (min.) = 0.0155666667

$$\text{Benzidine tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.0155666667}{0.0151666667} = 1.026$$

page 1 of 2
printed on 03/25/2020 at 06:27

Assessment of GC Column Performance and Injection Port Inertness for

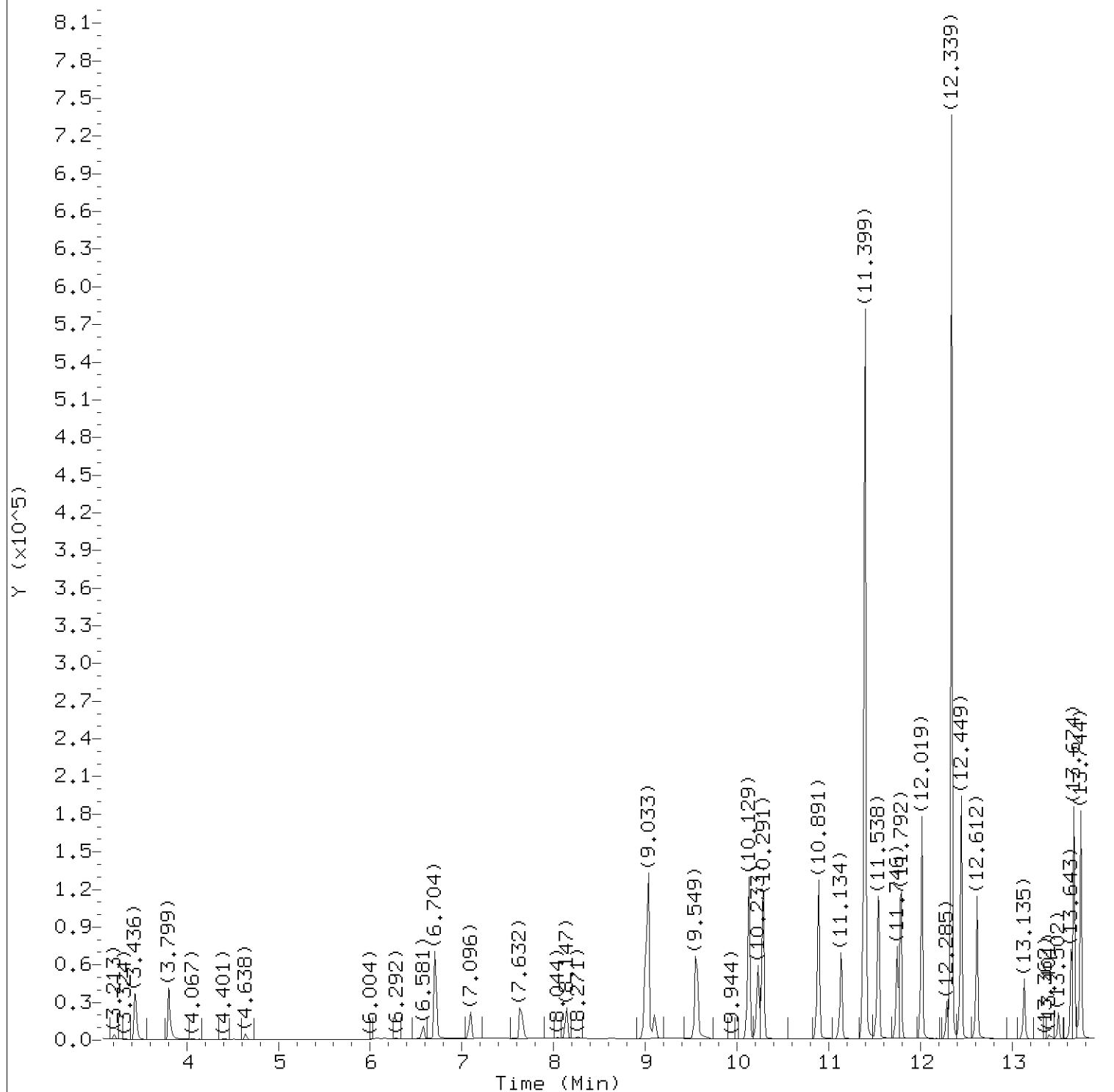
Instrument ID: HP21585.i Injection Date: 25-MAR-2020 06:08 Operator: ceb05247



$$\% \text{ 4,4'-DDT breakdown} = \frac{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area}}{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area} + 4,4'\text{-DDT TIC area}} \times 100$$

$$\% \text{ 4,4'-DDT breakdown} = \frac{28691 + 1130514}{28691 + 1130514 + 8342866} \times 100 = 12.2$$

page 2 of 2
printed on 03/25/2020 at 06:28



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1451.d
Injection date and time: 25-MAR-2020 06:24

Instrument ID: HP21585.i
Analyst ID: ceb05247

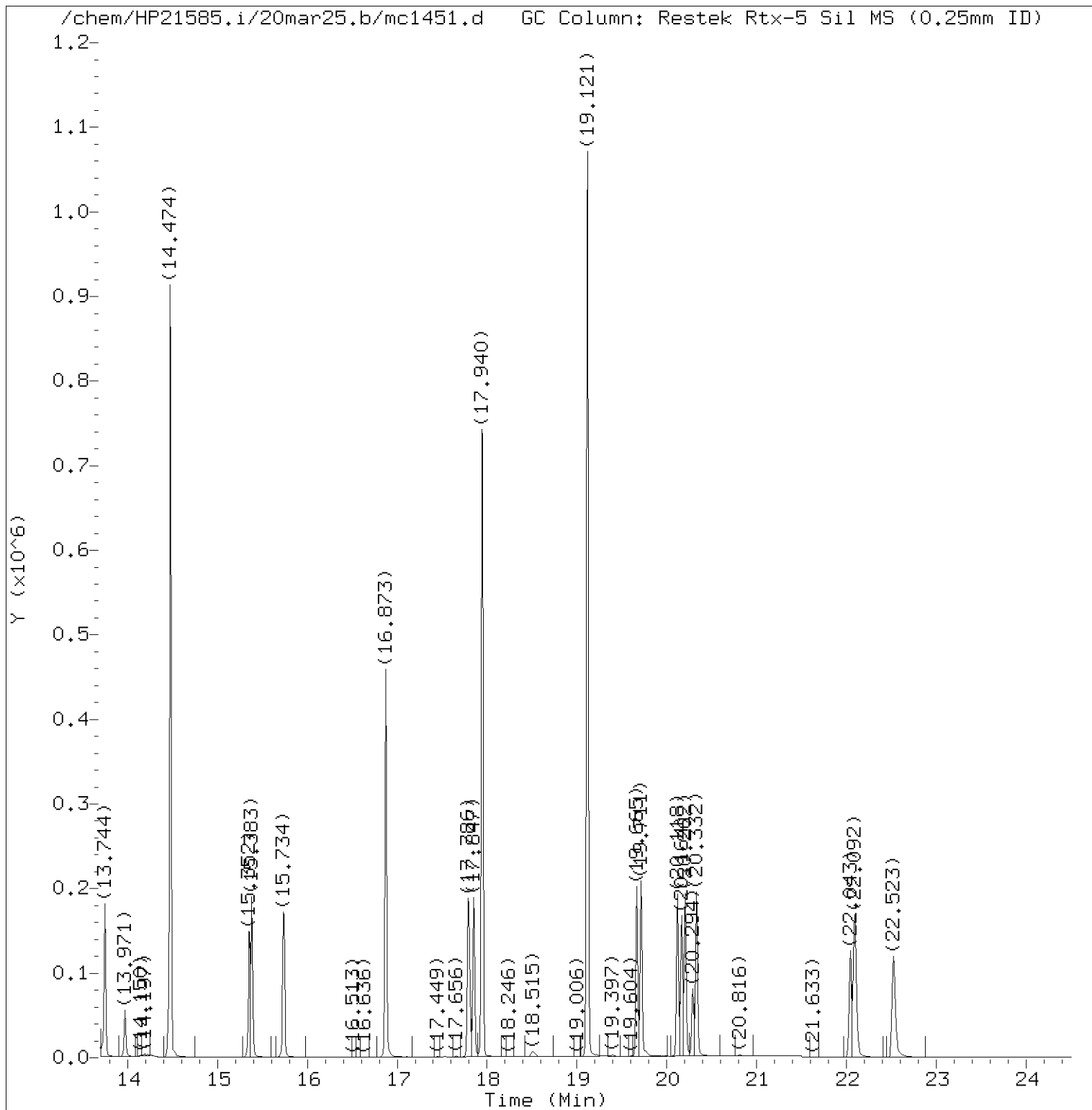
Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 07:03 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: SIM0750

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 07:04.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1451.d
Injection date and time: 25-MAR-2020 06:24

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 25-MAR-2020 07:03
Date, time and analyst ID of latest file update: 25-Mar-2020 07:03 jmg00346

Sample Name: SST0.50

Lab Sample ID: SIM0750

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 07:04.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1451.d
 Injection date and time: 25-MAR-2020 06:24

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 25-MAR-2020 07:03
 Date, time and analyst ID of latest file update: 25-Mar-2020 07:03 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.443	88	29909	0.497
2) N-Nitrosodimethylamine	(1)	3.807	74	43361	0.494
4) bis(2-Chloroethyl)ether	(2)	6.704	93	57499	0.444
5)*1,4-Dichlorobenzene-d4	(1)	7.096	152	22410	0.250
6)*Naphthalene-d8	(2)	8.992	136	73793	0.250
7) Naphthalene	(2)	9.033	128	191687	0.549
8) Quinoline	(2)	9.569	129	85395	0.525
9) 2-Methylnaphthalene	(2)	10.129	142	119162	0.550
10)\$1-Methylnaphthalene-d10	(2)	10.233	152	89892	0.595
11) 1-Methylnaphthalene	(2)	10.291	142	117220	0.573
12) Dimethylphthalate	(3)	11.399	163	636812	2.266
13) Acenaphthylene	(3)	11.549	152	187937	0.459
14)*Acenaphthene-d10	(3)	11.746	164	38557	0.250
15) Acenaphthene	(3)	11.792	154	107694	0.472
16) Dibenzofuran	(3)	12.019	168	199688	0.465
17) Diethylphthalate	(3)	12.339	149	622193	2.224
18) Fluorene	(3)	12.449	166	134080	0.464
43) N-Nitrosodiphenylamine	(4)	12.612	169	79147	0.527
19) Hexachlorobenzene	(4)	13.135	284	46113	0.445
20)*Phenanthrene-d10	(4)	13.643	188	80072	0.250
21) Phenanthrene	(4)	13.674	178	196785	0.474
22) Anthracene	(4)	13.744	178	199230	0.511
23) Di-n-butylphthalate	(4)	14.474	149	1080707	2.484
24)\$Fluoranthene-d10	(4)	15.352	212	189530	0.560
25) Fluoranthene	(4)	15.383	202	239125	0.523
26) Pyrene	(5)	15.741	202	243725	0.421
27) Butylbenzylphthalate	(5)	16.873	149	507351	2.420
28) Benzo(a)anthracene	(5)	17.786	228	221599	0.453
29)*Chrysene-d12	(5)	17.801	240	80767	0.250
30) Chrysene	(5)	17.847	228	242214	0.478
31) bis(2-Ethylhexyl)phthalate	(5)	17.940	149	763175	2.477
32) Di-n-octylphthalate	(6)	19.121	149	1349708	1.870
33) Benzo(b)fluoranthene	(6)	19.665	252	249132	0.478
34) Benzo(k)fluoranthene	(6)	19.711	252	268734	0.494
35) Benzo(e)pyrene	(6)	20.118	252	242781	0.491
36)\$Benzo(a)pyrene-d12	(6)	20.164	264	193113	0.556
37) Benzo(a)pyrene	(6)	20.202	252	246733	0.498
38)*Perylene-d12	(6)	20.294	264	92235	0.250
45) Perylene	(6)	20.332	252	250549	0.475
39) Indeno(1,2,3-cd)pyrene	(6)	22.043	276	223544M	0.505

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/25/2020 at 07:04.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar25.b/mc1451.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 06:24

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 25-MAR-2020 07:03

Date, time and analyst ID of latest file update: 25-Mar-2020 07:03 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

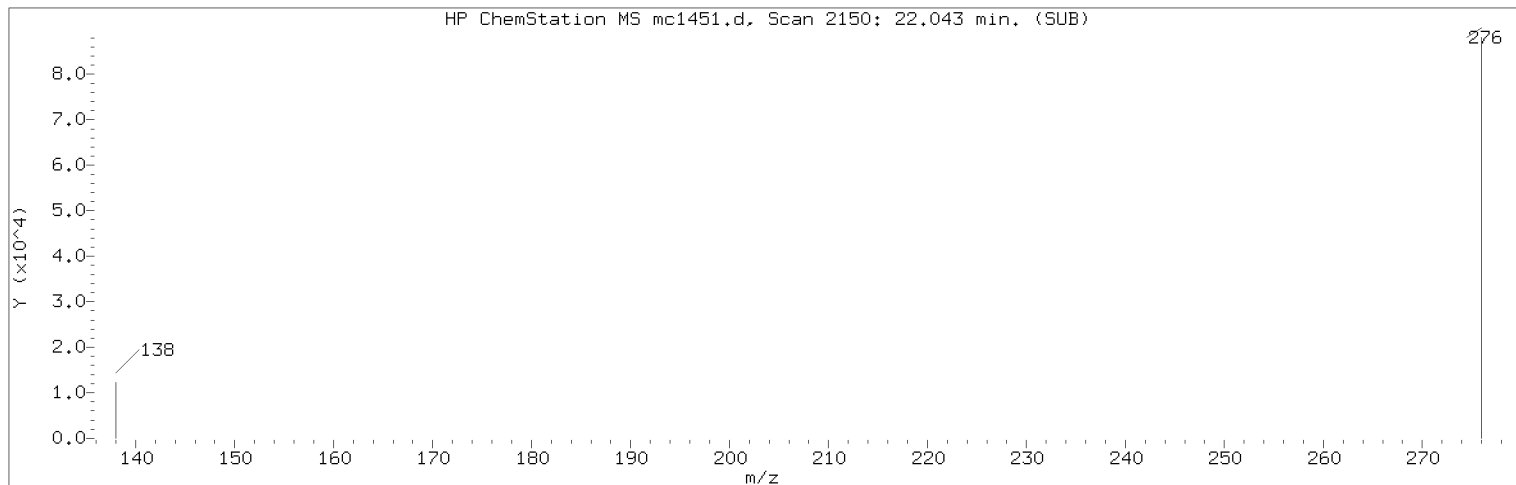
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.092	278	258269	0.517
41) Benzo(g,h,i)perylene	(6)	22.523	276	257621	0.493

Digitally signed by Joseph M. Gambler

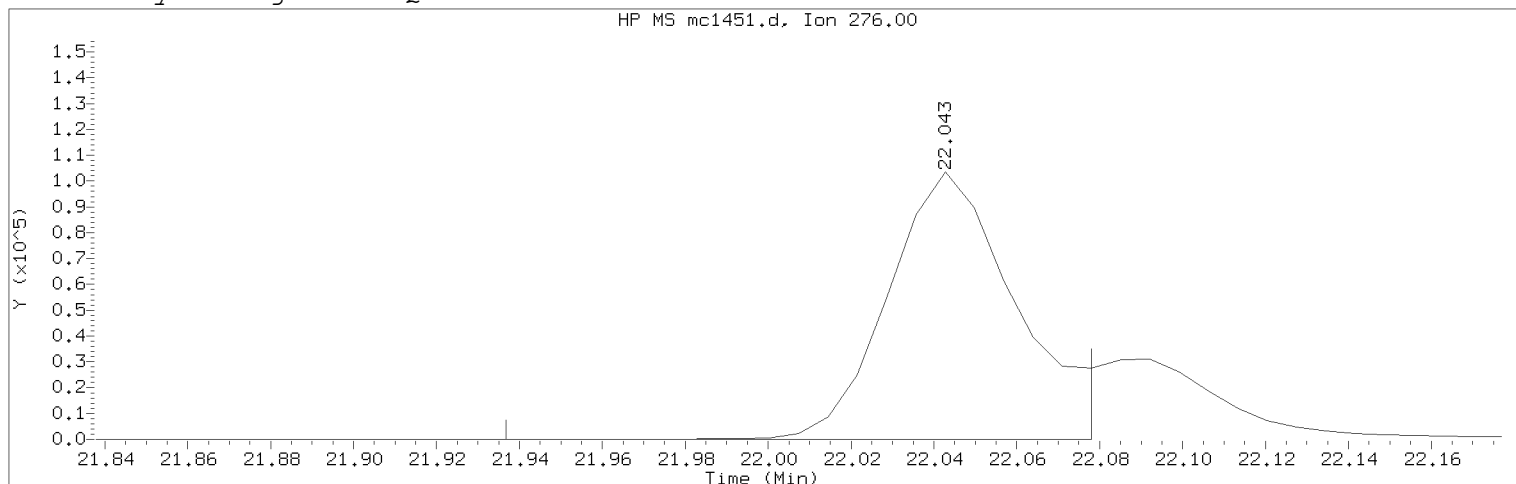
on 03/25/2020 at 07:04.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar25.b/mc1451.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 06:24

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 25-MAR-2020 07:03

Date, time and analyst ID of latest file update: 25-Mar-2020 07:03 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compound Number : 39

Compound Name : Indeno(1,2,3-cd)pyrene

Scan Number : 2150

Retention Time (minutes) : 22.043

Quant Ion : 276.00

Area (flag) : 223544M

On-Column Amount (ng/ul) : 0.5049

Integration start scan : 2134 Integration stop scan: 2154

Y at integration start : 72 Y at integration end: 72

Reason for manual integration: improper integration

Analyst responsible for change:

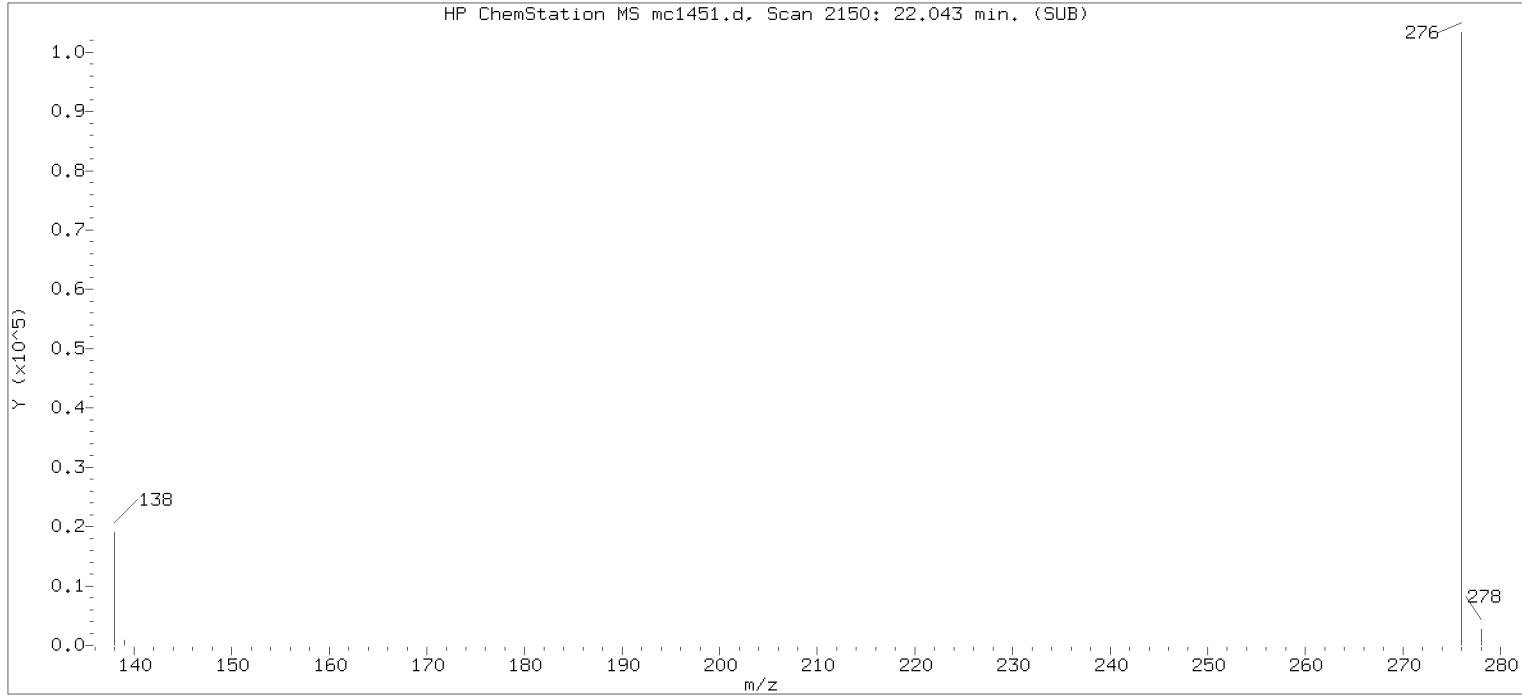
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 07:04.

Target 3.5 esignature user ID: jmg00346

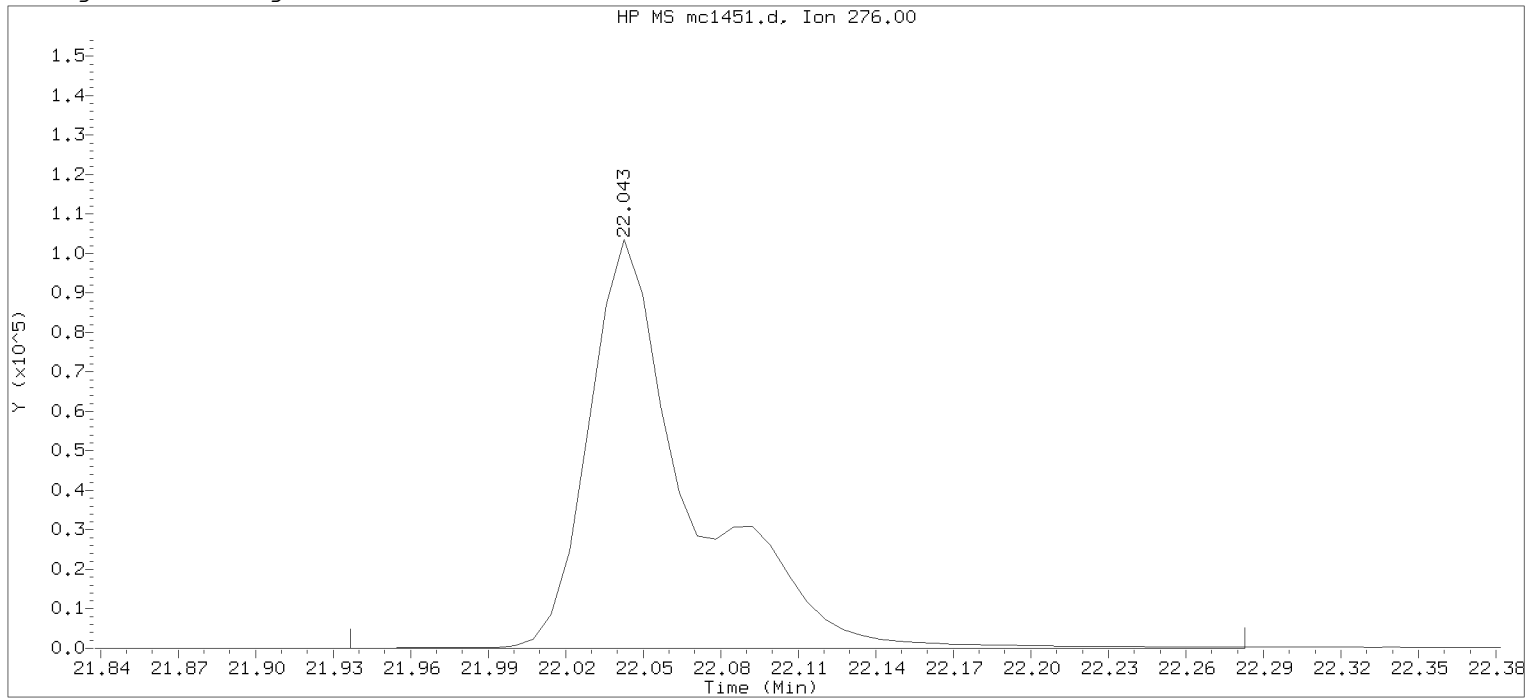
Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 08:51.

PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar25.b/mc1451.d

Instrument ID: HP21585.i

Injection date and time: 25-MAR-2020 06:24

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar25.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 25-MAR-2020 06:59

Date, time and analyst ID of latest file update: 25-Mar-2020 06:59 Unknown

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2150	
Retention Time (minutes)	: 22.043	
Quant Ion	: 276.00	
Area	: 286017	
On-column Amount (ng/ul)	: 0.6460	
Integration start scan	: 2134	Integration stop scan: 2183
Y at integration start	: 72	Y at integration end: 72

Digitally signed by Joseph M. Gambler on 03/25/2020 at 07:04.

Target 3.5 esignature user GPV67j Page 568 of 609

Raw QC Data

Semivolatiles by GC/MS-SIM

SBLKWF083 Lancaster Laboratories, Inc. SBLKWF083

Analysis Summary for GC/MS Semivolatiles

Data file: /chem/HP21585.i/20mar24.b/mc1402.d Injection date and time: **24-MAR-2020 18:54**
 Data file Sample Info. Line: SBLKWF083;SBLKWF083;1;3;BLANK;; Instrument ID: **HP21585.i** Batch: **20083WAF**
 Date, time and analyst ID of latest file update: 30-Mar-2020 14:41 apb10206

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **083WAF**
 Calibration date and time (Last Method Edit): 30-MAR-2020 14:33
 Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
 Sample Volume (Vo): 250 ml Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	22681 (-1)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	76001 (0)	0.25	
14) Acenaphthene-d10	11.745 (0.000)	750	164	35550 (-6)	0.25	
20) Phenanthrene-d10	13.650 (0.000)	984	188	74094 (-7)	0.25	
29) Chrysene-d12	17.809 (0.000)	1592	240	69941 (-17)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	84041 (-11)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.
10) 1-Methylnaphthalene-d10	(2)	10.233 (0.000)	152	27756	0.178	71%
24) Fluoranthene-d10	(4)	15.358 (0.000)	212	73651	0.235	94%
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	64540	0.204	82%

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
1) 1,4-Dioxane	(1)			Not Detected					0.03
7) Naphthalene	(2)			Not Detected					0.008
9) 2-Methylnaphthalene	(2)			Not Detected					0.005
11) 1-Methylnaphthalene	(2)	10.291 (0.000)	142	665M	0.003	0.01			0.003
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenzo (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

M = Compound was manually integrated.

Data file: /chem/HP21585.i/20mar24.b/mc1402.d Injection date and time: **24-MAR-2020 18:54**
Data file Sample Info. Line: SBLKWF083;SBLKWF083;1;3;BLANK;; Instrument ID: **HP21585.i** Batch: **20083WAF**
Date, time and analyst ID of latest file update: 30-Mar-2020 14:41 apb10206

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **083WAF**
Calibration date and time (Last Method Edit): 30-MAR-2020 14:33
Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

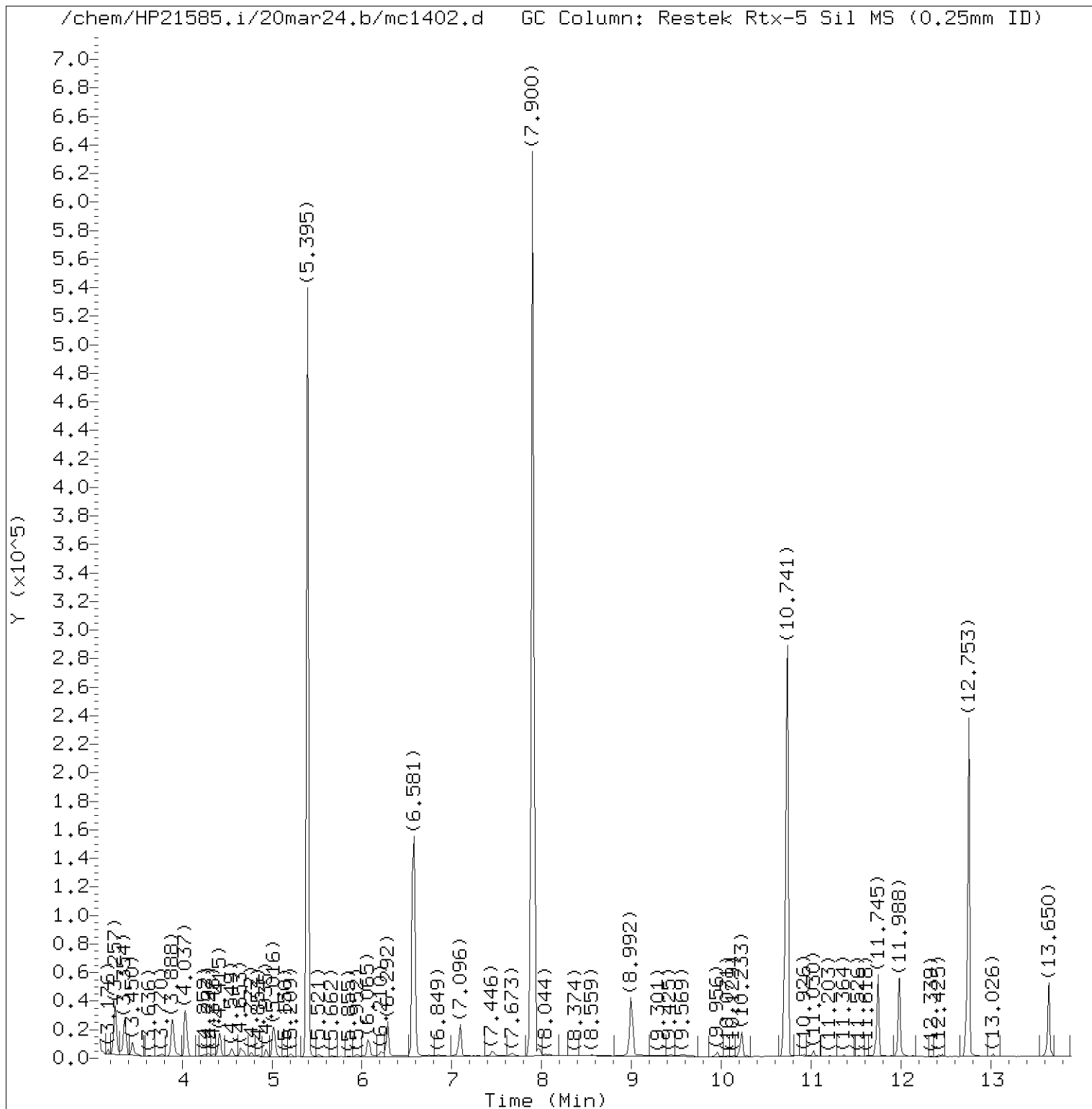
Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

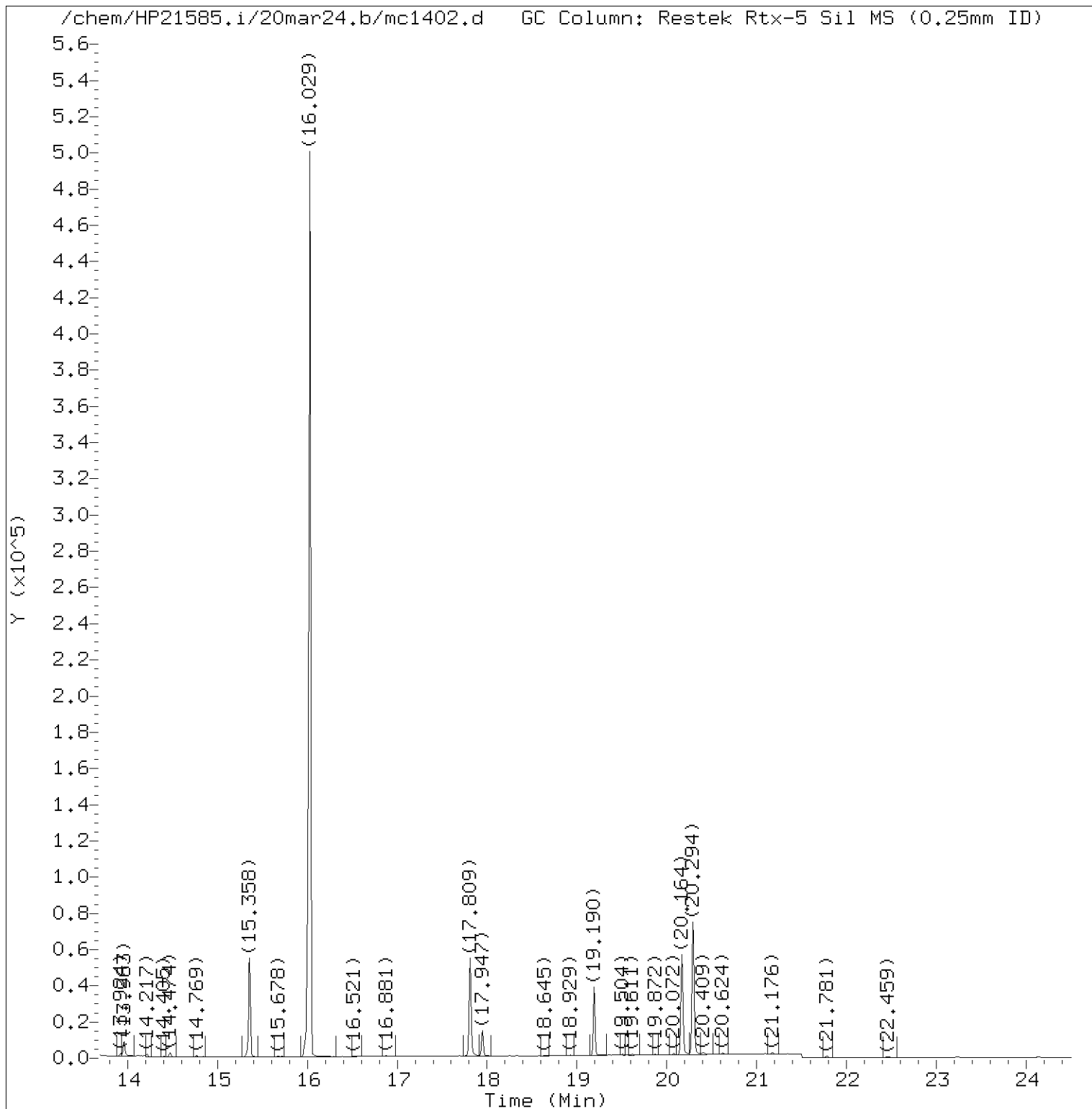
Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
Sample Volume (Vo): 250 ml Volume Injected (Vi): 2 ul

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Total number of targets = 19

Digitally signed by Anthony P. Bauer on 03/30/2020 at 14:45. Target 3.5 esignature user ID: apb10206





Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1402.d
Injection date and time: 24-MAR-2020 18:54

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 083WAF
Calibration date and time: 30-MAR-2020 14:33
Date, time and analyst ID of latest file update: 30-Mar-2020 14:41 apb10206

Sample Name: SBLKWF083

Lab Sample ID: SBLKWF083

Digitally signed by Anthony P. Bauer
on 03/30/2020 at 14:45.

Target 3.5 esignature user ID: apb10206

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1402.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 18:54

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 30-MAR-2020 14:33

Date, time and analyst ID of latest file update: 30-Mar-2020 14:41 apb10206

Sample Name: SBLKWF083

Lab Sample ID: SBLKWF083

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	22681	0.250
6) *Naphthalene-d8	(2)	8.992	136	76001	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.233	152	27756	0.178
11) 1-Methylnaphthalene	(2)	10.291	142	665M	0.003
14) *Acenaphthene-d10	(3)	11.745	164	35550	0.250
20) *Phenanthrene-d10	(4)	13.650	188	74094	0.250
24) \$Fluoranthene-d10	(4)	15.358	212	73651	0.235
29) *Chrysene-d12	(5)	17.809	240	69941	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	64540	0.204
38) *Perylene-d12	(6)	20.294	264	84041	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Anthony P. Bauer

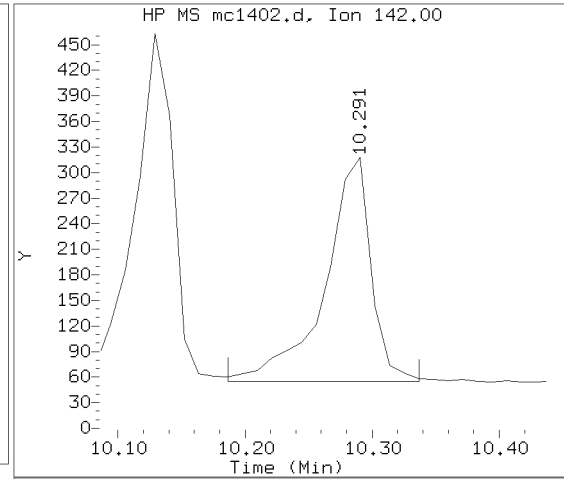
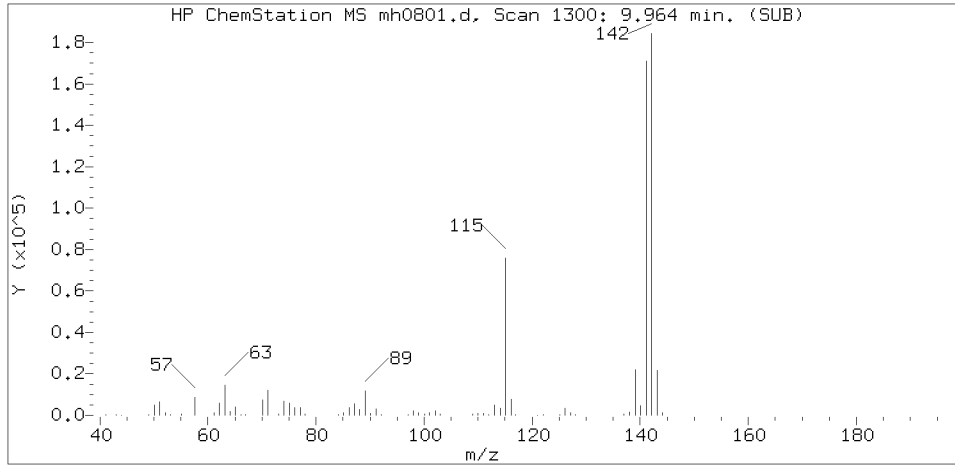
on 03/30/2020 at 14:45.

Target 3.5 esignature user ID: apb10206

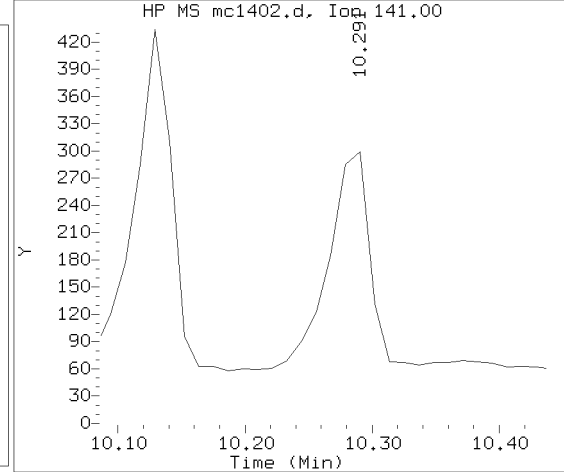
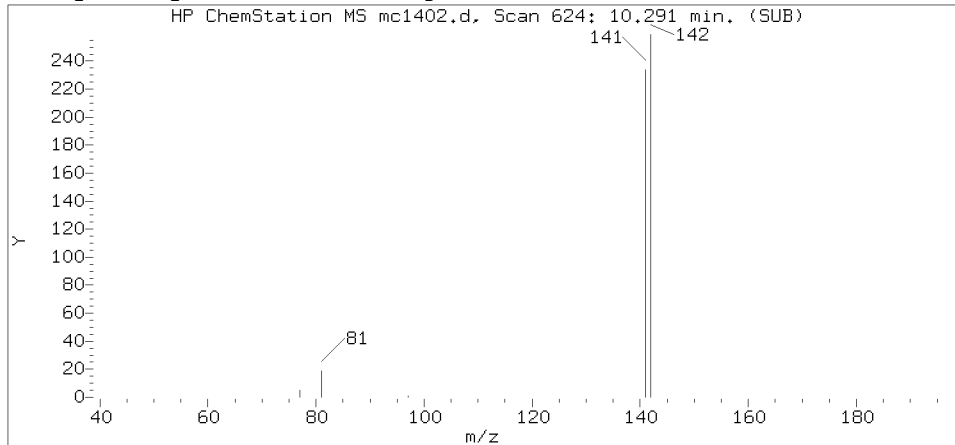
GPY67 Page 574 of 609

page 1 of 1

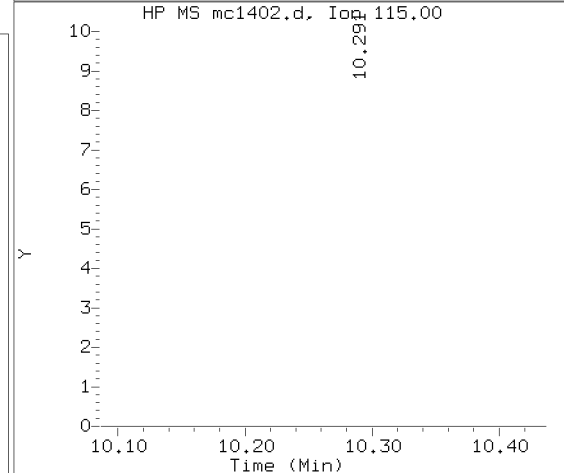
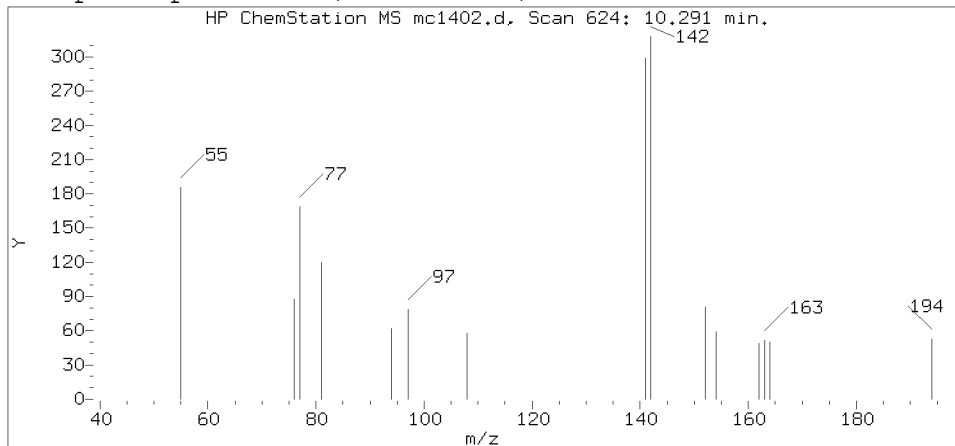
Reference Standard Spectrum for 1-Methylnaphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar24.b/mc1402.d
Injection date and time: 24-MAR-2020 18:54

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 083WAF
Calibration date and time: 30-MAR-2020 14:33
Date, time and analyst ID of latest file update: 30-Mar-2020 14:41 apb10206

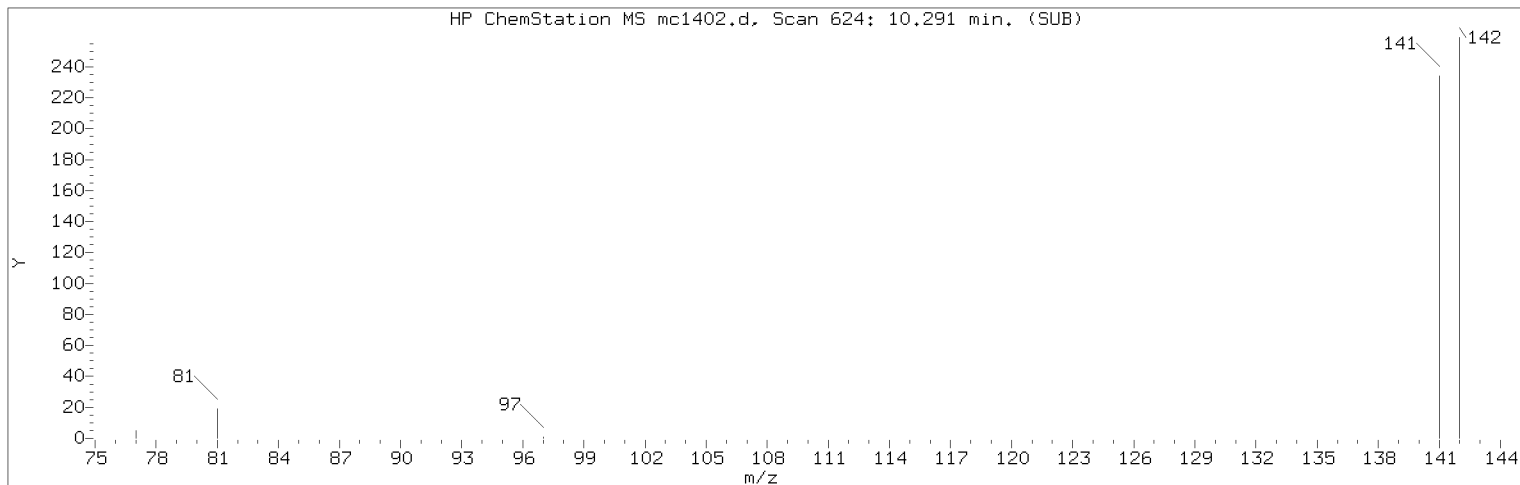
Sample Name: SBLKWF083

Lab Sample ID: SBLKWF083

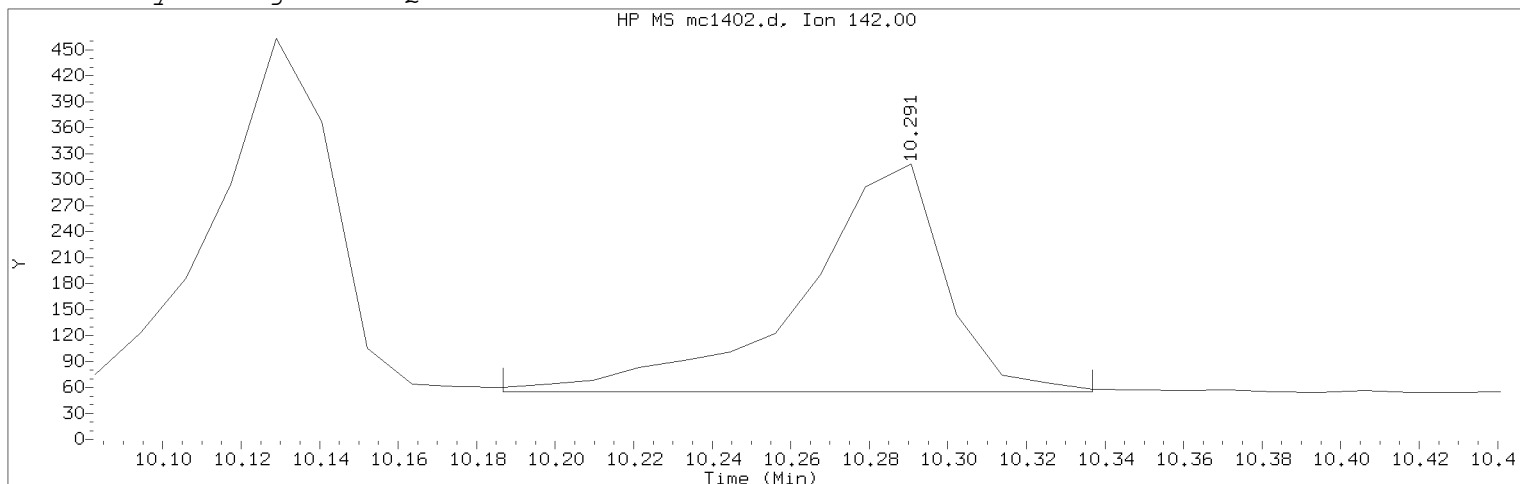
Compound Number : 11
Compound Name : 1-Methylnaphthalene
Scan Number : 624
Retention Time (minutes) : 10.291
Relative Retention Time : 0.00000
Quant Ion : 142.00
Area (flag) : 665M
On-column Amount (ng/ul) : 0.0032

Digitally signed by Anthony P. Bauer on 03/30/2020 at 14:45.
Target 3.5 esignature user: apb10206

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1402.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 18:54

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 30-MAR-2020 14:33

Date, time and analyst ID of latest file update: 30-Mar-2020 14:41 apb10206

Sample Name: SBLKWF083

Lab Sample ID: SBLKWF083

Compound Number	: 11	
Compound Name	: 1-Methylnaphthalene	
Scan Number	: 624	
Retention Time (minutes)	: 10.291	
Quant Ion	: 142.00	
Area (flag)	: 665M	
On-column Amount (ng/ul)	: 0.0032	
Integration start scan	: 614	Integration stop scan: 627
Y at integration start	: 55	Y at integration end: 55

Reason for manual integration: missed peak

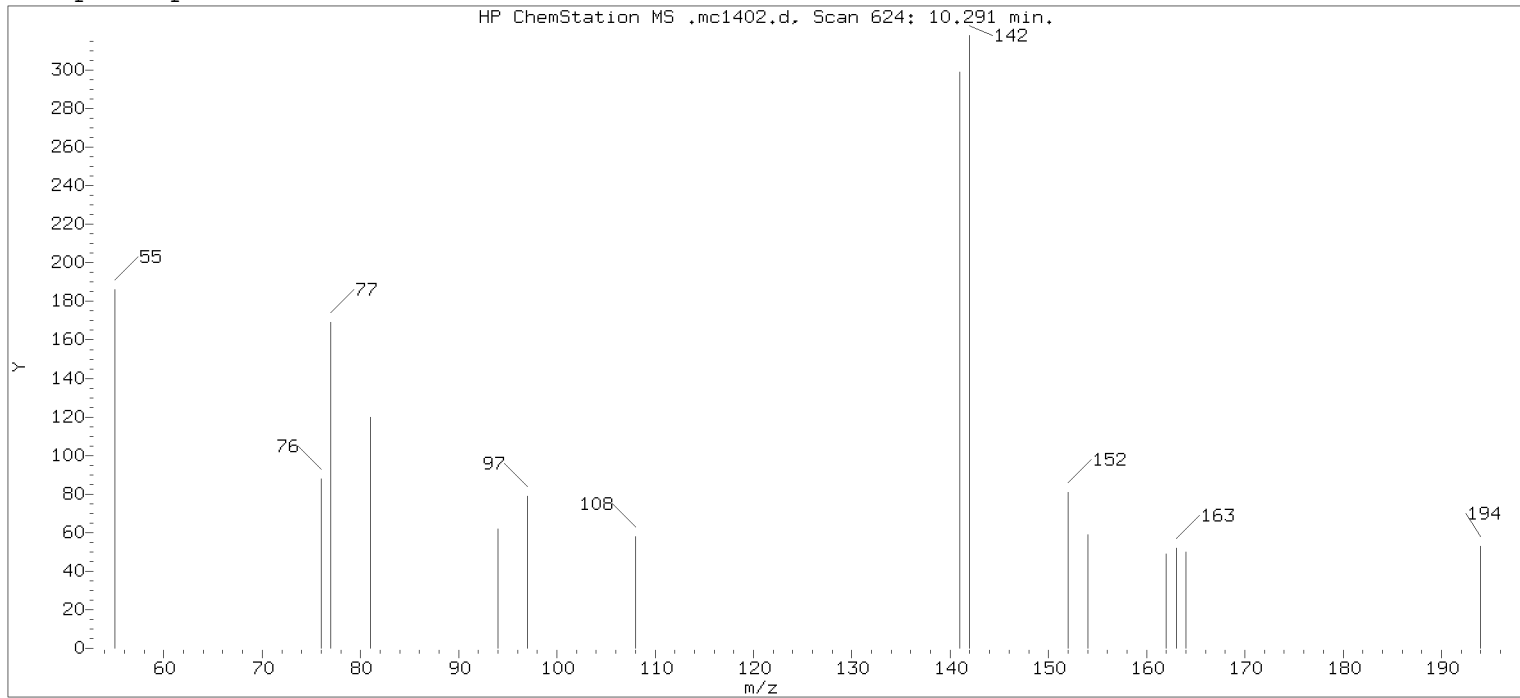
Analyst responsible for change:

Digitally signed by Anthony P. Bauer
on 03/30/2020 at 14:45.

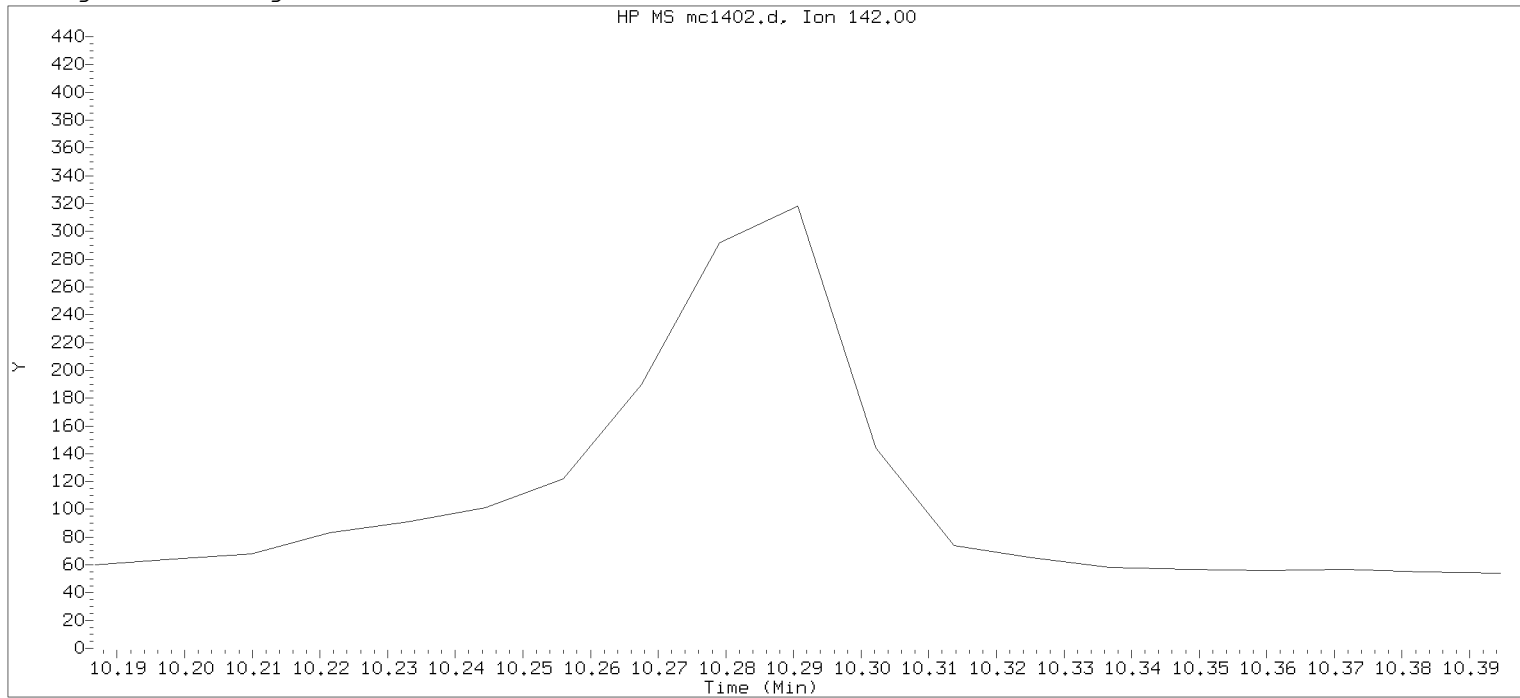
Target 3.5 esignature user ID: apb10206

Secondary review performed and digitally signed by Matthew E. Barton on 03/31/2020 at 08:13.
PARALLAX ID: reb00745

Sample Spectrum



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1402.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 18:54

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 24-Mar-2020 19:29 Unknown

Sample Name: SBLKWF083

Lab Sample ID: SBLKWF083

Compound Number : 11

Compound Name : 1-Methylnaphthalene

Expected RT (minutes) : 10.291

Quant Ion : 142.00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC09MS

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 1283818
 Sample wt/vol: 244 (g/mL)ML Lab File ID: mc1407.d
 Level: (low/med) LOW Date Received: 03/19/20
 % Moisture: not dec: dec: Date Extracted: 03/24/20
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/24/20
 Injection Volume: 2 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		0.7	
208-96-8-----	Acenaphthylene		0.5	
83-32-9-----	Acenaphthene		0.6	
86-73-7-----	Fluorene		0.6	
85-01-8-----	Phenanthrene		0.7	
120-12-7-----	Anthracene		0.7	
206-44-0-----	Fluoranthene		0.8	
129-00-0-----	Pyrene		0.6	
56-55-3-----	Benzo (a) anthracene		0.7	
218-01-9-----	Chrysene		0.8	
205-99-2-----	Benzo (b) fluoranthene		0.8	
207-08-9-----	Benzo (k) fluoranthene		0.8	
50-32-8-----	Benzo (a) pyrene		0.8	
193-39-5-----	Indeno (1,2,3-cd) pyrene		0.8	
53-70-3-----	Dibenz (a,h) anthracene		0.8	
191-24-2-----	Benzo (g,h,i) perylene		0.7	

FORM I SV-1

BAC09MS

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283818

Data file: /chem/HP21585.i/20mar24.b/mc1407.d

Injection date and time: 24-MAR-2020 21:26

Data file Sample Info. Line: BAC09MS;1283818;1;3;MS;;;T1

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 25-MAR-2020 10:03

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 244 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096(0.000)	447	152	22885 (0)	0.25	
6) Naphthalene-d8	8.992(0.000)	539	136	77363 (2)	0.25	
14) Acenaphthene-d10	11.746(0.000)	750	164	37055 (-2)	0.25	
20) Phenanthrene-d10	13.643(0.008)	983	188	73136 (-8)	0.25	
29) Chrysene-d12	17.801(0.008)	1591	240	70247 (-17)	0.25	
38) Perylene-d12	20.294(0.000)	1916	264	83119 (-12)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.222(0.001)	152	26568M	0.168	67%		15 - 121
24) Fluoranthene-d10	(4)	15.352(0.000)	212	58464	0.189	76%		34 - 125
36) Benzo(a)pyrene-d12	(6)	20.156(0.000)	264	56613	0.181	72%		10 - 138

M = Surrogate Standard was manually integrated.

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.033(0.000)	128	61911	0.169	0.69			0.008
13) Acenaphthylene	(3)	11.538(0.000)	152	51591	0.131	0.54			0.003
15) Acenaphthene	(3)	11.780(0.000)	154	34555	0.158	0.65			0.003
18) Fluorene	(3)	12.441(0.000)	166	43359	0.156	0.64			0.003
21) Phenanthrene	(4)	13.674(-0.000)	178	68255	0.180	0.74			0.008
22) Anthracene	(4)	13.744(-0.000)	178	63439	0.178	0.73			0.003
25) Fluoranthene	(4)	15.383(-0.000)	202	79442	0.190	0.78			0.003
26) Pyrene	(5)	15.734(-0.000)	202	79566	0.158	0.65			0.003
28) Benzo(a)anthracene	(5)	17.786(-0.000)	228	72203	0.170	0.70			0.003
30) Chrysene	(5)	17.847(-0.000)	228	83593	0.190	0.78			0.003
33) Benzo(b)fluoranthene	(6)	19.665(-0.000)	252	95043	0.202	0.83			0.003
34) Benzo(k)fluoranthene	(6)	19.711(-0.000)	252	94668	0.193	0.79			0.003
37) Benzo(a)pyrene	(6)	20.194(0.000)	252	87415	0.196	0.80			0.003
39) Indeno(1,2,3-cd)pyrene	(6)	22.036(0.000)	276	81003M	0.203	0.83			0.003
40) Dibenz(a,h)anthracene	(6)	22.085(0.000)	278	87087	0.193	0.79			0.005
41) Benzo(g,h,i)perylene	(6)	22.516(0.000)	276	83629	0.178	0.73			0.003

M = Compound was manually integrated.

BAC09MS

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1283818

Data file: /chem/HP21585.i/20mar24.b/mc1407.d

Injection date and time: **24-MAR-2020 21:26**

Data file Sample Info. Line: BAC09MS;1283818;1;3;MS;;;T1

Instrument ID: **HP21585.i** Batch: **20083WAF**

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 25-MAR-2020 10:03

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 244 ml

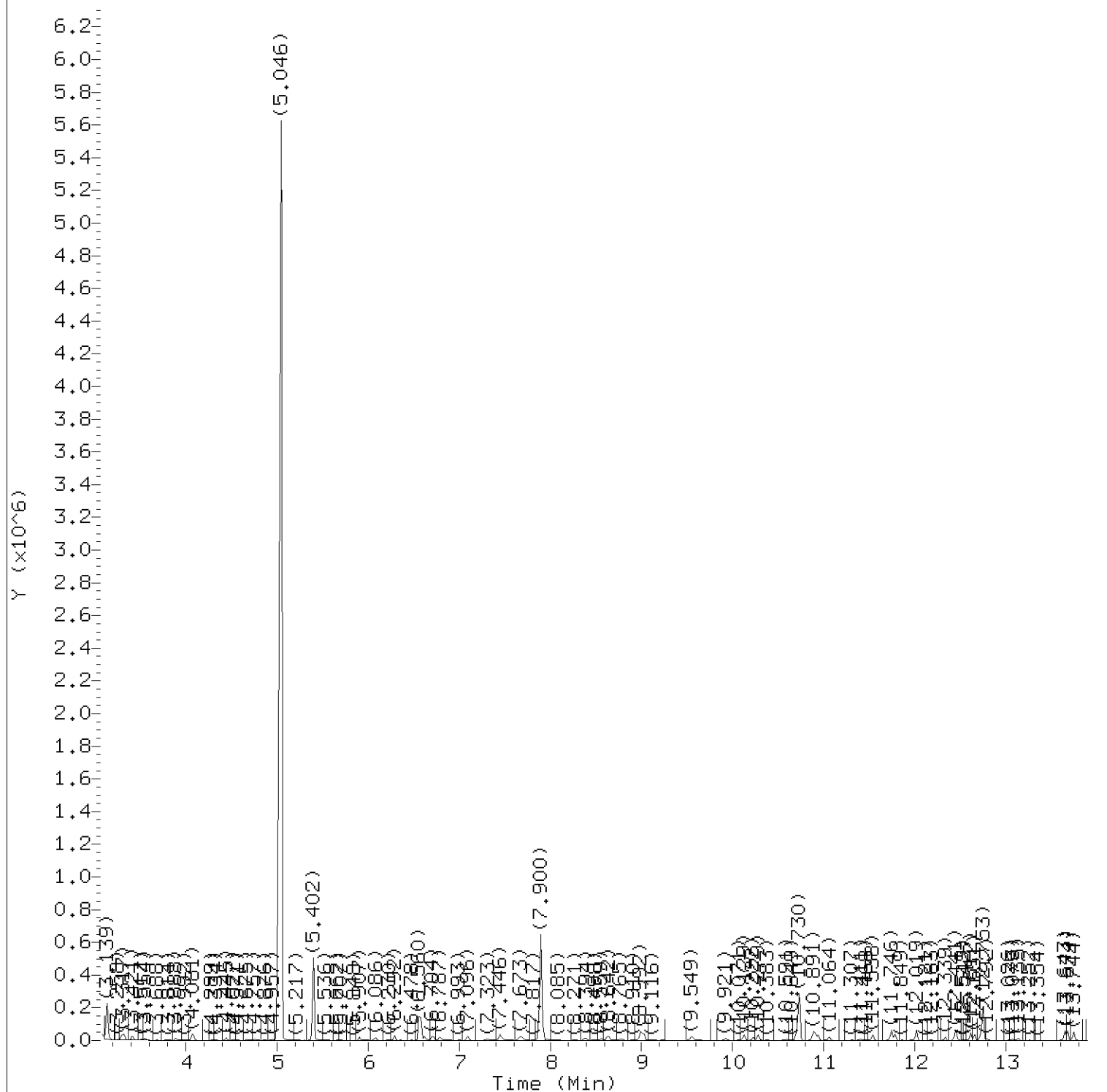
Volume Injected (Vi): 2 ul

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Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 10:11. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 10:22. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1407.d
Injection date and time: 24-MAR-2020 21:26

Instrument ID: HP21585.i
Analyst ID: ceb05247

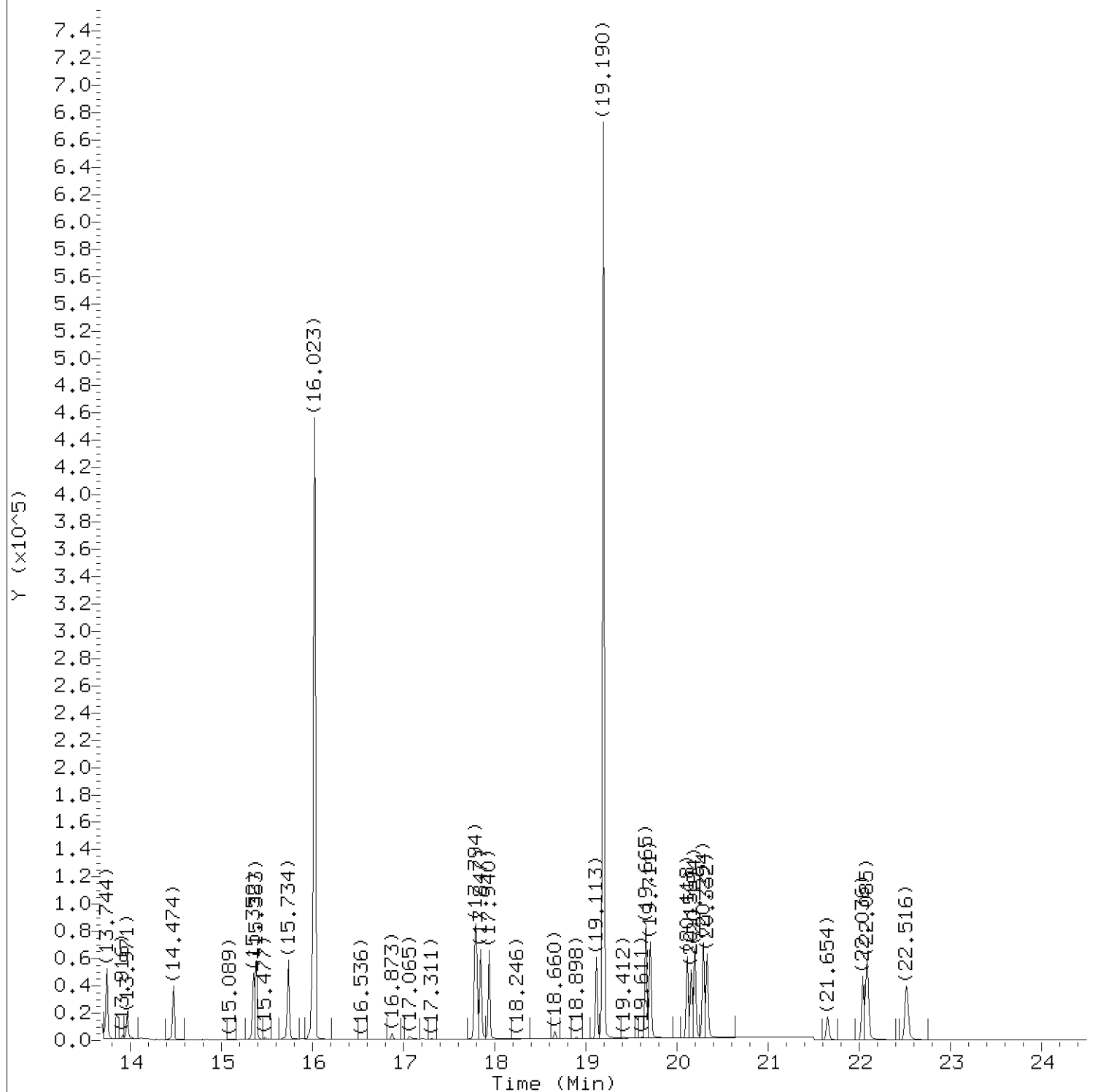
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 10:03
Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09MS

Lab Sample ID: 1283818

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 10:11.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1407.d
Injection date and time: 24-MAR-2020 21:26

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 10:03
Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09MS

Lab Sample ID: 1283818

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 10:11.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1407.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 21:26

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 10:03

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09MS

Lab Sample ID: 1283818

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	22885	0.250
6) *Naphthalene-d8	(2)	8.992	136	77363	0.250
7) Naphthalene	(2)	9.033	128	61911	0.169
10) \$1-Methylnaphthalene-d10	(2)	10.222	152	26568M	0.168
13) Acenaphthylene	(3)	11.538	152	51591	0.131
14) *Acenaphthene-d10	(3)	11.746	164	37055	0.250
15) Acenaphthene	(3)	11.780	154	34555	0.158
18) Fluorene	(3)	12.441	166	43359	0.156
20) *Phenanthrene-d10	(4)	13.643	188	73136	0.250
21) Phenanthrene	(4)	13.674	178	68255	0.180
22) Anthracene	(4)	13.744	178	63439	0.178
24) \$Fluoranthene-d10	(4)	15.352	212	58464	0.189
25) Fluoranthene	(4)	15.383	202	79442	0.190
26) Pyrene	(5)	15.734	202	79566	0.158
28) Benzo(a)anthracene	(5)	17.786	228	72203	0.170
29) *Chrysene-d12	(5)	17.801	240	70247	0.250
30) Chrysene	(5)	17.847	228	83593	0.190
33) Benzo(b)fluoranthene	(6)	19.665	252	95043	0.202
34) Benzo(k)fluoranthene	(6)	19.711	252	94668	0.193
36) \$Benzo(a)pyrene-d12	(6)	20.156	264	56613	0.181
37) Benzo(a)pyrene	(6)	20.194	252	87415	0.196
38) *Perylene-d12	(6)	20.294	264	83119	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.036	276	81003M	0.203
40) Dibenz(a,h)anthracene	(6)	22.085	278	87087	0.193
41) Benzo(g,h,i)perylene	(6)	22.516	276	83629	0.178

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

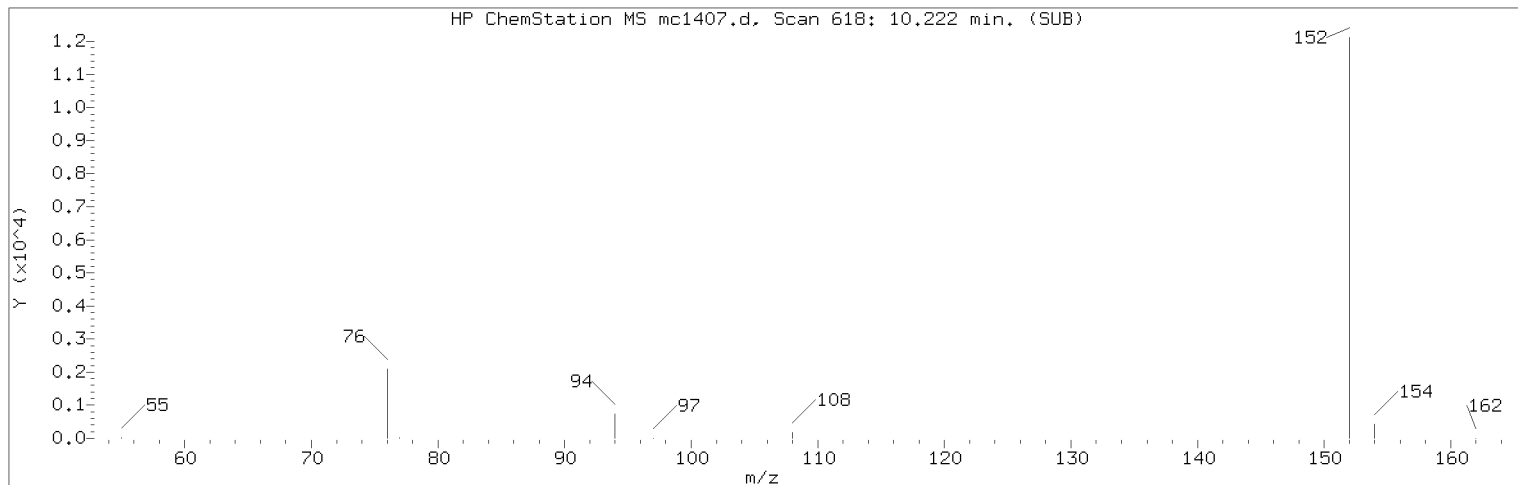
on 03/25/2020 at 10:11.

Target 3.5 esignature user ID: jmg00346

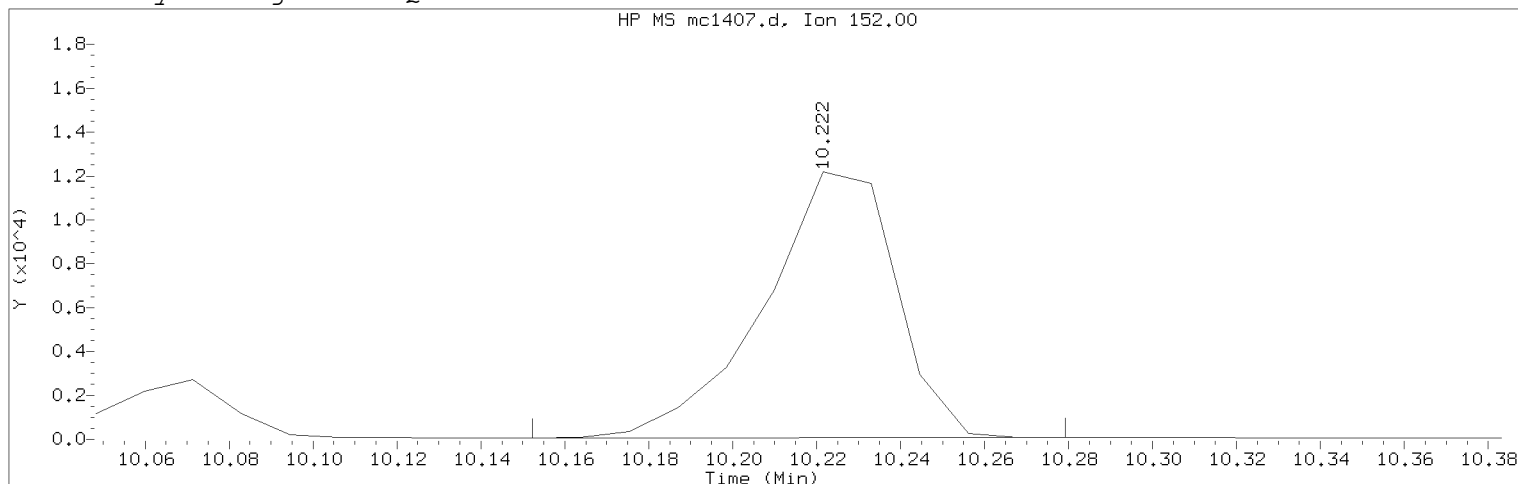
GPY67 Page 583 of 609

page 1 of 1

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1407.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 21:26

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 10:03

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09MS

Lab Sample ID: 1283818

Compound Number	: 10	
Compound Name	: 1-Methylnaphthalene-d10	
Scan Number	: 618	
Retention Time (minutes)	: 10.222	
Quant Ion	: 152.00	
Area (flag)	: 26568M	
On-Column Amount (ng/ul)	: 0.1677	
Integration start scan	: 611	Integration stop scan: 622
Y at integration start	: 66	Y at integration end: 89

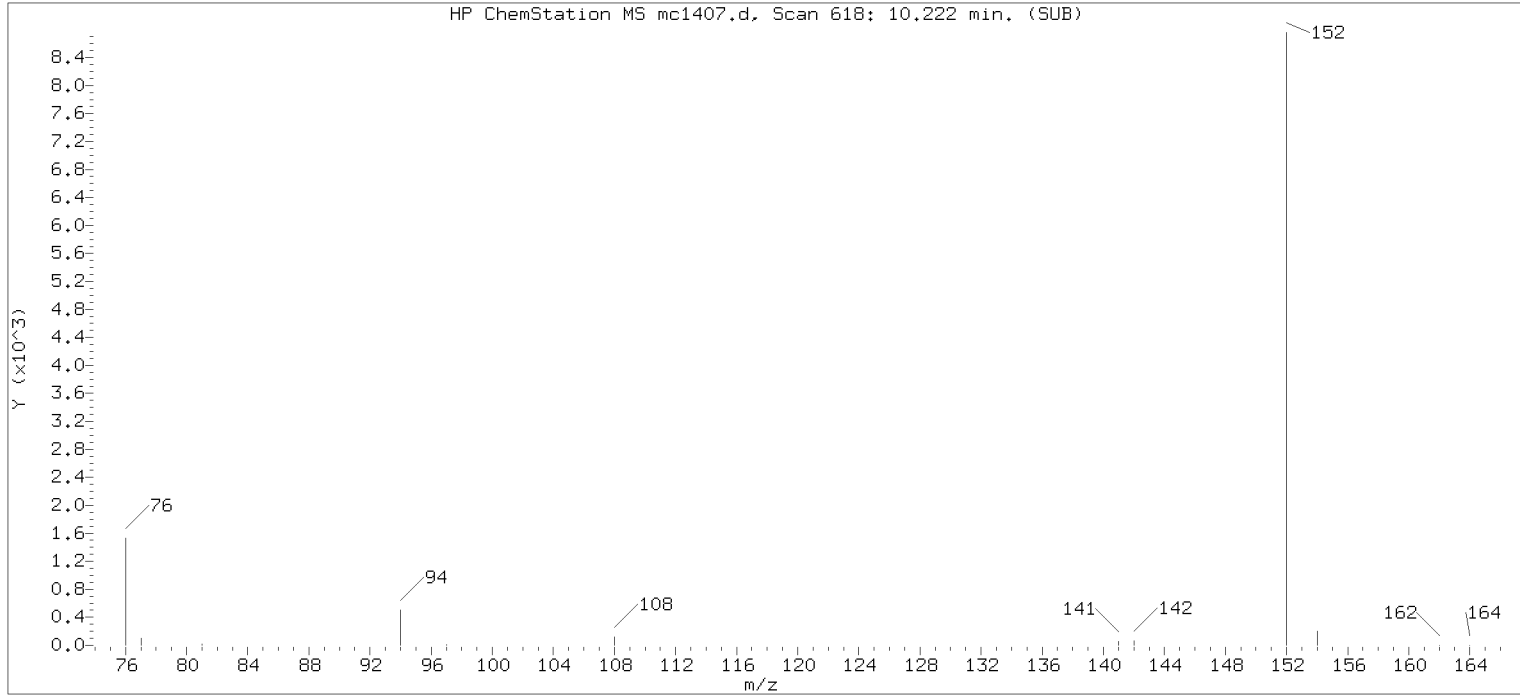
Reason for manual integration: improper integration

Analyst responsible for change:

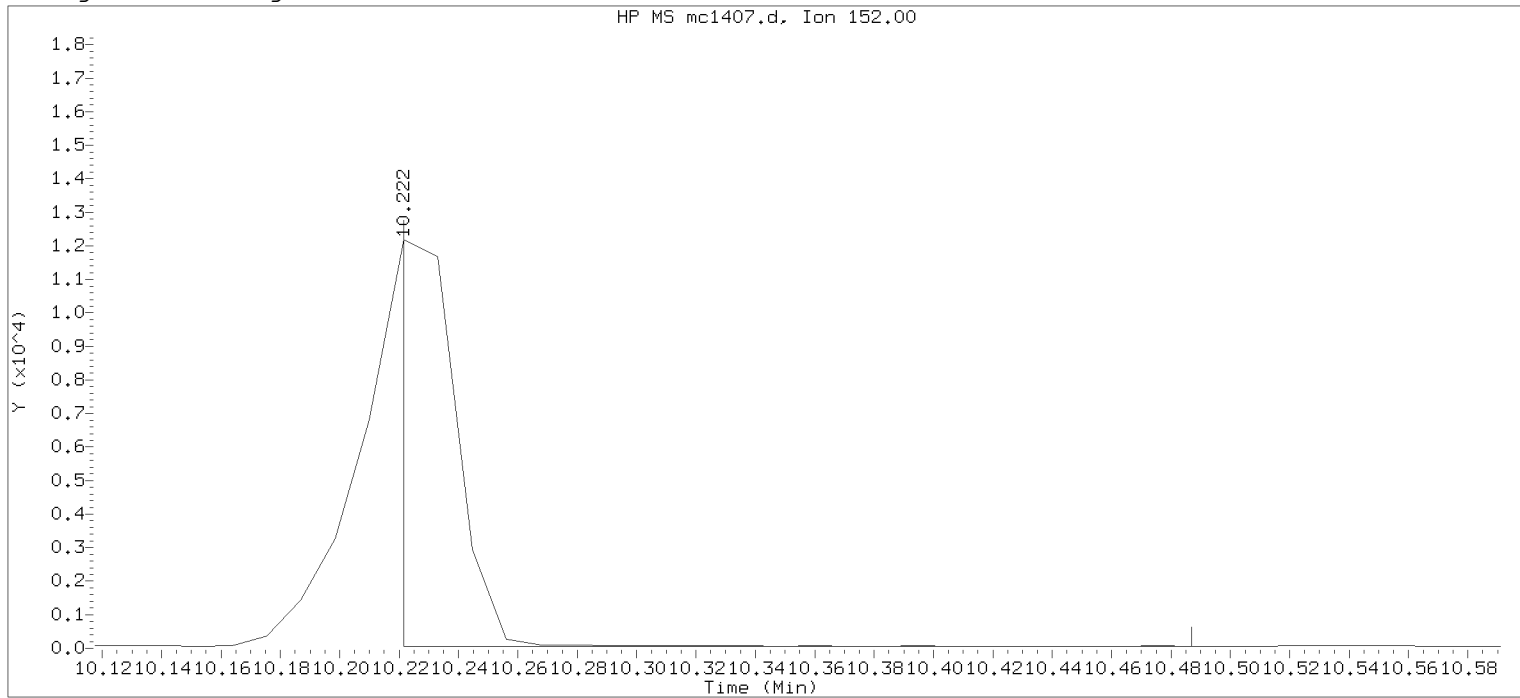
Digitally signed by Joseph M. Gambler
on 03/25/2020 at 10:11.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 10:22.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1407.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 21:26

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:28 jmg00346

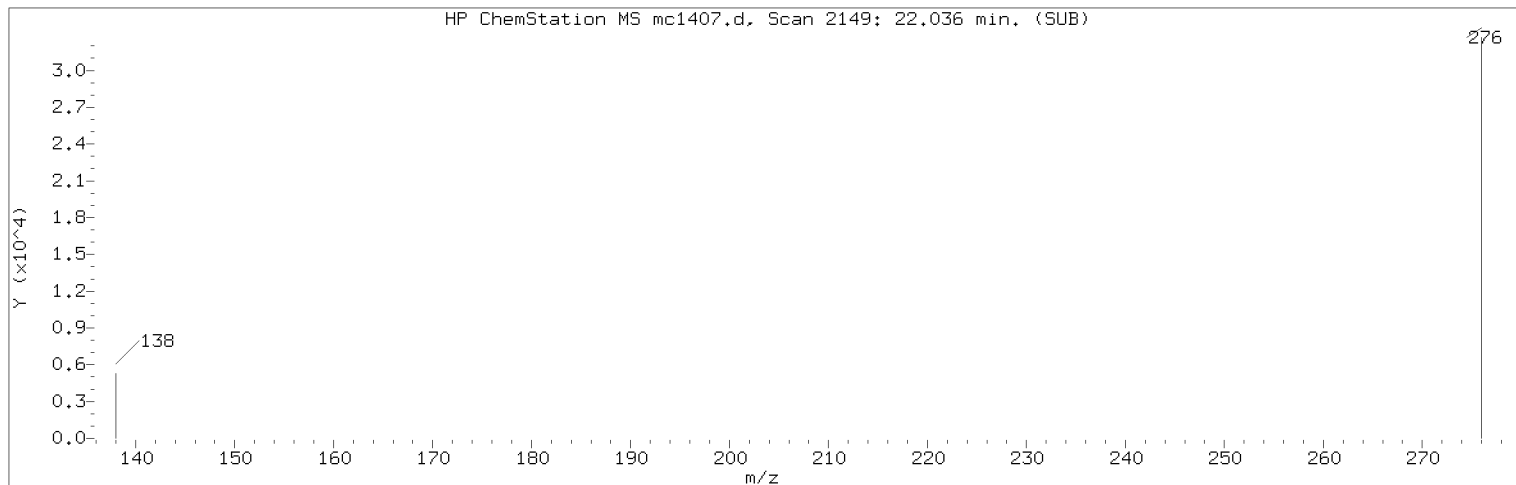
Sample Name: BAC09MS

Lab Sample ID: 1283818

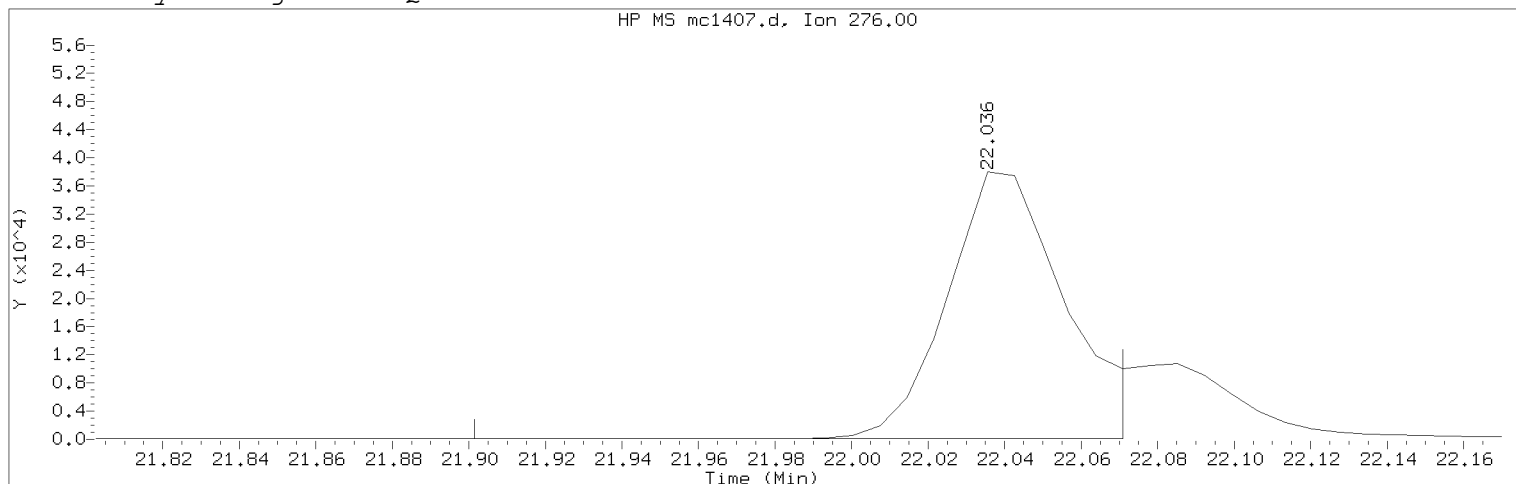
Compound Number	: 10	
Compound Name	: 1-Methylnaphthalene-d10	
Scan Number	: 618	
Retention Time (minutes)	: 10.222	
Quant Ion	: 152.00	
Area	: 14486	
On-column Amount (ng/ul)	: 0.0915	
Integration start scan	: 617	Integration stop scan: 640
Y at integration start	: 62	Y at integration end: 63

Digitally signed by Joseph M. Gambler on 03/25/2020 at 10:11.
Target 3.5 esignature user GPV67j Page 585 of 609

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1407.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 21:26

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 10:03

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09MS

Lab Sample ID: 1283818

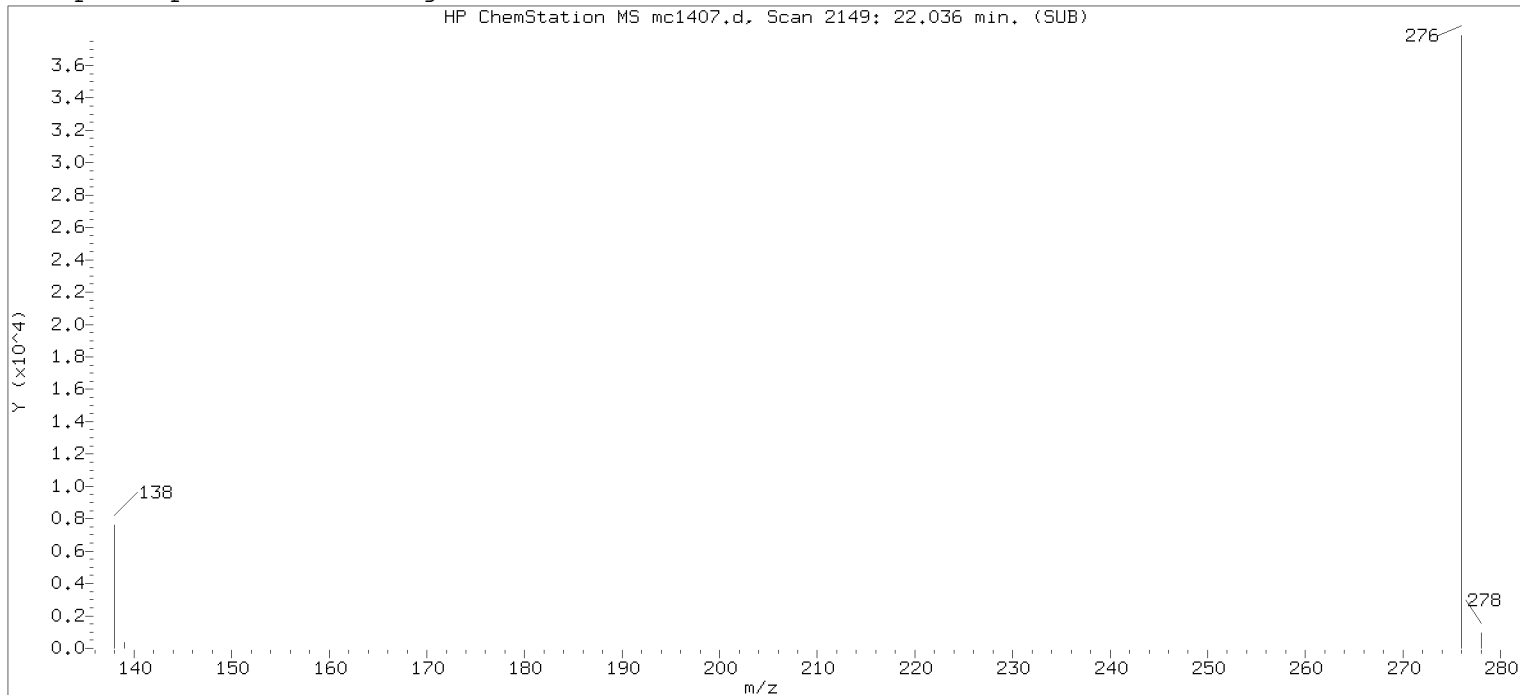
Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2149	
Retention Time (minutes)	: 22.036	
Quant Ion	: 276.00	
Area (flag)	: 81003M	
On-Column Amount (ng/ul)	: 0.2030	
Integration start scan	: 2129	Integration stop scan: 2153
Y at integration start	: 93	Y at integration end: 93

Reason for manual integration: improper integration

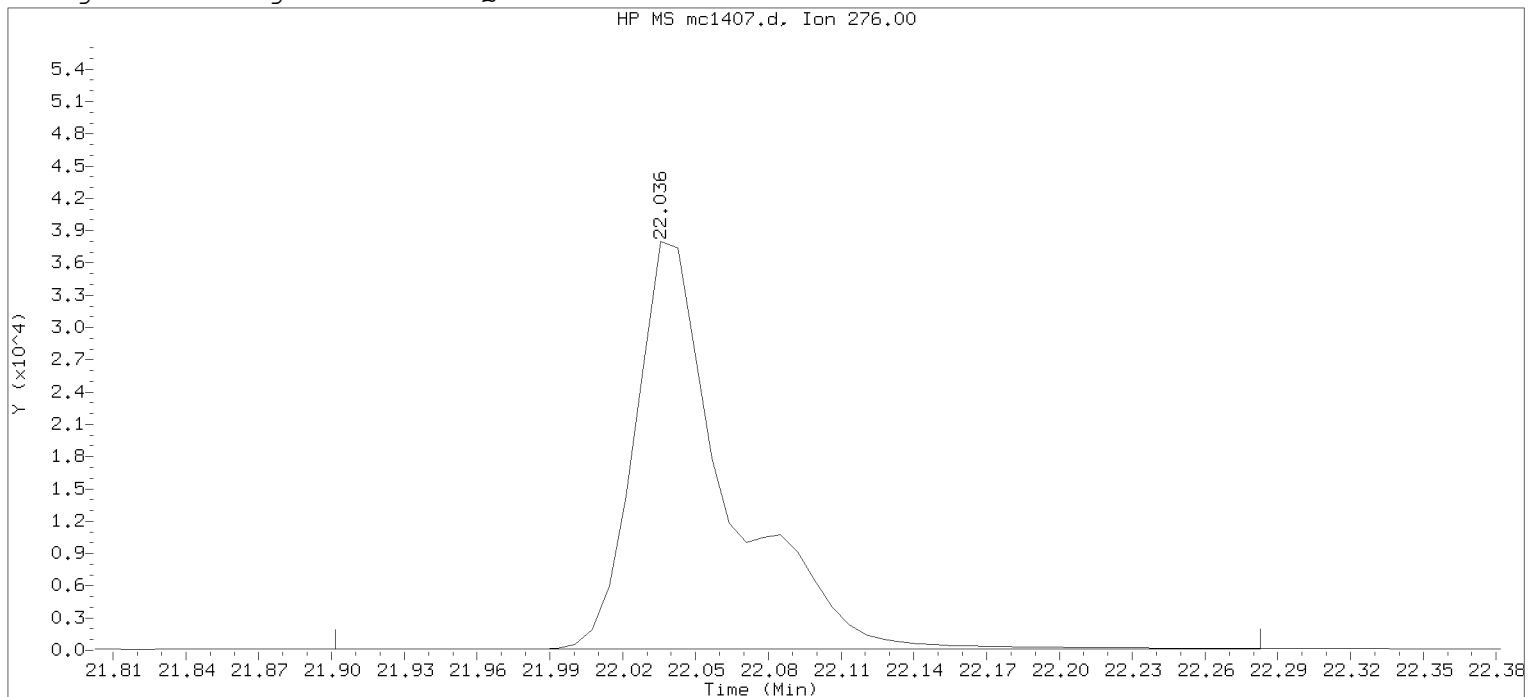
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/25/2020 at 10:11.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 10:22.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1407.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 21:26

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:28 jmg00346

Sample Name: BAC09MS

Lab Sample ID: 1283818

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2149	
Retention Time (minutes)	: 22.036	
Quant Ion	: 276.00	
Area	: 102014	
On-column Amount (ng/ul)	: 0.2557	
Integration start scan	: 2129	Integration stop scan: 2183
Y at integration start	: 93	Y at integration end: 93

Digitally signed by Joseph M. Gambler on 03/25/2020 at 10:11.

Target 3.5 esignature user GPV67j Page 587 of 609

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAC09MSD

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 1283819
 Sample wt/vol: 246 (g/mL)ML Lab File ID: mc1408.d
 Level: (low/med) LOW Date Received: 03/19/20
 % Moisture: not dec: dec: Date Extracted: 03/24/20
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/24/20
 Injection Volume: 2 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		0.7	
208-96-8-----	Acenaphthylene		0.6	
83-32-9-----	Acenaphthene		0.7	
86-73-7-----	Fluorene		0.7	
85-01-8-----	Phenanthrene		0.9	
120-12-7-----	Anthracene		0.8	
206-44-0-----	Fluoranthene		0.9	
129-00-0-----	Pyrene		0.7	
56-55-3-----	Benzo (a) anthracene		0.8	
218-01-9-----	Chrysene		0.8	
205-99-2-----	Benzo (b) fluoranthene		0.8	
207-08-9-----	Benzo (k) fluoranthene		0.8	
50-32-8-----	Benzo (a) pyrene		0.8	
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.7	
53-70-3-----	Dibenz (a,h) anthracene		0.7	
191-24-2-----	Benzo (g,h,i) perylene		0.6	

FORM I SV-1

Data file: /chem/HP21585.i/20mar24.b/mc1408.d
 Data file Sample Info. Line: BAC09MSD;1283819;1;3;MSD;;;T1
 Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Injection date and time: **24-MAR-2020 21:56**
 Instrument ID: **HP21585.i** Batch: **20083WAF**

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: **21331**

Calibration date and time (Last Method Edit): 25-MAR-2020 10:03

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
=====	=====	=====	=====	=====	=====	=====
5) 1,4-Dichlorobenzene-d4	7.096(0.000)	447	152	24437 (7)	0.25	
6) Naphthalene-d8	8.992(0.000)	539	136	82323 (9)	0.25	
14) Acenaphthene-d10	11.746(0.000)	750	164	38486 (2)	0.25	
20) Phenanthrene-d10	13.643(0.008)	983	188	78258 (-1)	0.25	
29) Chrysene-d12	17.802(0.008)	1591	240	76161 (-10)	0.25	
38) Perylene-d12	20.294(0.000)	1916	264	89834 (-5)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
=====	=====	=====	=====	=====	=====	=====	=====	=====
10) 1-Methylnaphthalene-d10	(2)	10.222(0.001)	152	31027	0.184	74%		15 - 121
24) Fluoranthene-d10	(4)	15.352(0.000)	212	73422	0.222	89%		34 - 125
36) Benzo(a)pyrene-d12	(6)	20.156(0.000)	264	60916	0.180	72%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
7) Naphthalene	(2)	9.033(-0.000)	128	68947	0.177	0.72			0.008
13) Acenaphthylene	(3)	11.538(0.000)	152	62159	0.152	0.62			0.003
15) Acenaphthene	(3)	11.780(0.000)	154	41684	0.183	0.74			0.003
18) Fluorene	(3)	12.441(0.000)	166	52974	0.184	0.75			0.003
21) Phenanthrene	(4)	13.674(-0.000)	178	85182	0.210	0.85			0.008
22) Anthracene	(4)	13.744(-0.000)	178	76498	0.201	0.82			0.003
25) Fluoranthene	(4)	15.383(-0.000)	202	98136	0.220	0.89			0.003
26) Pyrene	(5)	15.734(-0.000)	202	98919	0.181	0.74			0.003
28) Benzo(a)anthracene	(5)	17.786(-0.000)	228	88264	0.191	0.78			0.003
30) Chrysene	(5)	17.848(-0.000)	228	97210	0.203	0.83			0.003
33) Benzo(b)fluoranthene	(6)	19.665(0.000)	252	103299	0.204	0.83			0.003
34) Benzo(k)fluoranthene	(6)	19.711(0.000)	252	103757	0.196	0.80			0.003
37) Benzo(a)pyrene	(6)	20.194(0.000)	252	96541	0.200	0.81			0.003
39) Indeno(1,2,3-cd)pyrene	(6)	22.036(0.000)	276	75570M	0.175	0.71			0.003
40) Dibenz(a,h)anthracene	(6)	22.085(0.000)	278	79959	0.164	0.67			0.005
41) Benzo(g,h,i)perylene	(6)	22.516(0.000)	276	78822	0.155	0.63			0.003

M = Compound was manually integrated.

Data file: /chem/HP21585.i/20mar24.b/mc1408.d Injection date and time: **24-MAR-2020 21:56**
Data file Sample Info. Line: BAC09MSD;1283819;1;3;MSD;;;T1 Instrument ID: **HP21585.i** Batch: **20083WAF**
Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **21331**
Calibration date and time (Last Method Edit): 25-MAR-2020 10:03
Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

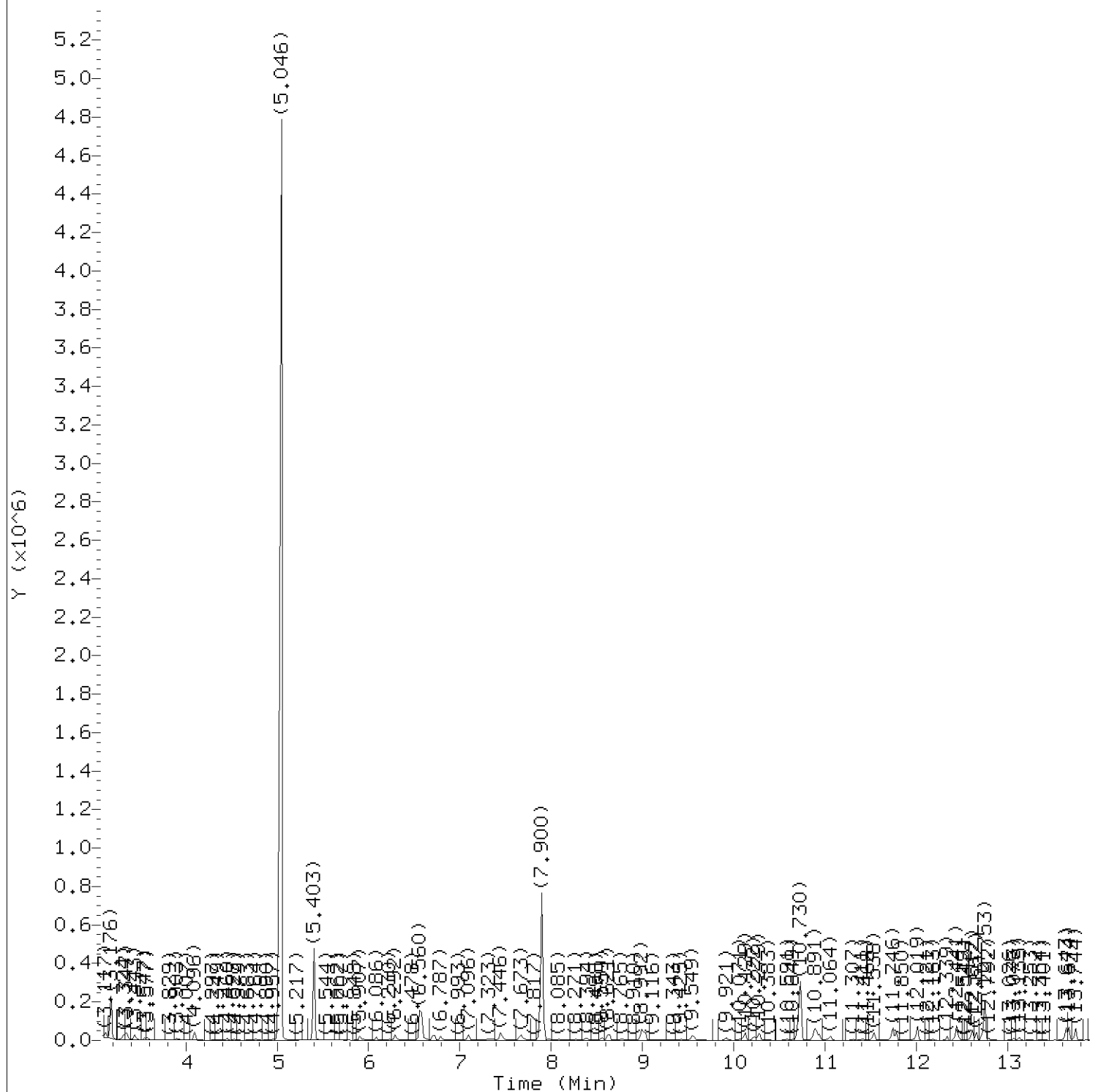
Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

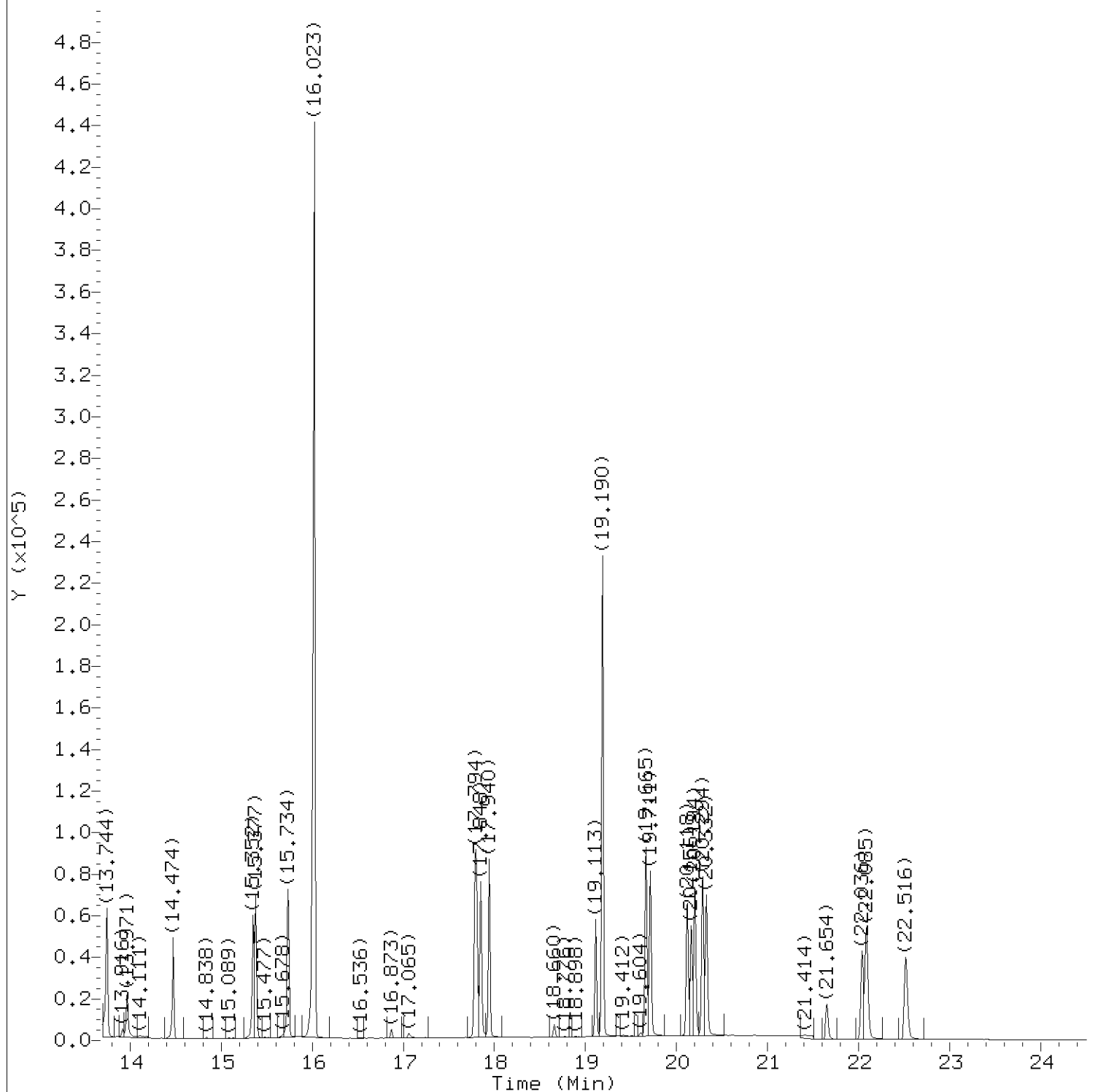
Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
Sample Volume (Vo): 246 ml Volume Injected (Vi): 2 ul

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Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/25/2020 at 10:11. Target 3.5 esignature user ID: jmg00346





Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1408.d
Injection date and time: 24-MAR-2020 21:56

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 25-MAR-2020 10:03
Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09MSD

Lab Sample ID: 1283819

Digitally signed by Joseph M. Gambler
on 03/25/2020 at 10:11.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1408.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 21:56

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 10:03

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09MSD

Lab Sample ID: 1283819

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	24437	0.250
6) *Naphthalene-d8	(2)	8.992	136	82323	0.250
7) Naphthalene	(2)	9.033	128	68947	0.177
10) \$1-Methylnaphthalene-d10	(2)	10.222	152	31027	0.184
13) Acenaphthylene	(3)	11.538	152	62159	0.152
14) *Acenaphthene-d10	(3)	11.746	164	38486	0.250
15) Acenaphthene	(3)	11.780	154	41684	0.183
18) Fluorene	(3)	12.441	166	52974	0.184
20) *Phenanthrene-d10	(4)	13.643	188	78258	0.250
21) Phenanthrene	(4)	13.674	178	85182	0.210
22) Anthracene	(4)	13.744	178	76498	0.201
24) \$Fluoranthene-d10	(4)	15.352	212	73422	0.222
25) Fluoranthene	(4)	15.383	202	98136	0.220
26) Pyrene	(5)	15.734	202	98919	0.181
28) Benzo(a)anthracene	(5)	17.786	228	88264	0.191
29) *Chrysene-d12	(5)	17.802	240	76161	0.250
30) Chrysene	(5)	17.848	228	97210	0.203
33) Benzo(b)fluoranthene	(6)	19.665	252	103299	0.204
34) Benzo(k)fluoranthene	(6)	19.711	252	103757	0.196
36) \$Benzo(a)pyrene-d12	(6)	20.156	264	60916	0.180
37) Benzo(a)pyrene	(6)	20.194	252	96541	0.200
38) *Perylene-d12	(6)	20.294	264	89834	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.036	276	75570M	0.175
40) Dibenz(a,h)anthracene	(6)	22.085	278	79959	0.164
41) Benzo(g,h,i)perylene	(6)	22.516	276	78822	0.155

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

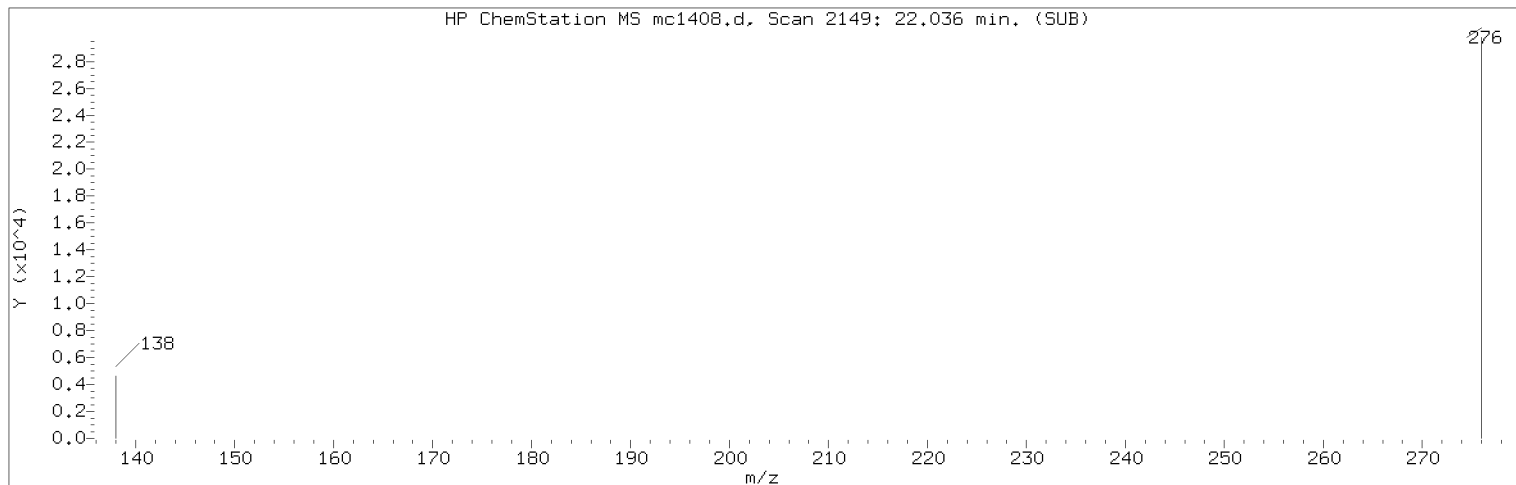
on 03/25/2020 at 10:11.

Target 3.5 esignature user ID: jmg00346

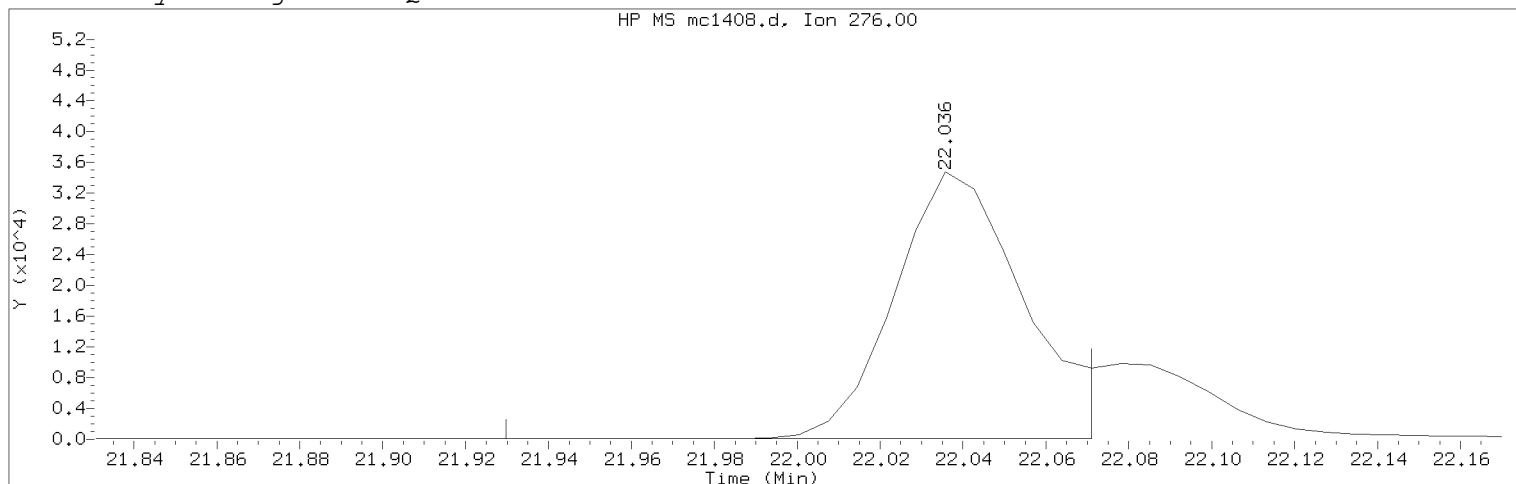
GPY67 Page 593 of 609

page 1 of 1

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1408.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 21:56

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 25-MAR-2020 10:03

Date, time and analyst ID of latest file update: 25-Mar-2020 10:11 jmg00346

Sample Name: BAC09MSD

Lab Sample ID: 1283819

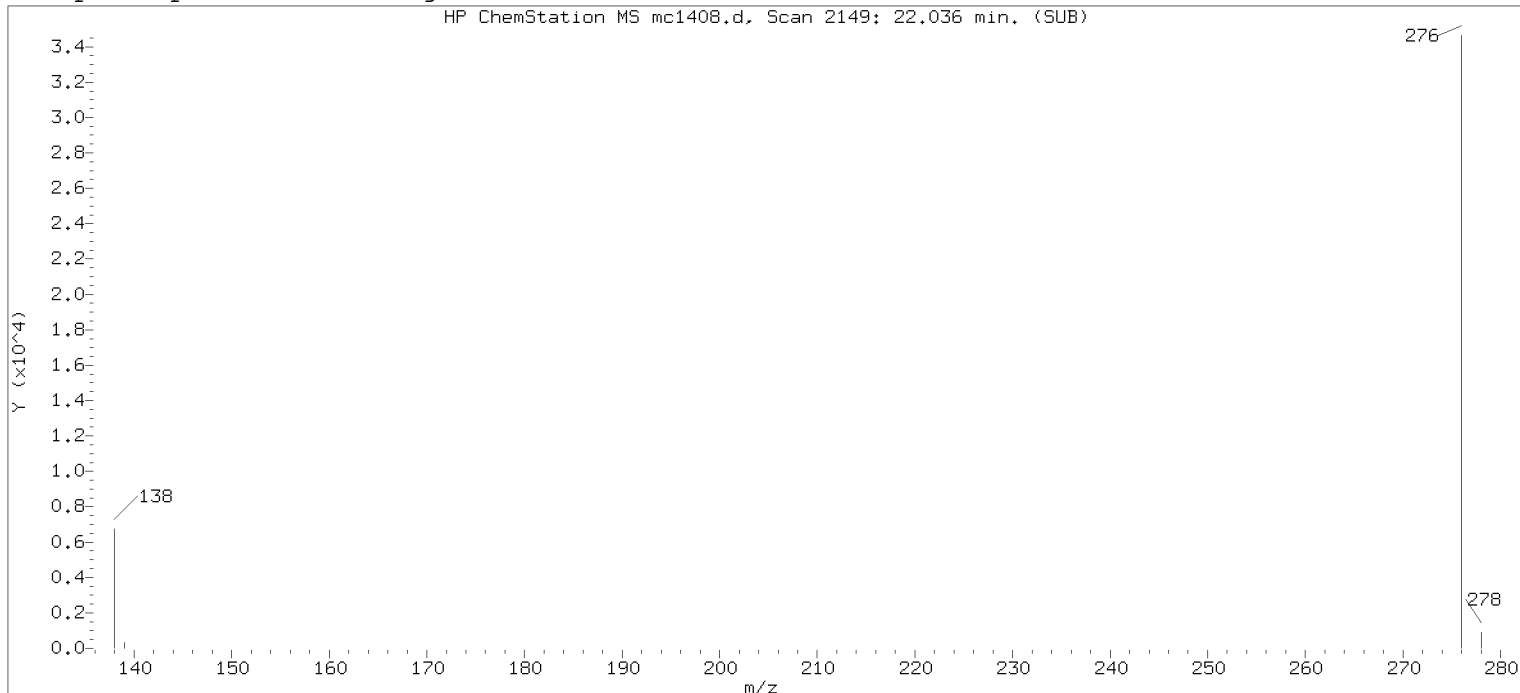
Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2149	
Retention Time (minutes)	: 22.036	
Quant Ion	: 276.00	
Area (flag)	: 75570M	
On-Column Amount (ng/ul)	: 0.1753	
Integration start scan	: 2133	Integration stop scan: 2153
Y at integration start	: 90	Y at integration end: 90

Reason for manual integration: improper integration

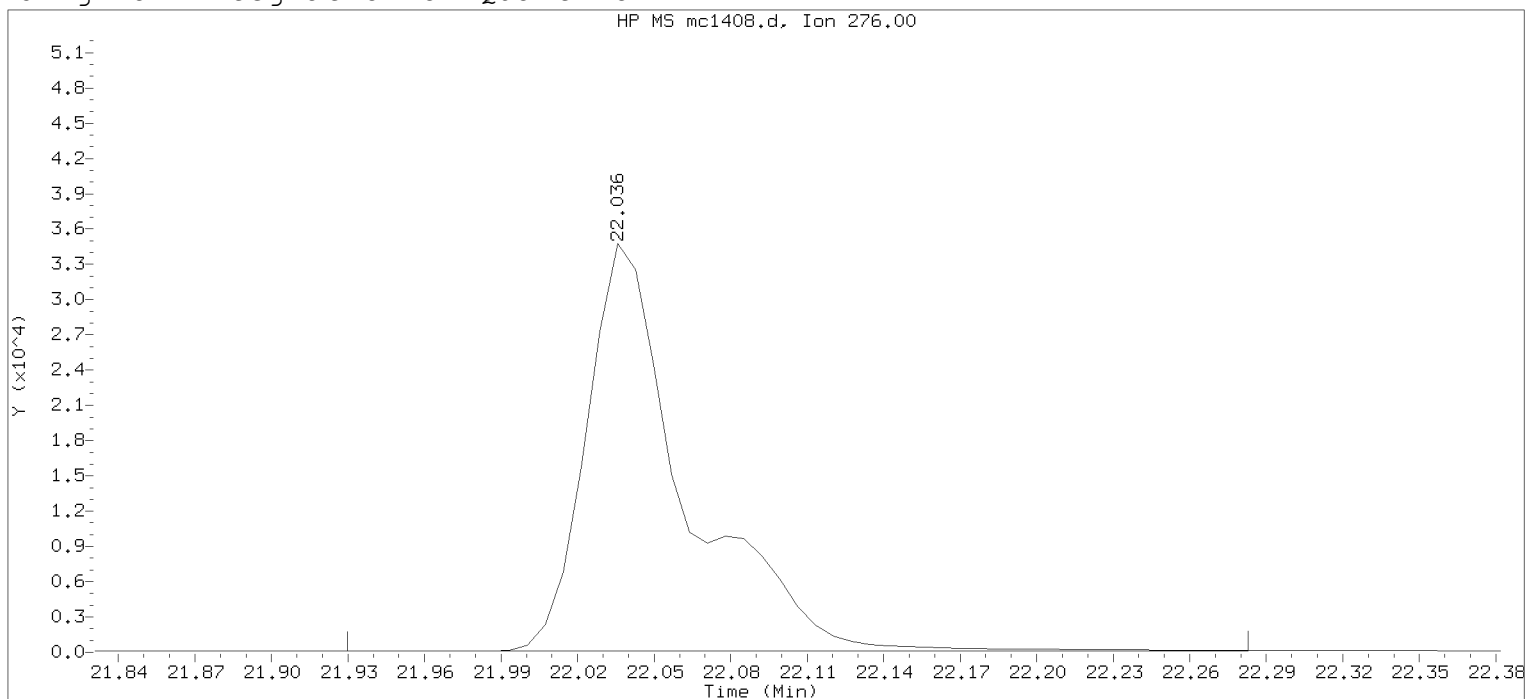
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/25/2020 at 10:11.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/25/2020 at 10:22.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1408.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 21:56

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 083WAF

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 25-Mar-2020 04:29 jmg00346

Sample Name: BAC09MSD

Lab Sample ID: 1283819

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2149	
Retention Time (minutes)	: 22.036	
Quant Ion	: 276.00	
Area	: 95079	
On-column Amount (ng/ul)	: 0.2205	
Integration start scan	: 2133	Integration stop scan: 2183
Y at integration start	: 90	Y at integration end: 90

Digitally signed by Joseph M. Gambler on 03/25/2020 at 10:11.
Target 3.5 esignature user GPV67jmg Page 595 of 609

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

083WFLCS

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 083WFLCS
 Sample wt/vol: 250 (g/mL) ML Lab File ID: mc1403.d
 Level: (low/med) LOW Date Received: _____
 % Moisture: not dec: dec: Date Extracted: 03/24/20
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/24/20
 Injection Volume: 2 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: _____ Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
123-91-1-----	1,4-Dioxane		0.5	
91-20-3-----	Naphthalene		0.7	
91-57-6-----	2-Methylnaphthalene		0.7	
90-12-0-----	1-Methylnaphthalene		0.7	B
208-96-8-----	Acenaphthylene		0.7	
83-32-9-----	Acenaphthene		0.8	
86-73-7-----	Fluorene		0.8	
85-01-8-----	Phenanthrene		0.9	
120-12-7-----	Anthracene		0.9	
206-44-0-----	Fluoranthene		0.9	
129-00-0-----	Pyrene		0.8	
56-55-3-----	Benzo (a) anthracene		0.9	
218-01-9-----	Chrysene		0.9	
205-99-2-----	Benzo (b) fluoranthene		0.9	
207-08-9-----	Benzo (k) fluoranthene		0.9	
50-32-8-----	Benzo (a) pyrene		0.9	
193-39-5-----	Indeno (1,2,3-cd) pyrene		1	
53-70-3-----	Dibenz (a,h) anthracene		1	
191-24-2-----	Benzo (g,h,i) perylene		0.9	

FORM I SV-1

083WFLCS

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

083WFLCS

Data file: /chem/HP21585.i/20mar24.b/mc1403.d

Injection date and time: 24-MAR-2020 19:25

Data file Sample Info. Line: 083WFLCS;083WFLCS;1;3;LCS;;;

Instrument ID: HP21585.i Batch: 20083WAF

Date, time and analyst ID of latest file update: 30-Mar-2020 14:42 apb10206

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 083WAF

Calibration date and time (Last Method Edit): 30-MAR-2020 14:33

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 250 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.096 (0.000)	447	152	24061 (5)	0.25	
6) Naphthalene-d8	8.992 (0.000)	539	136	80522 (6)	0.25	
14) Acenaphthene-d10	11.745 (0.000)	750	164	38825 (3)	0.25	
20) Phenanthrene-d10	13.643 (0.008)	983	188	77136 (-3)	0.25	
29) Chrysene-d12	17.801 (0.008)	1591	240	75402 (-11)	0.25	
38) Perylene-d12	20.294 (0.000)	1916	264	85882 (-10)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.
10) 1-Methylnaphthalene-d10	(2)	10.221 (0.001)	152	32403	0.197	79%
24) Fluoranthene-d10	(4)	15.352 (0.000)	212	77150	0.237	95%
36) Benzo (a)pyrene-d12	(6)	20.164 (0.000)	264	67893	0.210	84%

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
1) 1,4-Dioxane	(1)	3.569 (-0.017)	88	7907	0.122	0.49			0.03
7) Naphthalene	(2)	9.033 (-0.000)	128	69956	0.184	0.73			0.008
9) 2-Methylnaphthalene	(2)	10.129 (-0.000)	142	42605M	0.180	0.72			0.005
11) 1-Methylnaphthalene	(2)	10.279 (0.001)	142	40556M	0.182	0.73	0.013	B	0.003
13) Acenaphthylene	(3)	11.538 (0.000)	152	67075	0.163	0.65			0.003
15) Acenaphthene	(3)	11.780 (0.000)	154	44045	0.192	0.77			0.003
18) Fluorene	(3)	12.441 (0.000)	166	56237	0.193	0.77			0.003
21) Phenanthrene	(4)	13.674 (-0.000)	178	85462	0.214	0.85			0.008
22) Anthracene	(4)	13.744 (-0.000)	178	84723	0.226	0.90			0.003
25) Fluoranthene	(4)	15.383 (-0.000)	202	103603	0.235	0.94			0.003
26) Pyrene	(5)	15.740 (-0.000)	202	102938	0.191	0.76			0.003
28) Benzo (a)anthracene	(5)	17.786 (-0.000)	228	97246	0.213	0.85			0.003
30) Chrysene	(5)	17.847 (-0.000)	228	104412	0.221	0.88			0.003
33) Benzo (b)fluoranthene	(6)	19.665 (0.000)	252	111688	0.230	0.92			0.003
34) Benzo (k)fluoranthene	(6)	19.711 (0.000)	252	113442	0.224	0.90			0.003
37) Benzo (a)pyrene	(6)	20.202 (0.000)	252	104897	0.228	0.91			0.003
39) Indeno (1,2,3-cd)pyrene	(6)	22.042 (-0.000)	276	106461M	0.258	1.03			0.003
40) Dibenz (a,h)anthracene	(6)	22.092 (-0.000)	278	111266	0.239	0.96			0.005
41) Benzo (g,h,i)perylene	(6)	22.523 (0.000)	276	109224	0.224	0.90			0.003

M = Compound was manually integrated. B = Compound detected in referenced method blank.

083WFLCS Lancaster Laboratories, Inc. 083WFLCS
Analysis Summary for GC/MS Semivolatiles

Data file: /chem/HP21585.i/20mar24.b/mc1403.d Injection date and time: **24-MAR-2020 19:25**
Data file Sample Info. Line: 083WFLCS;083WFLCS;1;3;LCS;; Instrument ID: **HP21585.i** Batch: **20083WAF**
Date, time and analyst ID of latest file update: 30-Mar-2020 14:42 apb10206

Blank Data file reference: /chem/HP21585.i/20mar24.b/mc1402.d

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: **083WAF**
Calibration date and time (Last Method Edit): 30-MAR-2020 14:33
Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar24.b/mc1401.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

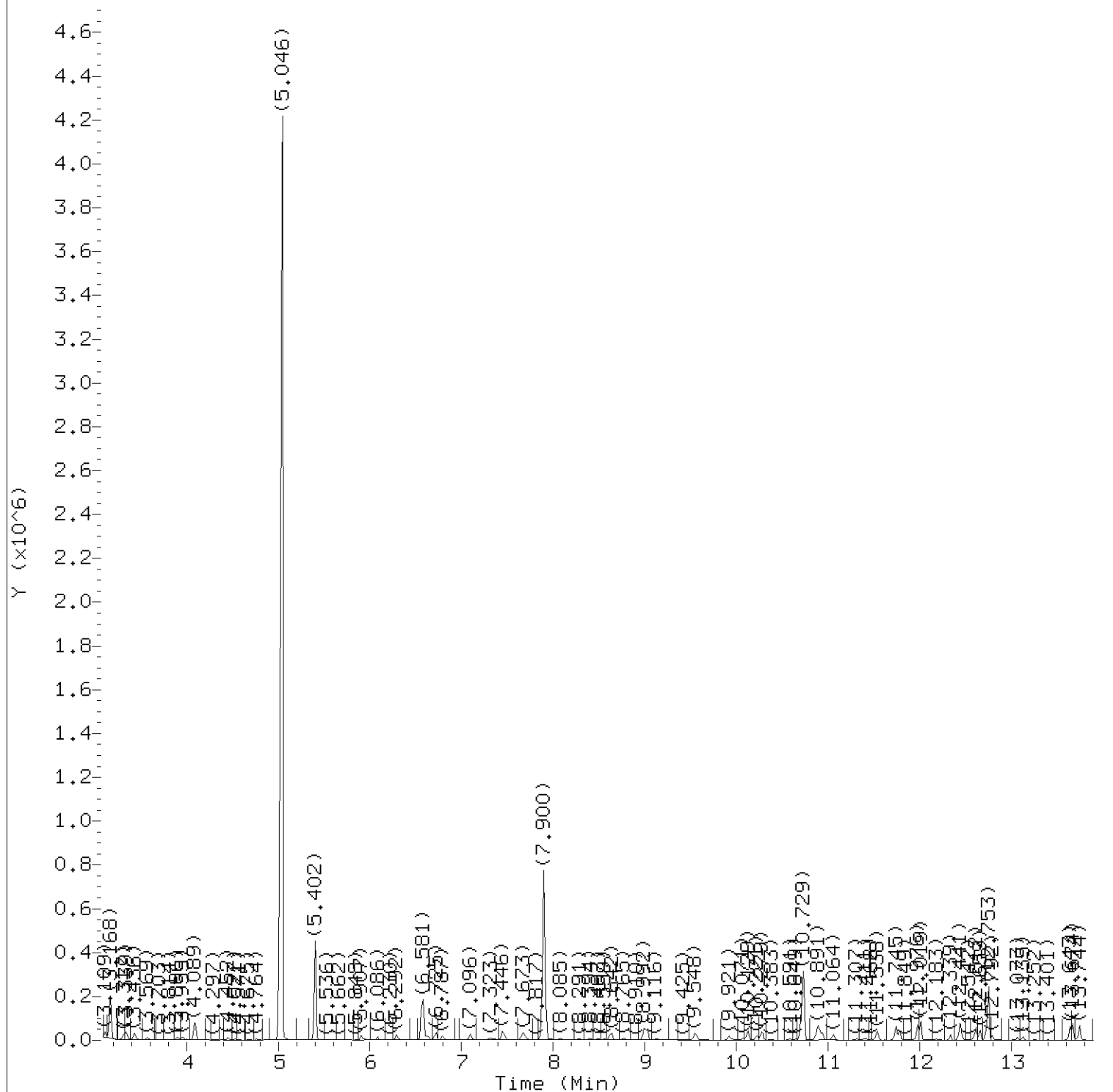
Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
Sample Volume (Vo): 250 ml Volume Injected (Vi): 2 ul

THIS SPACE
WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 19

Digitally signed by Anthony P. Bauer on 03/30/2020 at 14:45. Target 3.5 esignature user ID: apb10206

Secondary review performed and digitally signed by Matthew E. Barton on 03/31/2020 at 08:13. PARALLAX ID: reb00745



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1403.d
Injection date and time: 24-MAR-2020 19:25

Instrument ID: HP21585.i
Analyst ID: ceb05247

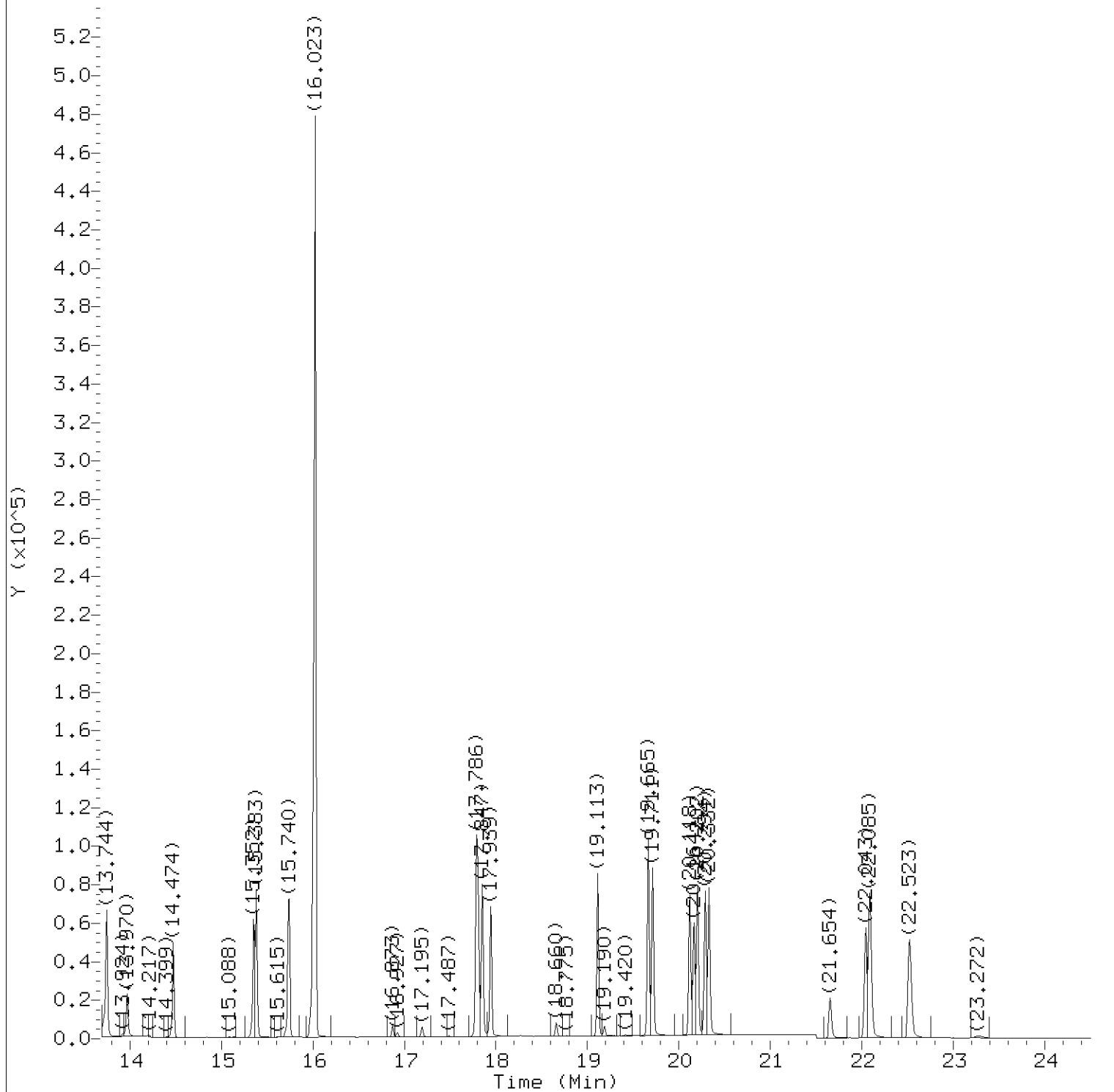
Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 083WAF
Calibration date and time: 30-MAR-2020 14:33
Date, time and analyst ID of latest file update: 30-Mar-2020 14:42 apb10206

Sample Name: 083WFLCS

Lab Sample ID: 083WFLCS

Digitally signed by Anthony P. Bauer
on 03/30/2020 at 14:45.

Target 3.5 esignature user ID: apb10206



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1403.d
Injection date and time: 24-MAR-2020 19:25

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 083WAF
Calibration date and time: 30-MAR-2020 14:33
Date, time and analyst ID of latest file update: 30-Mar-2020 14:42 apb10206

Sample Name: 083WFLCS

Lab Sample ID: 083WFLCS

Digitally signed by Anthony P. Bauer
on 03/30/2020 at 14:45.

Target 3.5 esignature user ID: apb10206

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar24.b/mc1403.d
 Injection date and time: 24-MAR-2020 19:25

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m Sublist used: 083WAF
 Calibration date and time: 30-MAR-2020 14:33
 Date, time and analyst ID of latest file update: 30-Mar-2020 14:42 apb10206

Sample Name: 083WFLCS

Lab Sample ID: 083WFLCS

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.569	88	7907	0.122
5) *1,4-Dichlorobenzene-d4	(1)	7.096	152	24061	0.250
6) *Naphthalene-d8	(2)	8.992	136	80522	0.250
7) Naphthalene	(2)	9.033	128	69956	0.184
9) 2-Methylnaphthalene	(2)	10.129	142	42605M	0.180
10) \$1-Methylnaphthalene-d10	(2)	10.221	152	32403	0.197
11) 1-Methylnaphthalene	(2)	10.279	142	40556M	0.182
13) Acenaphthylene	(3)	11.538	152	67075	0.163
14) *Acenaphthene-d10	(3)	11.745	164	38825	0.250
15) Acenaphthene	(3)	11.780	154	44045	0.192
18) Fluorene	(3)	12.441	166	56237	0.193
20) *Phenanthrene-d10	(4)	13.643	188	77136	0.250
21) Phenanthrene	(4)	13.674	178	85462	0.214
22) Anthracene	(4)	13.744	178	84723	0.226
24) \$Fluoranthene-d10	(4)	15.352	212	77150	0.237
25) Fluoranthene	(4)	15.383	202	103603	0.235
26) Pyrene	(5)	15.740	202	102938	0.191
28) Benzo(a)anthracene	(5)	17.786	228	97246	0.213
29) *Chrysene-d12	(5)	17.801	240	75402	0.250
30) Chrysene	(5)	17.847	228	104412	0.221
33) Benzo(b)fluoranthene	(6)	19.665	252	111688	0.230
34) Benzo(k)fluoranthene	(6)	19.711	252	113442	0.224
36) \$Benzo(a)pyrene-d12	(6)	20.164	264	67893	0.210
37) Benzo(a)pyrene	(6)	20.202	252	104897	0.228
38) *Perylene-d12	(6)	20.294	264	85882	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.043	276	106461M	0.258
40) Dibenz(a,h)anthracene	(6)	22.092	278	111266	0.239
41) Benzo(g,h,i)perylene	(6)	22.523	276	109224	0.224

M = Compound was manually integrated.

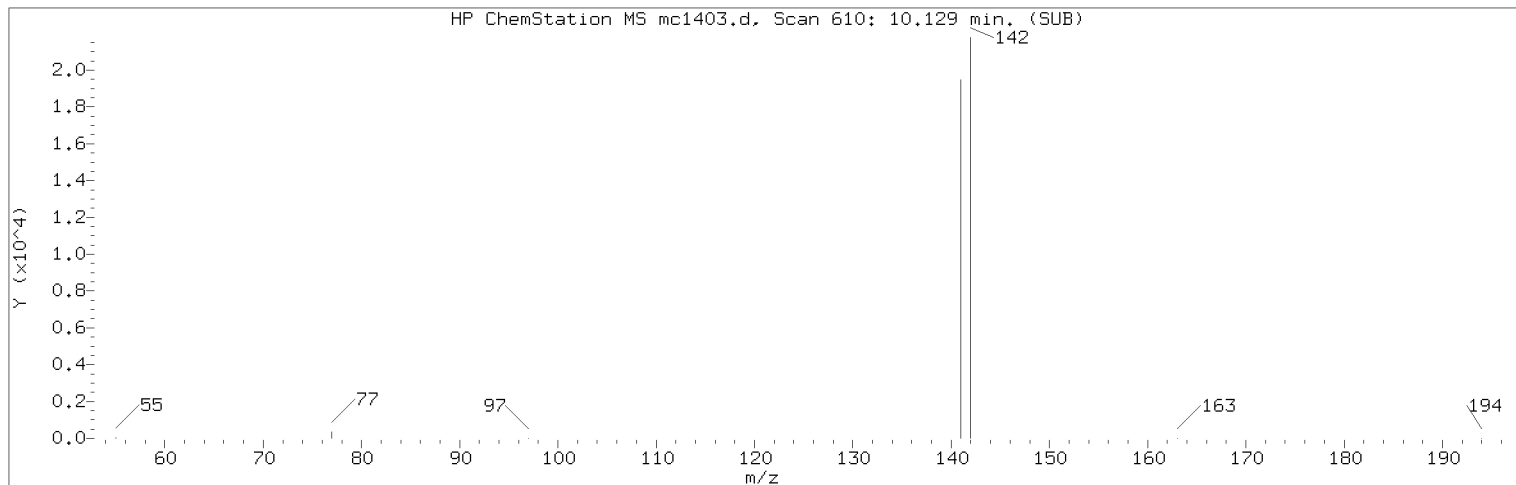
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

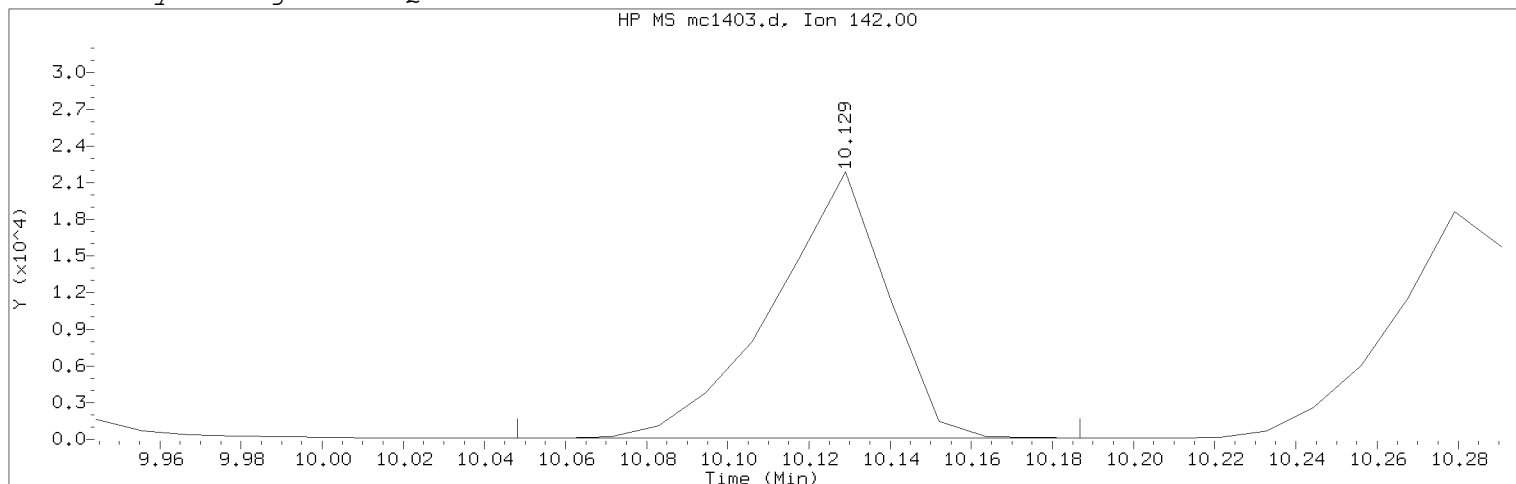
Digitally signed by Anthony P. Bauer
 on 03/30/2020 at 14:45.

Target 3.5 esignature user ID: apb10206

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1403.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 19:25

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 30-MAR-2020 14:33

Date, time and analyst ID of latest file update: 30-Mar-2020 14:42 apb10206

Sample Name: 083WFLCS

Lab Sample ID: 083WFLCS

Compound Number	: 9	
Compound Name	: 2-Methylnaphthalene	
Scan Number	: 610	
Retention Time (minutes)	: 10.129	
Quant Ion	: 142.00	
Area (flag)	: 42605M	
On-Column Amount (ng/ul)	: 0.1801	
Integration start scan	: 602	Integration stop scan: 614
Y at integration start	: 98	Y at integration end: 116

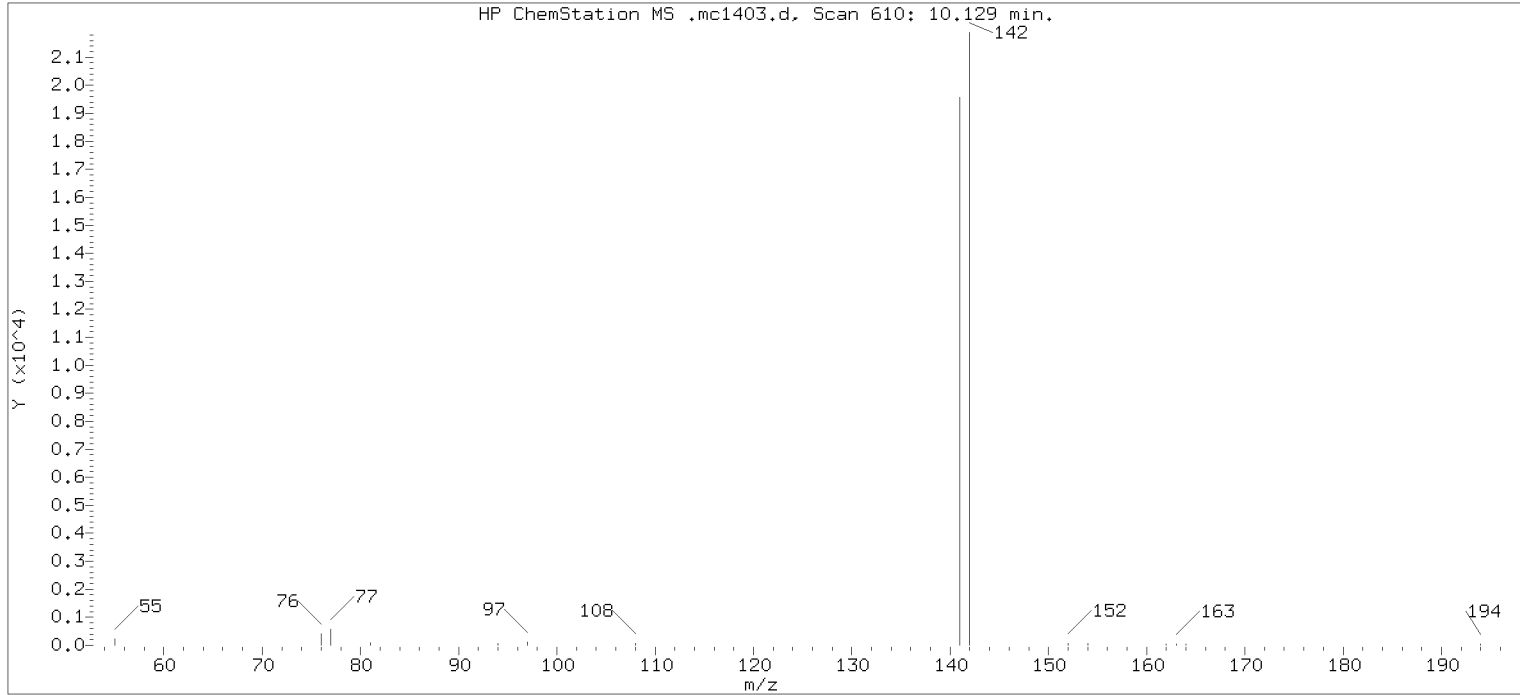
Reason for manual integration: missed peak

Analyst responsible for change:

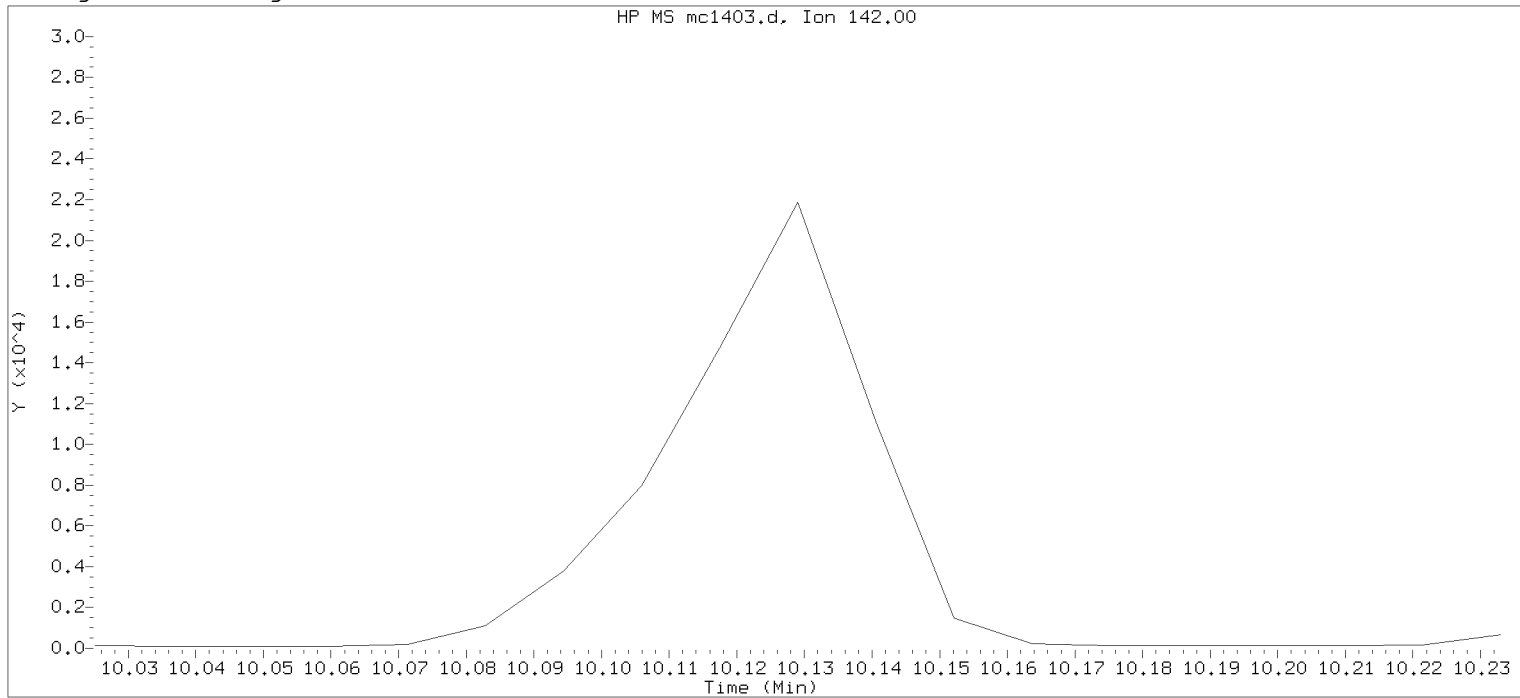
Digitally signed by Anthony P. Bauer
on 03/30/2020 at 14:45.
Target 3.5 esignature user ID: apb10206

Secondary review performed and digitally signed by Matthew E. Barton on 03/31/2020 at 08:13.
PARALLAX ID: reb00745

Sample Spectrum



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1403.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 19:25

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 24-Mar-2020 20:00 Unknown

Sample Name: 083WFLCS

Lab Sample ID: 083WFLCS

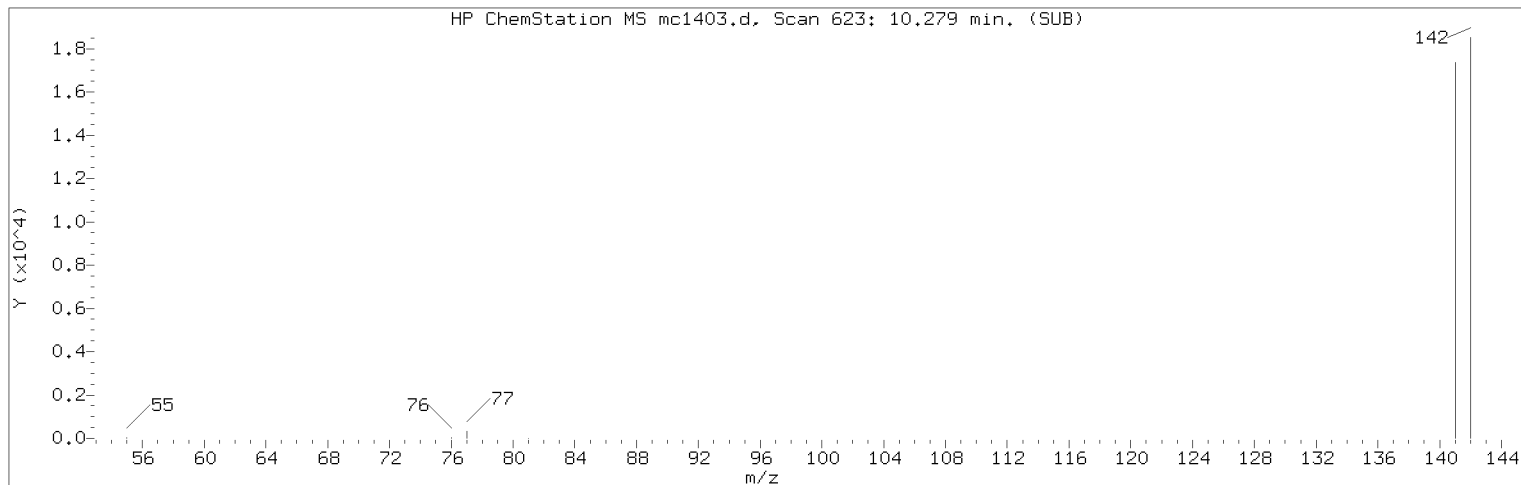
Compound Number : 9

Compound Name : 2-Methylnaphthalene

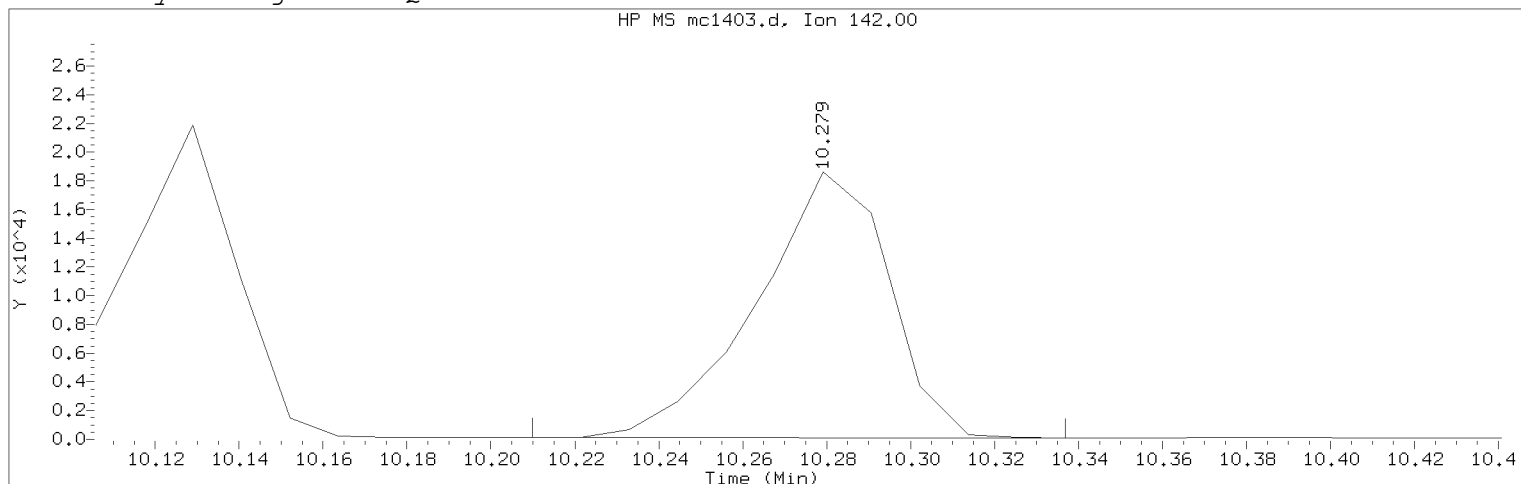
Expected RT (minutes) : 10.129

Quant Ion : 142.00

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1403.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 19:25

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 30-MAR-2020 14:33

Date, time and analyst ID of latest file update: 30-Mar-2020 14:42 apb10206

Sample Name: 083WFLCS

Lab Sample ID: 083WFLCS

Compound Number	: 11	
Compound Name	: 1-Methylnaphthalene	
Scan Number	: 623	
Retention Time (minutes)	: 10.279	
Quant Ion	: 142.00	
Area (flag)	: 40556M	
On-Column Amount (ng/ul)	: 0.1816	
Integration start scan	: 616	Integration stop scan: 627
Y at integration start	: 113	Y at integration end: 101

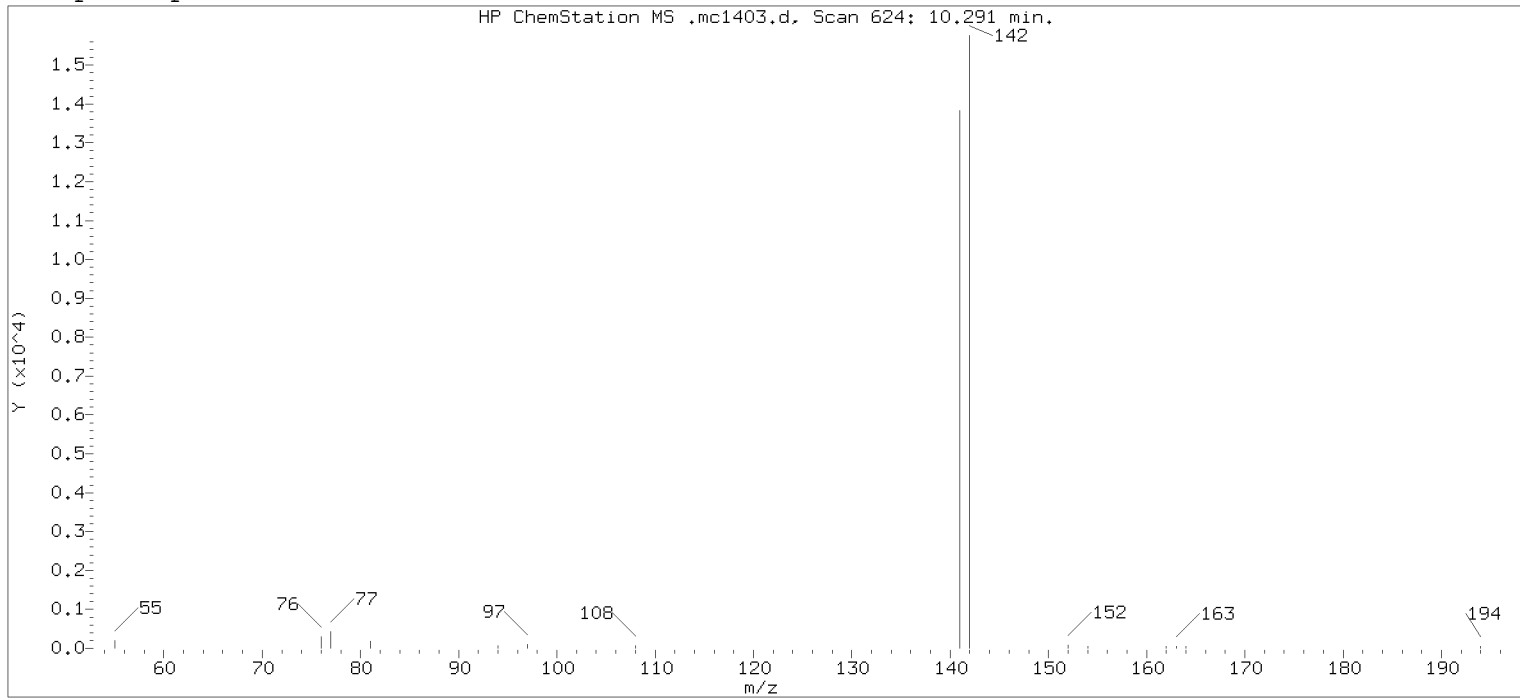
Reason for manual integration: missed peak

Analyst responsible for change:

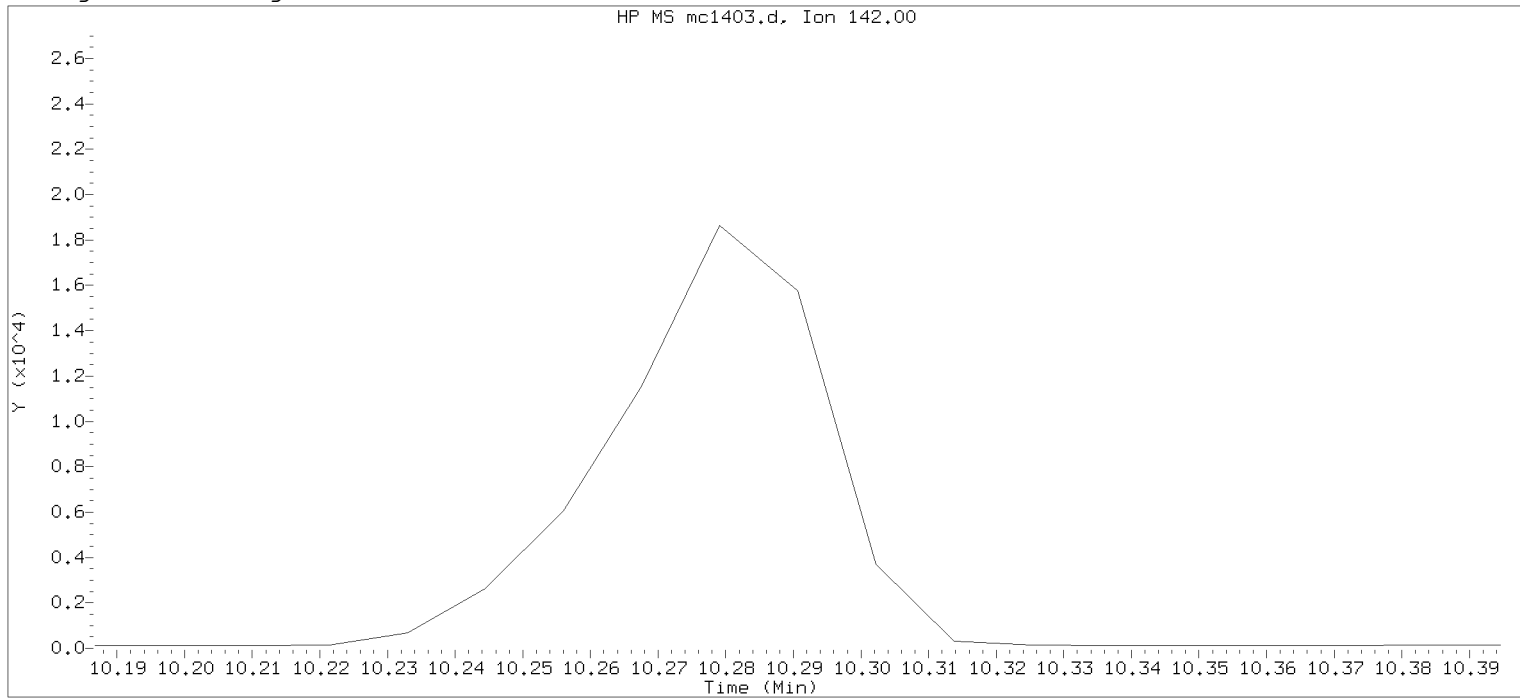
Digitally signed by Anthony P. Bauer
on 03/30/2020 at 14:45.
Target 3.5 esignature user ID: apb10206

Secondary review performed and digitally signed by Matthew E. Barton on 03/31/2020 at 08:13.
PARALLAX ID: reb00745

Sample Spectrum



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1403.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 19:25

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 24-Mar-2020 20:00 Unknown

Sample Name: 083WFLCS

Lab Sample ID: 083WFLCS

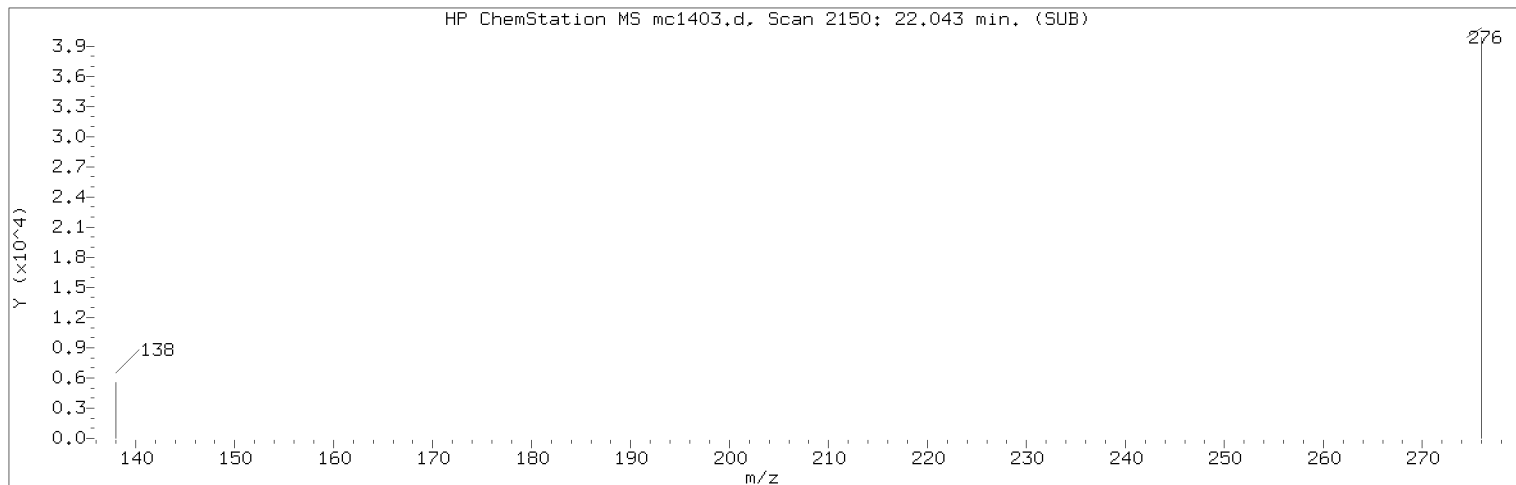
Compound Number : 11

Compound Name : 1-Methylnaphthalene

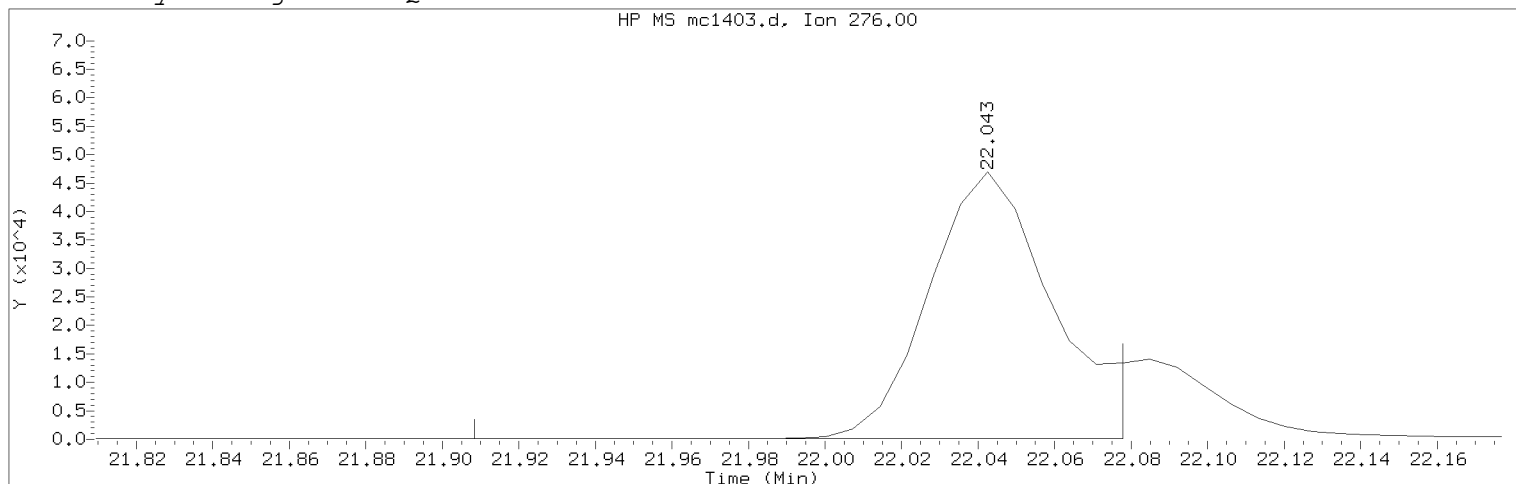
Expected RT (minutes) : 10.291

Quant Ion : 142.00

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1403.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 19:25

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 30-MAR-2020 14:33

Date, time and analyst ID of latest file update: 30-Mar-2020 14:42 apb10206

Sample Name: 083WFLCS

Lab Sample ID: 083WFLCS

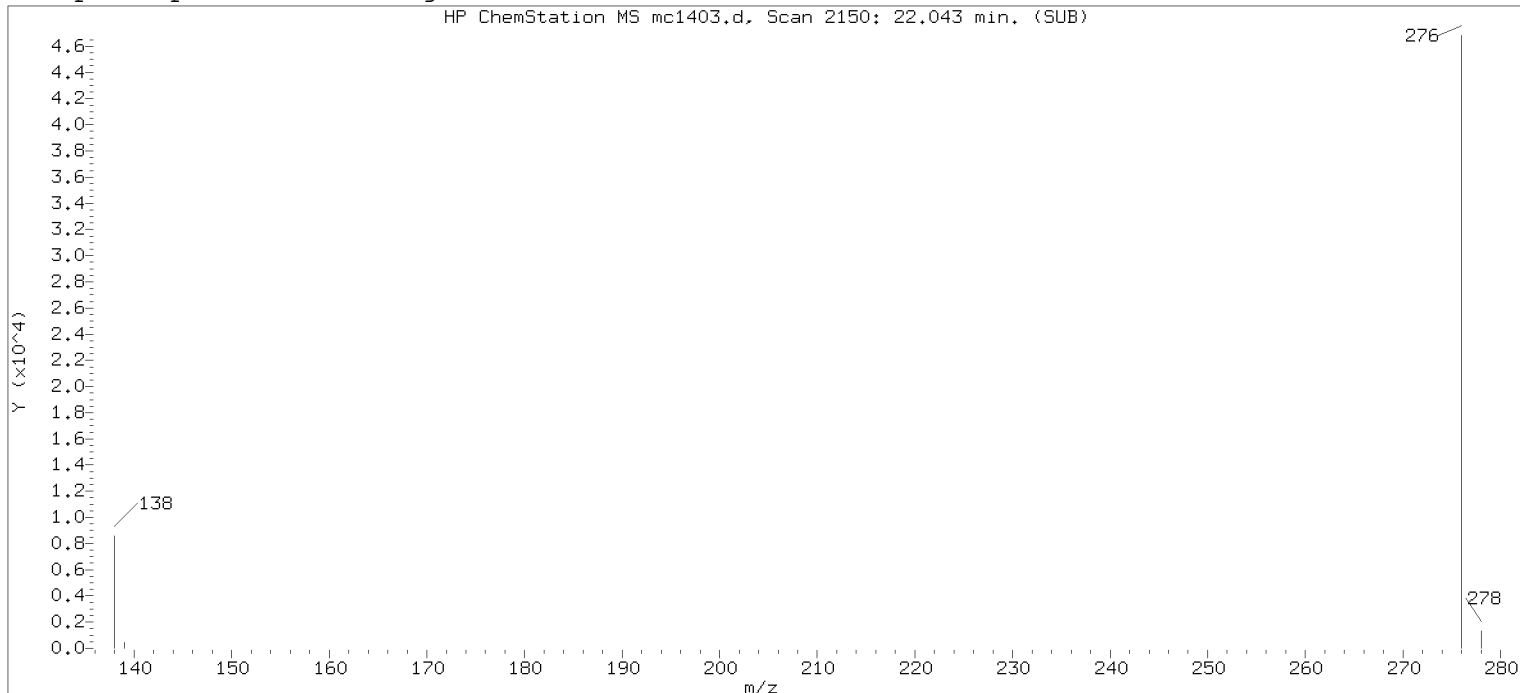
Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2150	
Retention Time (minutes)	: 22.043	
Quant Ion	: 276.00	
Area (flag)	: 106461M	
On-Column Amount (ng/ul)	: 0.2583	
Integration start scan	: 2130	Integration stop scan: 2154
Y at integration start	: 78	Y at integration end: 78

Reason for manual integration: improper integration

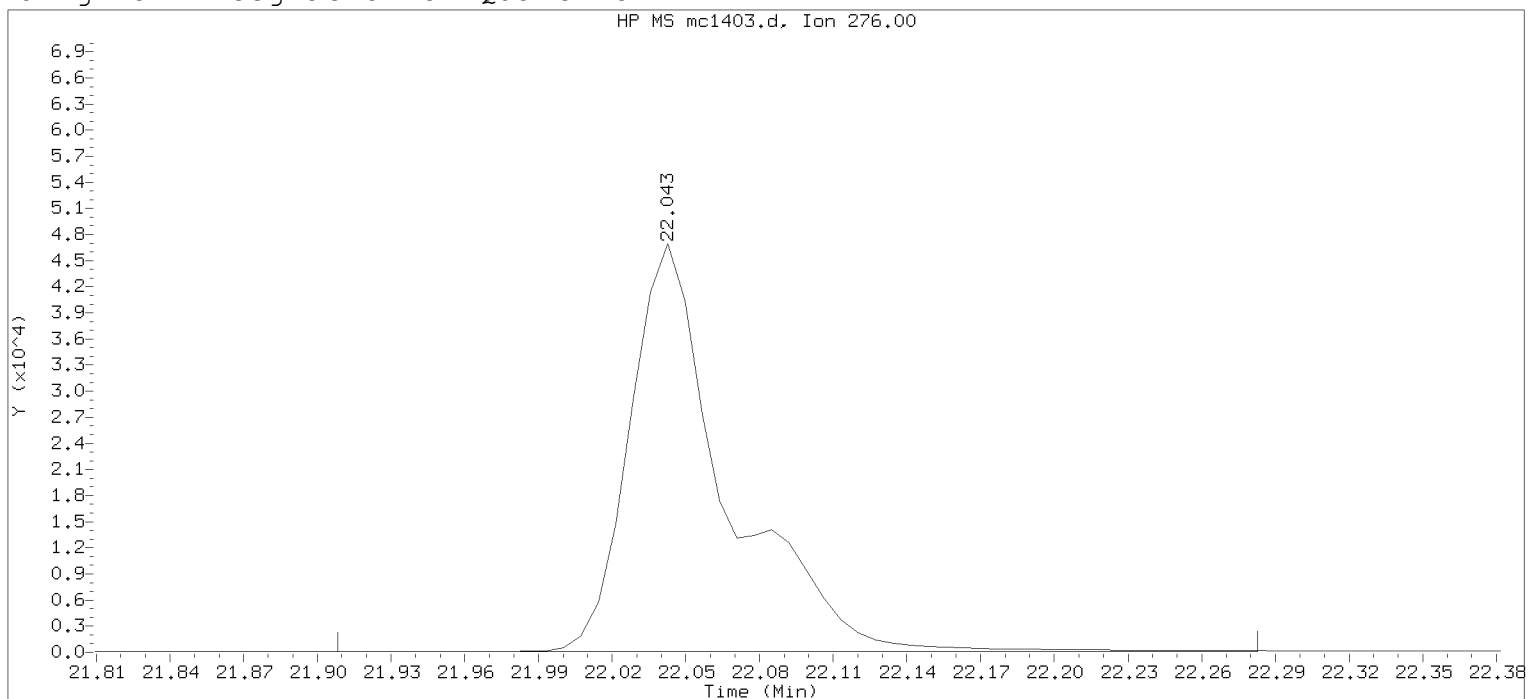
Analyst responsible for change: Digitally signed by Anthony P. Bauer
on 03/30/2020 at 14:45.
Target 3.5 esignature user ID: apb10206

Secondary review performed and digitally signed by Matthew E. Barton on 03/31/2020 at 08:13.
PARALLAX ID: reb00745

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar24.b/mc1403.d

Instrument ID: HP21585.i

Injection date and time: 24-MAR-2020 19:25

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar24.b/rvsim8270d.m

Sublist used: 083WAF

Calibration date and time: 24-MAR-2020 19:16

Date, time and analyst ID of latest file update: 24-Mar-2020 20:00 Unknown

Sample Name: 083WFLCS

Lab Sample ID: 083WFLCS

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2150	
Retention Time (minutes)	: 22.043	
Quant Ion	: 276.00	
Area	: 129974	
On-column Amount (ng/ul)	: 0.3153	
Integration start scan	: 2130	Integration stop scan: 2183
Y at integration start	: 78	Y at integration end: 78

Extraction/Distillation/Digestion Logs

Semivolatiles by GC/MS-SIM

Organic Extraction Batchlog

Assigned to: 32203 Austin Robinson

Reviewed by: AM2405Start Date: 3/24/2020Start time: 900**20083WAF026**Tech 1: AE32203Tech 2: 3-13/24/2020

Dept: 26	Prep Analysis: 10466 BNA Water Extraction SIM	SIM SVOAs 8270D MINI									
QC	Sample Code	Amt	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH <2	pH >11	BC	Comments
1283818MS	BAC09	244	SS2007326A	1.0	MS2007326B	1.0	1	✓	✓	153A	Clear
1283819MSD	BAC09	246	SS2007326A	1	MS2007326B	1.0	1	✓	✓	153A	Clear
BLANKA	SBKWF083	250	SS2007326A	1	MS2007326B	1.0	1	✓	✓	153A	Clear
LCSA	083WFLCS	260	SS2007326A	✓	MS2007326B	1.0	1	✓	✓	153A	Clear

Solvent Used	Lot No.
10N NaOH	4908648
Methylene Chloride	198368
Sodium Sulfate	20083A
Sulfuric Acid	194547

Spike Solutions: MS2007326B SS2007326A

Witness: MINI SIM SPIKE

MINI SEP. BNA SURROGATE

Sample #	Sample Code	Amt mL	SS/IS Sol.	Amt (mL)	FV (mL)	pH <2	pH >11	BC	Comments	Analyses	List	Due Date	Prio	H	A	Q
11282921	R	262	SS2007326A	1.0	1	✓	✓	153B	Clear	14244	21343	03/24/2020	S	N	N	N
21282923	R	267	SS2007326A	1	1	✓	✓	153B	Clear	14244	21343	03/24/2020	S	N	N	N
31283447		240	SS2007326A	1	1	✓	✓	153A	Milky white	14244	22250	03/27/2020	N	N	N	N
41283809	BAC01	244	SS2007326A	1	1	✓	✓	153A	Brown tint	14244	21331	03/30/2020	N	N	N	N
51283810	BAC02	247	SS2007326A	1	1	✓	✓	153A	Tan tint	14244	21331	03/30/2020	N	N	N	N
61283811	BAC03	243	SS2007326A	1	1	✓	✓	153A	Clear	14244	21331	03/30/2020	N	N	N	N
71283812	BAC04	242	SS2007326A	1	1	✓	✓	153A	Brown tint	14244	21331	03/30/2020	N	N	N	N
81283813	BAC05	248	SS2007326A	1	1	✓	✓	153A	Clear	14244	21331	03/30/2020	N	N	N	N
91283814	BAC06	247	SS2007326A	1	1	✓	✓	153A	Brown tint	14244	21331	03/30/2020	N	N	N	N
101283815	BAC07	244	SS2007326A	1	1	✓	✓	153A	Brown tint	14244	21331	03/30/2020	N	N	N	N
111283816	BAC08	246	SS2007326A	1	1	✓	✓	153A	Brown tint	14244	21331	03/30/2020	N	N	N	N
121283817BKG	BAC09	246	SS2007326A	1	1	✓	✓	153A	Clear	14244	21331	03/30/2020	N	N	N	N
131283820	BAC10	228	SS2007326A	1	1	✓	✓	153A	Clear	14244	21331	03/30/2020	N	N	N	N
141283821	BAC11	236	SS2007326A	1	1	✓	✓	153A	Yellow-green tint	14244	21331	03/30/2020	N	N	N	N
151283822	BAC12	243	SS2007326A	1	1	✓	✓	153A	Yellow-green tint	14244	21331	03/30/2020	N	N	N	N
161283823	BAC13	244	SS2007326A	1	1	✓	✓	153A	Clear	14244	21331	03/30/2020	N	N	N	N
171285938		258	SS2007326A	✓	1	✓	✓	153A	Clear	14244	21331	03/26/2020	S	N	N	N

AE322033/24/2020

Bench#	Bench#	Bench#
Rack ID:	Work Station	Balance #
Internal Standard	25996	Micro Temp

R-VAP ID 1	R-VAP ID 2	R-VAP ID 3
90	90	90
S-bath ID	S-bath ID	N-Evap
C	C	C
M-vap	M-vap	M-vap
C	C	C

20083WAF026

DF = Dilution Factor FV = Final Volume

Page 1 of 1

Documented temps are NIST corrected.



NYSDEC ASP Category B Data Package

Prepared for:

Brown & Caldwell
500 North Franklin Turnpike
Suite 306
Ramsey NJ 07446-1177

Project: Patchogue, NY
Groundwater and Water Samples
Collected on 03/19/20

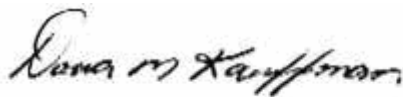
SDG# GPY68

GROUP	SAMPLE NUMBERS
2093355	1285716-1285722, 1285750

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-20-35
AZ Cert. # AZ0780

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by:



Date: 04/20/2020

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Barbara Weyandt at (717) 556-7264.

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**Sample Reference List for SDG Number GPY68
with a Data Package Type of NYSDEC B**

09286 - Brown & Caldwell

Project: Patchogue, NY

Lab Sample Number	Client Sample ID	Collection Date	Date Received
1285716	MW-3-20200319	03/19/2020 09:52	03/20/2020 10:58
1285717	MW-13S-20200319	03/19/2020 11:09	03/20/2020 10:58
1285718	MW-13D-20200319	03/19/2020 11:51	03/20/2020 10:58
1285719	MW-12S-20200319	03/19/2020 13:34	03/20/2020 10:58
1285720	FB-20200319	03/19/2020 13:55	03/20/2020 10:58
1285721	MW-12D-20200319	03/19/2020 15:04	03/20/2020 10:58
1285722	DUP-20200319	03/19/2020 00:00	03/20/2020 10:58
1285750	Trip Blank	03/19/2020 00:00	03/20/2020 10:58

Sample pH Log

SDG: GPY68

<u>LLI Sample Number</u>	<u>Bottle Code</u>	<u>Actual pH</u>	<u>Exp. pH</u>	<u>*pH Check Code</u>	<u>Adj. pH</u>	<u>Adjusted Date</u>	<u>Adjusted Time</u>	<u>Preservative Added</u>	<u>Preservative Lot #</u>	<u>LLI Supplied Bottle?</u>	<u>Sulfide Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>**Chlorine Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>Record Date</u>	<u>Employee</u>
1285716	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/31/2020 6:47:53PM	2648
1285716	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:17:08AM	19242
1285716	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:18:19AM	19242
1285717	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/31/2020 6:47:43PM	2648
1285717	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:17:59AM	19242
1285717	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:18:27AM	19242
1285718	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/31/2020 6:47:43PM	2648
1285718	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:17:00AM	19242
1285718	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:18:35AM	19242
1285719	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/31/2020 6:47:43PM	2648
1285719	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:17:27AM	19242
1285719	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:17:17AM	19242
1285720	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/31/2020 6:47:43PM	2648
1285720	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:16:20AM	19242
1285720	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:17:50AM	19242
1285721	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/31/2020 6:47:43PM	2648
1285721	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:17:42AM	19242
1285721	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:16:33AM	19242
1285722	038B	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/31/2020 6:47:44PM	2648
1285722	153A		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:16:12AM	19242
1285722	153B		N/A	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/21/2020 11:17:35AM	19242
1285750	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	3/26/2020 8:08:24AM	7818

*pH Check Code Key

PK = Original container checked - pH is within the correct range. (No preservative was added)
PA = Original container checked - pH adjusted to correct range. (Preservative was added)
PV = Volatile container checked
PC = pH checked (unpreserved container)
SPK = Subsampled from an original container. Original container checked - pH is within correct range
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
SPC = Subsampled from an original container. pH checked (unpreserved container).
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
UP = Unable to preserve due to matrix of the sample.
NA = Not applicable

**Chlorine Present Code Key

NA = Chlorine Not Checked
Y = Chlorine Present
N = Chlorine Not Present

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 · 717-656-2300 Fax: 717-656-2681 · www.lancasterlabs.com**01163 GC/MS VOA Water Prep**

An undiluted aliquot of the water sample or a dilution of the sample is purged with an inert gas and the volatiles are collected on an adsorbent trap that is subsequently desorbed onto a gas chromatographic column.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5030C, May 2003.

13130 VOCs- 5ml Water by 8260C/D UST

The water sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS), SW-846 Method 8260C, August 2006.

10466 BNA Water Extraction SIM

The sample aliquot is extracted with methylene chloride by either separatory funnel or liquid/liquid apparatus. Extraction is performed at both a pH of 11 and 2. The extract is concentrated prior to analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3510C, Rev 3, December 1996

14244 SIM SVOAs 8270D MINI

The sample extract is analyzed by capillary column Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (SIM).

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8270D (SIM), February 2007.

Analysis Reports / Field Chain of Custody



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Brown & Caldwell
500 North Franklin Turnpike
Suite 306
Ramsey NJ 07446-1177

Report Date: March 31, 2020 21:35

Project: Patchogue, NY

Account #: 09286
Group Number: 2093355
SDG: GPY68
PO Number: 153021
State of Sample Origin: NY

Electronic Copy To Brown & Caldwell

Attn: Jim Marolda

Respectfully Submitted,



Barbara A. Weyandt
Specialist

(717) 556-7264

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/> . Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-3-20200319 Grab Groundwater	03/19/2020 09:52	1285716
MW-13S-20200319 Grab Groundwater	03/19/2020 11:09	1285717
MW-13D-20200319 Grab Groundwater	03/19/2020 11:51	1285718
MW-12S-20200319 Grab Groundwater	03/19/2020 13:34	1285719
FB-20200319 Grab Water	03/19/2020 13:55	1285720
MW-12D-20200319 Grab Groundwater	03/19/2020 15:04	1285721
DUP-20200319 Grab Groundwater	03/19/2020	1285722
Trip Blank Water	03/19/2020	1285750

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: MW-3-20200319 Grab Groundwater
COC: 603684
Patchogue, NY

Brown & Caldwell
ELLE Sample #: WW 1285716
ELLE Group #: 2093355
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/20/2020 10:58
Collection Date/Time: 03/19/2020 09:52
SDG#: GPY68-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260C					
13130	Benzene	71-43-2	2 J	1 ug/l	5
13130	Ethylbenzene	100-41-4	16	2 ug/l	5
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1 ug/l	5
13130	Toluene	108-88-3	2 J	1 ug/l	5
13130	Xylene (Total)	1330-20-7	15 J	7 ug/l	5
GC/MS Semivolatiles SW-846 8270D SIM					
14244	Acenaphthene	83-32-9	5	0.01 ug/l	1
14244	Acenaphthylene	208-96-8	0.7	0.01 ug/l	1
14244	Anthracene	120-12-7	0.4	0.01 ug/l	1
14244	Benzo(a)anthracene	56-55-3	0.9	0.01 ug/l	1
14244	Benzo(a)pyrene	50-32-8	0.02 J	0.01 ug/l	1
14244	Benzo(b)fluoranthene	205-99-2	0.02 J	0.01 ug/l	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01 ug/l	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01 ug/l	1
14244	Chrysene	218-01-9	0.5	0.01 ug/l	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02 ug/l	1
14244	Fluoranthene	206-44-0	4	0.01 ug/l	1
14244	Fluorene	86-73-7	0.5	0.01 ug/l	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01 ug/l	1
14244	Naphthalene	91-20-3	3	0.03 ug/l	1
14244	Phenanthrene	85-01-8	0.4	0.03 ug/l	1
14244	Pyrene	129-00-0	5	0.01 ug/l	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	F200912AA	03/31/2020 11:36	Alexander D Sechrist	5
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F200912AA	03/31/2020 11:35	Alexander D Sechrist	5
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20085WAB026	03/26/2020 12:06	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20085WAB026	03/25/2020 20:35	Laura Duquette	1

Sample Description: MW-13S-20200319 Grab Groundwater
COC: 603684
Patchogue, NY

Brown & Caldwell
ELLE Sample #: WW 1285717
ELLE Group #: 2093355
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/20/2020 10:58
Collection Date/Time: 03/19/2020 11:09
SDG#: GPY68-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles SW-846 8260C					
13130	Benzene	71-43-2	2 J	1	5
13130	Ethylbenzene	100-41-4	19	2	5
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	5
13130	Toluene	108-88-3	2 J	1	5
13130	Xylene (Total)	1330-20-7	14 J	7	5
GC/MS Semivolatiles SW-846 8270D SIM					
14244	Acenaphthene	83-32-9	29 E	0.01	1
14244	Acenaphthylene	208-96-8	1	0.01	1
14244	Anthracene	120-12-7	2	0.01	1
14244	Benzo(a)anthracene	56-55-3	1	0.01	1
14244	Benzo(a)pyrene	50-32-8	0.1	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	0.07	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	0.04 J	0.01	1
14244	Chrysene	218-01-9	0.9	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	6	0.01	1
14244	Fluorene	86-73-7	7	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	81 E	0.03	1
14244	Phenanthrene	85-01-8	15 E	0.03	1
14244	Pyrene	129-00-0	7	0.01	1
Trial ID: DL					
14244	Acenaphthene	83-32-9	36	0.1	10
14244	Acenaphthylene	208-96-8	1	0.1	10
14244	Anthracene	120-12-7	2	0.1	10
14244	Benzo(a)anthracene	56-55-3	1	0.1	10
14244	Benzo(a)pyrene	50-32-8	N.D.	0.1	10
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.1	10
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.1	10
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.1	10
14244	Chrysene	218-01-9	0.9	0.1	10
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.2	10
14244	Fluoranthene	206-44-0	6	0.1	10
14244	Fluorene	86-73-7	12	0.1	10
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.1	10
14244	Naphthalene	91-20-3	100 E	0.3	10
14244	Phenanthrene	85-01-8	16	0.3	10
14244	Pyrene	129-00-0	8	0.1	10

Trial ID: DL2

Sample Description: MW-13S-20200319 Grab Groundwater
COC: 603684
Patchogue, NY

Brown & Caldwell
ELLE Sample #: WW 1285717
ELLE Group #: 2093355
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/20/2020 10:58
Collection Date/Time: 03/19/2020 11:09
SDG#: GPY68-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270D SIM					
14244	Acenaphthene	83-32-9	38	0.2	20
14244	Acenaphthylene	208-96-8	1	0.2	20
14244	Anthracene	120-12-7	2	0.2	20
14244	Benzo(a)anthracene	56-55-3	1	0.2	20
14244	Benzo(a)pyrene	50-32-8	N.D.	0.2	20
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.2	20
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.2	20
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.2	20
14244	Chrysene	218-01-9	1 J	0.2	20
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.4	20
14244	Fluoranthene	206-44-0	6	0.2	20
14244	Fluorene	86-73-7	11	0.2	20
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.2	20
14244	Naphthalene	91-20-3	110	0.6	20
14244	Phenanthrene	85-01-8	16	0.6	20
14244	Pyrene	129-00-0	8	0.2	20

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	F200912AA	03/31/2020 11:58	Alexander D Sechrist	5
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F200912AA	03/31/2020 11:57	Alexander D Sechrist	5
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20085WAB026	03/26/2020 12:36	Catherine E Bachman	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	2-DL	20085WAB026	03/27/2020 03:21	Catherine E Bachman	10
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	3-DL2	20085WAB026	03/27/2020 03:58	Catherine E Bachman	20
10466	BNA Water Extraction SIM	SW-846 3510C	1	20085WAB026	03/25/2020 20:35	Laura Duquette	1

Sample Description: MW-13D-20200319 Grab Groundwater
COC: 603684
Patchogue, NY

Brown & Caldwell
ELLE Sample #: WW 1285718
ELLE Group #: 2093355
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/20/2020 10:58
Collection Date/Time: 03/19/2020 11:51
SDG#: GPY68-03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	N.D.	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	N.D.	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	0.1	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	F200912AA	03/31/2020 12:20	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F200912AA	03/31/2020 12:19	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20085WAB026	03/26/2020 13:06	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20085WAB026	03/25/2020 20:35	Laura Duquette	1

Analysis Report

Sample Description: MW-12S-20200319 Grab Groundwater
COC: 603684
Patchogue, NY

Brown & Caldwell
ELLE Sample #: WW 1285719
ELLE Group #: 2093355
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/20/2020 10:58
Collection Date/Time: 03/19/2020 13:34
SDG#: GPY68-04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	0.08	0.01	1
14244	Acenaphthylene	208-96-8	0.06 J8	0.01	1
14244	Anthracene	120-12-7	0.2 J8	0.01	1
14244	Benzo(a)anthracene	56-55-3	0.6 J8	0.01	1
14244	Benzo(a)pyrene	50-32-8	0.5 J8	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	0.5 J8	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	0.2 J8	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	0.2 J8	0.01	1
14244	Chrysene	218-01-9	0.5 J8	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	0.06 J8	0.02	1
14244	Fluoranthene	206-44-0	0.8 J8	0.01	1
14244	Fluorene	86-73-7	0.08 J8	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.3 J8	0.01	1
14244	Naphthalene	91-20-3	0.09	0.03	1
14244	Phenanthrene	85-01-8	0.4 J8	0.03	1
14244	Pyrene	129-00-0	1 J8	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	F200912AA	03/31/2020 12:42	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F200912AA	03/31/2020 12:41	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20085WAB026	03/26/2020 13:36	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20085WAB026	03/25/2020 20:35	Laura Duquette	1

Sample Description: FB-20200319 Grab Water
COC: 603684
Patchogue, NY

Brown & Caldwell
ELLE Sample #: WW 1285720
ELLE Group #: 2093355
Matrix: Water

Project Name: Patchogue, NY

Submission Date/Time: 03/20/2020 10:58
Collection Date/Time: 03/19/2020 13:55
SDG#: GPY68-05FB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	N.D.	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	N.D.	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	N.D.	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	F200912AA	03/31/2020 13:03	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F200912AA	03/31/2020 13:02	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20085WAB026	03/26/2020 14:07	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20085WAB026	03/25/2020 20:35	Laura Duquette	1

Sample Description: MW-12D-20200319 Grab Groundwater
COC: 603684
Patchogue, NY

Brown & Caldwell
ELLE Sample #: WW 1285721
ELLE Group #: 2093355
Matrix: Groundwater

Project Name: Patchogue, NY

Submission Date/Time: 03/20/2020 10:58
Collection Date/Time: 03/19/2020 15:04
SDG#: GPY68-06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	N.D.	0.01	1
14244	Acenaphthylene	208-96-8	N.D.	0.01	1
14244	Anthracene	120-12-7	N.D.	0.01	1
14244	Benzo(a)anthracene	56-55-3	N.D.	0.01	1
14244	Benzo(a)pyrene	50-32-8	N.D.	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	N.D.	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	N.D.	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	N.D.	0.01	1
14244	Chrysene	218-01-9	N.D.	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	N.D.	0.02	1
14244	Fluoranthene	206-44-0	N.D.	0.01	1
14244	Fluorene	86-73-7	N.D.	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.01	1
14244	Naphthalene	91-20-3	N.D.	0.03	1
14244	Phenanthrene	85-01-8	N.D.	0.03	1
14244	Pyrene	129-00-0	N.D.	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	F200912AA	03/31/2020 13:25	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F200912AA	03/31/2020 13:24	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20085WAB026	03/26/2020 14:37	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20085WAB026	03/25/2020 20:35	Laura Duquette	1

Sample Description: DUP-20200319 Grab Groundwater
COC: 603684
Patchogue, NY

Brown & Caldwell
ELLE Sample #: WW 1285722
ELLE Group #: 2093355
Matrix: Groundwater

Project Name: Patchogue, NY

Submittal Date/Time: 03/20/2020 10:58
Collection Date/Time: 03/19/2020
SDG#: GPY68-07FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1
GC/MS Semivolatiles		SW-846 8270D SIM	ug/l	ug/l	
14244	Acenaphthene	83-32-9	0.1	0.01	1
14244	Acenaphthylene	208-96-8	0.2 J8	0.01	1
14244	Anthracene	120-12-7	0.3 J8	0.01	1
14244	Benzo(a)anthracene	56-55-3	2 J8	0.01	1
14244	Benzo(a)pyrene	50-32-8	2 J8	0.01	1
14244	Benzo(b)fluoranthene	205-99-2	1 J8	0.01	1
14244	Benzo(g,h,i)perylene	191-24-2	0.7 J8	0.01	1
14244	Benzo(k)fluoranthene	207-08-9	0.5 J8	0.01	1
14244	Chrysene	218-01-9	1 J8	0.01	1
14244	Dibenz(a,h)anthracene	53-70-3	0.2 J8	0.02	1
14244	Fluoranthene	206-44-0	2 J8	0.01	1
14244	Fluorene	86-73-7	0.2 J8	0.01	1
14244	Indeno(1,2,3-cd)pyrene	193-39-5	0.8 J8	0.01	1
14244	Naphthalene	91-20-3	0.1	0.03	1
14244	Phenanthrene	85-01-8	0.8 J8	0.03	1
14244	Pyrene	129-00-0	2 J8	0.01	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	F200912AA	03/31/2020 13:47	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F200912AA	03/31/2020 13:46	Alexander D Sechrist	1
14244	PAHS (16) in Water SIM	SW-846 8270D SIM	1	20085WAB026	03/26/2020 15:07	Catherine E Bachman	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	20085WAB026	03/25/2020 20:35	Laura Duquette	1

Sample Description: Trip Blank Water
COC: 603684
Patchogue, NY

Brown & Caldwell
ELLE Sample #: WW 1285750
ELLE Group #: 2093355
Matrix: Water

Project Name: Patchogue, NY

Submittal Date/Time: 03/20/2020 10:58
Collection Date/Time: 03/19/2020
SDG#: GPY68-08TB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
13130	Benzene	71-43-2	N.D.	0.2	1
13130	Ethylbenzene	100-41-4	N.D.	0.4	1
13130	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.2	1
13130	Toluene	108-88-3	N.D.	0.2	1
13130	Xylene (Total)	1330-20-7	N.D.	1	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX/MTBE	SW-846 8260C	1	Z200851AA	03/25/2020 18:39	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	Z200851AA	03/25/2020 18:38	Alexander D Sechrist	1

Quality Control Summary

Client Name: Brown & Caldwell
Reported: 03/31/2020 21:35

Group Number: 2093355

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/l	MDL ug/l
Batch number: F200912AA	Sample number(s): 1285716-1285722	
Benzene	N.D.	0.2
Ethylbenzene	N.D.	0.4
Methyl Tertiary Butyl Ether	N.D.	0.2
Toluene	N.D.	0.2
Xylene (Total)	N.D.	1
Batch number: Z200851AA	Sample number(s): 1285750	
Benzene	N.D.	0.2
Ethylbenzene	N.D.	0.4
Methyl Tertiary Butyl Ether	N.D.	0.2
Toluene	N.D.	0.2
Xylene (Total)	N.D.	1
Batch number: 20085WAB026	Sample number(s): 1285716-1285722	
Acenaphthene	N.D.	0.01
Acenaphthylene	N.D.	0.01
Anthracene	N.D.	0.01
Benzo(a)anthracene	N.D.	0.01
Benzo(a)pyrene	N.D.	0.01
Benzo(b)fluoranthene	N.D.	0.01
Benzo(g,h,i)perylene	N.D.	0.01
Benzo(k)fluoranthene	N.D.	0.01
Chrysene	N.D.	0.01
Dibenz(a,h)anthracene	N.D.	0.02
Fluoranthene	N.D.	0.01
Fluorene	N.D.	0.01
Indeno(1,2,3-cd)pyrene	N.D.	0.01
Naphthalene	N.D.	0.03
Phenanthrene	N.D.	0.03
Pyrene	N.D.	0.01

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: F200912AA	Sample number(s): 1285716-1285722								

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Brown & Caldwell
Reported: 03/31/2020 21:35

Group Number: 2093355

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzene	20	19.97			100		80-120		
Ethylbenzene	20	18.47			92		80-120		
Methyl Tertiary Butyl Ether	20	18.15			91		69-122		
Toluene	20	18.9			95		80-120		
Xylene (Total)	60	55.73			93		80-120		
Batch number: Z200851AA	Sample number(s): 1285750								
Benzene	20	19.91			100		80-120		
Ethylbenzene	20	20.35			102		80-120		
Methyl Tertiary Butyl Ether	20	19.87			99		69-122		
Toluene	20	20.66			103		80-120		
Xylene (Total)	60	64.81			108		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 20085WAB026	Sample number(s): 1285716-1285722								
Acenaphthene	1.00	0.842	1.00	0.798	84	80	52-107	5	30
Acenaphthylene	1.00	0.638	1.00	0.603	64	60	48-103	6	30
Anthracene	1.00	0.895	1.00	0.738	90	74	61-118	19	30
Benzo(a)anthracene	1.00	0.826	1.00	0.835	83	84	61-117	1	30
Benzo(a)pyrene	1.00	0.920	1.00	0.887	92	89	63-135	4	30
Benzo(b)fluoranthene	1.00	0.899	1.00	0.879	90	88	66-138	2	30
Benzo(g,h,i)perylene	1.00	0.894	1.00	0.892	89	89	53-129	0	30
Benzo(k)fluoranthene	1.00	0.900	1.00	0.870	90	87	58-142	3	30
Chrysene	1.00	0.875	1.00	0.844	87	84	61-117	4	30
Dibenz(a,h)anthracene	1.00	0.938	1.00	0.900	94	90	51-139	4	30
Fluoranthene	1.00	0.938	1.00	0.770	94	77	59-120	20	30
Fluorene	1.00	0.776	1.00	0.747	78	75	55-112	4	30
Indeno(1,2,3-cd)pyrene	1.00	0.960	1.00	0.994	96	99	56-147	3	30
Naphthalene	1.00	0.710	1.00	0.776	71	78	37-114	9	30
Phenanthrene	1.00	0.853	1.00	0.781	85	78	59-119	9	30
Pyrene	1.00	0.796	1.00	0.771	80	77	50-122	3	30

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Quality Control SummaryClient Name: Brown & Caldwell
Reported: 03/31/2020 21:35

Group Number: 2093355

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX/MTBE
Batch number: F200912AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1285716	96	99	97	96
1285717	97	101	93	96
1285718	103	102	104	97
1285719	99	99	99	94
1285720	98	96	98	94
1285721	104	104	96	96
1285722	97	97	97	96
Blank	97	96	97	95
LCS	96	98	98	98
Limits:	80-120	80-120	80-120	80-120

Analysis Name: BTEX/MTBE
Batch number: Z200851AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1285750	108	105	101	94
Blank	107	103	101	93
LCS	104	103	101	101
Limits:	80-120	80-120	80-120	80-120

Analysis Name: PAHS (16) in Water SIM
Batch number: 20085WAB026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
1285716	92	60	70
1285717	73	39	62
1285717DL	69	38	69
1285717DL2	68	37	66
1285718	90	70	67
1285719	85	66	63
1285720	92	69	62
1285721	88	32	59
1285722	82	70	62
Blank	86	72	67
LCS	92	82	70
LCSD	79	82	69
Limits:	34-125	10-138	15-121

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.



**Lancaster Laboratories
Environmental**

Acct. # 09286

For Eurofins Lancaster Laboratories Environmental use only

Group # 2093355

Sample # 1285716-722,751

1 of 1

COC # 603684

[illegible]

Sample Administration Receipt Documentation Log

Doc Log ID: 279685



Group Number(s): 2093355

Client: BROWN & CALDWELL

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Date:	<u>03/20/2020</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>New York</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Julissa Rivera-Santa

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	46730060WS	2.1	IR	Wet	Y	Bagged	N

Sample Date/Time Discrepancy Details

Sample ID on COC	Date/Time on Label	Comments
MW-12S	3/19/2020 14:14	

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is less than the LOQ
K2	Continuing Calibration Blank is above the QC limit and the sample result is less than the LOQ
K3	Initial Calibration Verification is above the QC limit and the sample result is less than the LOQ
K4	Continuing Calibration Verification is above the QC limit and the sample result is less than the LOQ
J (or G, I, X)	Estimated value $\geq$ the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $>40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.

Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Volatiles by GC/MS Data

Case Narrative/Conformance Summary

Volatiles by GC/MS

Case Narrative/Conformance Summary

CLIENT: Brown & Caldwell
SDG: GPY68

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
1285716	MW-3-20200319	X		5	
1285717	MW-13S-20200319	X		5	
1285718	MW-13D-20200319	X		1	
1285719	MW-12S-20200319	X		1	
1285720	FB-20200319	X		1	Field Blank
1285721	MW-12D-20200319	X		1	
1285722	DUP-20200319	X		1	Field Duplicate Sample
1285750	Trip Blank	X		1	Trip Blank

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

Case Narrative/Conformance Summary

CLIENT: Brown & Caldwell
SDG: GPY68

GC/MS Volatiles

Fraction: Volatiles by GC/MS

No problems were encountered with the analysis of the samples.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

 Lancaster Laboratories Environmental	Document Title: GC/MS Volatiles Calculations		
	Eurofins Document Reference: 1-P-QM-FOR-9035336	Revision: 1	Historical Reference: N/A
	Effective date: Dec 3, 2015		Status: Effective

1. Relative Response Factor (RRF)

$$RRF = \frac{AX}{Ais} \times \frac{Cis}{Cx}$$

Where:

Ax = Area of the characteristic ion for the compound to be measured

Ais = Area of the characteristic ion for the specific internal standard to be measured

Cis = Concentration of the internal standard

Cx = Concentration of the compound to be measured

2. % Relative Standard Deviation (%RSD)

$$\%RSD = \frac{\text{standard deviation}}{\text{Mean}} \times 100$$

3. % Difference

$$\%D = \frac{RRFc - RRFi}{RRFi} \times 100$$

Where:

RRFc = Relative response factor from the continuing calibration standard

RRFi = Mean relative response factor from the initial calibration

 Lancaster Laboratories Environmental	Document Title: GC/MS Volatiles Calculations		
	Eurofins Document Reference: 1-P-QM-FOR-9035336	Revision: 1	Historical Reference: N/A
	Effective date: Dec 3, 2015		Status: Effective

4. Concentration

$$\text{Concentration } (\mu\text{g} / \text{L}) = \frac{(Ax)(Is)(Df)}{(Ais)(RRF)}$$

Where:

Ax, Ais, and RRF are as given in 1. above

Is = Amount of internal standard added in parts per billion (µg/L)

Df = Dilution factor

5. % Recovery (% Rec)

$$\%Rec = \frac{SSR - SR}{SA} \times 100$$

Where:

SSR = Spiked sample result

SR = Sample result

SA = Spike added

6. Relative Percent Difference (RPD)

$$RPD = \frac{(MSR - MSRD)}{(1/2)(MSR + MSRD)} \times 100$$

Where:

MSR = Matrix spike recovery

MSRD = Matrix spike recovery duplicate

Quality Control and Calibration Summary Forms

Volatiles by GC/MS

Quality Control Reference List GC/MS Volatiles

CLIENT: Brown & Caldwell
SDG: GPY68

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
BTEX/MTBE	F200912AA	VBLKF14	03/31/2020 09:12
		LCSF14	03/31/2020 08:50
		1285716	03/31/2020 11:36
		1285717	03/31/2020 11:58
		1285718	03/31/2020 12:20
		1285719	03/31/2020 12:42
		1285720	03/31/2020 13:03
		1285721	03/31/2020 13:25
		1285722	03/31/2020 13:47
BTEX/MTBE	Z200851AA	VBLKZ91	03/25/2020 09:23
		LCSZ91	03/25/2020 08:59
		1285750	03/25/2020 18:39

Fraction: Volatiles by GC/MS

F200912AA / VBLKF14					
Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Methyl Tertiary Butyl Ether	03/31/20	N.D.	ug/l	0.2	1
Benzene	03/31/20	N.D.	ug/l	0.2	1
Toluene	03/31/20	N.D.	ug/l	0.2	1
Ethylbenzene	03/31/20	N.D.	ug/l	0.4	1
Xylene (Total)	03/31/20	N.D.	ug/l	1	6

Z200851AA / VBLKZ91					
Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Methyl Tertiary Butyl Ether	03/25/20	N.D.	ug/l	0.2	1
Benzene	03/25/20	N.D.	ug/l	0.2	1
Toluene	03/25/20	N.D.	ug/l	0.2	1
Ethylbenzene	03/25/20	N.D.	ug/l	0.4	1
Xylene (Total)	03/25/20	N.D.	ug/l	1	6

Fraction: Volatiles by GC/MS

F200912AA	1,2-Dichloroethane-d4		4-Bromofluorobenzene		Dibromofluoromethane		Toluene-d8	
	Spike Added	50 ug/l	Spike Added	50 ug/l	Spike Added	50 ug/l	Spike Added	50 ug/l
	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
Sample								
VBLKF14	96	80 - 120	95	80 - 120	97	80 - 120	97	80 - 120
LCSF14	98	80 - 120	98	80 - 120	96	80 - 120	98	80 - 120
1285716	99	80 - 120	96	80 - 120	96	80 - 120	97	80 - 120
1285717	101	80 - 120	96	80 - 120	97	80 - 120	93	80 - 120
1285718	102	80 - 120	97	80 - 120	103	80 - 120	104	80 - 120
1285719	99	80 - 120	94	80 - 120	99	80 - 120	99	80 - 120
1285720	96	80 - 120	94	80 - 120	98	80 - 120	98	80 - 120
1285721	104	80 - 120	96	80 - 120	104	80 - 120	96	80 - 120
1285722	97	80 - 120	96	80 - 120	97	80 - 120	97	80 - 120

Z200851AA	1,2-Dichloroethane-d4		4-Bromofluorobenzene		Dibromofluoromethane		Toluene-d8	
	Spike Added	50 ug/l	Spike Added	50 ug/l	Spike Added	50 ug/l	Spike Added	50 ug/l
	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
Sample								
VBLKZ91	103	80 - 120	93	80 - 120	107	80 - 120	101	80 - 120
LCSZ91	103	80 - 120	101	80 - 120	104	80 - 120	101	80 - 120
1285750	105	80 - 120	94	80 - 120	108	80 - 120	101	80 - 120

SDG: GPY68
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSF14		Batch: F200912AA (Sample number(s): 1285716-1285722)						
Analyte	Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Methyl Tertiary Butyl Ether	20	18.15	NA	91	NA	69-122	NA	NA
Benzene	20	19.97	NA	100	NA	80-120	NA	NA
Toluene	20	18.9	NA	95	NA	80-120	NA	NA
Ethylbenzene	20	18.47	NA	92	NA	80-120	NA	NA
Xylene (Total)	60	55.73	NA	93	NA	80-120	NA	NA

LCS: LCSZ91		Batch: Z200851AA (Sample number(s): 1285750)						
Analyte	Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Methyl Tertiary Butyl Ether	20	19.87	NA	99	NA	69-122	NA	NA
Benzene	20	19.91	NA	100	NA	80-120	NA	NA
Toluene	20	20.66	NA	103	NA	80-120	NA	NA
Ethylbenzene	20	20.35	NA	102	NA	80-120	NA	NA
Xylene (Total)	60	64.81	NA	108	NA	80-120	NA	NA

Fraction: Volatiles by GC/MS

13130: BTEX/MTBE Analyte Name	Default MDL	Default LOQ	Units
Methyl Tertiary Butyl Ether	0.2	1	ug/l
Benzene	0.2	1	ug/l
Toluene	0.2	1	ug/l
Ethylbenzene	0.4	1	ug/l
Xylene (Total)	1	6	ug/l

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: zj20t01.d BFB Injection Date: 01/20/20
 Instrument ID: HP09671 BFB Injection Time: 08:06
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.43
75	30.0 - 60.0% of mass 95	47.12
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.77
173	Less than 2.0% of mass 174	0.16 (0.21)1
174	Greater than 50.0% of mass 95	73.78
175	5.0 - 9.0% of mass 174	5.18 (7.02)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.60 (97.04)1
177	5.0 - 9.0% of mass 176	4.71 (6.58)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD200	zj20i01.d	01/20/20	09:09
02	VSTD200	zj20i02.d	01/20/20	09:21
03	VSTD100	zj20i03.d	01/20/20	09:33
04	VSTD100	zj20i04.d	01/20/20	09:45
05	VSTD50	zj20i05.d	01/20/20	09:57
06	VSTD50	zj20i06.d	01/20/20	10:09
07	VSTD20	zj20i07.d	01/20/20	10:21
08	VSTD20	zj20i08.d	01/20/20	10:33
09	VSTD10	zj20i09.d	01/20/20	10:46
10	VSTD10	zj20i10.d	01/20/20	10:58
11	VSTD2	zj20i11.d	01/20/20	11:10
12	VSTD2	zj20i12.d	01/20/20	11:22
13	VSTD1	zj20i13.d	01/20/20	11:34
14	VSTD1	zj20i14.d	01/20/20	11:46
15	ICVZ01	zj20v01.d	01/20/20	12:23
16	ICVZ02	zj20v02.d	01/20/20	12:35
17	VSTD100	zj20i23.d	01/20/20	12:47
18	VSTD100	zj20i24.d	01/20/20	12:59

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: zm25t01.d BFB Injection Date: 03/25/20
 Instrument ID: HP09671 BFB Injection Time: 07:47
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.82
75	30.0 - 60.0% of mass 95	45.26
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.65
173	Less than 2.0% of mass 174	0.31 (0.40)1
174	Greater than 50.0% of mass 95	77.53
175	5.0 - 9.0% of mass 174	5.49 (7.08)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.15 (95.65)1
177	5.0 - 9.0% of mass 176	4.87 (6.57)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	zm25c01.d	03/25/20	08:34
02	VSTD50	zm25c02.d	03/25/20	08:46
03	LCSZ91	zm25s01.d	03/25/20	08:59
04	LCSZ92	zm25s02.d	03/25/20	09:11
05	VLKZ91	zm25b01.d	03/25/20	09:23
06	VLKZ92	zm25b02.d	03/25/20	09:35
07	1283824	zm25s03.d	03/25/20	10:08
08	1285389	zm25s04.d	03/25/20	10:20
09	1283817	zm25s05.d	03/25/20	10:33
10	1285467	zm25s06.d	03/25/20	10:45
11	1283818MS	zm25s07.d	03/25/20	10:57
12	1285467MS	zm25s08.d	03/25/20	11:09
13	1283819MSD	zm25s09.d	03/25/20	11:21
14	1285467MSD	zm25s10.d	03/25/20	11:33
15	1283820	zm25s11.d	03/25/20	11:45
16	1285468	zm25s12.d	03/25/20	11:57
17	1283821	zm25s13.d	03/25/20	12:10
18	1285469	zm25s14.d	03/25/20	12:22
19	1283822	zm25s15.d	03/25/20	12:34
20	1285470	zm25s16.d	03/25/20	12:46
21	1283823	zm25s17.d	03/25/20	12:58
22	1285471	zm25s18.d	03/25/20	13:10

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: zm25t01.d BFB Injection Date: 03/25/20
 Instrument ID: HP09671 BFB Injection Time: 07:47
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.82
75	30.0 - 60.0% of mass 95	45.26
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.65
173	Less than 2.0% of mass 174	0.31 (0.40)1
174	Greater than 50.0% of mass 95	77.53
175	5.0 - 9.0% of mass 174	5.49 (7.08)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.15 (95.65)1
177	5.0 - 9.0% of mass 176	4.87 (6.57)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	1282212	zm25s19.d	03/25/20	13:23
24	1285472	zm25s20.d	03/25/20	13:35
25	1282212DL	zm25s21.d	03/25/20	13:47
26	1285473	zm25s22.d	03/25/20	13:59
27	1282214	zm25s23.d	03/25/20	14:11
28	1285474	zm25s24.d	03/25/20	14:23
29	1282215	zm25s25.d	03/25/20	14:36
30	1285475	zm25s26.d	03/25/20	14:48
31	1283809	zm25s27.d	03/25/20	15:00
32	1285476	zm25s28.d	03/25/20	15:12
33	1283810	zm25s29.d	03/25/20	15:24
34	1285477	zm25s30.d	03/25/20	15:36
35	1283811	zm25s31.d	03/25/20	15:49
36	1285478	zm25s32.d	03/25/20	16:01
37	1283812	zm25s33.d	03/25/20	16:13
38	1285479	zm25s34.d	03/25/20	16:25
39	1283813	zm25s35.d	03/25/20	16:38
40	1285480	zm25s36.d	03/25/20	16:50
41	1283814	zm25s37.d	03/25/20	17:02
42	1282176	zm25s38.d	03/25/20	17:14
43	1283815	zm25s39.d	03/25/20	17:26
44	1282177	zm25s40.d	03/25/20	17:38

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: zm25t01.d BFB Injection Date: 03/25/20
 Instrument ID: HP09671 BFB Injection Time: 07:47
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	15.82
75	30.0 - 60.0% of mass 95	45.26
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.65
173	Less than 2.0% of mass 174	0.31 (0.40)1
174	Greater than 50.0% of mass 95	77.53
175	5.0 - 9.0% of mass 174	5.49 (7.08)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.15 (95.65)1
177	5.0 - 9.0% of mass 176	4.87 (6.57)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
45	1283816	zm25s41.d	03/25/20	17:51
46	1282178	zm25s42.d	03/25/20	18:03
47	1285280	zm25s43.d	03/25/20	18:15
48	1282140	zm25s44.d	03/25/20	18:27
49	1285750	zm25s45.d	03/25/20	18:39
50	1282141	zm25s46.d	03/25/20	18:51

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: ff11t01.d BFB Injection Date: 02/11/20
 Instrument ID: HP15830 BFB Injection Time: 08:48
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.58
75	30.0 - 60.0% of mass 95	49.22
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.64
173	Less than 2.0% of mass 174	0.50 (0.63)1
174	Greater than 50.0% of mass 95	79.07
175	5.0 - 9.0% of mass 174	5.99 (7.58)1
176	Greater than 95.0%, but less than 101.0% of mass 174	76.28 (96.48)1
177	5.0 - 9.0% of mass 176	4.93 (6.47)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD200	ff1101.d	02/11/20	09:44
02	VSTD200	ff1102.d	02/11/20	09:54
03	VSTD100	ff1103.d	02/11/20	10:06
04	VSTD100	ff1104.d	02/11/20	10:16
05	VSTD50	ff1105.d	02/11/20	10:28
06	VSTD50	ff1106.d	02/11/20	10:38
07	VSTD20	ff1107.d	02/11/20	10:50
08	VSTD20	ff1108.d	02/11/20	11:00
09	VSTD10	ff1109.d	02/11/20	11:12
10	VSTD10	ff1110.d	02/11/20	11:22
11	VSTD2	ff1111.d	02/11/20	11:34
12	VSTD2	ff1112.d	02/11/20	11:44
13	VSTD1	ff1113.d	02/11/20	11:56
14	VSTD1	ff1114.d	02/11/20	12:05
15	FICV10	ff11v01.d	02/11/20	12:40
16	FICV50	ff11v02.d	02/11/20	12:50

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: fm31t01.d BFB Injection Date: 03/31/20
 Instrument ID: HP15830 BFB Injection Time: 07:36
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.56
75	30.0 - 60.0% of mass 95	45.96
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.42
173	Less than 2.0% of mass 174	0.57 (0.76)1
174	Greater than 50.0% of mass 95	75.04
175	5.0 - 9.0% of mass 174	5.18 (6.91)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.39 (95.14)1
177	5.0 - 9.0% of mass 176	4.75 (6.65)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	fm31c01.d	03/31/20	08:19
02	VSTD50	fm31c02.d	03/31/20	08:28
03	LCSF13	fm31s01.d	03/31/20	08:41
04	LCSF14	fm31s02.d	03/31/20	08:50
05	VBLKF13	fm31b01.d	03/31/20	09:03
06	VBLKF14	fm31b02.d	03/31/20	09:12
07	1286810	fm31s03.d	03/31/20	09:37
08	1286370	fm31s04.d	03/31/20	09:47
09	1286809	fm31s05.d	03/31/20	09:59
10	1286371	fm31s06.d	03/31/20	10:09
11	1286809MS	fm31s07.d	03/31/20	10:21
12	1286377	fm31s08.d	03/31/20	10:30
13	1286809MSD	fm31s09.d	03/31/20	10:43
14	1286377MS	fm31s10.d	03/31/20	10:52
15	1286313DL	fm31s11.d	03/31/20	11:05
16	1286377MSD	fm31s12.d	03/31/20	11:14
17	1285269	fm31s13.d	03/31/20	11:27
18	1285716	fm31s14.d	03/31/20	11:36
19	1285269DL	fm31s15.d	03/31/20	11:49
20	1285717	fm31s16.d	03/31/20	11:58
21	1285270	fm31s17.d	03/31/20	12:10
22	1285718	fm31s18.d	03/31/20	12:20

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: fm31t01.d BFB Injection Date: 03/31/20
 Instrument ID: HP15830 BFB Injection Time: 07:36
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.56
75	30.0 - 60.0% of mass 95	45.96
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.42
173	Less than 2.0% of mass 174	0.57 (0.76)1
174	Greater than 50.0% of mass 95	75.04
175	5.0 - 9.0% of mass 174	5.18 (6.91)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.39 (95.14)1
177	5.0 - 9.0% of mass 176	4.75 (6.65)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	1285270DL	fm31s19.d	03/31/20	12:32
24	1285719	fm31s20.d	03/31/20	12:42
25	1285274DL2	fm31s21.d	03/31/20	12:54
26	1285720	fm31s22.d	03/31/20	13:03
27	1285276DL2	fm31s23.d	03/31/20	13:16
28	1285721	fm31s24.d	03/31/20	13:25
29	1285278DL	fm31s25.d	03/31/20	13:38
30	1285722	fm31s26.d	03/31/20	13:47
31	1286804	fm31s27.d	03/31/20	13:59
32	1286522	fm31s28.d	03/31/20	14:09
33	1286805	fm31s29.d	03/31/20	14:21
34	1286806	fm31s31.d	03/31/20	14:43
35	1286523	fm31s32.d	03/31/20	14:53
36	1286807	fm31s33.d	03/31/20	15:04
37	1286524	fm31s34.d	03/31/20	15:14
38	1286808	fm31s35.d	03/31/20	15:26
39	1286378	fm31s36.d	03/31/20	15:36
40	1286859	fm31s37.d	03/31/20	15:48
41	1286379	fm31s38.d	03/31/20	15:58
42	1286860	fm31s39.d	03/31/20	16:10
43	1289763	fm31s40.d	03/31/20	16:20
44	1286862	fm31s41.d	03/31/20	16:32

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: fm31t01.d BFB Injection Date: 03/31/20
 Instrument ID: HP15830 BFB Injection Time: 07:36
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.56
75	30.0 - 60.0% of mass 95	45.96
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.42
173	Less than 2.0% of mass 174	0.57 (0.76)1
174	Greater than 50.0% of mass 95	75.04
175	5.0 - 9.0% of mass 174	5.18 (6.91)1
176	Greater than 95.0%, but less than 101.0% of mass 174	71.39 (95.14)1
177	5.0 - 9.0% of mass 176	4.75 (6.65)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
45	1289764	fm31s42.d	03/31/20	16:41
46	1287281	fm31s43.d	03/31/20	16:54
47	1289765	fm31s44.d	03/31/20	17:03
48	1287282	fm31s45.d	03/31/20	17:15
49	1289766	fm31s46.d	03/31/20	17:25

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP09671 Calibration Date(s): 01/20/20 01/20/20
 Heated Purge: (Y/N) Y Calibration Times: 09:09 12:47
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-VRX ID: .18

LAB FILE ID:		RRF 1 = zj20i13.d		RRF 2 = zj20i11.d		RRF 10= zj20i09.d					
RRF 20= zj20i07.d		RRF 50= zj20i05.d		RRF100= zj20i23.d		RRF200= zj20i01.d					
									%	CAL.	
COMPOUND		RRF 1	RRF 2	RRF 10	RRF 20	RRF 50	RRF100	RRF200	RRF	RSD	METHOD
Ethanol		0.1306	0.1213	0.1168	0.1153	0.1169	0.1138	0.1139	0.1184	5	AVG
t-Butyl alcohol		1.0451	1.0770	1.1260	1.1945	1.3242	1.1001	1.1361	1.1432	8	AVG
Methyl Tertiary Butyl Ether		0.6819	0.7170	0.6831	0.7347	0.7443	0.7091	0.6840	0.7077	4	AVG
di-Isopropyl ether		0.7058	0.7262	0.7352	0.7927	0.8106	0.7618	0.8140	0.7637	6	AVG
Ethyl t-butyl ether		0.6207	0.6296	0.6680	0.7231	0.7501	0.7065	0.7577	0.6937	8	AVG
t-Butyl Formate			0.1226	0.0926	0.1471	0.1606	0.1557	0.1662	0.1408	20	AVG
t-Amyl Alcohol			0.3564	0.5035	0.5383	0.5414	0.5443	0.5619	0.5076	15	AVG
1,2-Dichloroethane		0.4082	0.3792	0.3389	0.3447	0.3370	0.3191	0.3337	0.3515	9	AVG
Benzene		1.0808	1.1203	1.0519	1.0946	1.0728	1.0130	1.0803	1.0734	3	AVG
t-Amyl methyl ether		0.1344	0.1408	0.1544	0.1650	0.1740	0.1643	0.1795	0.1589	10	AVG
Toluene		0.9288	0.9323	0.9053	0.9449	0.9251	0.8812	0.9467	0.9235	3	AVG
3,3-Dimethyl-1-butanol		0.5778	0.6211	0.8676	0.8972	0.8850	0.8522	0.8952	0.7994	17	AVG
1,2-Dibromoethane		0.3046	0.3051	0.3042	0.3274	0.3353	0.3224	0.3487	0.3211	5	AVG
Ethylbenzene		1.6050	1.5749	1.6244	1.7345	1.7518	1.6699	1.7915	1.6789	5	AVG
m+p-Xylene		0.5796	0.6149	0.6570	0.7036	0.7026	0.6682	0.7128	0.6626	8	AVG
o-Xylene		0.5562	0.5713	0.6145	0.6592	0.6771	0.6424	0.6992	0.6314	8	AVG
Isopropylbenzene		1.4778	1.5266	1.5963	1.7147	1.7220	1.6265	1.7472	1.6301	6	AVG
1,3,5-Trimethylbenzene		2.0873	2.0888	2.3900	2.6138	2.7379	2.6144	2.8703	2.4861	12	AVG
1,2,4-Trimethylbenzene		2.0369	2.0954	2.5290	2.7915	2.8522	2.7318	2.9522	2.5698	14	AVG
Naphthalene		2.7825	2.6754	3.0605	3.5269	3.8834	3.5706	3.8275	3.3324	15	AVG
Dibromofluoromethane		0.2014	0.1990	0.1966	0.1953	0.1924	0.1927	0.1939	0.1959	2	AVG
Dibromofluoromethane (2)		0.2070	0.2030	0.2016	0.1996	0.1976	0.1980	0.1992	0.2009	2	AVG
1,2-Dichloroethane-d4		0.0614	0.0615	0.0608	0.0612	0.0633	0.0609	0.0605	0.0614	1	AVG
1,2-Dichloroethane-d4 (2)		0.2899	0.2874	0.2850	0.2856	0.2946	0.2834	0.2859	0.2874	1	AVG
1,2-Dichloroethane-d4 (3)		0.0385	0.0385	0.0383	0.0378	0.0381	0.0373	0.0372	0.0379	1	AVG
Toluene-d8		1.3451	1.3318	1.3430	1.3398	1.3440	1.3293	1.3300	1.3376	1	AVG
Toluene-d8 (2)		0.8547	0.8511	0.8584	0.8622	0.8617	0.8523	0.8541	0.8563	1	AVG
4-Bromofluorobenzene		0.4829	0.4898	0.5062	0.5081	0.5119	0.5090	0.5163	0.5034	2	AVG
4-Bromofluorobenzene (2)		0.3687	0.3676	0.3789	0.3850	0.3841	0.3833	0.3849	0.3789	2	AVG
Average %RSD 7											

Minimum RRF for SPCC(#) = 0.10
 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %RSD for CCC(*) = 30%

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09671.i/20jan20z.b/zj20i01.d	VSTD200
/chem2/HP09671.i/20jan20z.b/zj20i05.d	VSTD050
/chem2/HP09671.i/20jan20z.b/zj20i07.d	VSTD020
/chem2/HP09671.i/20jan20z.b/zj20i09.d	VSTD010
/chem2/HP09671.i/20jan20z.b/zj20i11.d	VSTD002
/chem2/HP09671.i/20jan20z.b/zj20i13.d	VSTD001
/chem2/HP09671.i/20jan20z.b/zj20i23.d	VSTD100

Area Summary

File ID:

=====

Internal Standard Name	zj20i01.d	zj20i05.d	zj20i07.d	zj20i09.d	zj20i11.d	zj20i13.d	zj20i23.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	208848	208898	211026	211328	212009	208649	207431	209741	1	Yes
Fluorobenzene	742718	744962	739482	738198	719981	705593	740322	733037	2	Yes
Chlorobenzene-d5	534108	531084	529337	529752	524034	515943	531236	527928	1	Yes
1,4-Dichlorobenzene-d4	280673	279816	279120	278135	270712	265108	280823	276341	2	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

=====

Internal Standard Name	zj20i01.d	zj20i05.d	zj20i07.d	zj20i09.d	zj20i11.d	zj20i13.d	zj20i23.d	Avg. RT
t-Butyl alcohol-d10	1.604	1.592	1.604	1.592	1.598	1.598	1.592	1.597
Fluorobenzene	3.259	3.259	3.259	3.259	3.259	3.259	3.259	3.259
Chlorobenzene-d5	4.847	4.847	4.847	4.847	4.847	4.847	4.847	4.847
1,4-Dichlorobenzene-d4	5.869	5.869	5.869	5.869	5.869	5.869	5.869	5.869

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 01/21/2020 at 04:49.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP09671 ICV Date: 01/20/20 Time: 12:23
 Lab File ID: zj20v01.d Init. Calib. Date(s): 01/20/20 01/20/20
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-VRX ID: .18

COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethanol	0.1184	0.1197	505.53	500	1
t-Butyl alcohol	1.1432	1.0625	185.86	200	-7
# Methyl Tertiary Butyl Ether	0.7077	0.6530	18.45	20	-8 #
di-Isopropyl ether	0.7637	0.7162	18.75	20	-6
Ethyl t-butyl ether	0.6937	0.6596	19.02	20	-5
t-Butyl Formate	0.1408	0.1374	97.57	100	-2
t-Amyl Alcohol	0.5076	0.4707	185.45	200	-7
# 1,2-Dichloroethane	0.3515	0.3300	18.78	20	-6 #
# Benzene	1.0734	1.0334	19.25	20	-4 #
t-Amyl methyl ether	0.1589	0.1531	19.27	20	-4
# Toluene	0.9235	0.8939	19.36	20	-3 #
3,3-Dimethyl-1-butanol	0.7994	0.7580	474.11	500	-5
# 1,2-Dibromoethane	0.3211	0.3112	19.39	20	-3 #
# Ethylbenzene	1.6789	1.6251	19.36	20	-3 #
# m+p-Xylene	0.6626	0.6713	40.52	40	1 #
# o-Xylene	0.6314	0.6291	19.93	20	0 #
# Isopropylbenzene	1.6301	1.5926	19.54	20	-2 #
1,3,5-Trimethylbenzene	2.4861	2.4156	19.43	20	-3
1,2,4-Trimethylbenzene	2.5698	2.5718	20.02	20	0
Naphthalene	3.3324	3.0499	18.30	20	-8

Average %Drift 4

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %Drift for CCC(*)=20%

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 Calibration Date(s): 02/11/20 02/11/20
 Heated Purge: (Y/N) Y Calibration Times: 09:54 12:05
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

LAB FILE ID:		RRF 1 = ff1114.d		RRF 2 = ff1112.d		RRF 10= ff1110.d		
RRF 20= ff1108.d		RRF 50= ff1106.d		RRF100= ff1104.d		RRF200= ff1102.d		

Minimum RRF for SPCC(#) = 0.10
 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %RSD for CCC(*) = 30%

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP15830.i/20feb11a.b/ff1102.d	VSTD200
/chem/HP15830.i/20feb11a.b/ff1104.d	VSTD100
/chem/HP15830.i/20feb11a.b/ff1106.d	VSTD050
/chem/HP15830.i/20feb11a.b/ff1108.d	VSTD020
/chem/HP15830.i/20feb11a.b/ff1110.d	VSTD010
/chem/HP15830.i/20feb11a.b/ff1112.d	VSTD002
/chem/HP15830.i/20feb11a.b/ff1114.d	VSTD001

Area Summary

File ID:

=====

Internal Standard Name	ff1102.d	ff1104.d	ff1106.d	ff1108.d	ff1110.d	ff1112.d	ff1114.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	233977	228914	235146	231140	225839	230740	227263	230431	1	Yes
Fluorobenzene	774110	762938	771721	754072	737086	728767	721101	749971	3	Yes
Chlorobenzene-d5	554344	561060	562234	543800	537891	533160	527021	545644	3	Yes
1,4-Dichlorobenzene-d4	293347	286705	291372	282242	277696	275314	270441	282445	3	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

=====

Internal Standard Name	ff1102.d	ff1104.d	ff1106.d	ff1108.d	ff1110.d	ff1112.d	ff1114.d	Avg. RT
t-Butyl alcohol-d10	1.916	1.916	1.910	1.910	1.898	1.910	1.910	1.910
Fluorobenzene	3.501	3.501	3.501	3.501	3.501	3.501	3.501	3.501
Chlorobenzene-d5	4.848	4.842	4.842	4.842	4.842	4.842	4.842	4.843
1,4-Dichlorobenzene-d4	5.793	5.793	5.793	5.793	5.793	5.793	5.793	5.793

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 02/12/2020 at 11:18.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 ICV Date: 02/11/20 Time: 12:50
 Lab File ID: ff11v02.d Init. Calib. Date(s): 02/11/20 02/11/20
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethanol	0.1419	0.1443	508.38	500	2
t-Butyl alcohol	1.4171	1.2715	179.46	200	-10
# Methyl Tertiary Butyl Ether	1.0587	1.0531	19.89	20	-1 #
di-Isopropyl ether	1.2014	1.1619	19.34	20	-3
Ethyl t-butyl ether	1.1452	1.1151	19.47	20	-3
t-Butyl Formate	0.3308	0.2842	85.92	100	-14
t-Amyl Alcohol	0.6332	0.5759	181.90	200	-9
# 1,2-Dichloroethane	0.5035	0.4947	19.65	20	-2 #
# Benzene	1.4096	1.3798	19.58	20	-2 #
t-Amyl methyl ether	0.2635	0.2559	19.42	20	-3
# Toluene	1.2400	1.1983	19.33	20	-3 #
3,3-Dimethyl-1-butanol	0.9115	0.8307	455.68	500	-9
# 1,2-Dibromoethane	0.4559	0.4436	19.46	20	-3 #
# Ethylbenzene	2.4317	2.3544	19.36	20	-3 #
# m+p-Xylene	0.9289	0.9018	38.83	40	-3 #
# o-Xylene	0.9000	0.8763	19.47	20	-3 #
# Isopropylbenzene	2.4194	2.2827	18.87	20	-6 #
1,3,5-Trimethylbenzene	3.8505	3.6681	19.05	20	-5
1,2,4-Trimethylbenzene	3.8742	3.7118	19.16	20	-4
Naphthalene	4.3634	3.8878	17.82	20	-11

Average %Drift 5

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %Drift for CCC(*)=20%

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

```

/chem2/HP09671.i/20jan20z.b/zj20i13.d
/chem2/HP09671.i/20jan20z.b/zj20i11.d
/chem2/HP09671.i/20jan20z.b/zj20i09.d
/chem2/HP09671.i/20jan20z.b/zj20i07.d
/chem2/HP09671.i/20jan20z.b/zj20i05.d
/chem2/HP09671.i/20jan20z.b/zj20i23.d
/chem2/HP09671.i/20jan20z.b/zj20i01.d
  
```

File /chem2/HP09671.i/20jan20z.b/zj20i05.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

```

/chem2/HP09671.i/20mar25a.b/zm25c01.d
  
```

RT Summary

File ID:

=====

Internal Standard Name	zm25c01.d	ICAL RT	In Spec
t-Butyl alcohol-d10	1.592	1.592	Yes
Fluorobenzene	3.253	3.259	Yes
Chlorobenzene-d5	4.847	4.847	Yes
1,4-Dichlorobenzene-d4	5.869	5.869	Yes

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

File ID:

=====

Internal Standard Name	zm25c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	180801	208898	104449	417796	Yes
Fluorobenzene	804362	744962	372481	1489924	Yes
Chlorobenzene-d5	568867	531084	265542	1062168	Yes
1,4-Dichlorobenzene-d4	312658	279816	139908	559632	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments:

report generated on 03/25/2020 at 09:55

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: HP09671 Calibration Date: 03/25/20 Time: 08:34

Lab File ID: zm25c01.d Init. Calib. Date(s): 01/20/20 01/20/20

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-VRX ID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
=====	=====	=====	=====	=====	=====
Ethanol	0.1184	0.1166	1230.81	1250	-2
t-Butyl alcohol	1.1432	1.2341	269.86	250	8
# Methyl Tertiary Butyl Ether	0.7077	0.7242	204.65	200	2 #
di-Isopropyl ether	0.7637	0.7941	51.99	50	4
Ethyl t-butyl ether	0.6937	0.7512	54.15	50	8
# 1,2-Dichloroethane	0.3515	0.3253	46.27	50	-7 #
# Benzene	1.0734	1.0840	50.50	50	1 #
t-Amyl methyl ether	0.1589	0.1779	55.97	50	12
# Toluene	0.9235	0.9700	52.52	50	5 #
# 1,2-Dibromoethane	0.3211	0.3496	54.44	50	9 #
# Ethylbenzene	1.6789	1.8078	53.84	50	8 #
# m+p-Xylene	0.6626	0.7370	111.21	100	11 #
# o-Xylene	0.6314	0.7104	56.25	50	13 #
# Isopropylbenzene	1.6301	1.8330	56.22	50	12 #
1,3,5-Trimethylbenzene	2.4861	2.7927	56.17	50	12
1,2,4-Trimethylbenzene	2.5698	2.9266	56.94	50	14
Naphthalene	3.3324	3.7560	56.36	50	13
=====	=====	=====	=====	=====	=====
Dibromofluoromethane	0.1959	0.2016	51.46	50	3
Dibromofluoromethane (2)	0.2009	0.2067	51.46	50	3
1,2-Dichloroethane-d4	0.0614	0.0638	51.97	50	4
1,2-Dichloroethane-d4 (2)	0.2874	0.2801	48.74	50	-3
1,2-Dichloroethane-d4 (3)	0.0379	0.0389	51.22	50	2
Toluene-d8	1.3376	1.3586	50.79	50	2
Toluene-d8 (2)	0.8563	0.8790	51.32	50	3
4-Bromofluorobenzene	0.5034	0.5067	50.32	50	1
4-Bromofluorobenzene (2)	0.3789	0.4067	53.66	50	7

Average %Drift 7

Minimum RRF for SPCC(=)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

```

/chem/HP15830.i/20feb11a.b/ff1114.d
/chem/HP15830.i/20feb11a.b/ff1112.d
/chem/HP15830.i/20feb11a.b/ff1110.d
/chem/HP15830.i/20feb11a.b/ff1108.d
/chem/HP15830.i/20feb11a.b/ff1106.d
/chem/HP15830.i/20feb11a.b/ff1104.d
/chem/HP15830.i/20feb11a.b/ff1102.d

```

File /chem/HP15830.i/20feb11a.b/ff1106.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP15830.i/20mar31a.b/fm31c02.d

RT Summary

File ID:

=====

Internal Standard Name	fm31c02.d	ICAL RT	In Spec
=====	=====	=====	=====
t-Butyl alcohol-d10	1.910	1.910	Yes
Fluorobenzene	3.501	3.501	Yes
Chlorobenzene-d5	4.854	4.842	Yes
1,4-Dichlorobenzene-d4	5.799	5.793	Yes

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

File ID:

=====

Internal Standard Name	fm31c02.d	ICAL Area	Low Limit	High Limit	In Spec
=====	=====	=====	=====	=====	=====
t-Butyl alcohol-d10	215995	235146	117573	470292	Yes
Fluorobenzene	806434	771721	385860	1543442	Yes
Chlorobenzene-d5	607676	562234	281117	1124468	Yes
1,4-Dichlorobenzene-d4	315332	291372	145686	582744	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments:

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 Calibration Date: 03/31/20 Time: 08:28
 Lab File ID: fm31c02.d Init. Calib. Date(s): 02/11/20 02/11/20
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
=====	=====	=====	=====	=====	=====
Ethanol	0.1419	0.1196	1053.99	1250	-16
t-Butyl alcohol	1.4171	1.4996	264.56	250	6
# Methyl Tertiary Butyl Ether	1.0587	0.9828	185.67	200	-7 #
di-Isopropyl ether	1.2014	1.2400	51.60	50	3
Ethyl t-butyl ether	1.1452	1.1520	50.30	50	1
t-Butyl Formate	0.3308	0.2701	102.06	125	-18
t-Amyl Alcohol	0.6332	0.6434	508.00	500	2
# 1,2-Dichloroethane	0.5035	0.4768	47.35	50	-5 #
# Benzene	1.4096	1.4942	53.00	50	6 #
t-Amyl methyl ether	0.2635	0.2630	49.91	50	0
# Toluene	1.2400	1.2765	51.47	50	3 #
3,3-Dimethyl-1-butanol	0.9115	0.8629	946.68	1000	-5
# 1,2-Dibromoethane	0.4559	0.4666	51.17	50	2 #
# Ethylbenzene	2.4317	2.4709	50.81	50	2 #
# m+p-Xylene	0.9289	0.9605	103.39	100	3 #
# o-Xylene	0.9000	0.9161	50.89	50	2 #
# Isopropylbenzene	2.4194	2.4086	49.78	50	0 #
1,3,5-Trimethylbenzene	3.8505	3.8559	50.07	50	0
1,2,4-Trimethylbenzene	3.8742	3.9817	51.39	50	3
Naphthalene	4.3634	4.4079	50.51	50	1
=====	=====	=====	=====	=====	=====
Dibromofluoromethane	0.2300	0.2216	48.17	50	-4
Dibromofluoromethane(2)	0.2365	0.2270	47.99	50	-4
1,2-Dichloroethane-d4	0.0626	0.0638	51.01	50	2
1,2-Dichloroethane-d4(2)	0.3201	0.3055	47.71	50	-5
1,2-Dichloroethane-d4(3)	0.0388	0.0376	48.40	50	-3
Toluene-d8	1.3284	1.2823	48.26	50	-3
Toluene-d8(2)	0.8564	0.8338	48.68	50	-3
4-Bromofluorobenzene	0.5159	0.5042	48.87	50	-2
4-Bromofluorobenzene(2)	0.4038	0.3889	48.17	50	-4

Average %Drift 4

Minimum RRF for SPCC(=)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %Drift for CCC(*)=20%

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): zm25c01.d Date Analyzed: 03/25/20
 Instrument ID: HP09671 Time Analyzed: 08:34
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1 (TBA) AREA #	RT #	IS2 (FBZ) AREA #	RT #	IS3 (CBZ) AREA #	RT #	IS4 (DCB) AREA #	RT #
	12 HOUR STD	180801	1.592	804362	3.253	568867	4.847	312658	5.869
	UPPER LIMIT	361602	2.092	1608724	3.753	1137734	5.347	625316	6.369
	LOWER LIMIT	90400	1.092	402181	2.753	284434	4.347	156329	5.369
	LAB SAMPLE ID								
01	LCSZ91	172847	1.592	780598	3.259	553022	4.847	305404	5.869
02	LCSZ92	297188	1.586	737668	3.247	535810	4.847	297411	5.869
03	VBLKZ91	176790	1.598	760115	3.259	555996	4.847	295244	5.869
04	VBLKZ92	282395	1.586	702481	3.253	522049	4.847	281064	5.869
05	1283824	186104	1.592	755268	3.253	554185	4.847	293426	5.869
06	1285389	284596	1.580	696172	3.253	524634	4.847	278721	5.869
07	1283817	179159	1.598	750424	3.259	548414	4.847	294712	5.869
08	1285467	283020	1.580	680958	3.247	510140	4.847	269569	5.869
09	1283818MS	173908	1.592	779574	3.259	550289	4.847	305142	5.869
10	1285467MS	259663	1.580	711403	3.247	511377	4.847	287443	5.869
11	1283819MSD	176361	1.592	780618	3.259	549046	4.847	304773	5.869
12	1285467MSD	275998	1.580	718518	3.247	519830	4.847	293336	5.869
13	1283820	180128	1.592	734528	3.259	537458	4.847	288989	5.869
14	1285468	271784	1.580	700992	3.247	529805	4.847	288843	5.869
15	1283821	169258	1.592	728008	3.253	534358	4.847	286543	5.869
16	1285469	271033	1.580	679961	3.247	510886	4.847	270150	5.869
17	1283822	185996	1.598	739552	3.259	539954	4.847	298623	5.869
18	1285470	284444	1.574	683638	3.241	517054	4.847	272758	5.869
19	1283823	174525	1.598	727069	3.259	534130	4.847	282956	5.869
20	1285471	252015	1.586	662238	3.253	497520	4.847	264013	5.869
21	1282212	176485	1.598	759400	3.259	552489	4.847	295667	5.869
22	1285472	287926	1.580	715761	3.247	526593	4.847	291928	5.869

IS1 (TBA)=t-Butyl alcohol-d10 UPPER LIMIT = + 100%
 IS2 (FBZ)=Fluorobenzene of internal standard area.
 IS3 (CBZ)=Chlorobenzene-d5 LOWER LIMIT = - 50%
 IS4 (DCB)=1,4-Dichlorobenzene-d4 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): zm25c01.d Date Analyzed: 03/25/20
 Instrument ID: HP09671 Time Analyzed: 08:34
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1 (TBA) AREA #	RT #	IS2 (FBZ) AREA #	RT #	IS3 (CBZ) AREA #	RT #	IS4 (DCB) AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	180801	1.592	804362	3.253	568867	4.847	312658	5.869
	UPPER LIMIT	361602	2.092	1608724	3.753	1137734	5.347	625316	6.369
	LOWER LIMIT	90400	1.092	402181	2.753	284434	4.347	156329	5.369
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	LAB SAMPLE ID								
	=====	=====	=====	=====	=====	=====	=====	=====	=====
23	1282212DL	165493	1.592	714547	3.259	522100	4.847	290511	5.869
24	1285473	295808	1.580	713906	3.247	537585	4.847	287333	5.869
25	1282214	183426	1.592	744436	3.259	554491	4.847	294306	5.869
26	1285474	295038	1.586	721106	3.247	532367	4.847	293068	5.869
27	1282215	179484	1.604	739123	3.259	535801	4.847	286946	5.869
28	1285475	290670	1.580	710767	3.247	521871	4.847	292269	5.869
29	1283809	183579	1.592	740593	3.253	542633	4.847	293015	5.869
30	1285476	270173	1.574	672607	3.247	507444	4.847	269506	5.869
31	1283810	173626	1.592	720695	3.253	522370	4.847	279391	5.869
32	1285477	281261	1.586	676627	3.253	509799	4.847	269624	5.869
33	1283811	169698	1.604	687136	3.259	503878	4.847	266761	5.869
34	1285478	285808	1.574	660907	3.247	505016	4.847	264966	5.869
35	1283812	172498	1.592	704257	3.253	519373	4.847	278071	5.869
36	1285479	293099	1.574	664927	3.247	502159	4.847	265911	5.869
37	1283813	166853	1.604	700559	3.259	516588	4.847	274449	5.869
38	1285480	284853	1.586	651871	3.253	492686	4.847	260887	5.869
39	1283814	179540	1.598	698200	3.259	517552	4.847	287489	5.869
40	1282176	274295	1.574	664132	3.247	504414	4.847	273366	5.869
41	1283815	177442	1.598	718997	3.259	529452	4.847	280694	5.869
42	1282177	283765	1.586	706587	3.247	520102	4.847	286149	5.869
43	1283816	178037	1.592	717622	3.253	524997	4.847	285870	5.869
44	1282178	293903	1.580	731896	3.247	537417	4.847	293902	5.869

IS1 (TBA)=t-Butyl alcohol-d10 UPPER LIMIT = + 100%
 IS2 (FBZ)=Fluorobenzene of internal standard area.
 IS3 (CBZ)=Chlorobenzene-d5 LOWER LIMIT = - 50%
 IS4 (DCB)=1,4-Dichlorobenzene-d4 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): zm25c01.d Date Analyzed: 03/25/20
 Instrument ID: HP09671 Time Analyzed: 08:34
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1 (TBA) AREA #	RT #	IS2 (FBZ) AREA #	RT #	IS3 (CBZ) AREA #	RT #	IS4 (DCB) AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	180801	1.592	804362	3.253	568867	4.847	312658	5.869
	UPPER LIMIT	361602	2.092	1608724	3.753	1137734	5.347	625316	6.369
	LOWER LIMIT	90400	1.092	402181	2.753	284434	4.347	156329	5.369
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	LAB SAMPLE ID								
	=====	=====	=====	=====	=====	=====	=====	=====	=====
45	1285280	165146	1.604	679532	3.259	495066	4.847	264956	5.869
46	1282140	283704	1.574	721253	3.247	539914	4.847	287952	5.869
47	1285750	172528	1.592	722180	3.259	530482	4.847	283490	5.869
48	1282141	285794	1.580	681884	3.247	509667	4.847	270829	5.869

IS1 (TBA)=t-Butyl alcohol-d10
 IS2 (FBZ)=Fluorobenzene
 IS3 (CBZ)=Chlorobenzene-d5
 IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
 of internal standard area.
 LOWER LIMIT = - 50%
 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.
 page 3 of 3

FORM VIII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): fm31c02.d Date Analyzed: 03/31/20
 Instrument ID: HP15830 Time Analyzed: 08:28
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1 (TBA) AREA #	RT #	IS2 (FBZ) AREA #	RT #	IS3 (CBZ) AREA #	RT #	IS4 (DCB) AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	215995	1.910	806434	3.501	607676	4.854	315332	5.799
	UPPER LIMIT	431990	2.410	1612868	4.001	1215352	5.354	630664	6.299
	LOWER LIMIT	107998	1.410	403217	3.001	303838	4.354	157666	5.299
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	LAB SAMPLE ID								
	=====	=====	=====	=====	=====	=====	=====	=====	=====
01	LCSF13	308257	1.928	763199	3.489	574926	4.848	299227	5.799
02	LCSF14	214480	1.904	792139	3.501	593509	4.848	312566	5.799
03	VBLKF13	290913	1.916	787599	3.489	592253	4.848	311920	5.799
04	VBLKF14	211603	1.910	767750	3.501	584105	4.854	300604	5.799
05	1286810	301451	1.916	747810	3.507	565665	4.848	296763	5.799
06	1286370	189531	1.910	670436	3.501	598242	4.854	309974	5.799
07	1286809	307175	1.916	746557	3.483	561546	4.848	297031	5.799
08	1286371	214364	1.898	763207	3.501	580303	4.848	297686	5.799
09	1286809MS	308614	1.916	779864	3.482	577126	4.848	309742	5.799
10	1286377	207438	1.904	754406	3.501	579738	4.848	297639	5.799
11	1286809MSD	314927	1.910	768672	3.507	574714	4.848	308023	5.799
12	1286377MS	195740	1.904	764212	3.501	580946	4.854	300862	5.799
13	1286313DL	298549	1.916	761701	3.489	572472	4.848	300092	5.799
14	1286377MSD	210789	1.898	780940	3.501	594912	4.848	309171	5.799
15	1285269	287014	1.916	774343	3.507	571740	4.848	300729	5.799
16	1285716	181303	1.898	612276	3.501	464883	4.848	245563	5.799
17	1285269DL	278299	1.922	663457	3.489	509947	4.848	273655	5.799
18	1285717	210823	1.910	726333	3.501	547883	4.854	300408	5.799
19	1285270	289496	1.916	762893	3.507	529405	4.848	291820	5.799
20	1285718	207709	1.898	730053	3.501	546506	4.848	281177	5.799
21	1285270DL	299001	1.928	763353	3.489	517756	4.848	276726	5.799
22	1285719	192620	1.885	745525	3.495	559324	4.848	298677	5.799

IS1 (TBA)=t-Butyl alcohol-d10 UPPER LIMIT = + 100%
 IS2 (FBZ)=Fluorobenzene of internal standard area.
 IS3 (CBZ)=Chlorobenzene-d5 LOWER LIMIT = - 50%
 IS4 (DCB)=1,4-Dichlorobenzene-d4 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): fm31c02.d Date Analyzed: 03/31/20
 Instrument ID: HP15830 Time Analyzed: 08:28
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1 (TBA) AREA #	RT #	IS2 (FBZ) AREA #	RT #	IS3 (CBZ) AREA #	RT #	IS4 (DCB) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
12 HOUR STD		215995	1.910	806434	3.501	607676	4.854	315332	5.799
UPPER LIMIT		431990	2.410	1612868	4.001	1215352	5.354	630664	6.299
LOWER LIMIT		107998	1.410	403217	3.001	303838	4.354	157666	5.299
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
LAB SAMPLE ID									
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
23	1285274DL2	293983	1.928	736933	3.489	557822	4.848	273850	5.799
24	1285720	210494	1.904	785934	3.501	588449	4.854	307816	5.799
25	1285276DL2	286752	1.922	741868	3.489	504715	4.848	270920	5.799
26	1285721	200921	1.904	682846	3.501	560140	4.854	287944	5.799
27	1285278DL	291800	1.928	743835	3.489	570073	4.848	262043	5.799
28	1285722	197509	1.891	750343	3.501	569046	4.848	296052	5.799
29	1286804	301351	1.910	753288	3.483	568378	4.848	305910	5.799
30	1286522	207339	1.904	766292	3.501	531413	4.854	273565	5.799
31	1286805	307510	1.922	733796	3.489	560172	4.848	291976	5.799
32	1286806	300378	1.916	751688	3.507	566540	4.848	300814	5.799
33	1286523	197136	1.916	774976	3.501	584989	4.854	282272	5.799
34	1286807	302214	1.922	768964	3.507	569101	4.848	301473	5.799
35	1286524	191864	1.898	754358	3.495	573519	4.854	300750	5.799
36	1286808	294663	1.916	740951	3.489	556307	4.848	293280	5.799
37	1286378	198605	1.898	757861	3.495	570813	4.848	295260	5.799
38	1286859	285038	1.910	764235	3.507	564565	4.848	278461	5.799
39	1286379	195907	1.904	751156	3.501	571101	4.848	298524	5.799
40	1286860	294401	1.910	738399	3.483	559055	4.848	283445	5.799
41	1289763	203358	1.898	756033	3.501	543888	4.854	304827	5.799
42	1286862	294805	1.910	732494	3.483	493518	4.848	266700	5.799
43	1289764	175107	1.916	757210	3.501	579067	4.854	299834	5.799
44	1287281	291502	1.916	752729	3.489	575580	4.848	303057	5.799

IS1 (TBA)=t-Butyl alcohol-d10 UPPER LIMIT = + 100%
 IS2 (FBZ)=Fluorobenzene of internal standard area.
 IS3 (CBZ)=Chlorobenzene-d5 LOWER LIMIT = - 50%
 IS4 (DCB)=1,4-Dichlorobenzene-d4 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): fm31c02.d Date Analyzed: 03/31/20
 Instrument ID: HP15830 Time Analyzed: 08:28
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1 (TBA) AREA #	RT #	IS2 (FBZ) AREA #	RT #	IS3 (CBZ) AREA #	RT #	IS4 (DCB) AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	215995	1.910	806434	3.501	607676	4.854	315332	5.799
	UPPER LIMIT	431990	2.410	1612868	4.001	1215352	5.354	630664	6.299
	LOWER LIMIT	107998	1.410	403217	3.001	303838	4.354	157666	5.299
	=====	=====	=====	=====	=====	=====	=====	=====	=====
	LAB SAMPLE ID								
	=====	=====	=====	=====	=====	=====	=====	=====	=====
45	1289765	191886	1.910	738777	3.501	525634	4.848	232813	5.799
46	1287282	262642	1.910	596888	3.483	453865	4.848	243924	5.799
47	1289766	171977	1.904	602912	3.501	460423	4.854	242305	5.799

IS1 (TBA)=t-Butyl alcohol-d10	UPPER LIMIT = + 100%
IS2 (FBZ)=Fluorobenzene	of internal standard area.
IS3 (CBZ)=Chlorobenzene-d5	LOWER LIMIT = - 50%
IS4 (DCB)=1,4-Dichlorobenzene-d4	of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.
 page 3 of 3

FORM VIII VOA

Sample Data

Volatiles by GC/MS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

32020

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285716

Sample wt/vol: 1.00 (g/mL) mL Lab File ID: HP15830.i/20mar31a.b/fm31s14.d

Level: (low/med) LOW Date Received: 03/20/20

Moisture: not dec. _____ Date Analyzed: 03/31/20

Column: (pack/cap) CAP Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	5	U	
71-43-2-----	Benzene	2	J	
108-88-3-----	Toluene	2	J	
100-41-4-----	Ethylbenzene	16		
1330-20-7-----	Xylene (Total)	15	J	

32020

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1285716

Data file: /chem/HP15830.i/20mar31a.b/fm31s14.d

Injection date and time: 31-MAR-2020 11:36

Data file Sample Info. Line: 32020;1285716;1;0;;GPY68;;;fm31b02;T1

Instrument ID: HP15830.i Batch: F200912AA

Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 31-MAR-2020 08:38

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 5.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 1 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.898 (0.012)	174	65	181303 (-16)	250.00	
14) Fluorobenzene	3.501 (0.000)	437	96	612276 (-24)	50.00	
19) Chlorobenzene-d5	4.848 (0.006)	658	117	464883 (-23)	50.00	
28) 1,4-Dichlorobenzene-d4	5.799 (0.000)	814	152	245563 (-22)	50.00	

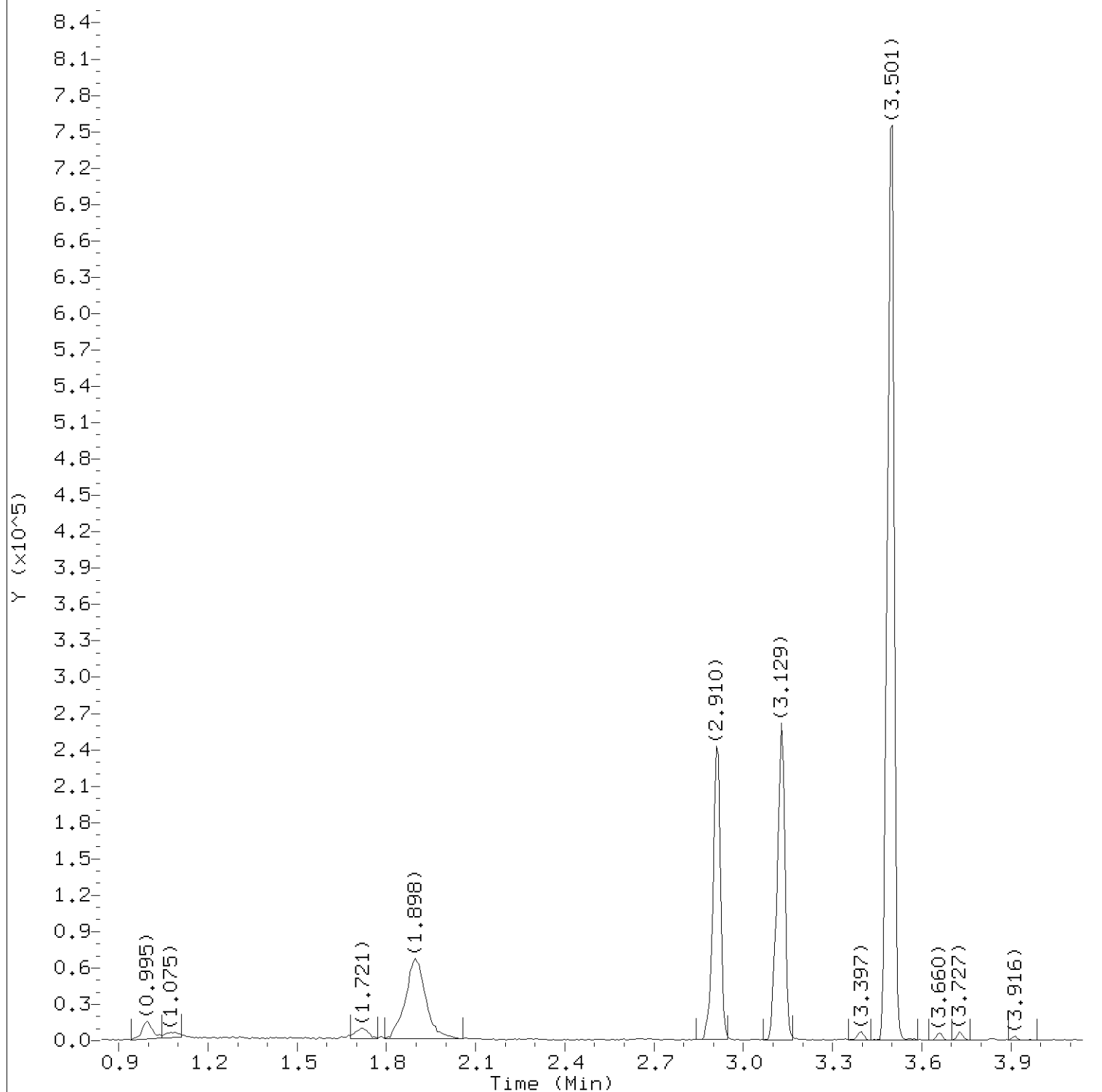
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.910 (0.002)	113	135509	48.121	96%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.129 (0.002)	102	37939	49.524	99%		80 - 120
15) Toluene-d8	(3)	4.275 (0.000)	98	601425	48.692	97%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.312 (-0.001)	95	231392	48.243	96%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					1	5
12) Benzene	(2)	3.391 (0.001)	78	5560	0.322	1.61		J	1	5
16) Toluene	(3)	4.306 (-0.001)	92	4815	0.418	2.09		J	1	5
20) Ethylbenzene	(3)	4.940 (-0.001)	91	71225	3.150	15.75			2	5
21) m+p-Xylene	(3)	5.013 (-0.001)	106	12725	1.473	7.37		J	5	25
22) o-Xylene	(3)	5.165 (-0.001)	106	12830	1.533	7.67			2	5
23) Xylene (Total)	(3)		106	25555	3.007	15.03		J	7	30

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:26. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Richard Samson on 03/31/2020 at 21:04. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s14.d
Injection date and time: 31-MAR-2020 11:36

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

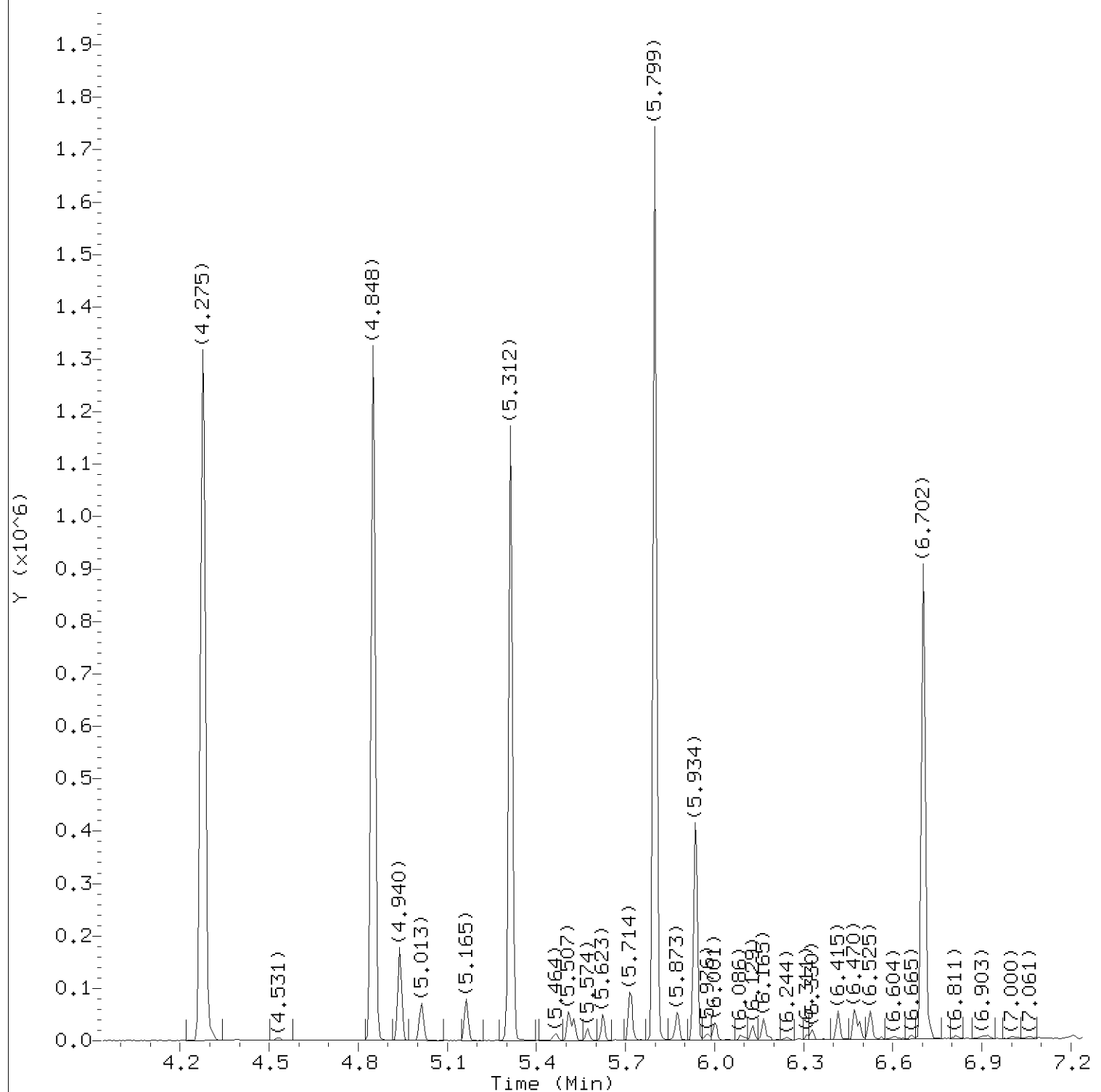
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Sample Name: 32020

Lab Sample ID: 1285716

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:26.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s14.d
Injection date and time: 31-MAR-2020 11:36

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Sample Name: 32020

Lab Sample ID: 1285716

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:26.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s14.d

Instrument ID: HP15830.i

Injection date and time: 31-MAR-2020 11:36

Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m

Sublist used: 12787

Calibration date and time: 31-MAR-2020 08:38

Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Sample Name: 32020

Lab Sample ID: 1285716

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.898	65	181303	250.000
7) \$Dibromofluoromethane	(2)	2.910	113	135509	48.121
10) \$1,2-Dichloroethane-d4	(2)	3.129	102	37939	49.524
12) Benzene	(2)	3.391	78	5560	0.322
14) *Fluorobenzene	(2)	3.501	96	612276	50.000
15) \$Toluene-d8	(3)	4.275	98	601425	48.692
16) Toluene	(3)	4.306	92	4815	0.418
19) *Chlorobenzene-d5	(3)	4.848	117	464883	50.000
20) Ethylbenzene	(3)	4.940	91	71225	3.150
21) m+p-Xylene	(3)	5.013	106	12725	1.473
22) o-Xylene	(3)	5.165	106	12830	1.533
25) \$4-Bromofluorobenzene	(3)	5.312	95	231392	48.243
23) Xylene (Total)	(3)		106	25555	3.007
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	245563	50.000

* = Compound is an internal standard.

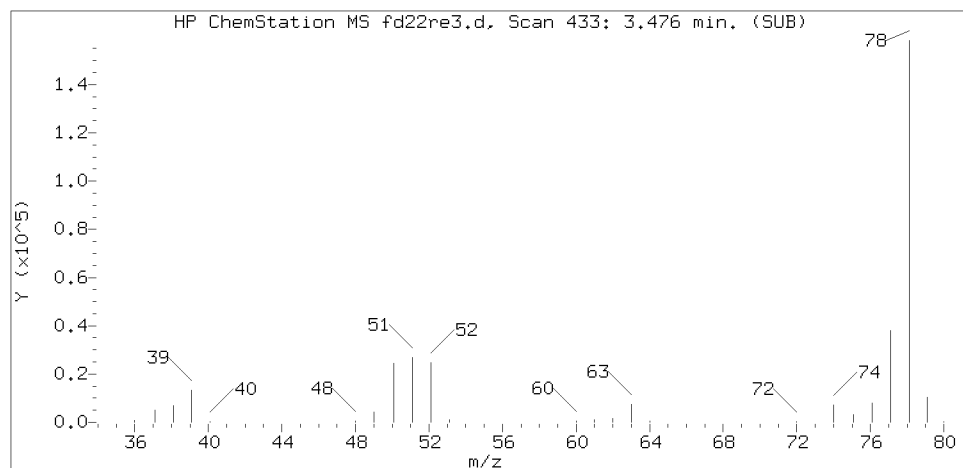
\$ = Compound is a surrogate standard.

page 1 of 1

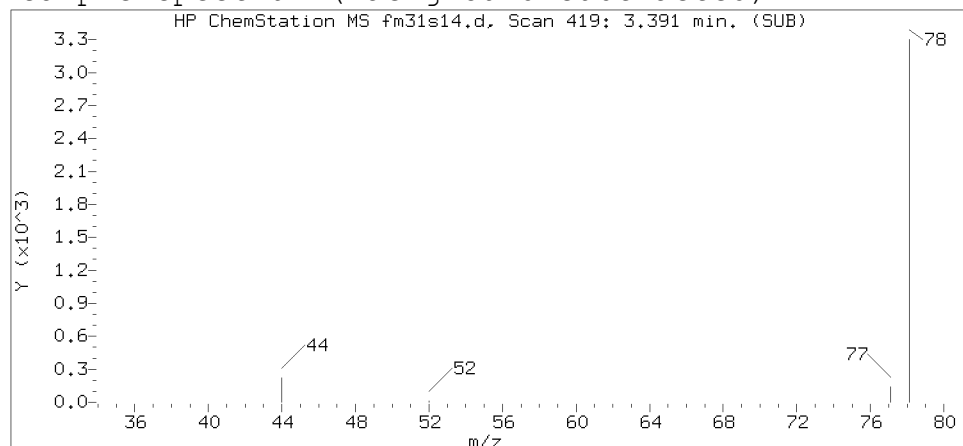
Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:26.

Target 3.5 esignature user ID: ads07818

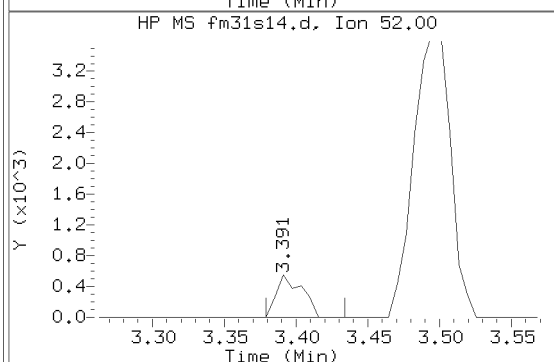
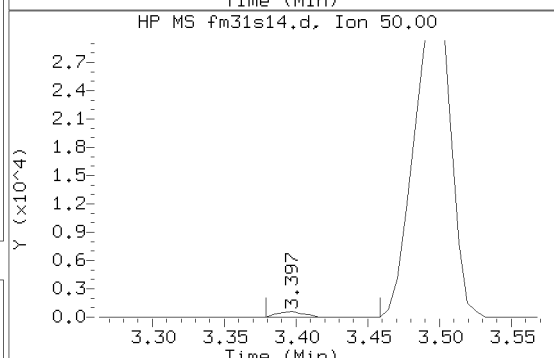
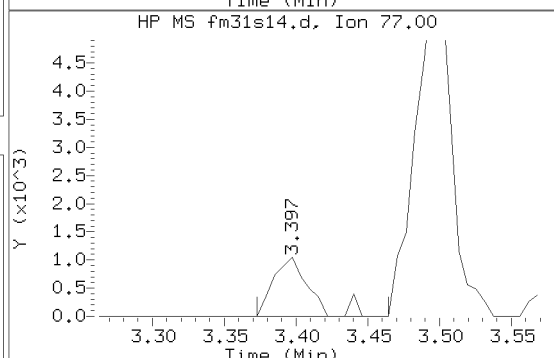
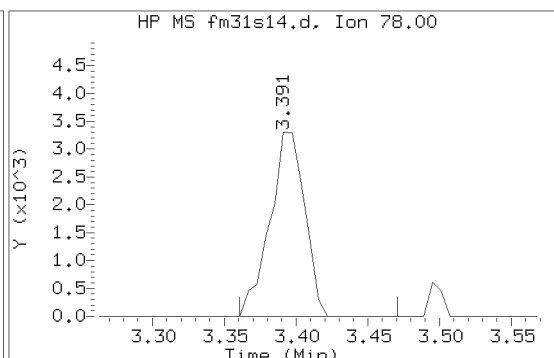
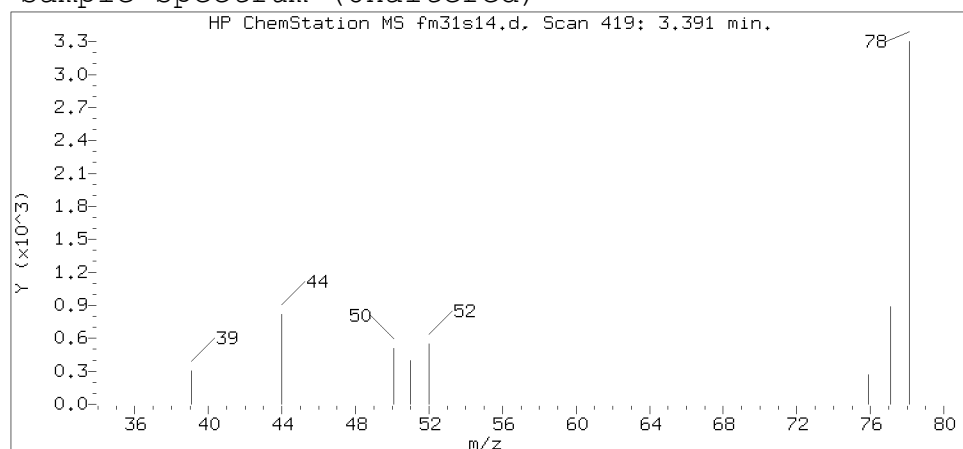
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s14.d
Injection date and time: 31-MAR-2020 11:36

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

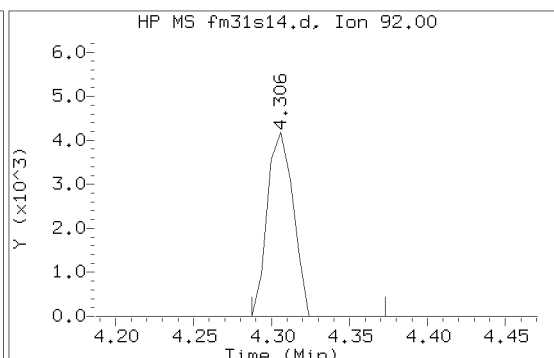
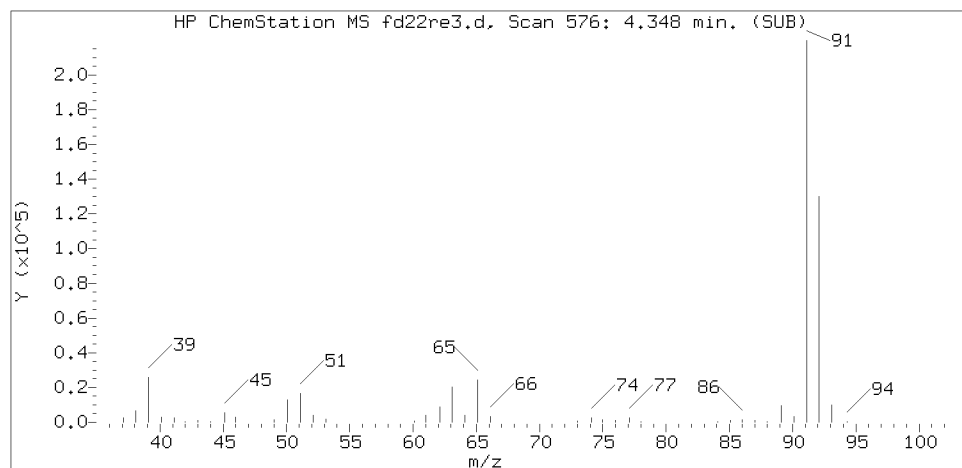
Sample Name: 32020

Lab Sample ID: 1285716

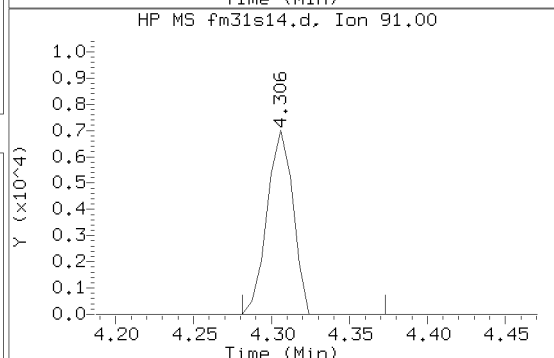
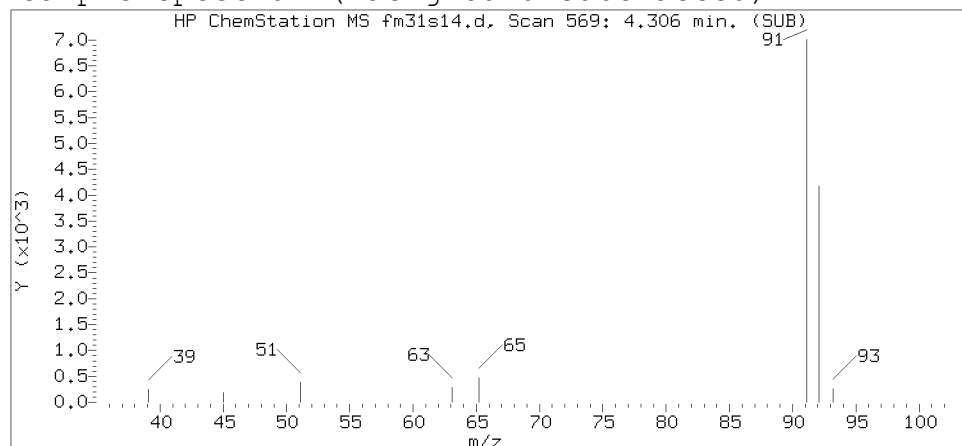
Compound Number : 12
Compound Name : Benzene
Scan Number : 419
Retention Time (minutes): 3.391
Relative Retention Time : 0.00174
Quant Ion : 78.00
Area (flag) : 5560
On-Column Amount (ng) : 0.3221

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:26.
Target 3.5 esignature user C:\Users\ads07818

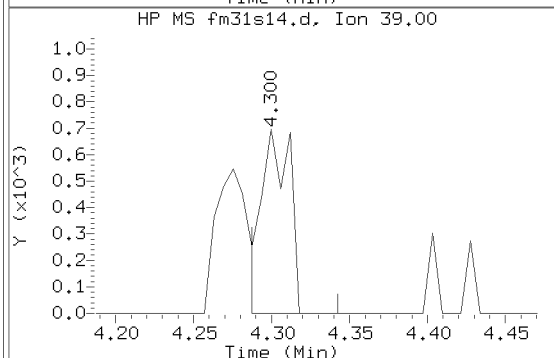
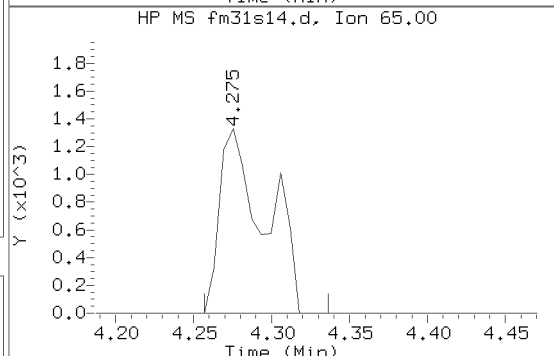
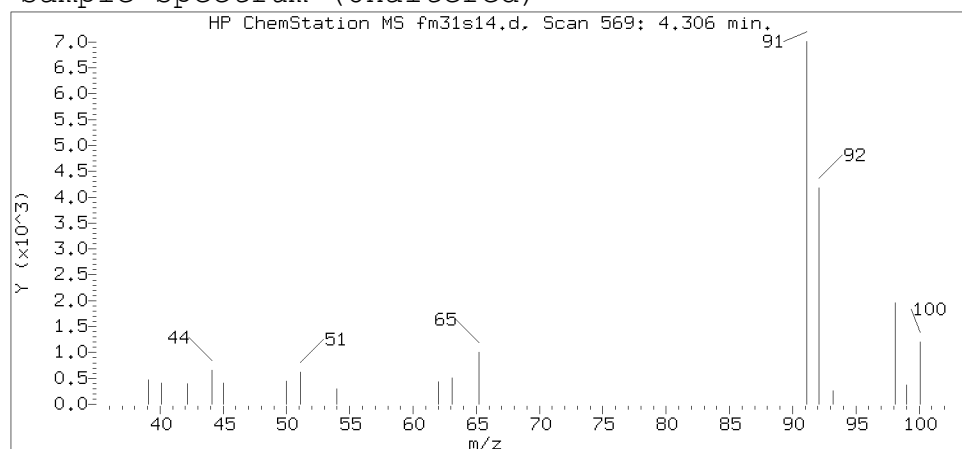
Reference Standard Spectrum for Toluene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s14.d
Injection date and time: 31-MAR-2020 11:36

Instrument ID: HP15830.i
Analyst ID: ADS07818

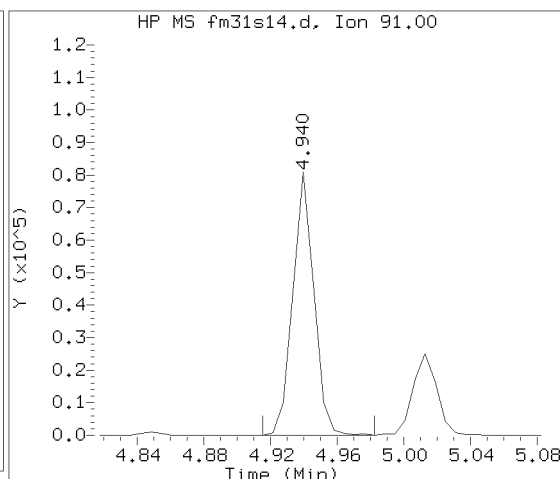
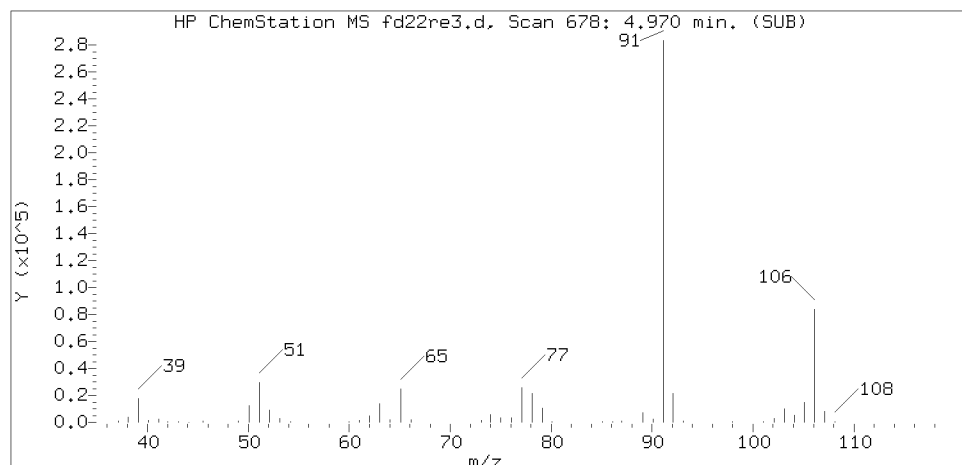
Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Sample Name: 32020

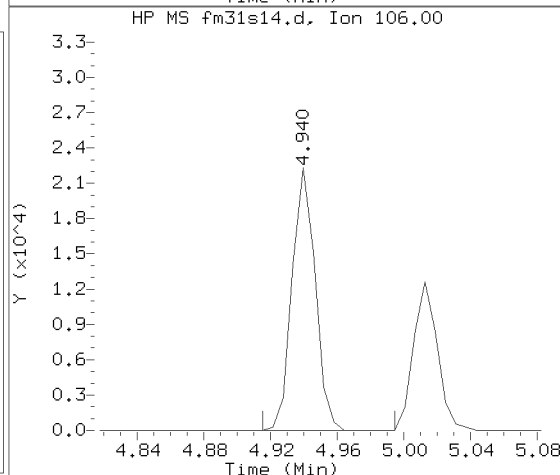
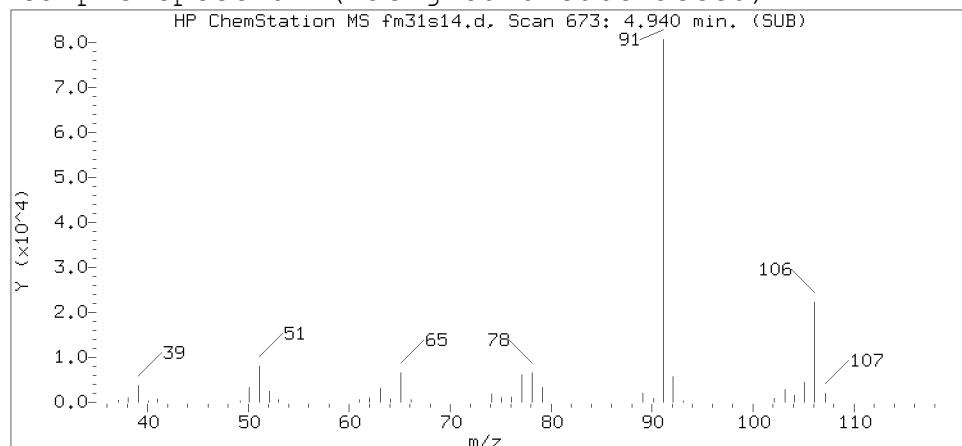
Lab Sample ID: 1285716

Compound Number : 16
Compound Name : Toluene
Scan Number : 569
Retention Time (minutes): 4.306
Relative Retention Time : -0.00112
Quant Ion : 92.00
Area (flag) : 4815
On-Column Amount (ng) : 0.4176

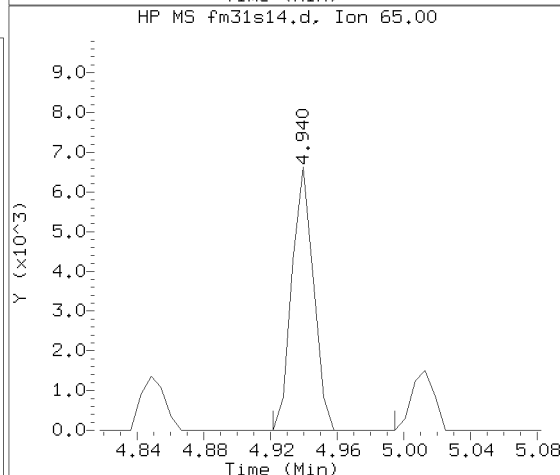
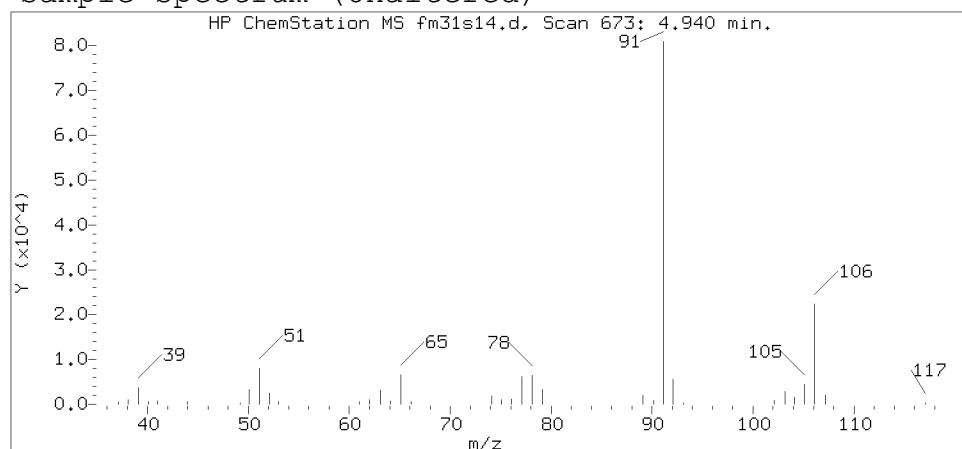
Reference Standard Spectrum for Ethylbenzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s14.d
Injection date and time: 31-MAR-2020 11:36

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

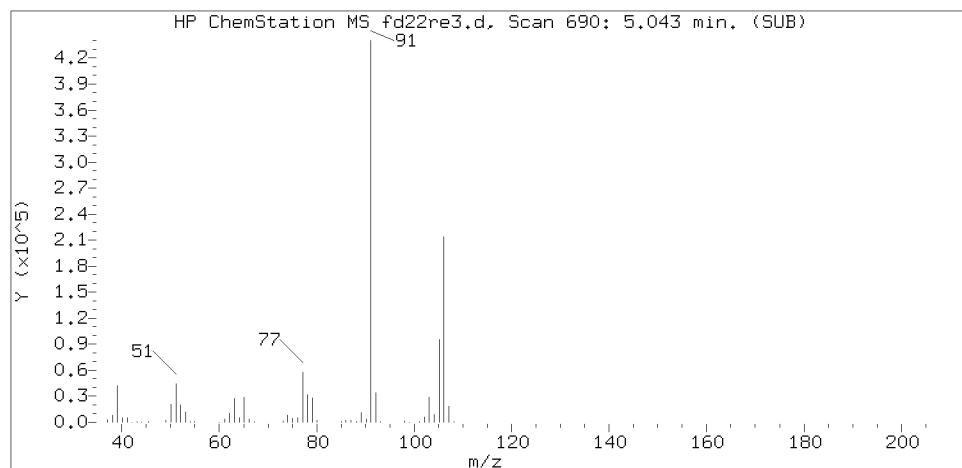
Sample Name: 32020

Lab Sample ID: 1285716

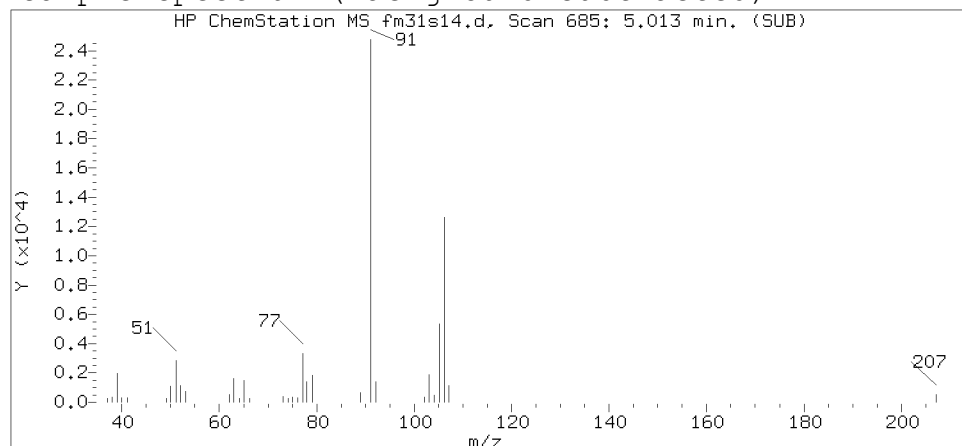
Compound Number : 20
Compound Name : Ethylbenzene
Scan Number : 673
Retention Time (minutes): 4.940
Relative Retention Time :-0.00128
Quant Ion : 91.00
Area (flag) : 71225
On-Column Amount (ng) : 3.1503

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:26.
Target 3.5 esignature user C:\ads07818

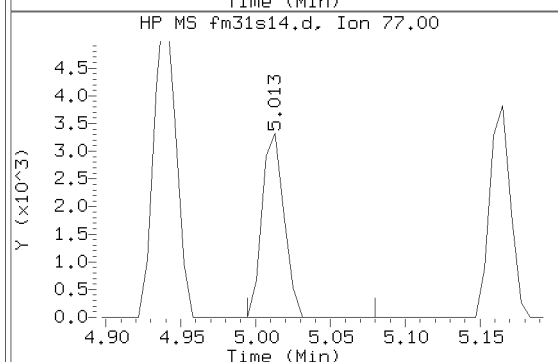
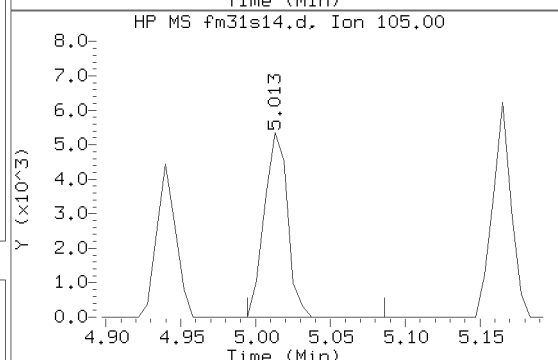
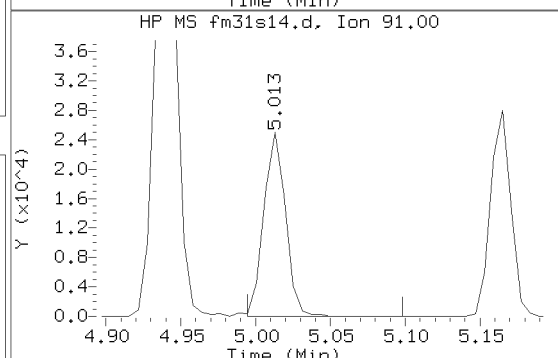
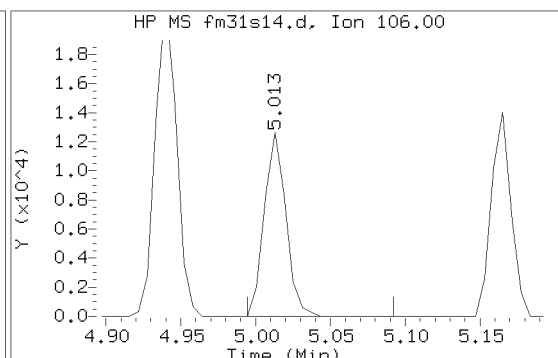
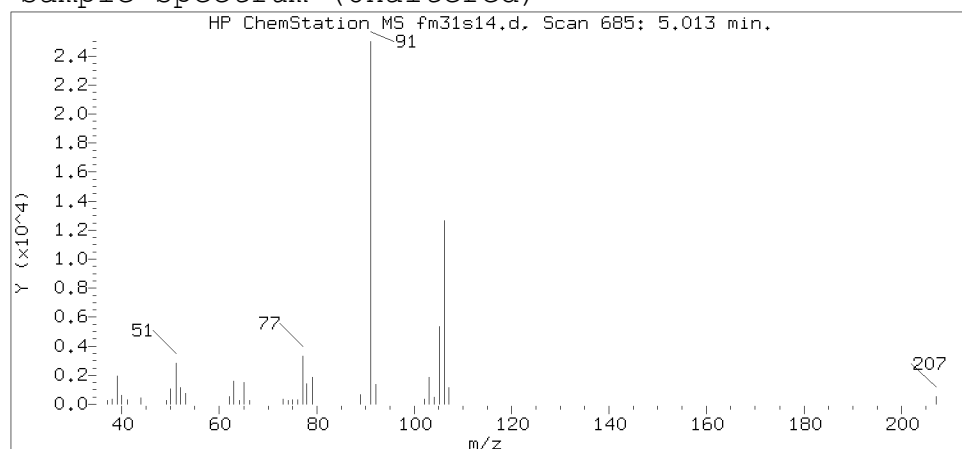
Reference Standard Spectrum for m+p-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s14.d
Injection date and time: 31-MAR-2020 11:36

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

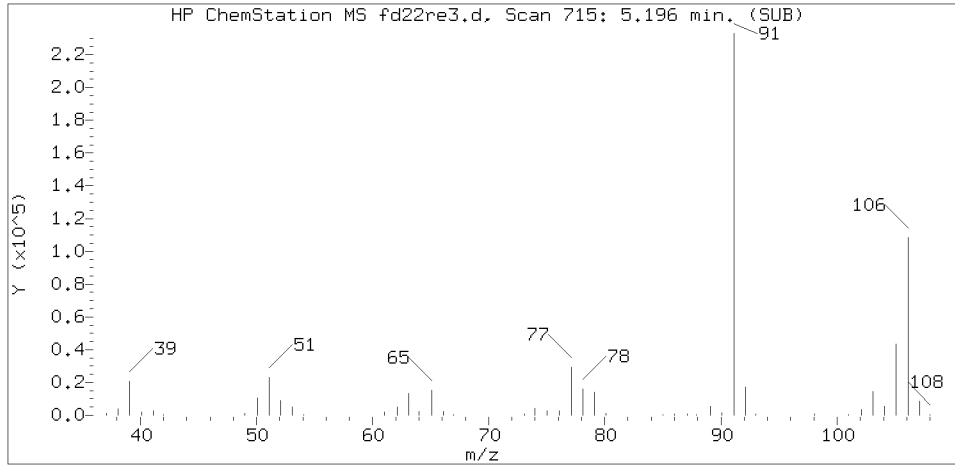
Sample Name: 32020

Lab Sample ID: 1285716

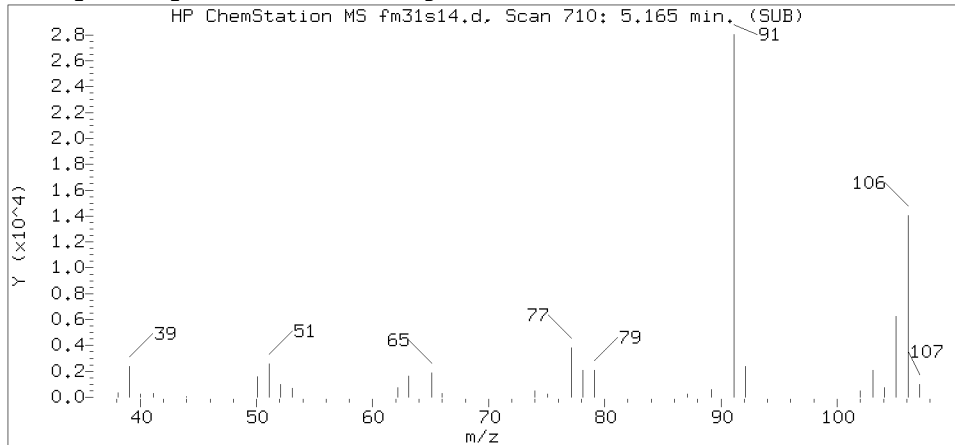
Compound Number : 21
Compound Name : m+p-Xylene
Scan Number : 685
Retention Time (minutes): 5.013
Relative Retention Time : -0.00130
Quant Ion : 106.00
Area (flag) : 12725
On-Column Amount (ng) : 1.4733

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:26.
Target 3.5 esignature user C:\Users\ads07818

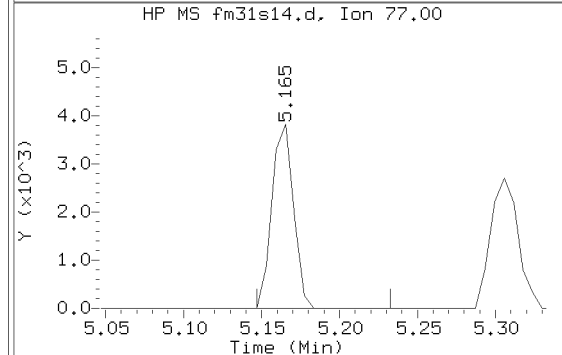
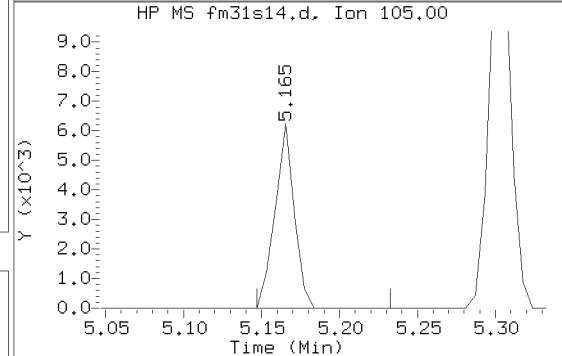
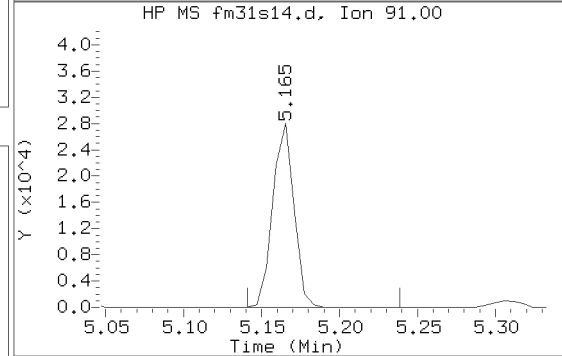
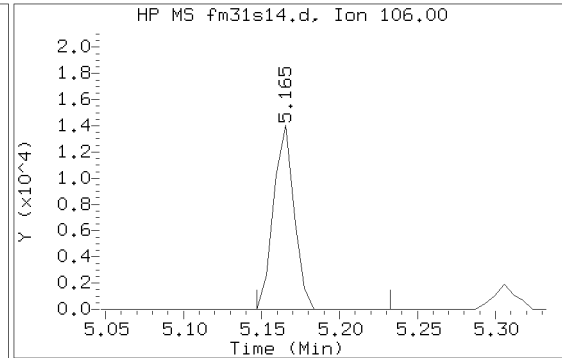
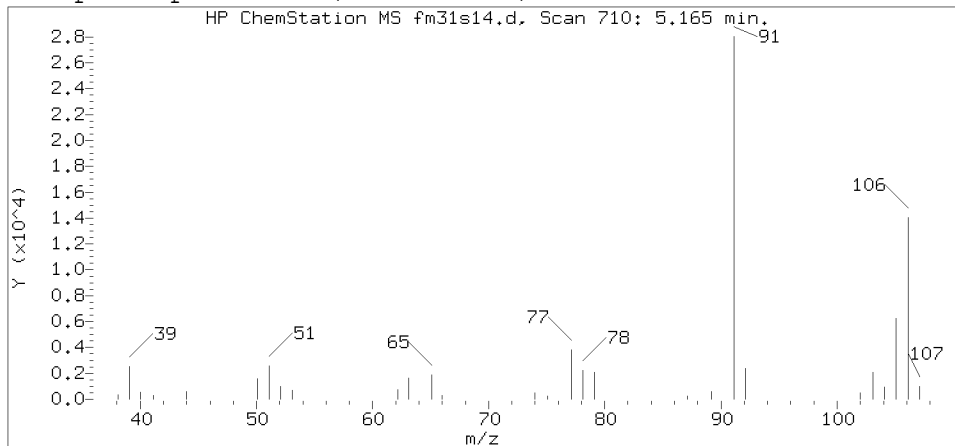
Reference Standard Spectrum for o-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s14.d
Injection date and time: 31-MAR-2020 11:36

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Sample Name: 32020

Lab Sample ID: 1285716

Compound Number : 22
Compound Name : o-Xylene
Scan Number : 710
Retention Time (minutes): 5.165
Relative Retention Time : -0.00133
Quant Ion : 106.00
Area (flag) : 12830
On-Column Amount (ng) : 1.5333

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:26.
Target 3.5 esignature user C:\ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

13200

Lab Name: Lancaster Laboratories

Contract: _____

Lab Code: LANCAS

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) WATER

Lab Sample ID: 1285717

Sample wt/vol: 1.00 (g/mL) mL

Lab File ID: HP15830.i/20mar31a.b/fm31s16.d

Level: (low/med) LOW

Date Received: 03/20/20

Moisture: not dec. _____

Date Analyzed: 03/31/20

Column: (pack/cap) CAP

Dilution Factor: 5.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	5	U	
71-43-2-----	Benzene	2	J	
108-88-3-----	Toluene	2	J	
100-41-4-----	Ethylbenzene	19		
1330-20-7-----	Xylene (Total)	14	J	

13200

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1285717

Data file: /chem/HP15830.i/20mar31a.b/fm31s16.d

Injection date and time: 31-MAR-2020 11:58

Data file Sample Info. Line: 13200;1285717;1;0;;GPY68;;;fm31b02;T1

Instrument ID: HP15830.i Batch: F200912AA

Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 31-MAR-2020 08:38

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 5.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 1 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.910 (0.000)	176	65	210823 (-2)	250.00	
14) Fluorobenzene	3.501 (0.000)	437	96	726333 (-10)	50.00	
19) Chlorobenzene-d5	4.854 (0.000)	659	117	547883 (-10)	50.00	
28) 1,4-Dichlorobenzene-d4	5.799 (0.000)	814	152	300408 (-5)	50.00	

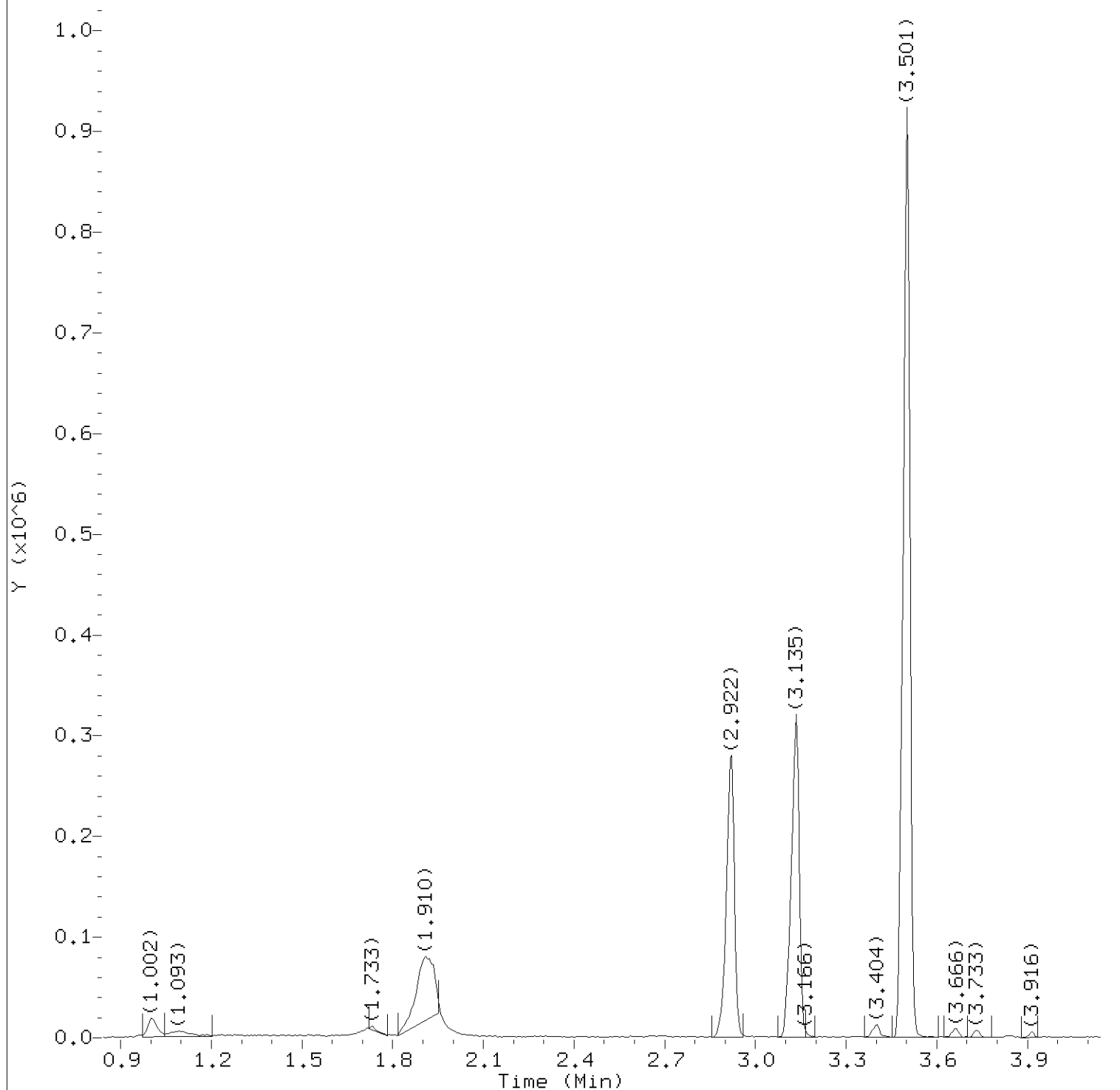
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.922 (-0.002)	113	162053	48.510	97%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.135 (0.000)	102	45964	50.578	101%		80 - 120
15) Toluene-d8	(3)	4.281 (0.000)	98	674727	46.351	93%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.312 (0.000)	95	271790	48.081	96%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					1	5
12) Benzene	(2)	3.404 (-0.001)	78	9528	0.465	2.33		J	1	5
16) Toluene	(3)	4.312 (-0.001)	92	5336	0.393	1.96		J	1	5
20) Ethylbenzene	(3)	4.940 (0.000)	91	103253	3.875	19.38			2	5
21) m+p-Xylene	(3)	5.013 (0.000)	106	12692	1.247	6.23		J	5	25
22) o-Xylene	(3)	5.165 (0.000)	106	15452	1.567	7.83			2	5
23) Xylene (Total)	(3)		106	28144	2.814	14.07		J	7	30

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:26. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Richard Samson on 03/31/2020 at 21:04. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s16.d
Injection date and time: 31-MAR-2020 11:58

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

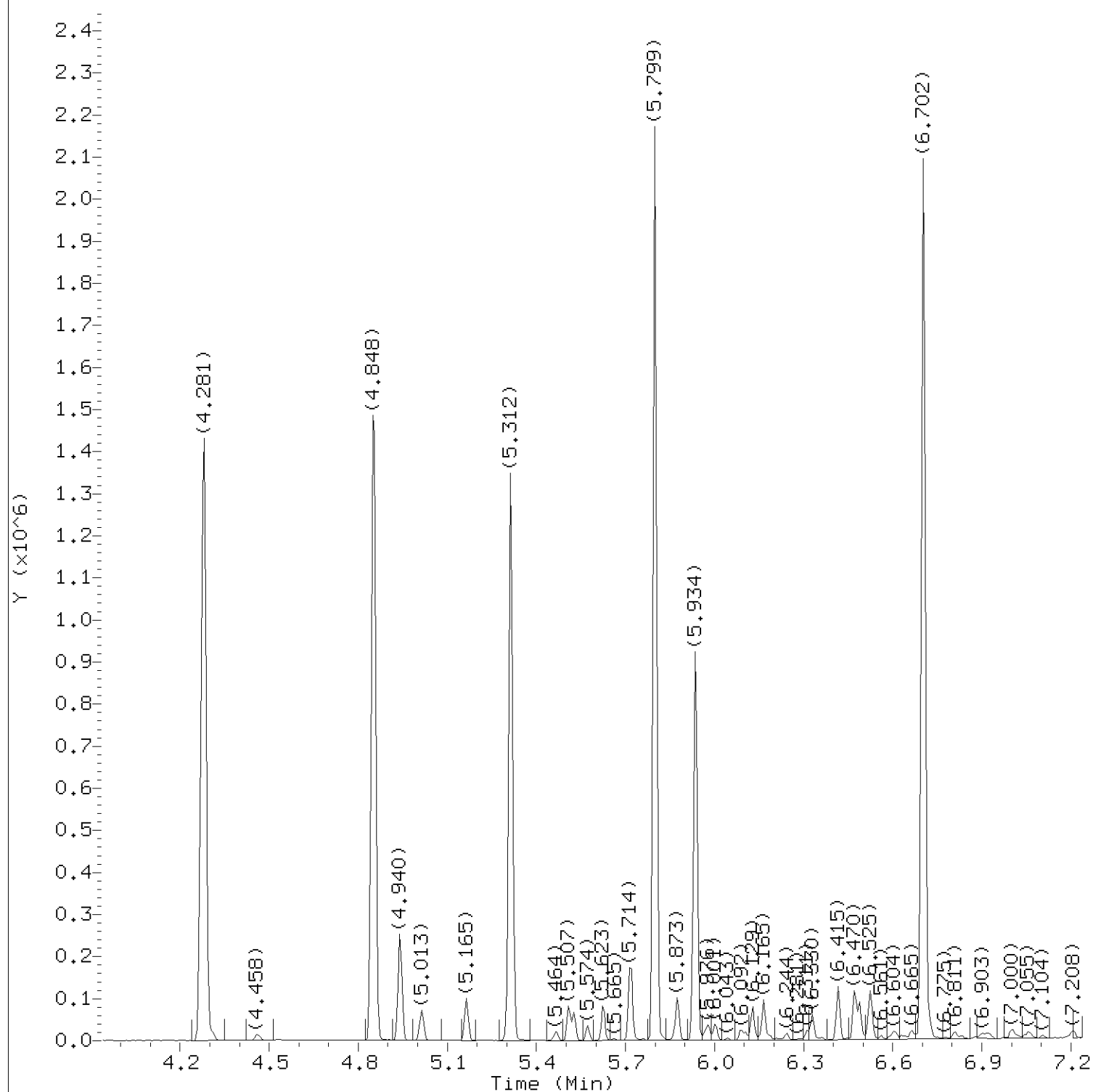
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Sample Name: 13200

Lab Sample ID: 1285717

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:26.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s16.d
Injection date and time: 31-MAR-2020 11:58

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Sample Name: 13200

Lab Sample ID: 1285717

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:26.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s16.d

Instrument ID: HP15830.i

Injection date and time: 31-MAR-2020 11:58

Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m

Sublist used: 12787

Calibration date and time: 31-MAR-2020 08:38

Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Sample Name: 13200

Lab Sample ID: 1285717

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.910	65	210823	250.000
7) \$Dibromofluoromethane	(2)	2.922	113	162053	48.510
10) \$1,2-Dichloroethane-d4	(2)	3.135	102	45964	50.578
12) Benzene	(2)	3.404	78	9528	0.465
14) *Fluorobenzene	(2)	3.501	96	726333	50.000
15) \$Toluene-d8	(3)	4.281	98	674727	46.351
16) Toluene	(3)	4.312	92	5336	0.393
19) *Chlorobenzene-d5	(3)	4.854	117	547883	50.000
20) Ethylbenzene	(3)	4.940	91	103253	3.875
21) m+p-Xylene	(3)	5.013	106	12692	1.247
22) o-Xylene	(3)	5.165	106	15452	1.567
25) \$4-Bromofluorobenzene	(3)	5.312	95	271790	48.081
23) Xylene (Total)	(3)		106	28144	2.814
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	300408	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

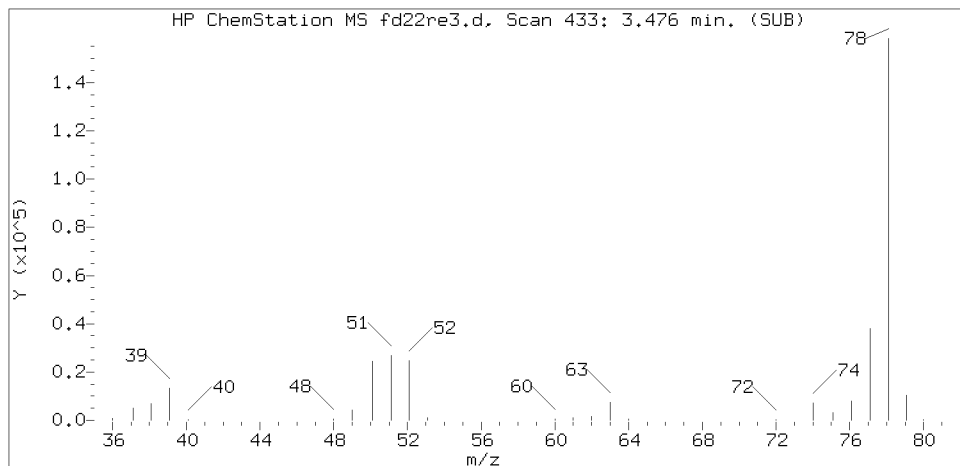
page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:26.

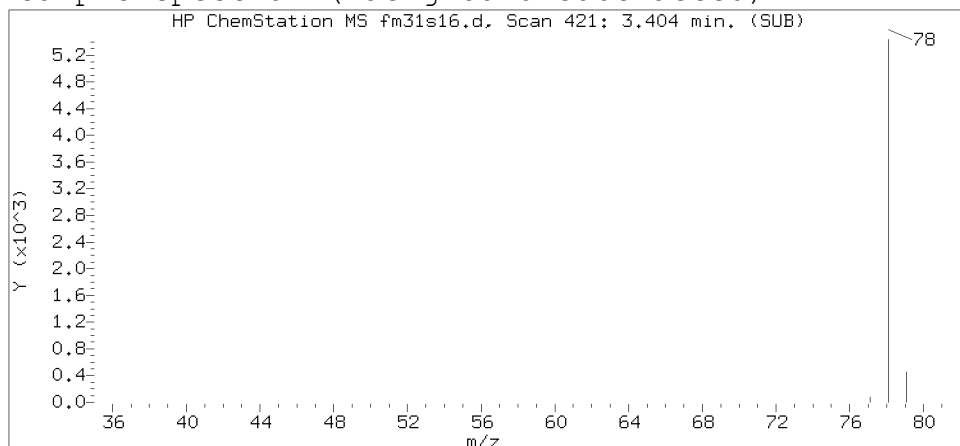
Target 3.5 esignature user ID: ads07818

GPY68 Page 77 of 586

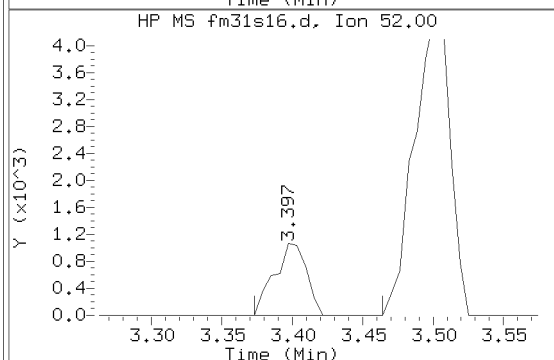
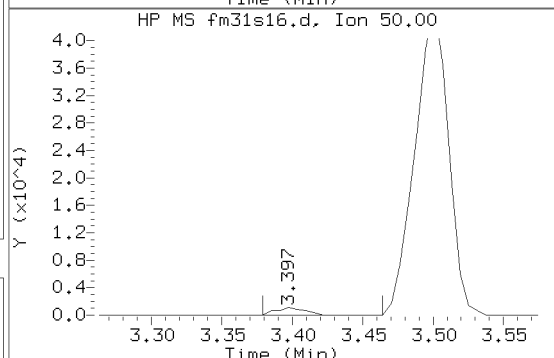
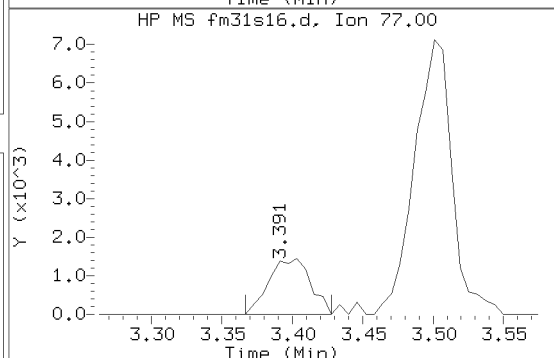
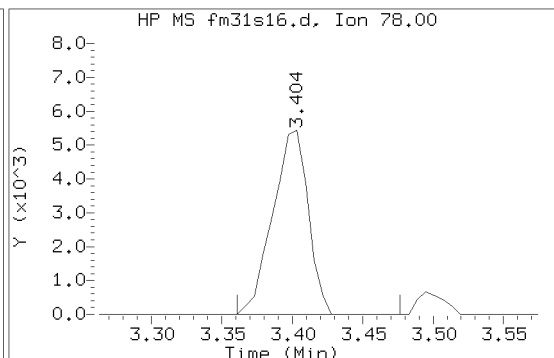
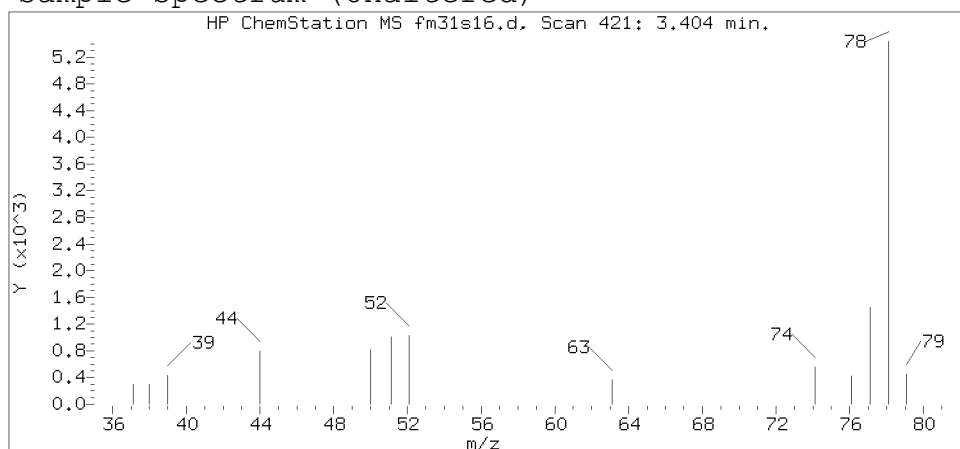
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s16.d
Injection date and time: 31-MAR-2020 11:58

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

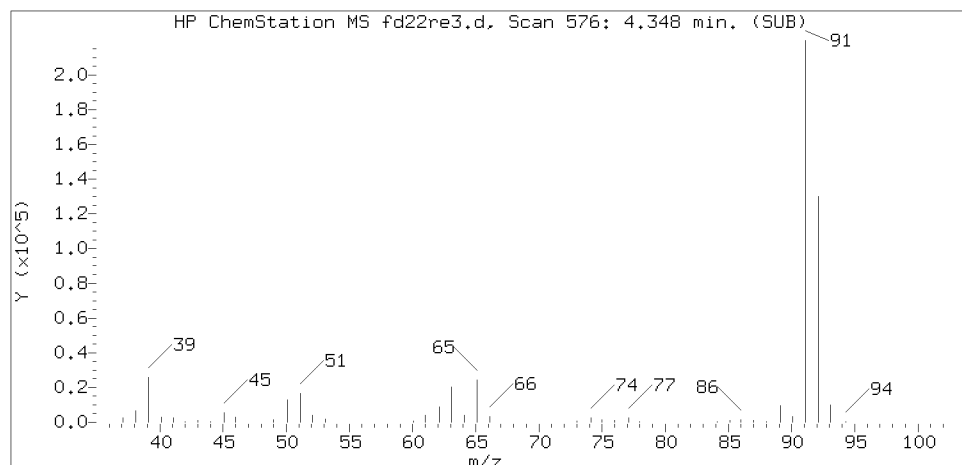
Sample Name: 13200

Lab Sample ID: 1285717

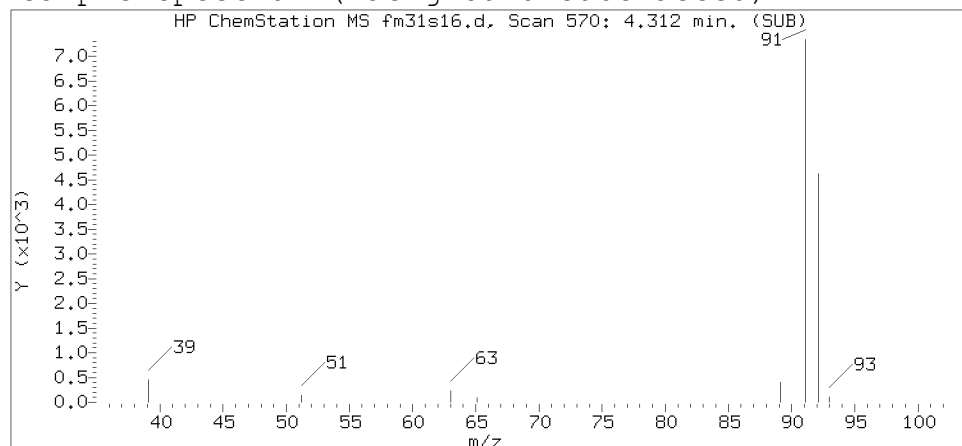
Compound Number : 12
Compound Name : Benzene
Scan Number : 421
Retention Time (minutes): 3.404
Relative Retention Time : -0.00174
Quant Ion : 78.00
Area (flag) : 9528
On-Column Amount (ng) : 0.4653

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:26.
Target 3.5 esignature user C:\ads07818

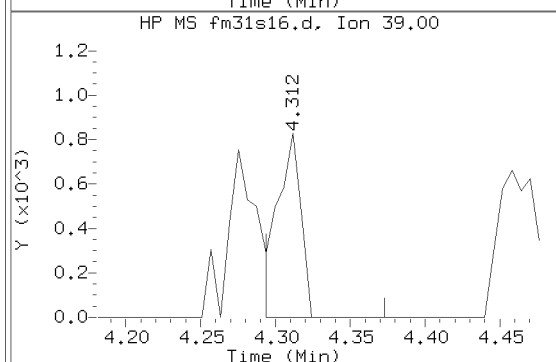
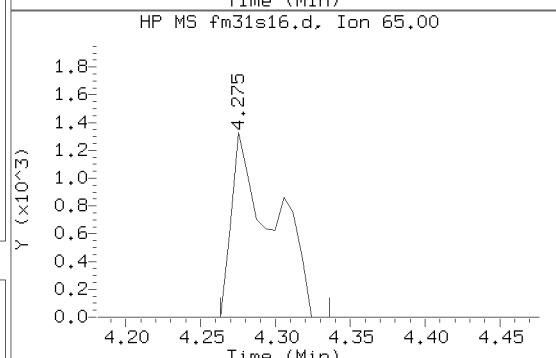
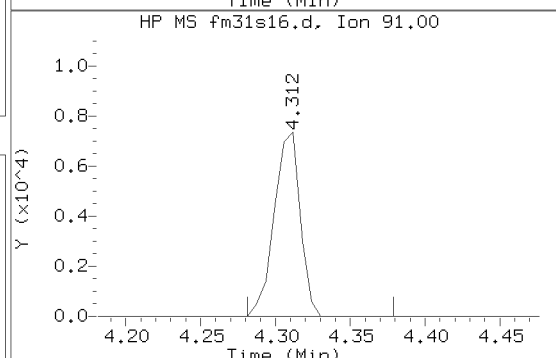
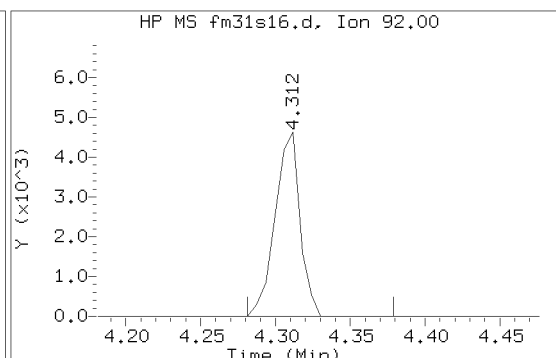
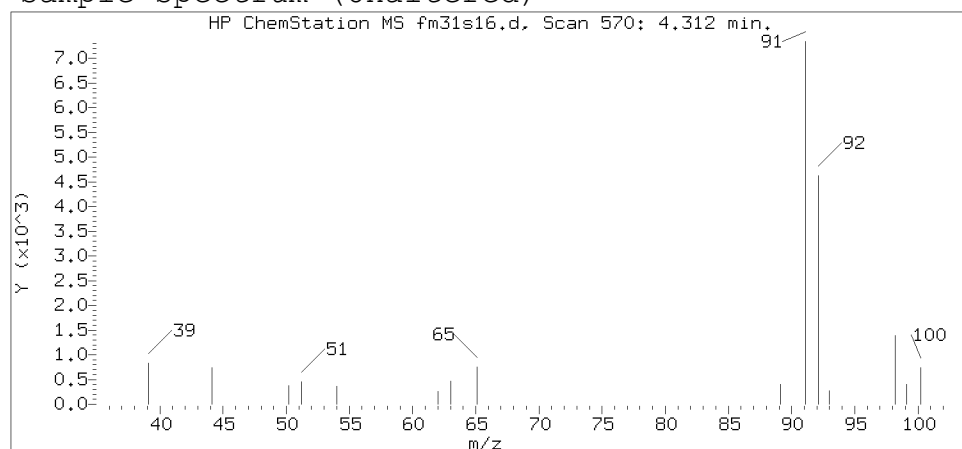
Reference Standard Spectrum for Toluene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s16.d
Injection date and time: 31-MAR-2020 11:58

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

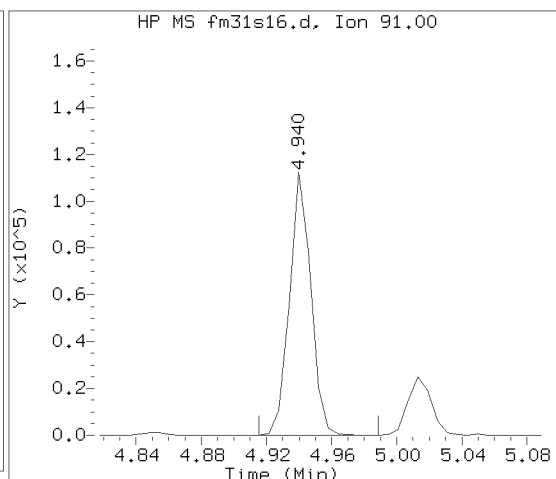
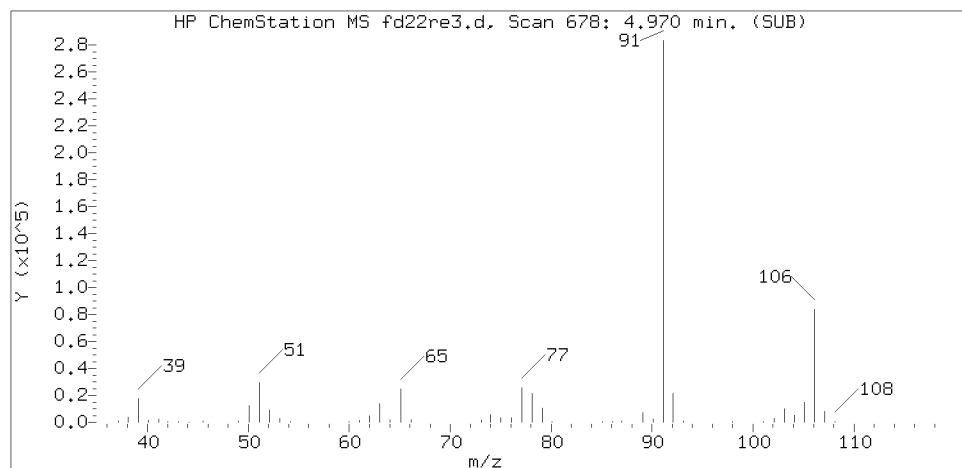
Sample Name: 13200

Lab Sample ID: 1285717

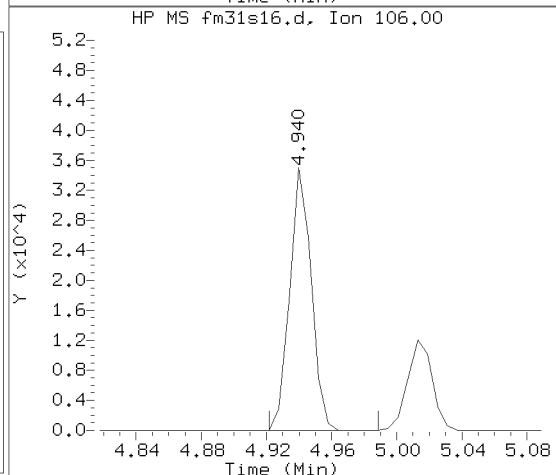
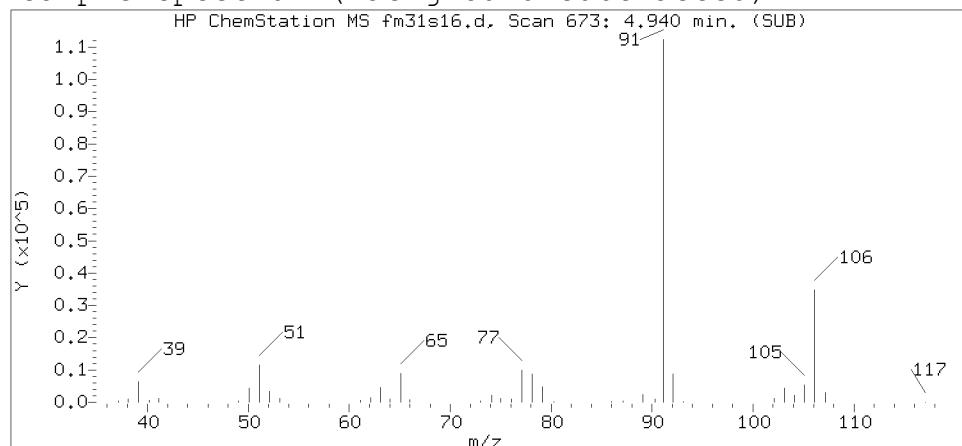
Compound Number : 16
Compound Name : Toluene
Scan Number : 570
Retention Time (minutes): 4.312
Relative Retention Time : -0.00126
Quant Ion : 92.00
Area (flag) : 5336
On-Column Amount (ng) : 0.3927

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Target 3.5 esignature user ID: ads07818

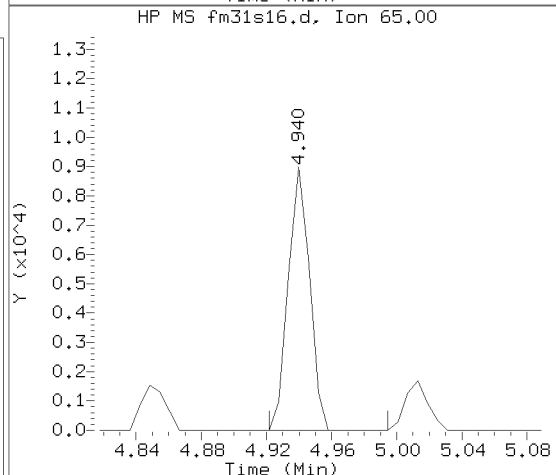
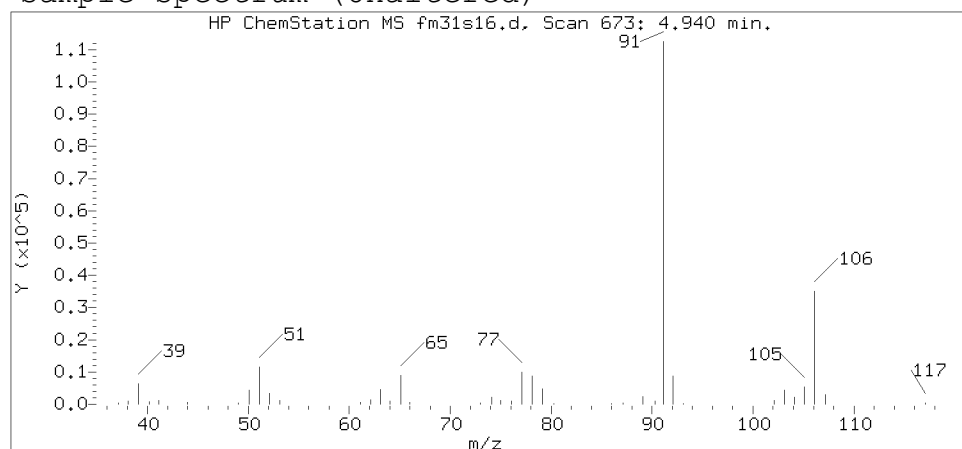
Reference Standard Spectrum for Ethylbenzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s16.d
Injection date and time: 31-MAR-2020 11:58

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

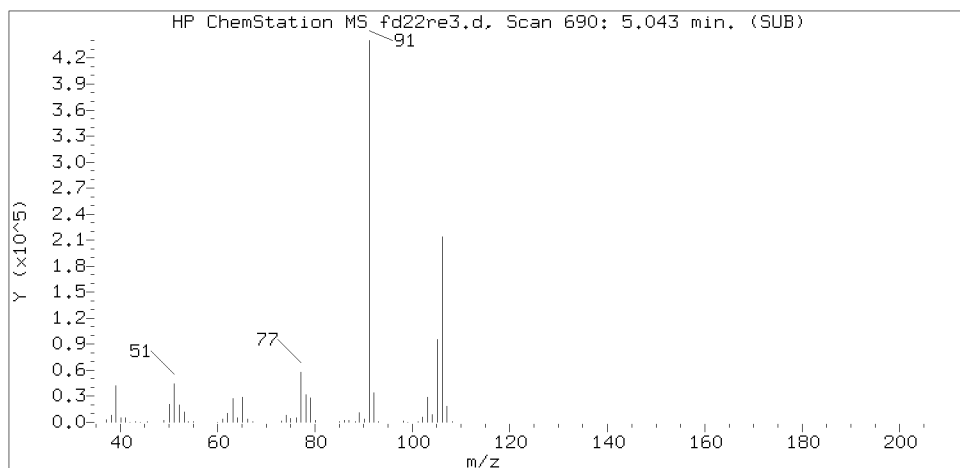
Sample Name: 13200

Lab Sample ID: 1285717

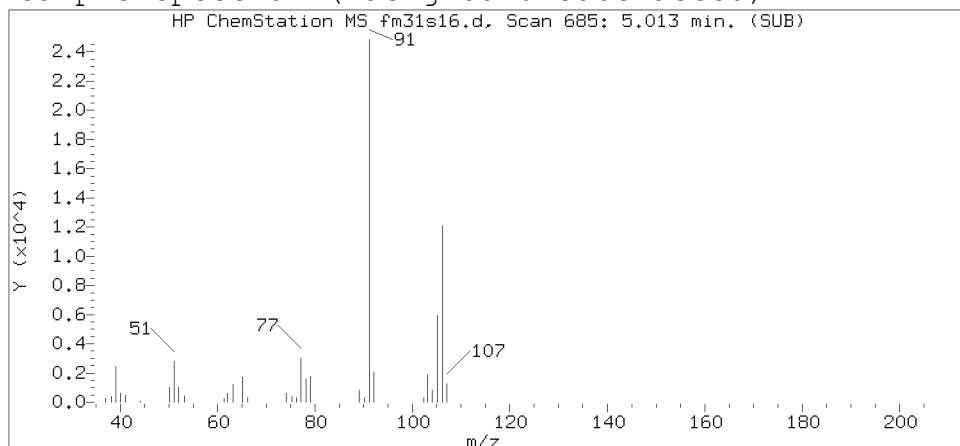
Compound Number : 20
Compound Name : Ethylbenzene
Scan Number : 673
Retention Time (minutes): 4.940
Relative Retention Time : 0.00000
Quant Ion : 91.00
Area (flag) : 103253
On-Column Amount (ng) : 3.8750

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Target 3.5 esignature user C:\ads07818

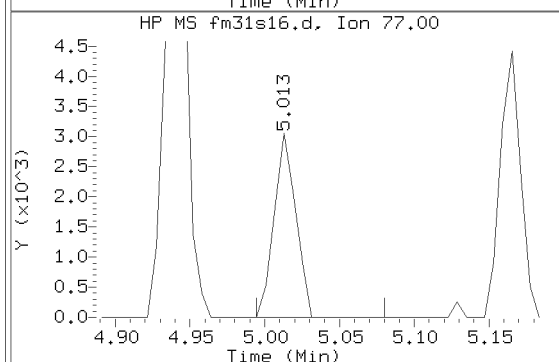
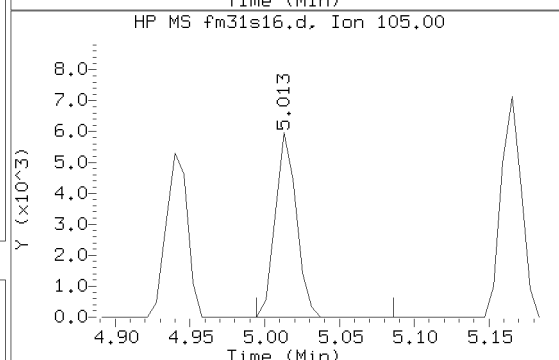
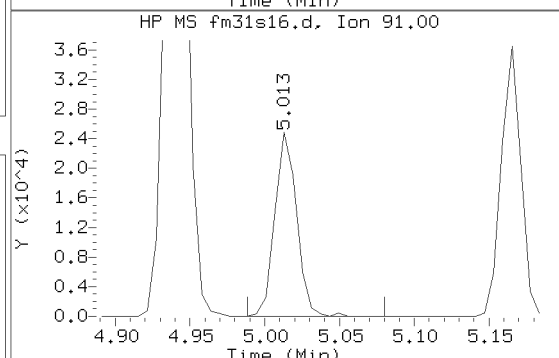
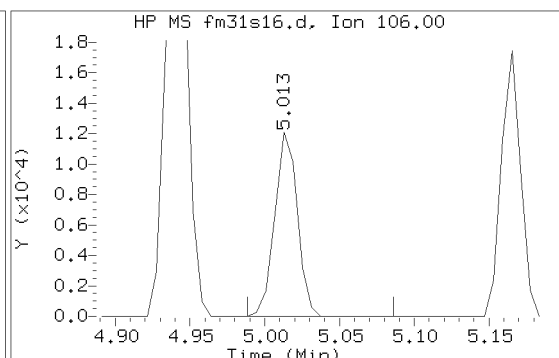
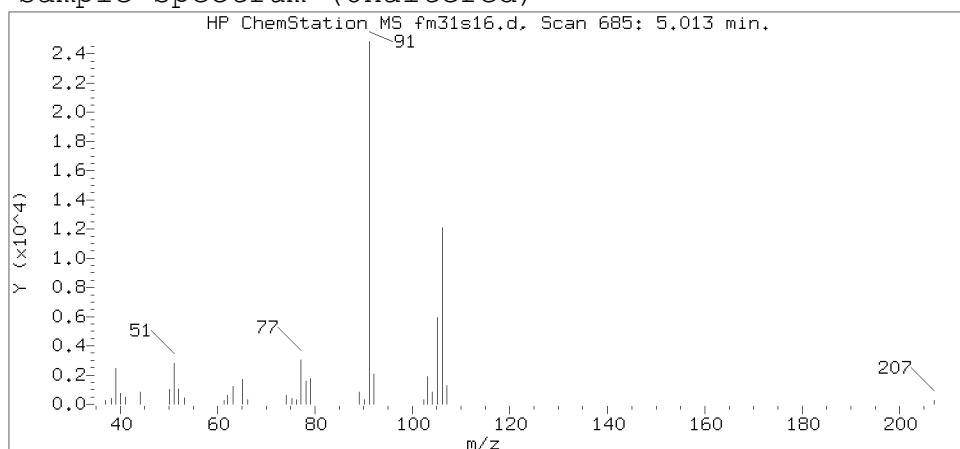
Reference Standard Spectrum for m+p-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s16.d
Injection date and time: 31-MAR-2020 11:58

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

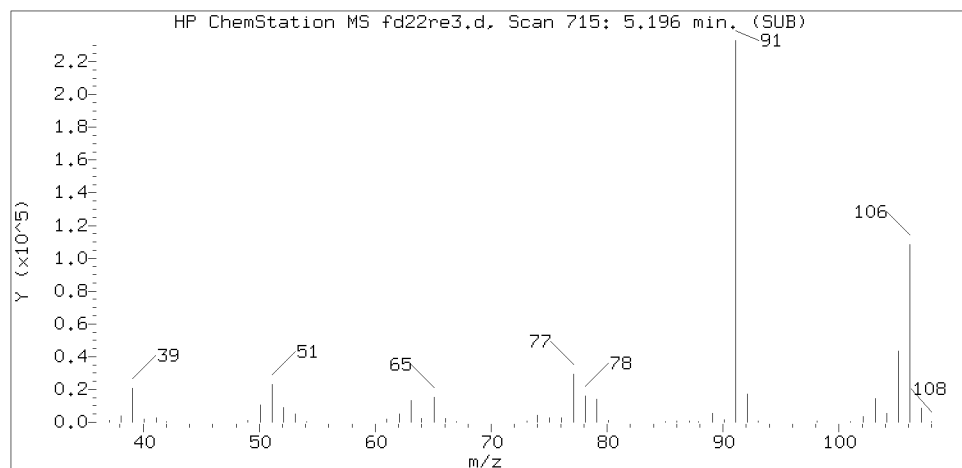
Sample Name: 13200

Lab Sample ID: 1285717

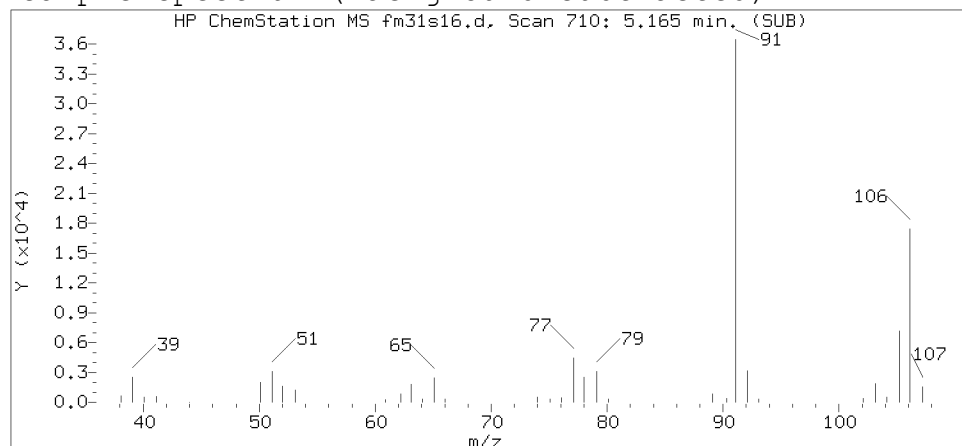
Compound Number : 21
Compound Name : m+p-Xylene
Scan Number : 685
Retention Time (minutes): 5.013
Relative Retention Time : 0.00000
Quant Ion : 106.00
Area (flag) : 12692
On-Column Amount (ng) : 1.2469

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Target 3.5 esignature user C:\ads07818

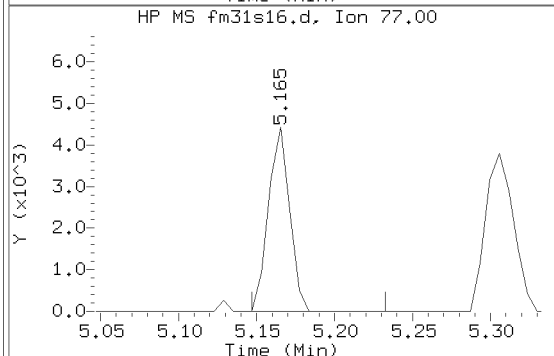
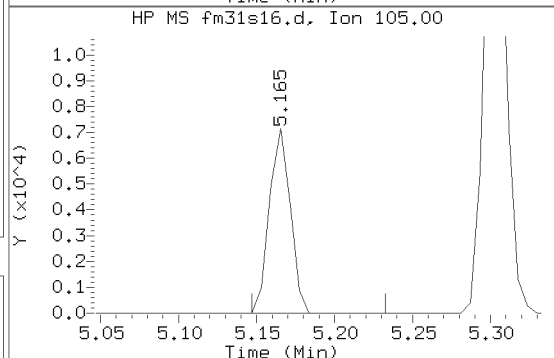
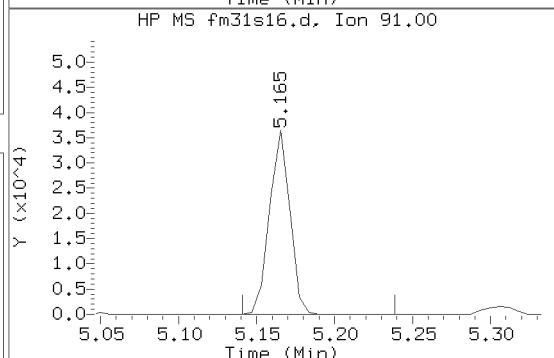
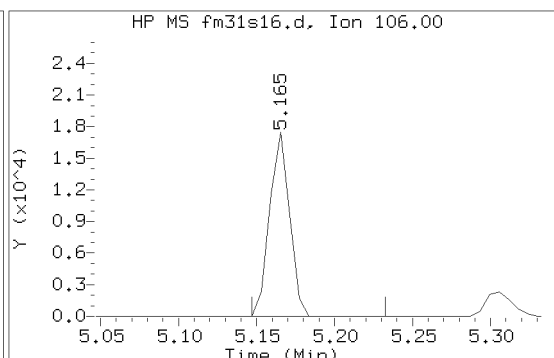
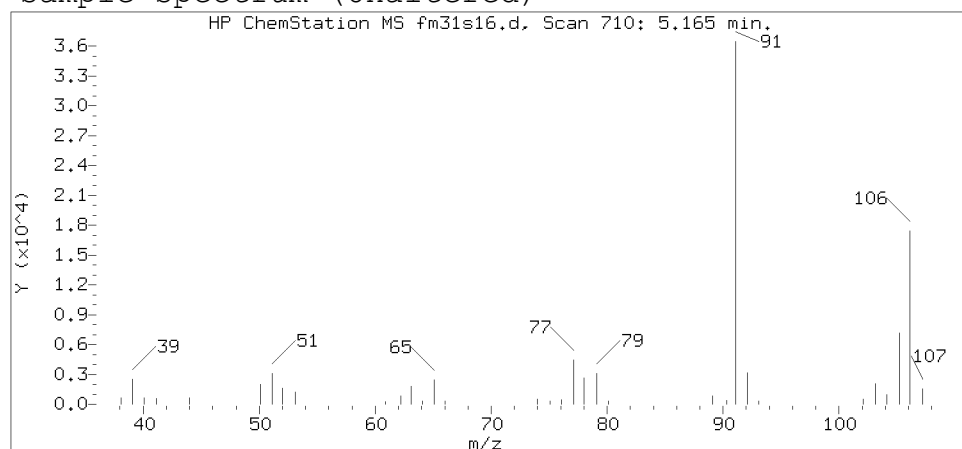
Reference Standard Spectrum for o-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/20mar31a.b/fm31s16.d
Injection date and time: 31-MAR-2020 11:58

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:24 ads07818

Sample Name: 13200

Lab Sample ID: 1285717

Compound Number : 22
Compound Name : o-Xylene
Scan Number : 710
Retention Time (minutes): 5.165
Relative Retention Time : 0.00000
Quant Ion : 106.00
Area (flag) : 15452
On-Column Amount (ng) : 1.5669

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:26.
Target 3.5 esignature user C:\ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

13D01

Lab Name: Lancaster Laboratories

Contract: _____

Lab Code: LANCAS

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) WATER

Lab Sample ID: 1285718

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: HP15830.i/20mar31a.b/fm31s18.d

Level: (low/med) LOW

Date Received: 03/20/20

Moisture: not dec. _____

Date Analyzed: 03/31/20

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

13D01

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1285718

Data file: /chem/HP15830.i/20mar31a.b/fm31s18.d

Injection date and time: 31-MAR-2020 12:20

Data file Sample Info. Line: 13D01;1285718;1;0;;GPY68;;;fm31b02;T1

Instrument ID: HP15830.i Batch: F200912AA

Date, time and analyst ID of latest file update: 31-Mar-2020 12:28 Automation

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 31-MAR-2020 08:38

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.898 (0.012)	174	65	207709 (-4)	250.00	
14) Fluorobenzene	3.501 (0.000)	437	96	730053 (-9)	50.00	
19) Chlorobenzene-d5	4.848 (0.006)	658	117	546506 (-10)	50.00	
28) 1,4-Dichlorobenzene-d4	5.799 (0.000)	814	152	281177 (-11)	50.00	

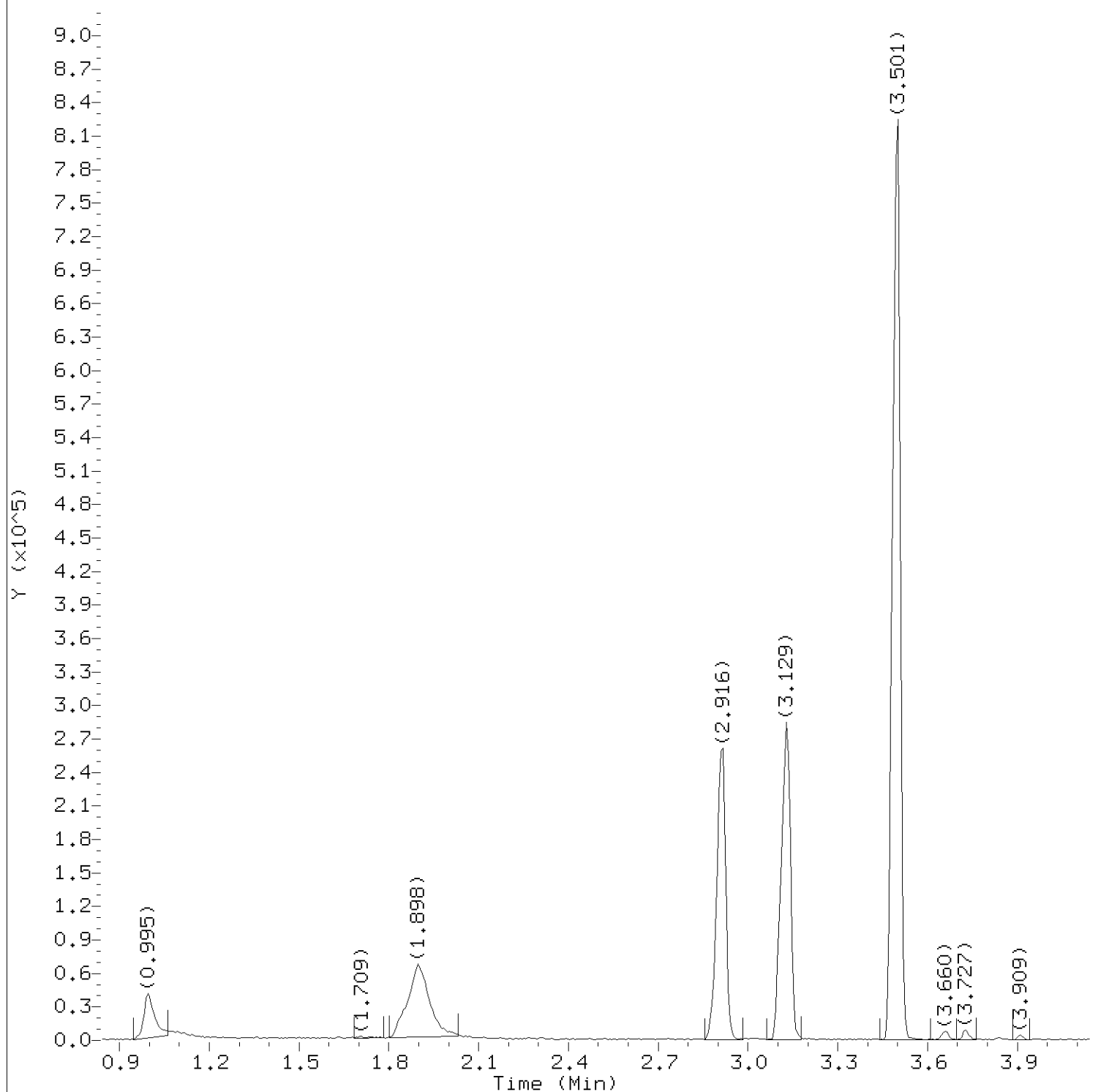
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.916 (0.000)	113	172128	51.264	103%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.129 (0.002)	102	46427	50.827	102%		80 - 120
15) Toluene-d8	(3)	4.275 (0.000)	98	754138	51.937	104%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.312 (-0.001)	95	274037	48.601	97%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:22. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Richard Samson on 03/31/2020 at 21:04. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s18.d
Injection date and time: 31-MAR-2020 12:20

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

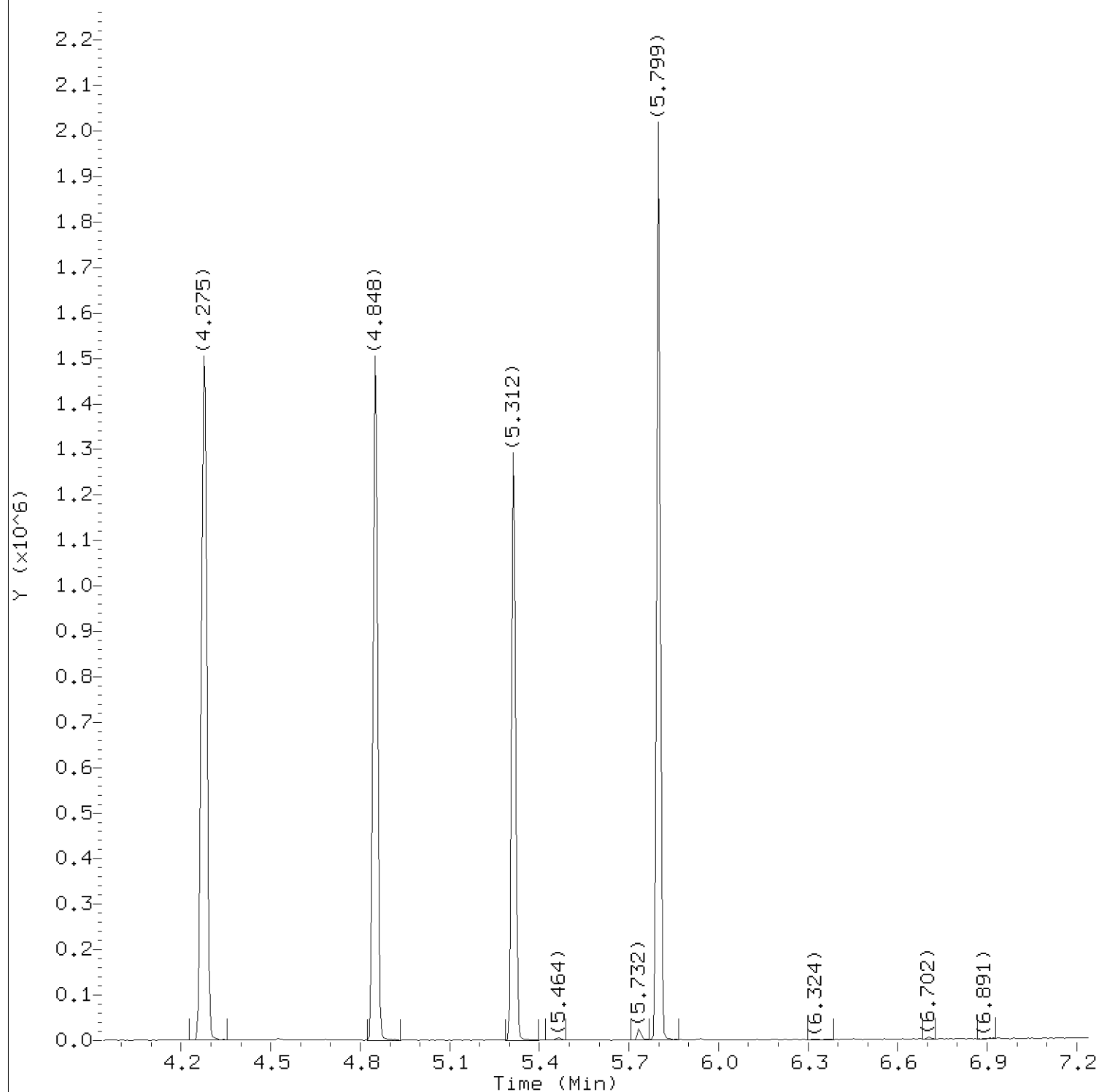
Date, time and analyst ID of latest file update: 31-Mar-2020 12:28 Automation

Sample Name: 13D01

Lab Sample ID: 1285718

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:22.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s18.d
Injection date and time: 31-MAR-2020 12:20

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

Date, time and analyst ID of latest file update: 31-Mar-2020 12:28 Automation

Sample Name: 13D01

Lab Sample ID: 1285718

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:22.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s18.d Instrument ID: HP15830.i
Injection date and time: 31-MAR-2020 12:20 Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 12:28 Automation

Sample Name: 13D01 Lab Sample ID: 1285718

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.898	65	207709	250.000
7) \$Dibromofluoromethane	(2)	2.916	113	172128	51.264
10) \$1,2-Dichloroethane-d4	(2)	3.129	102	46427	50.827
14) *Fluorobenzene	(2)	3.501	96	730053	50.000
15) \$Toluene-d8	(3)	4.275	98	754138	51.937
19) *Chlorobenzene-d5	(3)	4.848	117	546506	50.000
25) \$4-Bromofluorobenzene	(3)	5.312	95	274037	48.601
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	281177	50.000

* = Compound is an internal standard.
\$ = Compound is a surrogate standard.

page 1 of 1

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

12S01

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285719

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP15830.i/20mar31a.b/fm31s20.d

Level: (low/med) LOW Date Received: 03/20/20

Moisture: not dec. _____ Date Analyzed: 03/31/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

12S01

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1285719

Data file: /chem/HP15830.i/20mar31a.b/fm31s20.d

Injection date and time: 31-MAR-2020 12:42

Data file Sample Info. Line: 12S01;1285719;1;0;;GPY68;;;fm31b02;T1

Instrument ID: HP15830.i Batch: F200912AA

Date, time and analyst ID of latest file update: 31-Mar-2020 12:50 Automation

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 31-MAR-2020 08:38

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.885 (0.024)	172	65	192620 (-11)	250.00	
14) Fluorobenzene	3.495 (0.006)	436	96	745525 (-8)	50.00	
19) Chlorobenzene-d5	4.848 (0.006)	658	117	559324 (-8)	50.00	
28) 1,4-Dichlorobenzene-d4	5.799 (0.000)	814	152	298677 (-5)	50.00	

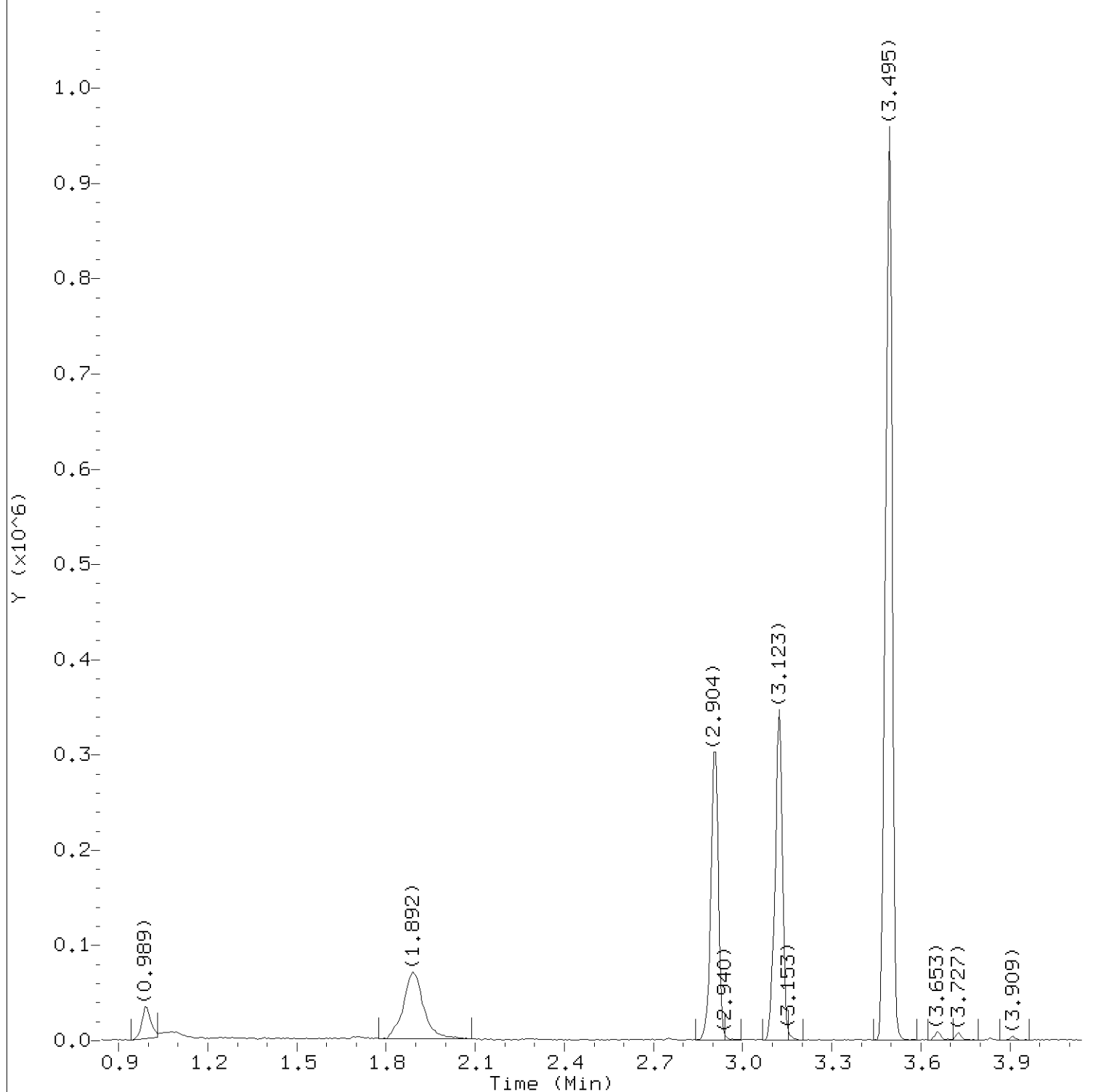
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.910 (0.000)	113	169710	49.495	99%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.123 (0.002)	102	45969	49.281	99%		80 - 120
15) Toluene-d8	(3)	4.275 (0.000)	98	737891	49.654	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.312 (-0.001)	95	270775	46.922	94%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:23. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Richard Samson on 03/31/2020 at 21:04. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s20.d
Injection date and time: 31-MAR-2020 12:42

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

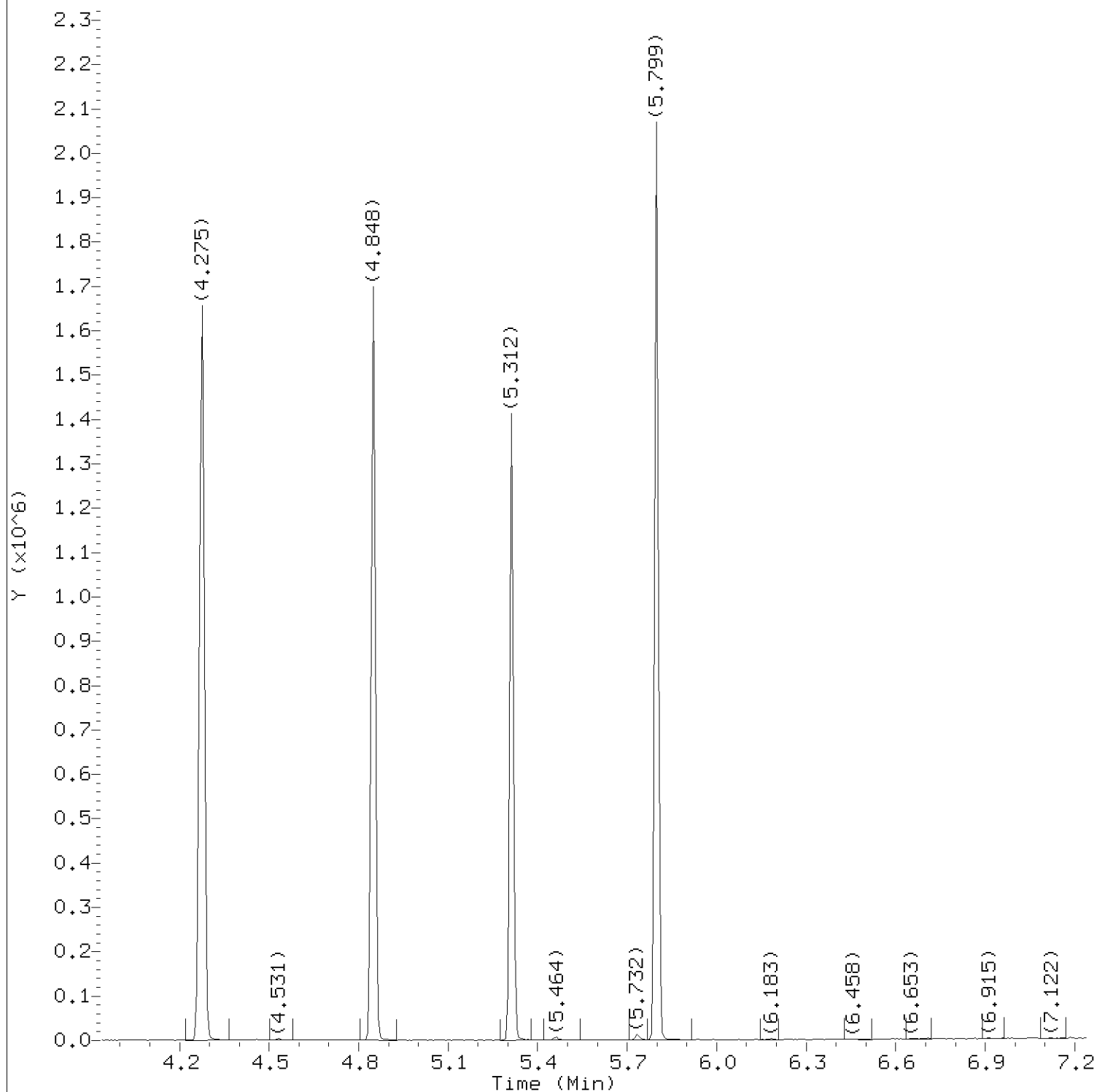
Date, time and analyst ID of latest file update: 31-Mar-2020 12:50 Automation

Sample Name: 12S01

Lab Sample ID: 1285719

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:23.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s20.d
Injection date and time: 31-MAR-2020 12:42

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

Date, time and analyst ID of latest file update: 31-Mar-2020 12:50 Automation

Sample Name: 12S01

Lab Sample ID: 1285719

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:23.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s20.d Instrument ID: HP15830.i
Injection date and time: 31-MAR-2020 12:42 Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 12:50 Automation

Sample Name: 12S01 Lab Sample ID: 1285719

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.885	65	192620	250.000
7) \$Dibromofluoromethane	(2)	2.910	113	169710	49.495
10) \$1,2-Dichloroethane-d4	(2)	3.123	102	45969	49.281
14) *Fluorobenzene	(2)	3.495	96	745525	50.000
15) \$Toluene-d8	(3)	4.275	98	737891	49.654
19) *Chlorobenzene-d5	(3)	4.848	117	559324	50.000
25) \$4-Bromofluorobenzene	(3)	5.312	95	270775	46.922
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	298677	50.000

* = Compound is an internal standard.
\$ = Compound is a surrogate standard.

page 1 of 1

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB003

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285720

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP15830.i/20mar31a.b/fm31s22.d

Level: (low/med) LOW Date Received: 03/20/20

Moisture: not dec. _____ Date Analyzed: 03/31/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

FB003

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1285720

Data file: /chem/HP15830.i/20mar31a.b/fm31s22.d

Injection date and time: 31-MAR-2020 13:03

Data file Sample Info. Line: FB003;1285720;1;0;;GPY68;;;fm31b02;T1

Instrument ID: HP15830.i Batch: F200912AA

Date, time and analyst ID of latest file update: 31-Mar-2020 13:11 Automation

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 31-MAR-2020 08:38

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.904 (0.006)	175	65	210494 (-3)	250.00	
14) Fluorobenzene	3.501 (0.000)	437	96	785934 (-3)	50.00	
19) Chlorobenzene-d5	4.854 (0.000)	659	117	588449 (-3)	50.00	
28) 1,4-Dichlorobenzene-d4	5.799 (0.000)	814	152	307816 (-2)	50.00	

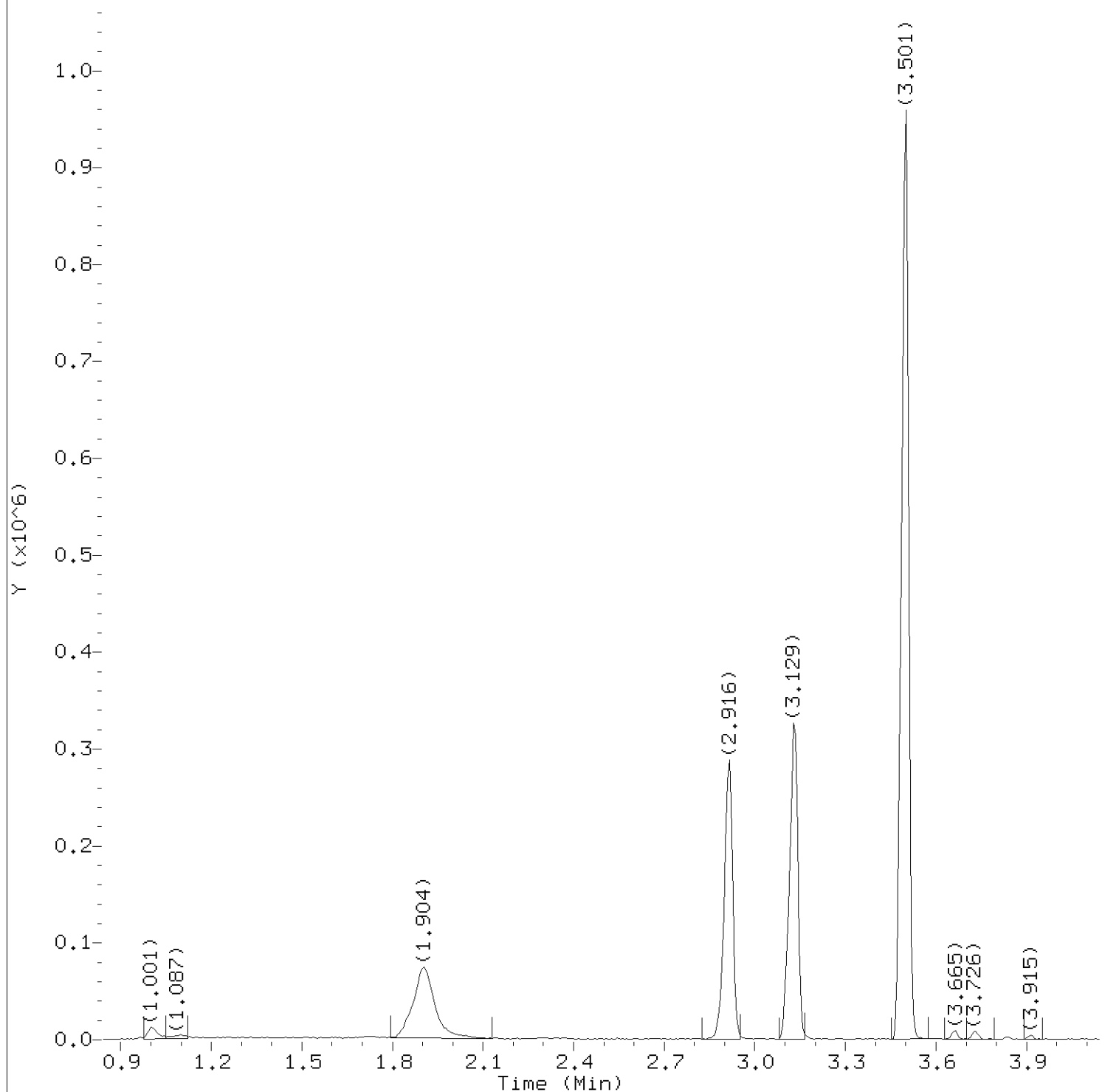
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.916 (0.000)	113	176414	48.804	98%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.129 (0.002)	102	47308	48.109	96%		80 - 120
15) Toluene-d8	(3)	4.281 (0.000)	98	766549	49.029	98%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.311 (0.000)	95	286263	47.150	94%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 13:23. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Richard Samson on 03/31/2020 at 21:04. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s22.d
Injection date and time: 31-MAR-2020 13:03

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

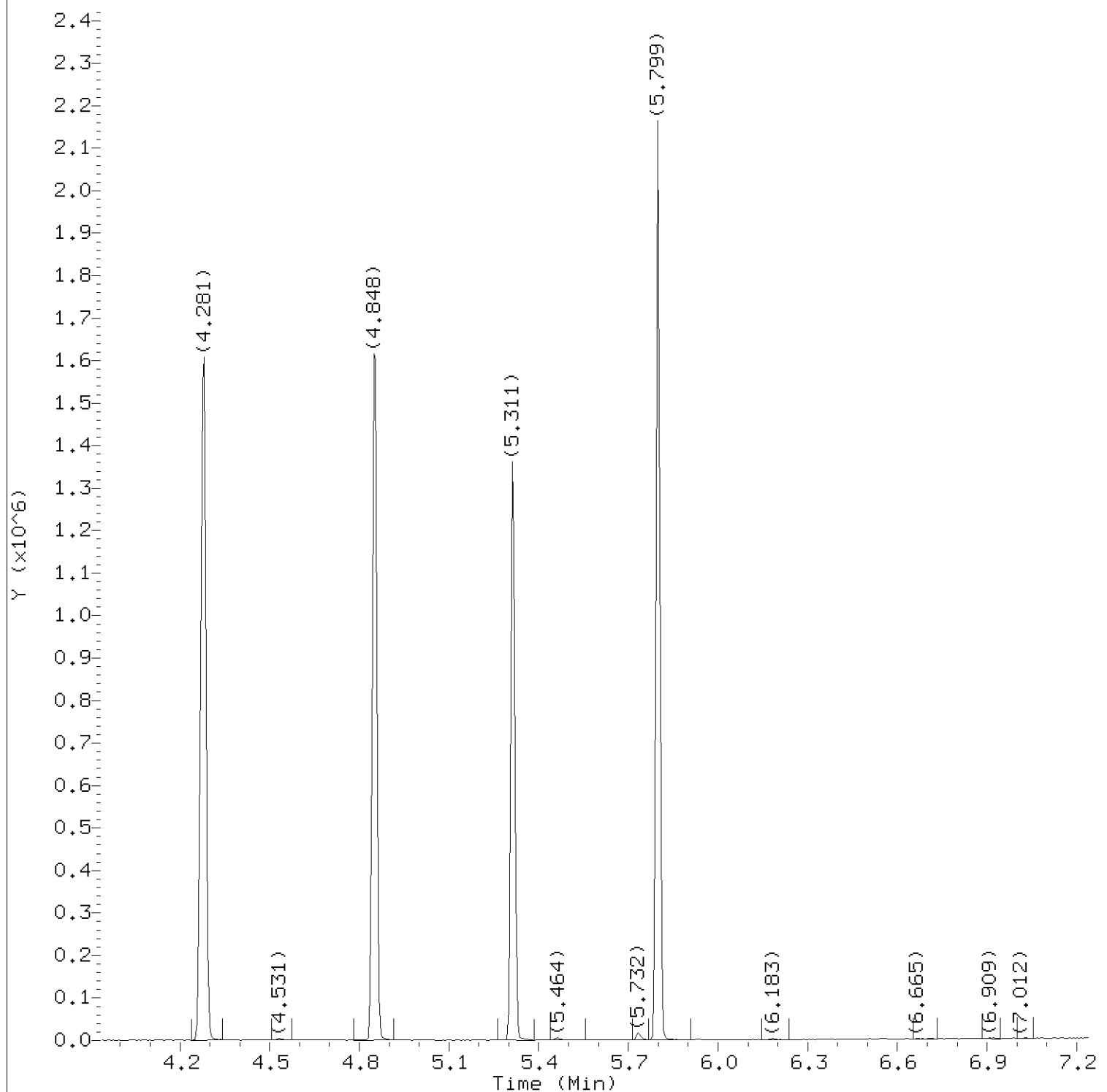
Date, time and analyst ID of latest file update: 31-Mar-2020 13:11 Automation

Sample Name: FB003

Lab Sample ID: 1285720

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:23.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s22.d
Injection date and time: 31-MAR-2020 13:03

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

Date, time and analyst ID of latest file update: 31-Mar-2020 13:11 Automation

Sample Name: FB003

Lab Sample ID: 1285720

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:23.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s22.d

Instrument ID: HP15830.i

Injection date and time: 31-MAR-2020 13:03

Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m

Sublist used: 12787

Calibration date and time: 31-MAR-2020 08:38

Date, time and analyst ID of latest file update: 31-Mar-2020 13:11 Automation

Sample Name: FB003

Lab Sample ID: 1285720

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2) *t-Butyl alcohol-d10	(1)	1.904	65	210494	250.000
7) \$Dibromofluoromethane	(2)	2.916	113	176414	48.804
10) \$1,2-Dichloroethane-d4	(2)	3.129	102	47308	48.109
14) *Fluorobenzene	(2)	3.501	96	785934	50.000
15) \$Toluene-d8	(3)	4.281	98	766549	49.029
19) *Chlorobenzene-d5	(3)	4.854	117	588449	50.000
25) \$4-Bromofluorobenzene	(3)	5.311	95	286263	47.150
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	307816	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 13:23.

Target 3.5 esignature user ID: ads07818

GPY68 Page 97 of 586

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

12D01

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285721

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP15830.i/20mar31a.b/fm31s24.d

Level: (low/med) LOW Date Received: 03/20/20

Moisture: not dec. _____ Date Analyzed: 03/31/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

12D01

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1285721

Data file: /chem/HP15830.i/20mar31a.b/fm31s24.d

Injection date and time: 31-MAR-2020 13:25

Data file Sample Info. Line: 12D01;1285721;1;0;;GPY68;;;fm31b02;T1

Instrument ID: HP15830.i Batch: F200912AA

Date, time and analyst ID of latest file update: 31-Mar-2020 13:33 Automation

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 31-MAR-2020 08:38

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.904 (0.006)	175	65	200921 (-7)	250.00	
14) Fluorobenzene	3.501 (0.000)	437	96	682846 (-15)	50.00	
19) Chlorobenzene-d5	4.854 (0.000)	659	117	560140 (-8)	50.00	
28) 1,4-Dichlorobenzene-d4	5.799 (0.000)	814	152	287944 (-9)	50.00	

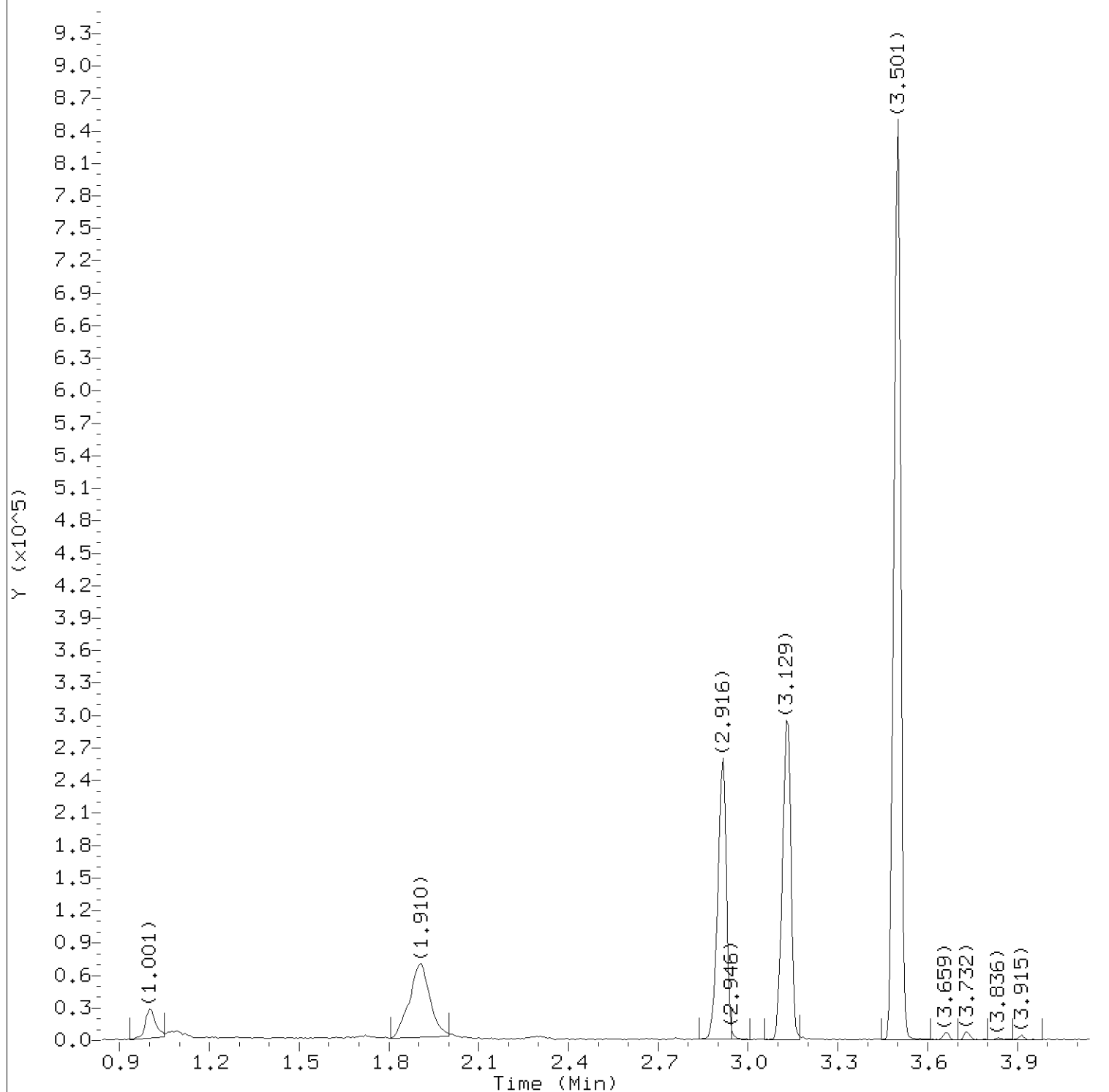
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.916 (0.000)	113	163954	52.205	104%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.129 (0.002)	102	44225	51.764	104%		80 - 120
15) Toluene-d8	(3)	4.281 (0.000)	98	714136	47.985	96%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.311 (0.000)	95	276639	47.868	96%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Kevin A. Sposito on 03/31/2020 at 18:04. Target 3.5 esignature user ID: kas02648

Secondary review performed and digitally signed by Richard Samson on 03/31/2020 at 21:04. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s24.d
Injection date and time: 31-MAR-2020 13:25

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

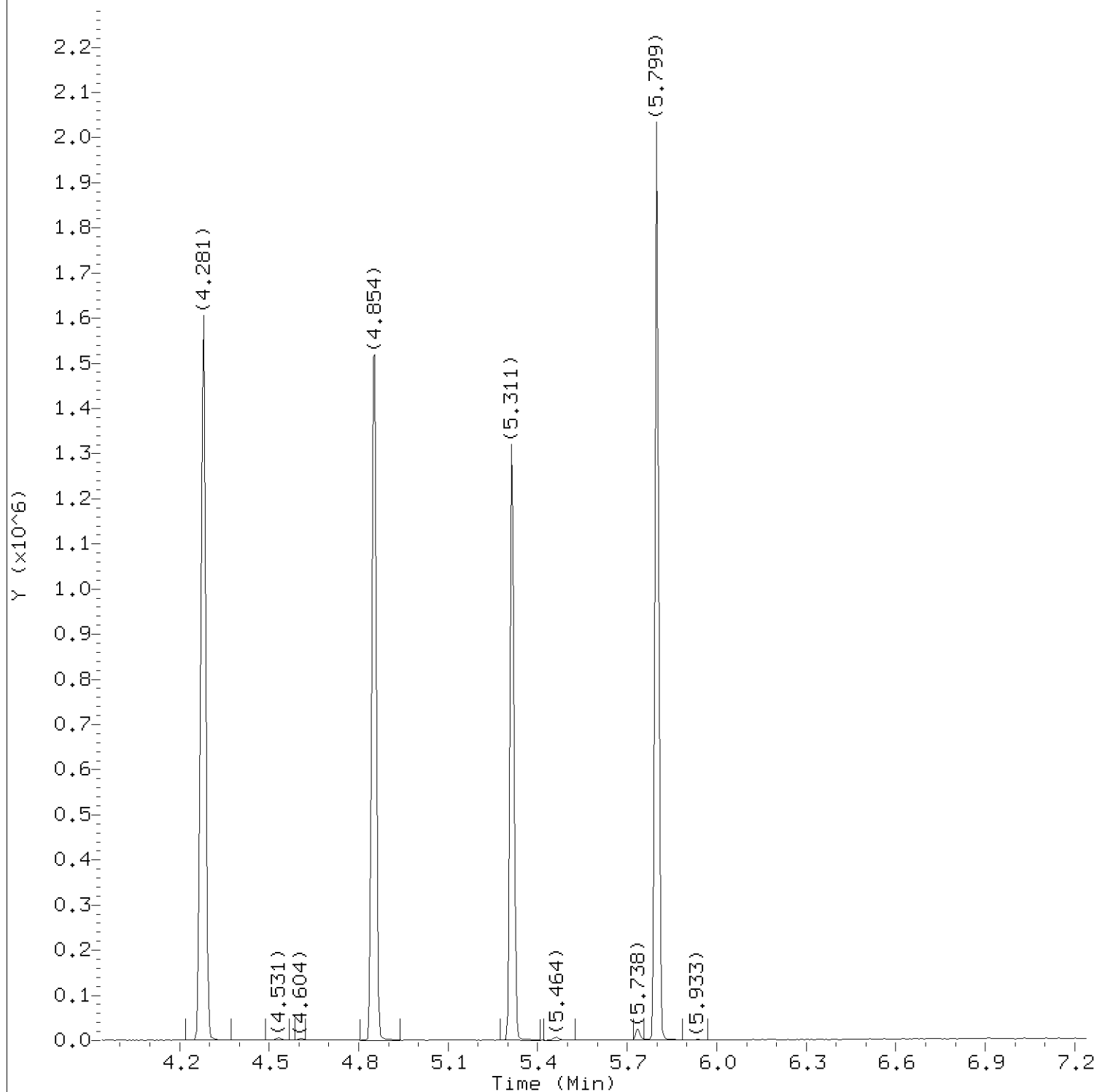
Date, time and analyst ID of latest file update: 31-Mar-2020 13:33 Automation

Sample Name: 12D01

Lab Sample ID: 1285721

Digitally signed by Kevin A. Sposito
on 03/31/2020 at 18:04.

Target 3.5 esignature user ID: kas02648



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s24.d
Injection date and time: 31-MAR-2020 13:25

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

Date, time and analyst ID of latest file update: 31-Mar-2020 13:33 Automation

Sample Name: 12D01

Lab Sample ID: 1285721

Digitally signed by Kevin A. Sposito
on 03/31/2020 at 18:04.

Target 3.5 esignature user ID: kas02648

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s24.d Instrument ID: HP15830.i
Injection date and time: 31-MAR-2020 13:25 Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:33 Automation

Sample Name: 12D01 Lab Sample ID: 1285721

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.904	65	200921	250.000
7) \$Dibromofluoromethane	(2)	2.916	113	163954	52.205
10) \$1,2-Dichloroethane-d4	(2)	3.129	102	44225	51.764
14) *Fluorobenzene	(2)	3.501	96	682846	50.000
15) \$Toluene-d8	(3)	4.281	98	714136	47.985
19) *Chlorobenzene-d5	(3)	4.854	117	560140	50.000
25) \$4-Bromofluorobenzene	(3)	5.311	95	276639	47.868
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	287944	50.000

* = Compound is an internal standard.
\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Kevin A. Sposito
on 03/31/2020 at 18:04.

Target 3.5 esignature user ID: kas02648

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DUP10

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285722

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP15830.i/20mar31a.b/fm31s26.d

Level: (low/med) LOW Date Received: 03/20/20

Moisture: not dec. _____ Date Analyzed: 03/31/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

DUP10

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1285722

Data file: /chem/HP15830.i/20mar31a.b/fm31s26.d Injection date and time: **31-MAR-2020 13:47**
Data file Sample Info. Line: DUP10;1285722;1;0;;GPY68;;;fm31b02;T1 Instrument ID: **HP15830.i** Batch: **F200912AA**
Date, time and analyst ID of latest file update: 31-Mar-2020 13:55 Automation

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: **12787**
Calibration date and time (Last Method Edit): 31-MAR-2020 08:38
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code: **038B** Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.891 (0.018)	173	65	197509 (-9)	250.00	
14) Fluorobenzene	3.501 (0.000)	437	96	750343 (-7)	50.00	
19) Chlorobenzene-d5	4.848 (0.006)	658	117	569046 (-6)	50.00	
28) 1,4-Dichlorobenzene-d4	5.799 (0.000)	814	152	296052 (-6)	50.00	

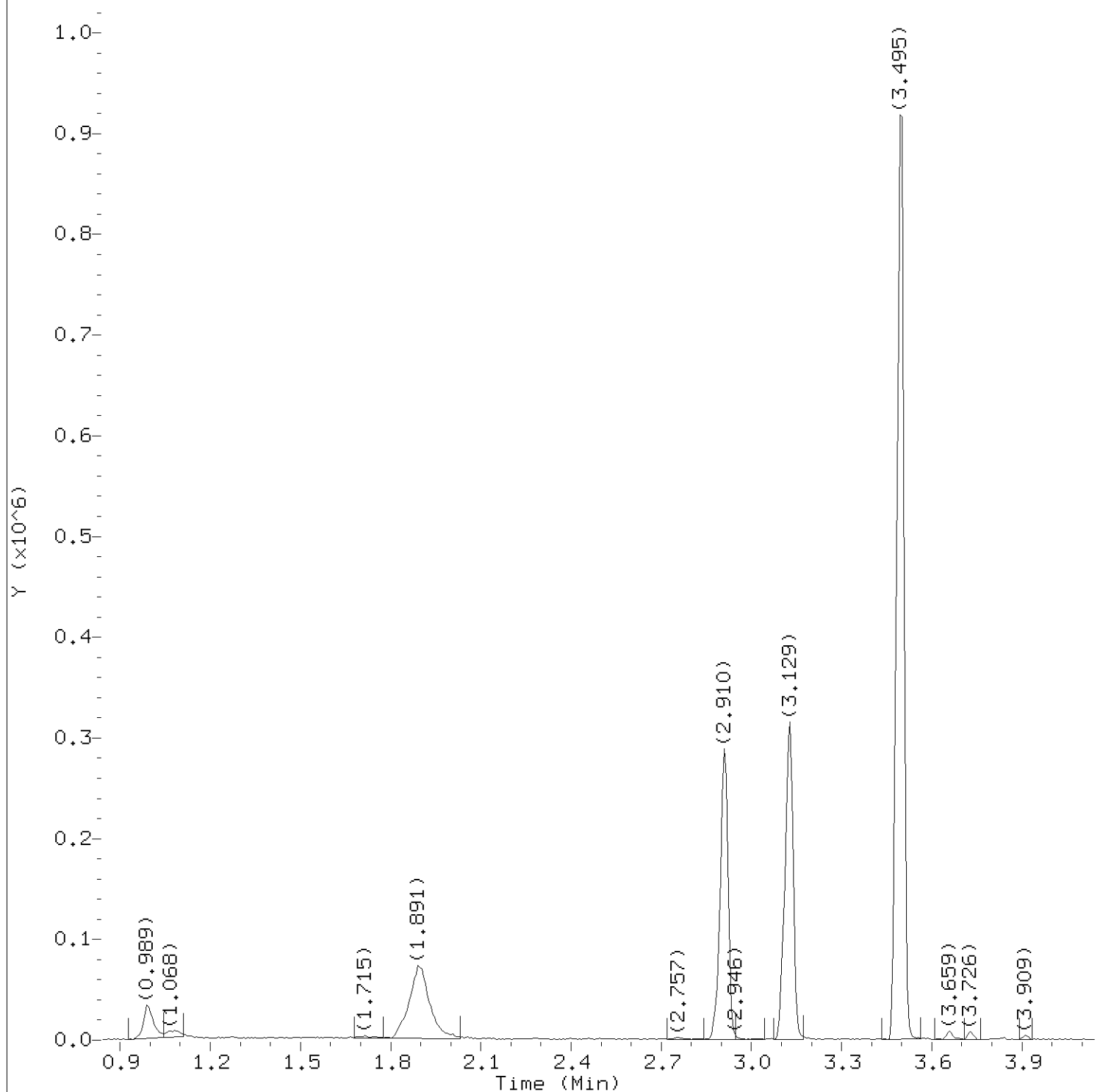
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.910 (0.002)	113	166933	48.372	97%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.129 (0.002)	102	45561	48.531	97%		80 - 120
15) Toluene-d8	(3)	4.275 (0.000)	98	731190	48.362	97%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.312 (-0.001)	95	282480	48.114	96%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Kevin A. Sposito on 03/31/2020 at 18:04. Target 3.5 esignature user ID: kas02648

Secondary review performed and digitally signed by Richard Samson on 03/31/2020 at 21:04. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s26.d
Injection date and time: 31-MAR-2020 13:47

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

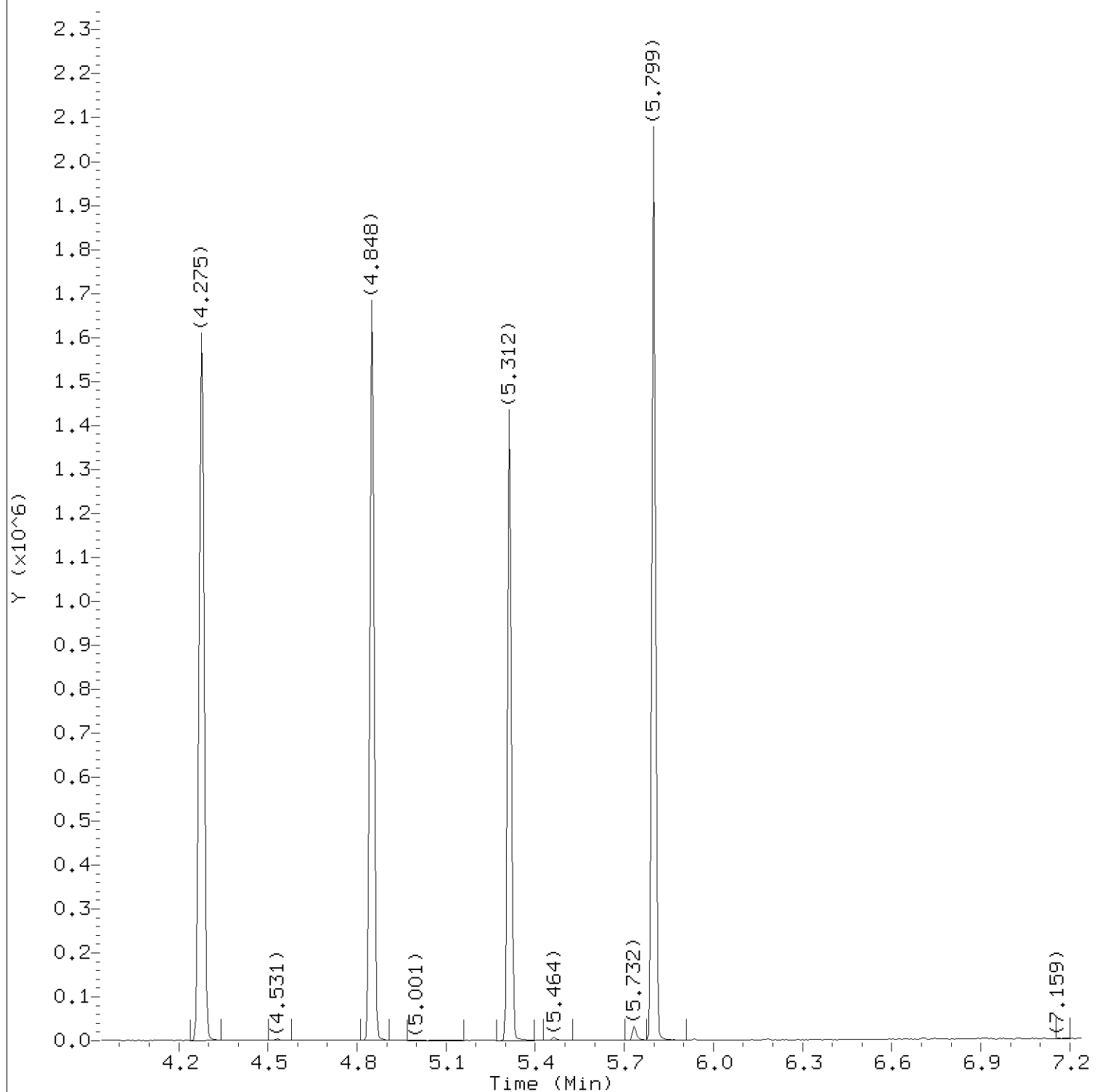
Date, time and analyst ID of latest file update: 31-Mar-2020 13:55 Automation

Sample Name: DUP10

Lab Sample ID: 1285722

Digitally signed by Kevin A. Sposito
on 03/31/2020 at 18:04.

Target 3.5 esignature user ID: kas02648



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s26.d
Injection date and time: 31-MAR-2020 13:47

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 12787

Date, time and analyst ID of latest file update: 31-Mar-2020 13:55 Automation

Sample Name: DUP10

Lab Sample ID: 1285722

Digitally signed by Kevin A. Sposito
on 03/31/2020 at 18:04.

Target 3.5 esignature user ID: kas02648

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s26.d Instrument ID: HP15830.i
Injection date and time: 31-MAR-2020 13:47 Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 12787
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 13:55 Automation

Sample Name: DUP10

Lab Sample ID: 1285722

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.891	65	197509	250.000
7) \$Dibromofluoromethane	(2)	2.910	113	166933	48.372
10) \$1,2-Dichloroethane-d4	(2)	3.129	102	45561	48.531
14) *Fluorobenzene	(2)	3.501	96	750343	50.000
15) \$Toluene-d8	(3)	4.275	98	731190	48.362
19) *Chlorobenzene-d5	(3)	4.848	117	569046	50.000
25) \$4-Bromofluorobenzene	(3)	5.312	95	282480	48.114
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	296052	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Kevin A. Sposito
on 03/31/2020 at 18:04.

Target 3.5 esignature user ID: kas02648

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB110

Lab Name: Lancaster Laboratories

Contract: _____

Lab Code: LANCAS

Case No.: _____

SAS No.: _____

SDG No.: _____

Matrix: (soil/water) WATER

Lab Sample ID: 1285750

Sample wt/vol: 5.00 (g/mL) mL

Lab File ID: HP09671.i/20mar25a.b/zm25s45.d

Level: (low/med) LOW

Date Received: 03/20/20

Moisture: not dec. _____

Date Analyzed: 03/25/20

Column: (pack/cap) CAP

Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
1634-04-4-----	Methyl Tertiary Butyl Ether	1	U	
71-43-2-----	Benzene	1	U	
108-88-3-----	Toluene	1	U	
100-41-4-----	Ethylbenzene	1	U	
1330-20-7-----	Xylene (Total)	6	U	

TB110

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1285750

Data file: /chem2/HP09671.i/20mar25a.b/zm25s45.d

Injection date and time: 25-MAR-2020 18:39

Data file Sample Info. Line: TB110;1285750;1;0;;GPY68;;zm25b01;T1

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 18:47 chemist

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	172528 (-5)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	722180 (-10)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	530482 (-7)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	283490 (-9)	50.00	

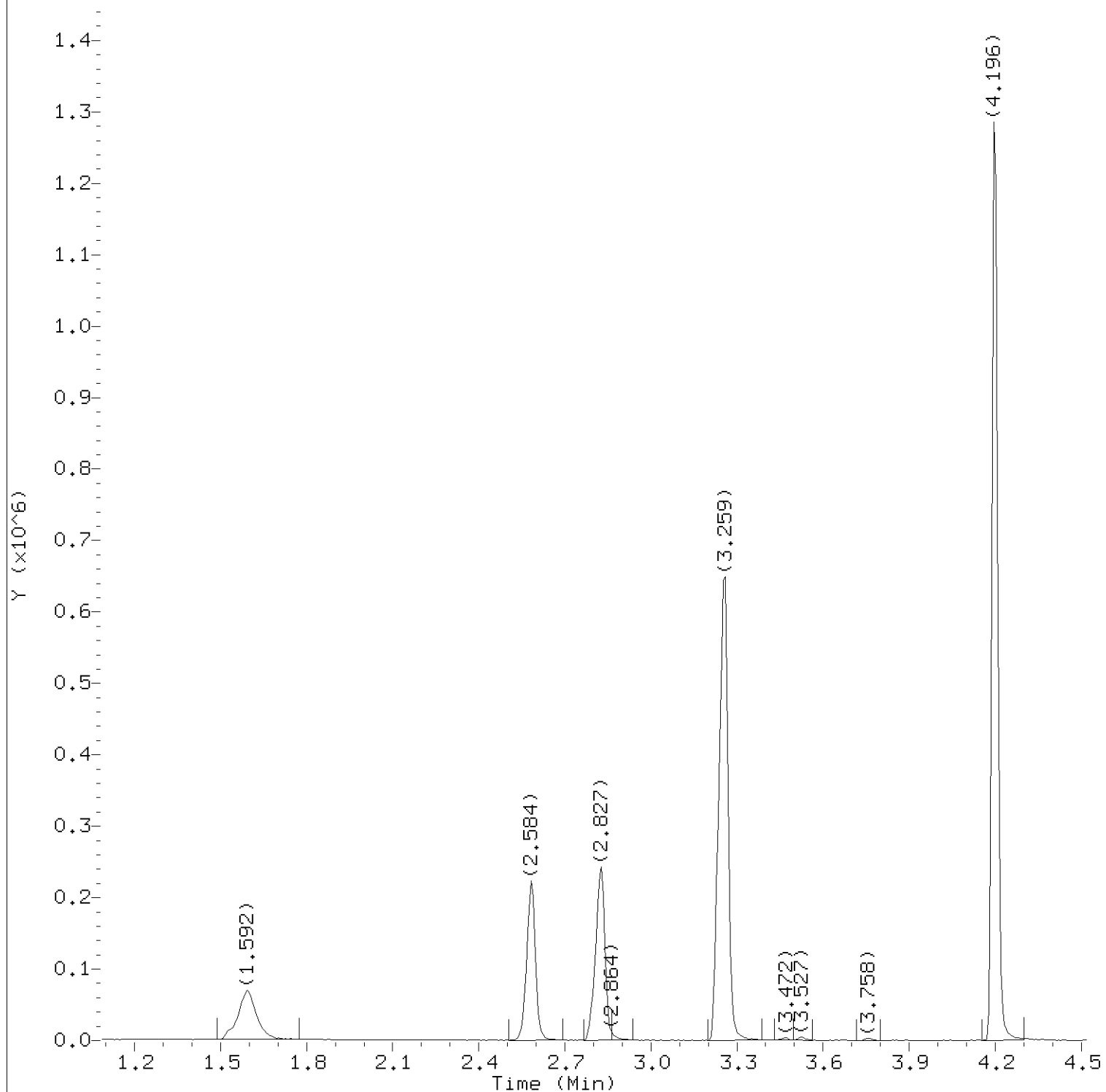
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.001)	113	153494	54.245	108%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	46358	52.295	105%		80 - 120
15) Toluene-d8	(3)	4.196 (0.001)	98	714761	50.366	101%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	250857	46.964	94%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6

Total number of targets = 7

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:11. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:31. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s45.d
Injection date and time: 25-MAR-2020 18:39

Instrument ID: HP09671.i
Analyst ID: ads07818

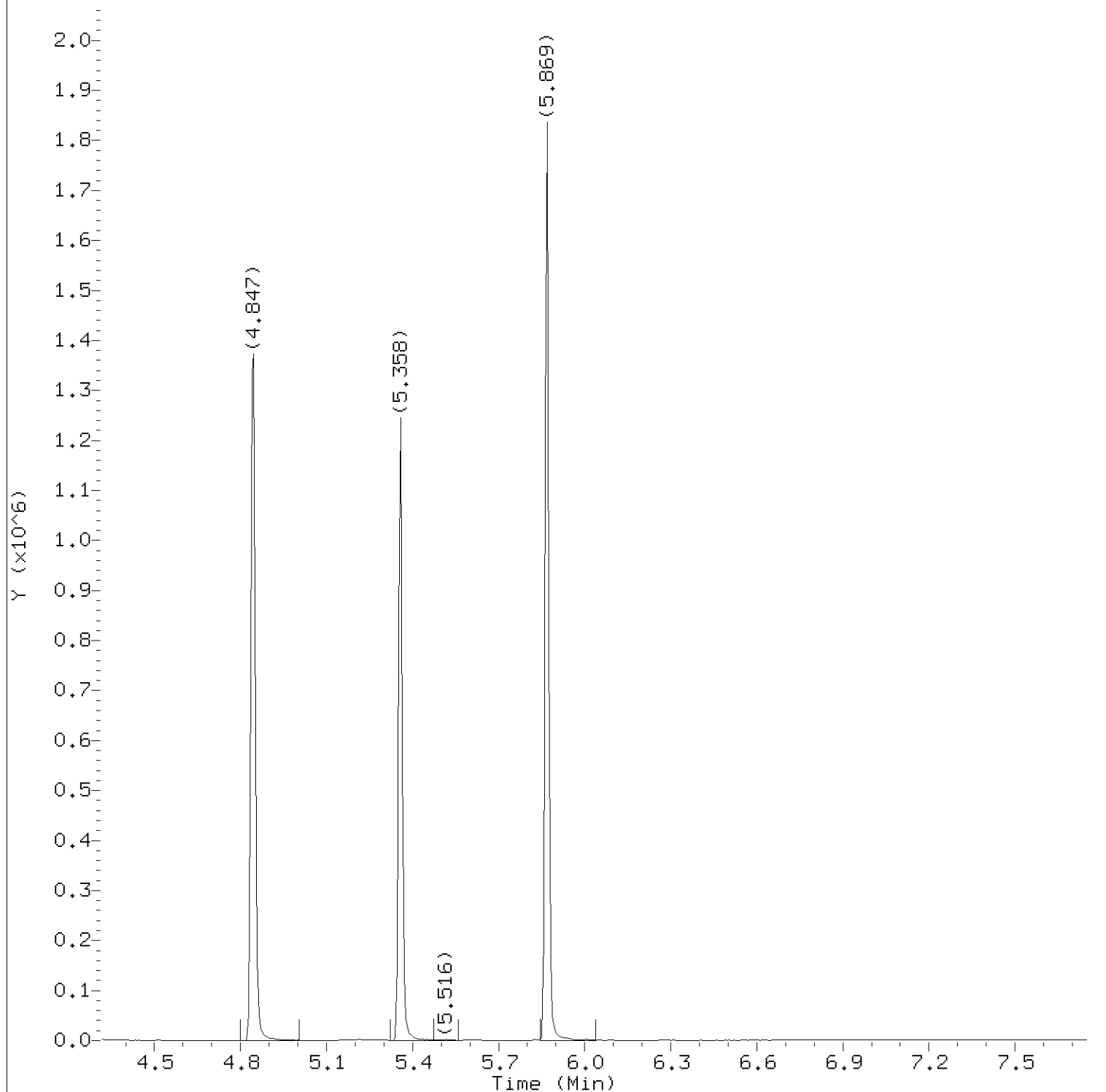
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 18:47 chemist

Sample Name: TB110

Lab Sample ID: 1285750

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s45.d
Injection date and time: 25-MAR-2020 18:39

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 12787
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 18:47 chemist

Sample Name: TB110

Lab Sample ID: 1285750

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s45.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 18:39

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 12787

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 18:47 chemist

Sample Name: TB110

Lab Sample ID: 1285750

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.592	65	172528	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	153494	54.245
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	46358	52.295
14) *Fluorobenzene	(2)	3.259	96	722180	50.000
15) \$Toluene-d8	(3)	4.196	98	714761	50.366
19) *Chlorobenzene-d5	(3)	4.847	117	530482	50.000
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28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	283490	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: ads07818

Standards Data

Volatiles by GC/MS

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09671 **HP #21**

Data Directory Path is - D:\DATA\20jan20z\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
amd00492	zj20t01.D	50ngbfb	01/20/2020	08:06		
amd00492	zj20xx1.D	std	01/20/2020	08:20		
amd00492	zj20xx2.D	std	01/20/2020	08:32		
amd00492	zj20xx3.D	std	01/20/2020	08:45		
amd00492	zj20xx4.D	std	01/20/2020	08:57		
amd00492	zj20i01.D	VSTD200	01/20/2020	09:09		
amd00492	zj20i02.D	VSTD200	01/20/2020	09:21		
amd00492	zj20i03.D	VSTD100	01/20/2020	09:33		
amd00492	zj20i04.D	VSTD100	01/20/2020	09:45		
amd00492	zj20i05.D	VSTD050	01/20/2020	09:57		
amd00492	zj20i06.D	VSTD050	01/20/2020	10:09		
amd00492	zj20i07.D	VSTD020	01/20/2020	10:21		
amd00492	zj20i08.D	VSTD020	01/20/2020	10:33		
amd00492	zj20i09.D	VSTD010	01/20/2020	10:46		
amd00492	zj20i10.D	VSTD010	01/20/2020	10:58		
amd00492	zj20i11.D	VSTD002	01/20/2020	11:10		
amd00492	zj20i12.D	VSTD002	01/20/2020	11:22		
amd00492	zj20i13.D	VSTD001	01/20/2020	11:34		
amd00492	zj20i14.D	VSTD001	01/20/2020	11:46		
amd00492	zj20i15.D	VSTD0.5	01/20/2020	11:59		
amd00492	zj20i16.D	VSTD0.5	01/20/2020	12:11		
amd00492	zj20v01.D	ICVZ01	01/20/2020	12:23		
amd00492	zj20v02.D	ICVZ02	01/20/2020	12:35		
amd00492	zj20i23.D	VSTD100	01/20/2020	12:47		
amd00492	zj20i24.D	VSTD100	01/20/2020	12:59		
amd00492	zj20x01.D	blk	01/20/2020	13:12		
amd00492	zj20x02.D	blk	01/20/2020	13:24		
amd00492	zj20x03.D	blk	01/20/2020	13:36		
amd00492	zj20x04.D	blk	01/20/2020	13:48		
amd00492	zj20b01.D	VBLKZ01	01/20/2020	14:00		
amd00492	zj20b02.D	VBLKZ02	01/20/2020	14:12		
amd00492	zj20b03.D	VBLKZ03	01/20/2020	14:24		
amd00492	zj20b04.D	VBLKZ04	01/20/2020	14:36		
amd00492	zj20b05.D	VBLKZ05	01/20/2020	14:49		
amd00492	zj20b06.D	VBLKZ06	01/20/2020	15:01		
amd00492	zj20m01.D	MDLZ01	01/20/2020	15:13		
amd00492	zj20m02.D	MDLZ02	01/20/2020	15:25		
amd00492	zj20m03.D	MDLZ03	01/20/2020	15:37		
amd00492	zj20m04.D	MDLZ04	01/20/2020	15:49		
amd00492	zj20m05.D	MDLZ05	01/20/2020	16:02		
amd00492	zj20m06.D	MDLZ06	01/20/2020	16:14		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP15830 **HP #28**

Data Directory Path is - D:\DATA\20feb11a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
amd00492	ff11t01.D	50ngbfb	02/11/2020	08:48		
amd00492	ff11x01.D	blk	02/11/2020	09:00		
amd00492	ff11x02.D	blk	02/11/2020	09:10		
amd00492	ff11x03.D	blk	02/11/2020	09:22		
amd00492	ff11x04.D	blk	02/11/2020	09:32		
amd00492	ff1101.D	VSTD200	02/11/2020	09:44		
amd00492	ff1102.D	VSTD200	02/11/2020	09:54		
amd00492	ff1103.D	VSTD100	02/11/2020	10:06		
amd00492	ff1104.D	VSTD100	02/11/2020	10:16		
amd00492	ff1105.D	VSTD050	02/11/2020	10:28		
amd00492	ff1106.D	VSTD050	02/11/2020	10:38		
amd00492	ff1107.D	VSTD020	02/11/2020	10:50		
amd00492	ff1108.D	VSTD020	02/11/2020	11:00		
amd00492	ff1109.D	VSTD010	02/11/2020	11:12		
amd00492	ff1110.D	VSTD010	02/11/2020	11:22		
amd00492	ff1111.D	VSTD002	02/11/2020	11:34		
amd00492	ff1112.D	VSTD002	02/11/2020	11:44		
amd00492	ff1113.D	VSTD001	02/11/2020	11:56		
amd00492	ff1114.D	VSTD001	02/11/2020	12:05		
amd00492	ff1115.D	VSTD0.5	02/11/2020	12:18		
amd00492	ff1116.D	VSTD0.5	02/11/2020	12:27		
amd00492	ff11v01.D	FICV10	02/11/2020	12:40		
amd00492	ff11v02.D	FICV50	02/11/2020	12:50		
amd00492	ff11r01.D	C6C10C12	02/11/2020	13:02		
amd00492	ff11r02.D	C6C10C12	02/11/2020	13:11		
amd00492	ff11x05.D	blk	02/11/2020	13:24		
amd00492	ff11x06.D	blk	02/11/2020	13:33		
amd00492	ff11g01.D	VSTD4400	02/11/2020	13:46		
amd00492	ff11g02.D	VSTD4400	02/11/2020	13:55		
amd00492	ff11g03.D	VSTD2200	02/11/2020	14:08		
amd00492	ff11g04.D	VSTD2200	02/11/2020	14:17		
amd00492	ff11g05.D	VSTD1100	02/11/2020	14:30		
amd00492	ff11g06.D	VSTD1100	02/11/2020	14:39		
amd00492	ff11g07.D	VSTD550	02/11/2020	14:52		
amd00492	ff11g08.D	VSTD550	02/11/2020	15:02		
amd00492	ff11g09.D	VSTD110	02/11/2020	15:14		
amd00492	ff11g10.D	VSTD110	02/11/2020	15:24		
amd00492	ff11g11.D	VSTD44	02/11/2020	15:36		
amd00492	ff11g12.D	VSTD44	02/11/2020	15:46		
amd00492	ff11v11.D	ICVF03	02/11/2020	15:58		
amd00492	ff11v12.D	ICVF04	02/11/2020	16:07		
amd00492	ff11t11.D	50ngbfb	02/11/2020	08:48		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09671 **HP #21**

Data Directory Path is - D:\DATA\20mar25a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ads07818	ZM25T01.D	50NGBFB	03/25/2020	07:47	Z200851AA	
ads07818	ZM25x91.D	VLKZ91	03/25/2020	08:10	Z200851AA	
ads07818	ZM25x92.D	VLKZ92	03/25/2020	08:22	Z200852AA	
ads07818	ZM25C01.D	VSTD050	03/25/2020	08:34	Z200851AA	
ads07818	ZM25C02.D	VSTD050	03/25/2020	08:46	Z200852AA	
ads07818	ZM25S01.D	LCSZ91	03/25/2020	08:59	Z200851AA	
ads07818	ZM25S02.D	LCSZ92	03/25/2020	09:11	Z200852AA	
ads07818	ZM25B01.D	VLKZ91	03/25/2020	09:23	Z200851AA	
ads07818	ZM25B02.D	VLKZ92	03/25/2020	09:35	Z200852AA	
ads07818	ZM25S03.D	1283824	03/25/2020	10:08	Z200851AA	
ads07818	ZM25S04.D	1285389	03/25/2020	10:20	Z200852AA	
ads07818	ZM25S05.D	1283817	03/25/2020	10:33	Z200851AA	
ads07818	ZM25S06.D	1285467	03/25/2020	10:45	Z200852AA	
ads07818	ZM25S07.D	1283818MS	03/25/2020	10:57	Z200851AA	
ads07818	ZM25S08.D	1285467MS	03/25/2020	11:09	Z200852AA	
ads07818	ZM25S09.D	1283819MSD	03/25/2020	11:21	Z200851AA	
ads07818	ZM25S10.D	1285467MSD	03/25/2020	11:33	Z200852AA	
ads07818	ZM25S11.D	1283820	03/25/2020	11:45	Z200851AA	
ads07818	ZM25S12.D	1285468	03/25/2020	11:57	Z200852AA	10
ads07818	ZM25S13.D	1283821	03/25/2020	12:10	Z200851AA	
ads07818	ZM25S14.D	1285469	03/25/2020	12:22	Z200852AA	
ads07818	ZM25S15.D	1283822	03/25/2020	12:34	Z200851AA	
ads07818	ZM25S16.D	1285470	03/25/2020	12:46	Z200852AA	
ads07818	ZM25S17.D	1283823	03/25/2020	12:58	Z200851AA	
ads07818	ZM25S18.D	1285471	03/25/2020	13:10	Z200852AA	
ads07818	ZM25S19.D	1282212	03/25/2020	13:23	Z200851AA	10
ads07818	ZM25S20.D	1285472	03/25/2020	13:35	Z200852AA	10
ads07818	ZM25S21.D	1282212DL	03/25/2020	13:47	Z200851AA	100
ads07818	ZM25S22.D	1285473	03/25/2020	13:59	Z200852AA	
ads07818	ZM25S23.D	1282214	03/25/2020	14:11	Z200851AA	
ads07818	ZM25S24.D	1285474	03/25/2020	14:23	Z200852AA	10
ads07818	ZM25S25.D	1282215	03/25/2020	14:36	Z200851AA	
ads07818	ZM25S26.D	1285475	03/25/2020	14:48	Z200852AA	
ads07818	ZM25S27.D	1283809	03/25/2020	15:00	Z200851AA	
ads07818	ZM25S28.D	1285476	03/25/2020	15:12	Z200852AA	
ads07818	ZM25S29.D	1283810	03/25/2020	15:24	Z200851AA	
ads07818	ZM25S30.D	1285477	03/25/2020	15:36	Z200852AA	5
ads07818	ZM25S31.D	1283811	03/25/2020	15:49	Z200851AA	
ads07818	ZM25S32.D	1285478	03/25/2020	16:01	Z200852AA	
ads07818	ZM25S33.D	1283812	03/25/2020	16:13	Z200851AA	
ads07818	ZM25S34.D	1285479	03/25/2020	16:25	Z200852AA	
ads07818	ZM25S35.D	1283813	03/25/2020	16:38	Z200851AA	
ads07818	ZM25S36.D	1285480	03/25/2020	16:50	Z200852AA	
ads07818	ZM25S37.D	1283814	03/25/2020	17:02	Z200851AA	
ads07818	ZM25S38.D	1282176	03/25/2020	17:14	Z200852AA	
ads07818	ZM25S39.D	1283815	03/25/2020	17:26	Z200851AA	
ads07818	ZM25S40.D	1282177	03/25/2020	17:38	Z200852AA	5
ads07818	ZM25S41.D	1283816	03/25/2020	17:51	Z200851AA	
ads07818	ZM25S42.D	1282178	03/25/2020	18:03	Z200852AA	
ads07818	ZM25S43.D	1285280	03/25/2020	18:15	Z200851AA	
ads07818	ZM25S44.D	1282140	03/25/2020	18:27	Z200852AA	10
ads07818	ZM25S45.D	1285750	03/25/2020	18:39	Z200851AA	
ads07818	ZM25S46.D	1282141	03/25/2020	18:51	Z200852AA	

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP15830 **HP #28**

Data Directory Path is - C:\msdchem\1\data\20MAR31A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ADS07818	FM31T01.D	50NGBFB	03/31/2020	07:36	F200911AA	
ADS07818	FM31X91.D	VLKFF13	03/31/2020	07:57	F200911AA	
ADS07818	FM31X92.D	VLKFF14	03/31/2020	08:06	F200912AA	
ADS07818	FM31C01.D	VSTD050	03/31/2020	08:19	F200911AA	
ADS07818	FM31C02.D	VSTD050	03/31/2020	08:28	F200912AA	
ADS07818	FM31S01.D	LCSF13	03/31/2020	08:41	F200911AA	
ADS07818	FM31S02.D	LCSF14	03/31/2020	08:50	F200912AA	
ADS07818	FM31B01.D	VLKFF13	03/31/2020	09:03	F200911AA	
ADS07818	FM31B02.D	VLKFF14	03/31/2020	09:12	F200912AA	
ADS07818	FM31S03.D	1286810	03/31/2020	09:37	F200911AA	
ADS07818	FM31S04.D	1286370	03/31/2020	09:47	F200912AA	
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ADS07818	FM31S06.D	1286371	03/31/2020	10:09	F200912AA	
ADS07818	FM31S07.D	1286809MS	03/31/2020	10:21	F200911AA	
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ADS07818	FM31S09.D	1286809MSD	03/31/2020	10:43	F200911AA	
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ADS07818	FM31S12.D	1286377MSD	03/31/2020	11:14	F200912AA	
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ADS07818	FM31S15.D	1285269DL	03/31/2020	11:49	F200911AA	500
ADS07818	FM31S16.D	1285717	03/31/2020	11:58	F200912AA	5
ADS07818	FM31S17.D	1285270	03/31/2020	12:10	F200911AA	50
ADS07818	FM31S18.D	1285718	03/31/2020	12:20	F200912AA	
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ADS07818	FM31S28.D	1286522	03/31/2020	14:09	F200912AA	
ADS07818	FM31S29.D	1286805	03/31/2020	14:21	F200911AA	
ADS07818	FM31S30.D	1286523	03/31/2020	14:31	F200912AA	5
ADS07818	FM31S31.D	1286806	03/31/2020	14:43	F200911AA	
ADS07818	FM31S32.D	1286523DL	03/31/2020	14:53	F200912AA	50
ADS07818	FM31S33.D	1286807	03/31/2020	15:04	F200911AA	
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ADS07818	FM31S35.D	1286808	03/31/2020	15:26	F200911AA	
ADS07818	FM31S36.D	1286378	03/31/2020	15:36	F200912AA	
ADS07818	FM31S37.D	1286859	03/31/2020	15:48	F200911AA	
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ADS07818	FM31S39.D	1286860	03/31/2020	16:10	F200911AA	
ADS07818	FM31S40.D	1289763	03/31/2020	16:20	F200912AA	
ADS07818	FM31S41.D	1286862	03/31/2020	16:32	F200911AA	
ADS07818	FM31S42.D	1289764	03/31/2020	16:41	F200912AA	
ADS07818	FM31S43.D	1287281	03/31/2020	16:54	F200911AA	
ADS07818	FM31S44.D	1289765	03/31/2020	17:03	F200912AA	
ADS07818	FM31S45.D	1287282	03/31/2020	17:15	F200911AA	5
ADS07818	FM31S46.D	1289766	03/31/2020	17:25	F200912AA	

Data File: /chem2/HP09671.i/20jan20z.b/zj20t01.d

Page 1

Date : 20-JAN-2020 08:06

Client ID: bfbaug0219

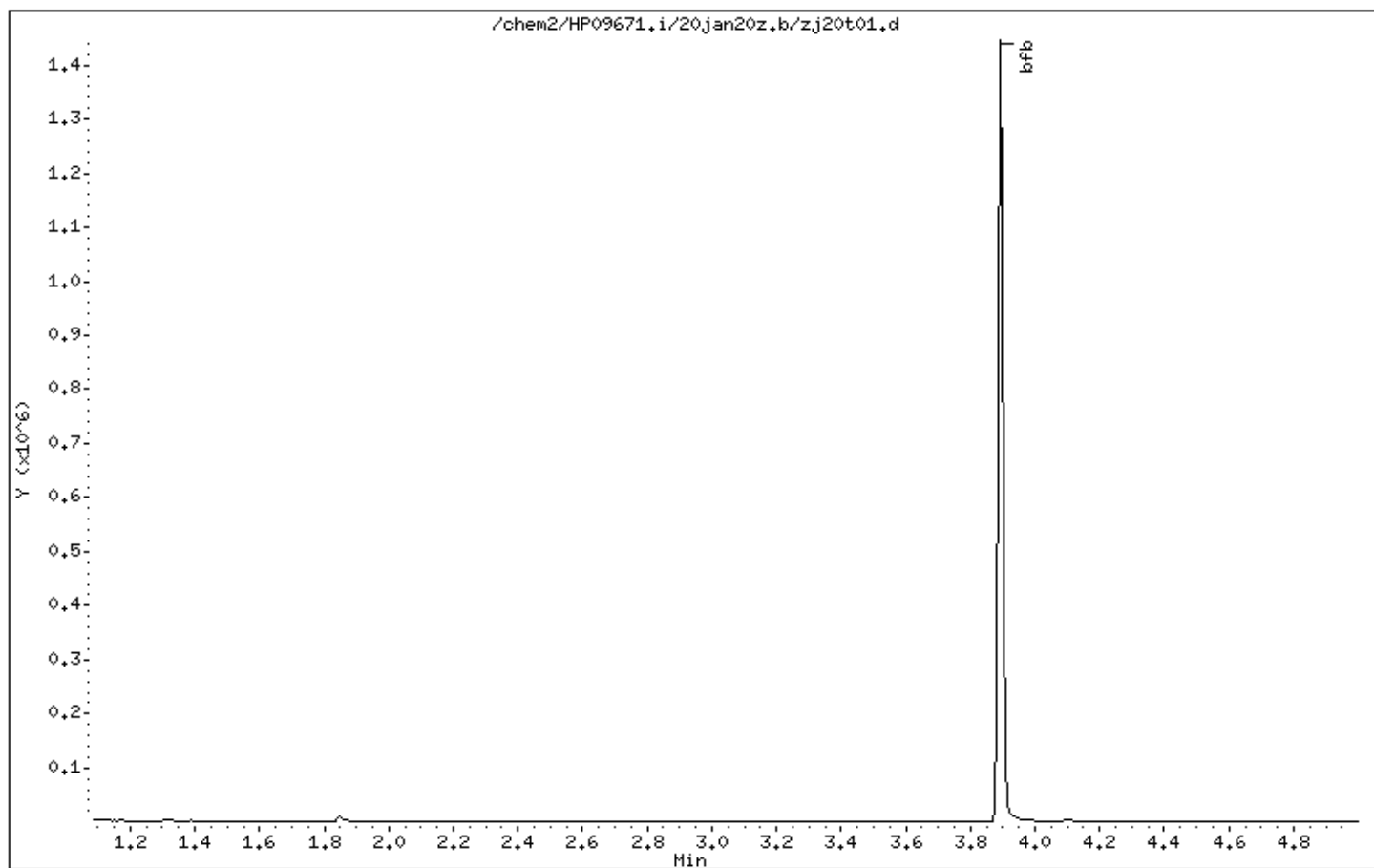
Instrument: HP09671.i

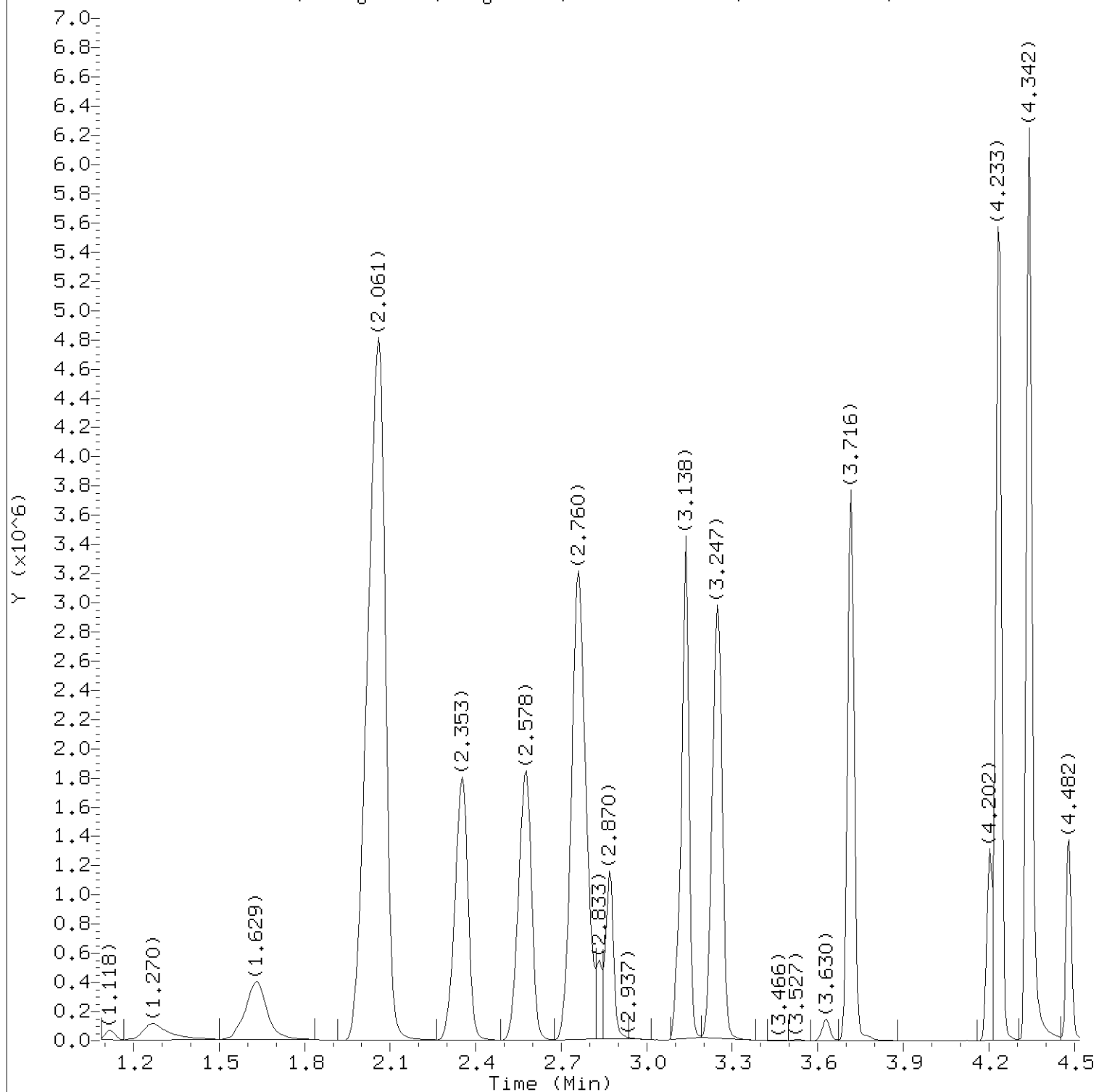
Sample Info: bfbaug0219;50ngbfb;1;3;;;;;

Operator: amd00492

Column phase: DB-VRX

Column diameter: 0,18





Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d
Injection date and time: 20-JAN-2020 09:09

Instrument ID: HP09671.i
Analyst ID: amd00492

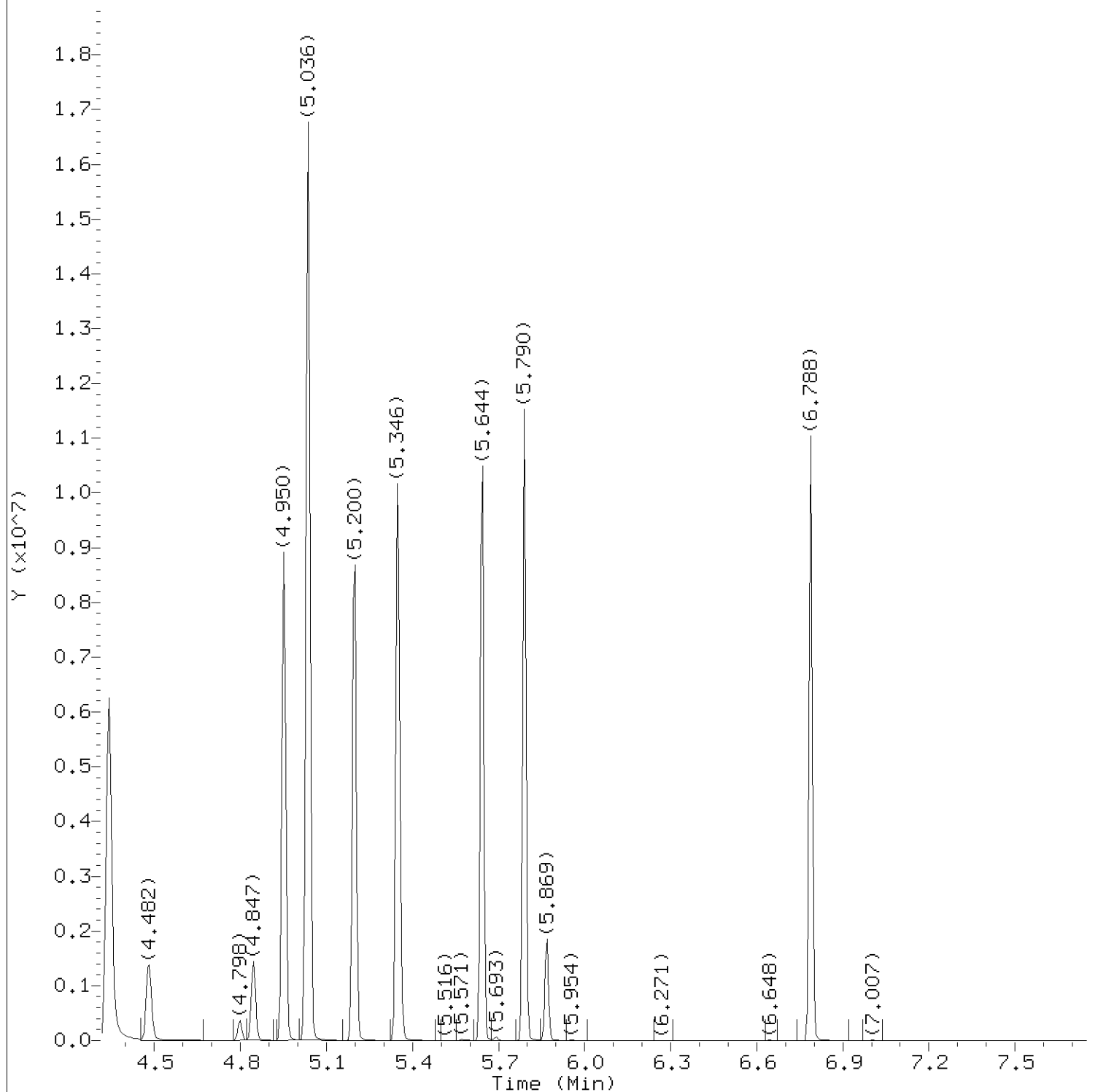
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d
Injection date and time: 20-JAN-2020 09:09

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d
 Injection date and time: 20-JAN-2020 09:09

Instrument ID: HP09671.i
 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
 Calibration date and time: 22-JAN-2020 04:42
 Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.270	45	475690	4809.817
2) *t-Butyl alcohol-d10	(1)	1.604	65	208848	250.000
3) t-Butyl alcohol	(1)	1.635	59	949072	993.721
4) Methyl Tertiary Butyl Ether	(2)	2.061	73	10160048	966.441
5) di-Isopropyl ether	(2)	2.353	45	2418170	213.149
6) Ethyl t-butyl ether	(2)	2.572	59	2251013	218.455
7) \$Dibromofluoromethane	(2)	2.590	113	144049	49.499
7) \$Dibromofluoromethane	(2)	2.590	111	147977	49.595
8) t-Butyl Formate	(2)	2.760	57	1234603MA	590.585
9) t-Amyl Alcohol	(1)	2.785	73	586733	1383.569
10) \$1,2-Dichloroethane-d4	(2)	2.833	102	44926	49.278
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	212361	49.742
10) \$1,2-Dichloroethane-d4	(2)	2.833	104	27593	48.951
11) 1,2-Dichloroethane	(2)	2.870	62	991240	189.832
12) Benzene	(2)	3.138	78	3209485	201.294
13) t-Amyl methyl ether	(2)	3.247	87	533297	225.886
14) *Fluorobenzene	(2)	3.259	96	742718	50.000
15) \$Toluene-d8	(3)	4.202	98	710346	49.715
15) \$Toluene-d8	(3)	4.202	100	456175	49.868
16) Toluene	(3)	4.233	92	2022516	205.024
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	1869536	2799.407
18) 1,2-Dibromoethane	(3)	4.482	107	744877	217.171
19) *Chlorobenzene-d5	(3)	4.847	117	534108	50.000
20) Ethylbenzene	(3)	4.950	91	3827504	213.421
21) m+p-Xylene	(3)	5.036	106	3045584	430.250
22) o-Xylene	(3)	5.200	106	1493880	221.482
24) Isopropylbenzene	(3)	5.346	105	3732808	214.363
25) \$4-Bromofluorobenzene	(3)	5.358	95	275779	51.279
25) \$4-Bromofluorobenzene	(3)	5.358	174	205564	50.784
23) Xylene (Total)	(3)		106	4539464	651.732
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	3222486	230.912
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	3314405	229.756
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	280673	50.000
29) Naphthalene	(4)	6.788	128	4297157	229.717

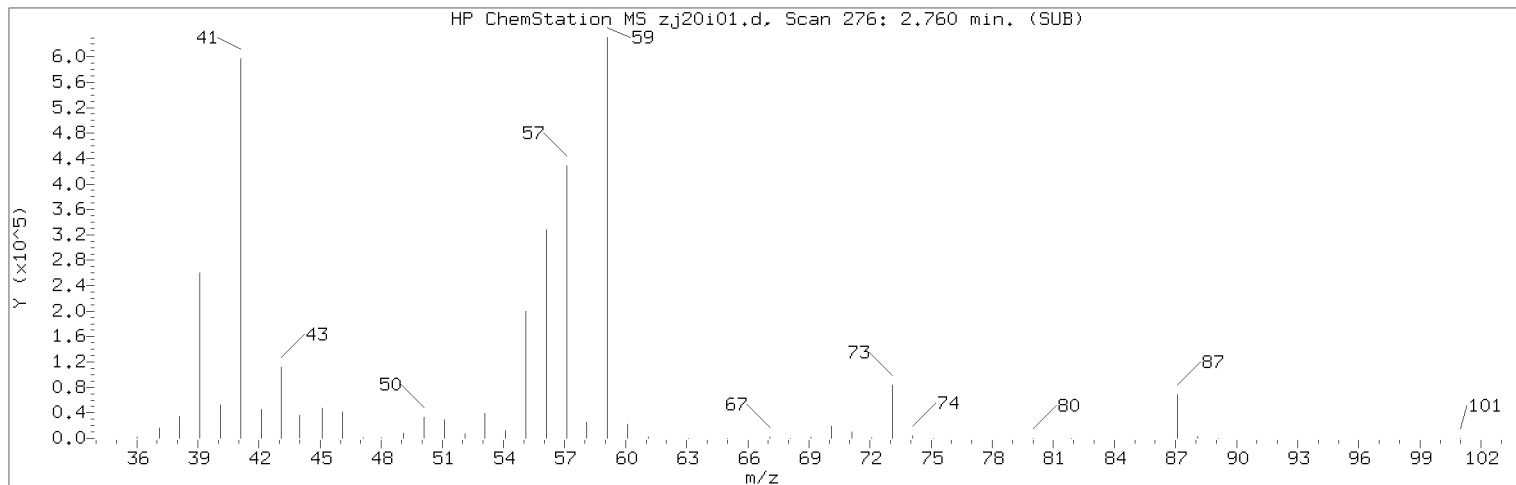
M = Compound was manually integrated.

A = User selected an alternate hit.

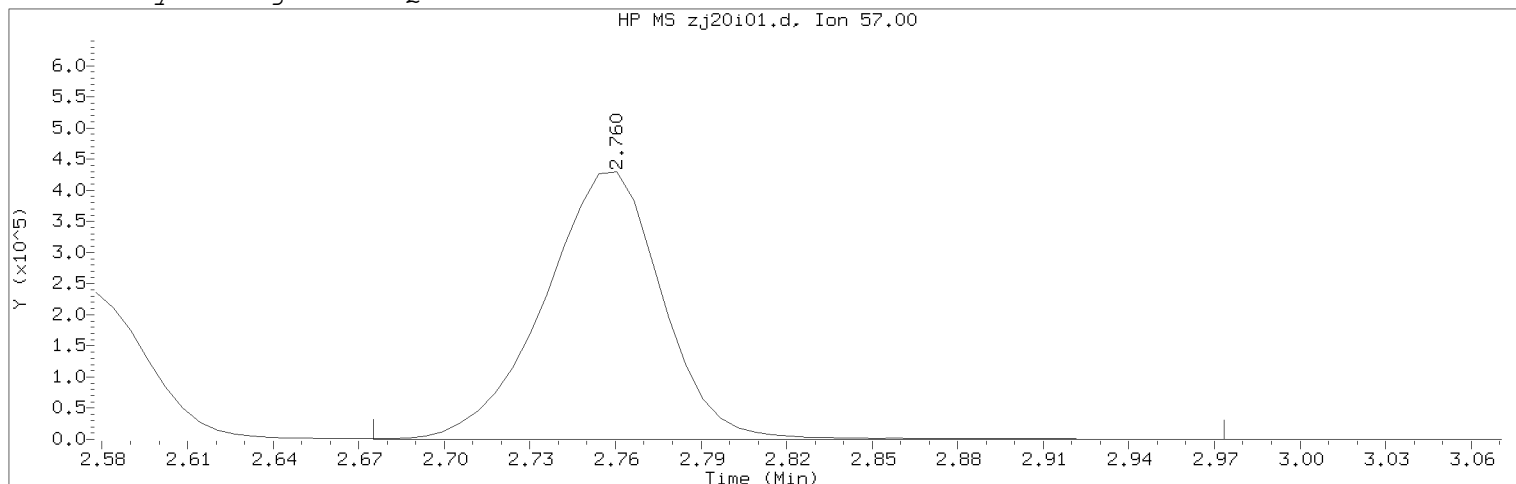
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 09:09 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

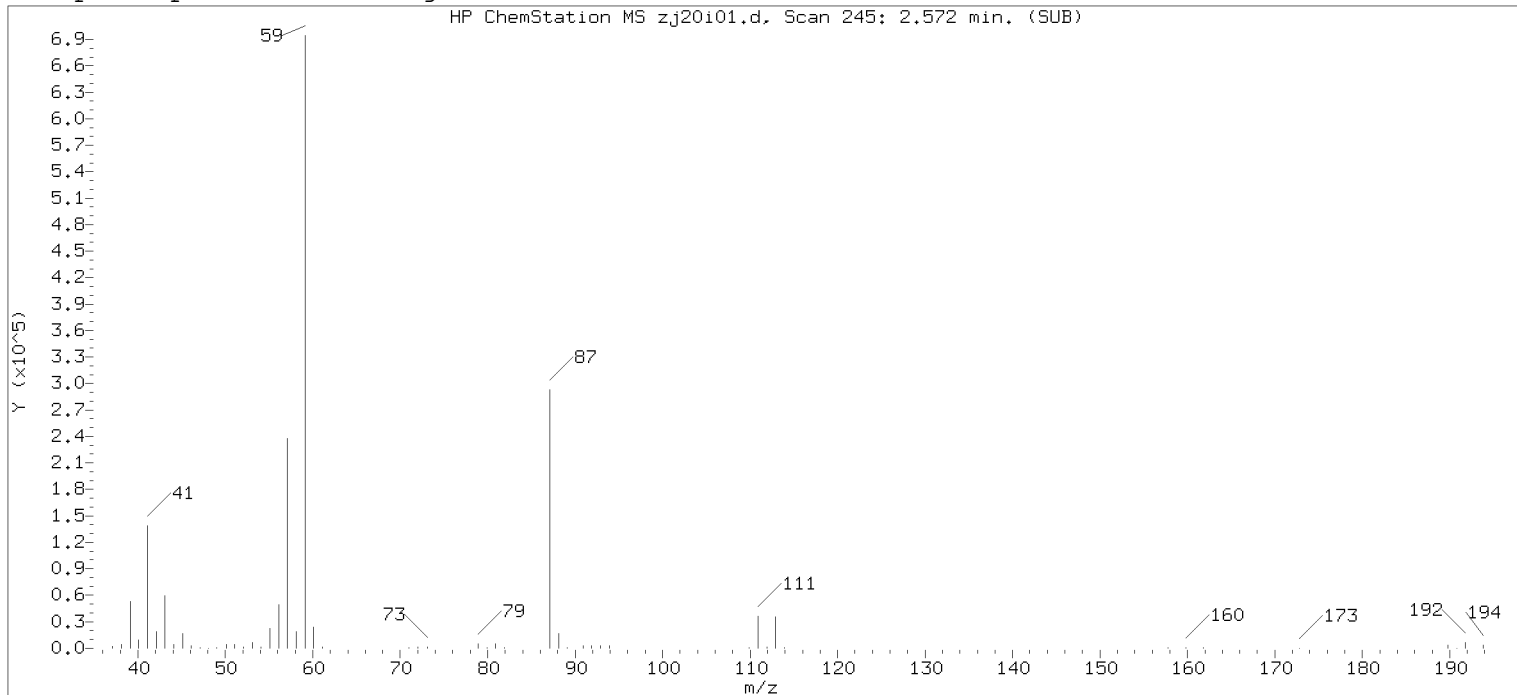
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 276
Retention Time (minutes): 2.760
Quant Ion : 57.00
Area (flag) : 1234603MA
On-Column Amount (ng) : 590.5849
Integration start scan : 261 Integration stop scan: 310
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

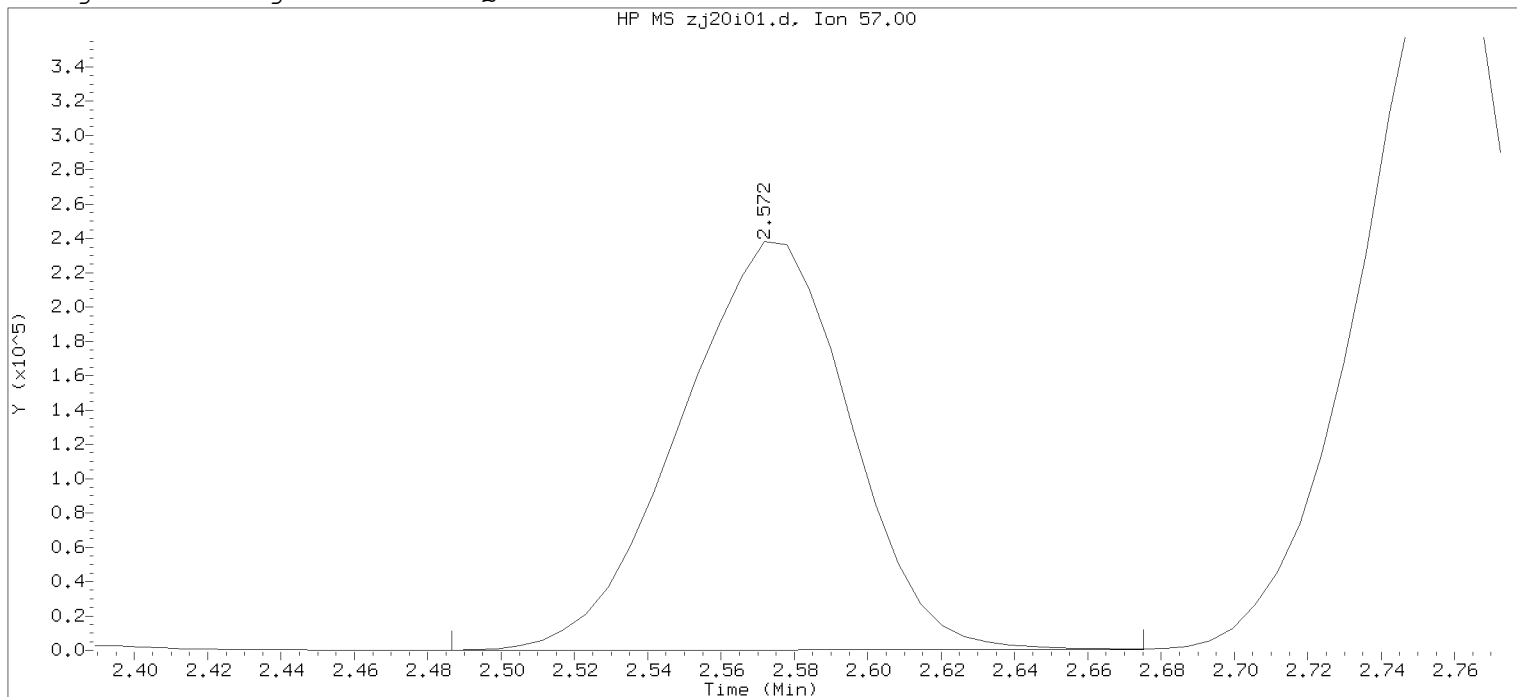
Analyst responsible for change: Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:33.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i01.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 09:09

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 20-JAN-2020 11:30

Date, time and analyst ID of latest file update: 20-Jan-2020 11:30 amd00492

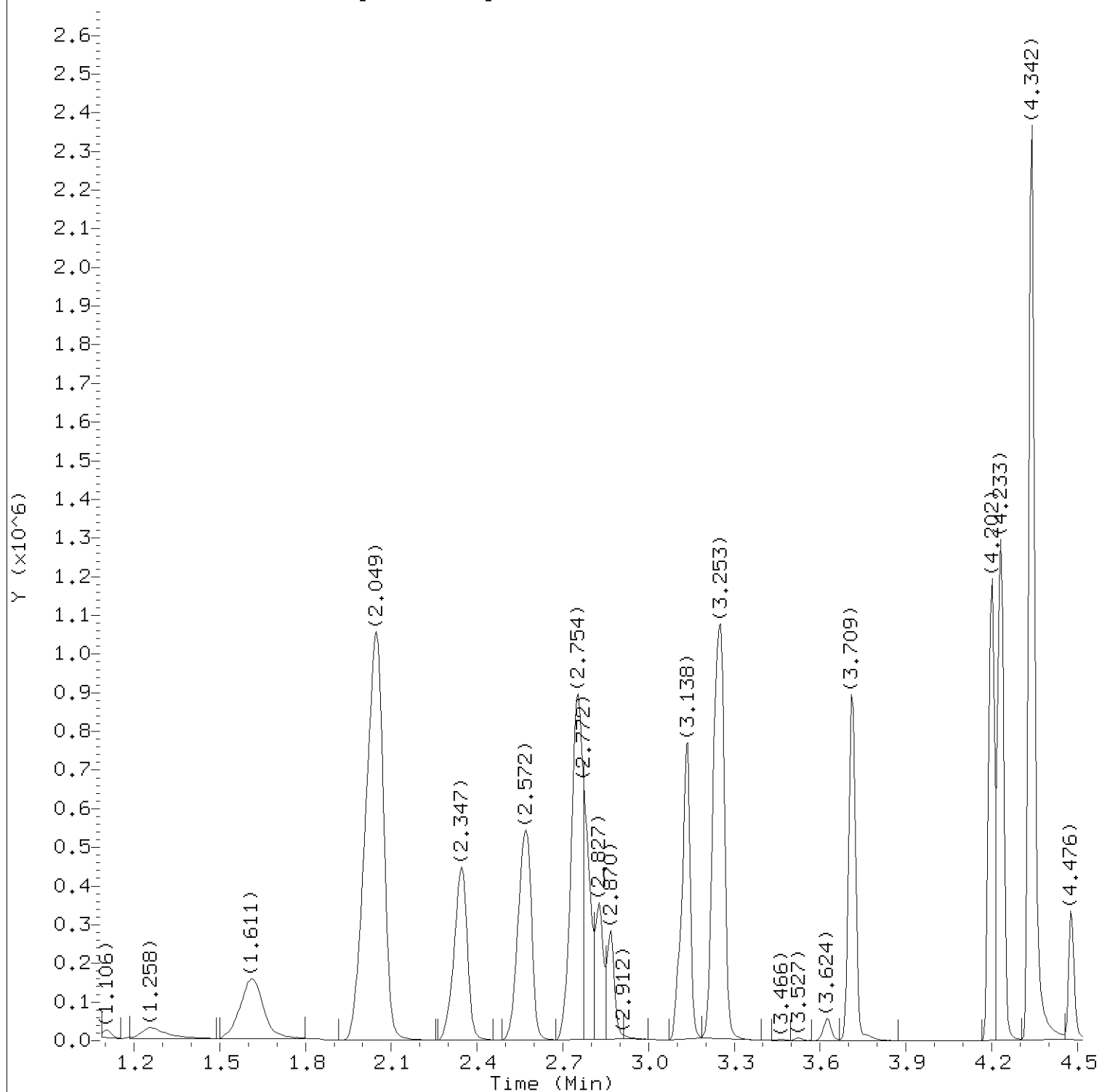
Sample Name: VSTD200

Lab Sample ID: VSTD200

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 245	
Retention Time (minutes)	: 2.572	
Quant Ion	: 57.00	
Area	: 769207	
On-column Amount (ng)	: 500.0000	
Integration start scan	: 230	Integration stop scan: 261
Y at integration start	: 0	Y at integration end: 384

Digitally signed by Anita M. Dale on 01/22/2020 at 04:43.

Target 3.5 esignature user GPV68 Page 425 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d
Injection date and time: 20-JAN-2020 09:57

Instrument ID: HP09671.i
Analyst ID: amd00492

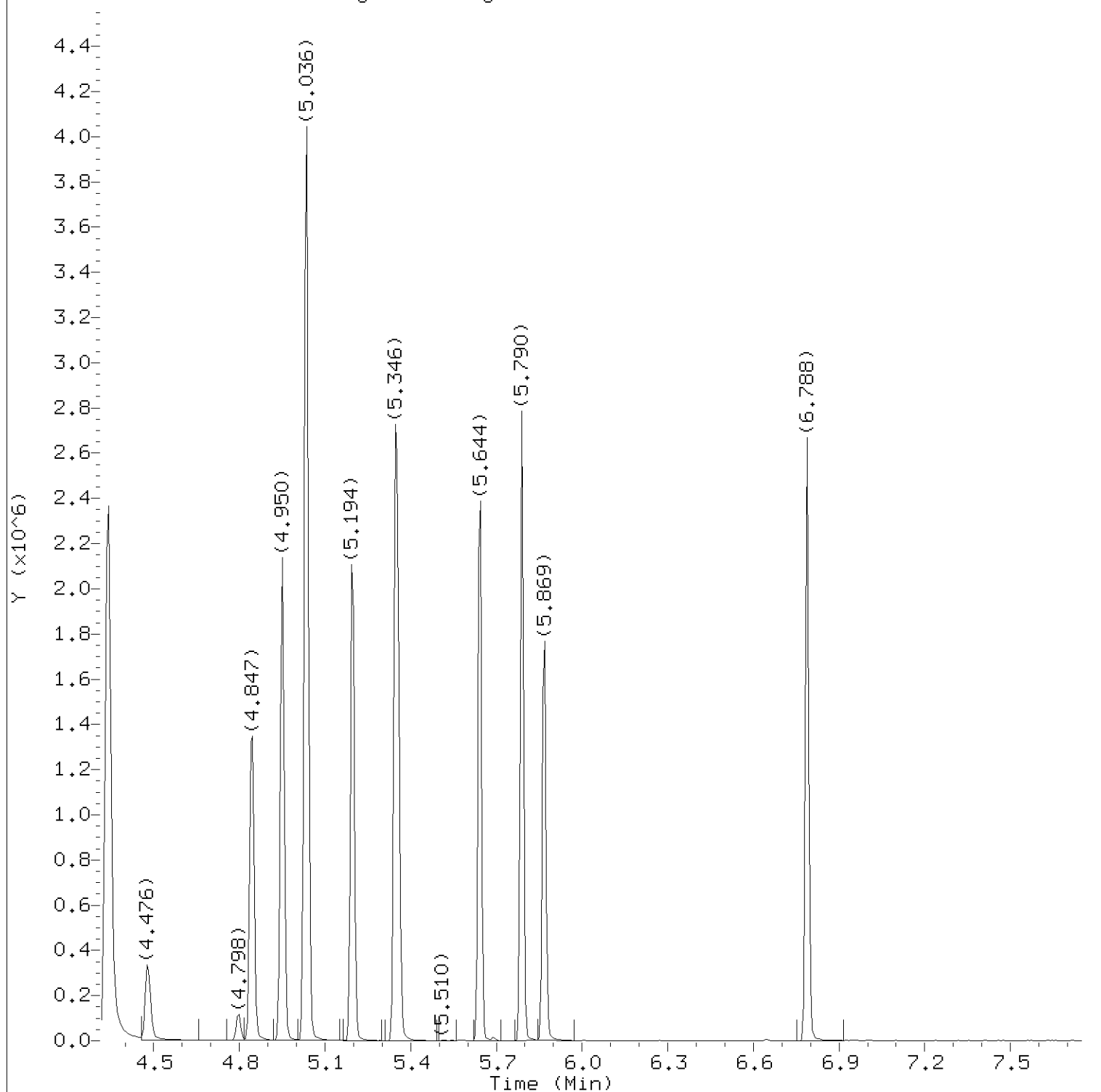
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d
Injection date and time: 20-JAN-2020 09:57

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d
 Injection date and time: 20-JAN-2020 09:57

Instrument ID: HP09671.i
 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
 Calibration date and time: 21-JAN-2020 05:07
 Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.264	45	122144	1234.732
2) *t-Butyl alcohol-d10	(1)	1.592	65	208898	250.000
3) t-Butyl alcohol	(1)	1.623	59	276616	289.560
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	2217797	210.325
5) di-Isopropyl ether	(2)	2.347	45	603864	53.067
6) Ethyl t-butyl ether	(2)	2.566	59	558811	54.068
7) \$Dibromofluoromethane	(2)	2.584	113	143296	49.092
7) \$Dibromofluoromethane	(2)	2.584	111	147194	49.184
8) t-Butyl Formate	(2)	2.748	57	299096A	142.726
9) t-Amyl Alcohol	(1)	2.779	73	226197	533.265
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	47157	51.570
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	219478	51.254
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	28381	50.197
11) 1,2-Dichloroethane	(2)	2.870	62	251073	47.938
12) Benzene	(2)	3.138	78	799166	49.971
13) t-Amyl methyl ether	(2)	3.241	87	129610	54.733
14) *Fluorobenzene	(2)	3.259	96	744962	50.000
15) \$Toluene-d8	(3)	4.202	98	713766	50.239
15) \$Toluene-d8	(3)	4.202	100	457650	50.314
16) Toluene	(3)	4.233	92	491329	50.090
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	739531	1107.094
18) 1,2-Dibromoethane	(3)	4.476	107	178051	52.207
19) *Chlorobenzene-d5	(3)	4.847	117	531084	50.000
20) Ethylbenzene	(3)	4.950	91	930350	52.172
21) m+p-Xylene	(3)	5.036	106	746251	106.023
22) o-Xylene	(3)	5.194	106	359590	53.616
24) Isopropylbenzene	(3)	5.346	105	914511	52.816
25) \$4-Bromofluorobenzene	(3)	5.358	95	271854	50.837
25) \$4-Bromofluorobenzene	(3)	5.358	174	204008	50.686
23) Xylene (Total)	(3)		106	1105841	159.639
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	766118	55.065
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	798096	55.494
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	279816	50.000
29) Naphthalene	(4)	6.788	128	1086631	58.267

A = User selected an alternate hit.

* = Compound is an internal standard.

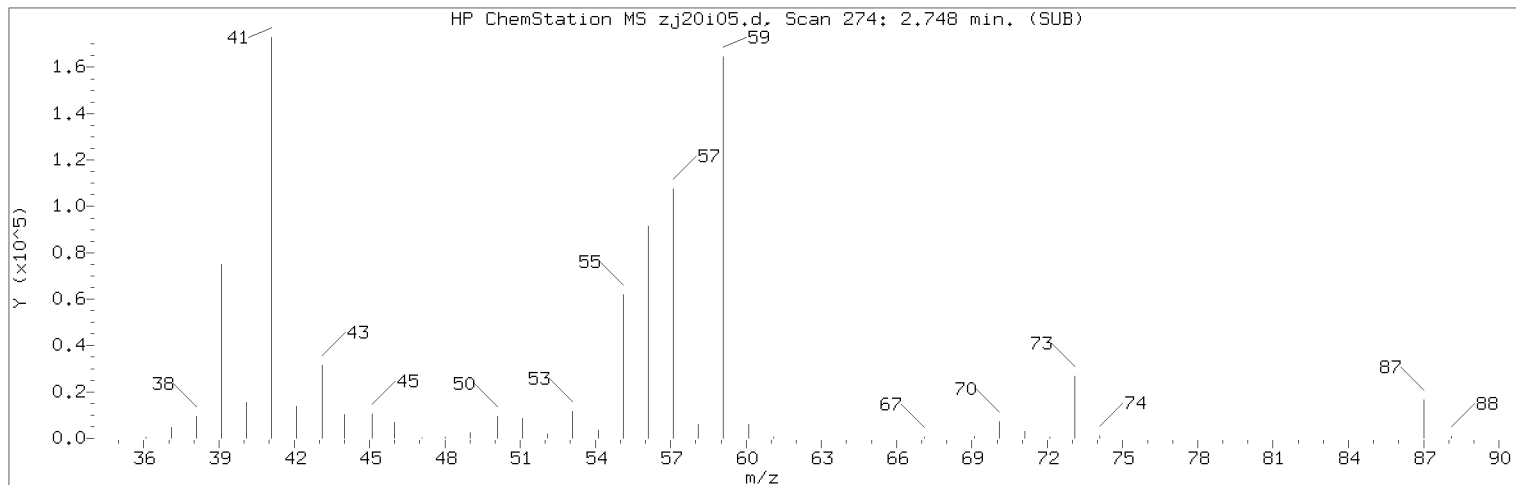
\$ = Compound is a surrogate standard.

page 1 of 1

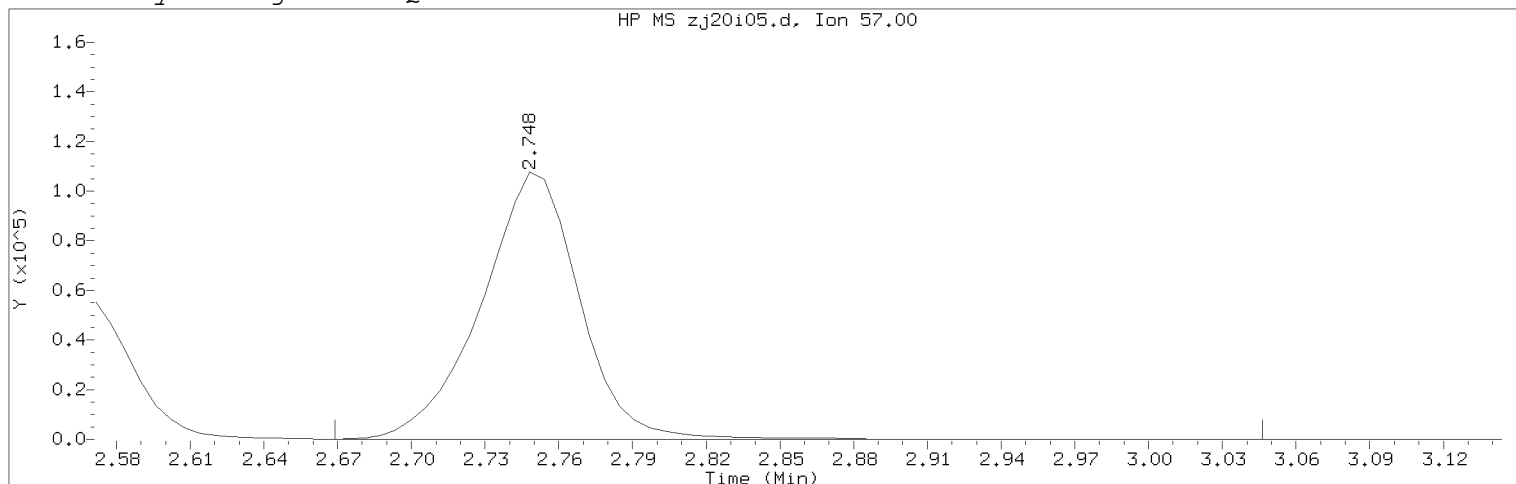
Digitally signed by Anita M. Dale
 on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 09:57

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 21-JAN-2020 05:07

Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 274	
Retention Time (minutes)	: 2.748	
Quant Ion	: 57.00	
Area (flag)	: 299096A	
On-Column Amount (ng)	: 142.7258	
Integration start scan	: 260	Integration stop scan: 322
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

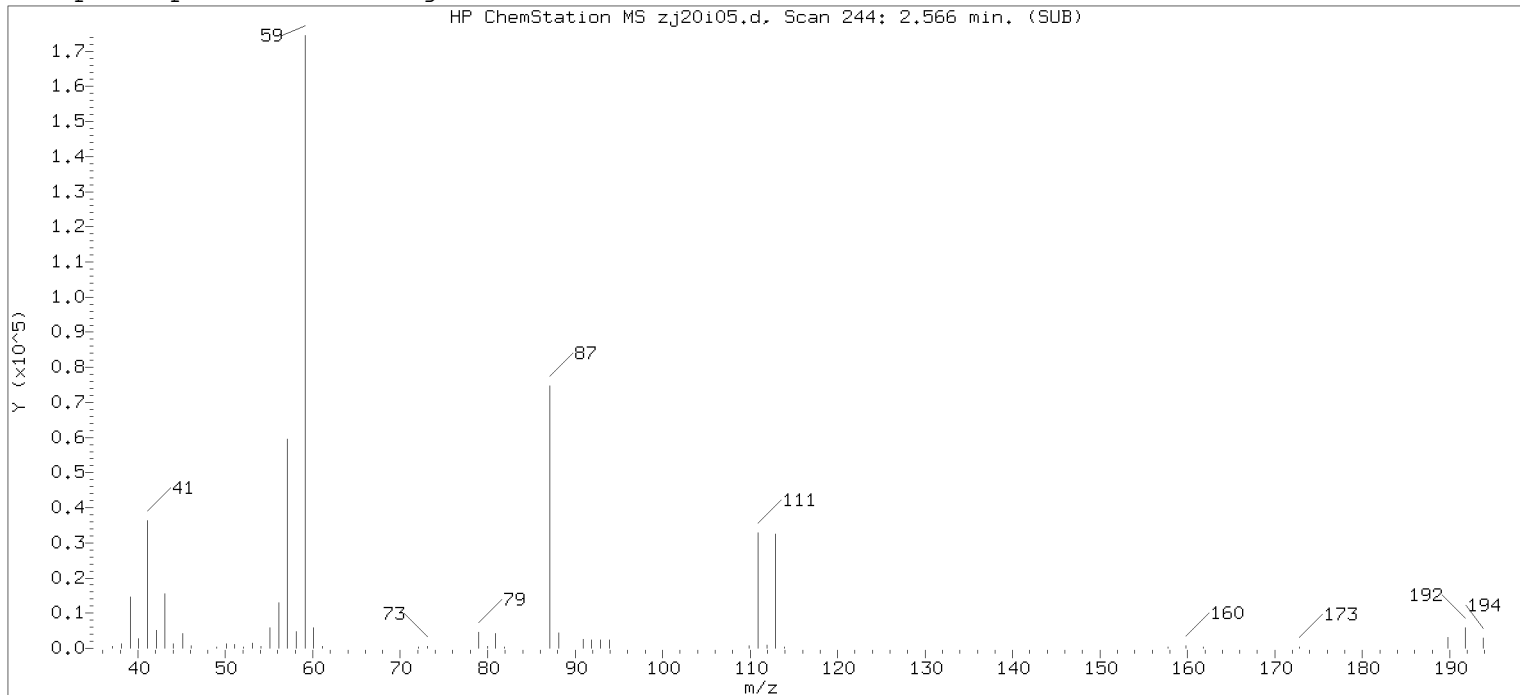
Analyst responsible for change:

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.
Target 3.5 esignature user ID: amd00492

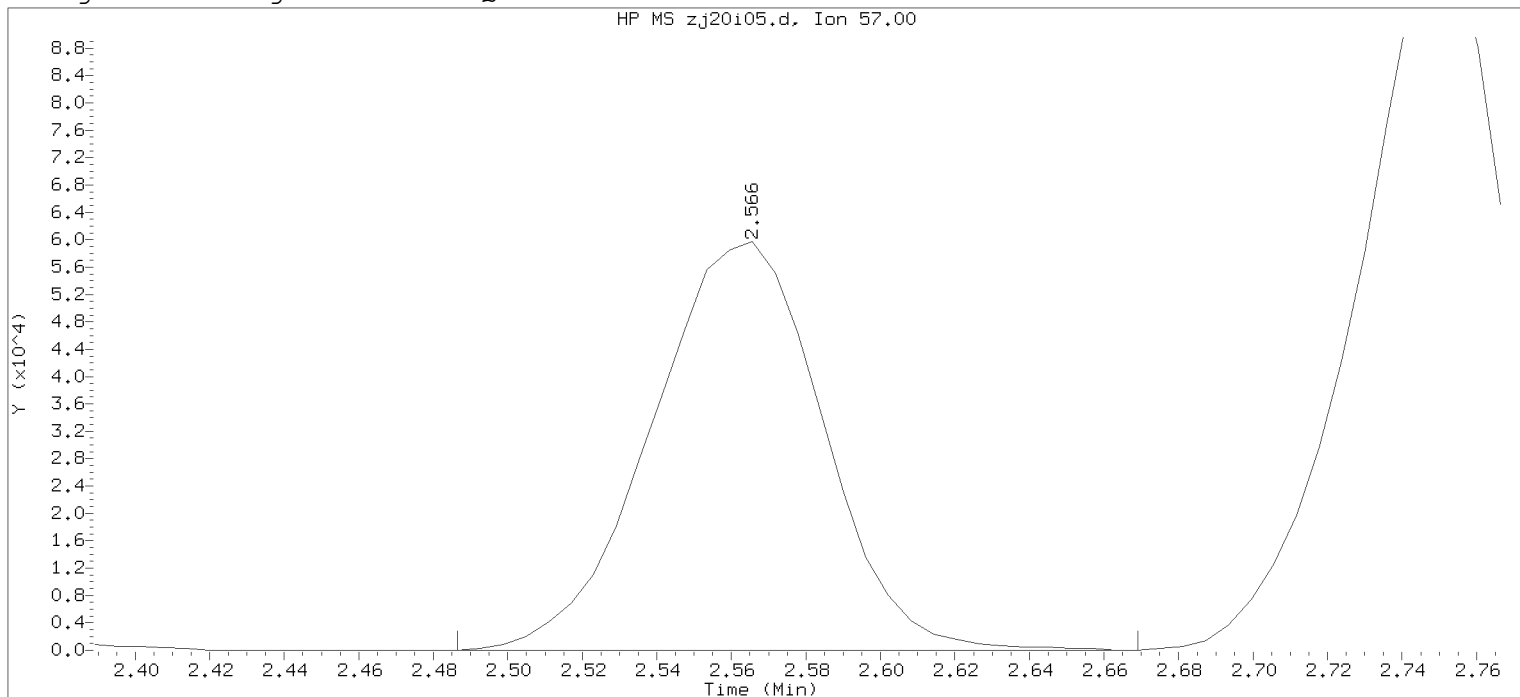
Secondary review performed and digitally signed by Richard Samson on 01/21/2020 at 15:55.

PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i05.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 09:57 Analyst ID: amd00492

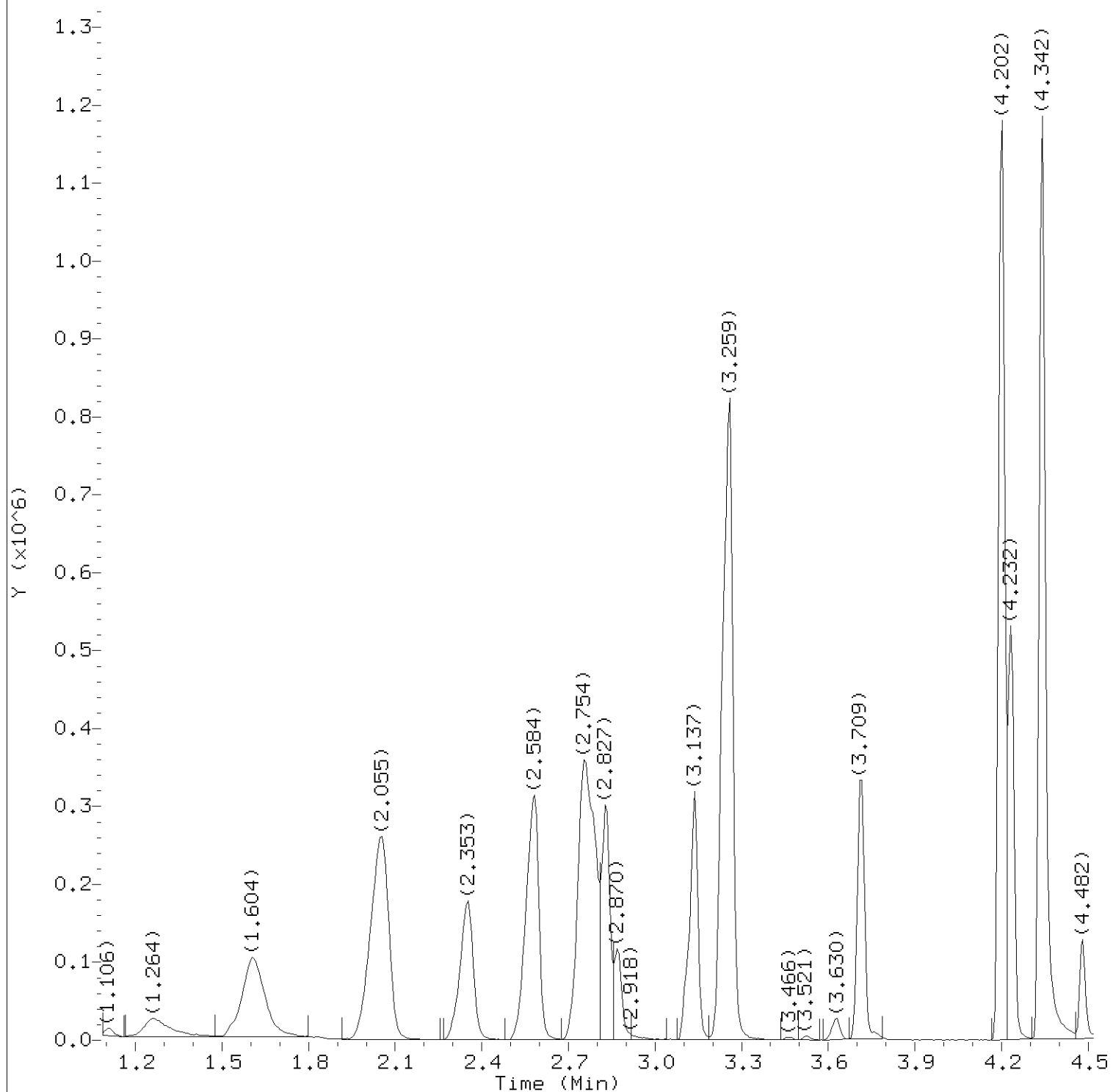
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 11:30
Date, time and analyst ID of latest file update: 20-Jan-2020 11:30 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 244	
Retention Time (minutes)	: 2.566	
Quant Ion	: 57.00	
Area	: 190522	
On-column Amount (ng)	: 120.5778	
Integration start scan	: 230	Integration stop scan: 260
Y at integration start	: 0	Y at integration end: 0

Digitally signed by Anita M. Dale on 01/21/2020 at 05:10.
Target 3.5 esignature user GPV68 Page 430 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d
Injection date and time: 20-JAN-2020 10:21

Instrument ID: HP09671.i
Analyst ID: amd00492

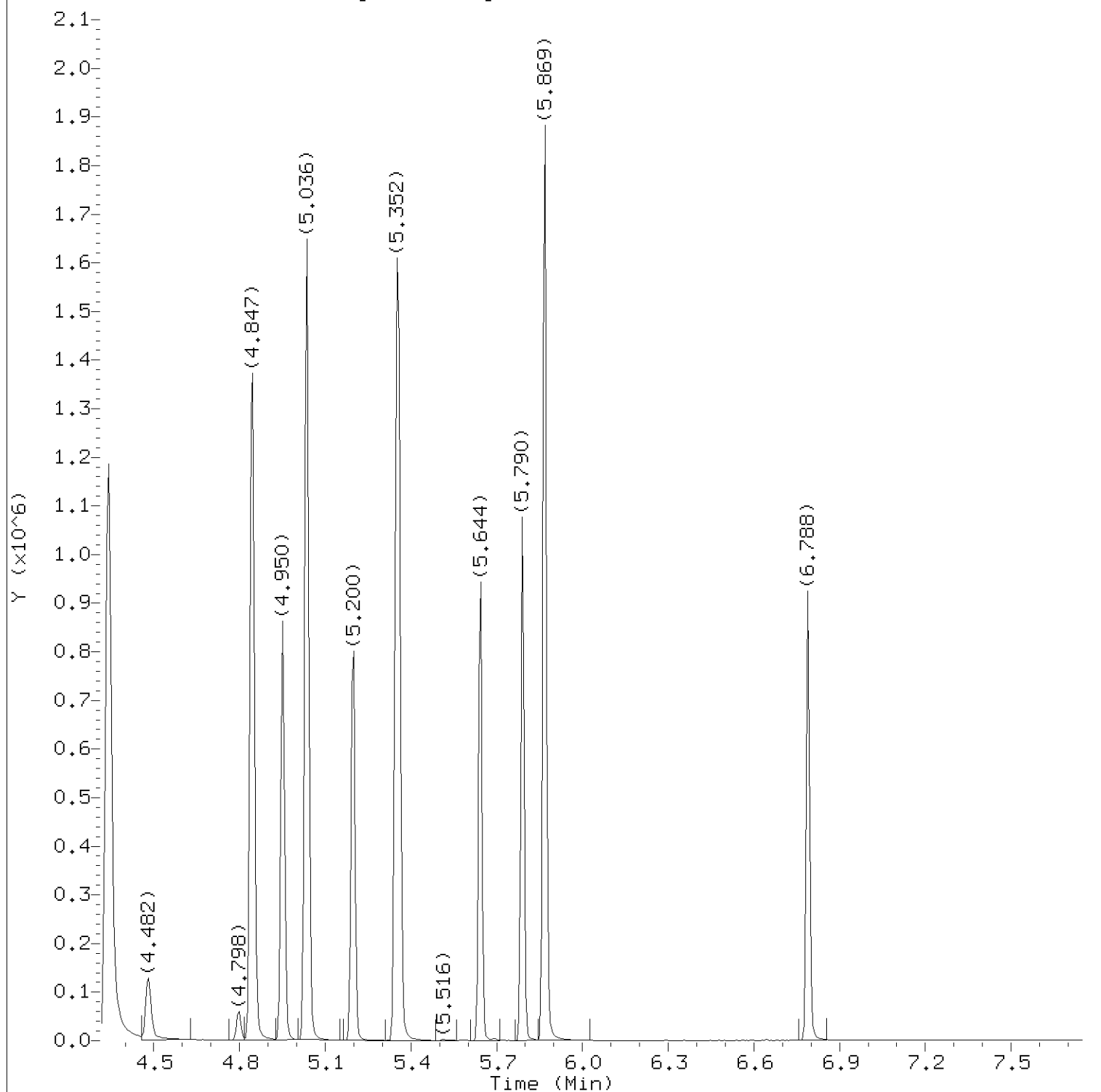
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Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d
Injection date and time: 20-JAN-2020 10:21

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d
Injection date and time: 20-JAN-2020 10:21

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.264	45	97309	973.760
2) *t-Butyl alcohol-d10	(1)	1.604	65	211026	250.000
3) t-Butyl alcohol	(1)	1.629	59	100826	104.480
4) Methyl Tertiary Butyl Ether	(2)	2.055	73	543329	51.909
5) di-Isopropyl ether	(2)	2.353	45	234469	20.758
6) Ethyl t-butyl ether	(2)	2.566	59	213886	20.848
7) \$Dibromofluoromethane	(2)	2.590	113	144453	49.856
7) \$Dibromofluoromethane	(2)	2.590	111	147587	49.681
8) t-Butyl Formate	(2)	2.754	57	108759A	52.283
9) t-Amyl Alcohol	(1)	2.785	73	113605	265.126
10) \$1,2-Dichloroethane-d4	(2)	2.833	102	45280	49.884
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	211228	49.693
10) \$1,2-Dichloroethane-d4	(2)	2.833	104	27944	49.790
11) 1,2-Dichloroethane	(2)	2.870	62	101949	19.610
12) Benzene	(2)	3.137	78	323773	20.395
13) t-Amyl methyl ether	(2)	3.241	87	48816	20.767
14) *Fluorobenzene	(2)	3.259	96	739482	50.000
15) \$Toluene-d8	(3)	4.202	98	709211	50.083
15) \$Toluene-d8	(3)	4.202	100	456371	50.339
16) Toluene	(3)	4.232	92	200071	20.464
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	378656	561.140
18) 1,2-Dibromoethane	(3)	4.482	107	69314	20.391
19) *Chlorobenzene-d5	(3)	4.847	117	529337	50.000
20) Ethylbenzene	(3)	4.950	91	367264	20.663
21) m+p-Xylene	(3)	5.036	106	297957	42.472
22) o-Xylene	(3)	5.200	106	139581	20.881
24) Isopropylbenzene	(3)	5.346	105	363057	21.037
25) \$4-Bromofluorobenzene	(3)	5.358	95	268957	50.461
25) \$4-Bromofluorobenzene	(3)	5.358	174	203777	50.796
23) Xylene (Total)	(3)		106	437538	63.353
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	291821	21.027
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	311660	21.725
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	279120	50.000
29) Naphthalene	(4)	6.788	128	393774	21.167

A = User selected an alternate hit.

* = Compound is an internal standard.

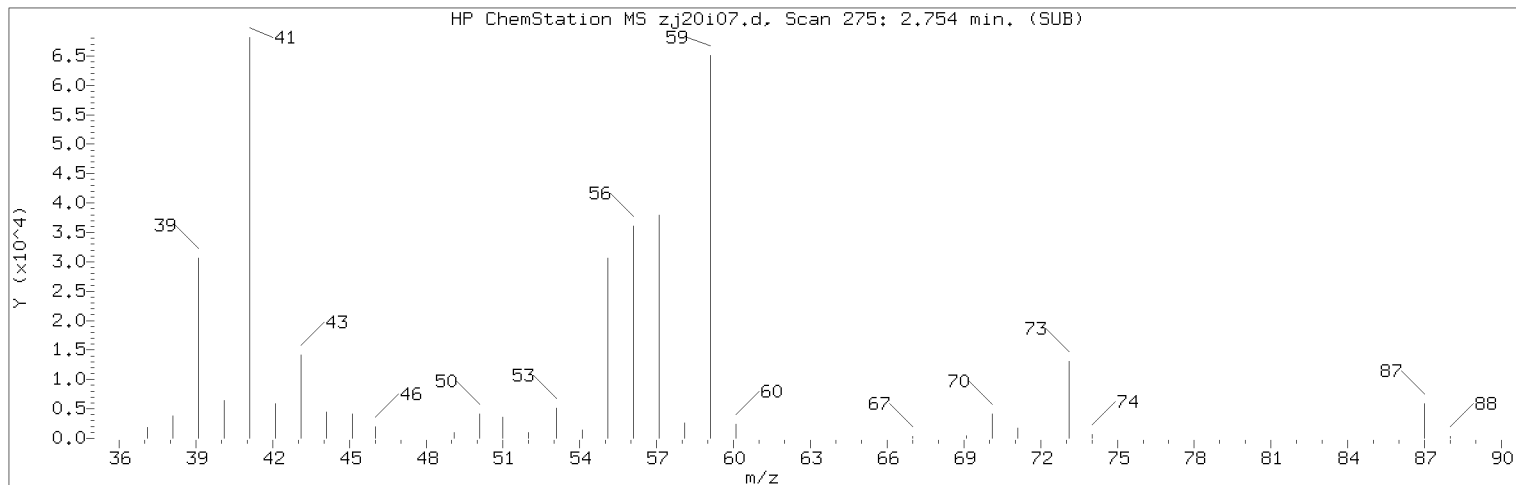
\$ = Compound is a surrogate standard.

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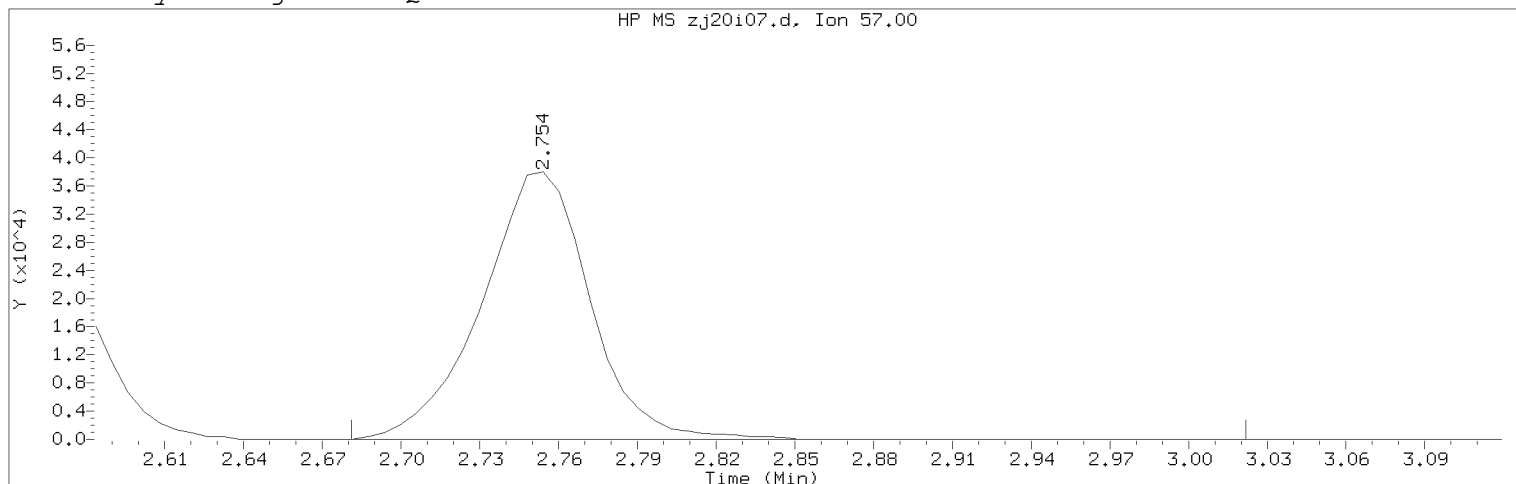
Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 10:21

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 21-JAN-2020 05:07

Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 275	
Retention Time (minutes)	: 2.754	
Quant Ion	: 57.00	
Area (flag)	: 108759A	
On-Column Amount (ng)	: 52.2834	
Integration start scan	: 262	Integration stop scan: 318
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

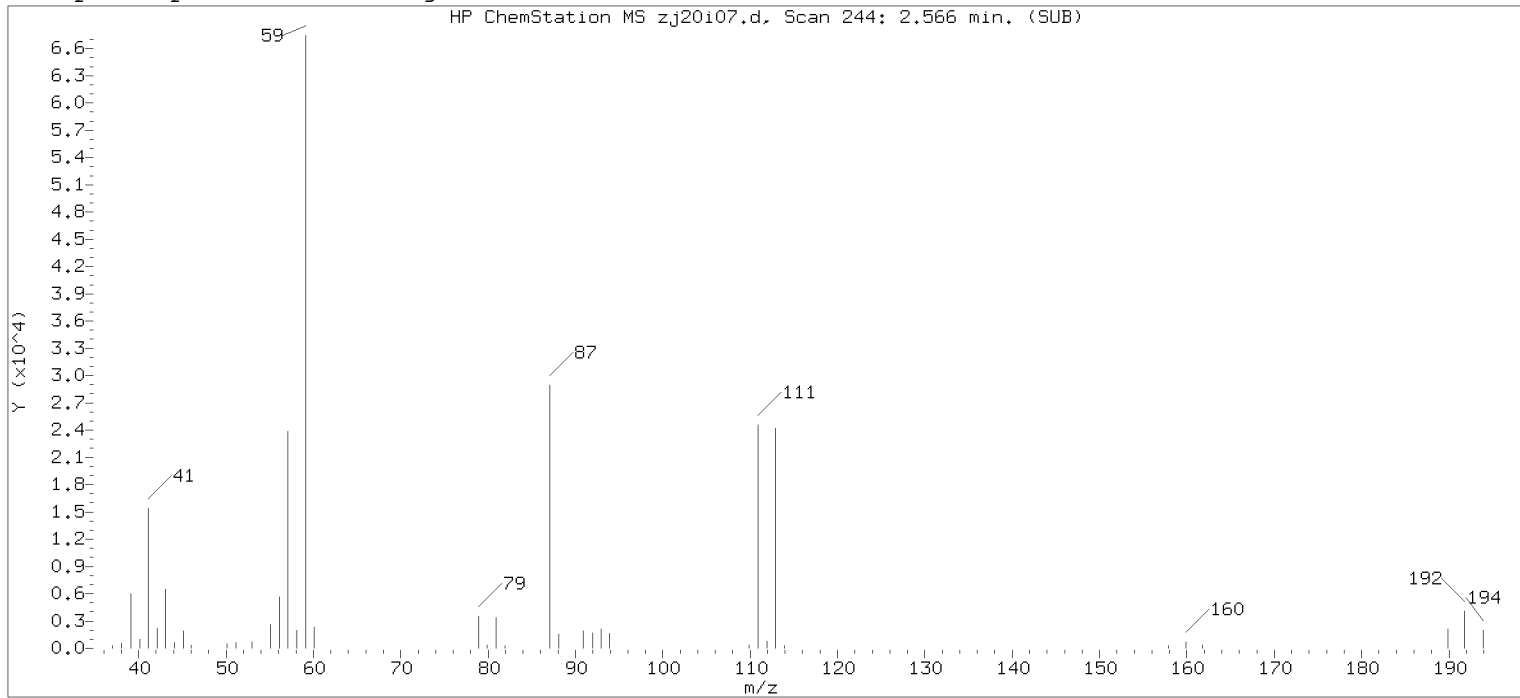
Analyst responsible for change:

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.
Target 3.5 esignature user ID: amd00492

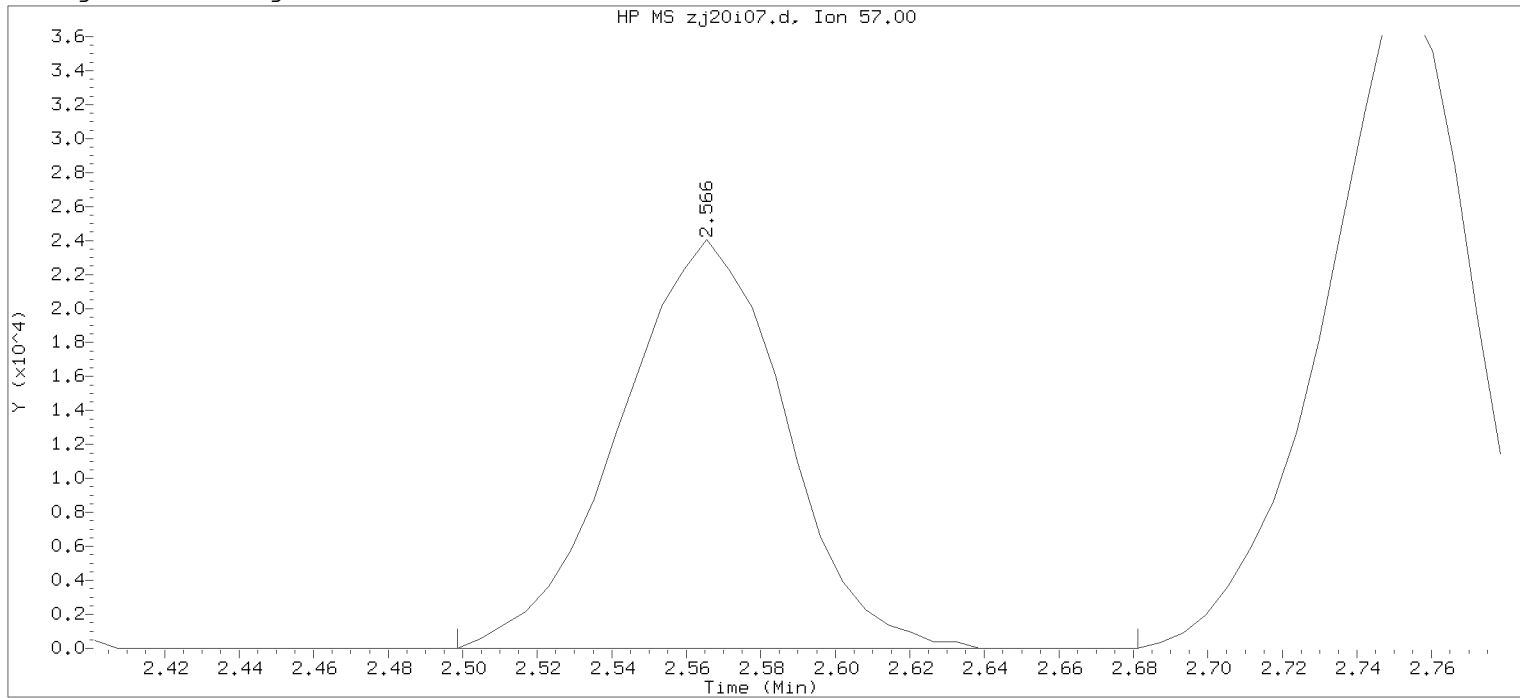
Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:48.

PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



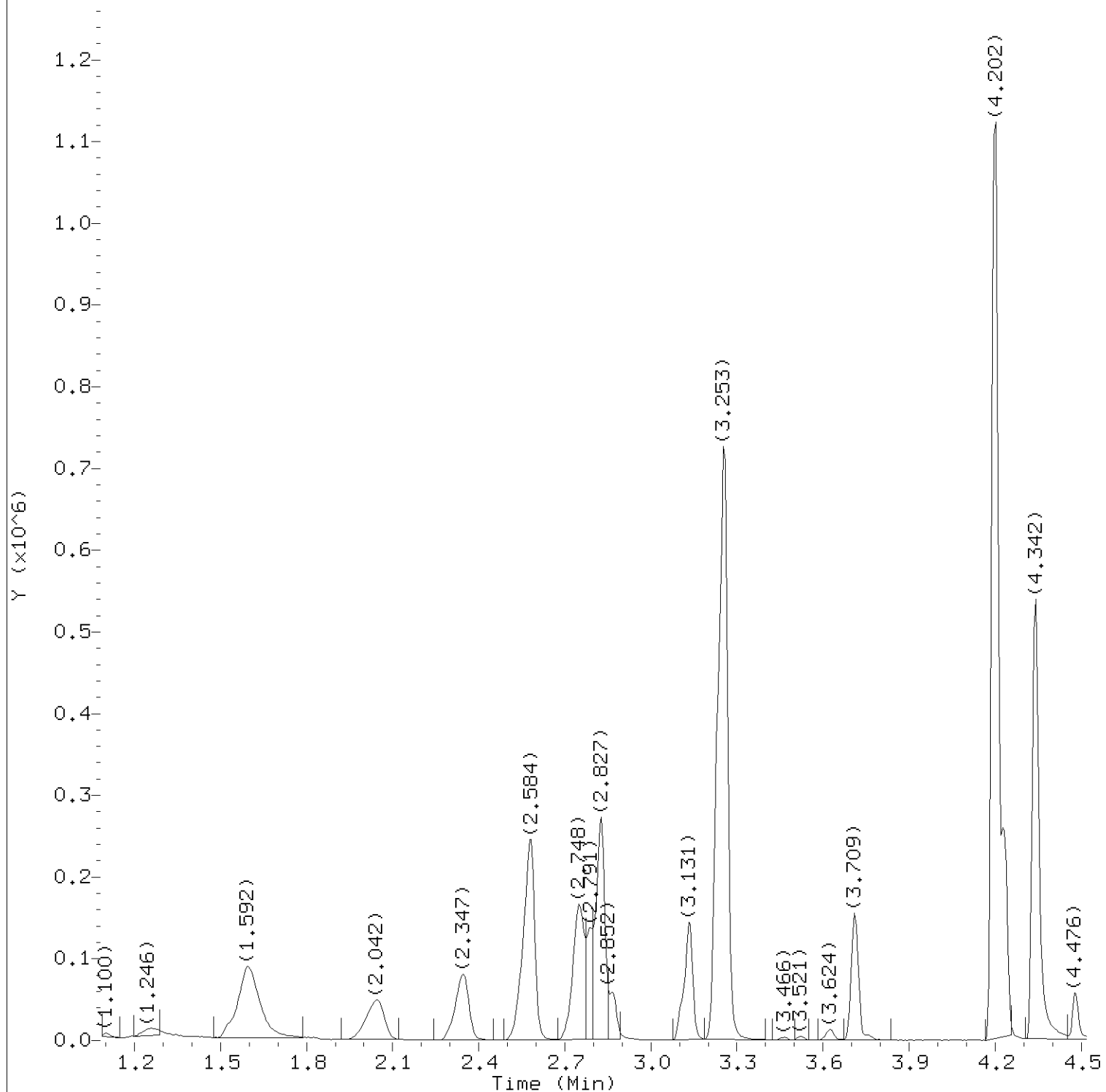
Data File: /chem2/HP09671.i/20jan20z.b/zj20i07.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 10:21 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 11:30
Date, time and analyst ID of latest file update: 20-Jan-2020 11:30 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 244	
Retention Time (minutes)	: 2.566	
Quant Ion	: 57.00	
Area	: 74105	
On-column Amount (ng)	: 47.9068	
Integration start scan	: 232	Integration stop scan: 262
Y at integration start	: 0	Y at integration end: 0



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i09.d
Injection date and time: 20-JAN-2020 10:46

Instrument ID: HP09671.i
Analyst ID: amd00492

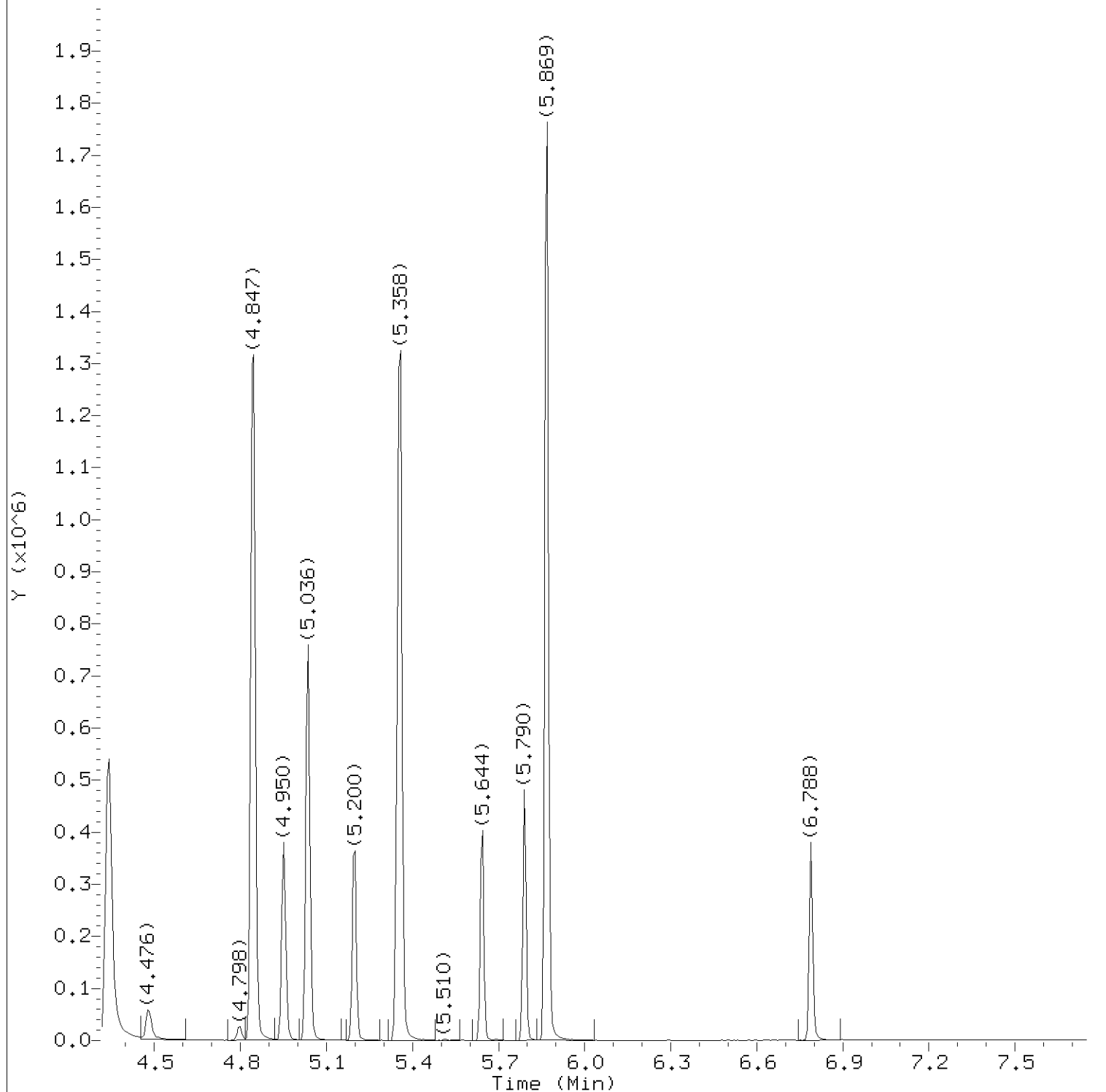
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i09.d
Injection date and time: 20-JAN-2020 10:46

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i09.d
Injection date and time: 20-JAN-2020 10:46

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	49374	493.374
2) *t-Butyl alcohol-d10	(1)	1.592	65	211328	250.000
3) t-Butyl alcohol	(1)	1.623	59	47592	49.246
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	100852	9.652
5) di-Isopropyl ether	(2)	2.347	45	108545	9.626
6) Ethyl t-butyl ether	(2)	2.560	59	98629	9.630
8) t-Butyl Formate	(2)	2.560	57	34187	16.463
7) \$Dibromofluoromethane	(2)	2.584	113	145118	50.172
7) \$Dibromofluoromethane	(2)	2.584	111	148857	50.196
9) t-Amyl Alcohol	(1)	2.785	73	42561	99.185
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	44878	49.527
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	210352	49.573
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	28291	50.496
11) 1,2-Dichloroethane	(2)	2.870	62	50029	9.640
12) Benzene	(2)	3.131	78	155298	9.800
13) t-Amyl methyl ether	(2)	3.235	87	22801	9.717
14) *Fluorobenzene	(2)	3.259	96	738198	50.000
15) \$Toluene-d8	(3)	4.202	98	711466	50.203
15) \$Toluene-d8	(3)	4.202	100	454727	50.119
16) Toluene	(3)	4.233	92	95920	9.803
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	183339	271.307
18) 1,2-Dibromoethane	(3)	4.482	107	32229	9.474
19) *Chlorobenzene-d5	(3)	4.847	117	529752	50.000
20) Ethylbenzene	(3)	4.950	91	172104	9.675
21) m+p-Xylene	(3)	5.036	106	139214	19.828
22) o-Xylene	(3)	5.200	106	65109	9.732
24) Isopropylbenzene	(3)	5.346	105	169128	9.792
25) \$4-Bromofluorobenzene	(3)	5.358	95	268134	50.267
25) \$4-Bromofluorobenzene	(3)	5.358	174	200739	50.000
23) Xylene (Total)	(3)		106	204323	29.561
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	132951	9.614
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	140680	9.841
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	278135	50.000
29) Naphthalene	(4)	6.788	128	170246	9.184

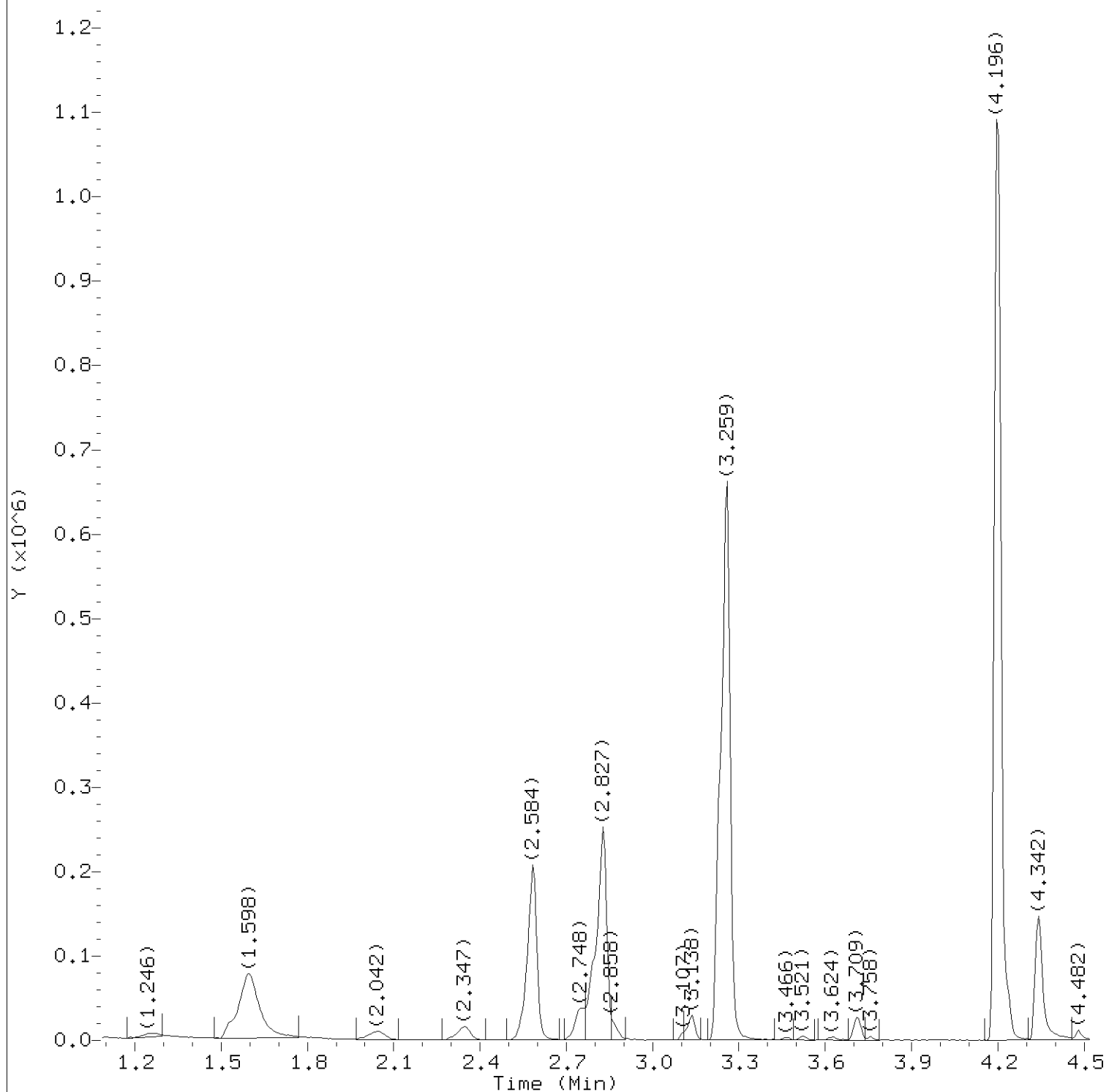
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

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on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d
Injection date and time: 20-JAN-2020 11:10

Instrument ID: HP09671.i
Analyst ID: amd00492

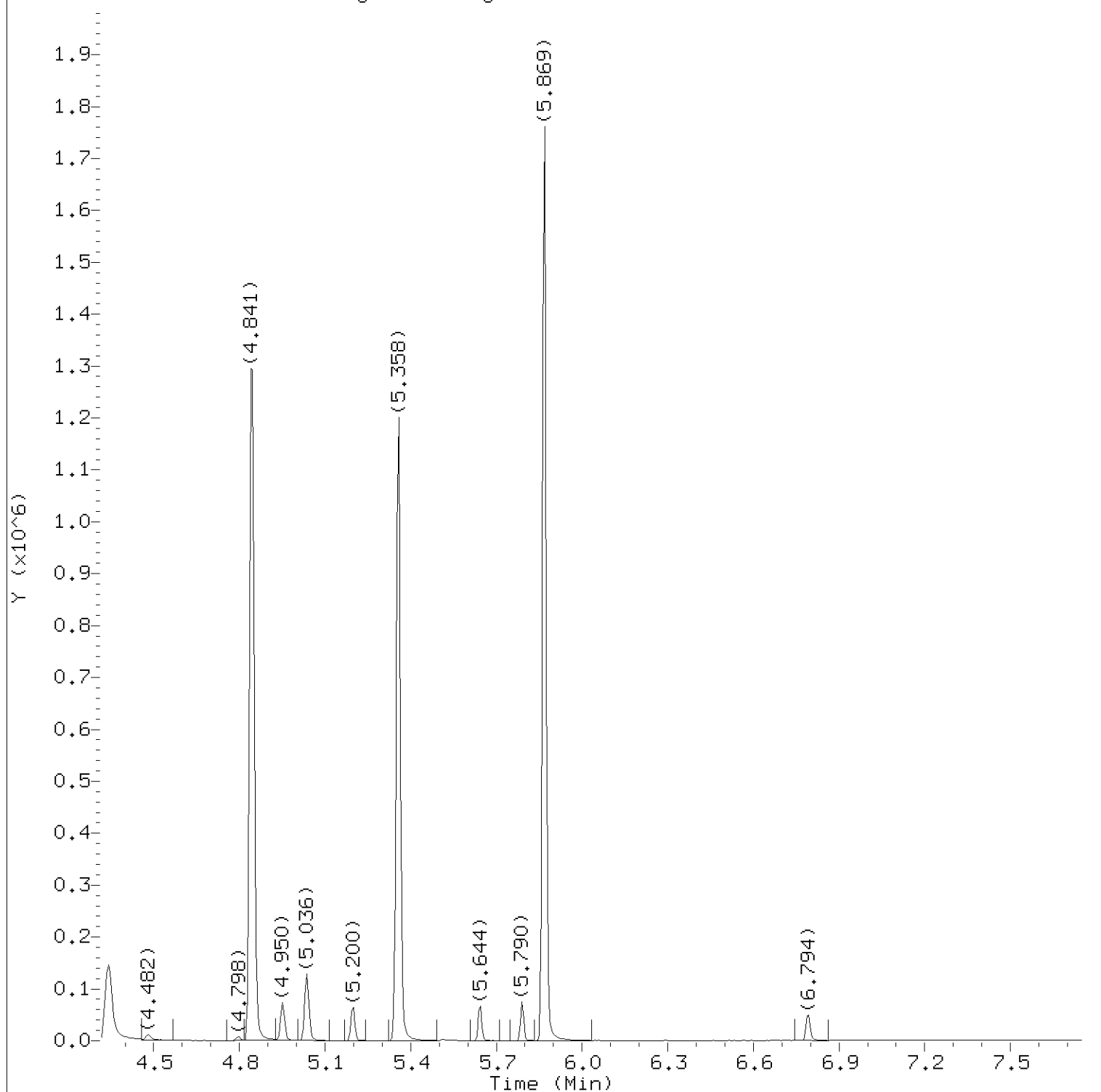
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d
Injection date and time: 20-JAN-2020 11:10

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d
Injection date and time: 20-JAN-2020 11:10

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.264	45	25727	256.253
2) *t-Butyl alcohol-d10	(1)	1.598	65	212009	250.000
3) t-Butyl alcohol	(1)	1.635	59	9133	9.420
4) Methyl Tertiary Butyl Ether	(2)	2.042	73	20650	2.026
5) di-Isopropyl ether	(2)	2.353	45	20914	1.902
6) Ethyl t-butyl ether	(2)	2.560	59	18133	1.815
7) \$Dibromofluoromethane	(2)	2.584	113	143261	50.783
7) \$Dibromofluoromethane	(2)	2.584	111	146167	50.536
8) t-Butyl Formate	(2)	2.748	57	8825A	4.357
9) t-Amyl Alcohol	(1)	2.785	73	15112	35.104
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	44297	50.123
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	206921	49.998
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	27703	50.698
11) 1,2-Dichloroethane	(2)	2.870	62	10920	2.157
12) Benzene	(2)	3.138	78	32264	2.087
13) t-Amyl methyl ether	(2)	3.241	87	4056	1.772
14) *Fluorobenzene	(2)	3.259	96	719981	50.000
15) \$Toluene-d8	(3)	4.196	98	697902	49.784
15) \$Toluene-d8	(3)	4.196	100	446007	49.694
16) Toluene	(3)	4.226	92	19542	2.019
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	52669	77.690
18) 1,2-Dibromoethane	(3)	4.482	107	6396	1.901
19) *Chlorobenzene-d5	(3)	4.847	117	524034	50.000
20) Ethylbenzene	(3)	4.950	91	33013	1.876
21) m+p-Xylene	(3)	5.036	106	25778	3.712
22) o-Xylene	(3)	5.200	106	11976	1.810
24) Isopropylbenzene	(3)	5.346	105	32000	1.873
25) \$4-Bromofluorobenzene	(3)	5.358	95	256667	48.643
25) \$4-Bromofluorobenzene	(3)	5.358	174	192631	48.504
23) Xylene (Total)	(3)		106	37754	5.521
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	22619	1.680
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	22690	1.631
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	270712	50.000
29) Naphthalene	(4)	6.794	128	28971	1.606

A = User selected an alternate hit.

* = Compound is an internal standard.

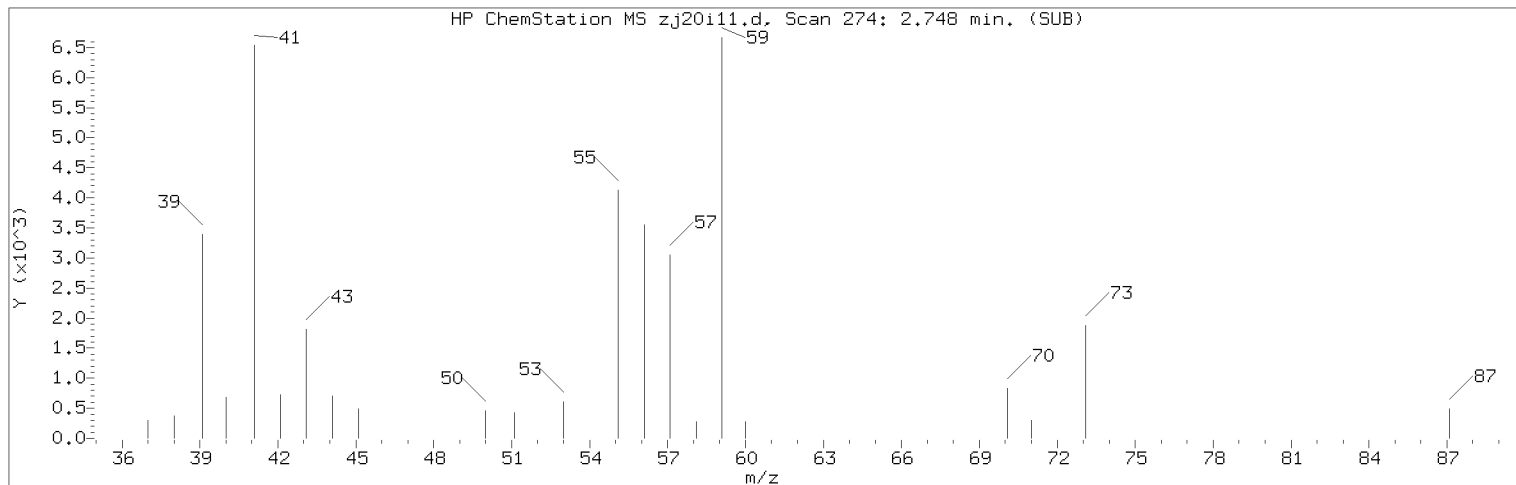
\$ = Compound is a surrogate standard.

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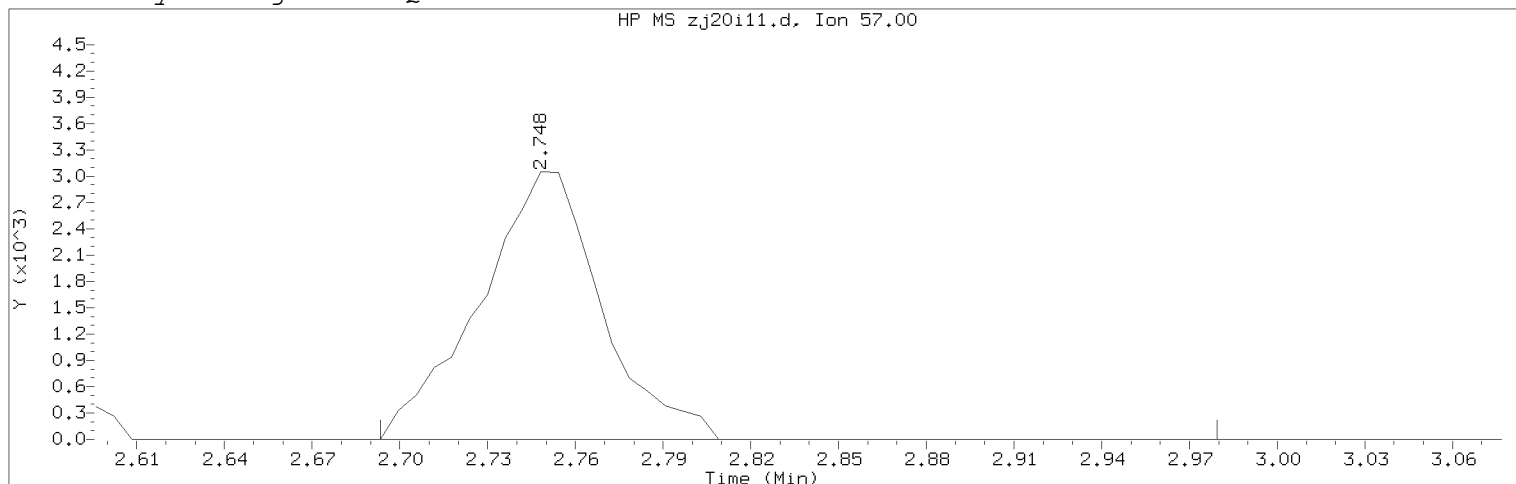
Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 11:10 Analyst ID: amd00492
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

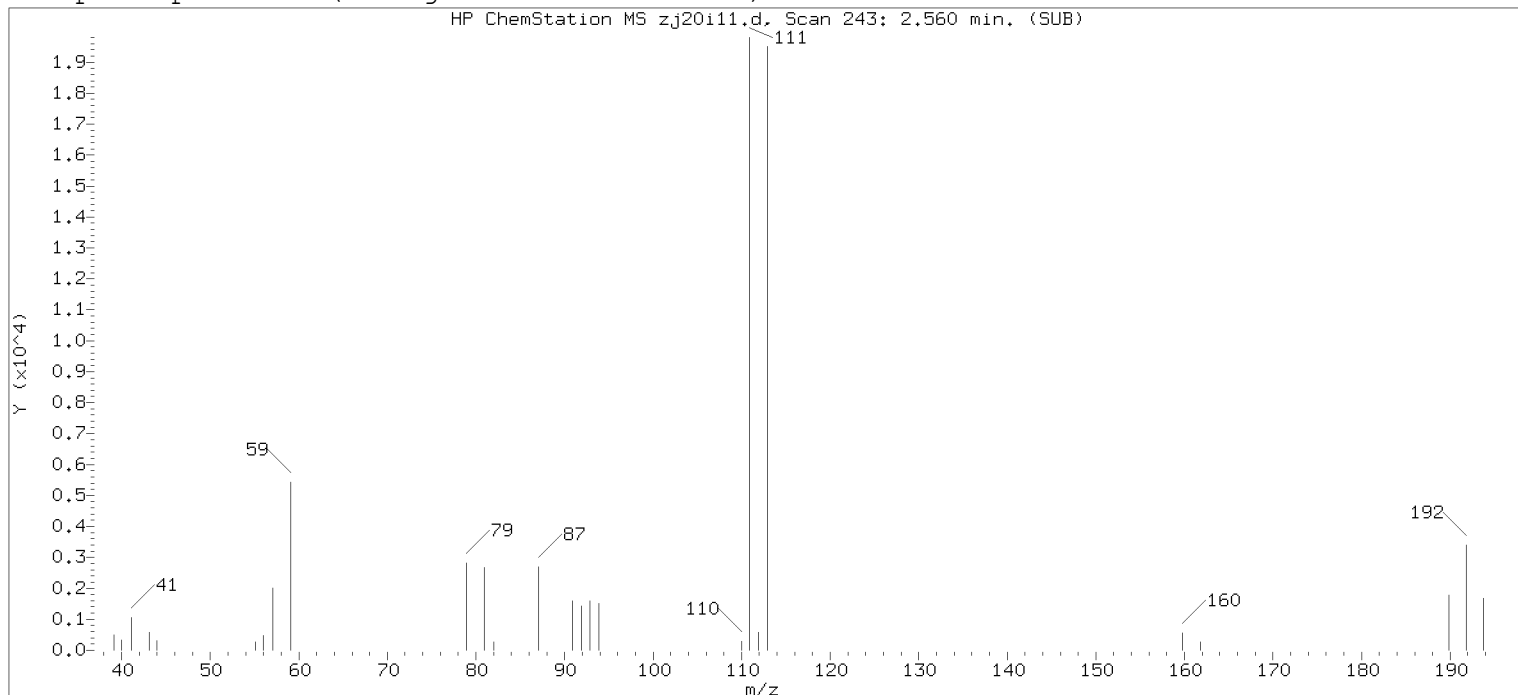
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 274
Retention Time (minutes): 2.748
Quant Ion : 57.00
Area (flag) : 8825A
On-Column Amount (ng) : 4.3573
Integration start scan : 264 Integration stop scan: 311
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

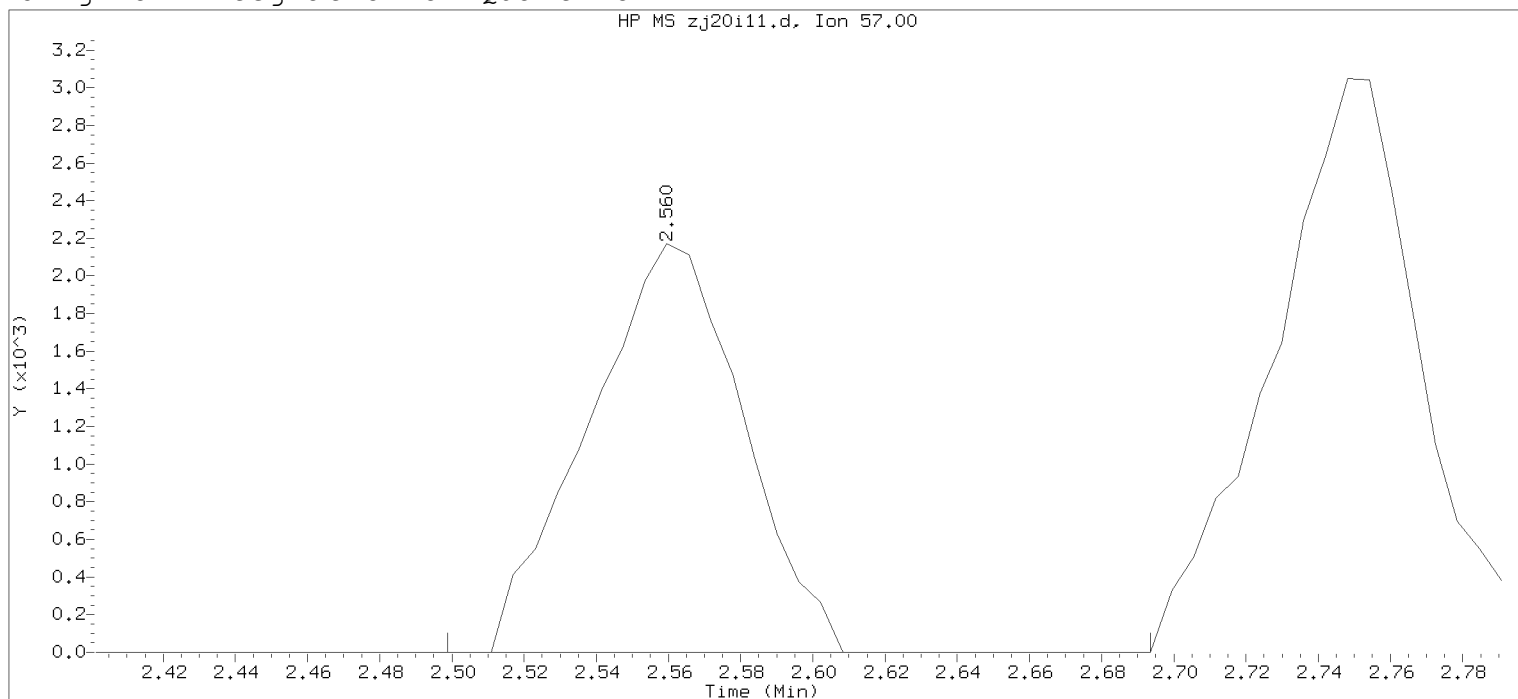
Analyst responsible for change: Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:54.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i11.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 11:10

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 20-JAN-2020 11:30

Date, time and analyst ID of latest file update: 20-Jan-2020 11:30 amd00492

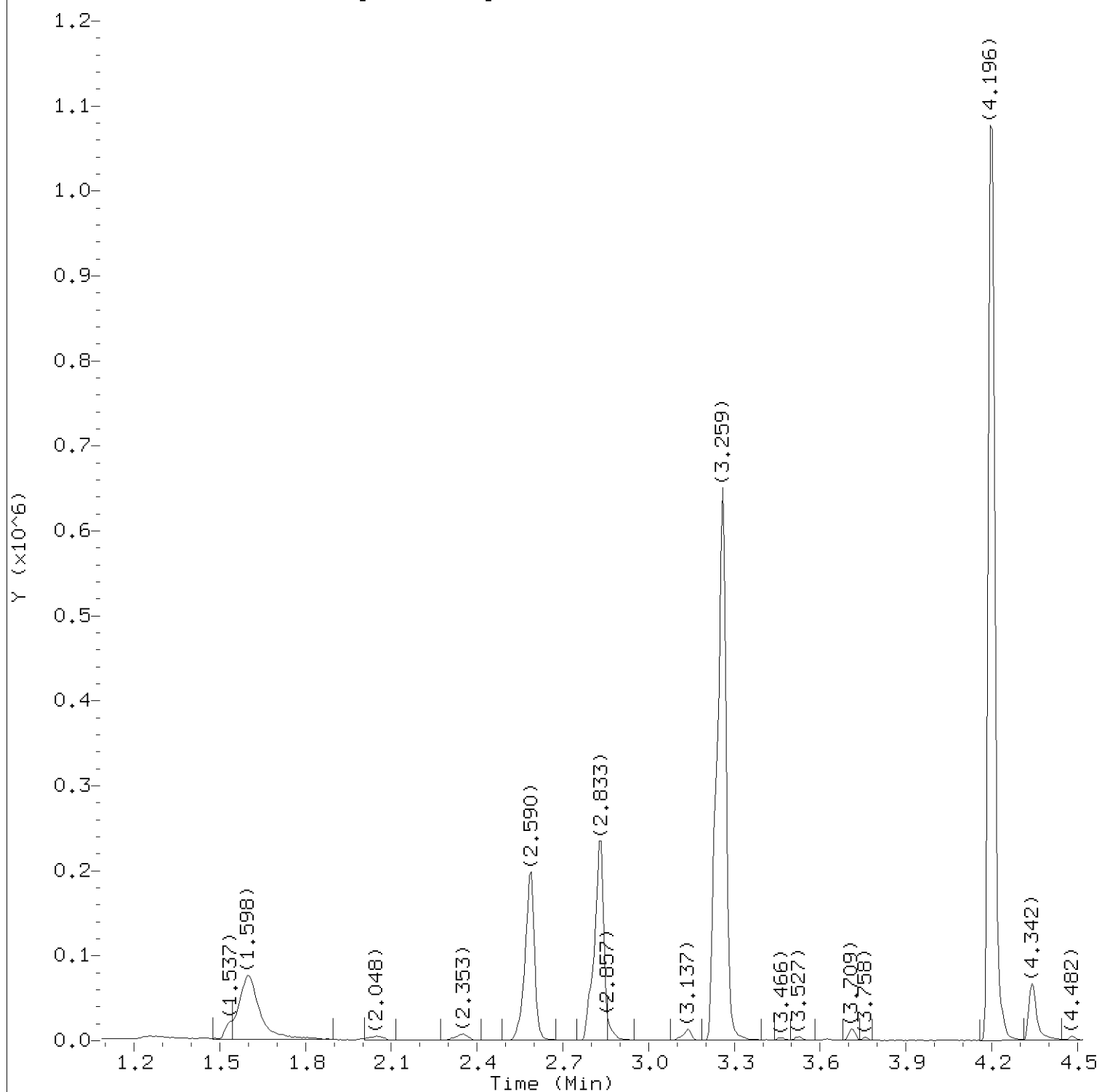
Sample Name: VSTD002

Lab Sample ID: VSTD002

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 243	
Retention Time (minutes)	: 2.560	
Quant Ion	: 57.00	
Area	: 6460	
On-column Amount (ng)	: 4.4813	
Integration start scan	: 232	Integration stop scan: 264
Y at integration start	: 0	Y at integration end: 0

Digitally signed by Anita M. Dale on 01/21/2020 at 05:10.

Target 3.5 esignature user GPV68 Page 443 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i13.d
Injection date and time: 20-JAN-2020 11:34

Instrument ID: HP09671.i
Analyst ID: amd00492

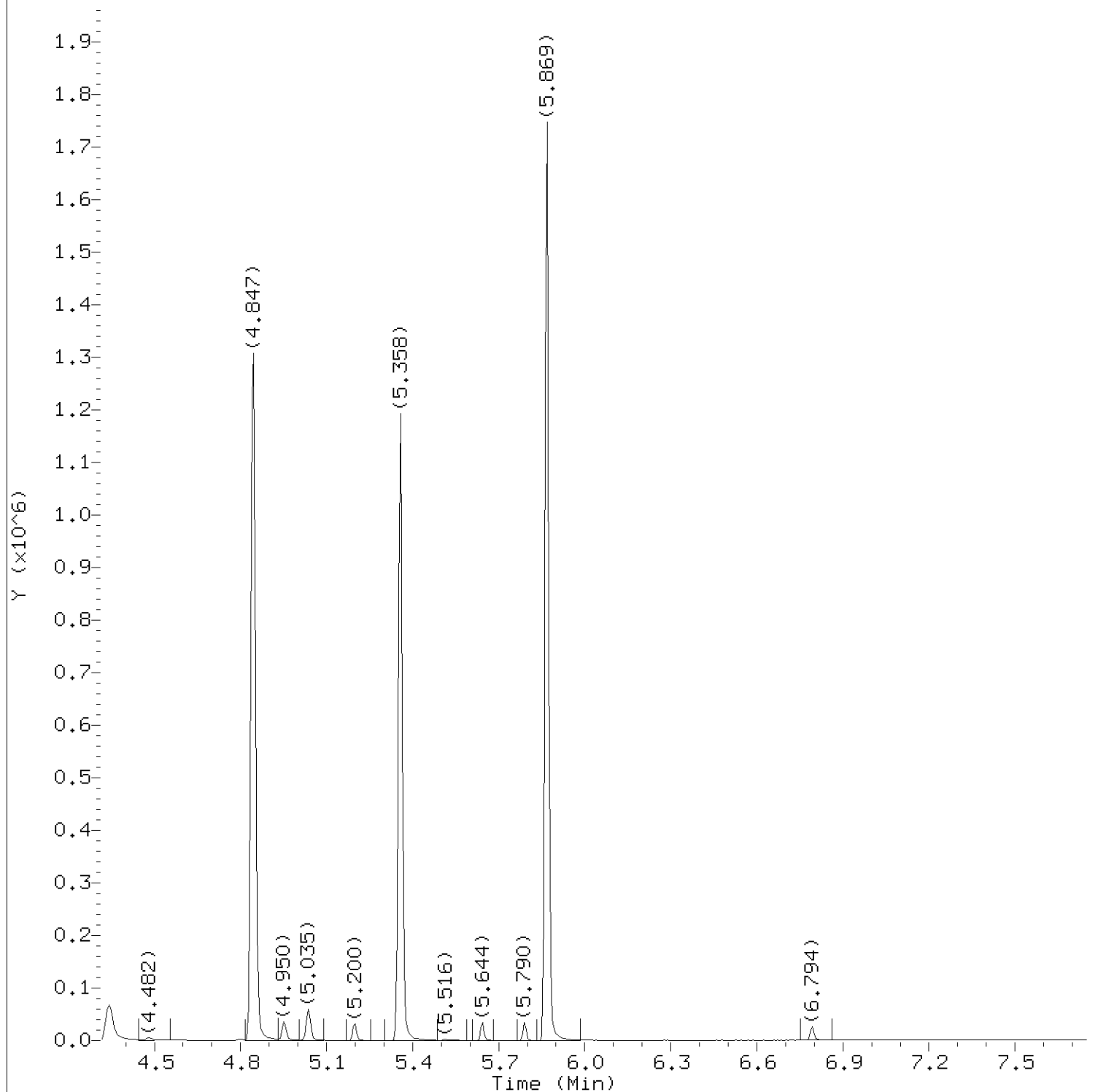
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD001

Lab Sample ID: VSTD001

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i13.d
Injection date and time: 20-JAN-2020 11:34

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD001

Lab Sample ID: VSTD001

Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i13.d
Injection date and time: 20-JAN-2020 11:34

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 21-JAN-2020 05:07
Date, time and analyst ID of latest file update: 21-Jan-2020 05:07 amd00492

Sample Name: VSTD001

Lab Sample ID: VSTD001

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	13630	137.948
2) *t-Butyl alcohol-d10	(1)	1.598	65	208649	250.000
3) t-Butyl alcohol	(1)	1.635	59	4361	4.571
4) Methyl Tertiary Butyl Ether	(2)	2.048	73	9623	0.964
5) di-Isopropyl ether	(2)	2.353	45	9960	0.924
6) Ethyl t-butyl ether	(2)	2.559	59	8759	0.895
7) \$Dibromofluoromethane	(2)	2.590	113	142128	51.409
7) \$Dibromofluoromethane	(2)	2.590	111	146045	51.523
10) \$1,2-Dichloroethane-d4	(2)	2.833	102	43297	49.990
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	204558	50.435
10) \$1,2-Dichloroethane-d4	(2)	2.833	104	27181	50.757
11) 1,2-Dichloroethane	(2)	2.876	62	5760	1.161
12) Benzene	(2)	3.137	78	15252	1.007
13) t-Amyl methyl ether	(2)	3.241	87	1897	0.846
14) *Fluorobenzene	(2)	3.259	96	705593	50.000
15) \$Toluene-d8	(3)	4.196	98	694018	50.283
15) \$Toluene-d8	(3)	4.196	100	440957	49.902
16) Toluene	(3)	4.226	92	9584	1.006
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	24112	36.139
18) 1,2-Dibromoethane	(3)	4.482	107	3143	0.949
19) *Chlorobenzene-d5	(3)	4.847	117	515943	50.000
20) Ethylbenzene	(3)	4.950	91	16562	0.956
21) m+p-Xylene	(3)	5.035	106	11962	1.749
22) o-Xylene	(3)	5.200	106	5739	0.881
24) Isopropylbenzene	(3)	5.346	105	15249	0.907
25) \$4-Bromofluorobenzene	(3)	5.358	95	249168	47.962
25) \$4-Bromofluorobenzene	(3)	5.358	174	190253	48.656
23) Xylene (Total)	(3)		106	17701	2.630
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	11067	0.840
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	10800	0.793
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	265108	50.000
29) Naphthalene	(4)	6.794	128	14753	0.835

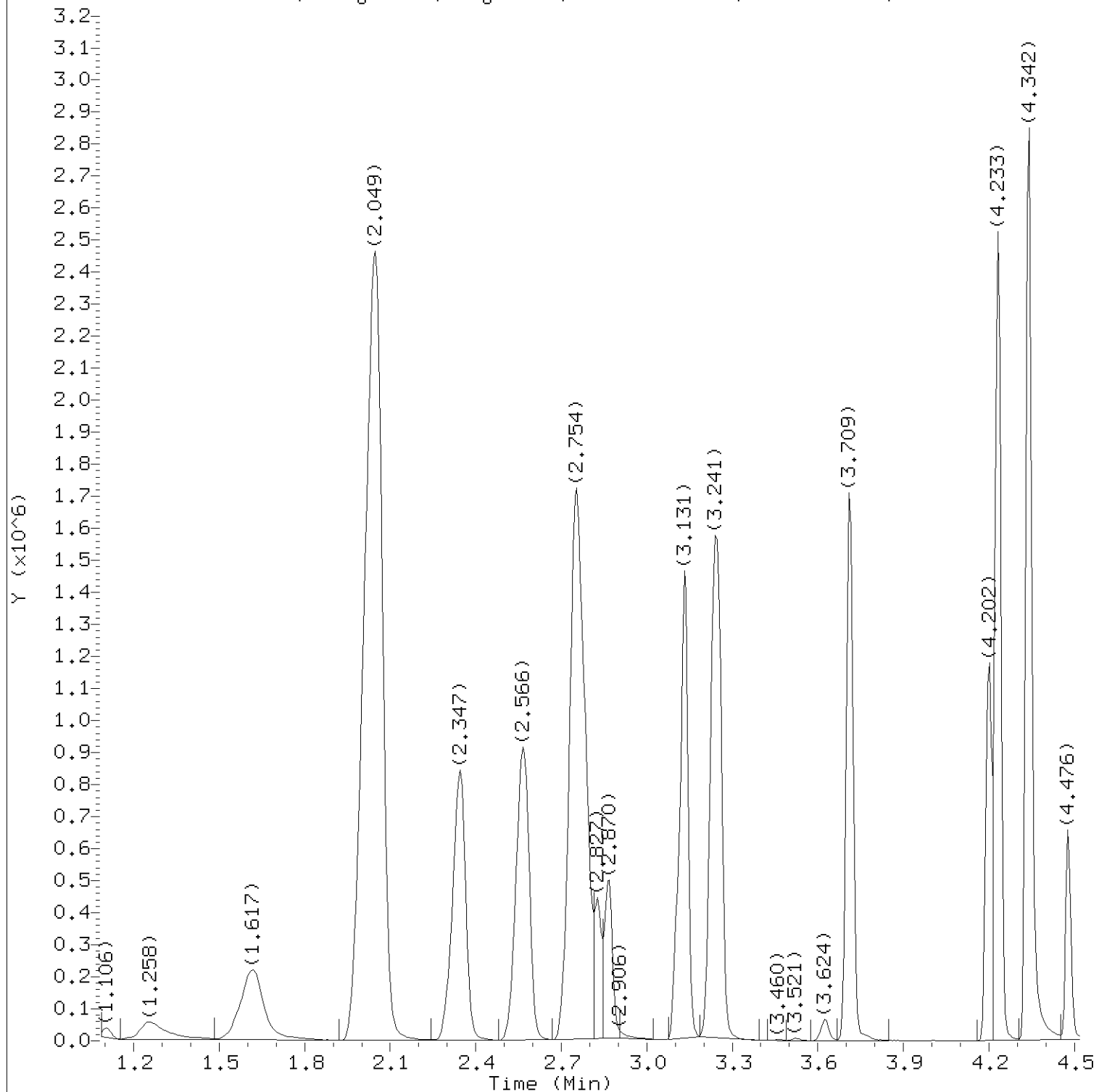
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

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Digitally signed by Anita M. Dale
on 01/21/2020 at 05:10.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d
Injection date and time: 20-JAN-2020 12:47

Instrument ID: HP09671.i
Analyst ID: amd00492

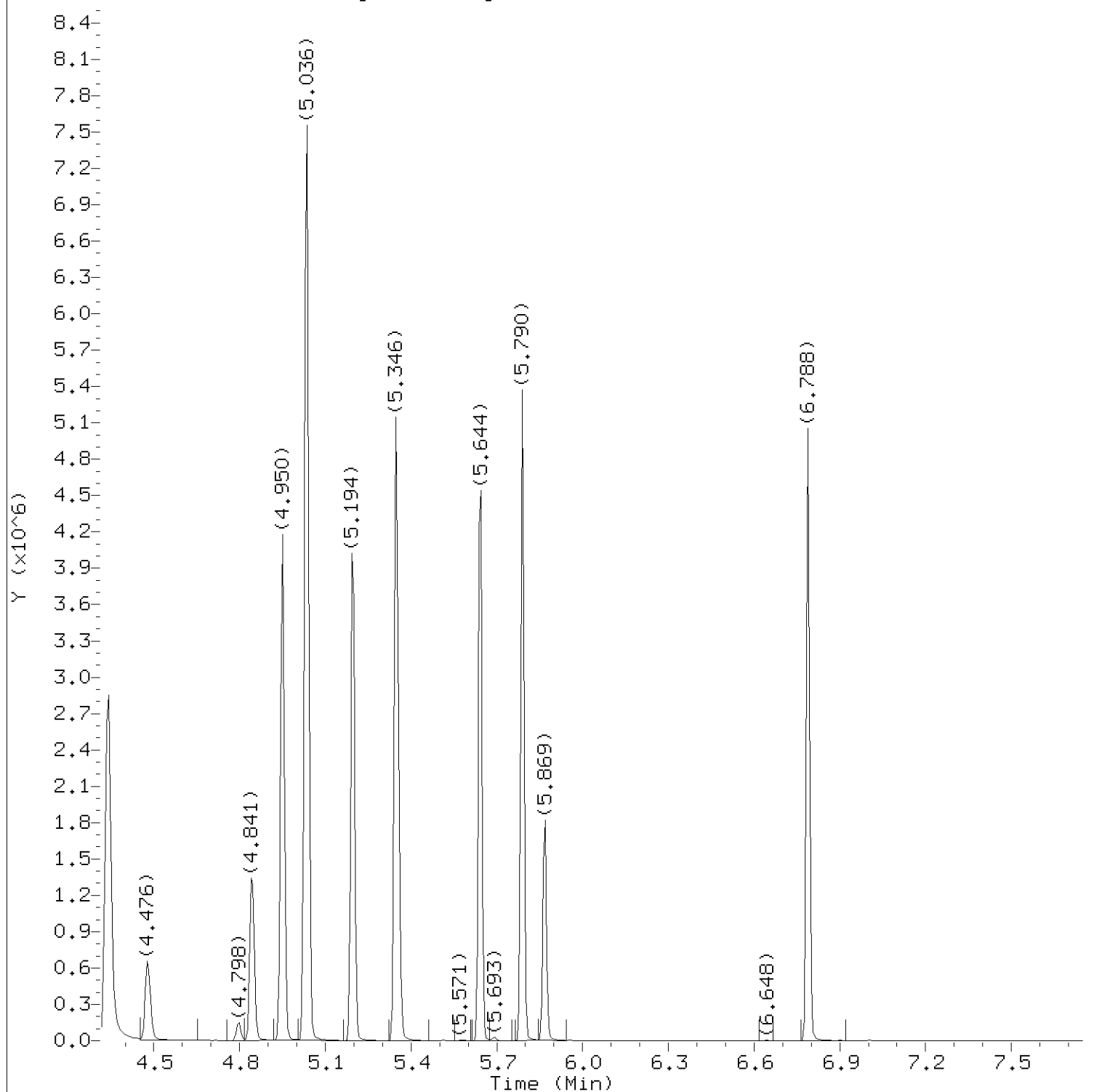
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d
Injection date and time: 20-JAN-2020 12:47

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d
Injection date and time: 20-JAN-2020 12:47

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	236031	2402.870
2) *t-Butyl alcohol-d10	(1)	1.592	65	207431	250.000
3) t-Butyl alcohol	(1)	1.629	59	456370	481.104
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	5249435	500.951
5) di-Isopropyl ether	(2)	2.347	45	1127960	99.745
6) Ethyl t-butyl ether	(2)	2.566	59	1046110	101.851
7) \$Dibromofluoromethane	(2)	2.584	113	142681	49.188
7) \$Dibromofluoromethane	(2)	2.584	111	146575	49.284
8) t-Butyl Formate	(2)	2.748	57	576174MA	276.393
9) t-Amyl Alcohol	(1)	2.779	73	451596	1072.179
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	45098M	49.627
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	209814M	49.304
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	27594	49.111
11) 1,2-Dichloroethane	(2)	2.870	62	472506	90.782
12) Benzene	(2)	3.131	78	1499844	94.372
13) t-Amyl methyl ether	(2)	3.241	87	243326	103.398
14) *Fluorobenzene	(2)	3.259	96	740322	50.000
15) \$Toluene-d8	(3)	4.202	98	706193	49.692
15) \$Toluene-d8	(3)	4.202	100	452781	49.765
16) Toluene	(3)	4.233	92	936302	95.427
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	883812	1332.443
18) 1,2-Dibromoethane	(3)	4.476	107	342574	100.418
19) *Chlorobenzene-d5	(3)	4.847	117	531236	50.000
20) Ethylbenzene	(3)	4.950	91	1774233	99.466
21) m+p-Xylene	(3)	5.036	106	1419833	201.664
22) o-Xylene	(3)	5.194	106	682493	101.733
24) Isopropylbenzene	(3)	5.346	105	1728066	99.774
25) \$4-Bromofluorobenzene	(3)	5.358	95	270397	50.550
25) \$4-Bromofluorobenzene	(3)	5.358	174	203617	50.575
23) Xylene (Total)	(3)		106	2102326	303.397
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	1468346	105.160
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	1534324	106.303
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	280823	50.000
29) Naphthalene	(4)	6.788	128	2005391	107.147

M = Compound was manually integrated.

A = User selected an alternate hit.

* = Compound is an internal standard.

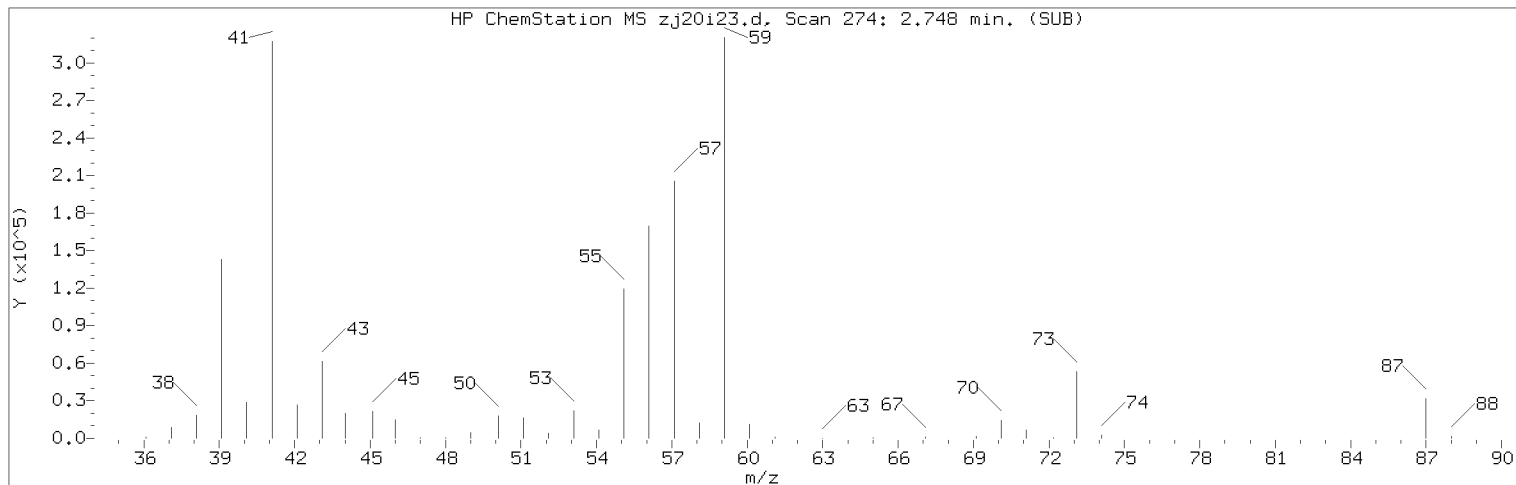
\$ = Compound is a surrogate standard.

page 1 of 1

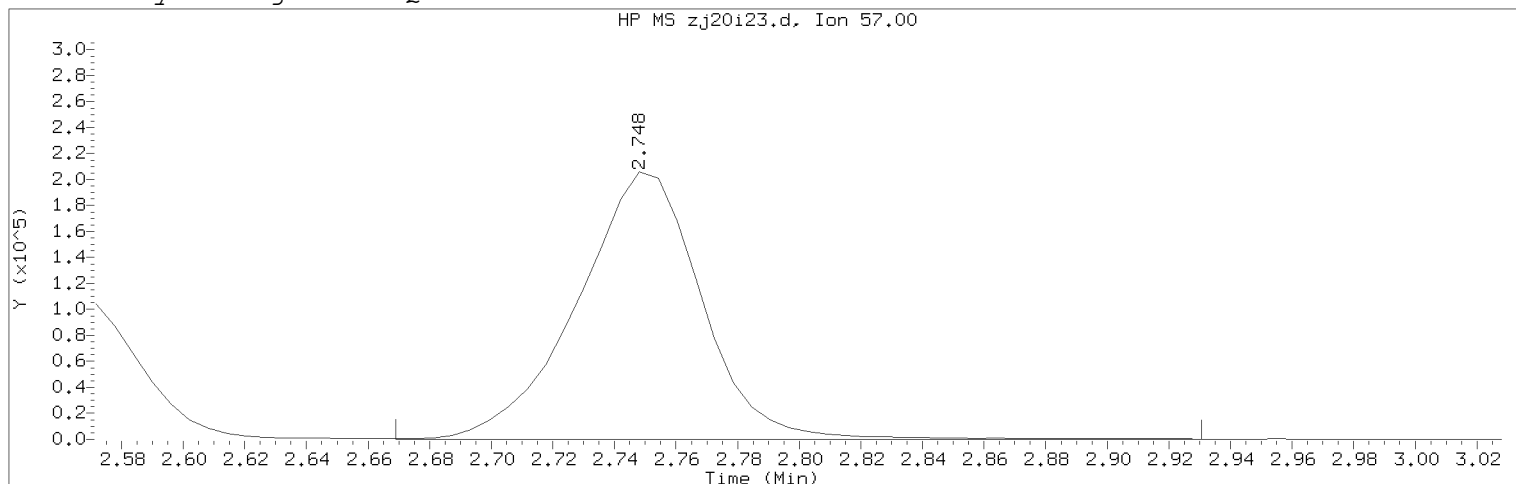
Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 12:47

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 22-JAN-2020 04:42

Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 274	
Retention Time (minutes)	: 2.748	
Quant Ion	: 57.00	
Area (flag)	: 576174MA	
On-Column Amount (ng)	: 276.3926	
Integration start scan	: 260	Integration stop scan: 303
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

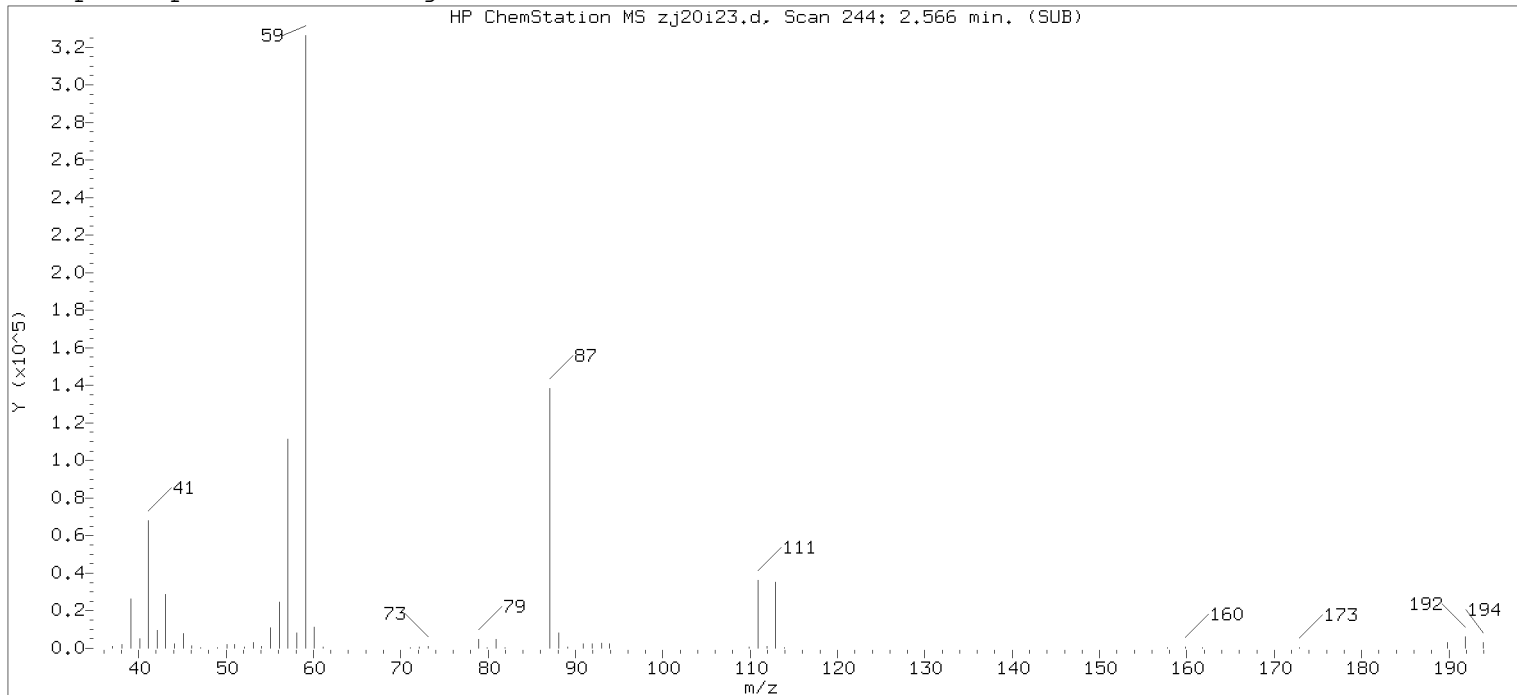
Analyst responsible for change:

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.
Target 3.5 esignature user ID: amd00492

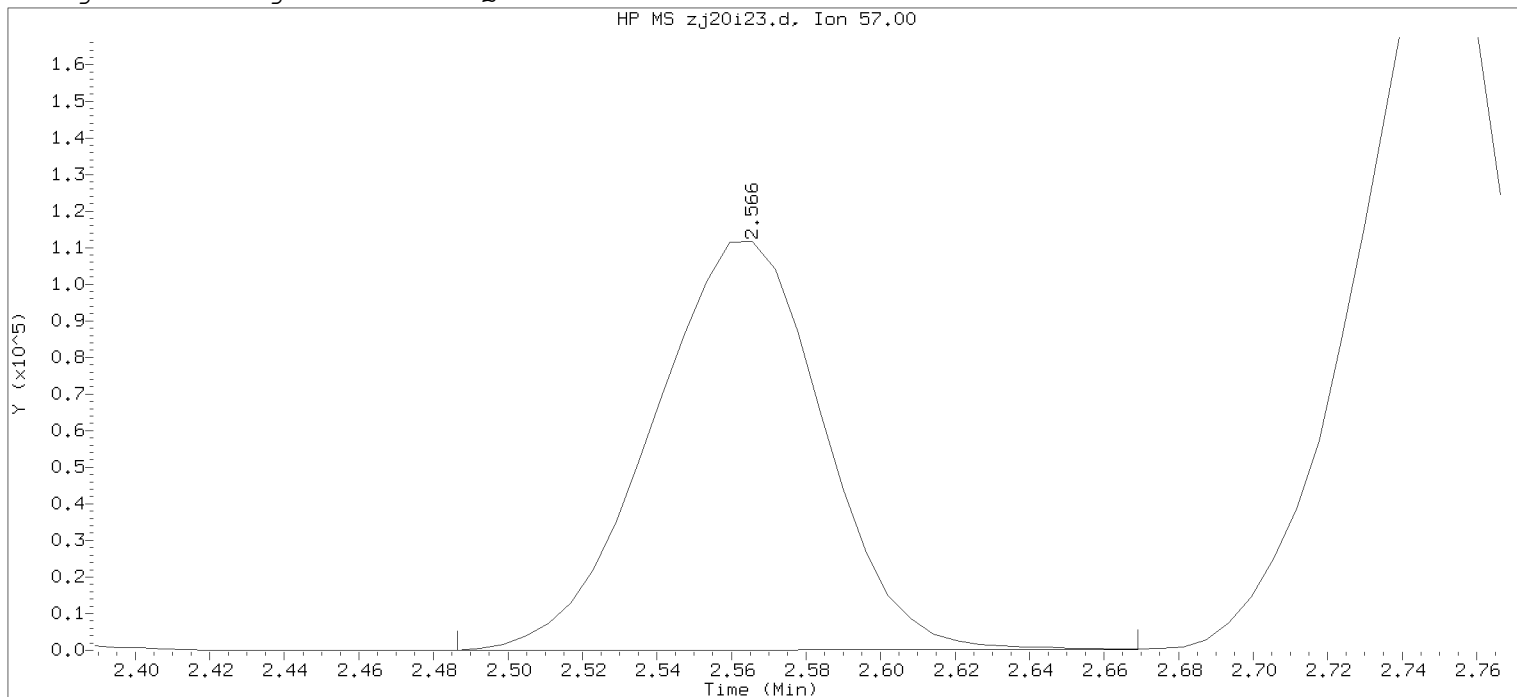
Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:40.

PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 12:47

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 20-JAN-2020 12:56

Date, time and analyst ID of latest file update: 20-Jan-2020 12:56 ajs00193

Sample Name: VSTD100

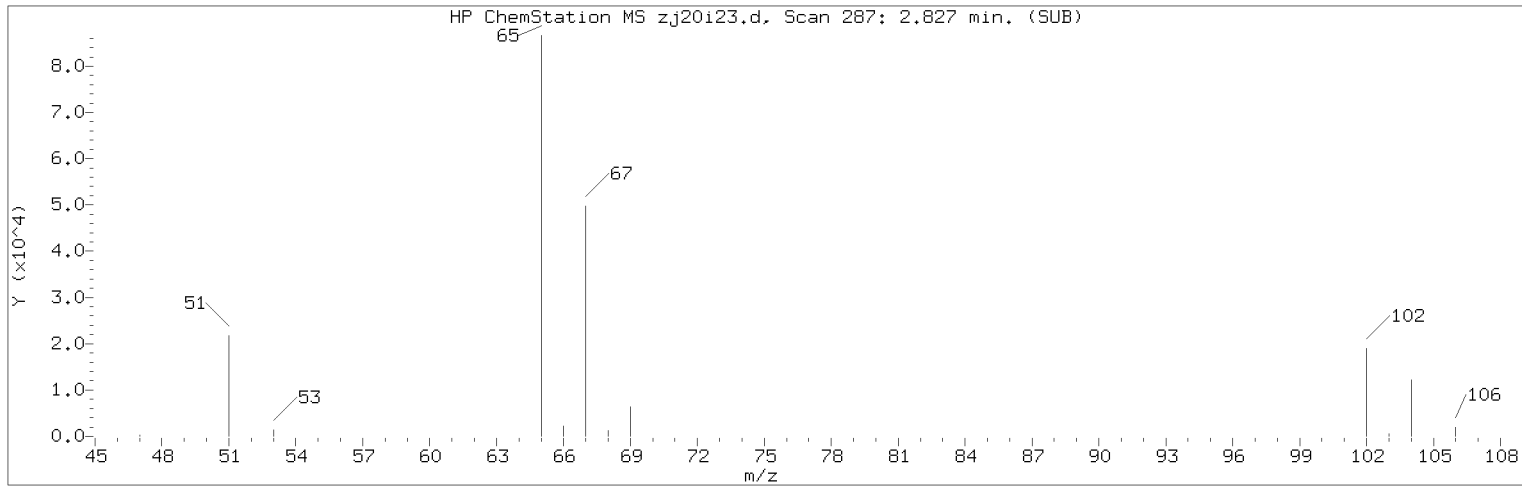
Lab Sample ID: VSTD100

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 244	
Retention Time (minutes)	: 2.566	
Quant Ion	: 57.00	
Area	: 356705	
On-column Amount (ng)	: 240.6271	
Integration start scan	: 230	Integration stop scan: 260
Y at integration start	: 0	Y at integration end: 163

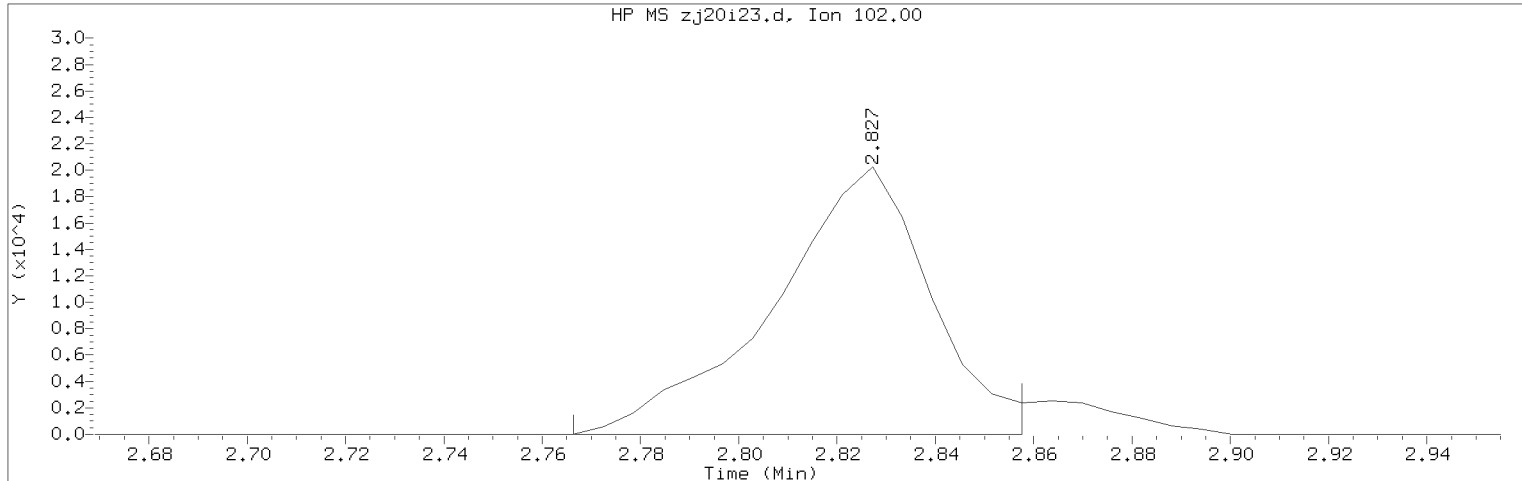
Digitally signed by Anita M. Dale on 01/22/2020 at 04:43.

Target 3.5 esignature user GPV68 Page 451 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 12:47 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:42
Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

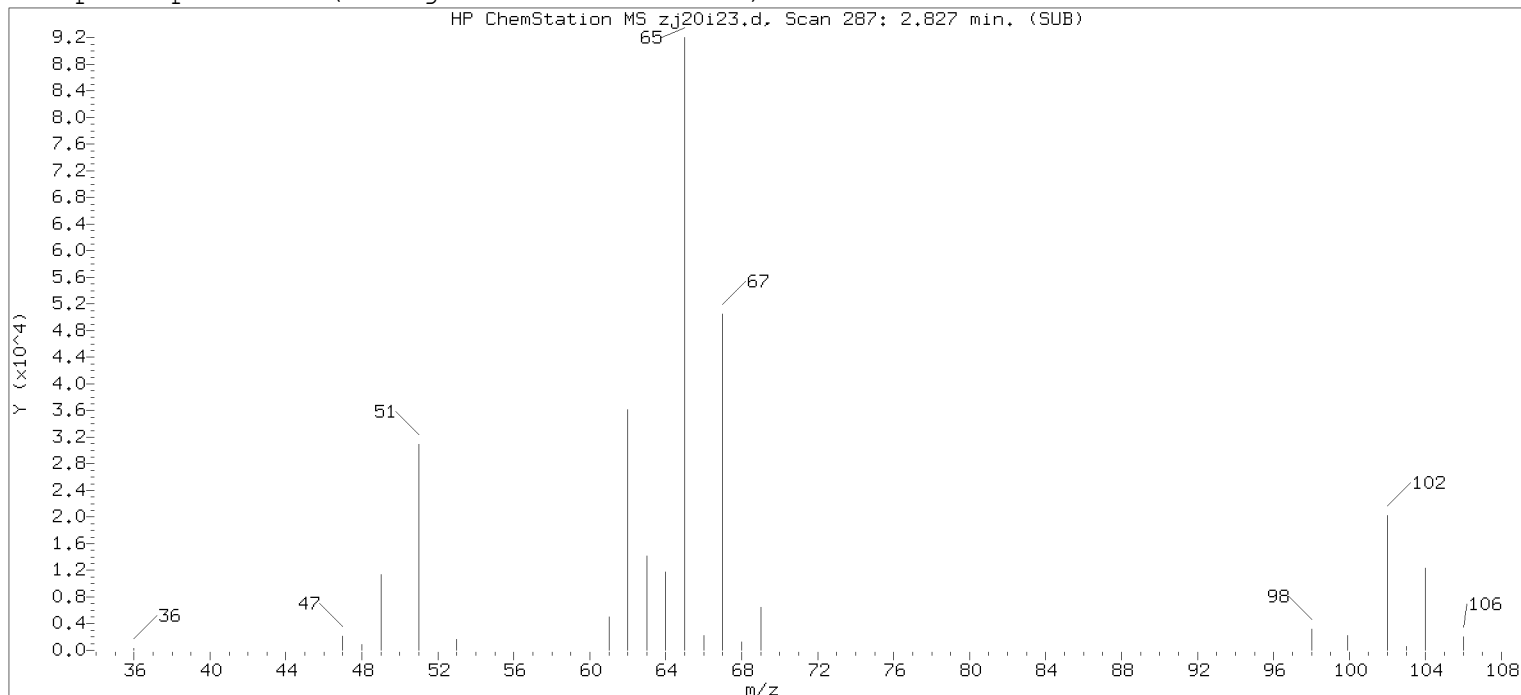
Compound Number : 10
Compound Name : 1,2-Dichloroethane-d4
Scan Number : 287
Retention Time (minutes): 2.827
Quant Ion : 102.00
Area (flag) : 45098M
On-Column Amount (ng) : 49.6272
Integration start scan : 276 Integration stop scan: 291
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

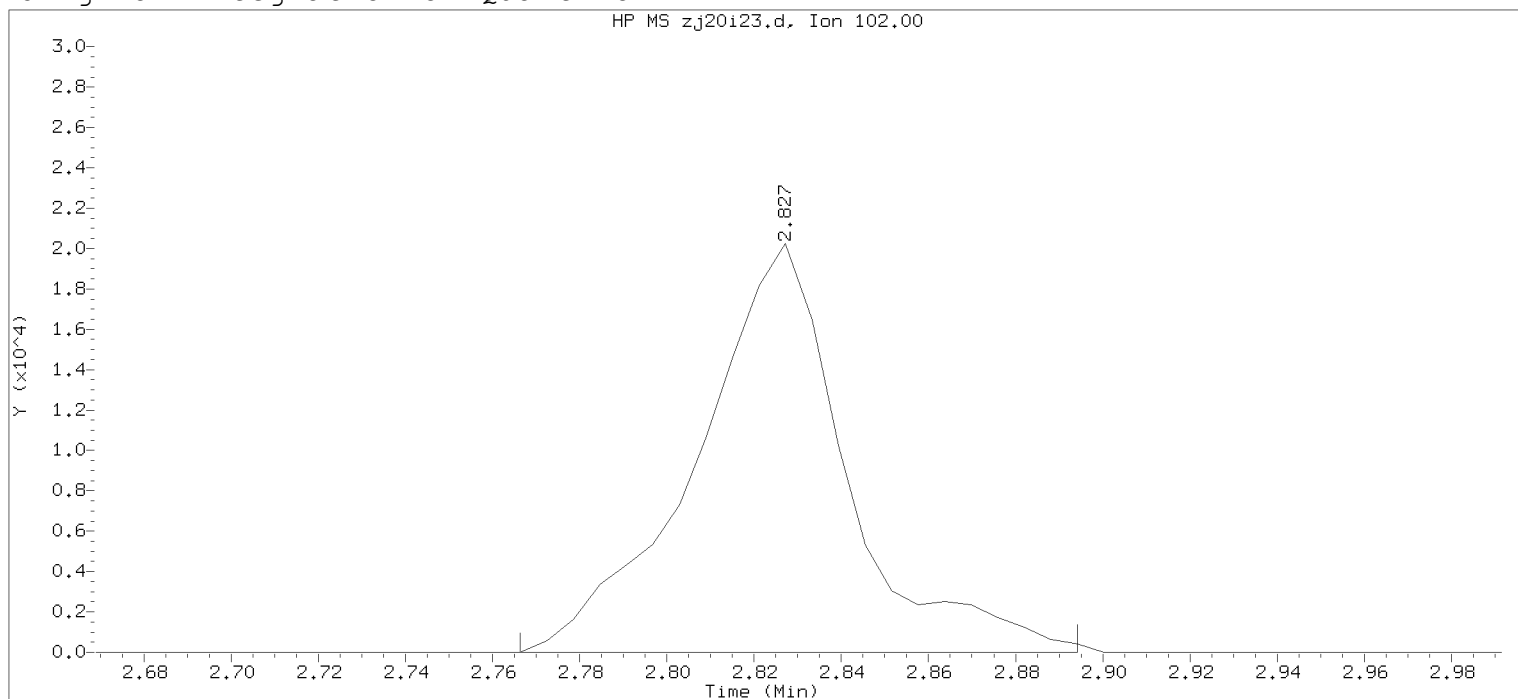
Analyst responsible for change: Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:40.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 12:47 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 12:56
Date, time and analyst ID of latest file update: 20-Jan-2020 12:56 ajs00193

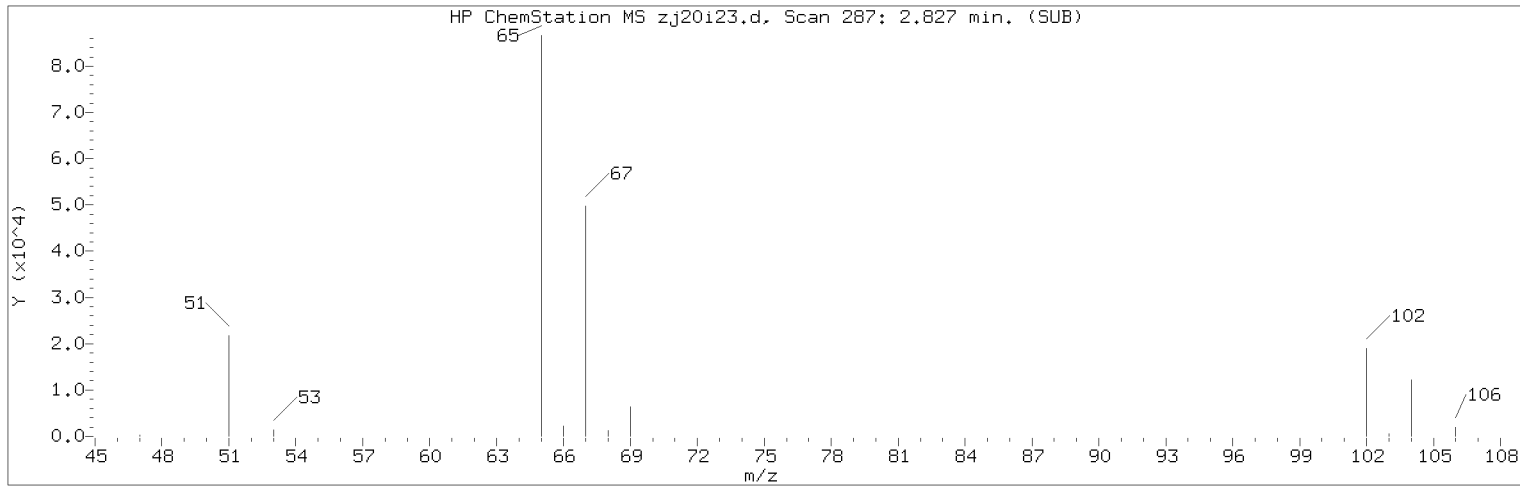
Sample Name: VSTD100

Lab Sample ID: VSTD100

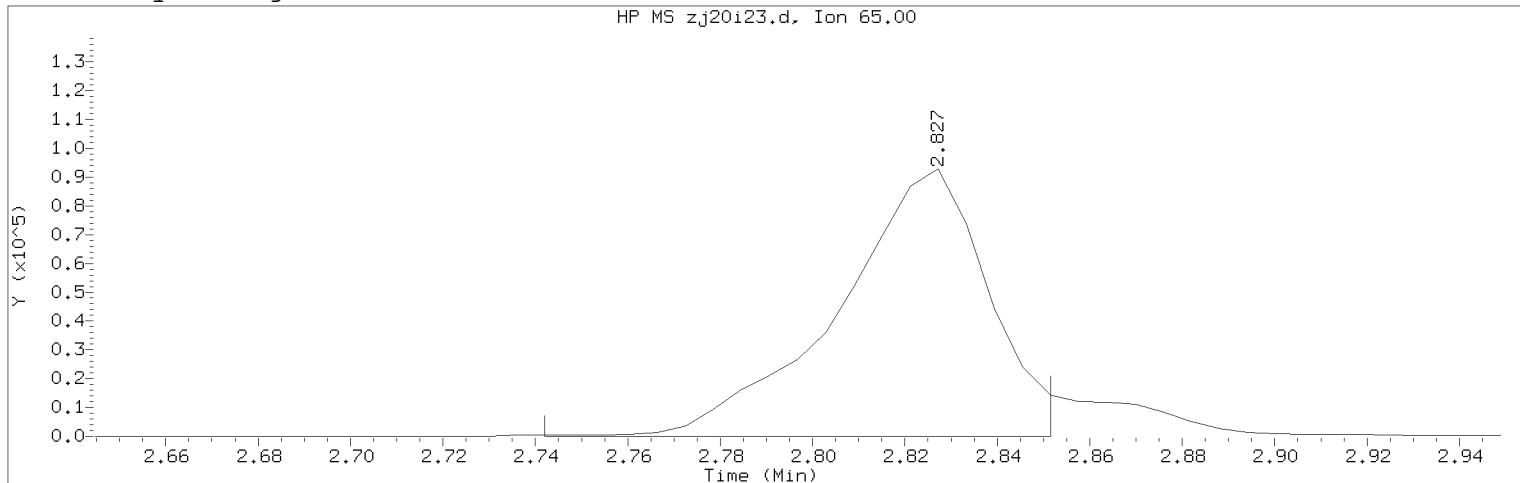
Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 287	
Retention Time (minutes)	: 2.827	
Quant Ion	: 102.00	
Area	: 48255	
On-column Amount (ng)	: 52.4765	
Integration start scan	: 276	Integration stop scan: 297
Y at integration start	: 0	Y at integration end: 0

Digitally signed by Anita M. Dale on 01/22/2020 at 04:43.
Target 3.5 esignature user GPV68 Page 453 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20i23.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 12:47

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 22-JAN-2020 04:42

Date, time and analyst ID of latest file update: 22-Jan-2020 04:42 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

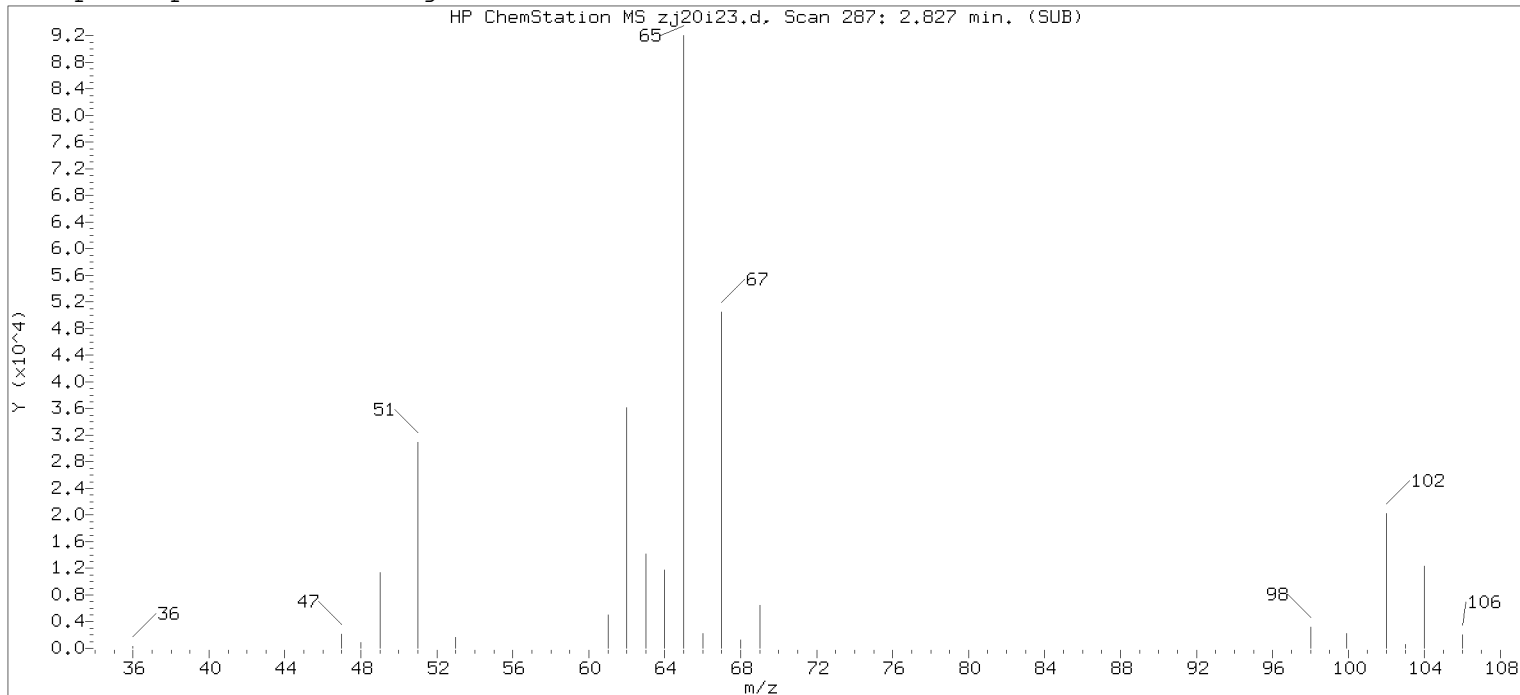
Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 287	
Retention Time (minutes)	: 2.827	
Quant Ion	: 65.00	
Area (flag)	: 209814M	
On-Column Amount (ng)	: 49.3044	
Integration start scan	: 272	Integration stop scan: 290
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

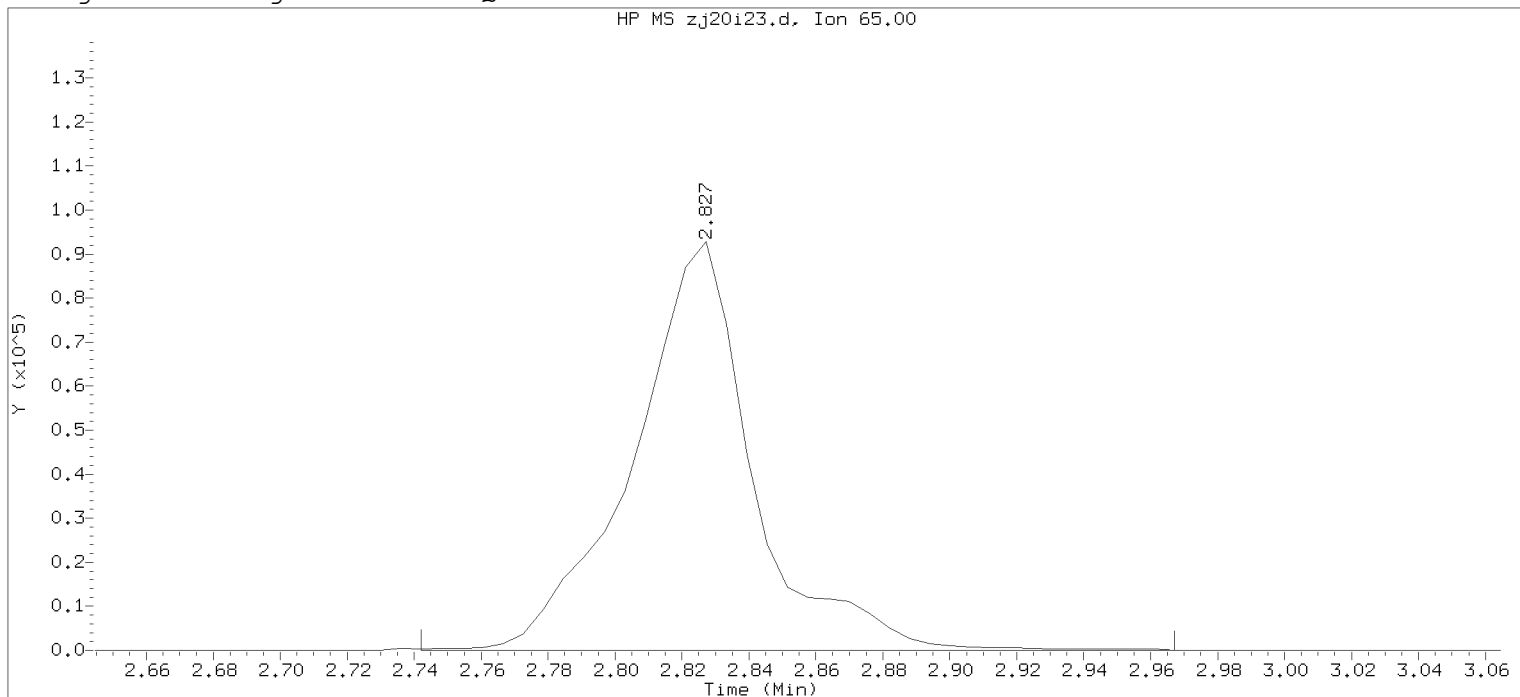
Analyst responsible for change: Digitally signed by Anita M. Dale
on 01/22/2020 at 04:43.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:40.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



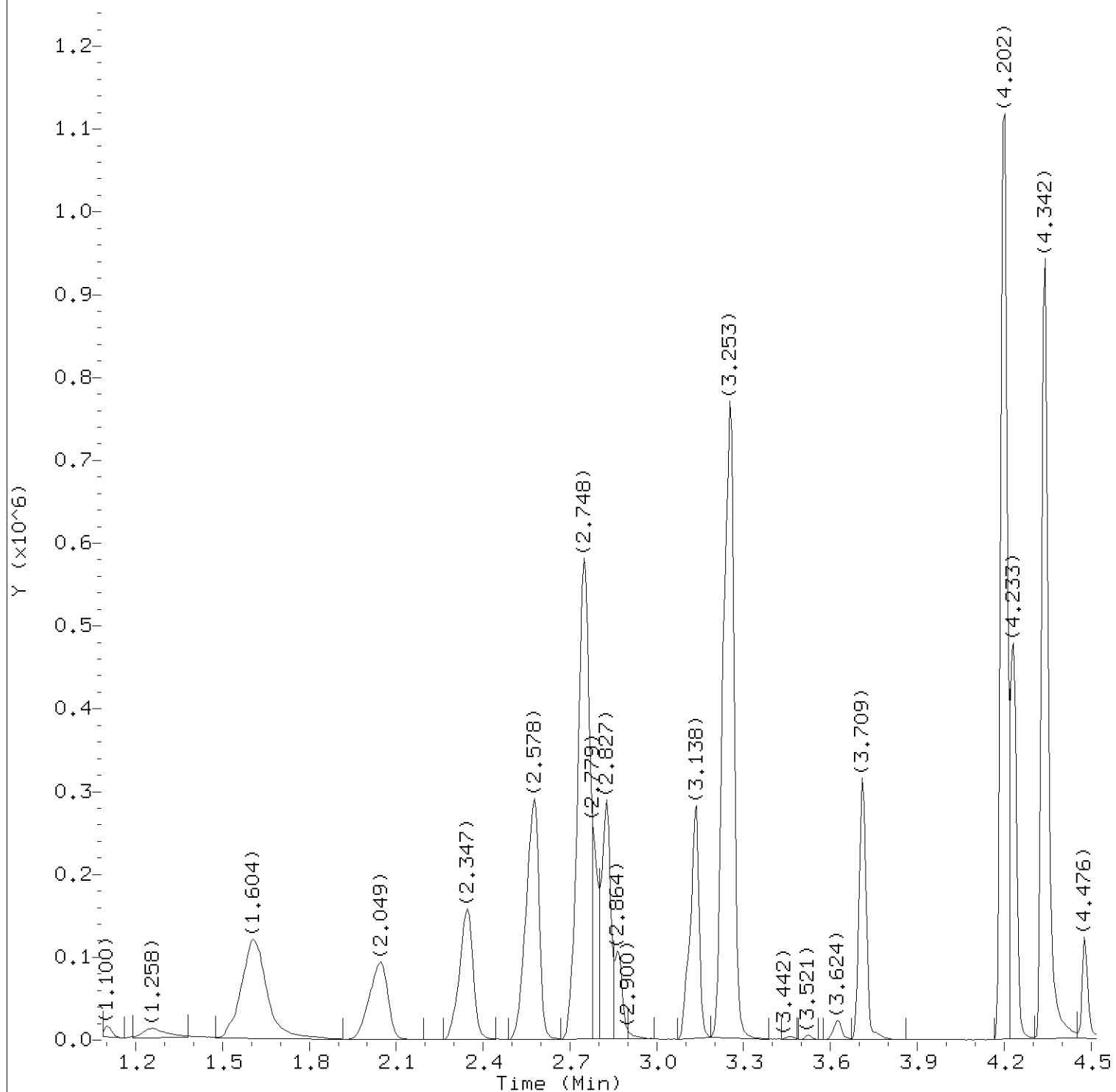
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Injection date and time: 20-JAN-2020 12:47 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 12:56
Date, time and analyst ID of latest file update: 20-Jan-2020 12:56 ajs00193

Sample Name: VSTD100

Lab Sample ID: VSTD100

Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 287	
Retention Time (minutes)	: 2.827	
Quant Ion	: 65.00	
Area	: 230618	
On-column Amount (ng)	: 53.6039	
Integration start scan	: 272	Integration stop scan: 309
Y at integration start	: 0	Y at integration end: 0



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d
Injection date and time: 20-JAN-2020 12:23

Instrument ID: HP09671.i
Analyst ID: amd00492

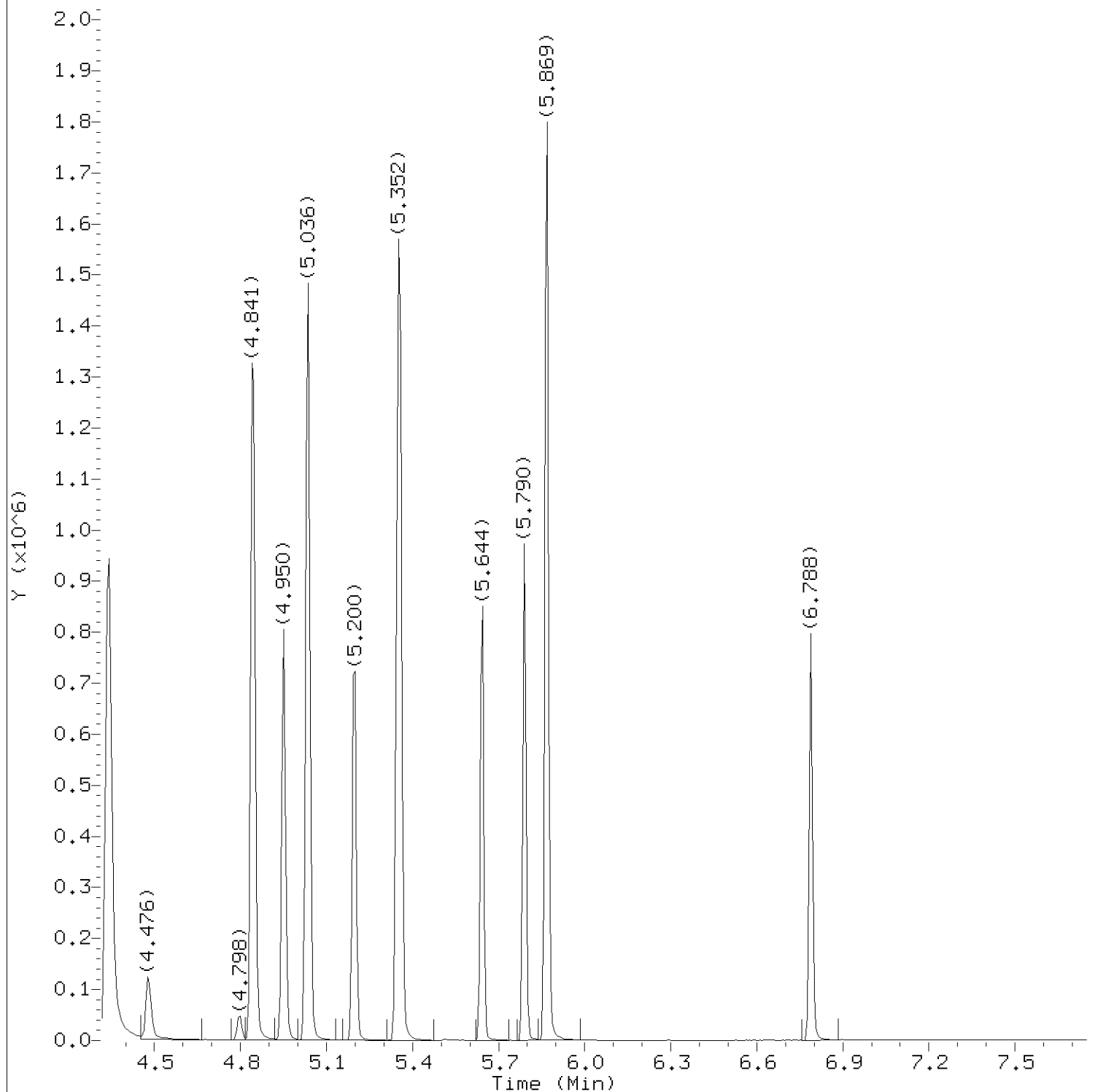
Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:53
Date, time and analyst ID of latest file update: 22-Jan-2020 04:54 amd00492

Sample Name: ICVZ01

Lab Sample ID: ICVZ01

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:54.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d
Injection date and time: 20-JAN-2020 12:23

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:53
Date, time and analyst ID of latest file update: 22-Jan-2020 04:54 amd00492

Sample Name: ICVZ01

Lab Sample ID: ICVZ01

Digitally signed by Anita M. Dale
on 01/22/2020 at 04:54.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d
Injection date and time: 20-JAN-2020 12:23

Instrument ID: HP09671.i
Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 22-JAN-2020 04:53
Date, time and analyst ID of latest file update: 22-Jan-2020 04:54 amd00492

Sample Name: ICSVZ01

Lab Sample ID: ICSVZ01

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	49276	505.530
2) *t-Butyl alcohol-d10	(1)	1.592	65	205837	250.000
3) t-Butyl alcohol	(1)	1.629	59	174954	185.864
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	191797	18.453
5) di-Isopropyl ether	(2)	2.347	45	210355	18.754
6) Ethyl t-butyl ether	(2)	2.560	59	193749	19.018
7) \$Dibromofluoromethane	(2)	2.584	113	140617	48.873
8) t-Butyl Formate	(2)	2.748	57	201755A	97.574
9) t-Amyl Alcohol	(1)	2.785	73	77511	185.452
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	45513	50.494
11) 1,2-Dichloroethane	(2)	2.870	62	96939	18.777
12) Benzene	(2)	3.138	78	303523	19.254
13) t-Amyl methyl ether	(2)	3.241	87	44978	19.269
14) *Fluorobenzene	(2)	3.259	96	734314	50.000
15) \$Toluene-d8	(3)	4.202	98	699707	50.332
16) Toluene	(3)	4.233	92	185805	19.359
17) 3,3-Dimethyl-1-butanol	(1)	4.342	69	312062	474.111
18) 1,2-Dibromoethane	(3)	4.476	107	64698	19.387
19) *Chlorobenzene-d5	(3)	4.847	117	519663	50.000
20) Ethylbenzene	(3)	4.950	91	337794	19.359
21) m+p-Xylene	(3)	5.036	106	279068	40.520
22) o-Xylene	(3)	5.200	106	130769	19.927
24) Isopropylbenzene	(3)	5.346	105	331051	19.540
25) \$4-Bromofluorobenzene	(3)	5.358	95	265685	50.775
23) Xylene (Total)	(3)		106	409837	60.446
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	264722	19.433
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	281840	20.015
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	273971	50.000
29) Naphthalene	(4)	6.788	128	334234	18.305

A = User selected an alternate hit.

* = Compound is an internal standard.

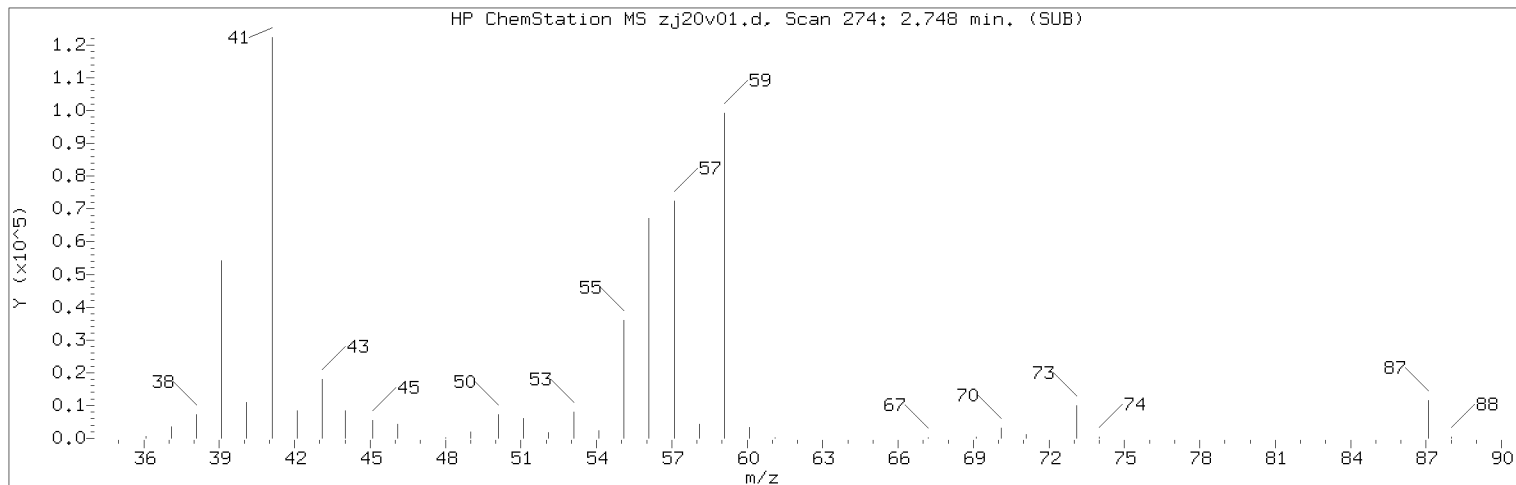
\$ = Compound is a surrogate standard.

page 1 of 1

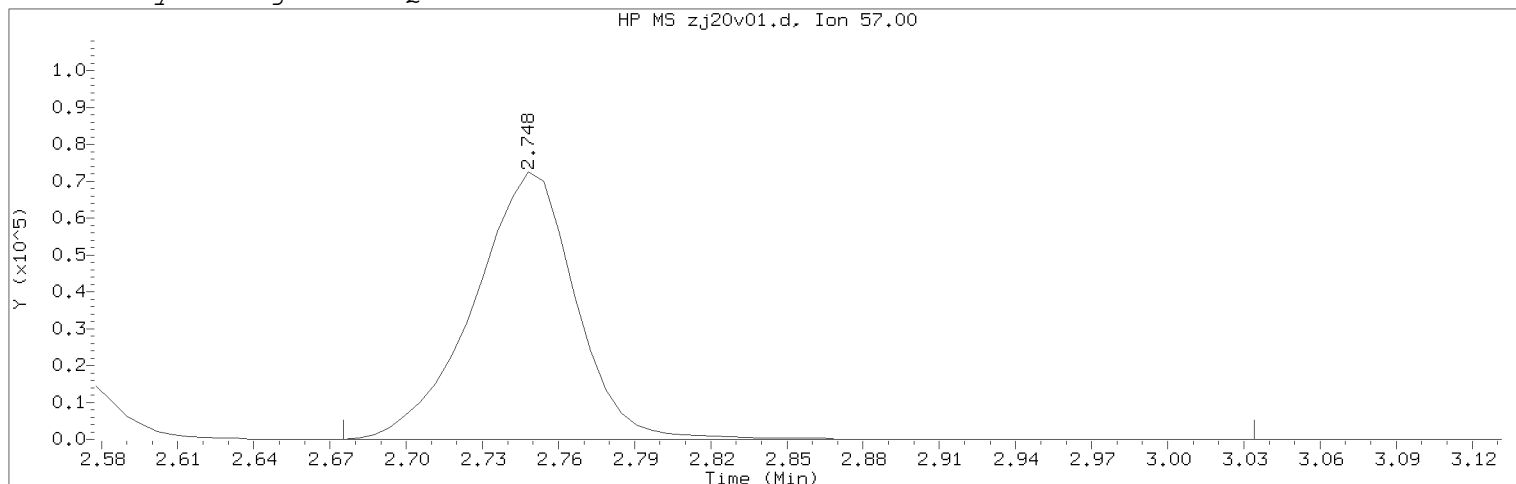
Digitally signed by Anita M. Dale
on 01/22/2020 at 04:54.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d

Instrument ID: HP09671.i

Injection date and time: 20-JAN-2020 12:23

Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m

Sublist used: 10945AC-G

Calibration date and time: 22-JAN-2020 04:53

Date, time and analyst ID of latest file update: 22-Jan-2020 04:54 amd00492

Sample Name: ICVZ01

Lab Sample ID: ICVZ01

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 274	
Retention Time (minutes)	: 2.748	
Quant Ion	: 57.00	
Area (flag)	: 201755A	
On-Column Amount (ng)	: 97.5744	
Integration start scan	: 261	Integration stop scan: 320
Y at integration start	: 0	Y at integration end: 0

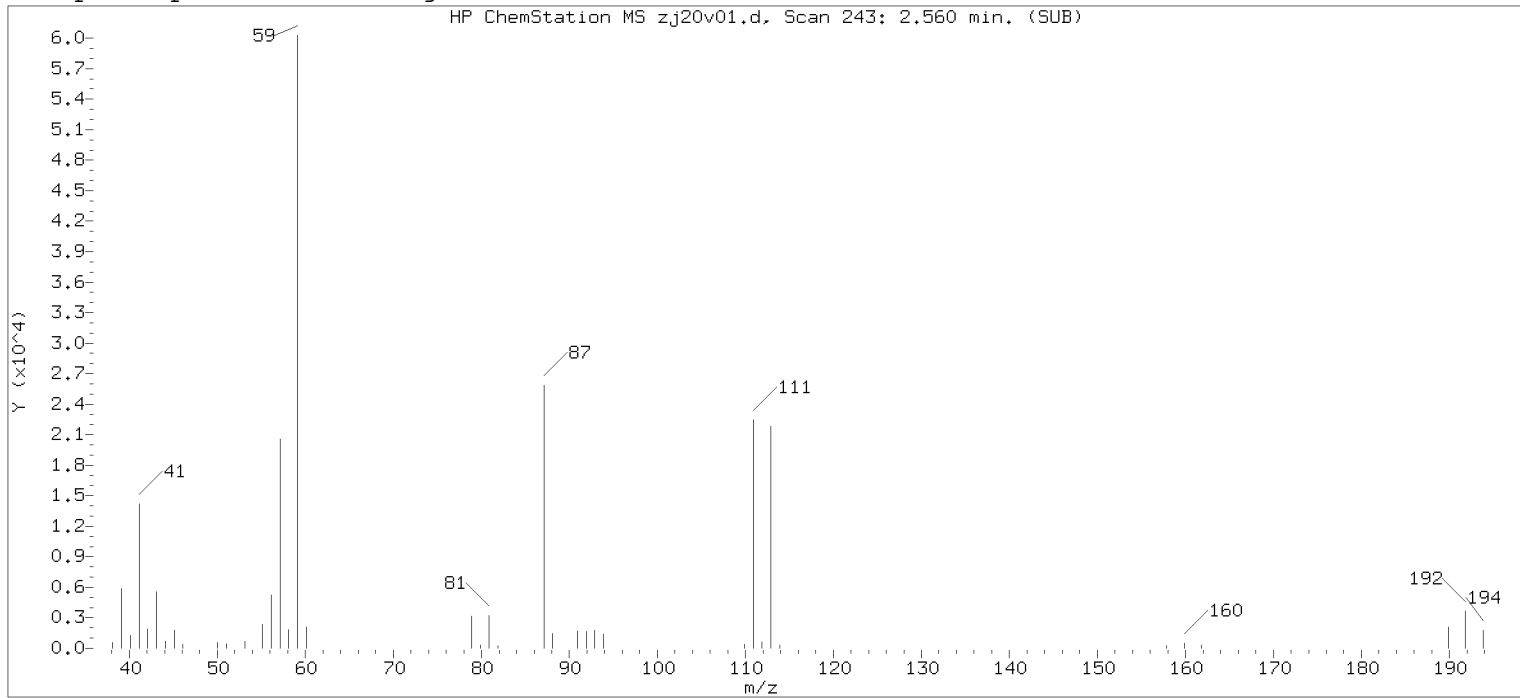
Reason for manual integration: improper integration

Analyst responsible for change:

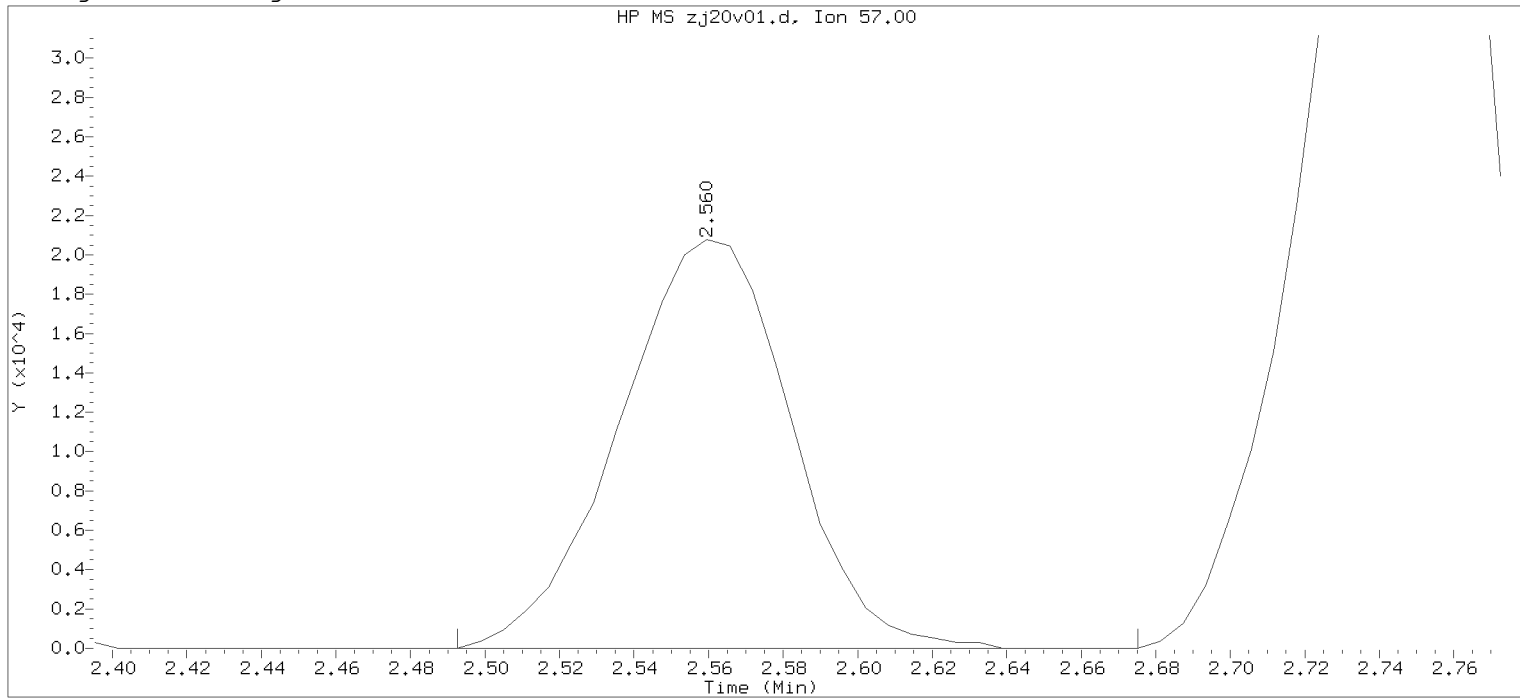
Digitally signed by Anita M. Dale
on 01/22/2020 at 04:54.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 01/22/2020 at 09:58.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem2/HP09671.i/20jan20z.b/zj20v01.d Instrument ID: HP09671.i
Injection date and time: 20-JAN-2020 12:23 Analyst ID: amd00492

Method used: /chem2/HP09671.i/20jan20z.b/UST-PT1C.m Sublist used: 10945AC-G
Calibration date and time: 20-JAN-2020 12:07
Date, time and analyst ID of latest file update: 20-Jan-2020 12:32 ajs00193

Sample Name: ICVZ01

Lab Sample ID: ICVZ01

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 243	
Retention Time (minutes)	: 2.560	
Quant Ion	: 57.00	
Area	: 66312	
On-column Amount (ng)	: 45.0989	
Integration start scan	: 231	Integration stop scan: 261
Y at integration start	: 0	Y at integration end: 0

Page 1

Client ID: BFBJan28-20

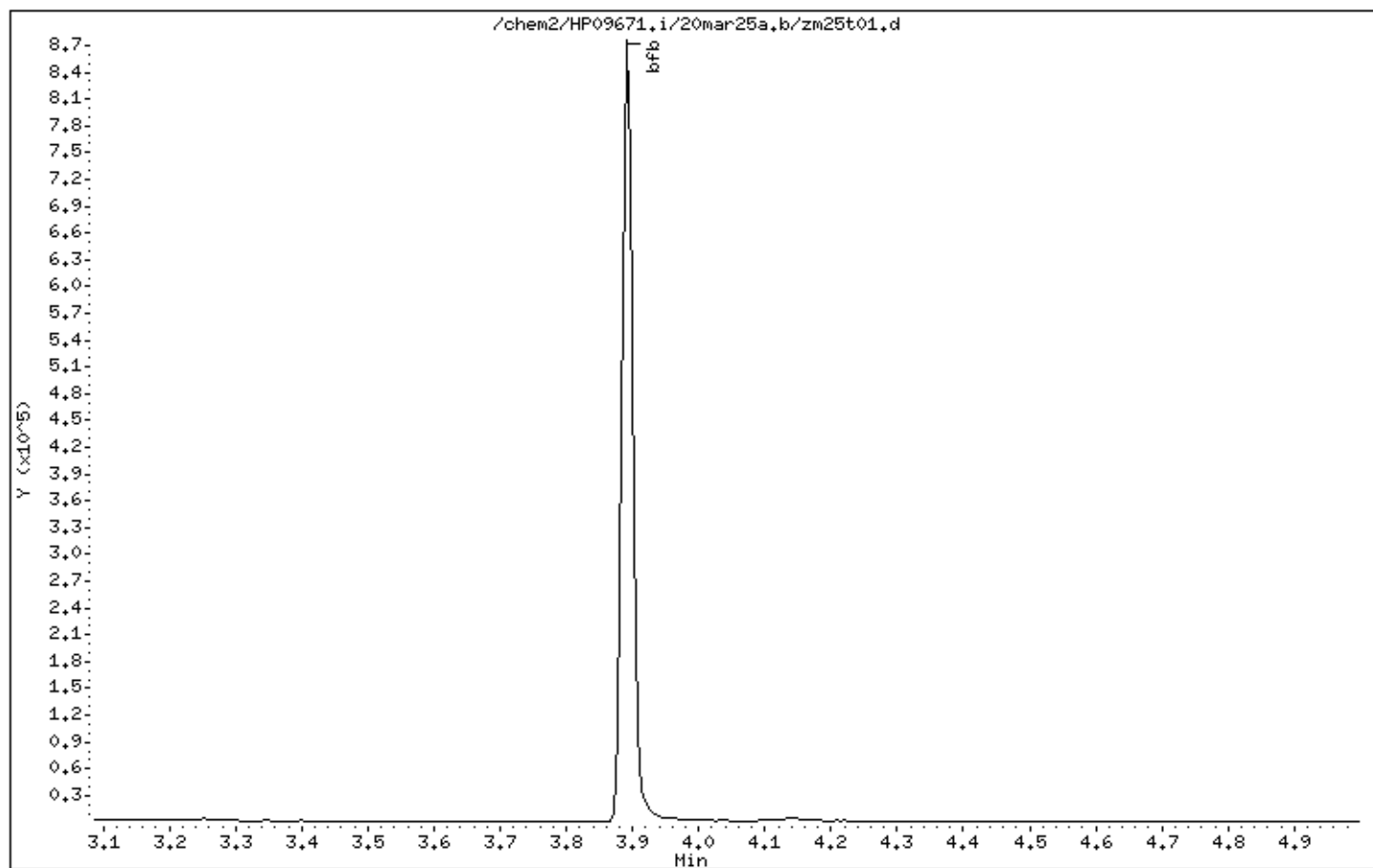
Instrument: HP09671.i

Sample Info: BFBJan28-20;50NGBFB;1;3; ; ; ; ;

Operator: ads07818

Column phase: DB-VRX

Column diameter: 0.18



Date : 25-MAR-2020 07:47

Client ID: BFBJan28-20

Instrument: HP09671.i

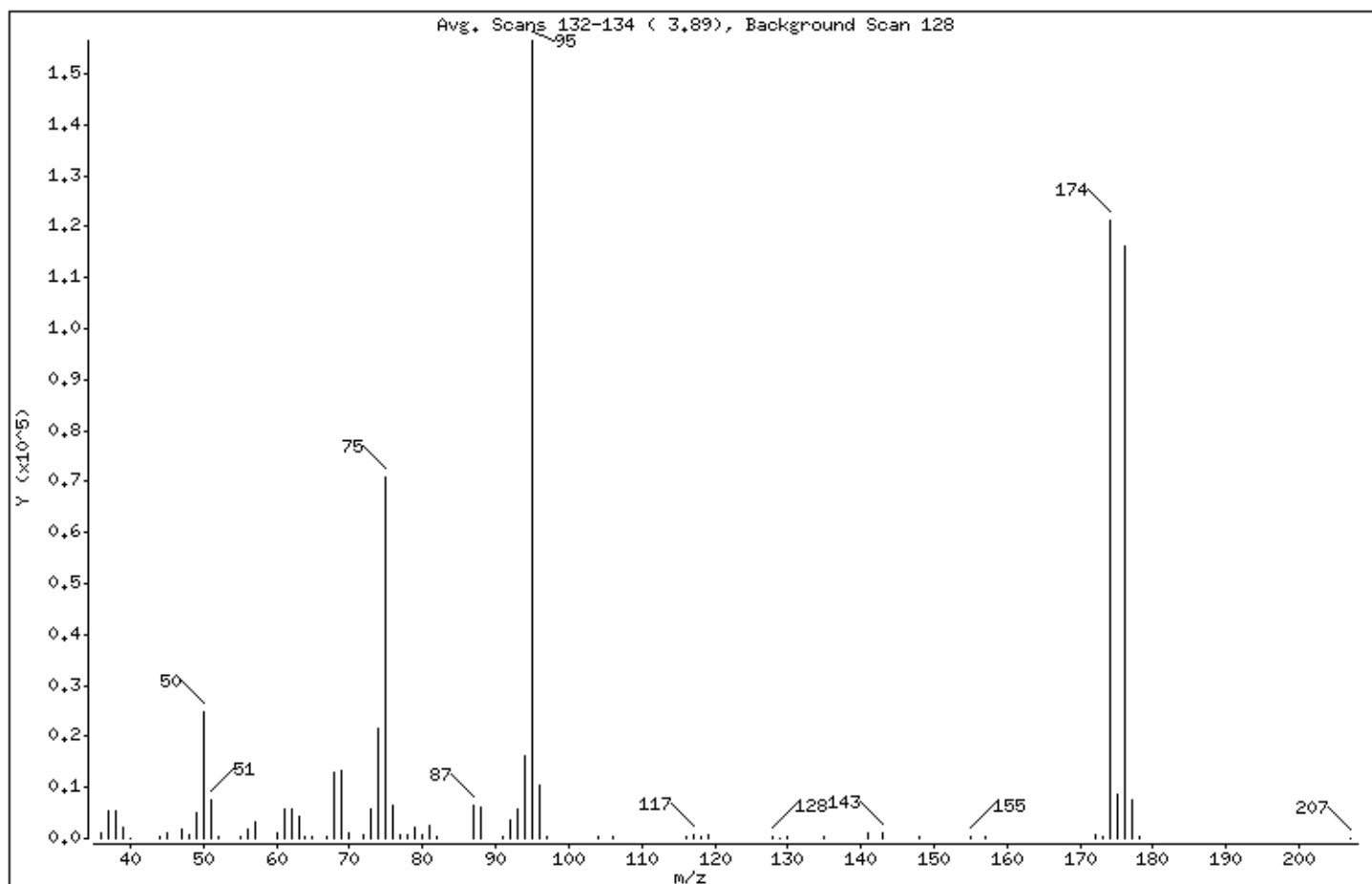
Sample Info: BFBJan28-20;50NGBFB;1;3;+;+;+;+;

Operator: ads07818

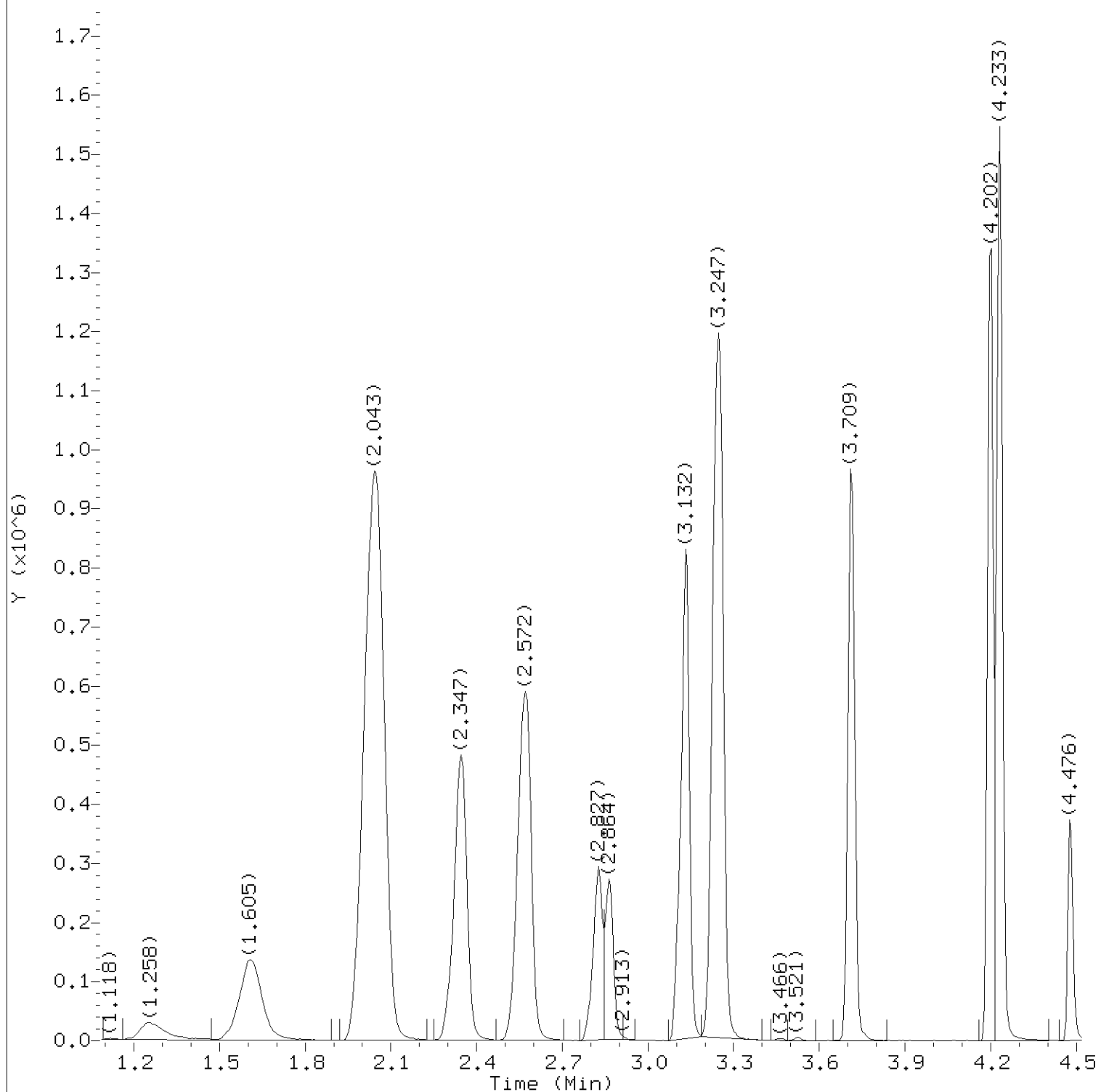
Column phase: DB-VRX

Column diameter: 0.18

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	15.82
75	30.00 - 60.00% of mass 95	45.26
96	5.00 - 9.00% of mass 95	6.65
173	Less than 2.00% of mass 174	0.31 (0.40)
174	50.00 - 100.00% of mass 95	77.53
175	5.00 - 9.00% of mass 174	5.49 (7.08)
176	95.00 - 101.00% of mass 174	74.15 (95.65)
177	5.00 - 9.00% of mass 176	4.87 (6.57)



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25c01.d
Injection date and time: 25-MAR-2020 08:34

Instrument ID: HP09671.i
Analyst ID: ads07818

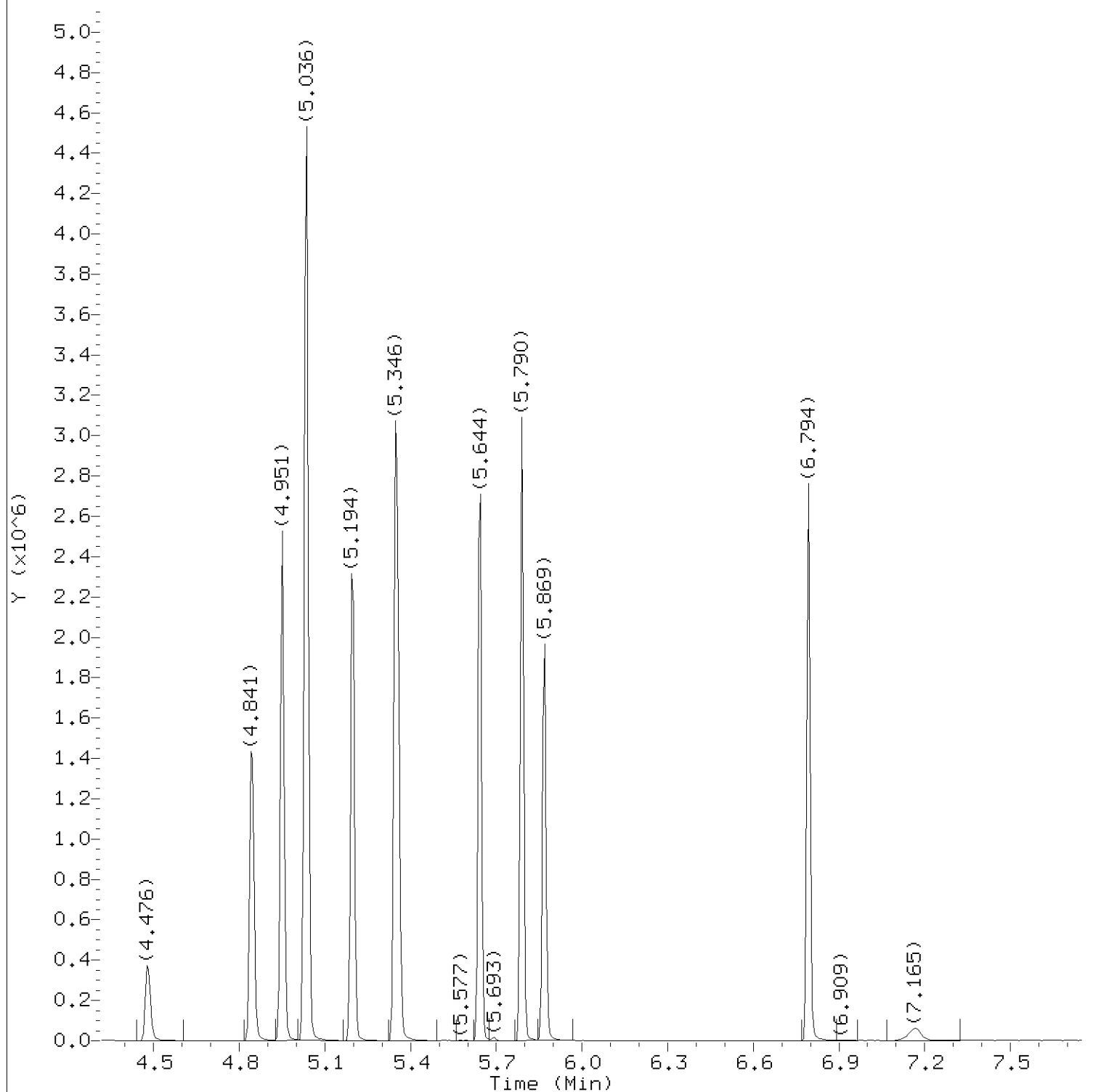
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 09:06 ads07818

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25c01.d
Injection date and time: 25-MAR-2020 08:34

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 09:06 ads07818

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 08:34

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 10943AC

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 09:06 ads07818

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	105379	1230.806
2) *t-Butyl alcohol-d10	(1)	1.592	65	180801	250.000
3) t-Butyl alcohol	(1)	1.623	59	223126	269.865
4) Methyl Tertiary Butyl Ether	(2)	2.049	73	2330035	204.651
5) di-Isopropyl ether	(2)	2.347	45	638783	51.990
6) Ethyl t-butyl ether	(2)	2.566	59	604264	54.148
7) \$Dibromofluoromethane	(2)	2.584	113	162179	51.459
7) \$Dibromofluoromethane	(2)	2.584	111	166287	51.461
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	51309	51.968
10) \$1,2-Dichloroethane-d4	(2)	2.827	65	225337	48.736
10) \$1,2-Dichloroethane-d4	(2)	2.827	104	31266	51.216
11) 1,2-Dichloroethane	(2)	2.864	62	261640	46.267
12) Benzene	(2)	3.132	78	871943	50.496
13) t-Amyl methyl ether	(2)	3.241	87	143096	55.965
14) *Fluorobenzene	(2)	3.253	96	804362	50.000
15) \$Toluene-d8	(3)	4.202	98	772886	50.787
15) \$Toluene-d8	(3)	4.202	100	500056	51.325
16) Toluene	(3)	4.233	92	551827	52.521
18) 1,2-Dibromoethane	(3)	4.476	107	198882	54.442
19) *Chlorobenzene-d5	(3)	4.847	117	568867	50.000
20) Ethylbenzene	(3)	4.951	91	1028373	53.838
21) m+p-Xylene	(3)	5.036	106	838479	111.214
22) o-Xylene	(3)	5.194	106	404123	56.254
24) Isopropylbenzene	(3)	5.346	105	1042745	56.223
25) \$4-Bromofluorobenzene	(3)	5.358	95	288217	50.317
25) \$4-Bromofluorobenzene	(3)	5.358	174	231355	53.663
23) Xylene (Total)	(3)		106	1242603	167.469
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	873173	56.168
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	915012	56.940
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	312658	50.000
29) Naphthalene	(4)	6.794	128	1174351	56.356

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

GPY68 Page 166 of 586

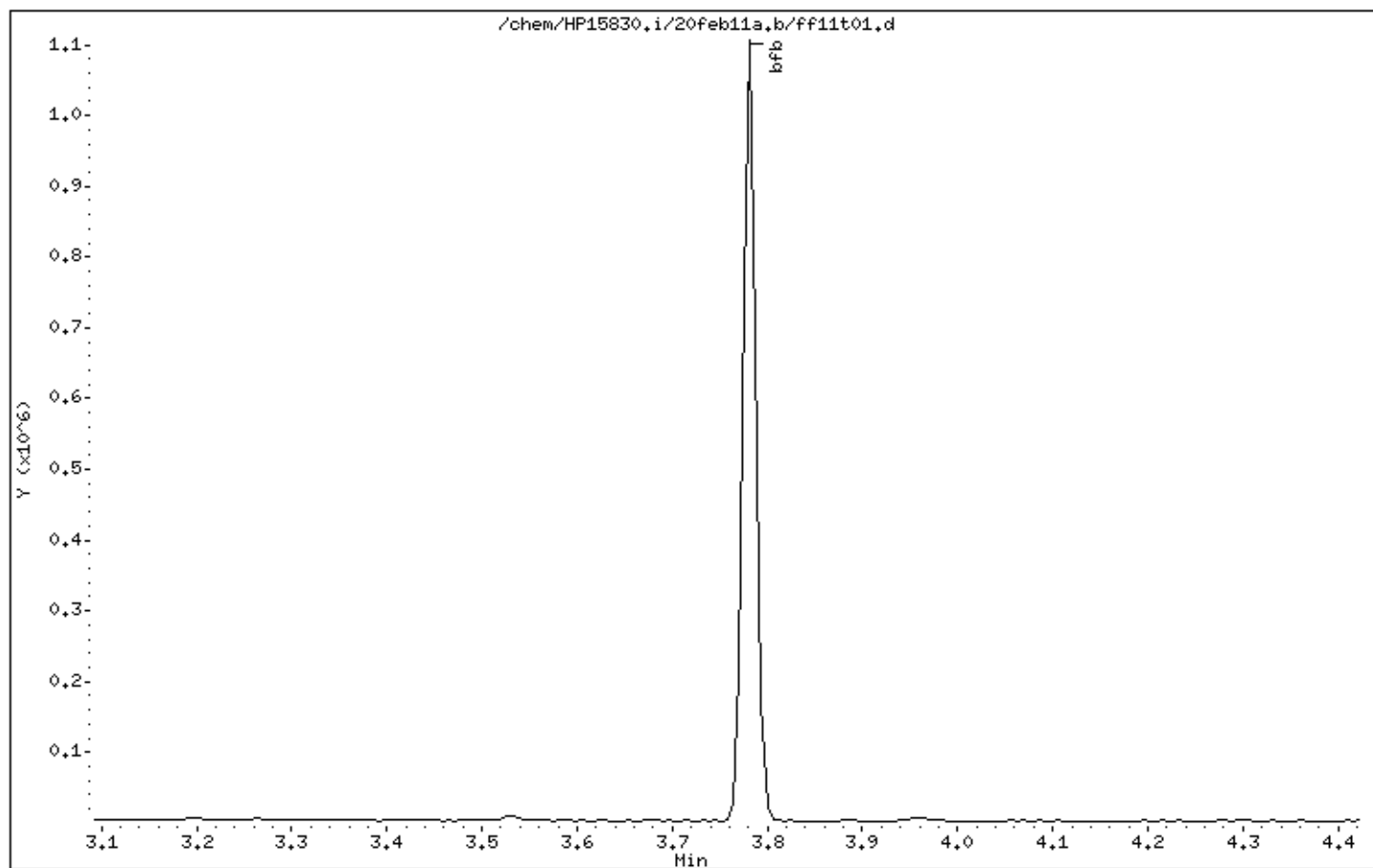
Page 1

Client ID: bfbjan2820

Instrument: HP15830.i

Operator: amd00492

Column diameter: 0.18

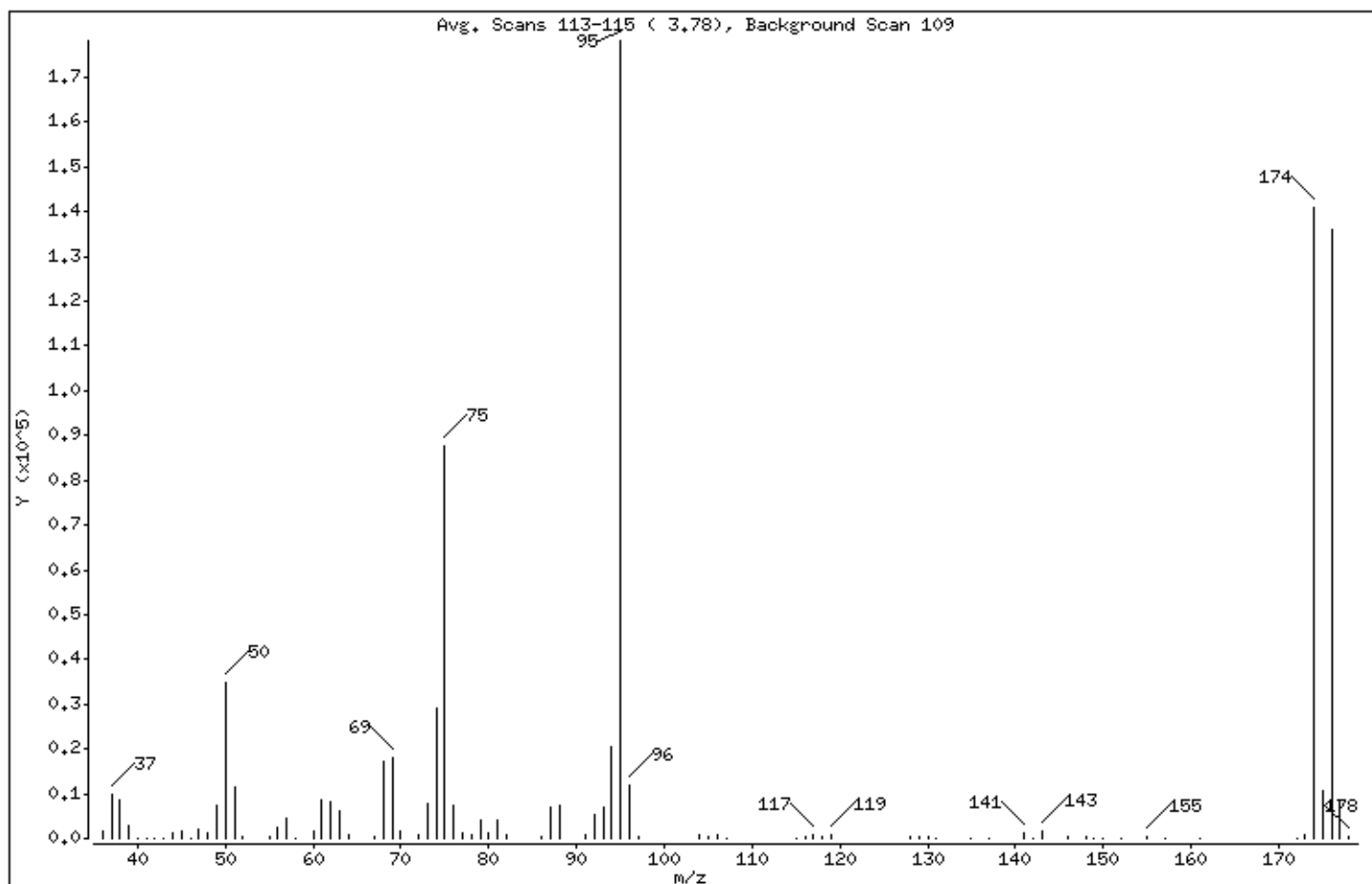


Instrument: HP15830.i

Operator: amd00492

Column diameter: 0.18

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.58
75	30.00 - 60.00% of mass 95	49.22
96	5.00 - 9.00% of mass 95	6.64
173	Less than 2.00% of mass 174	0.50 (0.63)
174	50.00 - 100.00% of mass 95	79.07
175	5.00 - 9.00% of mass 174	5.99 (7.58)
176	95.00 - 101.00% of mass 174	76.28 (96.48)
177	5.00 - 9.00% of mass 176	4.93 (6.47)

Date : 11-FEB-2020 08:48

Client ID: bfbjan2820

Instrument: HP15830.i

Sample Info: bfbjan2820;50ngbfb;1;3;++++

Operator: amd00492

Column phase: Rtx-VRX

Column diameter: 0,18

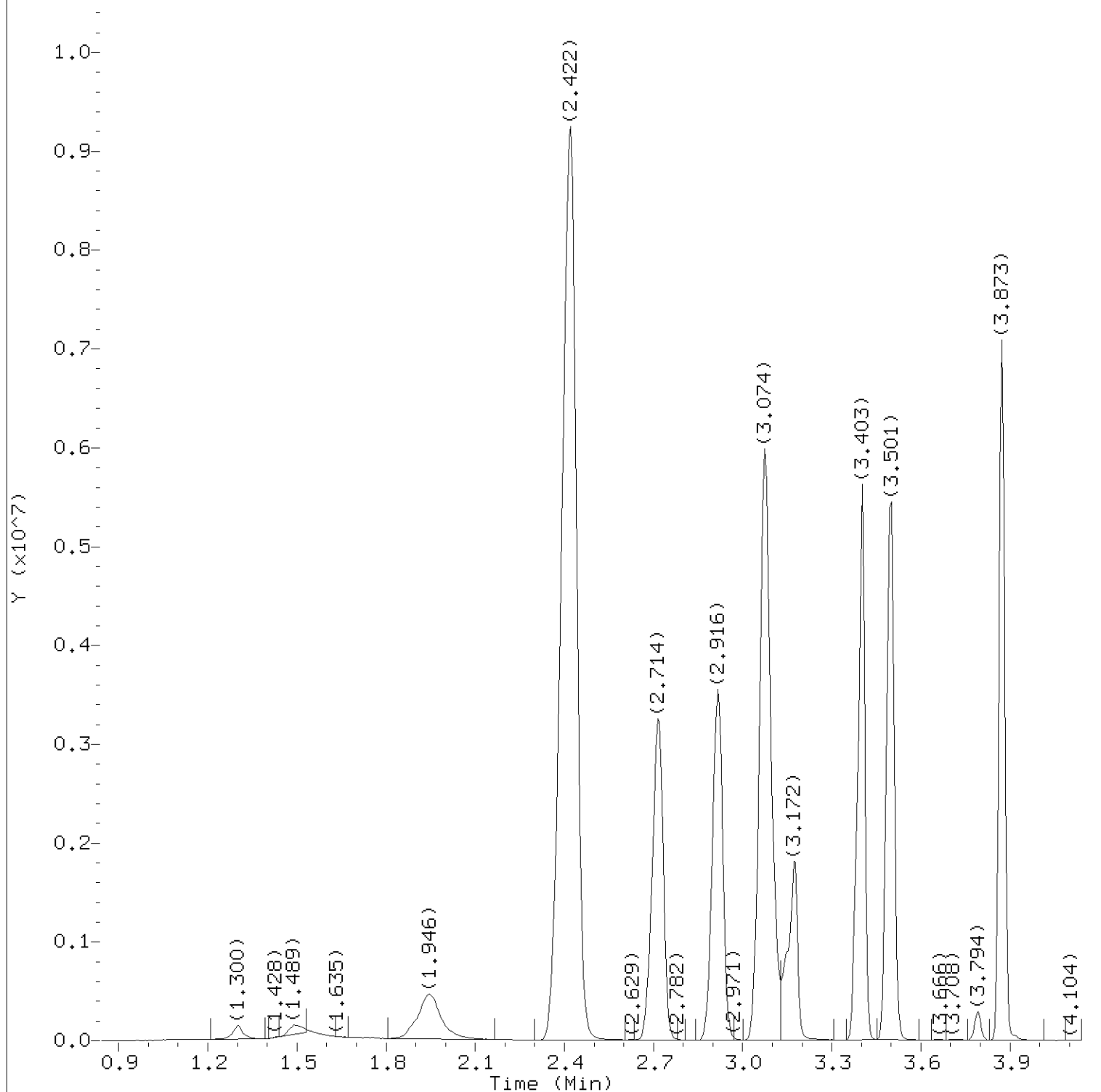
Data File: ff11t01.d

Spectrum: Avg. Scans 113-115 (3.78), Background Scan 109

Location of Maximum: 95.00

Number of points: 84

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1747	61.00	8411	91.00	663	141.00	1398
37.00	9681	62.00	8022	92.00	5129	142.00	132
38.00	8519	63.00	5999	93.00	6923	143.00	1458
39.00	2993	64.00	643	94.00	20400	146.00	231
40.00	22	67.00	561	95.00	178176	148.00	375
41.00	141	68.00	17072	96.00	11840	149.00	84
42.00	18	69.00	18200	97.00	417	150.00	97
43.00	132	70.00	1457	104.00	677	152.00	85
44.00	1119	72.00	893	105.00	325	155.00	413
45.00	1630	73.00	7812	106.00	671	157.00	185
46.00	106	74.00	29064	107.00	95	161.00	191
47.00	2111	75.00	87720	115.00	92	172.00	186
48.00	1122	76.00	7393	116.00	493	173.00	885
49.00	7572	77.00	1087	117.00	839	174.00	140864
50.00	34896	78.00	657	118.00	532	175.00	10683
51.00	11334	79.00	3993	119.00	803	176.00	135936
52.00	573	80.00	1196	128.00	502	177.00	8790
55.00	500	81.00	4233	129.00	319	178.00	312
56.00	2481	82.00	841	130.00	606		
57.00	4642	86.00	241	131.00	202		
58.00	110	87.00	7168	135.00	129		
60.00	1622	88.00	7356	137.00	115		



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1102.d
Injection date and time: 11-FEB-2020 09:54

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 19-FEB-2020 07:05

Sublist used: 10945B-G

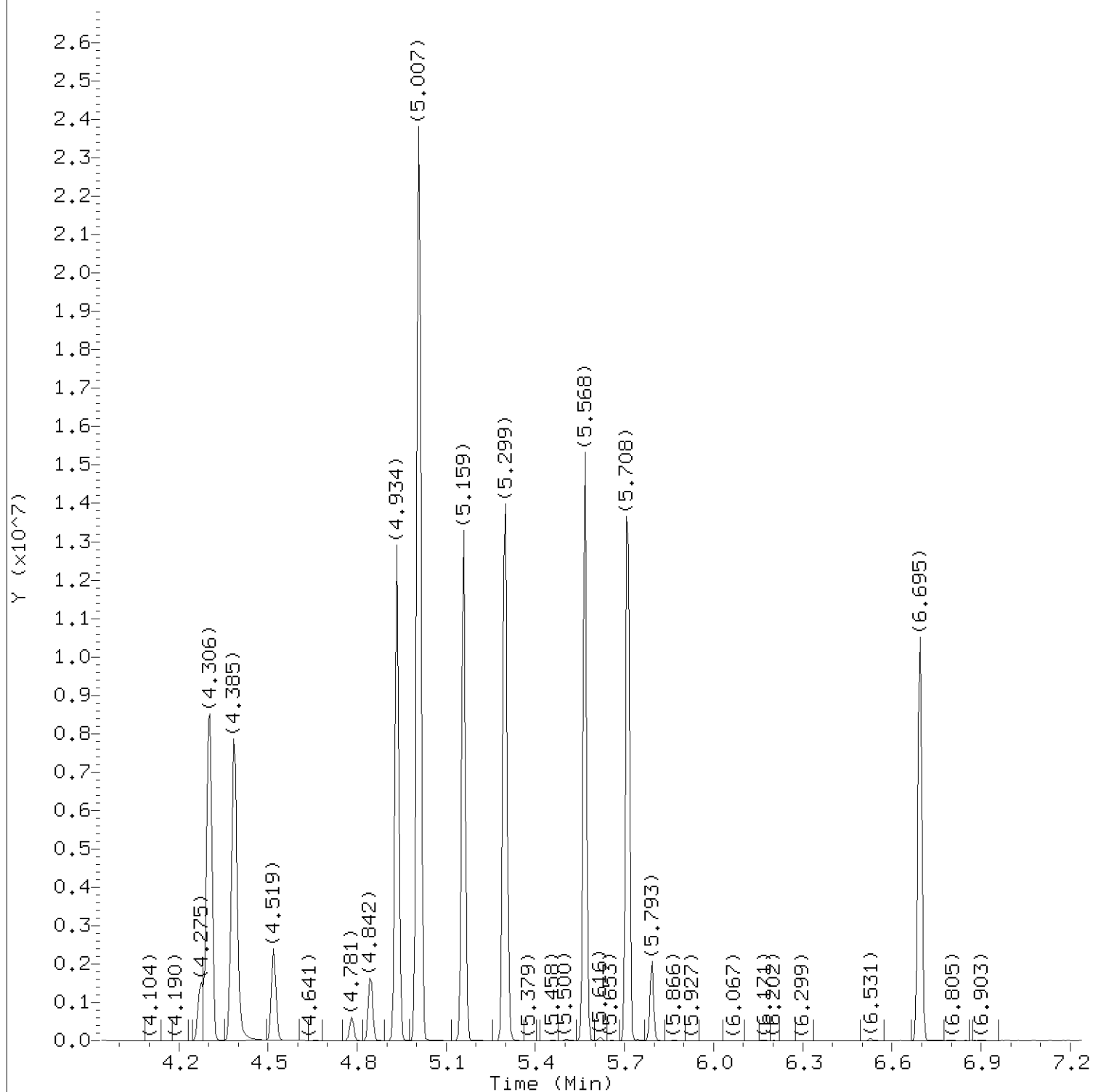
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1102.d
Injection date and time: 11-FEB-2020 09:54

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 19-FEB-2020 07:05

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1102.d
 Injection date and time: 11-FEB-2020 09:54

Instrument ID: HP15830.i
 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
 Calibration date and time: 19-FEB-2020 07:05
 Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.489	45	613288	4618.095
2) *t-Butyl alcohol-d10	(1)	1.916	65	233977	250.000
3) t-Butyl alcohol	(1)	1.946	59	1206639	909.824
4) Methyl Tertiary Butyl Ether	(2)	2.422	73	15428288	941.300
5) di-Isopropyl ether	(2)	2.714	45	3571687	192.016
6) Ethyl t-butyl ether	(2)	2.916	59	3462597	195.289
7) \$Dibromofluoromethane	(2)	2.922	113	176361	49.535
7) \$Dibromofluoromethane	(2)	2.922	111	181964	49.693
8) t-Butyl Formate	(2)	3.074	57	2594536MA	506.596
9) t-Amyl Alcohol	(1)	3.099	73	768120	1296.104
10) \$1,2-Dichloroethane-d4	(2)	3.141	102	49777M	51.393
10) \$1,2-Dichloroethane-d4	(2)	3.141	65	248892M	50.219
10) \$1,2-Dichloroethane-d4	(2)	3.135	104	29918	49.754
11) 1,2-Dichloroethane	(2)	3.172	62	1438647	184.561
12) Benzene	(2)	3.403	78	4156213	190.446
13) t-Amyl methyl ether	(2)	3.495	87	800486	196.196
14) *Fluorobenzene	(2)	3.501	96	774110	50.000
15) \$Toluene-d8	(3)	4.275	98	739702	50.223
15) \$Toluene-d8	(3)	4.275	100	480010	50.556
16) Toluene	(3)	4.306	92	2651086	192.837
17) 3,3-Dimethyl-1-butanol	(1)	4.385	69	2137468	2505.701
18) 1,2-Dibromoethane	(3)	4.519	107	1016044	201.004
19) *Chlorobenzene-d5	(3)	4.848	117	554344	50.000
20) Ethylbenzene	(3)	4.934	91	5253705	194.869
21) m+p-Xylene	(3)	5.007	106	4112129	399.280
22) o-Xylene	(3)	5.159	106	1976444	198.078
24) Isopropylbenzene	(3)	5.299	105	5194419	193.649
25) \$4-Bromofluorobenzene	(3)	5.305	95	292722	51.180
25) \$4-Bromofluorobenzene	(3)	5.305	174	228078	50.951
23) Xylene (Total)	(3)		106	6088573	597.358
26) 1,3,5-Trimethylbenzene	(4)	5.568	105	4399605	194.752
27) 1,2,4-Trimethylbenzene	(4)	5.708	105	4467766	196.561
28) *1,4-Dichlorobenzene-d4	(4)	5.793	152	293347	50.000
29) Naphthalene	(4)	6.695	128	4830991	188.713

M = Compound was manually integrated.

A = User selected an alternate hit.

* = Compound is an internal standard.

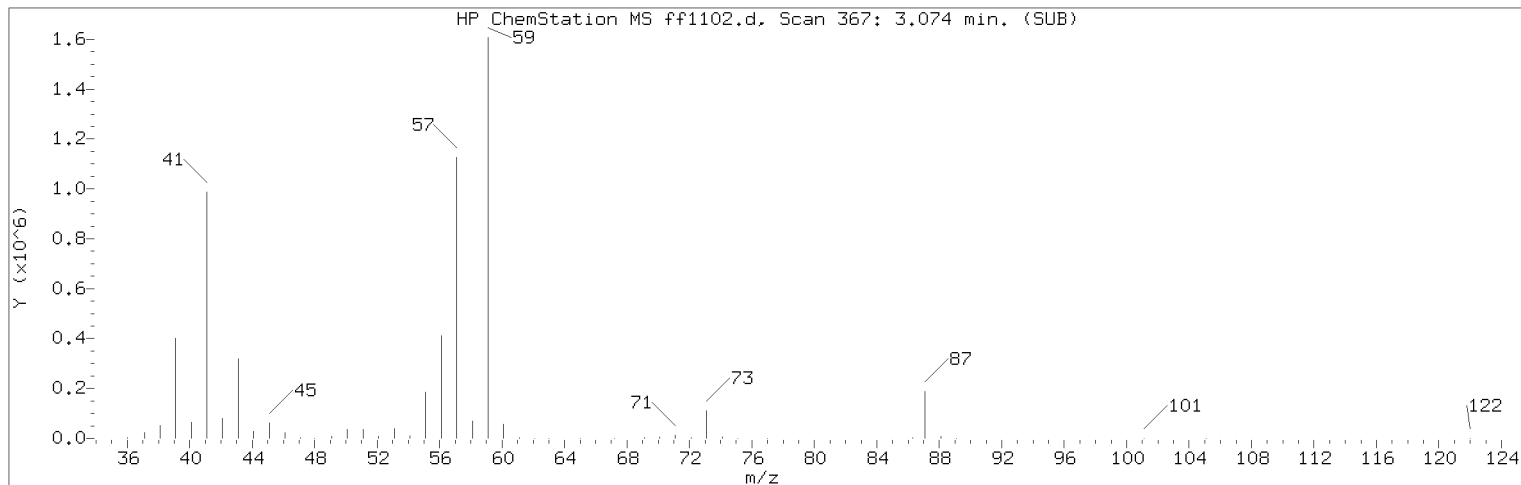
\$ = Compound is a surrogate standard.

page 1 of 1

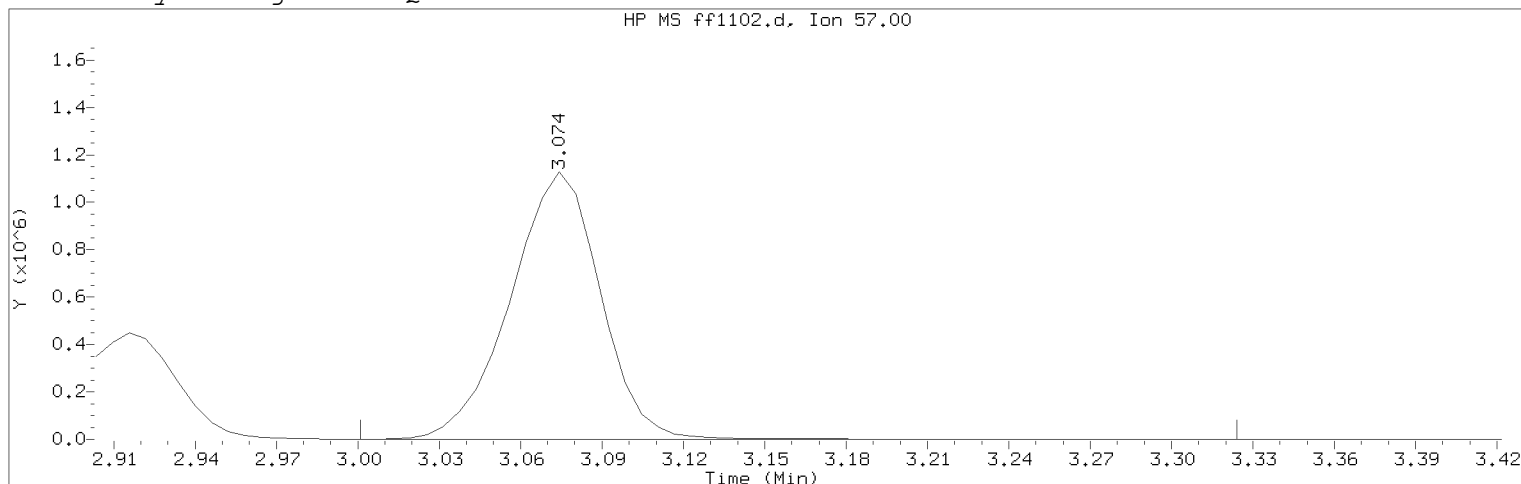
Digitally signed by Anita M. Dale
 on 02/19/2020 at 07:07.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1102.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 09:54 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 19-FEB-2020 07:05
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

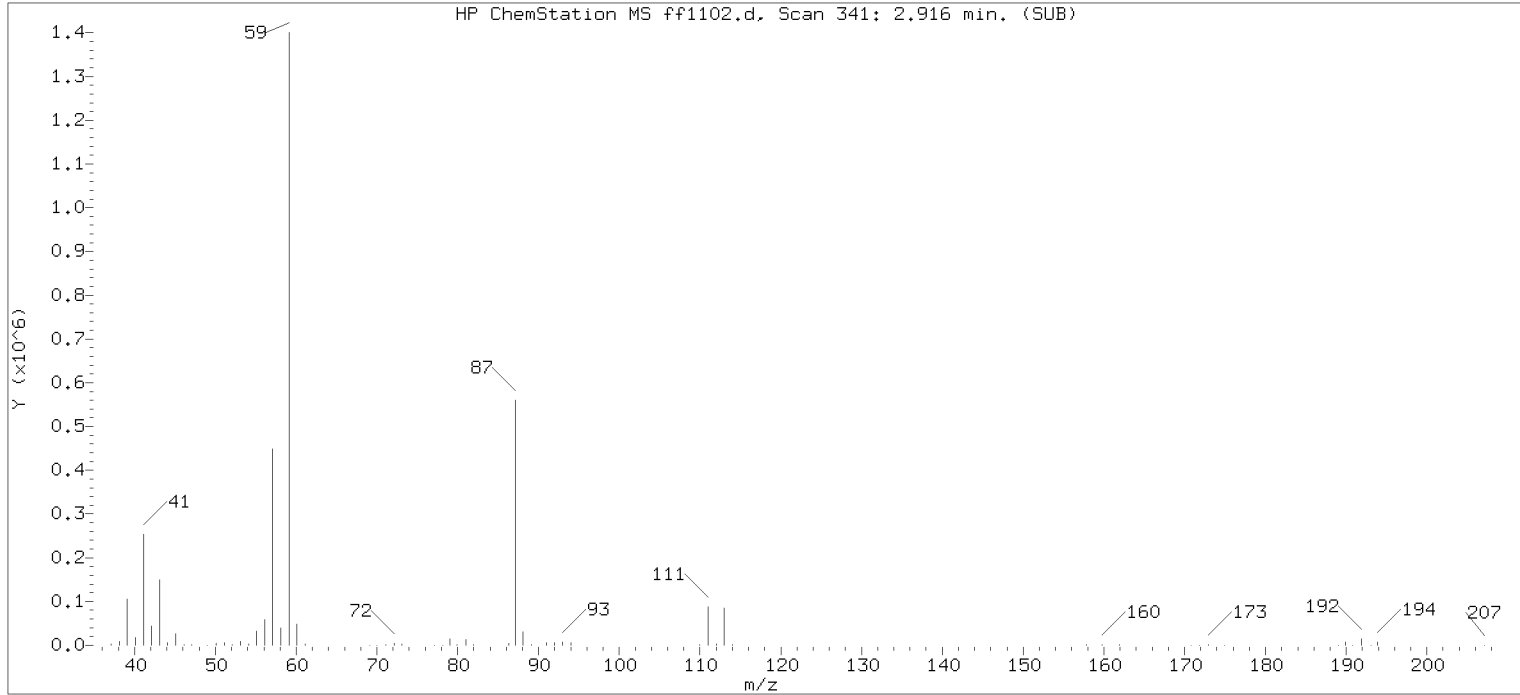
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 367
Retention Time (minutes): 3.074
Quant Ion : 57.00
Area (flag) : 2594536MA
On-Column Amount (ng) : 506.5958
Integration start scan : 354 Integration stop scan: 407
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

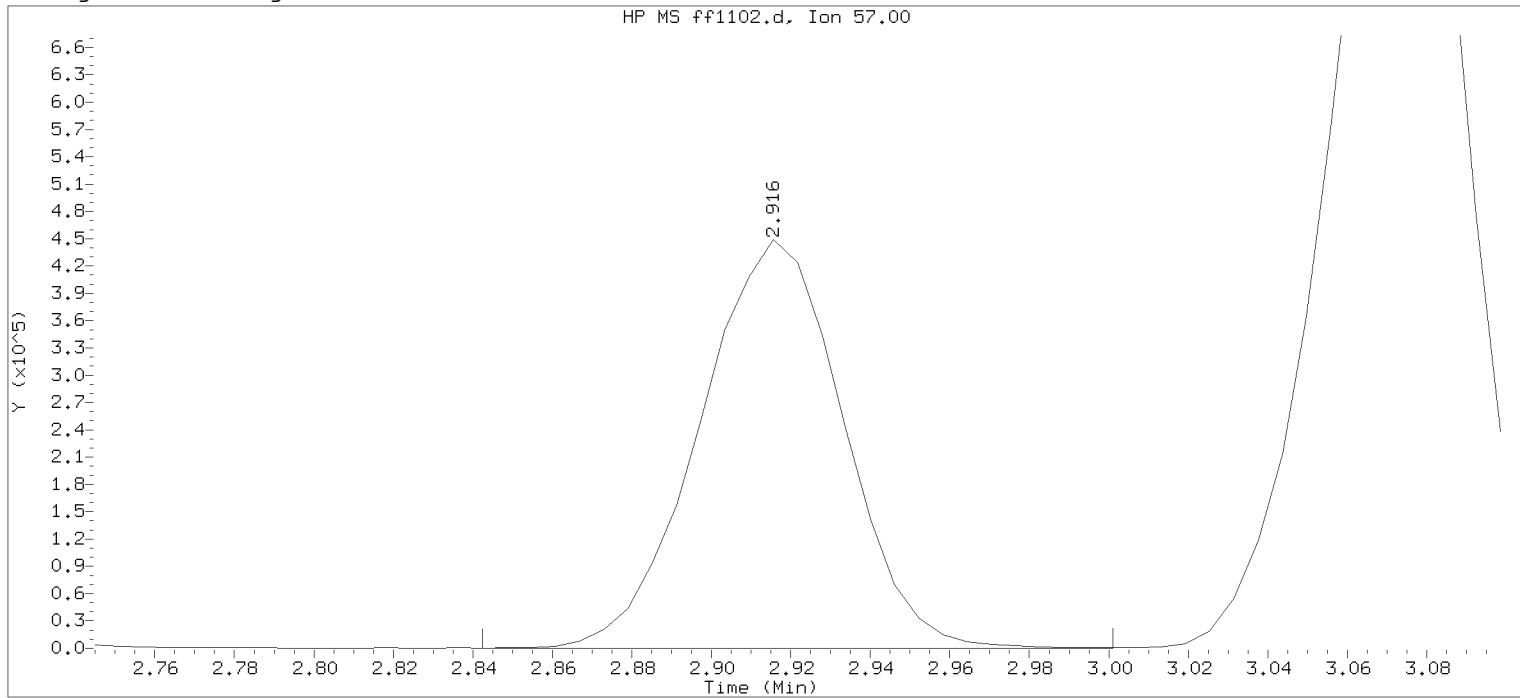
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/19/2020 at 08:19.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1102.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 09:54 Analyst ID: amd00492

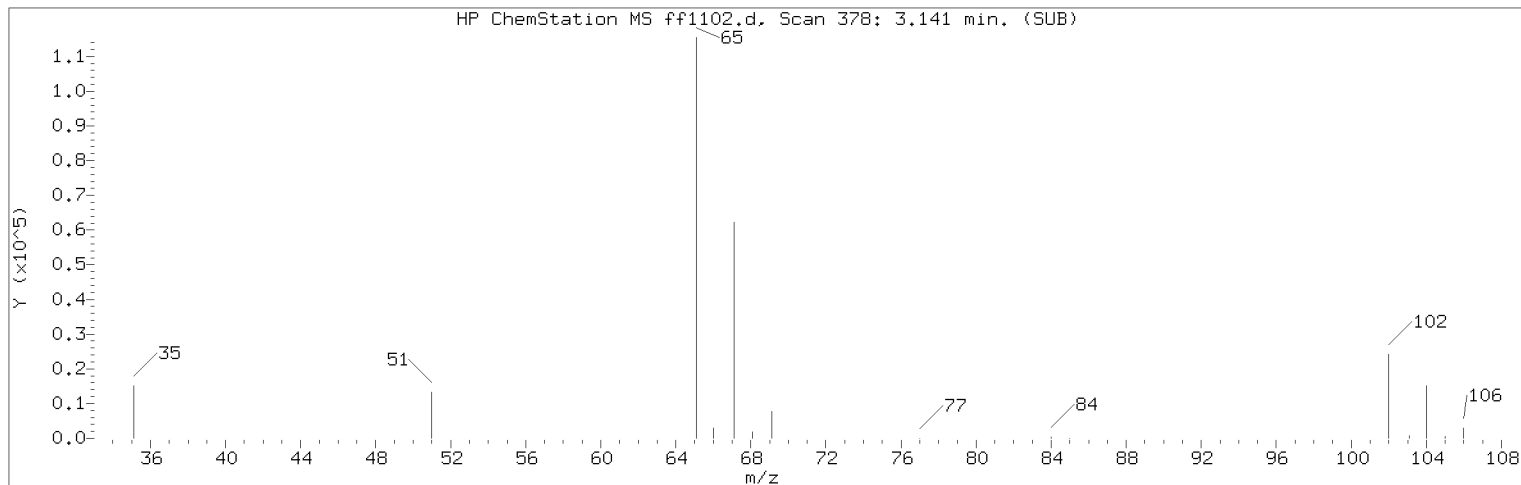
Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

Sample Name: VSTD200

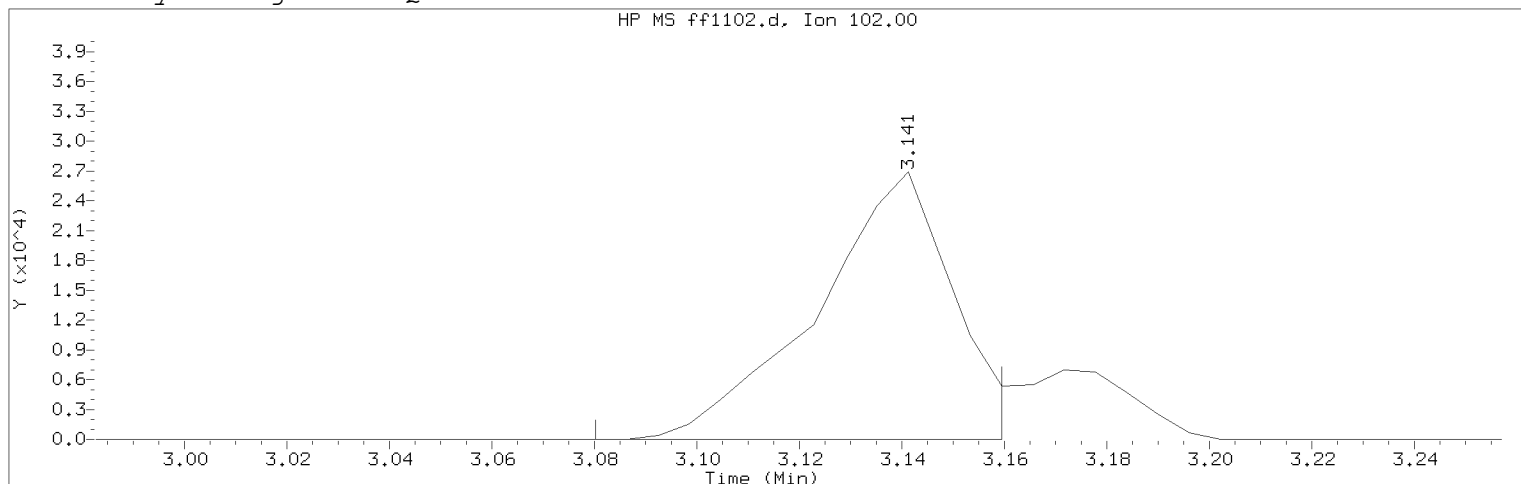
Lab Sample ID: VSTD200

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 341	
Retention Time (minutes)	: 2.916	
Quant Ion	: 57.00	
Area	: 1120647	
On-column Amount (ng)	: 350.9042	
Integration start scan	: 328	Integration stop scan: 354
Y at integration start	: 0	Y at integration end: 277

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1102.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 09:54 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 19-FEB-2020 07:05
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

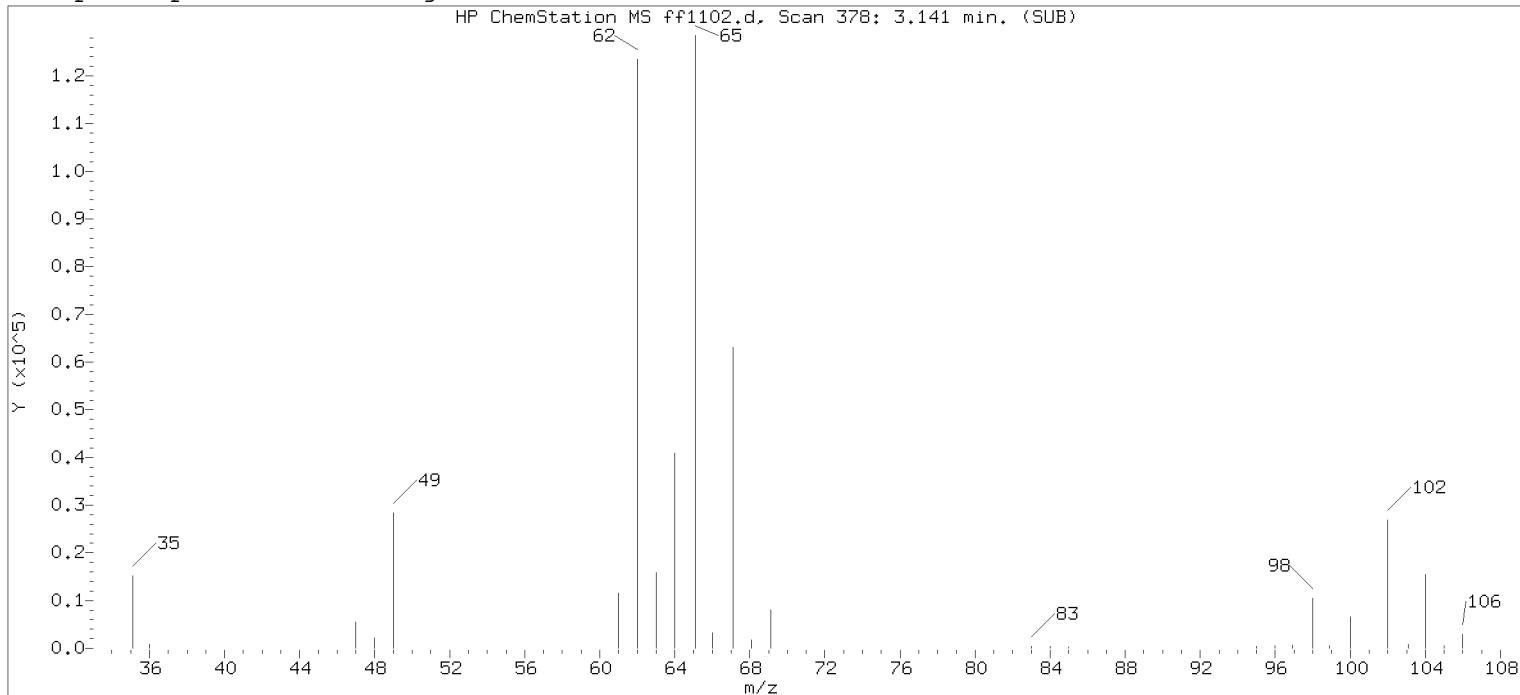
Compound Number : 10
Compound Name : 1,2-Dichloroethane-d4
Scan Number : 378
Retention Time (minutes): 3.141
Quant Ion : 102.00
Area (flag) : 49777M
On-Column Amount (ng) : 51.3932
Integration start scan : 367 Integration stop scan: 380
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

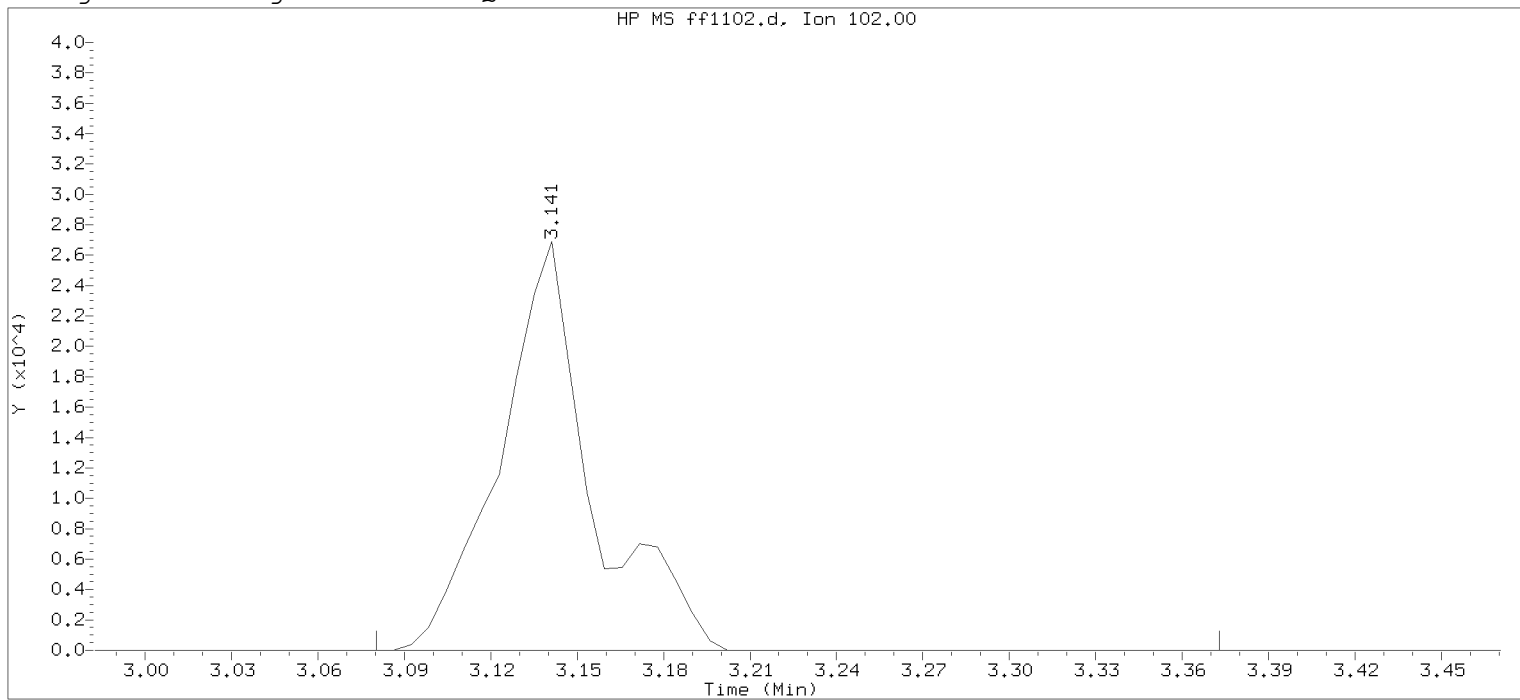
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/19/2020 at 08:19.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1102.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 09:54 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

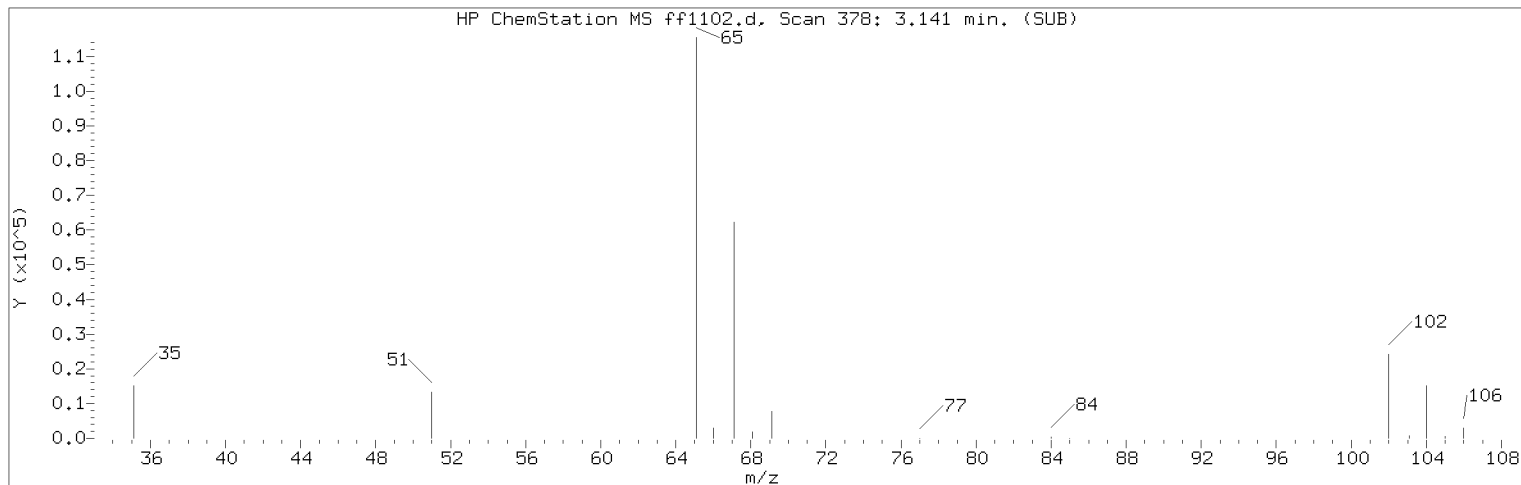
Sample Name: VSTD200

Lab Sample ID: VSTD200

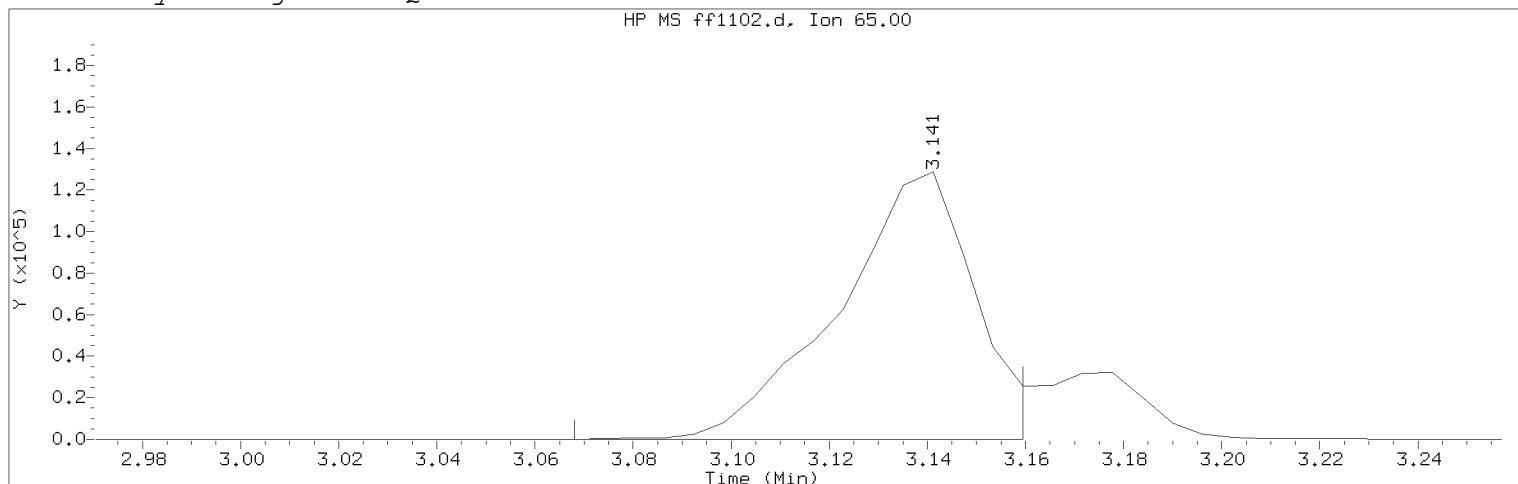
Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 378	
Retention Time (minutes)	: 3.141	
Quant Ion	: 102.00	
Area	: 59689	
On-column Amount (ng)	: 59.3364	
Integration start scan	: 367	Integration stop scan: 415
Y at integration start	: 0	Y at integration end: 0

Digitally signed by Anita M. Dale on 02/19/2020 at 07:07.
Target 3.5 esignature user GPV68 Page 476 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1102.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 09:54 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 19-FEB-2020 07:05
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

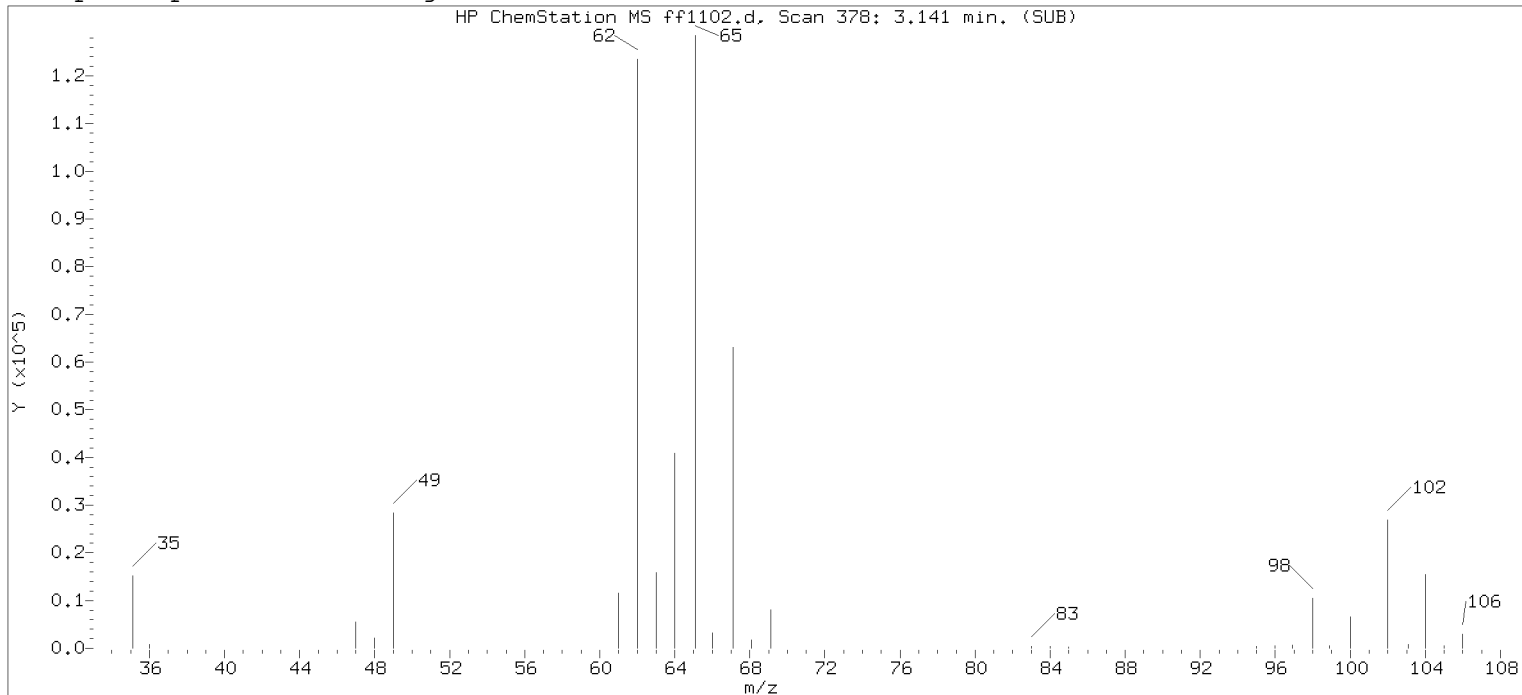
Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 378	
Retention Time (minutes)	: 3.141	
Quant Ion	: 65.00	
Area (flag)	: 248892M	
On-Column Amount (ng)	: 50.2189	
Integration start scan	: 365	Integration stop scan: 380
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

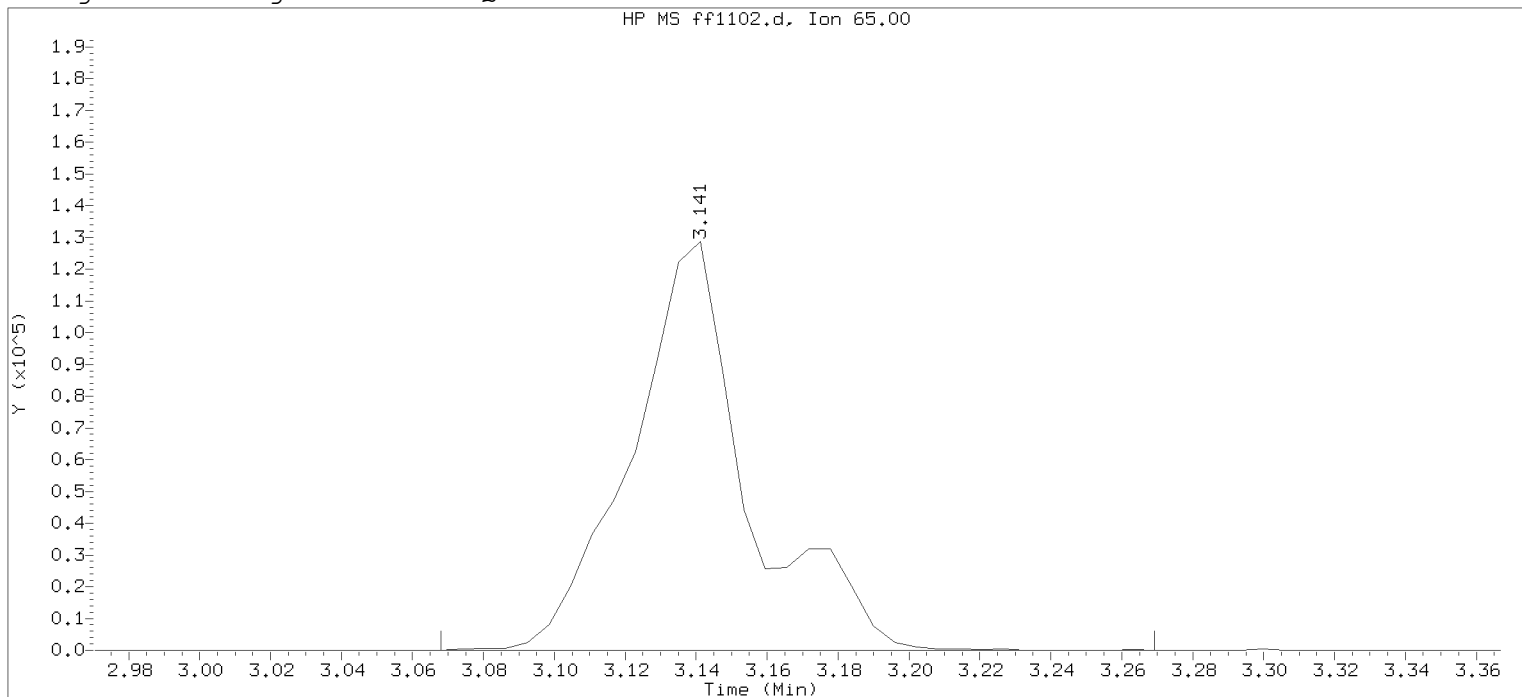
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/19/2020 at 08:19.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1102.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 09:54 Analyst ID: amd00492

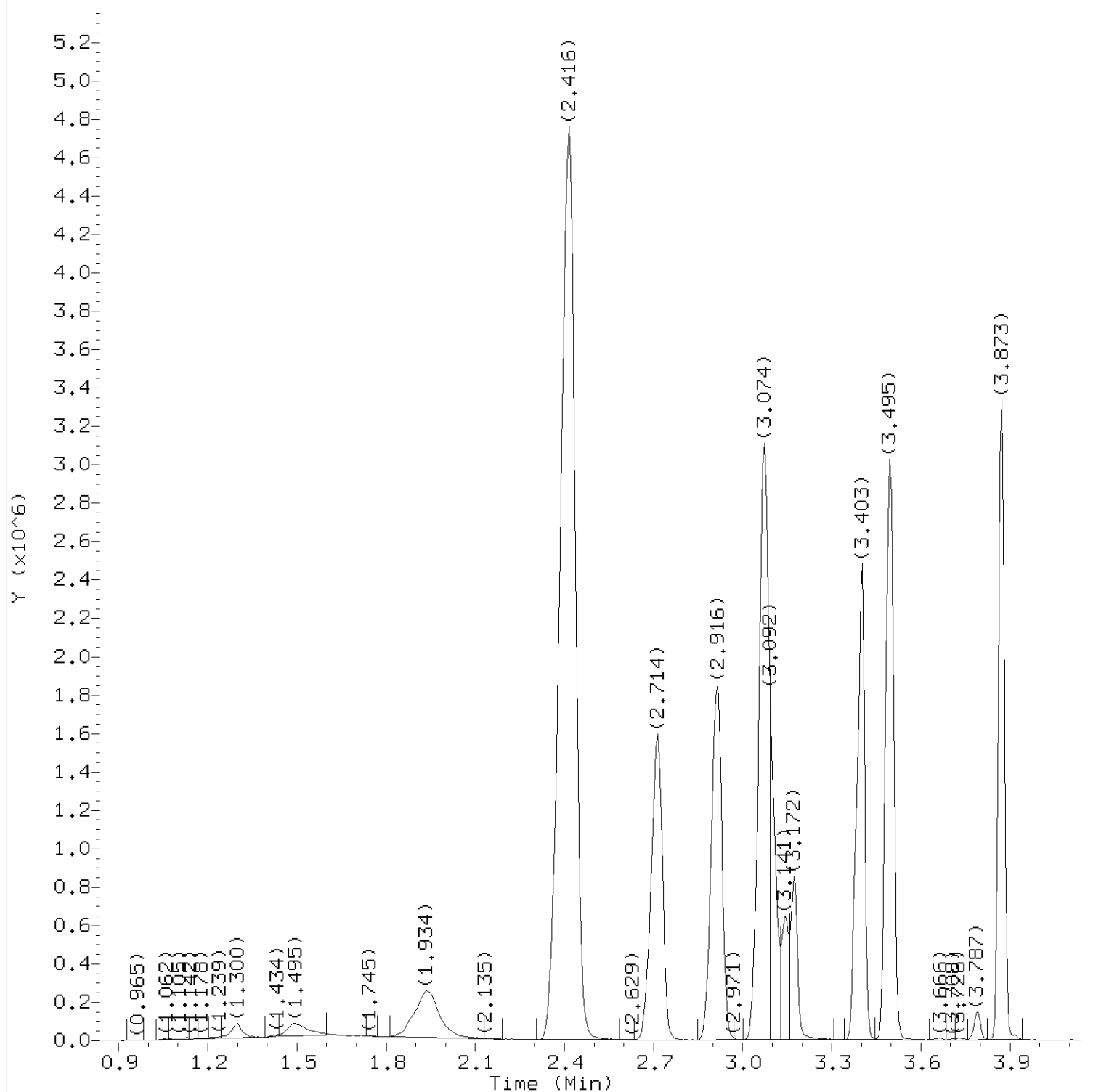
Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

Sample Name: VSTD200

Lab Sample ID: VSTD200

Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 378	
Retention Time (minutes)	: 3.141	
Quant Ion	: 65.00	
Area	: 293852	
On-column Amount (ng)	: 57.3390	
Integration start scan	: 365	Integration stop scan: 398
Y at integration start	: 0	Y at integration end: 0

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Target 3.5 esignature user GPV68 Page 478 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1104.d
Injection date and time: 11-FEB-2020 10:16

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 19-FEB-2020 07:05

Sublist used: 10945B-G

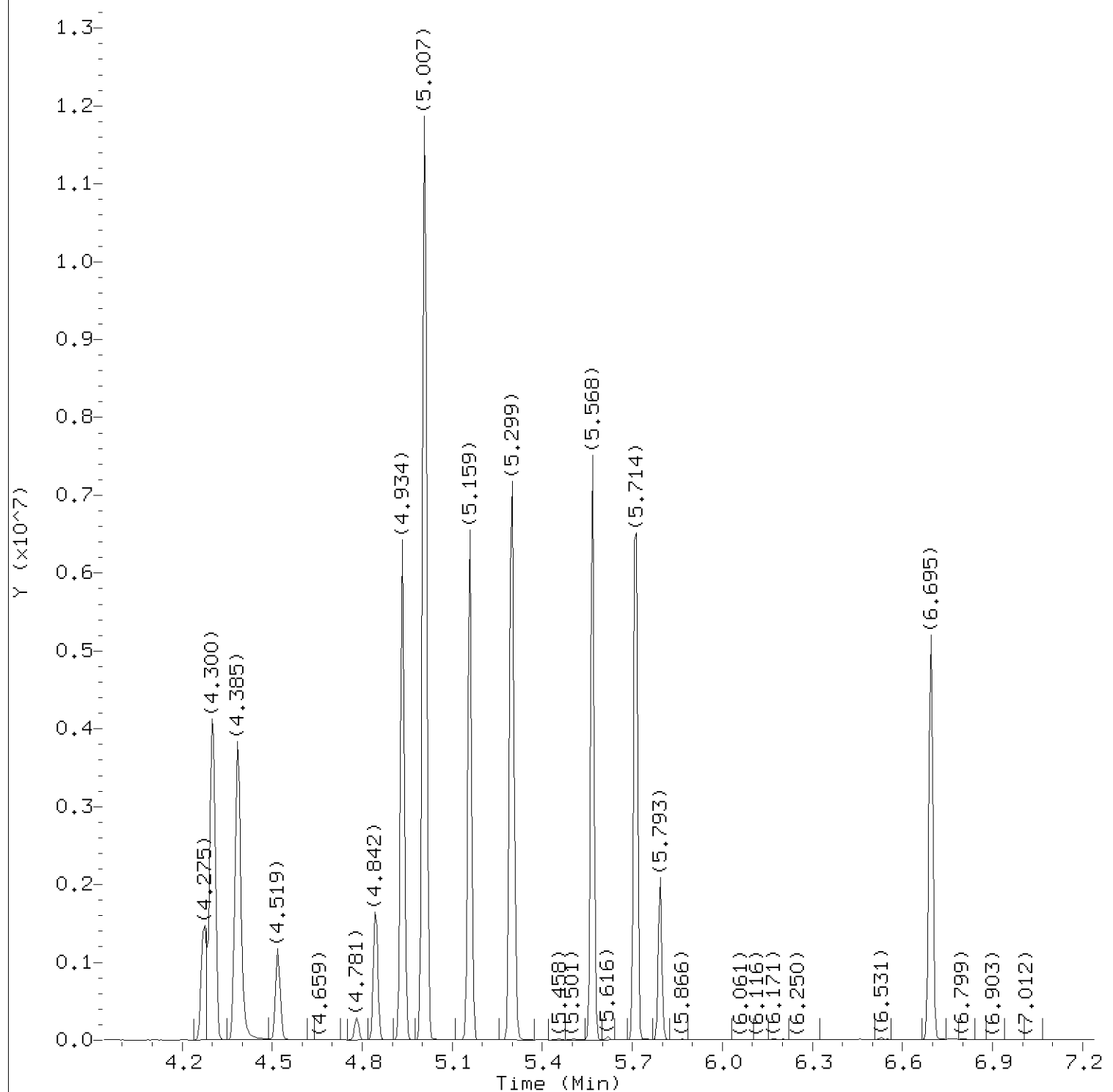
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1104.d
Injection date and time: 11-FEB-2020 10:16

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 19-FEB-2020 07:05

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1104.d
 Injection date and time: 11-FEB-2020 10:16

Instrument ID: HP15830.i
 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
 Calibration date and time: 19-FEB-2020 07:05
 Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.495	45	309254	2380.206
2) *t-Butyl alcohol-d10	(1)	1.916	65	228914	250.000
3) t-Butyl alcohol	(1)	1.946	59	591978	456.233
4) Methyl Tertiary Butyl Ether	(2)	2.416	73	7990075	494.623
5) di-Isopropyl ether	(2)	2.714	45	1779010	97.041
6) Ethyl t-butyl ether	(2)	2.910	59	1715597	98.176
7) \$Dibromofluoromethane	(2)	2.922	113	175674	50.064
7) \$Dibromofluoromethane	(2)	2.922	111	181537	50.302
8) t-Butyl Formate	(2)	3.074	57	1272946MA	252.189
9) t-Amyl Alcohol	(1)	3.099	73	599396	1033.773
10) \$1,2-Dichloroethane-d4	(2)	3.135	102	49249M	51.593
10) \$1,2-Dichloroethane-d4	(2)	3.135	65	250185M	51.219
10) \$1,2-Dichloroethane-d4	(2)	3.135	104	29491	49.762
11) 1,2-Dichloroethane	(2)	3.172	62	717689	93.419
12) Benzene	(2)	3.403	78	2057312	95.651
13) t-Amyl methyl ether	(2)	3.495	87	391526	97.367
14) *Fluorobenzene	(2)	3.501	96	762938	50.000
15) \$Toluene-d8	(3)	4.275	98	734786	49.292
15) \$Toluene-d8	(3)	4.275	100	474418	49.369
16) Toluene	(3)	4.300	92	1311168	94.231
17) 3,3-Dimethyl-1-butanol	(1)	4.385	69	1059840	1269.903
18) 1,2-Dibromoethane	(3)	4.519	107	492626	96.290
19) *Chlorobenzene-d5	(3)	4.842	117	561060	50.000
20) Ethylbenzene	(3)	4.934	91	2606589	95.526
21) m+p-Xylene	(3)	5.007	106	2001833	192.047
22) o-Xylene	(3)	5.159	106	963308	95.387
24) Isopropylbenzene	(3)	5.299	105	2548202	93.860
25) \$4-Bromofluorobenzene	(3)	5.305	95	288624	49.860
25) \$4-Bromofluorobenzene	(3)	5.305	174	222398	49.087
23) Xylene (Total)	(3)		106	2965141	287.434
26) 1,3,5-Trimethylbenzene	(4)	5.568	105	2155925	97.645
27) 1,2,4-Trimethylbenzene	(4)	5.714	105	2198107	98.947
28) *1,4-Dichlorobenzene-d4	(4)	5.793	152	286705	50.000
29) Naphthalene	(4)	6.695	128	2374837	94.917

M = Compound was manually integrated.

A = User selected an alternate hit.

* = Compound is an internal standard.

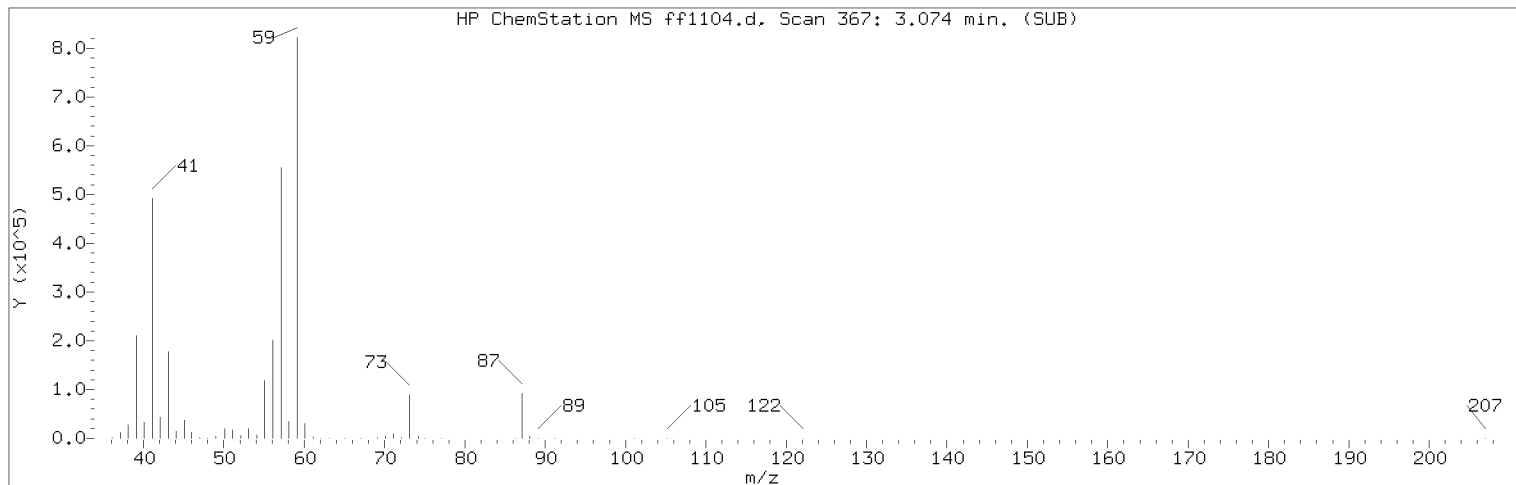
\$ = Compound is a surrogate standard.

page 1 of 1

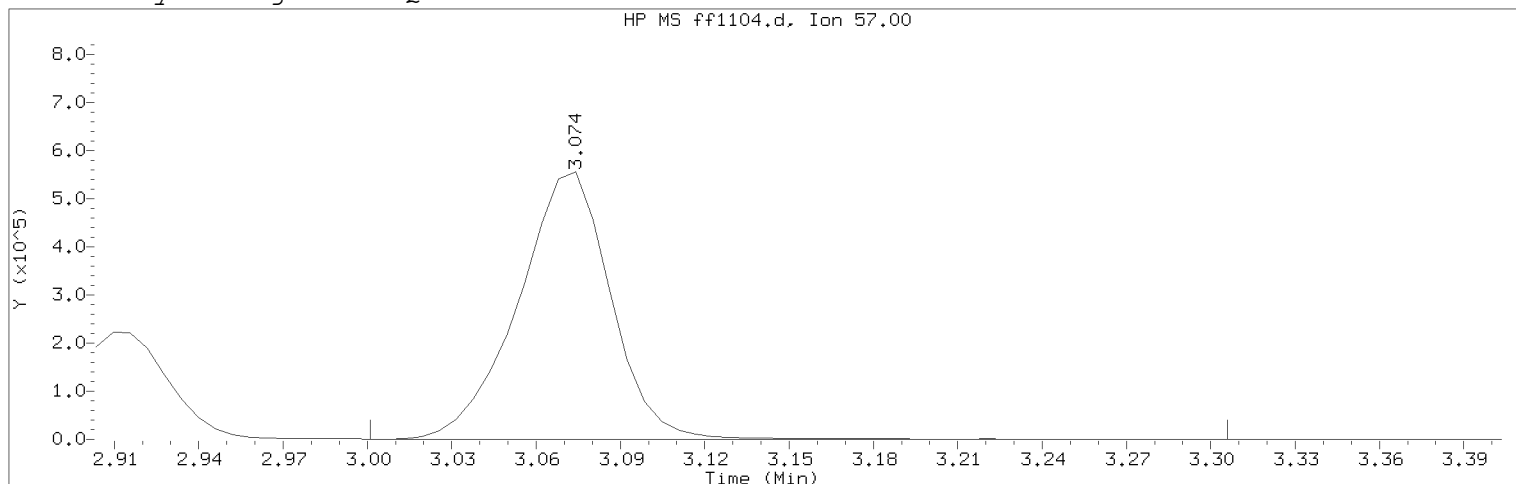
Digitally signed by Anita M. Dale
 on 02/19/2020 at 07:07.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1104.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 10:16 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 19-FEB-2020 07:05
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

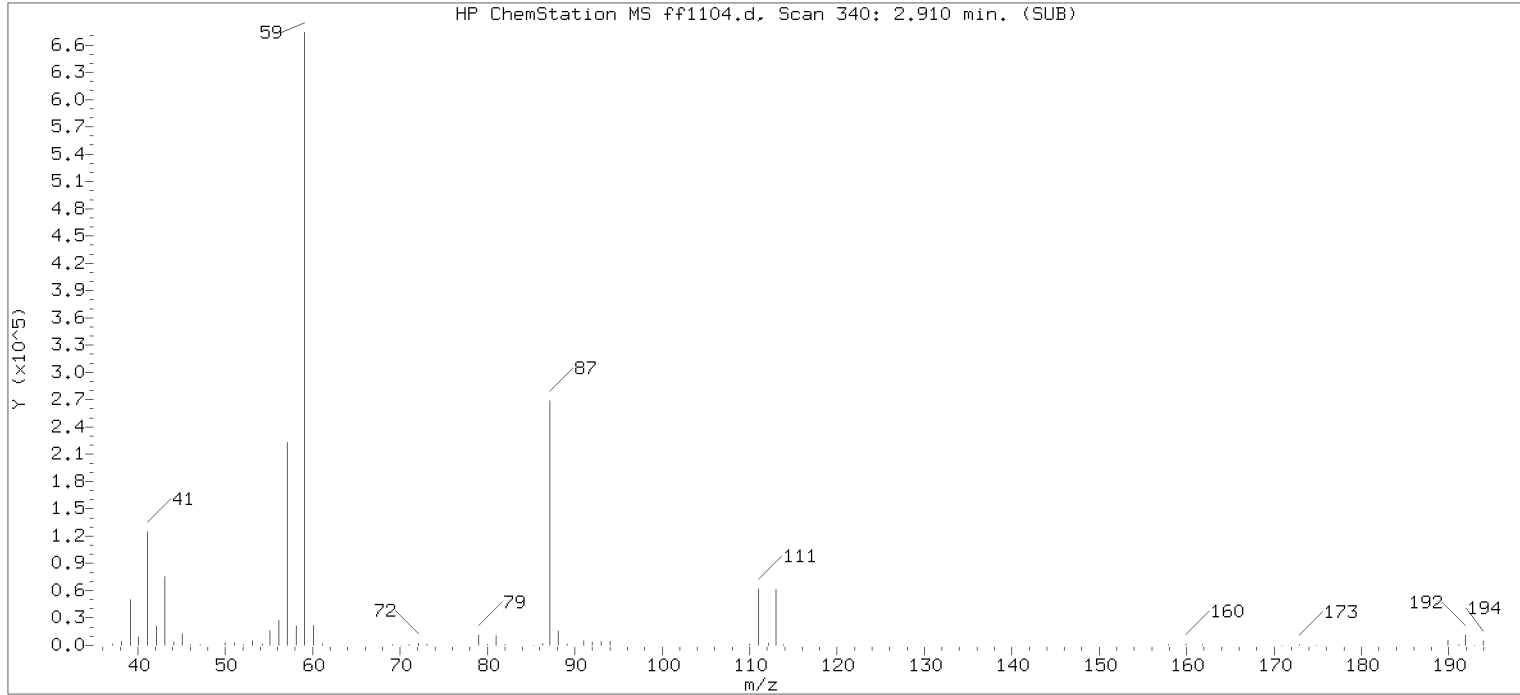
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 367
Retention Time (minutes): 3.074
Quant Ion : 57.00
Area (flag) : 1272946MA
On-Column Amount (ng) : 252.1885
Integration start scan : 354 Integration stop scan: 404
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

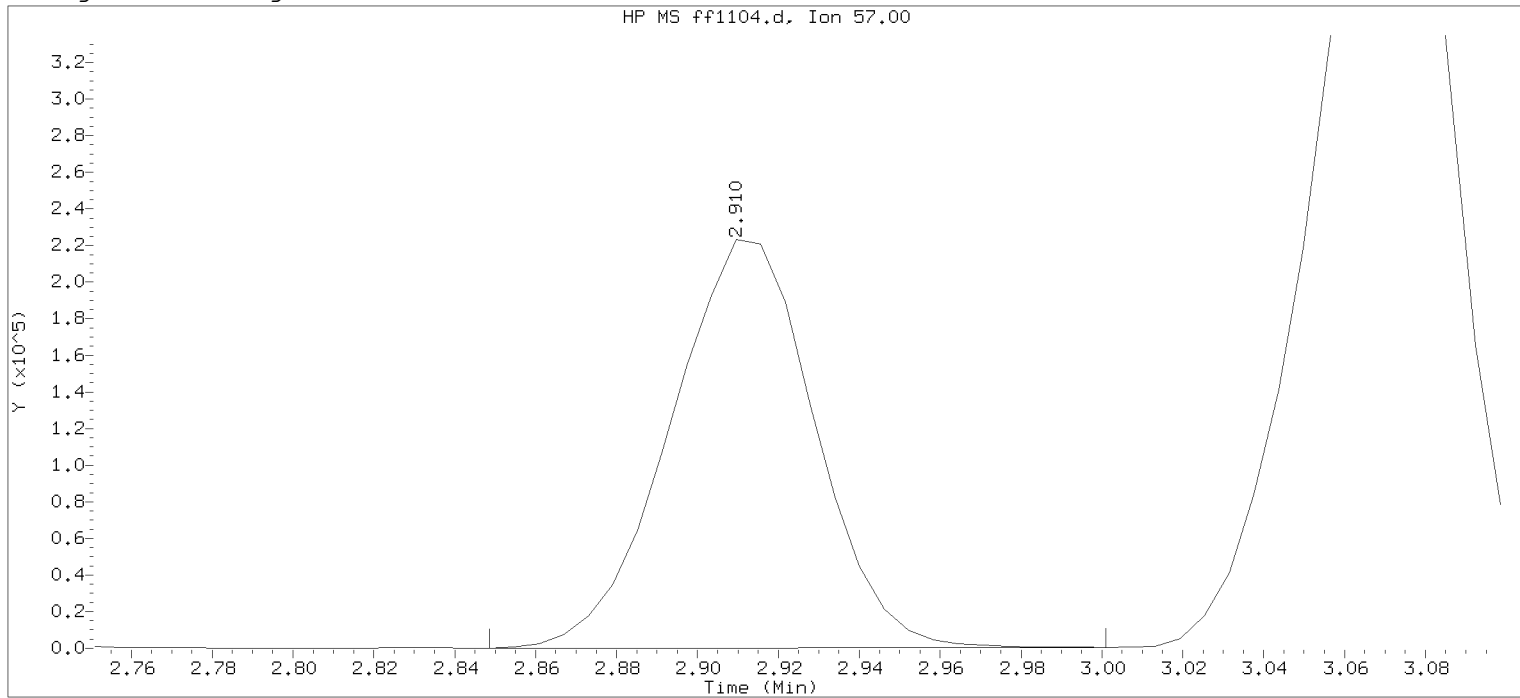
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/19/2020 at 08:19.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1104.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 10:16 Analyst ID: amd00492

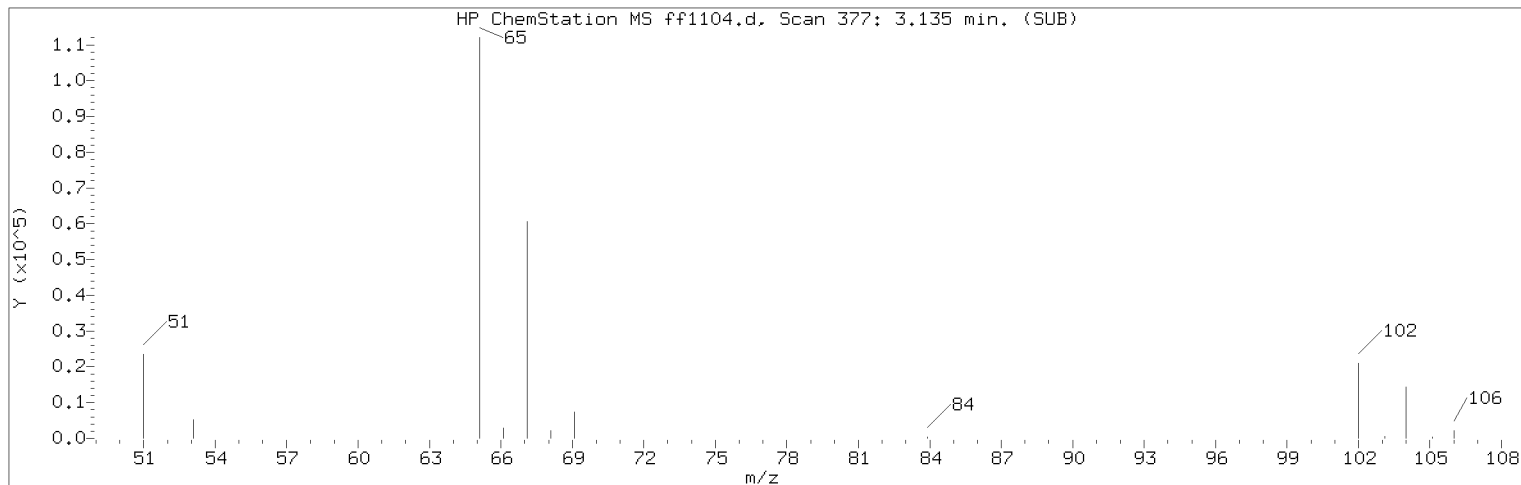
Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

Sample Name: VSTD100

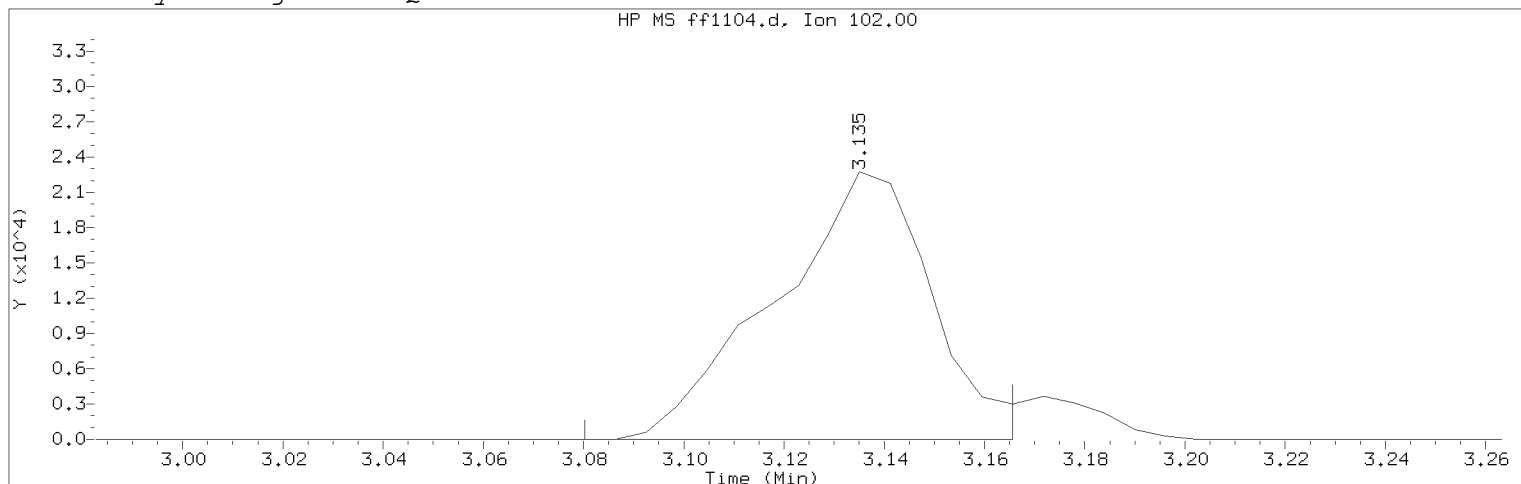
Lab Sample ID: VSTD100

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 340	
Retention Time (minutes)	: 2.910	
Quant Ion	: 57.00	
Area	: 554259	
On-column Amount (ng)	: 241.4955	
Integration start scan	: 329	Integration stop scan: 354
Y at integration start	: 0	Y at integration end: 210

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1104.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 10:16 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 19-FEB-2020 07:05
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

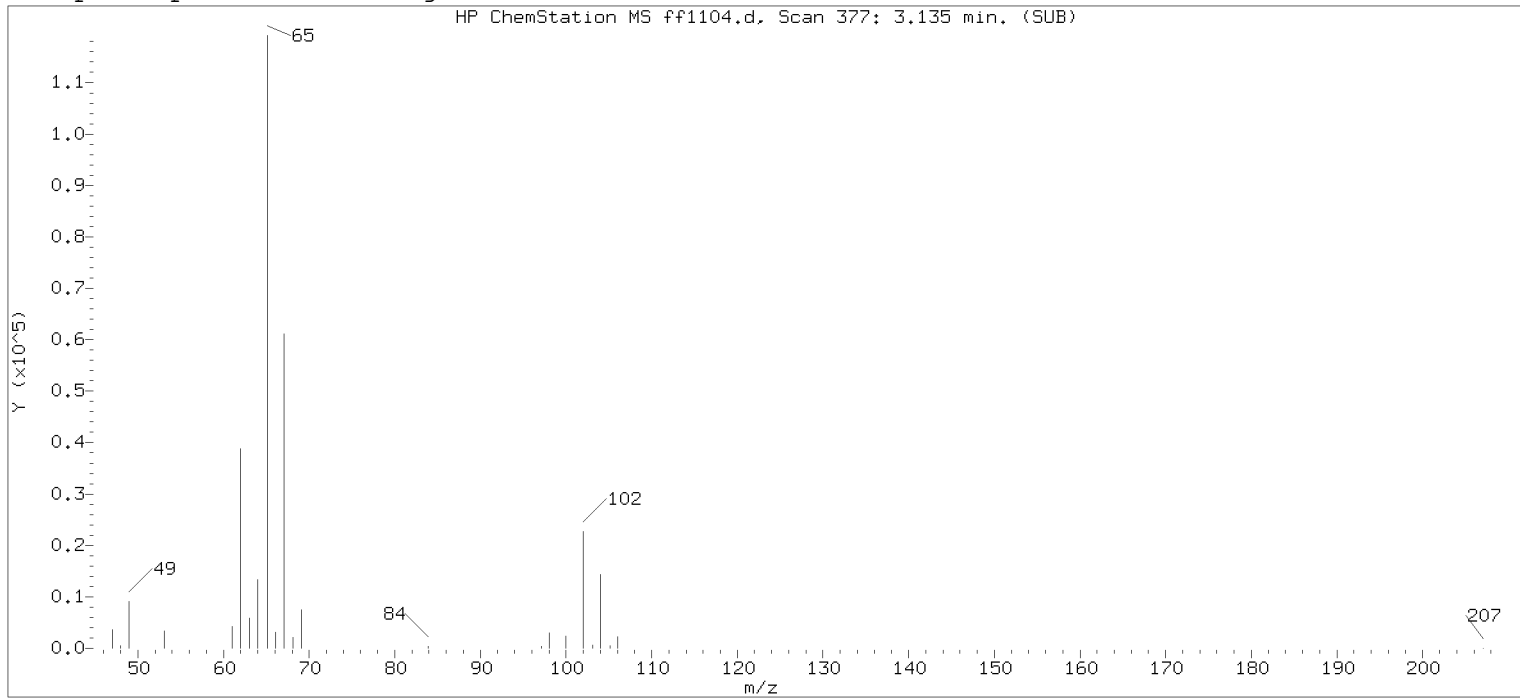
Compound Number : 10
Compound Name : 1,2-Dichloroethane-d4
Scan Number : 377
Retention Time (minutes): 3.135
Quant Ion : 102.00
Area (flag) : 49249M
On-Column Amount (ng) : 51.5926
Integration start scan : 367 Integration stop scan: 381
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

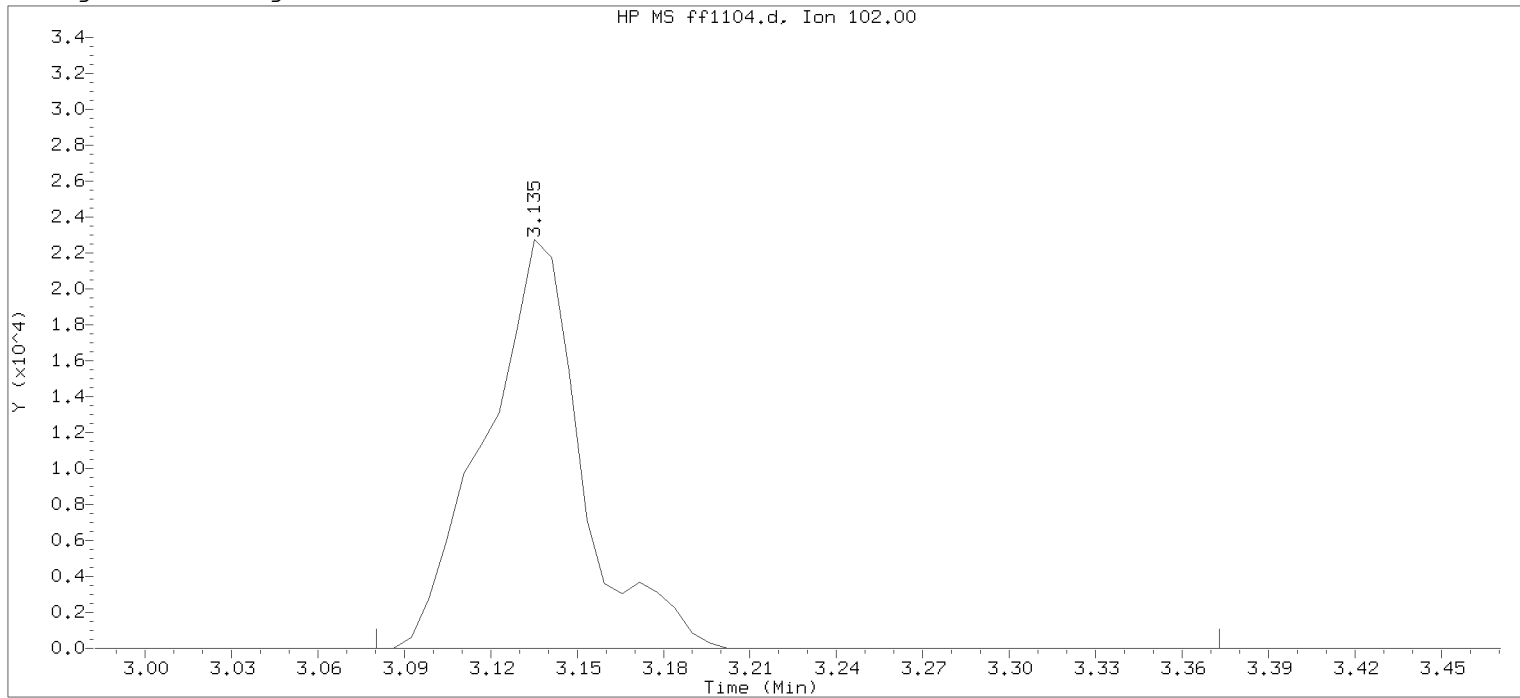
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/19/2020 at 08:19.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1104.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 10:16 Analyst ID: amd00492

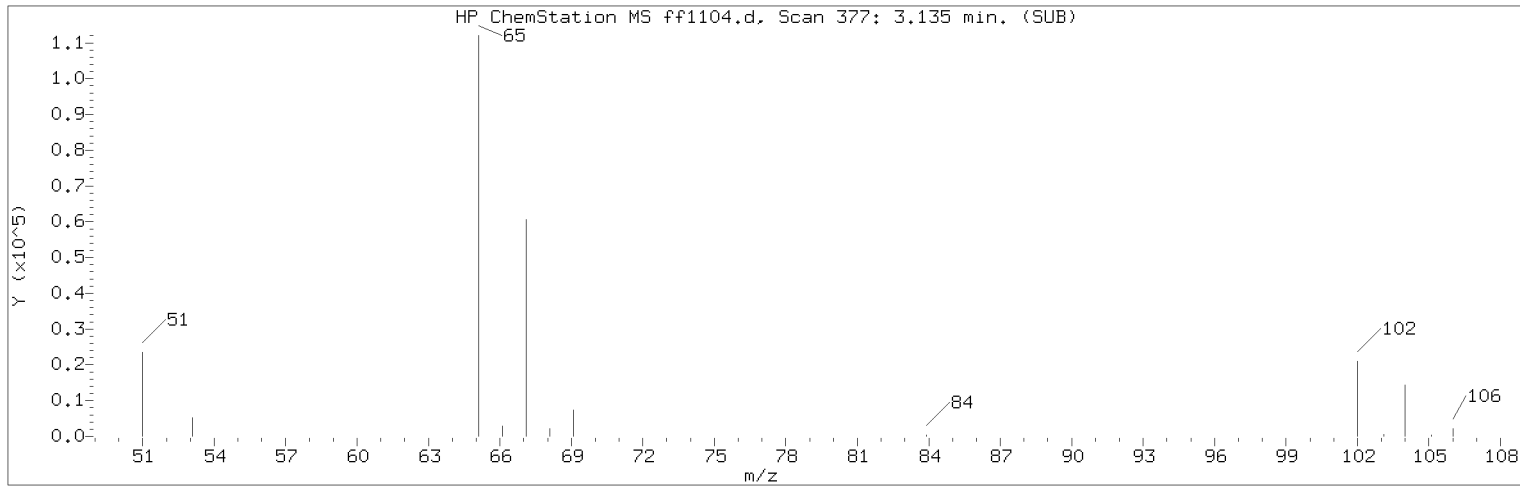
Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

Sample Name: VSTD100

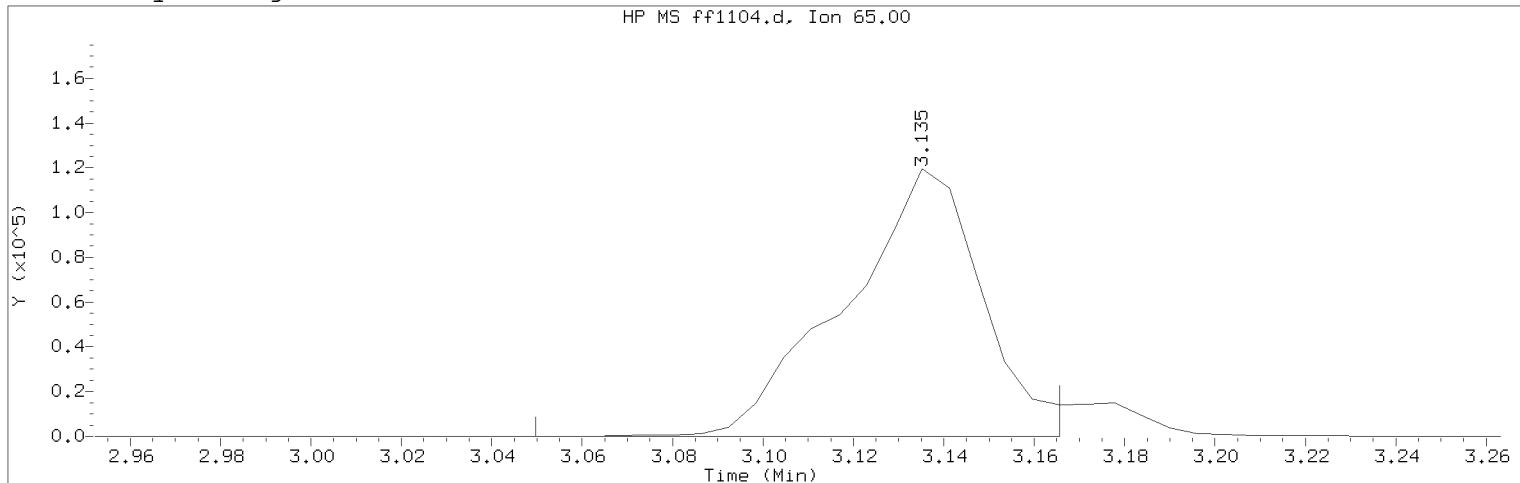
Lab Sample ID: VSTD100

Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 377	
Retention Time (minutes)	: 3.135	
Quant Ion	: 102.00	
Area	: 52965	
On-column Amount (ng)	: 52.7637	
Integration start scan	: 367	Integration stop scan: 415
Y at integration start	: 0	Y at integration end: 0

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1104.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 10:16 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 19-FEB-2020 07:05
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

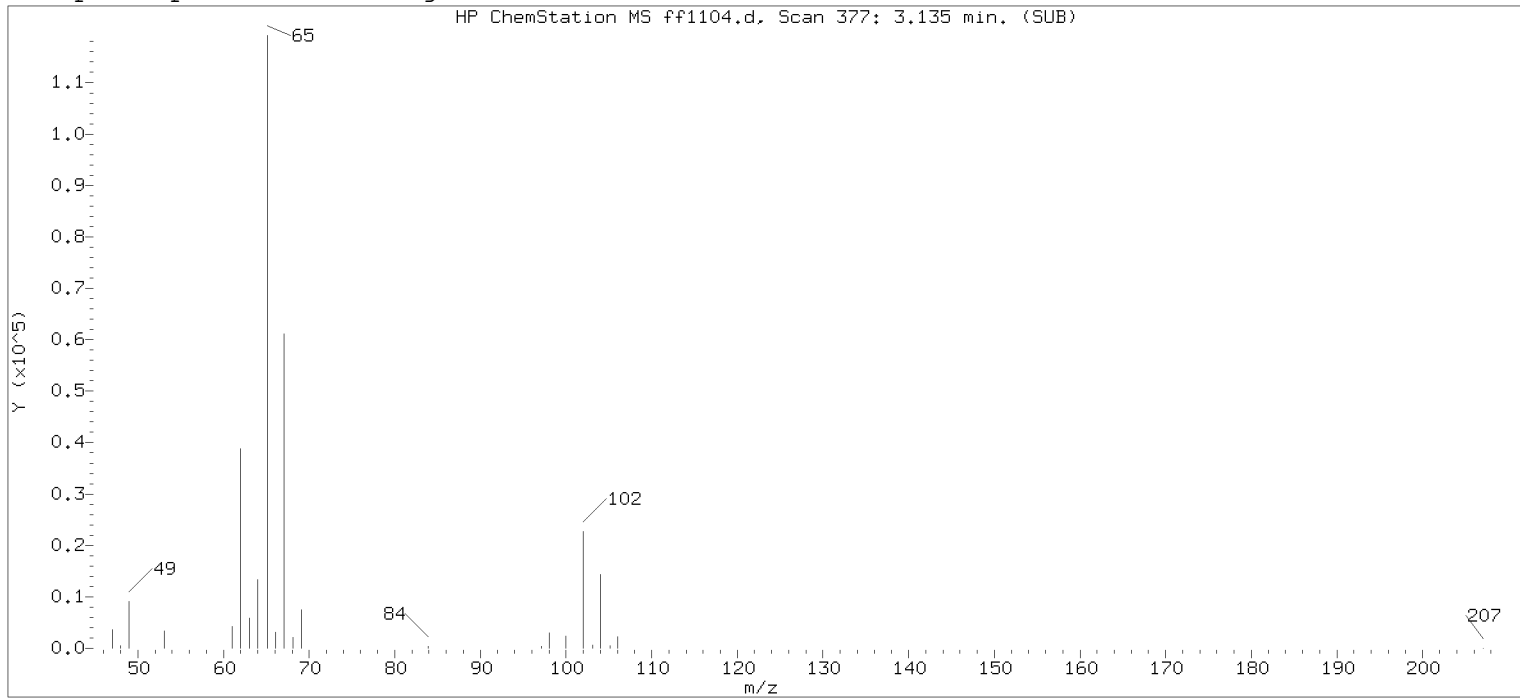
Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 377	
Retention Time (minutes)	: 3.135	
Quant Ion	: 65.00	
Area (flag)	: 250185M	
On-Column Amount (ng)	: 51.2190	
Integration start scan	: 362	Integration stop scan: 381
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

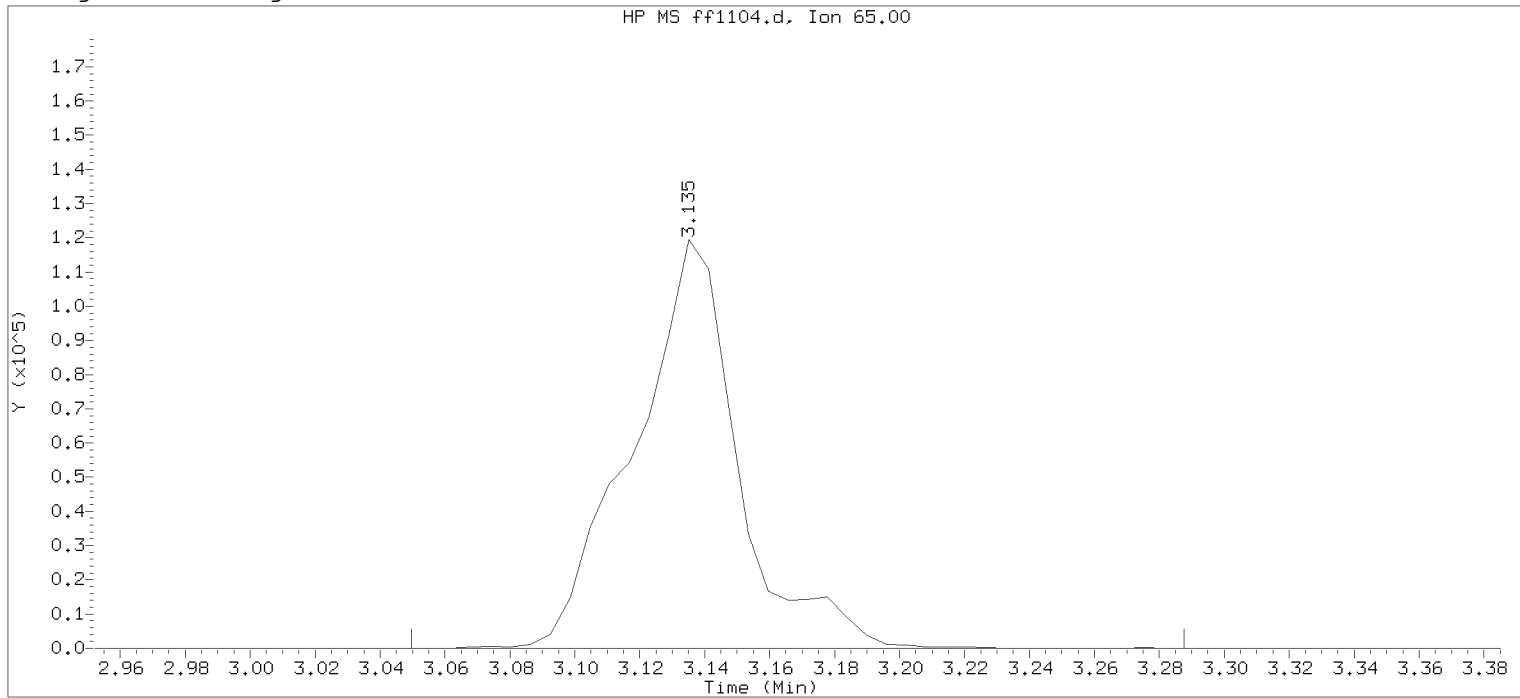
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/19/2020 at 08:19.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



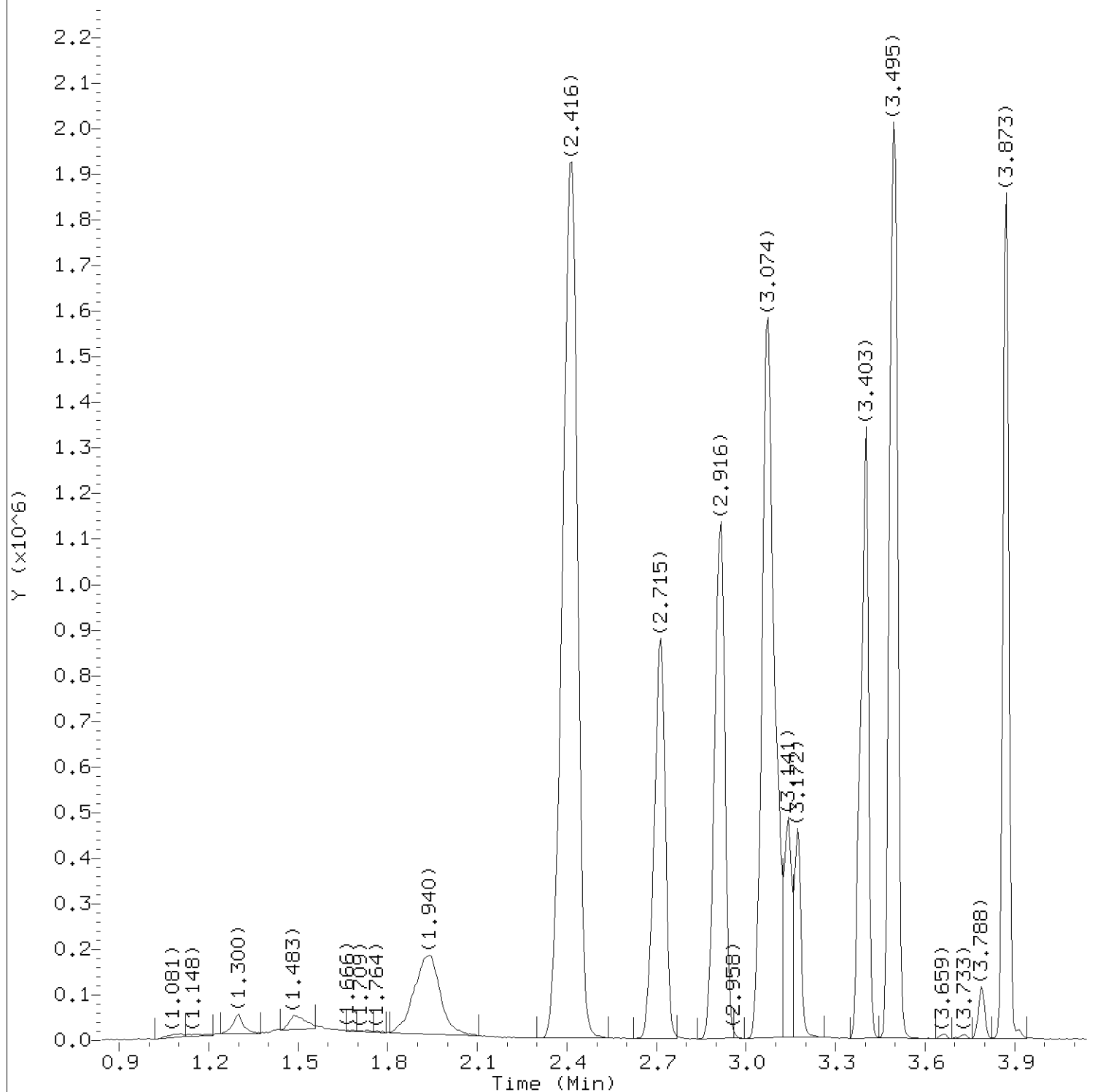
Data File: /chem/HP15830.i/20feb11a.b/ff1104.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 10:16 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

Sample Name: VSTD100

Lab Sample ID: VSTD100

Compound Number	: 10	
Compound Name	: 1,2-Dichloroethane-d4	
Scan Number	: 377	
Retention Time (minutes)	: 3.135	
Quant Ion	: 65.00	
Area	: 266854	
On-column Amount (ng)	: 52.2586	
Integration start scan	: 362	Integration stop scan: 401
Y at integration start	: 0	Y at integration end: 0



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1106.d
Injection date and time: 11-FEB-2020 10:38

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 19-FEB-2020 07:05

Sublist used: 10945B-G

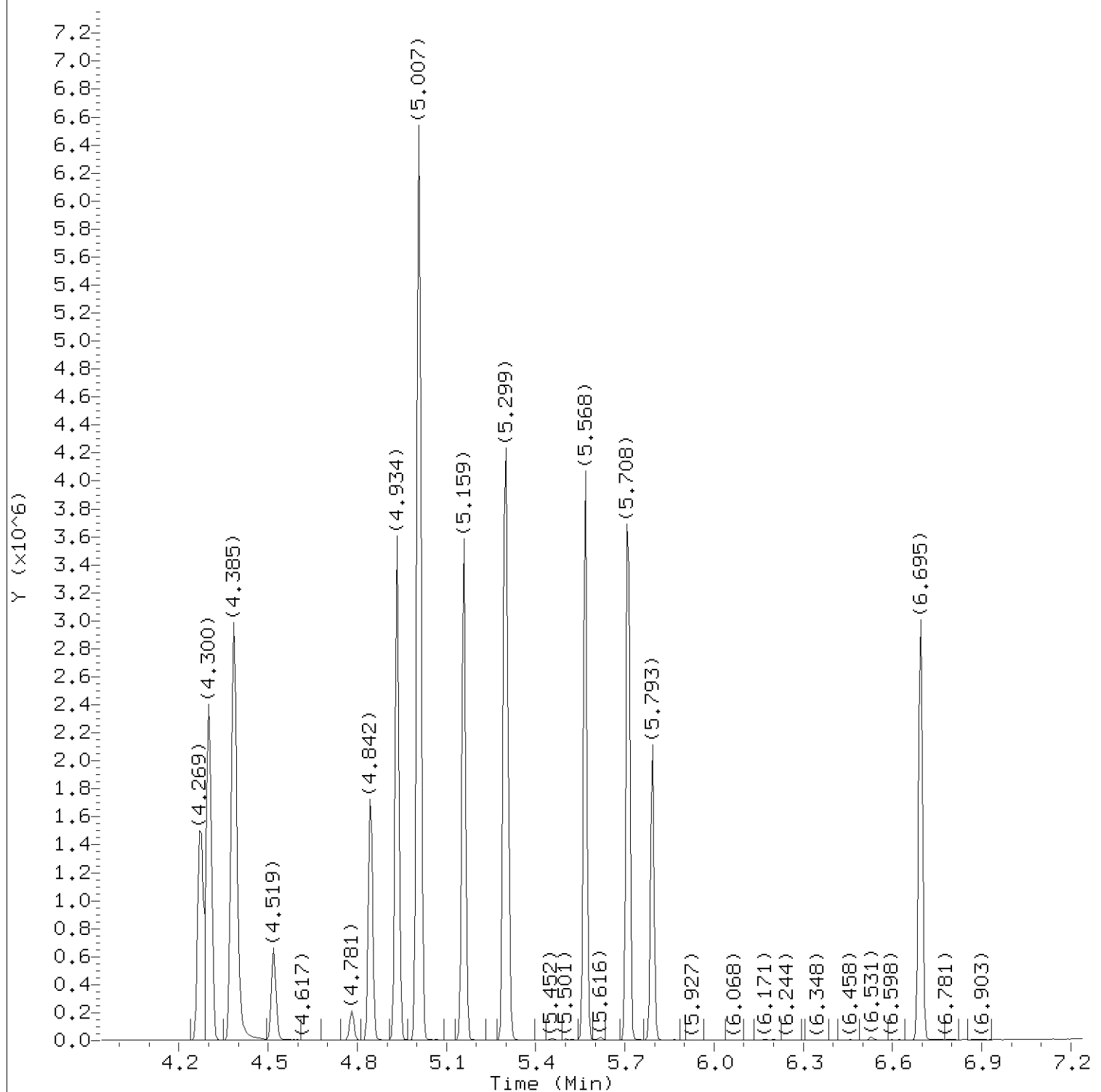
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1106.d
Injection date and time: 11-FEB-2020 10:38

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 19-FEB-2020 07:05

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1106.d
 Injection date and time: 11-FEB-2020 10:38

Instrument ID: HP15830.i
 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
 Calibration date and time: 19-FEB-2020 07:05
 Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.495	45	168397	1261.736
2) *t-Butyl alcohol-d10	(1)	1.910	65	235146	250.000
3) t-Butyl alcohol	(1)	1.946	59	375378	281.634
4) Methyl Tertiary Butyl Ether	(2)	2.410	73	3261360	199.596
5) di-Isopropyl ether	(2)	2.715	45	972242	52.430
6) Ethyl t-butyl ether	(2)	2.910	59	940586	53.213
7) \$Dibromofluoromethane	(2)	2.922	113	178308	50.237
7) \$Dibromofluoromethane	(2)	2.922	111	183773	50.342
8) t-Butyl Formate	(2)	3.074	57	636088MA	124.584
9) t-Amyl Alcohol	(1)	3.099	73	296965	498.599
10) \$1,2-Dichloroethane-d4	(2)	3.135	102	50247	52.039
10) \$1,2-Dichloroethane-d4	(2)	3.135	65	256180	51.849
10) \$1,2-Dichloroethane-d4	(2)	3.135	104	29711	49.563
11) 1,2-Dichloroethane	(2)	3.172	62	393332	50.616
12) Benzene	(2)	3.403	78	1117931	51.384
13) t-Amyl methyl ether	(2)	3.495	87	216557	53.242
14) *Fluorobenzene	(2)	3.501	96	771721	50.000
15) \$Toluene-d8	(3)	4.269	98	747294	50.026
15) \$Toluene-d8	(3)	4.275	100	482489	50.104
16) Toluene	(3)	4.300	92	723162	51.864
17) 3,3-Dimethyl-1-butanol	(1)	4.385	69	823169	960.183
18) 1,2-Dibromoethane	(3)	4.519	107	276189	53.872
19) *Chlorobenzene-d5	(3)	4.842	117	562234	50.000
20) Ethylbenzene	(3)	4.934	91	1443590	52.794
21) m+p-Xylene	(3)	5.007	106	1112290	106.486
22) o-Xylene	(3)	5.159	106	542050	53.562
24) Isopropylbenzene	(3)	5.299	105	1432714	52.662
25) \$4-Bromofluorobenzene	(3)	5.306	95	290352	50.054
25) \$4-Bromofluorobenzene	(3)	5.306	174	225230	49.609
23) Xylene (Total)	(3)		106	1654340	160.047
26) 1,3,5-Trimethylbenzene	(4)	5.568	105	1184016	52.767
27) 1,2,4-Trimethylbenzene	(4)	5.708	105	1213973	53.771
28) *1,4-Dichlorobenzene-d4	(4)	5.793	152	291372	50.000
29) Naphthalene	(4)	6.695	128	1381201	54.319

M = Compound was manually integrated.

A = User selected an alternate hit.

* = Compound is an internal standard.

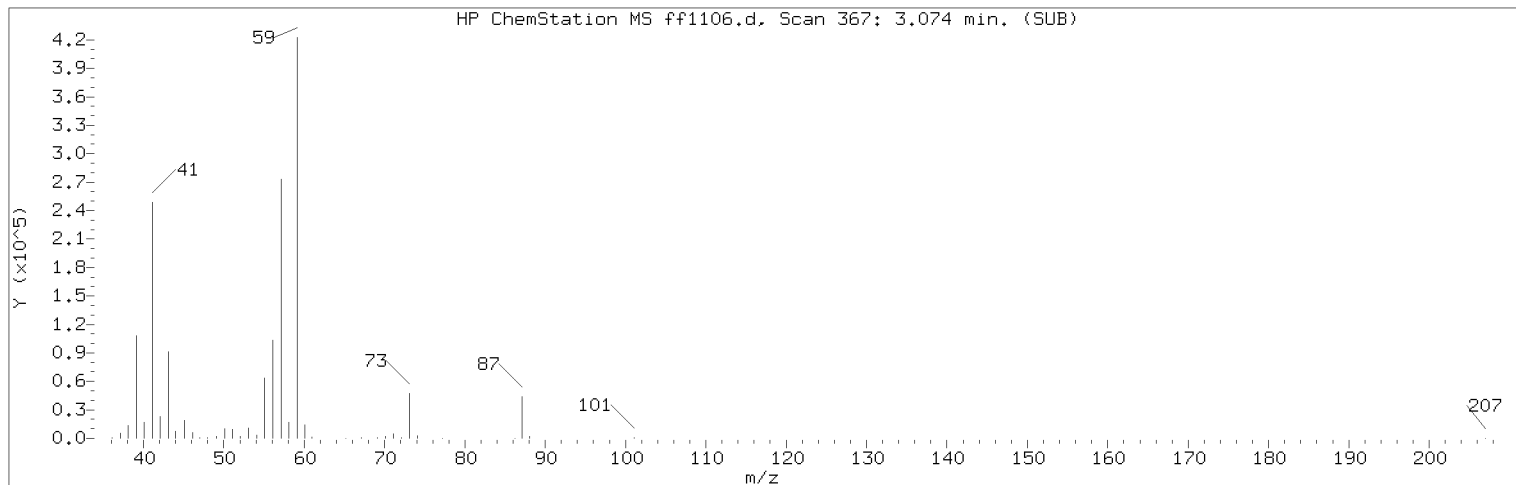
\$ = Compound is a surrogate standard.

page 1 of 1

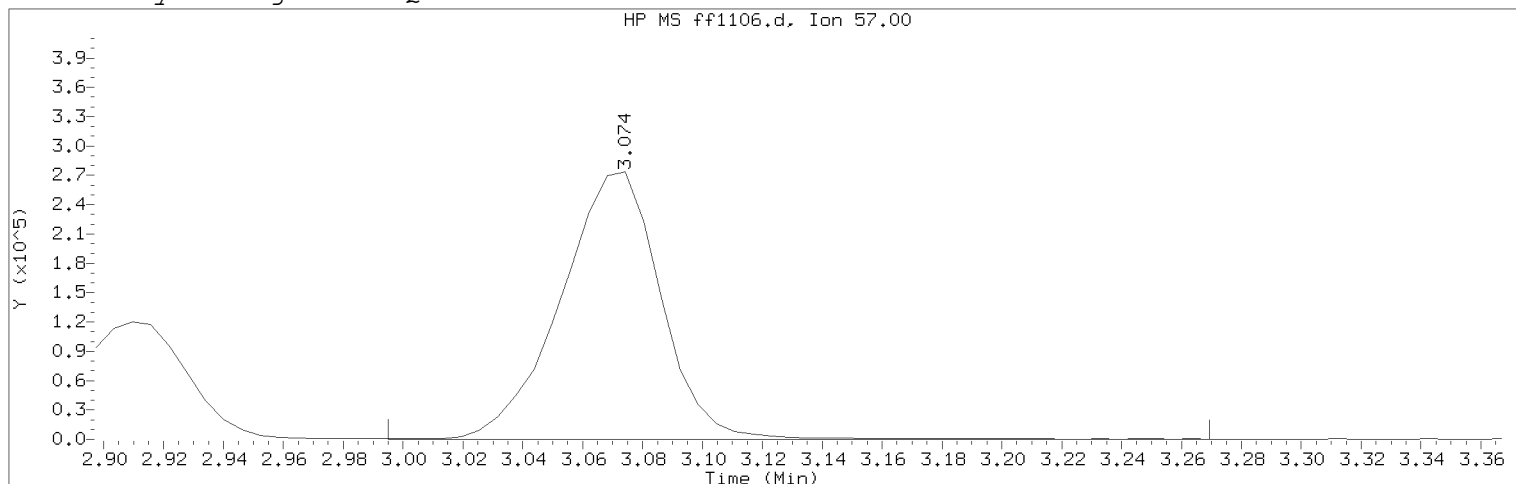
Digitally signed by Anita M. Dale
 on 02/19/2020 at 07:07.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1106.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 10:38 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 19-FEB-2020 07:05
Date, time and analyst ID of latest file update: 19-Feb-2020 07:05 amd00492

Sample Name: VSTD050

Lab Sample ID: VSTD050

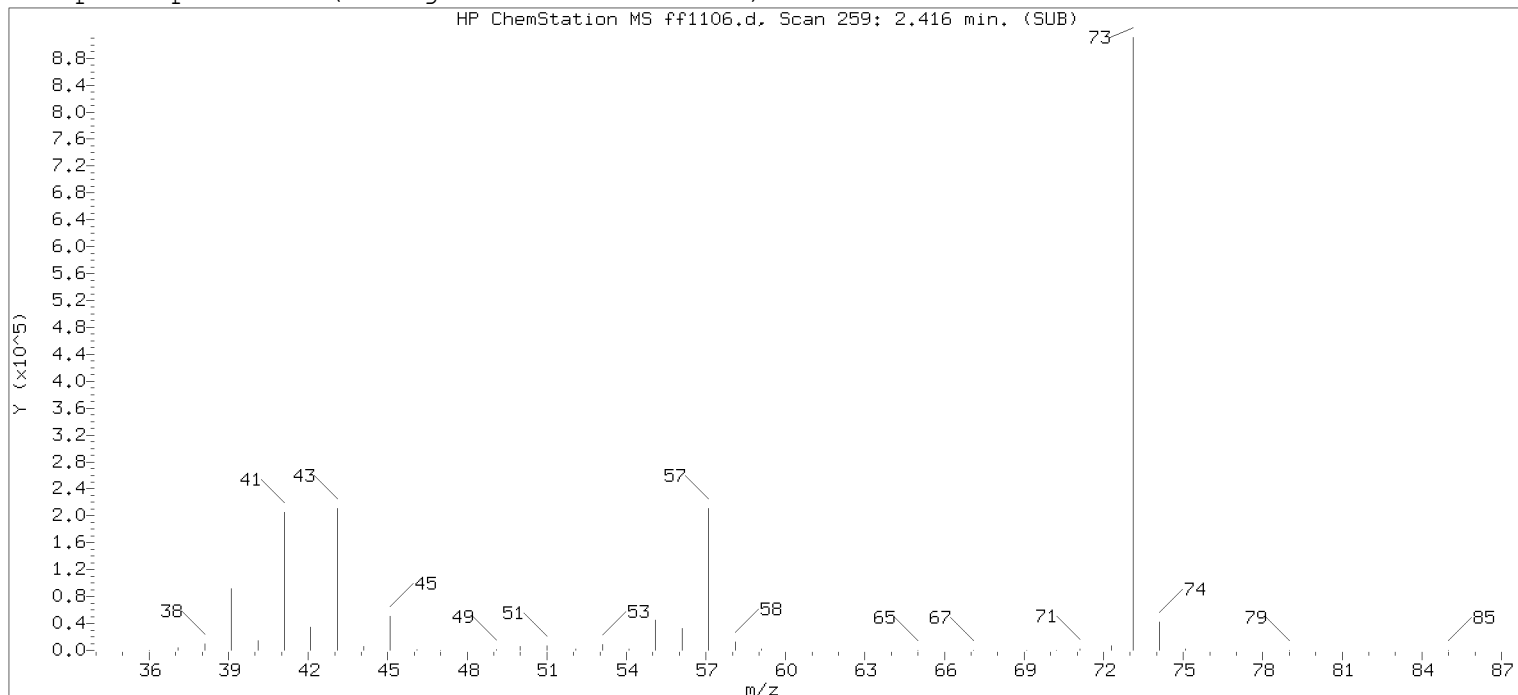
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 367
Retention Time (minutes): 3.074
Quant Ion : 57.00
Area (flag) : 636088MA
On-Column Amount (ng) : 124.5838
Integration start scan : 353 Integration stop scan: 398
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

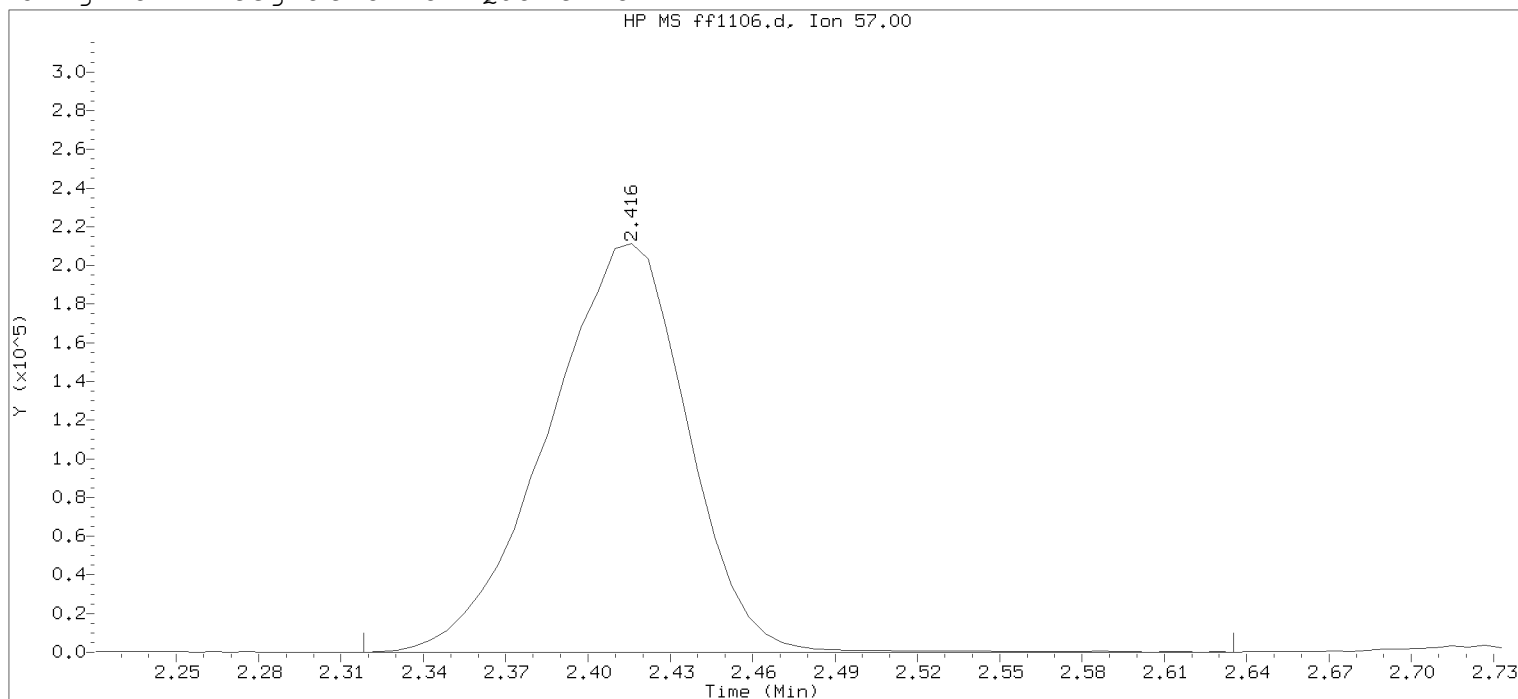
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/19/2020 at 07:07.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/19/2020 at 08:19.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1106.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 10:38 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:03
Date, time and analyst ID of latest file update: 11-Feb-2020 11:03 amd00492

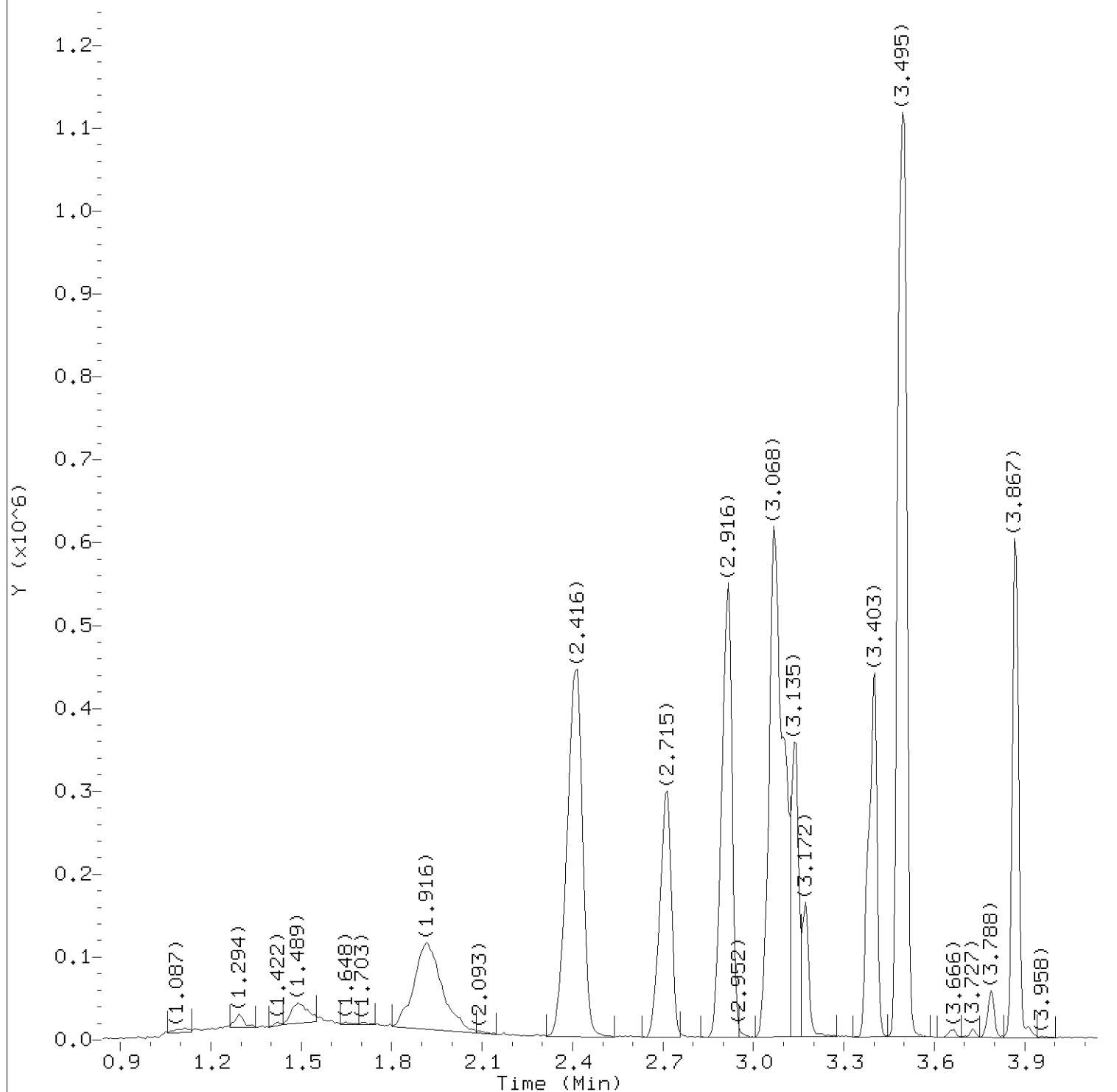
Sample Name: VSTD050

Lab Sample ID: VSTD050

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 259	
Retention Time (minutes)	: 2.416	
Quant Ion	: 57.00	
Area	: 747912	
On-column Amount (ng)	: 109.4503	
Integration start scan	: 242	Integration stop scan: 294
Y at integration start	: 0	Y at integration end: 0

Digitally signed by Anita M. Dale on 02/19/2020 at 07:07.

Target 3.5 esignature user GPV68 Page 192 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1108.d
Injection date and time: 11-FEB-2020 11:00

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 12-FEB-2020 11:13

Sublist used: 10945B-G

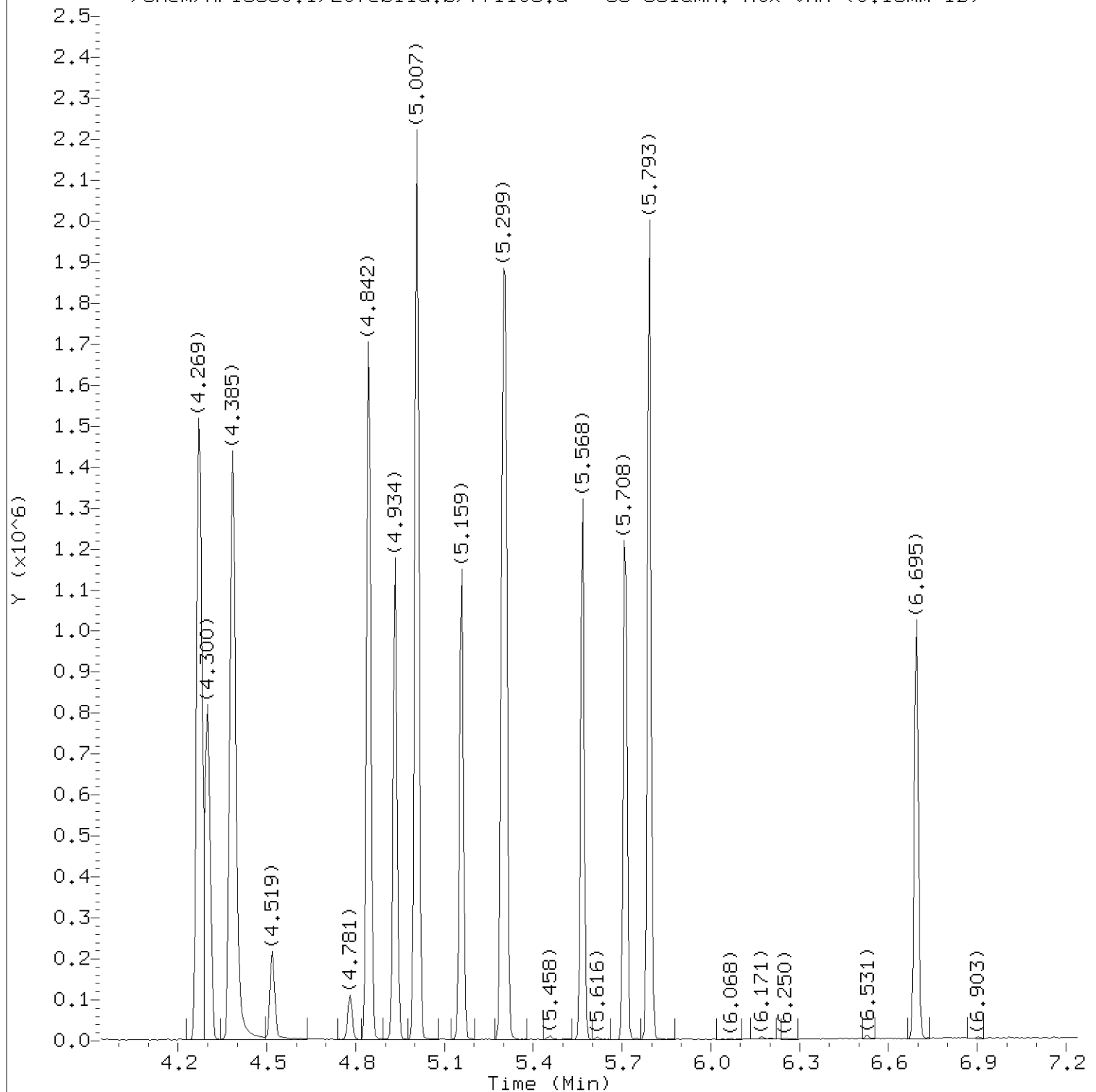
Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1108.d
Injection date and time: 11-FEB-2020 11:00

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 12-FEB-2020 11:13

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1108.d
 Injection date and time: 11-FEB-2020 11:00

Instrument ID: HP15830.i
 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
 Calibration date and time: 12-FEB-2020 11:13
 Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.489	45	130290	1038.540
2) *t-Butyl alcohol-d10	(1)	1.910	65	231140	250.000
3) t-Butyl alcohol	(1)	1.946	59	135479	108.607
4) Methyl Tertiary Butyl Ether	(2)	2.410	73	760348	49.555
5) di-Isopropyl ether	(2)	2.715	45	336507	19.487
6) Ethyl t-butyl ether	(2)	2.910	59	320088	19.272
7) \$Dibromofluoromethane	(2)	2.922	113	172378	49.935
7) \$Dibromofluoromethane	(2)	2.922	111	177004	49.750
8) t-Butyl Formate	(2)	3.068	57	232473A	47.368
9) t-Amyl Alcohol	(1)	3.099	73	145366	243.123
10) \$1,2-Dichloroethane-d4	(2)	3.135	102	46038	48.223
10) \$1,2-Dichloroethane-d4	(2)	3.135	65	237218	48.948
10) \$1,2-Dichloroethane-d4	(2)	3.135	104	29364	50.249
11) 1,2-Dichloroethane	(2)	3.172	62	135861	19.508
12) Benzene	(2)	3.403	78	388327	19.418
13) t-Amyl methyl ether	(2)	3.495	87	73491	19.267
14) *Fluorobenzene	(2)	3.501	96	754072	50.000
15) \$Toluene-d8	(3)	4.269	98	727140	50.380
15) \$Toluene-d8	(3)	4.269	100	468195	50.203
16) Toluene	(3)	4.300	92	247468	19.493
17) 3,3-Dimethyl-1-butanol	(1)	4.385	69	409098	487.228
18) 1,2-Dibromoethane	(3)	4.519	107	92168	19.246
19) *Chlorobenzene-d5	(3)	4.842	117	543800	50.000
20) Ethylbenzene	(3)	4.934	91	483495	19.286
21) m+p-Xylene	(3)	5.007	106	368573	38.128
22) o-Xylene	(3)	5.159	106	179713	19.244
24) Isopropylbenzene	(3)	5.299	105	480825	19.436
25) \$4-Bromofluorobenzene	(3)	5.306	95	277985	49.353
25) \$4-Bromofluorobenzene	(3)	5.306	174	220824	50.178
23) Xylene (Total)	(3)		106	548286	57.371
26) 1,3,5-Trimethylbenzene	(4)	5.568	105	395350	19.082
27) 1,2,4-Trimethylbenzene	(4)	5.708	105	394052	18.814
28) *1,4-Dichlorobenzene-d4	(4)	5.793	152	282242	50.000
29) Naphthalene	(4)	6.695	128	473053	20.195

A = User selected an alternate hit.

* = Compound is an internal standard.

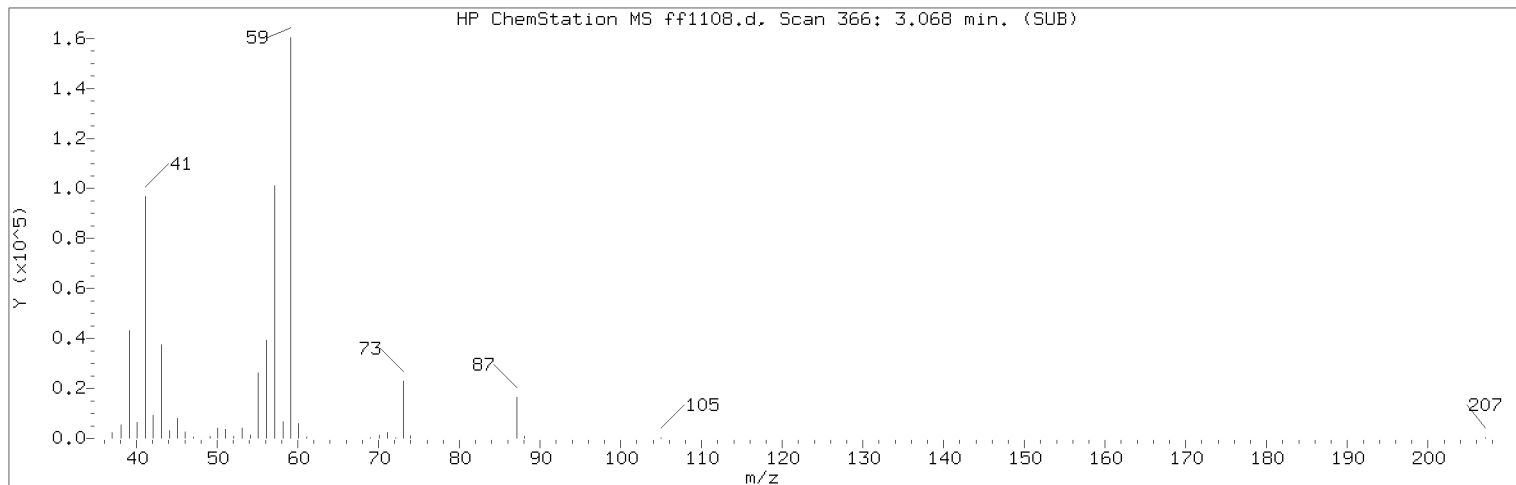
\$ = Compound is a surrogate standard.

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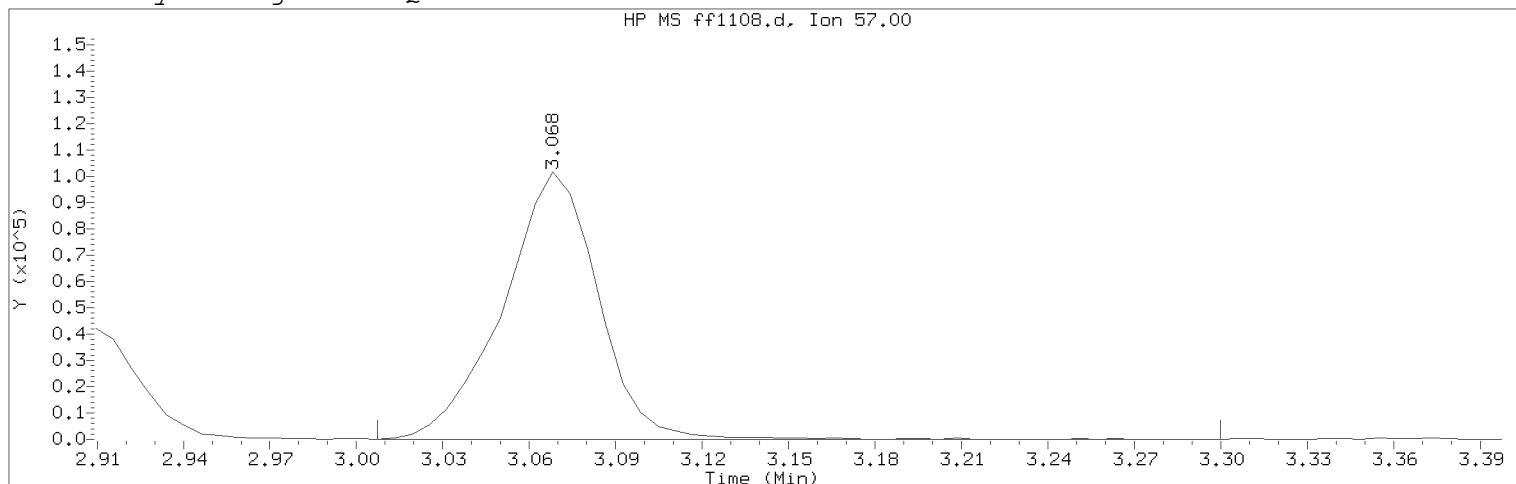
Digitally signed by Anita M. Dale
 on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1108.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 11:00 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 12-FEB-2020 11:13
Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD020

Lab Sample ID: VSTD020

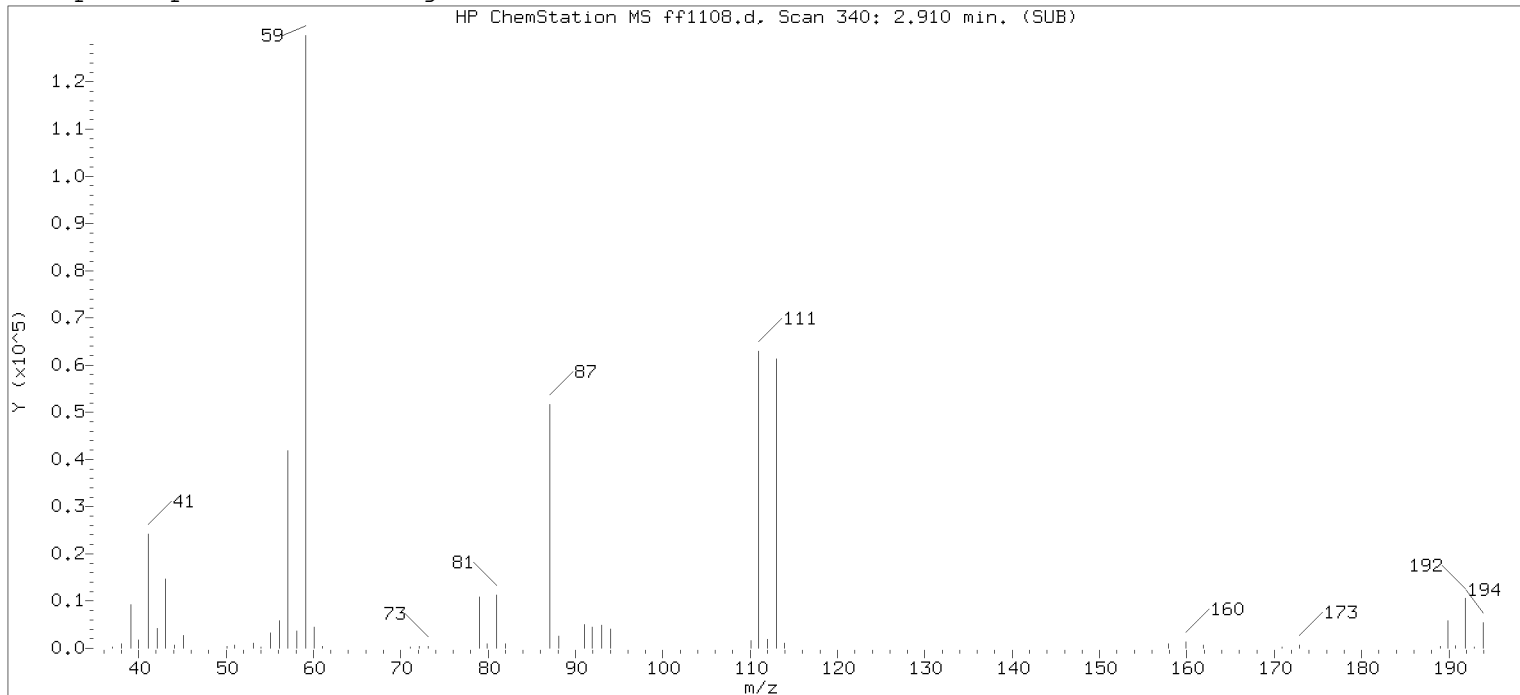
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 366
Retention Time (minutes): 3.068
Quant Ion : 57.00
Area (flag) : 232473A
On-Column Amount (ng) : 47.3679
Integration start scan : 355 Integration stop scan: 403
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

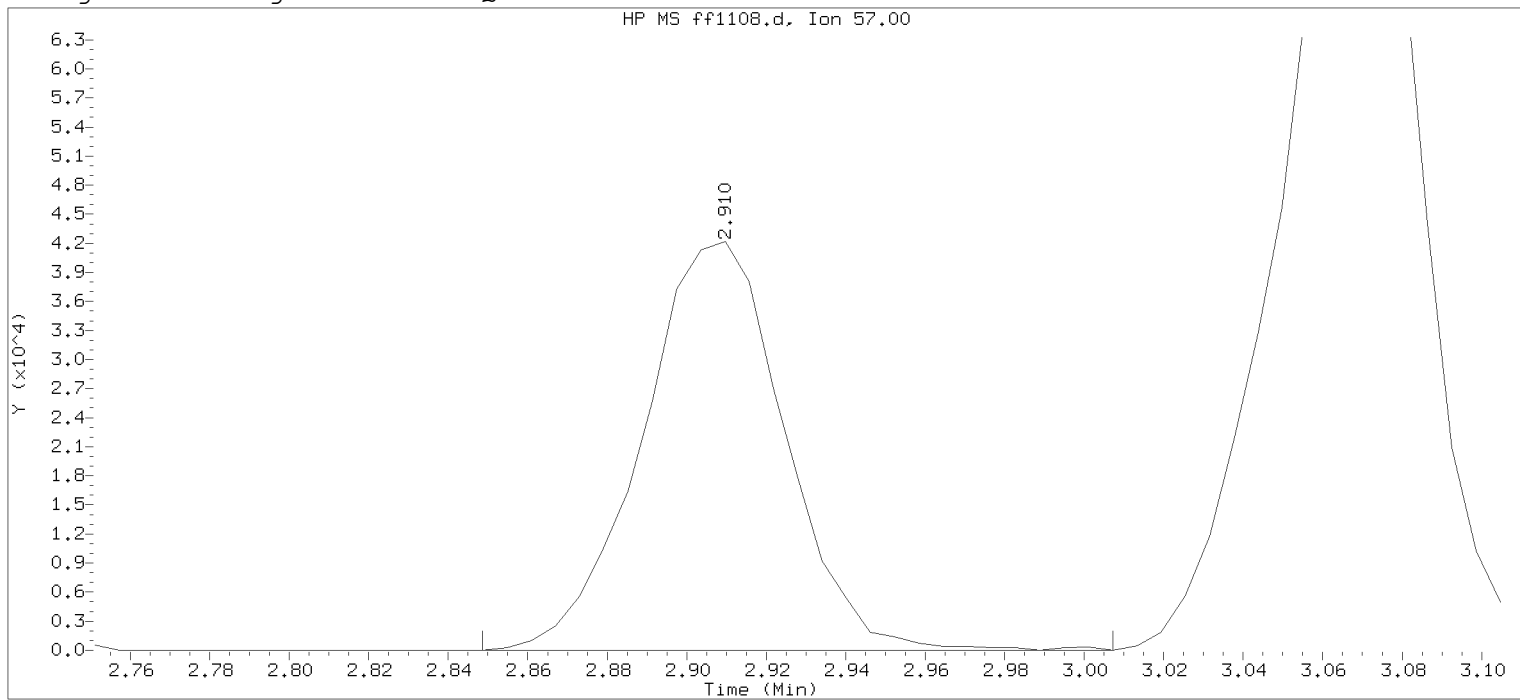
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/18/2020 at 13:30.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1108.d

Instrument ID: HP15830.i

Injection date and time: 11-FEB-2020 11:00

Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m

Sublist used: 10945B-G

Calibration date and time: 11-FEB-2020 11:58

Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

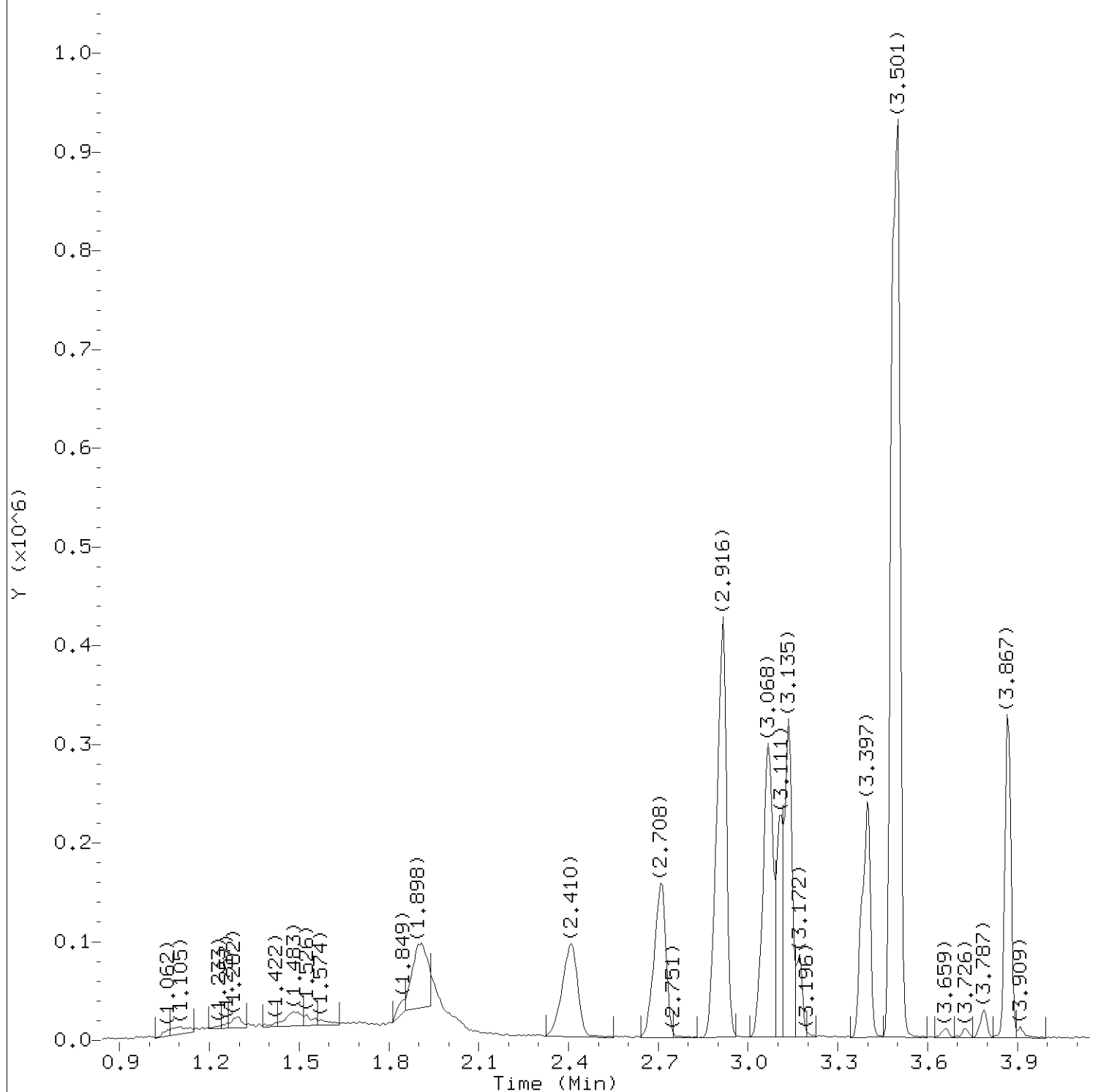
Sample Name: VSTD020

Lab Sample ID: VSTD020

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 340	
Retention Time (minutes)	: 2.910	
Quant Ion	: 57.00	
Area	: 104682	
On-column Amount (ng)	: 51.5822	
Integration start scan	: 329	Integration stop scan: 355
Y at integration start	: 0	Y at integration end: 0

Digitally signed by Anita M. Dale on 02/12/2020 at 11:18.

Target 3.5 esignature user GPV68 Page 197 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1110.d
Injection date and time: 11-FEB-2020 11:22

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 12-FEB-2020 11:13

Sublist used: 10945B-G

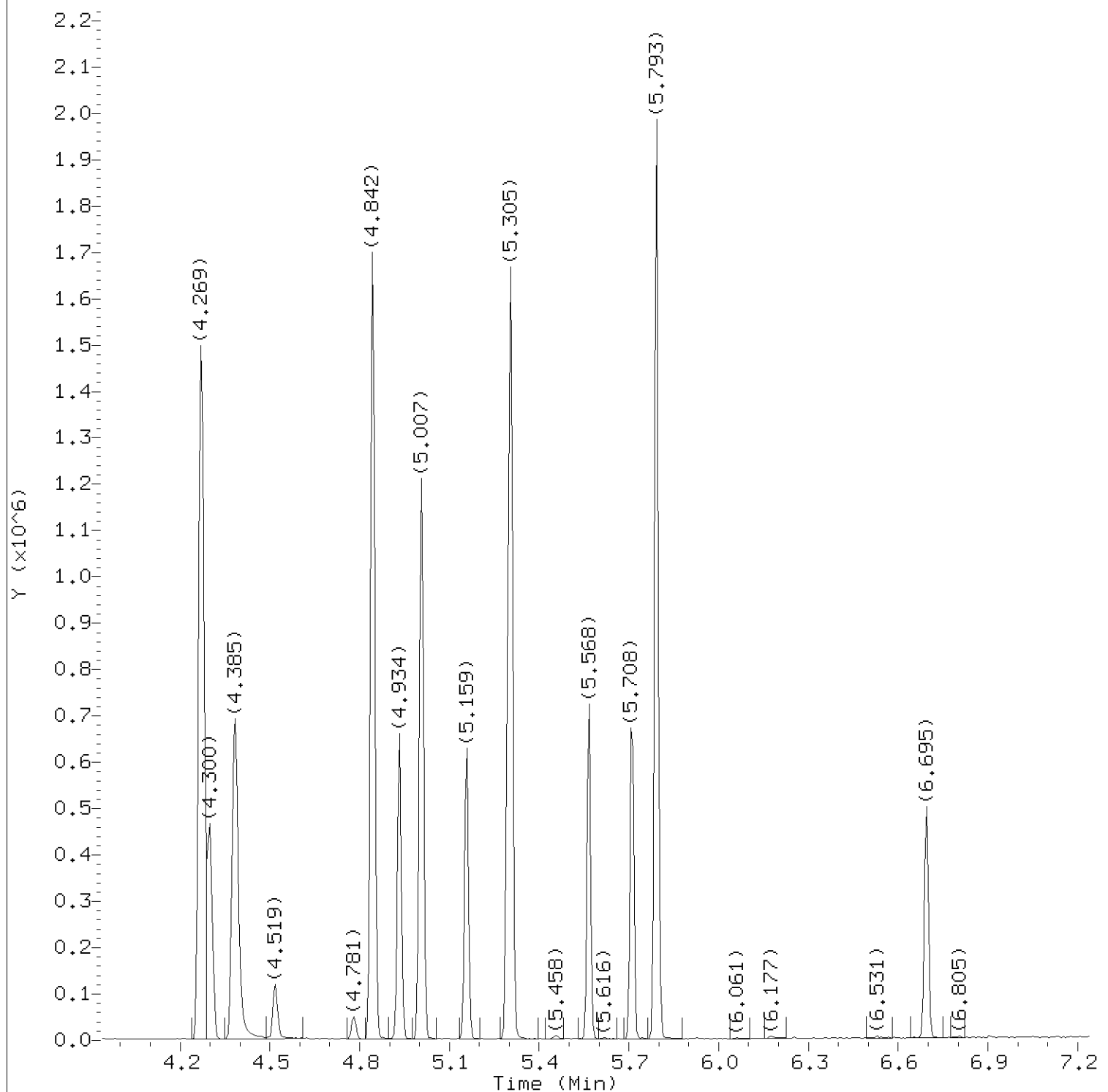
Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1110.d
Injection date and time: 11-FEB-2020 11:22

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 12-FEB-2020 11:13

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1110.d

Instrument ID: HP15830.i

Injection date and time: 11-FEB-2020 11:22

Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m

Sublist used: 10945B-G

Calibration date and time: 12-FEB-2020 11:13

Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.483	45	66125	529.018
2) *t-Butyl alcohol-d10	(1)	1.898	65	225839	250.000
3) t-Butyl alcohol	(1)	1.946	59	60573	49.773
4) Methyl Tertiary Butyl Ether	(2)	2.410	73	158704	10.430
5) di-Isopropyl ether	(2)	2.708	45	180488	10.511
6) Ethyl t-butyl ether	(2)	2.903	59	171860	10.433
7) \$Dibromofluoromethane	(2)	2.916	113	170513	50.399
7) \$Dibromofluoromethane	(2)	2.916	111	172410	49.681
8) t-Butyl Formate	(2)	3.068	57	115776A	24.345
9) t-Amyl Alcohol	(1)	3.099	73	55903	96.734
10) \$1,2-Dichloroethane-d4	(2)	3.135	102	45664	49.196
10) \$1,2-Dichloroethane-d4	(2)	3.135	65	233646	49.490
10) \$1,2-Dichloroethane-d4	(2)	3.135	104	28572	50.015
11) 1,2-Dichloroethane	(2)	3.172	62	73663	10.603
12) Benzene	(2)	3.397	78	214252	10.704
13) t-Amyl methyl ether	(2)	3.495	87	40342	10.603
14) *Fluorobenzene	(2)	3.501	96	737086	50.000
15) \$Toluene-d8	(3)	4.269	98	714878	50.056
15) \$Toluene-d8	(3)	4.269	100	460488	49.939
16) Toluene	(3)	4.300	92	136404	10.633
17) 3,3-Dimethyl-1-butanol	(1)	4.385	69	204434	249.393
18) 1,2-Dibromoethane	(3)	4.519	107	49467	10.329
19) *Chlorobenzene-d5	(3)	4.842	117	537891	50.000
20) Ethylbenzene	(3)	4.934	91	268966	10.622
21) m+p-Xylene	(3)	5.007	106	203316	20.933
22) o-Xylene	(3)	5.159	106	97671	10.424
24) Isopropylbenzene	(3)	5.293	105	259974	10.461
25) \$4-Bromofluorobenzene	(3)	5.305	95	275838	49.632
25) \$4-Bromofluorobenzene	(3)	5.305	174	217208	49.924
23) Xylene (Total)	(3)		106	300987	31.357
26) 1,3,5-Trimethylbenzene	(4)	5.568	105	215633	10.427
27) 1,2,4-Trimethylbenzene	(4)	5.708	105	221356	10.546
28) *1,4-Dichlorobenzene-d4	(4)	5.793	152	277696	50.000
29) Naphthalene	(4)	6.695	128	230850	10.012

A = User selected an alternate hit.

* = Compound is an internal standard.

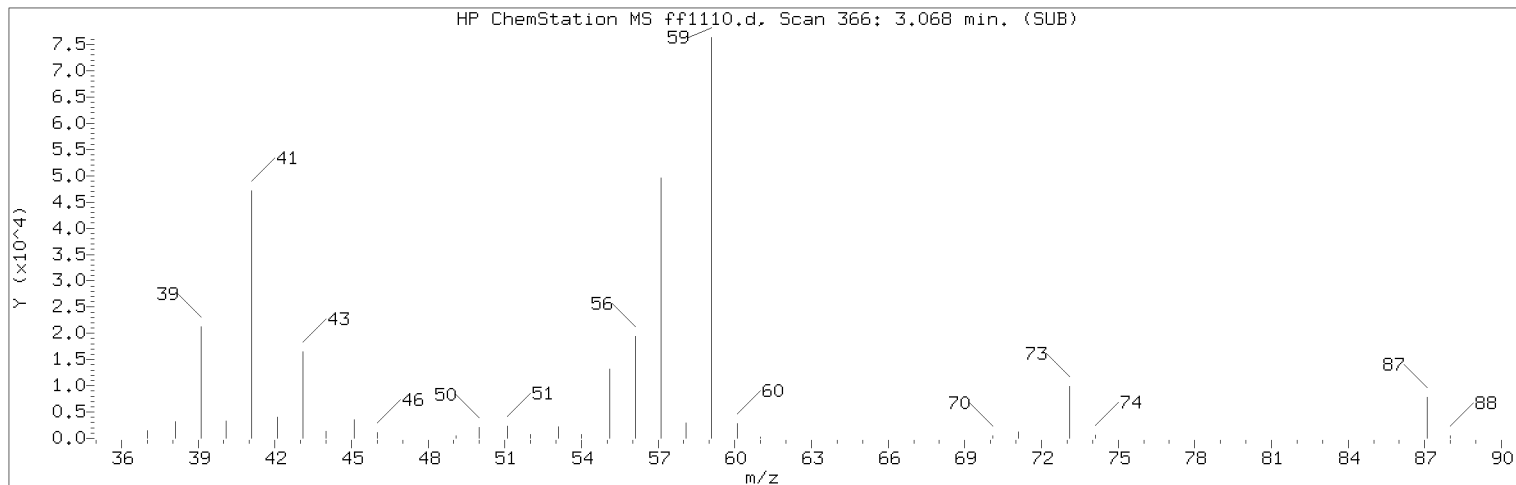
\$ = Compound is a surrogate standard.

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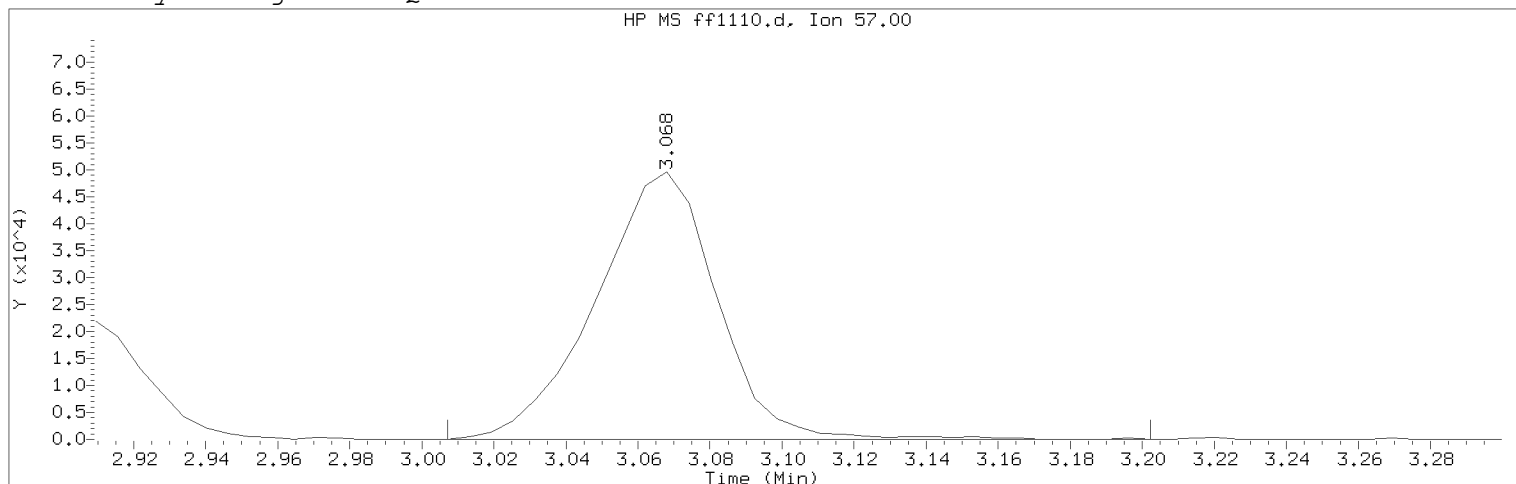
Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1110.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 11:22 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 12-FEB-2020 11:13
Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD010

Lab Sample ID: VSTD010

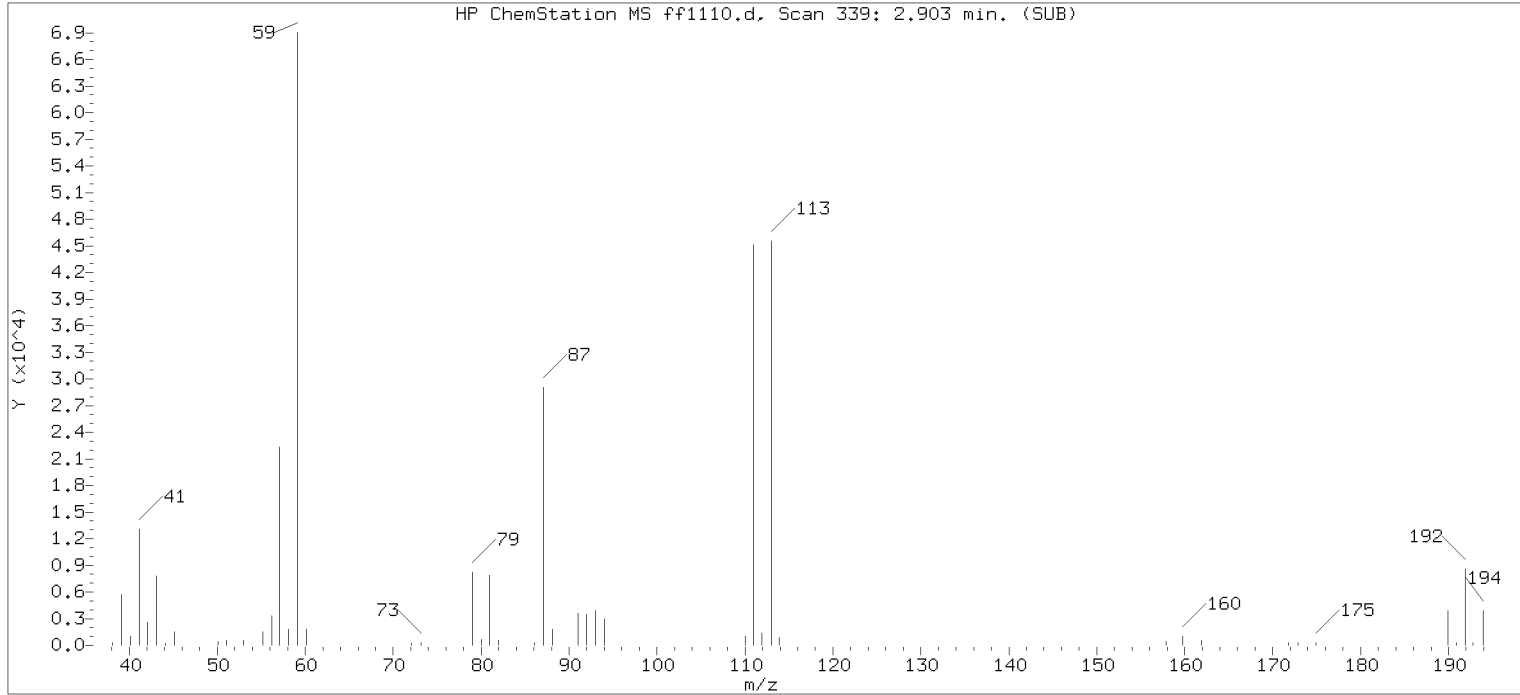
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 366
Retention Time (minutes): 3.068
Quant Ion : 57.00
Area (flag) : 115776A
On-Column Amount (ng) : 24.3446
Integration start scan : 355 Integration stop scan: 387
Y at integration start : 0 Y at integration end: 0

Reason for manual integration: improper integration

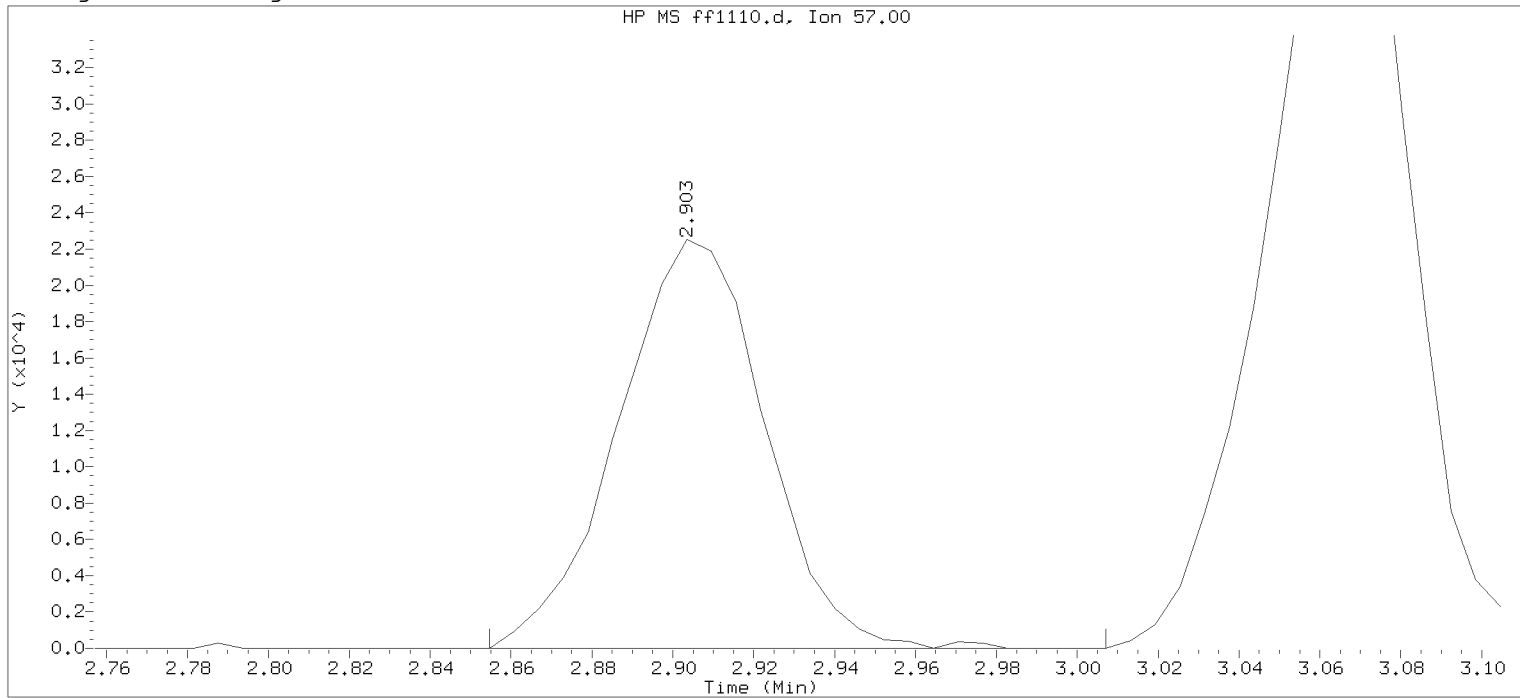
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/18/2020 at 13:35.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1110.d

Instrument ID: HP15830.i

Injection date and time: 11-FEB-2020 11:22

Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m

Sublist used: 10945B-G

Calibration date and time: 11-FEB-2020 11:58

Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

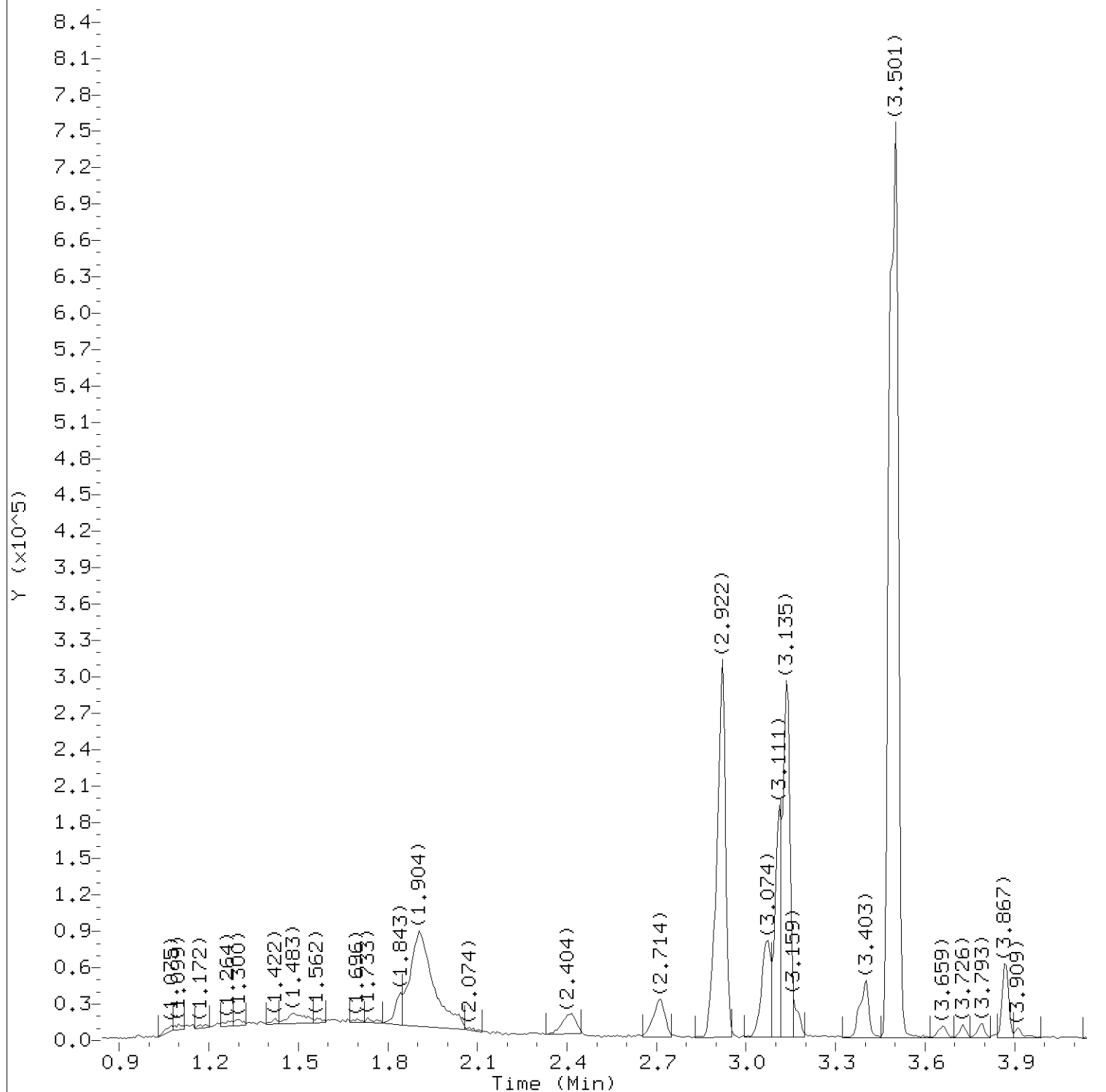
Sample Name: VSTD010

Lab Sample ID: VSTD010

Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 339	
Retention Time (minutes)	: 2.903	
Quant Ion	: 57.00	
Area	: 56649	
On-column Amount (ng)	: 26.8467	
Integration start scan	: 330	Integration stop scan: 355
Y at integration start	: 0	Y at integration end: 0

Digitally signed by Anita M. Dale on 02/12/2020 at 11:18.

Target 3.5 esignature user GPV68 Page 202 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1112.d
Injection date and time: 11-FEB-2020 11:44

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 12-FEB-2020 11:13

Sublist used: 10945B-G

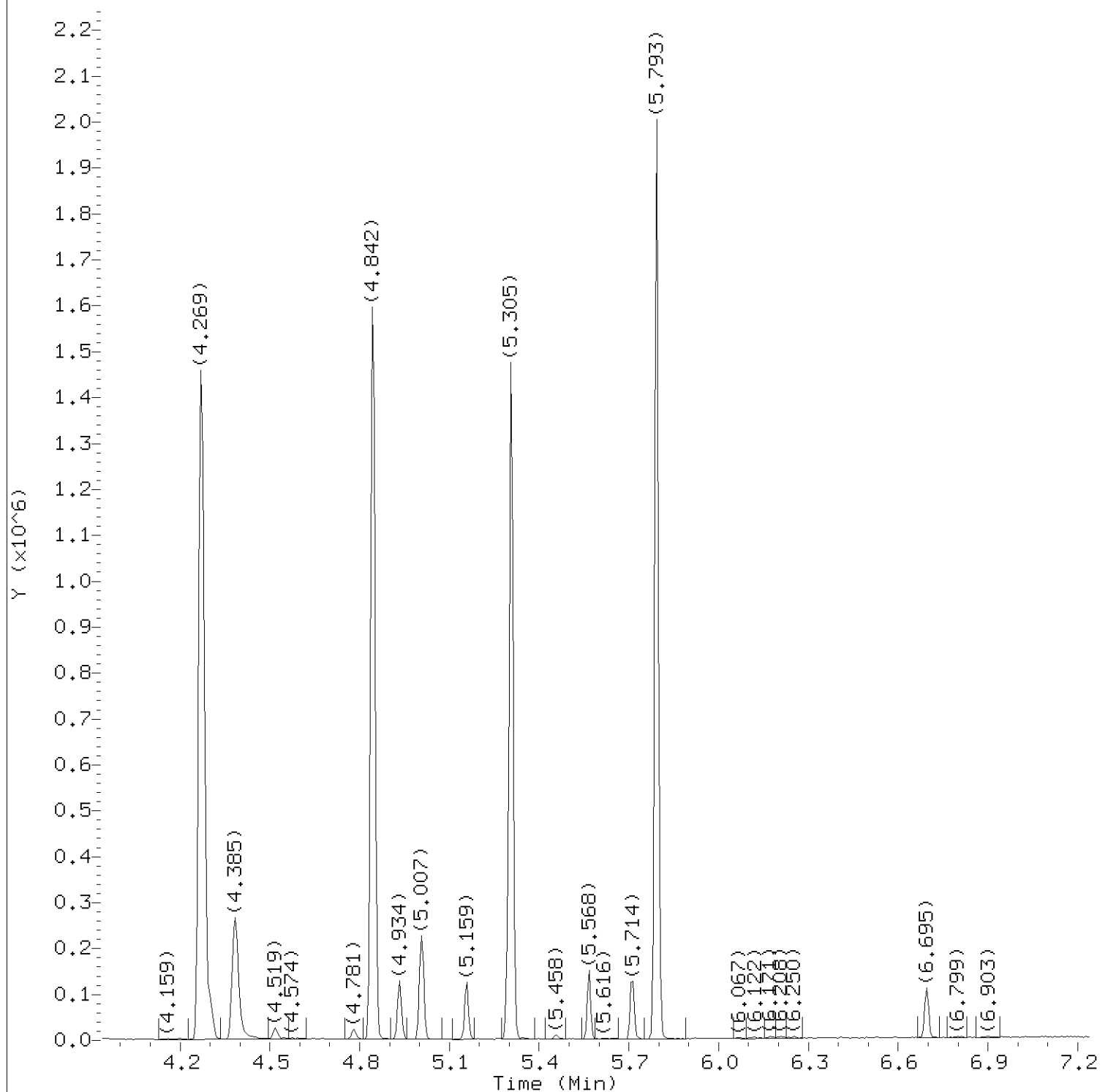
Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1112.d
Injection date and time: 11-FEB-2020 11:44

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 12-FEB-2020 11:13

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1112.d

Instrument ID: HP15830.i

Injection date and time: 11-FEB-2020 11:44

Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m

Sublist used: 10945B-G

Calibration date and time: 12-FEB-2020 11:13

Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.483	45	35689M	273.023
2) *t-Butyl alcohol-d10	(1)	1.910	65	230740	250.000
3) t-Butyl alcohol	(1)	1.946	59	13496	10.672
4) Methyl Tertiary Butyl Ether	(2)	2.416	73	30584	2.026
5) di-Isopropyl ether	(2)	2.708	45	34784	2.039
6) Ethyl t-butyl ether	(2)	2.903	59	33498	2.045
7) \$Dibromofluoromethane	(2)	2.922	113	166627	49.850
7) \$Dibromofluoromethane	(2)	2.922	111	173742	50.507
8) t-Butyl Formate	(2)	3.068	57	26513A	5.498
9) t-Amyl Alcohol	(1)	3.099	73	28102M	48.057
10) \$1,2-Dichloroethane-d4	(2)	3.135	102	43781	48.148
10) \$1,2-Dichloroethane-d4	(2)	3.135	65	229584	49.346
10) \$1,2-Dichloroethane-d4	(2)	3.135	104	28672	50.609
11) 1,2-Dichloroethane	(2)	3.172	62	15558	2.207
12) Benzene	(2)	3.403	78	41519M	2.078
13) t-Amyl methyl ether	(2)	3.489	87	7622	2.021
14) *Fluorobenzene	(2)	3.501	96	728767	50.000
15) \$Toluene-d8	(3)	4.269	98	708520	50.041
15) \$Toluene-d8	(3)	4.269	100	457996	50.088
16) Toluene	(3)	4.300	92	26896	2.091
17) 3,3-Dimethyl-1-butanol	(1)	4.385	69	81894	98.218
18) 1,2-Dibromoethane	(3)	4.519	107	9319	1.970
19) *Chlorobenzene-d5	(3)	4.842	117	533160	50.000
20) Ethylbenzene	(3)	4.934	91	52568	2.075
21) m+p-Xylene	(3)	5.007	106	39681	4.097
22) o-Xylene	(3)	5.159	106	18576	2.000
24) Isopropylbenzene	(3)	5.299	105	52558	2.105
25) \$4-Bromofluorobenzene	(3)	5.305	95	273581	49.729
25) \$4-Bromofluorobenzene	(3)	5.305	174	216171	50.101
23) Xylene (Total)	(3)		106	58257	6.097
26) 1,3,5-Trimethylbenzene	(4)	5.568	105	43489	2.096
27) 1,2,4-Trimethylbenzene	(4)	5.714	105	42139	2.020
28) *1,4-Dichlorobenzene-d4	(4)	5.793	152	275314	50.000
29) Naphthalene	(4)	6.695	128	50590	2.167

M = Compound was manually integrated.

A = User selected an alternate hit.

* = Compound is an internal standard.

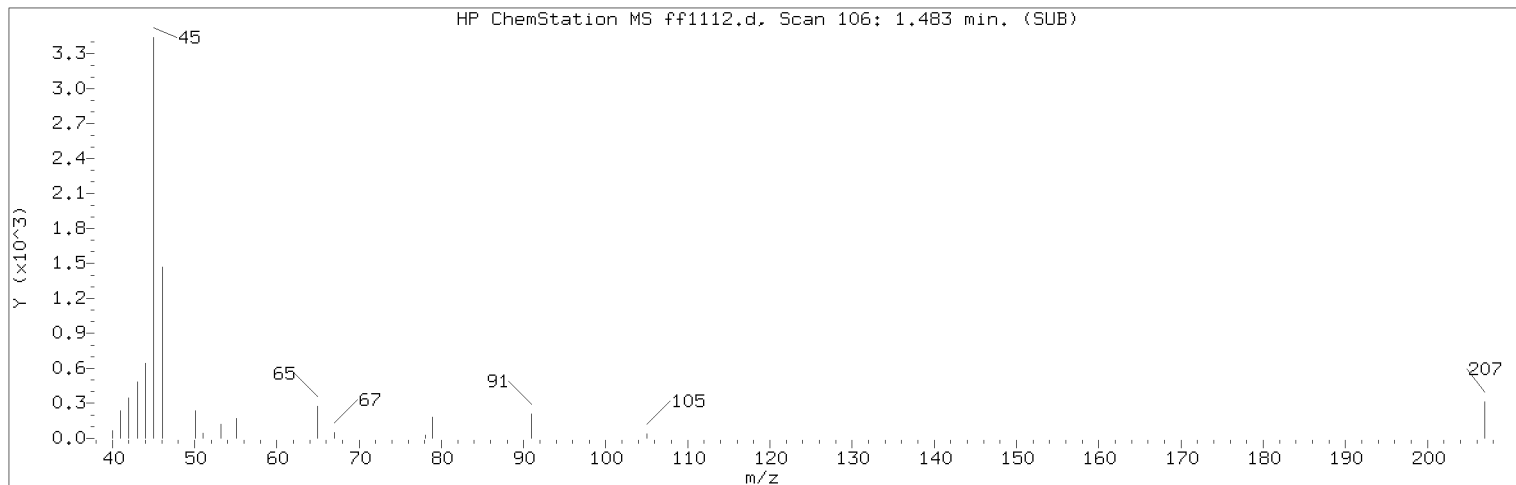
\$ = Compound is a surrogate standard.

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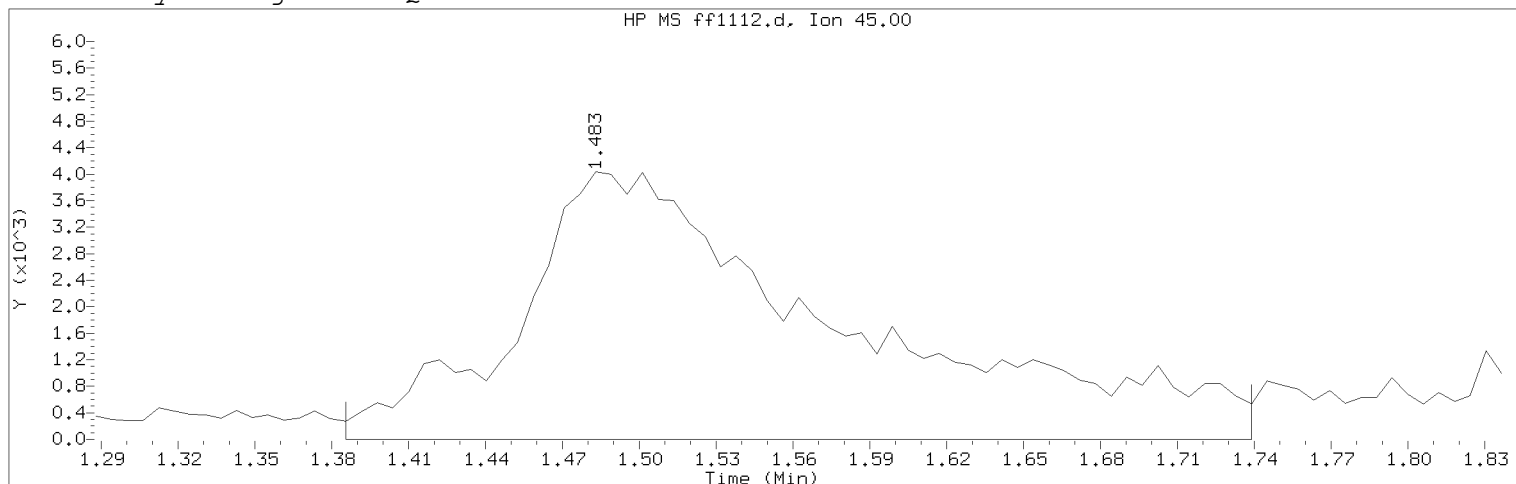
Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1112.d

Instrument ID: HP15830.i

Injection date and time: 11-FEB-2020 11:44

Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m

Sublist used: 10945B-G

Calibration date and time: 12-FEB-2020 11:13

Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

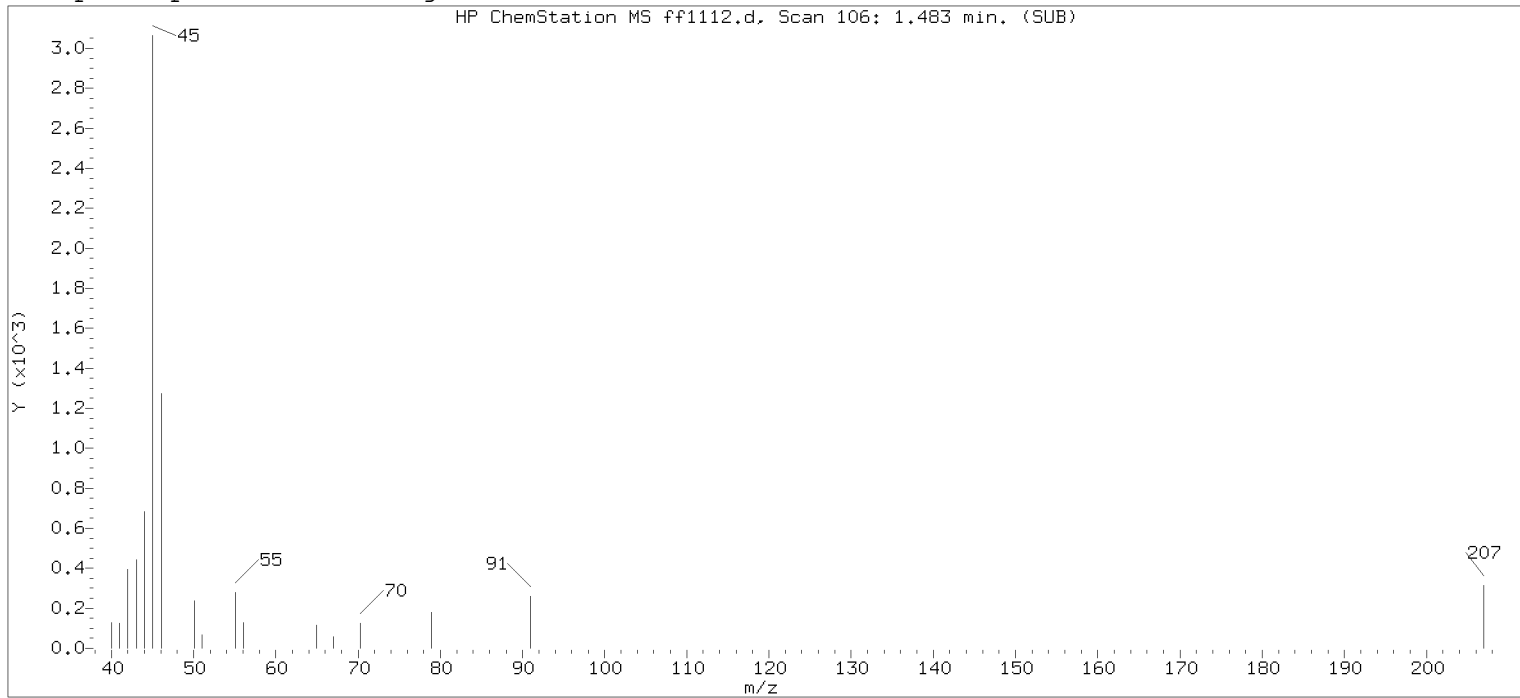
Compound Number	: 1	
Compound Name	: Ethanol	
Scan Number	: 106	
Retention Time (minutes)	: 1.483	
Quant Ion	: 45.00	
Area (flag)	: 35689M	
On-Column Amount (ng)	: 273.0230	
Integration start scan	: 89	Integration stop scan: 147
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

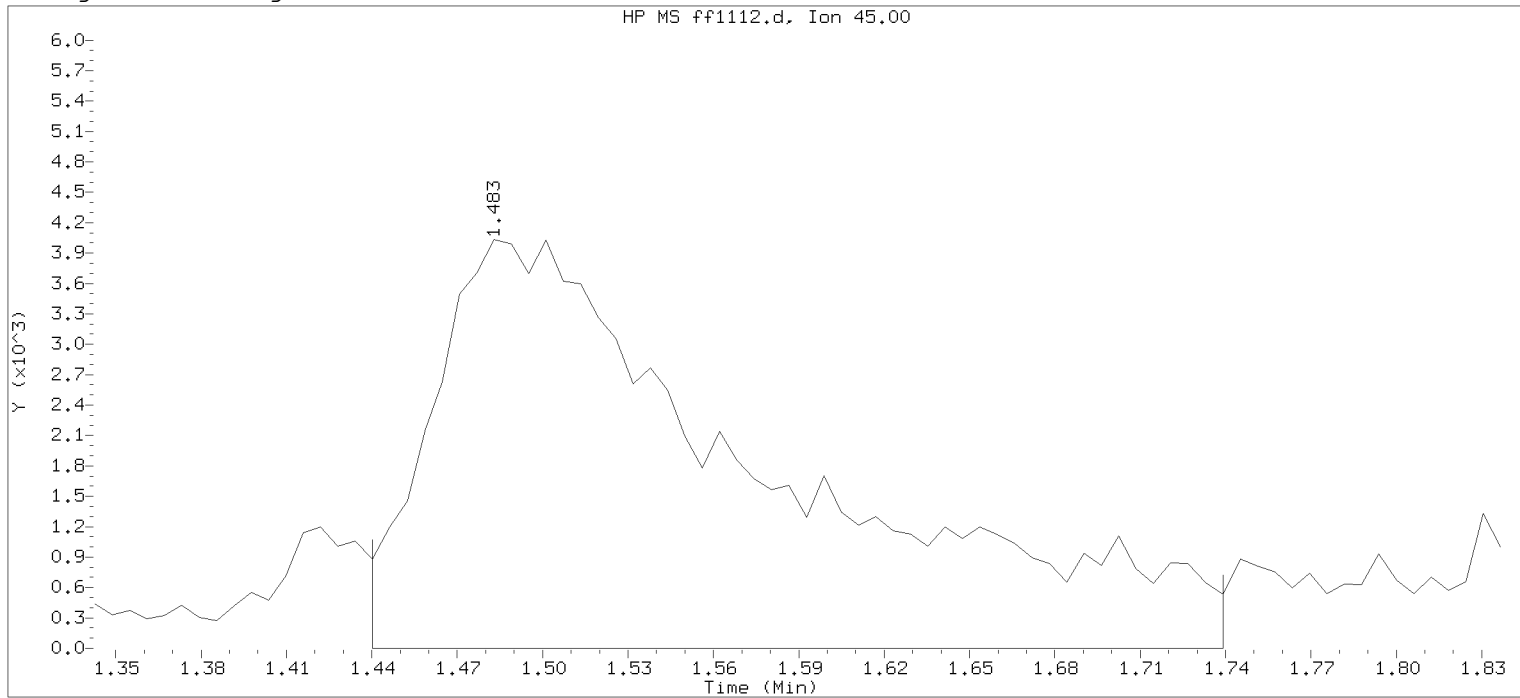
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/18/2020 at 13:39.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1112.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 11:44 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

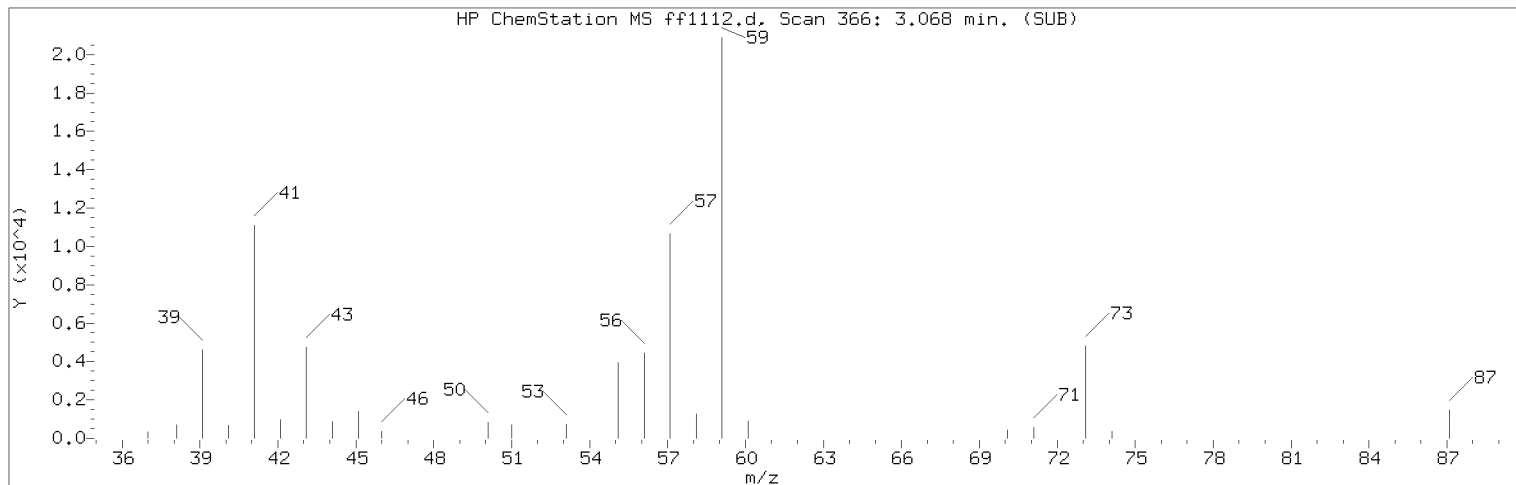
Sample Name: VSTD002

Lab Sample ID: VSTD002

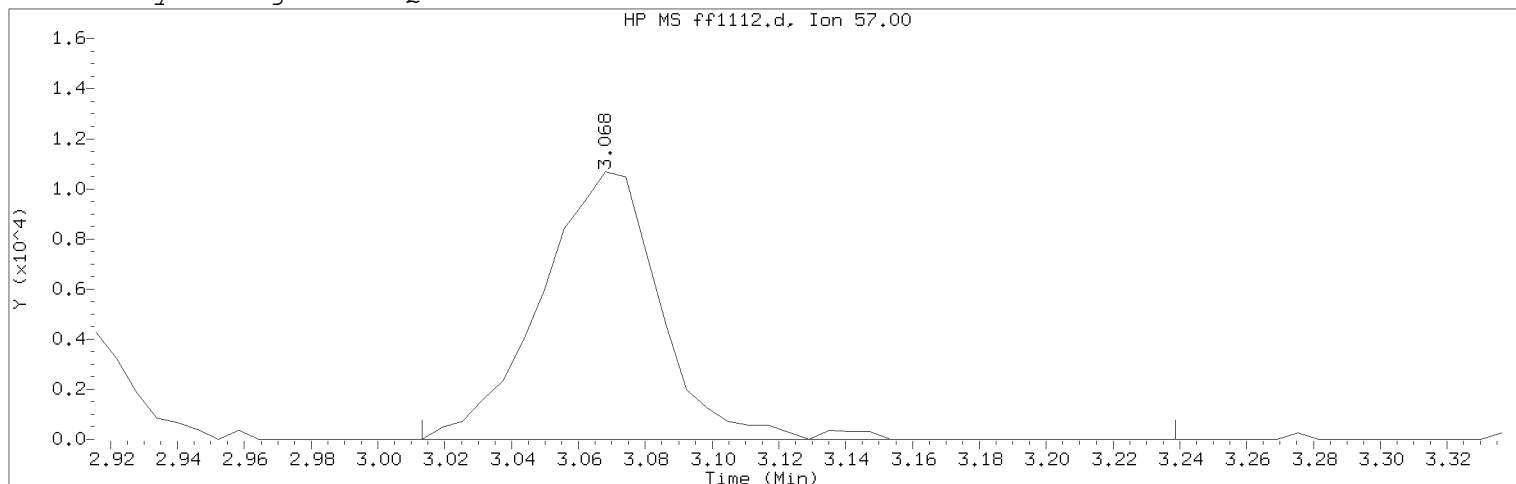
Compound Number : 1
Compound Name : Ethanol
Scan Number : 106
Retention Time (minutes): 1.483
Quant Ion : 45.00
Area : 32934
On-column Amount (ng) : 255.0563
Integration start scan : 98 Integration stop scan: 147
Y at integration start : 0 Y at integration end: 0

Digitally signed by Anita M. Dale on 02/12/2020 at 11:18.
Target 3.5 esignature user GPV68 Page 207 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1112.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 11:44 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 12-FEB-2020 11:13
Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

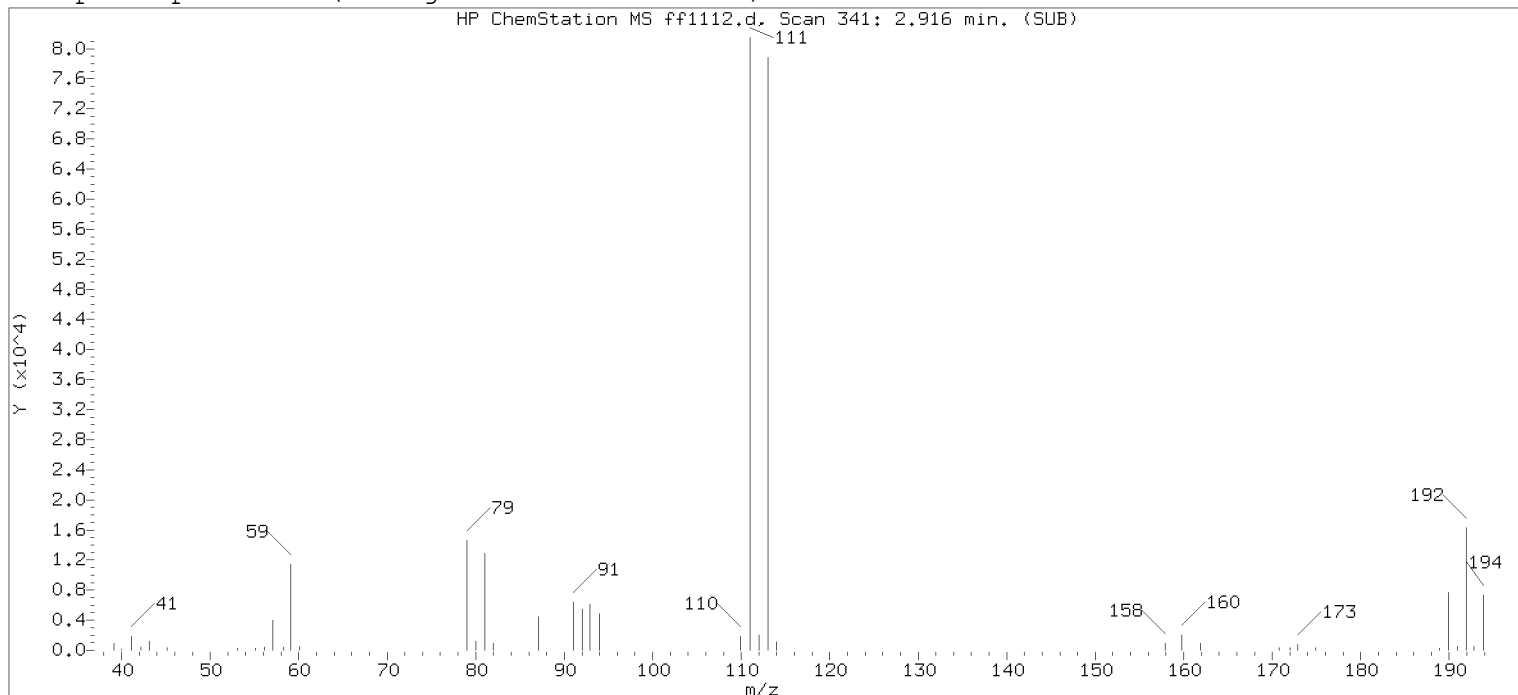
Compound Number	: 8	
Compound Name	: t-Butyl Formate	
Scan Number	: 366	
Retention Time (minutes)	: 3.068	
Quant Ion	: 57.00	
Area (flag)	: 26513A	
On-Column Amount (ng)	: 5.4982	
Integration start scan	: 356	Integration stop scan: 393
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

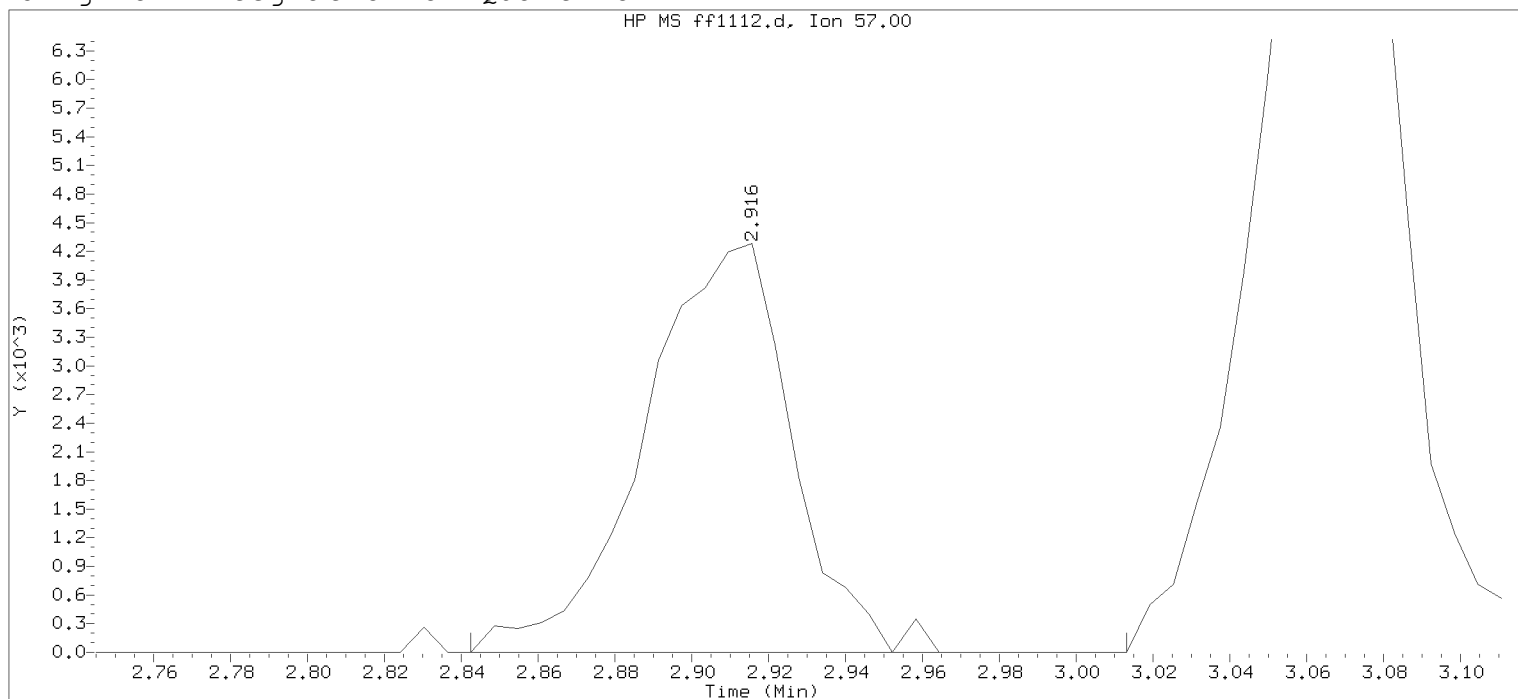
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/18/2020 at 13:39.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1112.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 11:44 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

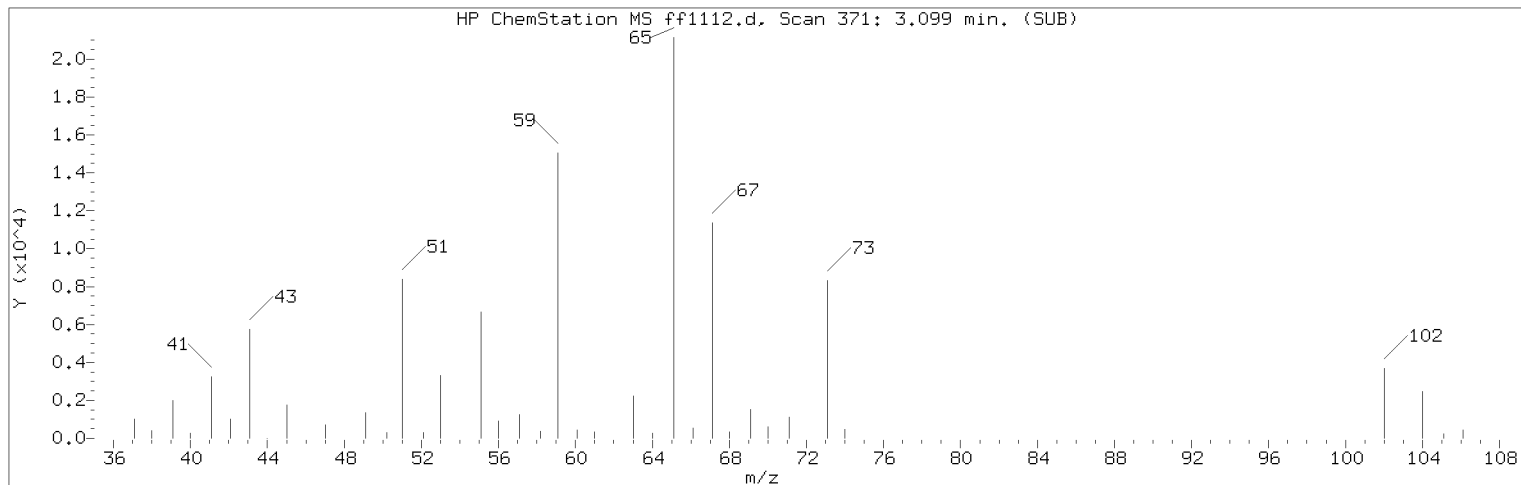
Sample Name: VSTD002

Lab Sample ID: VSTD002

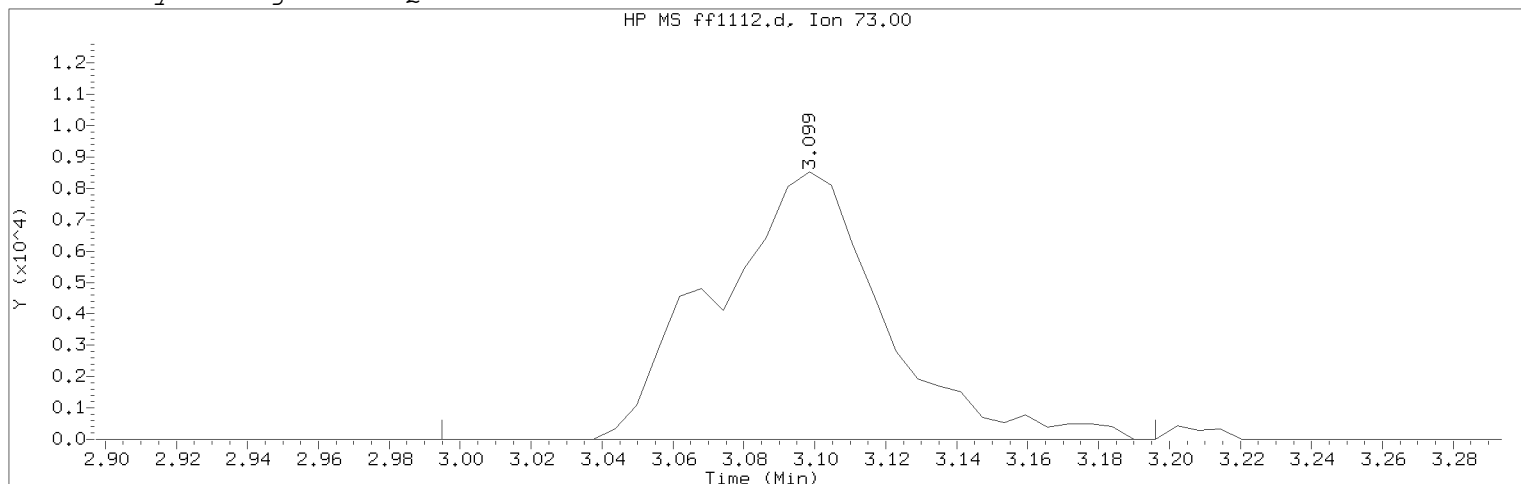
Compound Number : 8
Compound Name : t-Butyl Formate
Scan Number : 341
Retention Time (minutes): 2.916
Quant Ion : 57.00
Area : 11481
On-column Amount (ng) : 5.2685
Integration start scan : 328 Integration stop scan: 356
Y at integration start : 0 Y at integration end: 0

Digitally signed by Anita M. Dale on 02/12/2020 at 11:18.
Target 3.5 esignature user: GPV68 Page 209 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1112.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 11:44 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 12-FEB-2020 11:13
Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

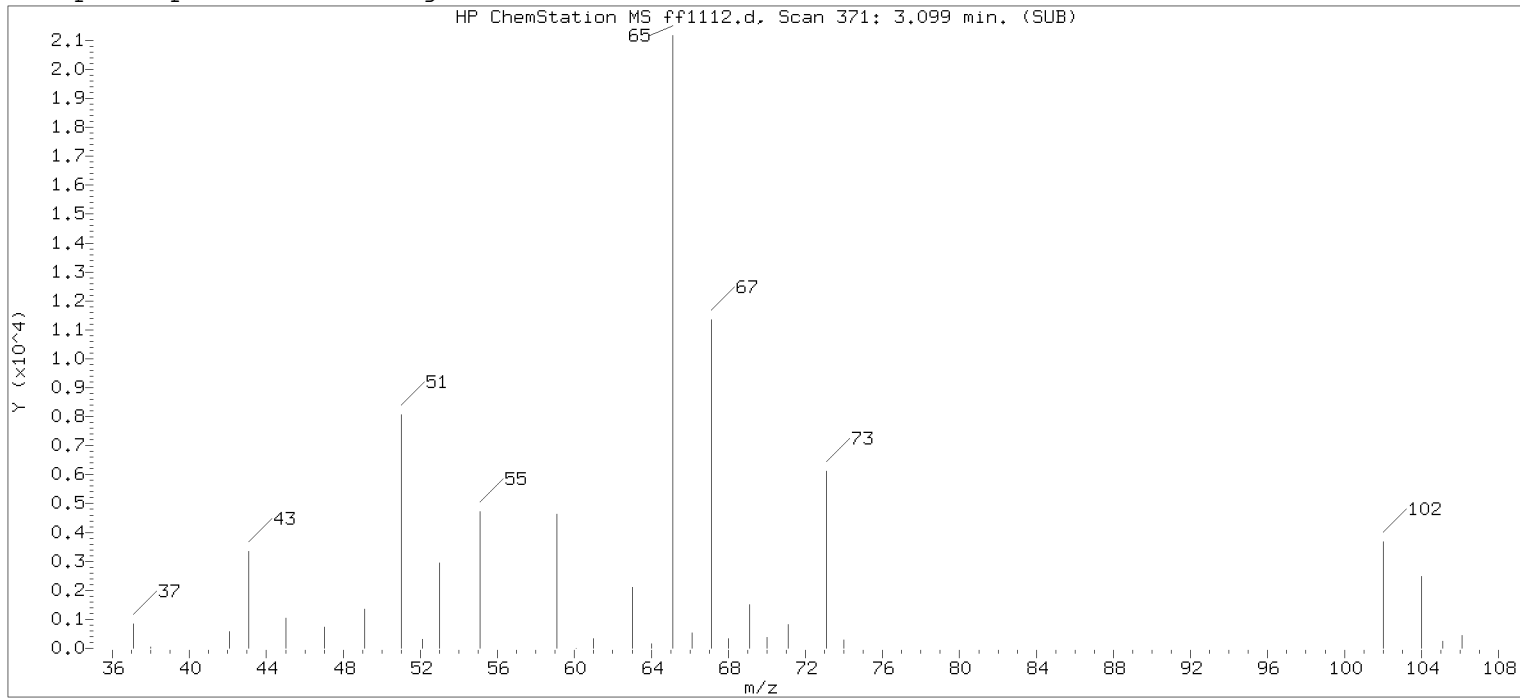
Compound Number	: 9	
Compound Name	: t-Amyl Alcohol	
Scan Number	: 371	
Retention Time (minutes)	: 3.099	
Quant Ion	: 73.00	
Area (flag)	: 28102M	
On-Column Amount (ng)	: 48.0568	
Integration start scan	: 353	Integration stop scan: 386
Y at integration start	: 0	Y at integration end: 0

Reason for manual integration: improper integration

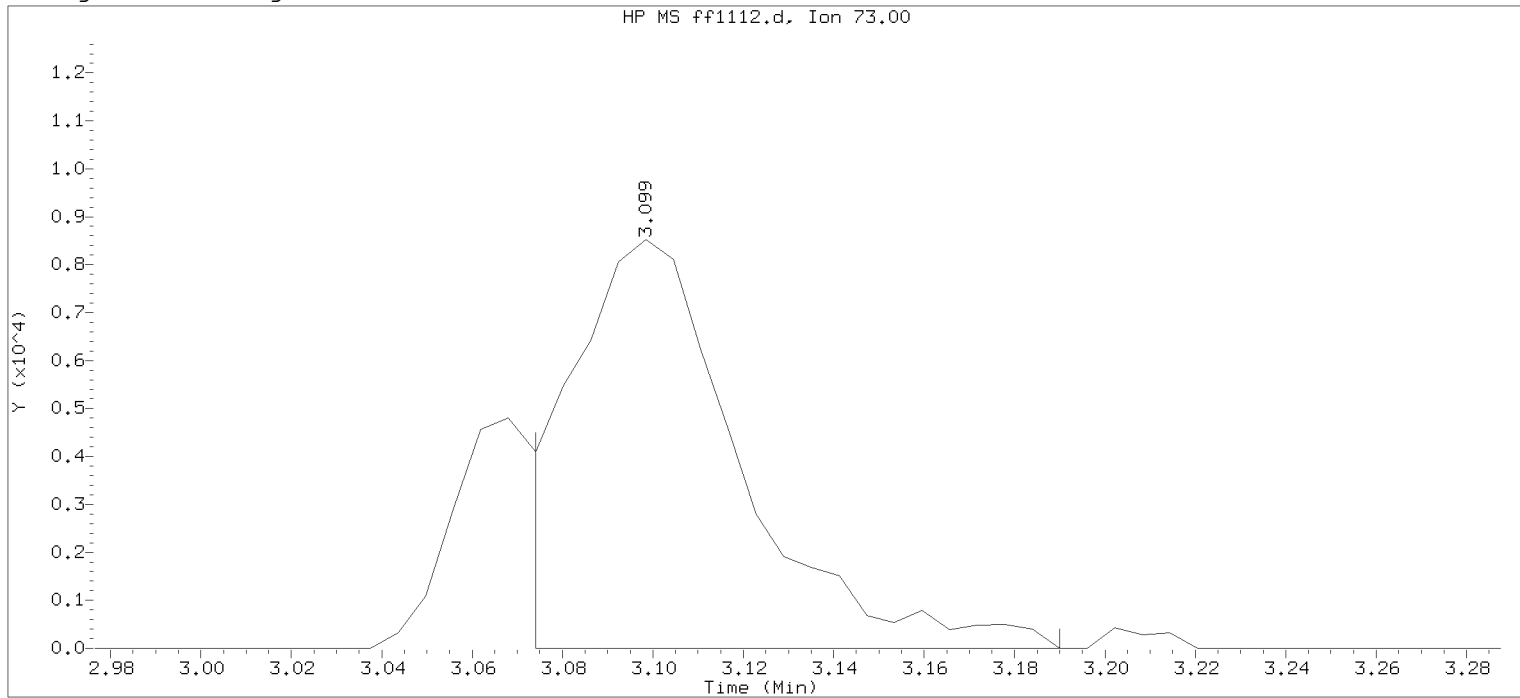
Analyst responsible for change: Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/18/2020 at 13:39.
PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1112.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 11:44 Analyst ID: amd00492

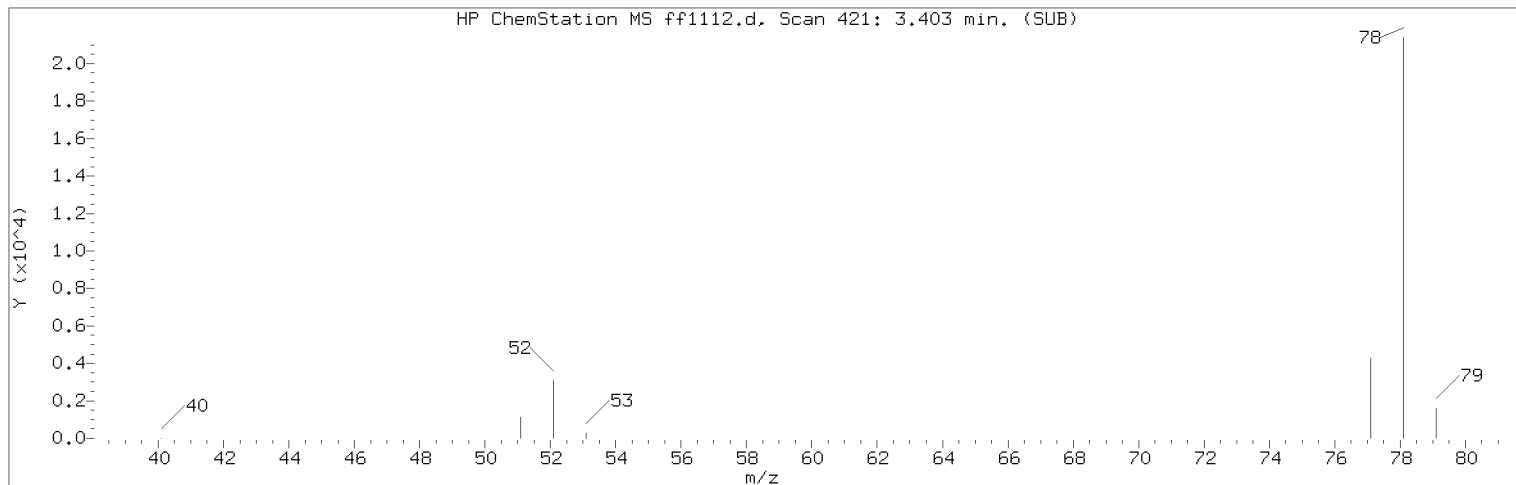
Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

Sample Name: VSTD002

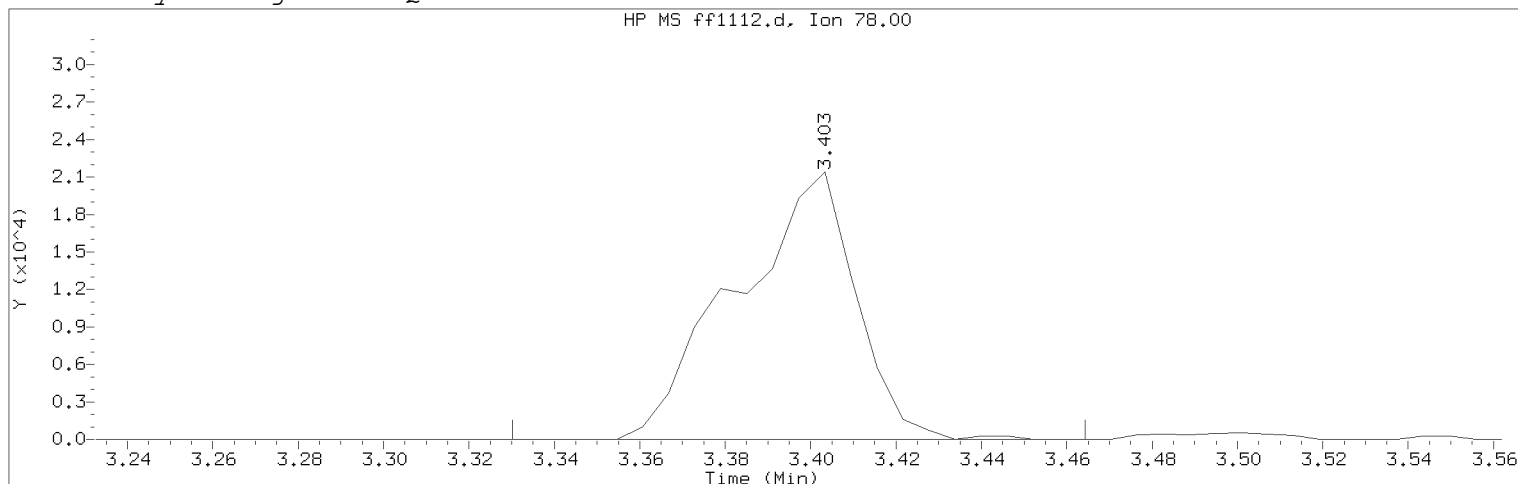
Lab Sample ID: VSTD002

Compound Number	: 9	
Compound Name	: t-Amyl Alcohol	
Scan Number	: 371	
Retention Time (minutes)	: 3.099	
Quant Ion	: 73.00	
Area	: 22346	
On-column Amount (ng)	: 39.5339	
Integration start scan	: 366	Integration stop scan: 385
Y at integration start	: 0	Y at integration end: 0

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP15830.i/20feb11a.b/ff1112.d

Instrument ID: HP15830.i

Injection date and time: 11-FEB-2020 11:44

Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m

Sublist used: 10945B-G

Calibration date and time: 12-FEB-2020 11:13

Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Compound Number : 12
 Compound Name : Benzene
 Scan Number : 421
 Retention Time (minutes): 3.403
 Quant Ion : 78.00
 Area (flag) : 41519M
 On-Column Amount (ng) : 2.0775
 Integration start scan : 408
 Y at integration start : 0

Integration stop scan: 430
 Y at integration end: 0

Reason for manual integration: improper integration

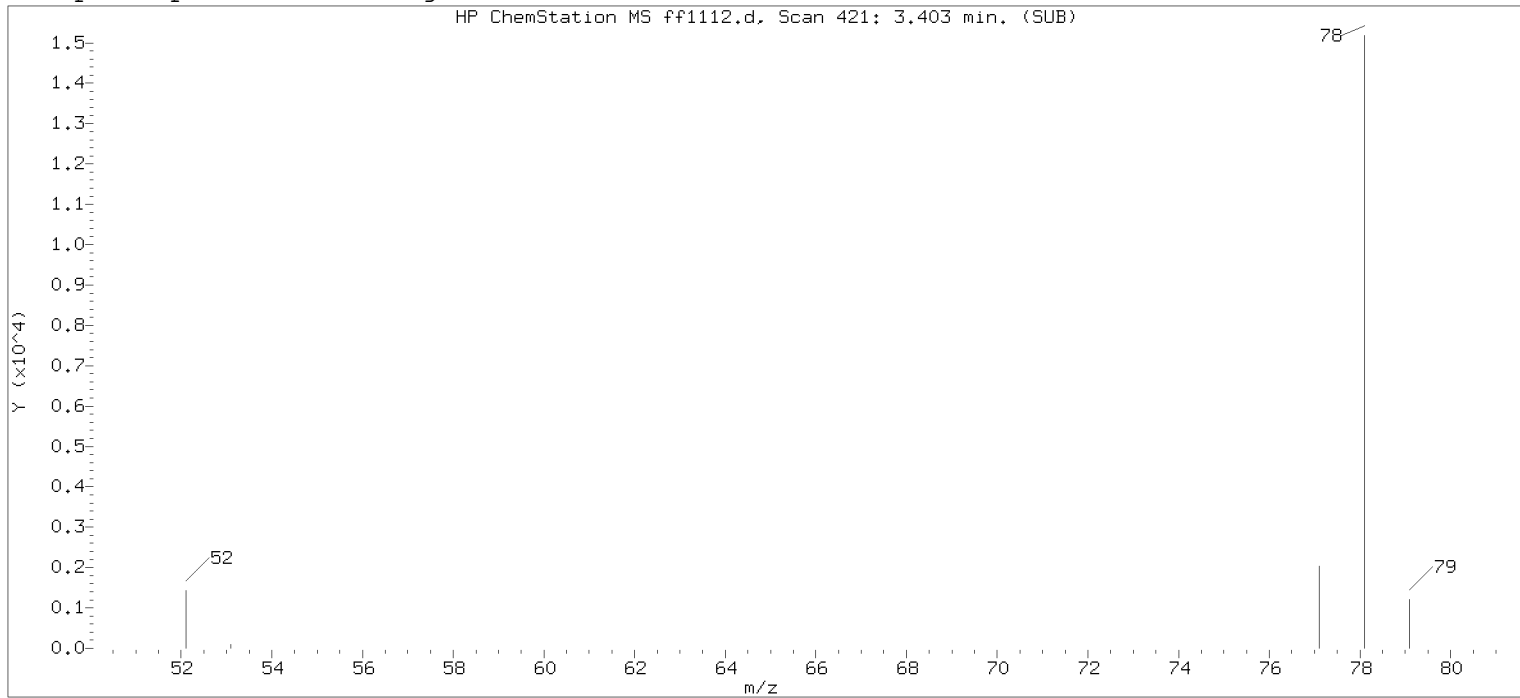
Analyst responsible for change:

Digitally signed by Anita M. Dale
 on 02/12/2020 at 11:18.

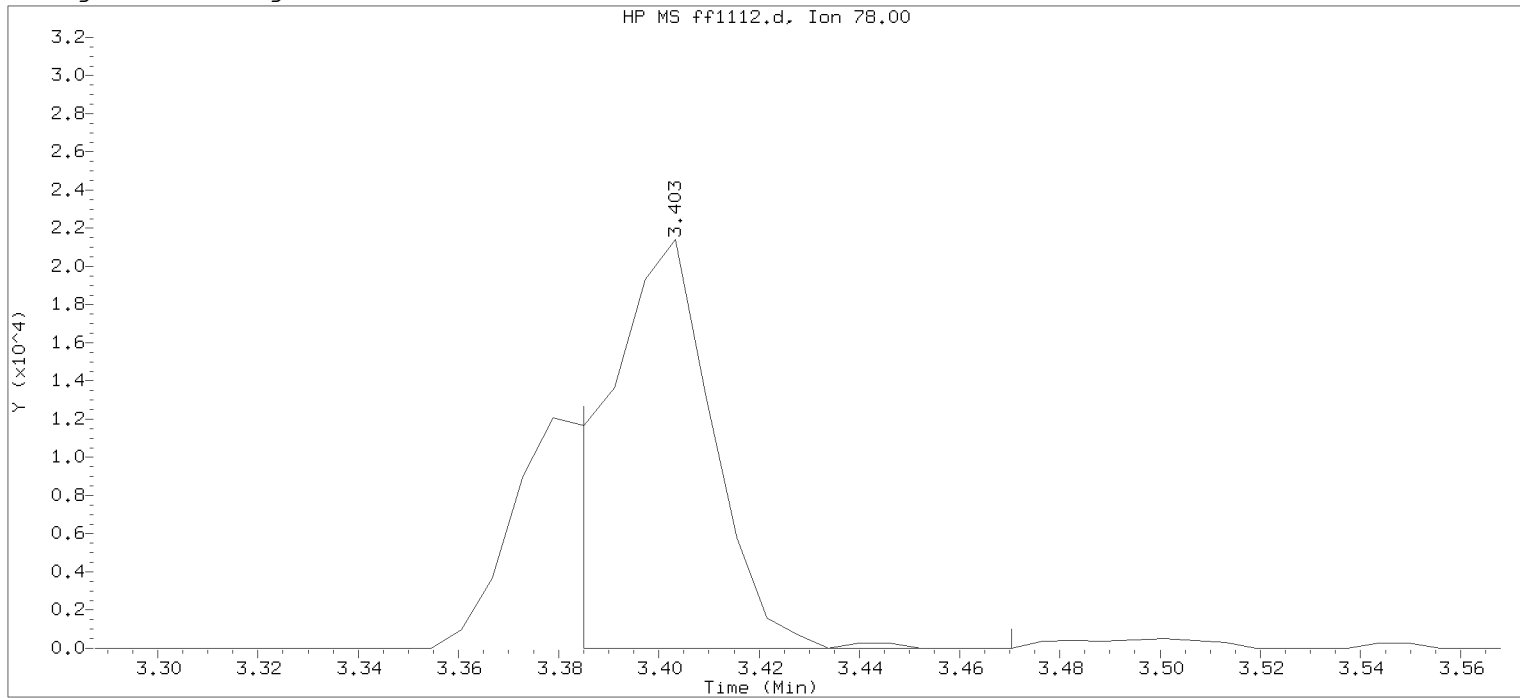
Target 3.5 esignature user ID: amd00492

Secondary review performed and digitally signed by Richard Samson on 02/18/2020 at 13:39.
 PARALLAX ID: rs08358

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



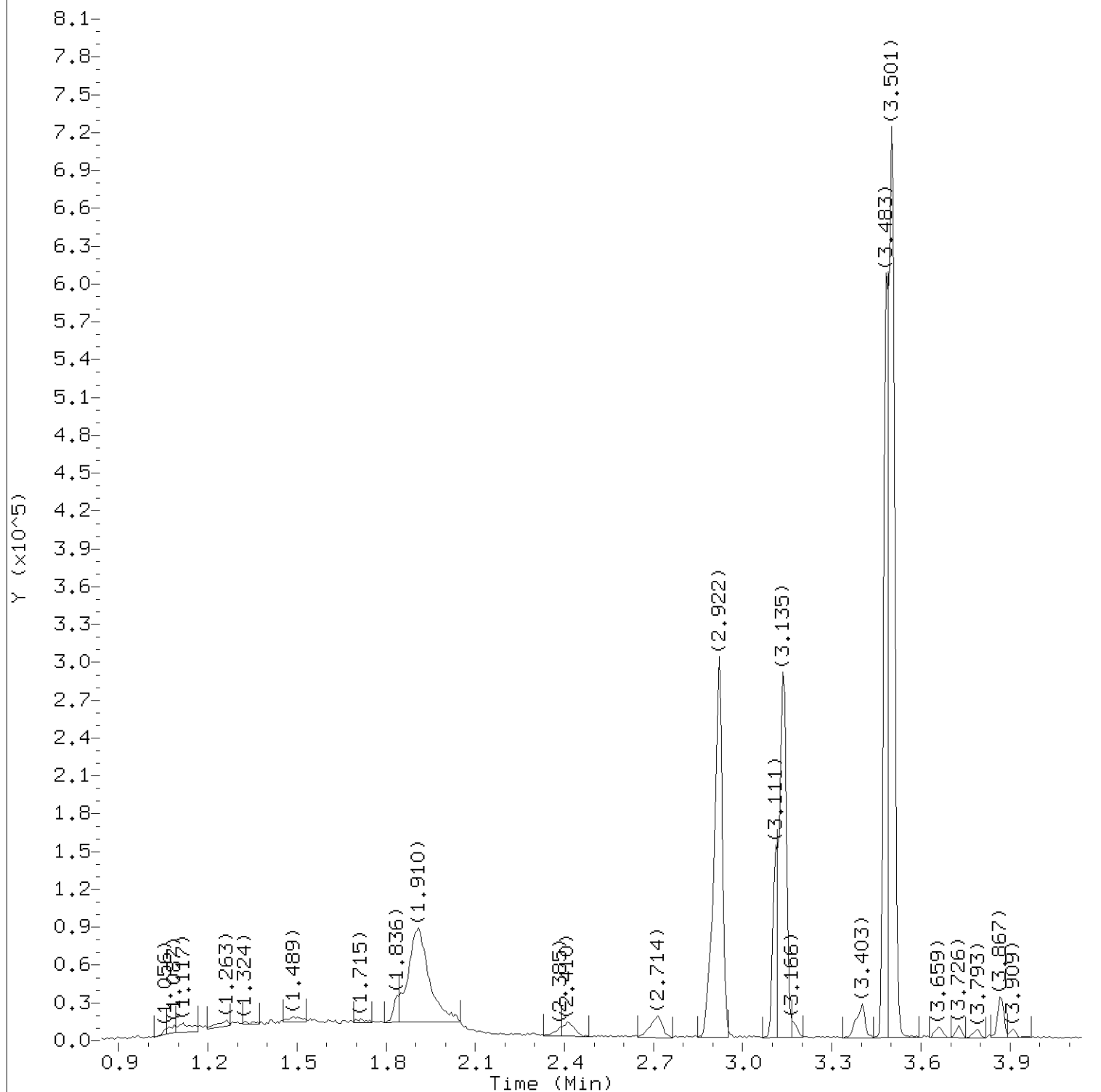
Data File: /chem/HP15830.i/20feb11a.b/ff1112.d Instrument ID: HP15830.i
Injection date and time: 11-FEB-2020 11:44 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 11-FEB-2020 11:58
Date, time and analyst ID of latest file update: 11-Feb-2020 11:58 amd00492

Sample Name: VSTD002

Lab Sample ID: VSTD002

Compound Number	: 12	
Compound Name	: Benzene	
Scan Number	: 421	
Retention Time (minutes)	: 3.403	
Quant Ion	: 78.00	
Area	: 29981	
On-column Amount (ng)	: 1.5606	
Integration start scan	: 417	Integration stop scan: 431
Y at integration start	: 0	Y at integration end: 0



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1114.d
Injection date and time: 11-FEB-2020 12:05

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 12-FEB-2020 11:13

Sublist used: 10945B-G

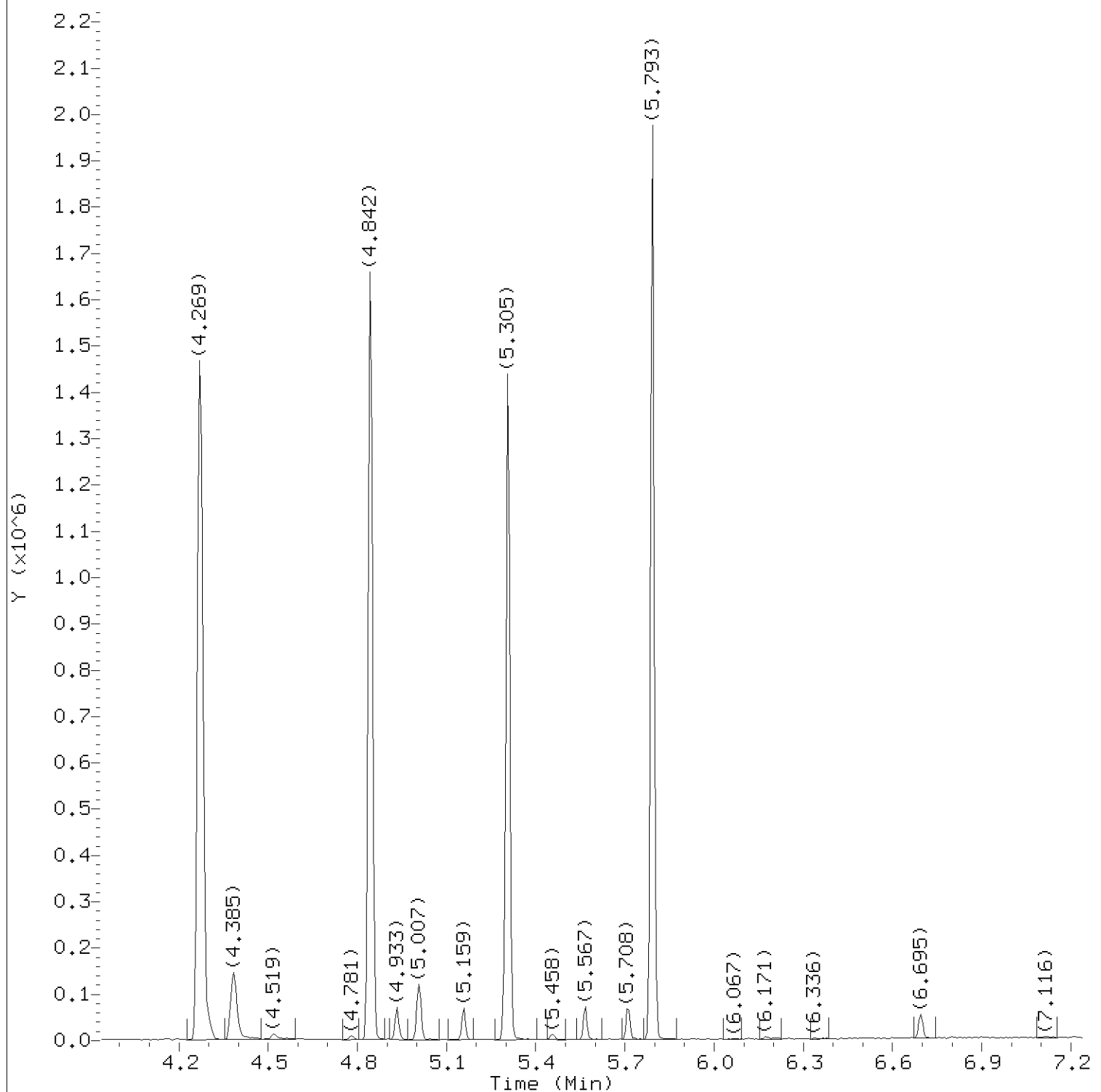
Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD001

Lab Sample ID: VSTD001

Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff11114.d
Injection date and time: 11-FEB-2020 12:05

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 12-FEB-2020 11:13

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD001

Lab Sample ID: VSTD001

Digitally signed by Anita M. Dale
on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff1114.d
 Injection date and time: 11-FEB-2020 12:05

Instrument ID: HP15830.i
 Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
 Calibration date and time: 12-FEB-2020 11:13
 Date, time and analyst ID of latest file update: 12-Feb-2020 11:13 amd00492

Sample Name: VSTD001

Lab Sample ID: VSTD001

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.477	45	25494	198.015
2) *t-Butyl alcohol-d10	(1)	1.910	65	227263	250.000
3) t-Butyl alcohol	(1)	1.946	59	6691	5.306
4) Methyl Tertiary Butyl Ether	(2)	2.410	73	16964	1.111
5) di-Isopropyl ether	(2)	2.714	45	18715	1.089
6) Ethyl t-butyl ether	(2)	2.903	59	17004	1.041
7) \$Dibromofluoromethane	(2)	2.922	113	167324	50.491
7) \$Dibromofluoromethane	(2)	2.922	111	171211	50.250
10) \$1,2-Dichloroethane-d4	(2)	3.141	102	43893	48.982
10) \$1,2-Dichloroethane-d4	(2)	3.135	65	225581	49.164
10) \$1,2-Dichloroethane-d4	(2)	3.135	104	28140	50.165
11) 1,2-Dichloroethane	(2)	3.178	62	8594	1.186
12) Benzene	(2)	3.403	78	22540	1.114
13) t-Amyl methyl ether	(2)	3.489	87	3897	1.037
14) *Fluorobenzene	(2)	3.501	96	721101	50.000
15) \$Toluene-d8	(3)	4.269	98	701424	50.097
15) \$Toluene-d8	(3)	4.269	100	447429	49.585
16) Toluene	(3)	4.299	92	14366	1.106
17) 3,3-Dimethyl-1-butanol	(1)	4.385	69	44910	53.845
18) 1,2-Dibromoethane	(3)	4.519	107	5086	1.072
19) *Chlorobenzene-d5	(3)	4.842	117	527021	50.000
20) Ethylbenzene	(3)	4.933	91	27134	1.069
21) m+p-Xylene	(3)	5.007	106	20481	2.115
22) o-Xylene	(3)	5.159	106	10339	1.103
24) Isopropylbenzene	(3)	5.299	105	28277	1.119
25) \$4-Bromofluorobenzene	(3)	5.305	95	271449	49.931
25) \$4-Bromofluorobenzene	(3)	5.305	174	212149	49.785
23) Xylene (Total)	(3)		106	30820	3.218
26) 1,3,5-Trimethylbenzene	(4)	5.567	105	21891	1.061
27) 1,2,4-Trimethylbenzene	(4)	5.708	105	21687	1.048
28) *1,4-Dichlorobenzene-d4	(4)	5.793	152	270441	50.000
29) Naphthalene	(4)	6.695	128	24903	1.071

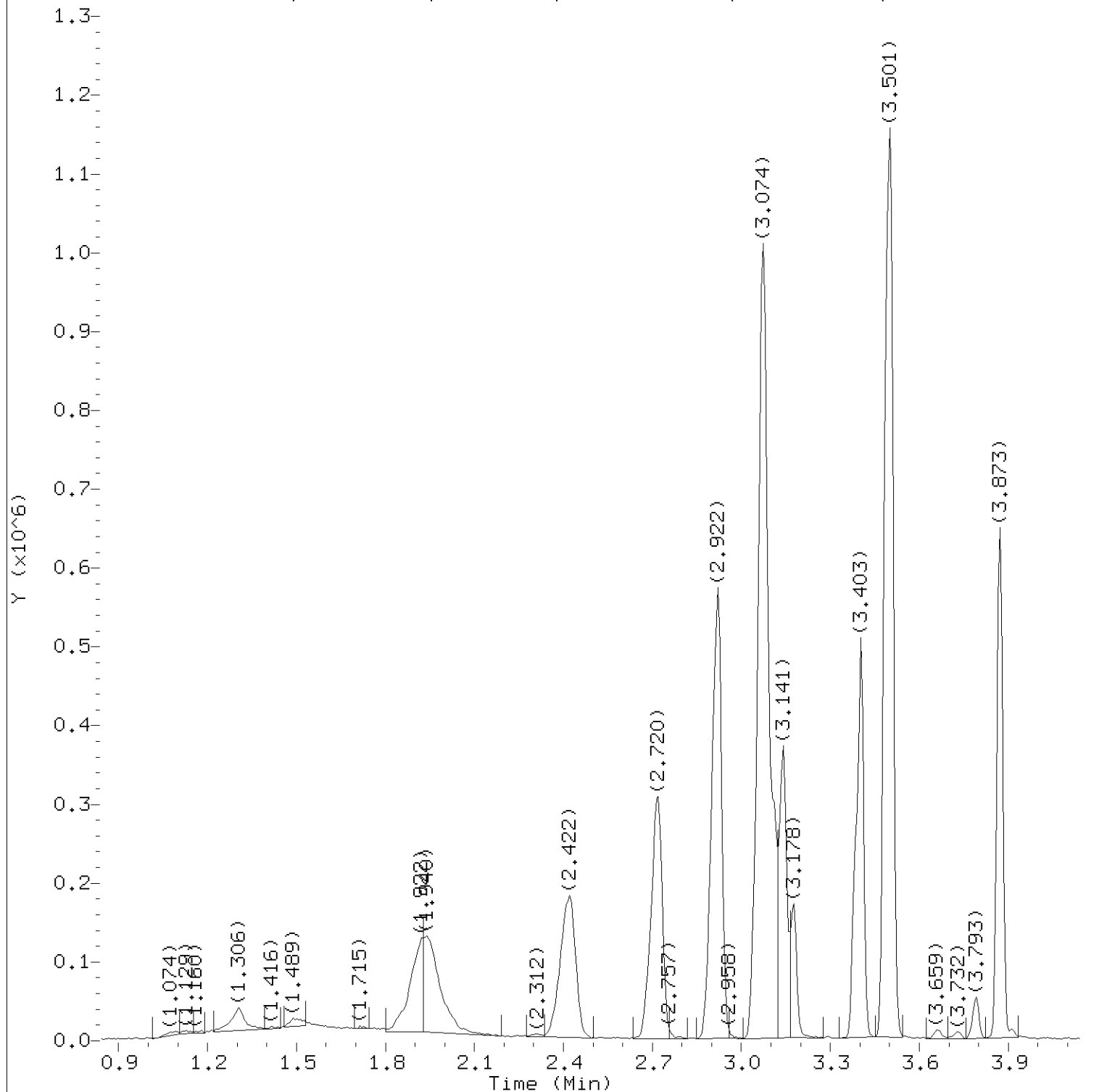
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Anita M. Dale
 on 02/12/2020 at 11:18.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff11v02.d
Injection date and time: 11-FEB-2020 12:50

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 19-FEB-2020 07:06

Sublist used: 10945B-G

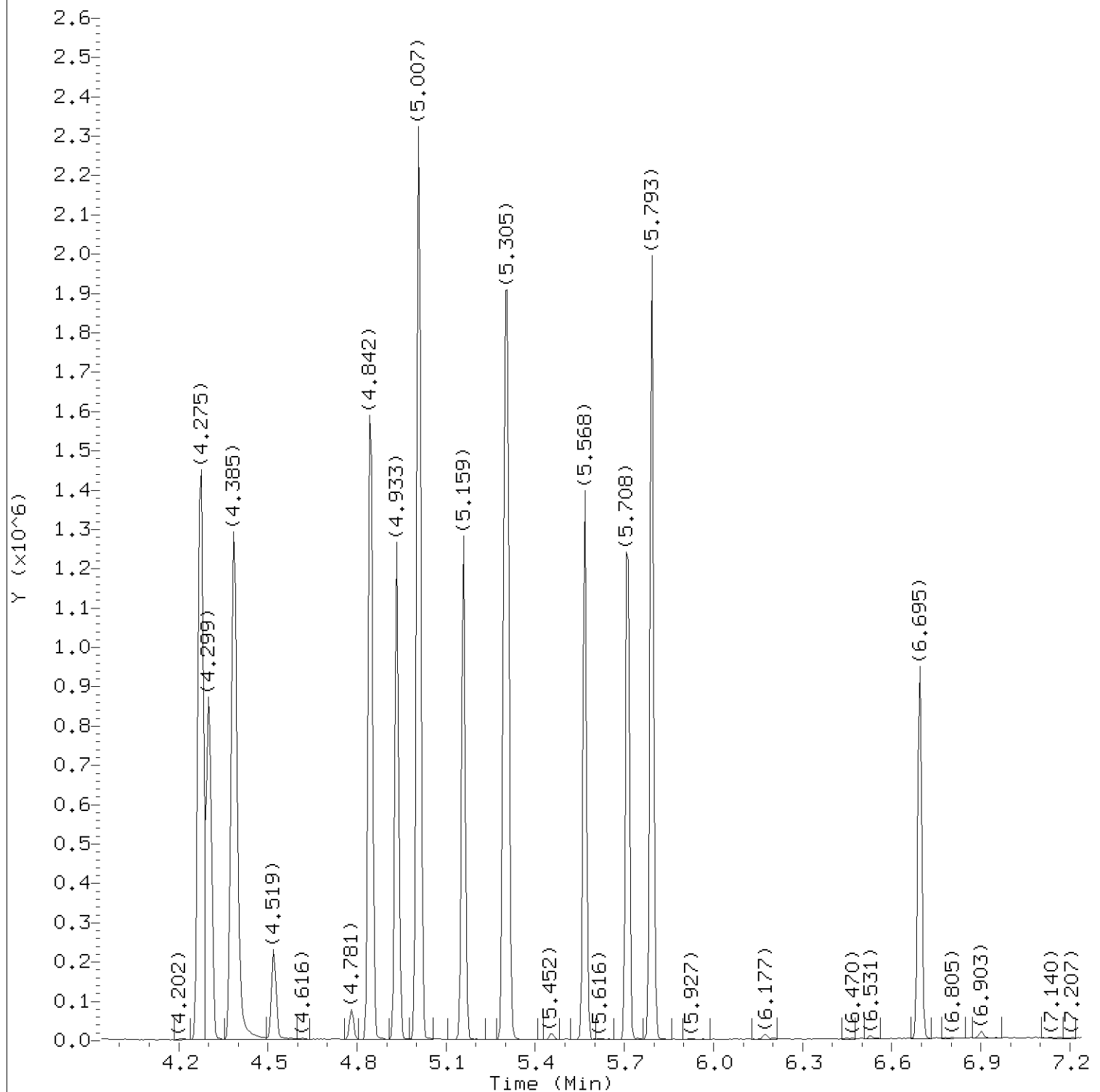
Date, time and analyst ID of latest file update: 19-Feb-2020 07:07 amd00492

Sample Name: FICV50

Lab Sample ID: FICV50

Digitally signed by Anita M. Dale
on 02/19/2020 at 07:11.

Target 3.5 esignature user ID: amd00492



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff11v02.d
Injection date and time: 11-FEB-2020 12:50

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m
Calibration date and time: 19-FEB-2020 07:06

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 19-Feb-2020 07:07 amd00492

Sample Name: FICV50

Lab Sample ID: FICV50

Digitally signed by Anita M. Dale
on 02/19/2020 at 07:11.

Target 3.5 esignature user ID: amd00492

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20feb11a.b/ff11v02.d
Injection date and time: 11-FEB-2020 12:50

Instrument ID: HP15830.i
Analyst ID: amd00492

Method used: /chem/HP15830.i/20feb11a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 19-FEB-2020 07:06
Date, time and analyst ID of latest file update: 19-Feb-2020 07:07 amd00492

Sample Name: FICV50

Lab Sample ID: FICV50

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.501	45	64685	508.379
2) *t-Butyl alcohol-d10	(1)	1.916	65	224175	250.000
3) t-Butyl alcohol	(1)	1.958	59	228036	179.461
4) Methyl Tertiary Butyl Ether	(2)	2.422	73	309562	19.895
5) di-Isopropyl ether	(2)	2.720	45	341562	19.342
6) Ethyl t-butyl ether	(2)	2.910	59	327801	19.474
7) \$Dibromofluoromethane	(2)	2.922	113	167896	49.674
8) t-Butyl Formate	(2)	3.074	57	417743	85.919
9) t-Amyl Alcohol	(1)	3.105	73	103283	181.897
10) \$1,2-Dichloroethane-d4	(2)	3.141	102	46847	50.949
11) 1,2-Dichloroethane	(2)	3.178	62	145435	19.653
12) Benzene	(2)	3.403	78	405589	19.577
13) t-Amyl methyl ether	(2)	3.495	87	75225	19.421
14) *Fluorobenzene	(2)	3.507	96	734895	50.000
15) \$Toluene-d8	(3)	4.275	98	708593	49.554
16) Toluene	(3)	4.299	92	257961	19.327
17) 3,3-Dimethyl-1-butanol	(1)	4.385	69	372430	455.680
18) 1,2-Dibromoethane	(3)	4.519	107	95507	19.461
19) *Chlorobenzene-d5	(3)	4.848	117	538201	50.000
20) Ethylbenzene	(3)	4.933	91	506866	19.364
21) m+p-Xylene	(3)	5.007	106	388283	38.832
22) o-Xylene	(3)	5.159	106	188656	19.474
24) Isopropylbenzene	(3)	5.299	105	491429	18.870
25) \$4-Bromofluorobenzene	(3)	5.305	95	276733	49.836
23) Xylene (Total)	(3)		106	576939	58.306
26) 1,3,5-Trimethylbenzene	(4)	5.568	105	410829	19.053
27) 1,2,4-Trimethylbenzene	(4)	5.714	105	415721	19.162
28) *1,4-Dichlorobenzene-d4	(4)	5.793	152	279999	50.000
29) Naphthalene	(4)	6.695	128	435436	17.820

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Anita M. Dale
on 02/19/2020 at 07:11.

Target 3.5 esignature user ID: amd00492

Page 1

Client ID: BFBJAN28-20

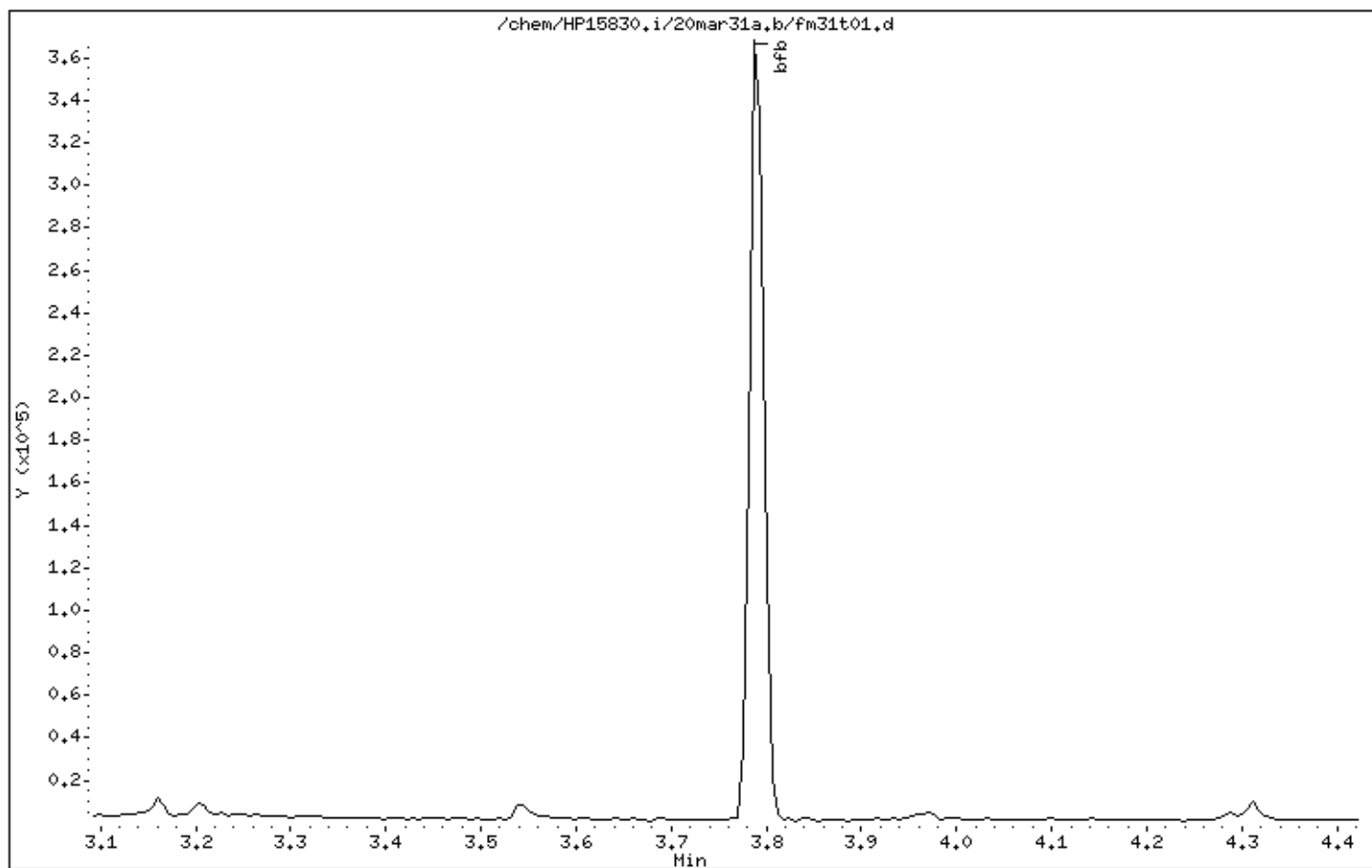
Instrument: HP15830.i

Sample Info: BFBJAN28-20;50NGBFB;1;3; ; ; ; ;

Operator: ADS07818

Column phase: Rtx-VRX

Column diameter: 0.18



Date : 31-MAR-2020 07:36

Client ID: BFBJAN28-20

Instrument: HP15830.i

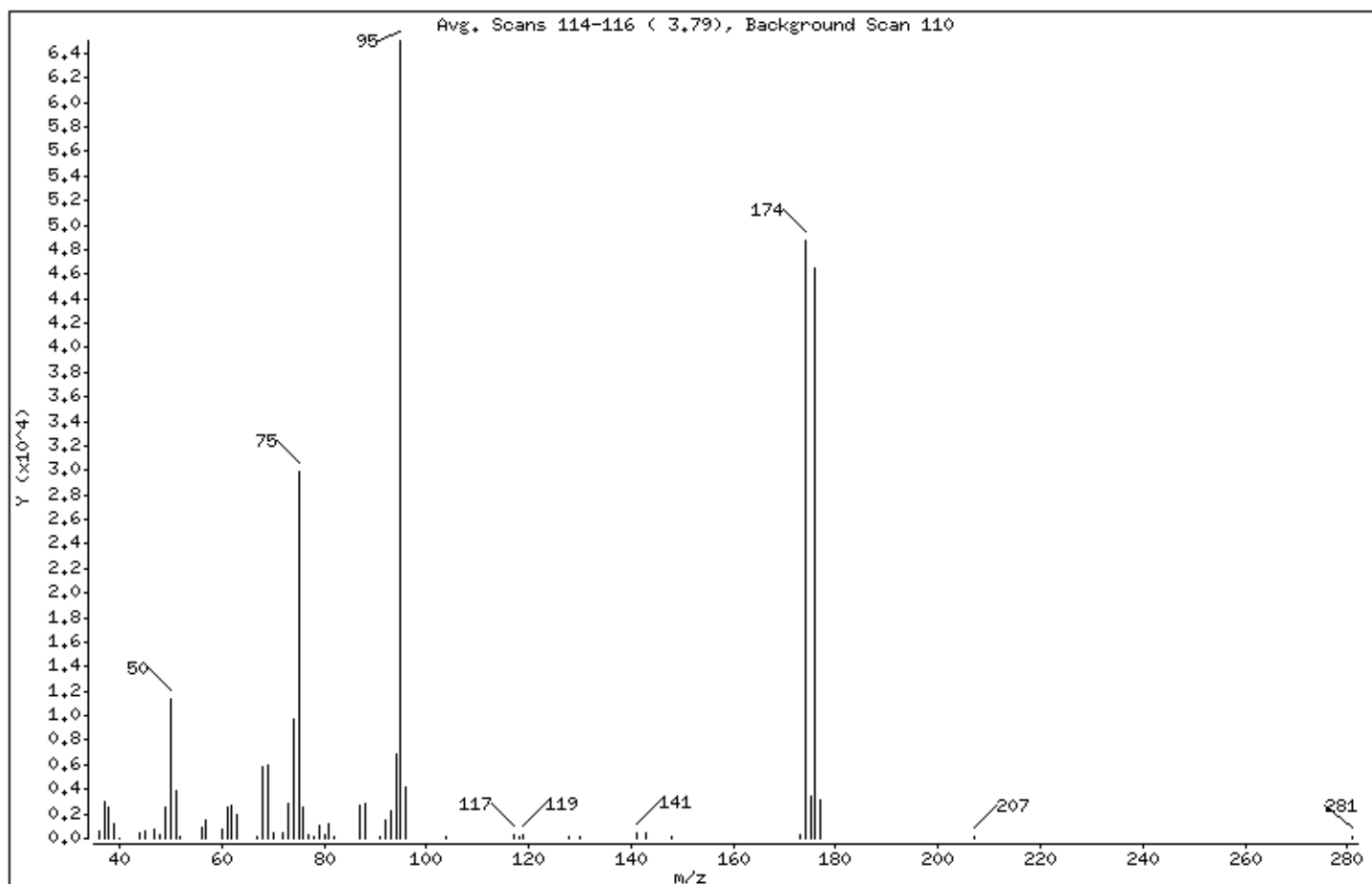
Sample Info: BFBJAN28-20;50NGBFB;1;3;++++;

Operator: ADS07818

Column phase: Rtx-VRX

Column diameter: 0,18

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.56
75	30.00 - 60.00% of mass 95	45.96
96	5.00 - 9.00% of mass 95	6.42
173	Less than 2.00% of mass 174	0.57 (0.76)
174	50.00 - 100.00% of mass 95	75.04
175	5.00 - 9.00% of mass 174	5.18 (6.91)
176	95.00 - 101.00% of mass 174	71.39 (95.14)
177	5.00 - 9.00% of mass 176	4.75 (6.65)

Date : 31-MAR-2020 07:36

Client ID: BFBJAN28-20

Instrument: HP15830.i

Sample Info: BFBJAN28-20;50NGBFB;1;3;++++;

Operator: ADS07818

Column phase: Rtx-VRX

Column diameter: 0,18

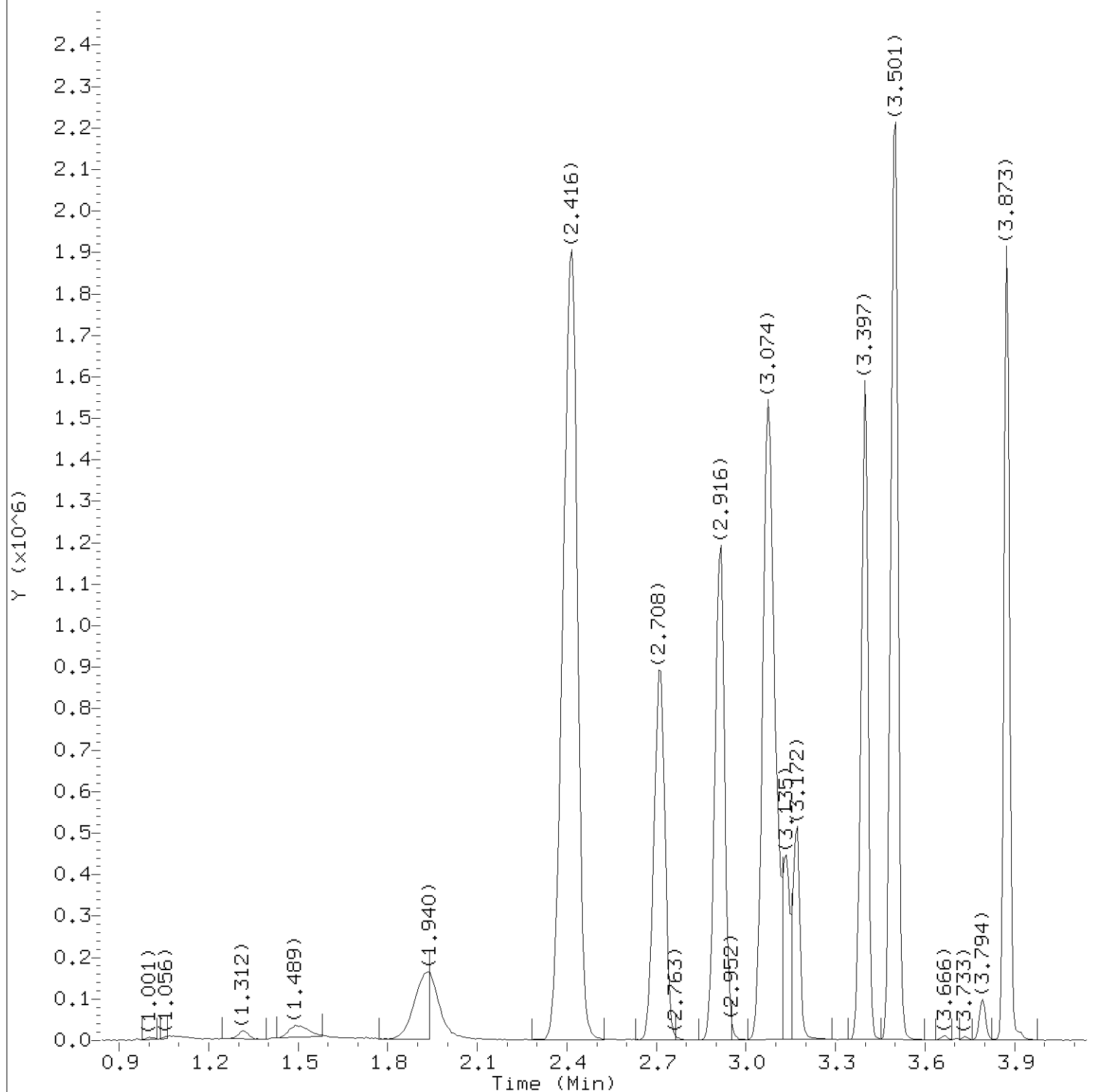
Data File: fm31t01.d

Spectrum: Avg. Scans 114-116 (3.79), Background Scan 110

Location of Maximum: 95,00

Number of points: 58

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36,00	607	60,00	725	79,00	1099	119,00	250
37,00	3035	61,00	2603	80,00	326	128,00	90
38,00	2474	62,00	2622	81,00	1165	130,00	220
39,00	1184	63,00	1942	82,00	197	141,00	505
40,00	42	67,00	92	87,00	2695	143,00	434
44,00	448	68,00	5793	88,00	2819	148,00	84
45,00	668	69,00	6001	91,00	83	173,00	373
47,00	778	70,00	461	92,00	1538	174,00	48808
48,00	326	72,00	437	93,00	2269	175,00	3371
49,00	2493	73,00	2822	94,00	6922	176,00	46432
50,00	11425	74,00	9763	95,00	65040	177,00	3087
51,00	3877	75,00	29896	96,00	4174	207,00	88
52,00	89	76,00	2604	104,00	93	281,00	122
56,00	836	77,00	298	117,00	302		
57,00	1471	78,00	123	118,00	126		



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31c02.d
Injection date and time: 31-MAR-2020 08:28

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 10945B-G

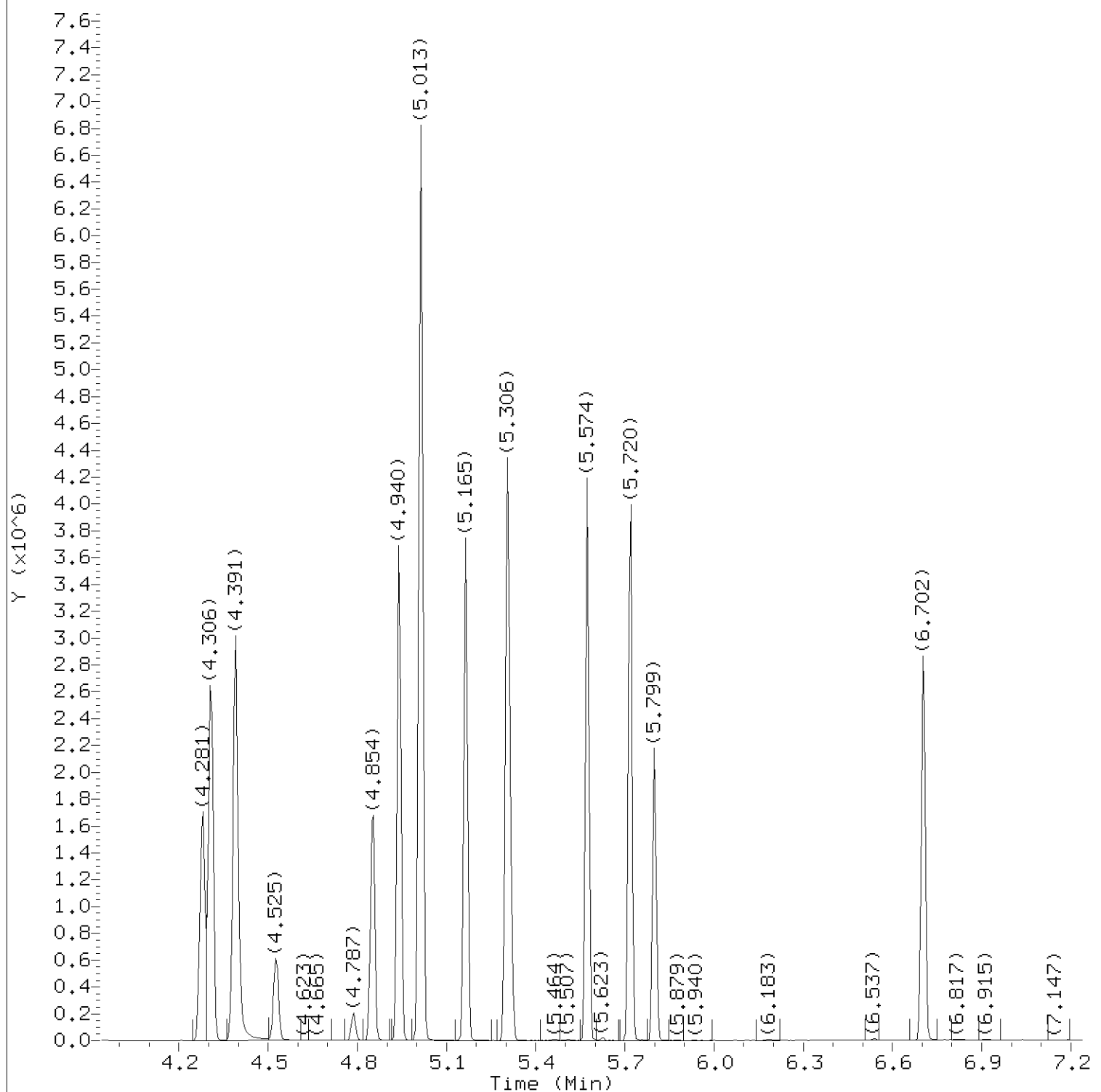
Date, time and analyst ID of latest file update: 31-Mar-2020 08:38 ads07818

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 08:42.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31c02.d
Injection date and time: 31-MAR-2020 08:28

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 31-Mar-2020 08:38 ads07818

Sample Name: VSTD050

Lab Sample ID: VSTD050

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 08:42.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31c02.d
 Injection date and time: 31-MAR-2020 08:28

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 10945B-G
 Calibration date and time: 31-MAR-2020 08:38
 Date, time and analyst ID of latest file update: 31-Mar-2020 08:38 ads07818

Sample Name: VSTD050

Lab Sample ID: VSTD050

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.489	45	129214	1053.991
2) *t-Butyl alcohol-d10	(1)	1.910	65	215995	250.000
3) t-Butyl alcohol	(1)	1.946	59	323903	264.560
4) Methyl Tertiary Butyl Ether	(2)	2.416	73	3170313	185.672
5) di-Isopropyl ether	(2)	2.708	45	999954	51.603
6) Ethyl t-butyl ether	(2)	2.910	59	929007	50.296
7) \$Dibromofluoromethane	(2)	2.916	113	178667	48.171
7) \$Dibromofluoromethane	(2)	2.916	111	183061	47.988
8) t-Butyl Formate	(2)	3.068	57	544552	102.065
9) t-Amyl Alcohol	(1)	3.093	73	277924	508.002
10) \$1,2-Dichloroethane-d4	(2)	3.135	102	51471	51.012
10) \$1,2-Dichloroethane-d4	(2)	3.135	65	246332	47.710
10) \$1,2-Dichloroethane-d4	(2)	3.135	104	30320	48.403
11) 1,2-Dichloroethane	(2)	3.172	62	384500	47.350
12) Benzene	(2)	3.397	78	1204971	53.001
13) t-Amyl methyl ether	(2)	3.495	87	212118	49.905
14) *Fluorobenzene	(2)	3.501	96	806434	50.000
15) \$Toluene-d8	(3)	4.281	98	779219	48.263
15) \$Toluene-d8	(3)	4.281	100	506664	48.680
16) Toluene	(3)	4.306	92	775690	51.471
17) 3,3-Dimethyl-1-butanol	(1)	4.391	69	745494	946.677
18) 1,2-Dibromoethane	(3)	4.525	107	283560	51.174
19) *Chlorobenzene-d5	(3)	4.854	117	607676	50.000
20) Ethylbenzene	(3)	4.940	91	1501494	50.805
21) m+p-Xylene	(3)	5.013	106	1167291	103.394
22) o-Xylene	(3)	5.165	106	556689	50.895
24) Isopropylbenzene	(3)	5.306	105	1463639	49.776
25) \$4-Bromofluorobenzene	(3)	5.312	95	306419	48.873
25) \$4-Bromofluorobenzene	(3)	5.318	174	236353	48.166
23) Xylene (Total)	(3)		106	1723981	154.289
26) 1,3,5-Trimethylbenzene	(4)	5.574	105	1215893	50.070
27) 1,2,4-Trimethylbenzene	(4)	5.720	105	1255549	51.387
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	315332	50.000
29) Naphthalene	(4)	6.702	128	1389962	50.510

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
 on 03/31/2020 at 08:42.
 Target 3.5 esignature user ID: ads07818

Raw QC Data

Volatiles by GC/MS

VBLKF14

Injection date and time: **31-MAR-2020 09:12**
Instrument ID: **HP15830.i** Batch: **F200912AA**

VBLKF14

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKF14

Data file: /chem/HP15830.i/20mar31a.b/fm31b02.d

Injection date and time: **31-MAR-2020 09:12**

Data file Sample Info. Line: VBLKF14;VBLKF14;1;3;;;;;

Instrument ID: **HP15830.i** Batch: **F200912AA**

Date, time and analyst ID of latest file update: 31-Mar-2020 12:10 ads07818

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: **10945B-G**

Calibration date and time (Last Method Edit): 31-MAR-2020 08:38

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo)

VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml

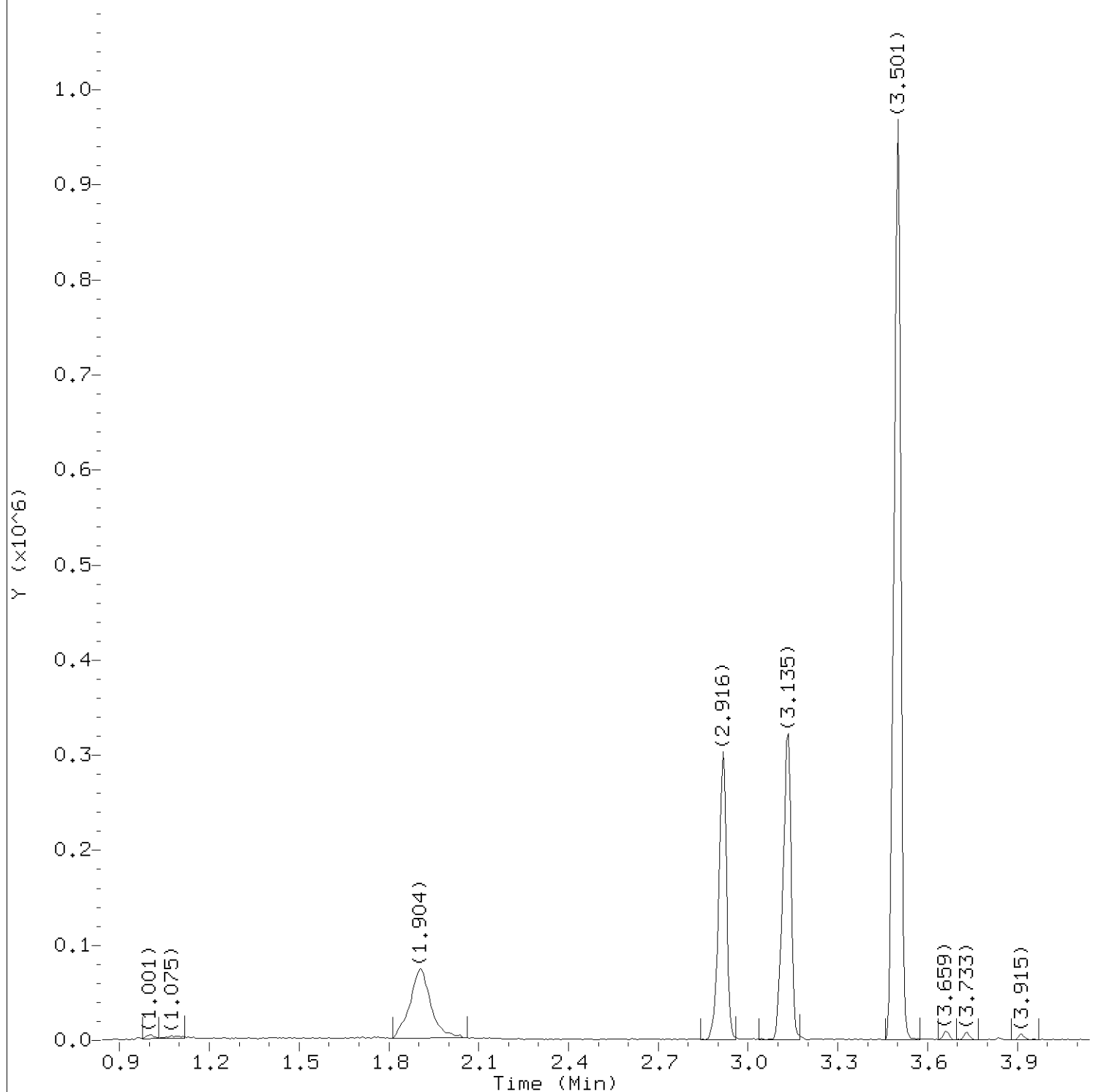
Sample Volume (Vo): 5 ml

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Total number of targets = 21

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 12:11. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Richard Samson on 03/31/2020 at 21:04. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31b02.d
Injection date and time: 31-MAR-2020 09:12

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 10945B-G

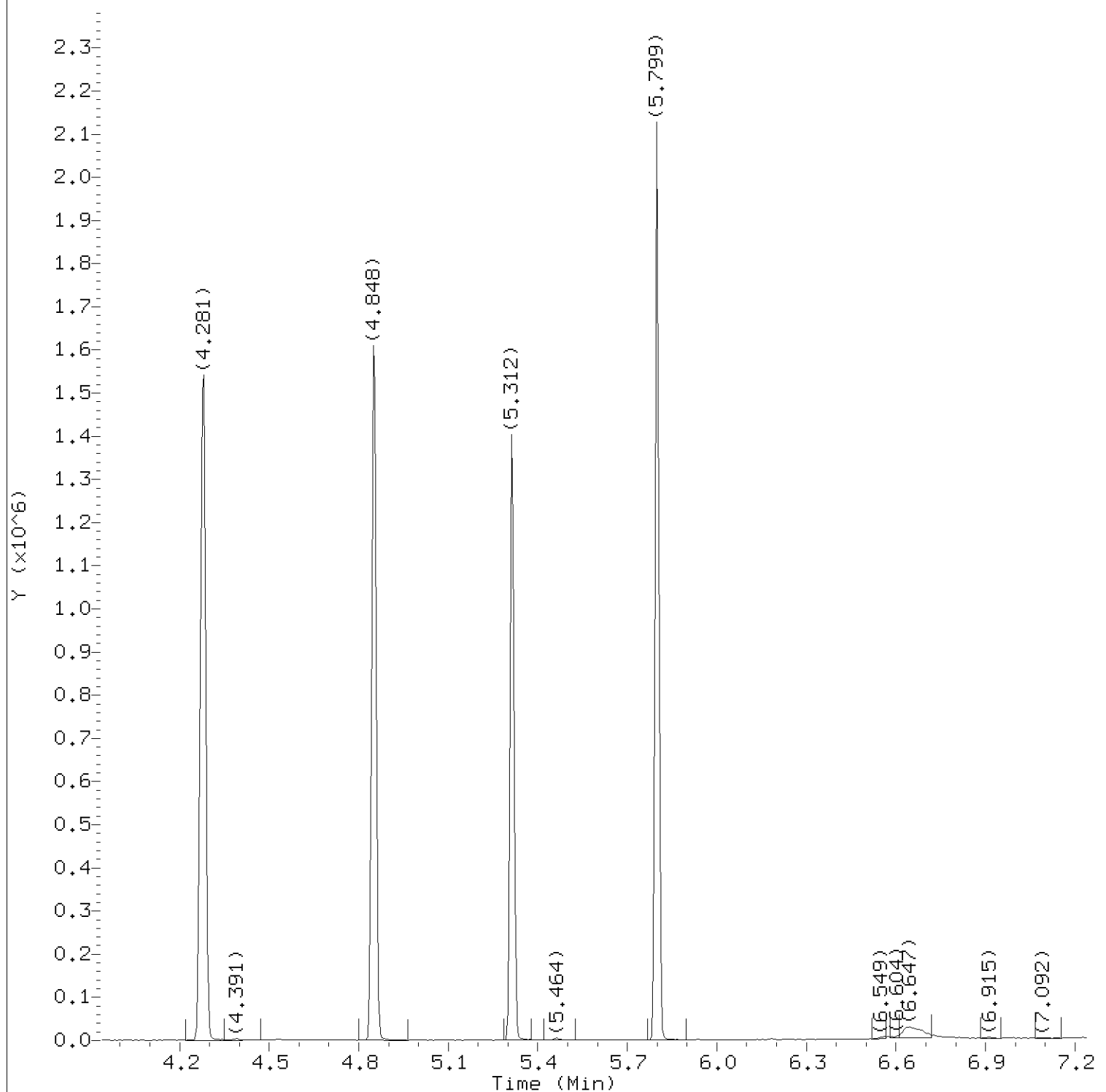
Date, time and analyst ID of latest file update: 31-Mar-2020 12:10 ads07818

Sample Name: VBLKF14

Lab Sample ID: VBLKF14

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 12:11.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31b02.d
Injection date and time: 31-MAR-2020 09:12

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 31-Mar-2020 12:10 ads07818

Sample Name: VBLKF14

Lab Sample ID: VBLKF14

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 12:11.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31b02.d

Instrument ID: HP15830.i

Injection date and time: 31-MAR-2020 09:12

Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m

Sublist used: 10945B-G

Calibration date and time: 31-MAR-2020 08:38

Date, time and analyst ID of latest file update: 31-Mar-2020 12:10 ads07818

Sample Name: VBLKF14

Lab Sample ID: VBLKF14

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.910	65	211603	250.000
7) \$Dibromofluoromethane	(2)	2.916	113	170511	48.288
10) \$1,2-Dichloroethane-d4	(2)	3.135	102	46110	48.001
14) *Fluorobenzene	(2)	3.501	96	767750	50.000
15) \$Toluene-d8	(3)	4.281	98	752073	48.461
19) *Chlorobenzene-d5	(3)	4.854	117	584105	50.000
25) \$4-Bromofluorobenzene	(3)	5.312	95	285370	47.353
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	300604	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 12:11.

Target 3.5 esignature user ID: ads07818

VBLKZ91

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKZ91

Data file: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Injection date and time: 25-MAR-2020 09:23

Data file Sample Info. Line: VBLKZ91;VBLKZ91;1;3;;;;;

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.598 (-0.006)	85	65	176790 (-2)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	760115 (-6)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	555996 (-2)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	295244 (-6)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.001)	113	159604	53.589	107%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	48264	51.729	103%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	747458	50.253	101%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	260683	46.564	93%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
1) Ethanol	(1)			Not Detected					280	750
3) t-Butyl alcohol	(1)			Not Detected					12	50
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
5) di-Isopropyl ether	(2)			Not Detected					0.2	1
6) Ethyl t-butyl ether	(2)			Not Detected					0.2	1
11) 1,2-Dichloroethane	(2)			Not Detected					0.3	1
12) Benzene	(2)			Not Detected					0.2	1
13) t-Amyl methyl ether	(2)			Not Detected					0.8	5
16) Toluene	(3)			Not Detected					0.2	1
18) 1,2-Dibromoethane	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	6
24) Isopropylbenzene	(3)			Not Detected					0.2	5
26) 1,3,5-Trimethylbenzene	(4)			Not Detected					0.3	5
27) 1,2,4-Trimethylbenzene	(4)			Not Detected					1	5
29) Naphthalene	(4)			Not Detected					1	5

VBLKZ91

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKZ91

Data file: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Injection date and time: **25-MAR-2020 09:23**

Data file Sample Info. Line: VBLKZ91;VBLKZ91;1;3;;;;;

Instrument ID: **HP09671.i** Batch: **Z200851AA**

Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: **10943AC**

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo)

VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml

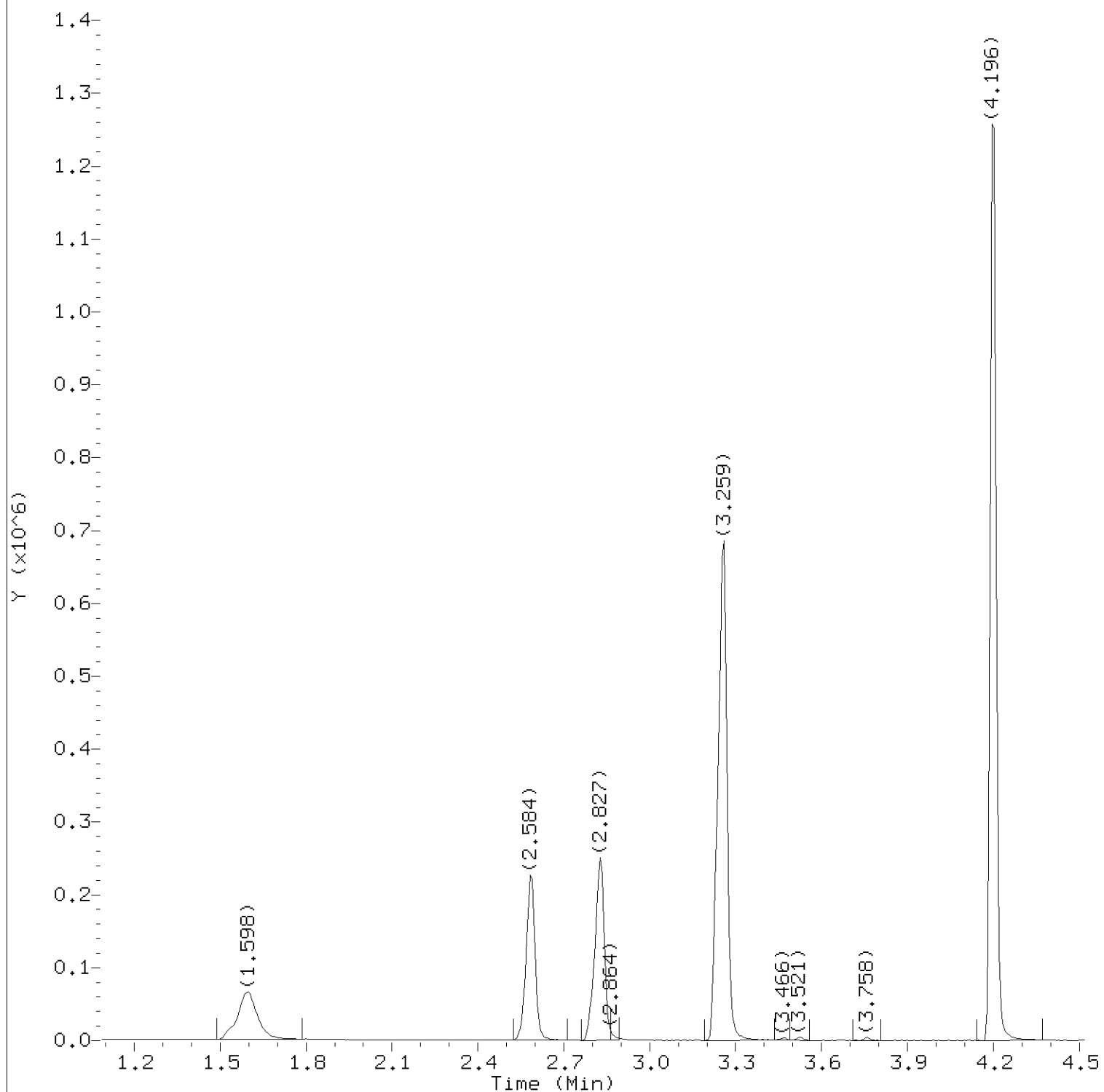
Sample Volume (Vo): 5 ml

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Total number of targets = 18

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 08:10. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:21. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25b01.d
Injection date and time: 25-MAR-2020 09:23

Instrument ID: HP09671.i
Analyst ID: ads07818

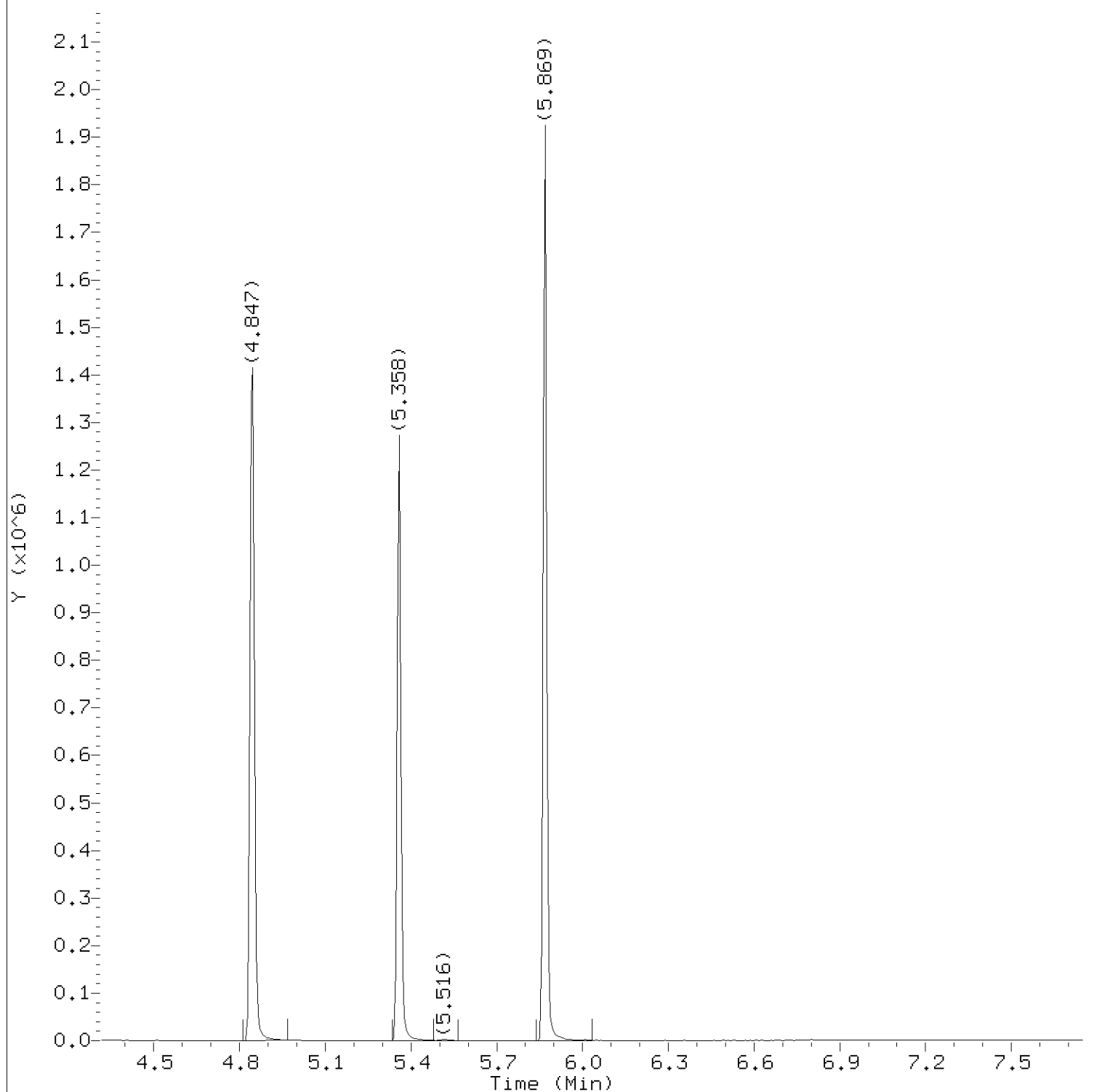
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Sample Name: VBLKZ91

Lab Sample ID: VBLKZ91

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25b01.d
Injection date and time: 25-MAR-2020 09:23

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m
Calibration date and time: 25-MAR-2020 09:06

Sublist used: 10943AC

Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Sample Name: VBLKZ91

Lab Sample ID: VBLKZ91

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 09:23

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 10943AC

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 25-Mar-2020 09:50 ads07818

Sample Name: VBLKZ91

Lab Sample ID: VBLKZ91

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
2) *t-Butyl alcohol-d10	(1)	1.598	65	176790	250.000
7) \$Dibromofluoromethane	(2)	2.584	113	159604	53.589
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	48264	51.729
14) *Fluorobenzene	(2)	3.259	96	760115	50.000
15) \$Toluene-d8	(3)	4.202	98	747458	50.253
19) *Chlorobenzene-d5	(3)	4.847	117	555996	50.000
25) \$4-Bromofluorobenzene	(3)	5.358	95	260683	46.564
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	295244	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 08:10.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCSF14

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: LCSF14

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP15830.i/20mar31a.b/fm31s02.d

Level: (low/med) LOW Date Received: _____

Moisture: not dec. _____ Date Analyzed: 03/31/20

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/L	
64-17-5	Ethanol		880	
75-65-0	t-Butyl alcohol		170	
1634-04-4	Methyl Tertiary Butyl Ether		18	
108-20-3	di-Isopropyl ether		19	
637-92-3	Ethyl t-butyl ether		18	
762-75-4	t-Butyl Formate		71	
75-85-4	t-Amyl Alcohol		190	
107-06-2	1,2-Dichloroethane		17	
71-43-2	Benzene		20	
994-05-8	t-Amyl methyl ether		18	
108-88-3	Toluene		19	
624-95-3	3,3-Dimethyl-1-butanol		470	
106-93-4	1,2-Dibromoethane		18	
100-41-4	Ethylbenzene		18	
179601-23-1	m+p-Xylene		37	
95-47-6	o-Xylene		18	
1330-20-7	Xylene (Total)		56	
98-82-8	Isopropylbenzene		18	
108-67-8	1,3,5-Trimethylbenzene		17	
95-63-6	1,2,4-Trimethylbenzene		17	
91-20-3	Naphthalene		16	

LCSF14 Lancaster Laboratories LCSF14

Analysis Summary for GC/MS Volatiles

Data file: /chem/HP15830.i/20mar31a.b/fm31s02.d Injection date and time: **31-MAR-2020 08:50**
 Data file Sample Info. Line: LCSF14;LCSF14;1;3;LCS;;;fm31b02; Instrument ID: **HP15830.i** Batch: **F200912AA**
 Date, time and analyst ID of latest file update: 31-Mar-2020 09:22 ads07818

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: **10945B-G**
 Calibration date and time (Last Method Edit): 31-MAR-2020 08:38
 Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.904(0.006)	175	65	214480 (-1)	250.00	
14) Fluorobenzene	3.501(0.000)	437	96	792139 (-2)	50.00	
19) Chlorobenzene-d5	4.848(0.006)	658	117	593509 (-2)	50.00	
28) 1,4-Dichlorobenzene-d4	5.799(0.000)	814	152	312566 (-1)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.910(0.002)	113	175032	48.043	96%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.129(0.002)	102	48392	48.826	98%		80 - 120
15) Toluene-d8	(3)	4.275(0.000)	98	772128	48.965	98%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.312(-0.001)	95	299902	48.976	98%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
1) Ethanol	(1)	1.489(-0.002)	45	106920	878.302	878.30			280	750
3) t-Butyl alcohol	(1)	1.934(0.003)	59	205838	169.314	169.31			12	50
4) Methyl Tertiary Butyl Ether	(2)	2.410(0.001)	73	304389	18.148	18.15			0.2	1
5) di-Isopropyl ether	(2)	2.708(0.000)	45	358670	18.843	18.84			0.2	1
6) Ethyl t-butyl ether	(2)	2.904(0.001)	59	330918	18.239	18.24			0.2	1
8) t-Butyl Formate	(2)	3.068(0.000)	57	372023	70.986	70.99			1	5
9) t-Amyl Alcohol	(1)	3.092(-0.005)	73	102025	187.803	187.80	17.49	B	10	50
11) 1,2-Dichloroethane	(2)	3.166(0.001)	62	138562	17.371	17.37			0.3	1
12) Benzene	(2)	3.397(-0.000)	78	446062	19.974	19.97			0.2	1
13) t-Amyl methyl ether	(2)	3.495(-0.000)	87	76107	18.229	18.23			0.8	5
16) Toluene	(3)	4.306(-0.001)	92	278215	18.902	18.90			0.2	1
17) 3,3-Dimethyl-1-butanol	(1)	4.391(-0.007)	69	364236	465.799	465.80			25	100
18) 1,2-Dibromoethane	(3)	4.525(-0.001)	107	100120	18.500	18.50			0.2	1
20) Ethylbenzene	(3)	4.940(-0.001)	91	533045	18.467	18.47			0.4	1
21) m+p-Xylene	(3)	5.013(-0.001)	106	411259	37.297	37.30			1	5
22) o-Xylene	(3)	5.165(-0.001)	106	196920	18.433	18.43			0.4	1
23) Xylene (Total)	(3)		106	608179	55.730	55.73			1	6
24) Isopropylbenzene	(3)	5.306(-0.001)	105	522459	18.192	18.19			0.2	5
26) 1,3,5-Trimethylbenzene	(4)	5.574(-0.000)	105	417503	17.345	17.34			0.3	5
27) 1,2,4-Trimethylbenzene	(4)	5.720(-0.000)	105	422497	17.445	17.44			1	5
29) Naphthalene	(4)	6.702(0.000)	128	442423	16.220	16.22			1	5

B = Compound detected in referenced method blank.

LCSF14

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

LCSF14

Data file: /chem/HP15830.i/20mar31a.b/fm31s02.d

Injection date and time: **31-MAR-2020 08:50**

Data file Sample Info. Line: LCSF14;LCSF14;1;3;LCS;;;fm31b02;

Instrument ID: **HP15830.i** Batch: **F200912AA**

Date, time and analyst ID of latest file update: 31-Mar-2020 09:22 ads07818

Blank Data file reference: /chem/HP15830.i/20mar31a.b/fm31b02.d

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m

Sublist used: **10945B-G**

Calibration date and time (Last Method Edit): 31-MAR-2020 08:38

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/20mar31a.b/fm31c02.d

Bottle Code:

Matrix: WATER

Level: Low

On-Column Amount units: ng

In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo)

VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml

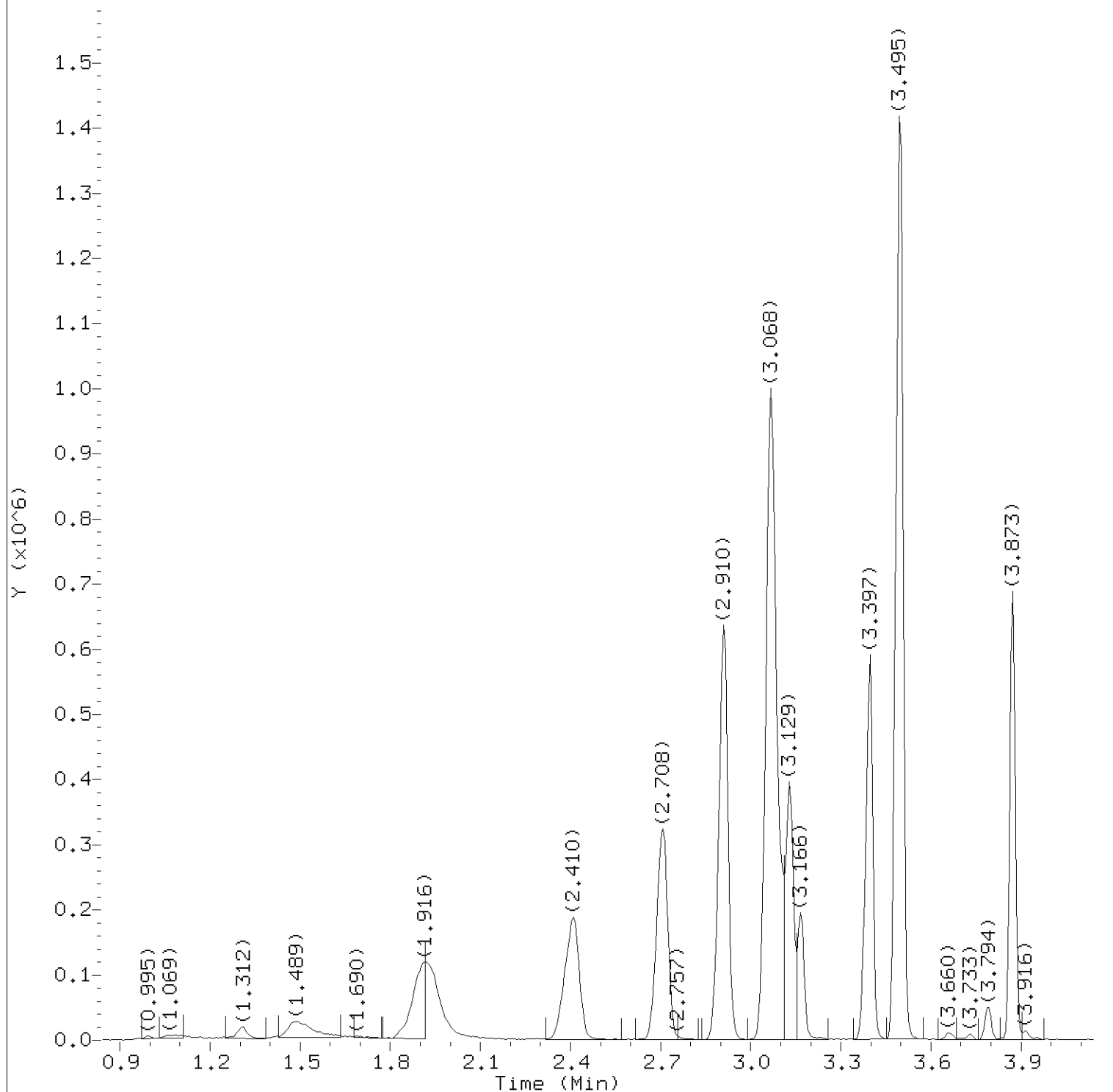
Sample Volume (Vo): 5 ml

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Total number of targets = 21

Digitally signed by Alexander D. Sechrist on 03/31/2020 at 09:22. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Richard Samson on 03/31/2020 at 21:04. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s02.d
Injection date and time: 31-MAR-2020 08:50

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 10945B-G

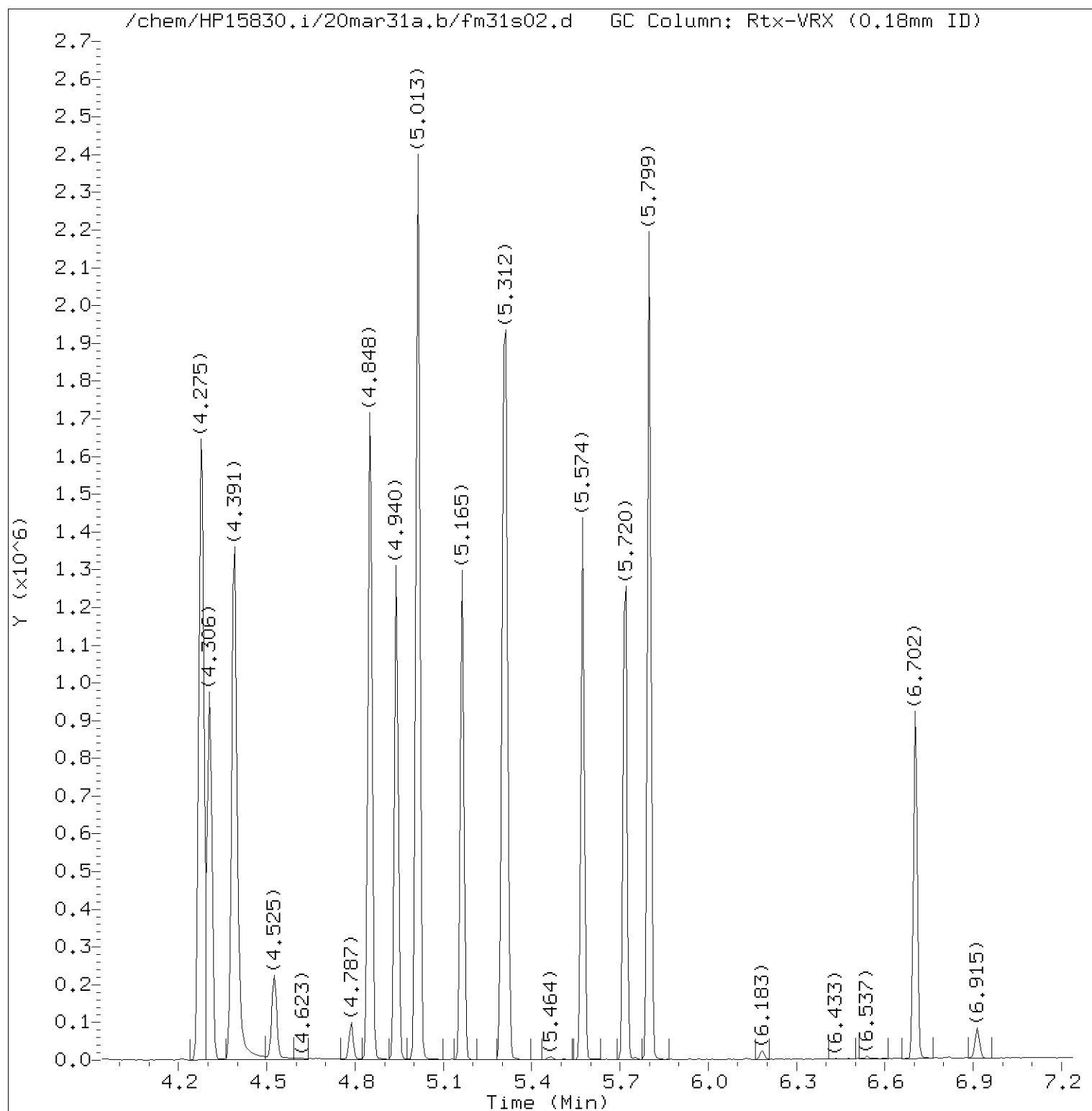
Date, time and analyst ID of latest file update: 31-Mar-2020 09:22 ads07818

Sample Name: LCSF14

Lab Sample ID: LCSF14

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 09:22.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s02.d
Injection date and time: 31-MAR-2020 08:50

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m
Calibration date and time: 31-MAR-2020 08:38

Sublist used: 10945B-G

Date, time and analyst ID of latest file update: 31-Mar-2020 09:22 ads07818

Sample Name: LCSF14

Lab Sample ID: LCSF14

Digitally signed by Alexander D. Sechrist
on 03/31/2020 at 09:22.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/20mar31a.b/fm31s02.d
Injection date and time: 31-MAR-2020 08:50

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/20mar31a.b/UST-PT2C.m Sublist used: 10945B-G
Calibration date and time: 31-MAR-2020 08:38
Date, time and analyst ID of latest file update: 31-Mar-2020 09:22 ads07818

Sample Name: LCSF14

Lab Sample ID: LCSF14

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.489	45	106920	878.302
2) *t-Butyl alcohol-d10	(1)	1.904	65	214480	250.000
3) t-Butyl alcohol	(1)	1.934	59	205838	169.314
4) Methyl Tertiary Butyl Ether	(2)	2.410	73	304389	18.148
5) di-Isopropyl ether	(2)	2.708	45	358670	18.843
6) Ethyl t-butyl ether	(2)	2.904	59	330918	18.239
7) \$Dibromofluoromethane	(2)	2.910	113	175032	48.043
8) t-Butyl Formate	(2)	3.068	57	372023	70.986
9) t-Amyl Alcohol	(1)	3.093	73	102025	187.803
10) \$1,2-Dichloroethane-d4	(2)	3.129	102	48392	48.826
11) 1,2-Dichloroethane	(2)	3.166	62	138562	17.371
12) Benzene	(2)	3.397	78	446062	19.974
13) t-Amyl methyl ether	(2)	3.495	87	76107	18.229
14) *Fluorobenzene	(2)	3.501	96	792139	50.000
15) \$Toluene-d8	(3)	4.275	98	772128	48.965
16) Toluene	(3)	4.306	92	278215	18.902
17) 3,3-Dimethyl-1-butanol	(1)	4.391	69	364236	465.799
18) 1,2-Dibromoethane	(3)	4.525	107	100120	18.500
19) *Chlorobenzene-d5	(3)	4.848	117	593509	50.000
20) Ethylbenzene	(3)	4.940	91	533045	18.467
21) m+p-Xylene	(3)	5.013	106	411259	37.297
22) o-Xylene	(3)	5.165	106	196920	18.433
24) Isopropylbenzene	(3)	5.306	105	522459	18.192
25) \$4-Bromofluorobenzene	(3)	5.312	95	299902	48.976
23) Xylene (Total)	(3)		106	608179	55.730
26) 1,3,5-Trimethylbenzene	(4)	5.574	105	417503	17.345
27) 1,2,4-Trimethylbenzene	(4)	5.720	105	422497	17.445
28) *1,4-Dichlorobenzene-d4	(4)	5.799	152	312566	50.000
29) Naphthalene	(4)	6.702	128	442423	16.220

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

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on 03/31/2020 at 09:22.

Target 3.5 esignature user ID: ads07818

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LCSZ91

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: LCSZ91
 Sample wt/vol: 5.00 (g/mL) mL Lab File ID: HP09671.i/20mar25a.b/zm25s01.d
 Level: (low/med) LOW Date Received: _____
 Moisture: not dec. _____ Date Analyzed: 03/25/20
 Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
64-17-5-----	Ethanol	1000	
75-65-0-----	t-Butyl alcohol	190	
1634-04-4-----	Methyl Tertiary Butyl Ether	20	
108-20-3-----	di-Isopropyl ether	19	
637-92-3-----	Ethyl t-butyl ether	20	
107-06-2-----	1,2-Dichloroethane	19	
71-43-2-----	Benzene	20	
994-05-8-----	t-Amyl methyl ether	21	
108-88-3-----	Toluene	21	
106-93-4-----	1,2-Dibromoethane	20	
100-41-4-----	Ethylbenzene	20	
179601-23-1-----	m+p-Xylene	43	
95-47-6-----	o-Xylene	22	
1330-20-7-----	Xylene (Total)	65	
98-82-8-----	Isopropylbenzene	21	
108-67-8-----	1,3,5-Trimethylbenzene	21	
95-63-6-----	1,2,4-Trimethylbenzene	21	
91-20-3-----	Naphthalene	20	

LCSZ91

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

LCSZ91

Data file: /chem2/HP09671.i/20mar25a.b/zm25s01.d

Injection date and time: 25-MAR-2020 08:59

Data file Sample Info. Line: LCSZ91;LCSZ91;1;3;LCS;;;zm25b01;

Instrument ID: HP09671.i Batch: Z200851AA

Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.592 (0.000)	84	65	172847 (-4)	250.00	
14) Fluorobenzene	3.259 (-0.006)	358	96	780598 (-3)	50.00	
19) Chlorobenzene-d5	4.847 (0.000)	619	117	553022 (-3)	50.00	
28) 1,4-Dichlorobenzene-d4	5.869 (0.000)	787	152	305404 (-2)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.584 (0.002)	113	159123	52.026	104%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	2.827 (0.002)	102	49357	51.512	103%		80 - 120
15) Toluene-d8	(3)	4.202 (0.000)	98	750342	50.719	101%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.358 (0.000)	95	280010	50.285	101%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
1) Ethanol	(1)	1.258 (0.000)	45	83770	1023.438	1023.44			280	750
3) t-Butyl alcohol	(1)	1.622 (-0.000)	59	153591	194.312	194.31			12	50
4) Methyl Tertiary Butyl Ether	(2)	2.048 (0.001)	73	219594	19.875	19.87			0.2	1
5) di-Isopropyl ether	(2)	2.346 (0.001)	45	231403	19.407	19.41			0.2	1
6) Ethyl t-butyl ether	(2)	2.565 (0.001)	59	221399	20.444	20.44			0.2	1
11) 1,2-Dichloroethane	(2)	2.870 (-0.000)	62	101800	18.550	18.55			0.3	1
12) Benzene	(2)	3.137 (-0.000)	78	333661	19.911	19.91			0.2	1
13) t-Amyl methyl ether	(2)	3.241 (0.001)	87	51837	20.891	20.89			0.8	5
16) Toluene	(3)	4.232 (0.000)	92	210981	20.656	20.66			0.2	1
18) 1,2-Dibromoethane	(3)	4.482 (-0.001)	107	71257	20.065	20.06			0.2	1
20) Ethylbenzene	(3)	4.950 (-0.000)	91	377794	20.345	20.35			0.4	1
21) m+p-Xylene	(3)	5.035 (0.000)	106	316897	43.237	43.24			1	5
22) o-Xylene	(3)	5.200 (-0.001)	106	150654	21.572	21.57			0.4	1
23) Xylene (Total)	(3)		106	467551	64.809	64.81			1	6
24) Isopropylbenzene	(3)	5.346 (-0.000)	105	386051	21.411	21.41			0.2	5
26) 1,3,5-Trimethylbenzene	(4)	5.644 (-0.000)	105	314601	20.718	20.72			0.3	5
27) 1,2,4-Trimethylbenzene	(4)	5.790 (-0.000)	105	335634	21.382	21.38			1	5
29) Naphthalene	(4)	6.794 (-0.000)	128	400358	19.669	19.67			1	5

LCSZ91

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

LCSZ91

Data file: /chem2/HP09671.i/20mar25a.b/zm25s01.d

Injection date and time: **25-MAR-2020 08:59**

Data file Sample Info. Line: LCSZ91;LCSZ91;1;3;LCS;;;zm25b01;

Instrument ID: **HP09671.i** Batch: **Z200851AA**

Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Blank Data file reference: /chem2/HP09671.i/20mar25a.b/zm25b01.d

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: **10943AC**

Calibration date and time (Last Method Edit): 25-MAR-2020 09:06

Mid Level Daily Calibration Standard Reference: /chem2/HP09671.i/20mar25a.b/zm25c01.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo)

VOA Prep Factor: **1.00**

Volume Purged (Vt): 5 ml

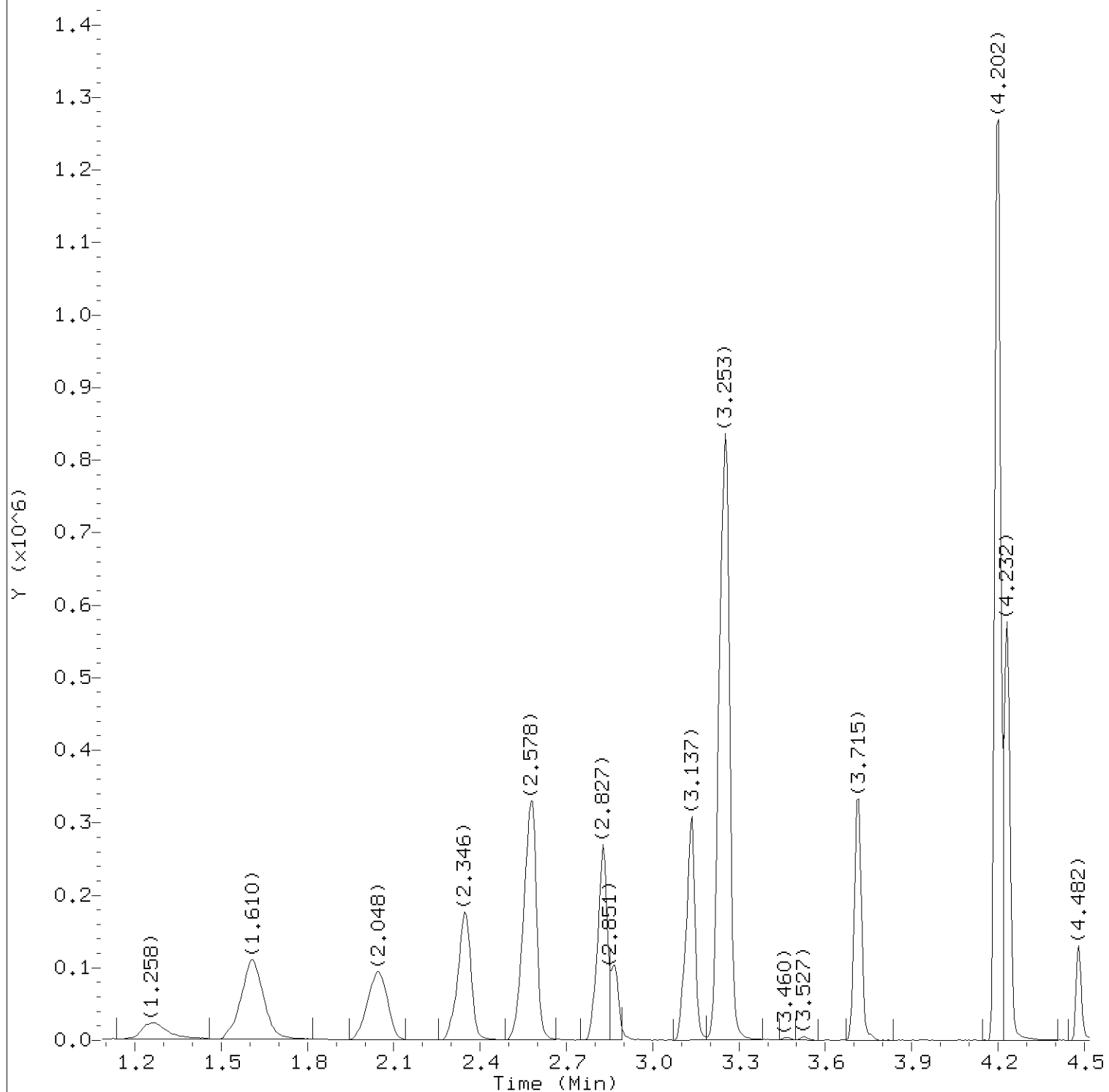
Sample Volume (Vo): 5 ml

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Total number of targets = 18

Digitally signed by Alexander D. Sechrist on 03/26/2020 at 09:36. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Chelsea B. Riehl on 03/26/2020 at 14:21. PARALLAX ID: cbs01947



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s01.d
Injection date and time: 25-MAR-2020 08:59

Instrument ID: HP09671.i
Analyst ID: ads07818

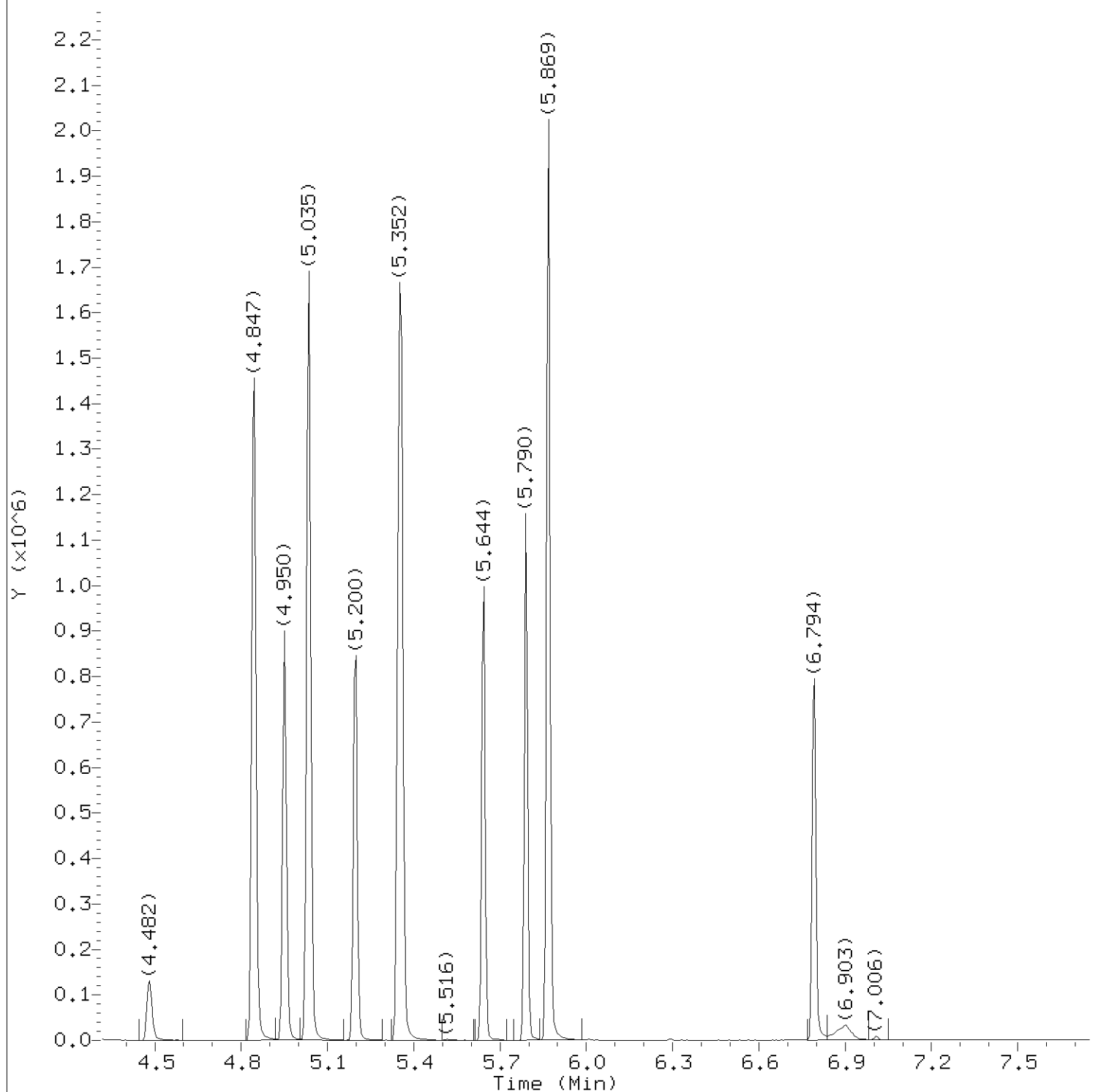
Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Sample Name: LCSZ91

Lab Sample ID: LCSZ91

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 09:36.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s01.d
Injection date and time: 25-MAR-2020 08:59

Instrument ID: HP09671.i
Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time: 25-MAR-2020 09:06
Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Sample Name: LCSZ91

Lab Sample ID: LCSZ91

Digitally signed by Alexander D. Sechrist
on 03/26/2020 at 09:36.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem2/HP09671.i/20mar25a.b/zm25s01.d

Instrument ID: HP09671.i

Injection date and time: 25-MAR-2020 08:59

Analyst ID: ads07818

Method used: /chem2/HP09671.i/20mar25a.b/UST-PT1C.m

Sublist used: 10943AC

Calibration date and time: 25-MAR-2020 09:06

Date, time and analyst ID of latest file update: 26-Mar-2020 09:36 ads07818

Sample Name: LCSZ91

Lab Sample ID: LCSZ91

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
=====	=====	=====	=====	=====	=====
1) Ethanol	(1)	1.258	45	83770	1023.438
2) *t-Butyl alcohol-d10	(1)	1.592	65	172847	250.000
3) t-Butyl alcohol	(1)	1.623	59	153591	194.312
4) Methyl Tertiary Butyl Ether	(2)	2.048	73	219594	19.875
5) di-Isopropyl ether	(2)	2.346	45	231403	19.407
6) Ethyl t-butyl ether	(2)	2.565	59	221399	20.444
7) \$Dibromofluoromethane	(2)	2.584	113	159123	52.026
10) \$1,2-Dichloroethane-d4	(2)	2.827	102	49357	51.512
11) 1,2-Dichloroethane	(2)	2.870	62	101800	18.550
12) Benzene	(2)	3.137	78	333661	19.911
13) t-Amyl methyl ether	(2)	3.241	87	51837	20.891
14) *Fluorobenzene	(2)	3.259	96	780598	50.000
15) \$Toluene-d8	(3)	4.202	98	750342	50.719
16) Toluene	(3)	4.232	92	210981	20.656
18) 1,2-Dibromoethane	(3)	4.482	107	71257	20.065
19) *Chlorobenzene-d5	(3)	4.847	117	553022	50.000
20) Ethylbenzene	(3)	4.950	91	377794	20.345
21) m+p-Xylene	(3)	5.035	106	316897	43.237
22) o-Xylene	(3)	5.200	106	150654	21.572
24) Isopropylbenzene	(3)	5.346	105	386051	21.411
25) \$4-Bromofluorobenzene	(3)	5.358	95	280010	50.285
23) Xylene (Total)	(3)		106	467551	64.809
26) 1,3,5-Trimethylbenzene	(4)	5.644	105	314601	20.718
27) 1,2,4-Trimethylbenzene	(4)	5.790	105	335634	21.382
28) *1,4-Dichlorobenzene-d4	(4)	5.869	152	305404	50.000
29) Naphthalene	(4)	6.794	128	400358	19.669

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

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on 03/26/2020 at 09:36.

Target 3.5 esignature user ID: ads07818

Semivolatiles by GC/MS-SIM Data

Case Narrative/Conformance Summary

Semivolatiles by GC/MS-SIM

Case Narrative/Conformance Summary

CLIENT: Brown & Caldwell
SDG: GPY68

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS-SIM

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
1285716	MW-3-20200319	X		1	
1285717	MW-13S-20200319	X		20; 10; 1	
1285718	MW-13D-20200319	X		1	
1285719	MW-12S-20200319	X		1	
1285720	FB-20200319	X		1	Field Blank
1285721	MW-12D-20200319	X		1	
1285722	DUP-20200319	X		1	Field Duplicate Sample

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Case Narrative/Conformance Summary

CLIENT: Brown & Caldwell
SDG: GPY68

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS-SIM

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

 Lancaster Laboratories Environmental	Document Title: GC/MS Semivolatiles Calculations		
	Eurofins Document Reference: 1-P-QM-FOR-9035346	Revision: 1	Historical Reference: N/A
	Effective date: Dec 2, 2015		Status: Effective

1. Relative Response Factor (RRF)

$$RRF = \frac{A_X}{A_{is}} \times \frac{C_{is}}{C_X}$$

Where:

A_x = Area of the characteristic ion for the compound to be measured

A_{is} = Area of the characteristic ion for the specific internal standard to be measured

C_{is} = Concentration of the internal standard

C_x = Concentration of the compound to be measured

2. % Relative Standard Deviation (%RSD)

$$\%RSD = \frac{\text{standard deviation}}{\text{Mean}} \times 100$$

3. % Difference

$$\%D = \frac{RRF_c - RRF_i}{RRF_i} \times 100$$

Where:

RRF_c = Relative response factor from the continuing calibration standard

RRF_i = Mean relative response factor from the initial calibration

 Lancaster Laboratories Environmental	Document Title: GC/MS Semivolatiles Calculations		
	Eurofins Document Reference: 1-P-QM-FOR-9035346	Revision: 1	Historical Reference: N/A
	Effective date: Dec 2, 2015		Status: Effective

4. Concentration

Concentration waters

$$(\mu g / L) = \frac{(Ax) (Is) (Df) (Vt)}{(Ais) (RRF) (Vo) (Vi)}$$

Where:

Ax, Ais, and RRF are as given in 1 above
Is = Amount of internal standard added in parts per billion (ng)
Df = Dilution factor
Vt = Volume of the concentrated extract (ul)
Vo = Volume of the water extracted (ml)
Vi = Volume of extract injection (ul)

Concentration soils

$$(\mu g / Kg) = \frac{(Ax) (Is) (Df) (Vt)}{(Ais) (RRF) (Ws) (Vi)}$$

Where:

Ax, Ais, and RRF are as given in 1 above
Is = Amount of internal standard added in parts per billion (ng)
Df = Dilution factor
Vt = Volume of the concentrated extract (μL)
Ws = Sample weight of the soil extracted (g)
Vi = Volume of extract injection (μL)

5. % Recovery

$$\%Rec = \frac{SSR - SR}{SA} \times 100$$

Where:

SSR = Spiked sample result
SR = Sample result
SA = Spike added

Quality Control and Calibration Summary Forms

Semivolatiles by GC/MS-SIM

Quality Control Reference List
GC/MS Semivolatiles

CLIENT: Brown & Caldwell
SDG: GPY68

Fraction: Semivolatiles by GC/MS-SIM

Analysis	Batch Number	Sample Number	Analysis Date
PAHS (16) in Water SIM	20085WAB026	SBLKWB085	03/26/2020 06:33
		085WBLCS	03/26/2020 07:03
		085WBLCSD	03/26/2020 07:33
		1285716	03/26/2020 12:06
		1285717	03/26/2020 12:36
		1285717DL	03/27/2020 03:21
		1285717DL2	03/27/2020 03:58
		1285718	03/26/2020 13:06
		1285719	03/26/2020 13:36
		1285720	03/26/2020 14:07
		1285721	03/26/2020 14:37
		1285722	03/26/2020 15:07

Fraction: Semivolatiles by GC/MS-SIM

20085WAB026 / SBLKWB085 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Naphthalene	03/26/20	N.D.	ug/l	0.03	0.07
Acenaphthylene	03/26/20	N.D.	ug/l	0.01	0.05
Acenaphthene	03/26/20	N.D.	ug/l	0.01	0.05
Fluorene	03/26/20	N.D.	ug/l	0.01	0.05
Phenanthrene	03/26/20	N.D.	ug/l	0.03	0.07
Anthracene	03/26/20	N.D.	ug/l	0.01	0.05
Fluoranthene	03/26/20	N.D.	ug/l	0.01	0.05
Pyrene	03/26/20	N.D.	ug/l	0.01	0.05
Benzo(a)anthracene	03/26/20	N.D.	ug/l	0.01	0.05
Chrysene	03/26/20	N.D.	ug/l	0.01	0.05
Benzo(b)fluoranthene	03/26/20	N.D.	ug/l	0.01	0.05
Benzo(k)fluoranthene	03/26/20	N.D.	ug/l	0.01	0.05
Benzo(a)pyrene	03/26/20	N.D.	ug/l	0.01	0.05
Indeno(1,2,3-cd)pyrene	03/26/20	N.D.	ug/l	0.01	0.05
Dibenz(a,h)anthracene	03/26/20	N.D.	ug/l	0.02	0.07
Benzo(g,h,i)perylene	03/26/20	N.D.	ug/l	0.01	0.05

Fraction: Semivolatiles by GC/MS-SIM

Sample	1-Methylnaphthalene-d10		Benzo(a)pyrene-d12		Fluoranthene-d10	
	Spike Added	1 ug/l	Spike Added	1 ug/l	Spike Added	1 ug/l
	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
20085WAB026						
SBLKWB085	67	15 - 121	72	10 - 138	86	34 - 125
085WBLCS	70	15 - 121	82	10 - 138	92	34 - 125
085WBLCSD	69	15 - 121	82	10 - 138	79	34 - 125
1285716	70	15 - 121	60	10 - 138	92	34 - 125
1285717	62	15 - 121	39	10 - 138	73	34 - 125
1285717DL	69	15 - 121	38	10 - 138	69	34 - 125
1285717DL2	66	15 - 121	37	10 - 138	68	34 - 125
1285718	67	15 - 121	70	10 - 138	90	34 - 125
1285719	63	15 - 121	66	10 - 138	85	34 - 125
1285720	62	15 - 121	69	10 - 138	92	34 - 125
1285721	59	15 - 121	32	10 - 138	88	34 - 125
1285722	62	15 - 121	70	10 - 138	82	34 - 125

SDG: GPY68
Matrix: LIQUID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS-SIM

LCS: 085WBLCS LCSD: 085WBLCSD Analyte	Batch: 20085WAB026 (Sample number(s): 1285716-1285722)							
	Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Naphthalene	1.00	0.710	0.776	71	78	37-114	9	30
Acenaphthylene	1.00	0.638	0.603	64	60	48-103	6	30
Acenaphthene	1.00	0.842	0.798	84	80	52-107	5	30
Fluorene	1.00	0.776	0.747	78	75	55-112	4	30
Phenanthrene	1.00	0.853	0.781	85	78	59-119	9	30
Anthracene	1.00	0.895	0.738	90	74	61-118	19	30
Fluoranthene	1.00	0.938	0.770	94	77	59-120	20	30
Pyrene	1.00	0.796	0.771	80	77	50-122	3	30
Benzo(a)anthracene	1.00	0.826	0.835	83	84	61-117	1	30
Chrysene	1.00	0.875	0.844	87	84	61-117	4	30
Benzo(b)fluoranthene	1.00	0.899	0.879	90	88	66-138	2	30
Benzo(k)fluoranthene	1.00	0.900	0.870	90	87	58-142	3	30
Benzo(a)pyrene	1.00	0.920	0.887	92	89	63-135	4	30
Indeno(1,2,3-cd)pyrene	1.00	0.960	0.994	96	99	56-147	3	30
Dibenz(a,h)anthracene	1.00	0.938	0.900	94	90	51-139	4	30
Benzo(g,h,i)perylene	1.00	0.894	0.892	89	89	53-129	0	30

Fraction: Semivolatiles by GC/MS-SIM

14244: PAHS (16) in Water SIM Analyte Name	Default MDL	Default LOQ	Units
Naphthalene	0.03	0.07	ug/l
Acenaphthylene	0.01	0.05	ug/l
Acenaphthene	0.01	0.05	ug/l
Fluorene	0.01	0.05	ug/l
Phenanthrene	0.03	0.07	ug/l
Anthracene	0.01	0.05	ug/l
Fluoranthene	0.01	0.05	ug/l
Pyrene	0.01	0.05	ug/l
Benzo(a)anthracene	0.01	0.05	ug/l
Chrysene	0.01	0.05	ug/l
Benzo(b)fluoranthene	0.01	0.05	ug/l
Benzo(k)fluoranthene	0.01	0.05	ug/l
Benzo(a)pyrene	0.01	0.05	ug/l
Indeno(1,2,3-cd)pyrene	0.01	0.05	ug/l
Dibenz(a,h)anthracene	0.02	0.07	ug/l
Benzo(g,h,i)perylene	0.01	0.05	ug/l

3B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID: mc0100d.d DFTPP Injection Date: 03/04/20

Instrument ID: HP21585 DFTPP Injection Time: 19:28

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	78.7
68	Less than 2.0% of mass 69	0.96 (1.65)1
69	Mass 69 relative abundance	58.3
70	Less than 2.0% of mass 69	0.27 (0.46)1
127	10.0 - 80.00% of mass 198	52.8
197	Less than 2.0% of mass 198	1.05
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.76
275	10.0 - 60.0% of mass 198	24.3
365	Greater than 1.00% of mass 198	3.22
441	Present, and less than mass 443	11.1
442	Greater than 50.00% of mass 198	69.3
443	15.00 - 24.00% of mass 442	13.3 (19.2)2

1-Value is % mass 69

2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	RVSIM0130 - SST0.5	mc0101a.d	03/04/20	22:06
02	RVSIM0130 - SST0.25	mc0102.d	03/04/20	23:03
03	RVSIM0130 - SST0.1	mc0103.d	03/04/20	23:33
04	RVSIM0130 - SST0.05	mc0104.d	03/05/20	00:03
05	RVSIM0130 - SST0.01	mc0105.d	03/05/20	00:34
06	RVSIM0130 - SST0.0025	mc0106.d	03/05/20	01:04
07	RVSIM0130 - SST0.00125	mc0107.d	03/05/20	01:34
08	RVSICV0170 - SST0.50	mc0108.d	03/05/20	02:05
09	RVSICV3399 - SST0.50	mc0109.d	03/05/20	03:46

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID: mc1550.d DFTPP Injection Date: 03/26/20

Instrument ID: HP21585 DFTPP Injection Time: 05:39

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	39.1
68	Less than 2.0% of mass 69	0.75 (1.75)1
69	Mass 69 relative abundance	42.6
70	Less than 2.0% of mass 69	0.23 (0.55)1
127	10.0 - 80.00% of mass 198	45.0
197	Less than 2.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.64
275	10.0 - 60.0% of mass 198	26.5
365	Greater than 1.00% of mass 198	3.33
441	Present, and less than mass 443	12.3
442	Greater than 50.00% of mass 198	76.6
443	15.00 - 24.00% of mass 442	14.7 (19.1)2

1-Value is % mass 69

2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SIM0750 - SSTD.50	mc1551.d	03/26/20	05:54
02	SBLKWB085	mc1552.d	03/26/20	06:33
03	085WBLCS	mc1553.d	03/26/20	07:03
04	085WBLCS D	mc1554.d	03/26/20	07:33
05	1285937	mc1555.d	03/26/20	08:03
06	1285988DL	mc1556.d	03/26/20	08:34
07	1286052	mc1557.d	03/26/20	09:04
08	1286053	mc1558.d	03/26/20	09:34
09	1286054	mc1559.d	03/26/20	10:05
10	1285000	mc1560.d	03/26/20	10:35
11	1285022	mc1561.d	03/26/20	11:05
12	rvSIM0750	mc1562.d	03/26/20	11:35
13	1285716	mc1563.d	03/26/20	12:06
14	1285717	mc1564.d	03/26/20	12:36
15	1285718	mc1565.d	03/26/20	13:06
16	1285719	mc1566.d	03/26/20	13:36
17	1285720	mc1567.d	03/26/20	14:07
18	1285721	mc1568.d	03/26/20	14:37

page 1 of 2

FORM V SV

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID: mc1550.d DFTPP Injection Date: 03/26/20

Instrument ID: HP21585 DFTPP Injection Time: 05:39

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	39.1
68	Less than 2.0% of mass 69	0.75 (1.75)1
69	Mass 69 relative abundance	42.6
70	Less than 2.0% of mass 69	0.23 (0.55)1
127	10.0 - 80.00% of mass 198	45.0
197	Less than 2.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.64
275	10.0 - 60.0% of mass 198	26.5
365	Greater than 1.00% of mass 198	3.33
441	Present, and less than mass 443	12.3
442	Greater than 50.00% of mass 198	76.6
443	15.00 - 24.00% of mass 442	14.7 (19.1)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	1285722	mc1569.d	03/26/20	15:07
20	1286190	mc1570.d	03/26/20	15:38
21	1286191	mc1571.d	03/26/20	16:08

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID: mc1600.d DFTPP Injection Date: 03/26/20

Instrument ID: HP21585 DFTPP Injection Time: 16:48

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.00% of mass 198	42.7
68	Less than 2.0% of mass 69	0.8 (1.75)1
69	Mass 69 relative abundance	45.8
70	Less than 2.0% of mass 69	0.24 (0.53)1
127	10.0 - 80.00% of mass 198	47.4
197	Less than 2.0% of mass 198	0.37
198	Base peak, 100% relative abundance	100.0
199	5.00 to 9.00% of mass 198	6.93
275	10.0 - 60.0% of mass 198	25.6
365	Greater than 1.00% of mass 198	3.05
441	Present, and less than mass 443	10.9
442	Greater than 50.00% of mass 198	67.6
443	15.00 - 24.00% of mass 442	12.9 (19.1)2

1-Value is % mass 69

2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SIM0750 - SST.D.50	mc1601.d	03/26/20	17:17
02	1286192	mc1602.d	03/26/20	22:54
03	1286758	mc1603.d	03/26/20	23:25
04	1286760	mc1604.d	03/26/20	23:55
05	1286762	mc1605.d	03/27/20	00:25
06	1285717DL	mc1606.d	03/27/20	03:21
07	1285717DL2	mc1606a.d	03/27/20	03:58

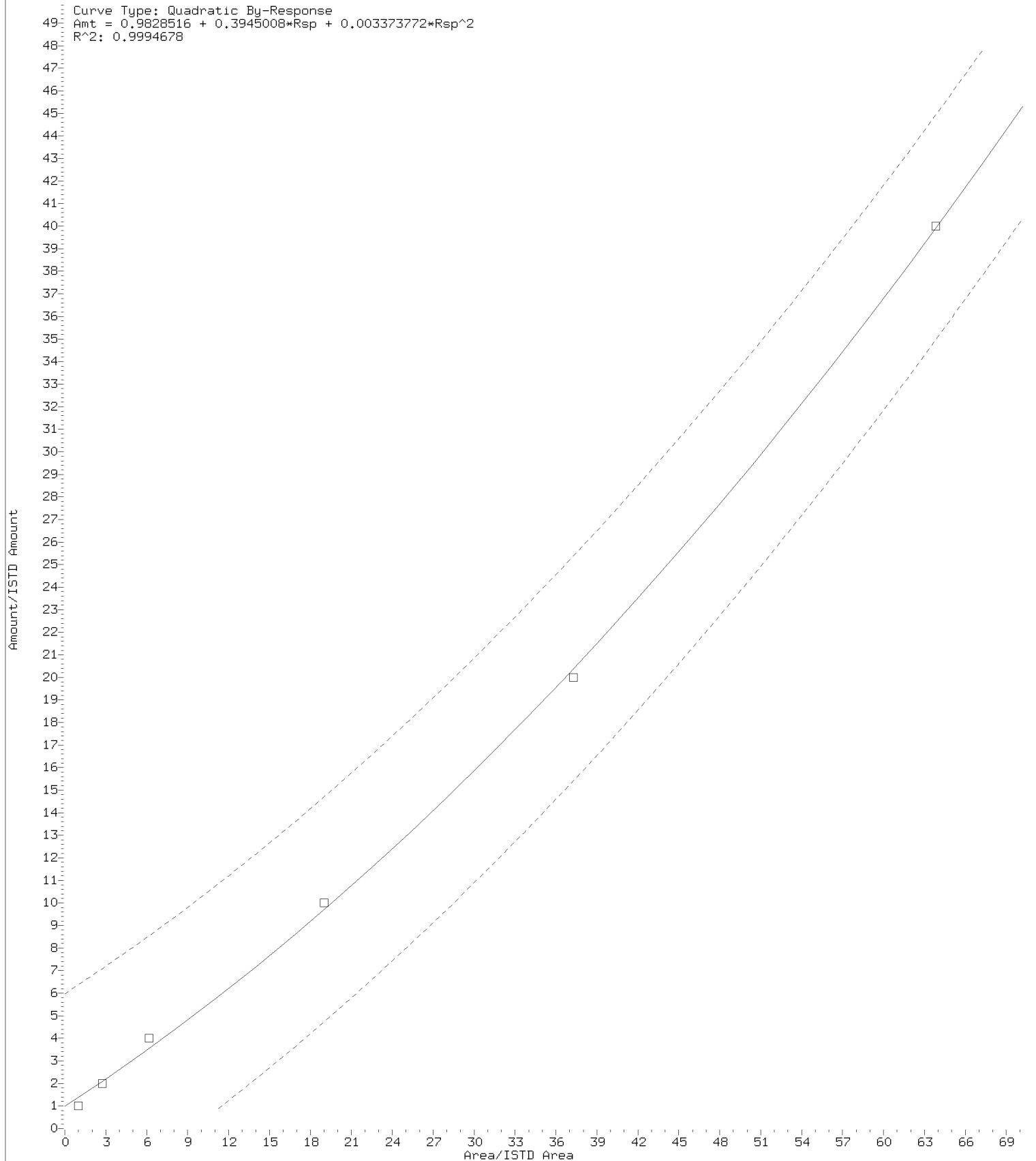
6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP21585 Calibration Date(s): 03/04/20 03/05/20
 Calibration Times: 22:06 01:04
 Min RRF for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:	RRF0.01 = mc0106.d	RRF0.05 = mc0105.d	RRF0.1 = mc0104.d							
RRF0.5 = mc0101a.d	RRF1 = mc0103.d	RRF2.5 = mc0102.d								
COMPOUND	RRF0.01	RRF0.05	RRF0.1	RRF0.5	RRF1	RRF2.5	RRF	RRF	% RSD	CAL. METHOD
1,4-Dioxane		0.601	0.677	0.692	0.692	0.698		0.672	6	AVG
N-Nitrosodimethylamine	0.884	0.806	0.982	1.043	1.076	1.088		0.980	12	AVG
bis(2-Chloroethyl)ether	0.505	0.365	0.430	0.442	0.444	0.447		0.439	10	AVG
Quinoline	0.569	0.501	0.533	0.560	0.574	0.569		0.551	5	AVG
Naphthalene	1.200	1.101	1.125	1.236	1.191	1.242		1.183	5	AVG
2-Methylnaphthalene	0.720	0.682	0.706	0.769	0.758	0.771		0.734	5	AVG
1-Methylnaphthalene	0.671	0.634	0.666	0.732	0.717	0.741		0.693	6	AVG
Acenaphthylene	2.530	2.380	2.633	2.752	2.818	2.804		2.653	7	AVG
Dimethylphthalate	1.674	1.789	1.843	1.891	1.864	1.874		1.823	4	AVG
Acenaphthene	1.558	1.444	1.488	1.463	1.460	1.462		1.479	3	AVG
Dibenzofuran	2.761	2.649	2.810	2.843	2.817	2.813		2.782	3	AVG
Diethylphthalate	1.561	1.725	1.804	1.926	1.932	1.937		1.814	8	AVG
Fluorene	1.772	1.681	1.870	1.945	1.990	1.987		1.874	7	AVG
N-Nitrosodiphenylamine (1)	0.457	0.433	0.466	0.505	0.518	0.434		0.469	8	AVG
Hexachlorobenzene	0.339	0.310	0.327	0.336	0.332	0.299		0.324	5	AVG
Phenanthrene	1.349	1.227	1.291	1.322	1.338	1.256		1.297	4	AVG
Anthracene	1.192	1.125	1.202	1.331	1.310	1.141		1.217	7	AVG
Di-n-butylphthalate	1.094	1.294	1.364	1.558	1.525	1.315		1.358	12	AVG
Fluoranthene	1.343	1.299	1.416	1.568	1.562	1.372		1.427	8	AVG
Pyrene	1.793	1.712	1.814	1.880	1.894	1.651		1.790	5	AVG
Butylbenzylphthalate	0.454	0.622	0.653	0.757	0.764	0.643		0.649	17	AVG
bis(2-Ethylhexyl)phthalate	0.665	0.865	0.932	1.142	1.161	0.957		0.954	19	AVG
Benzo(a)anthracene	1.603	1.451	1.507	1.565	1.589	1.371		1.514	6	AVG
Chrysene	1.640	1.533	1.618	1.630	1.621	1.373		1.569	7	AVG
Di-n-octylphthalate	1.001	1.371	1.542	1.901	1.864	1.595		1.546	22	2NDDEG
Benzo(b)fluoranthene	1.373	1.308	1.444	1.558	1.496	1.296		1.413	7	AVG
Benzo(k)fluoranthene	1.386	1.368	1.531	1.660	1.545	1.358		1.475	8	AVG
Benzo(e)pyrene	1.285	1.236	1.381	1.491	1.407	1.242		1.340	8	AVG
Benzo(a)pyrene	1.238	1.218	1.362	1.511	1.450	1.270		1.342	9	AVG
Perylene	1.492	1.354	1.455	1.528	1.472	1.274		1.429	7	AVG
Indeno(1,2,3-cd)pyrene	1.115	1.060	1.194	1.317	1.326	1.188		1.200	9	AVG
Dibenz(a,h)anthracene	1.215	1.207	1.378	1.526	1.501	1.303		1.355	10	AVG
Benzo(g,h,i)perylene	1.359	1.268	1.425	1.561	1.535	1.352		1.417	8	AVG
1-Methylnaphthalene-d10	0.503	0.475	0.494	0.534	0.529	0.537		0.512	5	AVG
Fluoranthene-d10	0.999	0.959	1.042	1.142	1.152	1.041		1.056	7	AVG
Benzo(a)pyrene-d12	0.840	0.826	0.949	1.074	1.045	0.916		0.942	11	AVG
Average %RSD									8	

(1) Cannot be separated from Diphenylamine
 4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
 Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
 Benzoic acid and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

32 Di-n-octylphthalate



Digitally signed by Chad A. Moline on 03/06/2020 at 09:56.
 Target 3.5 esignature user ID: cam01237

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

```
/chem/HP21585.i/20mar04.b/mc0101a.d  SSTD0.5
/chem/HP21585.i/20mar04.b/mc0102.d  SSTD2.5
/chem/HP21585.i/20mar04.b/mc0103.d  SSTD001
/chem/HP21585.i/20mar04.b/mc0104.d  SSTD0.10
/chem/HP21585.i/20mar04.b/mc0105.d  SSTD0.050
/chem/HP21585.i/20mar04.b/mc0106.d  SSTD0.01
```

Area Summary

File ID:
=====

Internal Standard Name	mc0101a.d	mc0102.d	mc0103.d	mc0104.d	mc0105.d	mc0106.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	18450	17464	22793	17528	19183	15746	18527	13	Yes
Naphthalene-d8	63212	62864	84165	62688	60213	54779	64654	16	Yes
Acenaphthene-d10	26999	27514	35792	25314	25297	22343	27210	17	Yes
Phenanthrene-d10	58317	66626	78539	55991	54166	47835	60246	18	Yes
Chrysene-d12	48974	57800	66019	44118	41561	36762	49206	22	Yes
Perylene-d12	49204	58676	70177	42539	41234	37291	49854	25	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:
=====

Internal Standard Name	mc0101a.d	mc0102.d	mc0103.d	mc0104.d	mc0105.d	mc0106.d	Avg. RT
1,4-Dichlorobenzene-d4	7.158	7.158	7.158	7.158	7.165	7.158	7.159
Naphthalene-d8	9.075	9.075	9.075	9.075	9.082	9.075	9.076
Acenaphthene-d10	11.815	11.815	11.815	11.815	11.811	11.815	11.814
Phenanthrene-d10	13.721	13.721	13.721	13.713	13.713	13.713	13.717
Chrysene-d12	17.901	17.901	17.894	17.894	17.893	17.894	17.896
Perylene-d12	20.394	20.401	20.394	20.386	20.386	20.386	20.391

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS

LAB CODE: LANCAS

INSTRUMENT: HP21585

Method: SW-846 8270D (SIM) MINI

File ID: mc0108.d

ICV SAMPLE ID: RVSICV0170

BATCH: 20MAR04026

Sample Name: SSTD0.50

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Naphthalene	.25	.23	-8	30	YES
Quinoline	.25	.22	-12	30	YES
2-Methylnaphthalene	.25	.21	-18	30	YES
1-Methylnaphthalene-d10	.25	.24	-5	30	YES
1-Methylnaphthalene	.25	.23	-9	30	YES
Dimethylphthalate	.25	.20	-21	30	YES
Acenaphthylene	.25	.23	-8	30	YES
Acenaphthene	.25	.21	-16	30	YES
Dibenzofuran	.25	.20	-21	30	YES
Diethylphthalate	.25	.19	-22	30	YES
Fluorene	.25	.21	-16	30	YES
Hexachlorobenzene	.25	.23	-8	30	YES
Phenanthrene	.25	.23	-8	30	YES
Anthracene	.25	.22	-12	30	YES
Di-n-butylphthalate	.25	.19	-26	30	YES
Fluoranthene-d10	.25	.22	-12	30	YES
Fluoranthene	.25	.23	-9	30	YES
Pyrene	.25	.23	-10	30	YES
Benzo(a)anthracene	.25	.23	-8	30	YES
Chrysene	.25	.22	-11	30	YES
Benzo(b)fluoranthene	.25	.24	-4	30	YES
Benzo(k)fluoranthene	.25	.24	-5	30	YES
Benzo(e)pyrene	.25	.26	4	30	YES
Benzo(a)pyrene-d12	.25	.22	-14	30	YES
Benzo(a)pyrene	.25	.25	1	30	YES
Indeno(1,2,3-cd)pyrene	.25	.26	6	30	YES
Dibenz(a,h)anthracene	.25	.24	-3	30	YES
Benzo(g,h,i)perylene	.25	.23	-7	30	YES
N-Nitrosodiphenylamine	.25	.19	-23	30	YES
Perylene	.25	.25	1	30	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS

LAB CODE: LANCAS

INSTRUMENT: HP21585

Method: SW-846 8270D (SIM) MINI

File ID: mc0109.d

ICV SAMPLE ID: RVSICV3399

BATCH: 20MAR04026

Sample Name: SSTD0.50

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	.50	.41	-17	30	YES
N-Nitrosodimethylamine	.50	.66	32	30	NO
bis(2-Chloroethyl)ether	.50	.71	42	30	NO
Butylbenzylphthalate	.50	.62	23	30	YES
bis(2-Ethylhexyl)phthalate	.50	.61	23	30	YES
Di-n-octylphthalate	.50	.61	21	30	YES

Comments: _____ NC = Could not calculate

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: HP21585 Calibration Date: 03/26/20 Time: 05:54

Lab File ID: mcl551.d Init. Calib. Date(s): 03/04/20 03/05/20

Init. Calib. Times(s): 22:06 01:04

Min RRF for SPCC(#) = 0.050

Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.672	0.664	0.490	.5	-1
N-Nitrosodimethylamine	0.980	0.973	0.500	.5	-1
bis(2-Chloroethyl)ether	0.439	0.380	0.430	.5	-13
Quinoline	0.551	0.605	0.550	.5	10
Naphthalene	1.183	1.233	0.520	.5	4
2-Methylnaphthalene	0.734	0.809	0.550	.5	10
1-Methylnaphthalene	0.693	0.783	0.560	.5	13
Acenaphthylene	2.653	2.413	0.450	.5	-9
Dimethylphthalate	1.822	1.676	2.300	2.5	-8
Acenaphthene	1.479	1.424	0.480	.5	-4
Dibenzofuran	2.782	2.383	0.430	.5	-14
Diethylphthalate	1.814	1.623	2.240	2.5	-11
Fluorene	1.874	1.775	0.470	.5	-5
N-Nitrosodiphenylamine (1)	0.469	0.469	0.500	.5	0
Hexachlorobenzene	0.324	0.284	0.440	.5	-12
Phenanthrene	1.297	1.215	0.470	.5	-6
Anthracene	1.217	1.222	0.500	.5	0
Di-n-butylphthalate	1.358	1.331	2.450	2.5	-2
Fluoranthene	1.427	1.469	0.510	.5	3
Pyrene	1.791	1.587	0.440	.5	-11
Butylbenzylphthalate	0.649	0.596	2.300	2.5	-8
bis(2-Ethylhexyl)phthalate	0.954	0.908	2.380	2.5	-5
Benzo(a)anthracene	1.514	1.361	0.450	.5	-10
Chrysene	1.569	1.467	0.470	.5	-7
Di-n-octylphthalate	1.546	1.515	1.930	2.5	-23
Benzo(b)fluoranthene	1.413	1.359	0.480	.5	-4
Benzo(k)fluoranthene	1.475	1.459	0.490	.5	-1
Benzo(e)pyrene	1.340	1.324	0.490	.5	-1
Benzo(a)pyrene	1.342	1.351	0.500	.5	1
Perylene	1.429	1.349	0.470	.5	-6
Indeno(1,2,3-cd)pyrene	1.200	1.215	0.510	.5	1
Dibenz(a,h)anthracene	1.355	1.421	0.520	.5	5
Benzo(g,h,i)perylene	1.417	1.437	0.510	.5	1
1-Methylnaphthalene-d10	0.512	0.603	0.590	.5	18
Fluoranthene-d10	1.056	1.170	0.550	.5	11

(1) Cannot be Separated from Diphenylamine

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: HP21585 Calibration Date: 03/26/20 Time: 05:54

Lab File ID: mcl551.d Init. Calib. Date(s): 03/04/20 03/05/20

Init. Calib. Times(s): 22:06 01:04

Min RRF for SPCC(#) = 0.050

Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
=====	=====	=====	=====	=====	=====
Benzo(a)pyrene-d12	0.942	1.056	0.560	.5	12
Average %Drift:					7

Continuing Calibration Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP21585.i/20mar04.b/mc0101a.d **
/chem/HP21585.i/20mar04.b/mc0102.d
/chem/HP21585.i/20mar04.b/mc0103.d
/chem/HP21585.i/20mar04.b/mc0104.d
/chem/HP21585.i/20mar04.b/mc0105.d
/chem/HP21585.i/20mar04.b/mc0106.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP21585.i/20mar26.b/mc1551.d

Area Summary

File ID:

=====

Internal Standard Name	mc1551.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	23072	18450	9225	36900	Yes
Naphthalene-d8	78699	63212	31606	126424	Yes
Acenaphthene-d10	41158	26999	13500	53998	Yes
Phenanthrene-d10	88774	58317	29158	116634	Yes
Chrysene-d12	83519	48974	24487	97948	Yes
Perylene-d12	86854	49204	24602	98408	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

=====

Internal Standard Name	mc1551.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	7.075	7.158	Yes
Naphthalene-d8	8.972	9.075	Yes
Acenaphthene-d10	11.723	11.815	Yes
Phenanthrene-d10	13.627	13.721	Yes
Chrysene-d12	17.779	17.901	Yes
Perylene-d12	20.263	20.394	Yes

A "No" indicates the retention time is greater than 10 seconds from the RT of the referenced standard.

Comments:

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: HP21585 Calibration Date: 03/26/20 Time: 17:17

Lab File ID: mcl601.d Init. Calib. Date(s): 03/04/20 03/05/20

Init. Calib. Times(s): 22:06 01:04

Min RRF for SPCC(#) = 0.050

Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
=====	=====	=====	=====	=====	=====
1,4-Dioxane	0.672	0.657	0.490	.5	-2
N-Nitrosodimethylamine	0.980	0.970	0.490	.5	-1
bis(2-Chloroethyl)ether	0.439	0.369	0.420	.5	-16
Quinoline	0.551	0.619	0.560	.5	12
Naphthalene	1.183	1.273	0.540	.5	8
2-Methylnaphthalene	0.734	0.806	0.550	.5	10
1-Methylnaphthalene	0.693	0.791	0.570	.5	14
Acenaphthylene	2.653	2.387	0.450	.5	-10
Dimethylphthalate	1.822	1.635	2.240	2.5	-10
Acenaphthene	1.479	1.429	0.480	.5	-3
Dibenzofuran	2.782	2.400	0.430	.5	-14
Diethylphthalate	1.814	1.625	2.240	2.5	-10
Fluorene	1.874	1.737	0.460	.5	-7
N-Nitrosodiphenylamine (1)	0.469	0.505	0.540	.5	8
Hexachlorobenzene	0.324	0.293	0.450	.5	-10
Phenanthrene	1.297	1.228	0.470	.5	-5
Anthracene	1.217	1.257	0.520	.5	3
Di-n-butylphthalate	1.358	1.408	2.590	2.5	4
Fluoranthene	1.427	1.497	0.520	.5	5
Pyrene	1.791	1.601	0.450	.5	-11
Butylbenzylphthalate	0.649	0.621	2.390	2.5	-4
bis(2-Ethylhexyl)phthalate	0.954	0.946	2.480	2.5	-1
Benzo(a)anthracene	1.514	1.413	0.470	.5	-7
Chrysene	1.569	1.491	0.480	.5	-5
Di-n-octylphthalate	1.546	1.469	1.880	2.5	-25
Benzo(b)fluoranthene	1.413	1.372	0.490	.5	-3
Benzo(k)fluoranthene	1.475	1.391	0.470	.5	-6
Benzo(e)pyrene	1.340	1.304	0.490	.5	-3
Benzo(a)pyrene	1.342	1.335	0.500	.5	-1
Perylene	1.429	1.356	0.470	.5	-5
Indeno(1,2,3-cd)pyrene	1.200	1.243	0.520	.5	4
Dibenz(a,h)anthracene	1.355	1.415	0.520	.5	4
Benzo(g,h,i)perylene	1.417	1.436	0.510	.5	1
=====	=====	=====	=====	=====	=====
1-Methylnaphthalene-d10	0.512	0.609	0.590	.5	19
Fluoranthene-d10	1.056	1.193	0.560	.5	13

(1) Cannot be Separated from Diphenylamine

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Instrument ID: HP21585 Calibration Date: 03/26/20 Time: 17:17

Lab File ID: mcl601.d Init. Calib. Date(s): 03/04/20 03/05/20

Init. Calib. Times(s): 22:06 01:04

Min RRF for SPCC(#) = 0.050

Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
=====	=====	=====	=====	=====	=====
Benzo(a)pyrene-d12	0.942	1.039	0.550	.5	10
Average %Drift:					8

Continuing Calibration Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

```
/chem/HP21585.i/20mar04.b/mc0101a.d **
/chem/HP21585.i/20mar04.b/mc0102.d
/chem/HP21585.i/20mar04.b/mc0103.d
/chem/HP21585.i/20mar04.b/mc0104.d
/chem/HP21585.i/20mar04.b/mc0105.d
/chem/HP21585.i/20mar04.b/mc0106.d
```

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

```
/chem/HP21585.i/20mar26a.b/mc1601.d
```

Area Summary

File ID:

=====

Internal Standard Name	mc1601.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	22711	18450	9225	36900	Yes
Naphthalene-d8	76064	63212	31606	126424	Yes
Acenaphthene-d10	40164	26999	13500	53998	Yes
Phenanthrene-d10	82445	58317	29158	116634	Yes
Chrysene-d12	78938	48974	24487	97948	Yes
Perylene-d12	88897	49204	24602	98408	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

=====

Internal Standard Name	mc1601.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	7.075	7.158	Yes
Naphthalene-d8	8.972	9.075	Yes
Acenaphthene-d10	11.723	11.815	Yes
Phenanthrene-d10	13.627	13.721	Yes
Chrysene-d12	17.779	17.901	Yes
Perylene-d12	20.271	20.394	Yes

A "No" indicates the retention time is greater than 10 seconds from the RT of the referenced standard.

Comments: _____

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1551.d Date Analyzed: 03/26/20

Instrument ID: HP21585 Time Analyzed: 05:54

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
=====		=====	=====	=====	=====	=====	=====
12 HOUR STD		23072	7.075	78699	8.972	41158	11.723
UPPER LIMIT		46144	7.575	157398	9.472	82316	12.223
LOWER LIMIT		11536	6.575	39350	8.472	20579	11.223
=====		=====	=====	=====	=====	=====	=====
LLI SAMPLE							
NO.							
=====		=====	=====	=====	=====	=====	=====
01	SBLKWB085	23240	7.075	78328	8.972	37008	11.723
02	085WBLCS	23698	7.075	81831	8.971	39947	11.722
03	085WBLCS	23713	7.075	82645	8.971	40869	11.722
04	1285937	21388	7.075	74393	8.972	33886	11.722
05	1285988DL	23067	7.075	85550	8.972	43793	11.734
06	1286052	24964	7.075	87307	8.972	74220	11.734
07	1286053	22298	7.075	77052	8.972	37023	11.722
08	1286054	22590	7.075	80115	8.972	38267	11.722
09	1285000	22068	7.075	74600	8.971	34606	11.722
10	1285022	21622	7.075	73393	8.971	34902	11.722
11	rvSIM0750	21025	7.076	71852	8.972	42563	11.723
12	1285716	22415	7.075	82457	8.972	46508	11.722
13	1285717	23136	7.075	88042	8.972	50120	11.722
14	1285718	22070	7.075	75039	8.971	35237	11.722
15	1285719	22576	7.075	77523	8.972	38612	11.722
16	1285720	21704	7.075	74408	8.971	34323	11.722
17	1285721	22970	7.076	81572	8.972	36357	11.723

IS1 (DCB) = 1,4-Dichlorobenzene-d4

IS2 (NPT) = Naphthalene-d8

IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = -50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk

* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1551.d Date Analyzed: 03/26/20

Instrument ID: HP21585 Time Analyzed: 05:54

		IS4(PHN)		IS5(CRY)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	88774	13.627	83519	17.779	86854	20.263
	UPPER LIMIT	177548	14.127	167038	18.279	173708	20.763
	LOWER LIMIT	44387	13.127	41760	17.279	43427	19.763
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE NO.						
	=====	=====	=====	=====	=====	=====	=====
01	SBLKWB085	80933	13.627	65331	17.779	78768	20.263
02	085WBLCS	81004	13.627	75496	17.778	78612	20.263
03	085WBLCS	89930	13.627	73193	17.778	82275	20.263
04	1285937	73270	13.627	57162	17.778	72116	20.263
05	1285988DL	86678	13.627	68154	17.778	70624	20.263
06	1286052	73016	13.627	69101	17.779	77451	20.263
07	1286053	77375	13.627	68813	17.778	78654	20.263
08	1286054	81366	13.627	67311	17.778	78109	20.263
09	1285000	76236	13.627	60264	17.778	76714	20.263
10	1285022	75411	13.627	58534	17.778	74853	20.263
11	rvSIM0750	86618	13.627	81245	17.779	85392	20.264
12	1285716	70052	13.627	74231	17.778	84609	20.263
13	1285717	67932	13.627	73410	17.778	86832	20.263
14	1285718	76222	13.627	63530	17.778	82522	20.263
15	1285719	84454	13.627	75732	17.778	88736	20.263
16	1285720	74987	13.627	60958	17.778	81277	20.263
17	1285721	81576	13.627	63339	17.779	81389	20.264

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1551.d Date Analyzed: 03/26/20

Instrument ID: HP21585 Time Analyzed: 05:54

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	23072	7.075	78699	8.972	41158	11.723
	UPPER LIMIT	46144	7.575	157398	9.472	82316	12.223
	LOWER LIMIT	11536	6.575	39350	8.472	20579	11.223
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE						
	NO.						
	=====	=====	=====	=====	=====	=====	=====
18	1285722	21373	7.075	74902	8.972	40238	11.722
19	1286190	28642	7.075	104316	8.972	51058	11.722
20	1286191	25043	7.075	92442	8.972	47001	11.723

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1551.d Date Analyzed: 03/26/20

Instrument ID: HP21585 Time Analyzed: 05:54

		IS4(PHN)		IS5(CRY)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	88774	13.627	83519	17.779	86854	20.263
	UPPER LIMIT	177548	14.127	167038	18.279	173708	20.763
	LOWER LIMIT	44387	13.127	41760	17.279	43427	19.763
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE NO.						
	=====	=====	=====	=====	=====	=====	=====
18	1285722	85607	13.627	77127	17.779	90553	20.263
19	1286190	83974	13.627	89893	17.778	108506	20.263
20	1286191	73897	13.627	83492	17.779	99852	20.271

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____

Lab File ID (Standard): mc1601.d Date Analyzed: 03/26/20

Instrument ID: HP21585 Time Analyzed: 17:17

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	22711	7.075	76064	8.972	40164	11.723
	UPPER LIMIT	45422	7.575	152128	9.472	80328	12.223
	LOWER LIMIT	11356	6.575	38032	8.472	20082	11.223
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE NO.						
	=====	=====	=====	=====	=====	=====	=====
01	1286192	30889	7.076	105242	8.972	48966	11.734
02	1286758	24890	7.076	90202	8.972	48751	11.723
03	1286760	25244	7.075	91883	8.972	47483	11.722
04	1286762	27481	7.075	94296	8.971	44721	11.734
05	1285717DL	23568	7.075	81905	8.972	40310	11.734
06	1285717DL2	22793	7.075	79154	8.972	40202	11.734

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): mc1601.d Date Analyzed: 03/26/20
 Instrument ID: HP21585 Time Analyzed: 17:17

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	82445	13.627	78938	17.779	88897	20.271
	UPPER LIMIT	164890	14.127	157876	18.279	177794	20.771
	LOWER LIMIT	41223	13.127	39469	17.279	44449	19.771
	=====	=====	=====	=====	=====	=====	=====
	LLI SAMPLE NO.						
	=====	=====	=====	=====	=====	=====	=====
01	1286192	103643	13.627	89871	17.786	107852	20.271
02	1286758	70920	13.627	86134	17.786	97518	20.271
03	1286760	74457	13.627	91324	17.786	103707	20.279
04	1286762	98064	13.627	91611	17.778	110634	20.271
05	1285717DL	83584	13.627	74431	17.786	89107	20.279
06	1285717DL2	83011	13.627	74085	17.778	88399	20.271

IS4 (PHN) = Phenanthrene-d10
 IS5 (CRY) = Chrysene-d12
 IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = -50% of internal standard area
 RT UPPER LIMIT = +0.50 minutes of internal standard RT
 RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
 * Values outside of QC limits.

Sample Data

Semivolatiles by GC/MS-SIM

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

32020

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285716

Sample wt/vol: 240 (g/mL)ML Lab File ID: mc1563.d

Level: (low/med) LOW Date Received: 03/20/20

% Moisture: not dec: dec: Date Extracted: 03/25/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/26/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		3	
208-96-8-----	Acenaphthylene		0.7	
83-32-9-----	Acenaphthene		5	
86-73-7-----	Fluorene		0.5	
85-01-8-----	Phenanthrene		0.4	
120-12-7-----	Anthracene		0.4	
206-44-0-----	Fluoranthene		4	
129-00-0-----	Pyrene		5	
56-55-3-----	Benzo (a) anthracene		0.9	
218-01-9-----	Chrysene		0.5	
205-99-2-----	Benzo (b) fluoranthene		0.02	J
207-08-9-----	Benzo (k) fluoranthene		0.01	U
50-32-8-----	Benzo (a) pyrene		0.02	J
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.01	U
53-70-3-----	Dibenz (a,h) anthracene		0.02	U
191-24-2-----	Benzo (g,h,i) perylene		0.01	U

FORM I SV-1

32020

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285716

Data file: /chem/HP21585.i/20mar26.b/mc1563.d

Injection date and time: 26-MAR-2020 12:06

Data file Sample Info. Line: 32020;1285716;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 240 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	22415 (-3)	0.25	
6) Naphthalene-d8	8.972 (0.000)	538	136	82457 (5)	0.25	
14) Acenaphthene-d10	11.722 (0.000)	748	164	46508M (13)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	70052 (-21)	0.25	
29) Chrysene-d12	17.778 (0.000)	1588	240	74231 (-11)	0.25	
38) Perylene-d12	20.263 (0.000)	1912	264	84609 (-3)	0.25	

M = Internal Standard was manually integrated

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	29599	0.175	70%		15 - 121
24) Fluoranthene-d10	(4)	15.333 (0.000)	212	68339	0.231	92%		34 - 125
36) Benzo(a)pyrene-d12	(6)	20.133 (0.000)	264	48053	0.151	60%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.013 (-0.000)	128	239962	0.615	2.56			0.008
13) Acenaphthylene	(3)	11.526 (0.000)	152	78144	0.158	0.66			0.003
15) Acenaphthene	(3)	11.769 (-0.000)	154	334266	1.215	5.06			0.003
18) Fluorene	(3)	12.425 (-0.000)	166	39303	0.113	0.47			0.003
21) Phenanthrene	(4)	13.650 (-0.000)	178	33307	0.092	0.38			0.008
22) Anthracene	(4)	13.721 (-0.000)	178	30691	0.090	0.38			0.003
25) Fluoranthene	(4)	15.358 (-0.000)	202	423440	1.059	4.41			0.003
26) Pyrene	(5)	15.715 (-0.000)	202	631176	1.187	4.95			0.003
28) Benzo(a)anthracene	(5)	17.755 (0.000)	228	99662	0.222	0.92			0.003
30) Chrysene	(5)	17.817 (0.000)	228	60094	0.129	0.54			0.003
33) Benzo(b)fluoranthene	(6)	19.634 (0.000)	252	1772M	0.004	0.02			0.003
34) Benzo(k)fluoranthene	(6)			Not Detected					0.003
37) Benzo(a)pyrene	(6)	20.171 (0.000)	252	1809	0.004	0.02			0.003
39) Indeno(1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz(a,h)anthracene	(6)			Not Detected					0.005
41) Benzo(g,h,i)perylene	(6)			Not Detected					0.003

M = Compound was manually integrated.

32020

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285716

Data file: /chem/HP21585.i/20mar26.b/mc1563.d

Injection date and time: 26-MAR-2020 12:06

Data file Sample Info. Line: 32020;1285716;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 240 ml

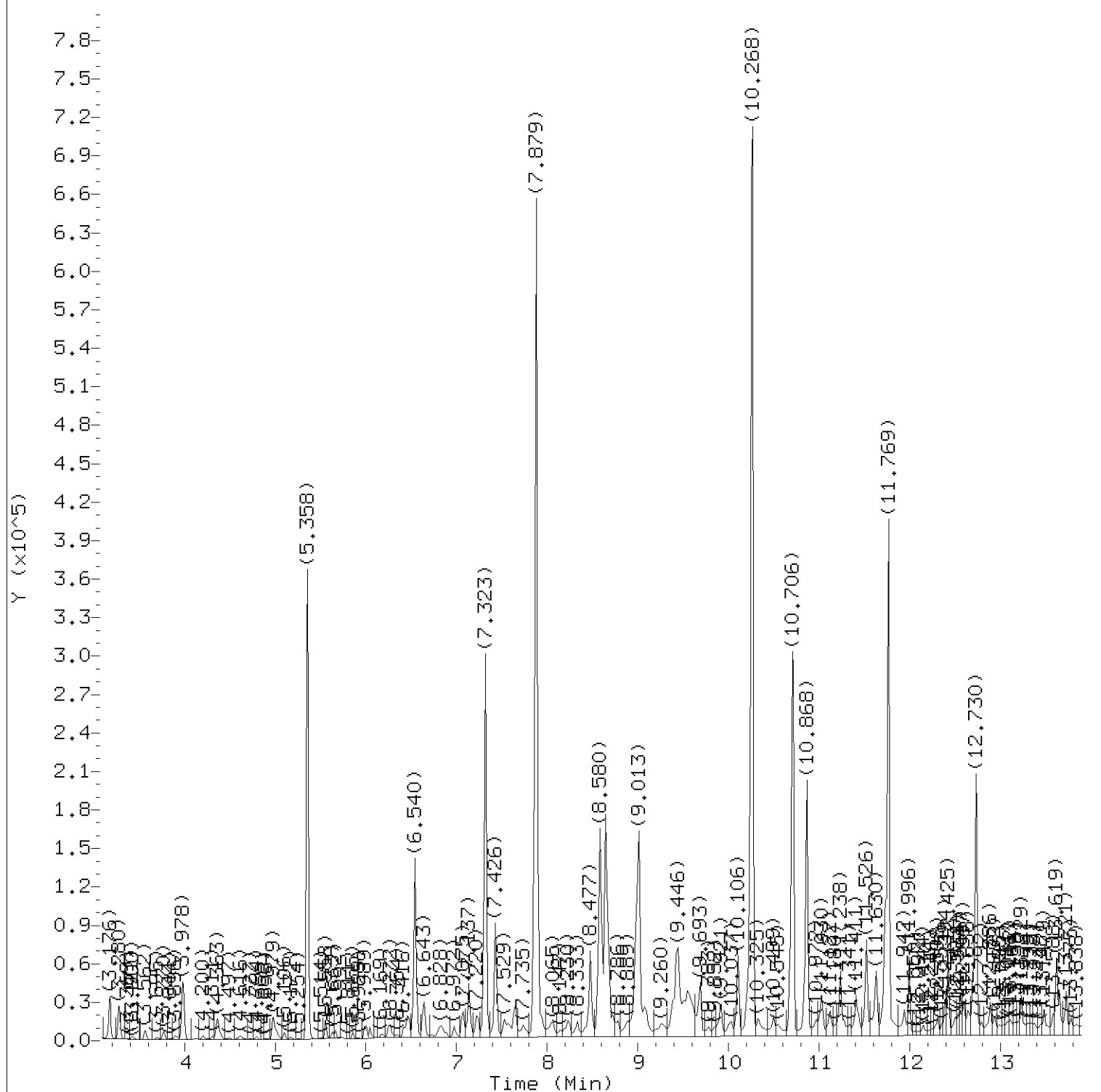
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26. Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58. PARALLAX ID: cam01237



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

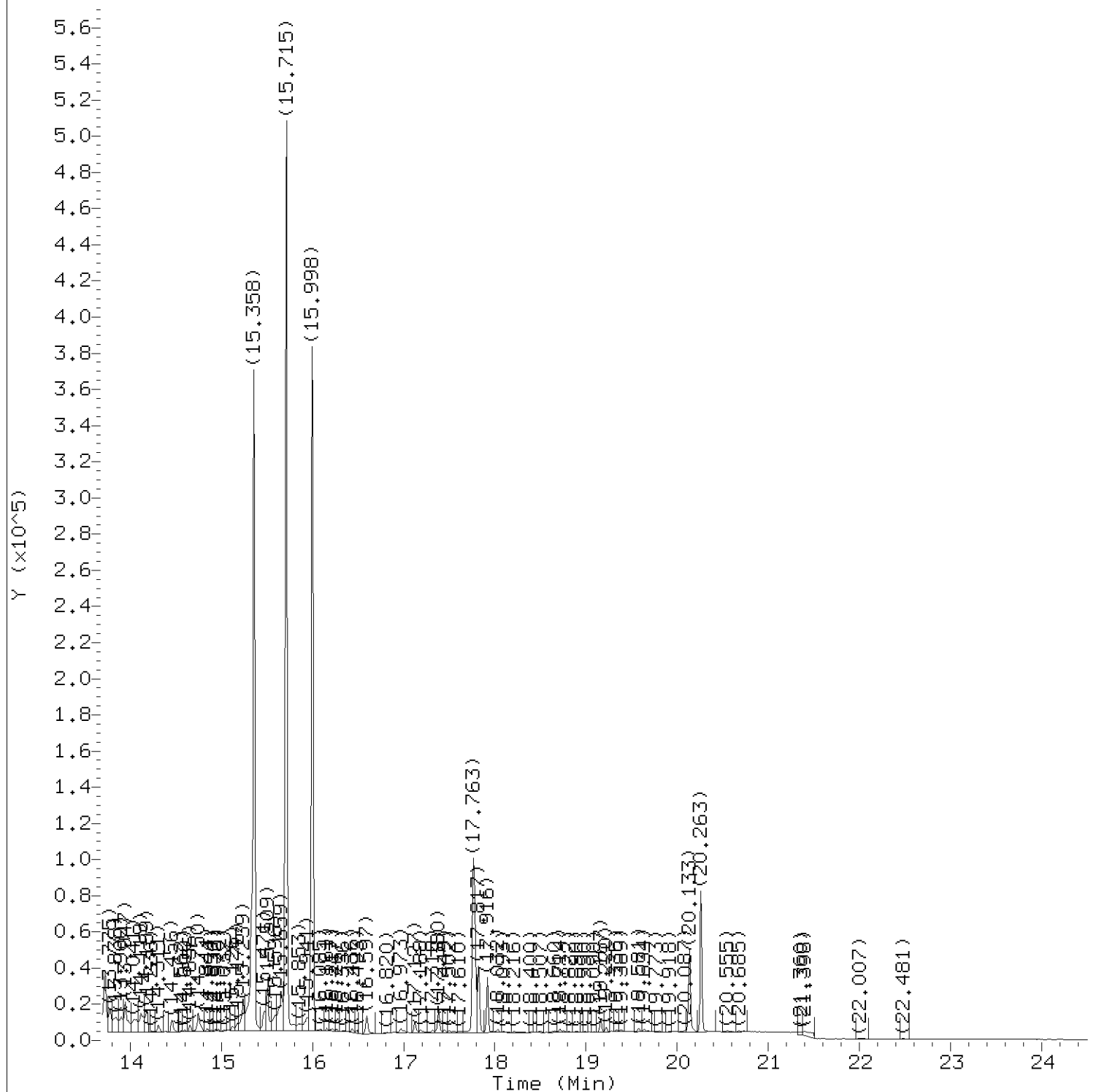
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

Lab Sample ID: 1285716

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:26.

Target 3.5 esignature user ID: art12405



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

Lab Sample ID: 1285716

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:26.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1563.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:06

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

Lab Sample ID: 1285716

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	22415	0.250
6) *Naphthalene-d8	(2)	8.972	136	82457	0.250
7) Naphthalene	(2)	9.013	128	239962	0.615
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	29599	0.175
13) Acenaphthylene	(3)	11.526	152	78144	0.158
14) *Acenaphthene-d10	(3)	11.722	164	46508M	0.250
15) Acenaphthene	(3)	11.769	154	334266	1.215
18) Fluorene	(3)	12.425	166	39303	0.113
20) *Phenanthrene-d10	(4)	13.627	188	70052	0.250
21) Phenanthrene	(4)	13.651	178	33307	0.092
22) Anthracene	(4)	13.721	178	30691	0.090
24) \$Fluoranthene-d10	(4)	15.333	212	68339	0.231
25) Fluoranthene	(4)	15.358	202	423440	1.059
26) Pyrene	(5)	15.715	202	631176	1.187
28) Benzo(a)anthracene	(5)	17.755	228	99662	0.222
29) *Chrysene-d12	(5)	17.778	240	74231	0.250
30) Chrysene	(5)	17.817	228	60094	0.129
33) Benzo(b)fluoranthene	(6)	19.634	252	1772M	0.004
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	48053	0.151
37) Benzo(a)pyrene	(6)	20.171	252	1809	0.004
38) *Perylene-d12	(6)	20.263	264	84609	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Ashley R. Transue

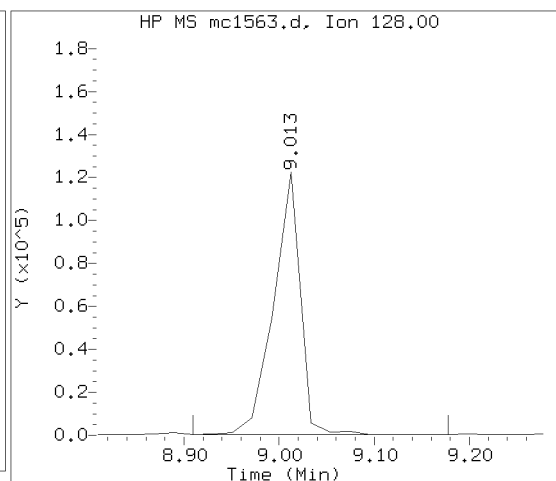
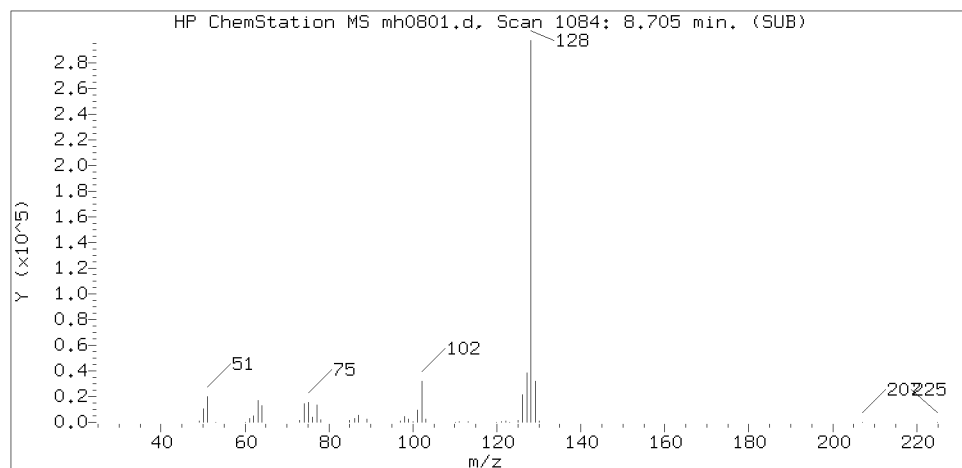
on 03/26/2020 at 18:26.

Target 3.5 esignature user ID: art12405

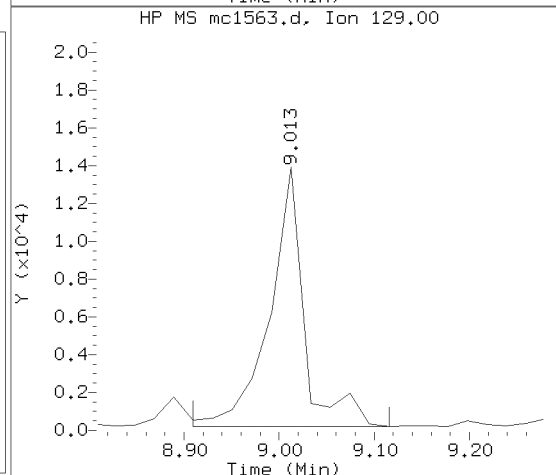
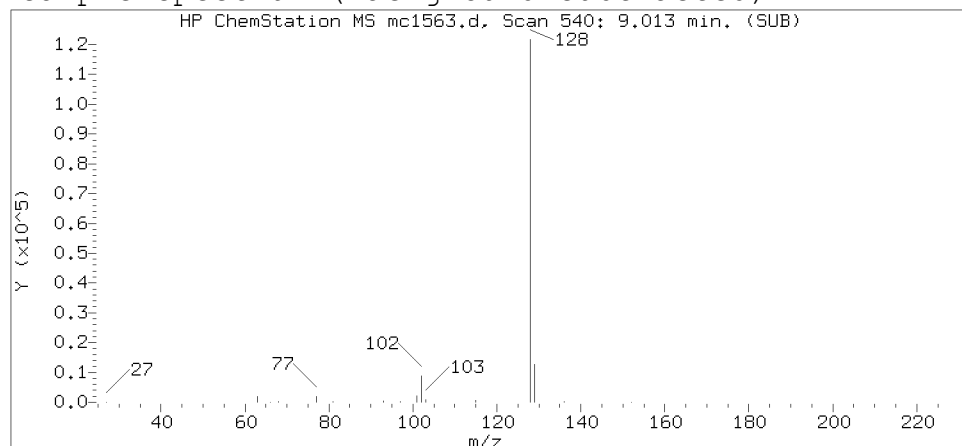
GPY68 Page 288 of 586

page 1 of 1

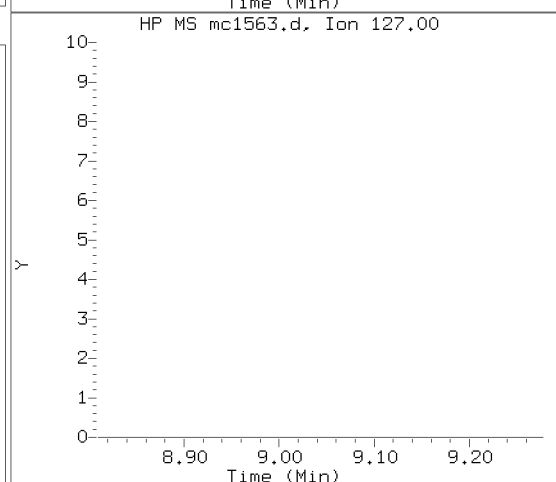
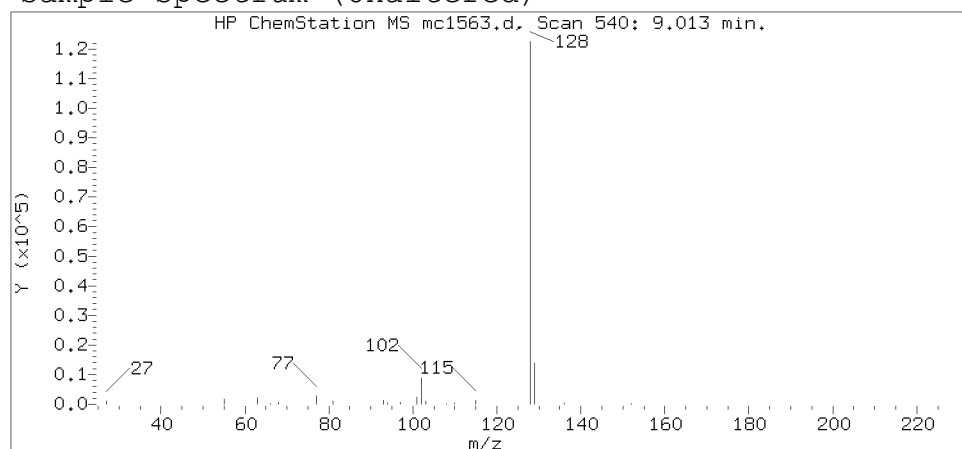
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

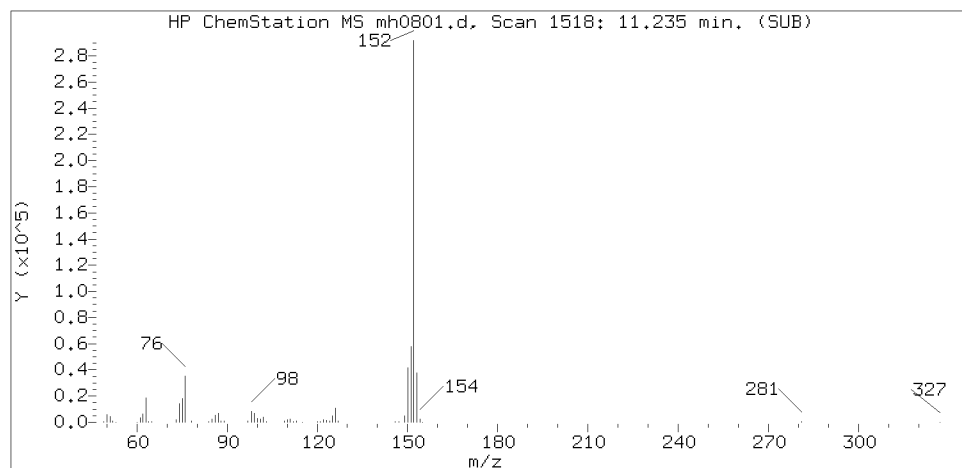
Lab Sample ID: 1285716

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 540
Retention Time (minutes) : 9.013
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 239962
On-column Amount (ng/ul) : 0.6151

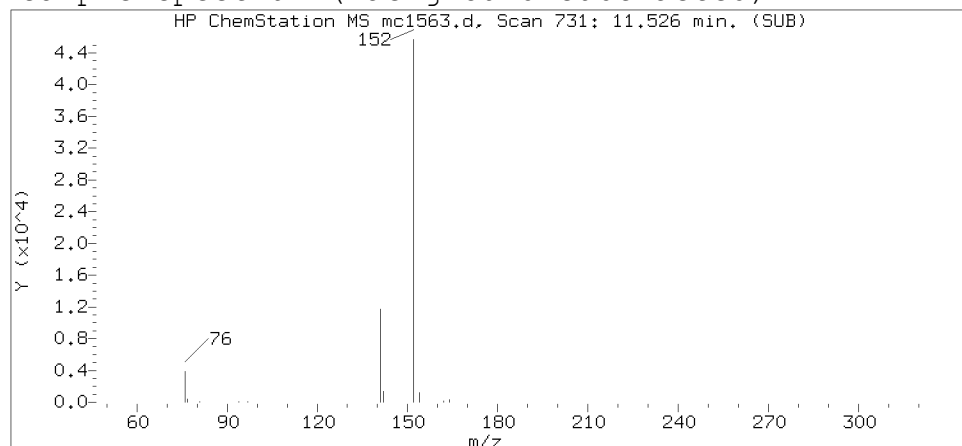
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.

Target 3.5 esignature user: art12405
GPY68 Page 289 of 586

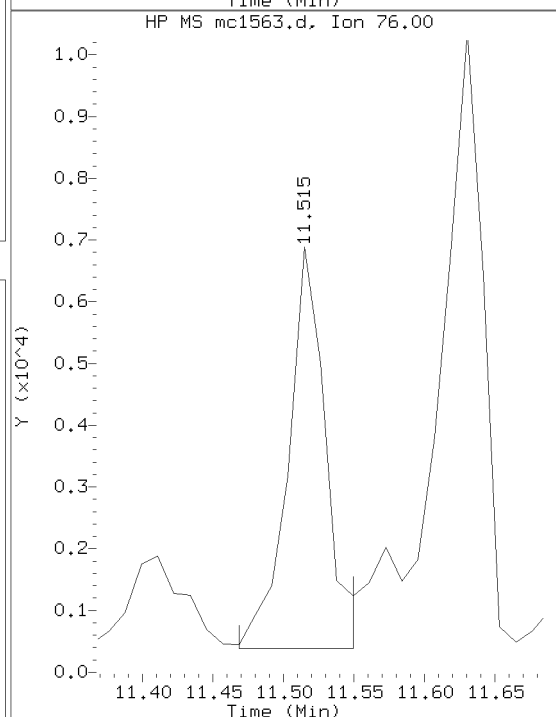
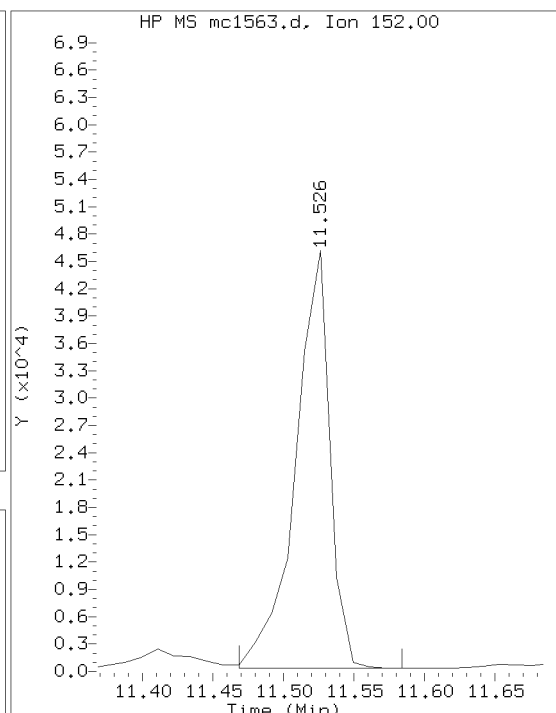
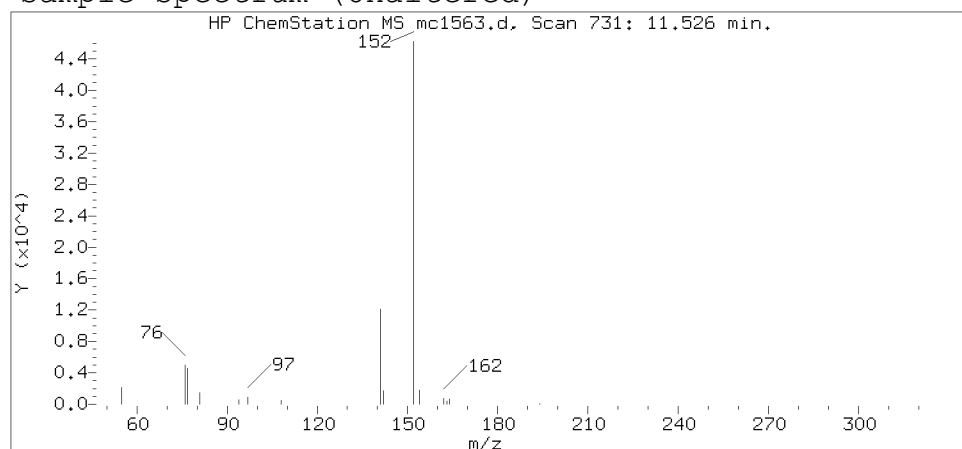
Reference Standard Spectrum for Acenaphthylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

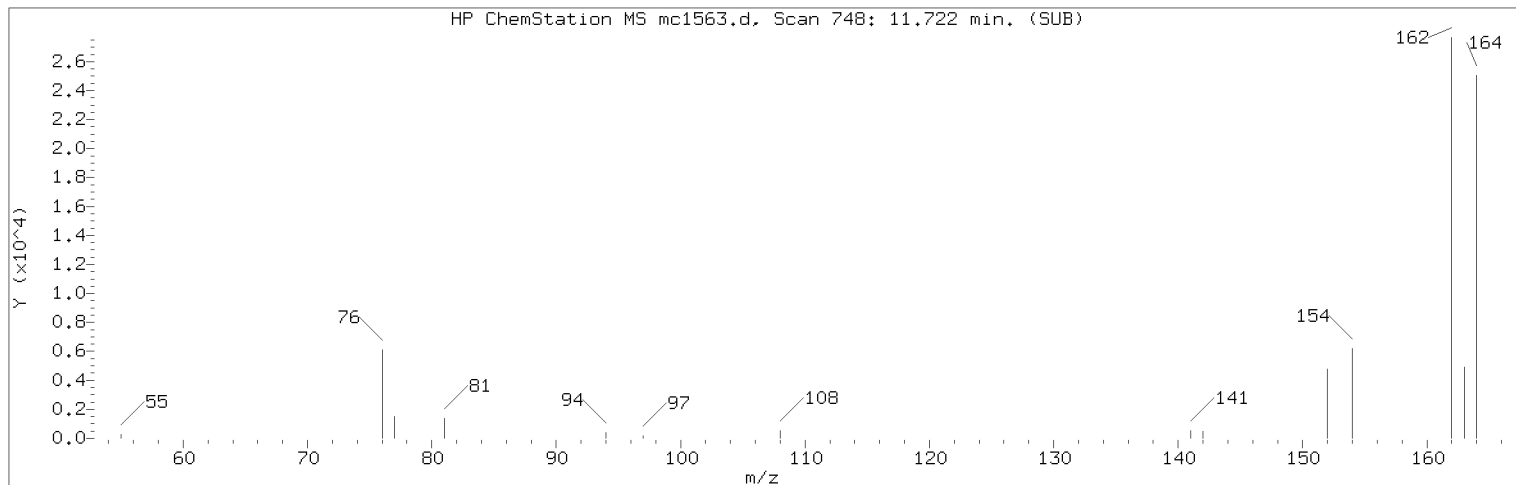
Lab Sample ID: 1285716

Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 731
Retention Time (minutes) : 11.526
Relative Retention Time : 0.00000
Quant Ion : 152.00
Area (flag) : 78144
On-column Amount (ng/ul) : 0.1583

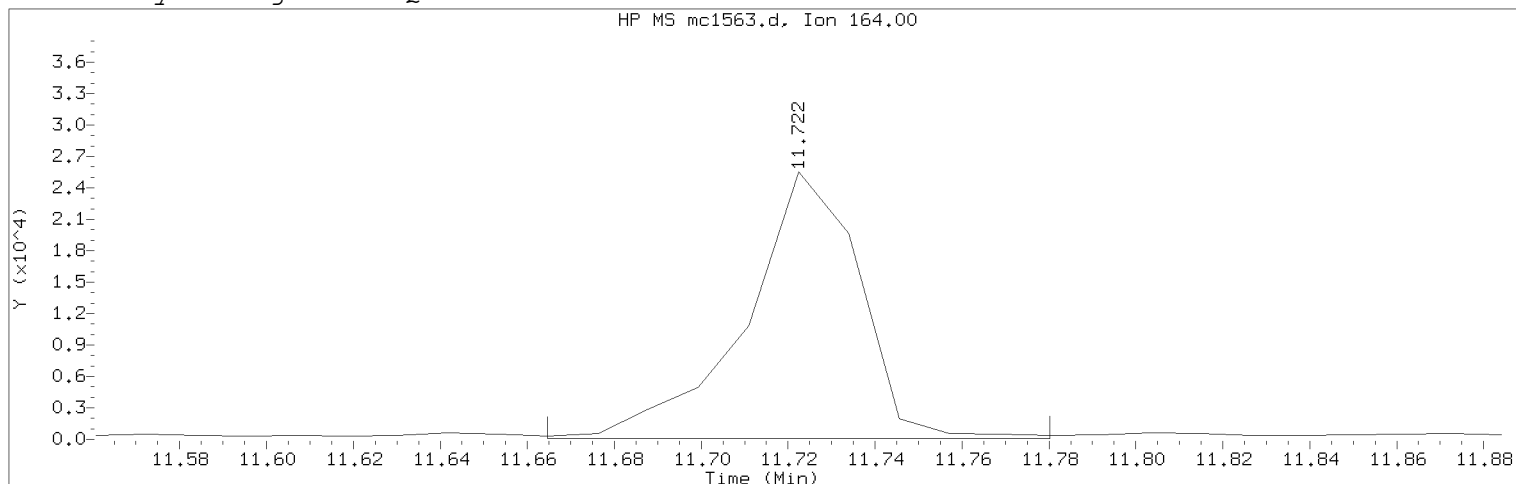
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.

Target 3.5 esignature user: art12405
GPY68 Page 290 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1563.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:06

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

Lab Sample ID: 1285716

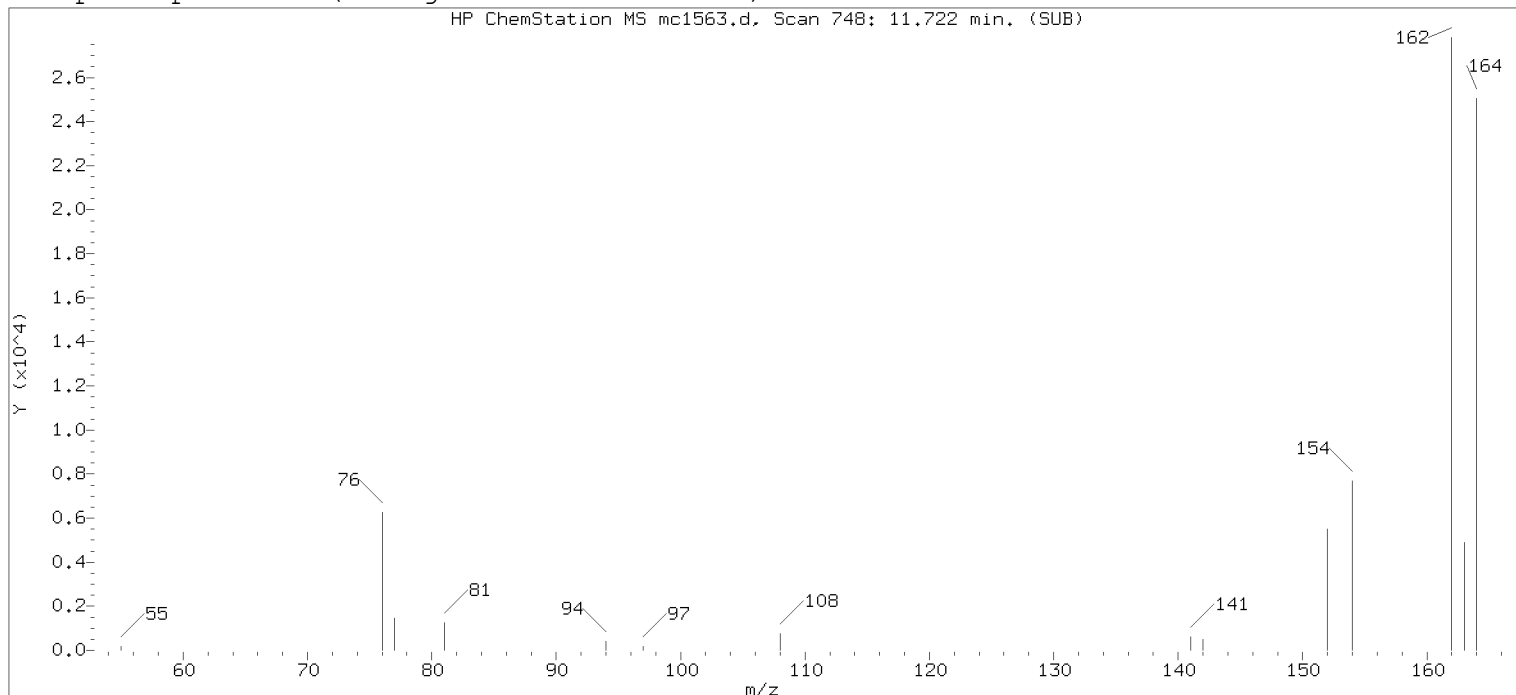
Compound Number	: 14	
Compound Name	: Acenaphthene-d10	
Scan Number	: 748	
Retention Time (minutes)	: 11.722	
Quant Ion	: 164.00	
Area (flag)	: 46508M	
On-column Amount (ng/ul)	: 0.2500	
Integration start scan	: 742	Integration stop scan: 752
Y at integration start	: 89	Y at integration end: 89

Reason for manual integration: improper integration

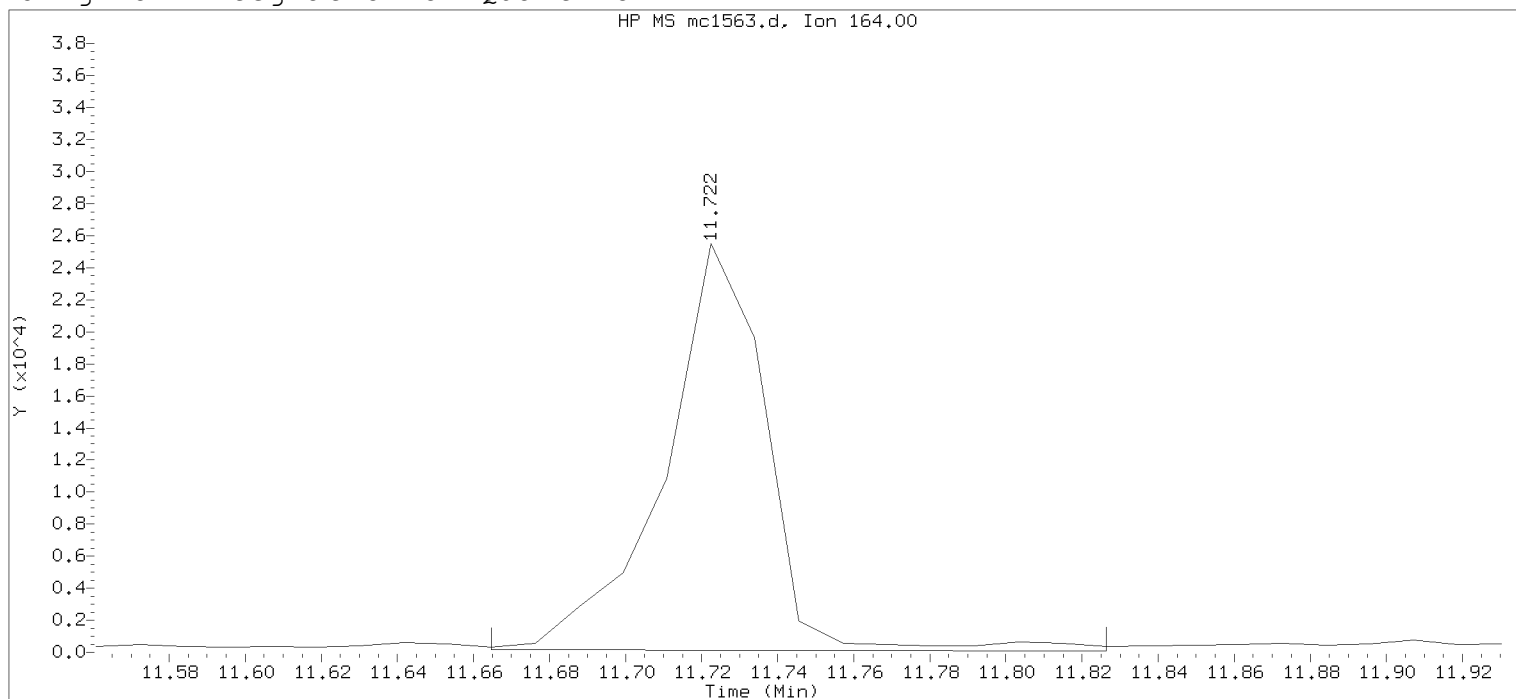
Analyst responsible for change: Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:26.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1563.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:06

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

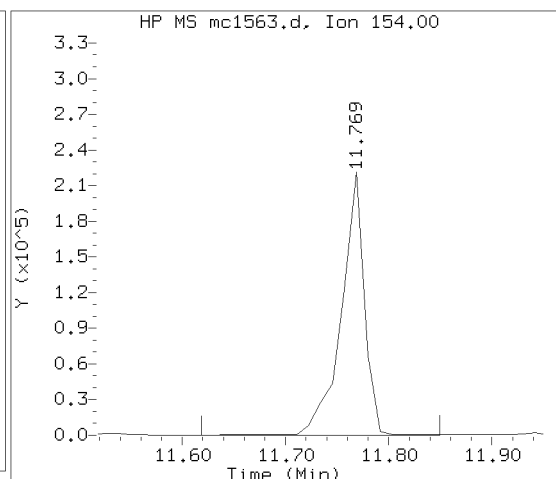
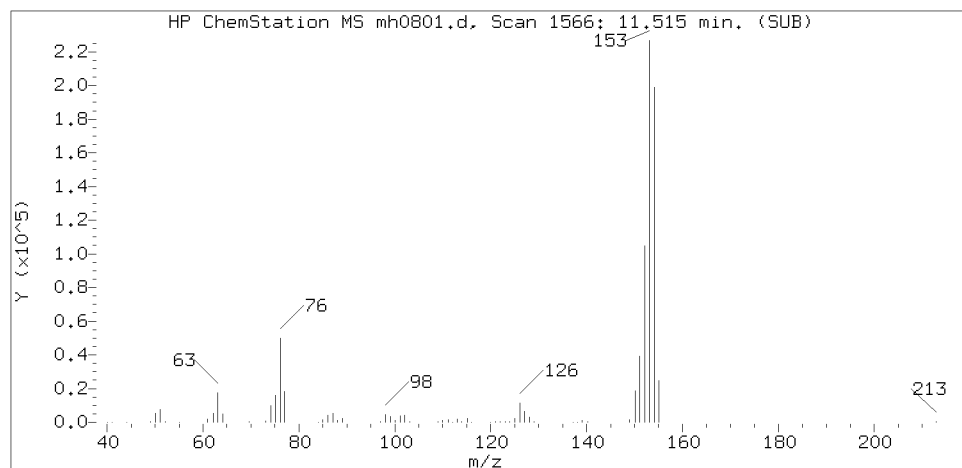
Date, time and analyst ID of latest file update: 26-Mar-2020 12:41 Unknown

Sample Name: 32020

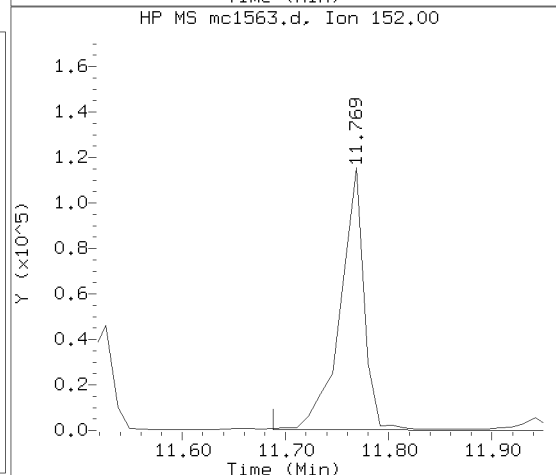
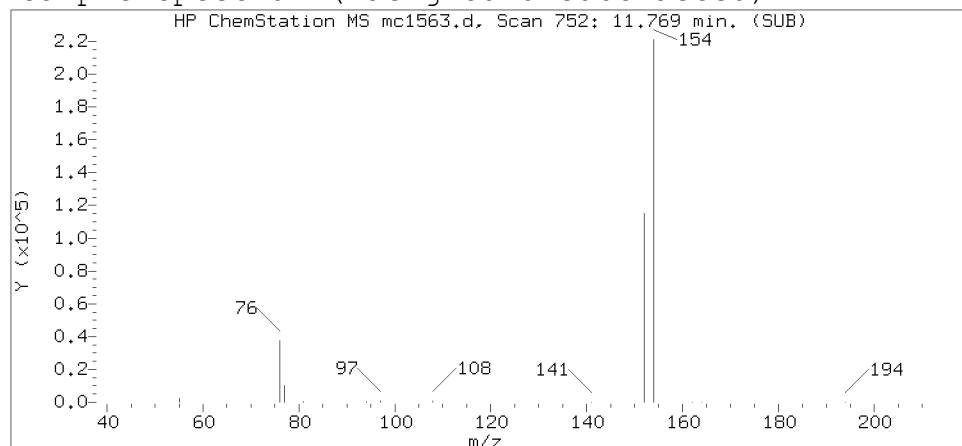
Lab Sample ID: 1285716

Compound Number	: 14	
Compound Name	: Acenaphthene-d10	
Scan Number	: 748	
Retention Time (minutes)	: 11.722	
Quant Ion	: 164.00	
Area	: 42359	
On-column Amount (ng/ul)	: 0.2500	
Integration start scan	: 742	Integration stop scan: 756
Y at integration start	: 155	Y at integration end: 89

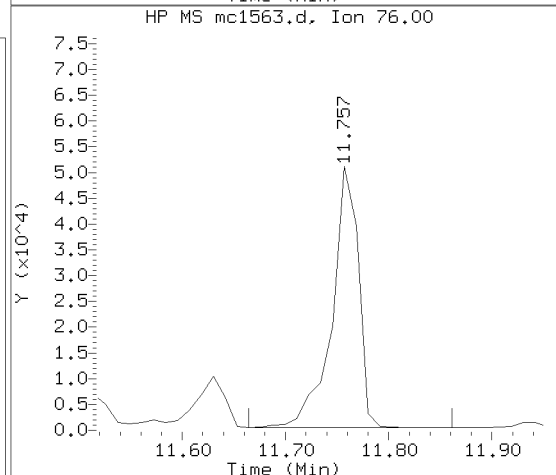
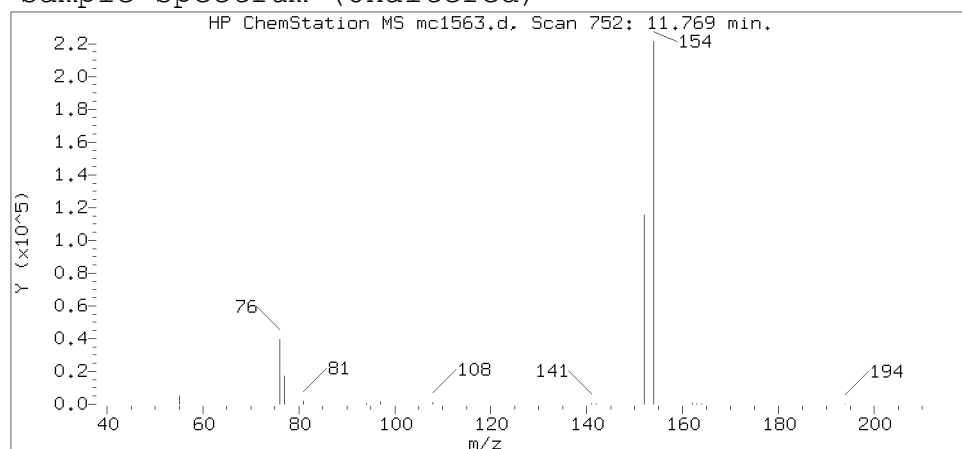
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

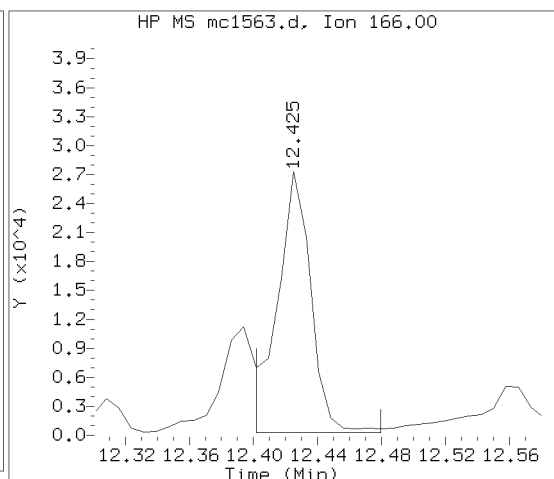
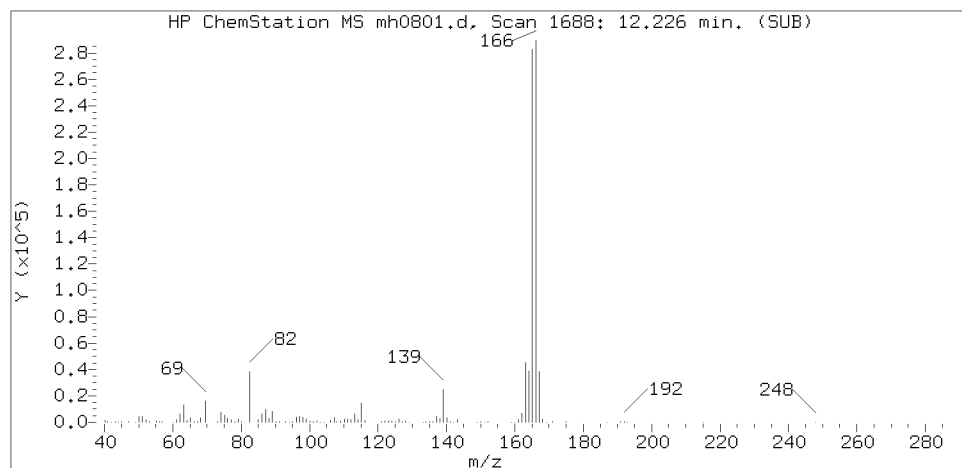
Lab Sample ID: 1285716

Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 752
Retention Time (minutes) : 11.769
Relative Retention Time :-0.00000
Quant Ion : 154.00
Area (flag) : 334266
On-column Amount (ng/ul) : 1.2148

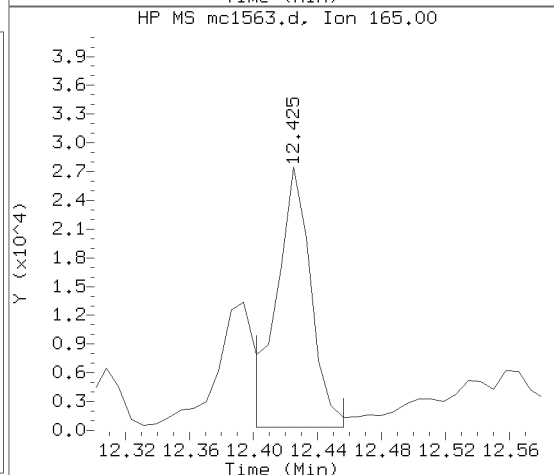
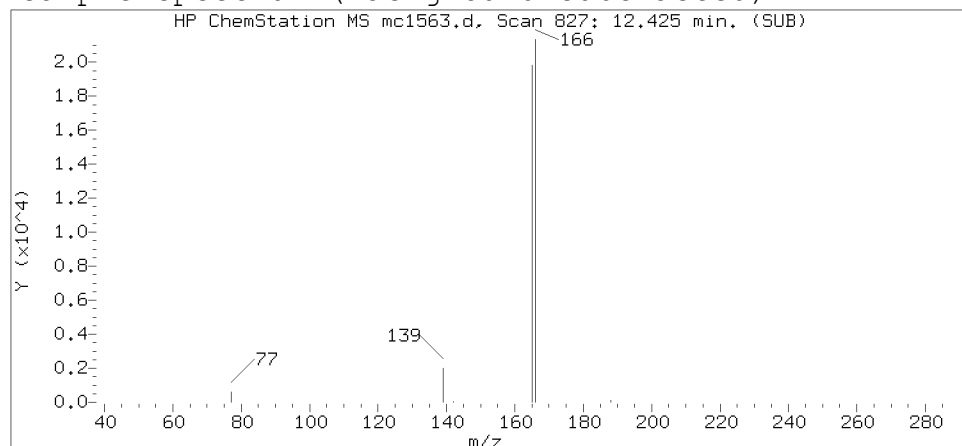
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.

Target 3.5 esignature user art12405
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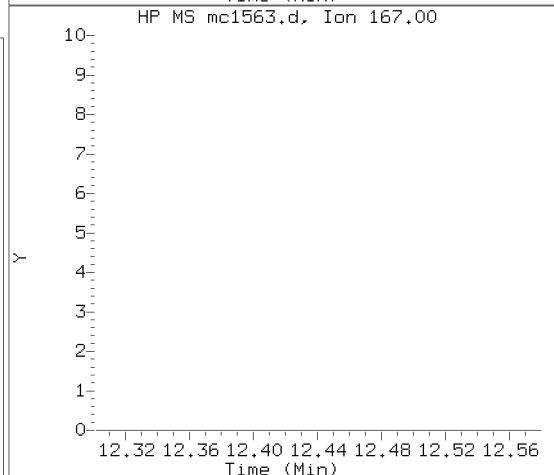
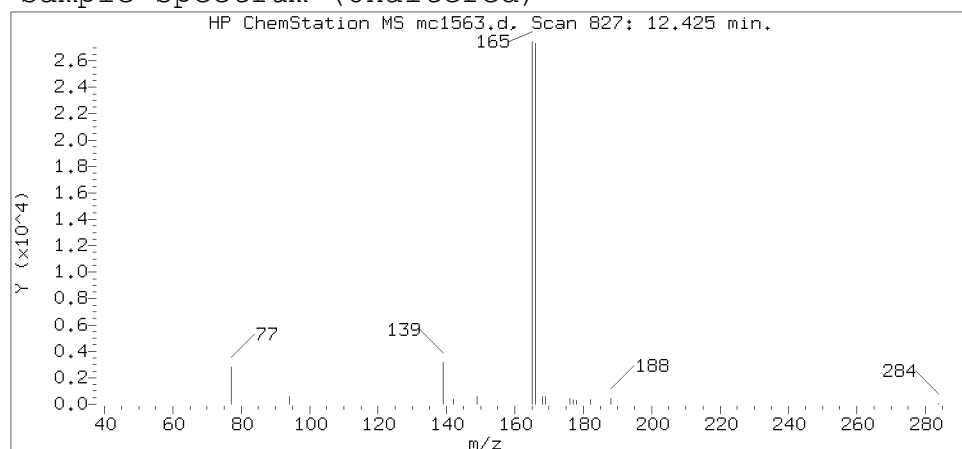
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

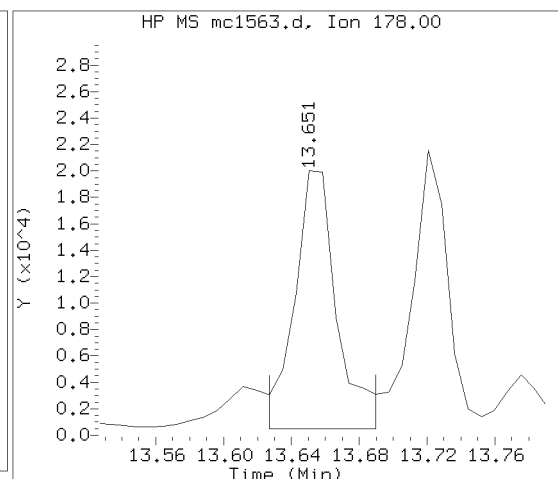
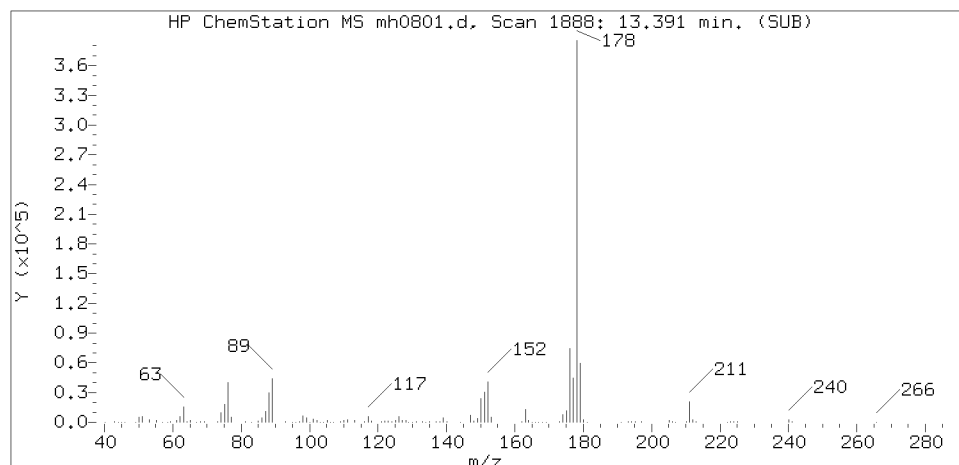
Sample Name: 32020

Lab Sample ID: 1285716

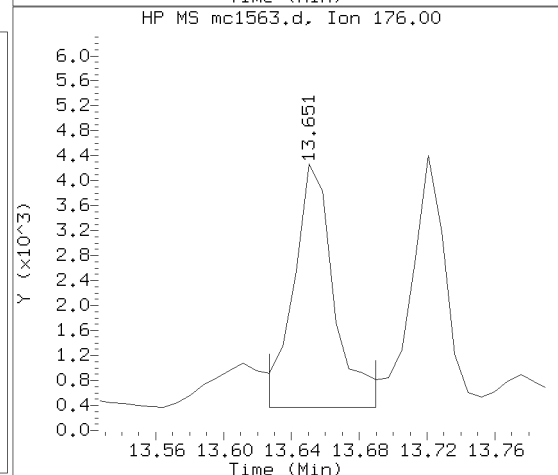
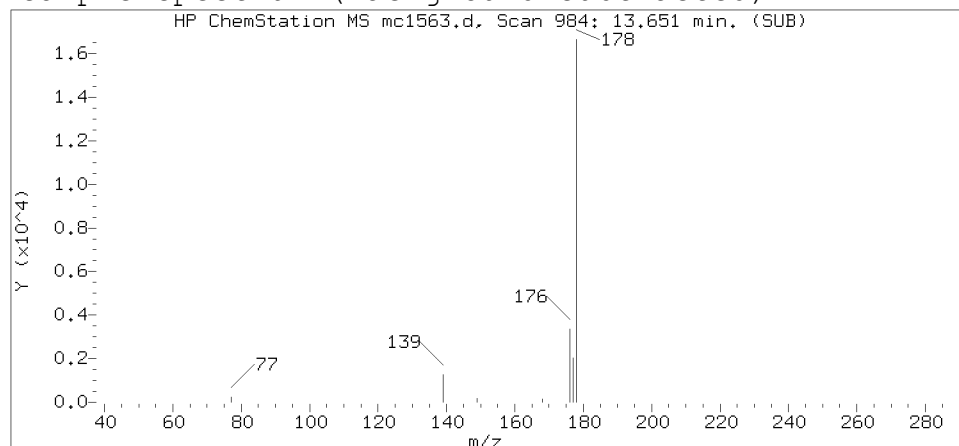
Compound Number : 18
Compound Name : Fluorene
Scan Number : 827
Retention Time (minutes) : 12.425
Relative Retention Time : -0.00000
Quant Ion : 166.00
Area (flag) : 39303
On-column Amount (ng/ul) : 0.1127

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Target 3.5 esignature user=art12405

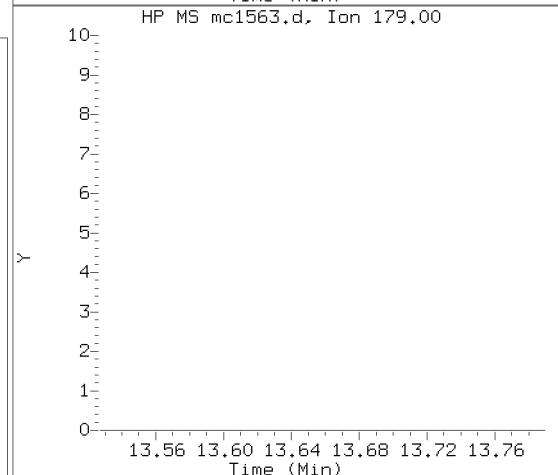
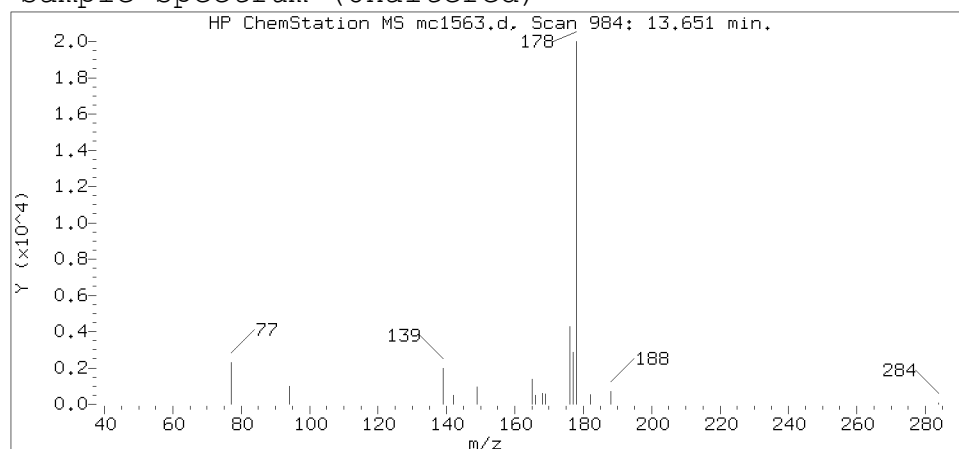
Reference Standard Spectrum for Phenanthrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

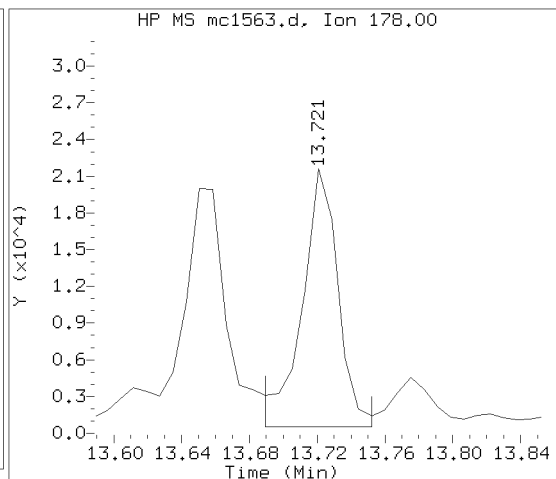
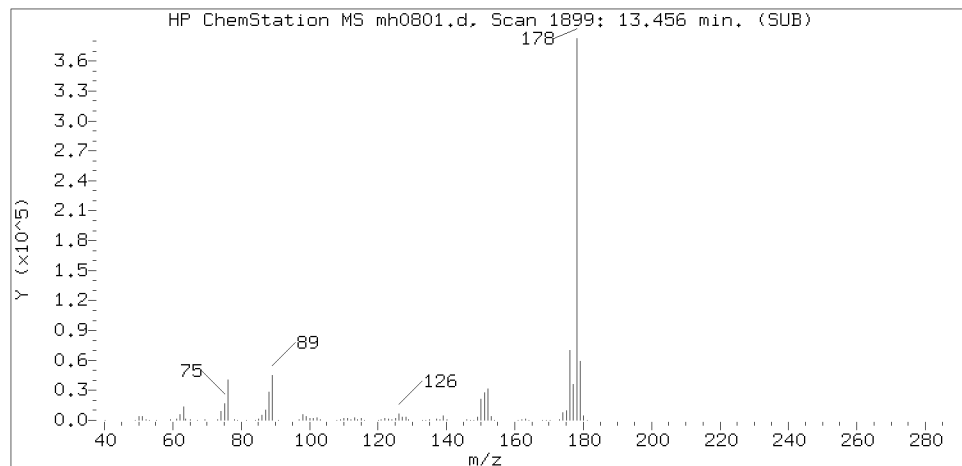
Lab Sample ID: 1285716

Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 984
Retention Time (minutes) : 13.651
Relative Retention Time :-0.00000
Quant Ion : 178.00
Area (flag) : 33307
On-column Amount (ng/ul) : 0.0916

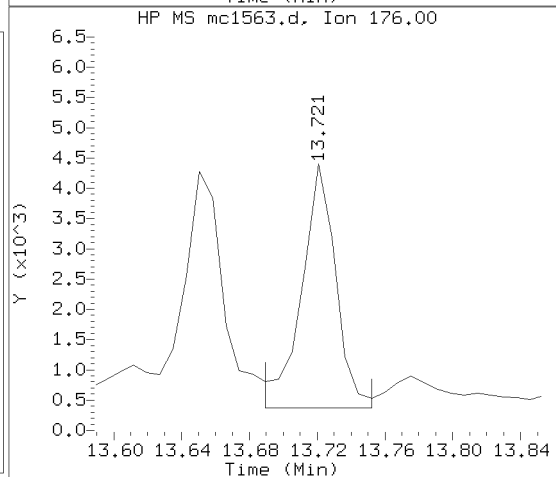
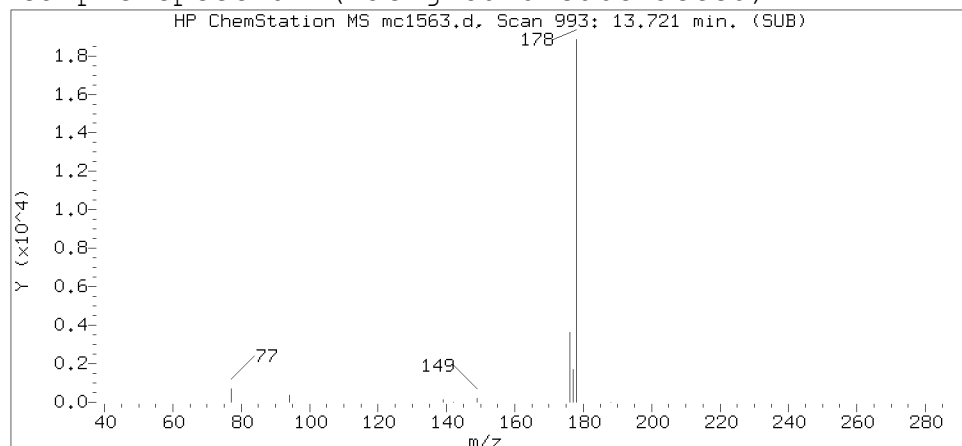
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.

Target 3.5 esignature user: art12405
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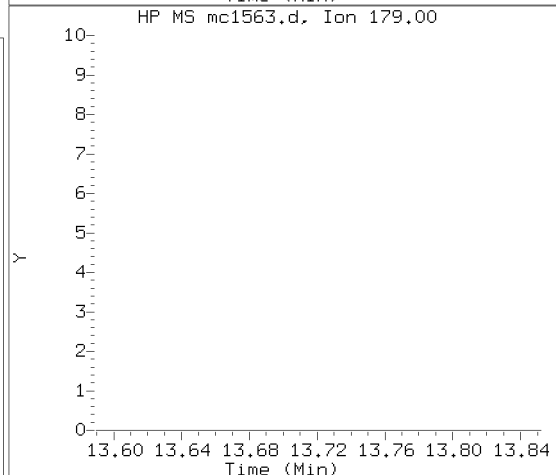
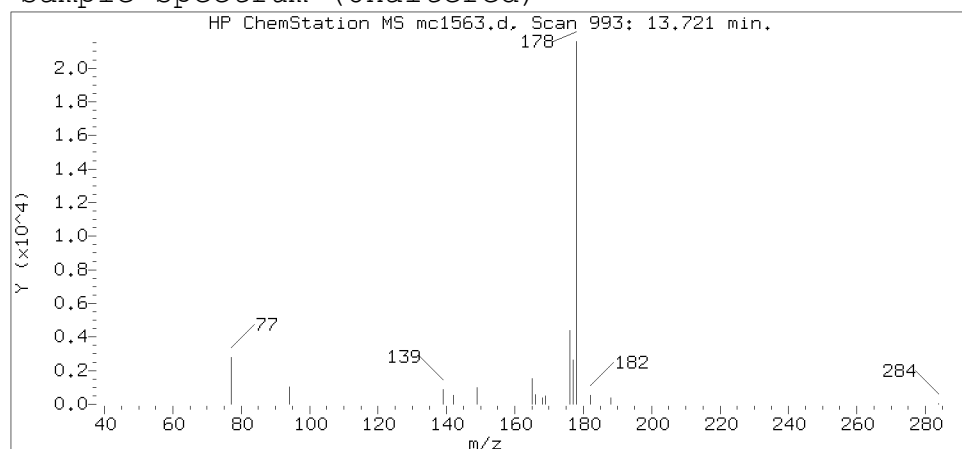
Reference Standard Spectrum for Anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

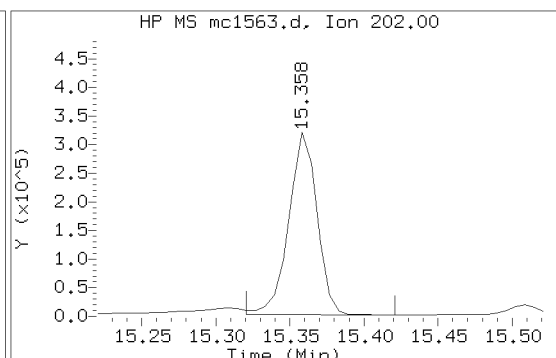
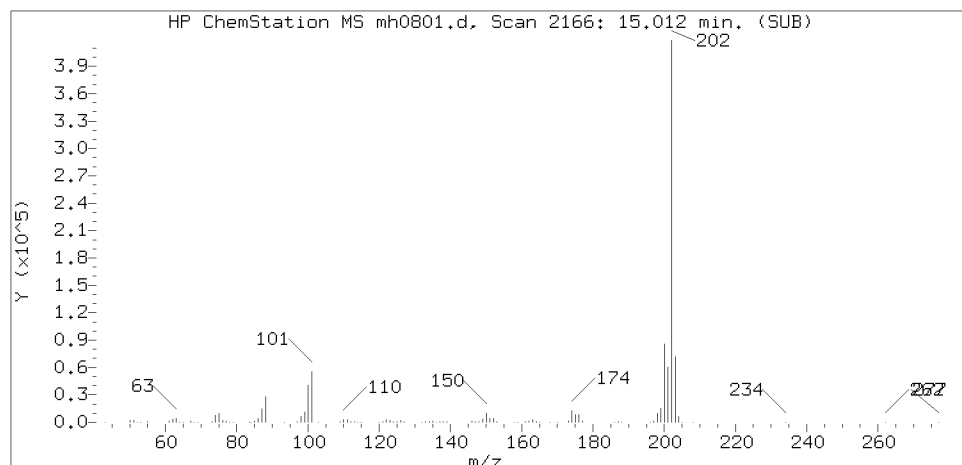
Sample Name: 32020

Lab Sample ID: 1285716

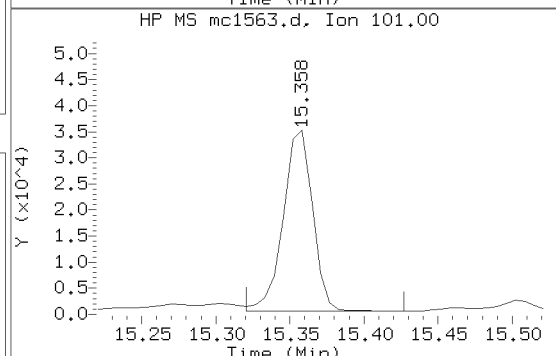
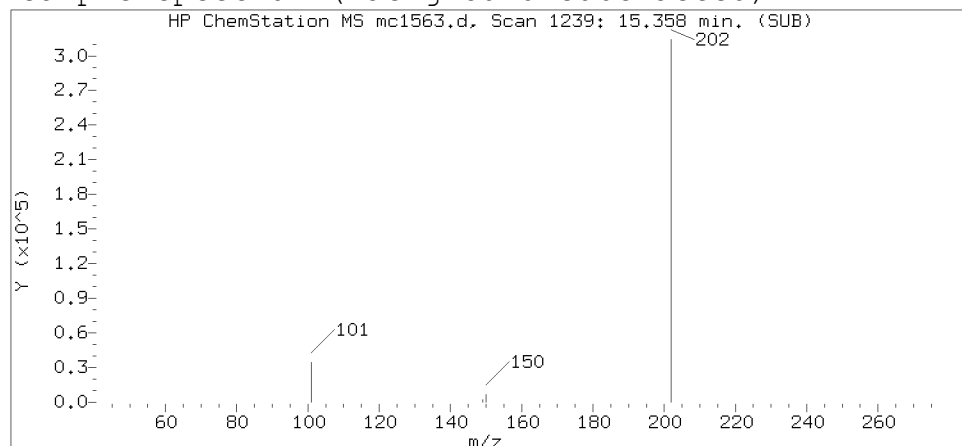
Compound Number : 22
Compound Name : Anthracene
Scan Number : 993
Retention Time (minutes) : 13.721
Relative Retention Time : -0.00000
Quant Ion : 178.00
Area (flag) : 30691
On-column Amount (ng/ul) : 0.0900

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Target 3.5 esignature user: art12405

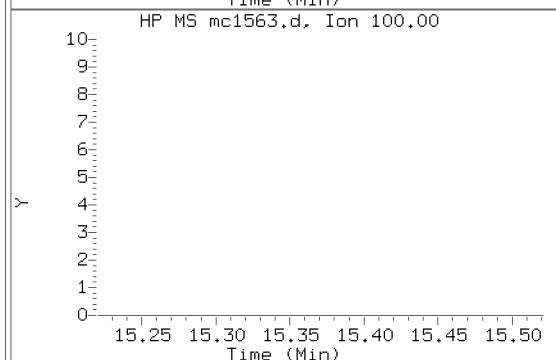
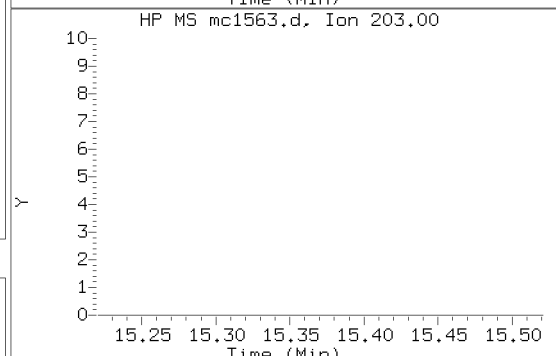
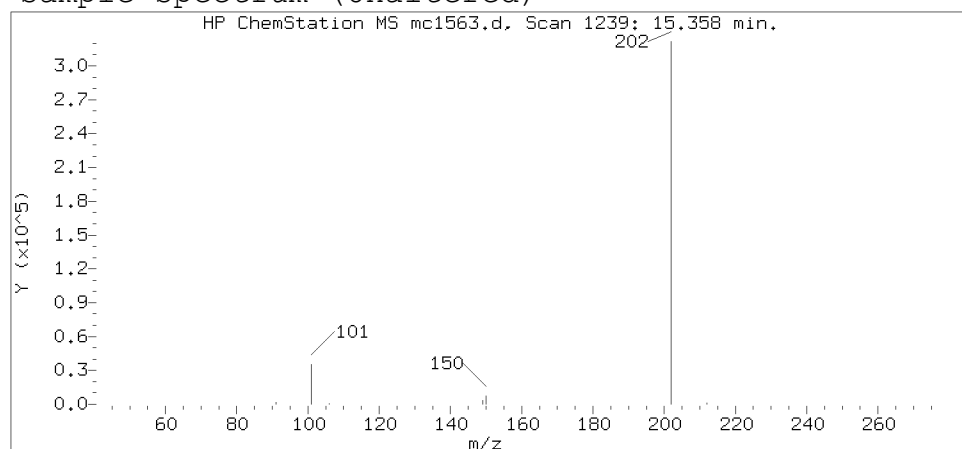
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

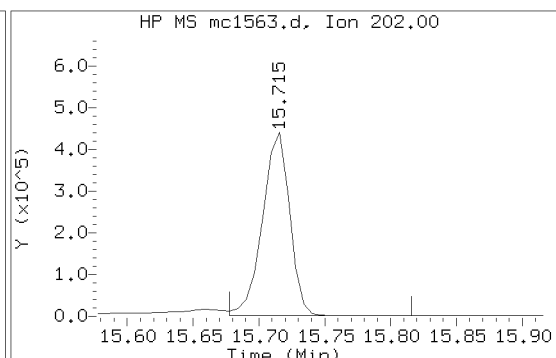
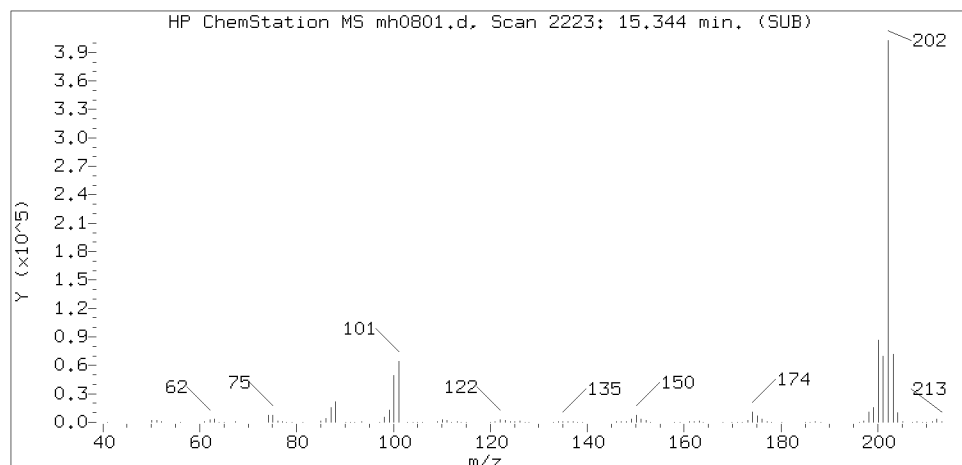
Lab Sample ID: 1285716

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1239
Retention Time (minutes) : 15.358
Relative Retention Time : -0.00000
Quant Ion : 202.00
Area (flag) : 423440
On-column Amount (ng/ul) : 1.0591

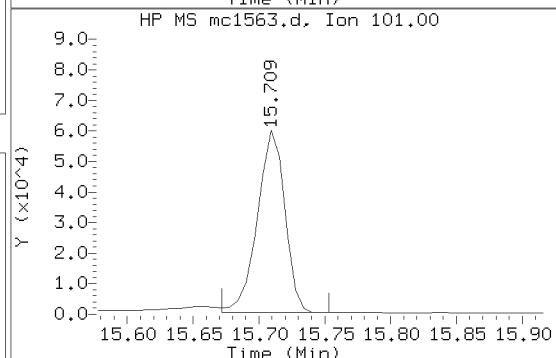
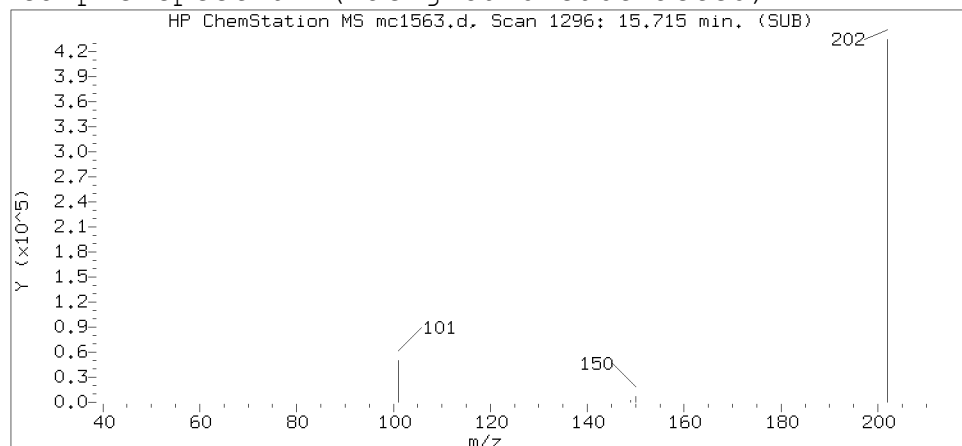
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.

Target 3.5 esignature user: art12405
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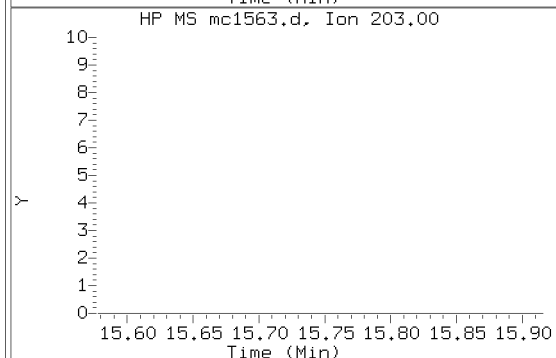
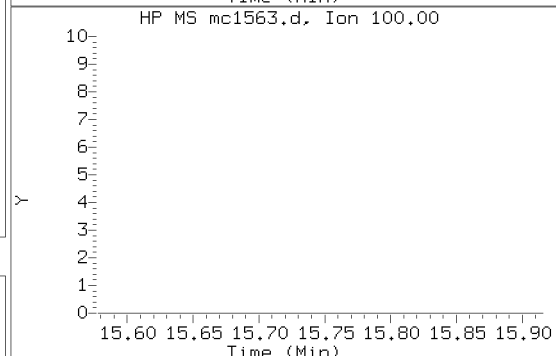
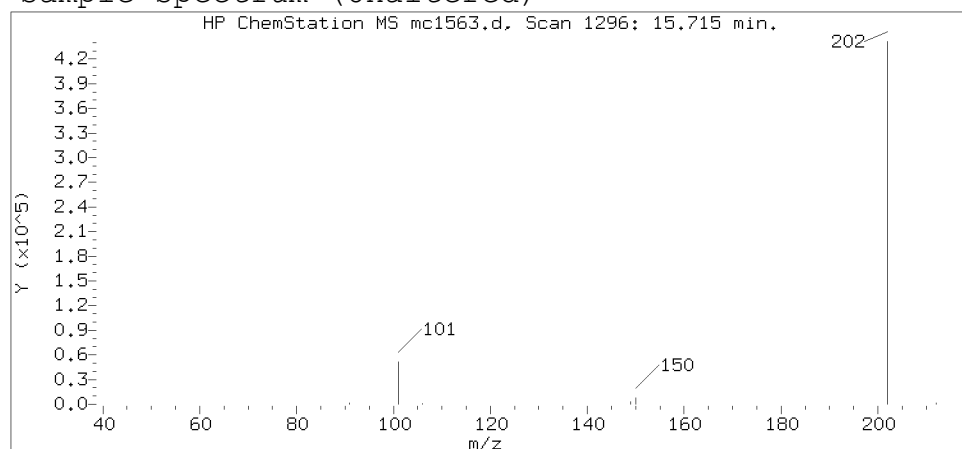
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

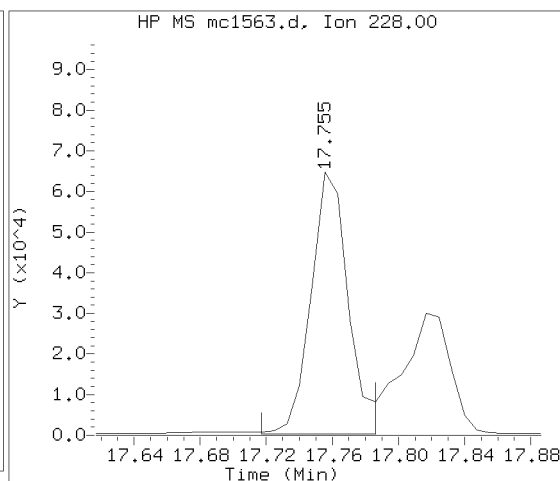
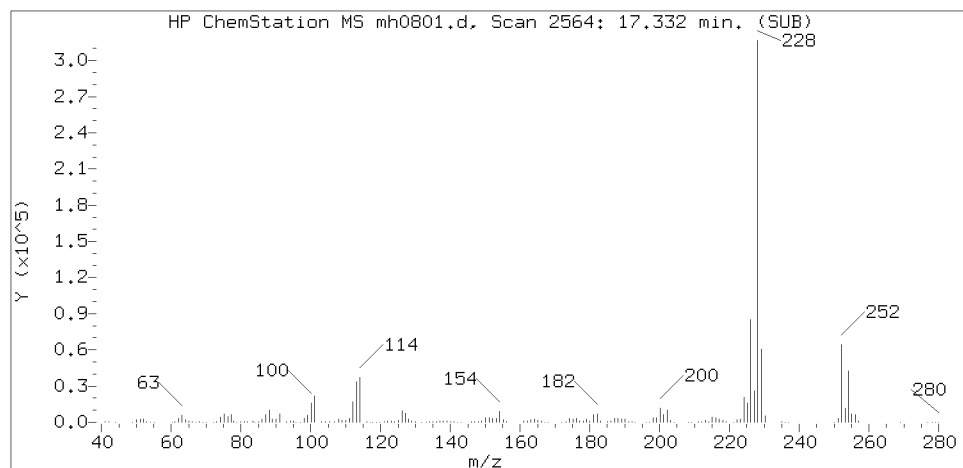
Lab Sample ID: 1285716

Compound Number : 26
Compound Name : Pyrene
Scan Number : 1296
Retention Time (minutes) : 15.715
Relative Retention Time : -0.00035
Quant Ion : 202.00
Area (flag) : 631176
On-column Amount (ng/ul) : 1.1872

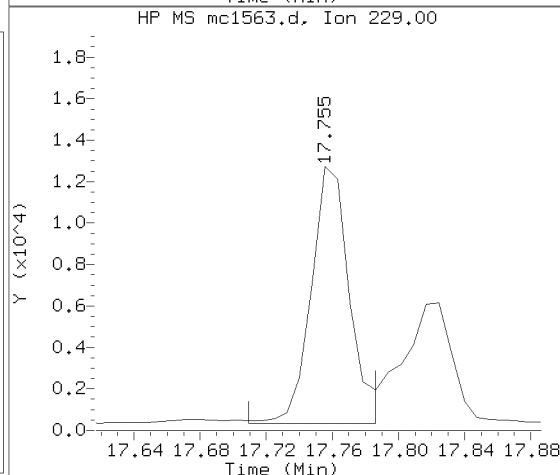
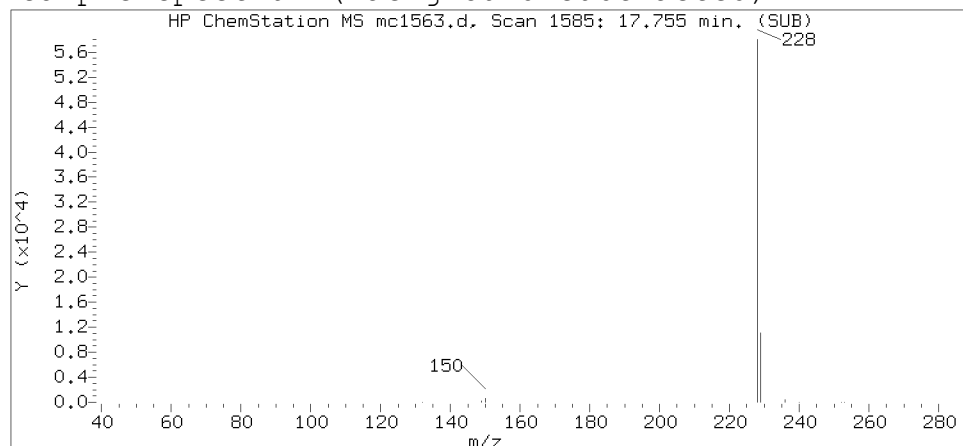
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.

Target 3.5 esignature user: art12405
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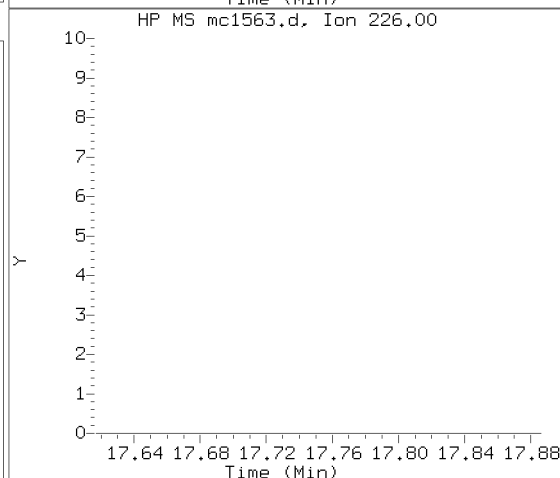
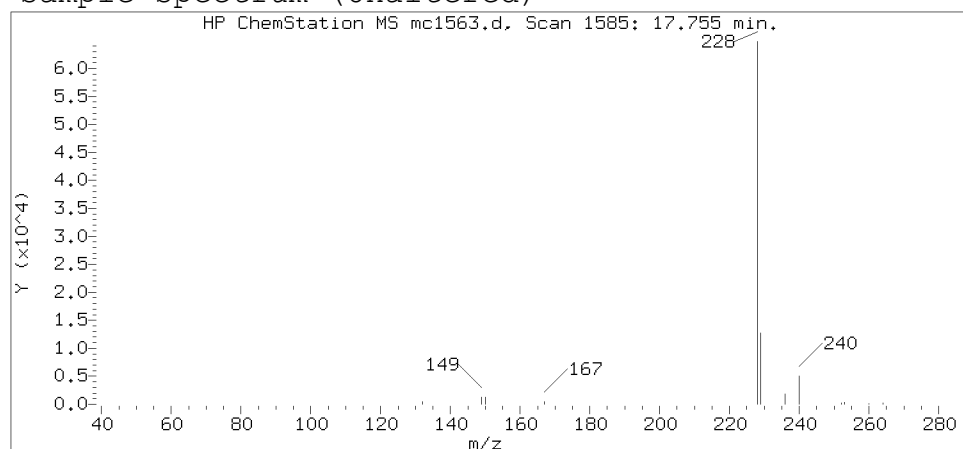
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

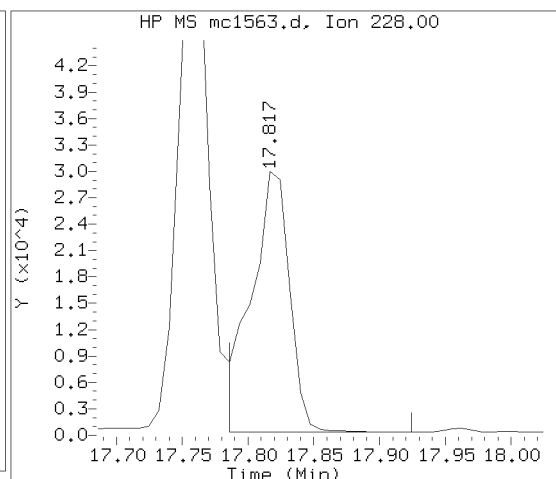
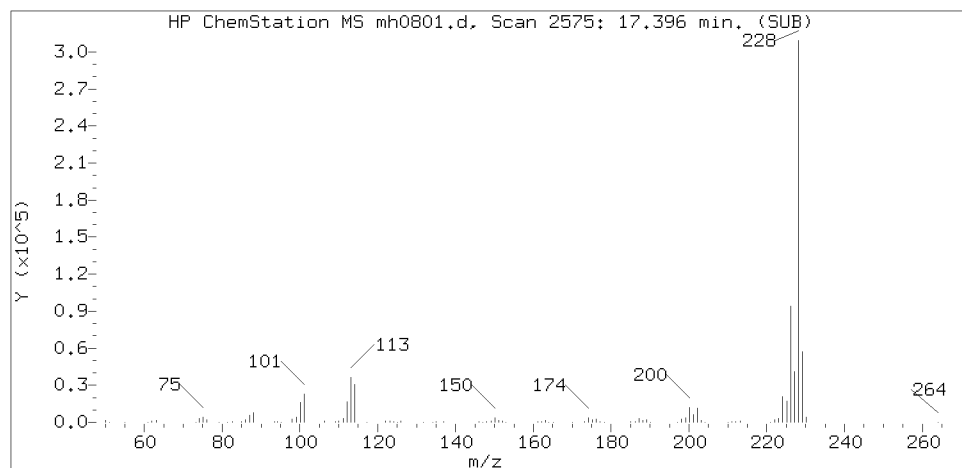
Sample Name: 32020

Lab Sample ID: 1285716

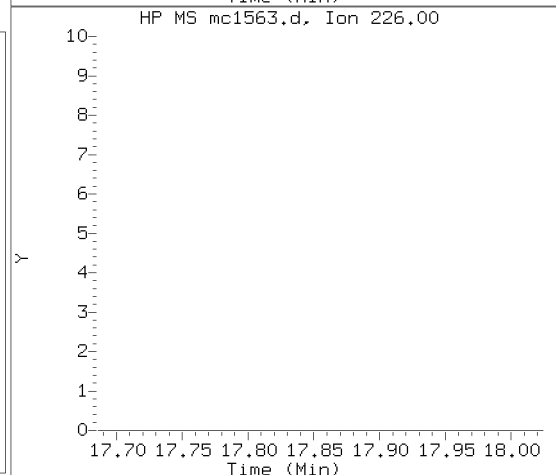
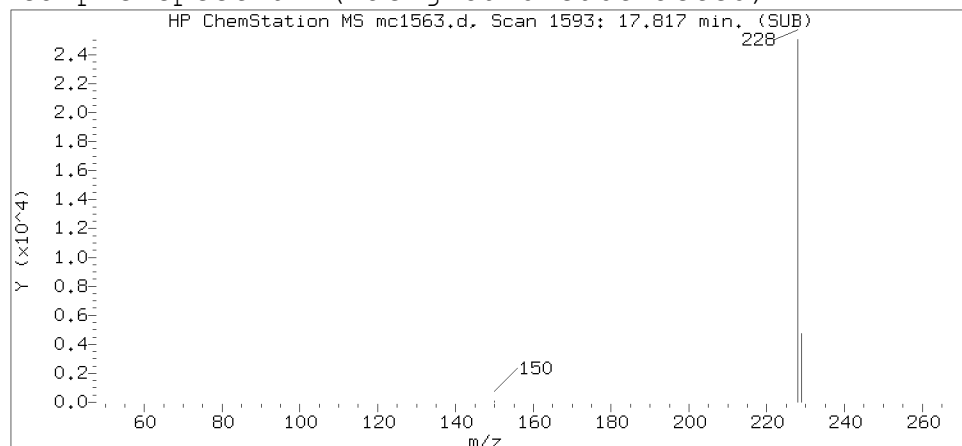
Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1585
Retention Time (minutes) : 17.755
Relative Retention Time : 0.00000
Quant Ion : 228.00
Area (flag) : 99662
On-column Amount (ng/ul) : 0.2216

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Target 3.5 esignature user=art12405

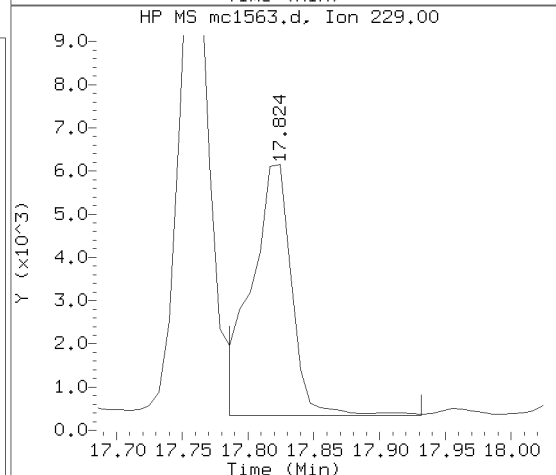
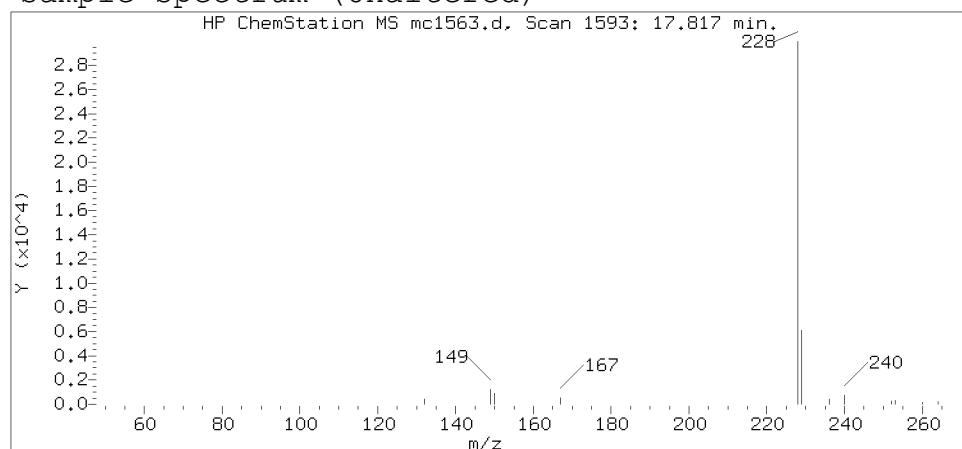
Reference Standard Spectrum for Chrysene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

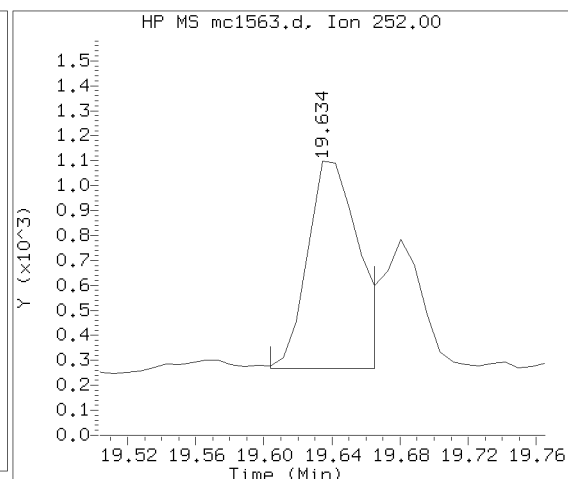
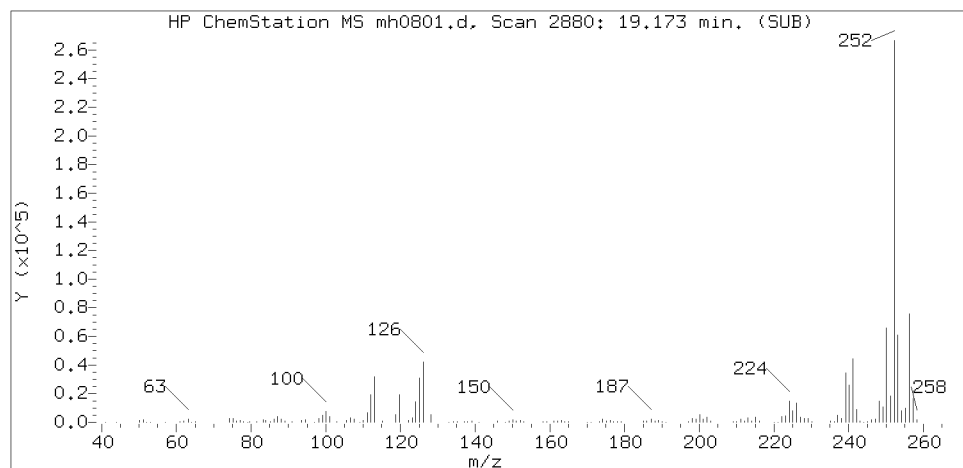
Sample Name: 32020

Lab Sample ID: 1285716

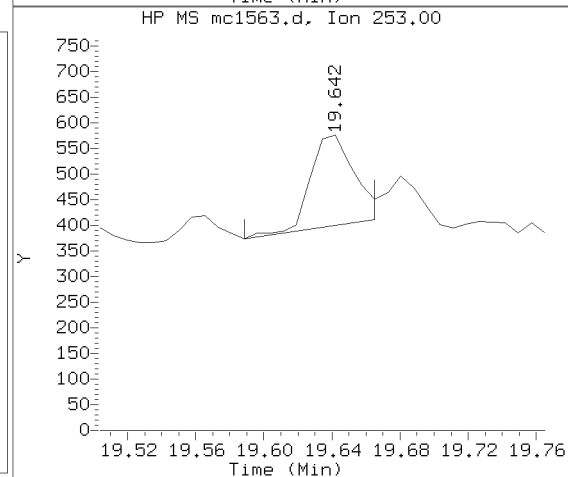
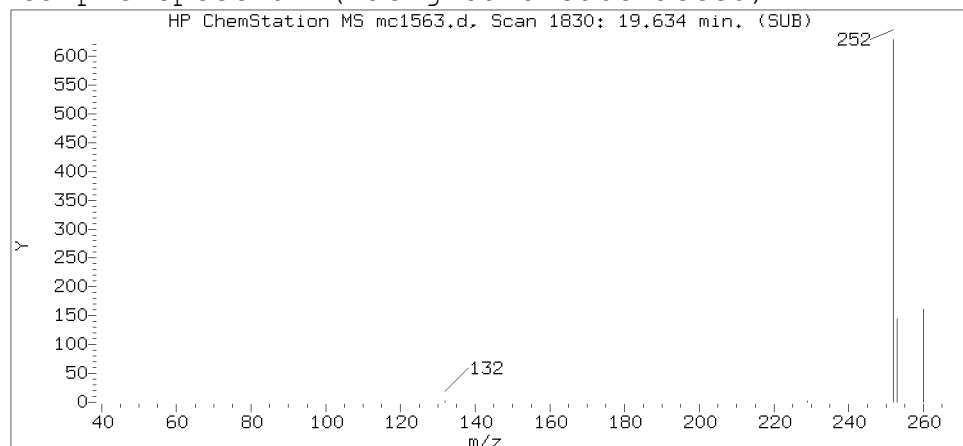
Compound Number : 30
Compound Name : Chrysene
Scan Number : 1593
Retention Time (minutes) : 17.817
Relative Retention Time : 0.00043
Quant Ion : 228.00
Area (flag) : 60094
On-column Amount (ng/ul) : 0.1290

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.
Target 3.5 esignature user: art12405

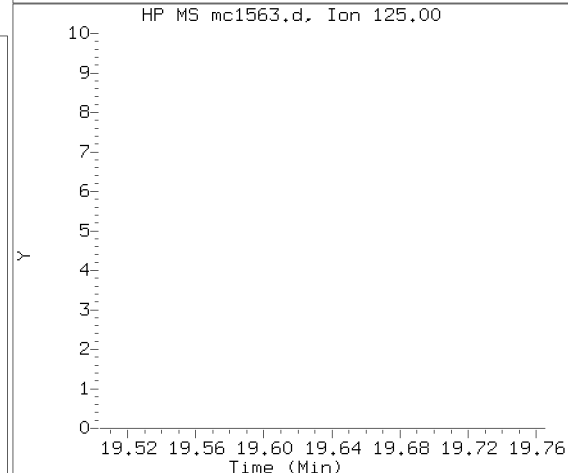
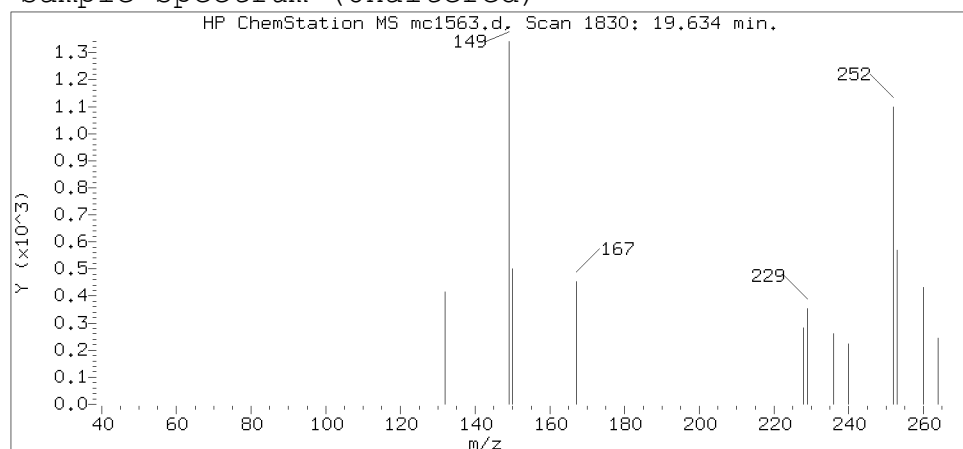
Reference Standard Spectrum for Benzo(b)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

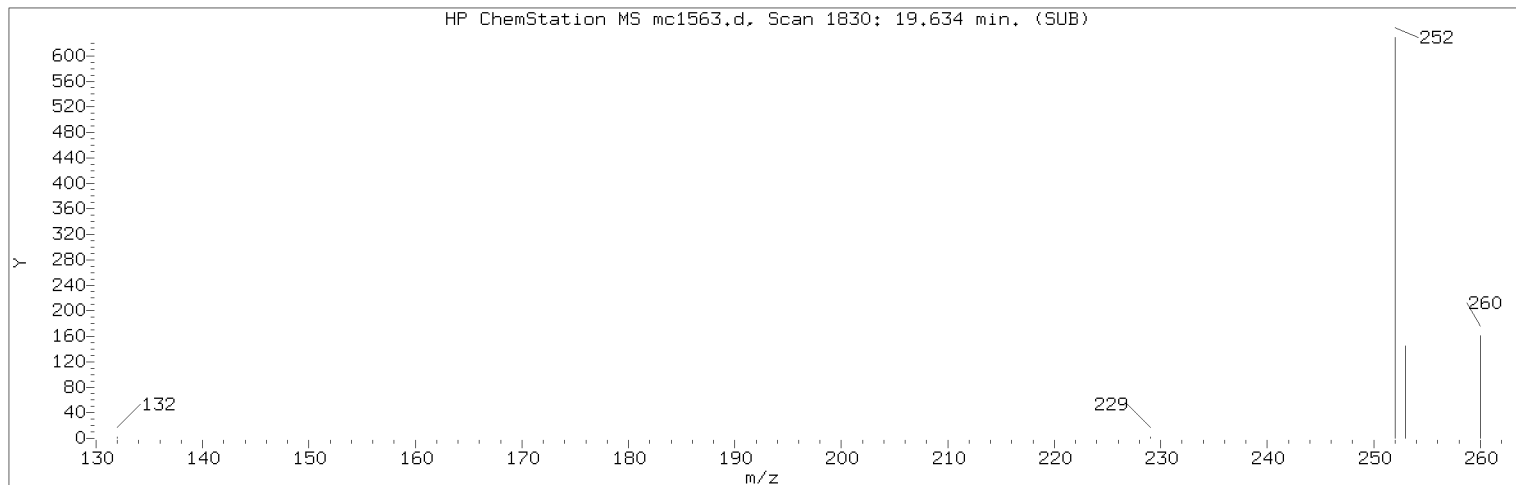
Sample Name: 32020

Lab Sample ID: 1285716

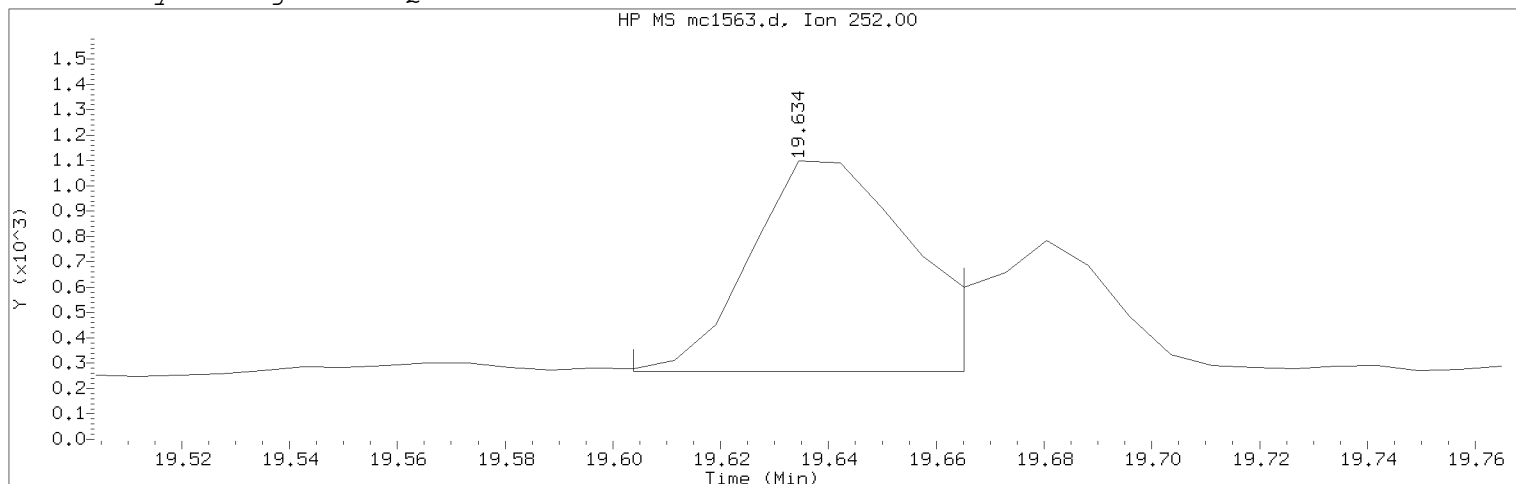
Compound Number : 33
Compound Name : Benzo(b)fluoranthene
Scan Number : 1830
Retention Time (minutes) : 19.634
Relative Retention Time : 0.00000
Quant Ion : 252.00
Area (flag) : 1772M
On-column Amount (ng/ul) : 0.0037

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.
Target 3.5 esignature user: art12405

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1563.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:06

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

Lab Sample ID: 1285716

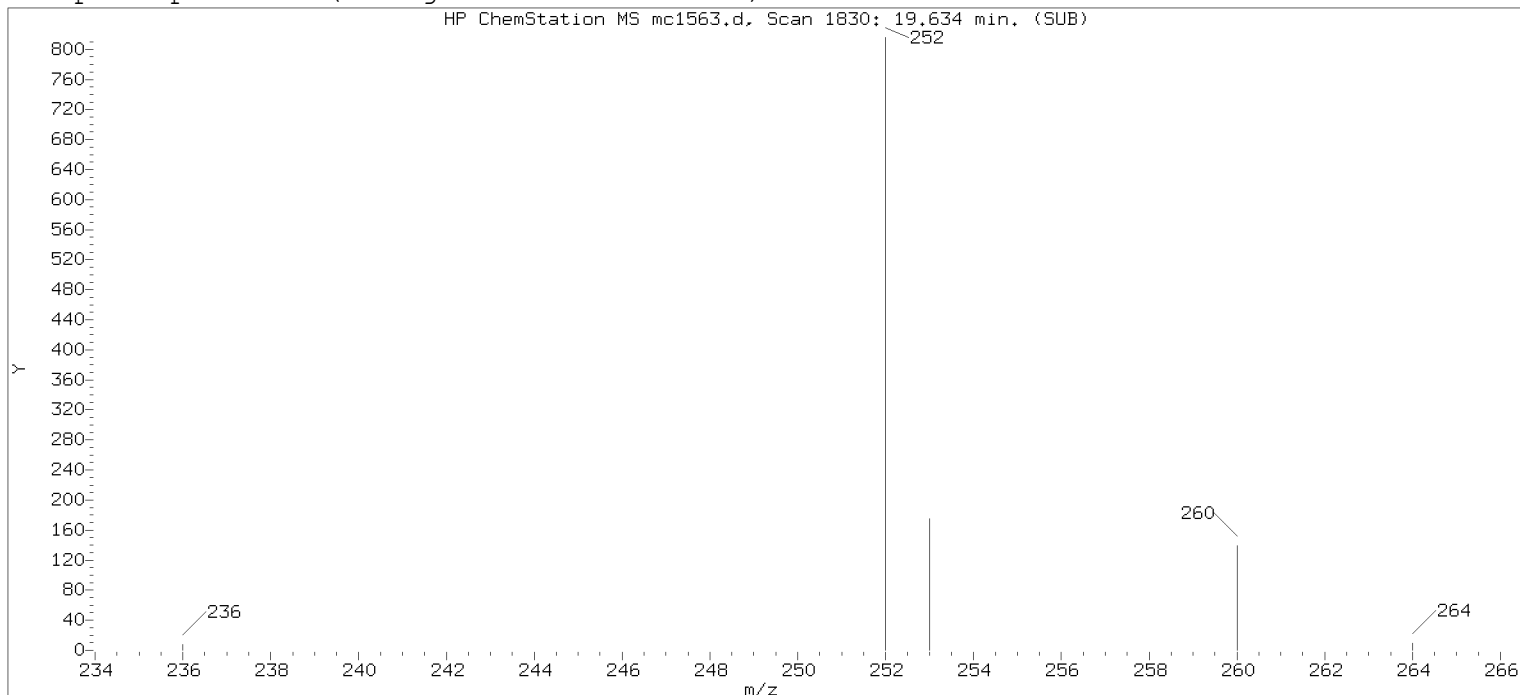
Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1830	
Retention Time (minutes)	: 19.634	
Quant Ion	: 252.00	
Area (flag)	: 1772M	
On-column Amount (ng/ul)	: 0.0037	
Integration start scan	: 1825	Integration stop scan: 1833
Y at integration start	: 267	Y at integration end: 267

Reason for manual integration: improper integration

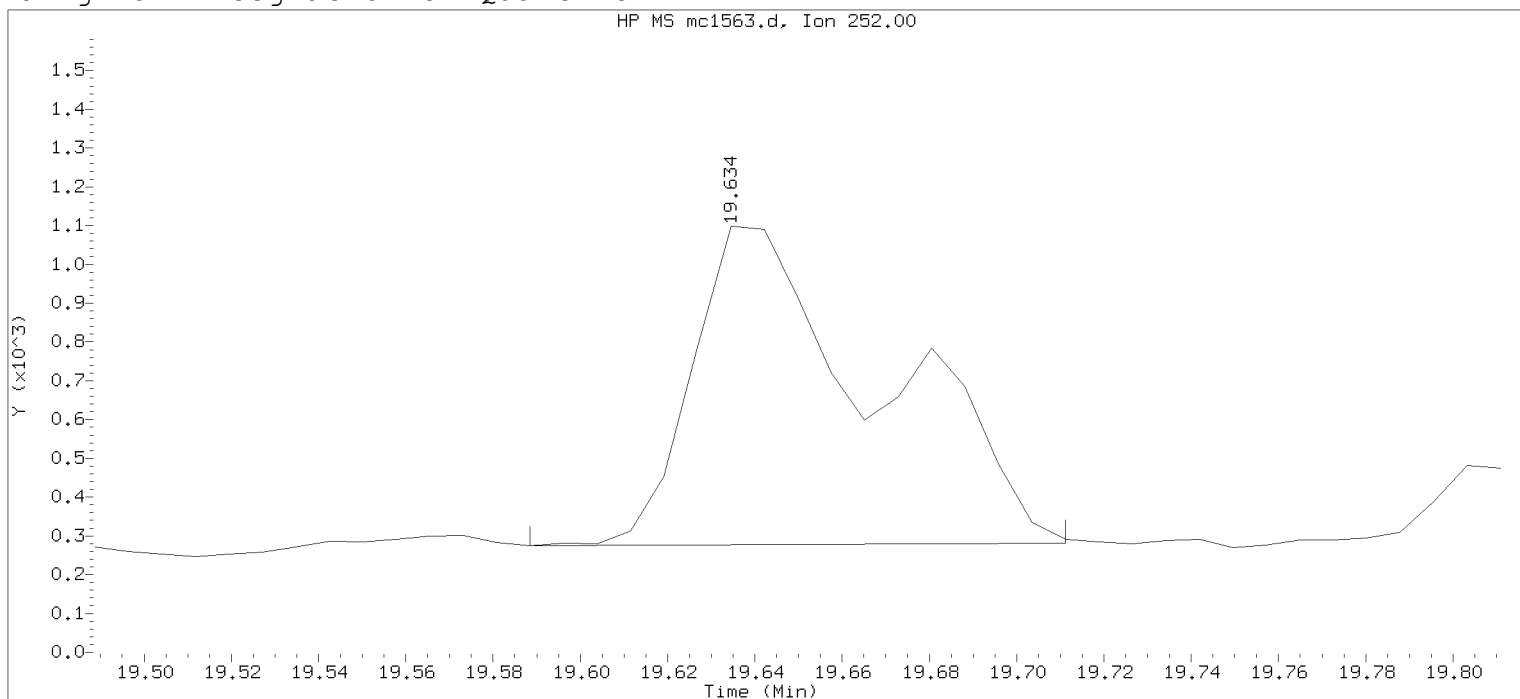
Analyst responsible for change: Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:26.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1563.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:06

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 12:41 Unknown

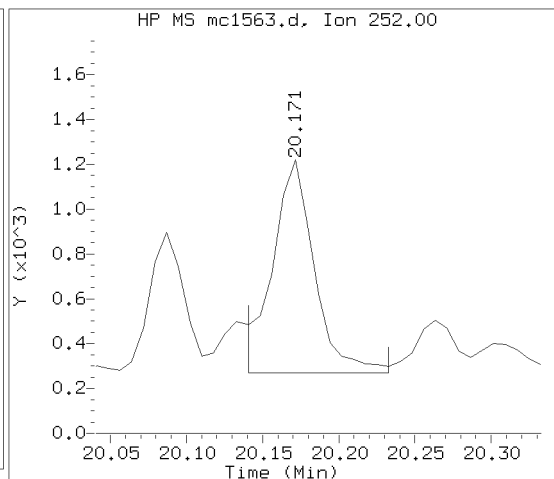
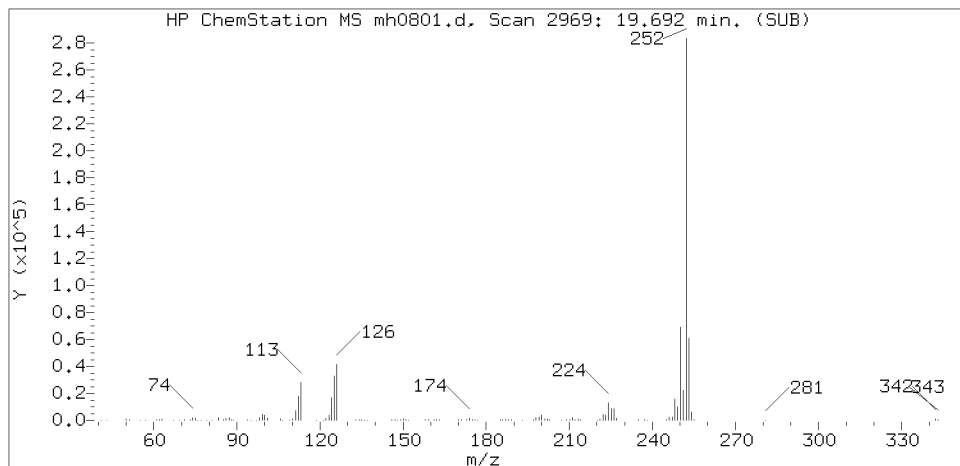
Sample Name: 32020

Lab Sample ID: 1285716

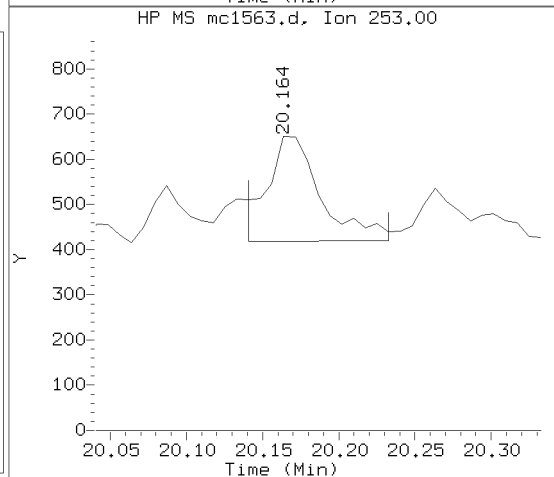
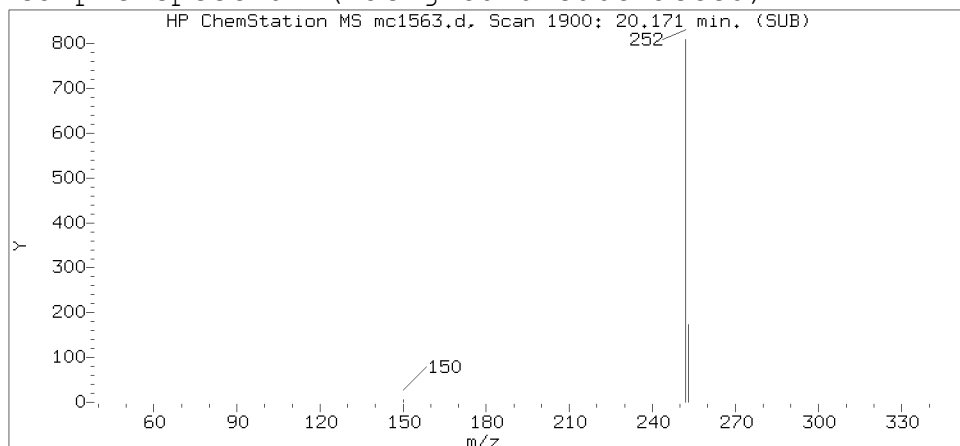
Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1830	
Retention Time (minutes)	: 19.634	
Quant Ion	: 252.00	
Area	: 2451	
On-column Amount (ng/ul)	: 0.0051	
Integration start scan	: 1823	Integration stop scan: 1839
Y at integration start	: 274	Y at integration end: 281

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.
Target 3.5 esignature user GPV68 Page 403 of 586

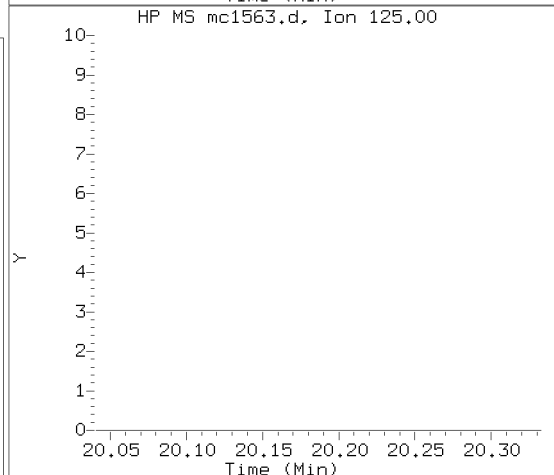
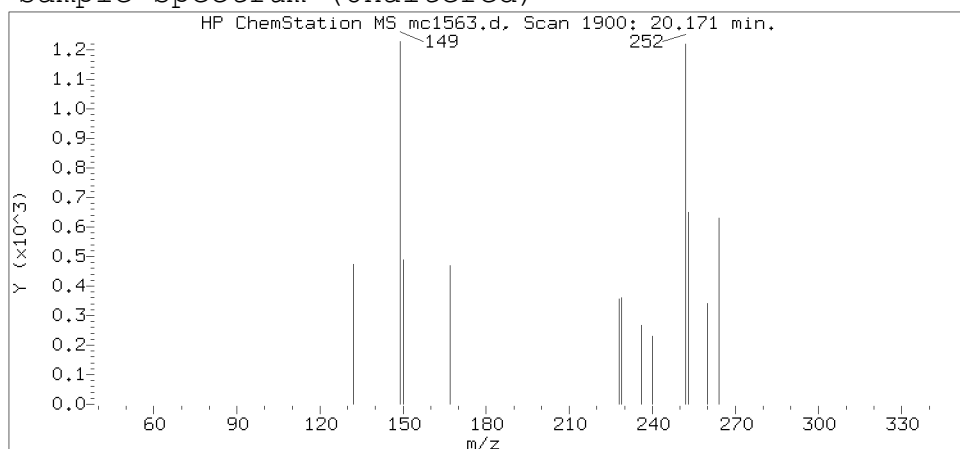
Reference Standard Spectrum for Benzo(a)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1563.d
Injection date and time: 26-MAR-2020 12:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:14 art12405

Sample Name: 32020

Lab Sample ID: 1285716

Compound Number : 37
Compound Name : Benzo(a)pyrene
Scan Number : 1900
Retention Time (minutes) : 20.171
Relative Retention Time : 0.00000
Quant Ion : 252.00
Area (flag) : 1809
On-column Amount (ng/ul) : 0.0040

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:26.

Target 3.5 esignature user: art12405
GPY68 Page 304 of 586

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

13200

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285717

Sample wt/vol: 246 (g/mL)ML Lab File ID: mc1564.d

Level: (low/med) LOW Date Received: 03/20/20

% Moisture: not dec: dec: Date Extracted: 03/25/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/26/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	81		E
208-96-8-----	Acenaphthylene	1		
83-32-9-----	Acenaphthene	29		E
86-73-7-----	Fluorene	7		
85-01-8-----	Phenanthrene	15		E
120-12-7-----	Anthracene	2		
206-44-0-----	Fluoranthene	6		
129-00-0-----	Pyrene	7		
56-55-3-----	Benzo (a) anthracene	1		
218-01-9-----	Chrysene	0.9		
205-99-2-----	Benzo (b) fluoranthene	0.07		
207-08-9-----	Benzo (k) fluoranthene	0.04		J
50-32-8-----	Benzo (a) pyrene	0.09		
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.01		U
53-70-3-----	Dibenz (a,h) anthracene	0.02		U
191-24-2-----	Benzo (g,h,i) perylene	0.01		U

FORM I SV-1

13200

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285717

Data file: /chem/HP21585.i/20mar26.b/mc1564.d

Injection date and time: 26-MAR-2020 12:36

Data file Sample Info. Line: 13200;1285717;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	23136 (0)	0.25	
6) Naphthalene-d8	8.972 (0.000)	538	136	88042 (12)	0.25	
14) Acenaphthene-d10	11.722 (0.000)	748	164	50120M (22)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	67932 (-23)	0.25	
29) Chrysene-d12	17.778 (0.000)	1588	240	73410 (-12)	0.25	
38) Perylene-d12	20.263 (0.000)	1912	264	86832 (0)	0.25	

M = Internal Standard was manually integrated

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	27782	0.154	62%		15 - 121
24) Fluoranthene-d10	(4)	15.333 (0.000)	212	52496	0.183	73%		34 - 125
36) Benzo(a)pyrene-d12	(6)	20.133 (0.000)	264	32253	0.099	39%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.013 (-0.000)	128	8280437	19.879	80.81		E	0.008
13) Acenaphthylene	(3)	11.526 (-0.000)	152	139780	0.263	1.07			0.003
15) Acenaphthene	(3)	11.769 (-0.000)	154	2140356	7.218	29.34		E	0.003
18) Fluorene	(3)	12.425 (-0.000)	166	665436	1.771	7.20			0.003
21) Phenanthrene	(4)	13.658 (-0.000)	178	1328440	3.768	15.32		E	0.008
22) Anthracene	(4)	13.721 (-0.000)	178	146368	0.443	1.80			0.003
25) Fluoranthene	(4)	15.358 (0.000)	202	586376	1.512	6.15			0.003
26) Pyrene	(5)	15.716 (-0.000)	202	903904	1.719	6.99			0.003
28) Benzo(a)anthracene	(5)	17.755 (-0.000)	228	156700	0.352	1.43			0.003
30) Chrysene	(5)	17.824 (-0.000)	228	96724	0.210	0.85			0.003
33) Benzo(b)fluoranthene	(6)	19.642 (-0.000)	252	7880M	0.016	0.07			0.003
34) Benzo(k)fluoranthene	(6)	19.680 (-0.000)	252	4538M	0.009	0.04			0.003
37) Benzo(a)pyrene	(6)	20.171 (0.000)	252	10871	0.023	0.09			0.003
39) Indeno(1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz(a,h)anthracene	(6)			Not Detected					0.005
41) Benzo(g,h,i)perylene	(6)			Not Detected					0.003

E = Compound concentration above calibration range. M = Compound was manually integrated.

13200

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285717

Data file: /chem/HP21585.i/20mar26.b/mc1564.d

Injection date and time: 26-MAR-2020 12:36

Data file Sample Info. Line: 13200;1285717;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml

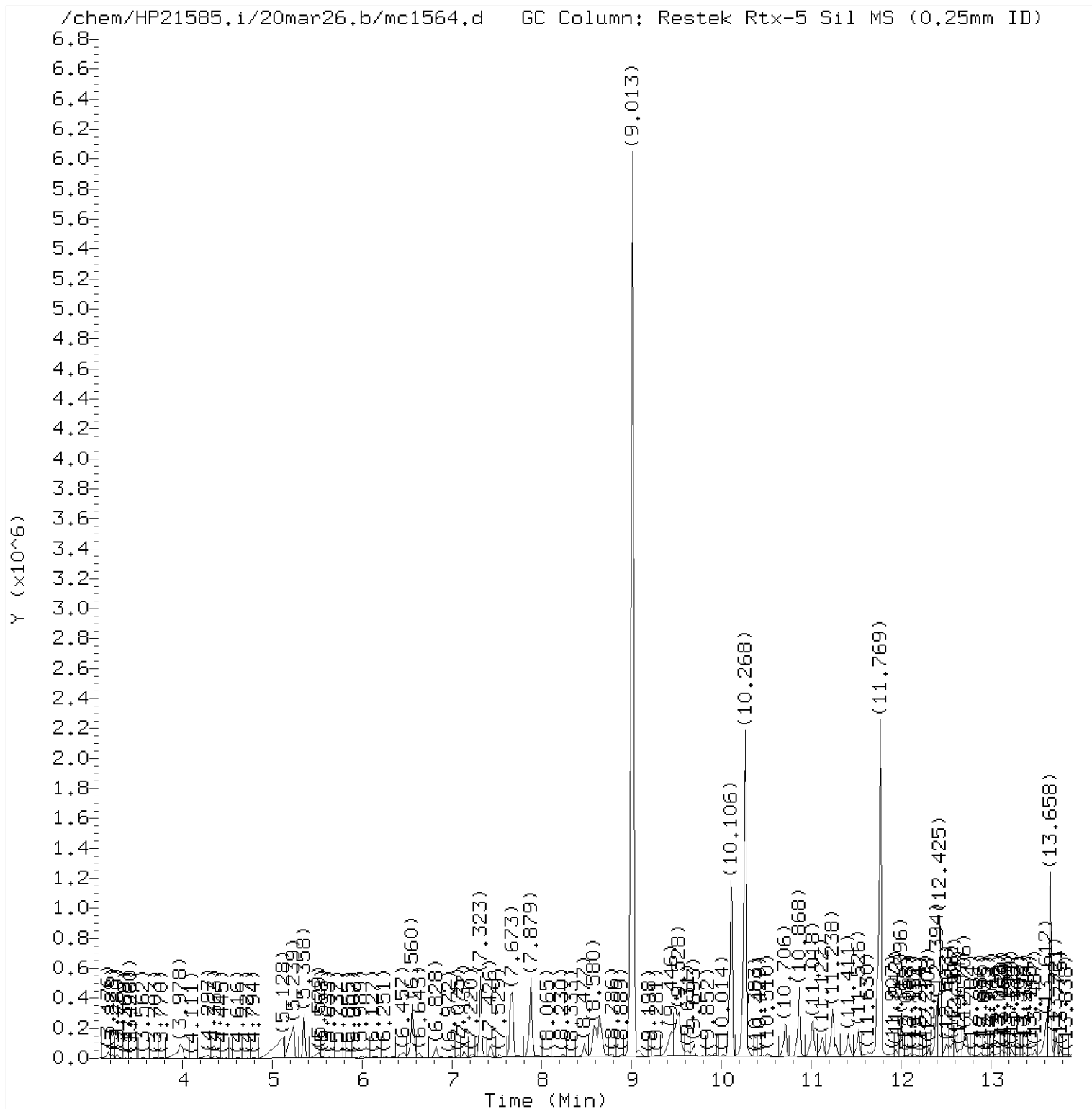
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27. Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58. PARALLAX ID: cam01237



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

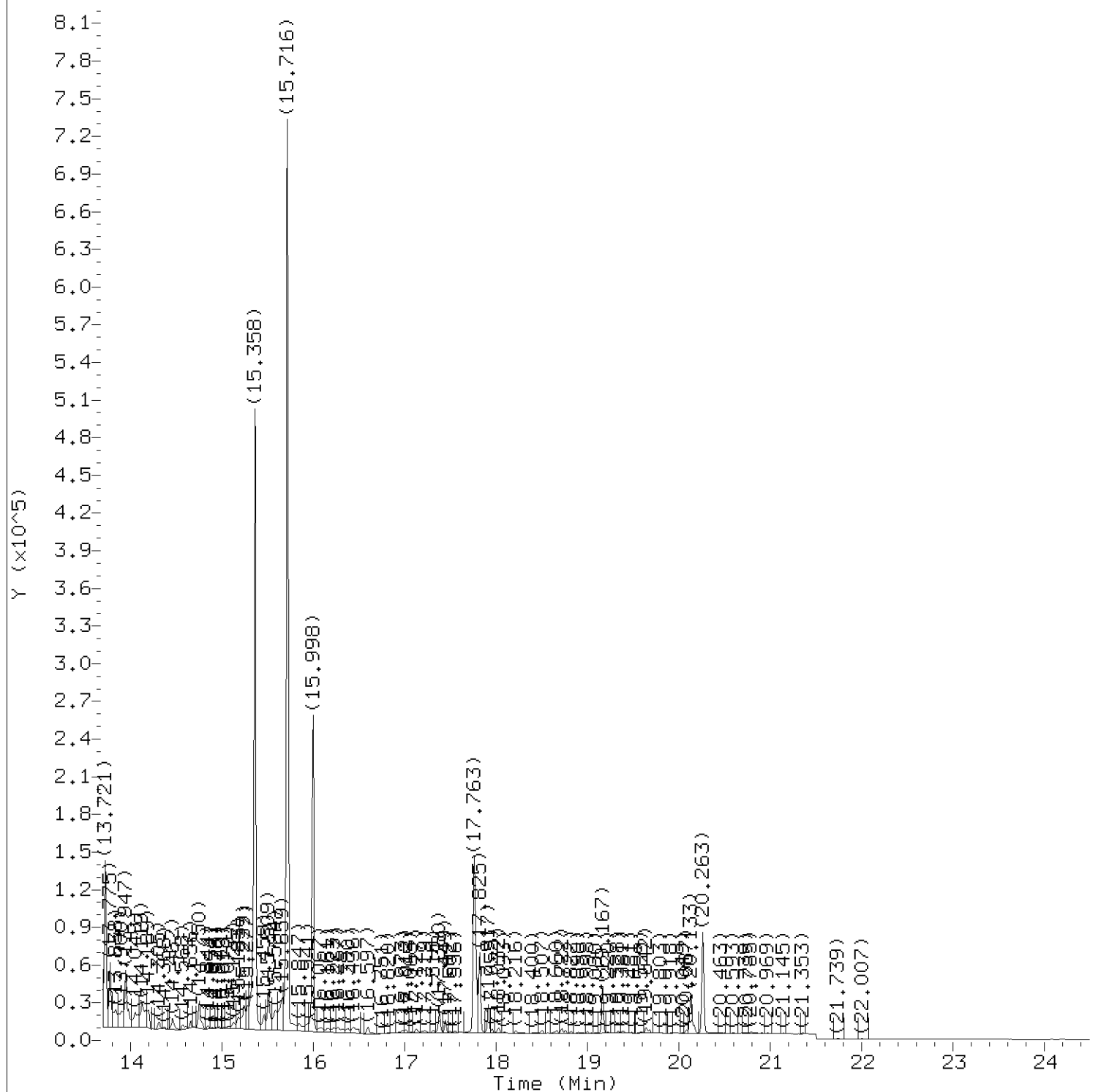
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

Lab Sample ID: 1285717

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

Lab Sample ID: 1285717

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1564.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

Lab Sample ID: 1285717

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	23136	0.250
6) *Naphthalene-d8	(2)	8.972	136	88042	0.250
7) Naphthalene	(2)	9.013	128	8280437	19.879
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	27782	0.154
13) Acenaphthylene	(3)	11.526	152	139780	0.263
14) *Acenaphthene-d10	(3)	11.722	164	50120M	0.250
15) Acenaphthene	(3)	11.769	154	2140356	7.218
18) Fluorene	(3)	12.425	166	665436	1.771
20) *Phenanthrene-d10	(4)	13.627	188	67932	0.250
21) Phenanthrene	(4)	13.658	178	1328440	3.768
22) Anthracene	(4)	13.721	178	146368	0.443
24) \$Fluoranthene-d10	(4)	15.333	212	52496	0.183
25) Fluoranthene	(4)	15.358	202	586376	1.512
26) Pyrene	(5)	15.716	202	903904	1.719
28) Benzo(a)anthracene	(5)	17.755	228	156700	0.352
29) *Chrysene-d12	(5)	17.778	240	73410	0.250
30) Chrysene	(5)	17.825	228	96724	0.210
33) Benzo(b)fluoranthene	(6)	19.642	252	7880M	0.016
34) Benzo(k)fluoranthene	(6)	19.681	252	4538M	0.009
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	32253	0.099
37) Benzo(a)pyrene	(6)	20.171	252	10871	0.023
38) *Perylene-d12	(6)	20.263	264	86832	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

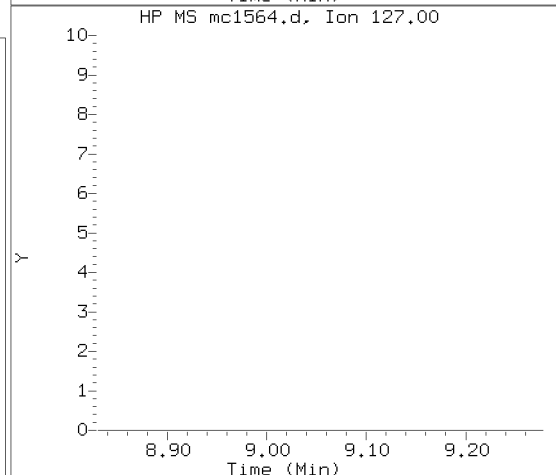
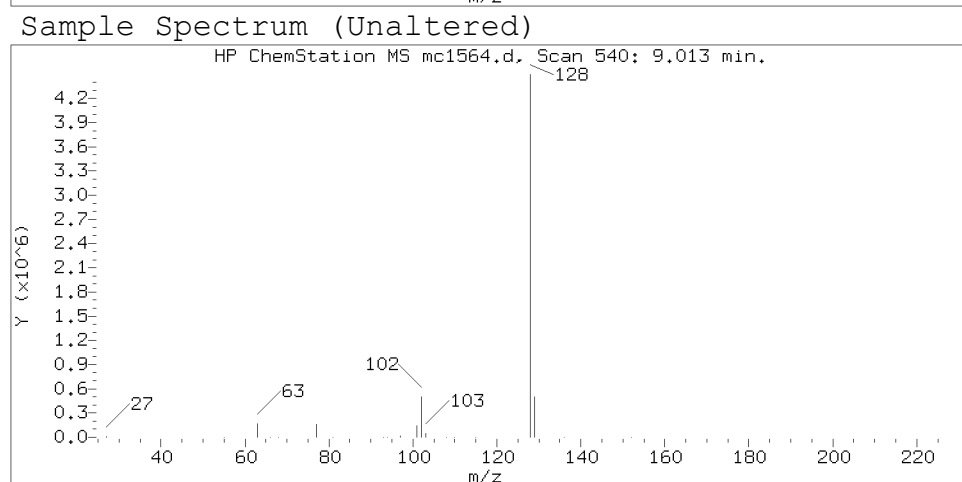
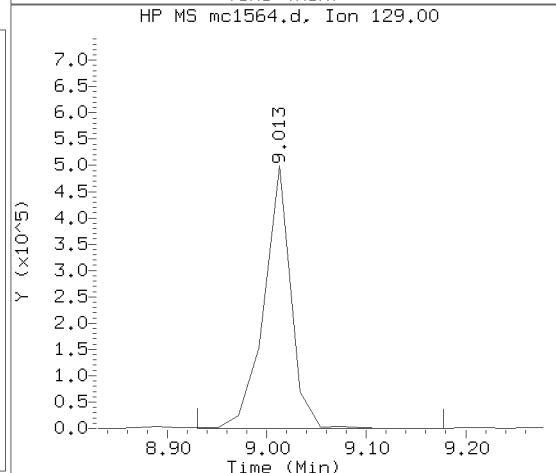
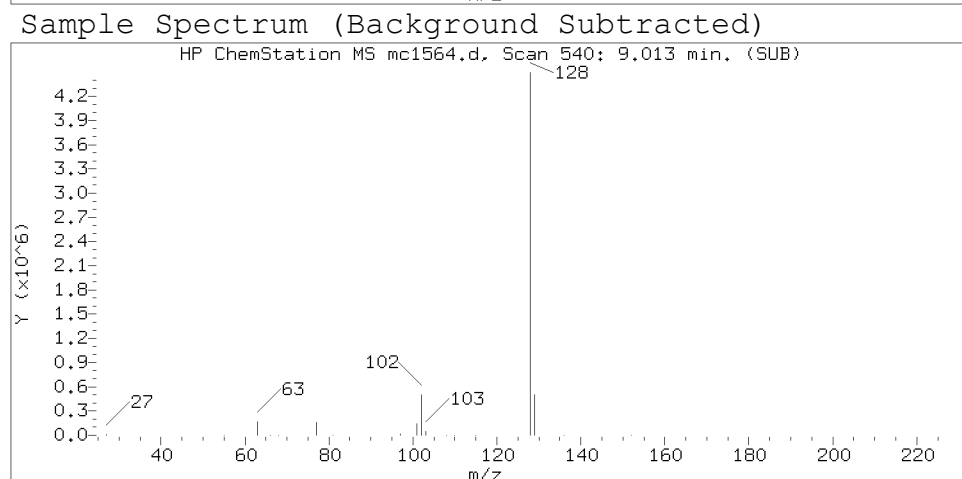
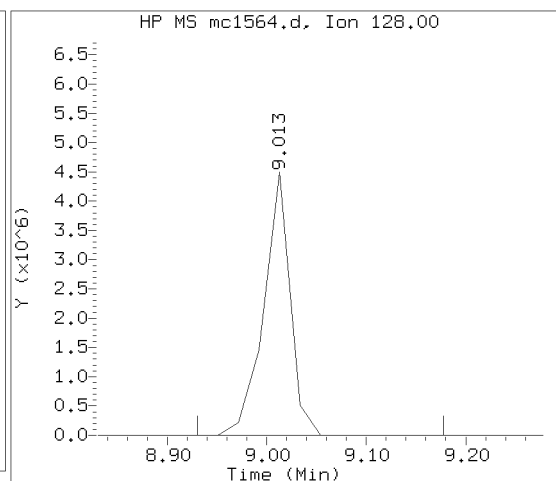
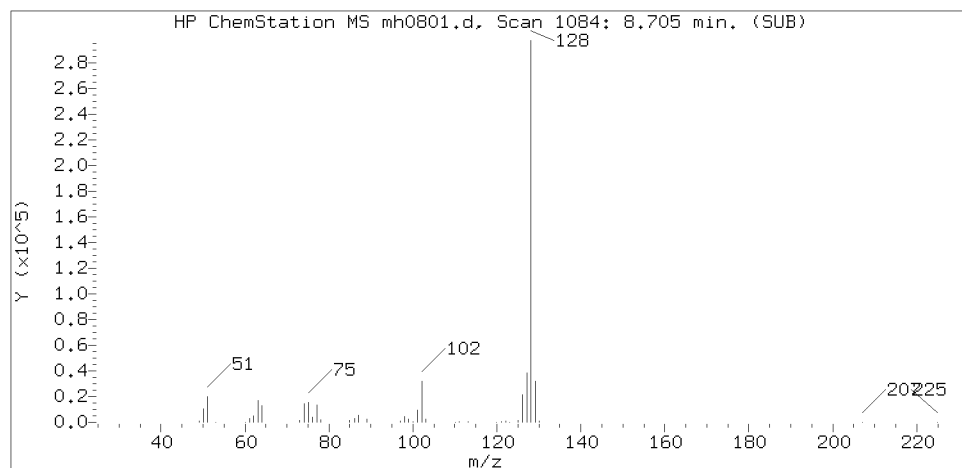
\$ = Compound is a surrogate standard.

Digitally signed by Ashley R. Transue

on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

Reference Standard Spectrum for Naphthalene



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

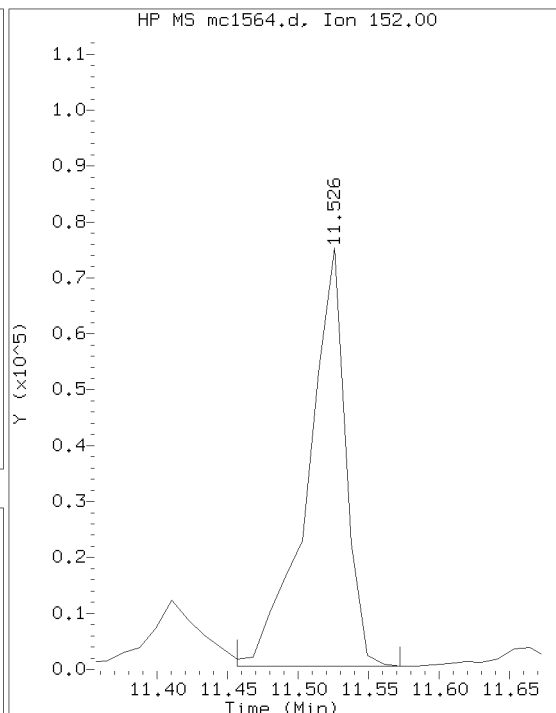
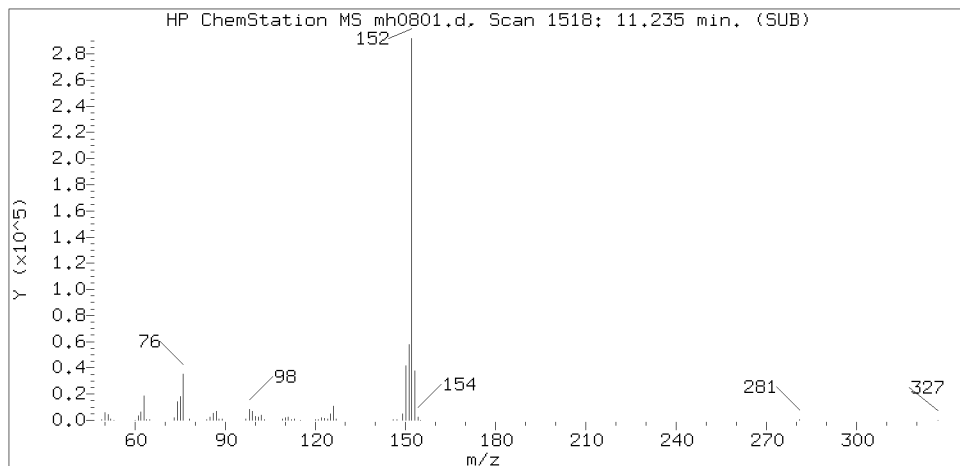
Lab Sample ID: 1285717

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 540
Retention Time (minutes) : 9.013
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 8280437
On-column Amount (ng/ul) : 19.8789

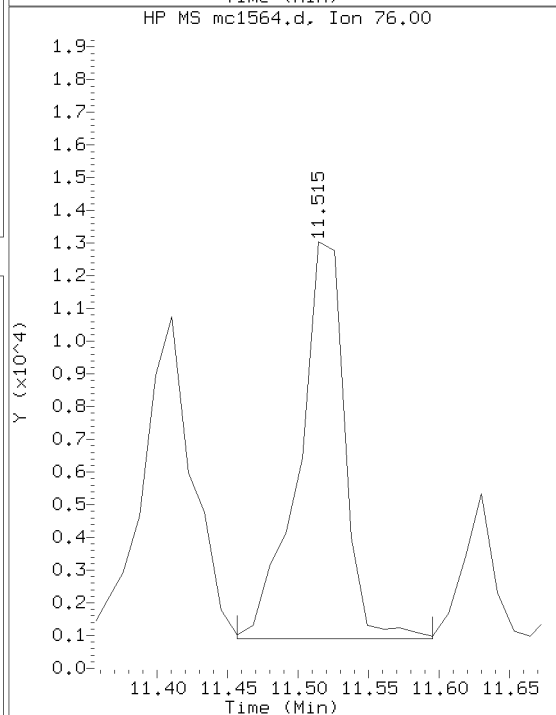
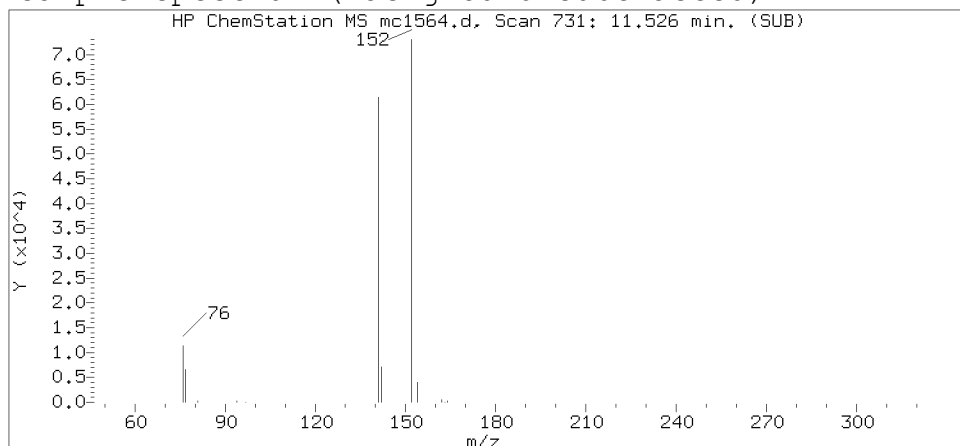
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user art12405
GPY68 Page 311 of 586

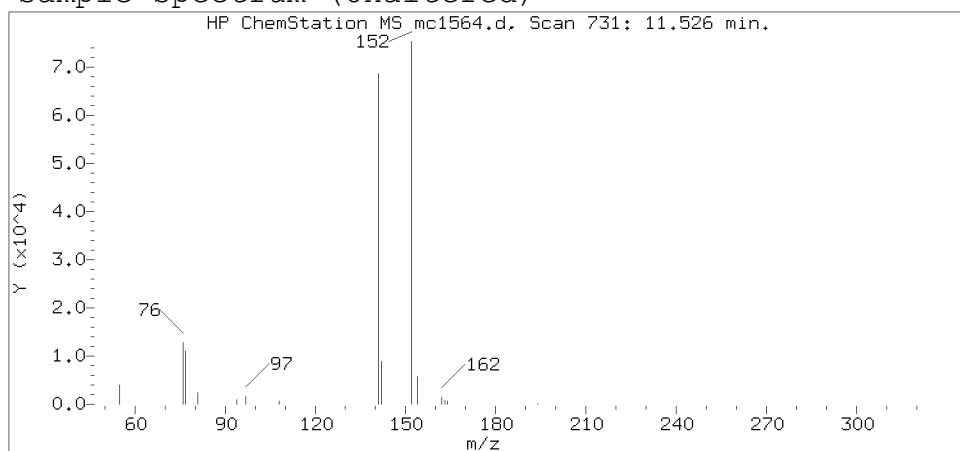
Reference Standard Spectrum for Acenaphthylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

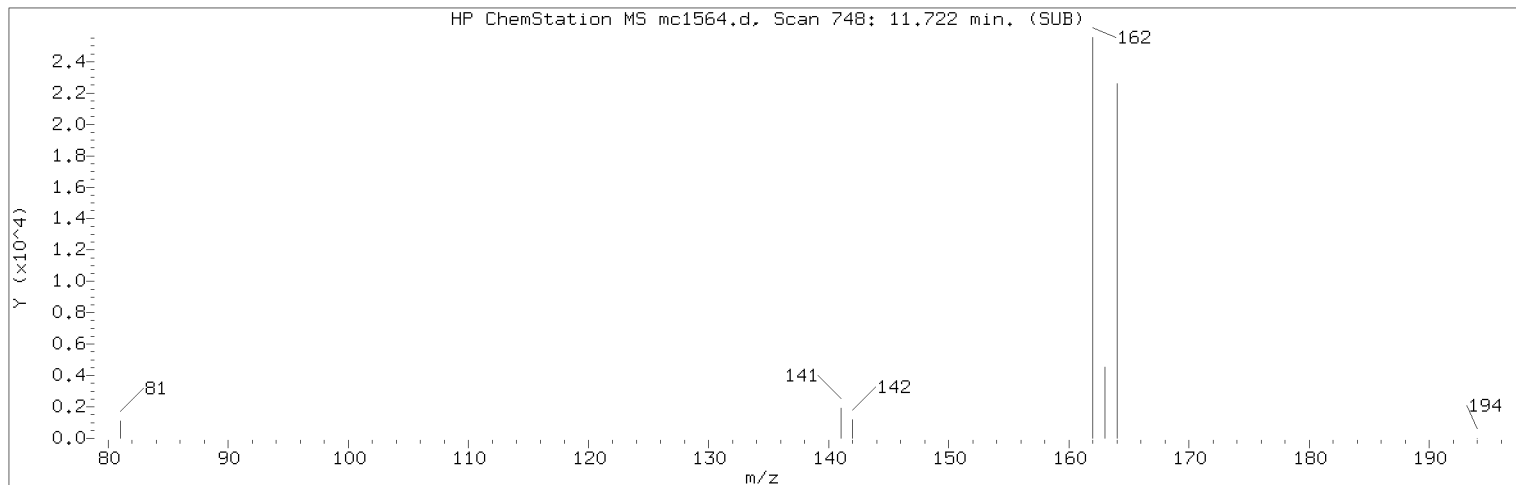
Sample Name: 13200

Lab Sample ID: 1285717

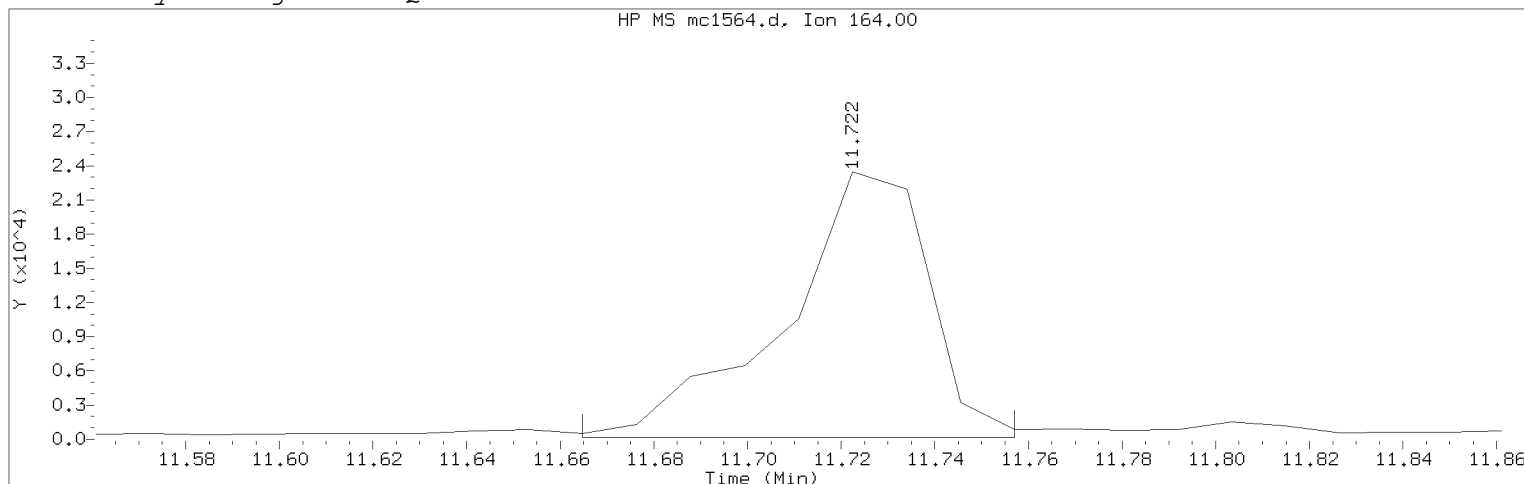
Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 731
Retention Time (minutes) : 11.526
Relative Retention Time : -0.00000
Quant Ion : 152.00
Area (flag) : 139780
On-column Amount (ng/ul) : 0.2628

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.
Target 3.5 esignature user: art12405

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1564.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

Lab Sample ID: 1285717

Compound Number	: 14	
Compound Name	: Acenaphthene-d10	
Scan Number	: 748	
Retention Time (minutes)	: 11.722	
Quant Ion	: 164.00	
Area (flag)	: 50120M	
On-column Amount (ng/ul)	: 0.2500	
Integration start scan	: 742	Integration stop scan: 750
Y at integration start	: 173	Y at integration end: 173

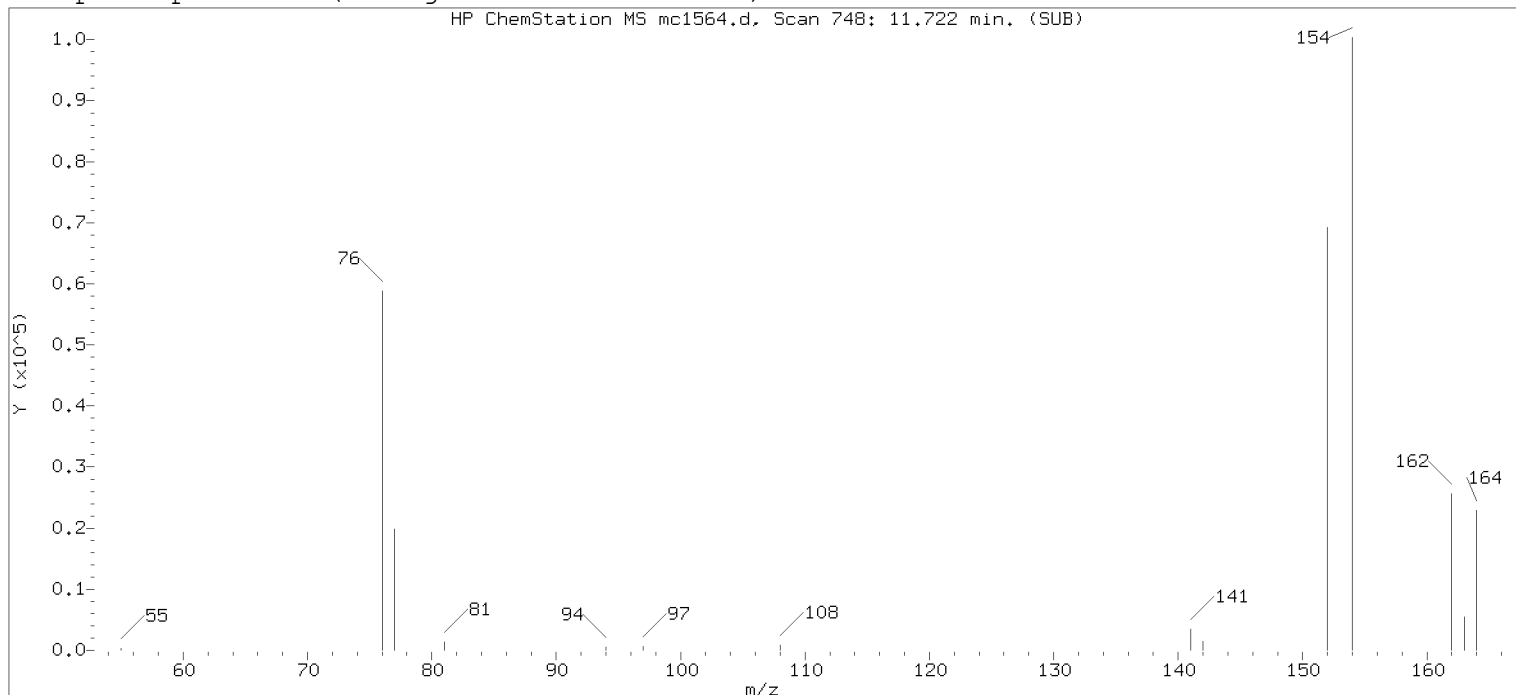
Reason for manual integration: improper integration

Analyst responsible for change:

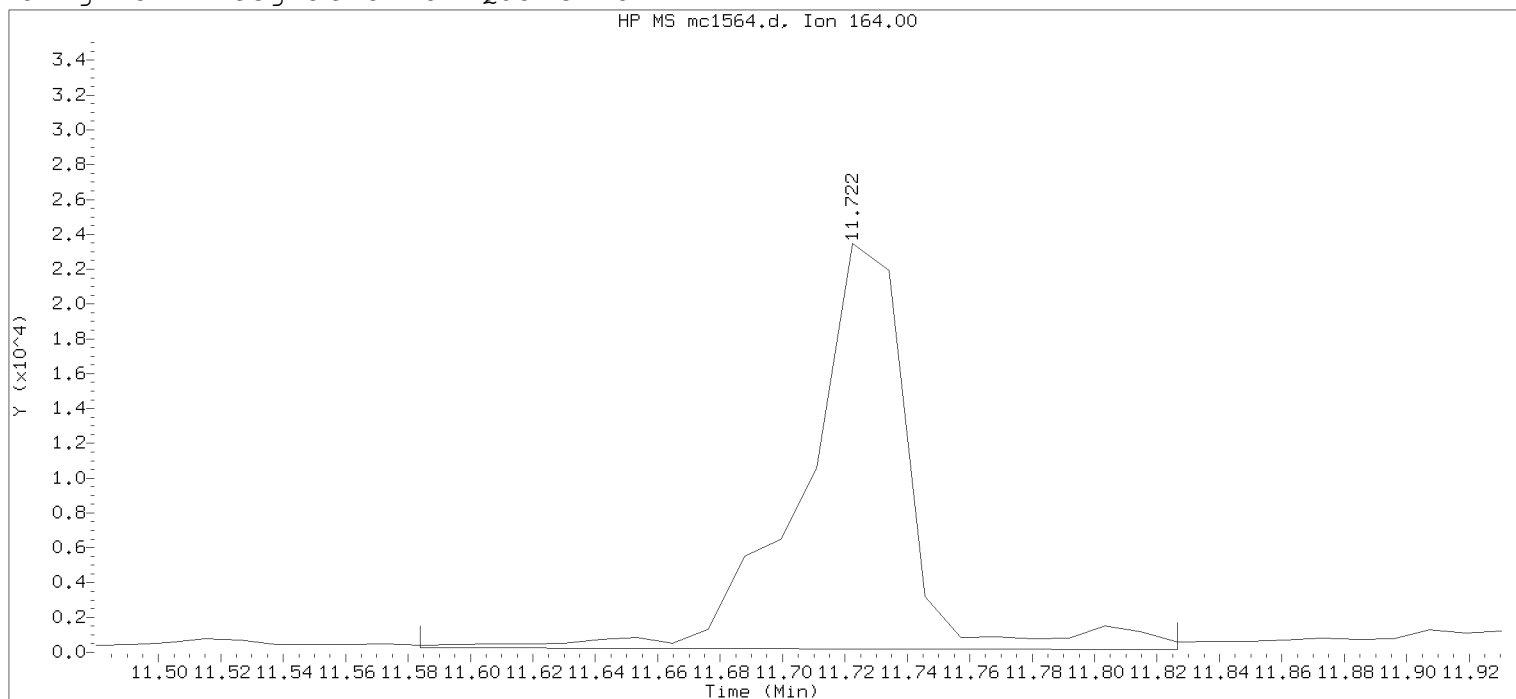
Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1564.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 13:12 Unknown

Sample Name: 13200

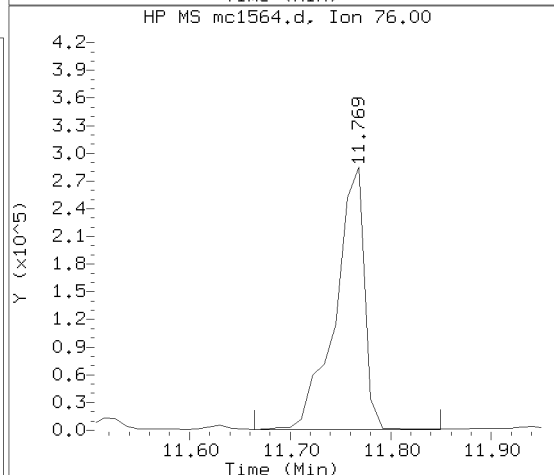
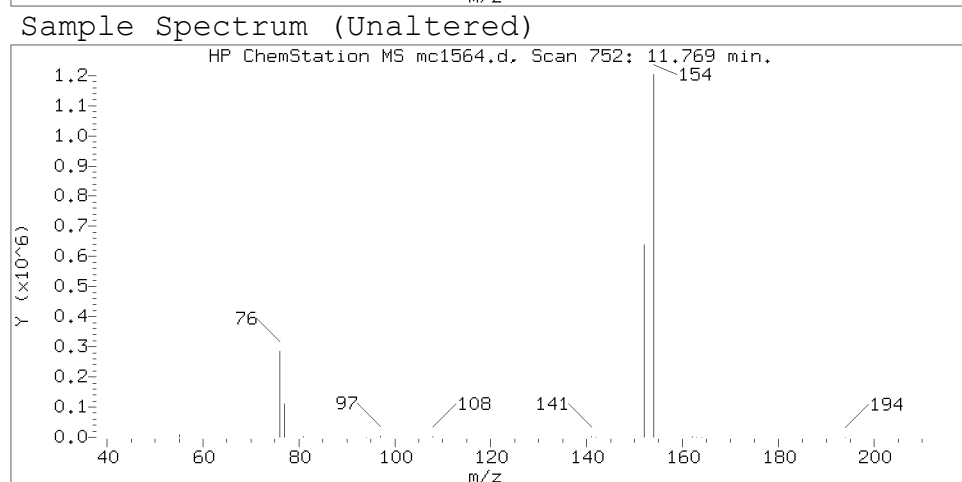
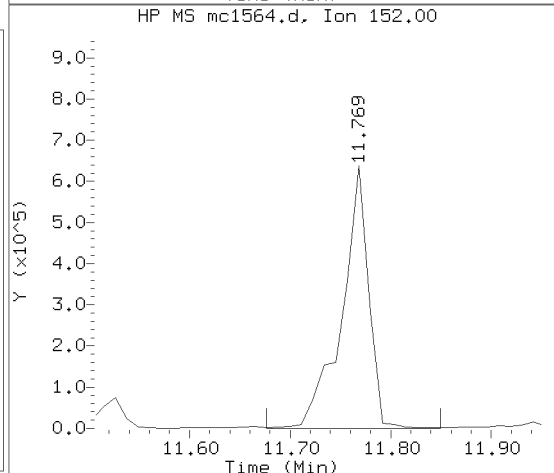
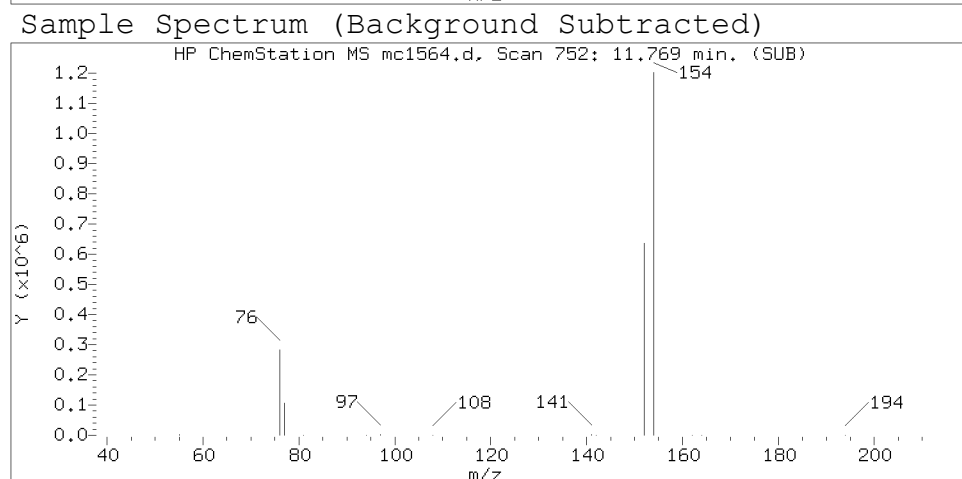
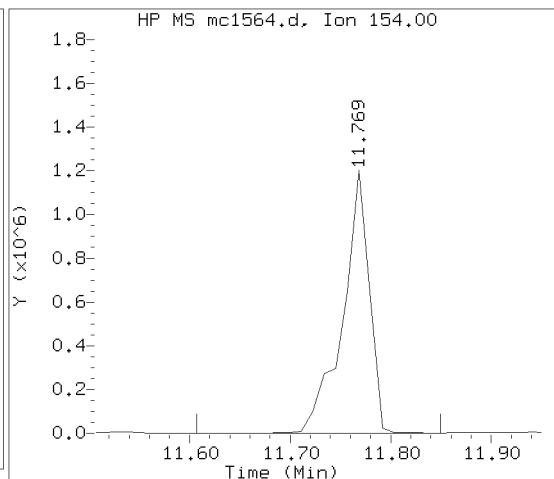
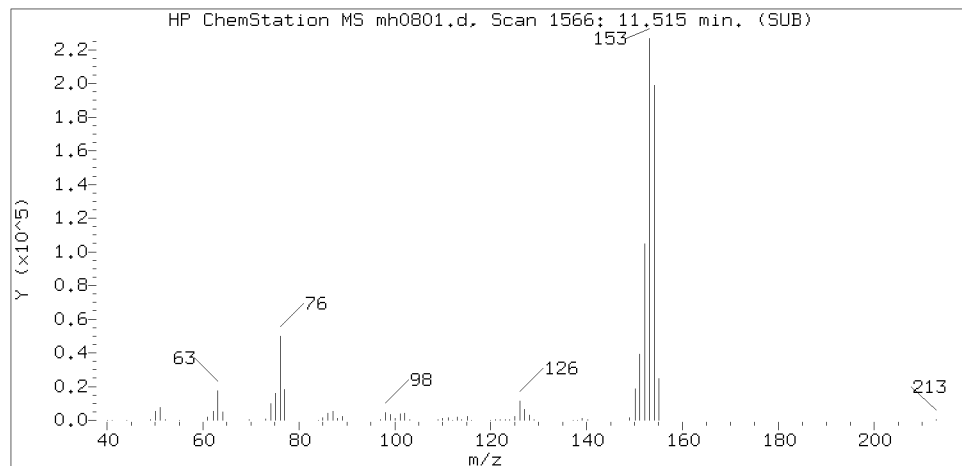
Lab Sample ID: 1285717

Compound Number	: 14	
Compound Name	: Acenaphthene-d10	
Scan Number	: 748	
Retention Time (minutes)	: 11.722	
Quant Ion	: 164.00	
Area	: 49096	
On-column Amount (ng/ul)	: 0.2500	
Integration start scan	: 735	Integration stop scan: 756
Y at integration start	: 260	Y at integration end: 142

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user GPV68 Page 414 of 586

Reference Standard Spectrum for Acenaphthene



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

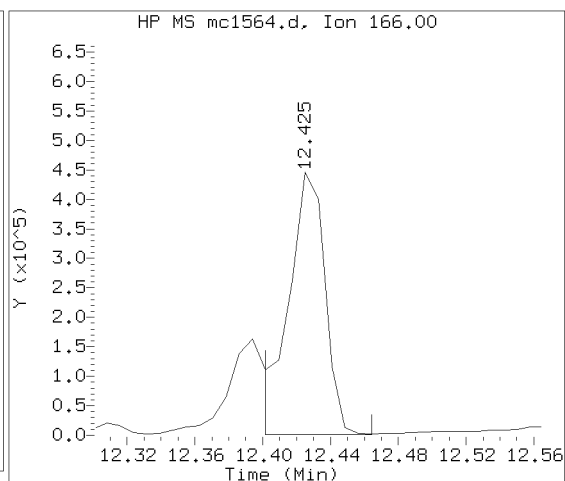
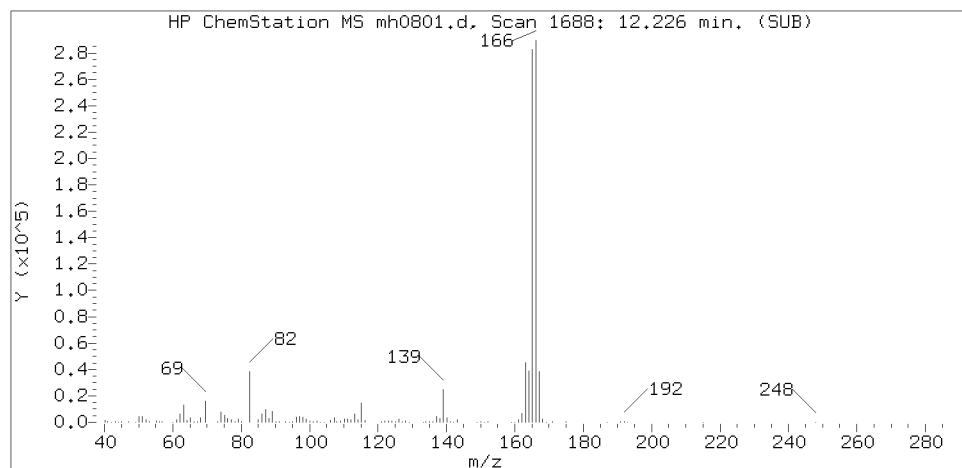
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

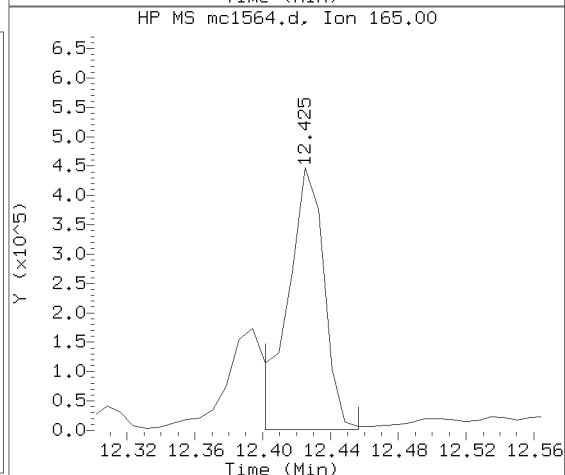
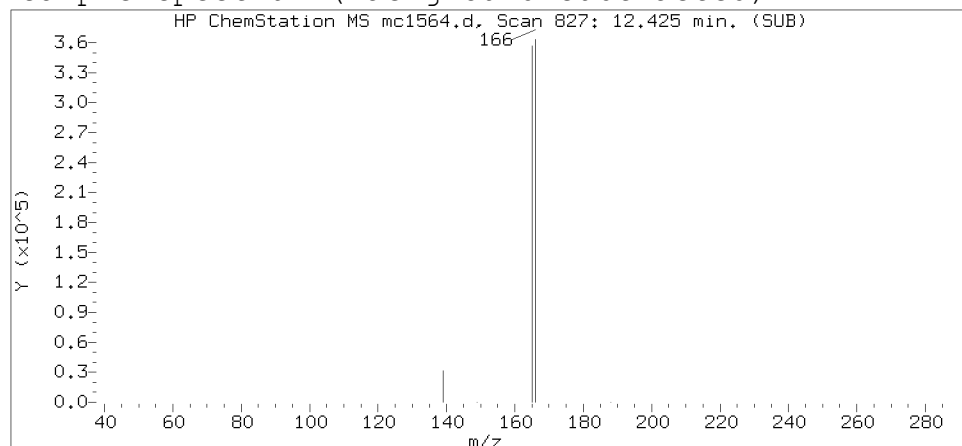
Lab Sample ID: 1285717

Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 752
Retention Time (minutes) : 11.769
Relative Retention Time : -0.00000
Quant Ion : 154.00
Area (flag) : 2140356
On-column Amount (ng/ul) : 7.2178

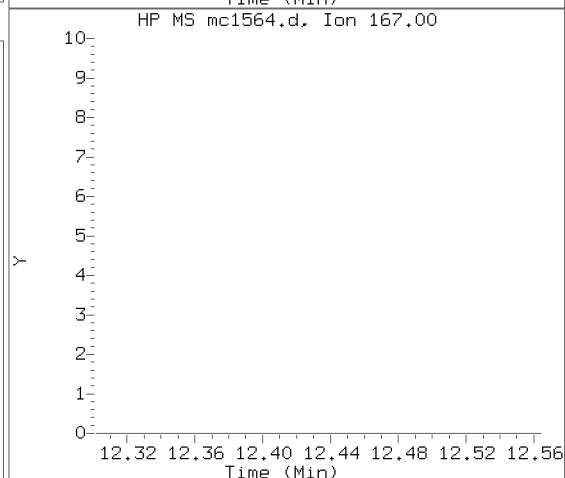
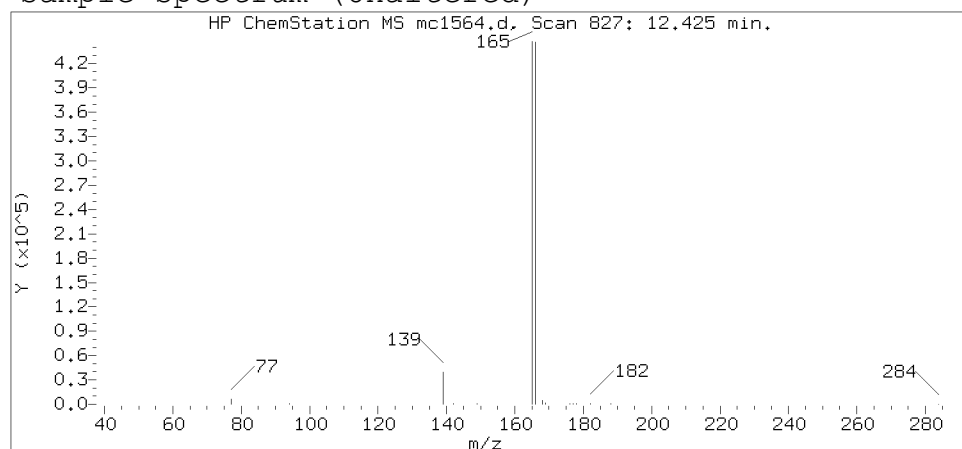
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

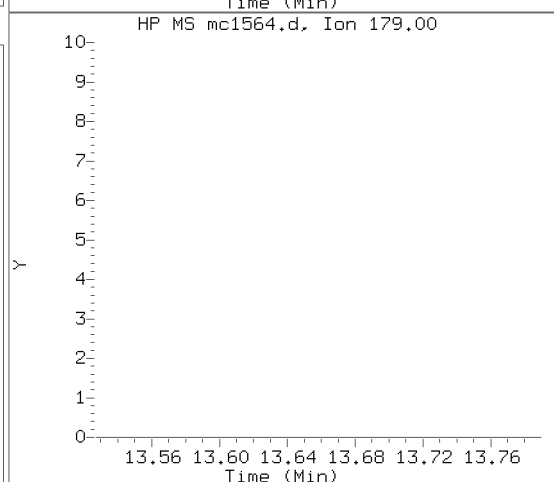
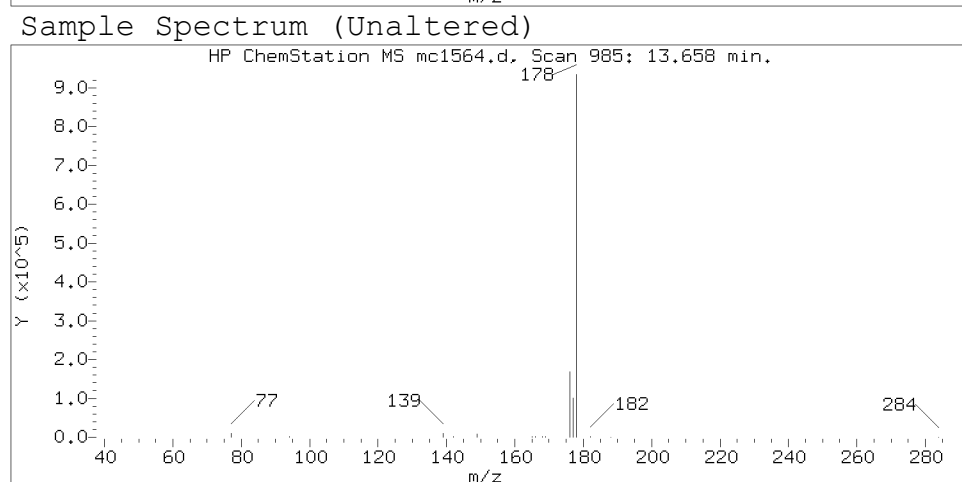
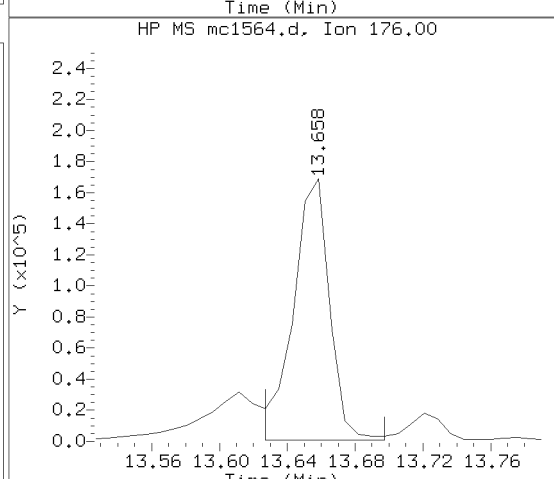
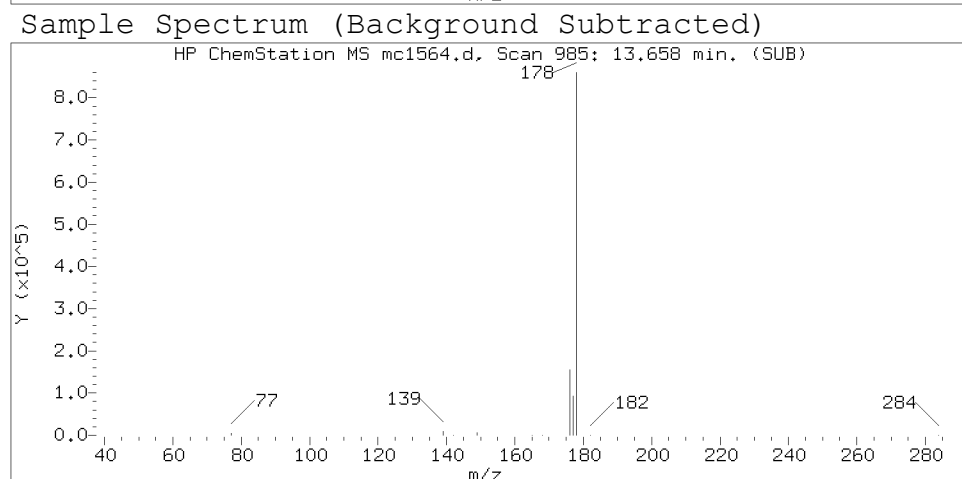
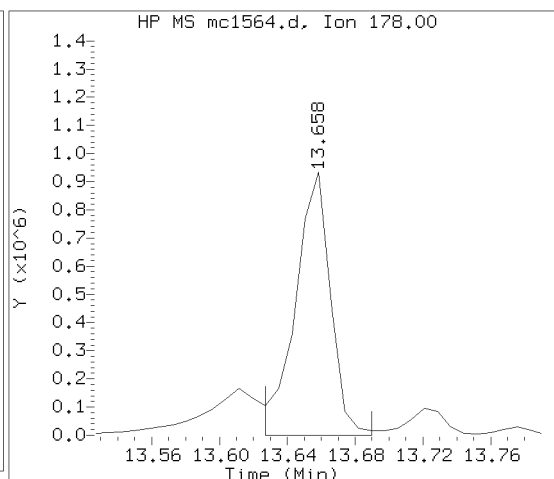
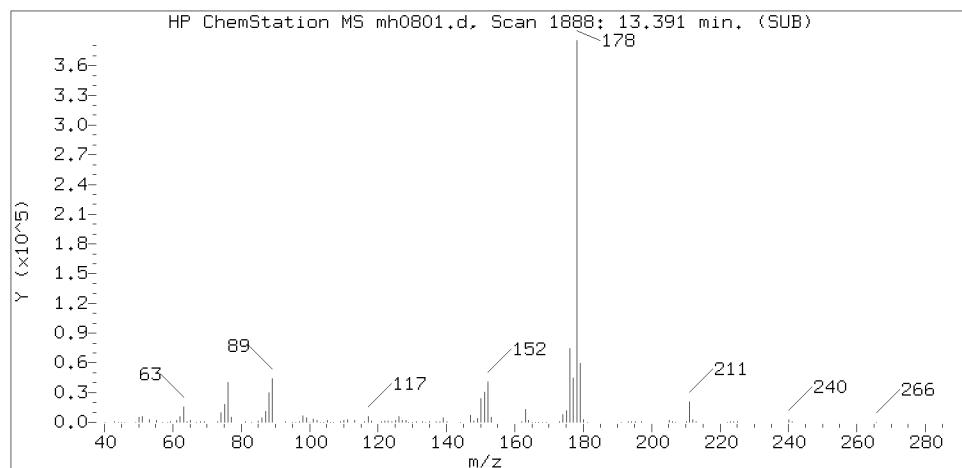
Lab Sample ID: 1285717

Compound Number : 18
Compound Name : Fluorene
Scan Number : 827
Retention Time (minutes) : 12.425
Relative Retention Time :-0.00000
Quant Ion : 166.00
Area (flag) : 665436
On-column Amount (ng/ul) : 1.7709

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Target 3.5 esignature user: art12405
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Reference Standard Spectrum for Phenanthrene



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

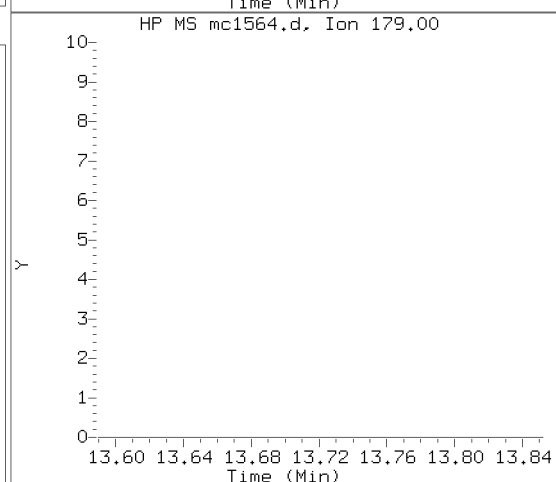
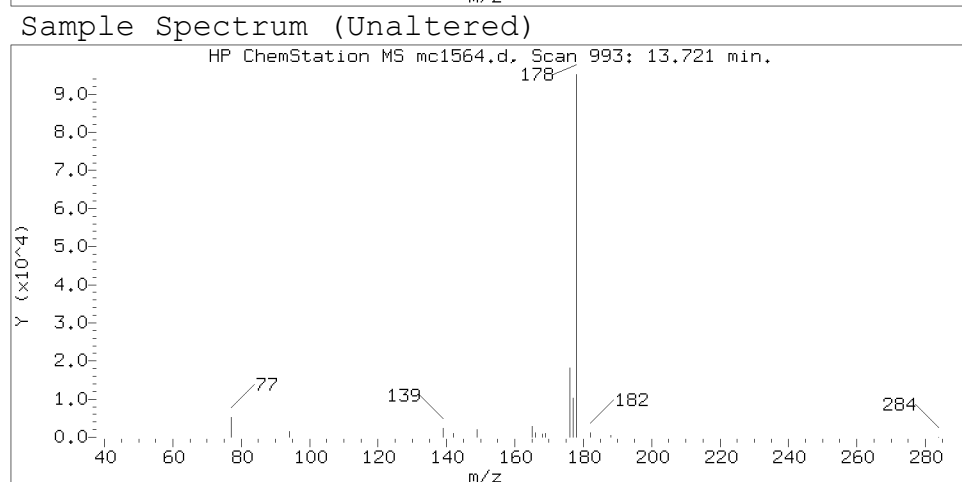
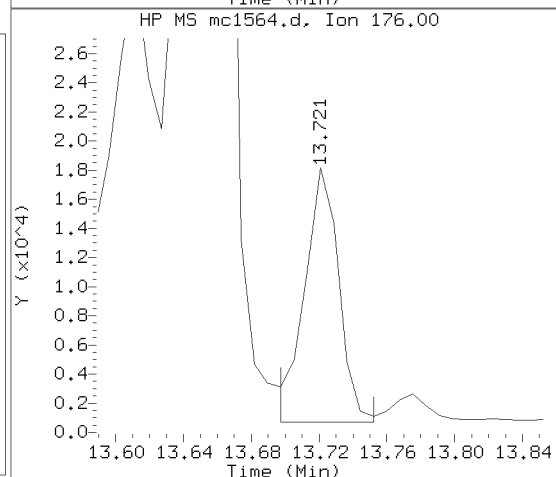
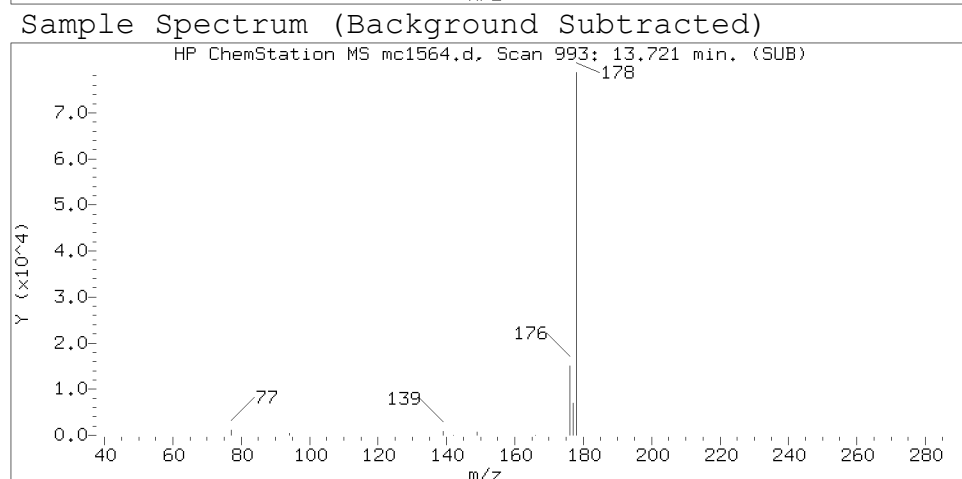
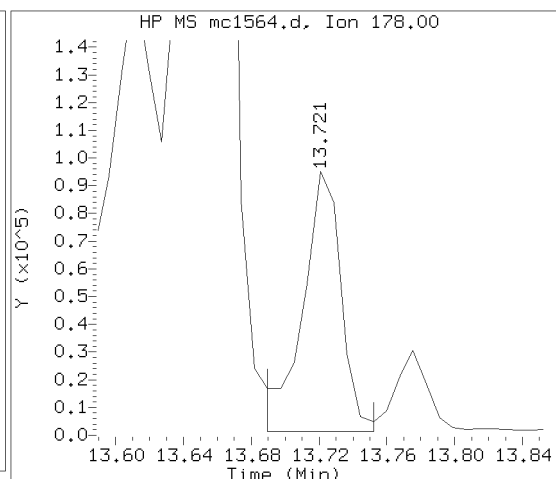
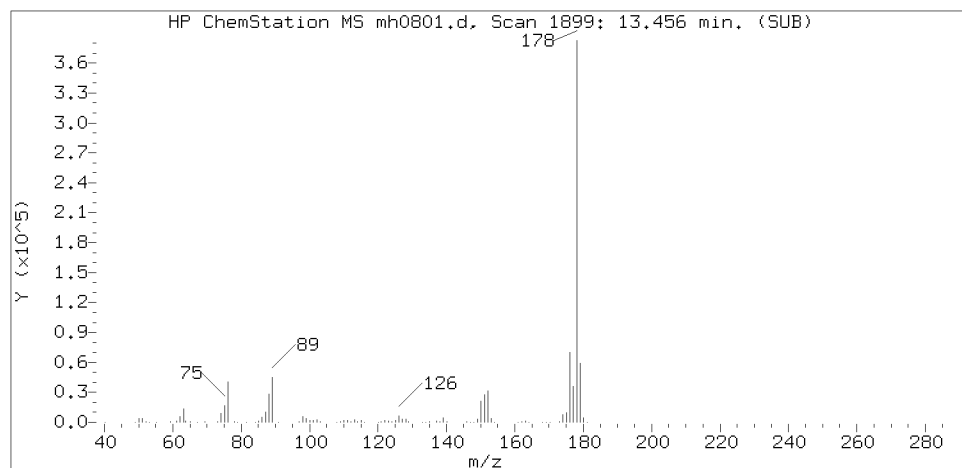
Lab Sample ID: 1285717

Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 985
Retention Time (minutes) : 13.658
Relative Retention Time :-0.00057
Quant Ion : 178.00
Area (flag) : 1328440
On-column Amount (ng/ul) : 3.7683

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Target 3.5 esignature user: art12405
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Reference Standard Spectrum for Anthracene



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

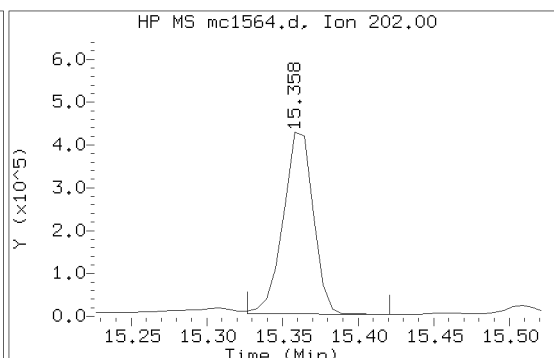
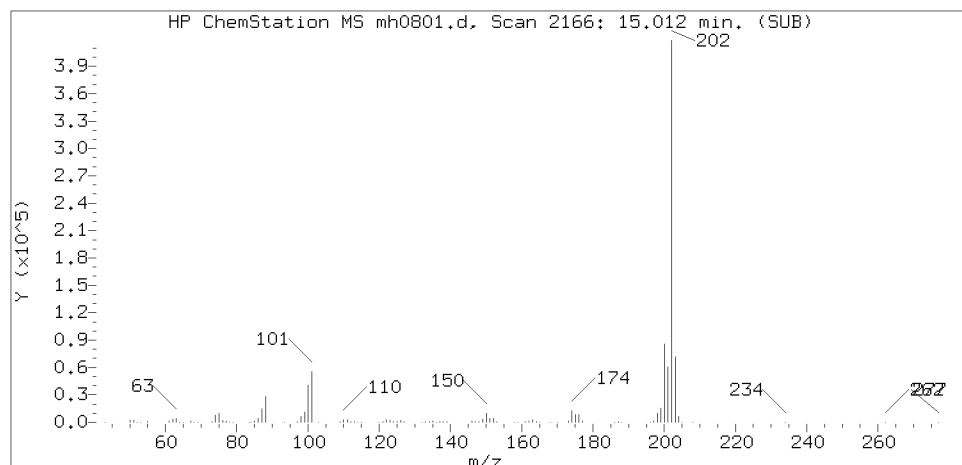
Sample Name: 13200

Lab Sample ID: 1285717

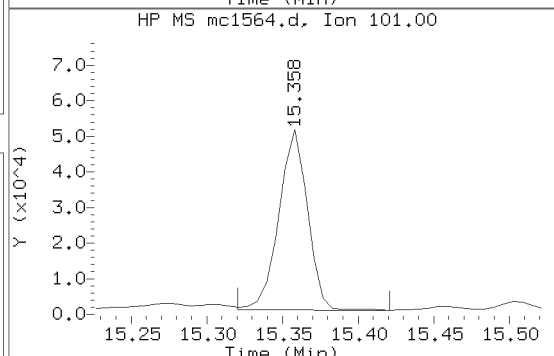
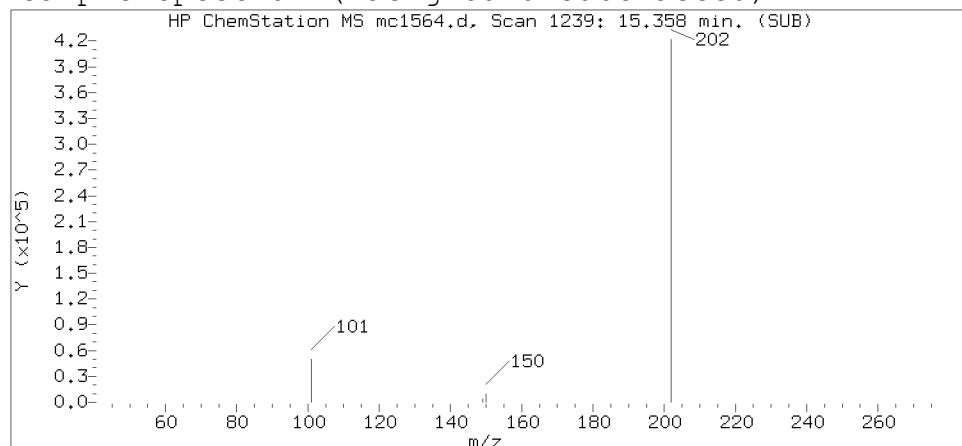
Compound Number : 22
Compound Name : Anthracene
Scan Number : 993
Retention Time (minutes) : 13.721
Relative Retention Time :-0.00000
Quant Ion : 178.00
Area (flag) : 146368
On-column Amount (ng/ul) : 0.4428

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Target 3.5 esignature user=art12405

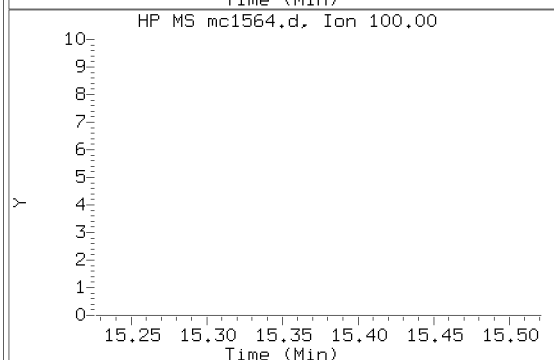
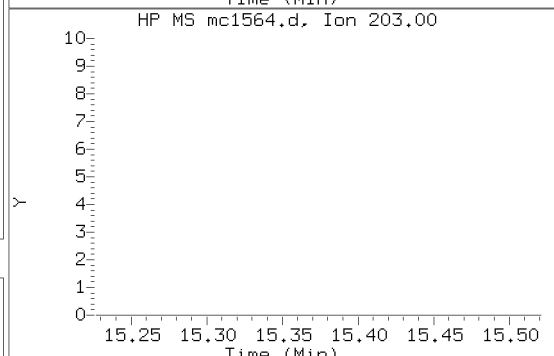
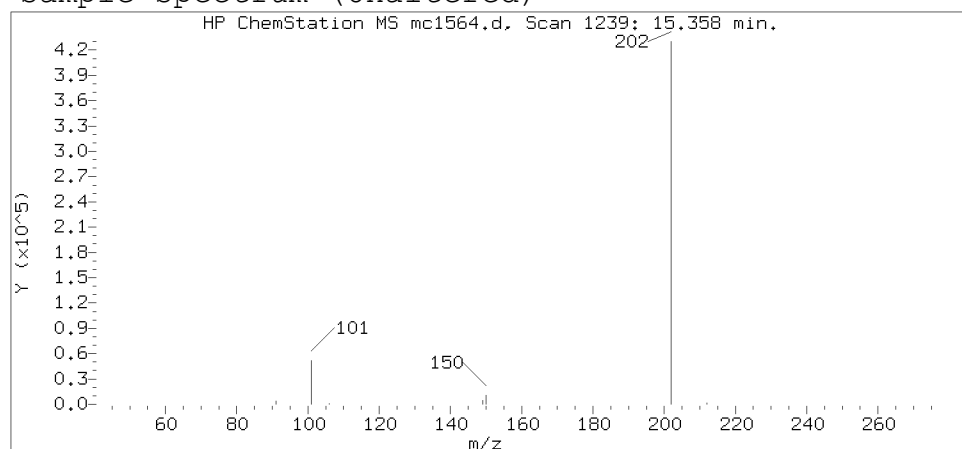
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

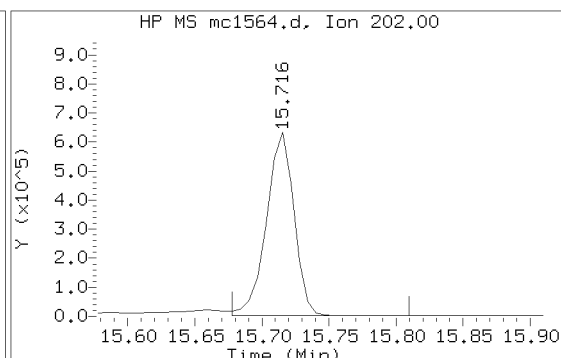
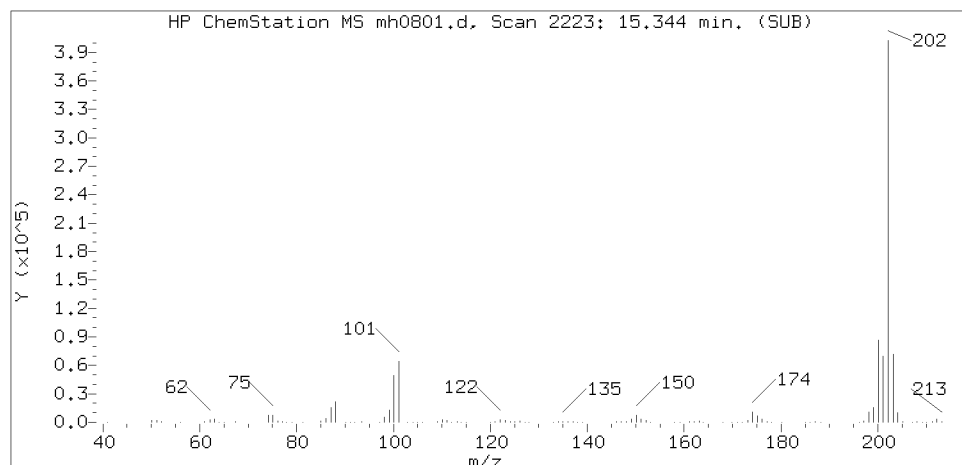
Lab Sample ID: 1285717

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1239
Retention Time (minutes) : 15.358
Relative Retention Time : 0.00000
Quant Ion : 202.00
Area (flag) : 586376
On-column Amount (ng/ul) : 1.5125

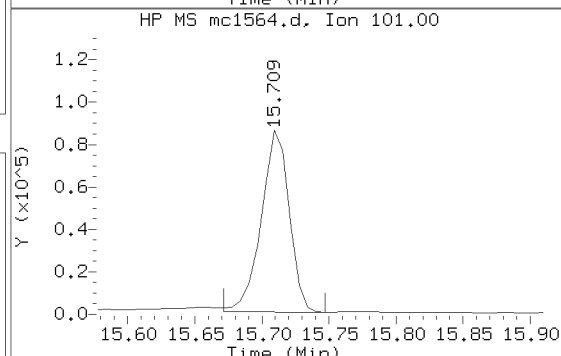
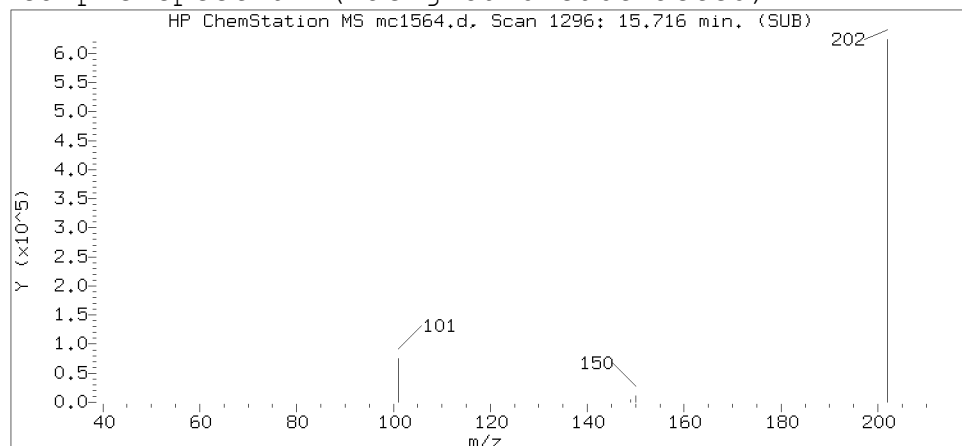
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Target 3.5 esignature user: art12405
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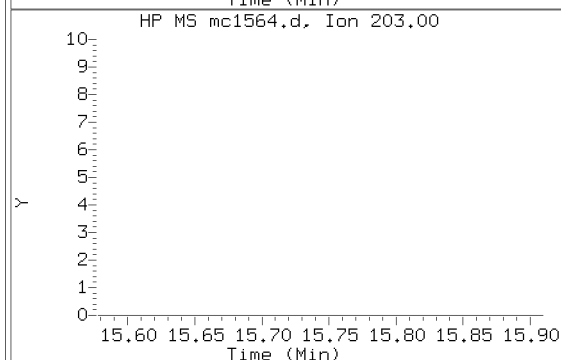
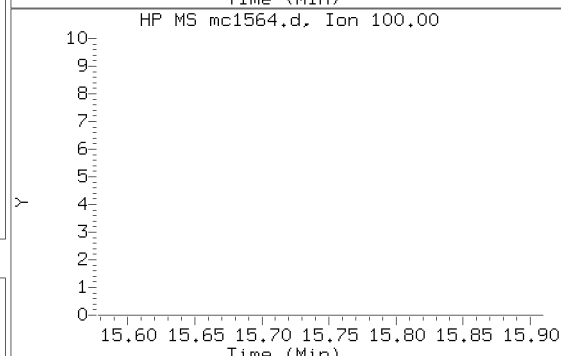
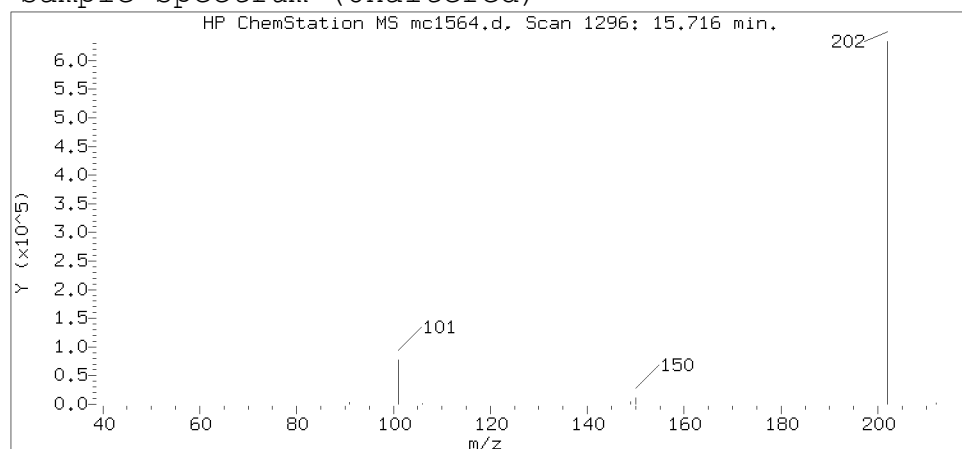
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

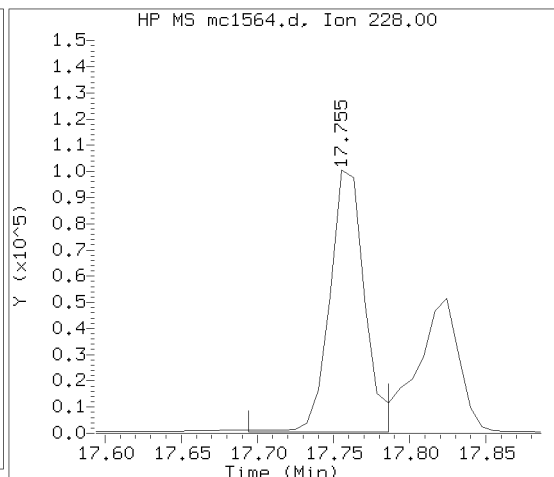
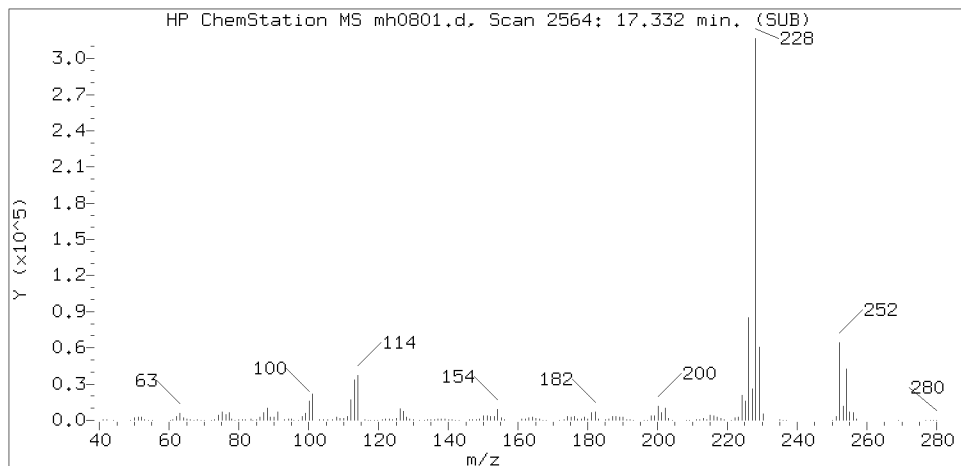
Lab Sample ID: 1285717

Compound Number : 26
Compound Name : Pyrene
Scan Number : 1296
Retention Time (minutes) : 15.716
Relative Retention Time : -0.00035
Quant Ion : 202.00
Area (flag) : 903904
On-column Amount (ng/ul) : 1.7193

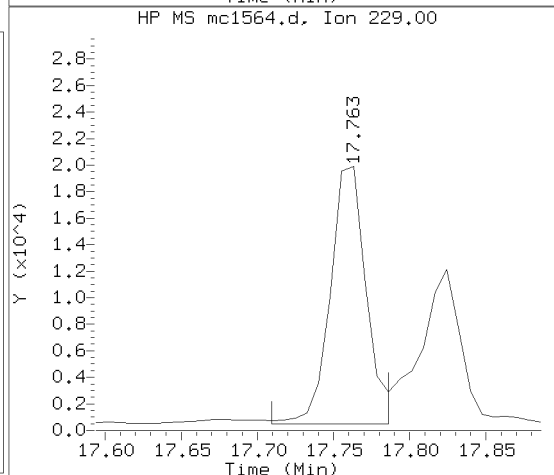
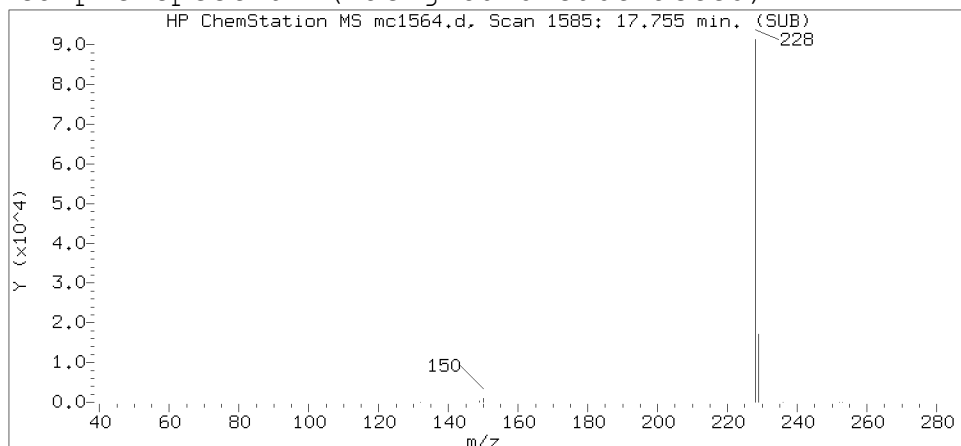
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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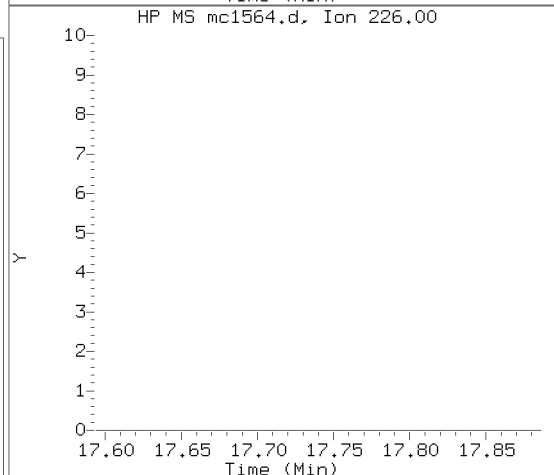
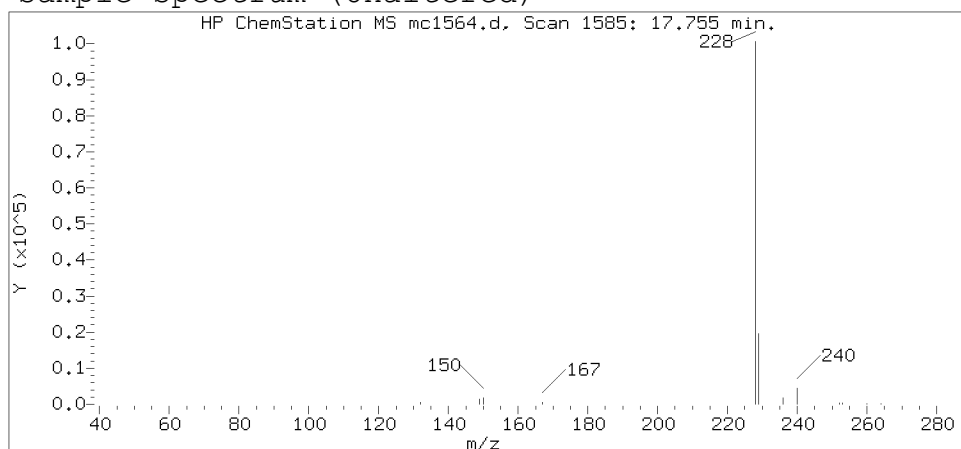
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

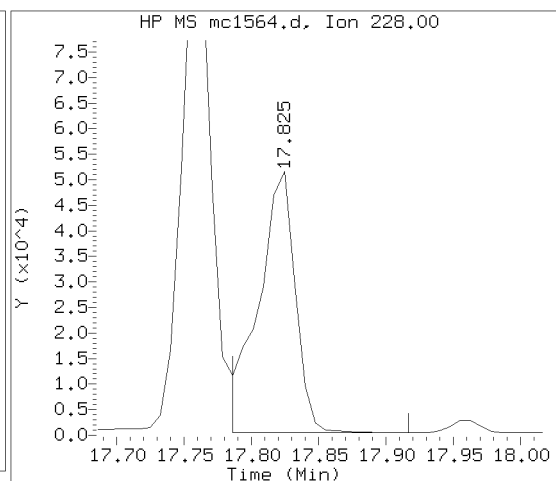
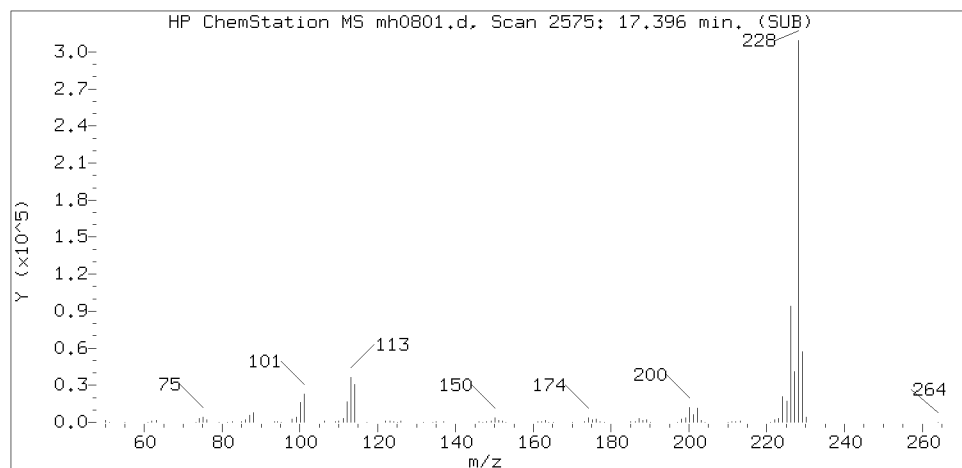
Lab Sample ID: 1285717

Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1585
Retention Time (minutes) : 17.755
Relative Retention Time : -0.00000
Quant Ion : 228.00
Area (flag) : 156700
On-column Amount (ng/ul) : 0.3524

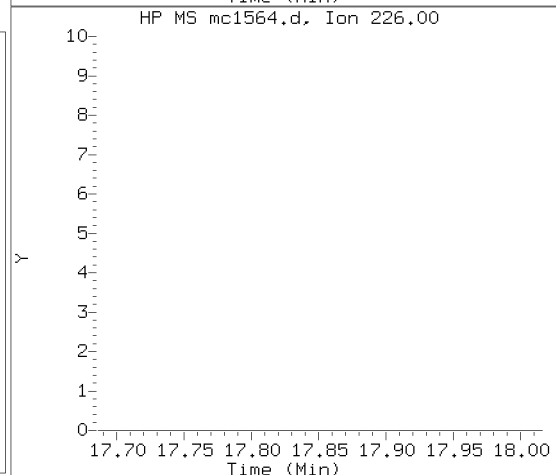
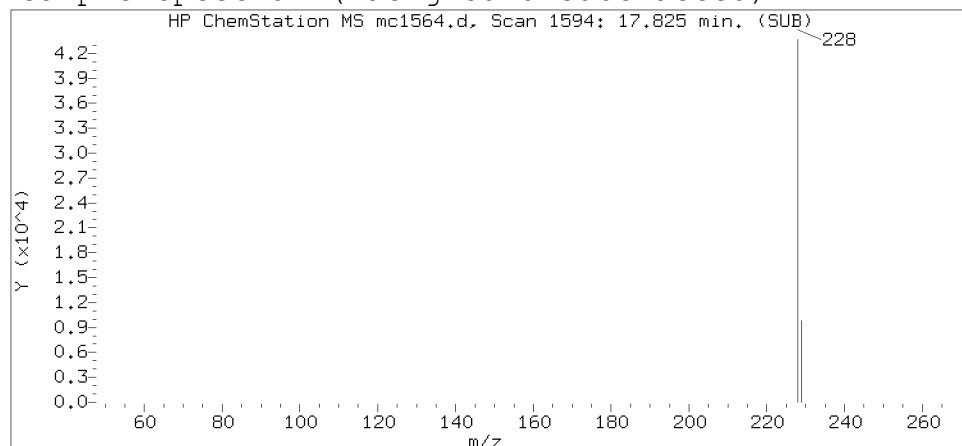
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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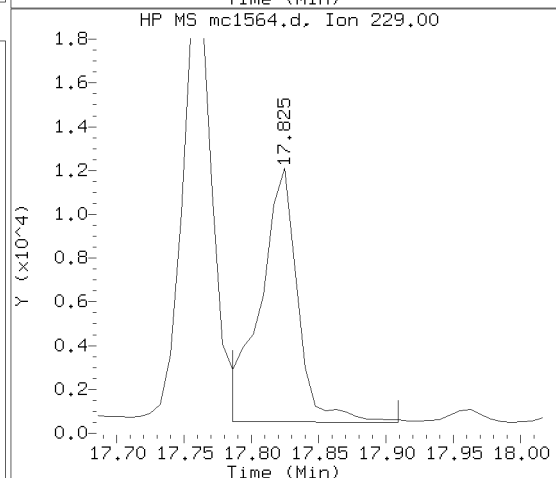
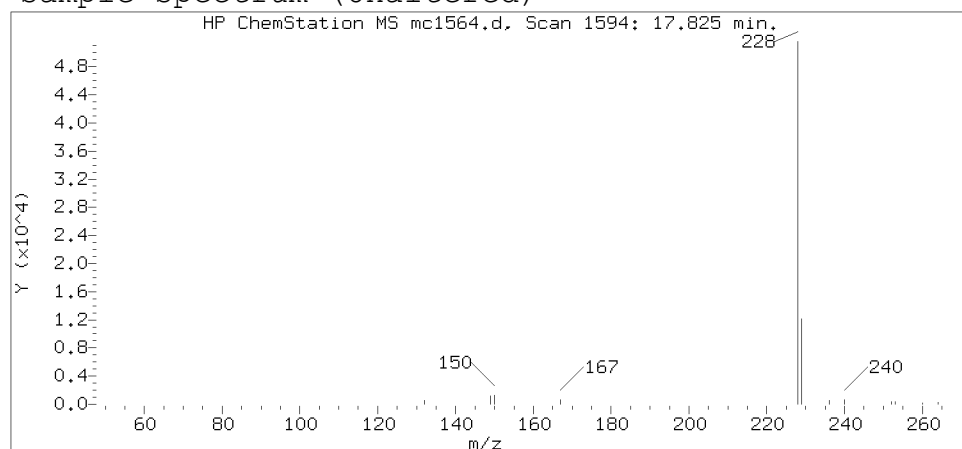
Reference Standard Spectrum for Chrysene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

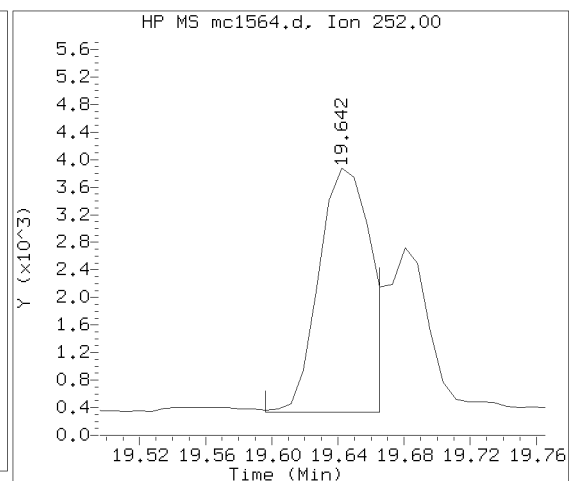
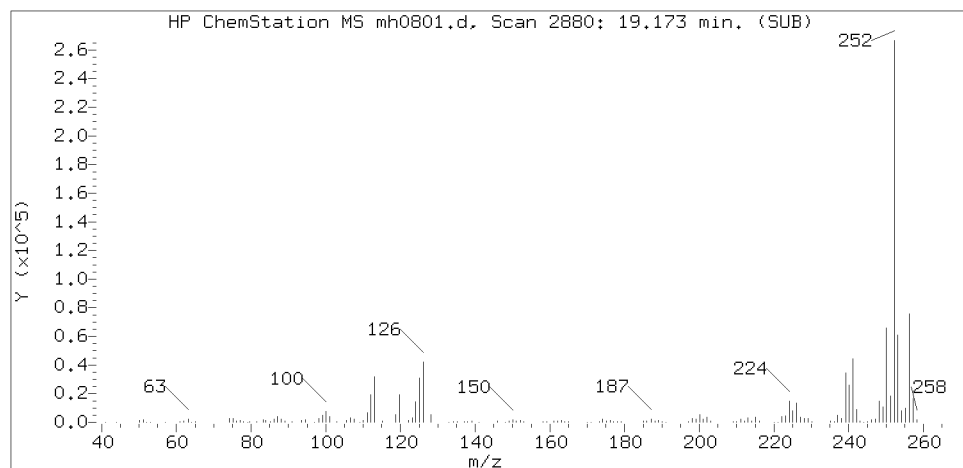
Sample Name: 13200

Lab Sample ID: 1285717

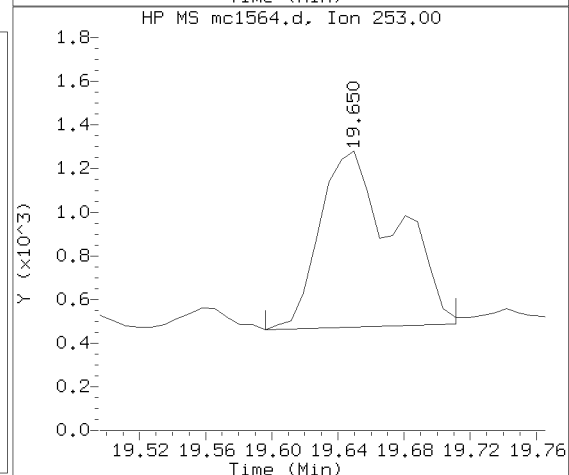
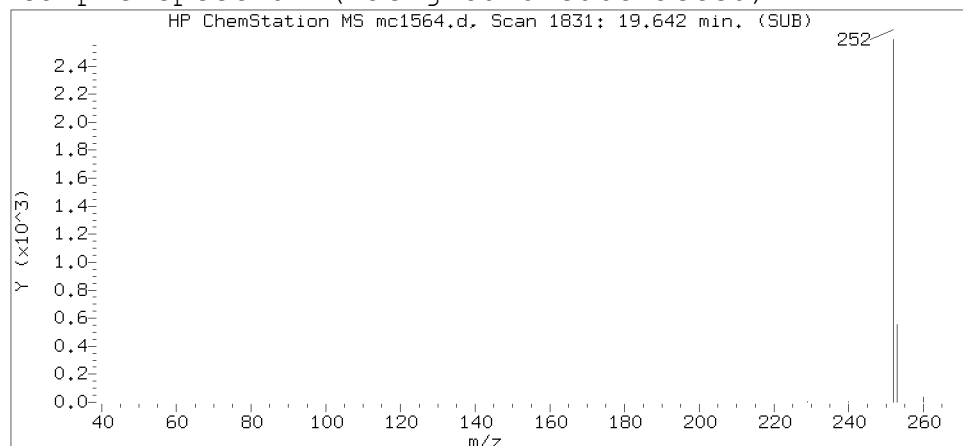
Compound Number : 30
Compound Name : Chrysene
Scan Number : 1594
Retention Time (minutes) : 17.825
Relative Retention Time : -0.00000
Quant Ion : 228.00
Area (flag) : 96724
On-column Amount (ng/ul) : 0.2099

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Target 3.5 esignature user: art12405

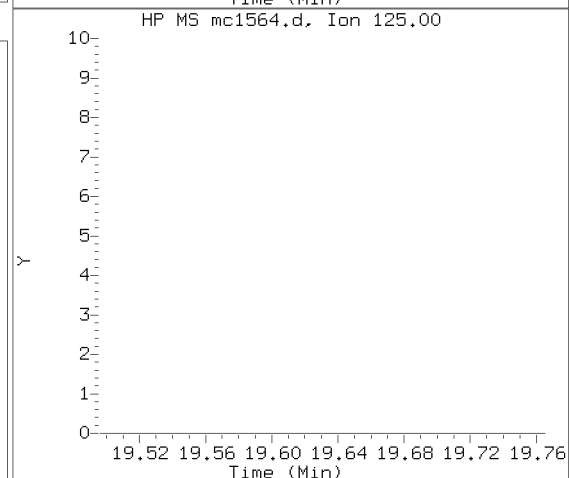
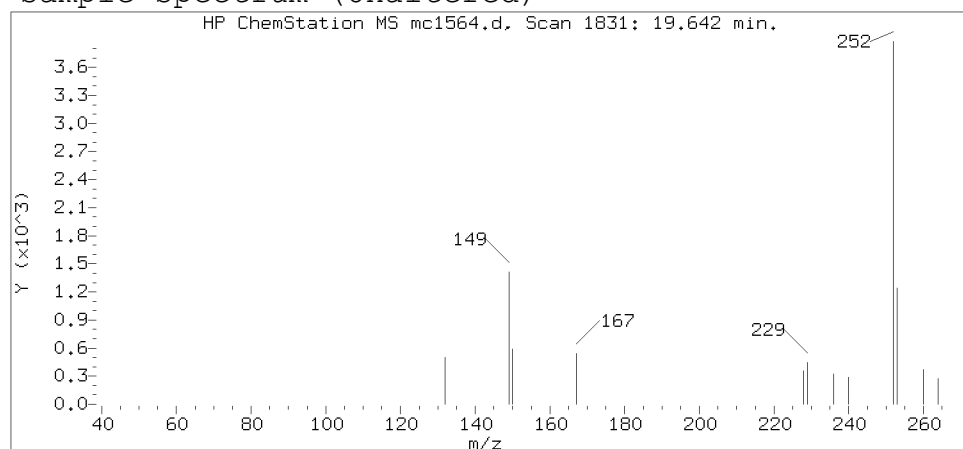
Reference Standard Spectrum for Benzo(b)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

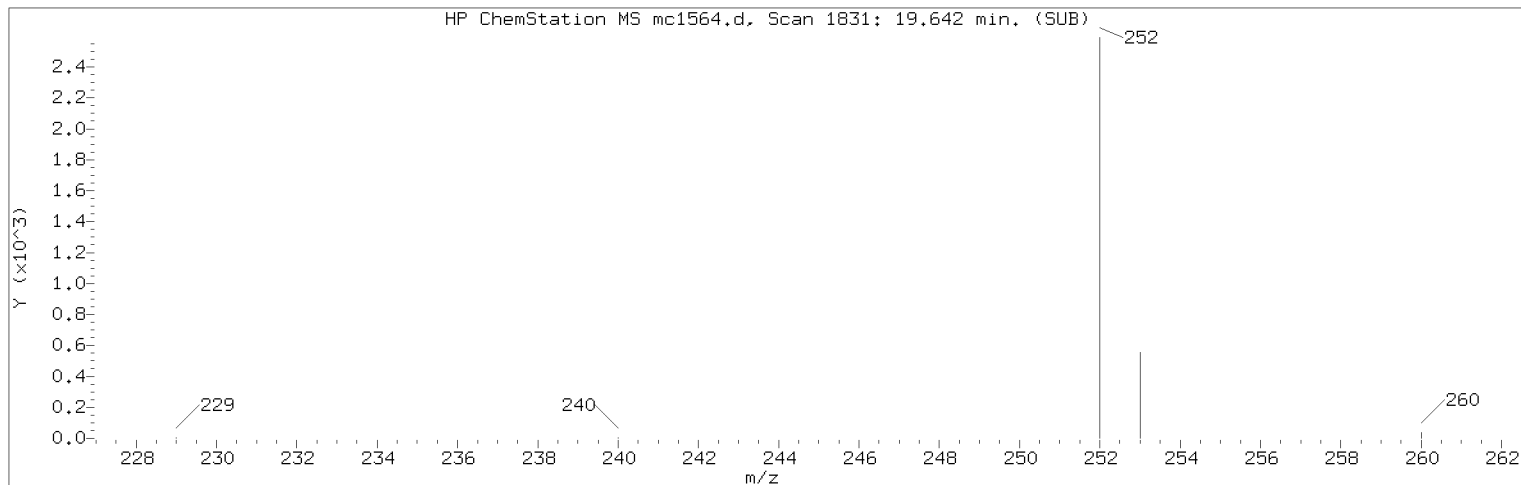
Lab Sample ID: 1285717

Compound Number : 33
Compound Name : Benzo(b)fluoranthene
Scan Number : 1831
Retention Time (minutes) : 19.642
Relative Retention Time : -0.00038
Quant Ion : 252.00
Area (flag) : 7880M
On-column Amount (ng/ul) : 0.0161

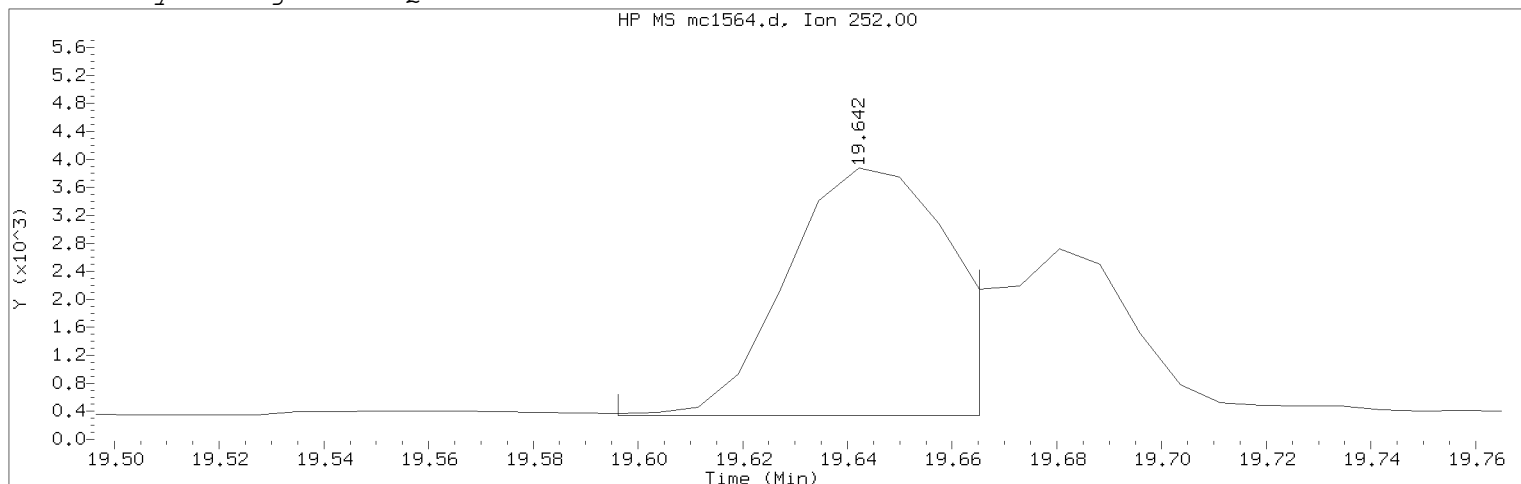
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1564.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

Lab Sample ID: 1285717

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1831	
Retention Time (minutes)	: 19.642	
Quant Ion	: 252.00	
Area (flag)	: 7880M	
On-column Amount (ng/ul)	: 0.0161	
Integration start scan	: 1824	Integration stop scan: 1833
Y at integration start	: 338	Y at integration end: 338

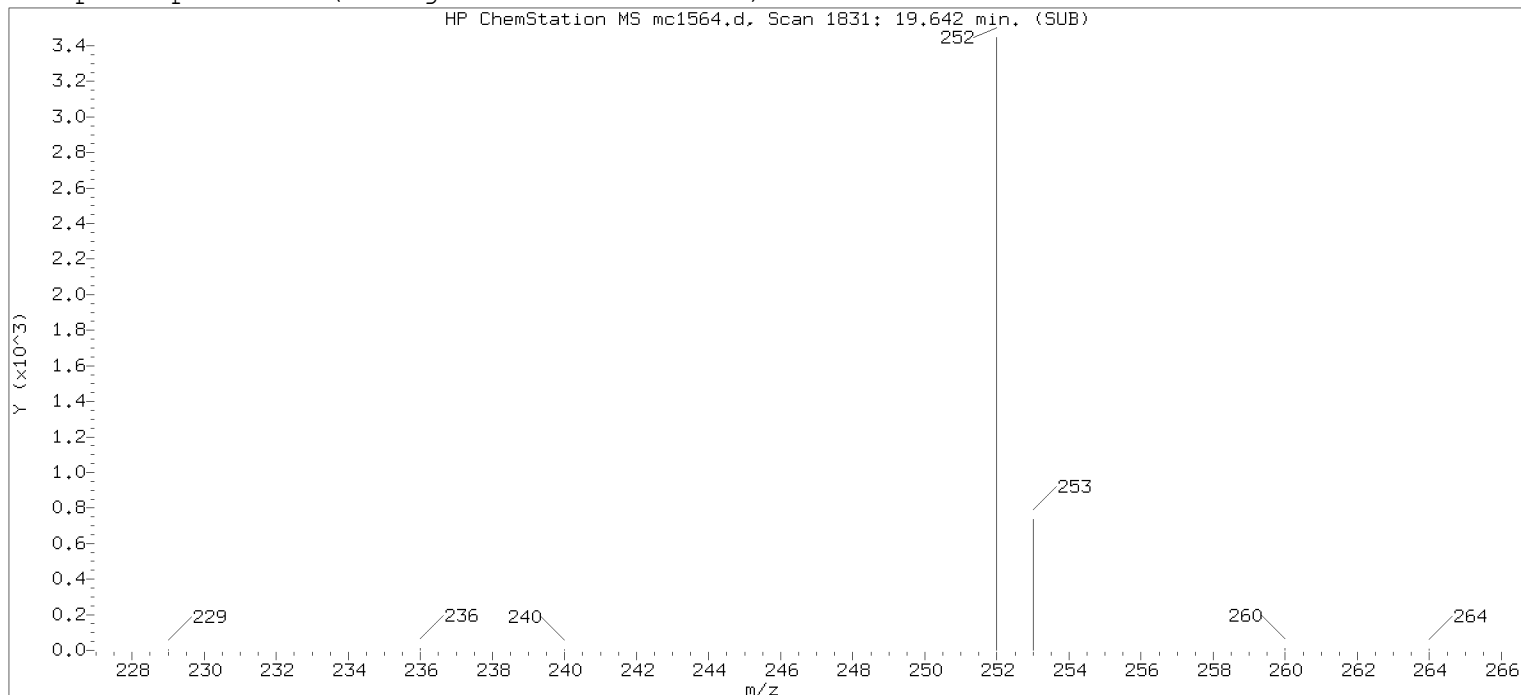
Reason for manual integration: improper integration

Analyst responsible for change:

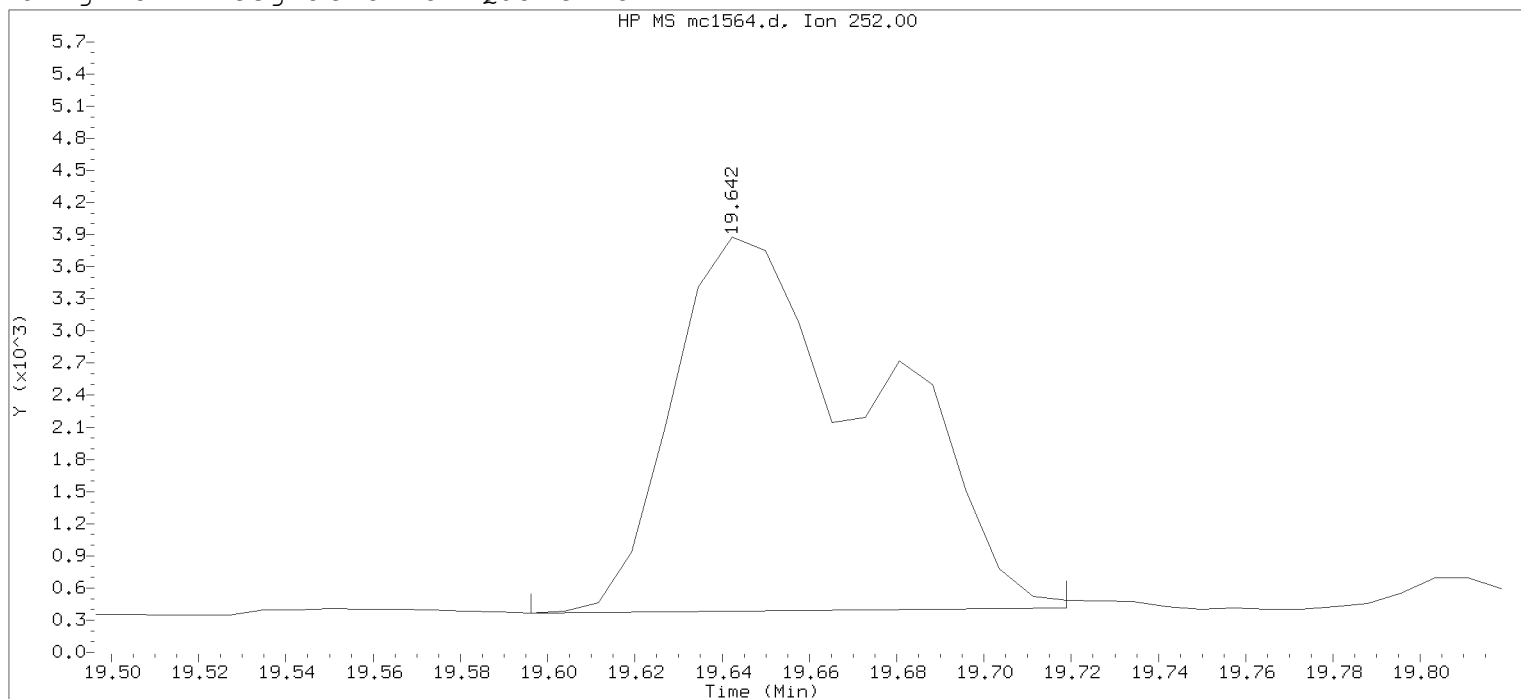
Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1564.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 13:12 Unknown

Sample Name: 13200

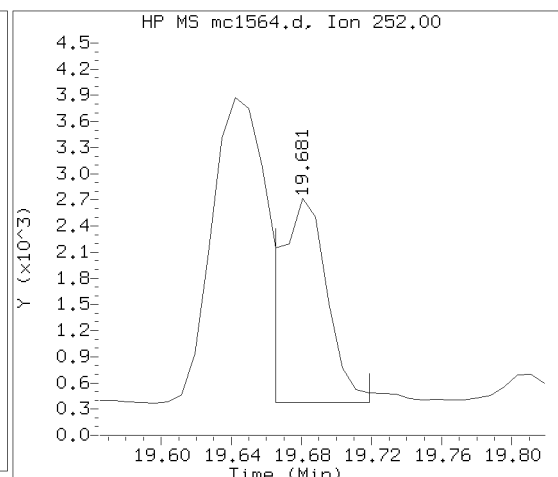
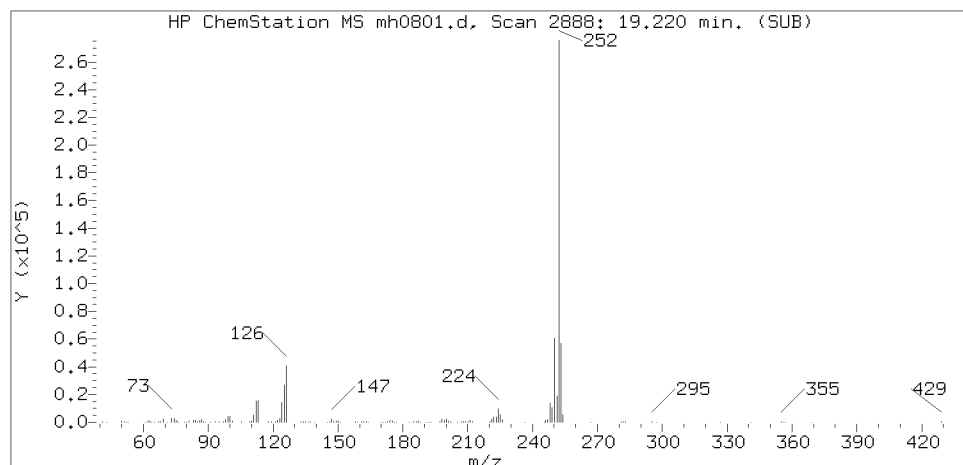
Lab Sample ID: 1285717

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1831	
Retention Time (minutes)	: 19.642	
Quant Ion	: 252.00	
Area	: 11288	
On-column Amount (ng/ul)	: 0.0230	
Integration start scan	: 1824	Integration stop scan: 1840
Y at integration start	: 367	Y at integration end: 415

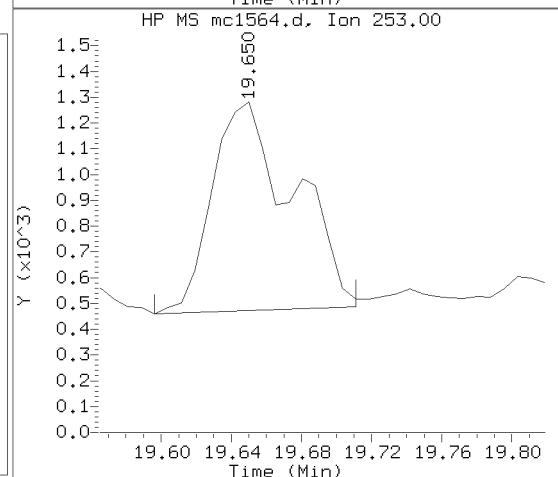
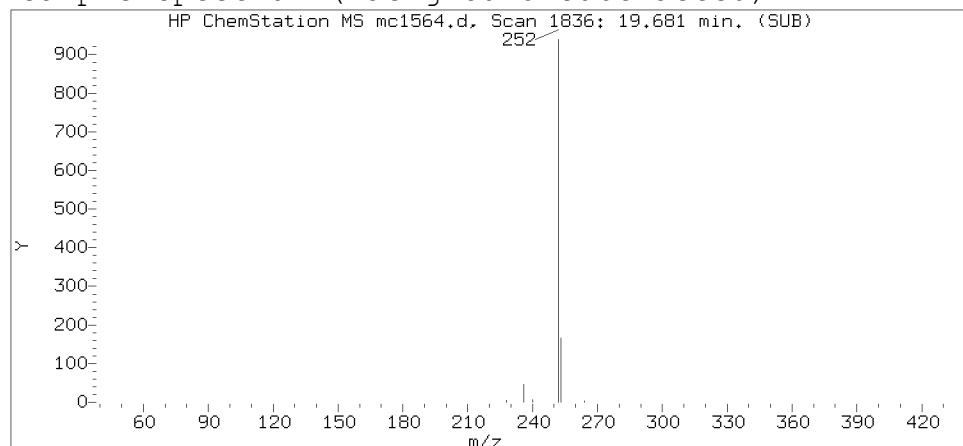
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user GPV68 Page 425 of 586

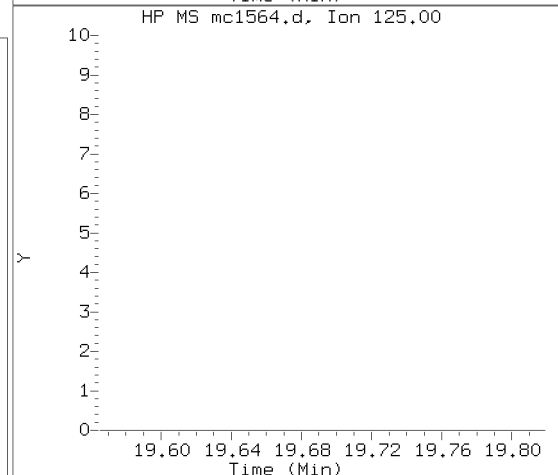
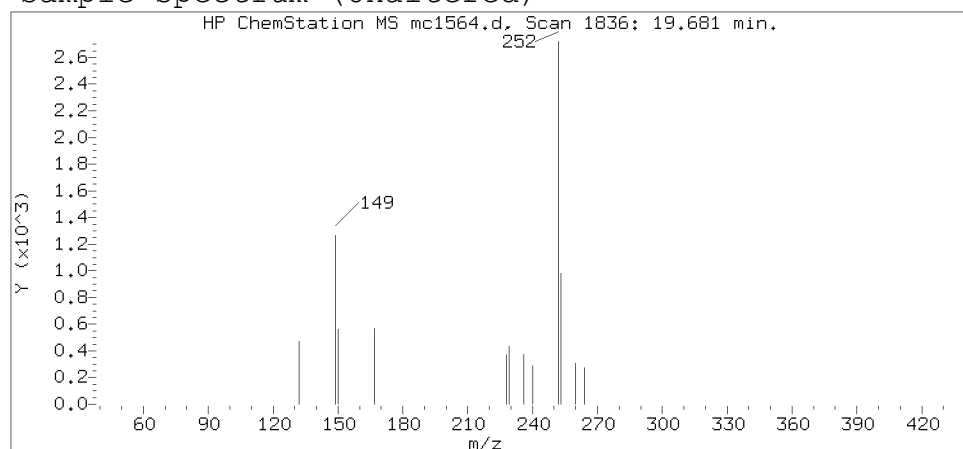
Reference Standard Spectrum for Benzo(k)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

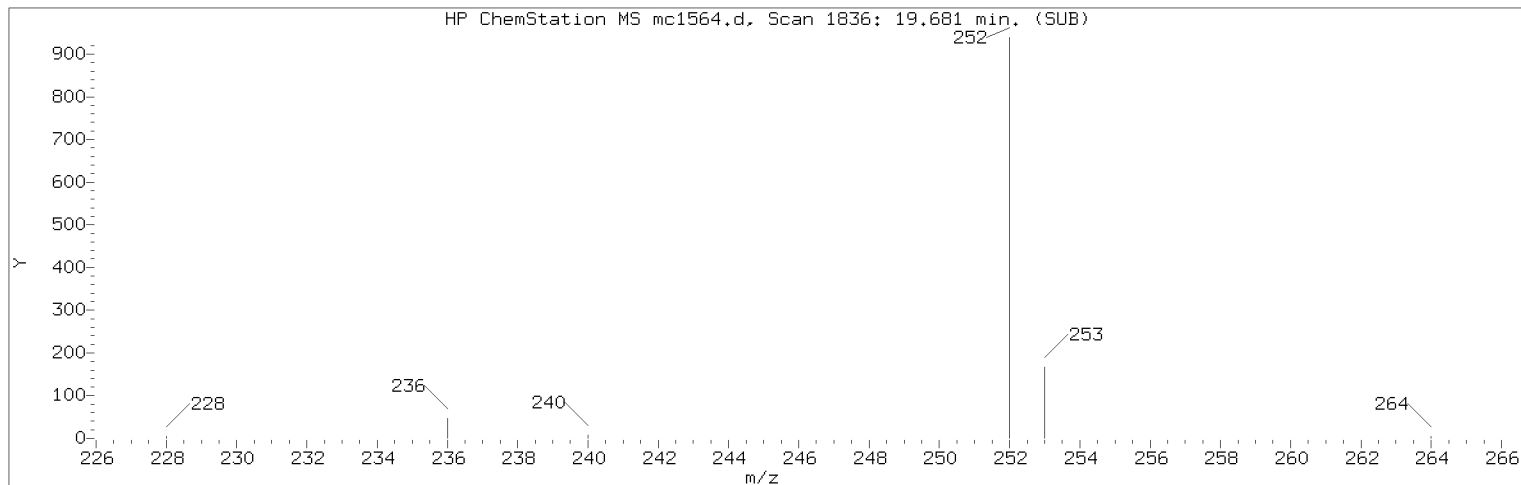
Lab Sample ID: 1285717

Compound Number : 34
Compound Name : Benzo(k)fluoranthene
Scan Number : 1836
Retention Time (minutes) : 19.681
Relative Retention Time :-0.00000
Quant Ion : 252.00
Area (flag) : 4538M
On-column Amount (ng/ul) : 0.0089

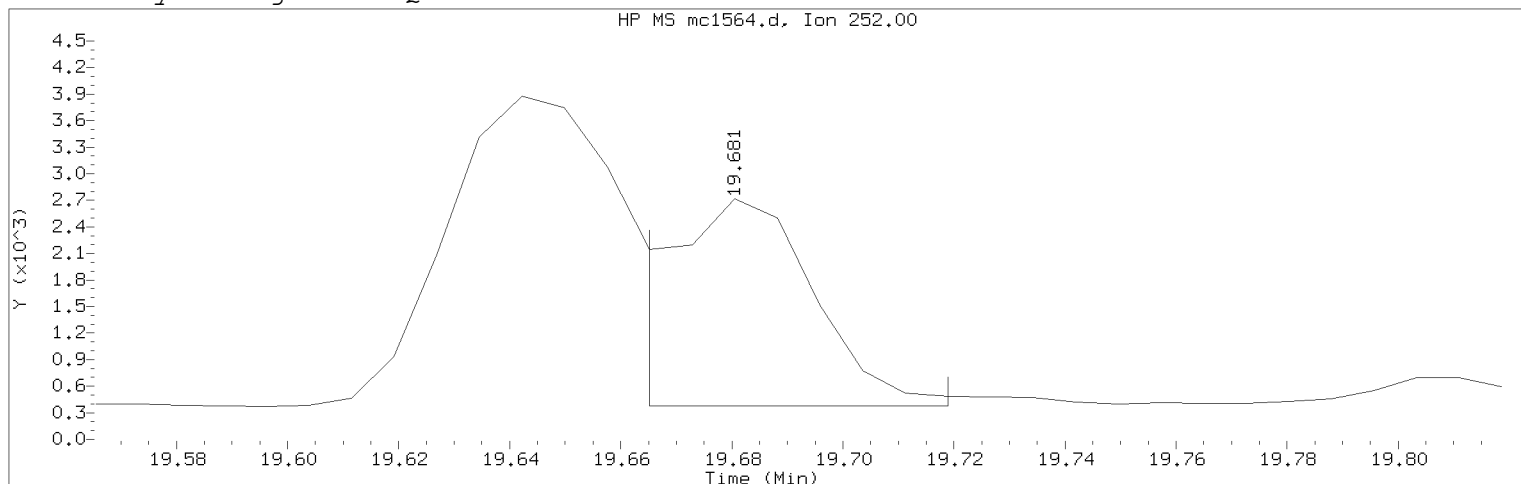
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: 12405
GPY68 Page 326 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1564.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

Lab Sample ID: 1285717

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1836	
Retention Time (minutes)	: 19.681	
Quant Ion	: 252.00	
Area (flag)	: 4538M	
On-column Amount (ng/ul)	: 0.0089	
Integration start scan	: 1833	Integration stop scan: 1840
Y at integration start	: 374	Y at integration end: 374

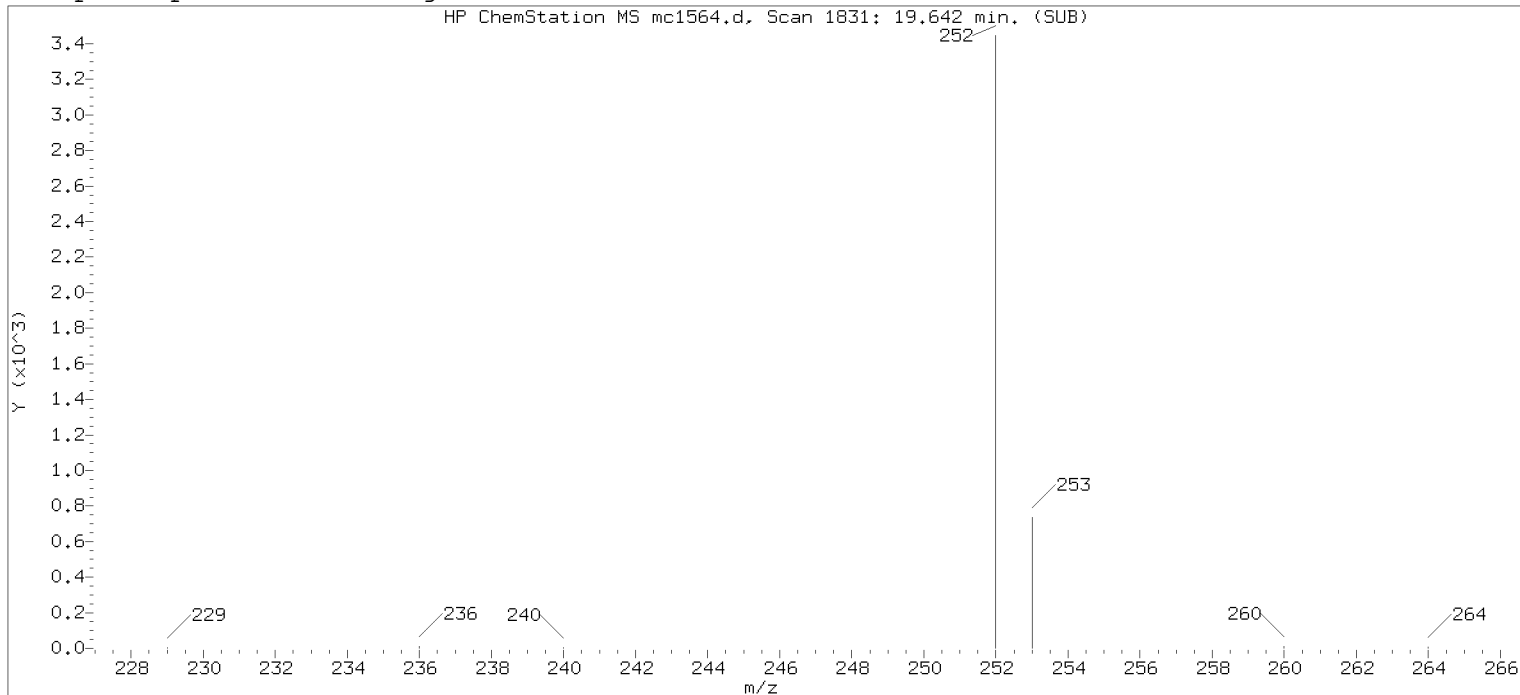
Reason for manual integration: improper integration

Analyst responsible for change:

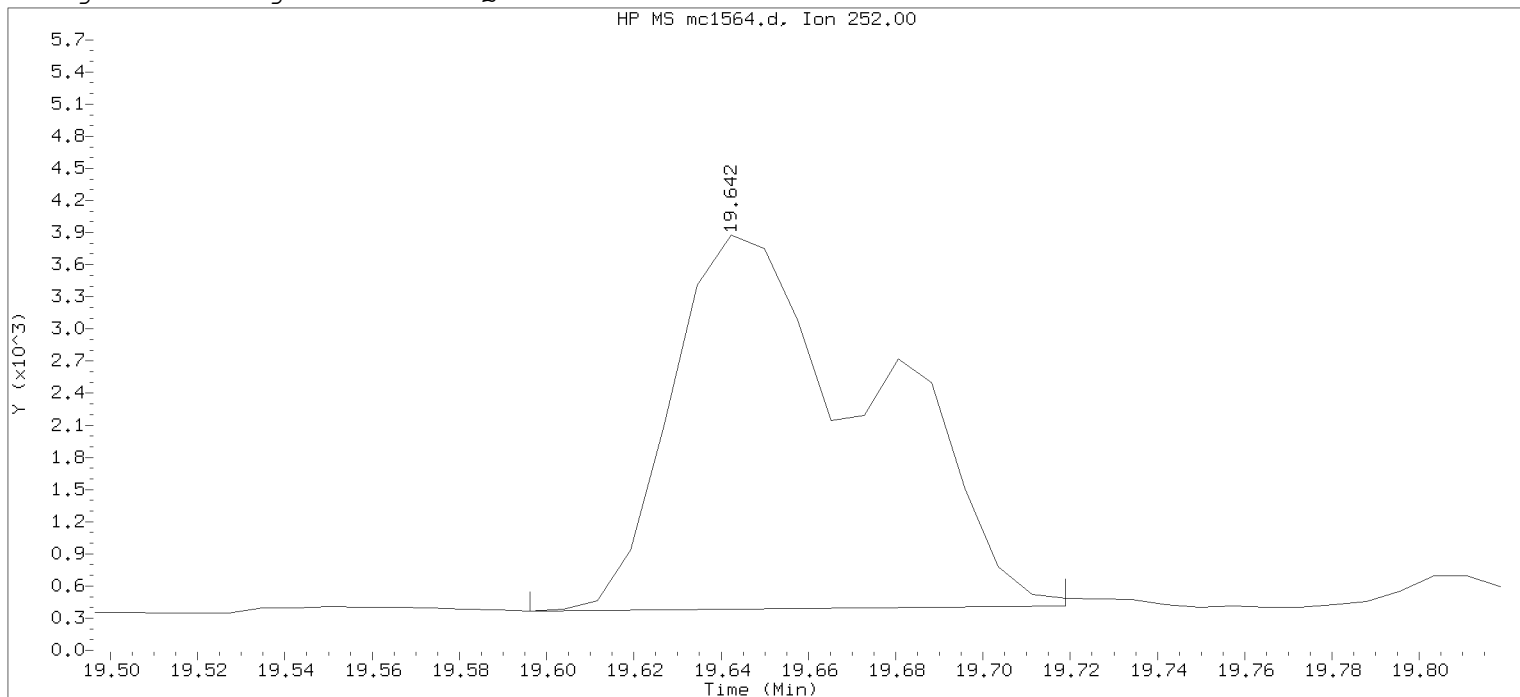
Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1564.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 12:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 13:12 Unknown

Sample Name: 13200

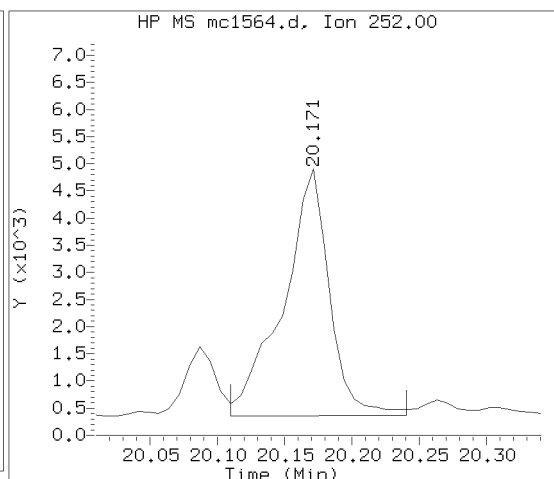
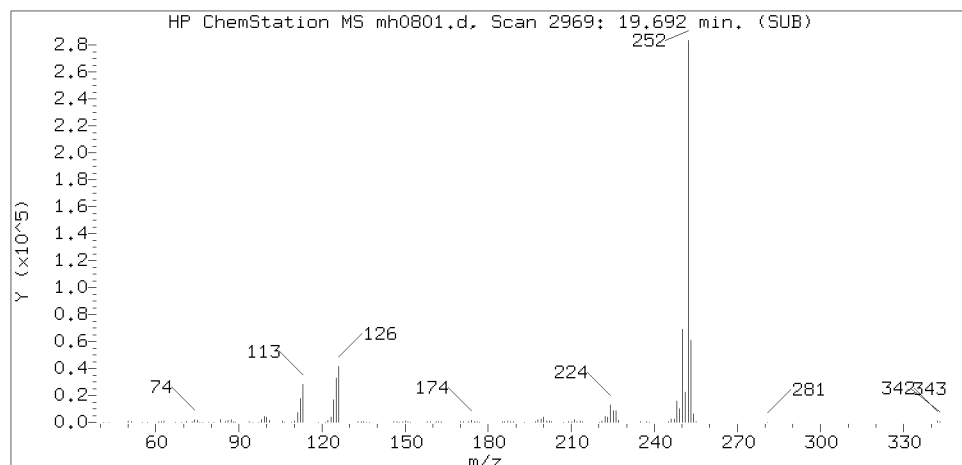
Lab Sample ID: 1285717

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1831	
Retention Time (minutes)	: 19.642	
Quant Ion	: 252.00	
Area	: 11288	
On-column Amount (ng/ul)	: 0.0220	
Integration start scan	: 1824	Integration stop scan: 1840
Y at integration start	: 367	Y at integration end: 415

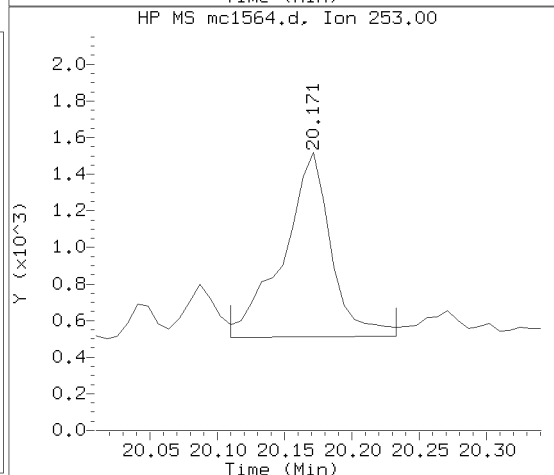
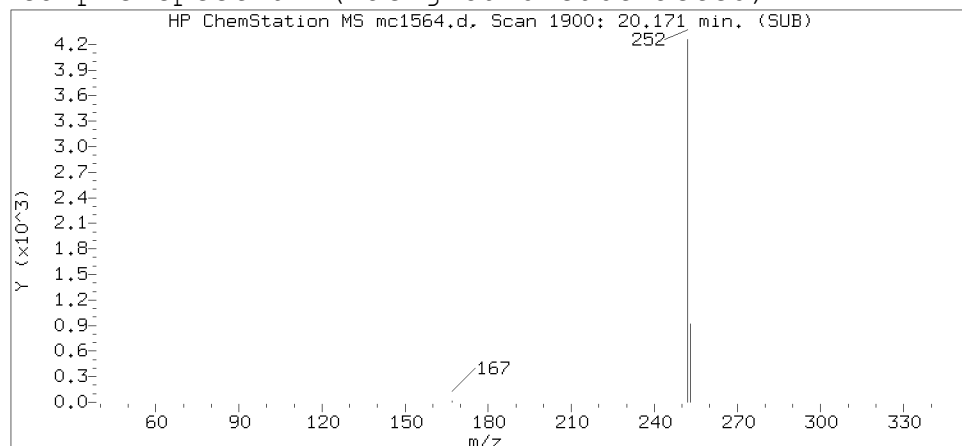
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user GPV68 Page 428 of 586

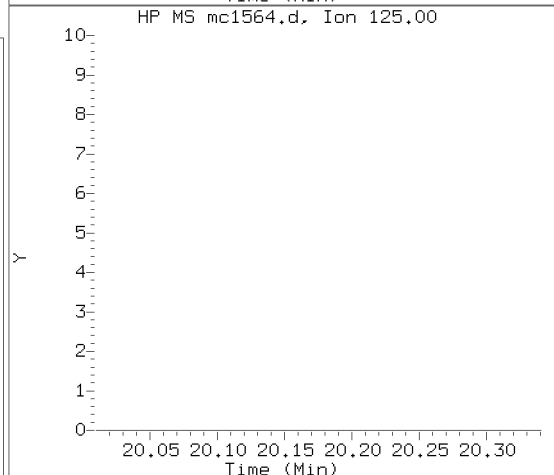
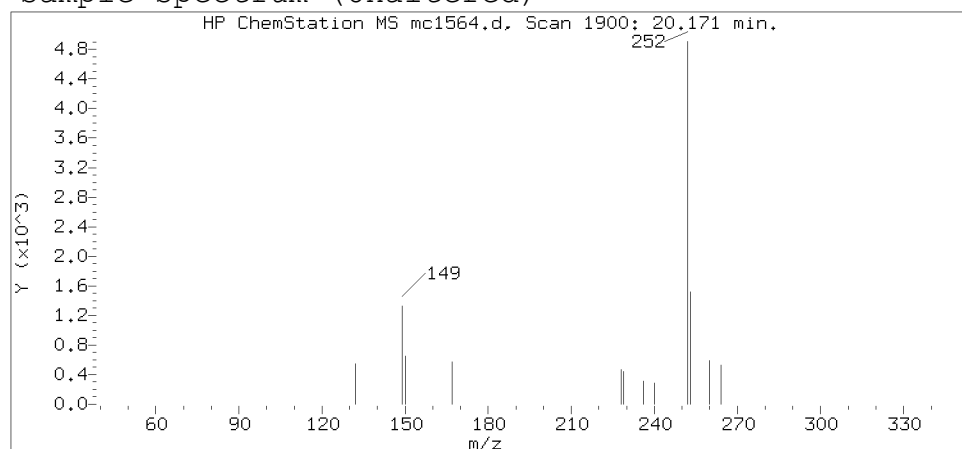
Reference Standard Spectrum for Benzo(a)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1564.d
Injection date and time: 26-MAR-2020 12:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:17 art12405

Sample Name: 13200

Lab Sample ID: 1285717

Compound Number : 37
Compound Name : Benzo(a)pyrene
Scan Number : 1900
Retention Time (minutes) : 20.171
Relative Retention Time : 0.00000
Quant Ion : 252.00
Area (flag) : 10871
On-column Amount (ng/ul) : 0.0233

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user art12405
GPY68 Page 329 of 586

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

13200DL

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285717

Sample wt/vol: 246 (g/mL)ML Lab File ID: mc1606.d

Level: (low/med) LOW Date Received: 03/20/20

% Moisture: not dec: dec: Date Extracted: 03/25/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/27/20

Injection Volume: 2 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	100		E
208-96-8-----	Acenaphthylene	1		D
83-32-9-----	Acenaphthene	36		D
86-73-7-----	Fluorene	12		D
85-01-8-----	Phenanthrene	16		D
120-12-7-----	Anthracene	2		D
206-44-0-----	Fluoranthene	6		D
129-00-0-----	Pyrene	8		D
56-55-3-----	Benzo (a) anthracene	1		D
218-01-9-----	Chrysene	0.9		D
205-99-2-----	Benzo (b) fluoranthene	0.1	U	
207-08-9-----	Benzo (k) fluoranthene	0.1	U	
50-32-8-----	Benzo (a) pyrene	0.1	U	
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.1	U	
53-70-3-----	Dibenz (a,h) anthracene	0.2	U	
191-24-2-----	Benzo (g,h,i) perylene	0.1	U	

FORM I SV-1

13200DL

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285717DL

Data file: /chem/HP21585.i/20mar26a.b/mc1606.d

Injection date and time: 27-MAR-2020 03:21

Data file Sample Info. Line: 13200DL;1285717DL;1;0;SAMPLE;;;T2

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 18:31

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26a.b/mc1601.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 10

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	23568 (4)	0.25	
6) Naphthalene-d8	8.972 (0.000)	538	136	81905 (8)	0.25	
14) Acenaphthene-d10	11.734 (-0.012)	749	164	40310 (0)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	83584 (1)	0.25	
29) Chrysene-d12	17.786 (-0.008)	1589	240	74431 (-6)	0.25	
38) Perylene-d12	20.279 (-0.008)	1914	264	89107 (0)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	2914	0.017	70%		15 - 121
24) Fluoranthene-d10	(4)	15.339 (0.000)	212	6104	0.017	69%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.141 (0.000)	264	3232	0.010	39%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.013 (-0.000)	128	974966	2.516	102.28		E	0.008
13) Acenaphthylene	(3)	11.526 (0.000)	152	13180	0.031	1.25			0.003
15) Acenaphthene	(3)	11.769 (0.000)	154	213044	0.893	36.31			0.003
18) Fluorene	(3)	12.433 (0.001)	166	89928	0.298	12.10			0.003
21) Phenanthrene	(4)	13.658 (0.000)	178	170917	0.394	16.02			0.008
22) Anthracene	(4)	13.729 (0.000)	178	17195	0.042	1.72			0.003
25) Fluoranthene	(4)	15.364 (0.000)	202	69290	0.145	5.90			0.003
26) Pyrene	(5)	15.722 (0.000)	202	103679	0.194	7.91			0.003
28) Benzo (a)anthracene	(5)	17.771 (0.000)	228	15679	0.035	1.41			0.003
30) Chrysene	(5)	17.832 (0.000)	228	10472	0.022	0.91			0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

E = Compound concentration above calibration range.

13200DL

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285717DL

Data file: /chem/HP21585.i/20mar26a.b/mc1606.d

Injection date and time: **27-MAR-2020 03:21**

Data file Sample Info. Line: 13200DL;1285717DL;1;0;SAMPLE;;;T2

Instrument ID: **HP21585.i** Batch: **20085WAB**

Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 26-MAR-2020 18:31

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26a.b/mc1601.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 10

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml

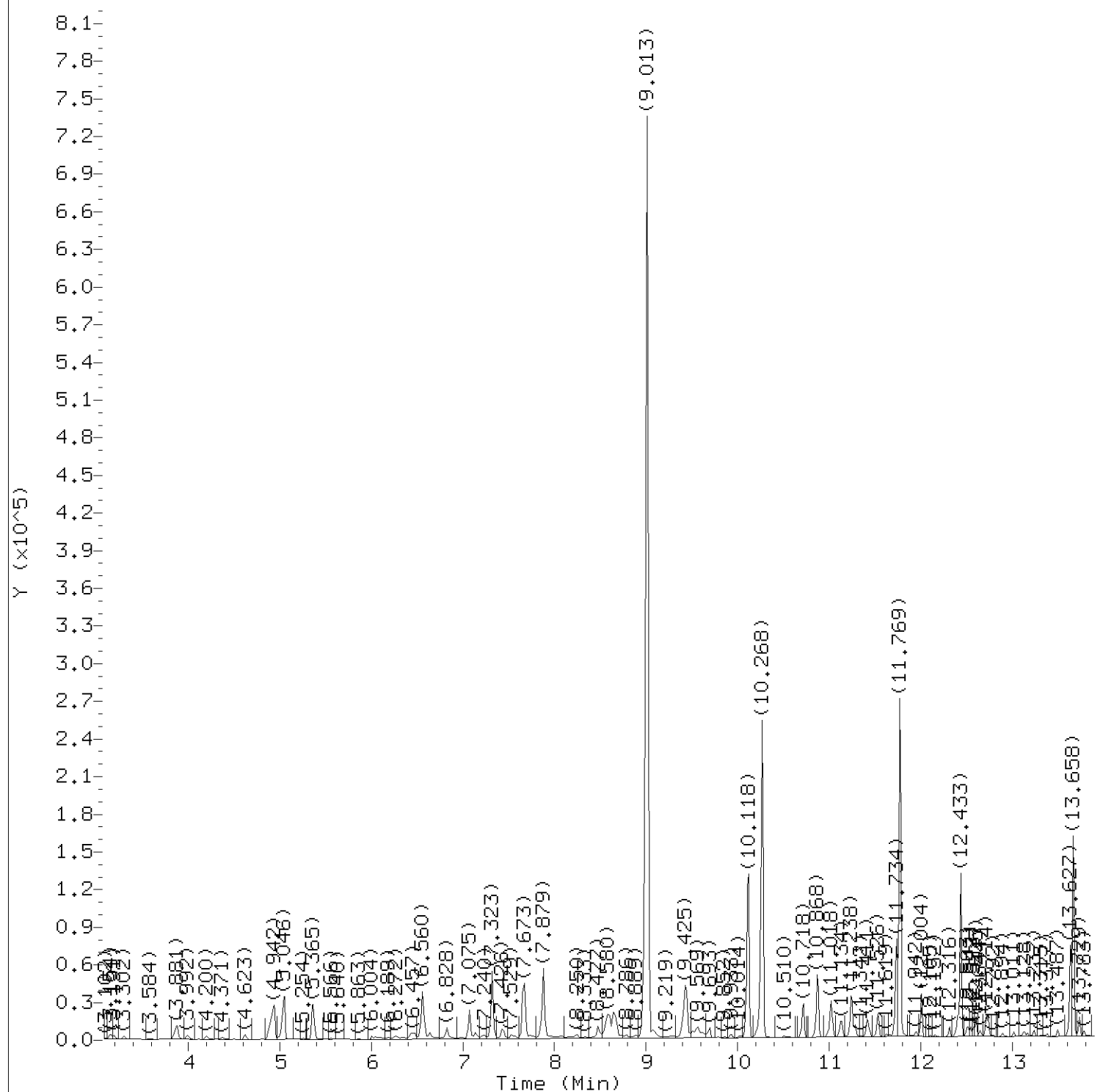
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59. PARALLAX ID: cam01237



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

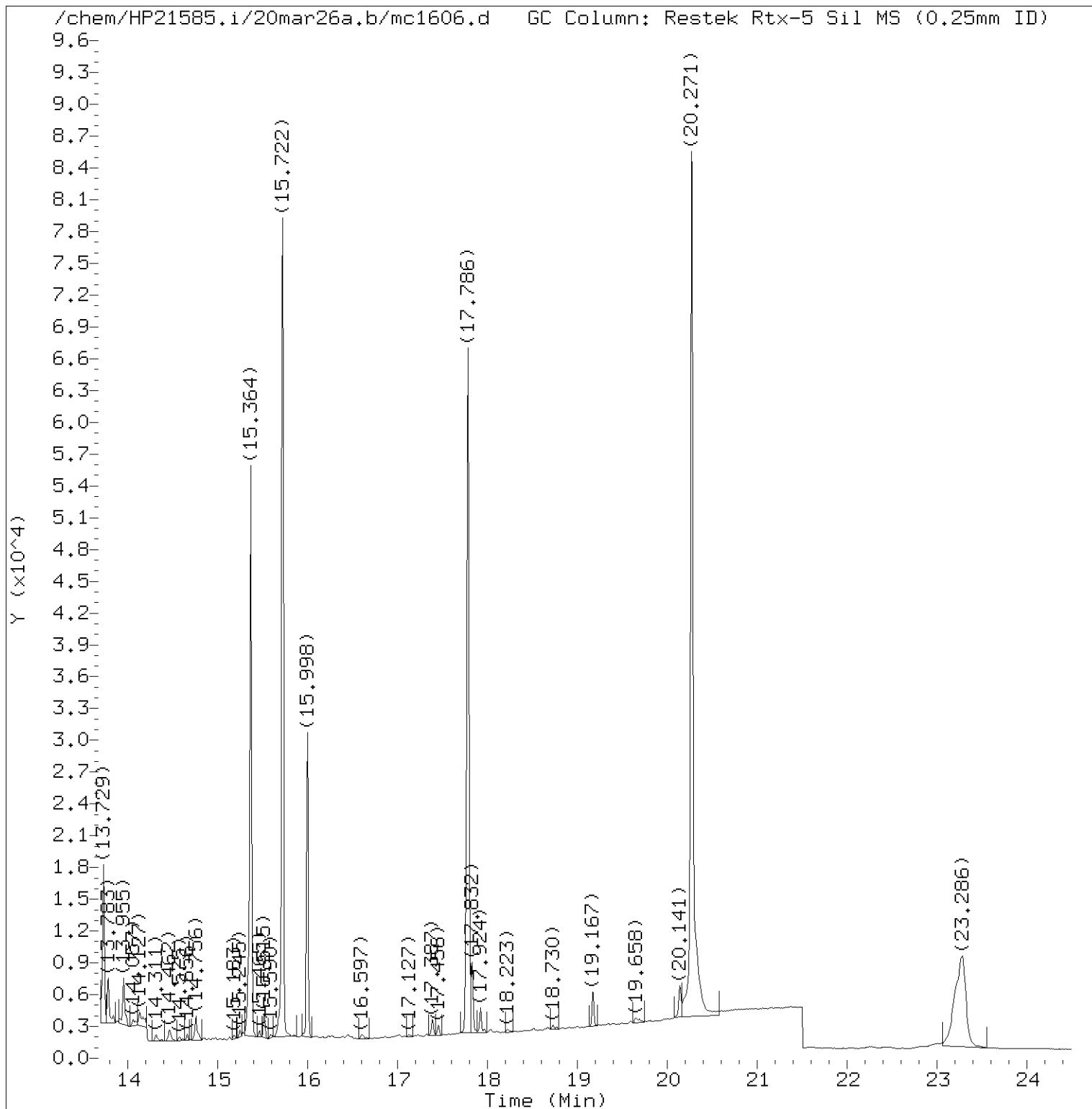
Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

Sample Name: 13200DL

Lab Sample ID: 1285717DL

Digitally signed by Joseph M. Gambler
on 03/27/2020 at 04:41.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

Sample Name: 13200DL

Lab Sample ID: 1285717DL

Digitally signed by Joseph M. Gambler
on 03/27/2020 at 04:41.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a.b/mc1606.d

Instrument ID: HP21585.i

Injection date and time: 27-MAR-2020 03:21

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 18:31

Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

Sample Name: 13200DL

Lab Sample ID: 1285717DL

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	23568	0.250
6) *Naphthalene-d8	(2)	8.972	136	81905	0.250
7) Naphthalene	(2)	9.013	128	974966	2.516
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	2914	0.017
13) Acenaphthylene	(3)	11.526	152	13180	0.031
14) *Acenaphthene-d10	(3)	11.734	164	40310	0.250
15) Acenaphthene	(3)	11.769	154	213044	0.893
18) Fluorene	(3)	12.433	166	89928	0.298
20) *Phenanthrene-d10	(4)	13.627	188	83584	0.250
21) Phenanthrene	(4)	13.658	178	170917	0.394
22) Anthracene	(4)	13.729	178	17195	0.042
24) \$Fluoranthene-d10	(4)	15.339	212	6104	0.017
25) Fluoranthene	(4)	15.364	202	69290	0.145
26) Pyrene	(5)	15.722	202	103679	0.194
28) Benzo(a)anthracene	(5)	17.771	228	15679	0.035
29) *Chrysene-d12	(5)	17.786	240	74431	0.250
30) Chrysene	(5)	17.832	228	10472	0.022
36) \$Benzo(a)pyrene-d12	(6)	20.141	264	3232	0.010
38) *Perylene-d12	(6)	20.279	264	89107	0.250

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

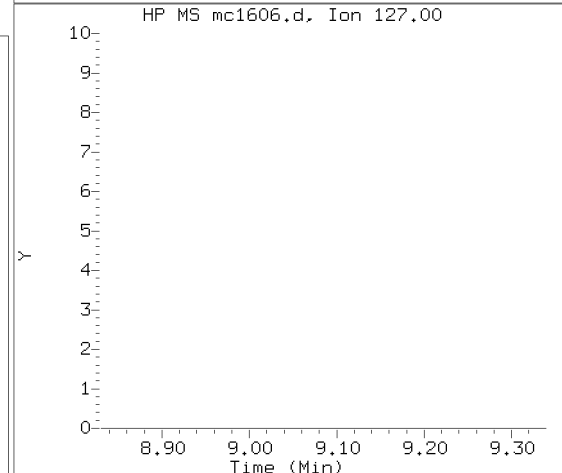
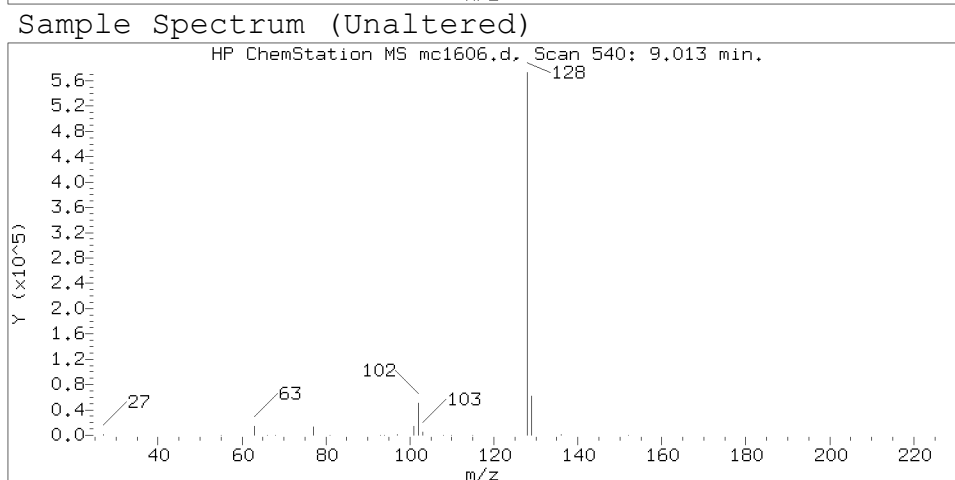
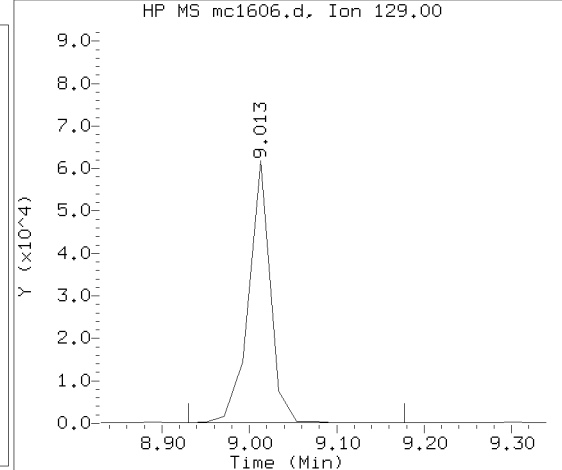
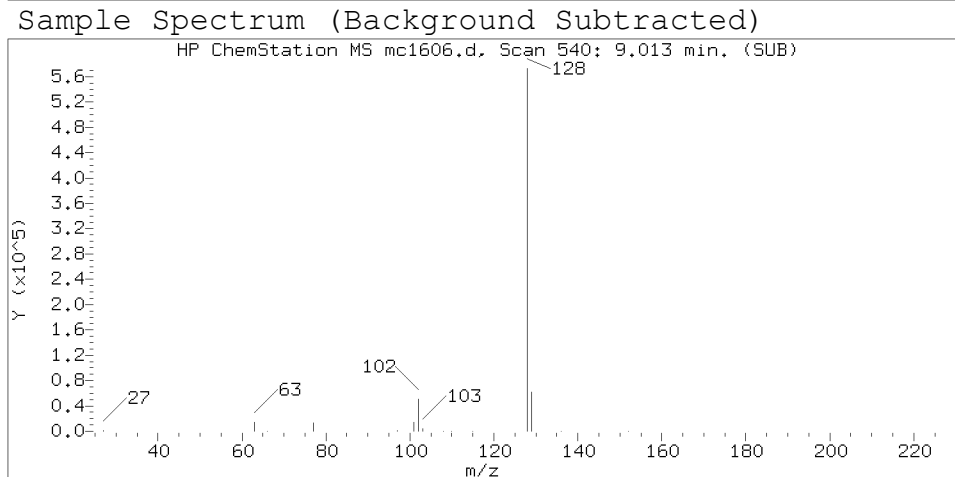
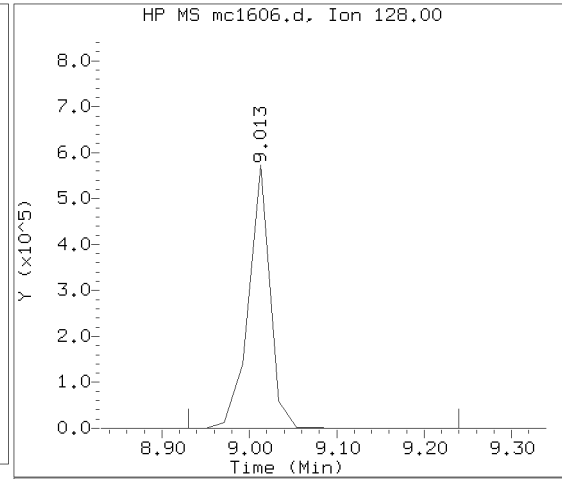
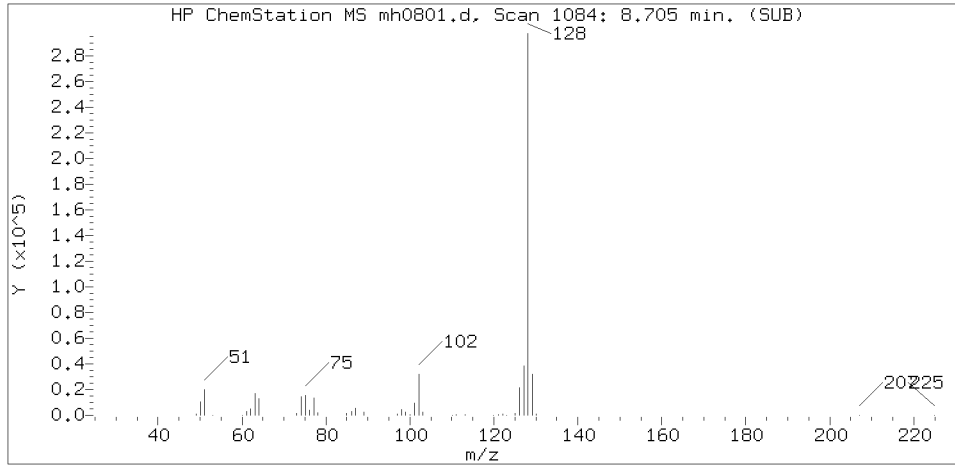
on 03/27/2020 at 04:41.

Target 3.5 esignature user ID: jmg00346

GPY68 Page 335 of 586

page 1 of 1

Reference Standard Spectrum for Naphthalene



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

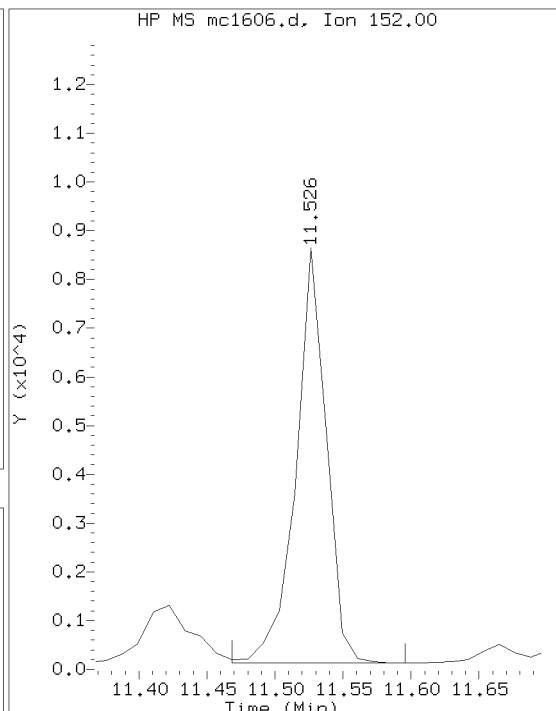
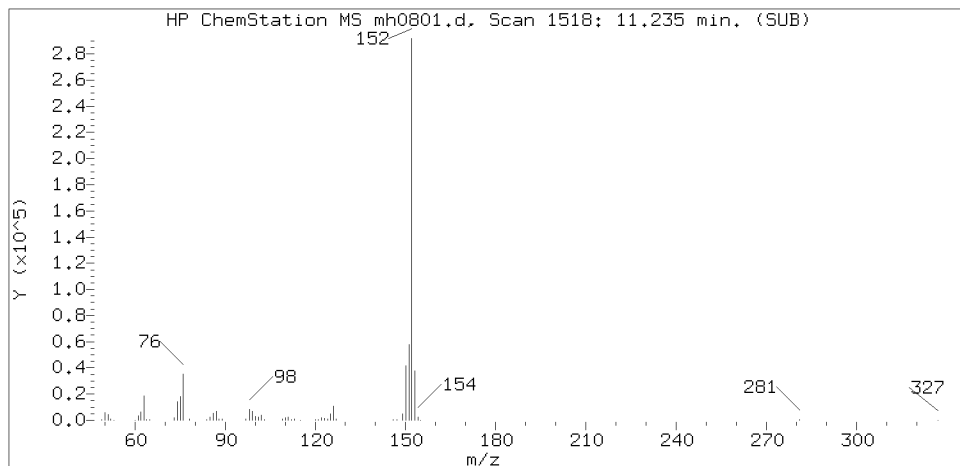
Sample Name: 13200DL

Lab Sample ID: 1285717DL

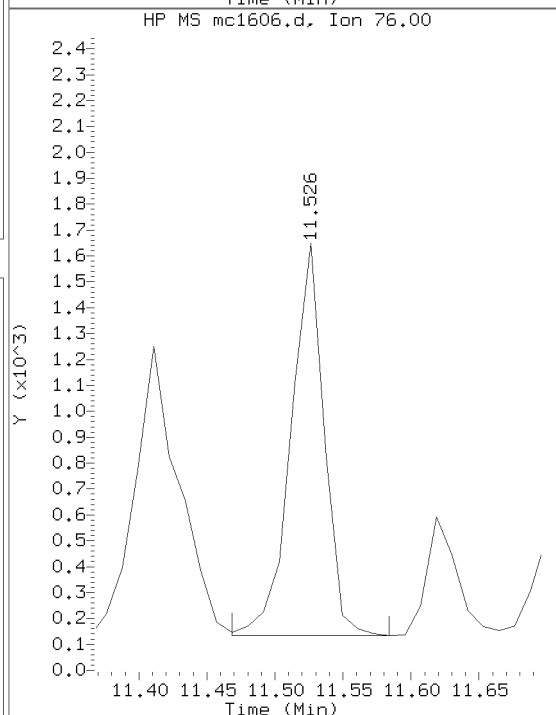
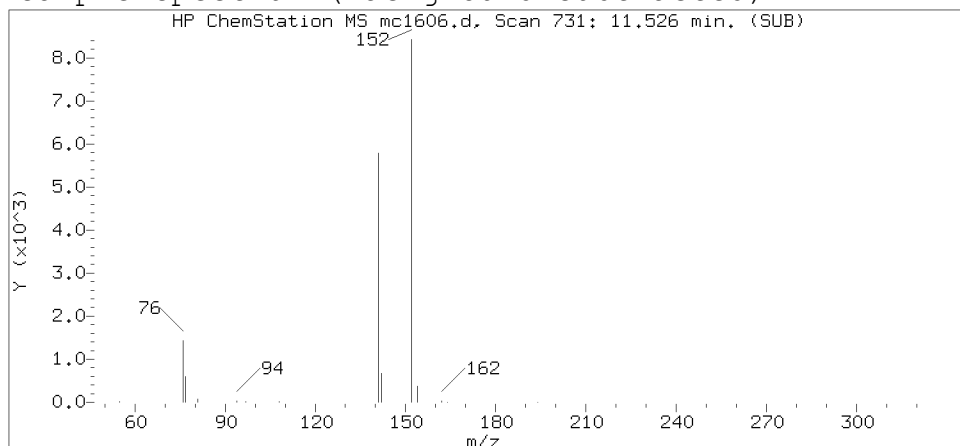
Compound Number : 7
Compound Name : Naphthalene
Scan Number : 540
Retention Time (minutes) : 9.013
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 974966
On-column Amount (ng/ul) : 2.5160

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user jmg00346

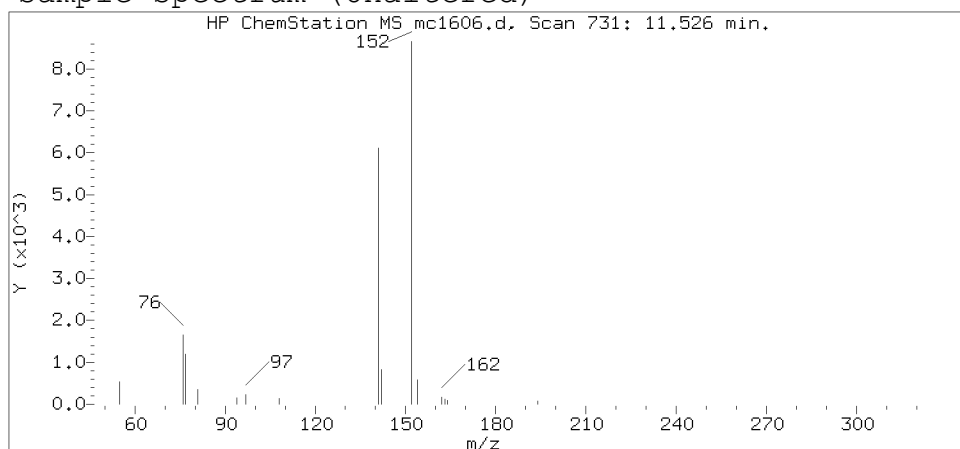
Reference Standard Spectrum for Acenaphthylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

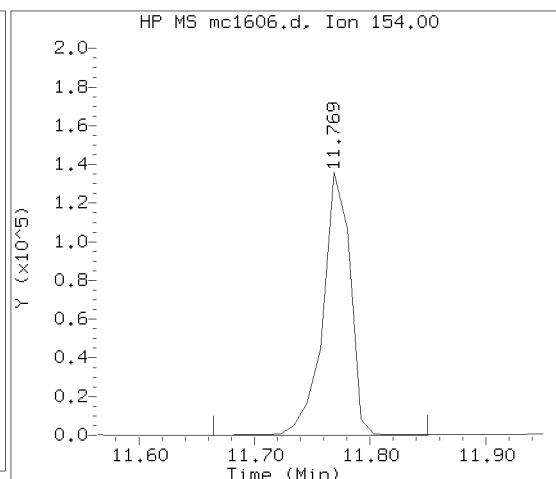
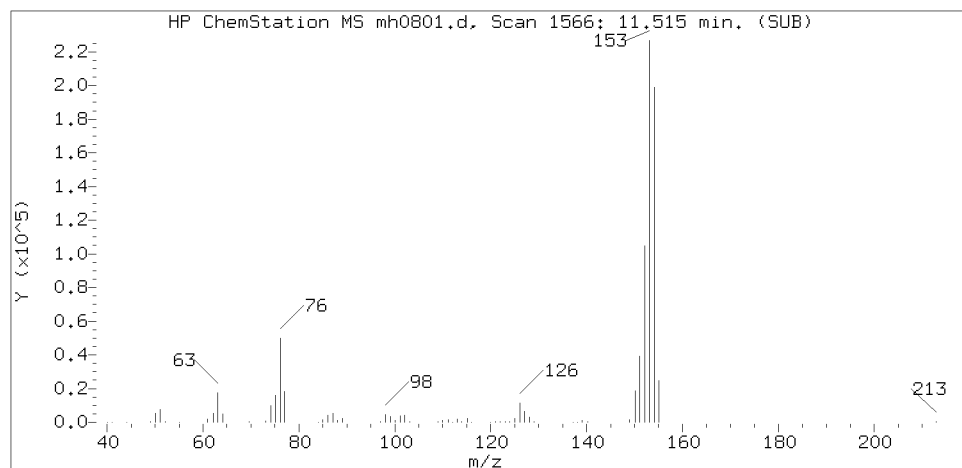
Sample Name: 13200DL

Lab Sample ID: 1285717DL

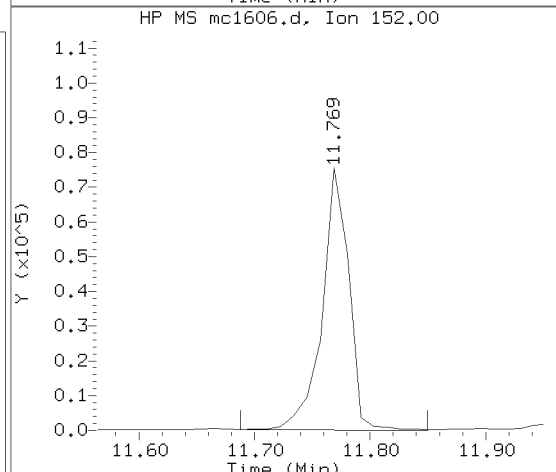
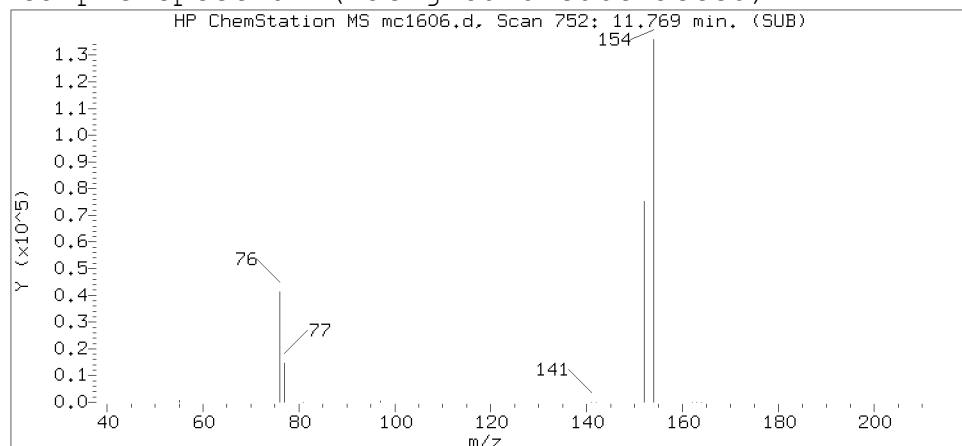
Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 731
Retention Time (minutes) : 11.526
Relative Retention Time : 0.00097
Quant Ion : 152.00
Area (flag) : 13180
On-column Amount (ng/ul) : 0.0308

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user jmg00346

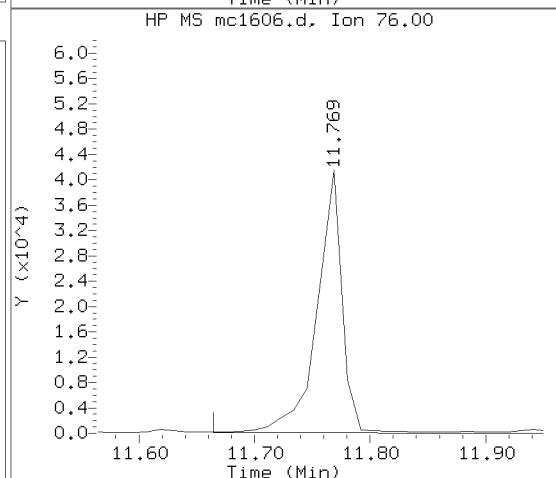
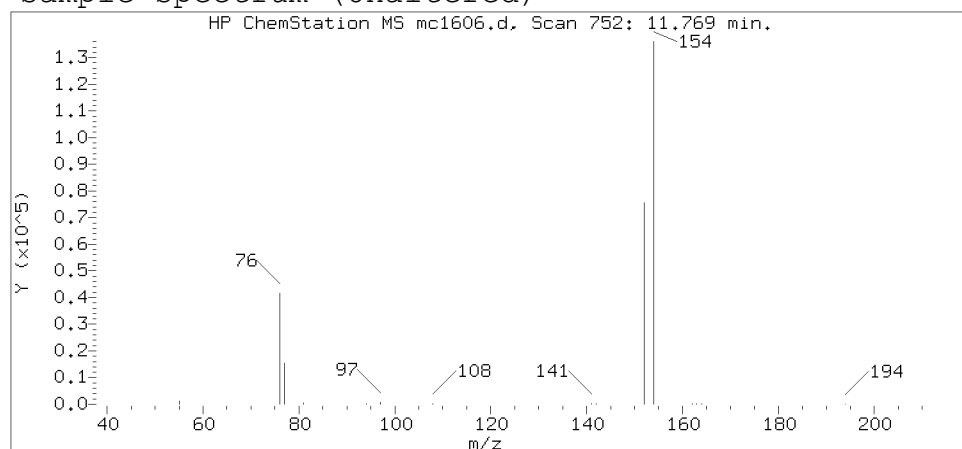
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

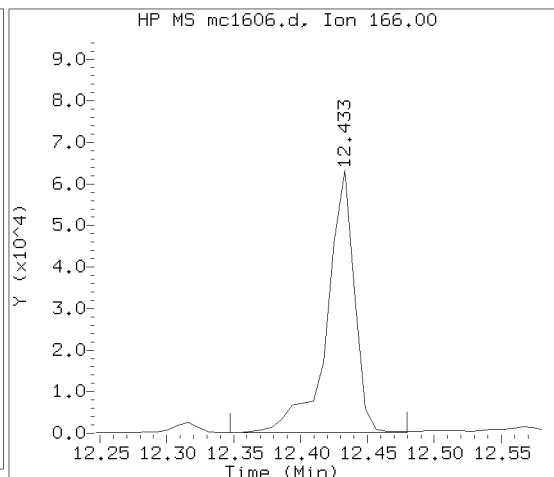
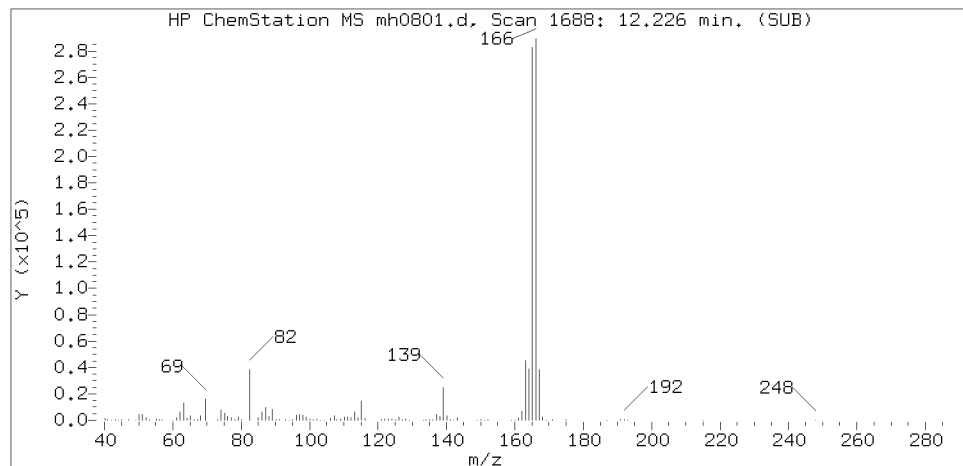
Sample Name: 13200DL

Lab Sample ID: 1285717DL

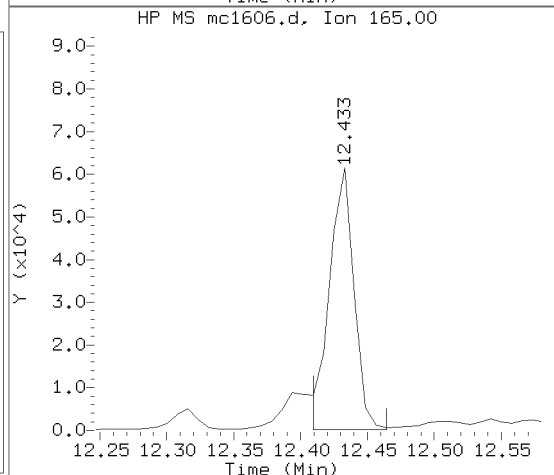
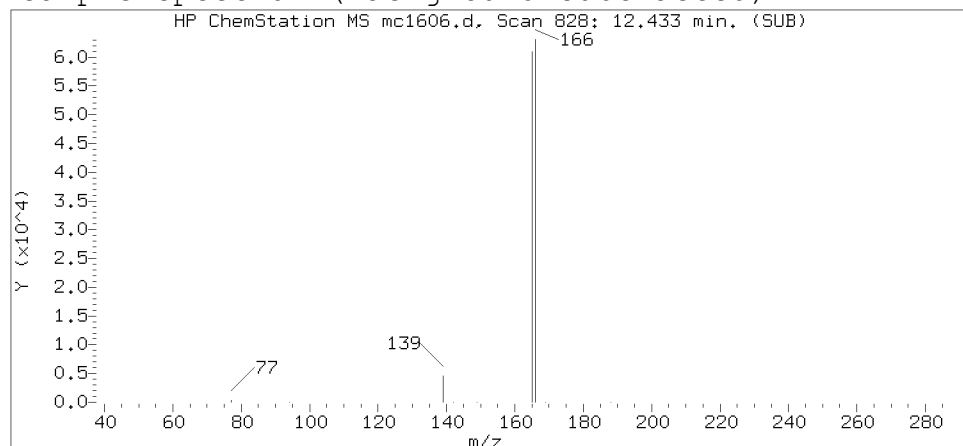
Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 752
Retention Time (minutes) : 11.769
Relative Retention Time : 0.00099
Quant Ion : 154.00
Area (flag) : 213044
On-column Amount (ng/ul) : 0.8933

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user jmg00346

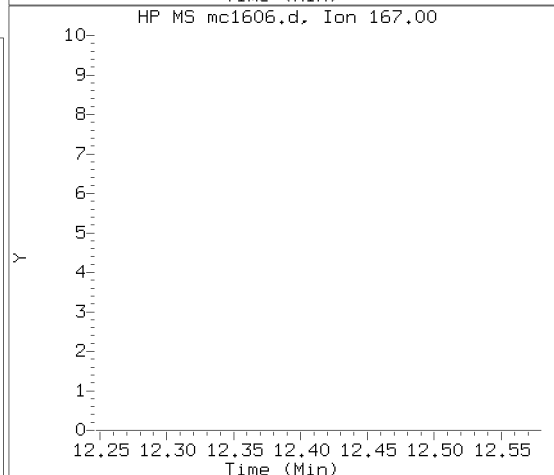
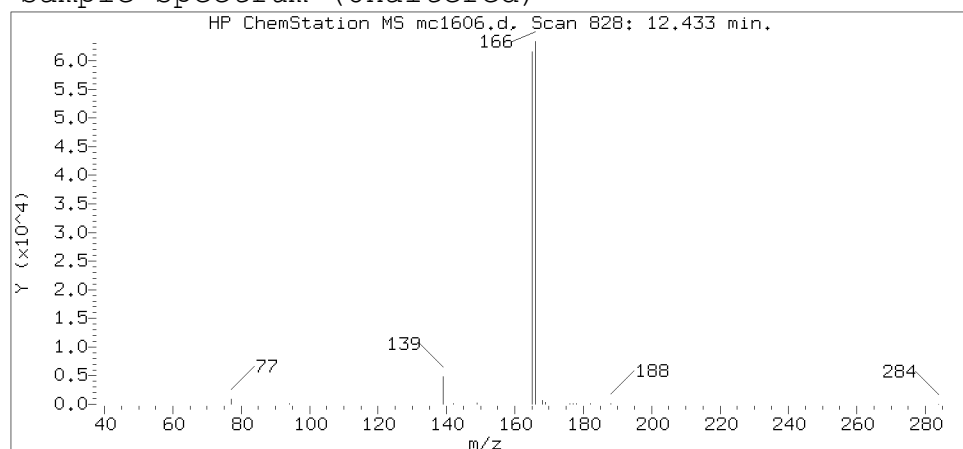
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

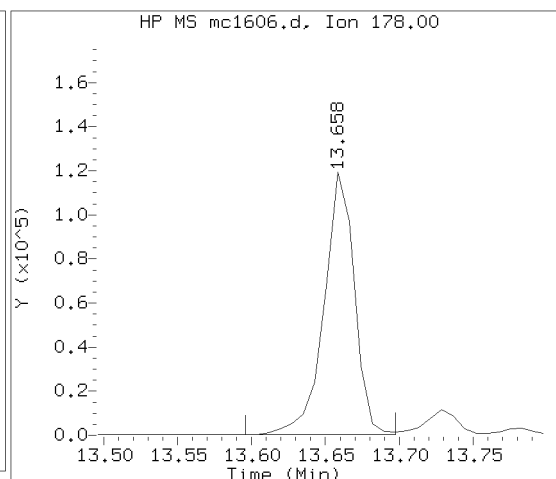
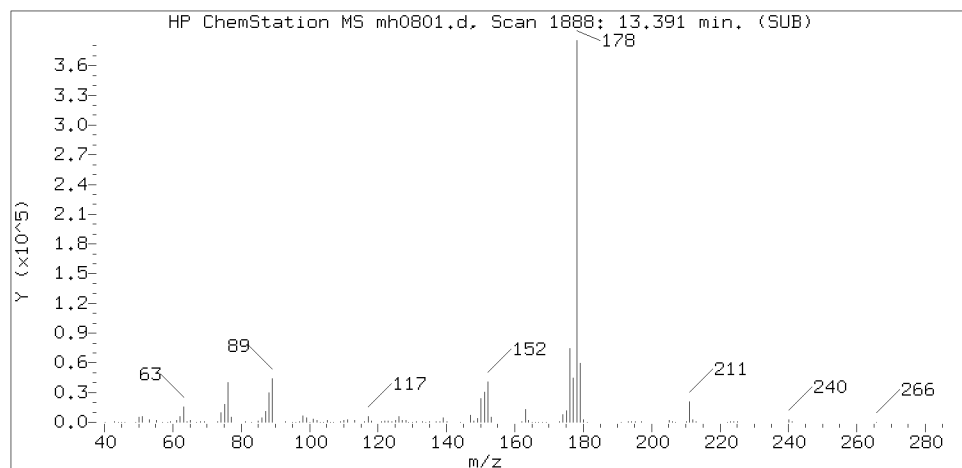
Sample Name: 13200DL

Lab Sample ID: 1285717DL

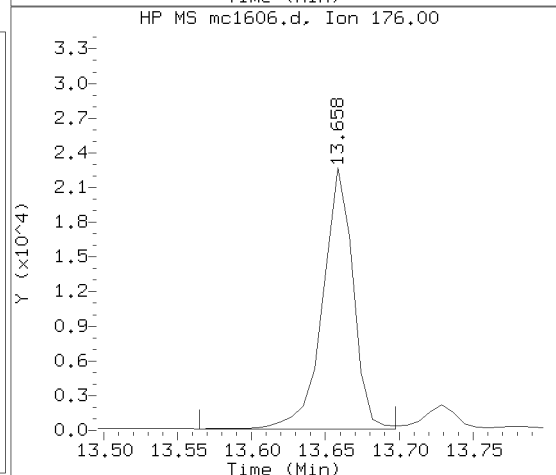
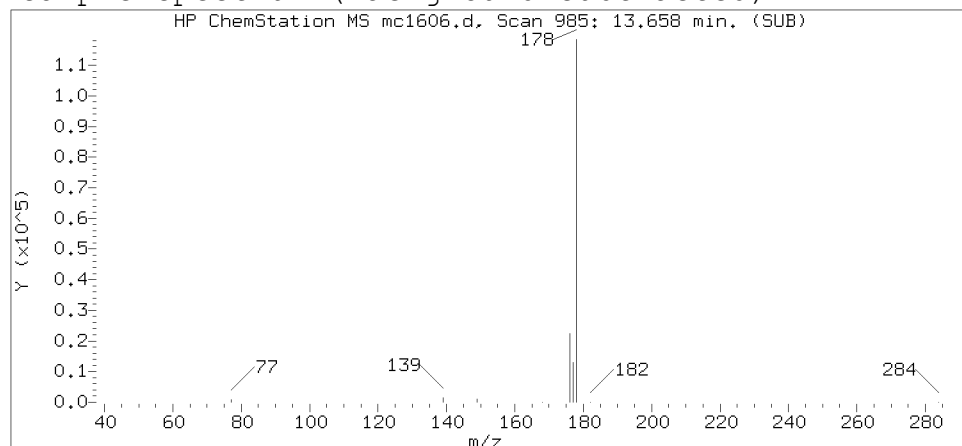
Compound Number : 18
Compound Name : Fluorene
Scan Number : 828
Retention Time (minutes) : 12.433
Relative Retention Time : 0.00104
Quant Ion : 166.00
Area (flag) : 89928
On-column Amount (ng/ul) : 0.2976

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Target 3.5 esignature user jmg00346

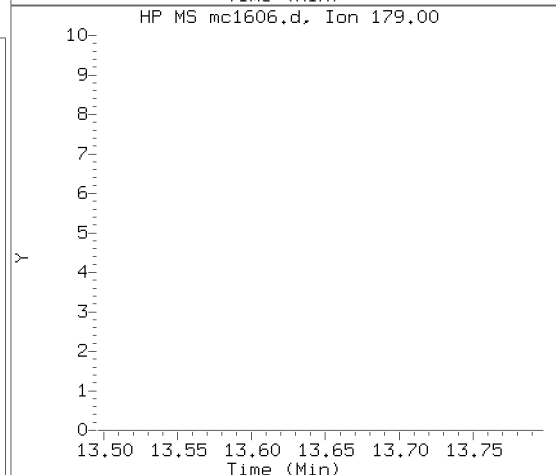
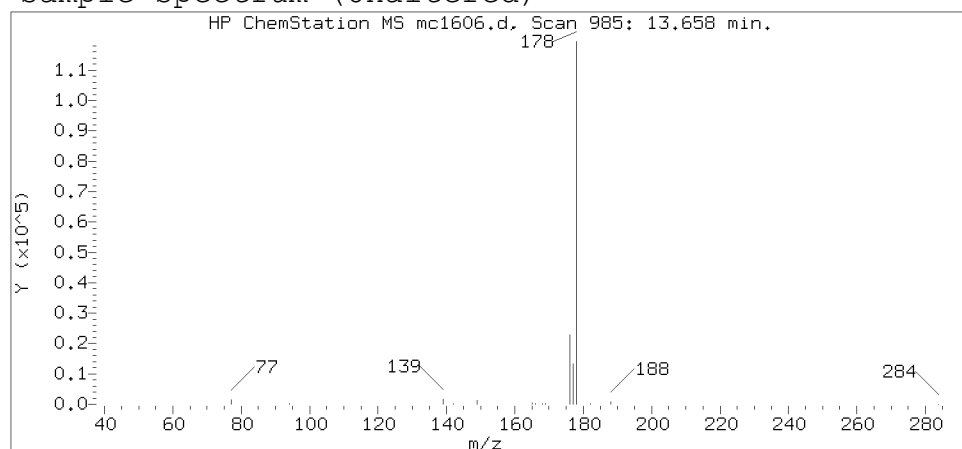
Reference Standard Spectrum for Phenanthrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

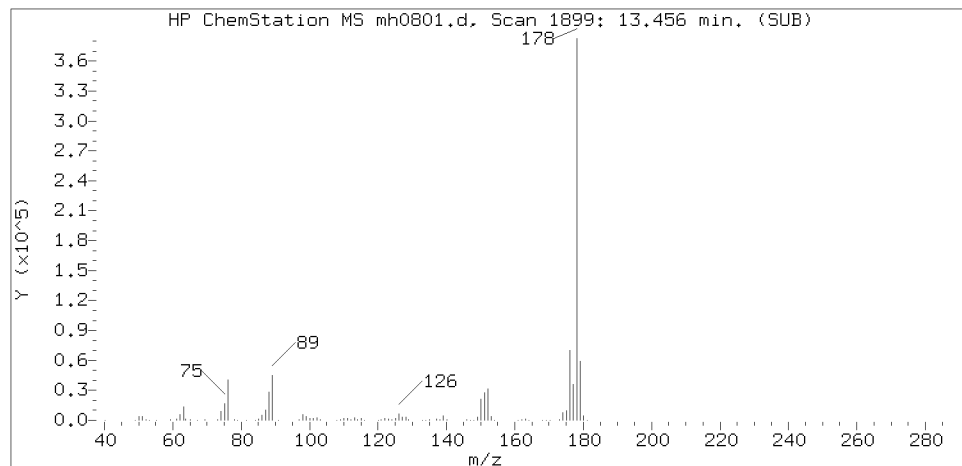
Sample Name: 13200DL

Lab Sample ID: 1285717DL

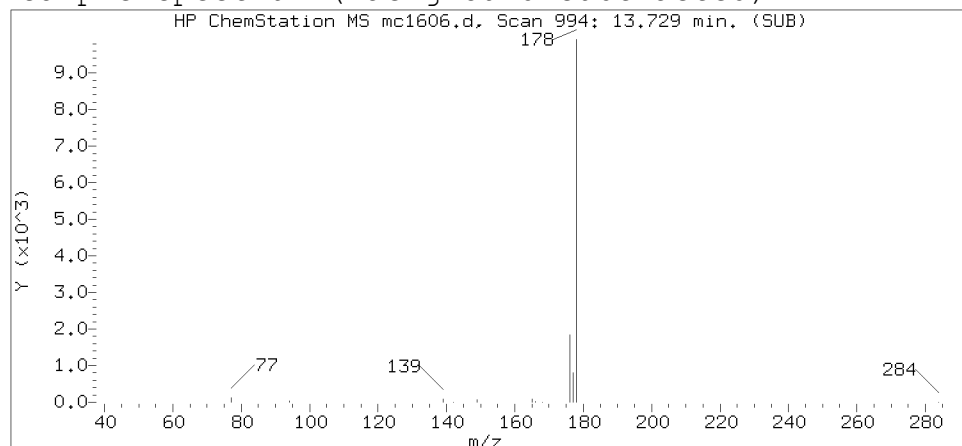
Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 985
Retention Time (minutes) : 13.658
Relative Retention Time : 0.00000
Quant Ion : 178.00
Area (flag) : 170917
On-column Amount (ng/ul) : 0.3940

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Target 3.5 esignature user=jmg00346

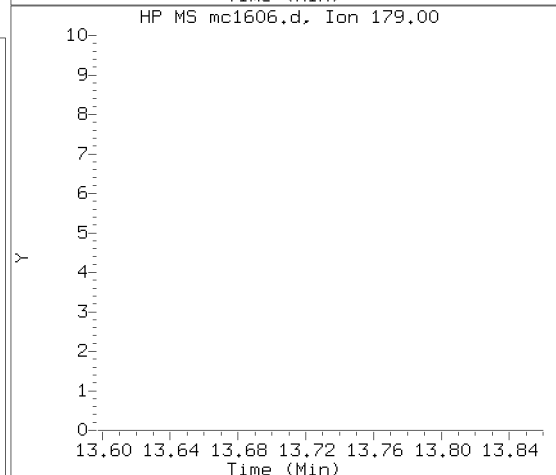
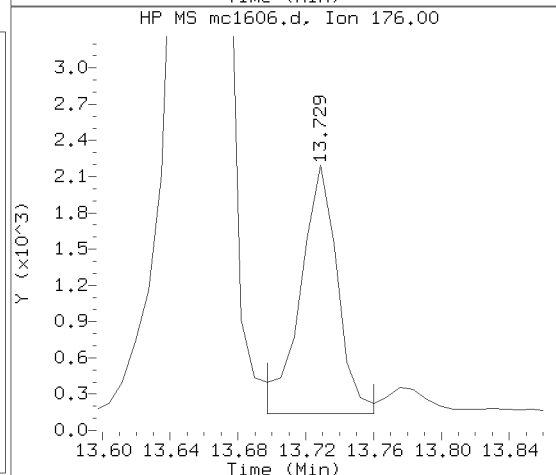
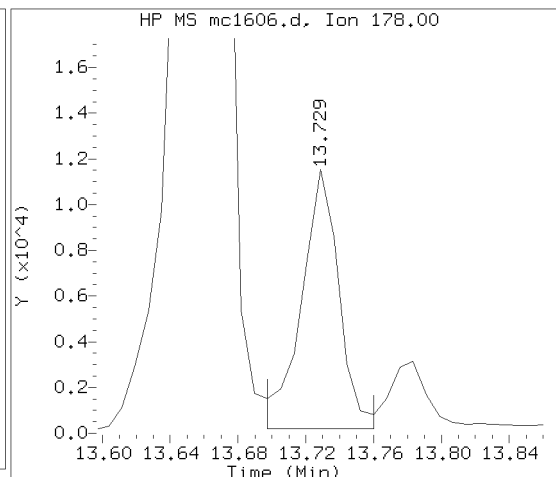
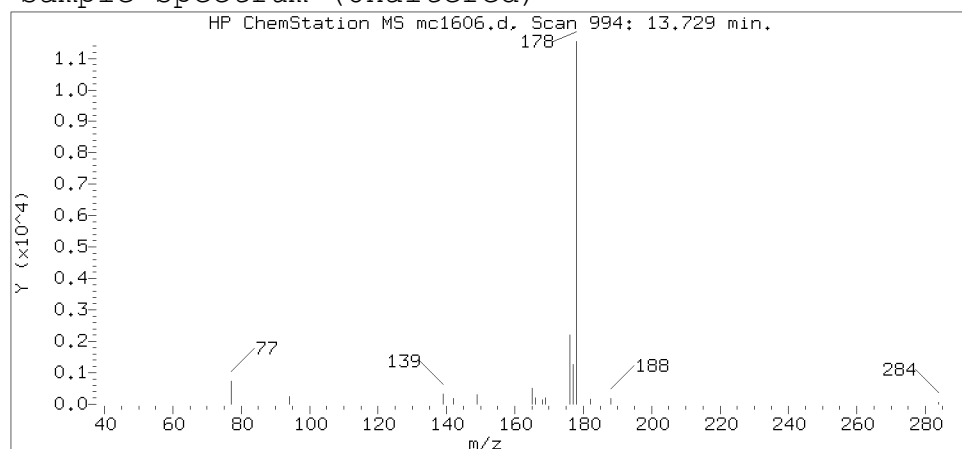
Reference Standard Spectrum for Anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

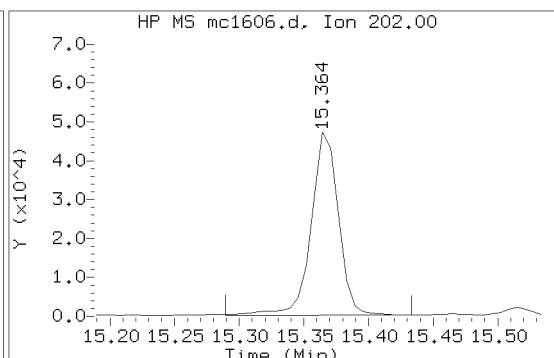
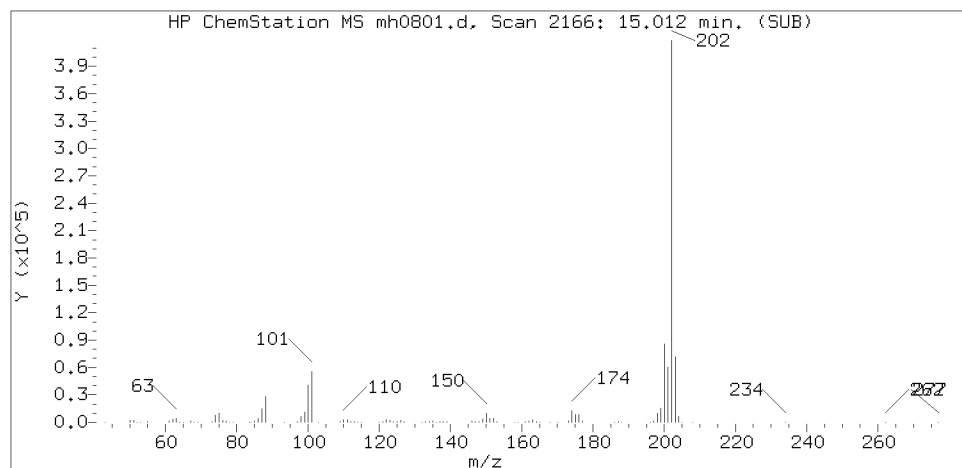
Sample Name: 13200DL

Lab Sample ID: 1285717DL

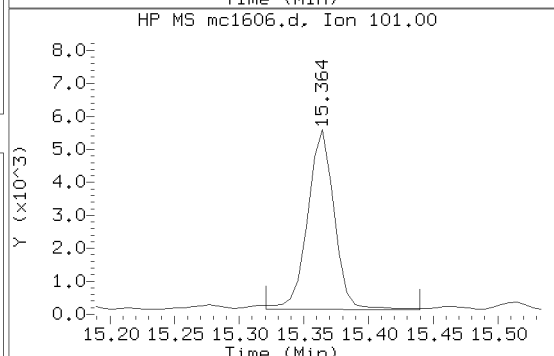
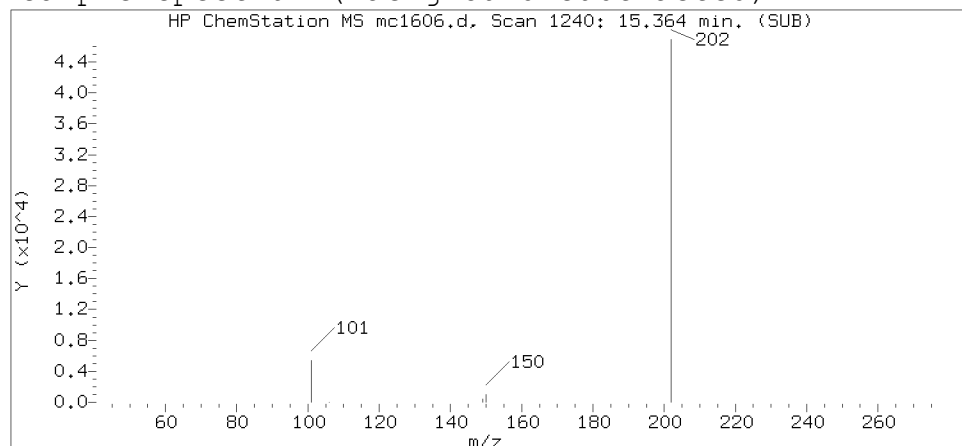
Compound Number : 22
Compound Name : Anthracene
Scan Number : 994
Retention Time (minutes) : 13.729
Relative Retention Time : 0.00000
Quant Ion : 178.00
Area (flag) : 17195
On-column Amount (ng/ul) : 0.0423

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Target 3.5 esignature user jmg00346

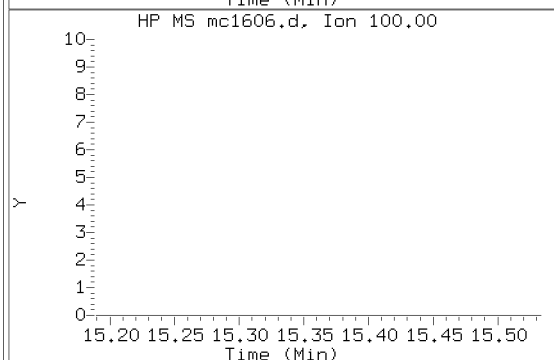
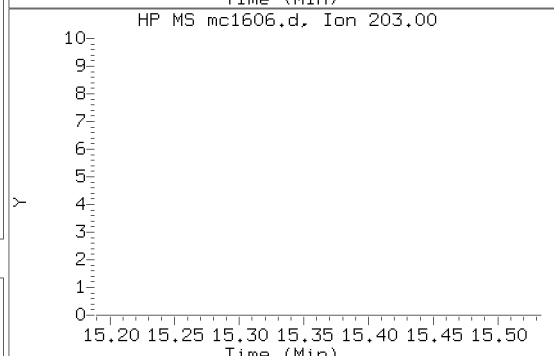
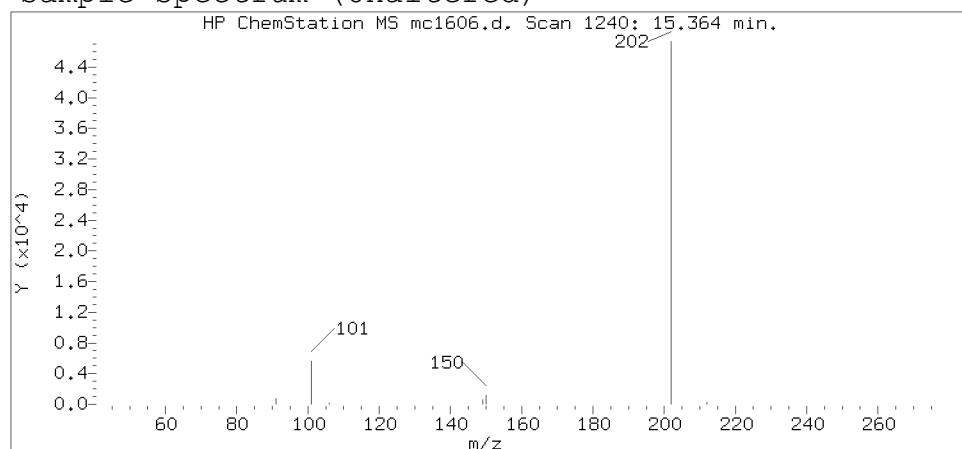
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

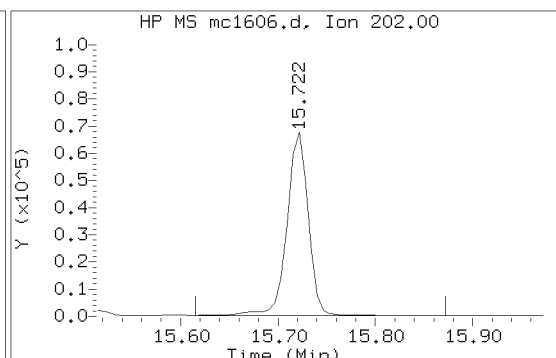
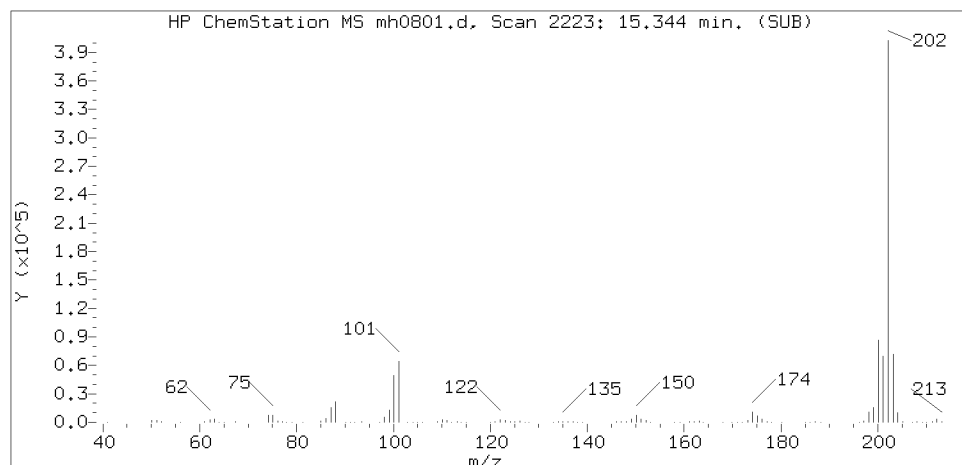
Sample Name: 13200DL

Lab Sample ID: 1285717DL

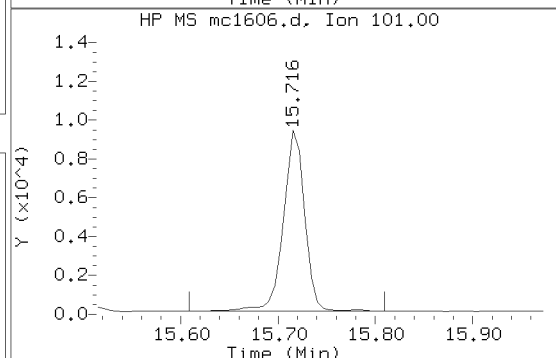
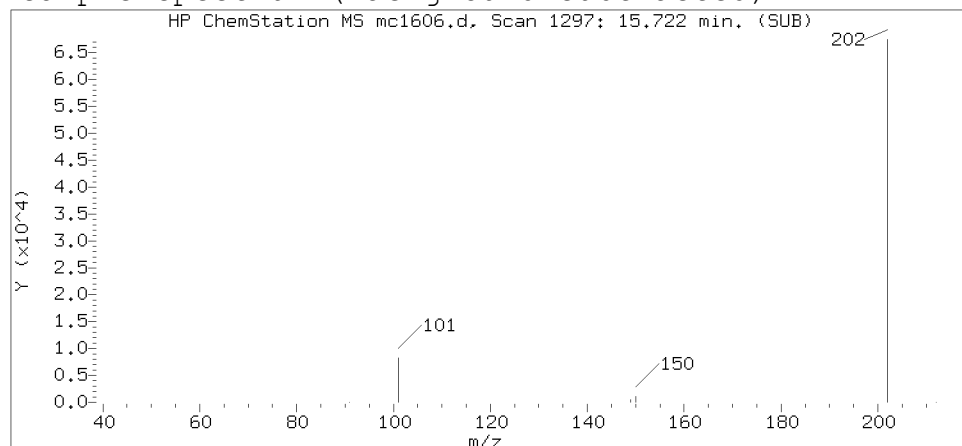
Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1240
Retention Time (minutes) : 15.364
Relative Retention Time : 0.00000
Quant Ion : 202.00
Area (flag) : 69290
On-column Amount (ng/ul) : 0.1453

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Target 3.5 esignature user=jmg00346

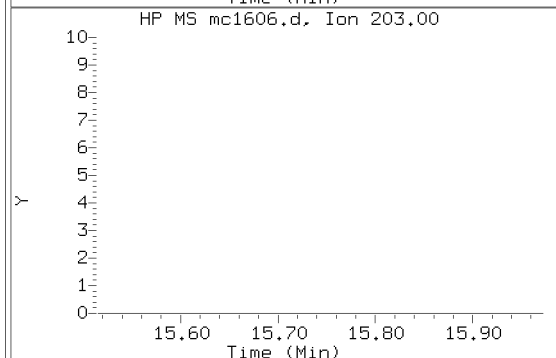
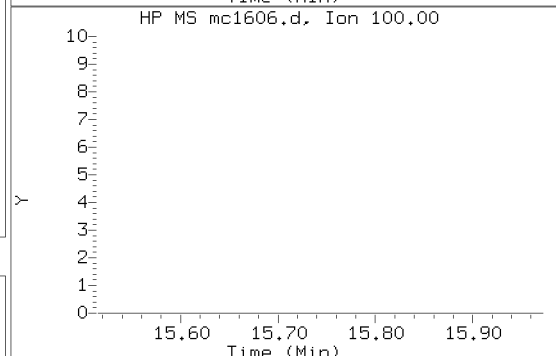
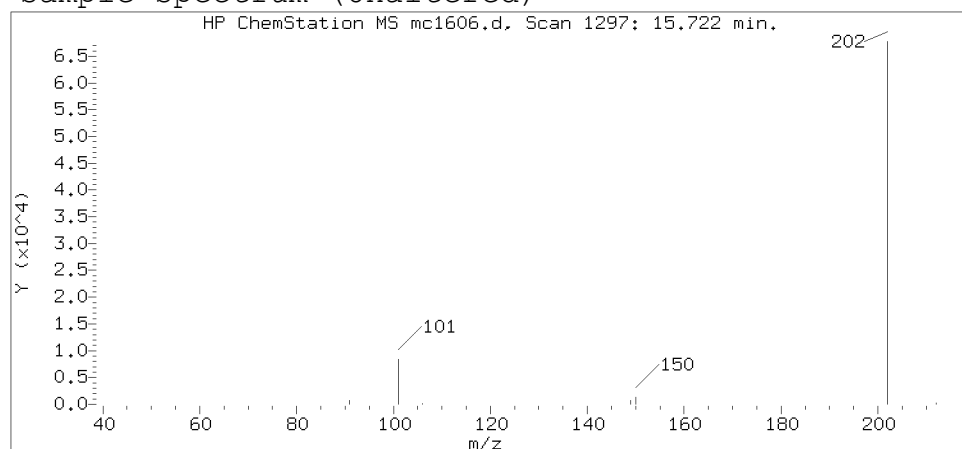
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

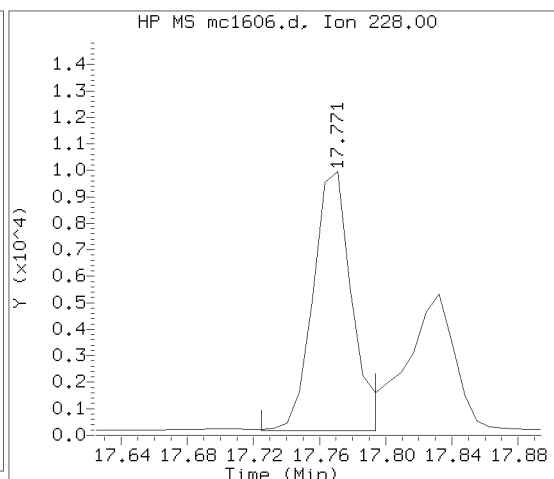
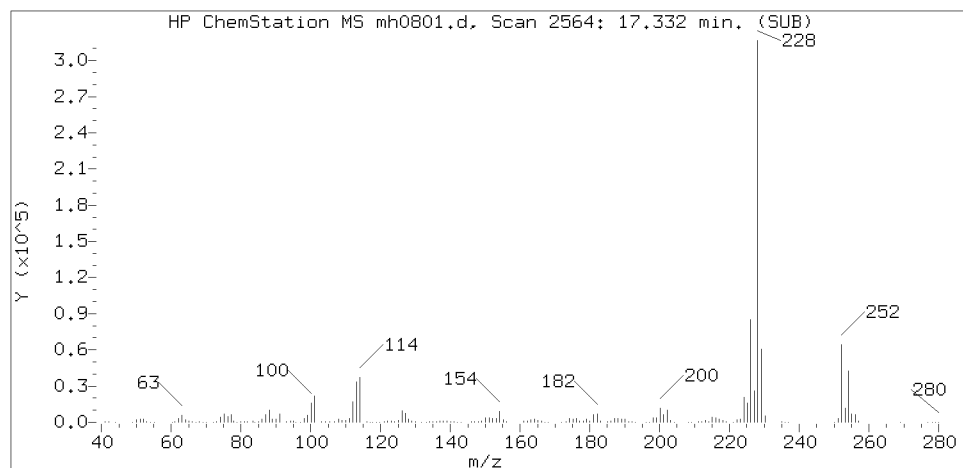
Sample Name: 13200DL

Lab Sample ID: 1285717DL

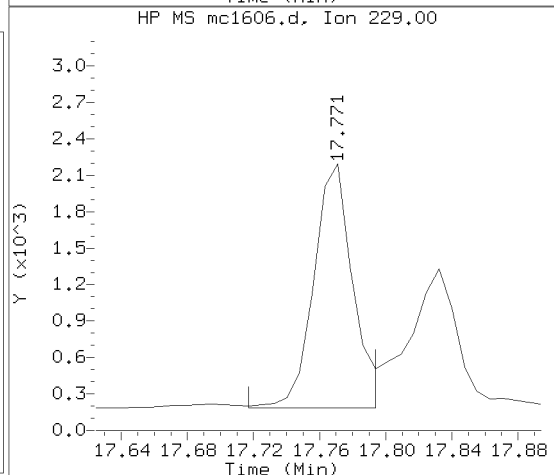
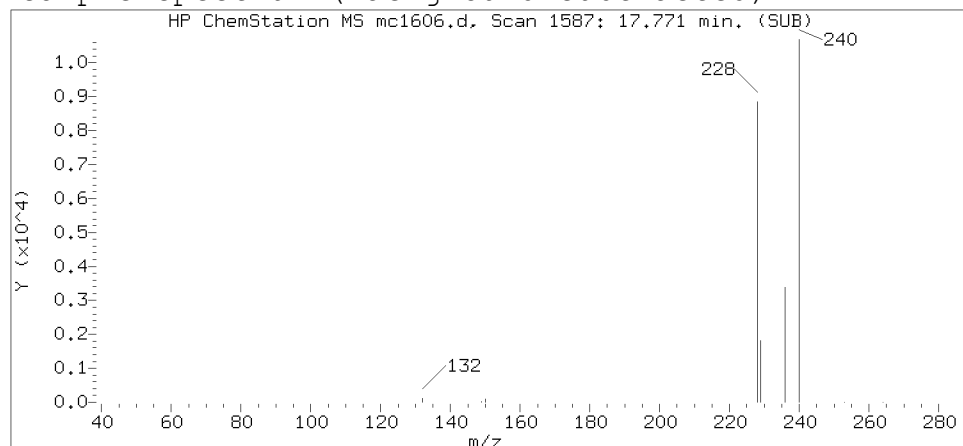
Compound Number : 26
Compound Name : Pyrene
Scan Number : 1297
Retention Time (minutes) : 15.722
Relative Retention Time : 0.00003
Quant Ion : 202.00
Area (flag) : 103679
On-column Amount (ng/ul) : 0.1945

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Target 3.5 esignature user=jmg00346

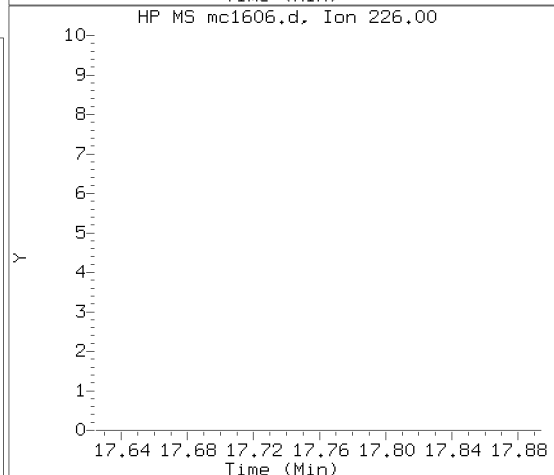
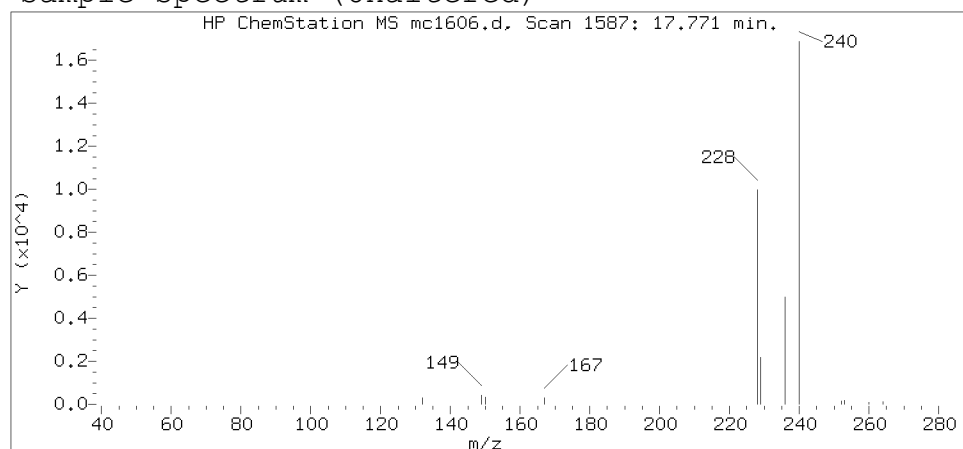
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

Sample Name: 13200DL

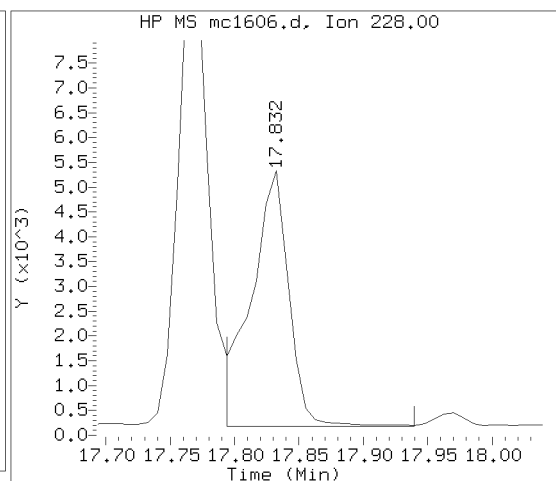
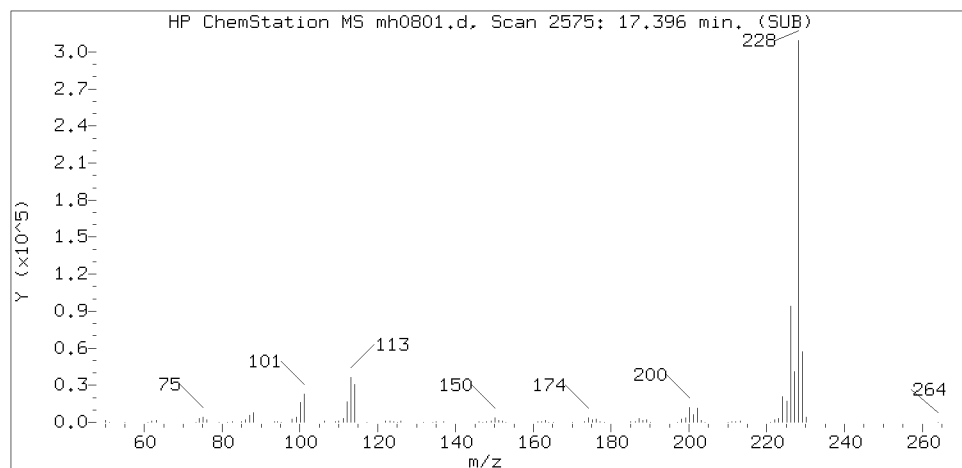
Lab Sample ID: 1285717DL

Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1587
Retention Time (minutes) : 17.771
Relative Retention Time : 0.00000
Quant Ion : 228.00
Area (flag) : 15679
On-column Amount (ng/ul) : 0.0348

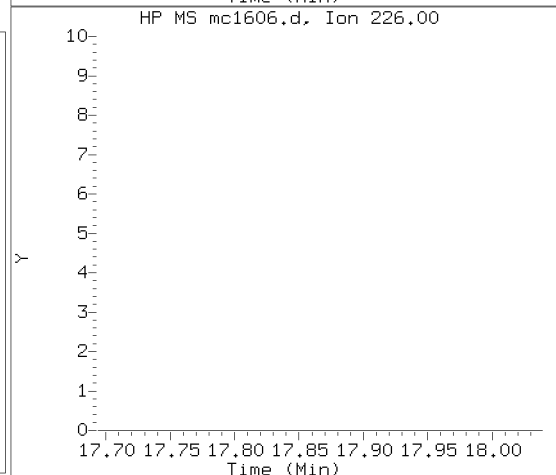
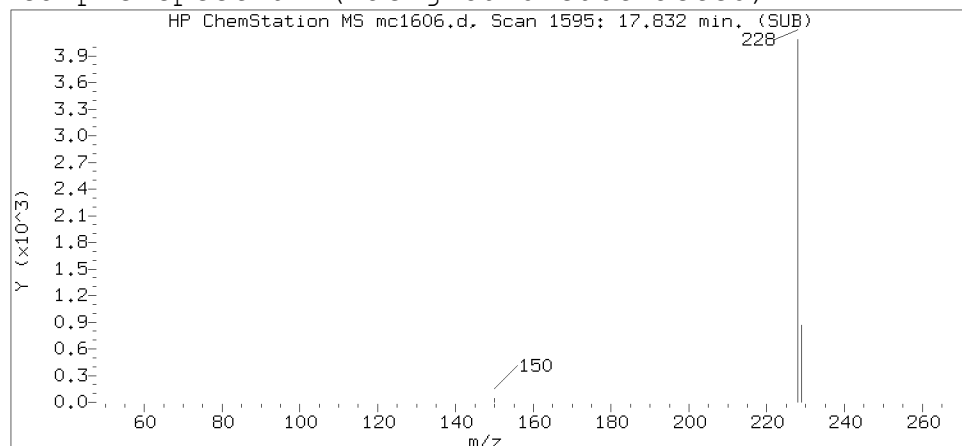
Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.

Target 3.5 esignature user jmg00346 Page 344 of 586

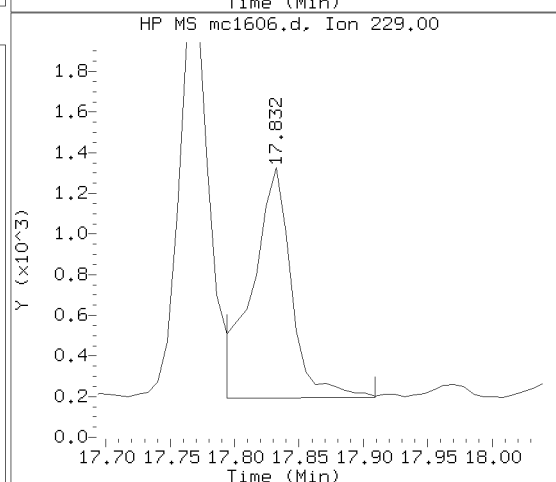
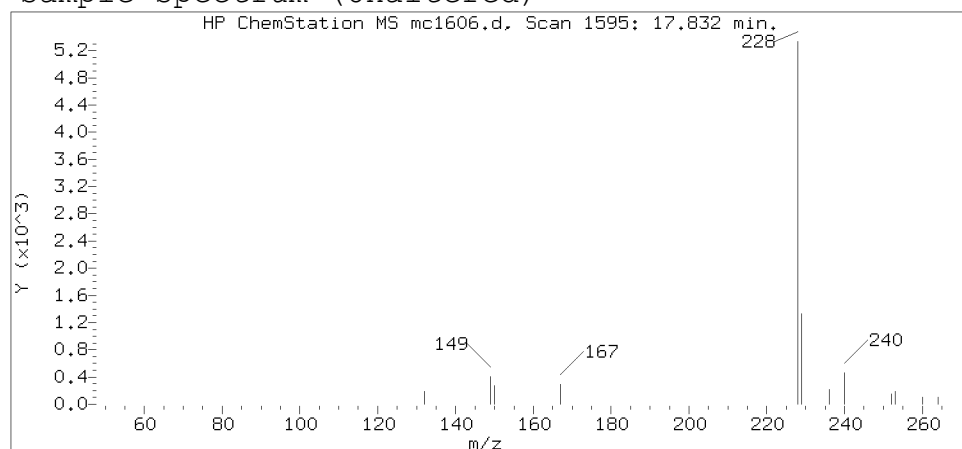
Reference Standard Spectrum for Chrysene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606.d
Injection date and time: 27-MAR-2020 03:21

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:16 jmg00346

Sample Name: 13200DL

Lab Sample ID: 1285717DL

Compound Number : 30
Compound Name : Chrysene
Scan Number : 1595
Retention Time (minutes) : 17.832
Relative Retention Time : 0.00000
Quant Ion : 228.00
Area (flag) : 10472
On-column Amount (ng/ul) : 0.0224

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user: jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

13200DL2

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 1285717
 Sample wt/vol: 246 (g/mL)ML Lab File ID: mc1606a.d
 Level: (low/med) LOW Date Received: 03/20/20
 % Moisture: not dec: dec: Date Extracted: 03/25/20
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/27/20
 Injection Volume: 2 (uL) Dilution Factor: 20.0
 GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:			Q
		(ug/L or ug/Kg) MDL	UG/L		
91-20-3-----	Naphthalene		110		D
208-96-8-----	Acenaphthylene		1		D
83-32-9-----	Acenaphthene		38		D
86-73-7-----	Fluorene		11		D
85-01-8-----	Phenanthrene		16		D
120-12-7-----	Anthracene		2		D
206-44-0-----	Fluoranthene		6		D
129-00-0-----	Pyrene		8		D
56-55-3-----	Benzo (a) anthracene		1		D
218-01-9-----	Chrysene		1	J	D
205-99-2-----	Benzo (b) fluoranthene		0.2	U	
207-08-9-----	Benzo (k) fluoranthene		0.2	U	
50-32-8-----	Benzo (a) pyrene		0.2	U	
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.2	U	
53-70-3-----	Dibenz (a,h) anthracene		0.4	U	
191-24-2-----	Benzo (g,h,i) perylene		0.2	U	

FORM I SV-1

Data file: /chem/HP21585.i/20mar26a.b/mc1606a.d
 Data file Sample Info. Line: 13200DL2;1285717DL2;1;0;SAMPLE;;;T3
 Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

Injection date and time: **27-MAR-2020 03:58**
 Instrument ID: **HP21585.i** Batch: **20085WAB**

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 26-MAR-2020 18:31

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26a.b/mc1601.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 20 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
=====	=====	=====	=====	=====	=====	=====
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	22793 (0)	0.25	
6) Naphthalene-d8	8.972 (0.000)	538	136	79154 (4)	0.25	
14) Acenaphthene-d10	11.734 (-0.011)	749	164	40202 (0)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	83011 (1)	0.25	
29) Chrysene-d12	17.778 (0.000)	1588	240	74085 (-6)	0.25	
38) Perylene-d12	20.271 (0.000)	1913	264	88399 (-1)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
=====	=====	=====	=====	=====	=====	=====	=====	=====
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	1338M	0.008	66%		15 - 121
24) Fluoranthene-d10	(4)	15.333 (0.000)	212	2999	0.009	68%		34 - 125
36) Benzo(a)pyrene-d12	(6)	20.141 (0.000)	264	1551	0.005	37%		10 - 138

M = Surrogate Standard was manually integrated.

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
7) Naphthalene	(2)	9.013 (-0.000)	128	487659	1.302	105.87			0.008
13) Acenaphthylene	(3)	11.526 (0.000)	152	6609	0.015	1.26			0.003
15) Acenaphthene	(3)	11.769 (0.000)	154	111411	0.468	38.08			0.003
18) Fluorene	(3)	12.433 (0.001)	166	40098	0.133	10.82			0.003
21) Phenanthrene	(4)	13.658 (0.000)	178	85080	0.198	16.06			0.008
22) Anthracene	(4)	13.729 (0.000)	178	8450	0.021	1.70			0.003
25) Fluoranthene	(4)	15.364 (0.000)	202	34149	0.072	5.86			0.003
26) Pyrene	(5)	15.715 (0.000)	202	50905	0.096	7.80			0.003
28) Benzo(a)anthracene	(5)	17.763 (0.000)	228	7444	0.017	1.35			0.003
30) Chrysene	(5)	17.824 (-0.000)	228	5674	0.012	0.99			0.003
33) Benzo(b)fluoranthene	(6)			Not Detected					0.003
34) Benzo(k)fluoranthene	(6)			Not Detected					0.003
37) Benzo(a)pyrene	(6)			Not Detected					0.003
39) Indeno(1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz(a,h)anthracene	(6)			Not Detected					0.005
41) Benzo(g,h,i)perylene	(6)			Not Detected					0.003

13200DL2

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285717DL2

Data file: /chem/HP21585.i/20mar26a.b/mc1606a.d

Injection date and time: **27-MAR-2020 03:58**

Data file Sample Info. Line: 13200DL2;1285717DL2;1;0;SAMPLE;;;T3

Instrument ID: **HP21585.i** Batch: **20085WAB**

Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 26-MAR-2020 18:31

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26a.b/mc1601.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 20

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 246 ml

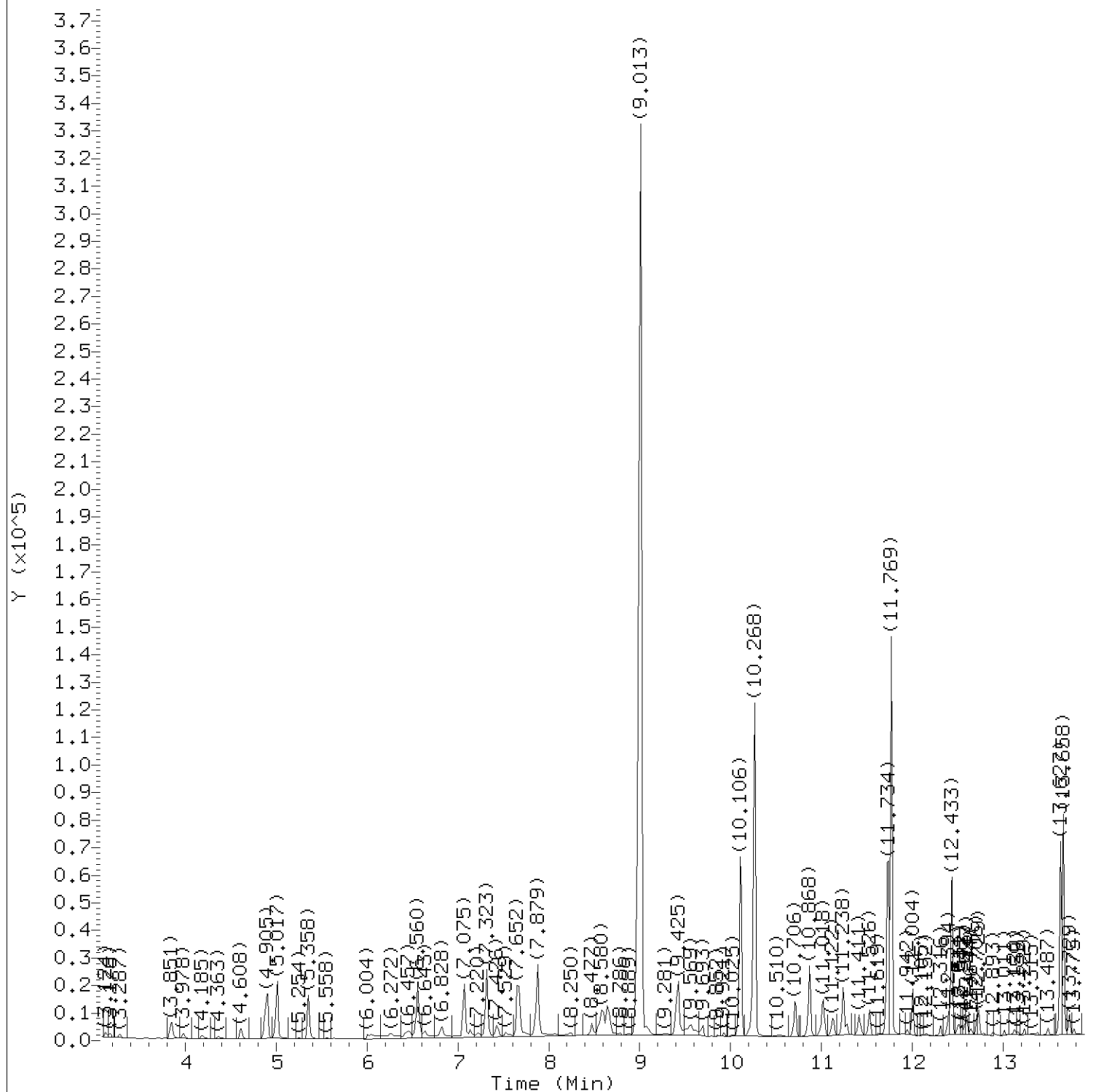
Volume Injected (Vi): 2 ul

THIS SPACE
WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59. PARALLAX ID: cam01237



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

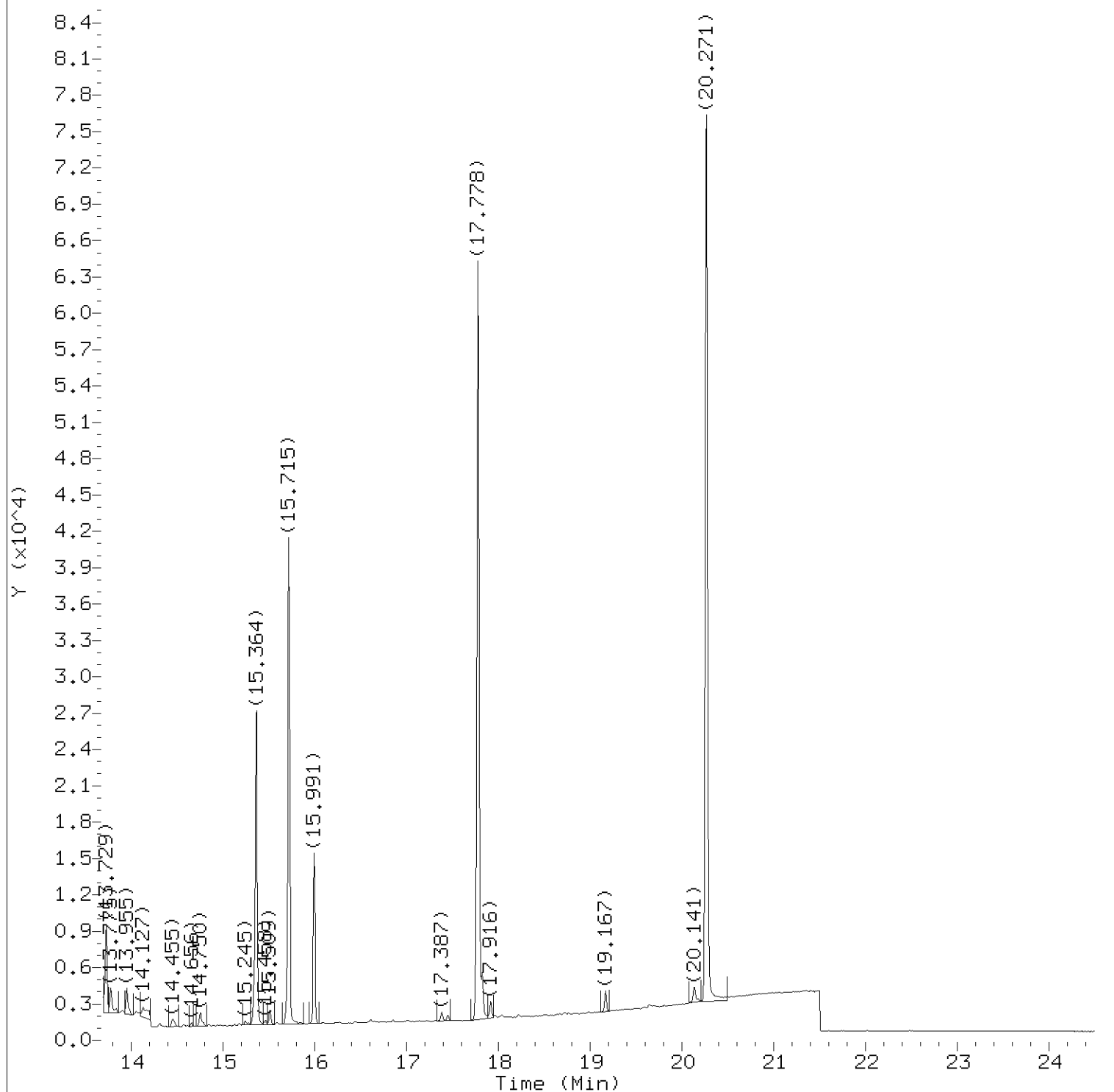
Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

Digitally signed by Joseph M. Gambler
on 03/27/2020 at 04:41.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

Digitally signed by Joseph M. Gambler
on 03/27/2020 at 04:41.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d

Instrument ID: HP21585.i

Injection date and time: 27-MAR-2020 03:58

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 18:31

Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	22793	0.250
6) *Naphthalene-d8	(2)	8.972	136	79154	0.250
7) Naphthalene	(2)	9.013	128	487659	1.302
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	1338M	0.008
13) Acenaphthylene	(3)	11.526	152	6609	0.015
14) *Acenaphthene-d10	(3)	11.734	164	40202	0.250
15) Acenaphthene	(3)	11.769	154	111411	0.468
18) Fluorene	(3)	12.433	166	40098	0.133
20) *Phenanthrene-d10	(4)	13.627	188	83011	0.250
21) Phenanthrene	(4)	13.658	178	85080	0.198
22) Anthracene	(4)	13.729	178	8450	0.021
24) \$Fluoranthene-d10	(4)	15.333	212	2999	0.009
25) Fluoranthene	(4)	15.364	202	34149	0.072
26) Pyrene	(5)	15.715	202	50905	0.096
28) Benzo(a)anthracene	(5)	17.763	228	7444	0.017
29) *Chrysene-d12	(5)	17.778	240	74085	0.250
30) Chrysene	(5)	17.824	228	5674	0.012
36) \$Benzo(a)pyrene-d12	(6)	20.141	264	1551	0.005
38) *Perylene-d12	(6)	20.271	264	88399	0.250

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

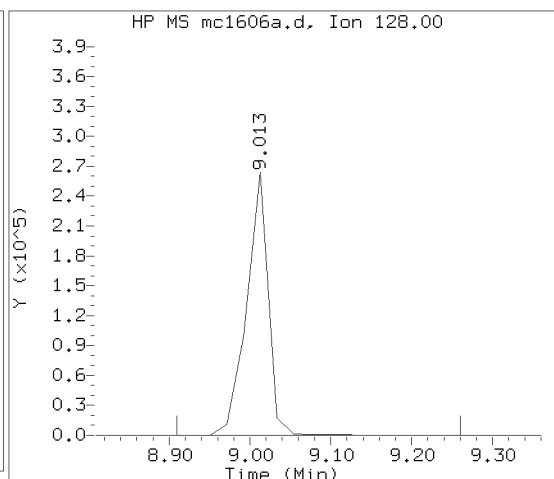
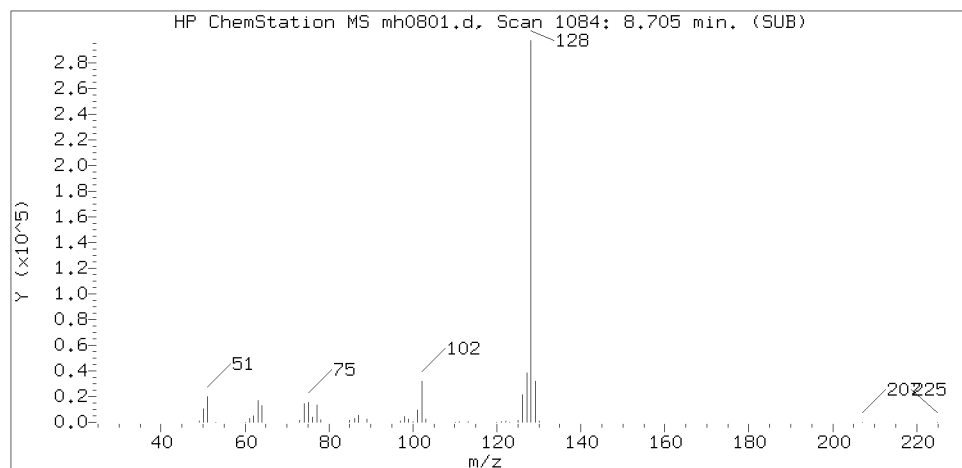
on 03/27/2020 at 04:41.

Target 3.5 esignature user ID: jmg00346

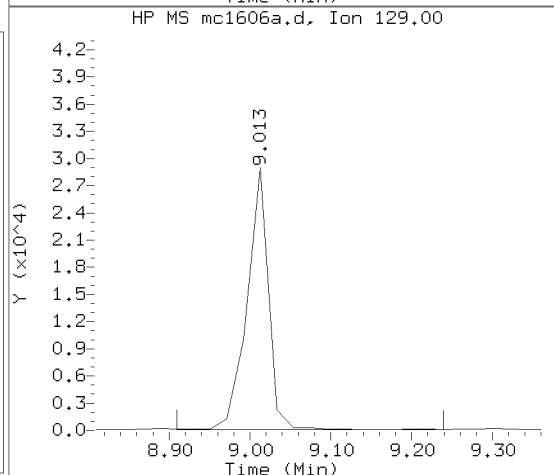
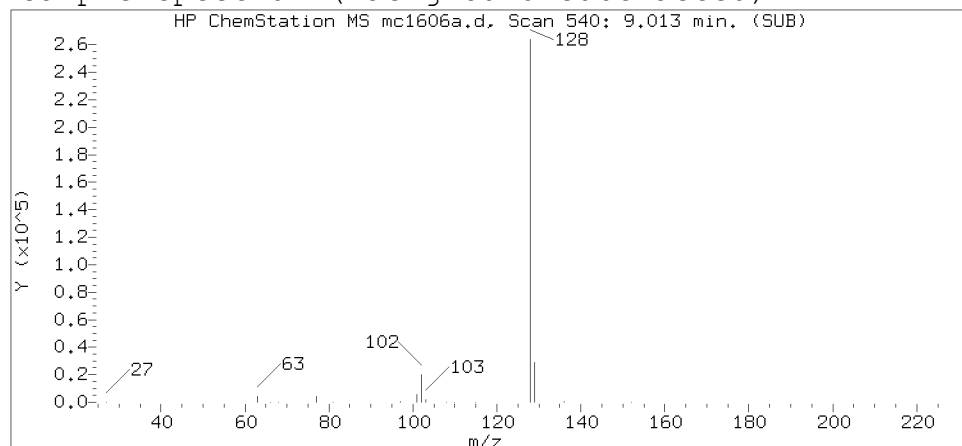
GPY68 Page 351 of 586

page 1 of 1

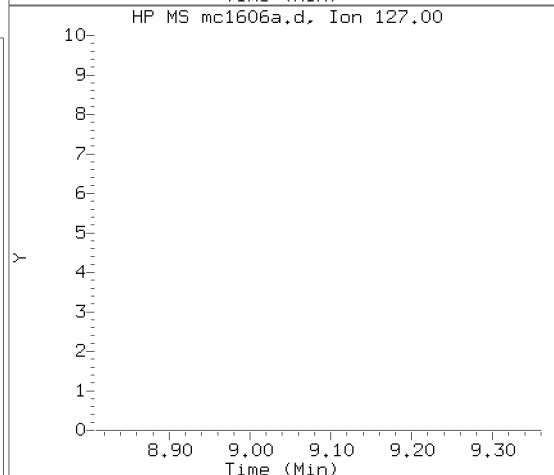
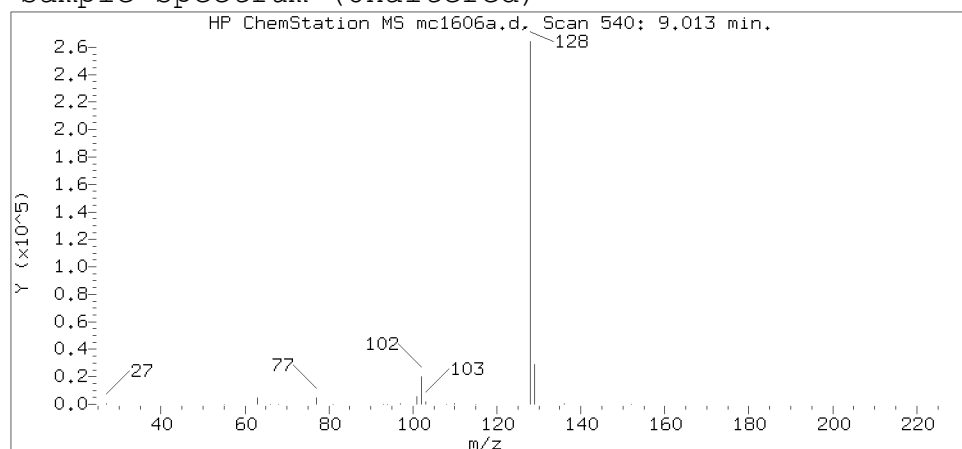
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

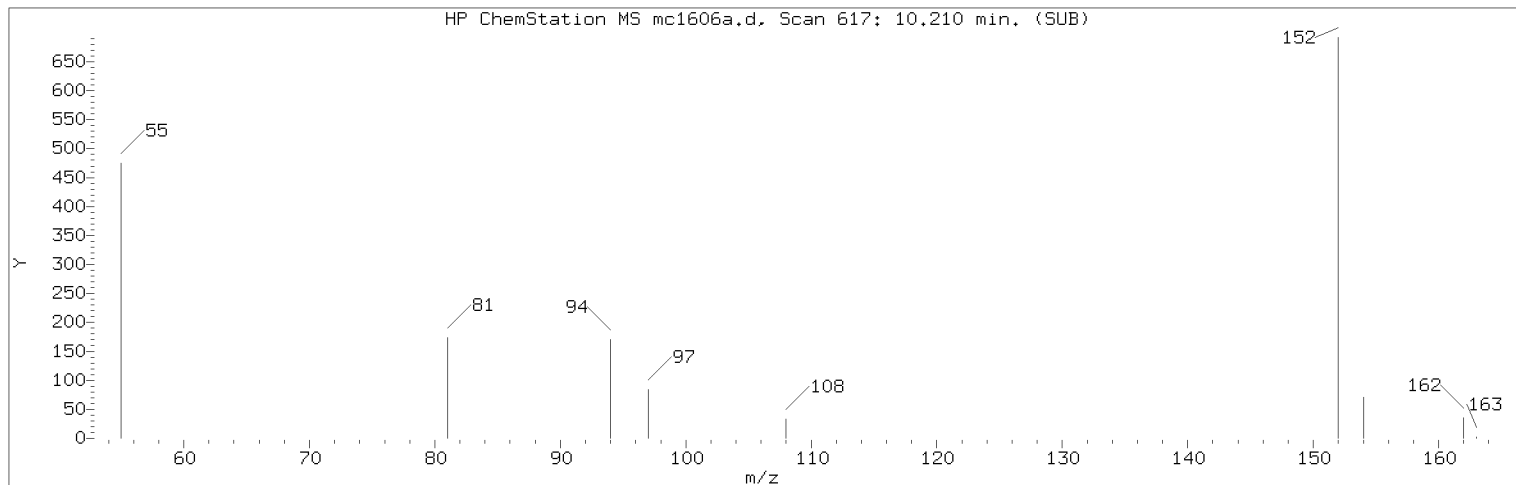
Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

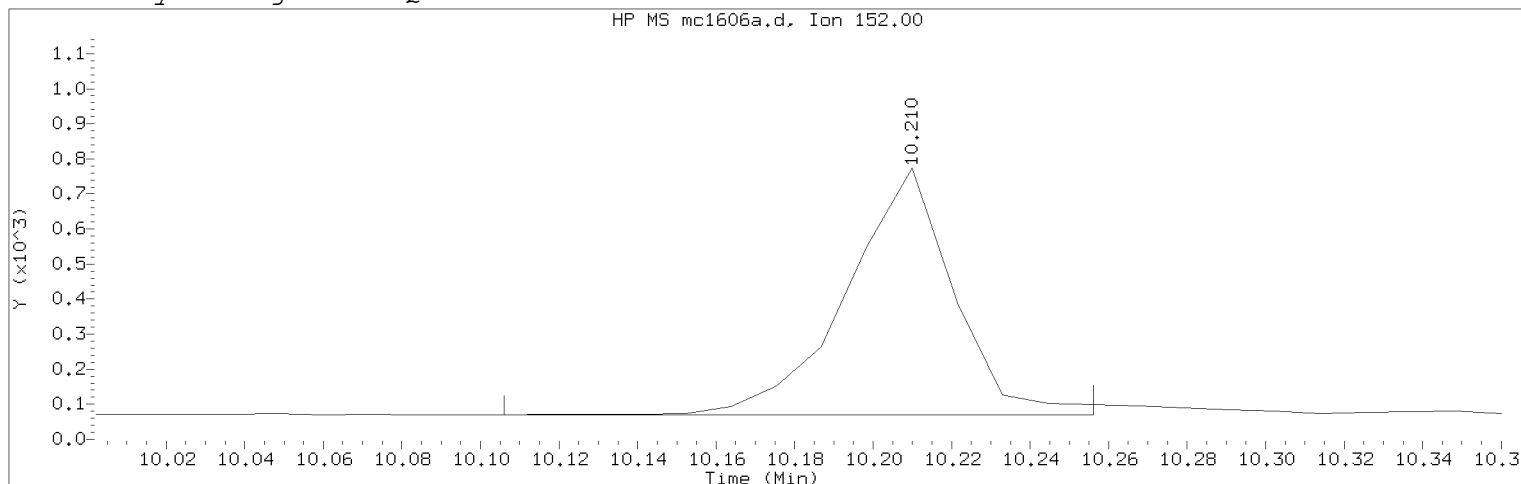
Compound Number : 7
Compound Name : Naphthalene
Scan Number : 540
Retention Time (minutes) : 9.013
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 487659
On-column Amount (ng/ul) : 1.3022

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d

Instrument ID: HP21585.i

Injection date and time: 27-MAR-2020 03:58

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 18:31

Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

Compound Number	: 10	
Compound Name	: 1-Methylnaphthalene-d10	
Scan Number	: 617	
Retention Time (minutes)	: 10.210	
Quant Ion	: 152.00	
Area (flag)	: 1338M	
On-column Amount (ng/ul)	: 0.0083	
Integration start scan	: 607	Integration stop scan: 620
Y at integration start	: 69	Y at integration end: 70

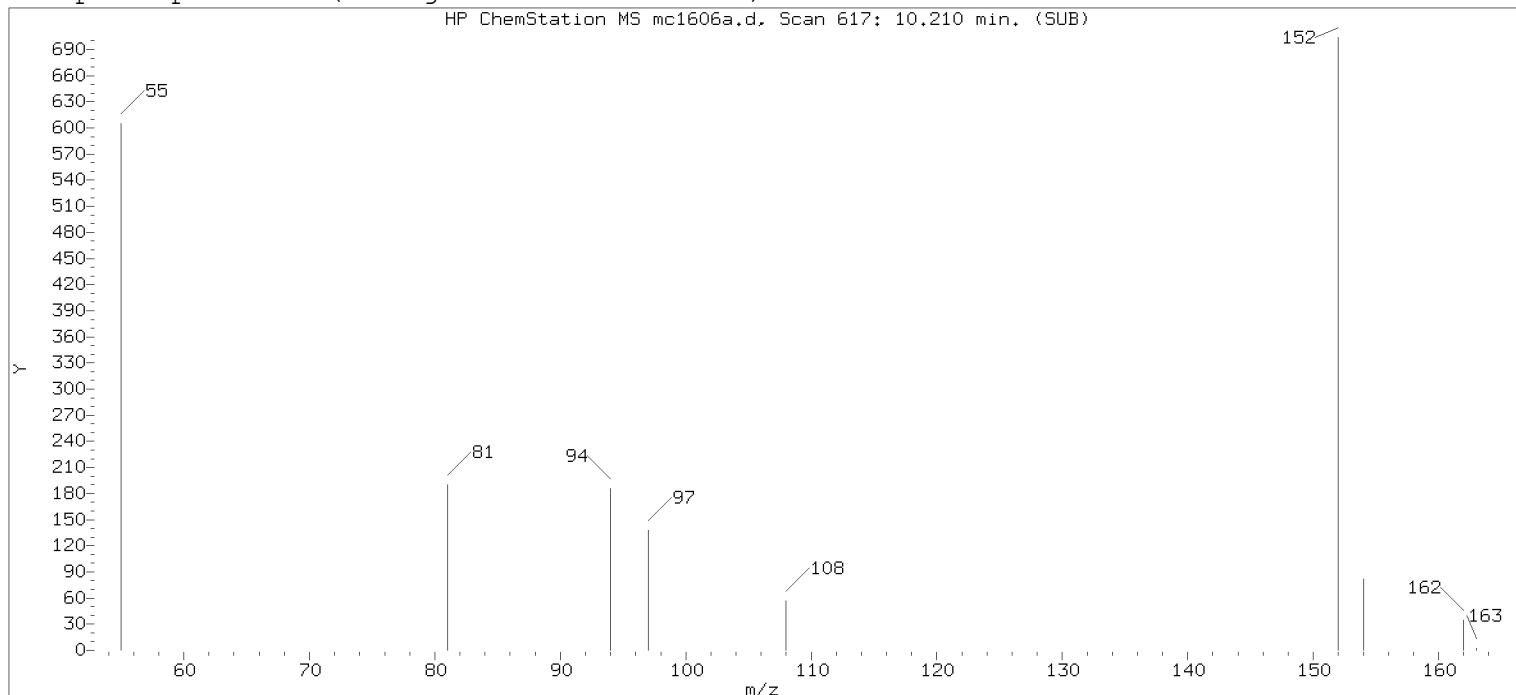
Reason for manual integration: improper integration

Analyst responsible for change:

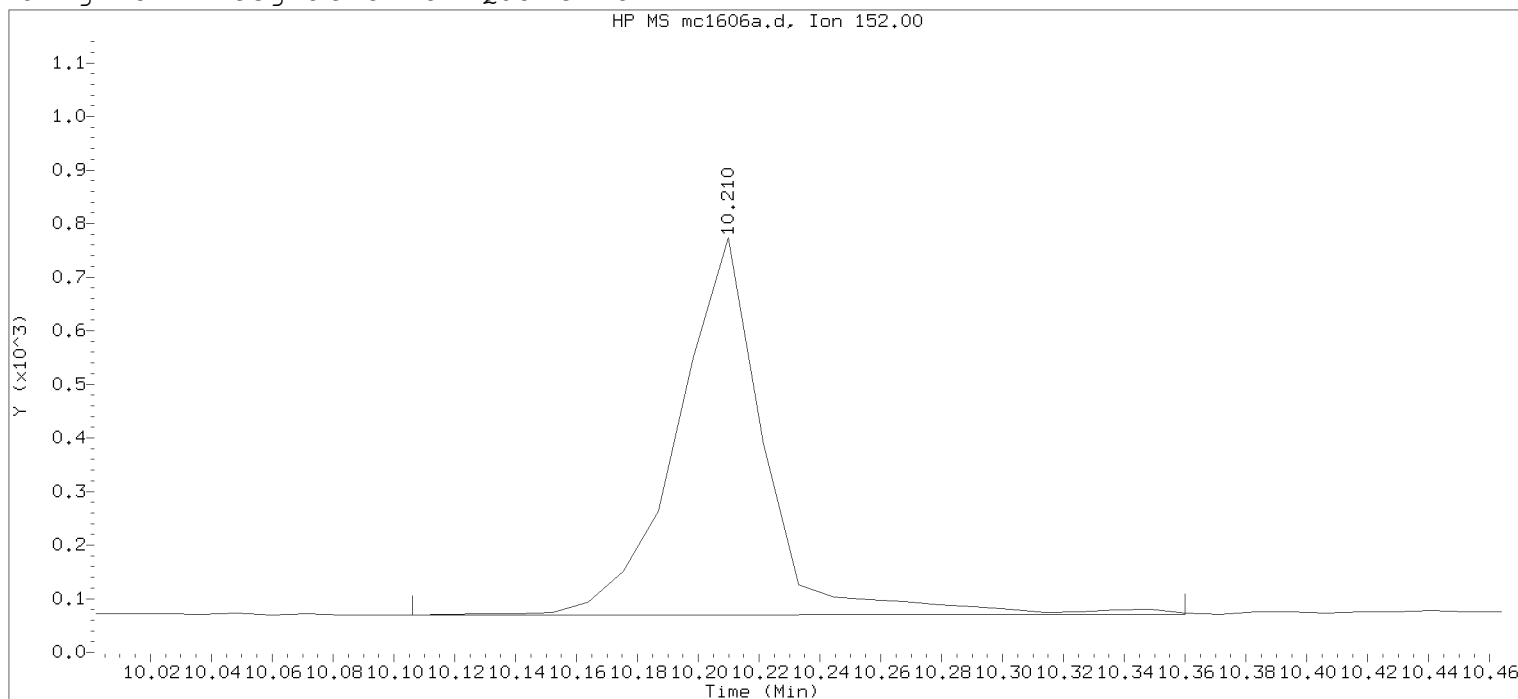
Digitally signed by Joseph M. Gambler
on 03/27/2020 at 04:41.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d

Instrument ID: HP21585.i

Injection date and time: 27-MAR-2020 03:58

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 18:31

Date, time and analyst ID of latest file update: 27-Mar-2020 04:34 Unknown

Sample Name: 13200DL2

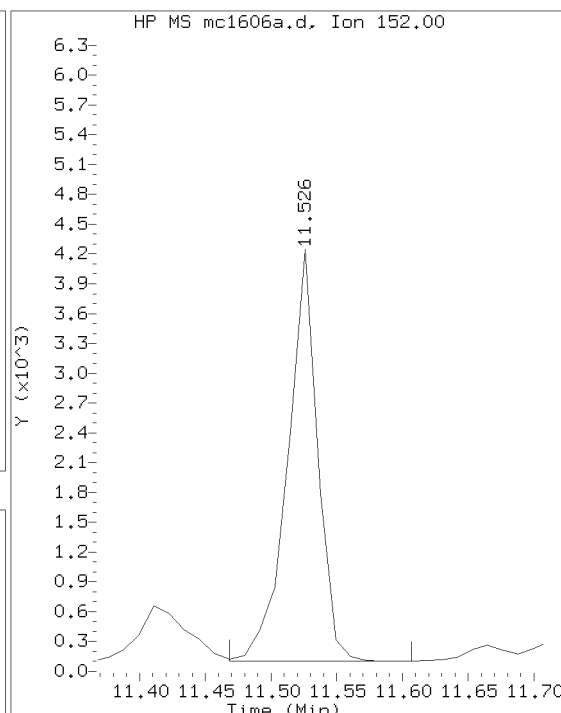
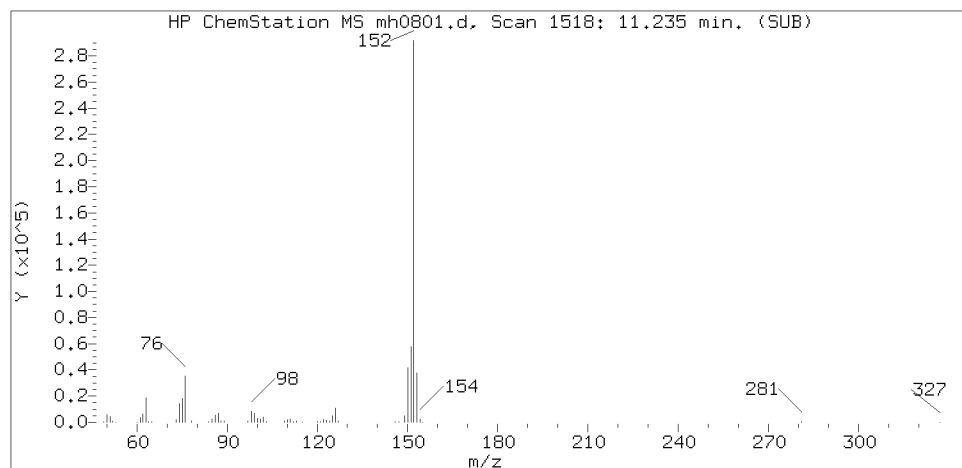
Lab Sample ID: 1285717DL2

Compound Number	: 10	
Compound Name	: 1-Methylnaphthalene-d10	
Scan Number	: 617	
Retention Time (minutes)	: 10.210	
Quant Ion	: 152.00	
Area	: 1402	
On-column Amount (ng/ul)	: 0.0087	
Integration start scan	: 607	Integration stop scan: 629
Y at integration start	: 69	Y at integration end: 71

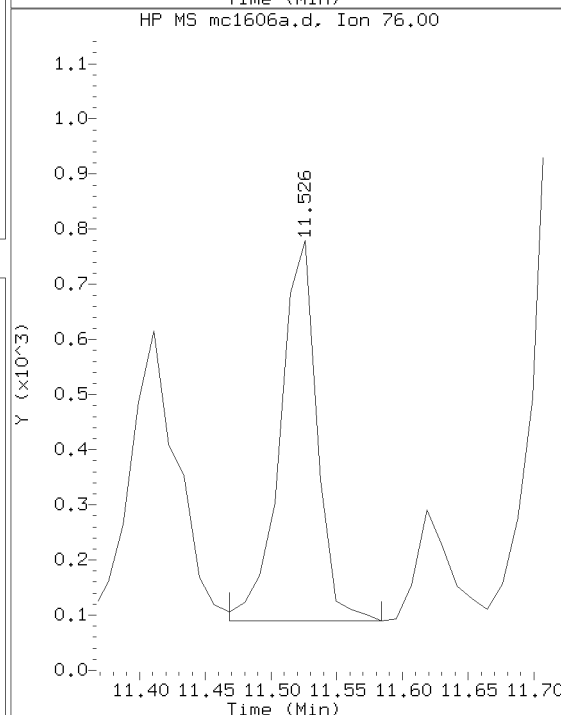
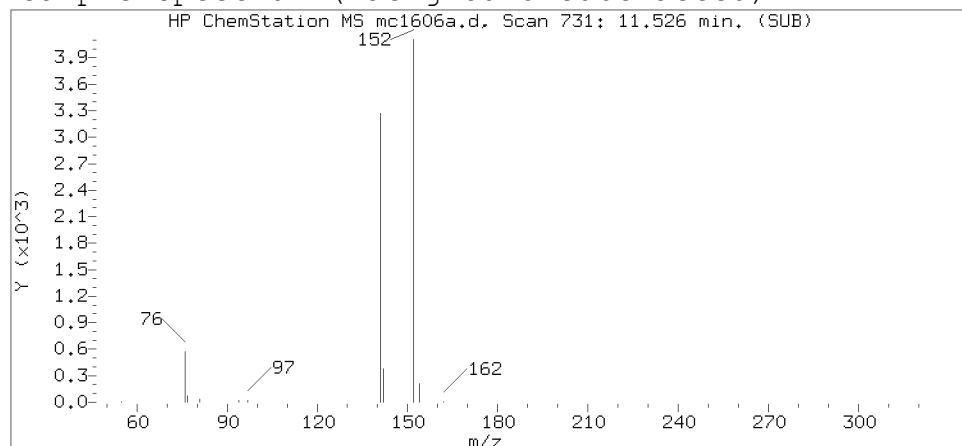
Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.

Target 3.5 esignature user GPY68 Page 354 of 586

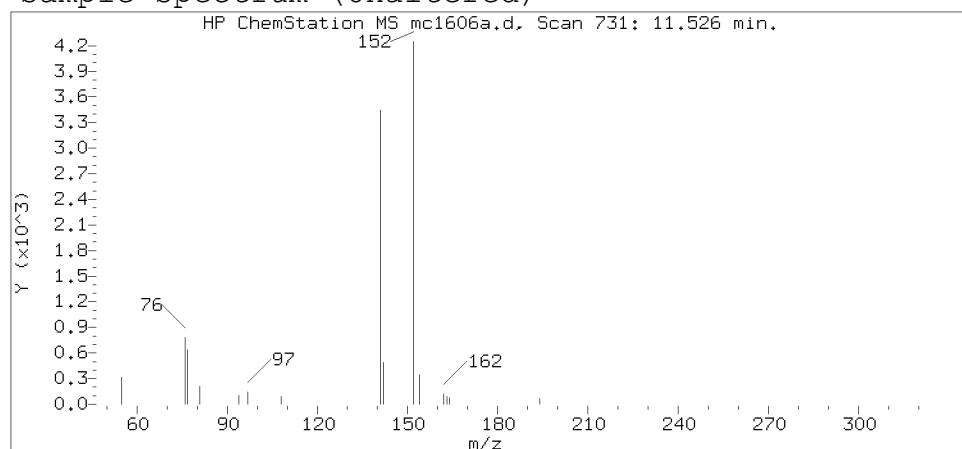
Reference Standard Spectrum for Acenaphthylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

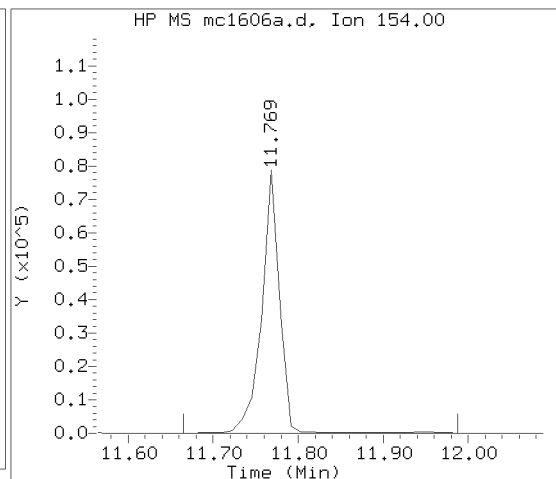
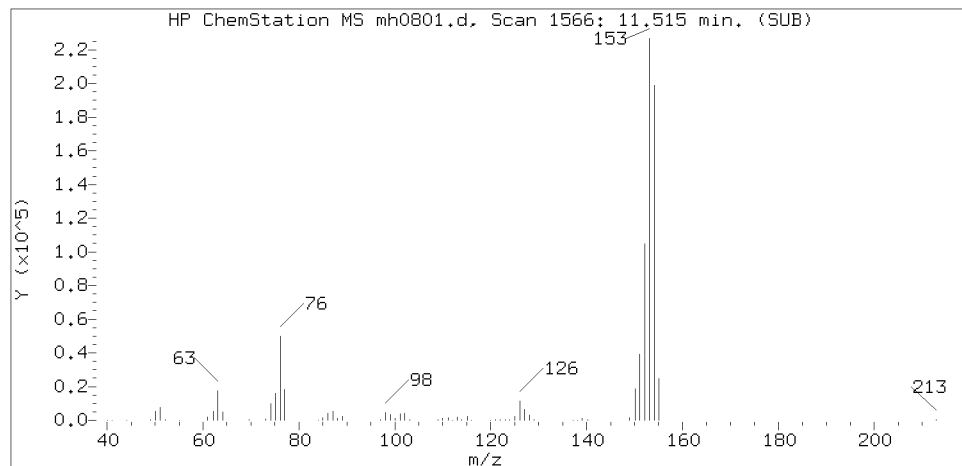
Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

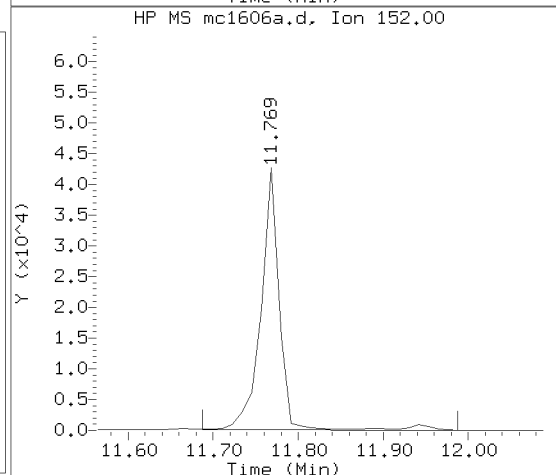
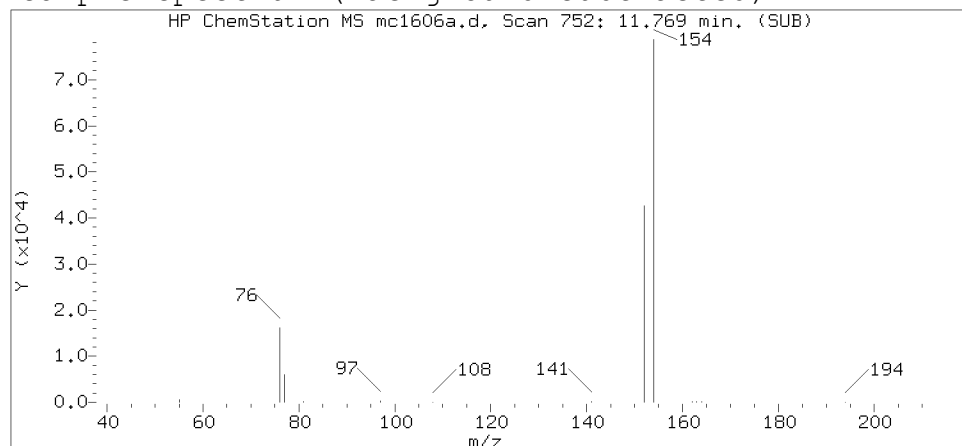
Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 731
Retention Time (minutes) : 11.526
Relative Retention Time : 0.00097
Quant Ion : 152.00
Area (flag) : 6609
On-column Amount (ng/ul) : 0.0155

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user jmg00346

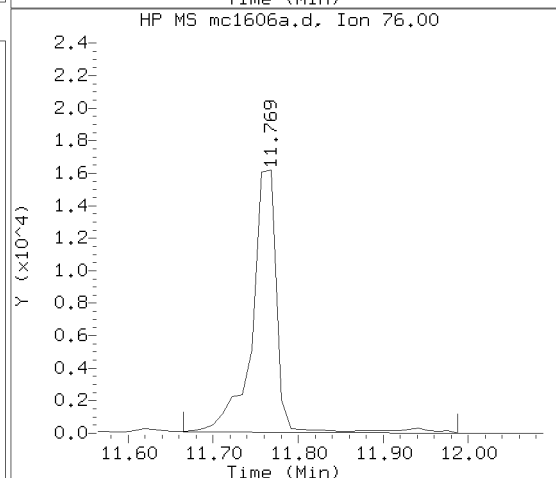
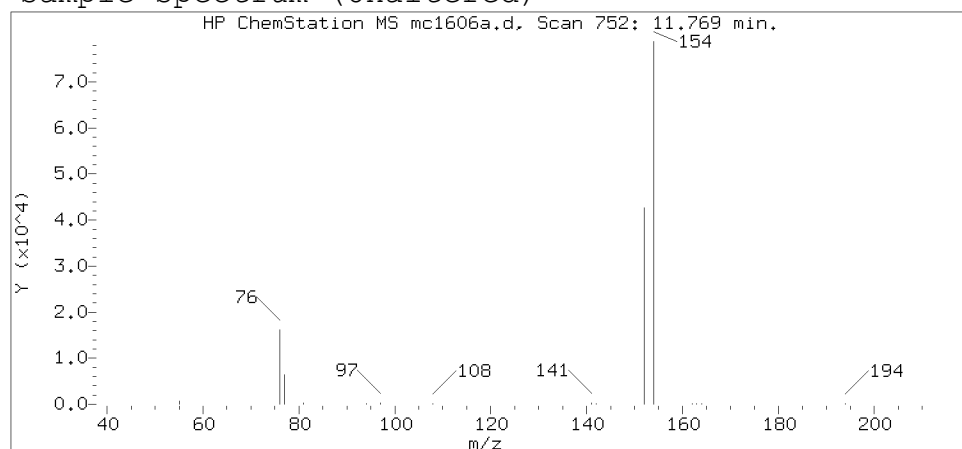
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

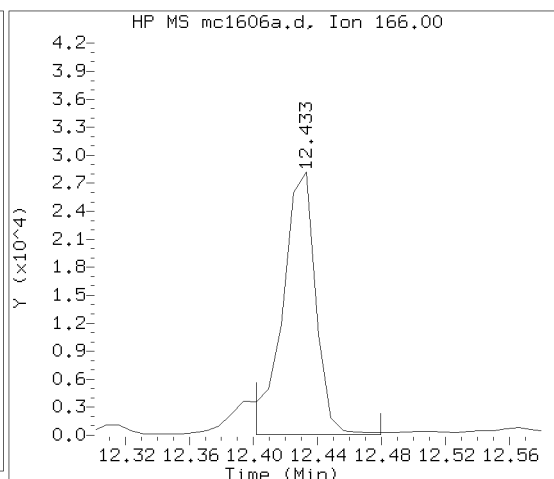
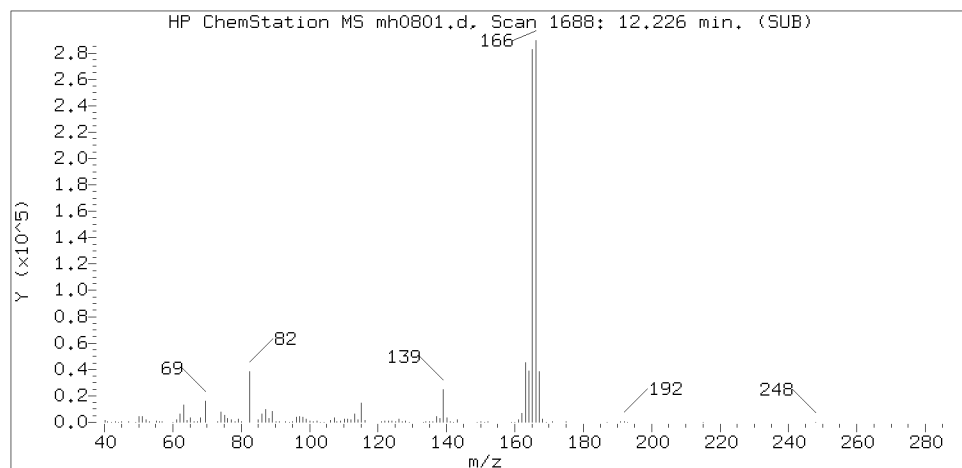
Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

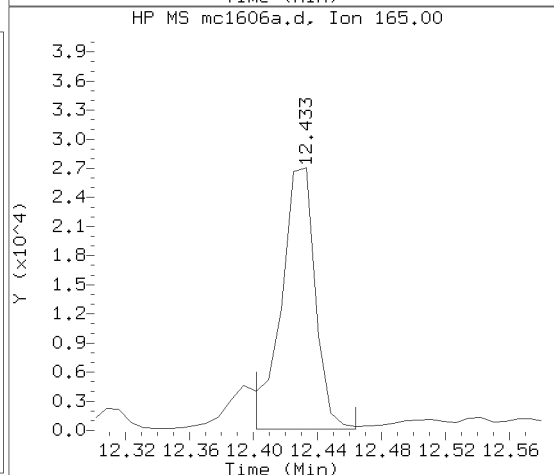
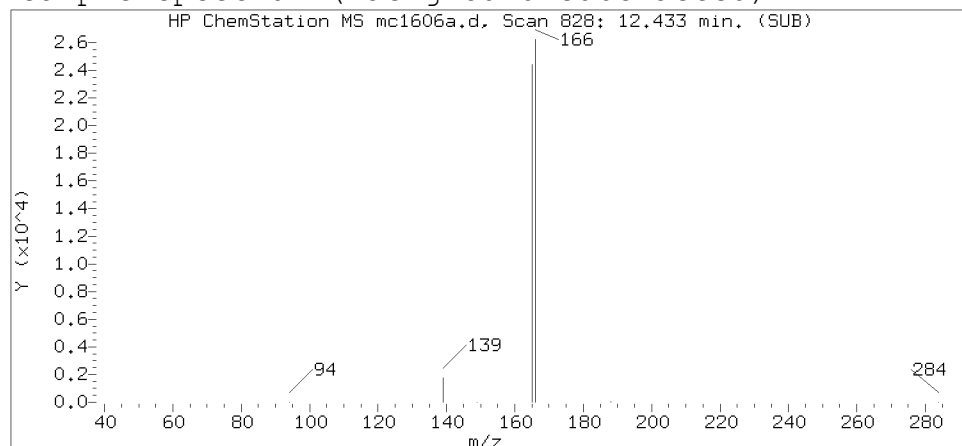
Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 752
Retention Time (minutes) : 11.769
Relative Retention Time : 0.00099
Quant Ion : 154.00
Area (flag) : 111411
On-column Amount (ng/ul) : 0.4684

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user=jmg00346

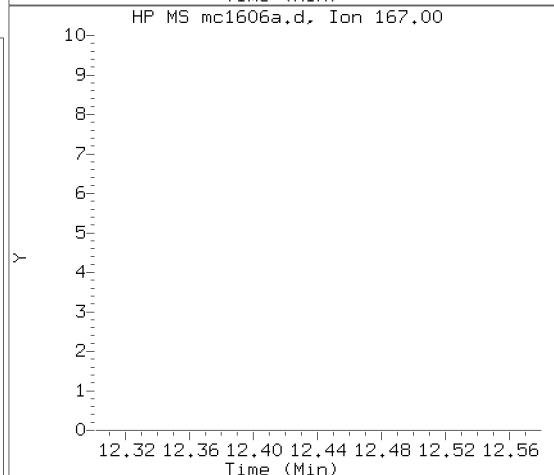
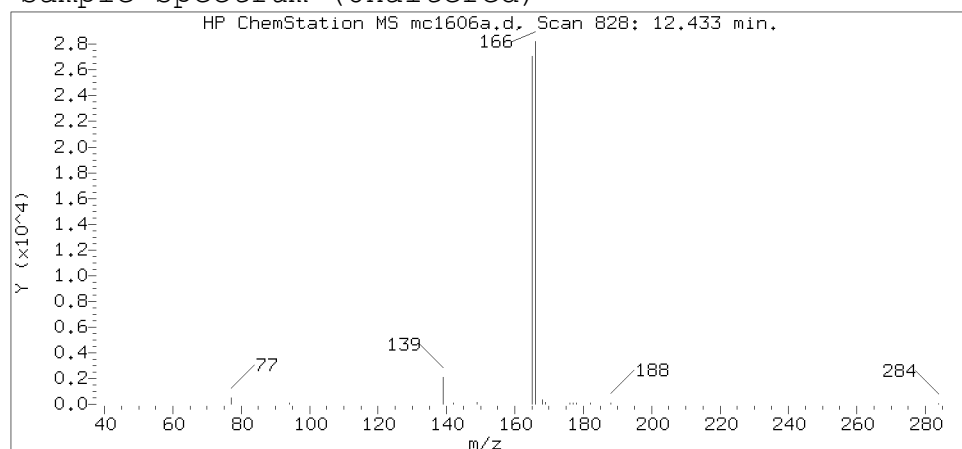
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

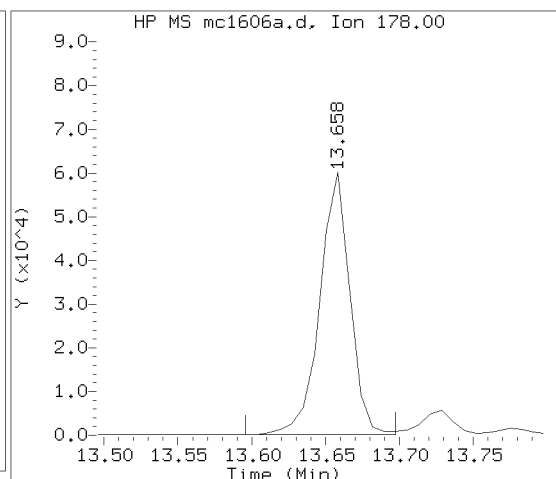
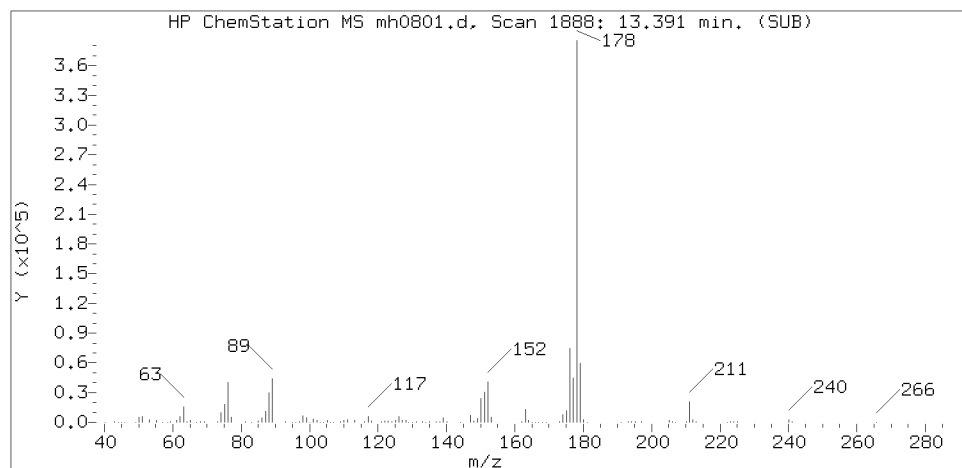
Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

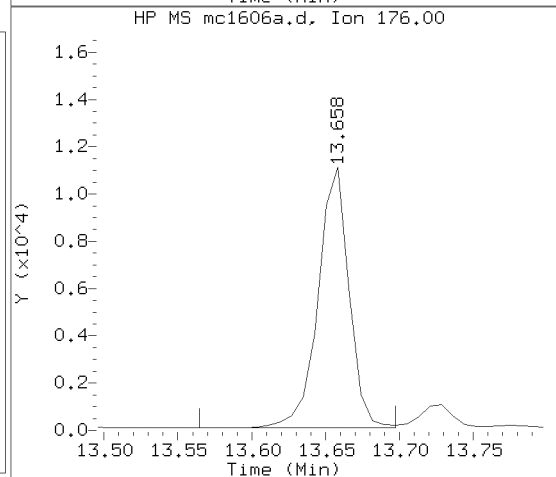
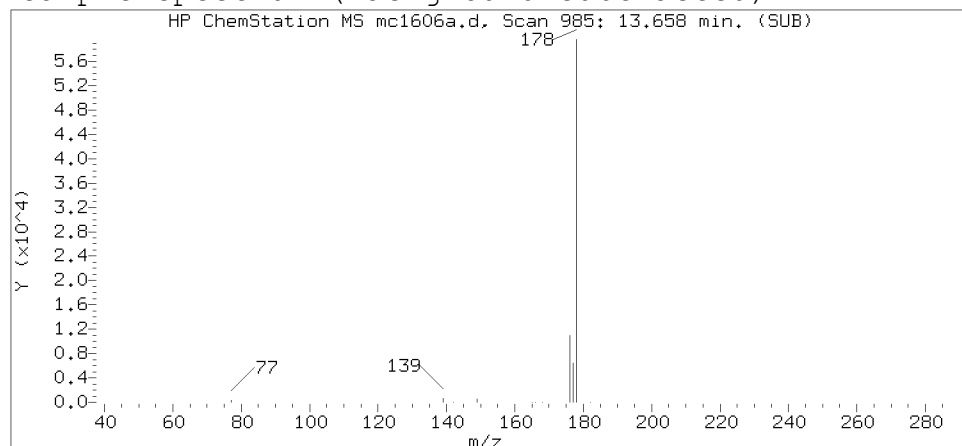
Compound Number : 18
Compound Name : Fluorene
Scan Number : 828
Retention Time (minutes) : 12.433
Relative Retention Time : 0.00104
Quant Ion : 166.00
Area (flag) : 40098
On-column Amount (ng/ul) : 0.1330

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user jmg00346

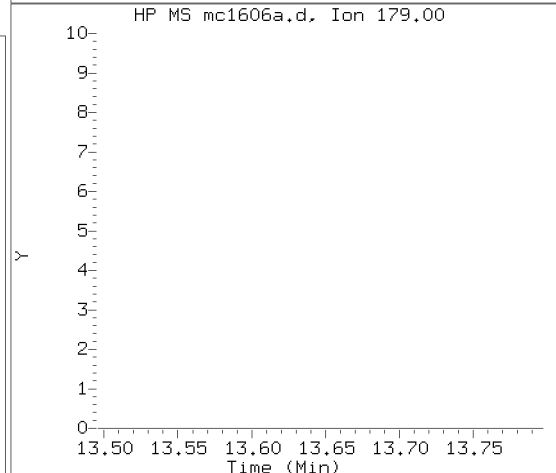
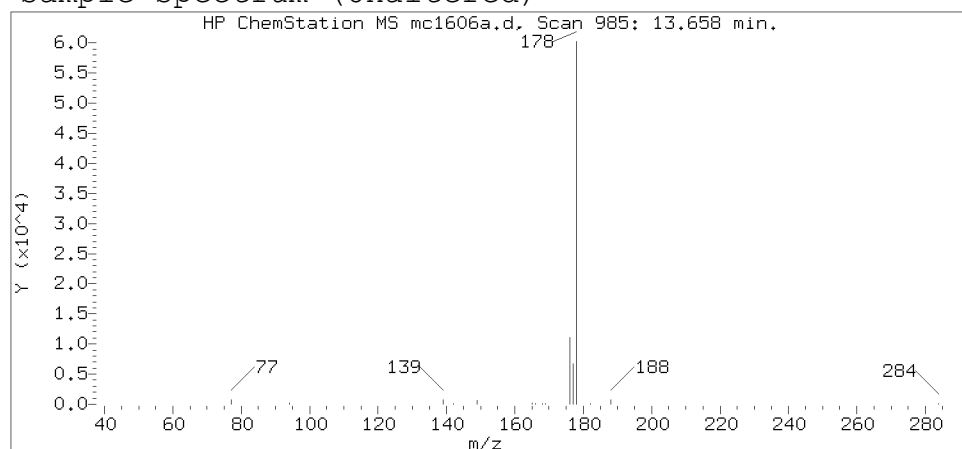
Reference Standard Spectrum for Phenanthrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

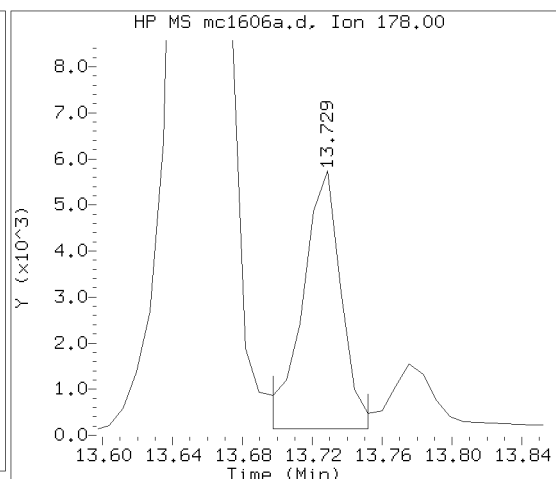
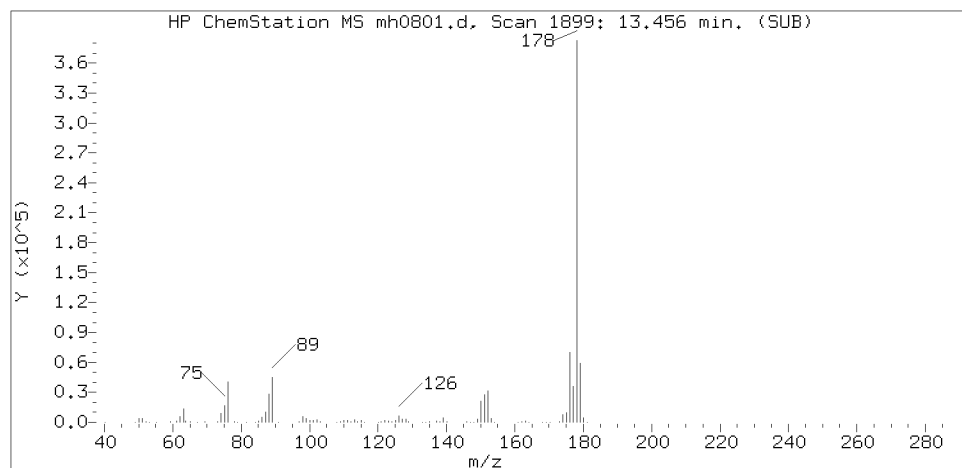
Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

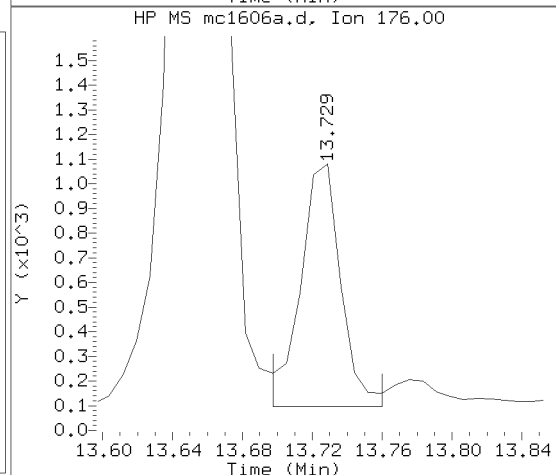
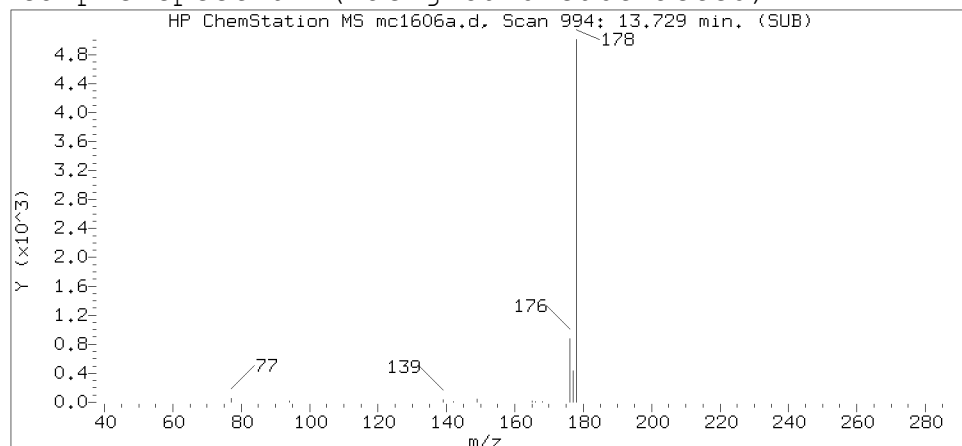
Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 985
Retention Time (minutes) : 13.658
Relative Retention Time : 0.00000
Quant Ion : 178.00
Area (flag) : 85080
On-column Amount (ng/ul) : 0.1975

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user jmg00346

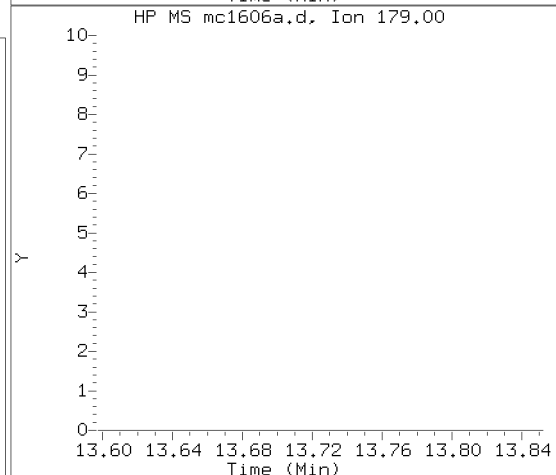
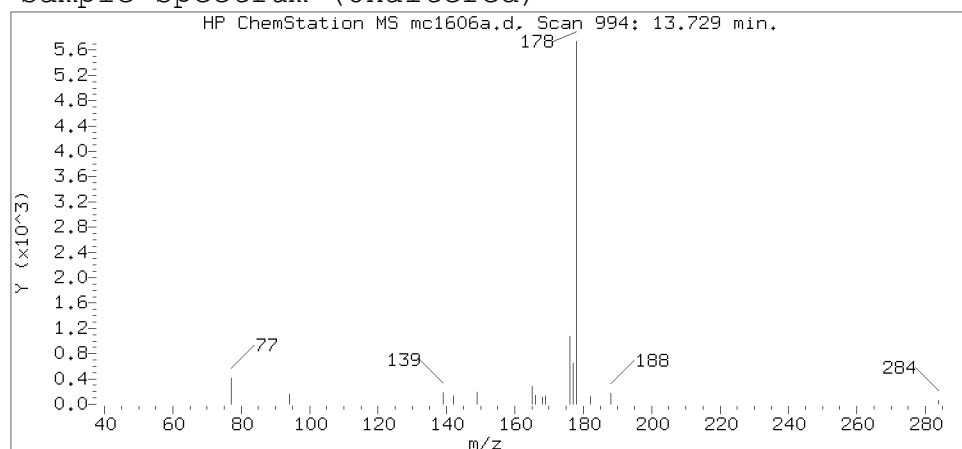
Reference Standard Spectrum for Anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

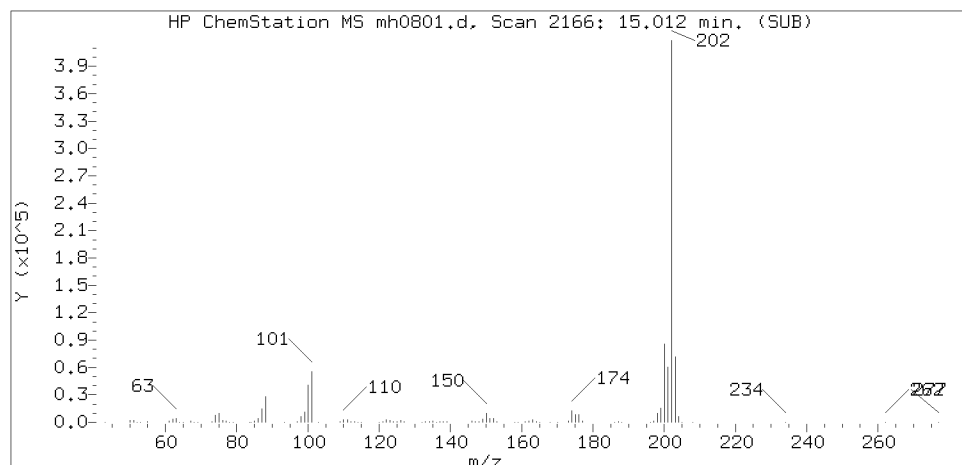
Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

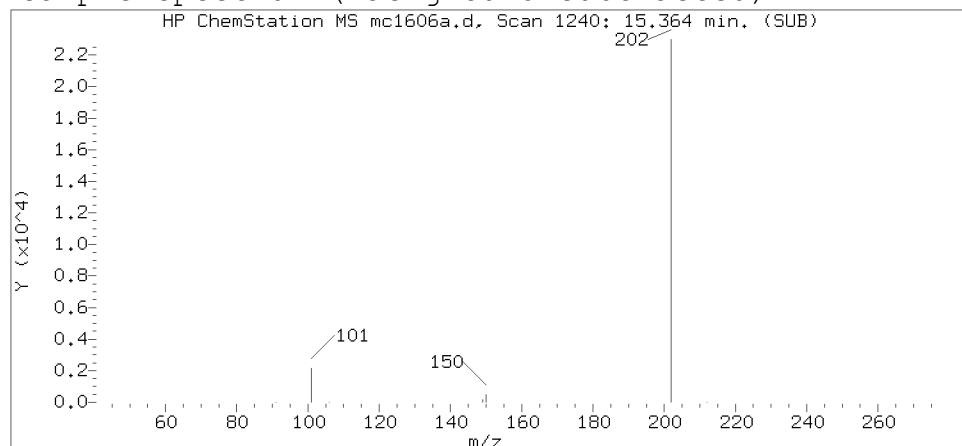
Compound Number : 22
Compound Name : Anthracene
Scan Number : 994
Retention Time (minutes) : 13.729
Relative Retention Time : 0.00000
Quant Ion : 178.00
Area (flag) : 8450
On-column Amount (ng/ul) : 0.0209

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user jmg00346

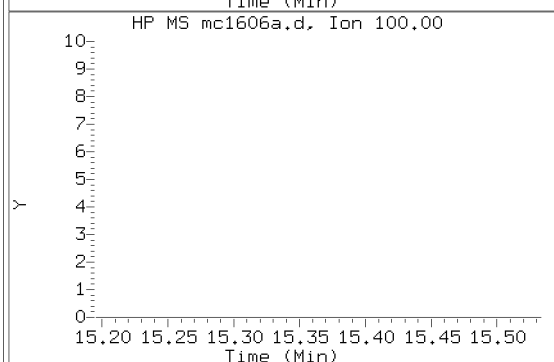
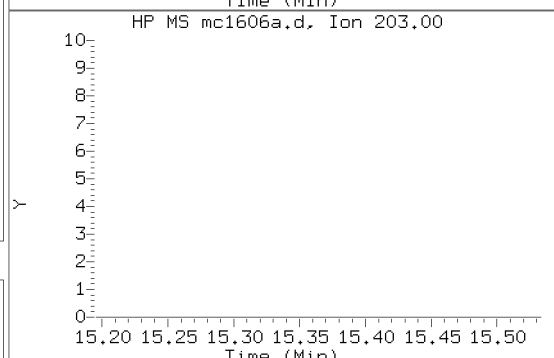
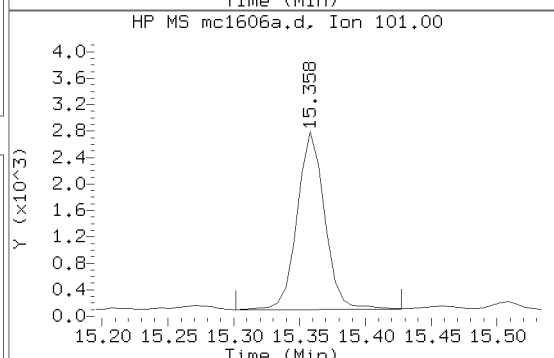
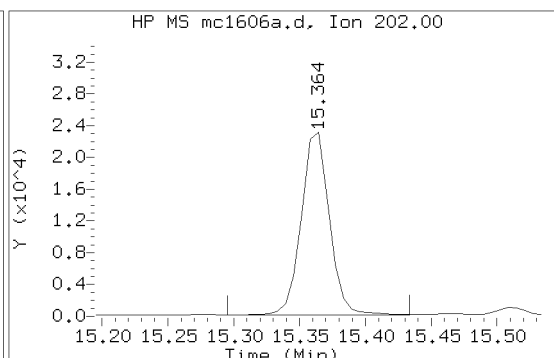
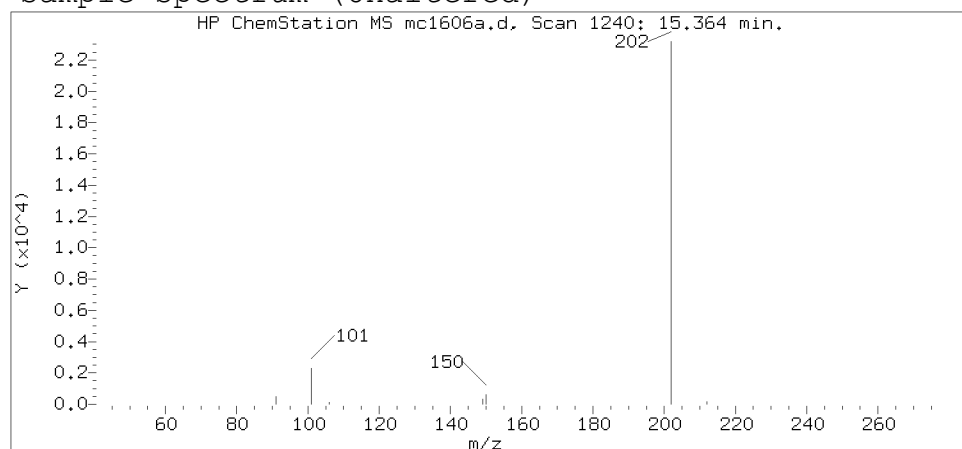
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

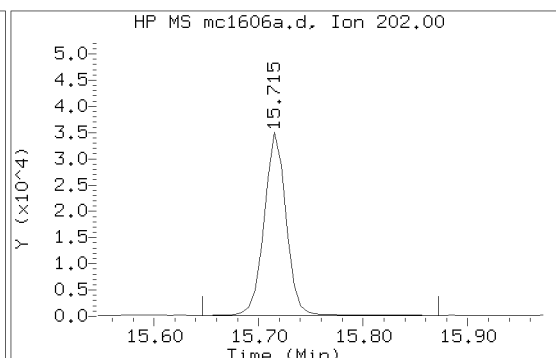
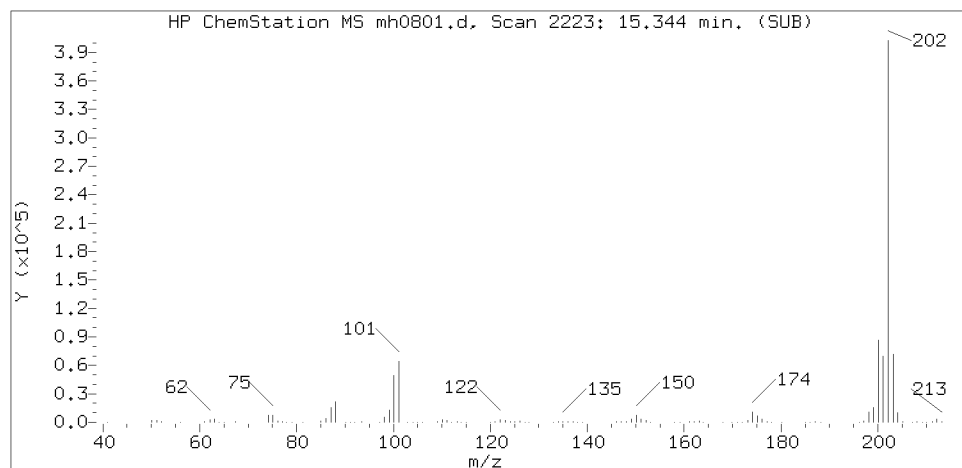
Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

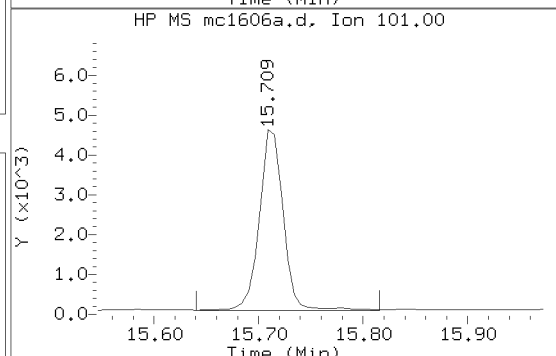
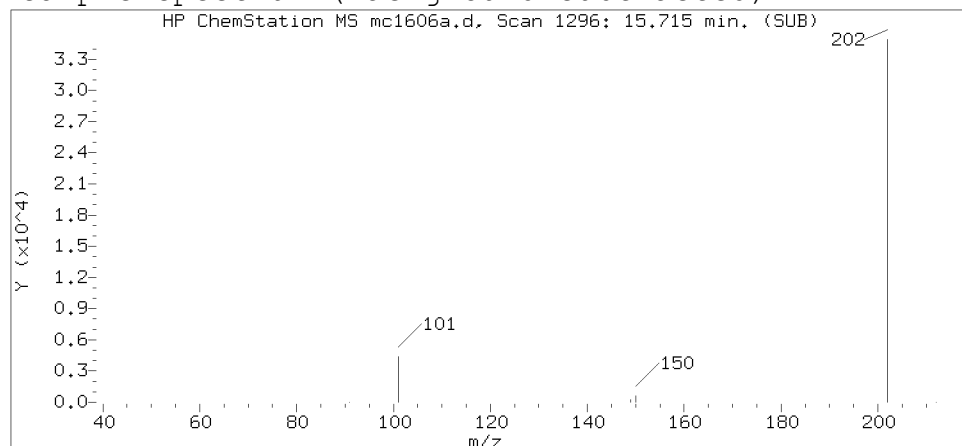
Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1240
Retention Time (minutes) : 15.364
Relative Retention Time : 0.00000
Quant Ion : 202.00
Area (flag) : 34149
On-column Amount (ng/ul) : 0.0721

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user=jmg00346

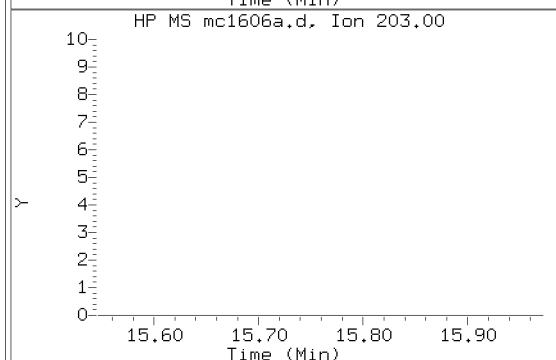
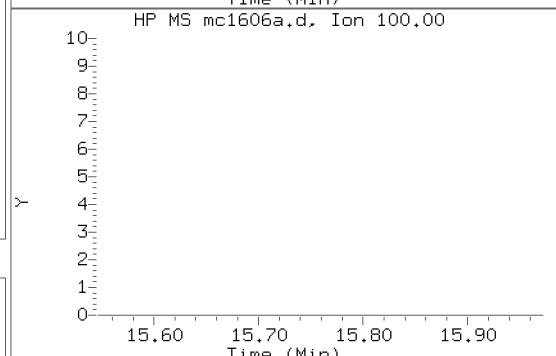
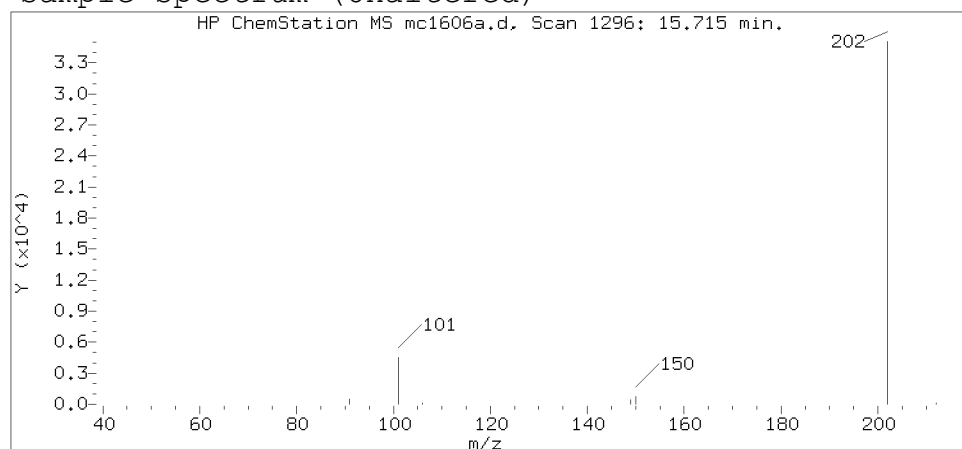
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

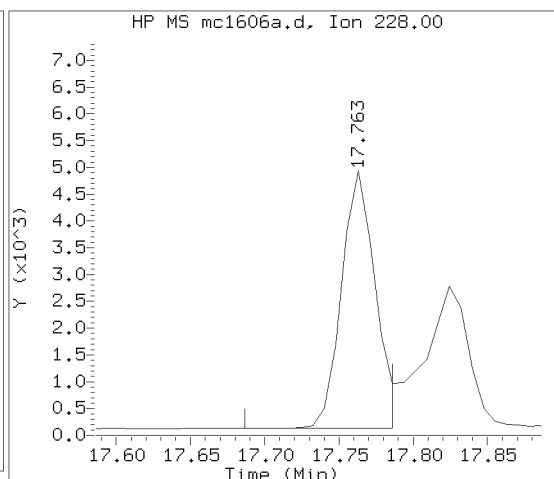
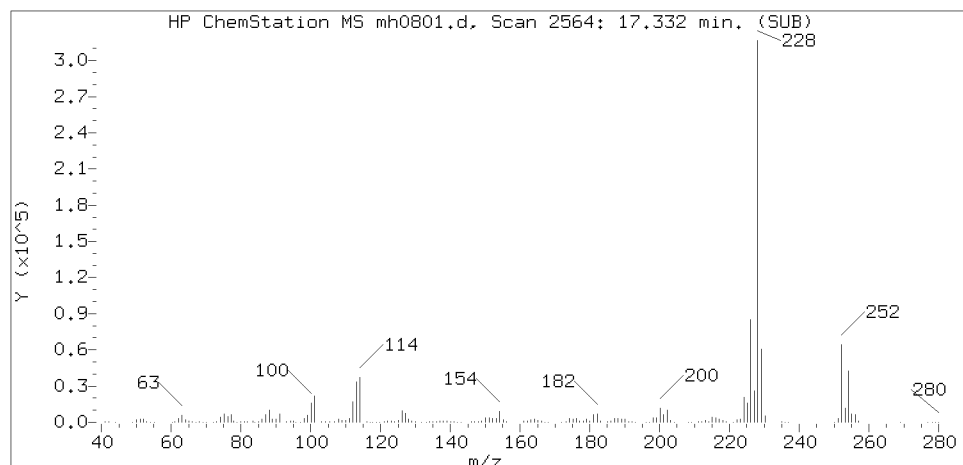
Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

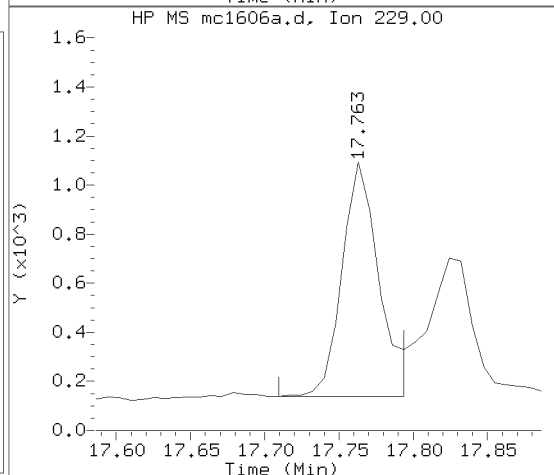
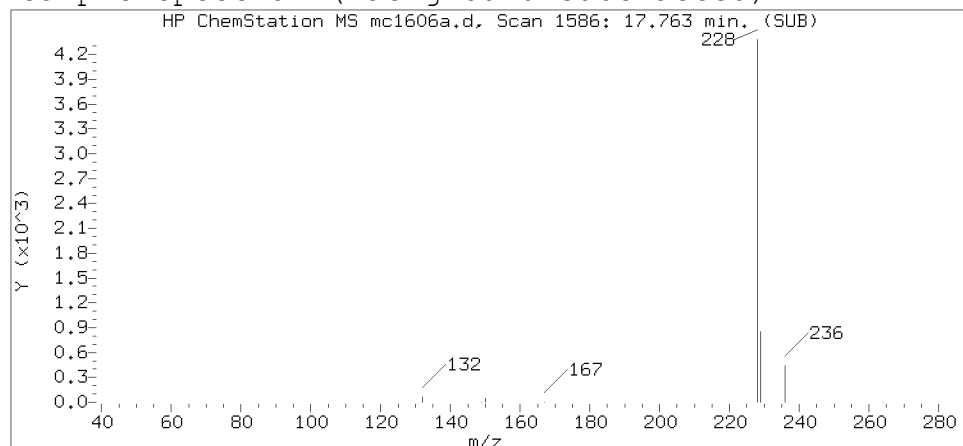
Compound Number : 26
Compound Name : Pyrene
Scan Number : 1296
Retention Time (minutes) : 15.715
Relative Retention Time : 0.00000
Quant Ion : 202.00
Area (flag) : 50905
On-column Amount (ng/ul) : 0.0959

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user=jmg00346

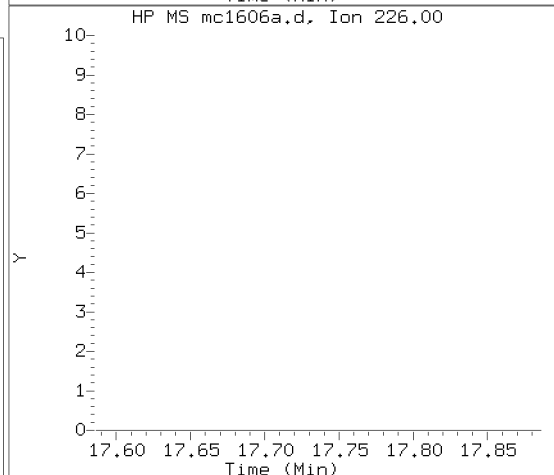
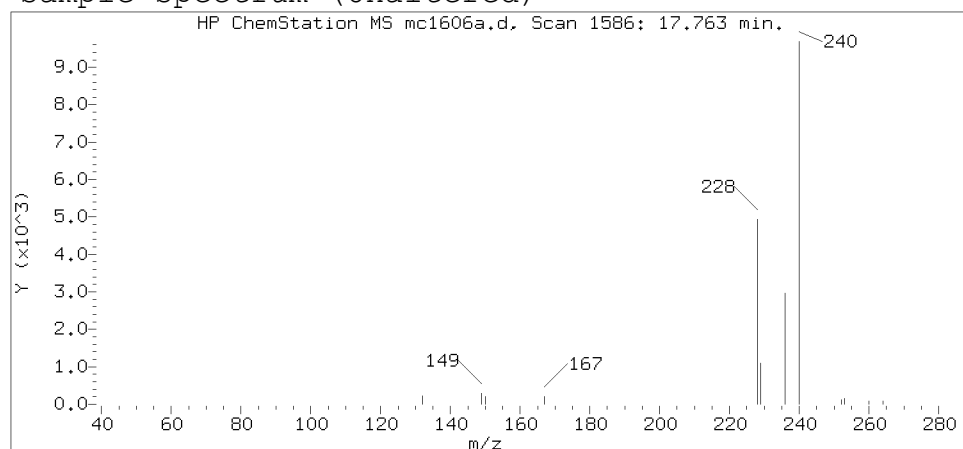
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

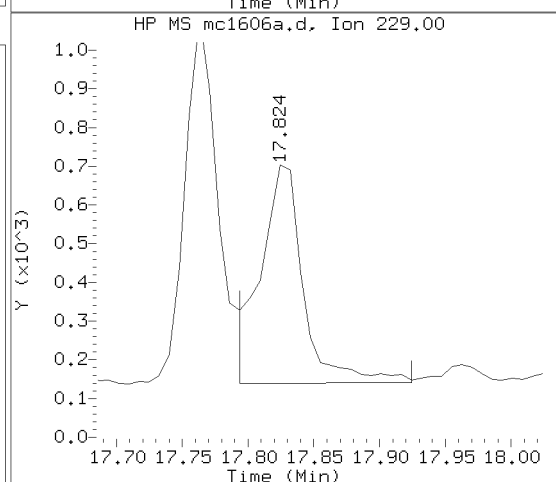
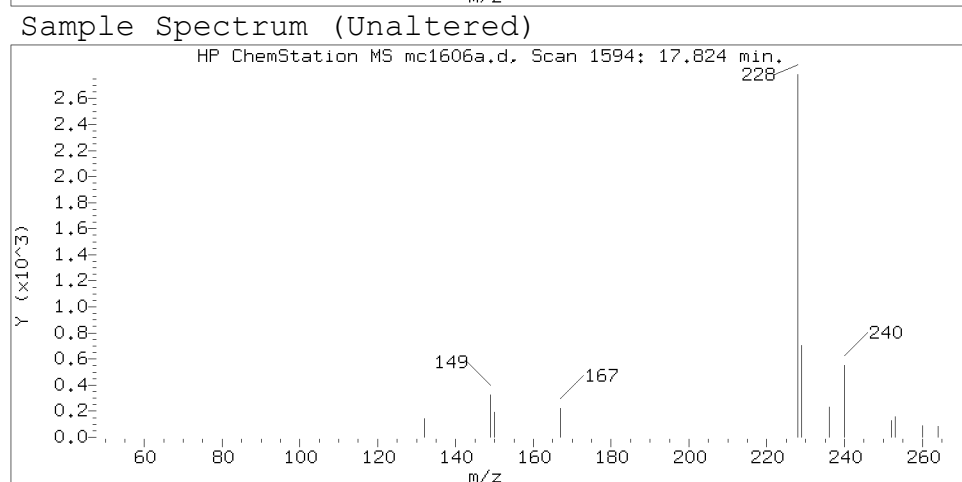
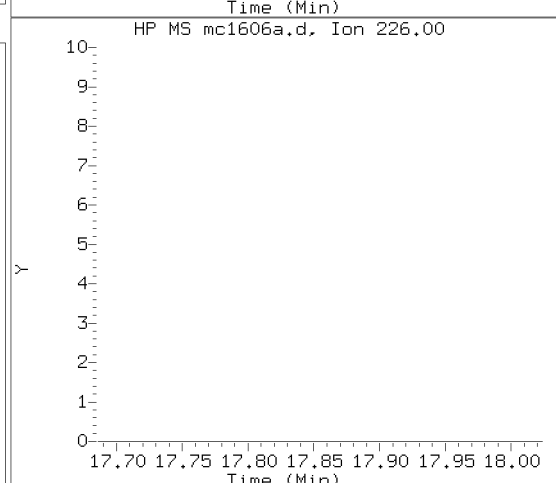
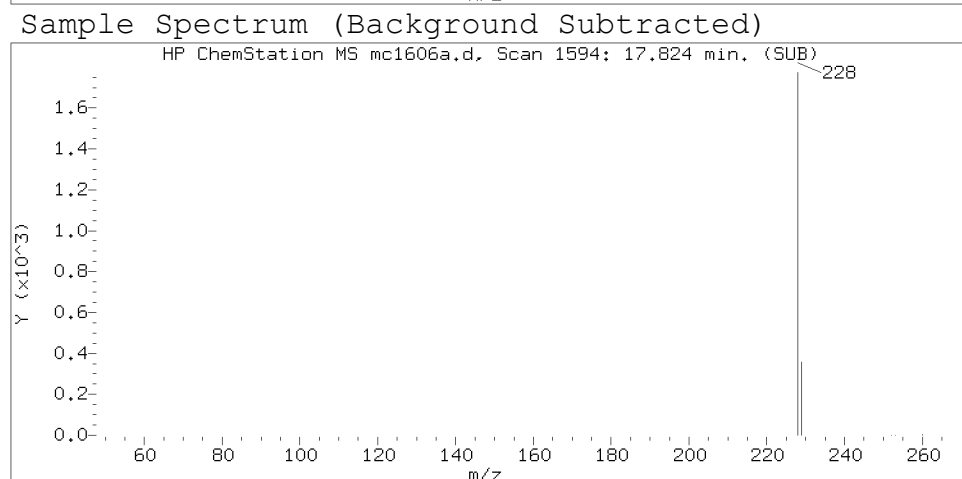
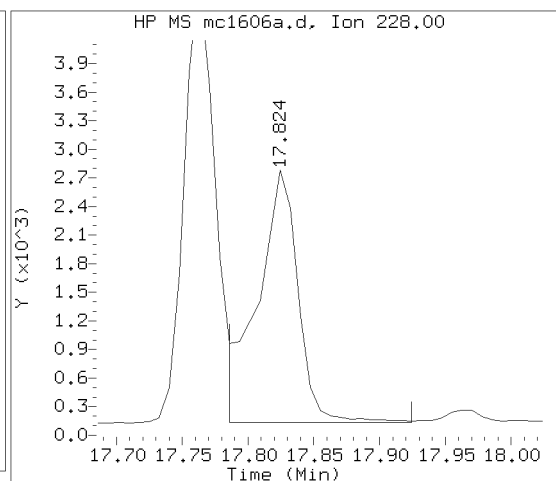
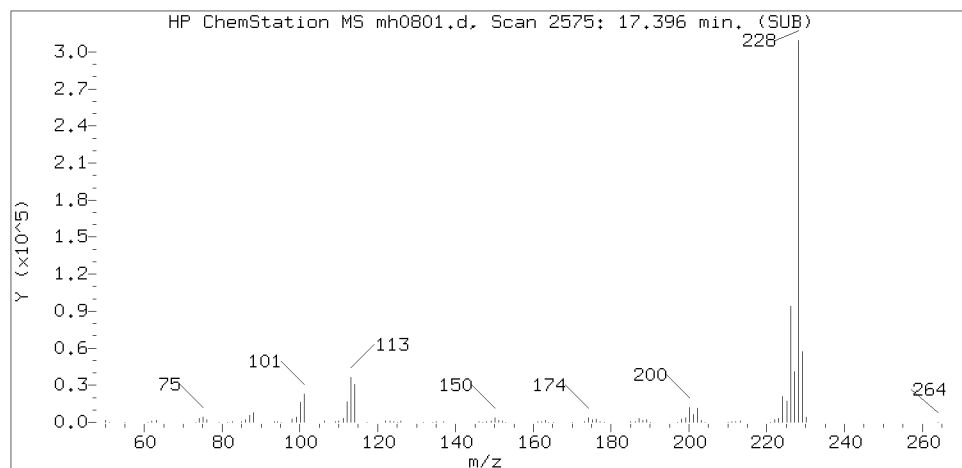
Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1586
Retention Time (minutes) : 17.763
Relative Retention Time : 0.00000
Quant Ion : 228.00
Area (flag) : 7444
On-column Amount (ng/ul) : 0.0166

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user=jmg00346

Reference Standard Spectrum for Chrysene



Data File: /chem/HP21585.i/20mar26a.b/mc1606a.d
Injection date and time: 27-MAR-2020 03:58

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 27-Mar-2020 04:41 jmg00346

Sample Name: 13200DL2

Lab Sample ID: 1285717DL2

Compound Number : 30
Compound Name : Chrysene
Scan Number : 1594
Retention Time (minutes) : 17.824
Relative Retention Time : -0.00000
Quant Ion : 228.00
Area (flag) : 5674
On-column Amount (ng/ul) : 0.0122

Digitally signed by Joseph M. Gambler on 03/27/2020 at 04:41.
Target 3.5 esignature user jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

13D01

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285718

Sample wt/vol: 245 (g/mL)ML Lab File ID: mc1565.d

Level: (low/med) LOW Date Received: 03/20/20

% Moisture: not dec: dec: Date Extracted: 03/25/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/26/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene		0.1	
208-96-8-----	Acenaphthylene		0.01	U
83-32-9-----	Acenaphthene		0.01	U
86-73-7-----	Fluorene		0.01	U
85-01-8-----	Phenanthrene		0.03	U
120-12-7-----	Anthracene		0.01	U
206-44-0-----	Fluoranthene		0.01	U
129-00-0-----	Pyrene		0.01	U
56-55-3-----	Benzo (a) anthracene		0.01	U
218-01-9-----	Chrysene		0.01	U
205-99-2-----	Benzo (b) fluoranthene		0.01	U
207-08-9-----	Benzo (k) fluoranthene		0.01	U
50-32-8-----	Benzo (a) pyrene		0.01	U
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.01	U
53-70-3-----	Dibenz (a,h) anthracene		0.02	U
191-24-2-----	Benzo (g,h,i) perylene		0.01	U

FORM I SV-1

13D01

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285718

Data file: /chem/HP21585.i/20mar26.b/mc1565.d

Injection date and time: 26-MAR-2020 13:06

Data file Sample Info. Line: 13D01;1285718;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 18:18 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 245 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	22070 (-4)	0.25	
6) Naphthalene-d8	8.971 (0.000)	538	136	75039 (-5)	0.25	
14) Acenaphthene-d10	11.722 (0.000)	748	164	35237 (-14)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	76222 (-14)	0.25	
29) Chrysene-d12	17.778 (0.000)	1588	240	63530 (-24)	0.25	
38) Perylene-d12	20.263 (0.000)	1912	264	82522 (-5)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	25753	0.168	67%		15 - 121
24) Fluoranthene-d10	(4)	15.327 (0.000)	212	72706	0.226	90%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.133 (0.000)	264	54771	0.176	70%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.013 (-0.000)	128	9235	0.026	0.11			0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

13D01

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285718

Data file: /chem/HP21585.i/20mar26.b/mc1565.d

Injection date and time: 26-MAR-2020 13:06

Data file Sample Info. Line: 13D01;1285718;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 18:18 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 245 ml

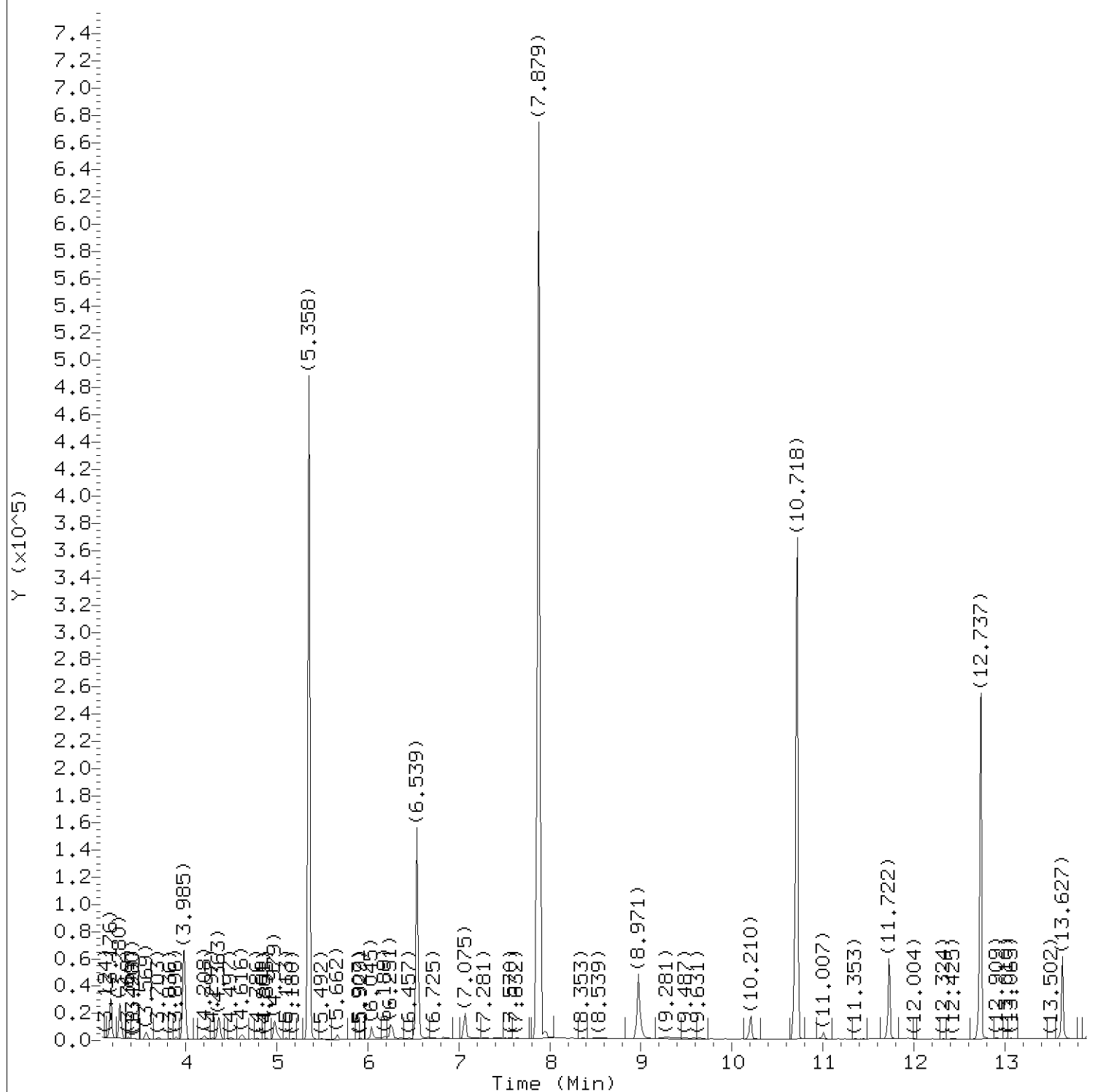
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27. Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58. PARALLAX ID: cam01237



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1565.d
Injection date and time: 26-MAR-2020 13:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

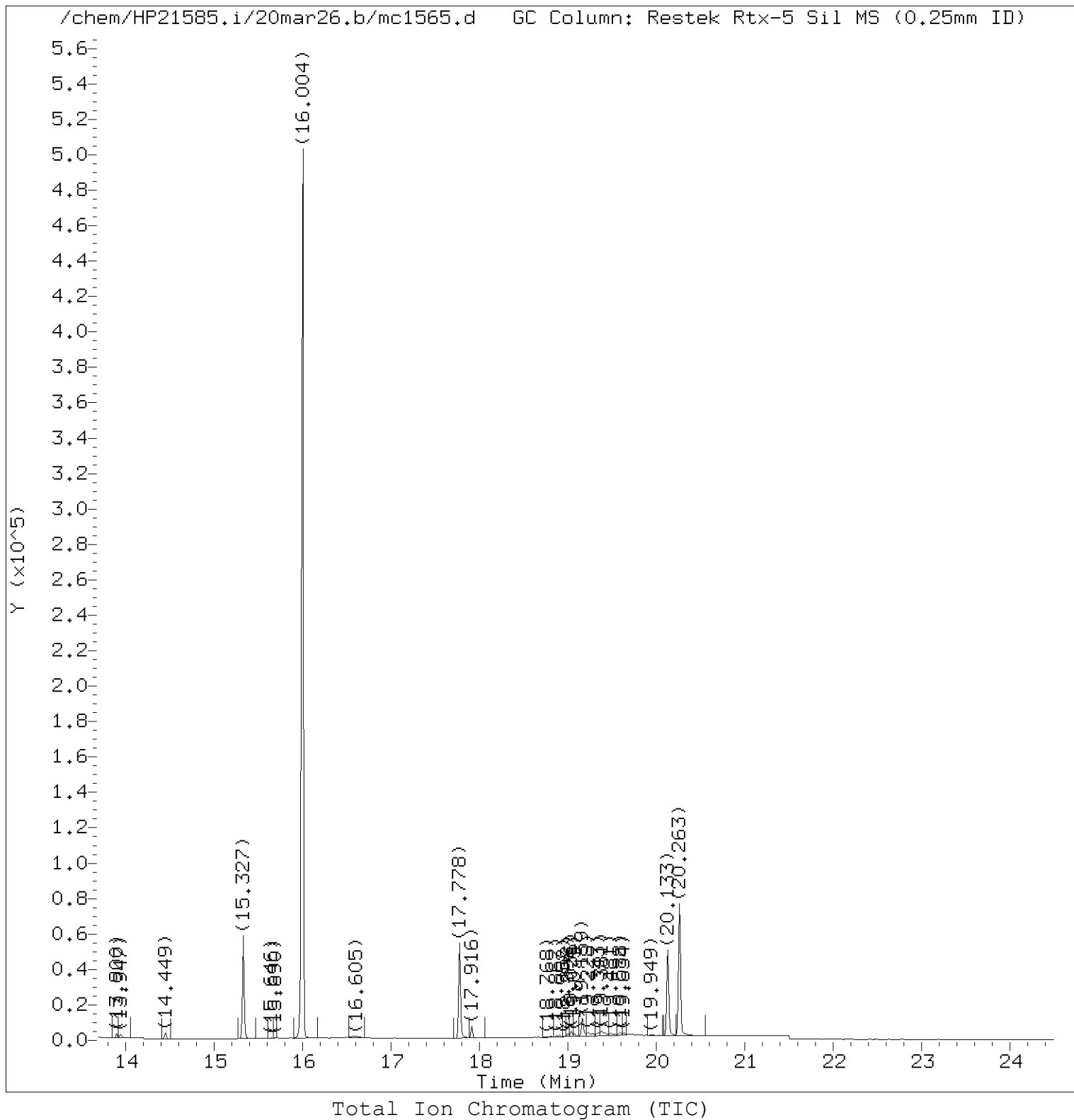
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:18 art12405

Sample Name: 13D01

Lab Sample ID: 1285718

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405



Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1565.d
Injection date and time: 26-MAR-2020 13:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:18 art12405

Sample Name: 13D01

Lab Sample ID: 1285718

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1565.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 13:06

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:18 art12405

Sample Name: 13D01

Lab Sample ID: 1285718

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	22070	0.250
6) *Naphthalene-d8	(2)	8.971	136	75039	0.250
7) Naphthalene	(2)	9.013	128	9235	0.026
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	25753	0.168
14) *Acenaphthene-d10	(3)	11.722	164	35237	0.250
20) *Phenanthrene-d10	(4)	13.627	188	76222	0.250
24) \$Fluoranthene-d10	(4)	15.327	212	72706	0.226
29) *Chrysene-d12	(5)	17.778	240	63530	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	54771	0.176
38) *Perylene-d12	(6)	20.263	264	82522	0.250

* = Compound is an internal standard.

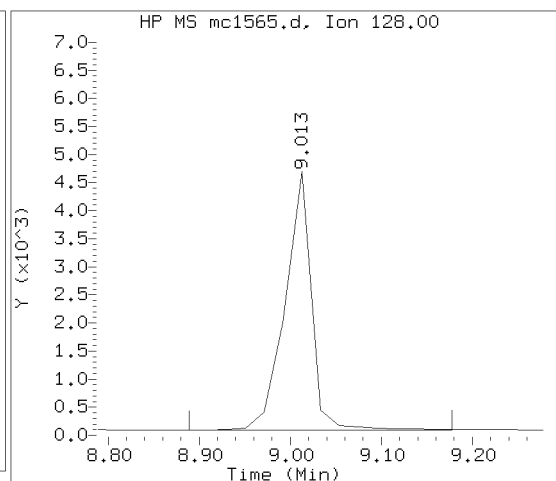
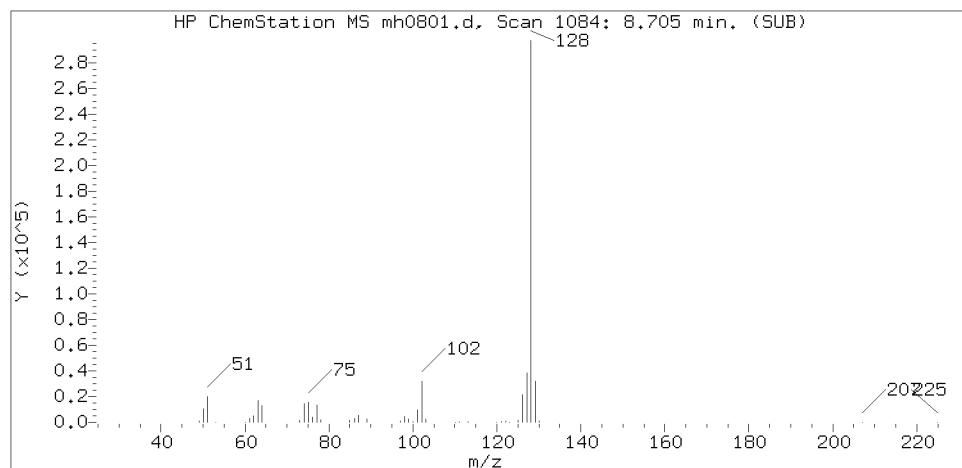
\$ = Compound is a surrogate standard.

Digitally signed by Ashley R. Transue

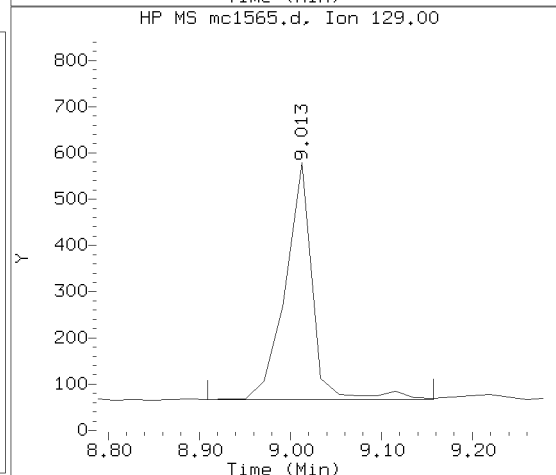
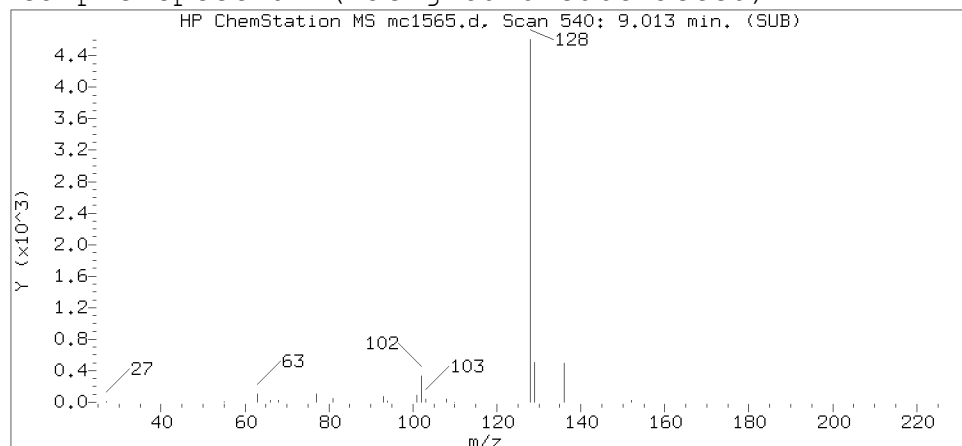
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

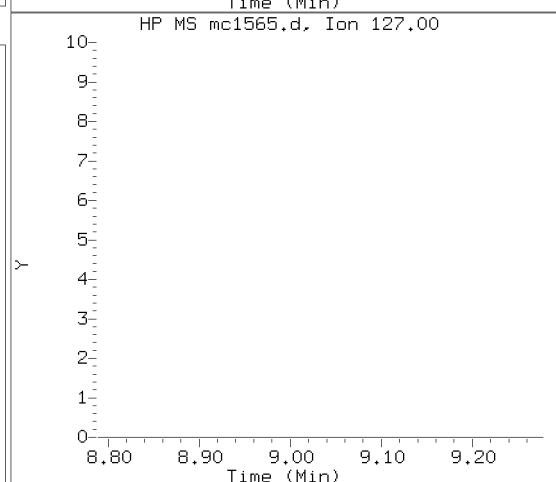
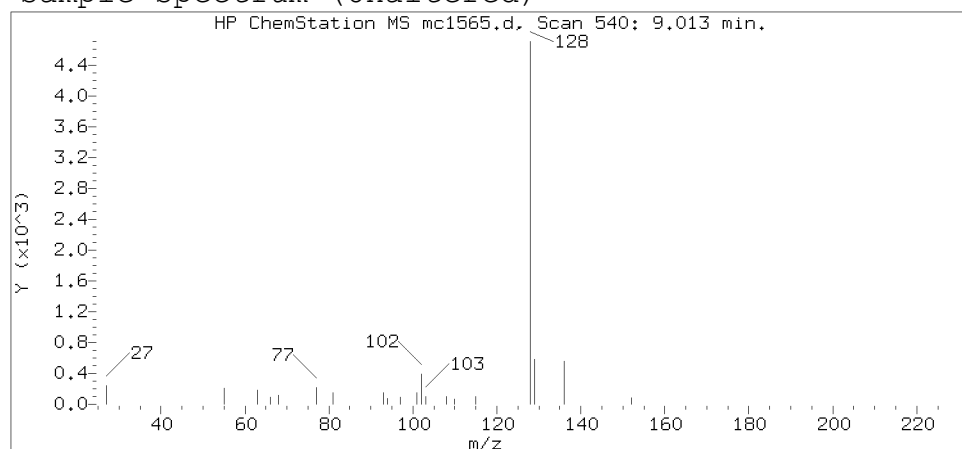
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1565.d
Injection date and time: 26-MAR-2020 13:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:18 art12405

Sample Name: 13D01

Lab Sample ID: 1285718

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 540
Retention Time (minutes) : 9.013
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 9235
On-column Amount (ng/ul) : 0.0260

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
GPY68 Page 370 of 586

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

12S01

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285719

Sample wt/vol: 240 (g/mL)ML Lab File ID: mc1566.d

Level: (low/med) LOW Date Received: 03/20/20

% Moisture: not dec: dec: Date Extracted: 03/25/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/26/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:			Q
		(ug/L or ug/Kg) MDL	UG/L		
91-20-3-----	Naphthalene		0.09		
208-96-8-----	Acenaphthylene		0.06		
83-32-9-----	Acenaphthene		0.08		
86-73-7-----	Fluorene		0.08		
85-01-8-----	Phenanthrene		0.4		
120-12-7-----	Anthracene		0.2		
206-44-0-----	Fluoranthene		0.8		
129-00-0-----	Pyrene		1		
56-55-3-----	Benzo (a) anthracene		0.6		
218-01-9-----	Chrysene		0.5		
205-99-2-----	Benzo (b) fluoranthene		0.5		
207-08-9-----	Benzo (k) fluoranthene		0.2		
50-32-8-----	Benzo (a) pyrene		0.5		
193-39-5-----	Indeno (1,2,3-cd)pyrene		0.3		
53-70-3-----	Dibenz (a,h) anthracene		0.06		J
191-24-2-----	Benzo (g,h,i) perylene		0.2		

FORM I SV-1

12S01

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285719

Data file: /chem/HP21585.i/20mar26.b/mc1566.d

Injection date and time: 26-MAR-2020 13:36

Data file Sample Info. Line: 12S01;1285719;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 240 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	22576 (-2)	0.25	
6) Naphthalene-d8	8.972 (0.000)	538	136	77523 (-1)	0.25	
14) Acenaphthene-d10	11.722 (0.000)	748	164	38612 (-6)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	84454 (-5)	0.25	
29) Chrysene-d12	17.778 (0.000)	1588	240	75732 (-9)	0.25	
38) Perylene-d12	20.263 (0.000)	1912	264	88736 (2)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	25123	0.158	63%		15 - 121
24) Fluoranthene-d10	(4)	15.327 (0.000)	212	76004	0.213	85%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.133 (0.000)	264	55538	0.166	66%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.013 (-0.000)	128	7497	0.020	0.09			0.008
13) Acenaphthylene	(3)	11.526 (0.000)	152	6276	0.015	0.06			0.003
15) Acenaphthene	(3)	11.769 (-0.000)	154	4220	0.018	0.08			0.003
18) Fluorene	(3)	12.425 (-0.000)	166	5211	0.018	0.08			0.003
21) Phenanthrene	(4)	13.658 (-0.000)	178	38668	0.088	0.37			0.008
22) Anthracene	(4)	13.721 (-0.000)	178	15113	0.037	0.15			0.003
25) Fluoranthene	(4)	15.358 (0.000)	202	91607	0.190	0.79			0.003
26) Pyrene	(5)	15.709 (0.000)	202	136331	0.251	1.05			0.003
28) Benzo (a)anthracene	(5)	17.755 (-0.000)	228	61637	0.134	0.56			0.003
30) Chrysene	(5)	17.824 (-0.000)	228	58240	0.123	0.51			0.003
33) Benzo (b)fluoranthene	(6)	19.642 (-0.000)	252	54753M	0.109	0.46			0.003
34) Benzo (k)fluoranthene	(6)	19.680 (-0.000)	252	19695M	0.038	0.16			0.003
37) Benzo (a)pyrene	(6)	20.171 (0.000)	252	58574	0.123	0.51			0.003
39) Indeno (1,2,3-cd)pyrene	(6)	22.000 (-0.000)	276	26577M	0.062	0.26			0.003
40) Dibenz (a,h)anthracene	(6)	22.043 (0.000)	278	7080	0.015	0.06			0.005
41) Benzo (g,h,i)perylene	(6)	22.481 (-0.000)	276	29776	0.059	0.25			0.003

M = Compound was manually integrated.

12S01

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285719

Data file: /chem/HP21585.i/20mar26.b/mc1566.d

Injection date and time: 26-MAR-2020 13:36

Data file Sample Info. Line: 12S01;1285719;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 240 ml

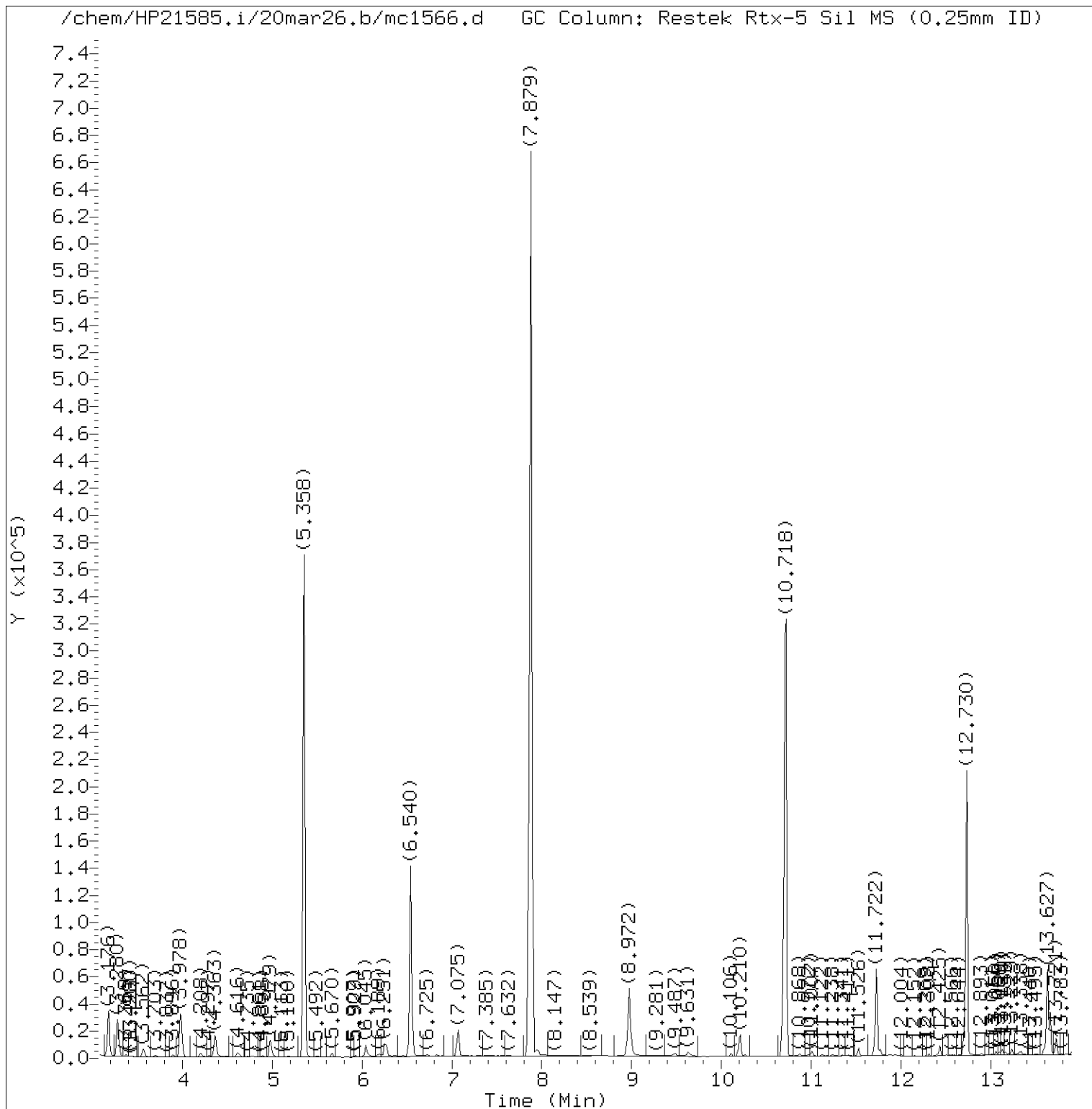
Volume Injected (Vi): 2 ul

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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 16

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27. Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59. PARALLAX ID: cam01237



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

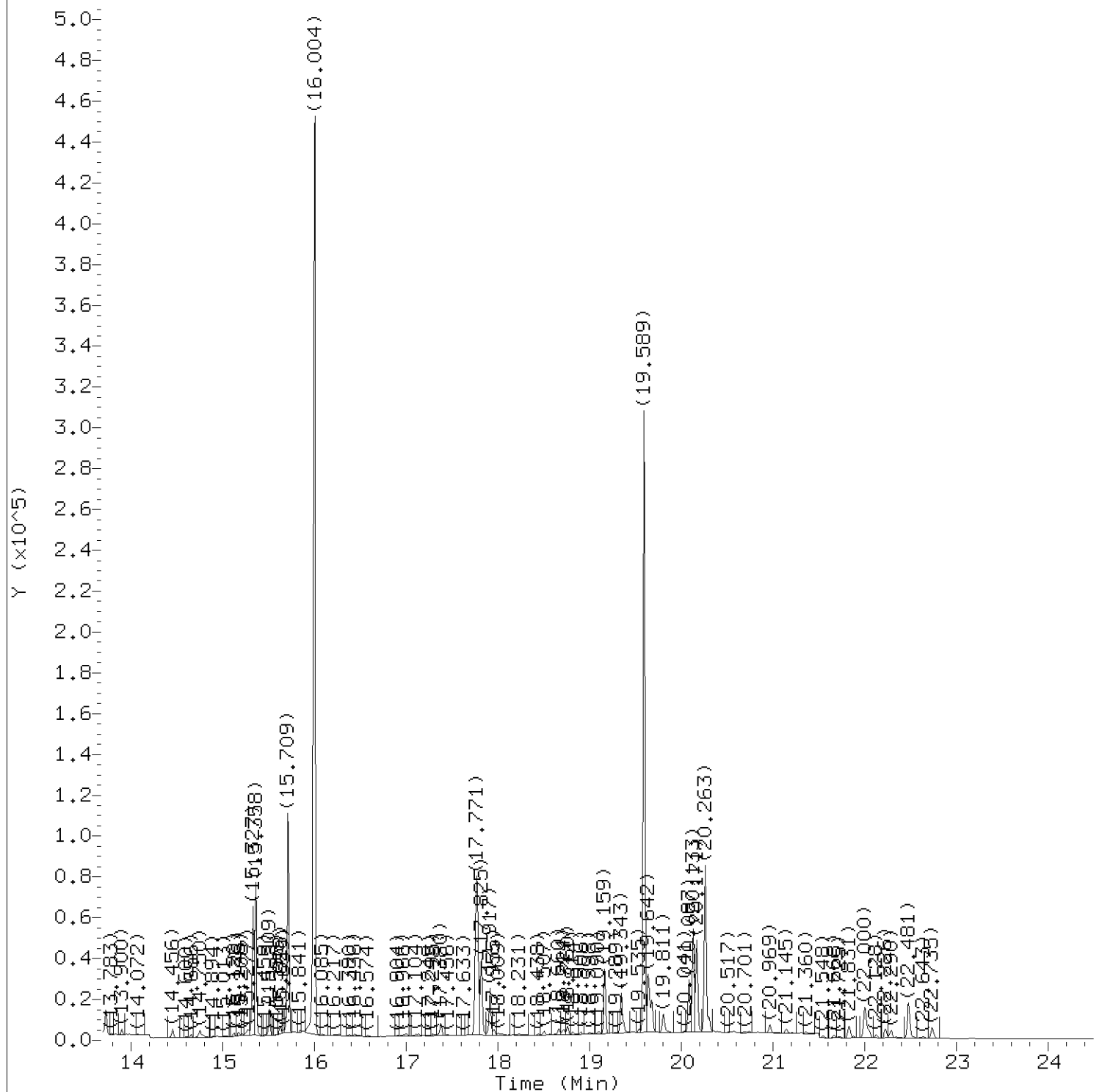
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

Lab Sample ID: 1285719

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405



Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1566.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 13:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

Lab Sample ID: 1285719

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	22576	0.250
6) *Naphthalene-d8	(2)	8.972	136	77523	0.250
7) Naphthalene	(2)	9.013	128	7497	0.020
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	25123	0.158
13) Acenaphthylene	(3)	11.526	152	6276	0.015
14) *Acenaphthene-d10	(3)	11.722	164	38612	0.250
15) Acenaphthene	(3)	11.769	154	4220	0.018
18) Fluorene	(3)	12.425	166	5211	0.018
20) *Phenanthrene-d10	(4)	13.627	188	84454	0.250
21) Phenanthrene	(4)	13.658	178	38668	0.088
22) Anthracene	(4)	13.721	178	15113	0.037
24) \$Fluoranthene-d10	(4)	15.327	212	76004	0.213
25) Fluoranthene	(4)	15.358	202	91607	0.190
26) Pyrene	(5)	15.709	202	136331	0.251
28) Benzo(a)anthracene	(5)	17.755	228	61637	0.134
29) *Chrysene-d12	(5)	17.778	240	75732	0.250
30) Chrysene	(5)	17.825	228	58240	0.123
33) Benzo(b)fluoranthene	(6)	19.642	252	54753M	0.109
34) Benzo(k)fluoranthene	(6)	19.681	252	19695M	0.038
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	55538	0.166
37) Benzo(a)pyrene	(6)	20.171	252	58574	0.123
38) *Perylene-d12	(6)	20.263	264	88736	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.000	276	26577M	0.062
40) Dibenz(a,h)anthracene	(6)	22.043	278	7080	0.015
41) Benzo(g,h,i)perylene	(6)	22.481	276	29776	0.059

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Ashley R. Transue

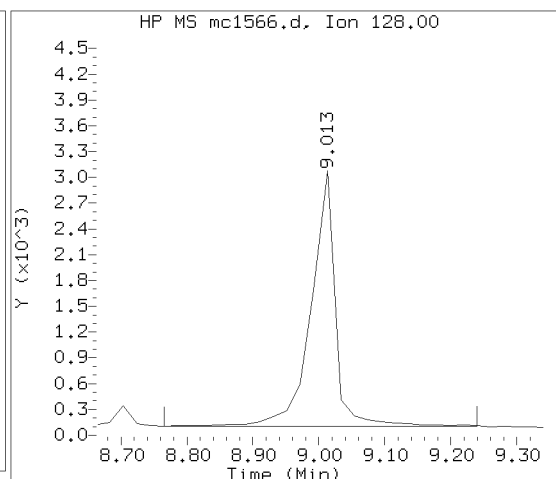
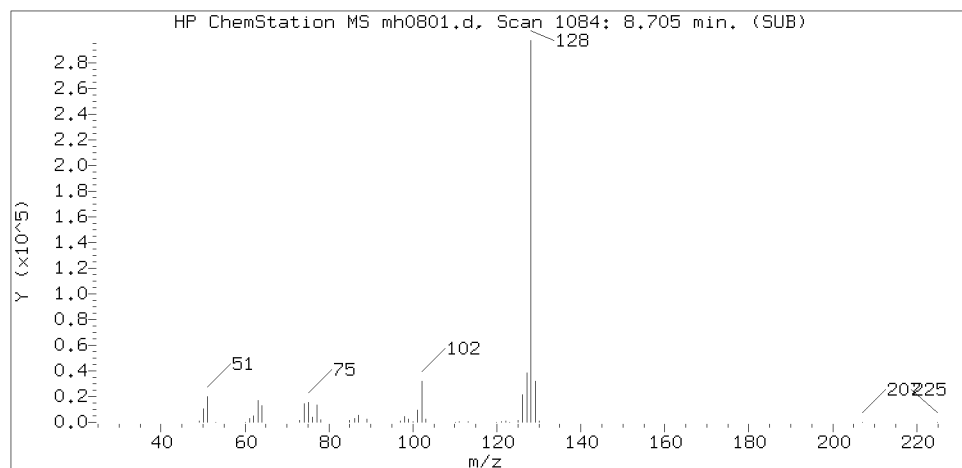
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

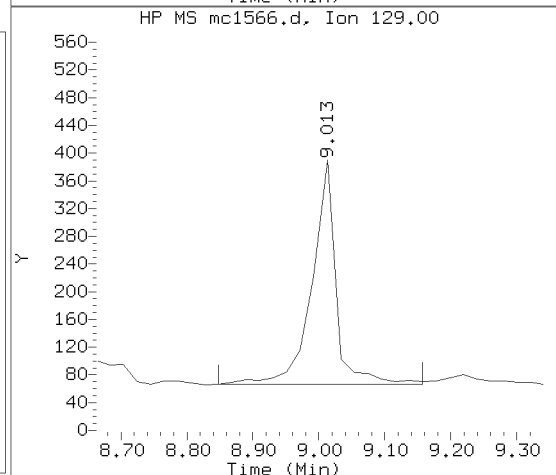
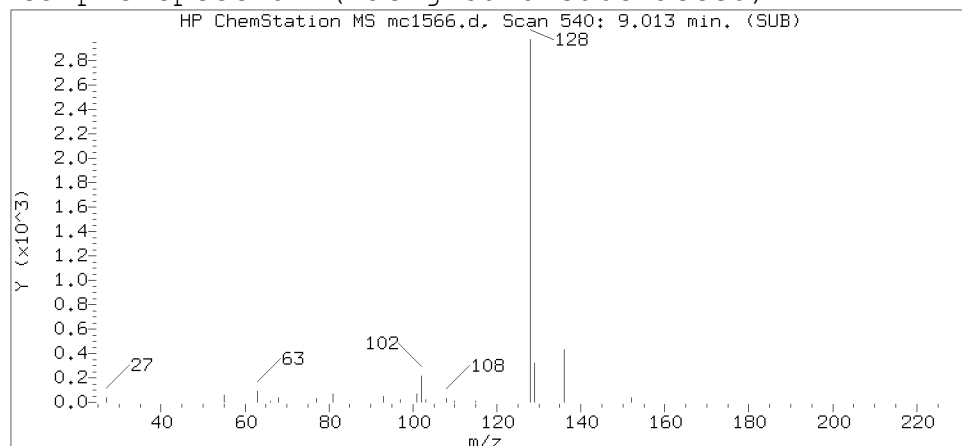
GPY68 Page 376 of 586

page 1 of 1

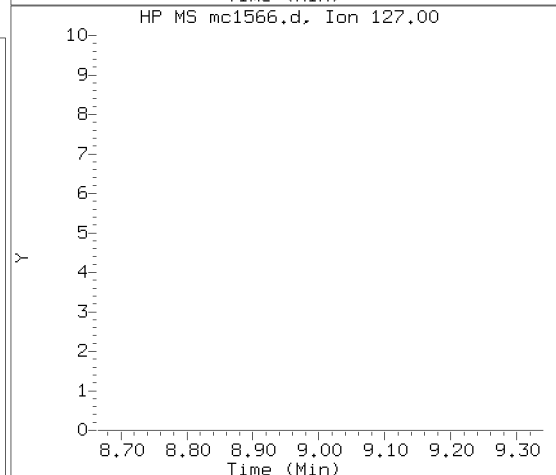
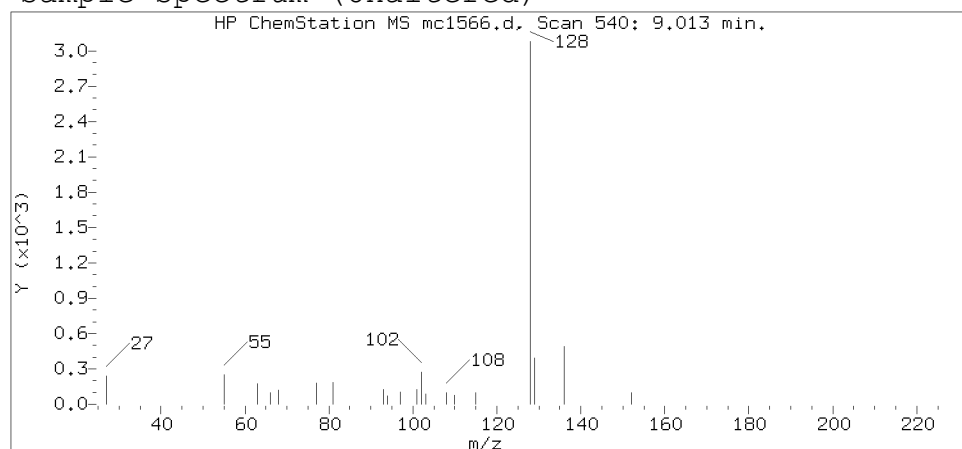
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

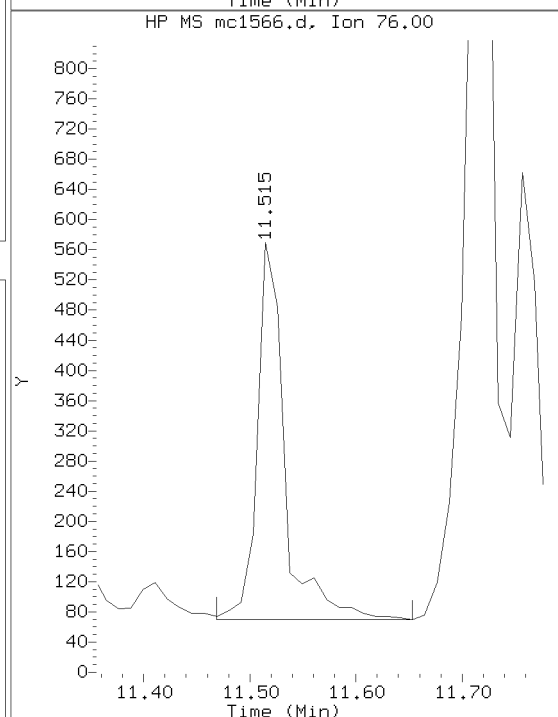
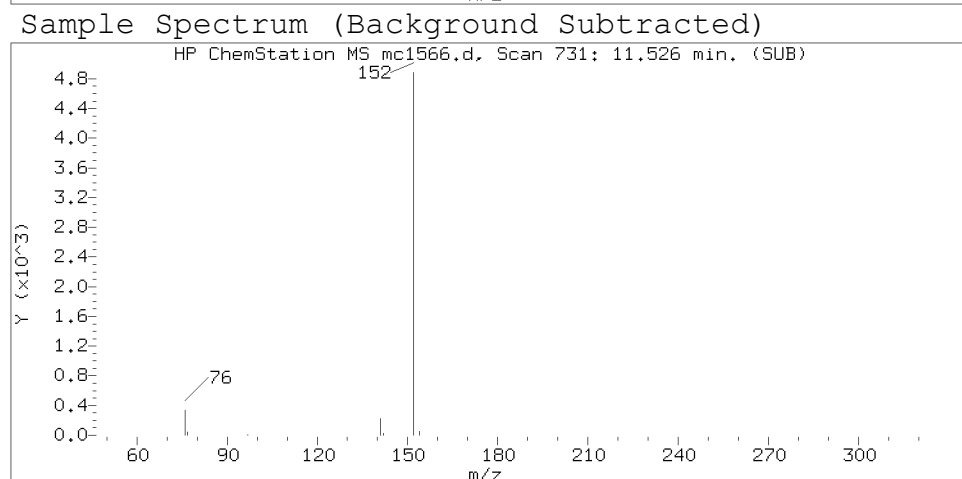
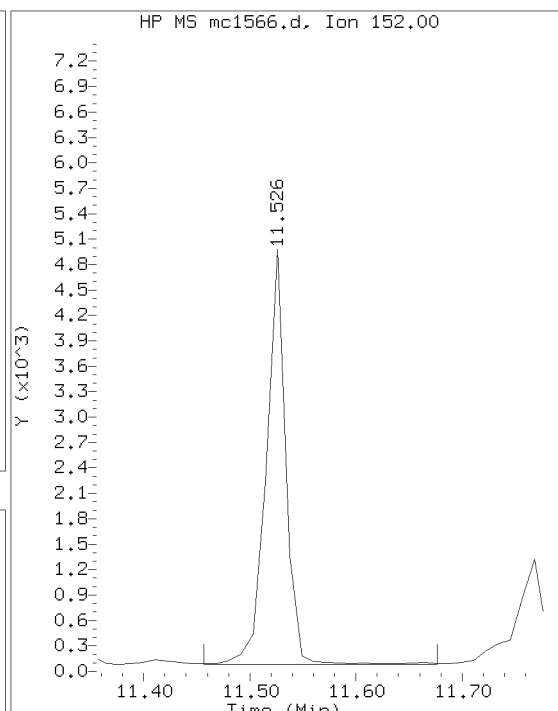
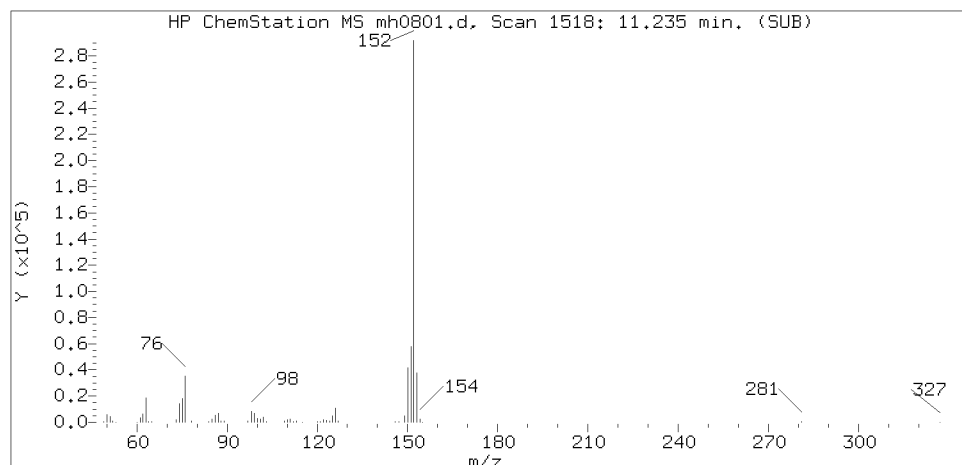
Lab Sample ID: 1285719

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 540
Retention Time (minutes) : 9.013
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 7497
On-column Amount (ng/ul) : 0.0204

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Target 3.5 esignature user art12405
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Reference Standard Spectrum for Acenaphthylene



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

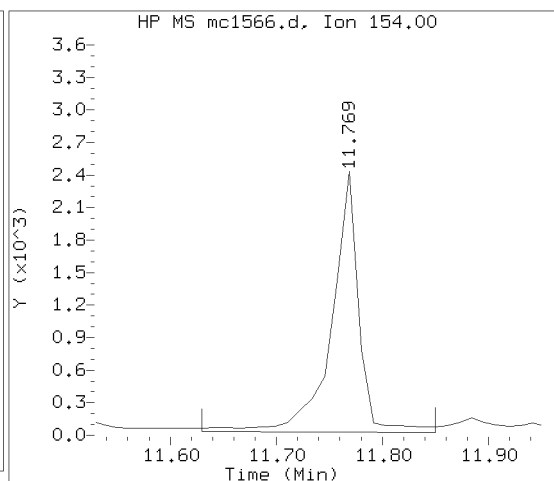
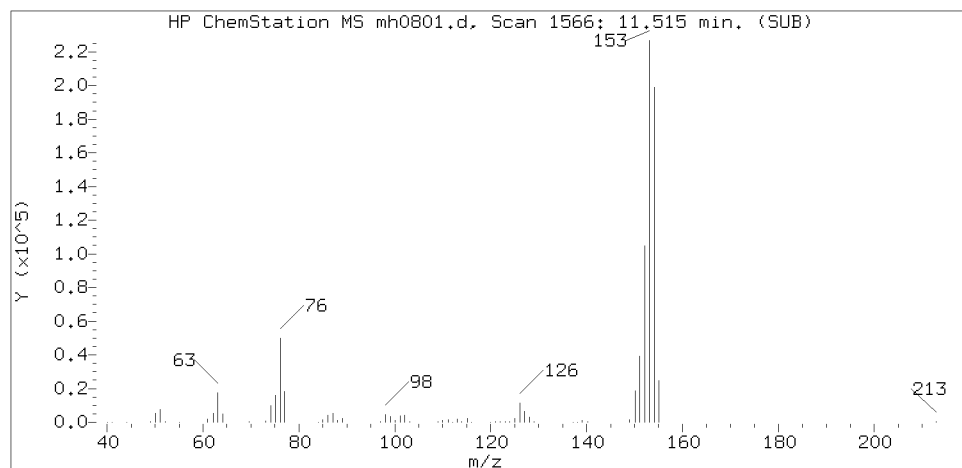
Sample Name: 12S01

Lab Sample ID: 1285719

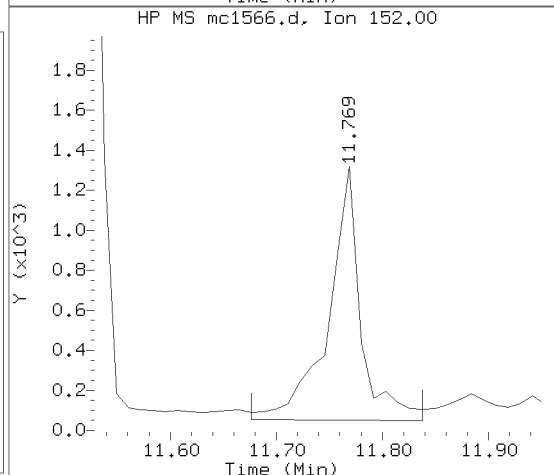
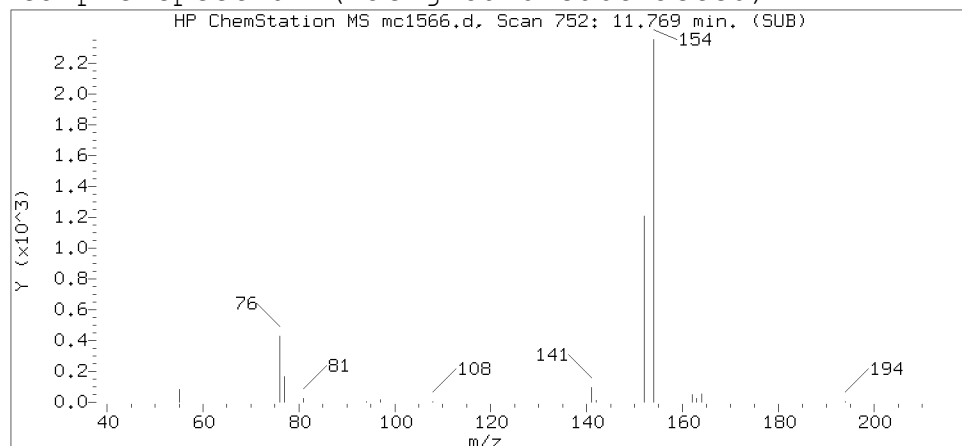
Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 731
Retention Time (minutes) : 11.526
Relative Retention Time : 0.00000
Quant Ion : 152.00
Area (flag) : 6276
On-column Amount (ng/ul) : 0.0153

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Target 3.5 esignature user: art12405

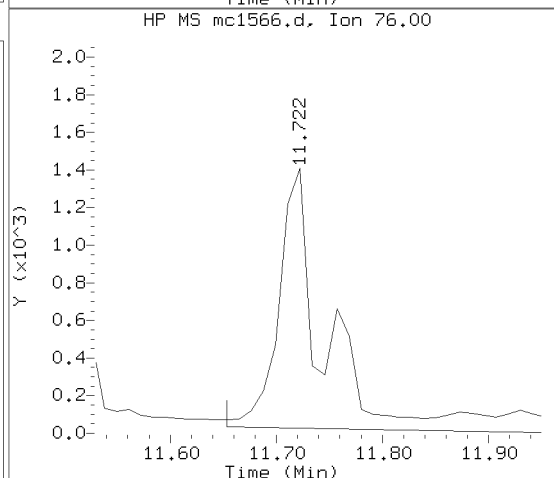
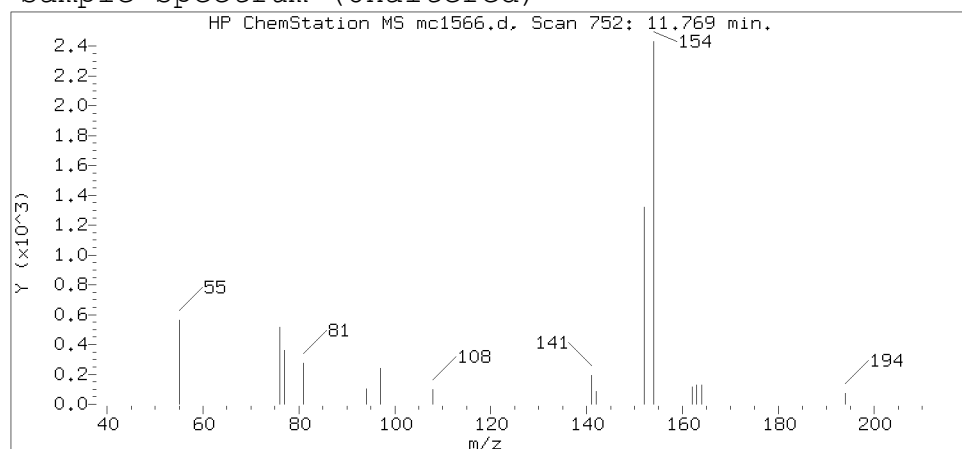
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

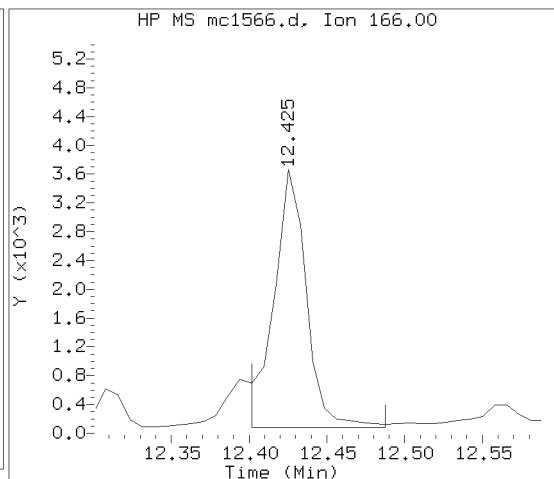
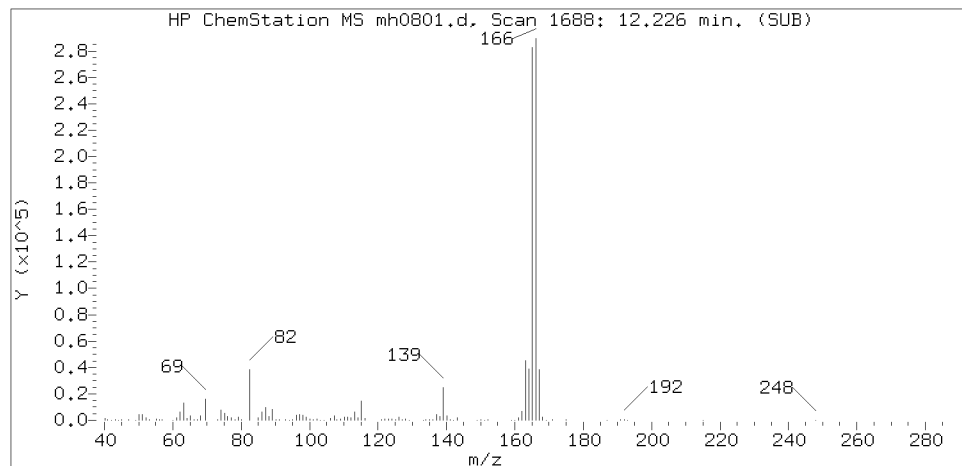
Lab Sample ID: 1285719

Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 752
Retention Time (minutes) : 11.769
Relative Retention Time : -0.00000
Quant Ion : 154.00
Area (flag) : 4220
On-column Amount (ng/ul) : 0.0185

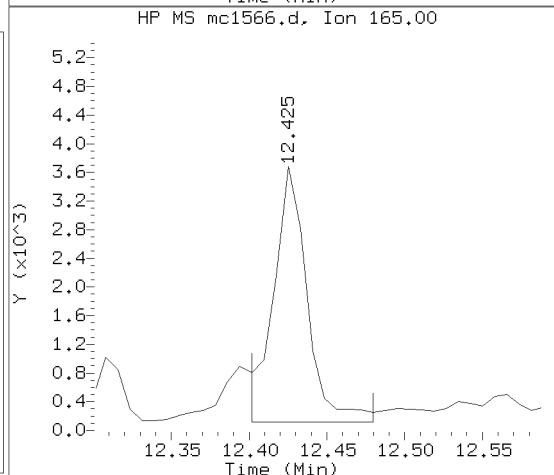
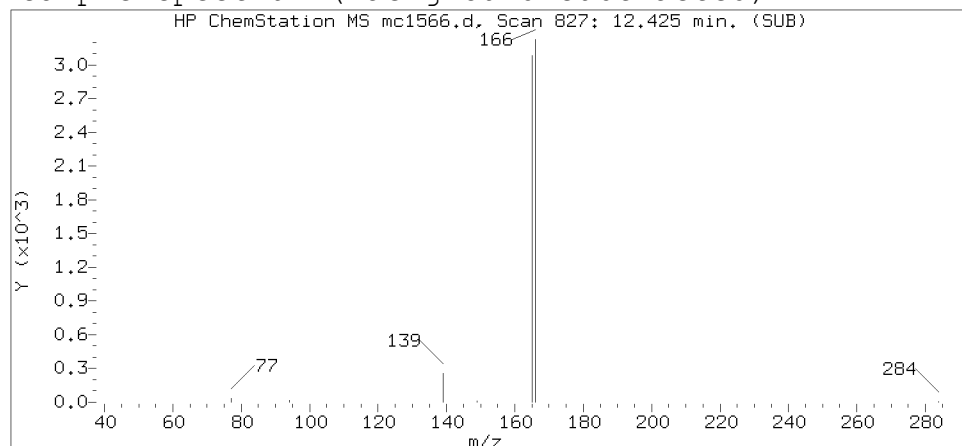
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
GPY68-Page 379 of 586

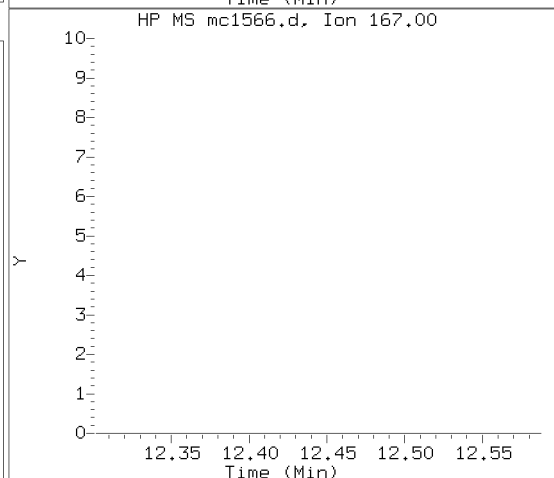
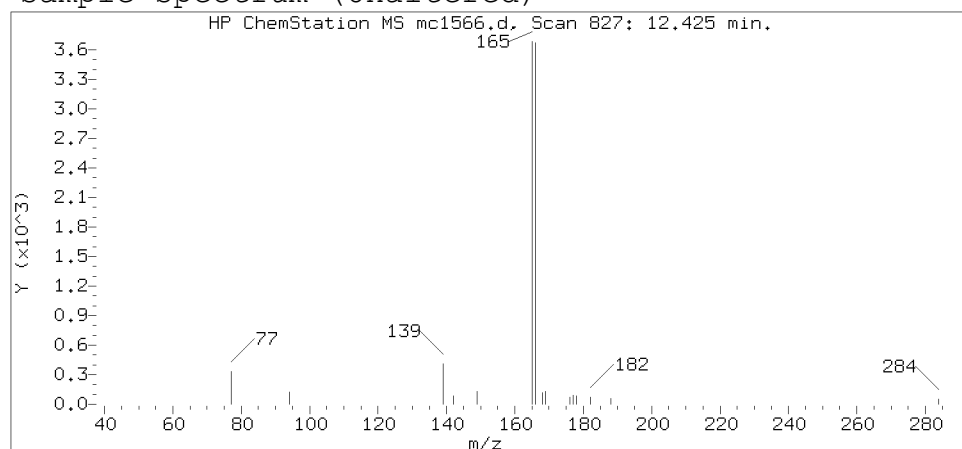
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

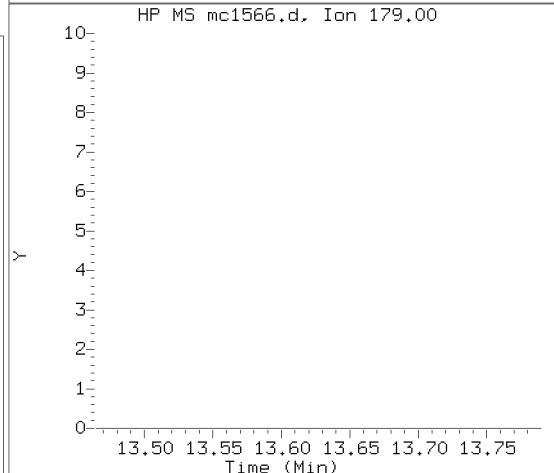
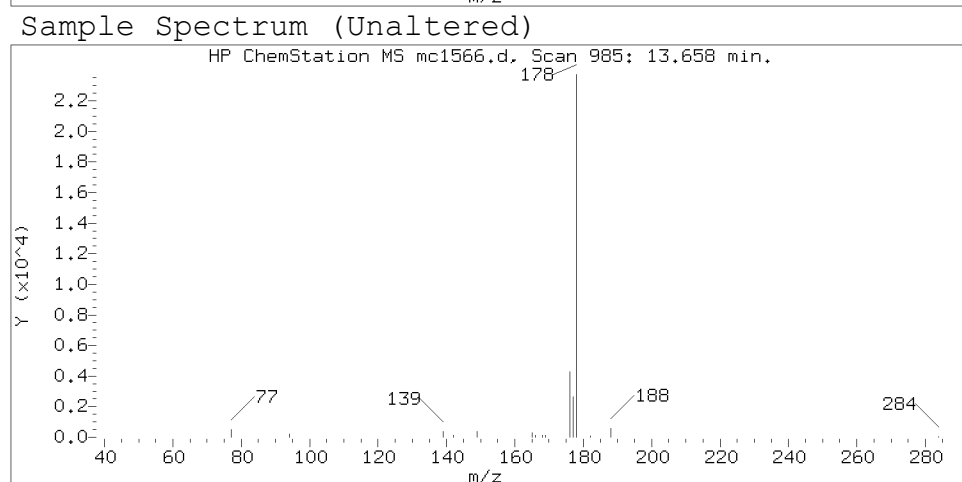
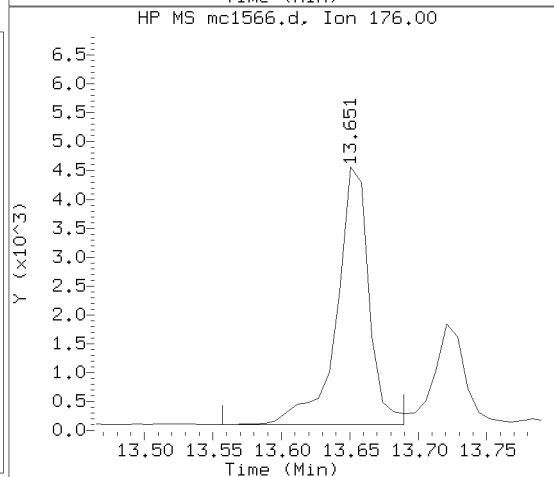
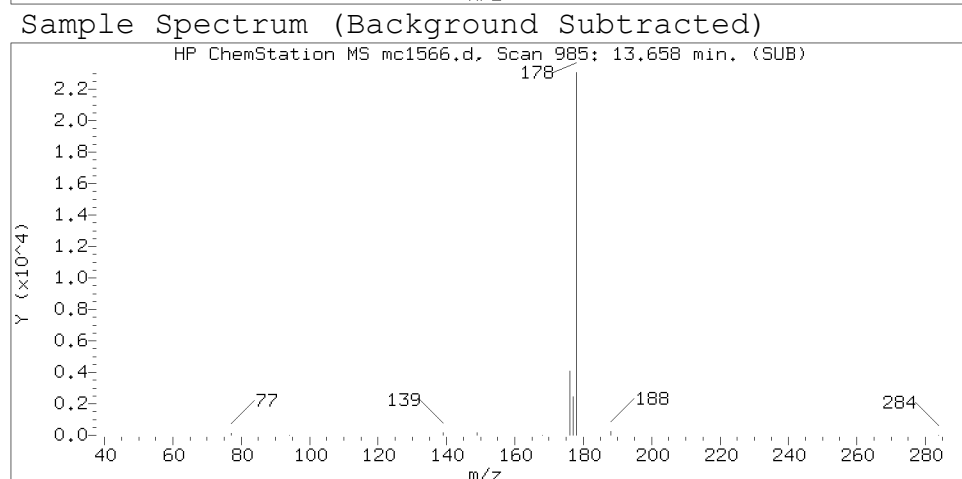
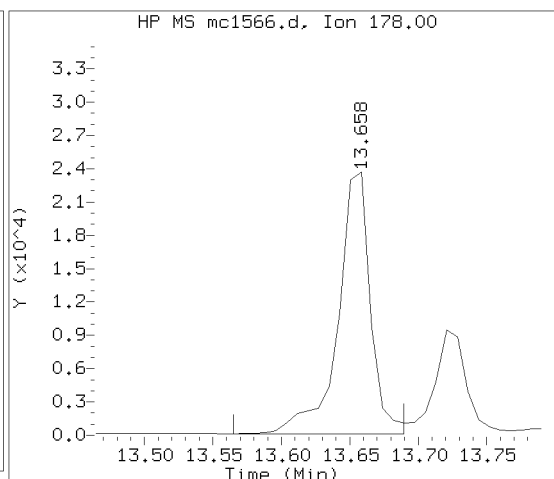
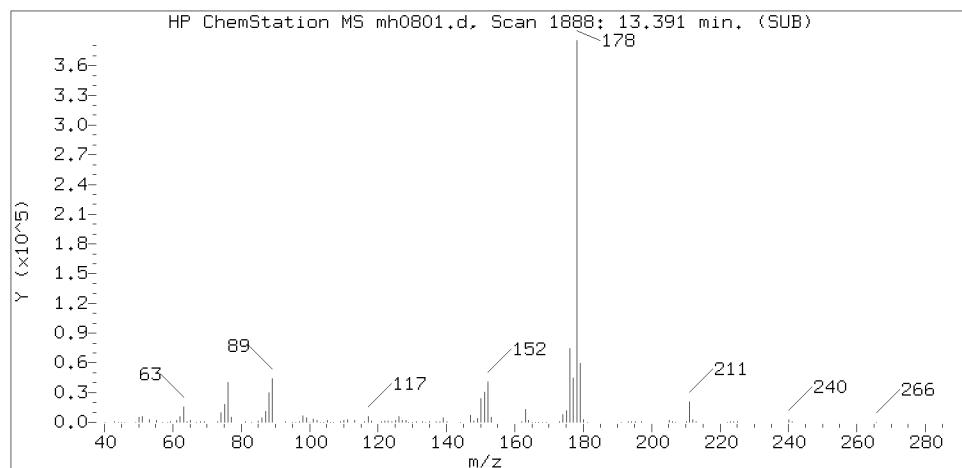
Lab Sample ID: 1285719

Compound Number : 18
Compound Name : Fluorene
Scan Number : 827
Retention Time (minutes) : 12.425
Relative Retention Time : -0.00000
Quant Ion : 166.00
Area (flag) : 5211
On-column Amount (ng/ul) : 0.0180

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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Reference Standard Spectrum for Phenanthrene



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

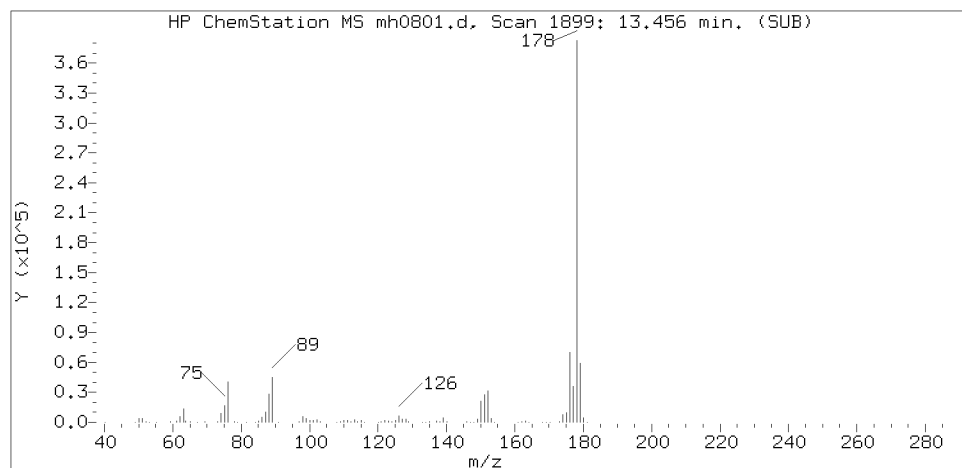
Lab Sample ID: 1285719

Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 985
Retention Time (minutes) : 13.658
Relative Retention Time : -0.00057
Quant Ion : 178.00
Area (flag) : 38668
On-column Amount (ng/ul) : 0.0882

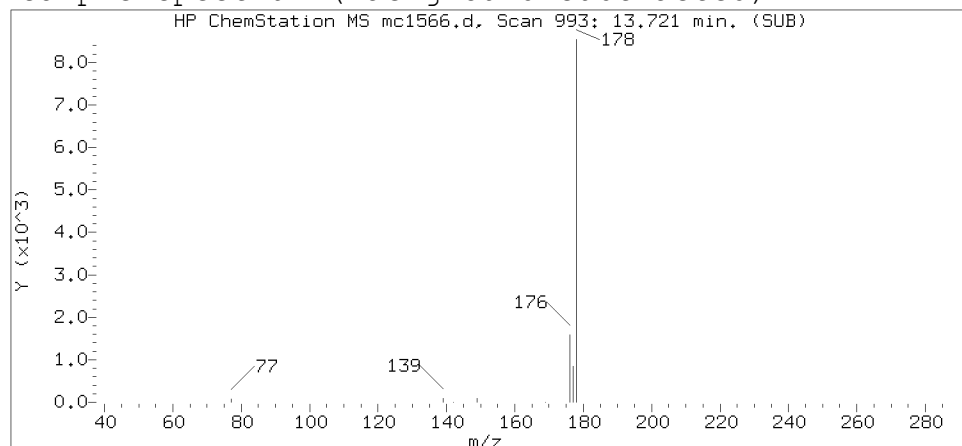
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
GPY68 Page 381 of 586

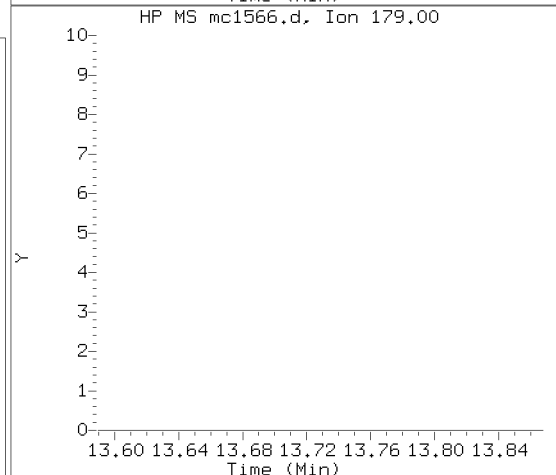
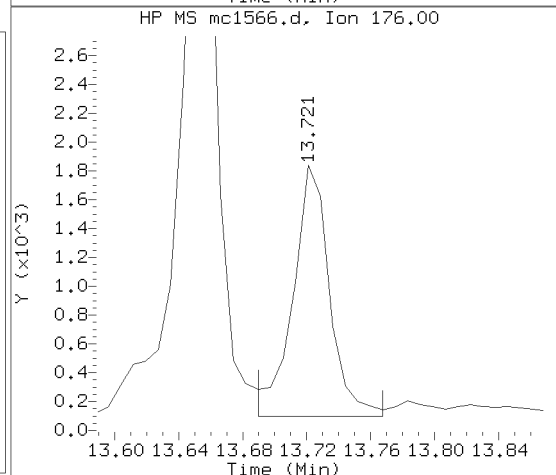
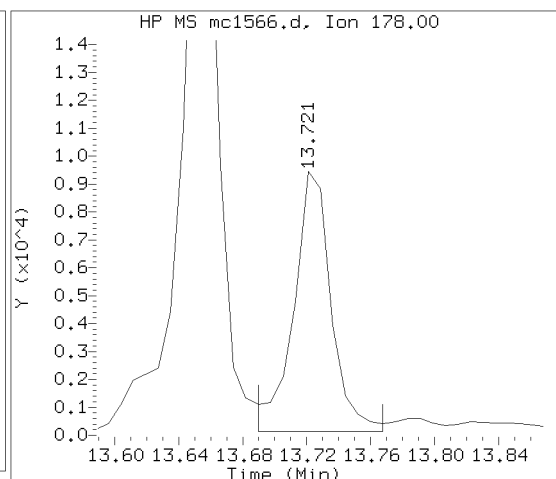
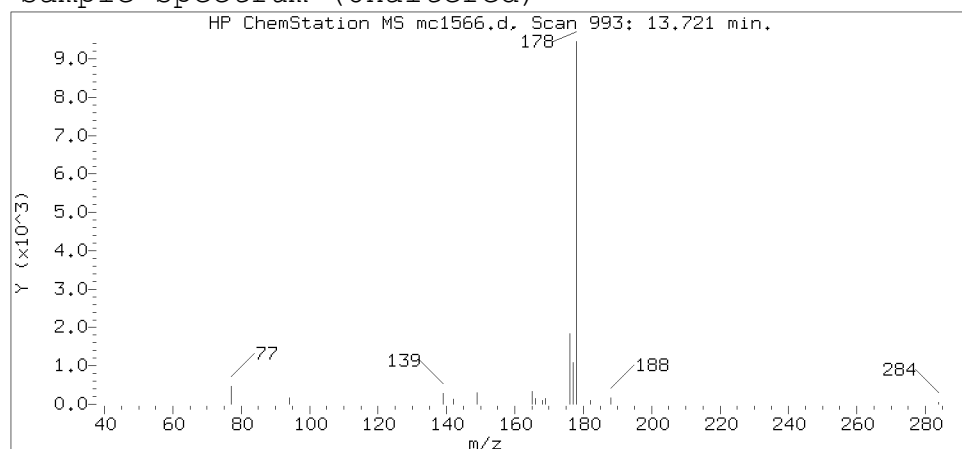
Reference Standard Spectrum for Anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

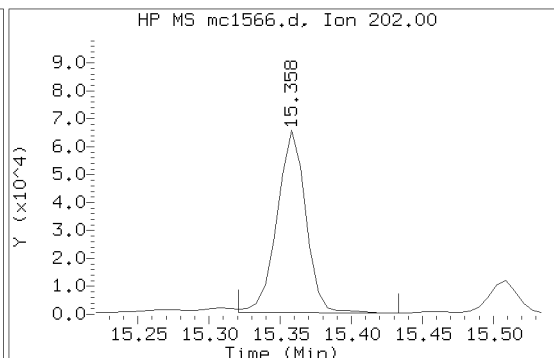
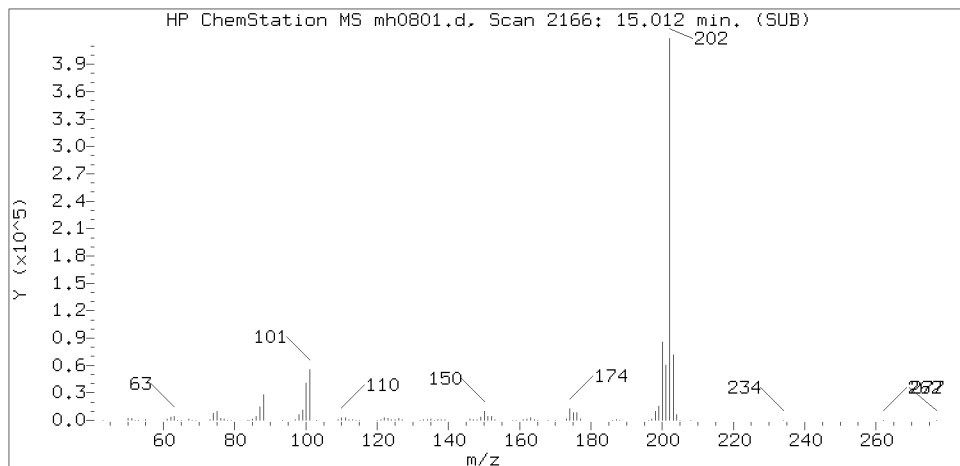
Sample Name: 12S01

Lab Sample ID: 1285719

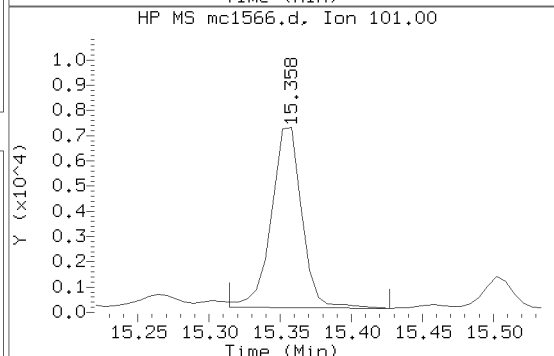
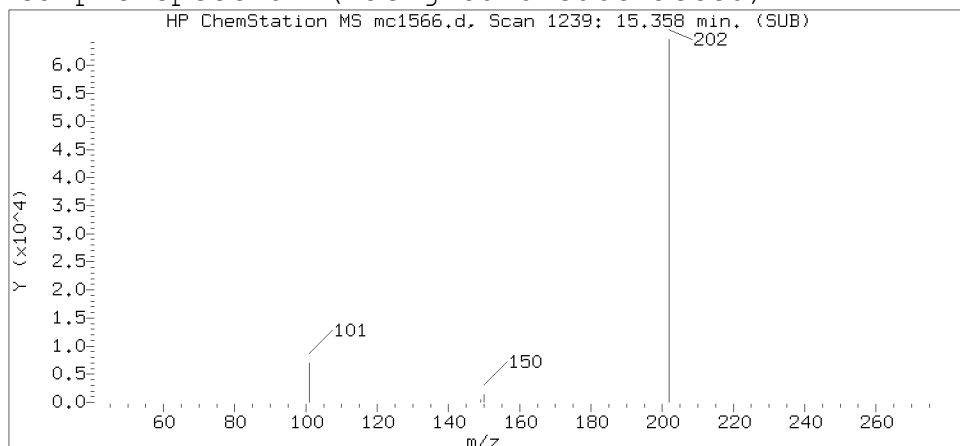
Compound Number : 22
Compound Name : Anthracene
Scan Number : 993
Retention Time (minutes) : 13.721
Relative Retention Time :-0.00000
Quant Ion : 178.00
Area (flag) : 15113
On-column Amount (ng/ul) : 0.0368

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Target 3.5 esignature user=art12405

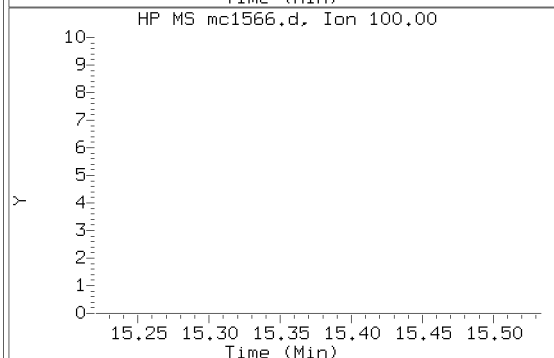
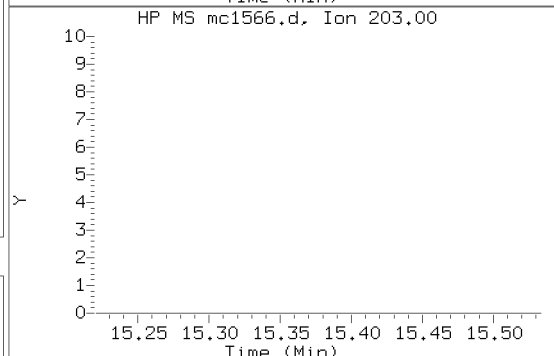
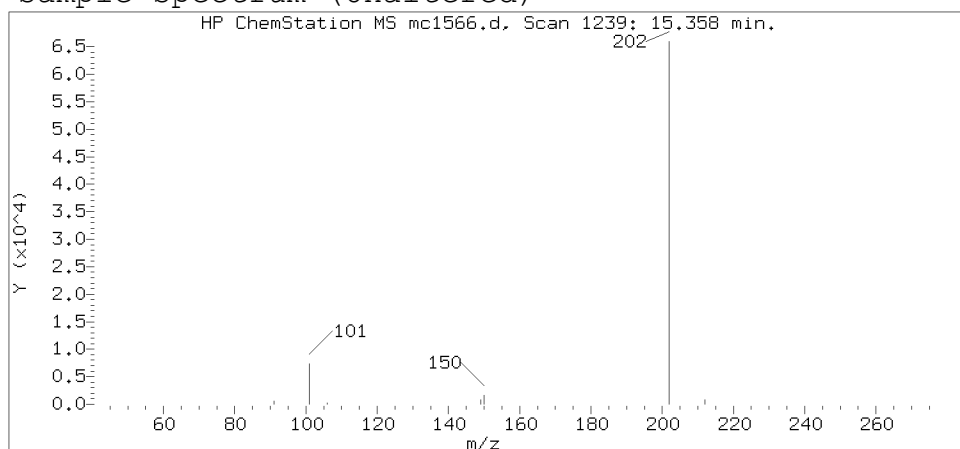
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

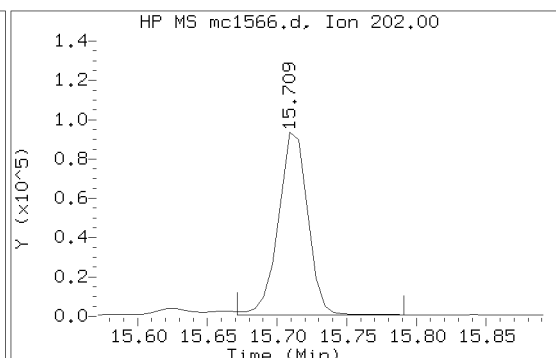
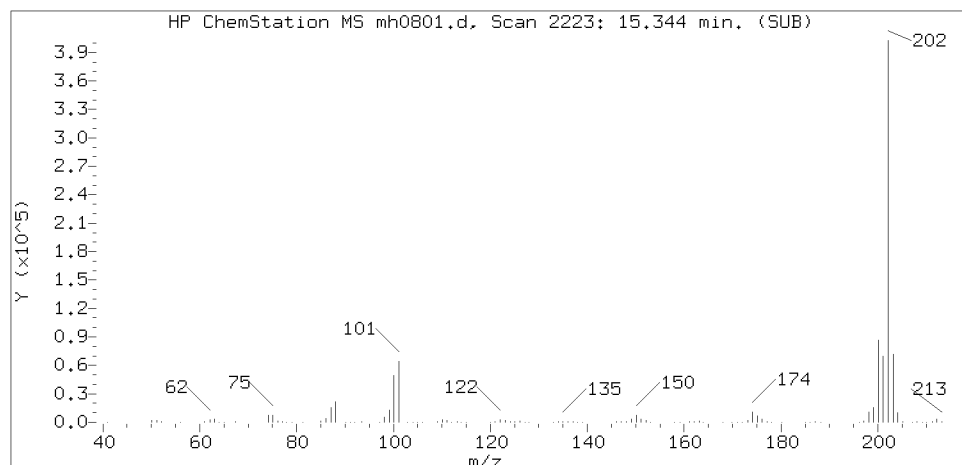
Sample Name: 12S01

Lab Sample ID: 1285719

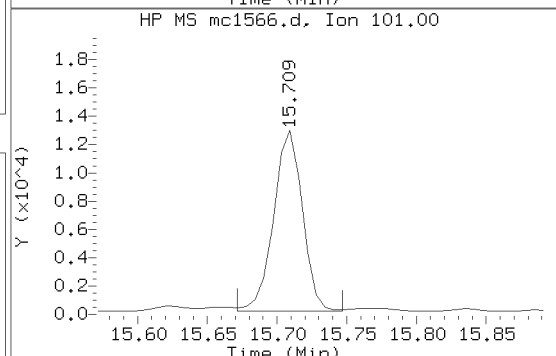
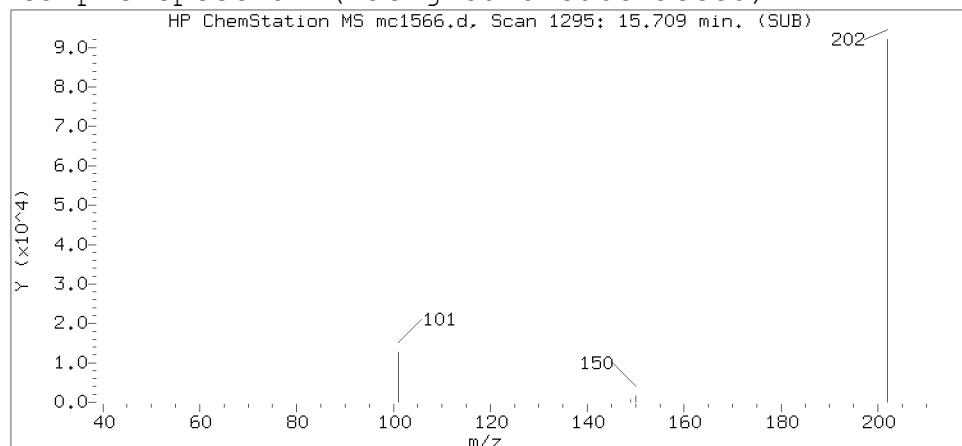
Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1239
Retention Time (minutes) : 15.358
Relative Retention Time : 0.00000
Quant Ion : 202.00
Area (flag) : 91607
On-column Amount (ng/ul) : 0.1901

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

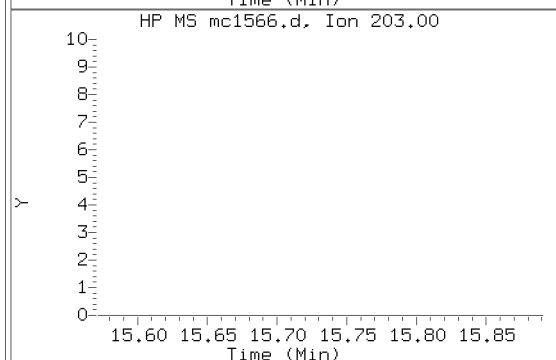
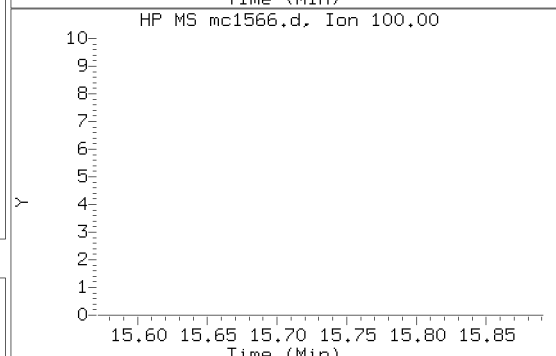
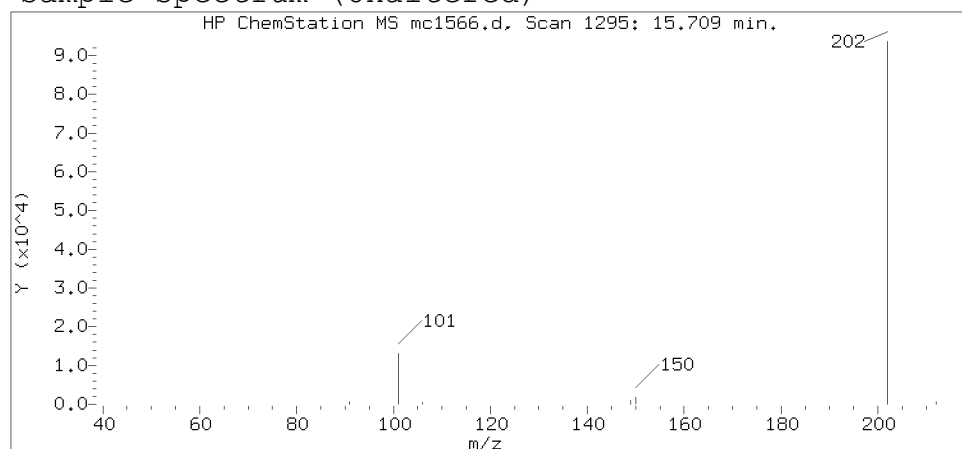
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

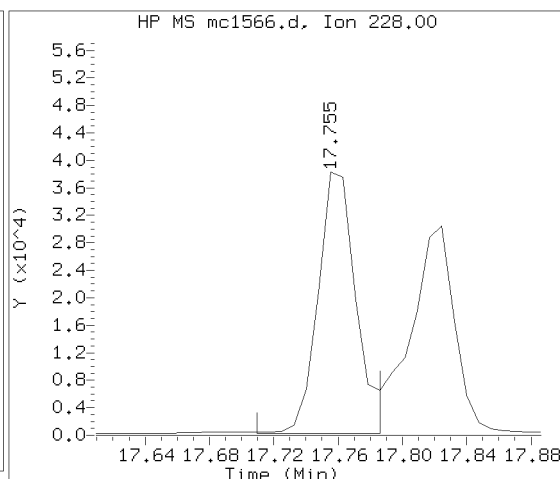
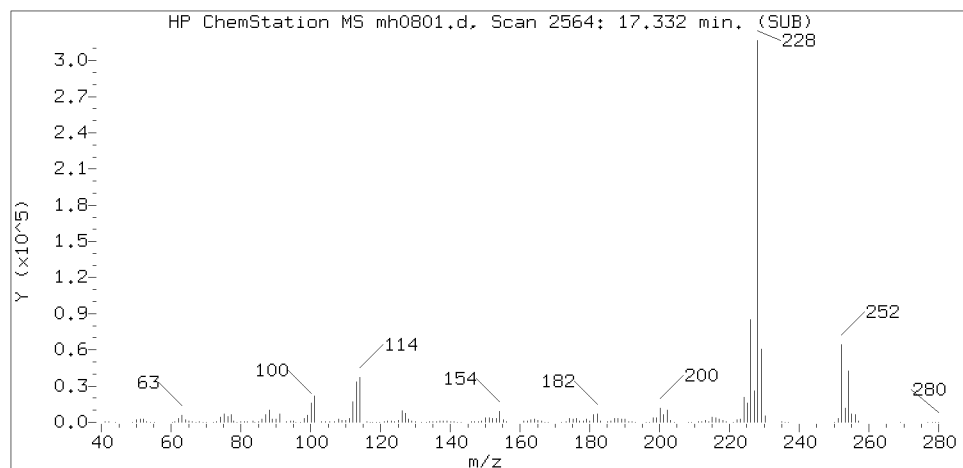
Lab Sample ID: 1285719

Compound Number : 26
Compound Name : Pyrene
Scan Number : 1295
Retention Time (minutes) : 15.709
Relative Retention Time : 0.00000
Quant Ion : 202.00
Area (flag) : 136331
On-column Amount (ng/ul) : 0.2514

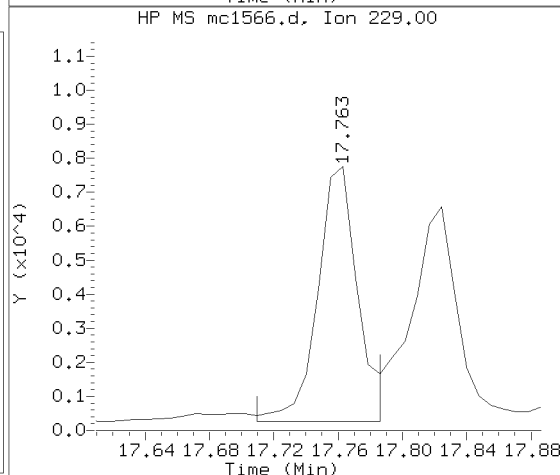
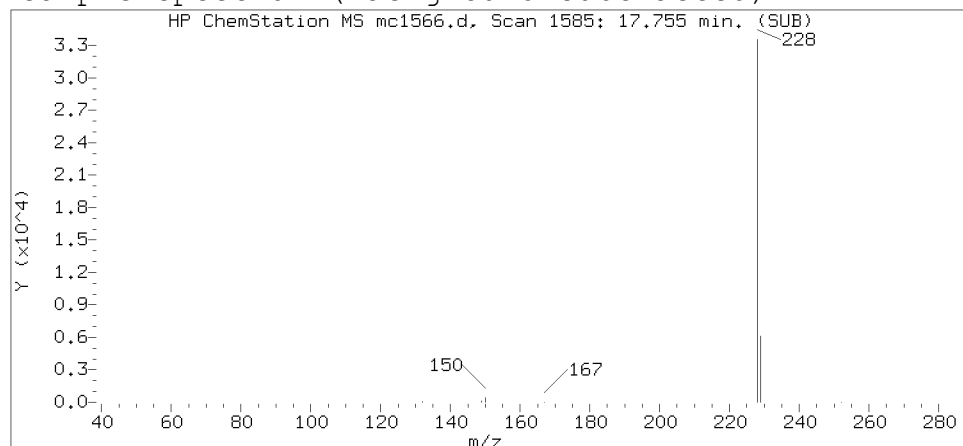
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
GPY68 Page 384 of 586

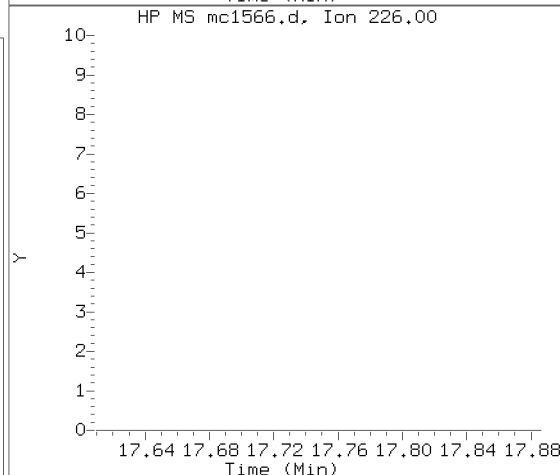
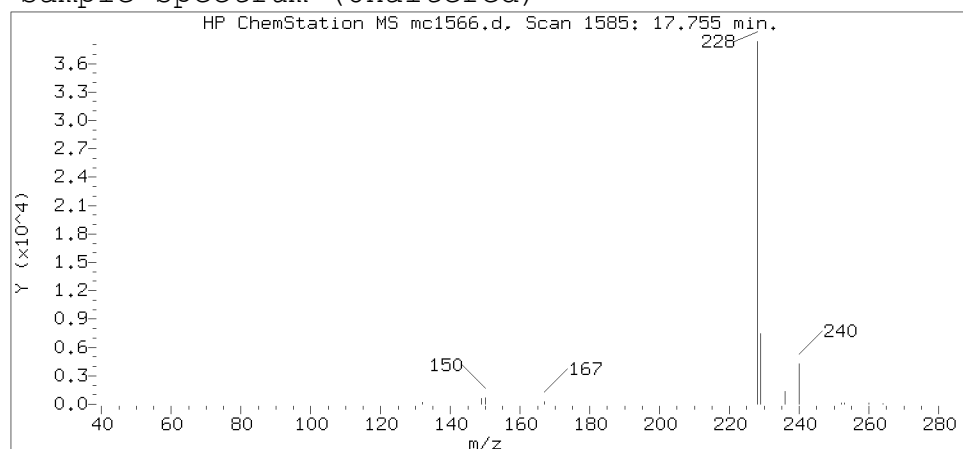
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

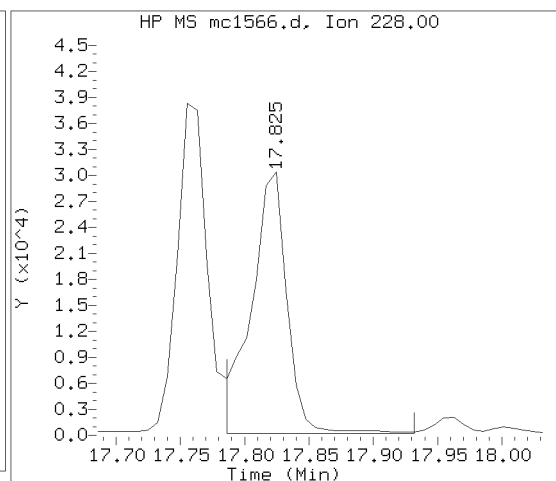
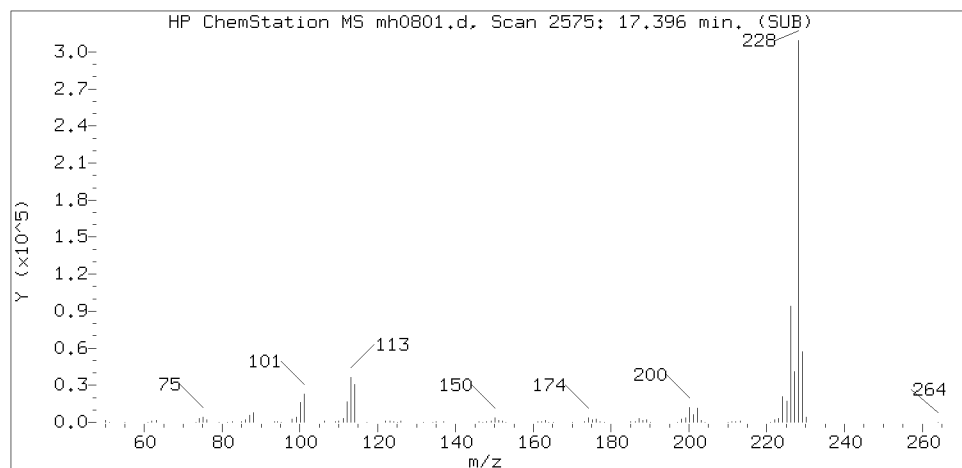
Lab Sample ID: 1285719

Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1585
Retention Time (minutes) : 17.755
Relative Retention Time : -0.00000
Quant Ion : 228.00
Area (flag) : 61637
On-column Amount (ng/ul) : 0.1344

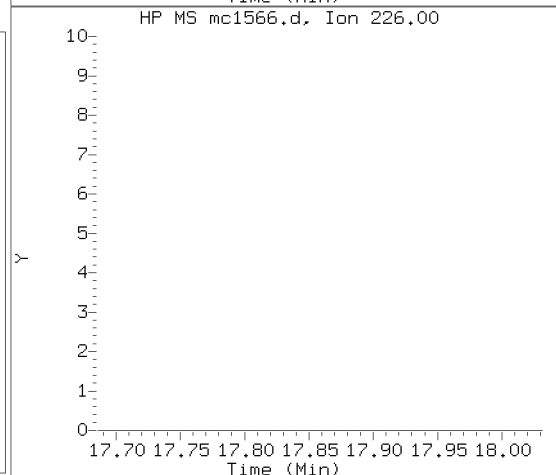
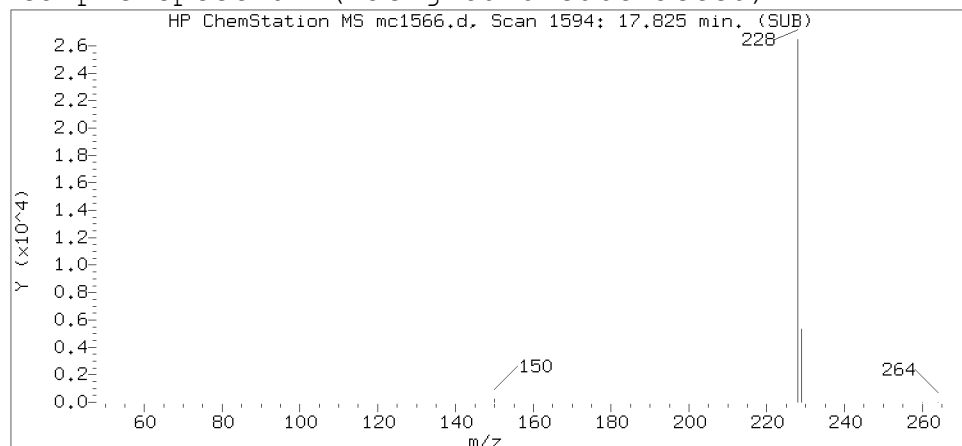
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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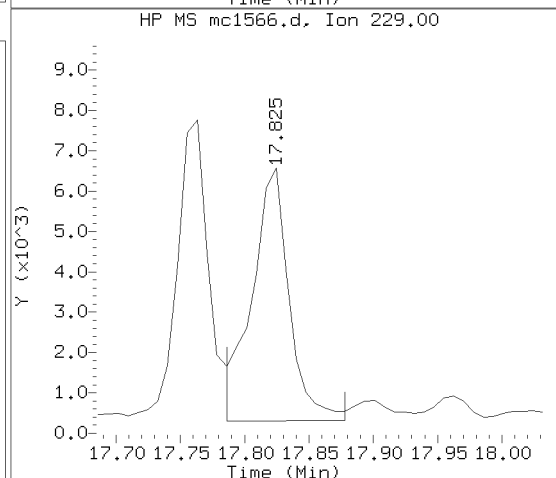
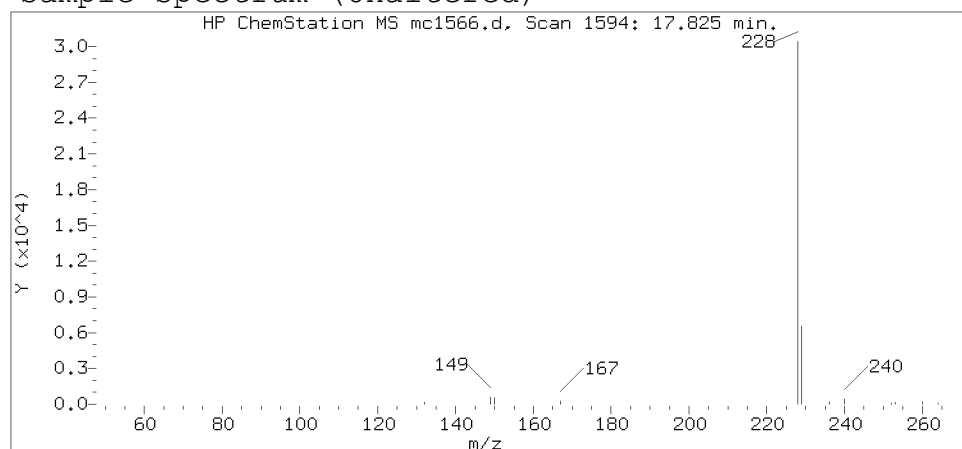
Reference Standard Spectrum for Chrysene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

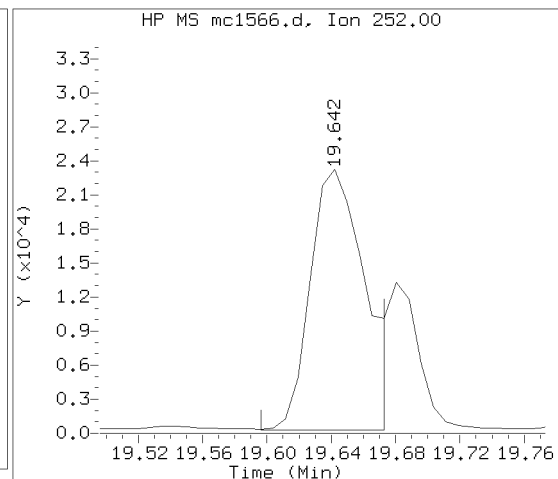
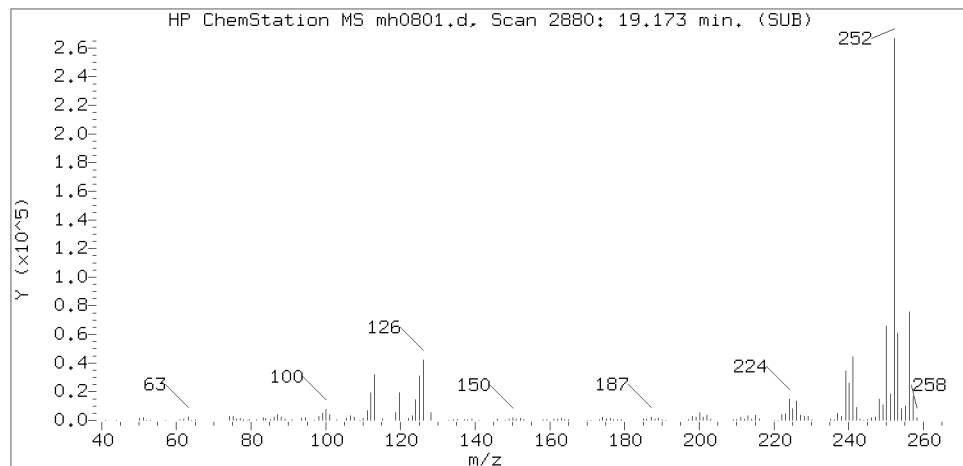
Sample Name: 12S01

Lab Sample ID: 1285719

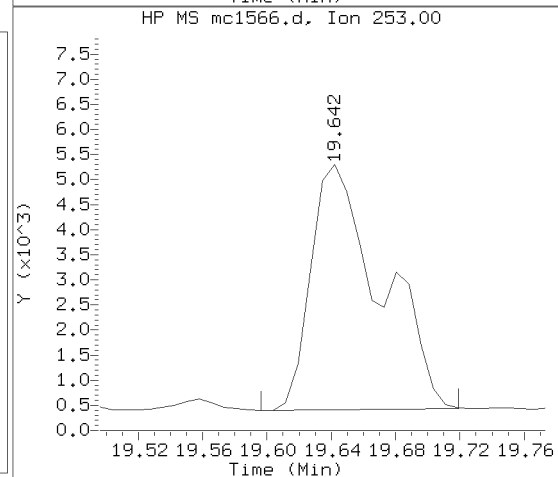
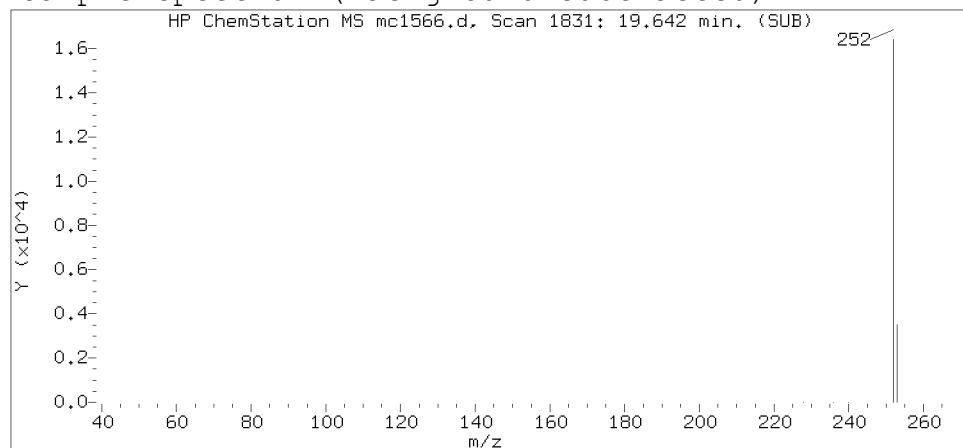
Compound Number : 30
Compound Name : Chrysene
Scan Number : 1594
Retention Time (minutes) : 17.825
Relative Retention Time : -0.00000
Quant Ion : 228.00
Area (flag) : 58240
On-column Amount (ng/ul) : 0.1225

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Target 3.5 esignature user: art12405

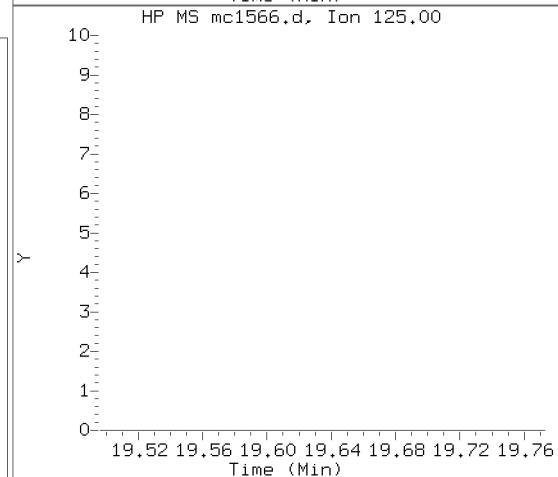
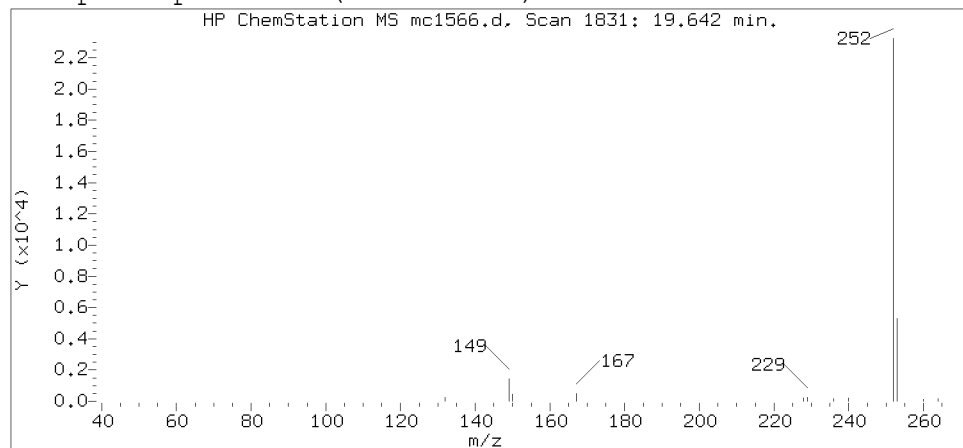
Reference Standard Spectrum for Benzo(b)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

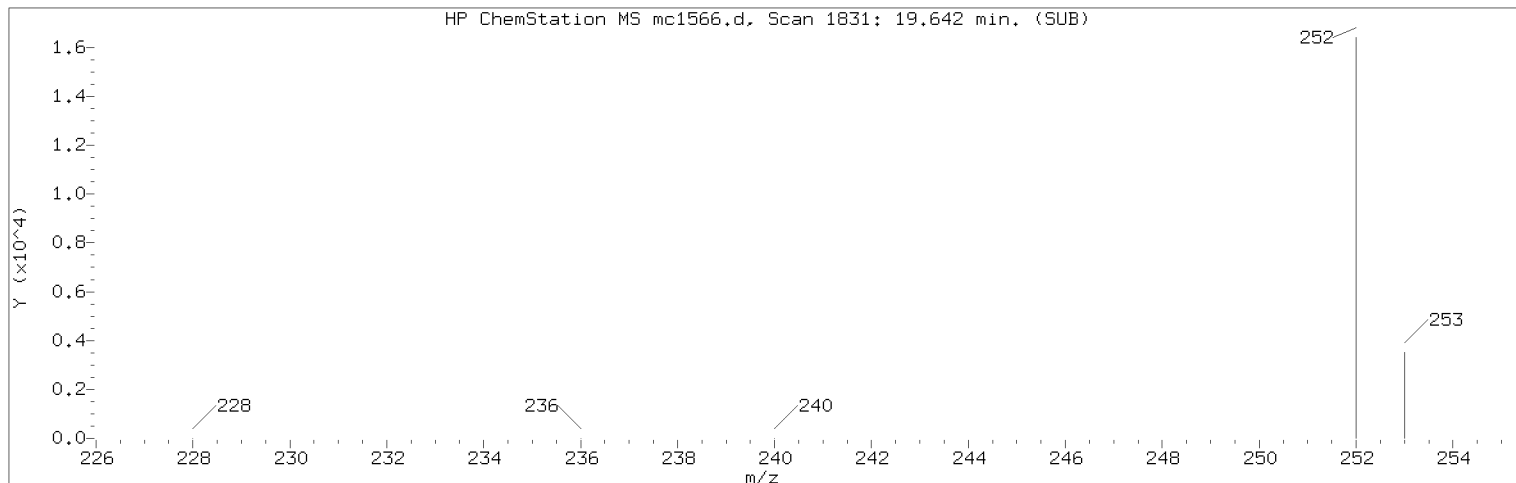
Lab Sample ID: 1285719

Compound Number : 33
Compound Name : Benzo(b)fluoranthene
Scan Number : 1831
Retention Time (minutes) : 19.642
Relative Retention Time : -0.00038
Quant Ion : 252.00
Area (flag) : 54753M
On-column Amount (ng/ul) : 0.1092

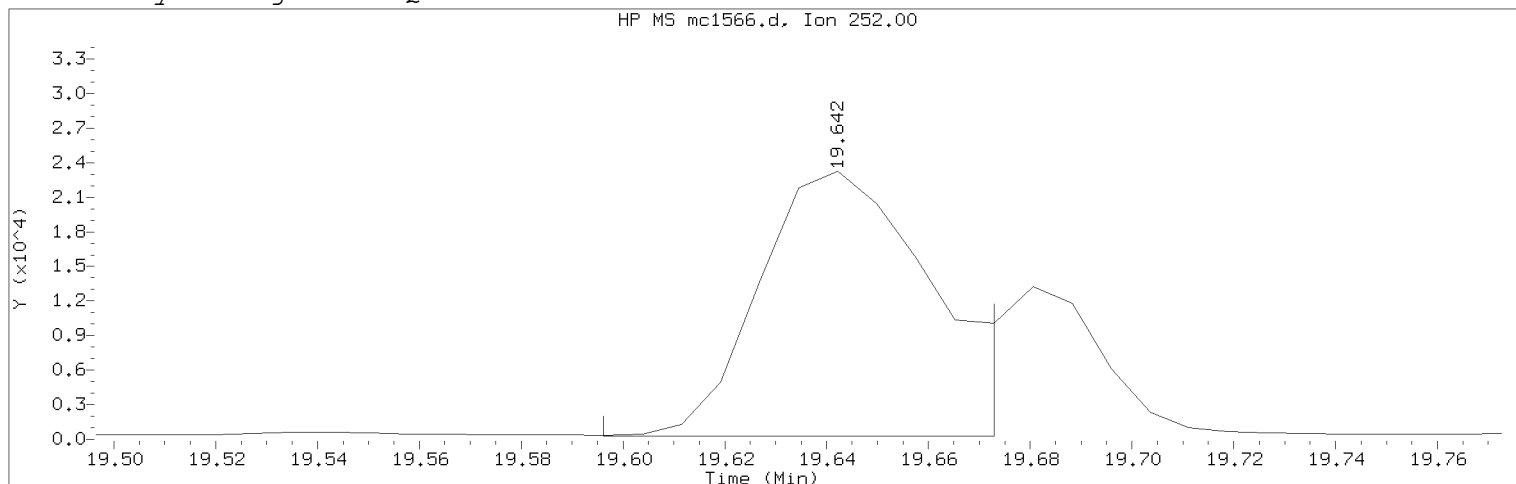
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1566.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 13:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

Lab Sample ID: 1285719

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1831	
Retention Time (minutes)	: 19.642	
Quant Ion	: 252.00	
Area (flag)	: 54753M	
On-column Amount (ng/ul)	: 0.1092	
Integration start scan	: 1824	Integration stop scan: 1834
Y at integration start	: 306	Y at integration end: 306

Reason for manual integration: improper integration

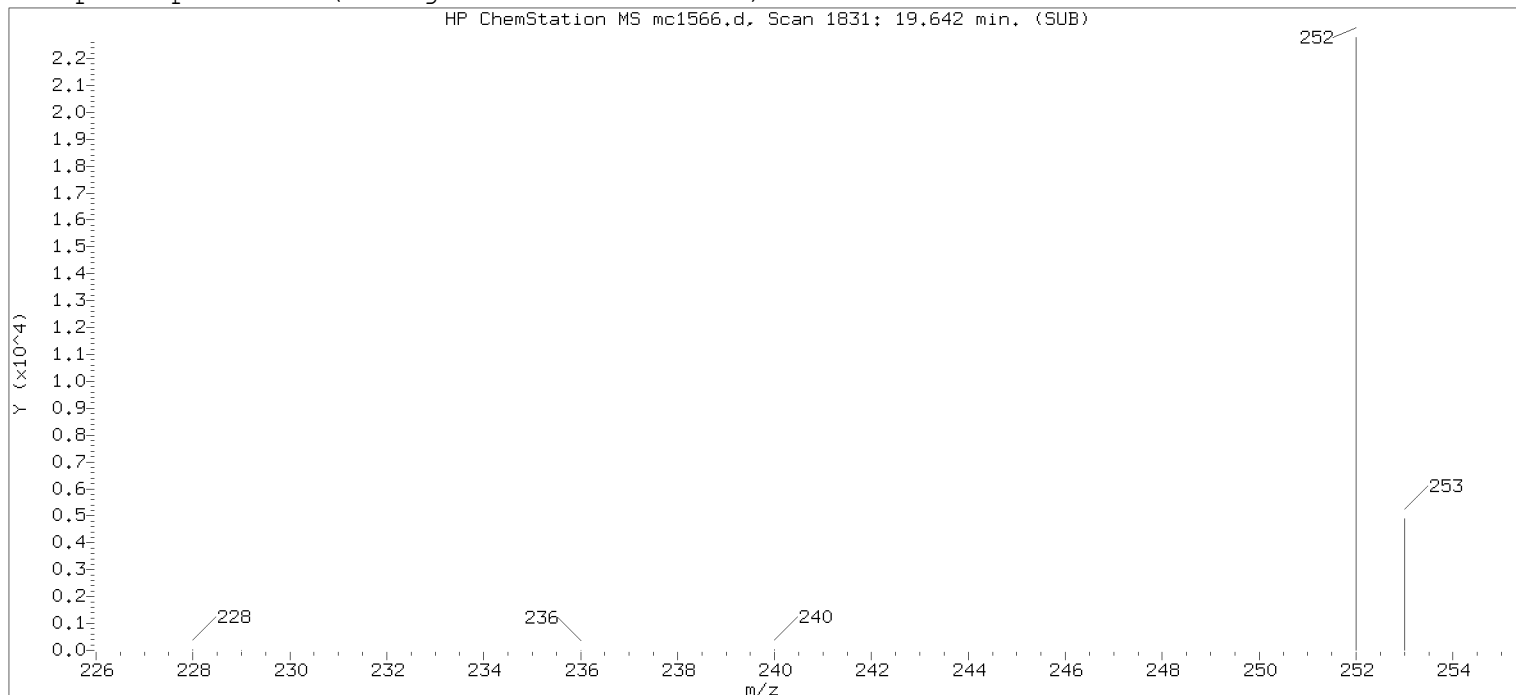
Analyst responsible for change:

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

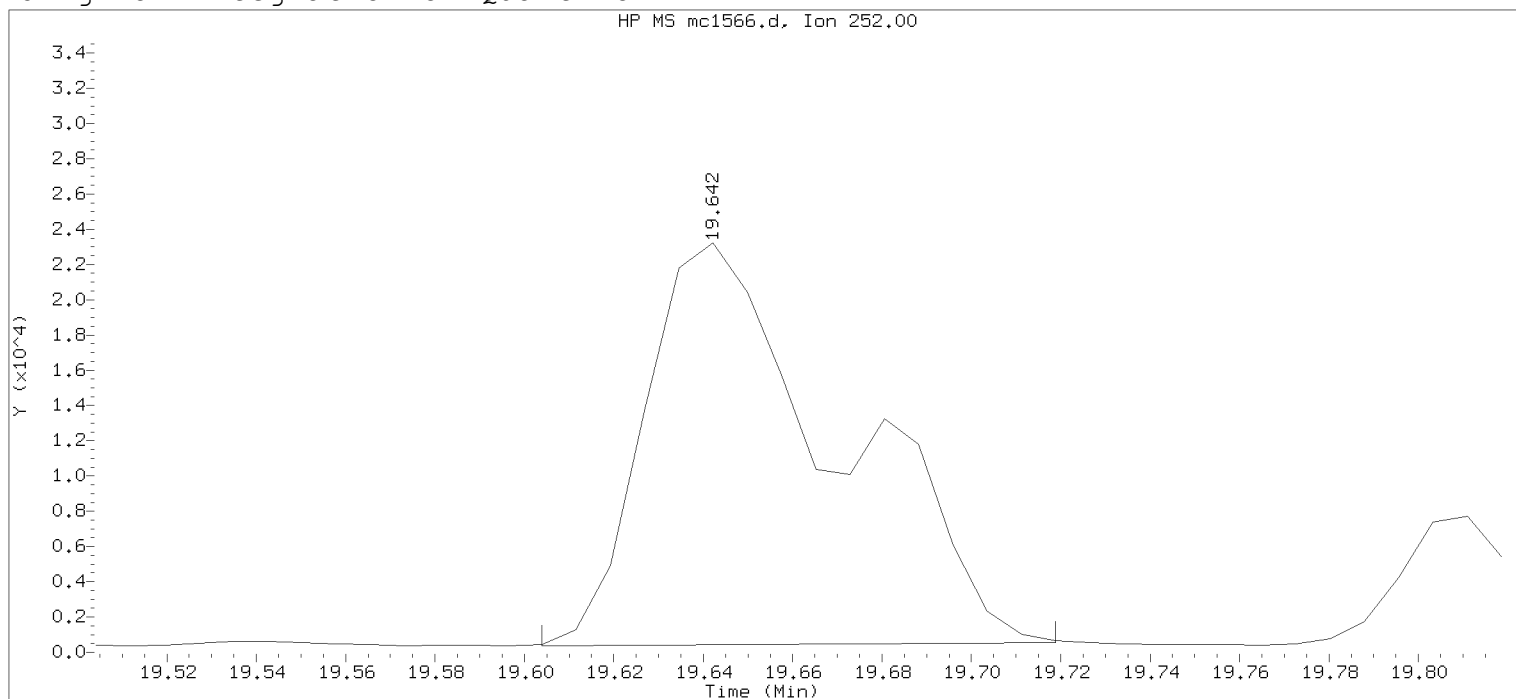
Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1566.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 13:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 14:12 Unknown

Sample Name: 12S01

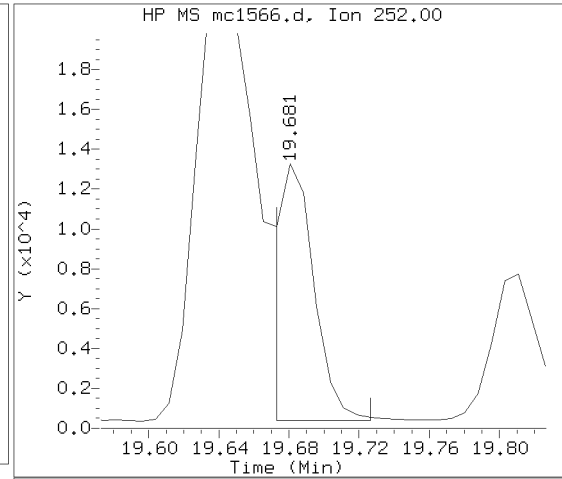
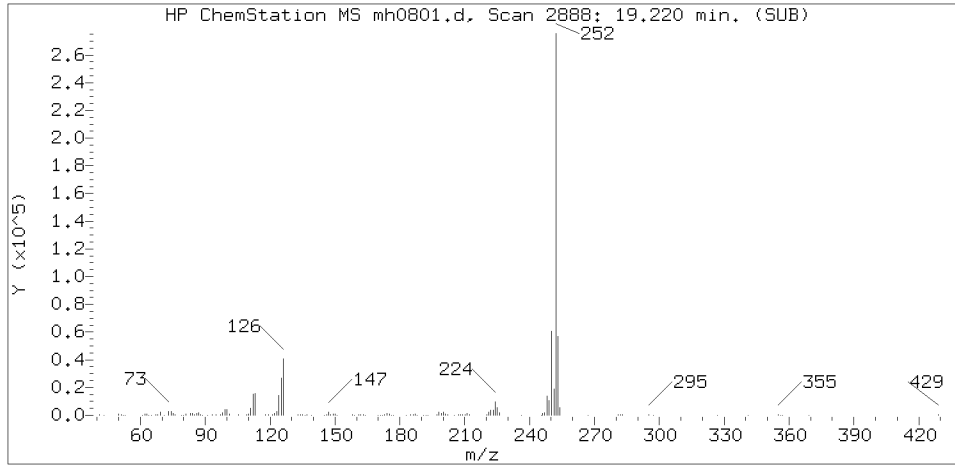
Lab Sample ID: 1285719

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1831	
Retention Time (minutes)	: 19.642	
Quant Ion	: 252.00	
Area	: 68930	
On-column Amount (ng/ul)	: 0.1375	
Integration start scan	: 1825	Integration stop scan: 1840
Y at integration start	: 379	Y at integration end: 530

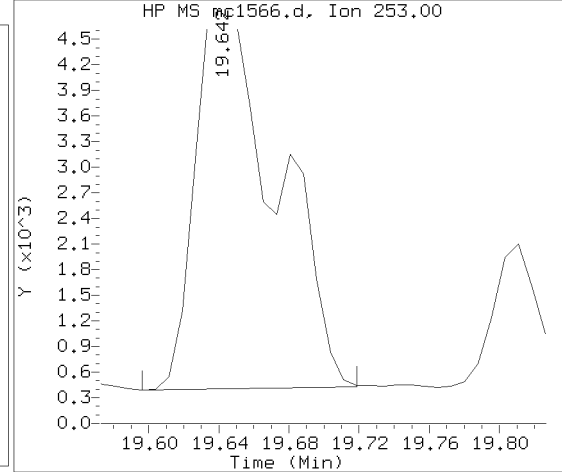
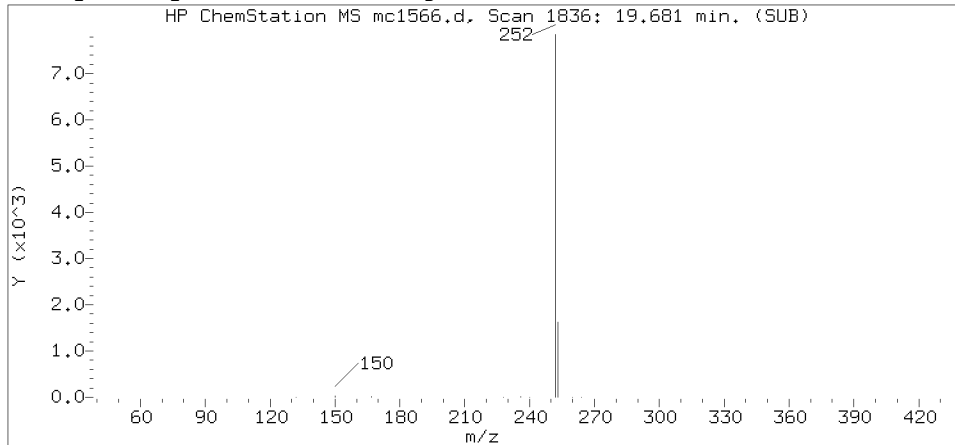
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user GPV68 Page 489 of 586

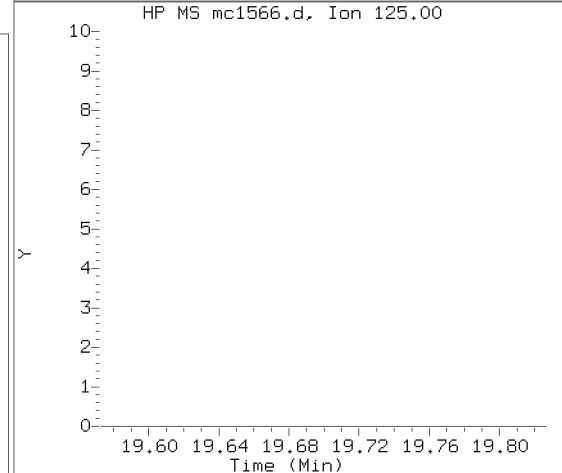
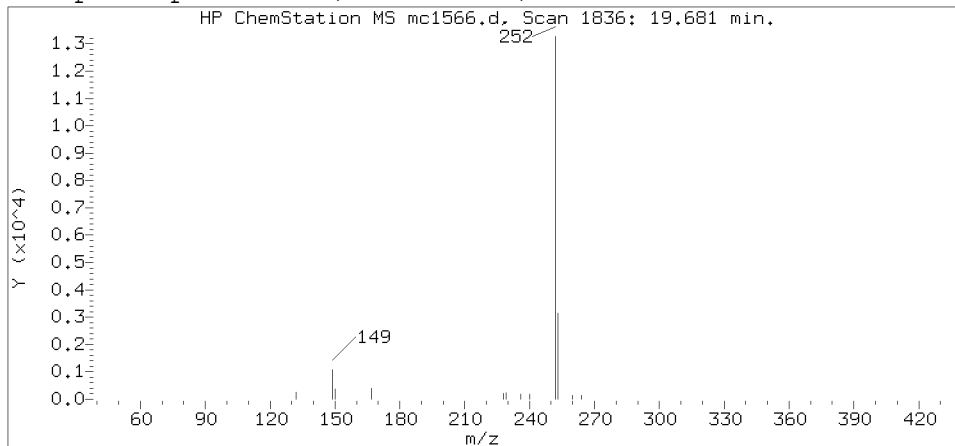
Reference Standard Spectrum for Benzo(k)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

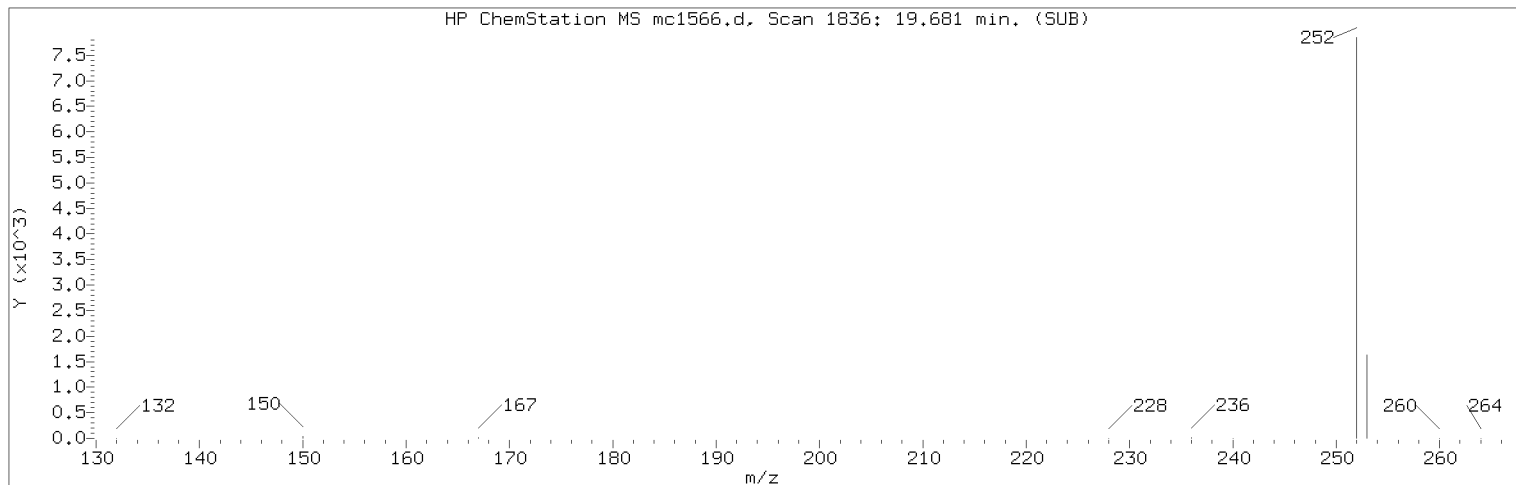
Lab Sample ID: 1285719

Compound Number : 34
Compound Name : Benzo(k)fluoranthene
Scan Number : 1836
Retention Time (minutes) : 19.681
Relative Retention Time :-0.00000
Quant Ion : 252.00
Area (flag) : 19695M
On-column Amount (ng/ul) : 0.0376

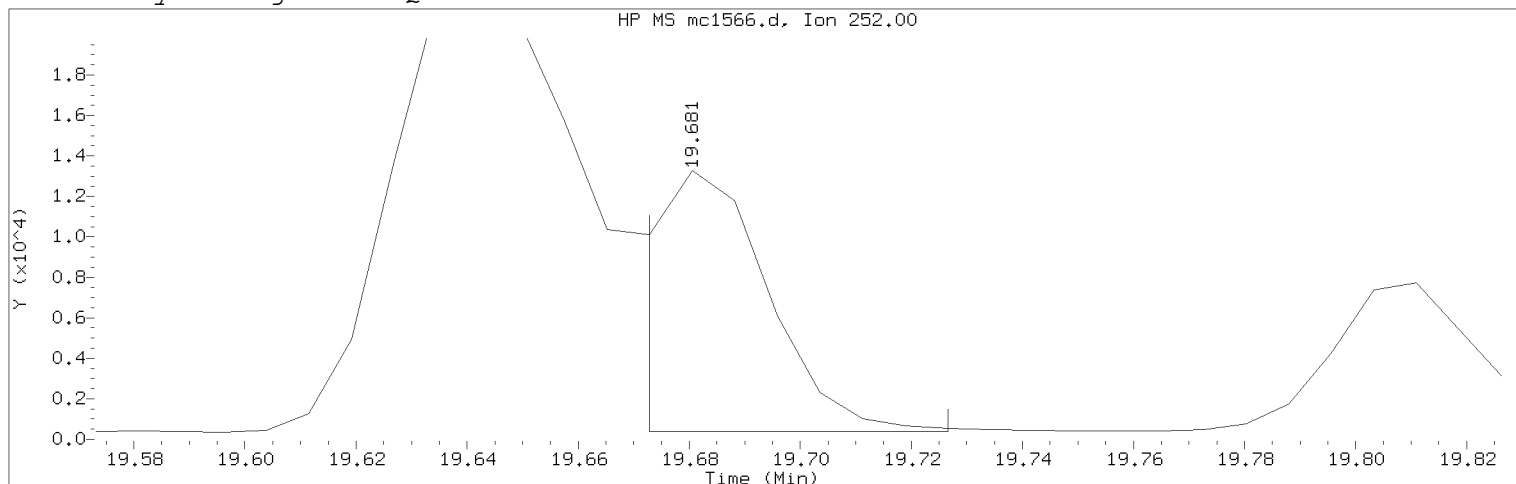
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1566.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 13:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

Lab Sample ID: 1285719

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1836	
Retention Time (minutes)	: 19.681	
Quant Ion	: 252.00	
Area (flag)	: 19695M	
On-column Amount (ng/ul)	: 0.0376	
Integration start scan	: 1834	Integration stop scan: 1841
Y at integration start	: 378	Y at integration end: 378

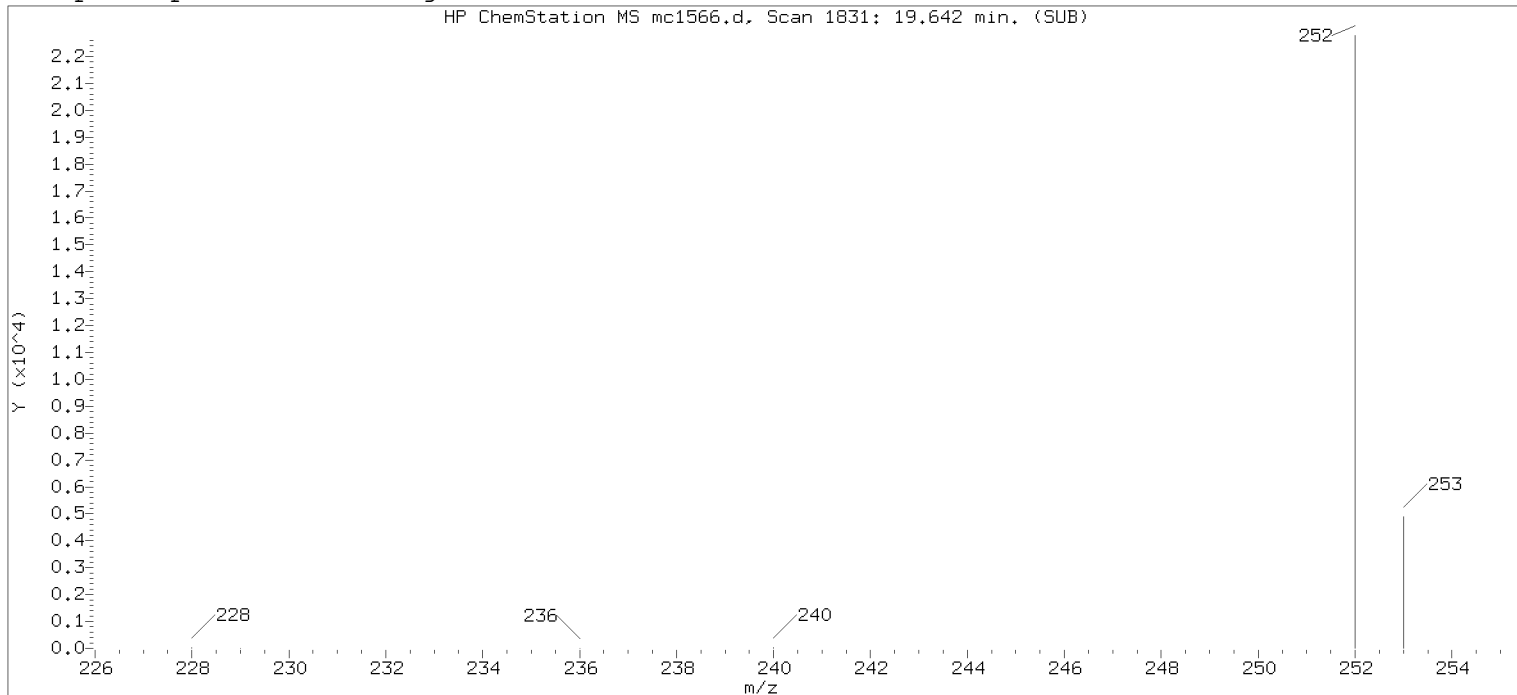
Reason for manual integration: improper integration

Analyst responsible for change:

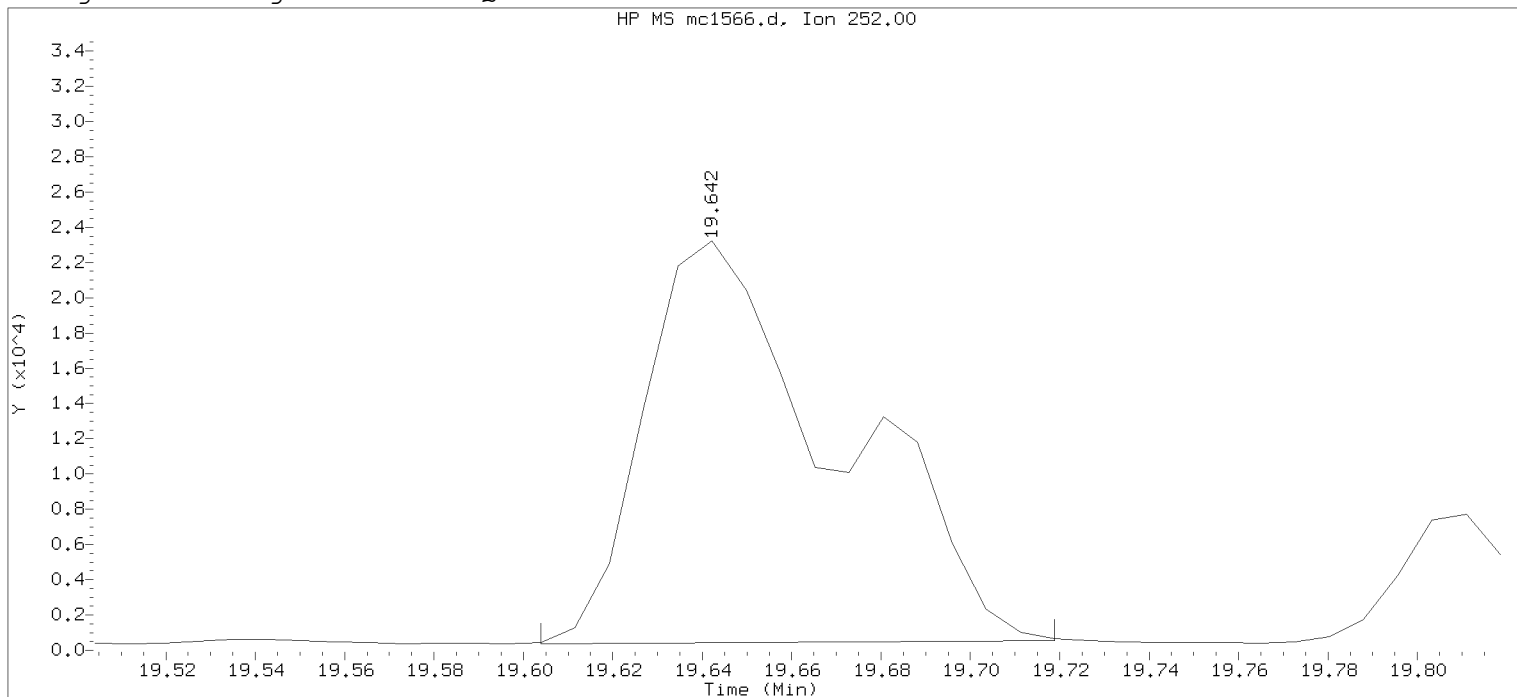
Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1566.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 13:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 14:12 Unknown

Sample Name: 12S01

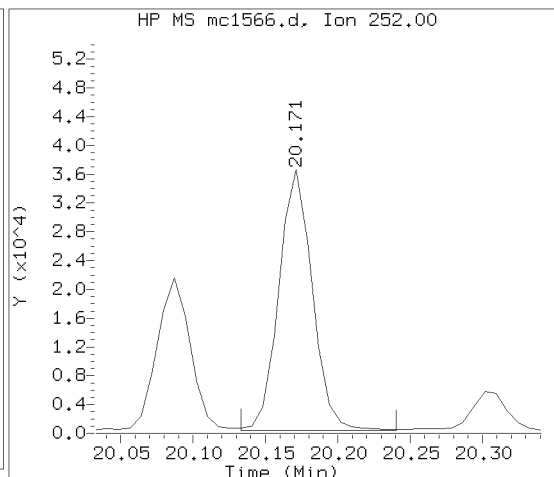
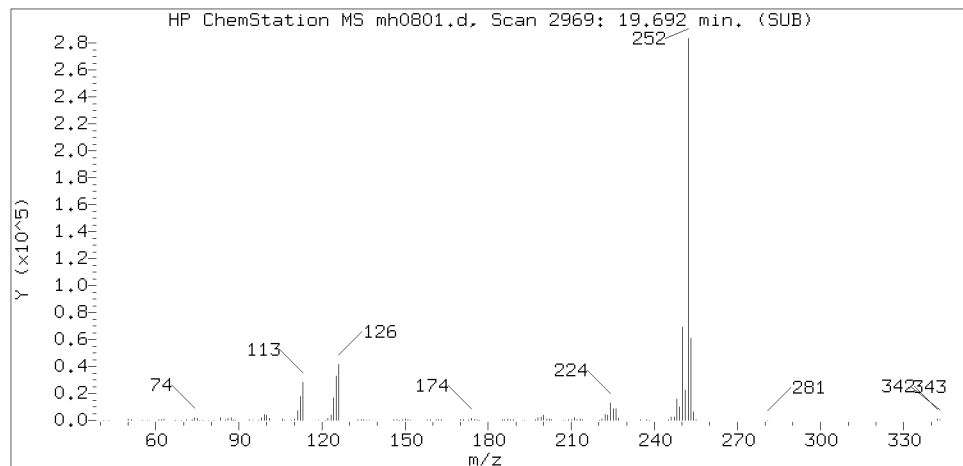
Lab Sample ID: 1285719

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1831	
Retention Time (minutes)	: 19.642	
Quant Ion	: 252.00	
Area	: 68930	
On-column Amount (ng/ul)	: 0.1317	
Integration start scan	: 1825	Integration stop scan: 1840
Y at integration start	: 379	Y at integration end: 530

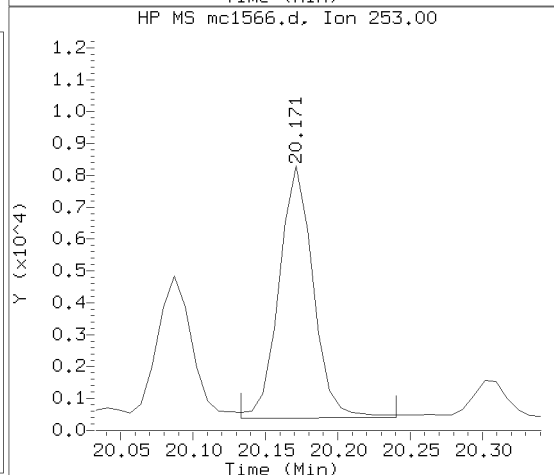
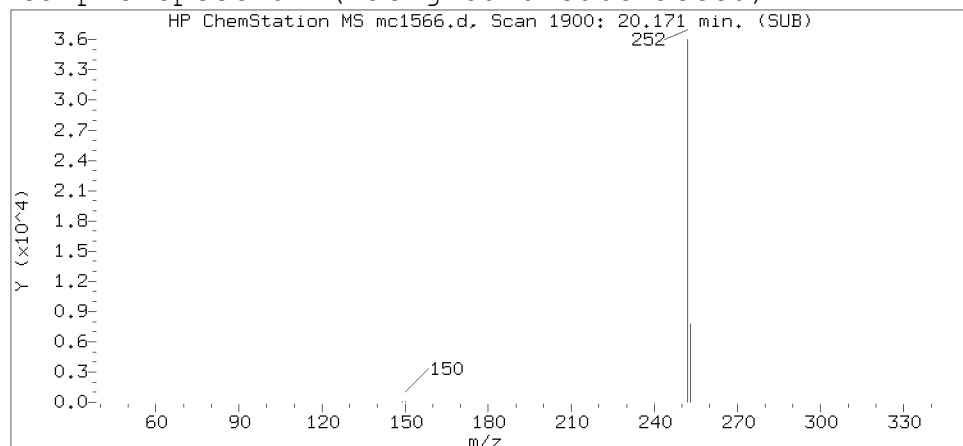
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user GPV68 Page 492 of 586

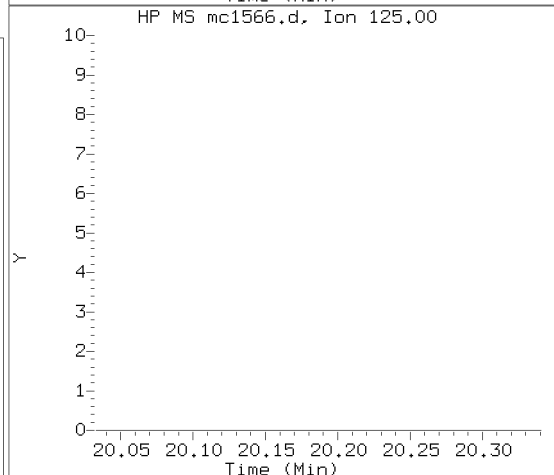
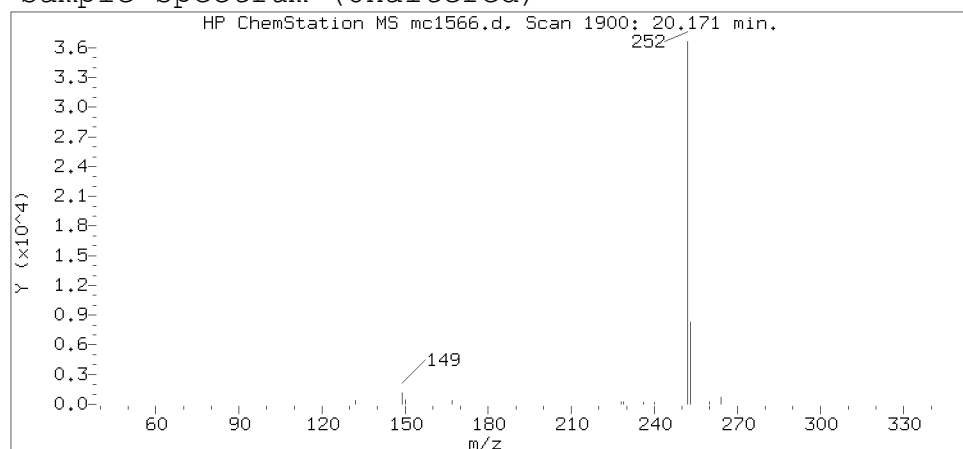
Reference Standard Spectrum for Benzo(a)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

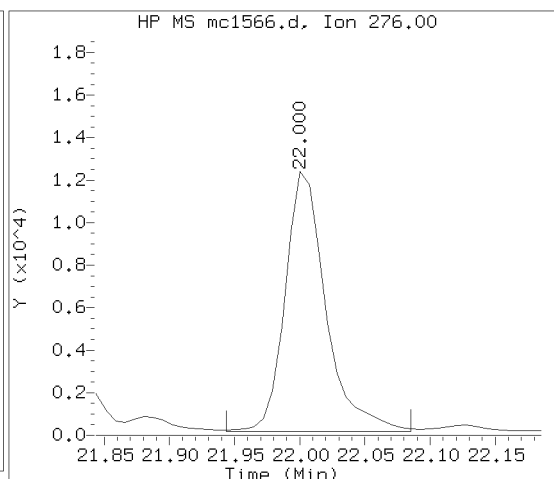
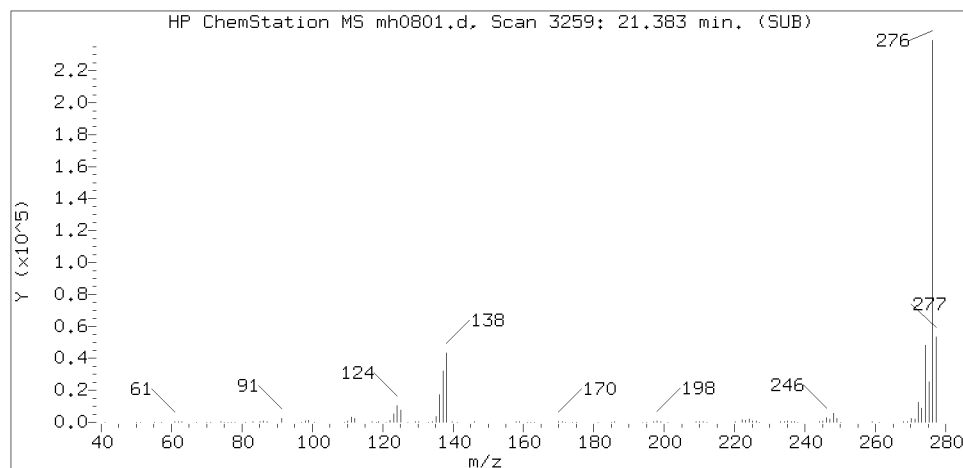
Lab Sample ID: 1285719

Compound Number : 37
Compound Name : Benzo(a)pyrene
Scan Number : 1900
Retention Time (minutes) : 20.171
Relative Retention Time : 0.00000
Quant Ion : 252.00
Area (flag) : 58574
On-column Amount (ng/ul) : 0.1230

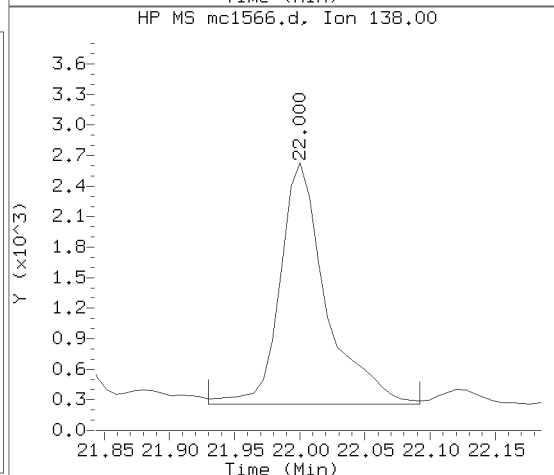
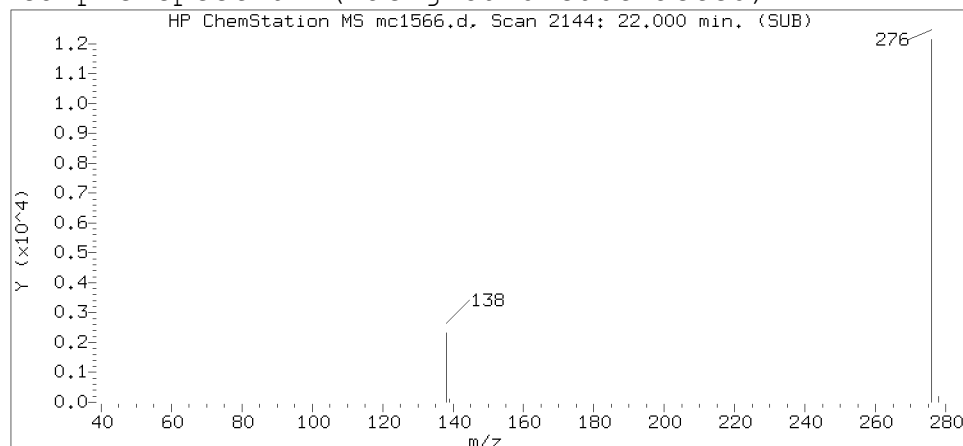
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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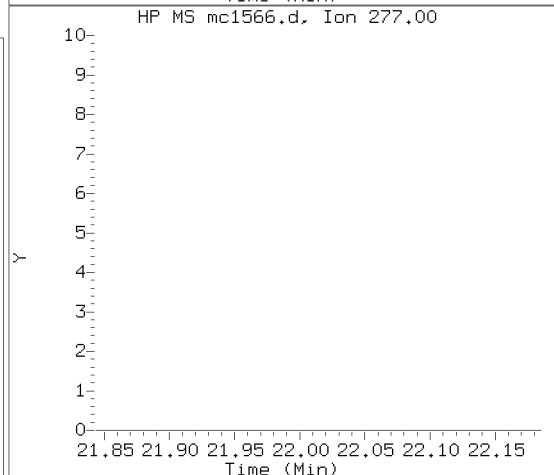
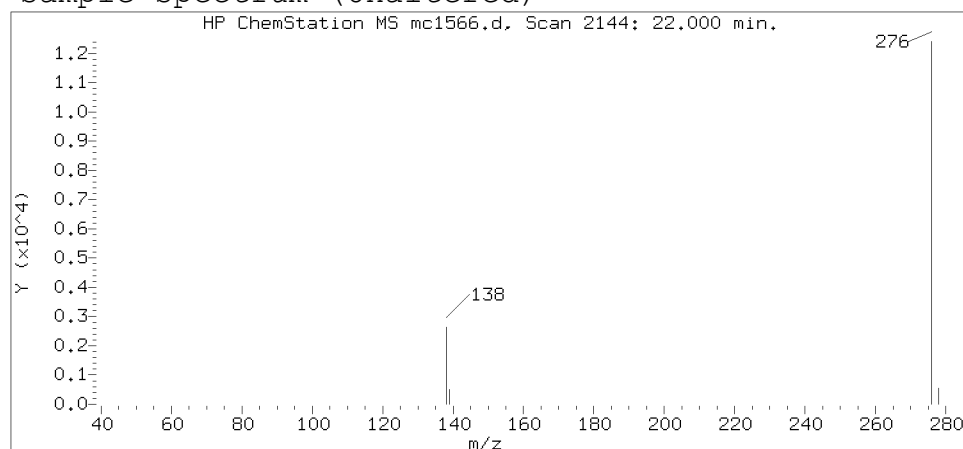
Reference Standard Spectrum for Indeno(1,2,3-cd)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

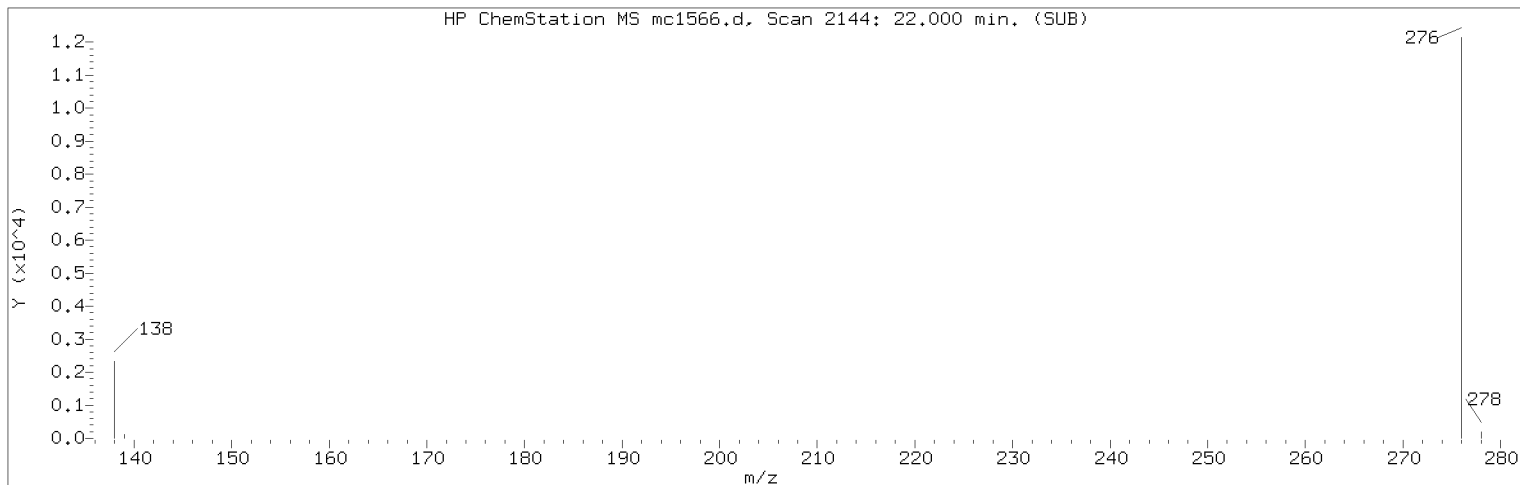
Lab Sample ID: 1285719

Compound Number : 39
Compound Name : Indeno(1,2,3-cd)pyrene
Scan Number : 2144
Retention Time (minutes) : 22.000
Relative Retention Time : -0.00000
Quant Ion : 276.00
Area (flag) : 26577M
On-column Amount (ng/ul) : 0.0624

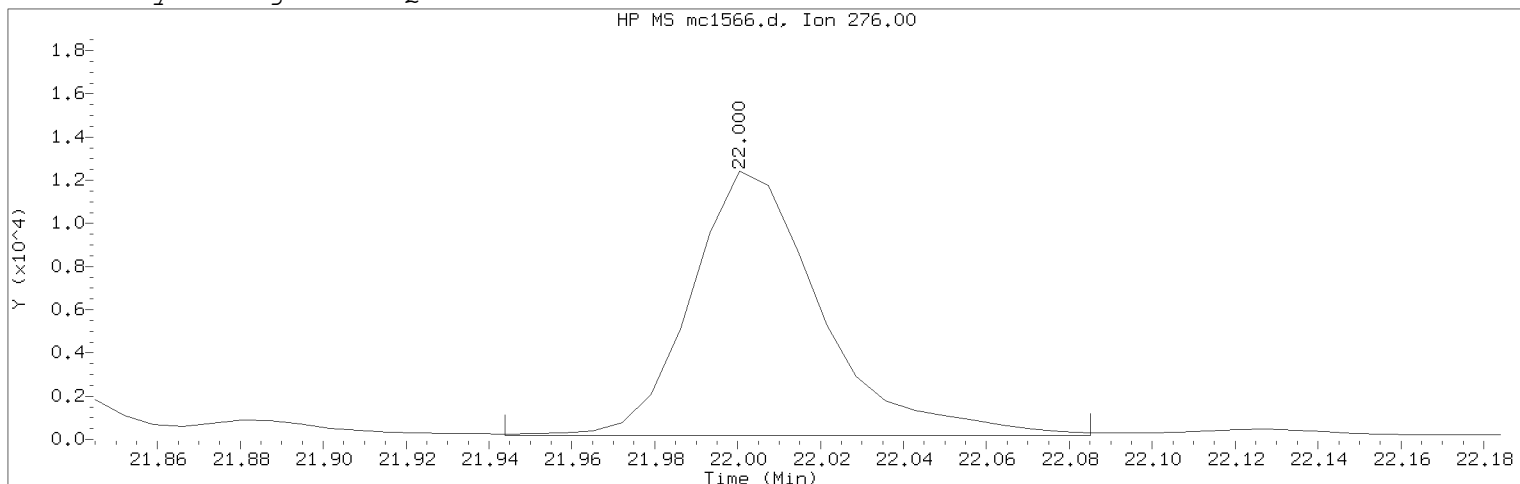
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1566.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 13:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

Lab Sample ID: 1285719

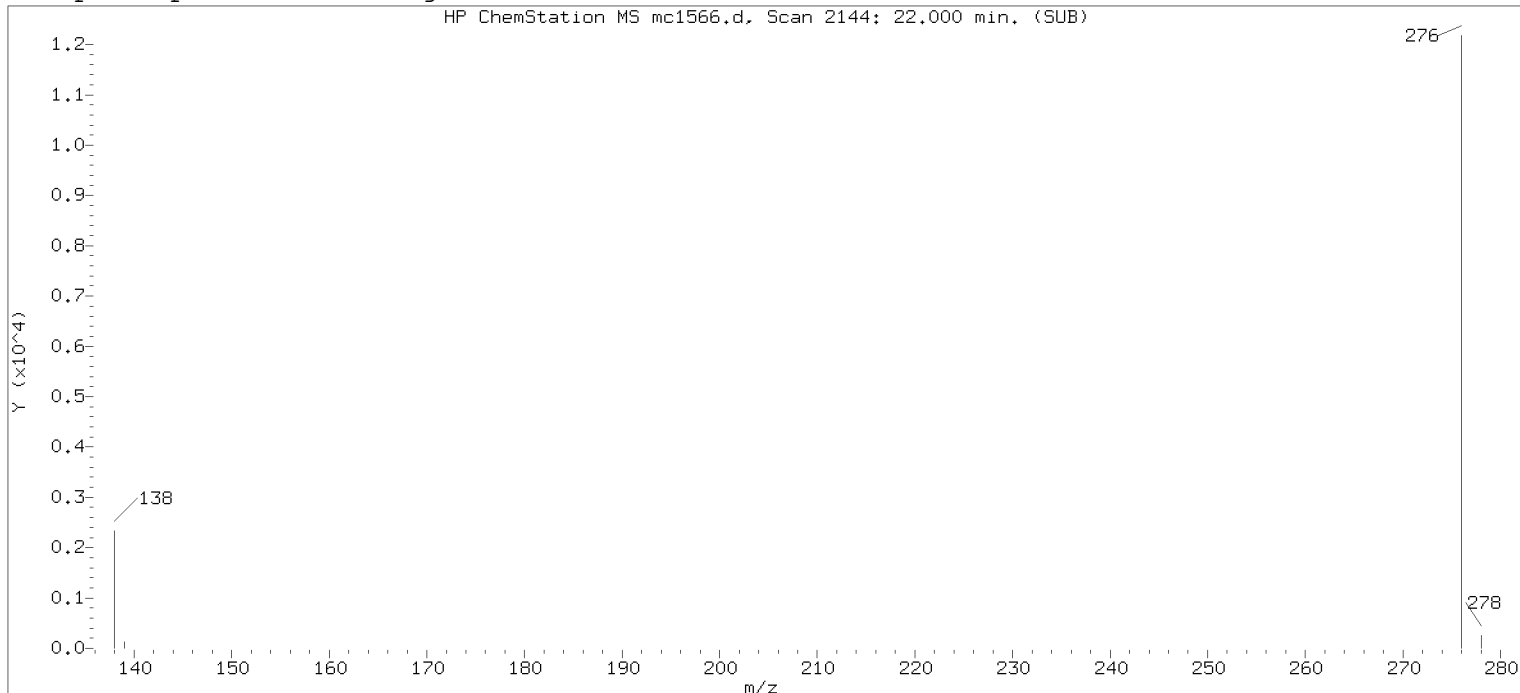
Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area (flag)	: 26577M	
On-column Amount (ng/ul)	: 0.0624	
Integration start scan	: 2135	Integration stop scan: 2155
Y at integration start	: 191	Y at integration end: 191

Reason for manual integration: improper integration

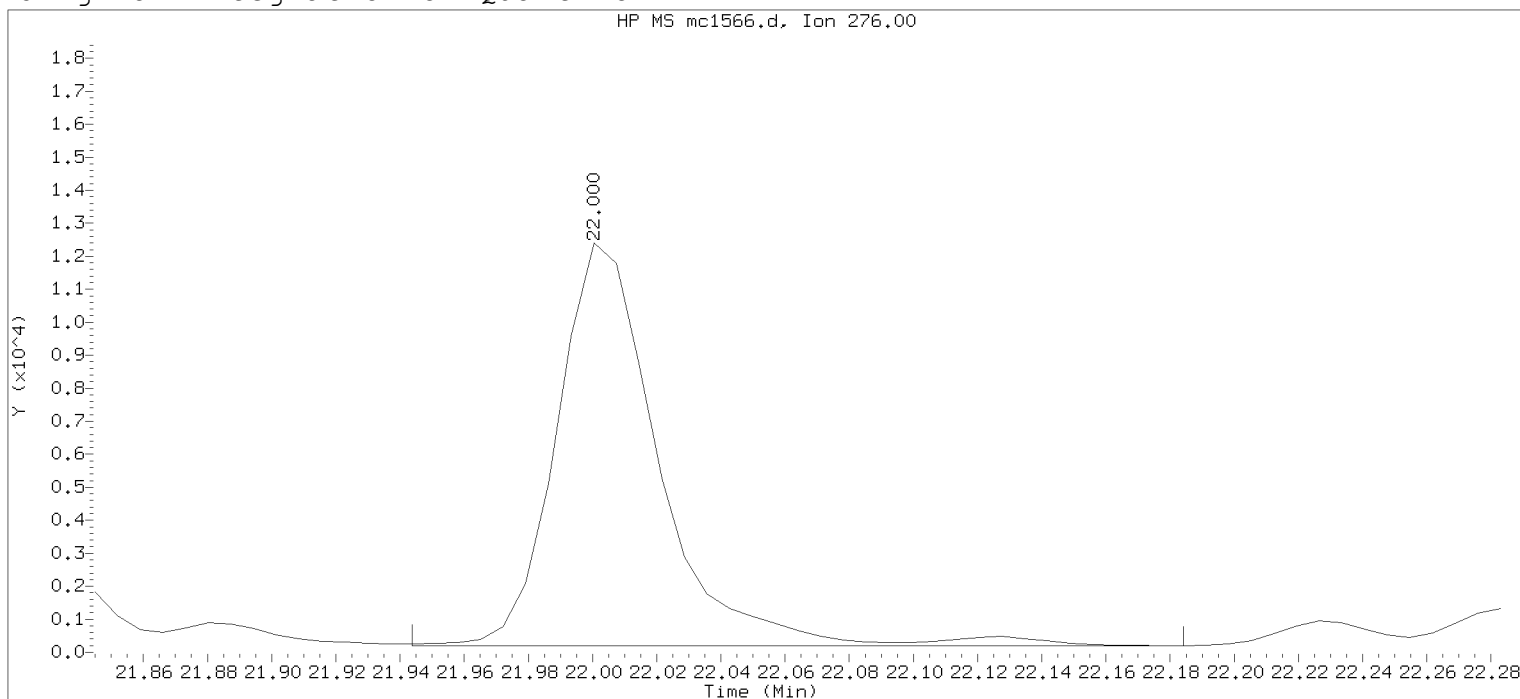
Analyst responsible for change: Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1566.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 13:36

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 14:12 Unknown

Sample Name: 12S01

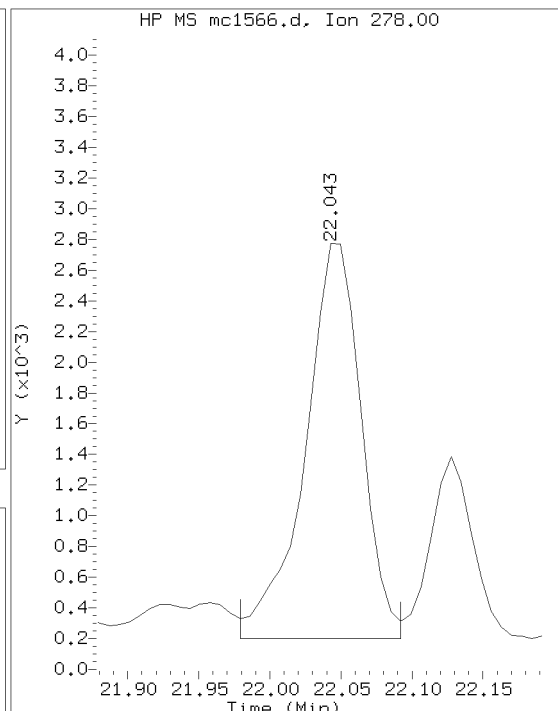
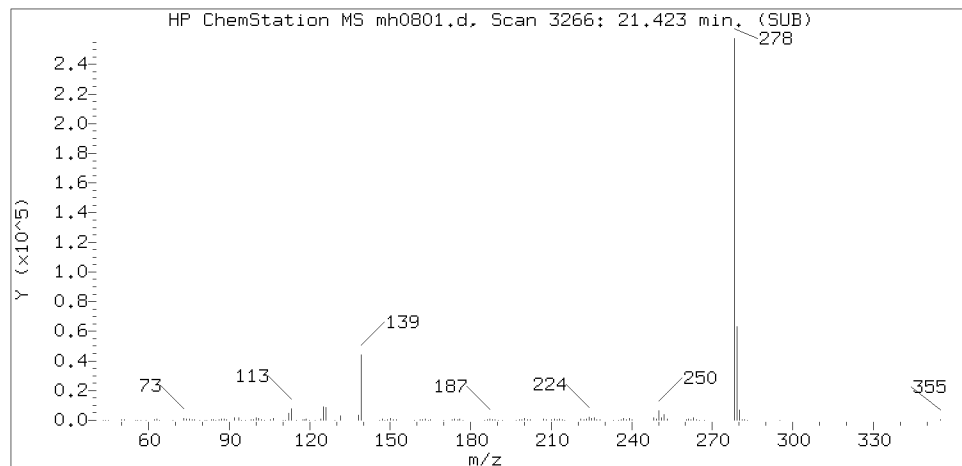
Lab Sample ID: 1285719

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area	: 27272	
On-column Amount (ng/ul)	: 0.0640	
Integration start scan	: 2135	Integration stop scan: 2169
Y at integration start	: 191	Y at integration end: 191

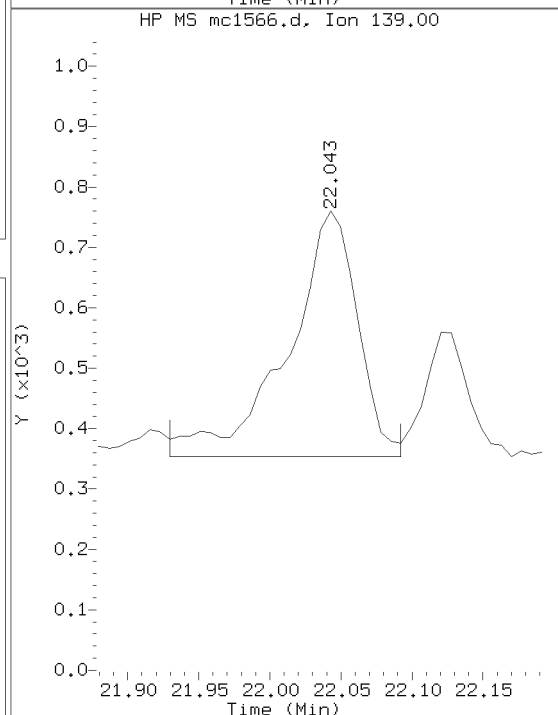
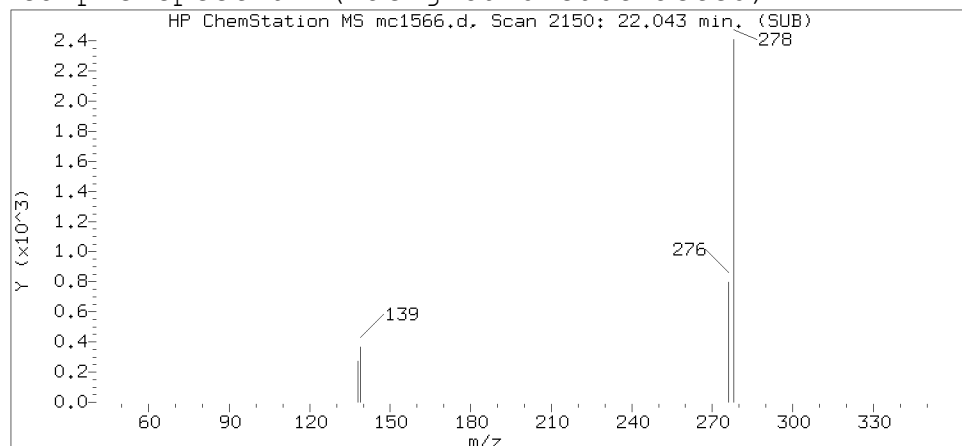
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user GPV68 Page 496 of 586

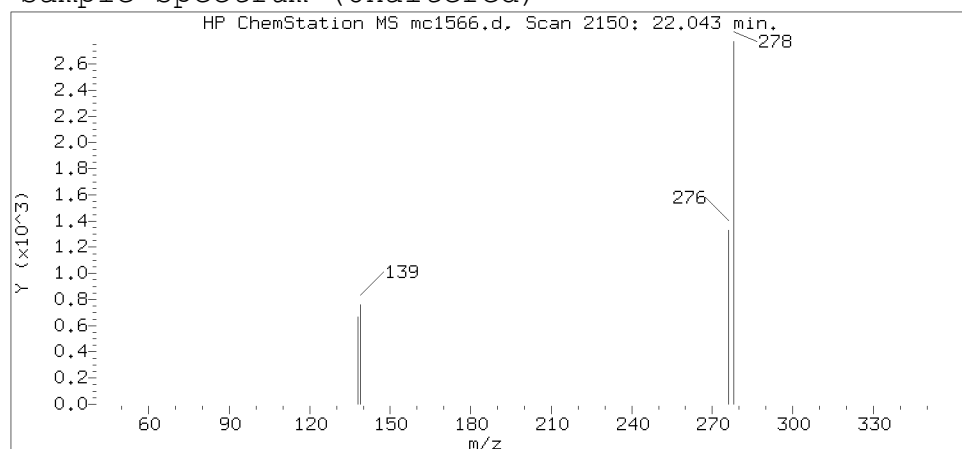
Reference Standard Spectrum for Dibenz(a,h)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

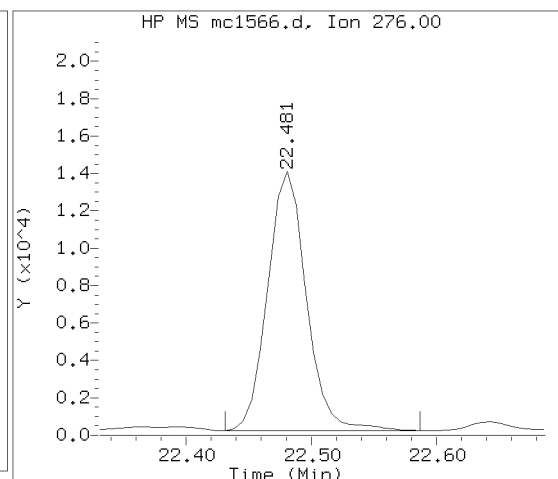
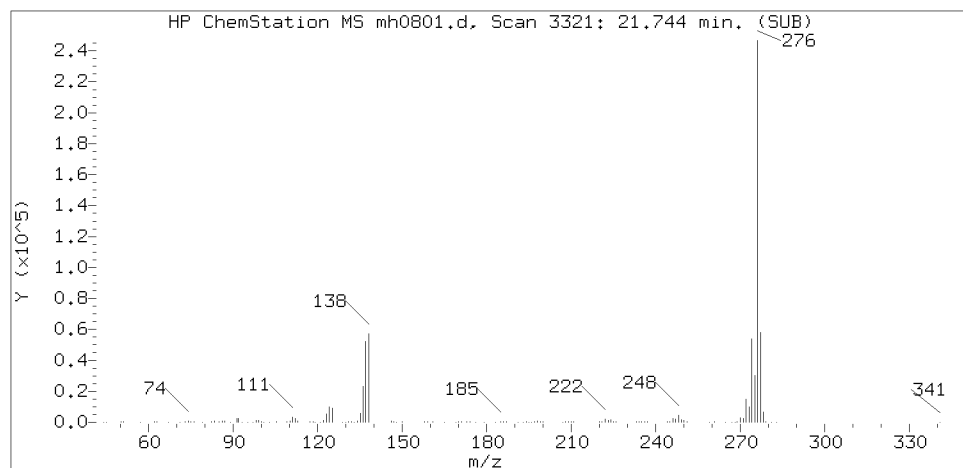
Sample Name: 12S01

Lab Sample ID: 1285719

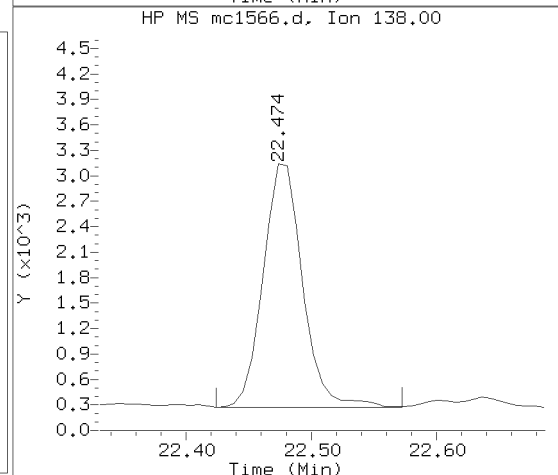
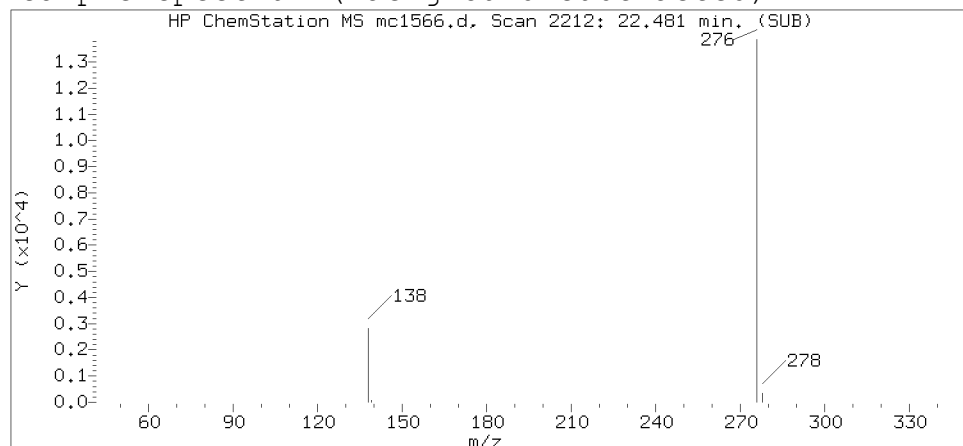
Compound Number : 40
Compound Name : Dibenz(a,h)anthracene
Scan Number : 2150
Retention Time (minutes) : 22.043
Relative Retention Time : 0.00035
Quant Ion : 278.00
Area (flag) : 7080
On-column Amount (ng/ul) : 0.0147

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.
Target 3.5 esignature user: art12405

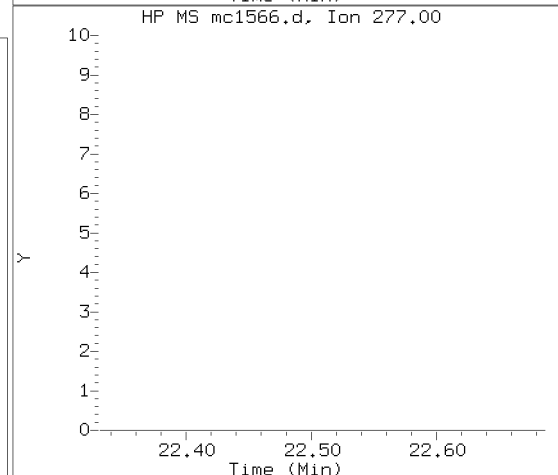
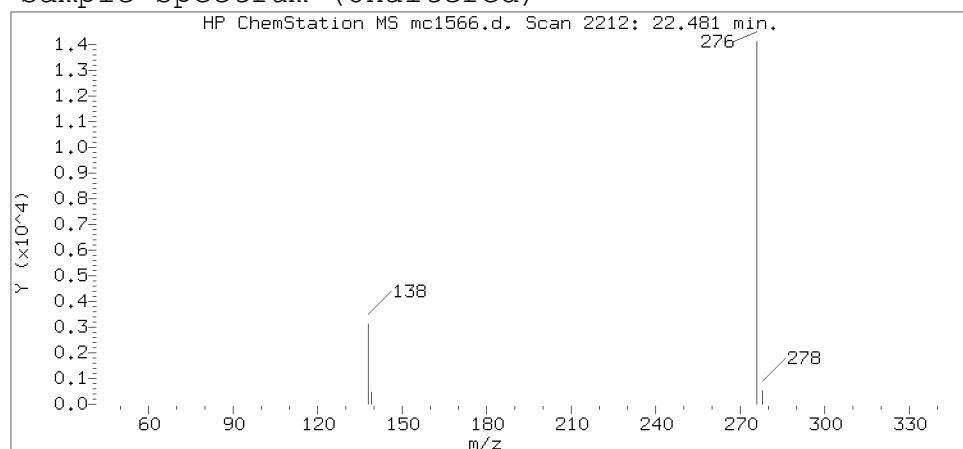
Reference Standard Spectrum for Benzo(g,h,i)perylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1566.d
Injection date and time: 26-MAR-2020 13:36

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:20 art12405

Sample Name: 12S01

Lab Sample ID: 1285719

Compound Number : 41
Compound Name : Benzo(g,h,i)perylene
Scan Number : 2212
Retention Time (minutes) : 22.481
Relative Retention Time : -0.00000
Quant Ion : 276.00
Area (flag) : 29776
On-column Amount (ng/ul) : 0.0592

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB003

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285720

Sample wt/vol: 239 (g/mL)ML Lab File ID: mc1567.d

Level: (low/med) LOW Date Received: 03/20/20

% Moisture: not dec: dec: Date Extracted: 03/25/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/26/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	0.03	U	
208-96-8-----	Acenaphthylene	0.01	U	
83-32-9-----	Acenaphthene	0.01	U	
86-73-7-----	Fluorene	0.01	U	
85-01-8-----	Phenanthrene	0.03	U	
120-12-7-----	Anthracene	0.01	U	
206-44-0-----	Fluoranthene	0.01	U	
129-00-0-----	Pyrene	0.01	U	
56-55-3-----	Benzo (a) anthracene	0.01	U	
218-01-9-----	Chrysene	0.01	U	
205-99-2-----	Benzo (b) fluoranthene	0.01	U	
207-08-9-----	Benzo (k) fluoranthene	0.01	U	
50-32-8-----	Benzo (a) pyrene	0.01	U	
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.01	U	
53-70-3-----	Dibenz (a,h) anthracene	0.02	U	
191-24-2-----	Benzo (g,h,i) perylene	0.01	U	

FORM I SV-1

FB003

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285720

Data file: /chem/HP21585.i/20mar26.b/mc1567.d

Injection date and time: 26-MAR-2020 14:07

Data file Sample Info. Line: FB003;1285720;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 14:42 Unknown

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 239 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	21704 (-6)	0.25	
6) Naphthalene-d8	8.971 (0.000)	538	136	74408 (-5)	0.25	
14) Acenaphthene-d10	11.722 (0.000)	748	164	34323 (-17)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	74987 (-16)	0.25	
29) Chrysene-d12	17.778 (0.000)	1588	240	60958 (-27)	0.25	
38) Perylene-d12	20.263 (0.000)	1912	264	81277 (-6)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	23563	0.155	62%		15 - 121
24) Fluoranthene-d10	(4)	15.333 (0.000)	212	72669	0.229	92%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.133 (0.000)	264	53047	0.173	69%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)			Not Detected					0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

FB003

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285720

Data file: /chem/HP21585.i/20mar26.b/mc1567.d

Injection date and time: **26-MAR-2020 14:07**

Data file Sample Info. Line: FB003;1285720;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20085WAB**

Date, time and analyst ID of latest file update: 26-Mar-2020 14:42 Unknown

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 239 ml

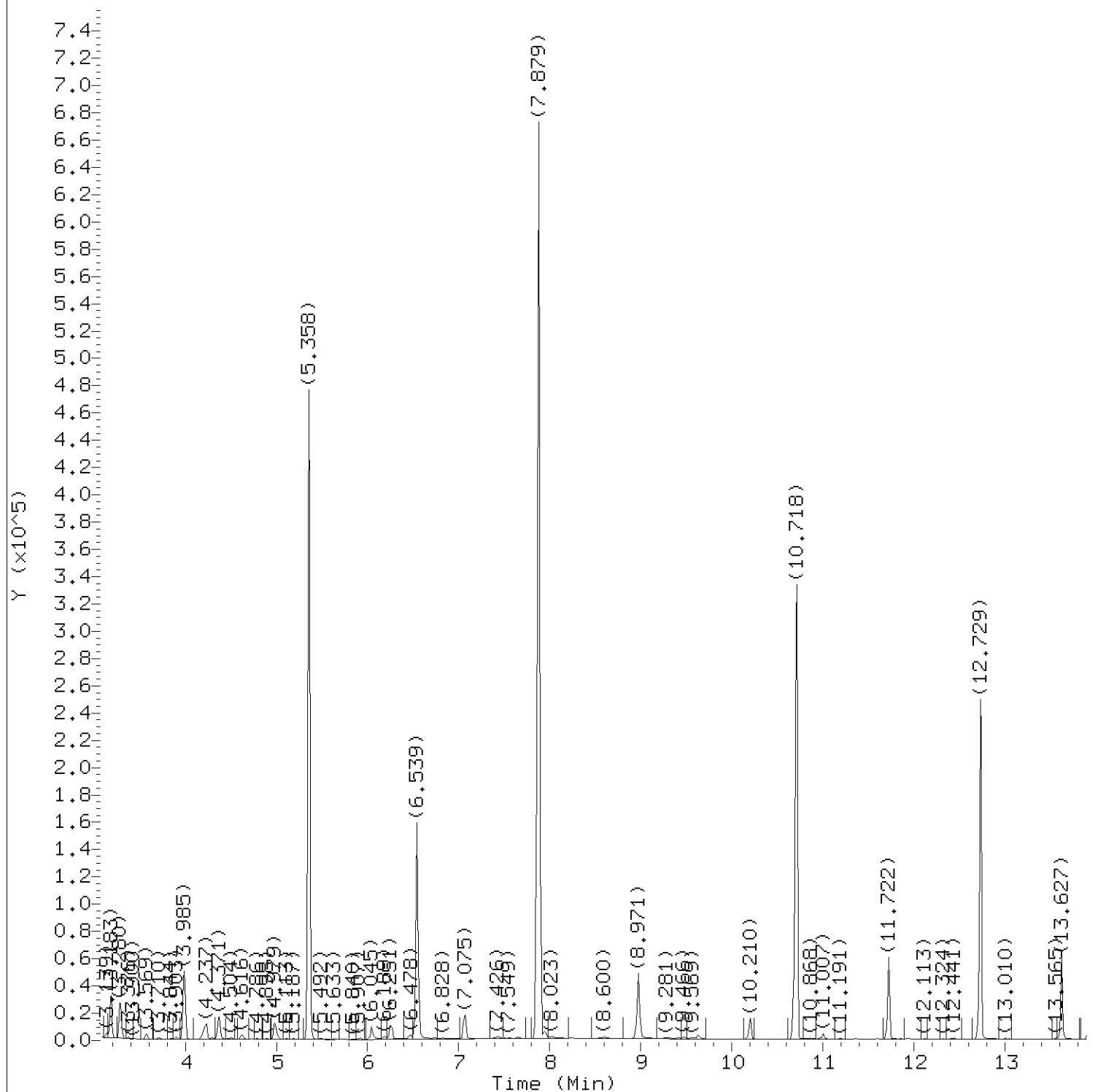
Volume Injected (Vi): 2 ul

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Total number of targets = 16

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27. Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59. PARALLAX ID: cam01237



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1567.d
Injection date and time: 26-MAR-2020 14:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

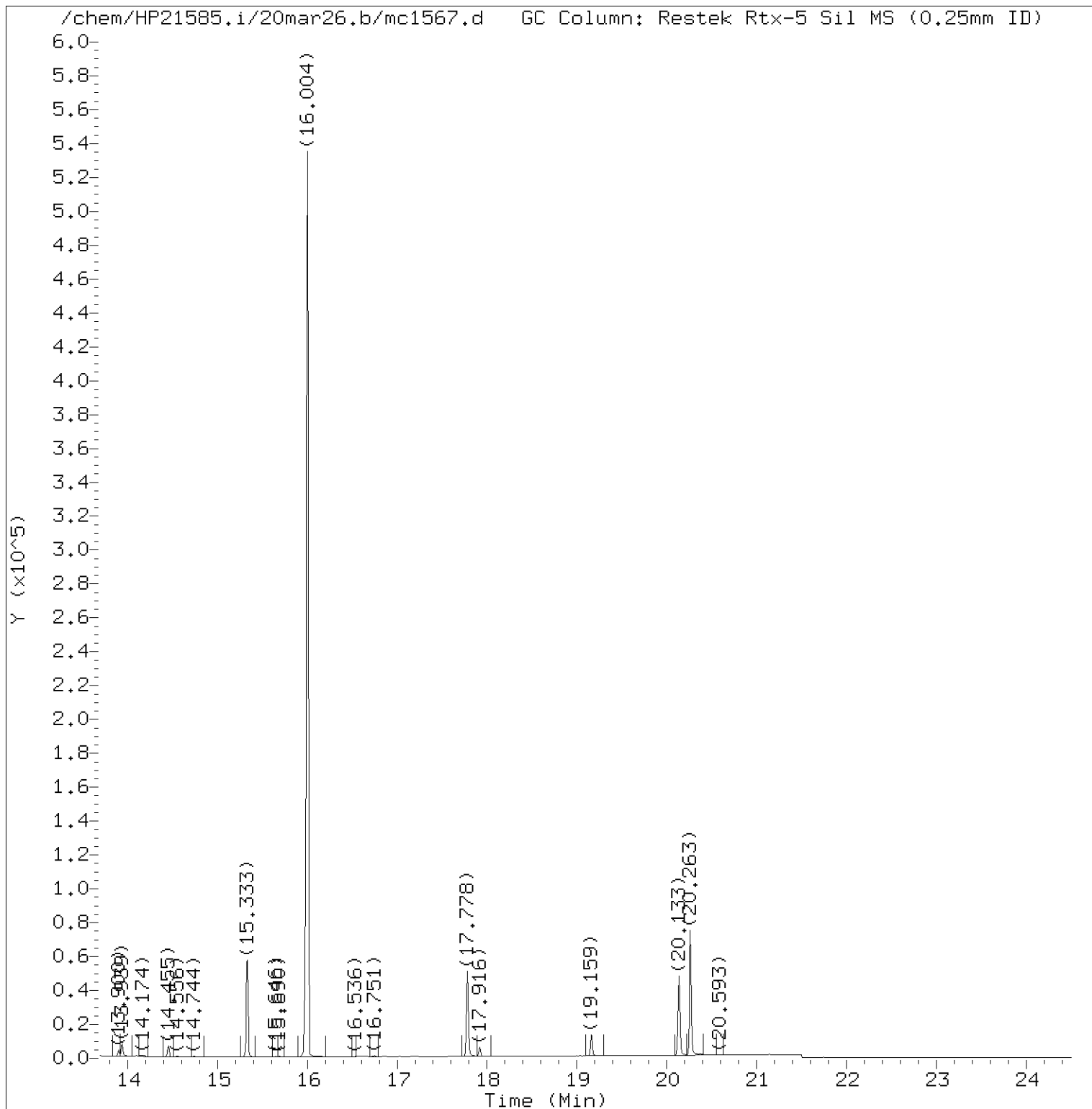
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 14:42 Unknown

Sample Name: FB003

Lab Sample ID: 1285720

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1567.d
Injection date and time: 26-MAR-2020 14:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 14:42 Unknown

Sample Name: FB003

Lab Sample ID: 1285720

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1567.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 14:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 14:42 Unknown

Sample Name: FB003

Lab Sample ID: 1285720

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	21704	0.250
6) *Naphthalene-d8	(2)	8.971	136	74408	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	23563	0.155
14) *Acenaphthene-d10	(3)	11.722	164	34323	0.250
20) *Phenanthrene-d10	(4)	13.627	188	74987	0.250
24) \$Fluoranthene-d10	(4)	15.333	212	72669	0.229
29) *Chrysene-d12	(5)	17.778	240	60958	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	53047	0.173
38) *Perylene-d12	(6)	20.263	264	81277	0.250

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Ashley R. Transue

on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

12D01

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 1285721

Sample wt/vol: 239 (g/mL)ML Lab File ID: mc1568.d

Level: (low/med) LOW Date Received: 03/20/20

% Moisture: not dec: dec: Date Extracted: 03/25/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/26/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
91-20-3-----	Naphthalene	0.03	U	
208-96-8-----	Acenaphthylene	0.01	U	
83-32-9-----	Acenaphthene	0.01	U	
86-73-7-----	Fluorene	0.01	U	
85-01-8-----	Phenanthrene	0.03	U	
120-12-7-----	Anthracene	0.01	U	
206-44-0-----	Fluoranthene	0.01	U	
129-00-0-----	Pyrene	0.01	U	
56-55-3-----	Benzo (a) anthracene	0.01	U	
218-01-9-----	Chrysene	0.01	U	
205-99-2-----	Benzo (b) fluoranthene	0.01	U	
207-08-9-----	Benzo (k) fluoranthene	0.01	U	
50-32-8-----	Benzo (a) pyrene	0.01	U	
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.01	U	
53-70-3-----	Dibenz (a,h) anthracene	0.02	U	
191-24-2-----	Benzo (g,h,i) perylene	0.01	U	

FORM I SV-1

12D01

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285721

Data file: /chem/HP21585.i/20mar26.b/mc1568.d

Injection date and time: 26-MAR-2020 14:37

Data file Sample Info. Line: 12D01;1285721;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 15:13 Unknown

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 239 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	22970 (0)	0.25	
6) Naphthalene-d8	8.972 (0.000)	538	136	81572 (4)	0.25	
14) Acenaphthene-d10	11.723 (0.000)	748	164	36357 (-12)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	81576 (-8)	0.25	
29) Chrysene-d12	17.779 (0.000)	1588	240	63339 (-24)	0.25	
38) Perylene-d12	20.264 (0.000)	1912	264	81389 (-6)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	24615	0.147	59%		15 - 121
24) Fluoranthene-d10	(4)	15.333 (0.000)	212	75555	0.219	88%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.133 (0.000)	264	24415	0.080	32%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)			Not Detected					0.008
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

12D01

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285721

Data file: /chem/HP21585.i/20mar26.b/mc1568.d

Injection date and time: **26-MAR-2020 14:37**

Data file Sample Info. Line: 12D01;1285721;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20085WAB**

Date, time and analyst ID of latest file update: 26-Mar-2020 15:13 Unknown

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

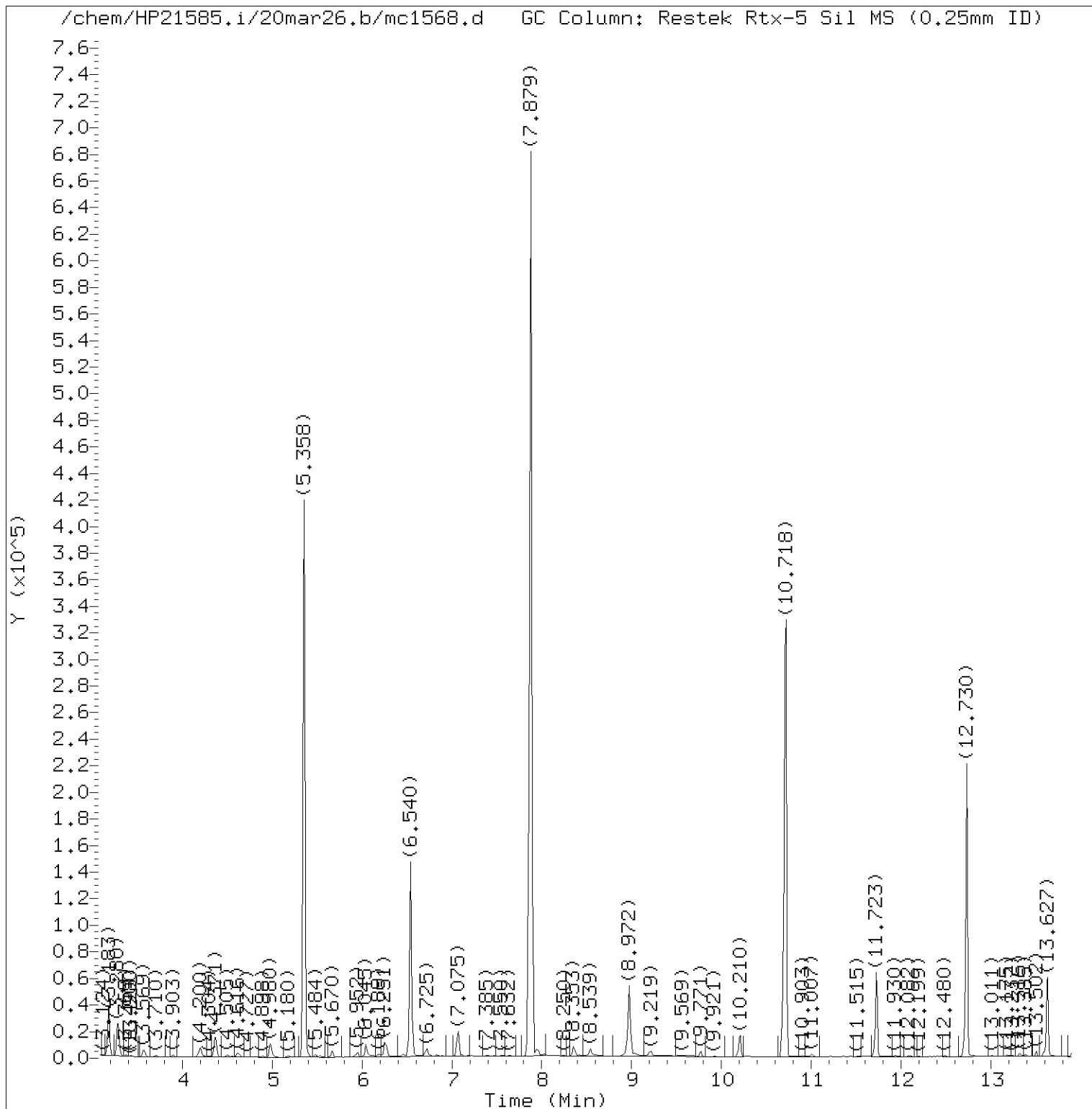
Sample Volume (Vo): 239 ml

Volume Injected (Vi): 2 ul

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Total number of targets = 16

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27. Target 3.5 esignature user ID: art12405



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1568.d
Injection date and time: 26-MAR-2020 14:37

Instrument ID: HP21585.i
Analyst ID: ceb05247

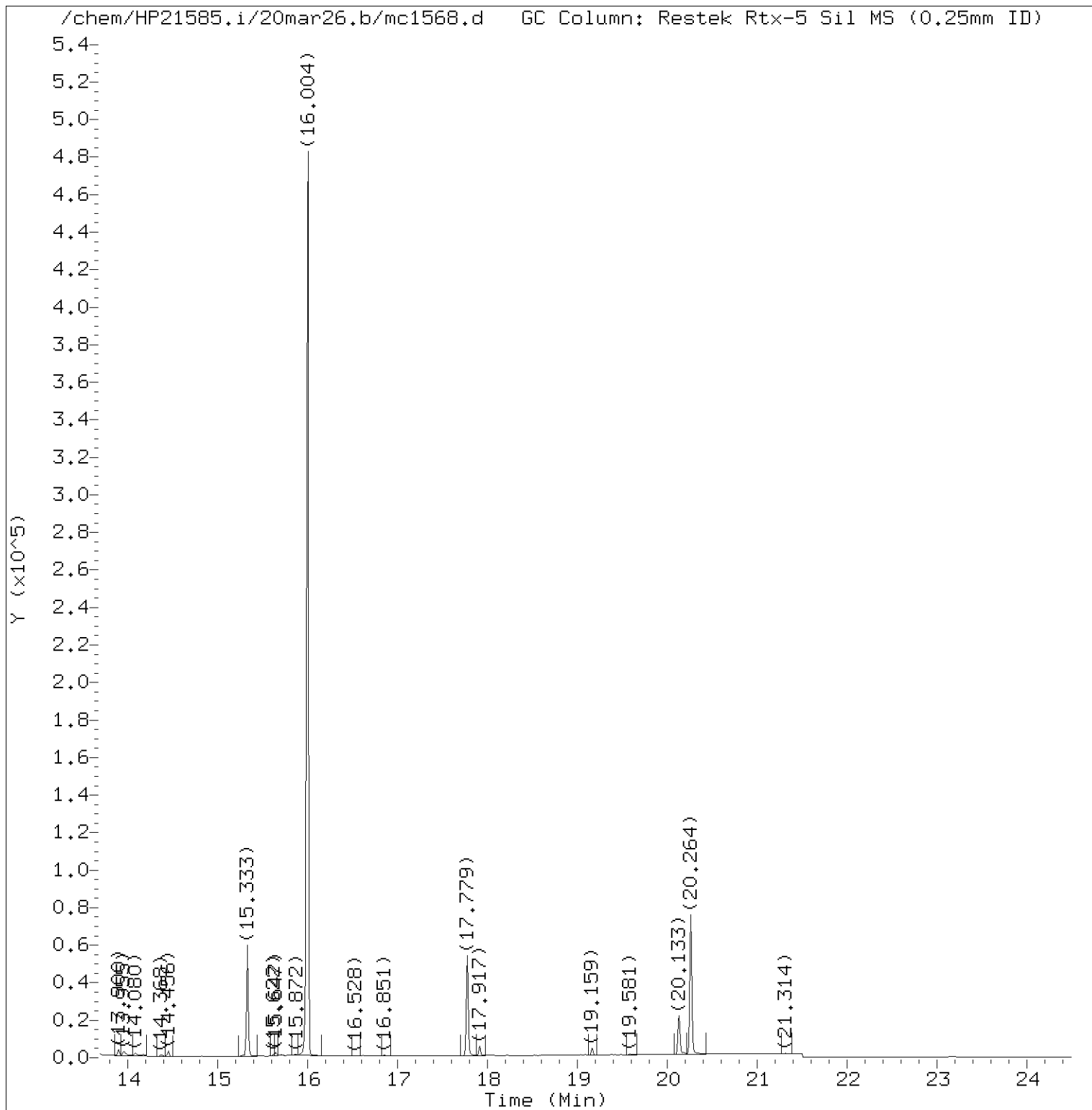
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 15:13 Unknown

Sample Name: 12D01

Lab Sample ID: 1285721

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1568.d
Injection date and time: 26-MAR-2020 14:37

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 15:13 Unknown

Sample Name: 12D01

Lab Sample ID: 1285721

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1568.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 14:37

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 15:13 Unknown

Sample Name: 12D01

Lab Sample ID: 1285721

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	22970	0.250
6) *Naphthalene-d8	(2)	8.972	136	81572	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	24615	0.147
14) *Acenaphthene-d10	(3)	11.723	164	36357	0.250
20) *Phenanthrene-d10	(4)	13.627	188	81576	0.250
24) \$Fluoranthene-d10	(4)	15.333	212	75555	0.219
29) *Chrysene-d12	(5)	17.779	240	63339	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	24415	0.080
38) *Perylene-d12	(6)	20.264	264	81389	0.250

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Ashley R. Transue

on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DUP10

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 1285722
 Sample wt/vol: 247 (g/mL)ML Lab File ID: mc1569.d
 Level: (low/med) LOW Date Received: 03/20/20
 % Moisture: not dec: dec: Date Extracted: 03/25/20
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/26/20
 Injection Volume: 2 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg)	MDL	UG/L Q
91-20-3-----	Naphthalene	0.1		
208-96-8-----	Acenaphthylene	0.2		
83-32-9-----	Acenaphthene	0.1		
86-73-7-----	Fluorene	0.2		
85-01-8-----	Phenanthrene	0.8		
120-12-7-----	Anthracene	0.3		
206-44-0-----	Fluoranthene	2		
129-00-0-----	Pyrene	2		
56-55-3-----	Benzo (a) anthracene	2		
218-01-9-----	Chrysene	1		
205-99-2-----	Benzo (b) fluoranthene	1		
207-08-9-----	Benzo (k) fluoranthene	0.5		
50-32-8-----	Benzo (a) pyrene	2		
193-39-5-----	Indeno (1,2,3-cd)pyrene	0.8		
53-70-3-----	Dibenz (a,h) anthracene	0.2		
191-24-2-----	Benzo (g,h,i) perylene	0.7		

FORM I SV-1

DUP10

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285722

Data file: /chem/HP21585.i/20mar26.b/mc1569.d

Injection date and time: 26-MAR-2020 15:07

Data file Sample Info. Line: DUP10;1285722;1;0;SAMPLE;;;T1

Instrument ID: HP21585.i Batch: 20085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 247 ml

Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	21373 (-7)	0.25	
6) Naphthalene-d8	8.972 (0.000)	538	136	74902 (-5)	0.25	
14) Acenaphthene-d10	11.722 (0.000)	748	164	40238 (-2)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	85607 (-4)	0.25	
29) Chrysene-d12	17.779 (0.000)	1588	240	77127 (-8)	0.25	
38) Perylene-d12	20.263 (0.000)	1912	264	90553 (4)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	23849	0.156	62%		15 - 121
24) Fluoranthene-d10	(4)	15.327 (0.000)	212	73836	0.204	82%		34 - 125
36) Benzo (a)pyrene-d12	(6)	20.133 (0.000)	264	59416	0.174	70%		10 - 138

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
7) Naphthalene	(2)	9.013(-0.000)	128	9393	0.027	0.11			0.008
13) Acenaphthylene	(3)	11.526(-0.000)	152	21881	0.051	0.21			0.003
15) Acenaphthene	(3)	11.769(-0.000)	154	8548M	0.036	0.15			0.003
18) Fluorene	(3)	12.425(-0.000)	166	14127	0.047	0.19			0.003
21) Phenanthrene	(4)	13.651(-0.000)	178	86344	0.194	0.79			0.008
22) Anthracene	(4)	13.721(-0.000)	178	34505	0.083	0.34			0.003
25) Fluoranthene	(4)	15.358(0.000)	202	224669	0.460	1.86			0.003
26) Pyrene	(5)	15.716(-0.000)	202	340119	0.616	2.49			0.003
28) Benzo (a)anthracene	(5)	17.755(0.000)	228	182749	0.391	1.58			0.003
30) Chrysene	(5)	17.824(-0.000)	228	139519	0.288	1.17			0.003
33) Benzo (b)fluoranthene	(6)	19.642(-0.000)	252	165906M	0.324	1.31			0.003
34) Benzo (k)fluoranthene	(6)	19.680(-0.000)	252	60566M	0.113	0.46			0.003
37) Benzo (a)pyrene	(6)	20.171(0.000)	252	181469	0.373	1.51			0.003
39) Indeno (1,2,3-cd)pyrene	(6)	22.000(-0.000)	276	84003M	0.193	0.78			0.003
40) Dibenz (a,h)anthracene	(6)	22.050(-0.000)	278	21828	0.044	0.18			0.005
41) Benzo (g,h,i)perylene	(6)	22.481(-0.000)	276	93154	0.182	0.74			0.003

M = Compound was manually integrated.

DUP10

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

1285722

Data file: /chem/HP21585.i/20mar26.b/mc1569.d

Injection date and time: **26-MAR-2020 15:07**

Data file Sample Info. Line: DUP10;1285722;1;0;SAMPLE;;;T1

Instrument ID: **HP21585.i** Batch: **20085WAB**

Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: **21331**

Calibration date and time (Last Method Edit): 26-MAR-2020 11:08

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 247 ml

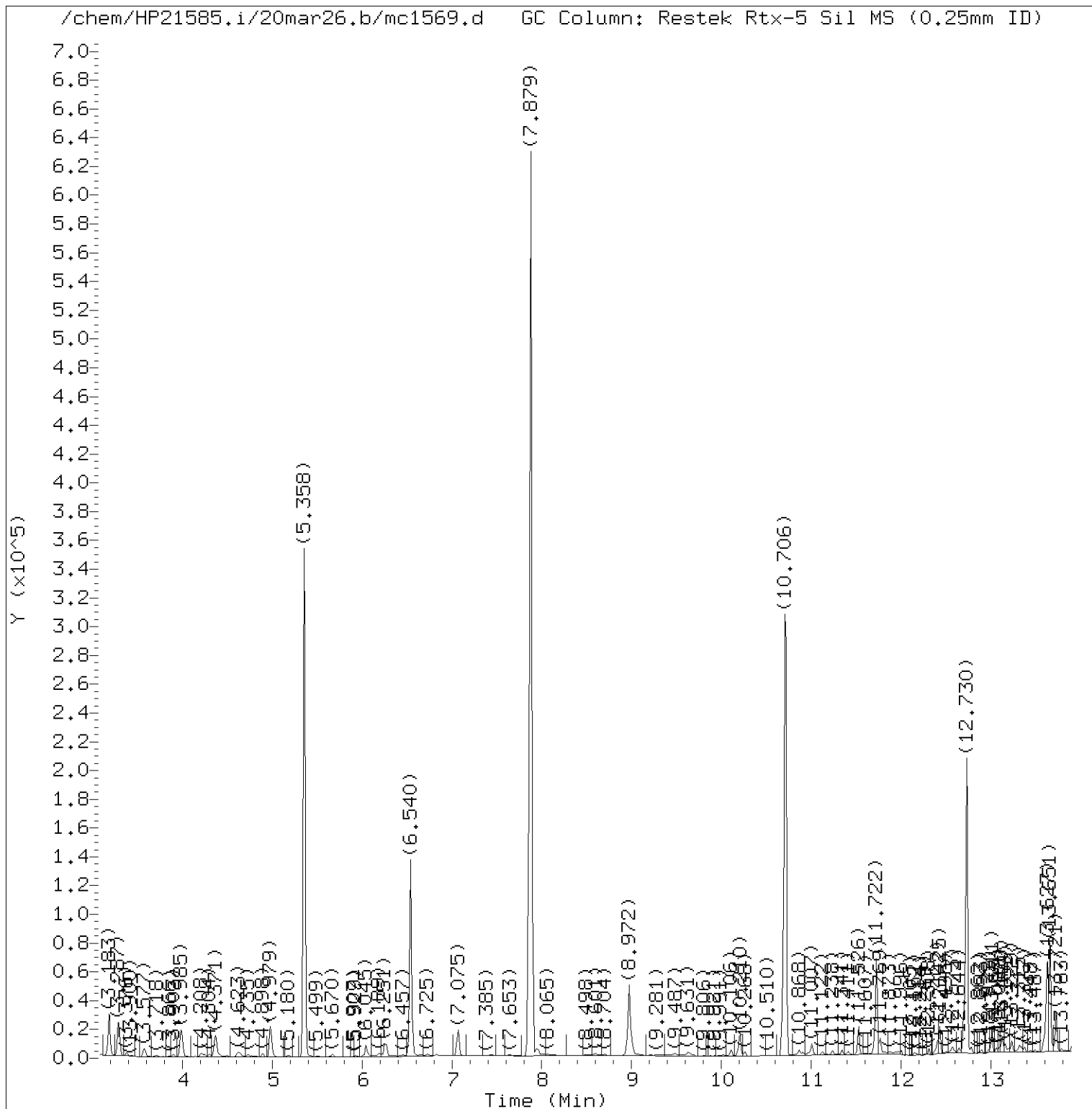
Volume Injected (Vi): 2 ul

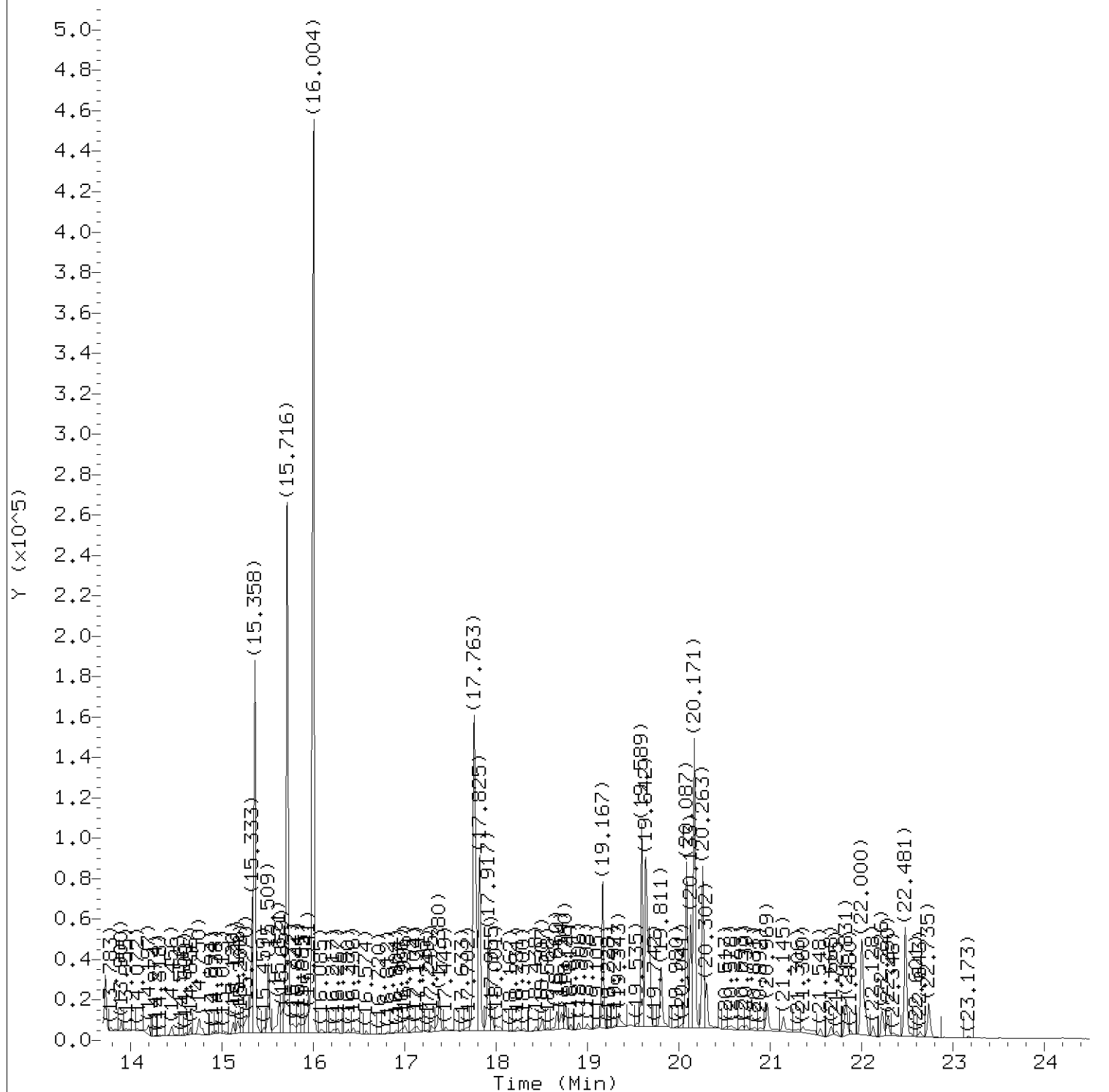
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WAS LEFT
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Total number of targets = 16

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27. Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59. PARALLAX ID: cam01237





Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

Lab Sample ID: 1285722

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1569.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 15:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

Lab Sample ID: 1285722

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	21373	0.250
6) *Naphthalene-d8	(2)	8.972	136	74902	0.250
7) Naphthalene	(2)	9.013	128	9393	0.027
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	23849	0.156
13) Acenaphthylene	(3)	11.526	152	21881	0.051
14) *Acenaphthene-d10	(3)	11.722	164	40238	0.250
15) Acenaphthene	(3)	11.769	154	8548M	0.036
18) Fluorene	(3)	12.425	166	14127	0.047
20) *Phenanthrene-d10	(4)	13.627	188	85607	0.250
21) Phenanthrene	(4)	13.651	178	86344	0.194
22) Anthracene	(4)	13.721	178	34505	0.083
24) \$Fluoranthene-d10	(4)	15.327	212	73836	0.204
25) Fluoranthene	(4)	15.358	202	224669	0.460
26) Pyrene	(5)	15.716	202	340119	0.616
28) Benzo(a)anthracene	(5)	17.755	228	182749	0.391
29) *Chrysene-d12	(5)	17.779	240	77127	0.250
30) Chrysene	(5)	17.825	228	139519	0.288
33) Benzo(b)fluoranthene	(6)	19.642	252	165906M	0.324
34) Benzo(k)fluoranthene	(6)	19.681	252	60566M	0.113
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	59416	0.174
37) Benzo(a)pyrene	(6)	20.171	252	181469	0.373
38) *Perylene-d12	(6)	20.263	264	90553	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.000	276	84003M	0.193
40) Dibenz(a,h)anthracene	(6)	22.050	278	21828	0.044
41) Benzo(g,h,i)perylene	(6)	22.481	276	93154	0.182

M = Compound was manually integrated.

* = Compound is an internal standard.

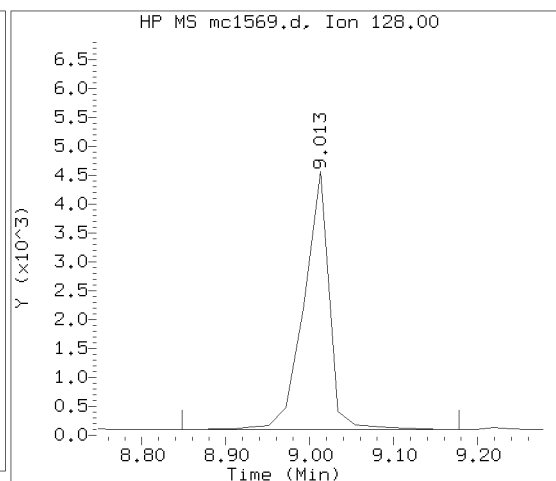
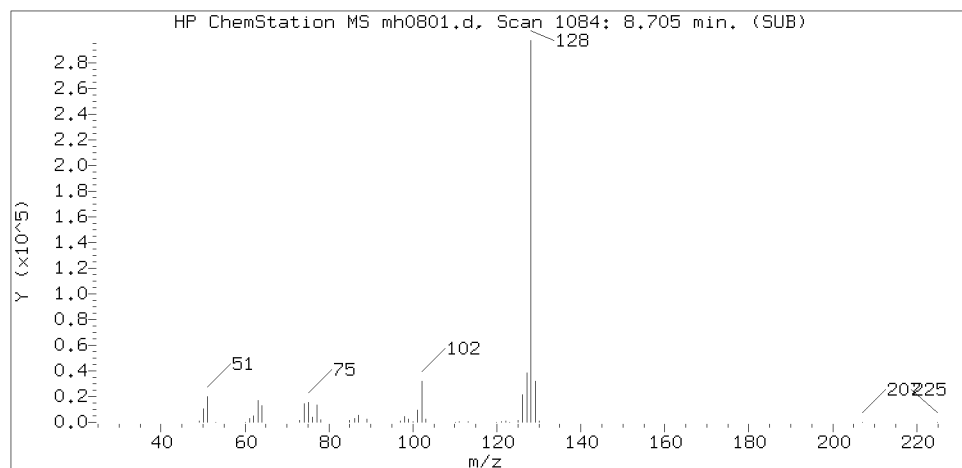
\$ = Compound is a surrogate standard.

Digitally signed by Ashley R. Transue

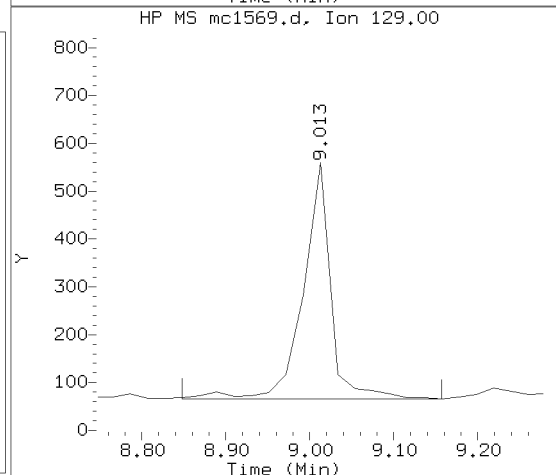
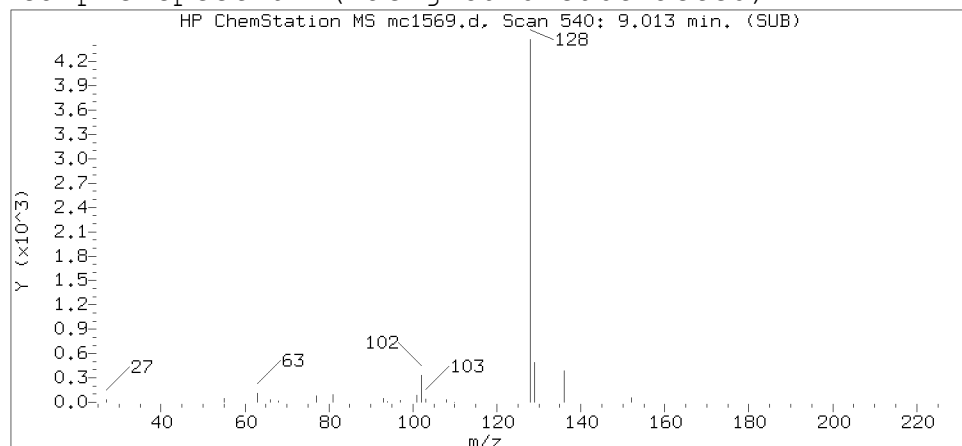
on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405

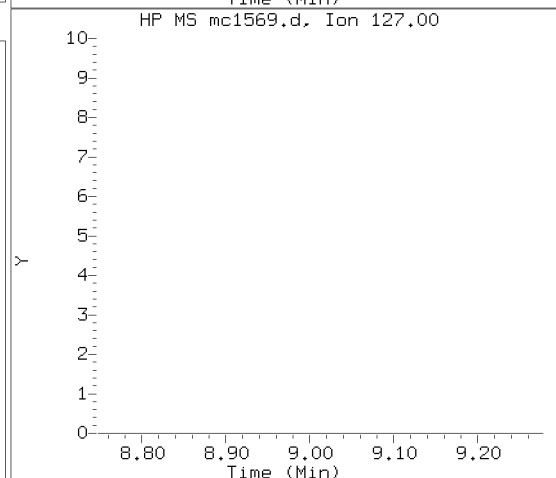
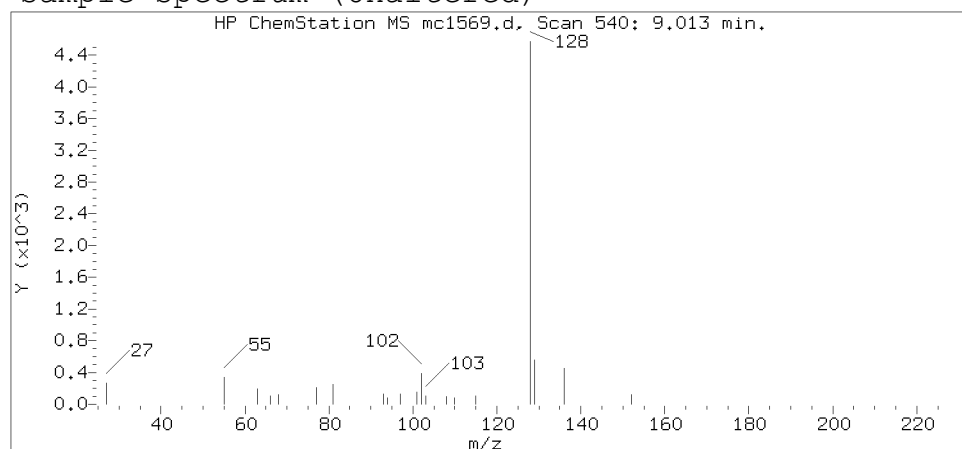
Reference Standard Spectrum for Naphthalene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

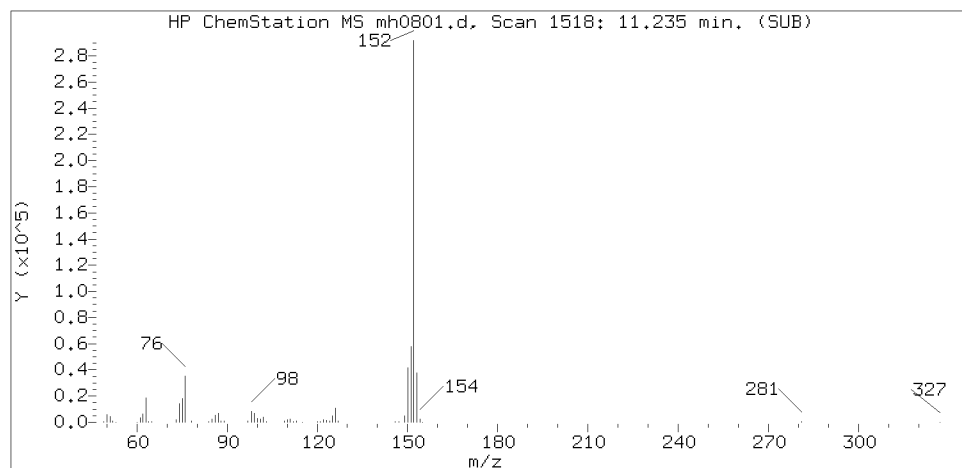
Lab Sample ID: 1285722

Compound Number : 7
Compound Name : Naphthalene
Scan Number : 540
Retention Time (minutes) : 9.013
Relative Retention Time : -0.00000
Quant Ion : 128.00
Area (flag) : 9393
On-column Amount (ng/ul) : 0.0265

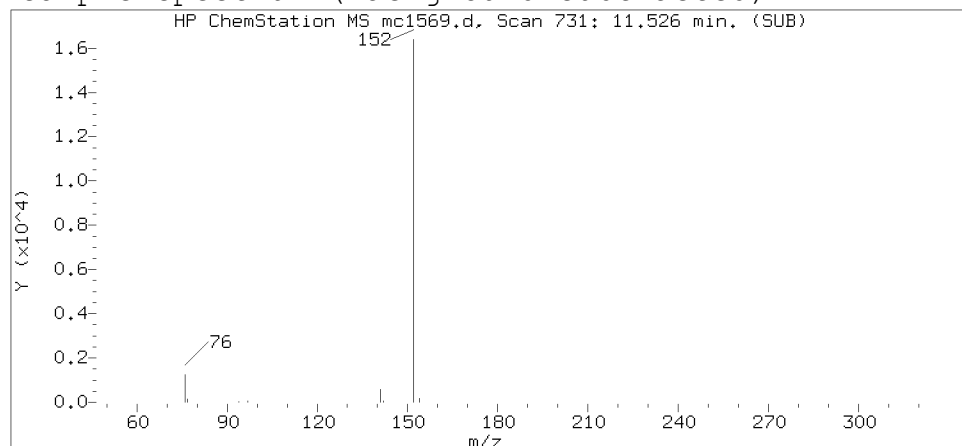
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
GPY68 Page 417 of 586

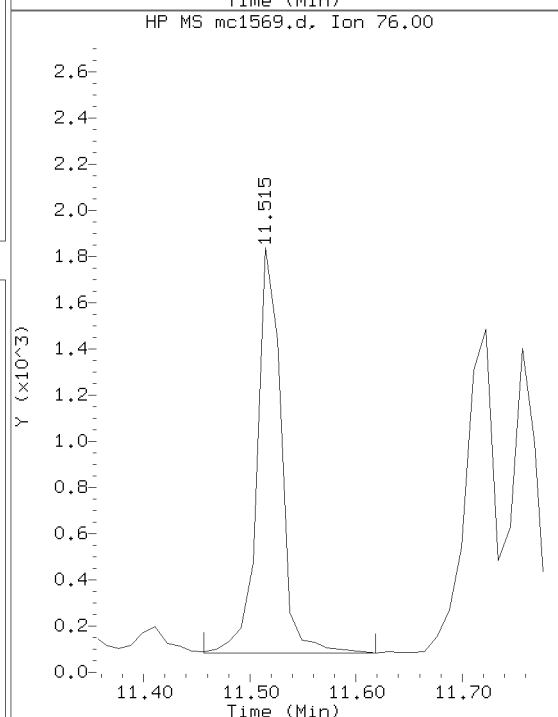
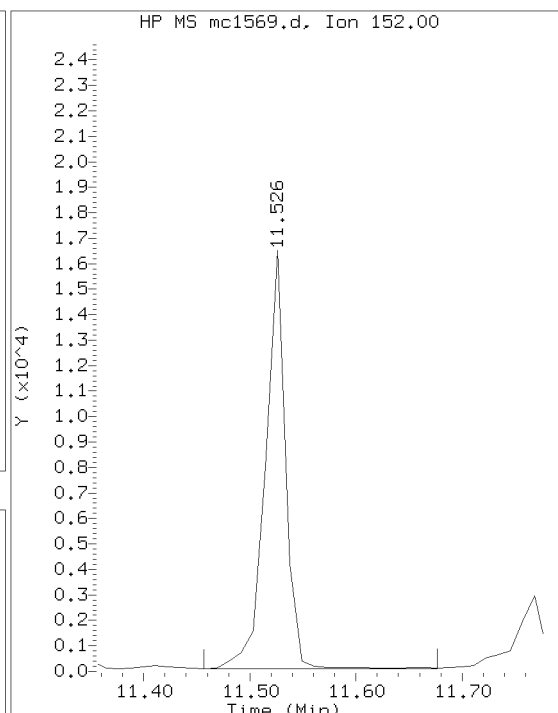
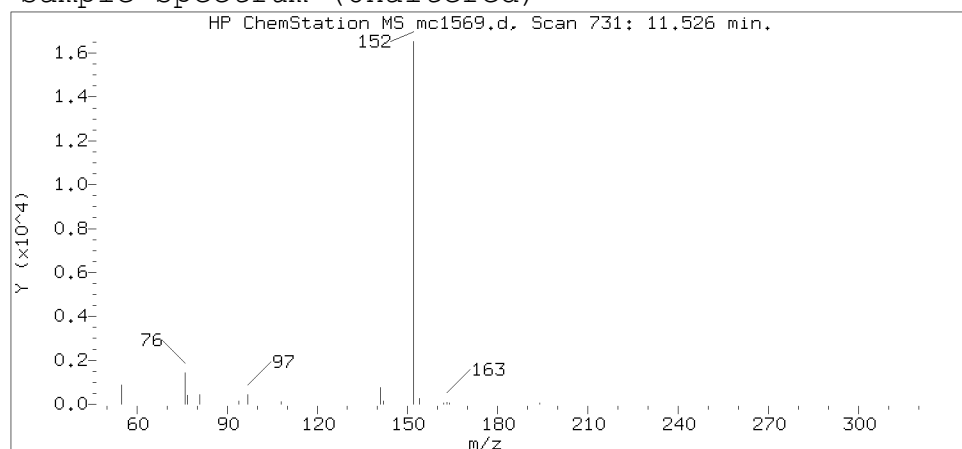
Reference Standard Spectrum for Acenaphthylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

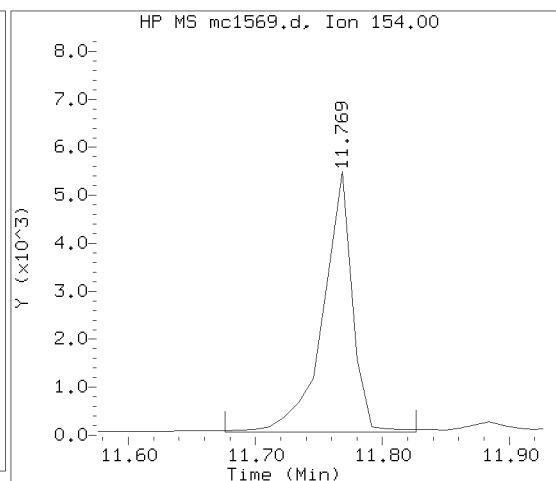
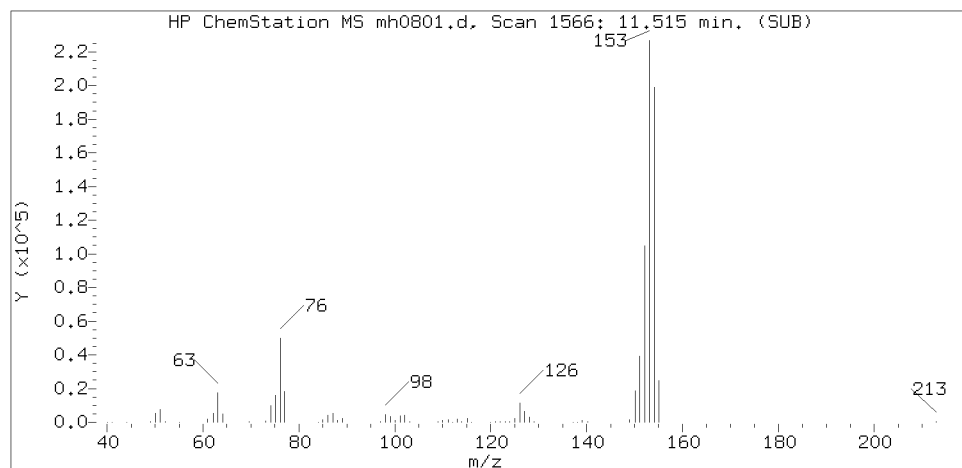
Lab Sample ID: 1285722

Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 731
Retention Time (minutes) : 11.526
Relative Retention Time :-0.00000
Quant Ion : 152.00
Area (flag) : 21881
On-column Amount (ng/ul) : 0.0512

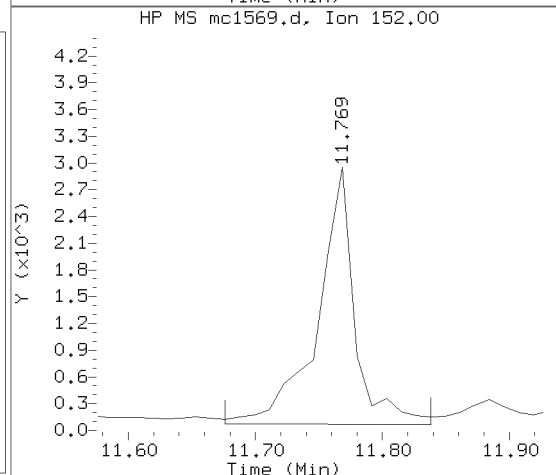
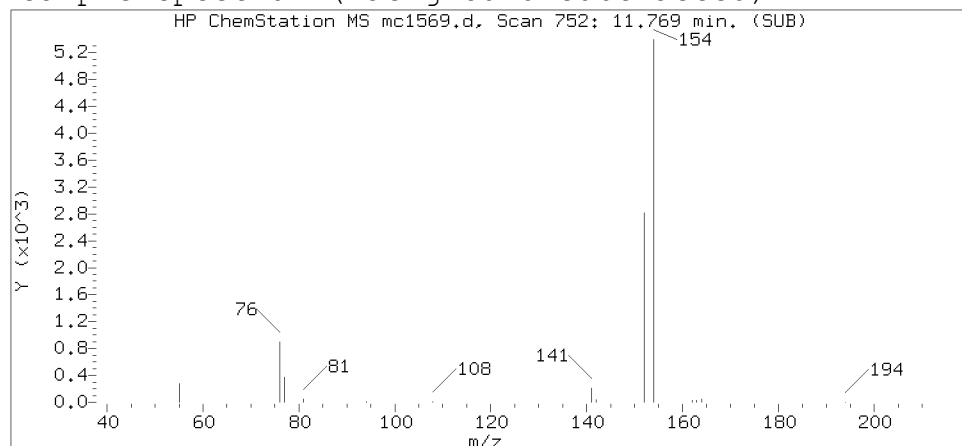
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user art12405
GPY68 Page 418 of 586

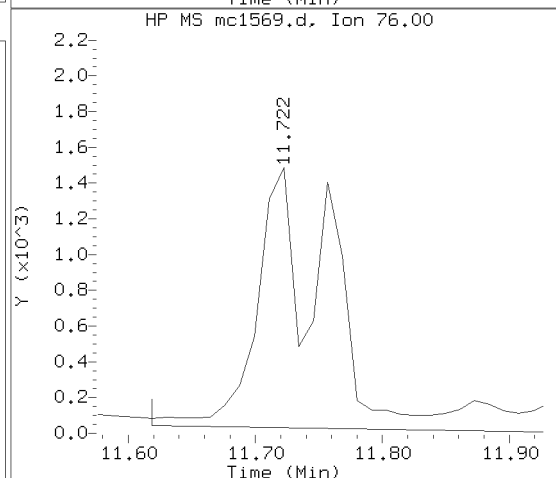
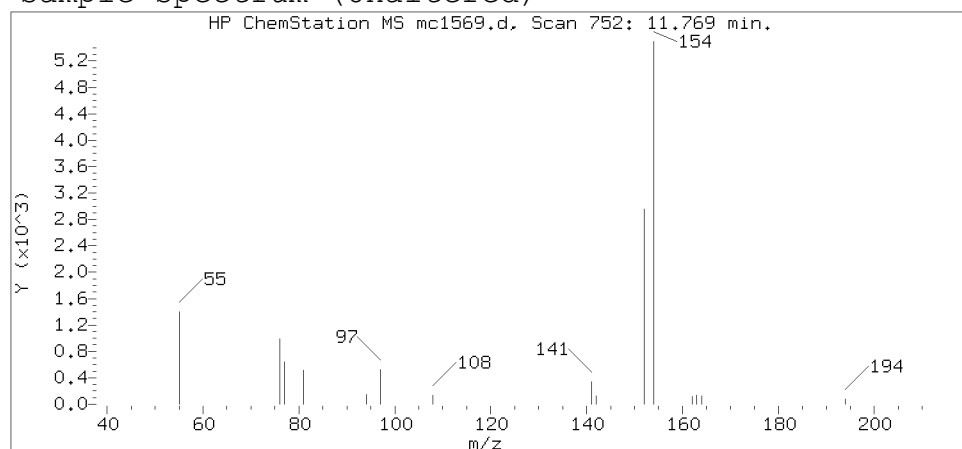
Reference Standard Spectrum for Acenaphthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

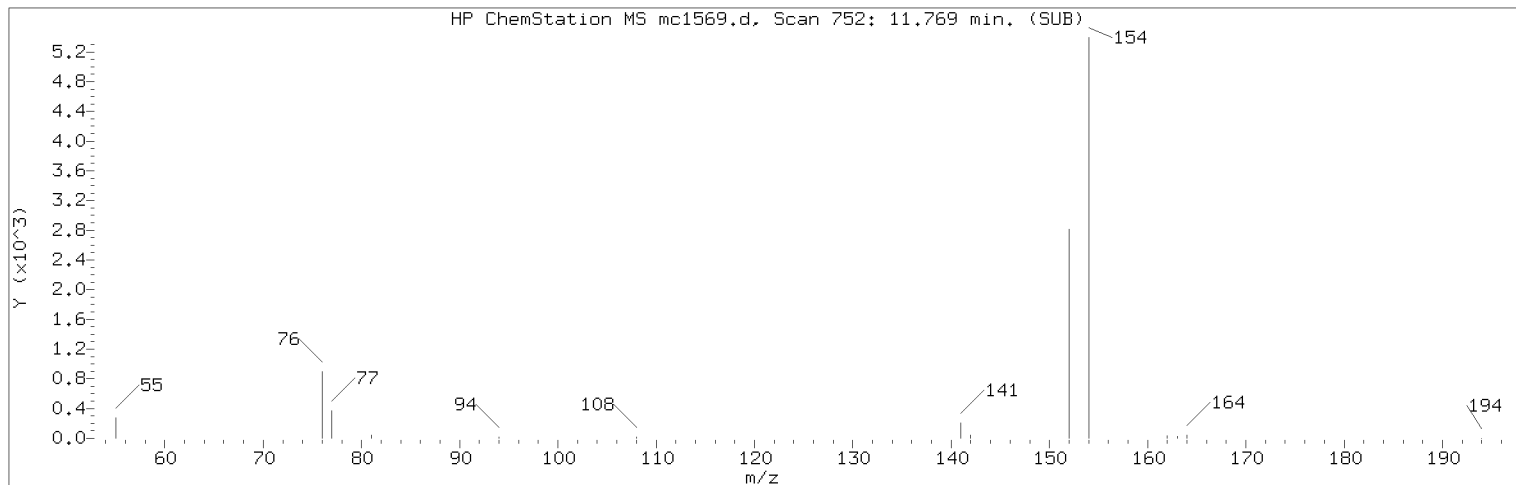
Lab Sample ID: 1285722

Compound Number : 15
Compound Name : Acenaphthene
Scan Number : 752
Retention Time (minutes) : 11.769
Relative Retention Time : -0.00000
Quant Ion : 154.00
Area (flag) : 8548M
On-column Amount (ng/ul) : 0.0359

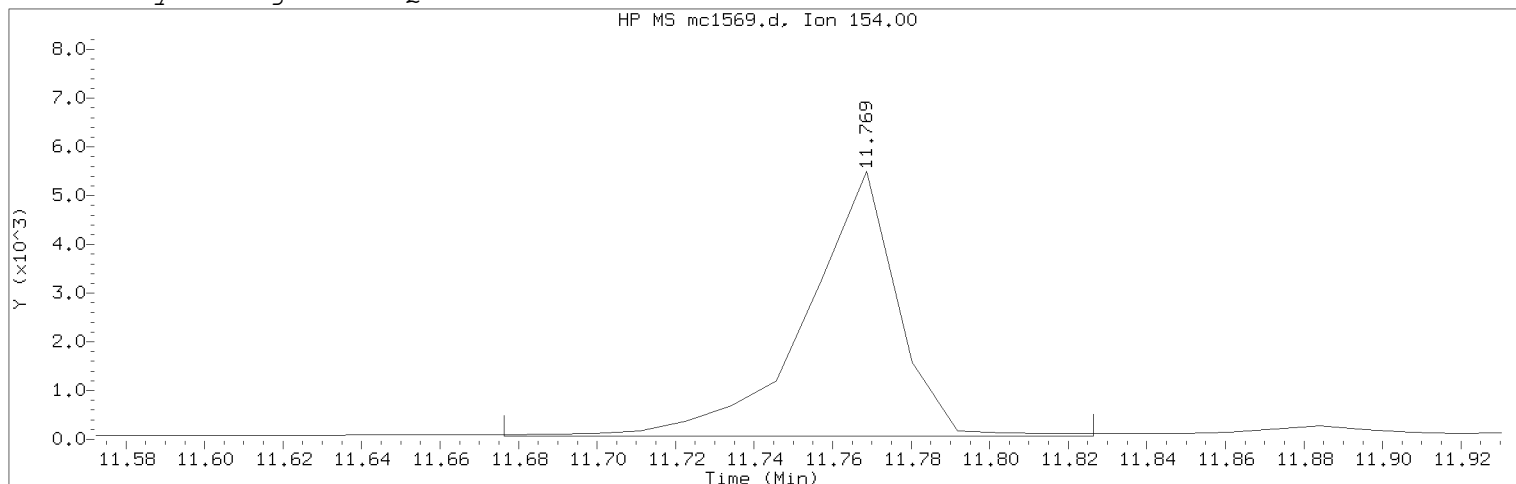
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user art12405
GPY68 Page 419 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1569.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 15:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

Lab Sample ID: 1285722

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 752	
Retention Time (minutes)	: 11.769	
Quant Ion	: 154.00	
Area (flag)	: 8548M	
On-column Amount (ng/ul)	: 0.0359	
Integration start scan	: 743	Integration stop scan: 756
Y at integration start	: 69	Y at integration end: 69

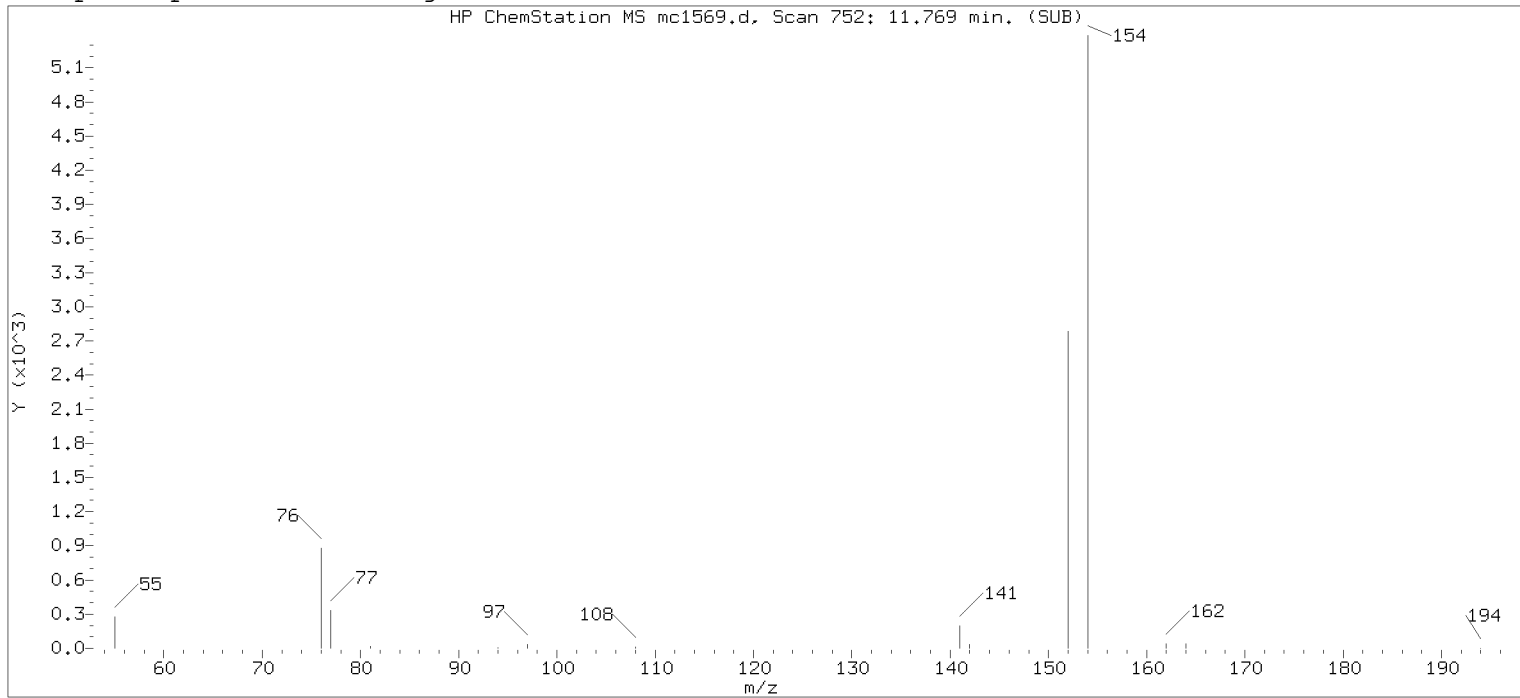
Reason for manual integration: improper integration

Analyst responsible for change:

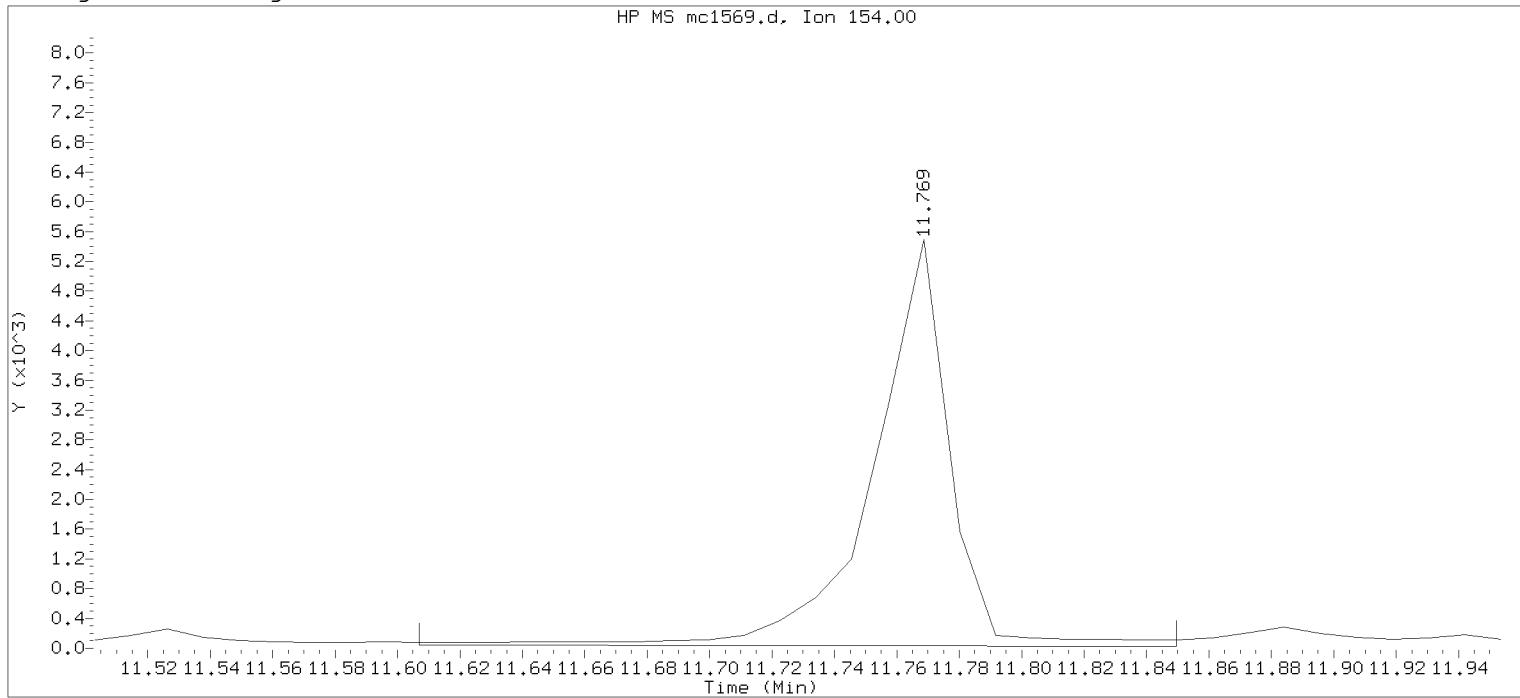
Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1569.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 15:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

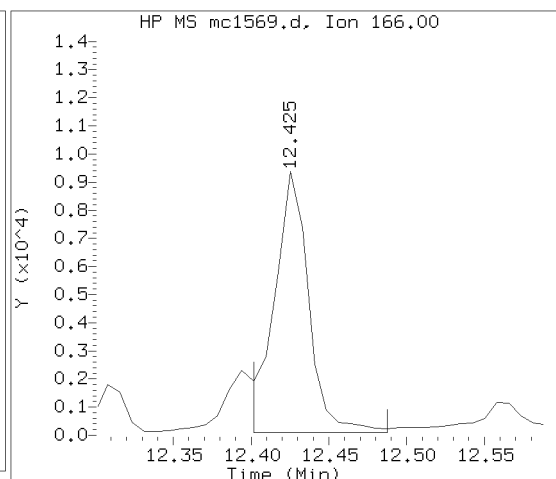
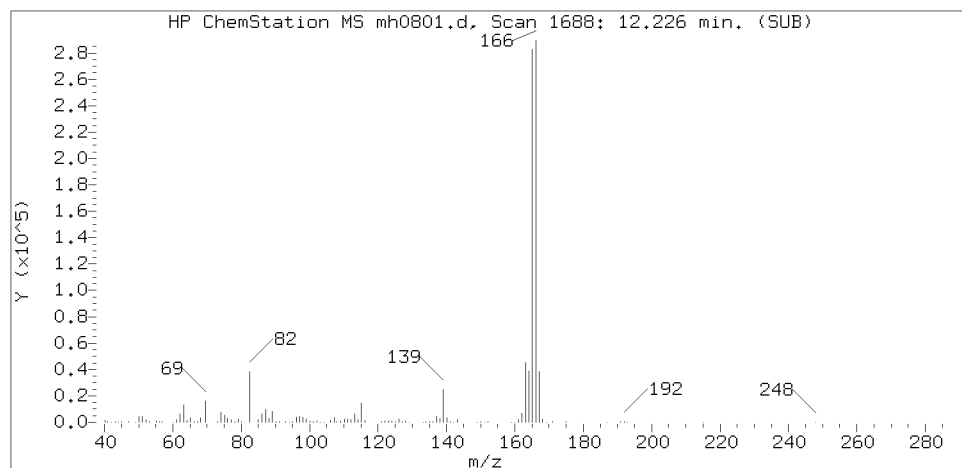
Date, time and analyst ID of latest file update: 26-Mar-2020 15:43 Unknown

Sample Name: DUP10

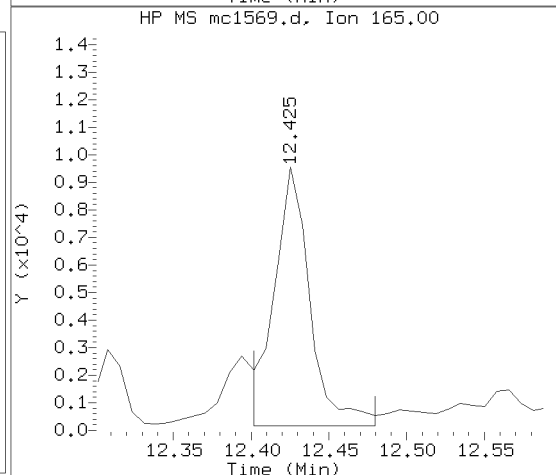
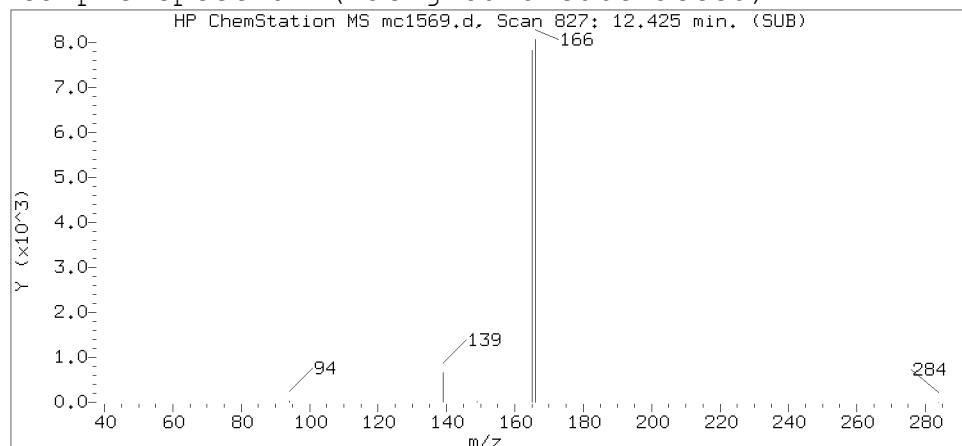
Lab Sample ID: 1285722

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 752	
Retention Time (minutes)	: 11.769	
Quant Ion	: 154.00	
Area	: 9076	
On-column Amount (ng/ul)	: 0.0381	
Integration start scan	: 737	Integration stop scan: 758
Y at integration start	: 39	Y at integration end: 30

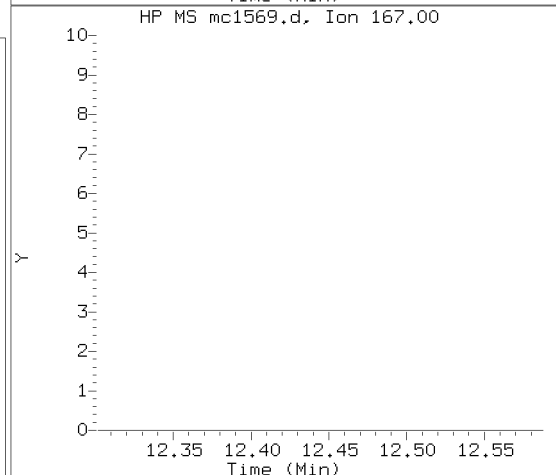
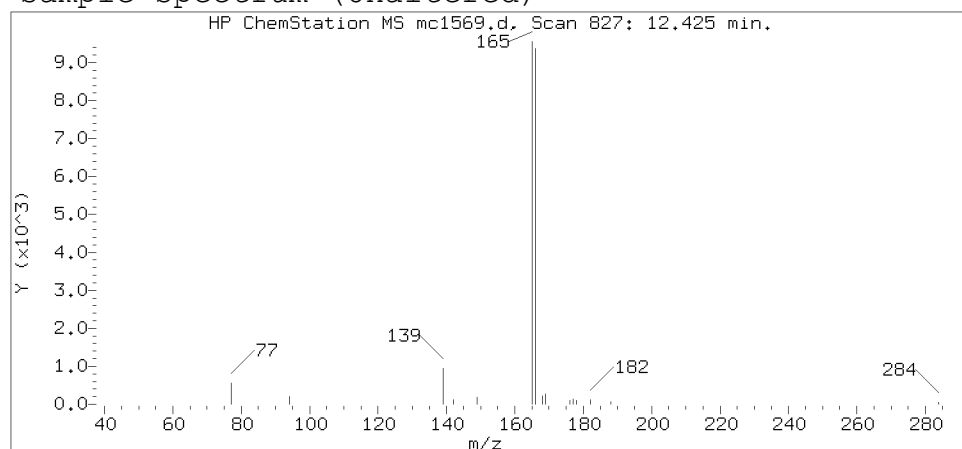
Reference Standard Spectrum for Fluorene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

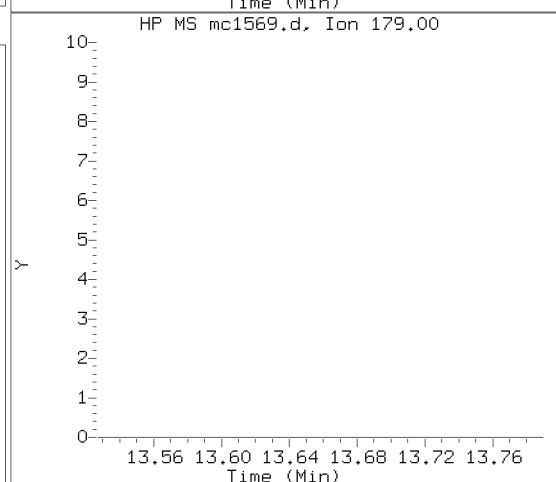
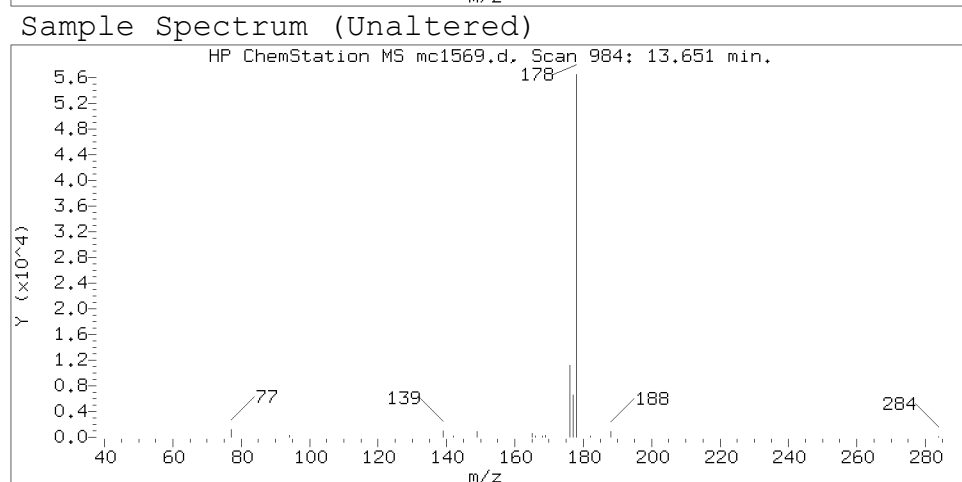
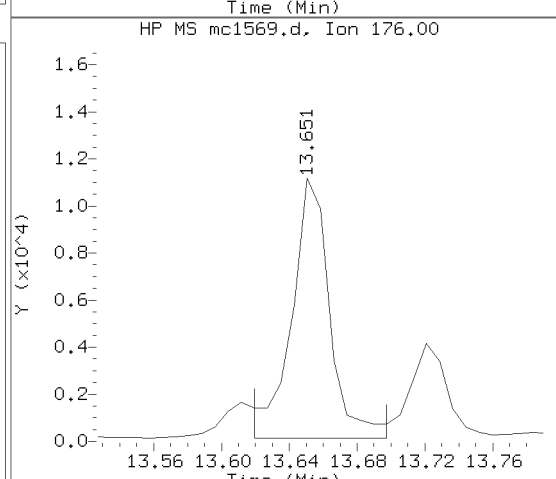
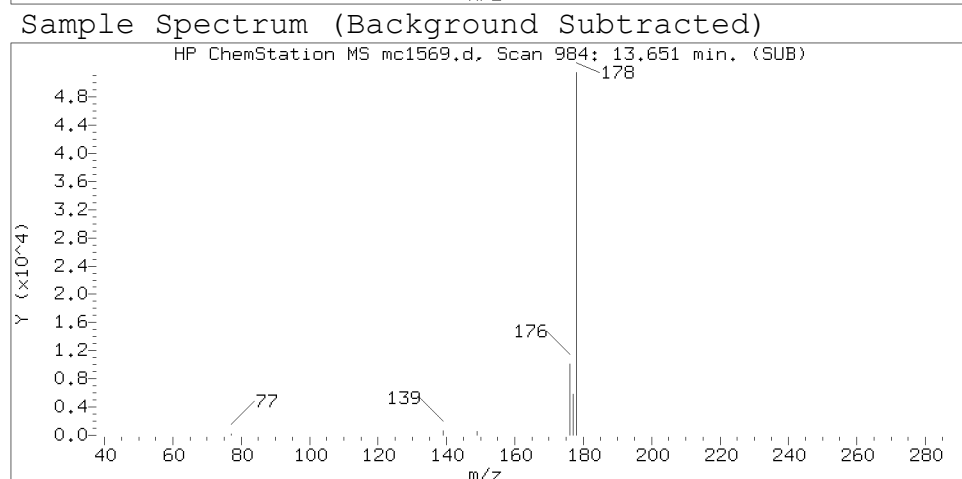
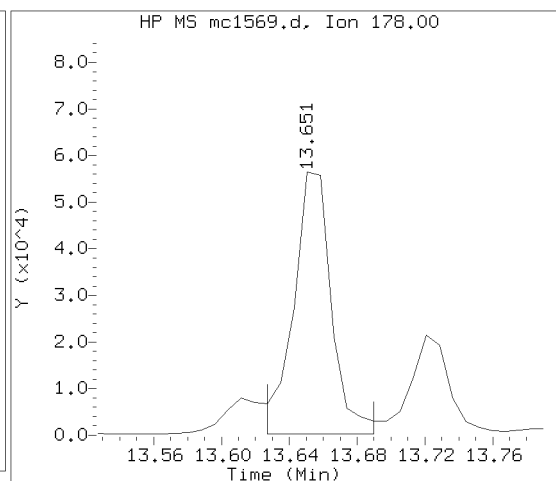
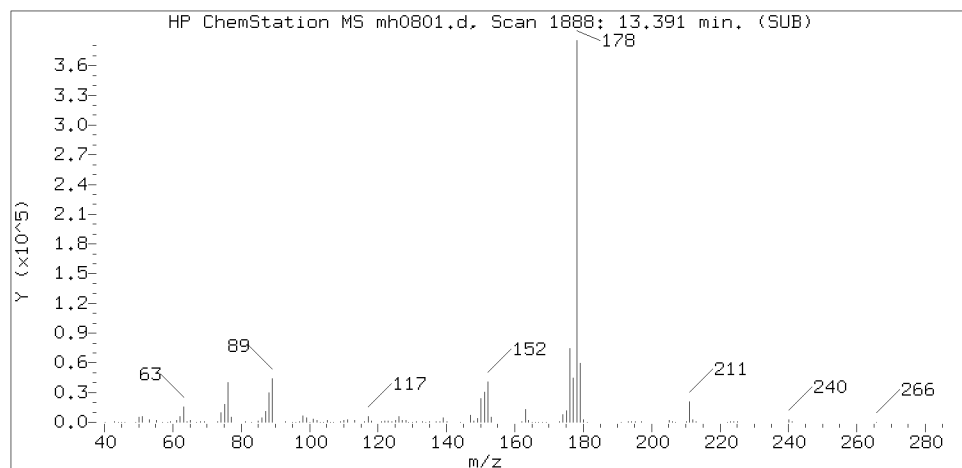
Lab Sample ID: 1285722

Compound Number : 18
Compound Name : Fluorene
Scan Number : 827
Retention Time (minutes) : 12.425
Relative Retention Time : -0.00000
Quant Ion : 166.00
Area (flag) : 14127
On-column Amount (ng/ul) : 0.0468

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Target 3.5 esignature user: art12405
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Reference Standard Spectrum for Phenanthrene



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

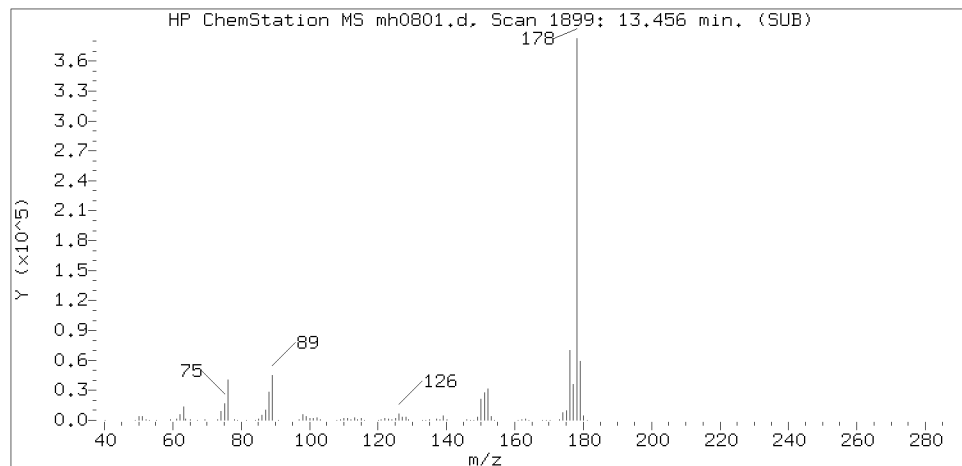
Sample Name: DUP10

Lab Sample ID: 1285722

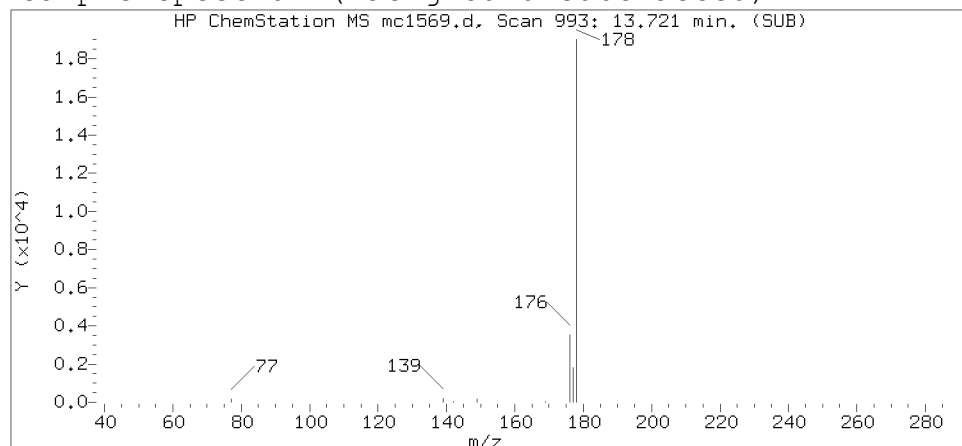
Compound Number : 21
Compound Name : Phenanthrene
Scan Number : 984
Retention Time (minutes) : 13.651
Relative Retention Time : -0.00000
Quant Ion : 178.00
Area (flag) : 86344
On-column Amount (ng/ul) : 0.1944

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Target 3.5 esignature user: art12405

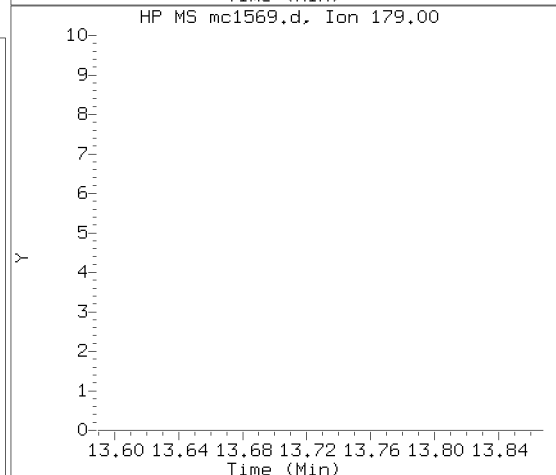
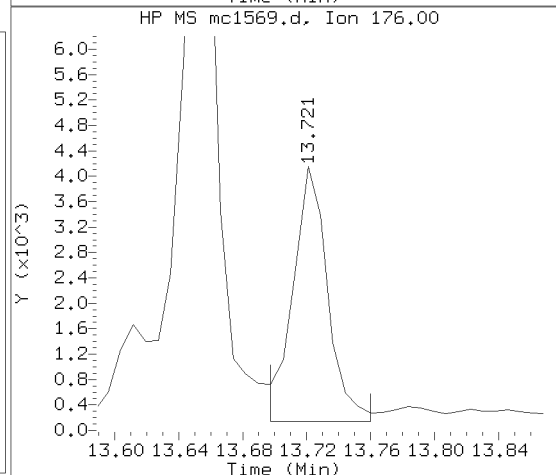
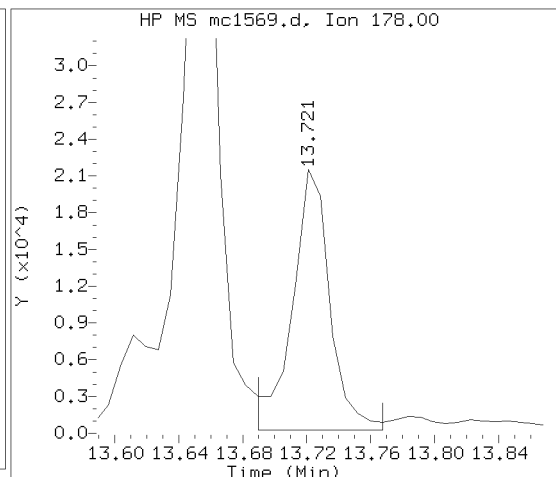
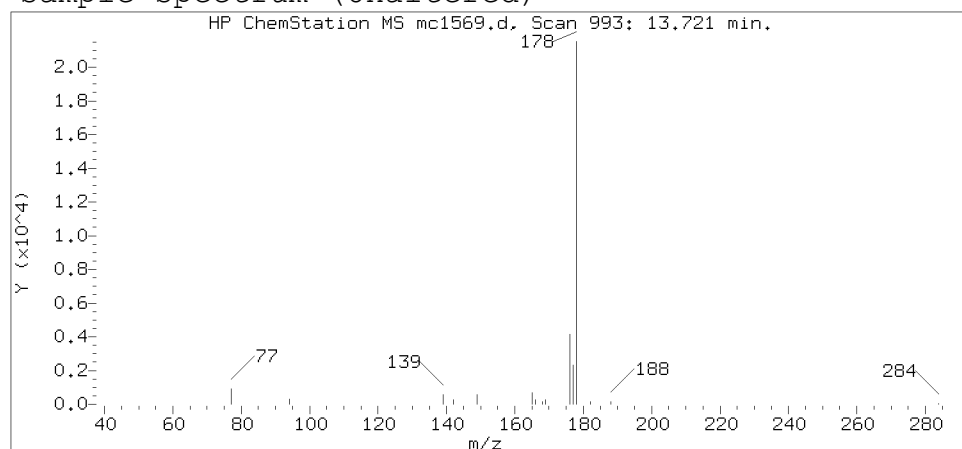
Reference Standard Spectrum for Anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

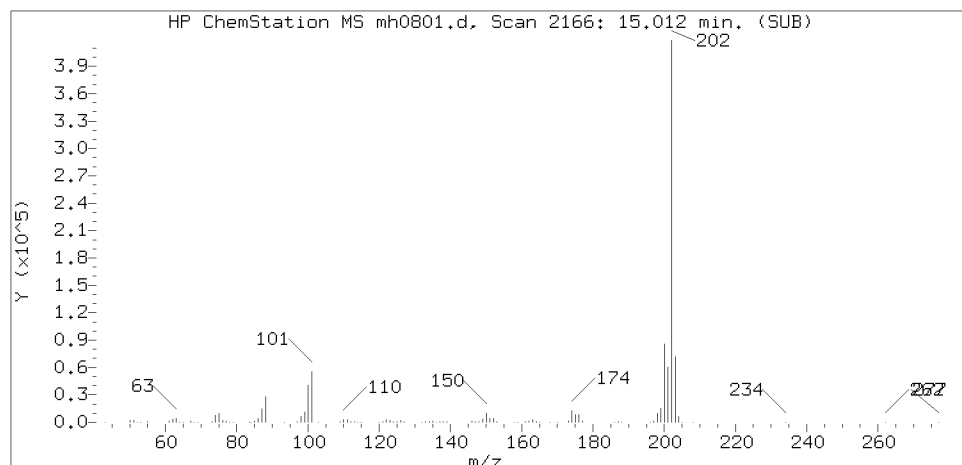
Lab Sample ID: 1285722

Compound Number : 22
Compound Name : Anthracene
Scan Number : 993
Retention Time (minutes) : 13.721
Relative Retention Time : -0.00000
Quant Ion : 178.00
Area (flag) : 34505
On-column Amount (ng/ul) : 0.0828

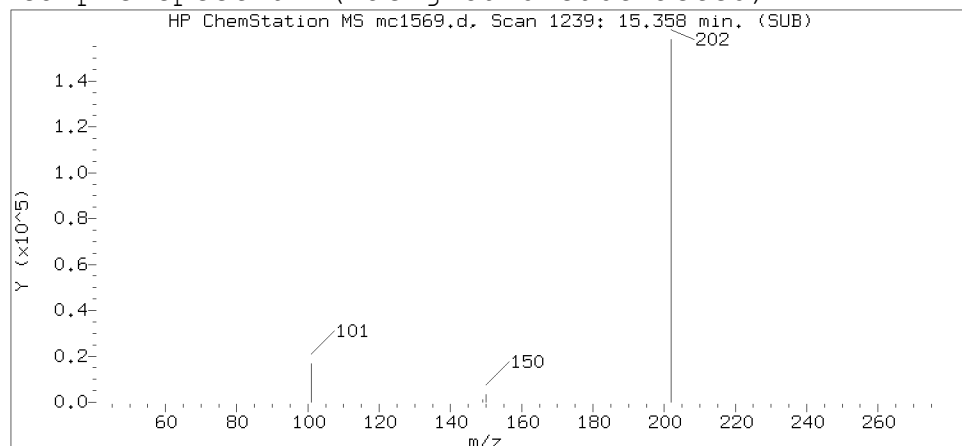
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user art12405
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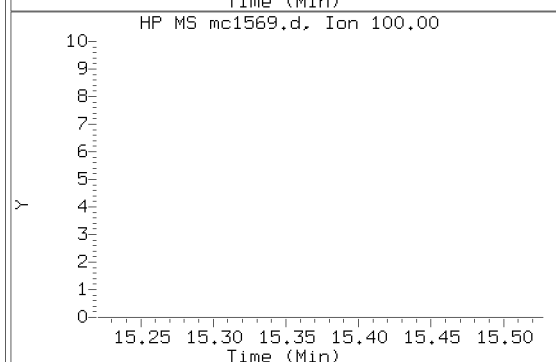
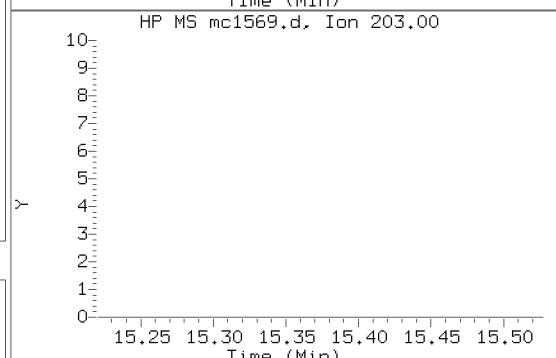
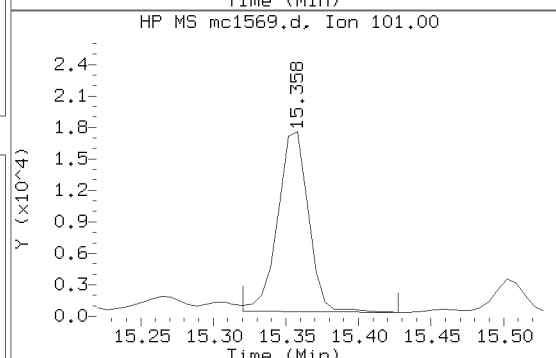
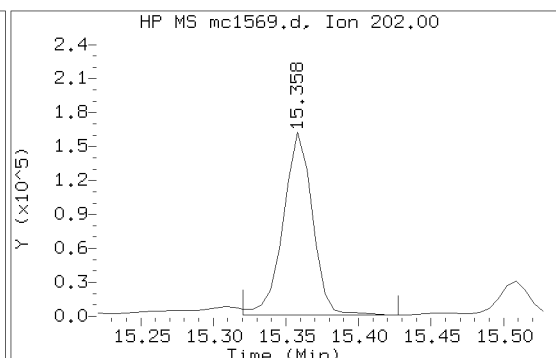
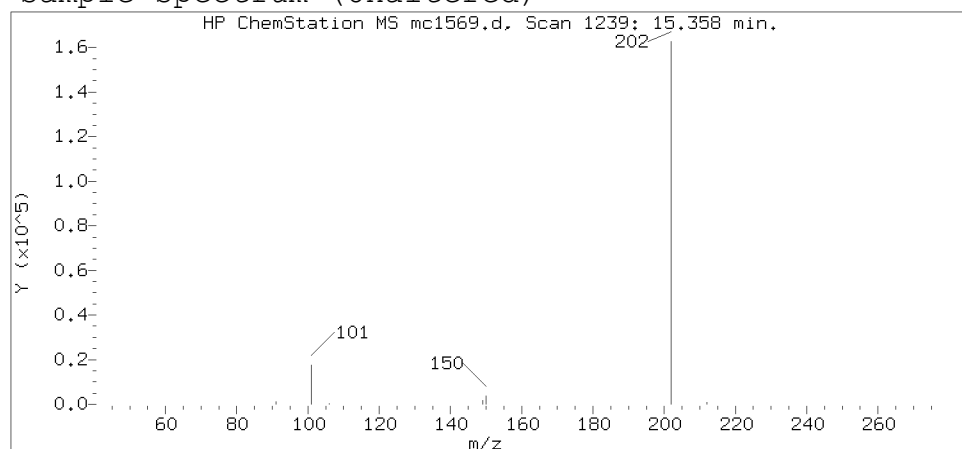
Reference Standard Spectrum for Fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

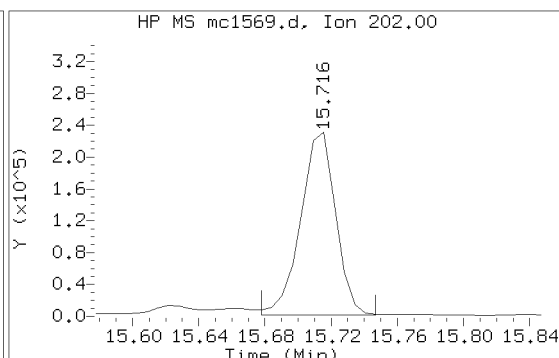
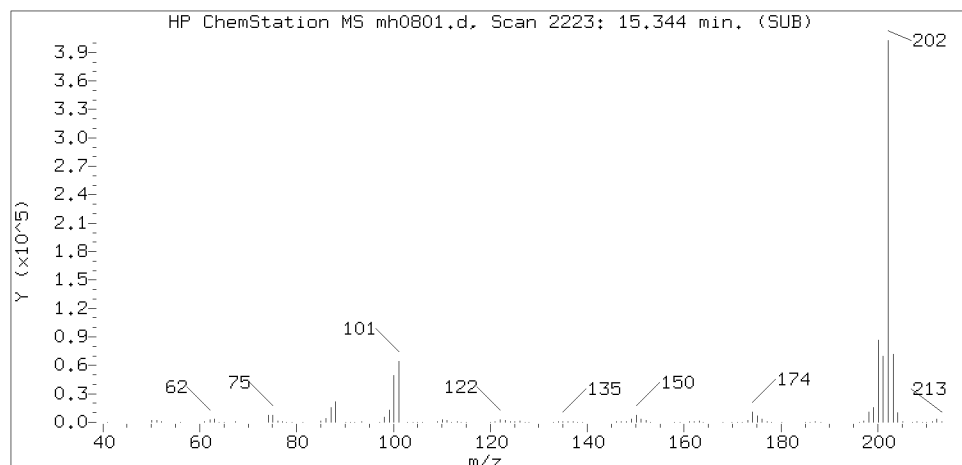
Lab Sample ID: 1285722

Compound Number : 25
Compound Name : Fluoranthene
Scan Number : 1239
Retention Time (minutes) : 15.358
Relative Retention Time : 0.00000
Quant Ion : 202.00
Area (flag) : 224669
On-column Amount (ng/ul) : 0.4599

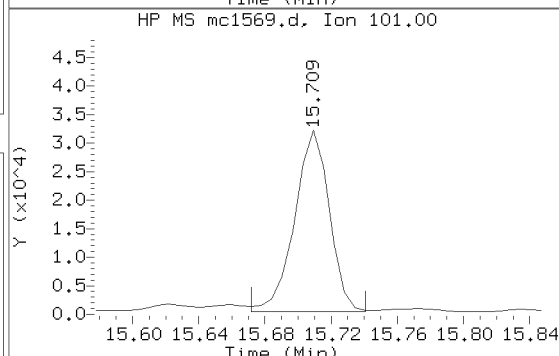
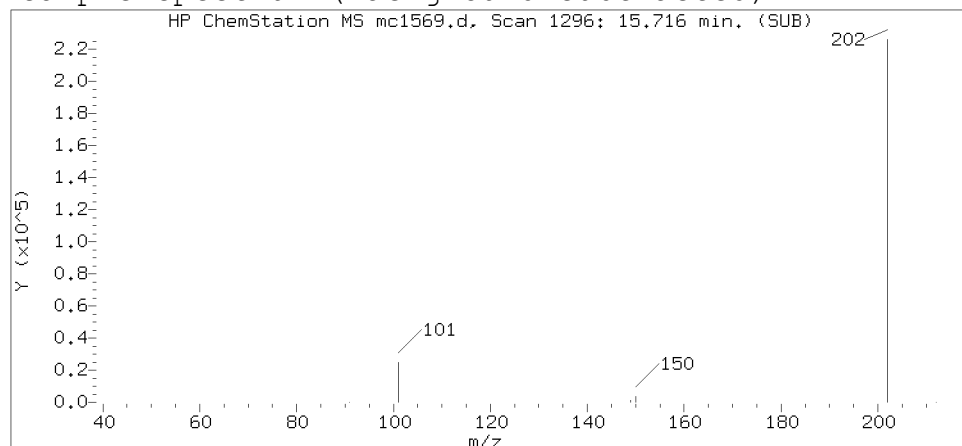
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405
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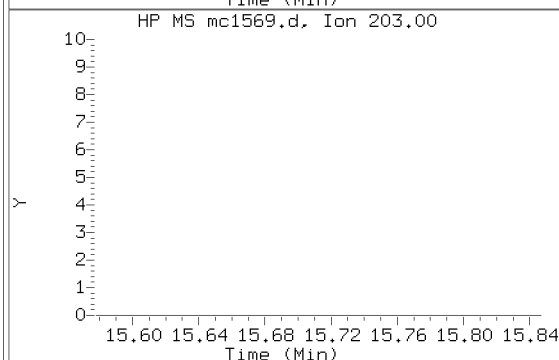
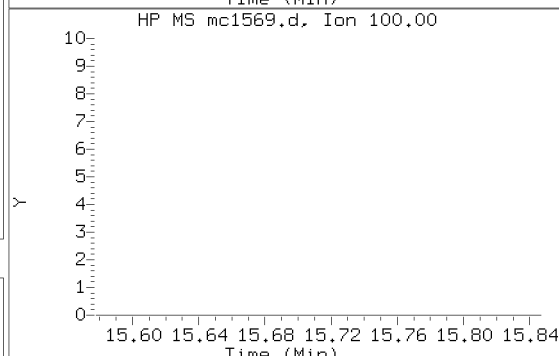
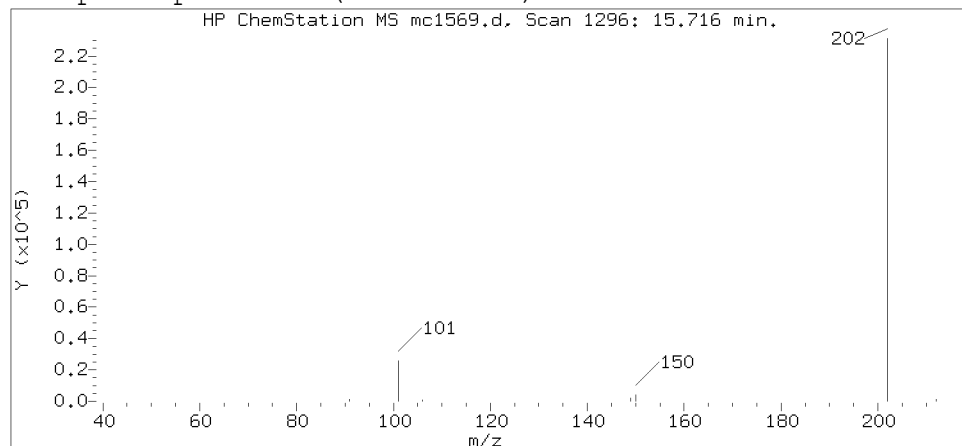
Reference Standard Spectrum for Pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

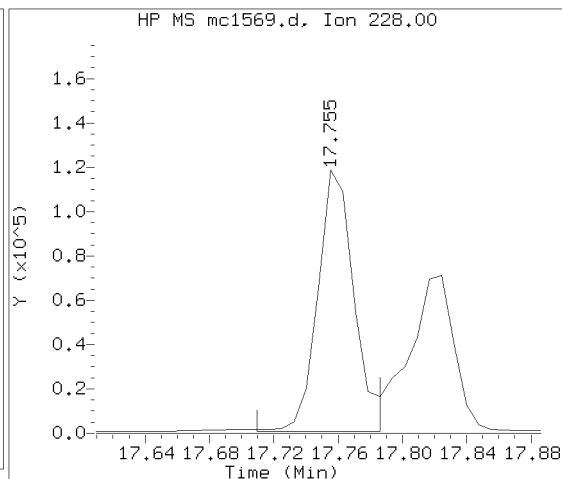
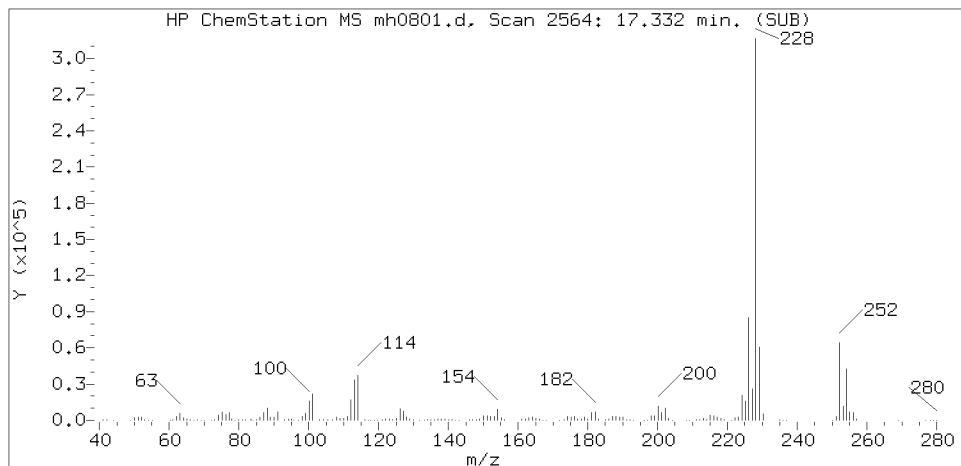
Lab Sample ID: 1285722

Compound Number : 26
Compound Name : Pyrene
Scan Number : 1296
Retention Time (minutes) : 15.716
Relative Retention Time : -0.00035
Quant Ion : 202.00
Area (flag) : 340119
On-column Amount (ng/ul) : 0.6157

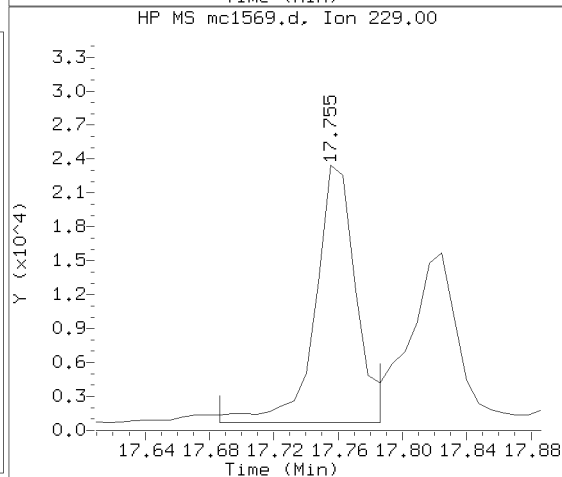
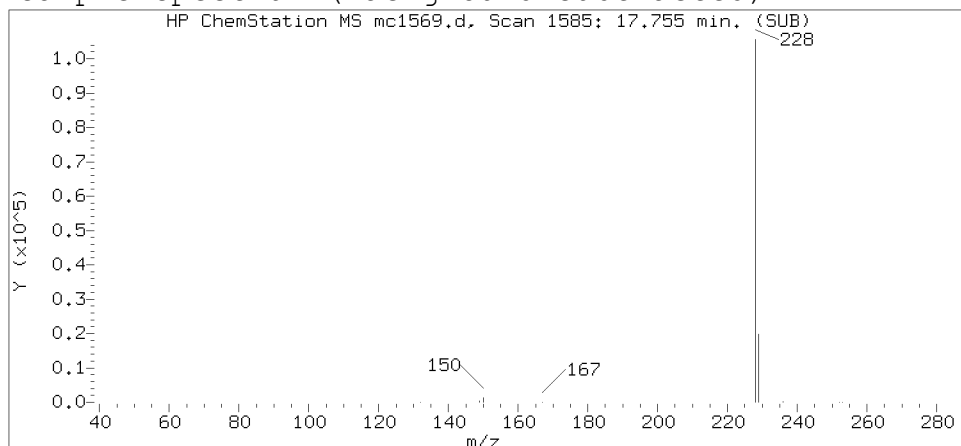
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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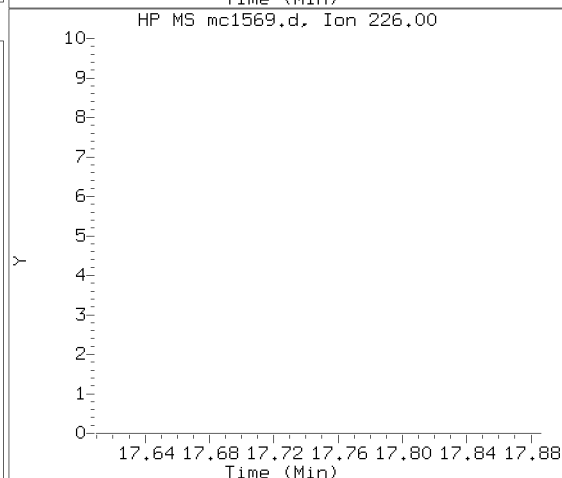
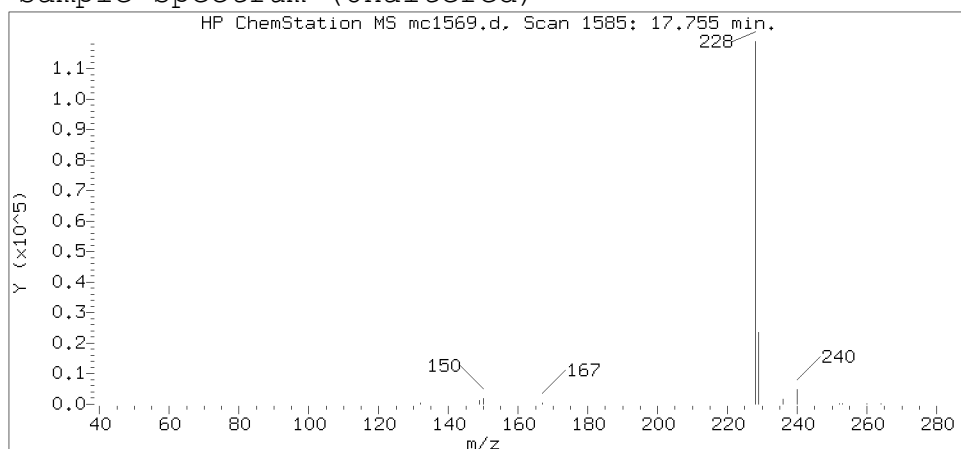
Reference Standard Spectrum for Benzo(a)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

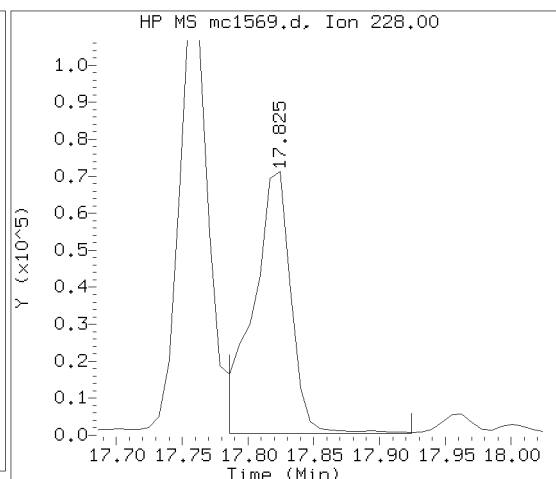
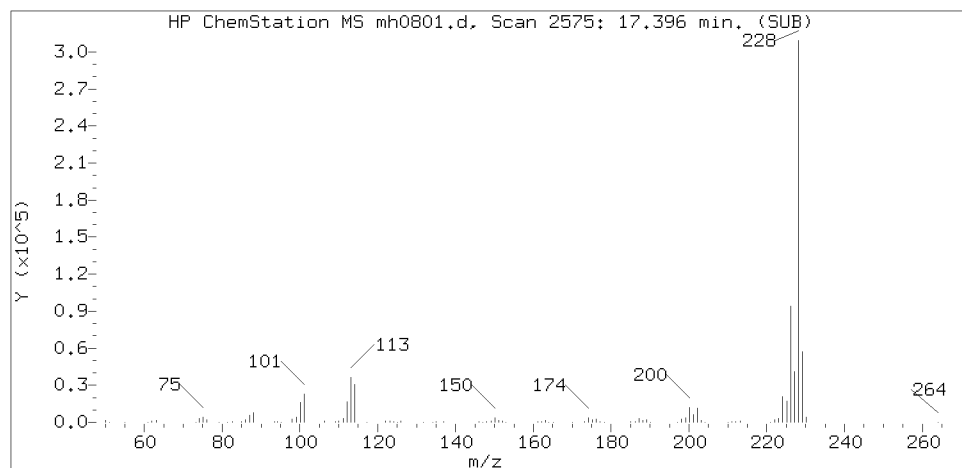
Lab Sample ID: 1285722

Compound Number : 28
Compound Name : Benzo(a)anthracene
Scan Number : 1585
Retention Time (minutes) : 17.755
Relative Retention Time : 0.00000
Quant Ion : 228.00
Area (flag) : 182749
On-column Amount (ng/ul) : 0.3911

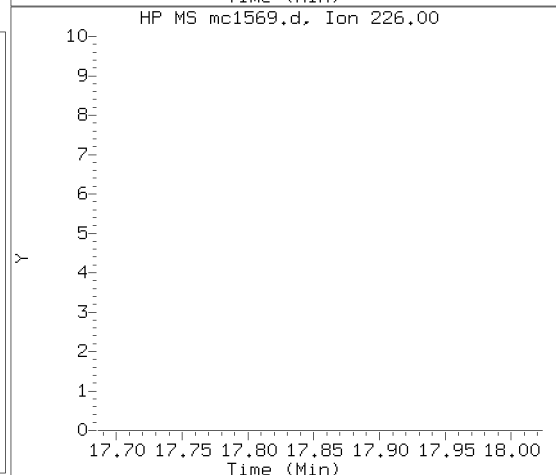
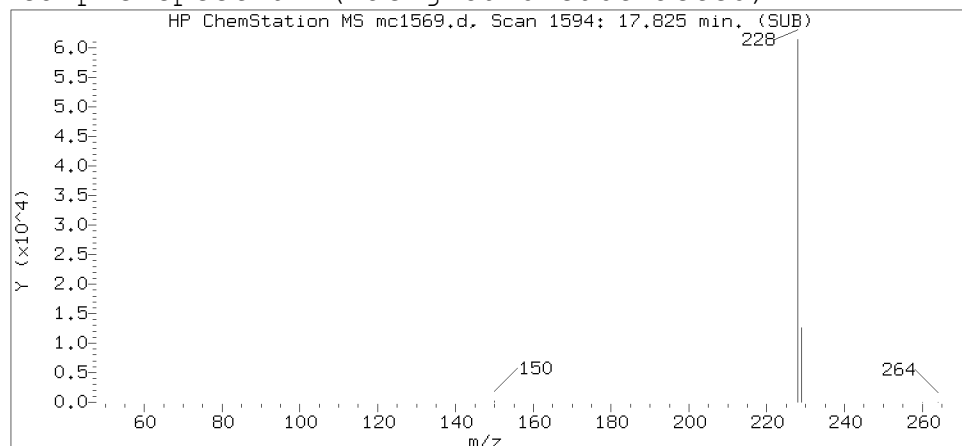
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user art12405
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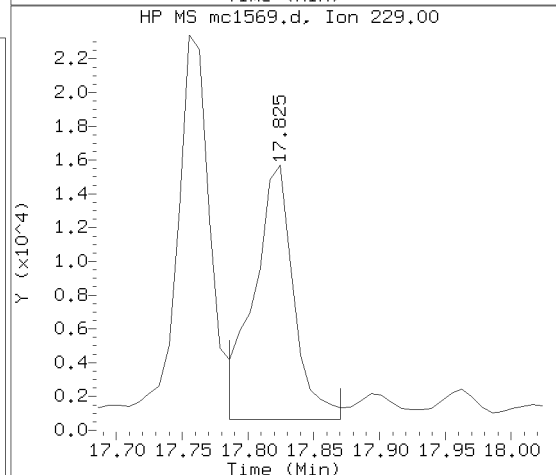
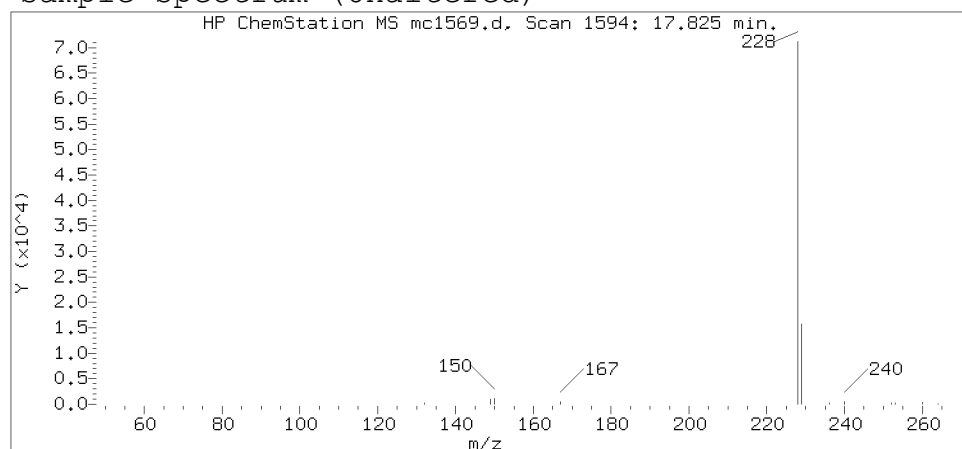
Reference Standard Spectrum for Chrysene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

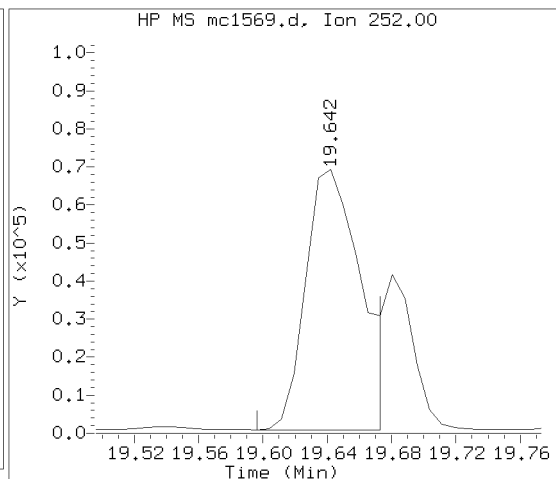
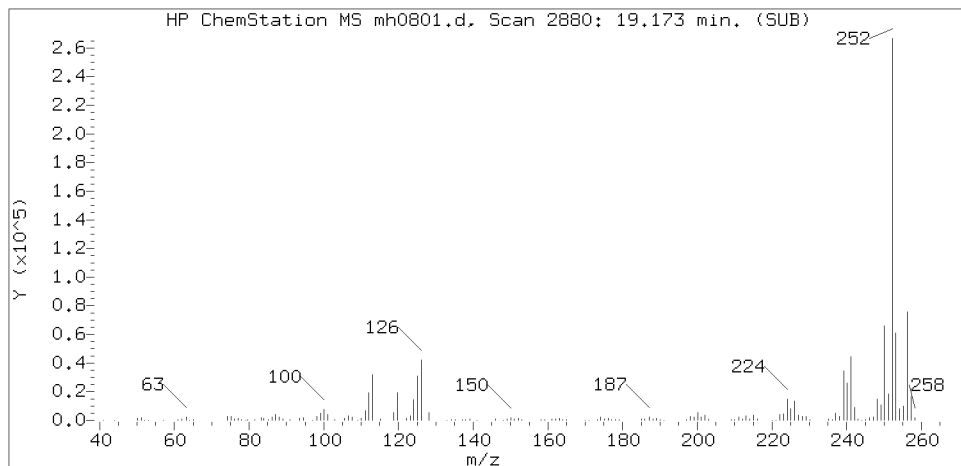
Sample Name: DUP10

Lab Sample ID: 1285722

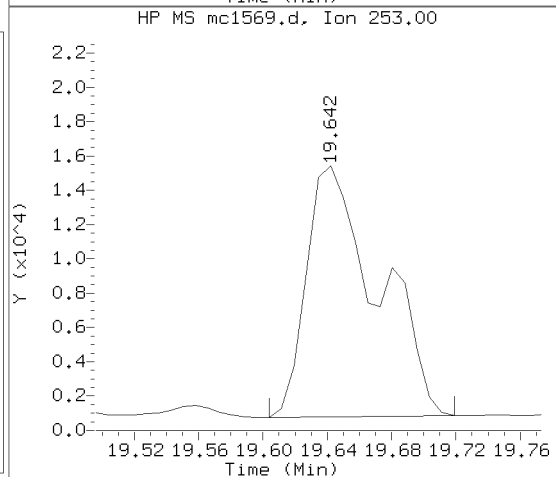
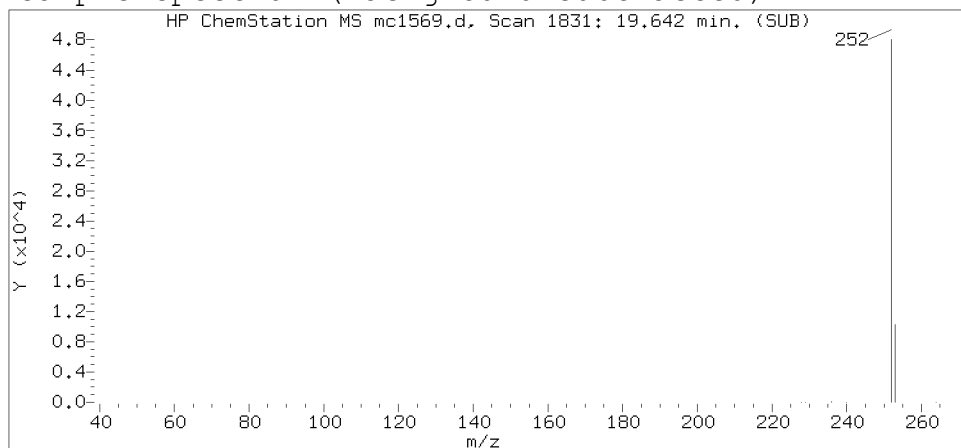
Compound Number : 30
Compound Name : Chrysene
Scan Number : 1594
Retention Time (minutes) : 17.825
Relative Retention Time : -0.00000
Quant Ion : 228.00
Area (flag) : 139519
On-column Amount (ng/ul) : 0.2882

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.
Target 3.5 esignature user: art12405

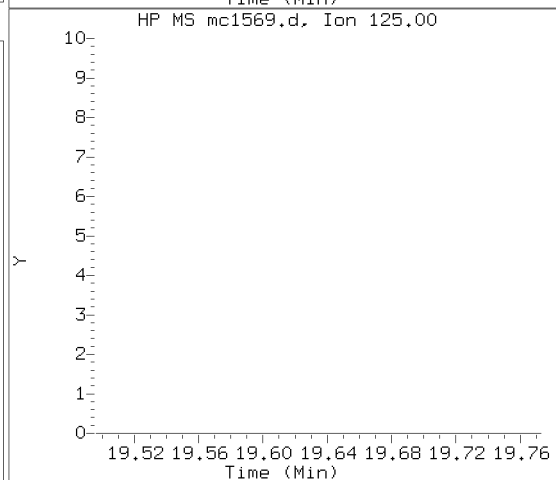
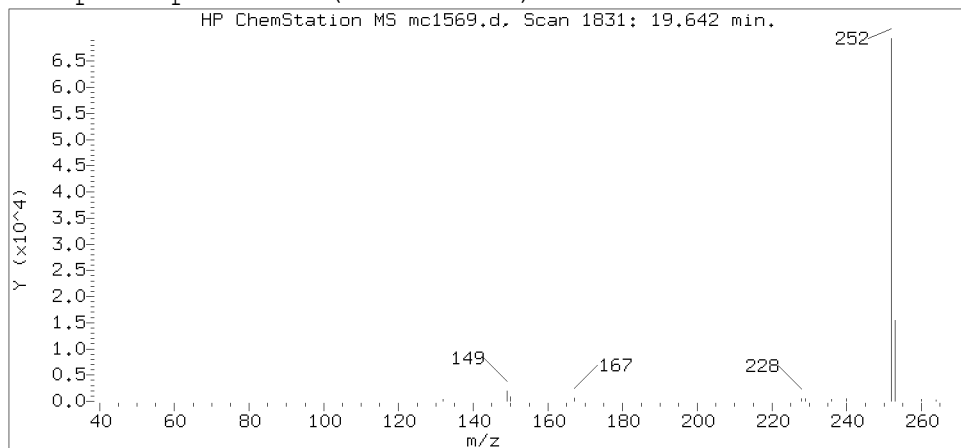
Reference Standard Spectrum for Benzo(b)fluoranthene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

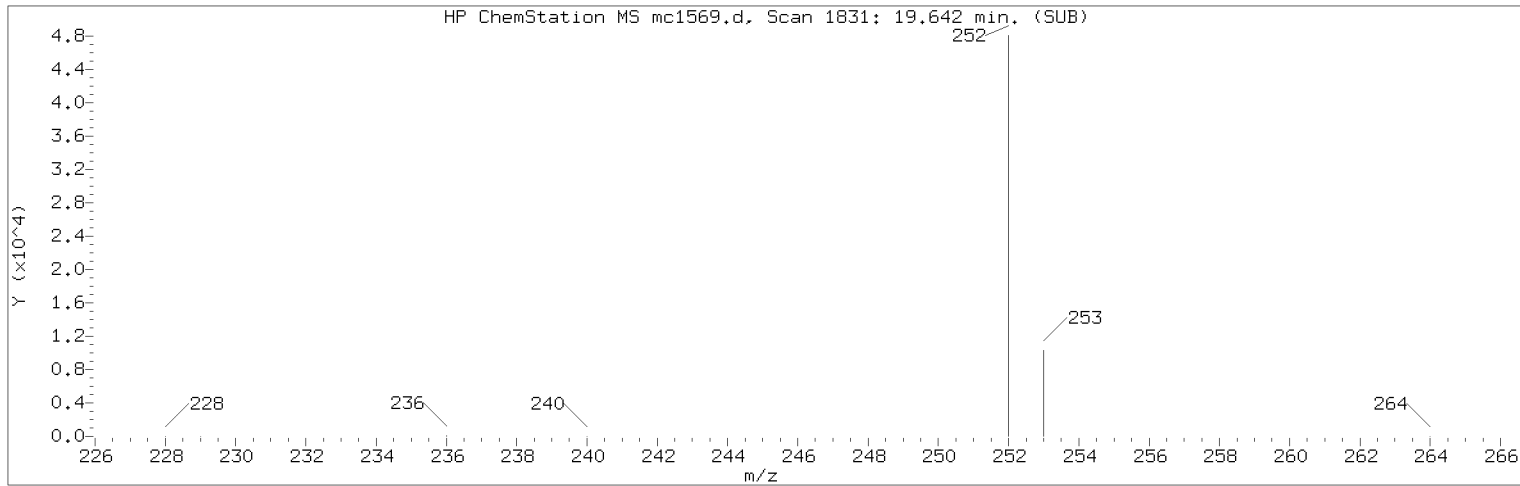
Sample Name: DUP10

Lab Sample ID: 1285722

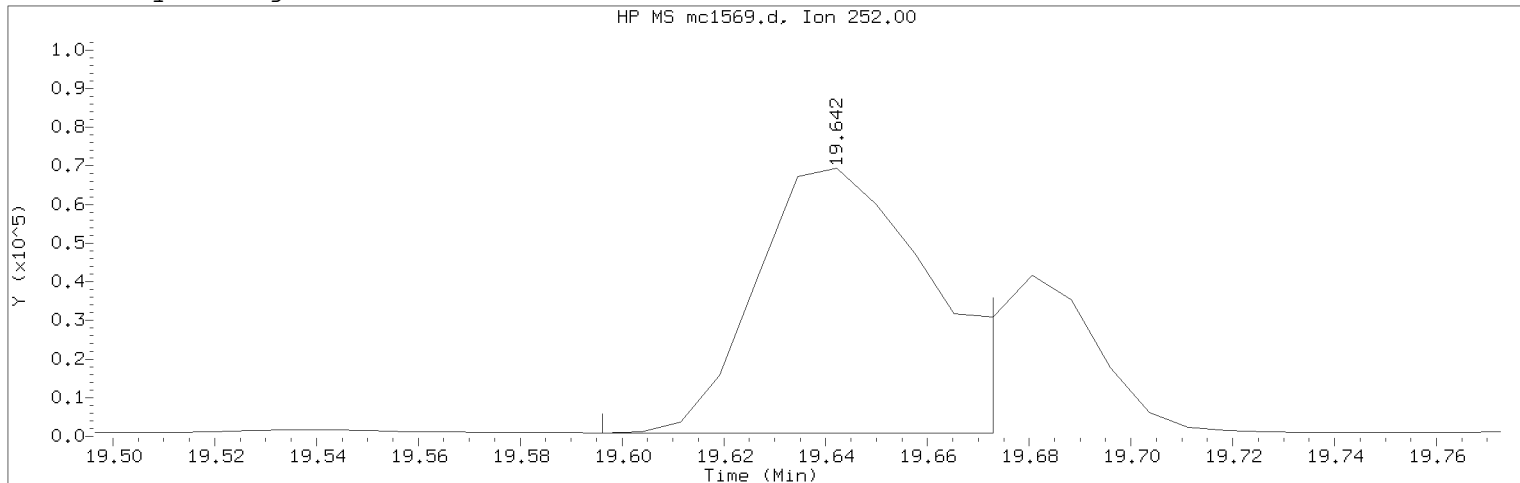
Compound Number : 33
Compound Name : Benzo(b)fluoranthene
Scan Number : 1831
Retention Time (minutes) : 19.642
Relative Retention Time : -0.00038
Quant Ion : 252.00
Area (flag) : 165906M
On-column Amount (ng/ul) : 0.3243

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.
Target 3.5 esignature user=art12405

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1569.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 15:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

Lab Sample ID: 1285722

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1831	
Retention Time (minutes)	: 19.642	
Quant Ion	: 252.00	
Area (flag)	: 165906M	
On-column Amount (ng/ul)	: 0.3243	
Integration start scan	: 1824	Integration stop scan: 1834
Y at integration start	: 839	Y at integration end: 839

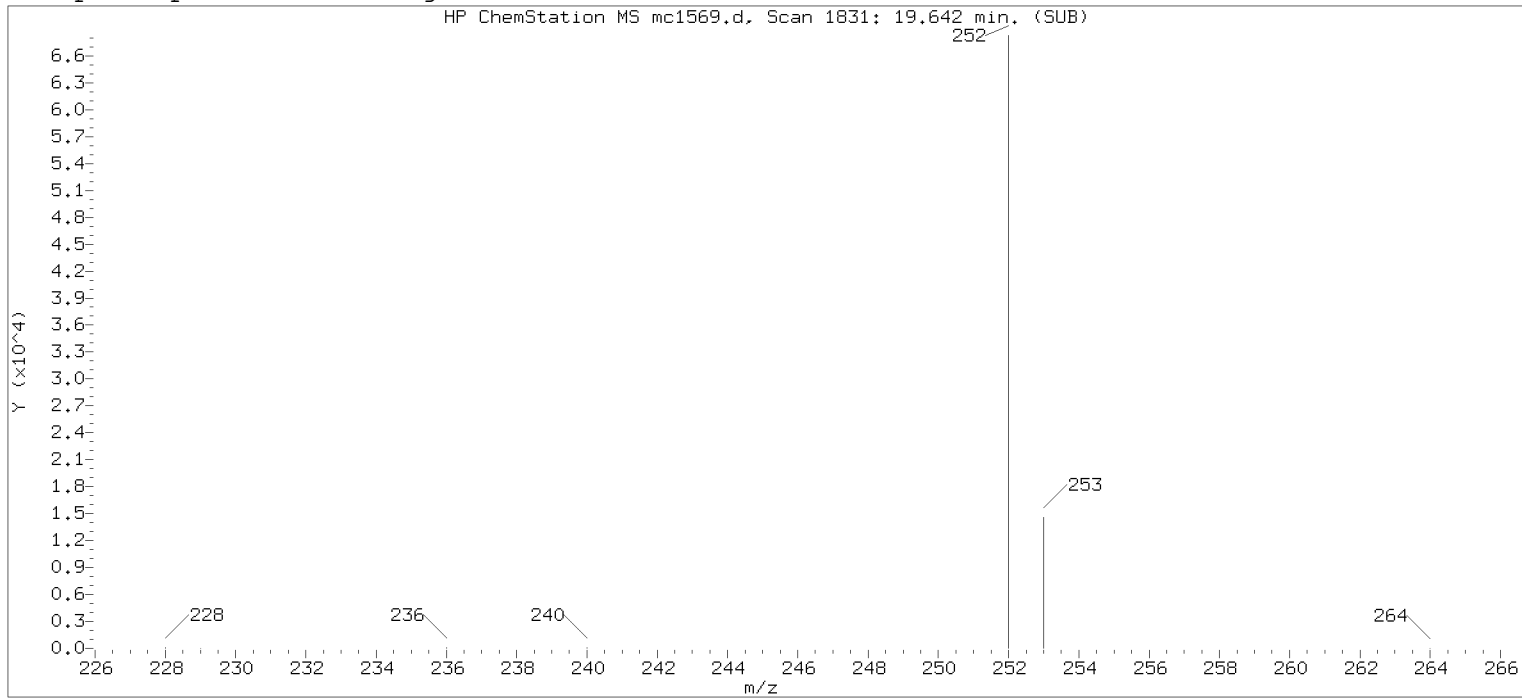
Reason for manual integration: improper integration

Analyst responsible for change:

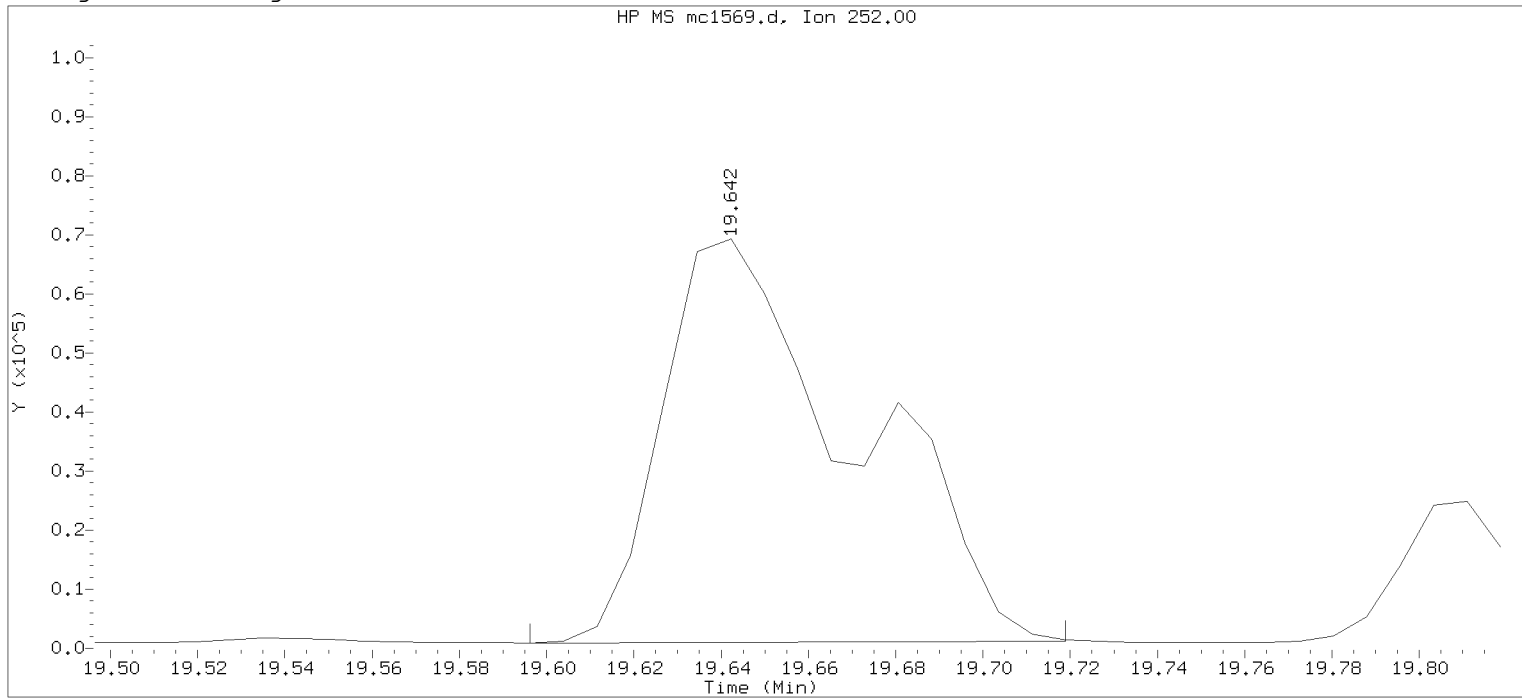
Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1569.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 15:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 15:43 Unknown

Sample Name: DUP10

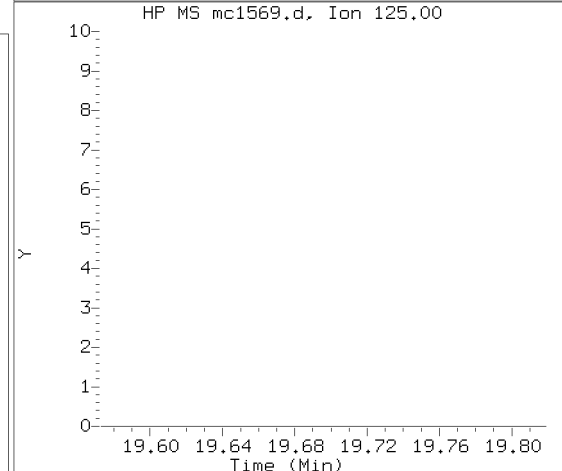
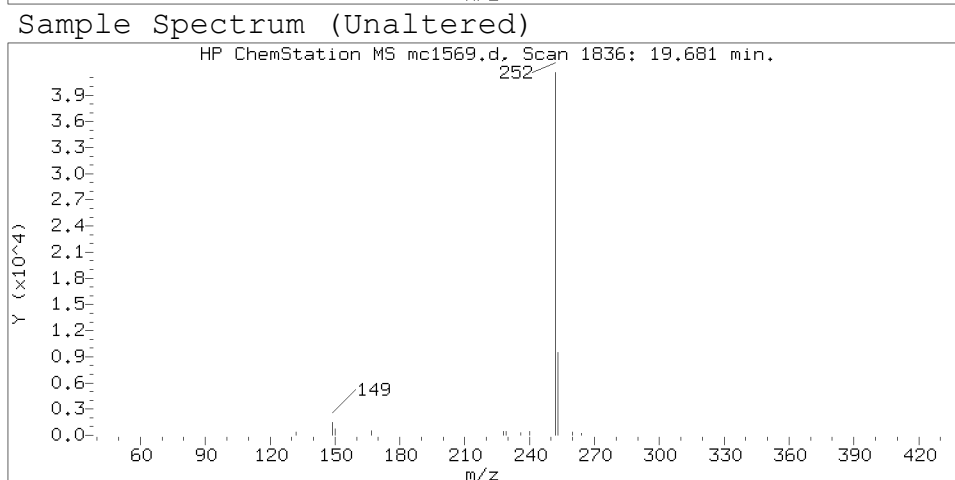
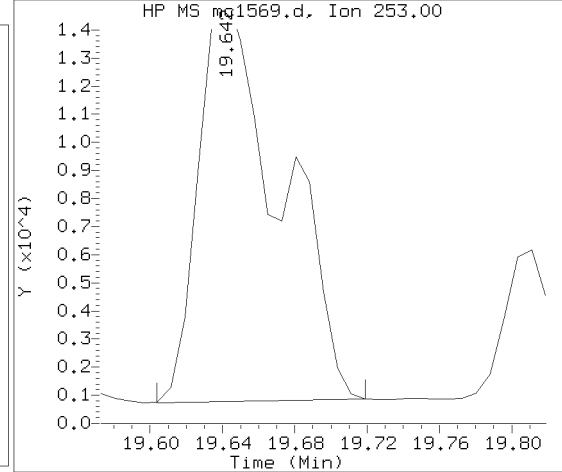
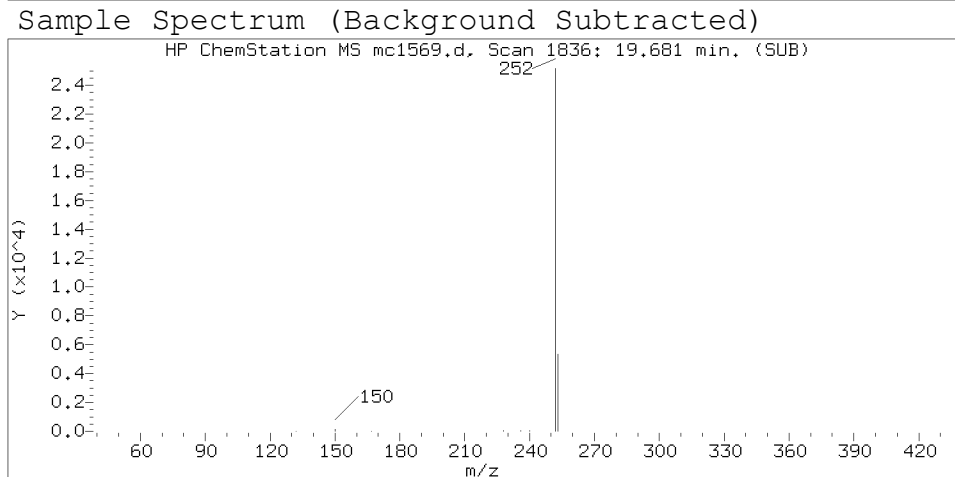
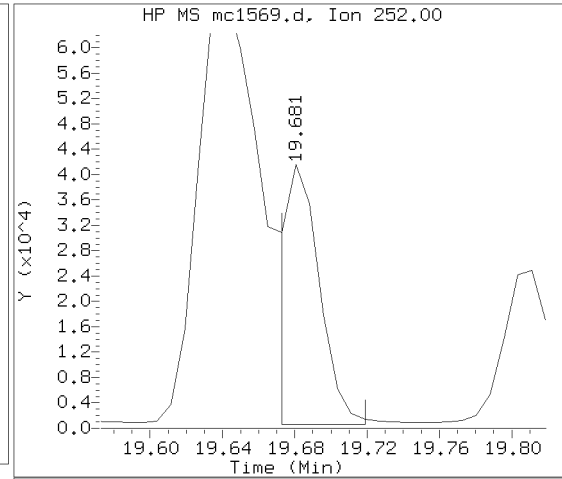
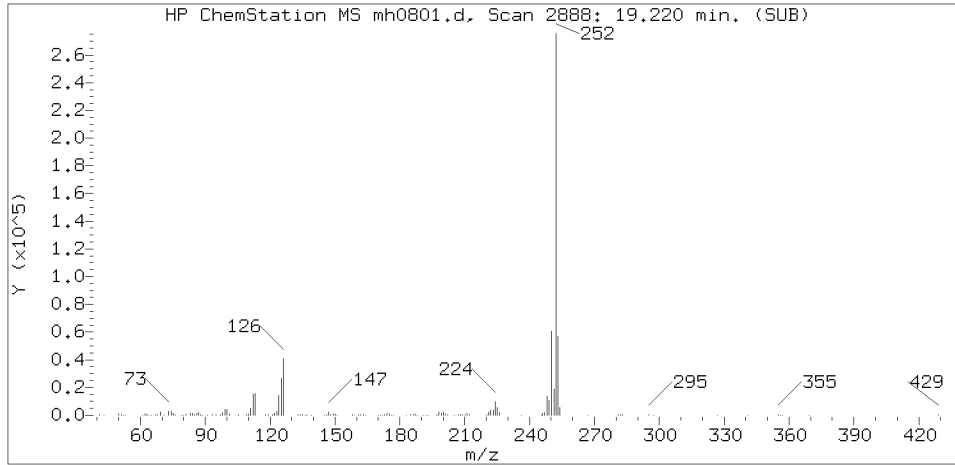
Lab Sample ID: 1285722

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1831	
Retention Time (minutes)	: 19.642	
Quant Ion	: 252.00	
Area	: 210339	
On-column Amount (ng/ul)	: 0.4111	
Integration start scan	: 1824	Integration stop scan: 1840
Y at integration start	: 895	Y at integration end: 1150

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user GPV68 Page 431 of 586

Reference Standard Spectrum for Benzo(k)fluoranthene



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

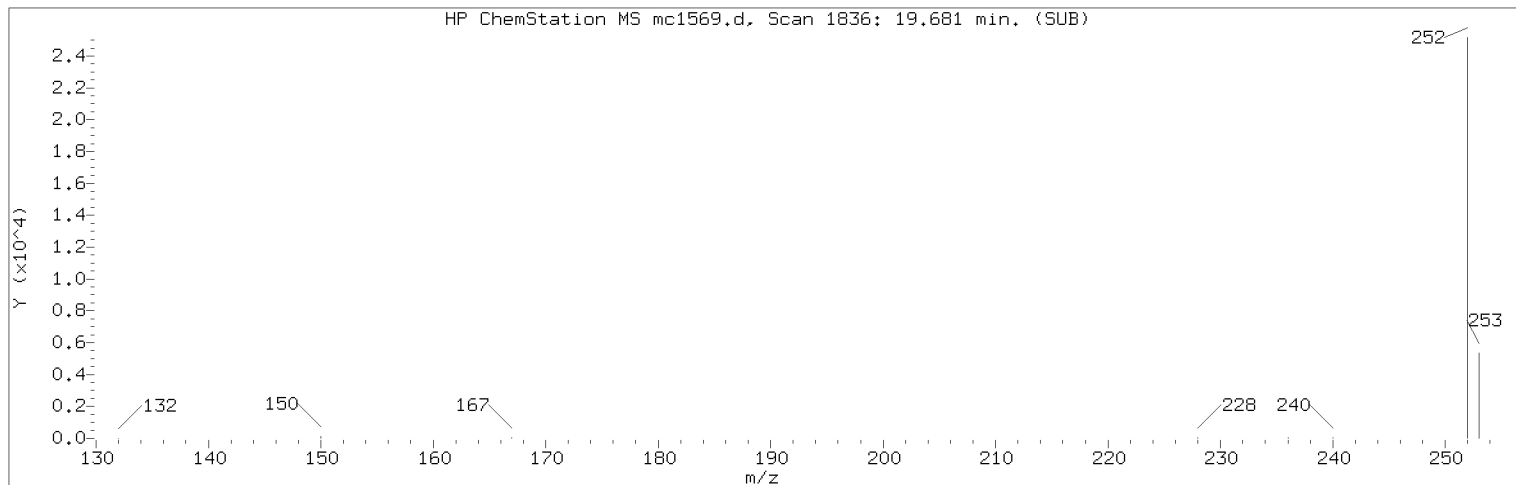
Lab Sample ID: 1285722

Compound Number : 34
Compound Name : Benzo(k)fluoranthene
Scan Number : 1836
Retention Time (minutes) : 19.681
Relative Retention Time :-0.00000
Quant Ion : 252.00
Area (flag) : 60566M
On-column Amount (ng/ul) : 0.1134

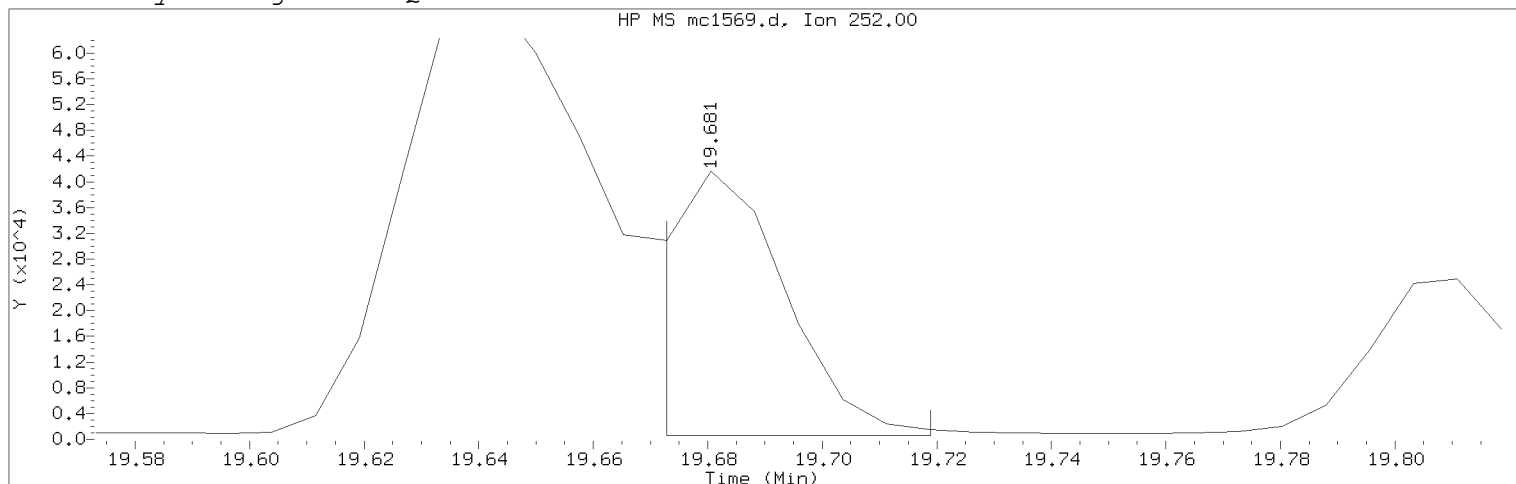
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1569.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 15:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

Lab Sample ID: 1285722

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1836	
Retention Time (minutes)	: 19.681	
Quant Ion	: 252.00	
Area (flag)	: 60566M	
On-column Amount (ng/ul)	: 0.1134	
Integration start scan	: 1834	Integration stop scan: 1840
Y at integration start	: 594	Y at integration end: 594

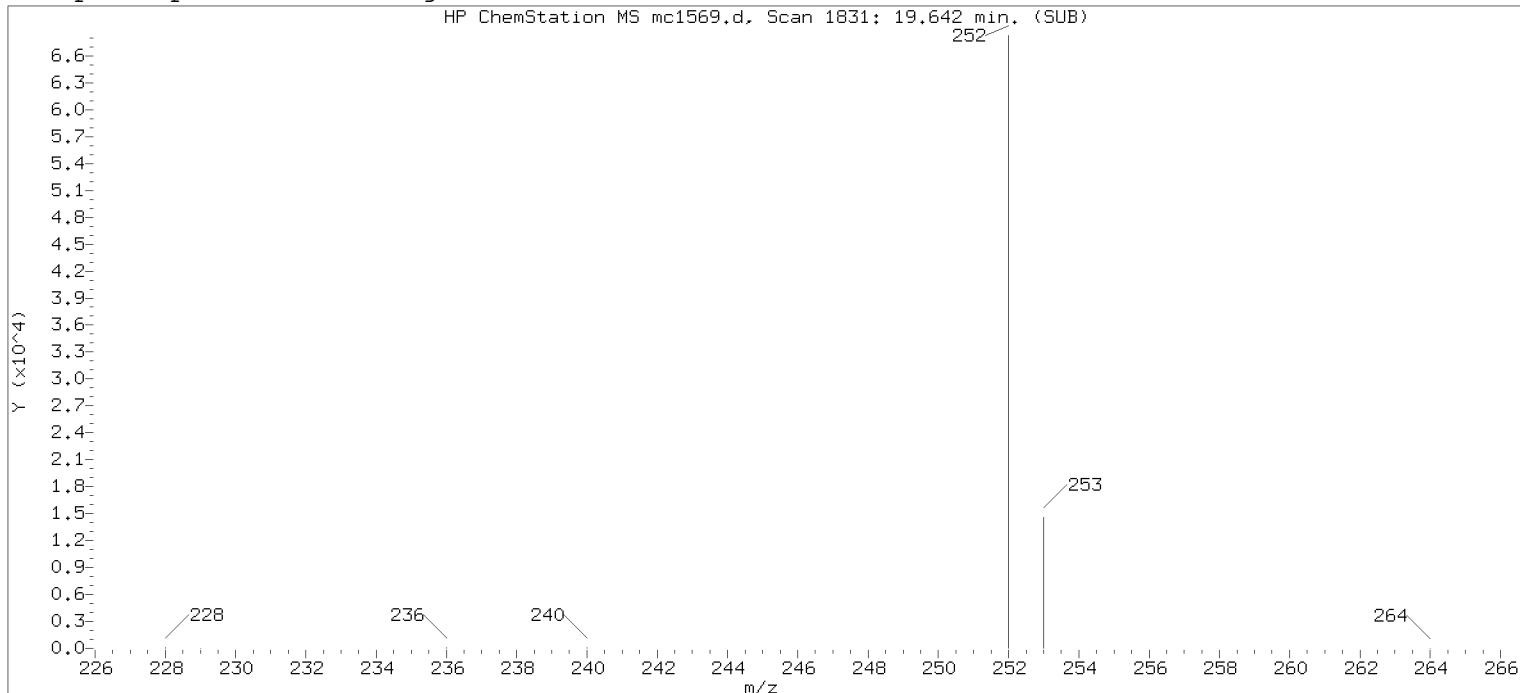
Reason for manual integration: improper integration

Analyst responsible for change:

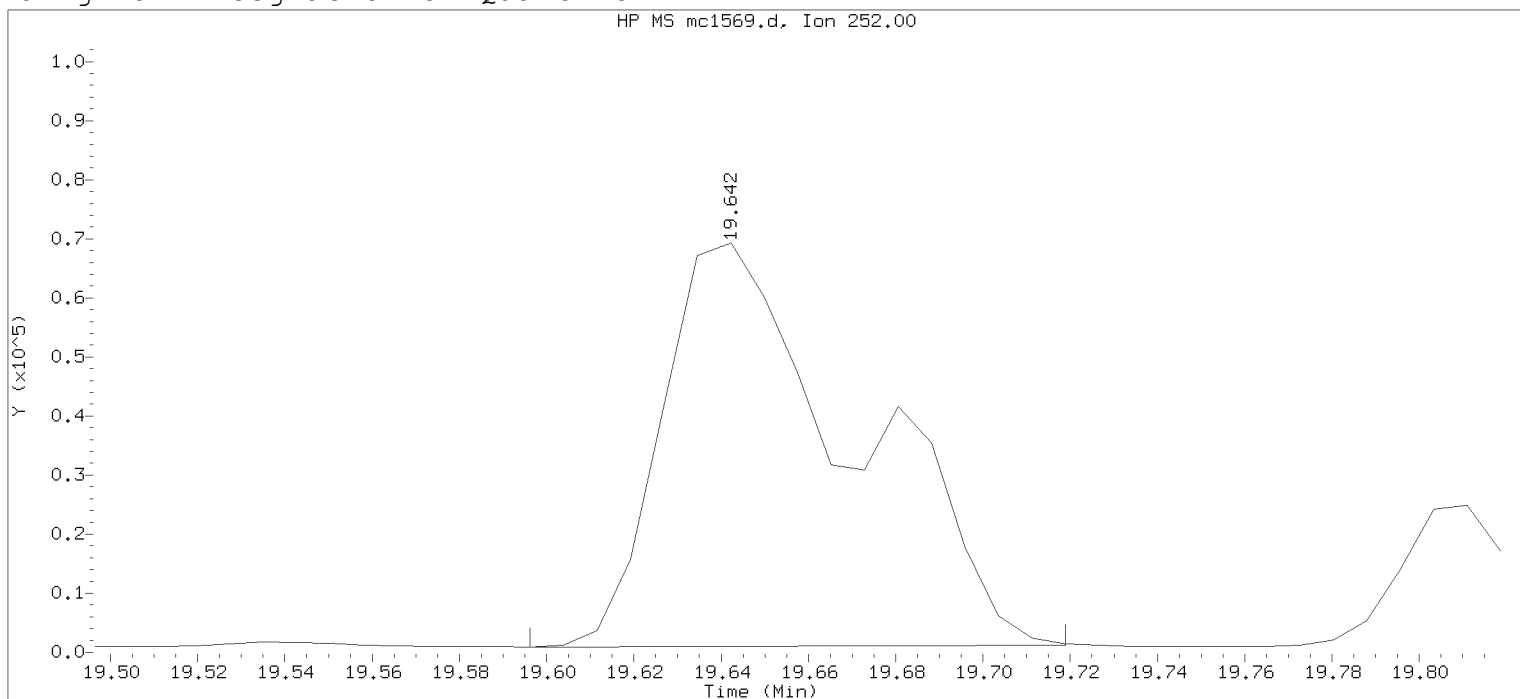
Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1569.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 15:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 15:43 Unknown

Sample Name: DUP10

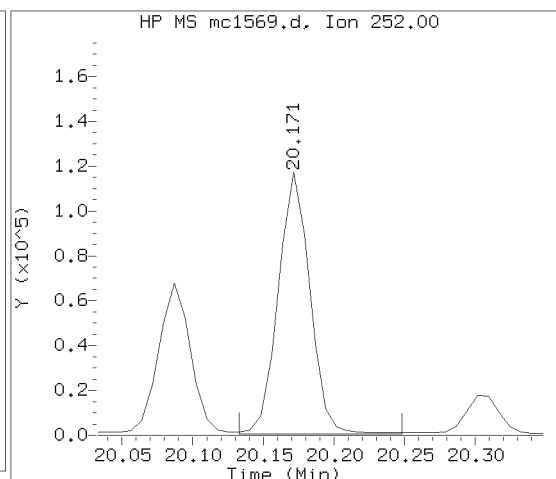
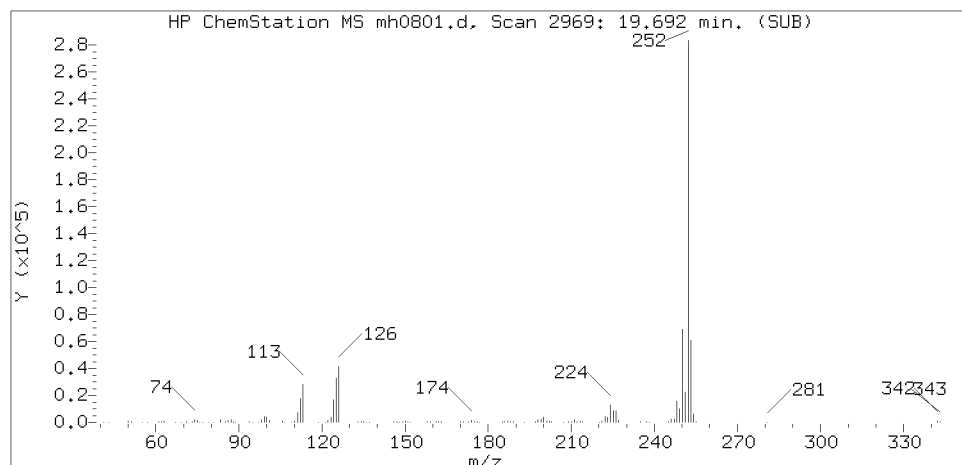
Lab Sample ID: 1285722

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1831	
Retention Time (minutes)	: 19.642	
Quant Ion	: 252.00	
Area	: 210339	
On-column Amount (ng/ul)	: 0.3937	
Integration start scan	: 1824	Integration stop scan: 1840
Y at integration start	: 895	Y at integration end: 1150

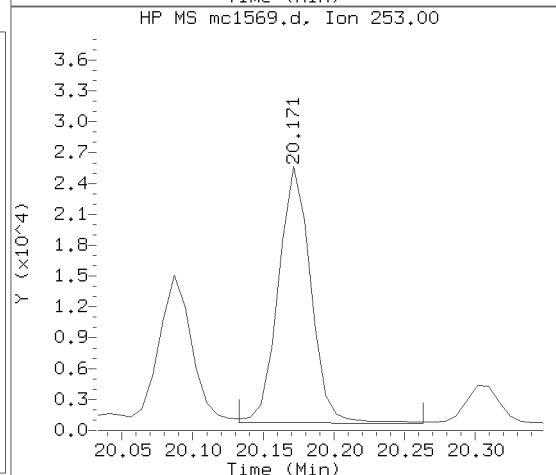
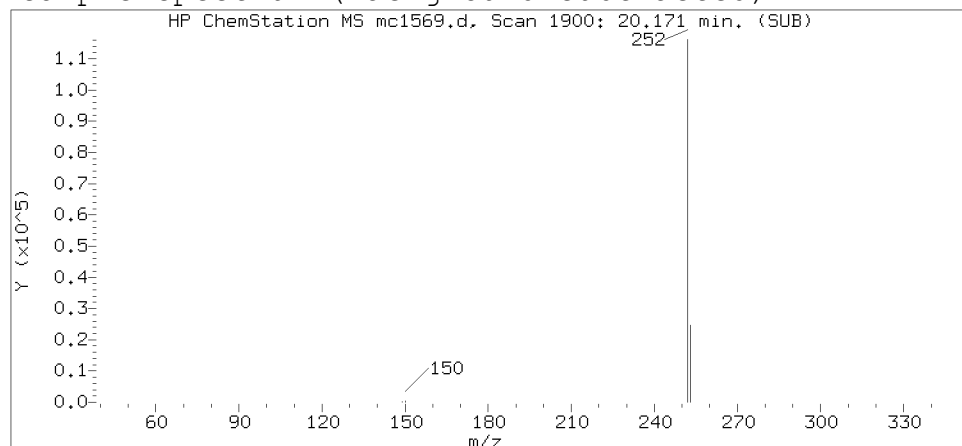
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user GPV68 Page 434 of 586

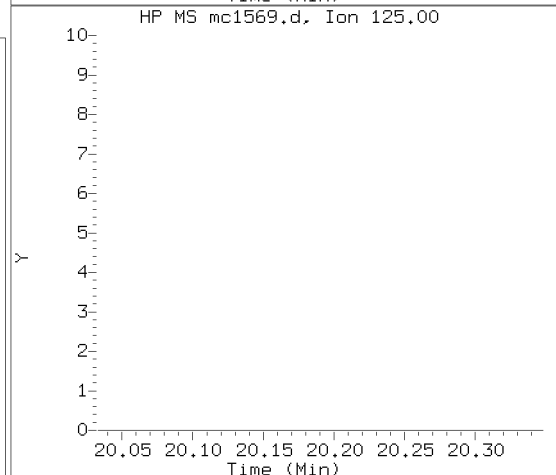
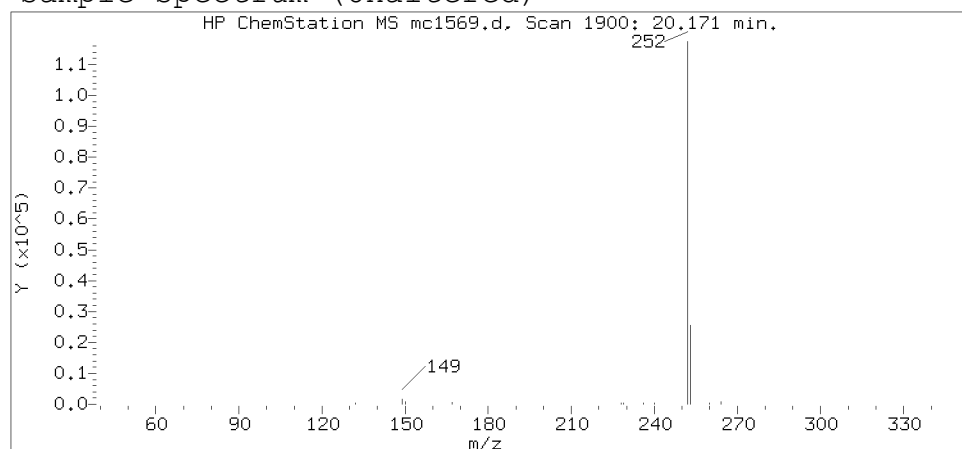
Reference Standard Spectrum for Benzo(a)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

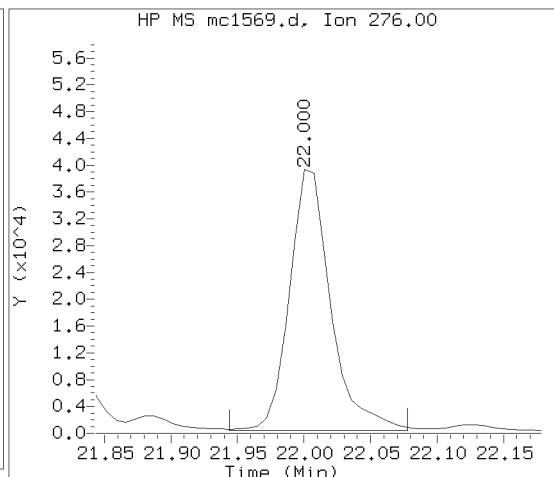
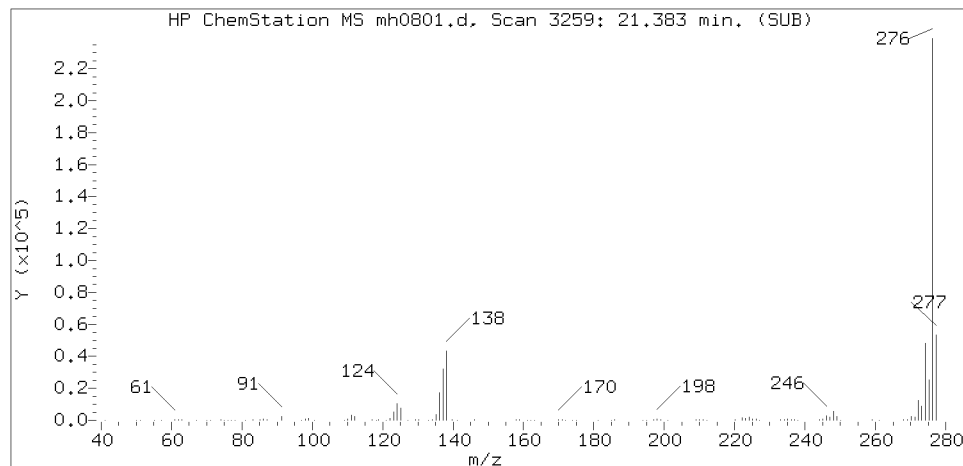
Lab Sample ID: 1285722

Compound Number : 37
Compound Name : Benzo(a)pyrene
Scan Number : 1900
Retention Time (minutes) : 20.171
Relative Retention Time : 0.00000
Quant Ion : 252.00
Area (flag) : 181469
On-column Amount (ng/ul) : 0.3734

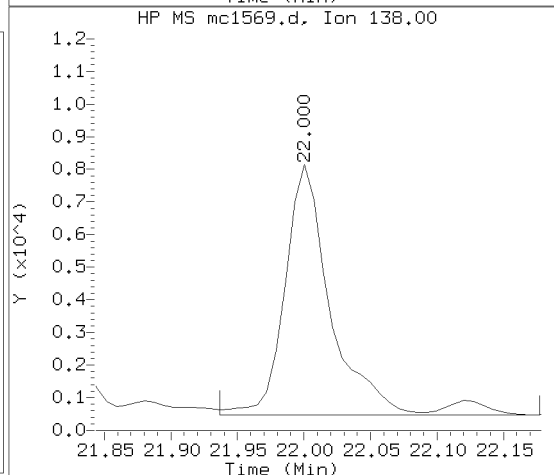
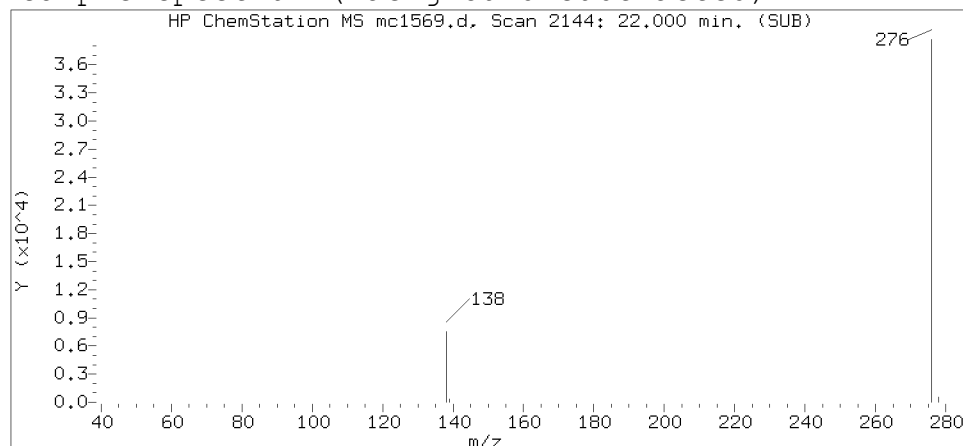
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
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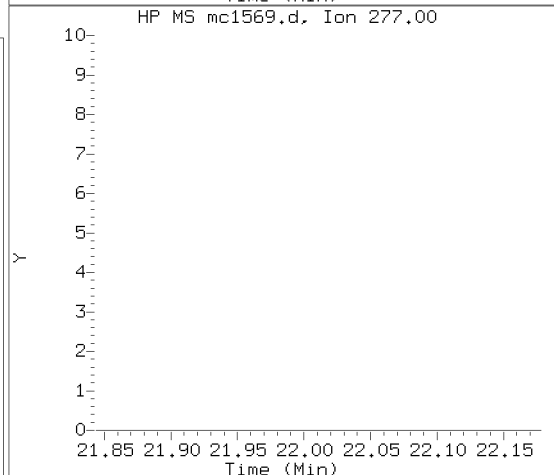
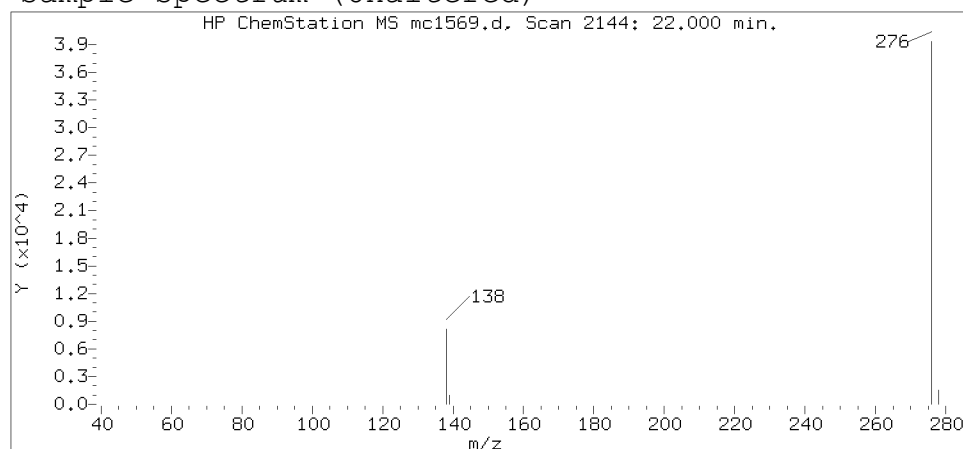
Reference Standard Spectrum for Indeno(1,2,3-cd)pyrene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

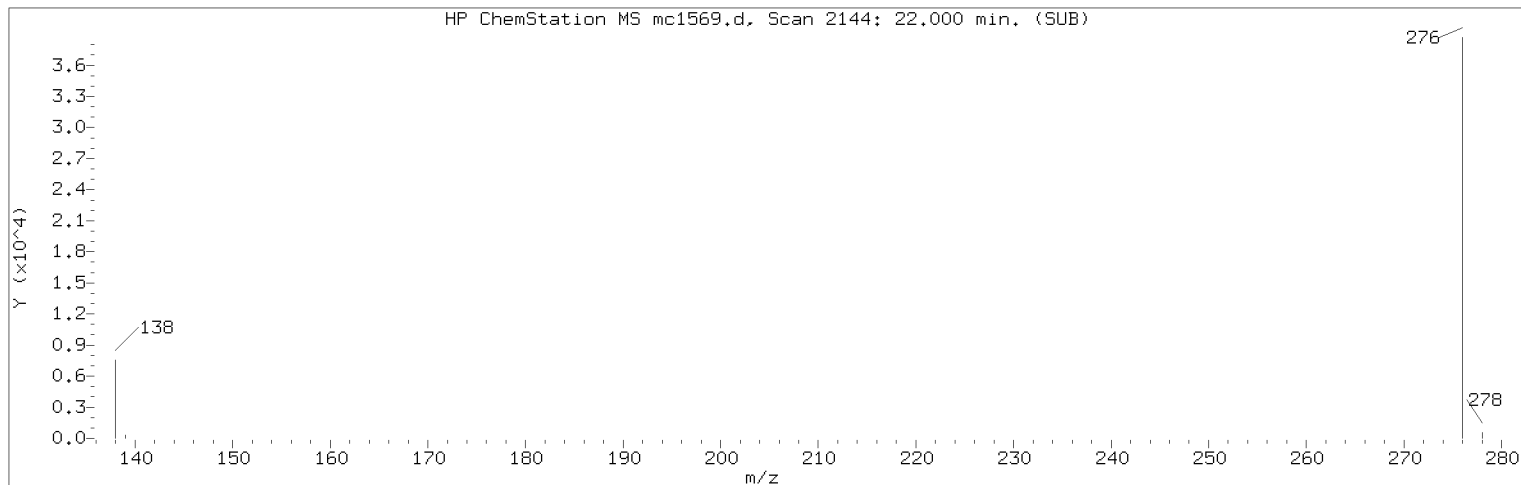
Lab Sample ID: 1285722

Compound Number : 39
Compound Name : Indeno(1,2,3-cd)pyrene
Scan Number : 2144
Retention Time (minutes) : 22.000
Relative Retention Time : -0.00000
Quant Ion : 276.00
Area (flag) : 84003M
On-column Amount (ng/ul) : 0.1933

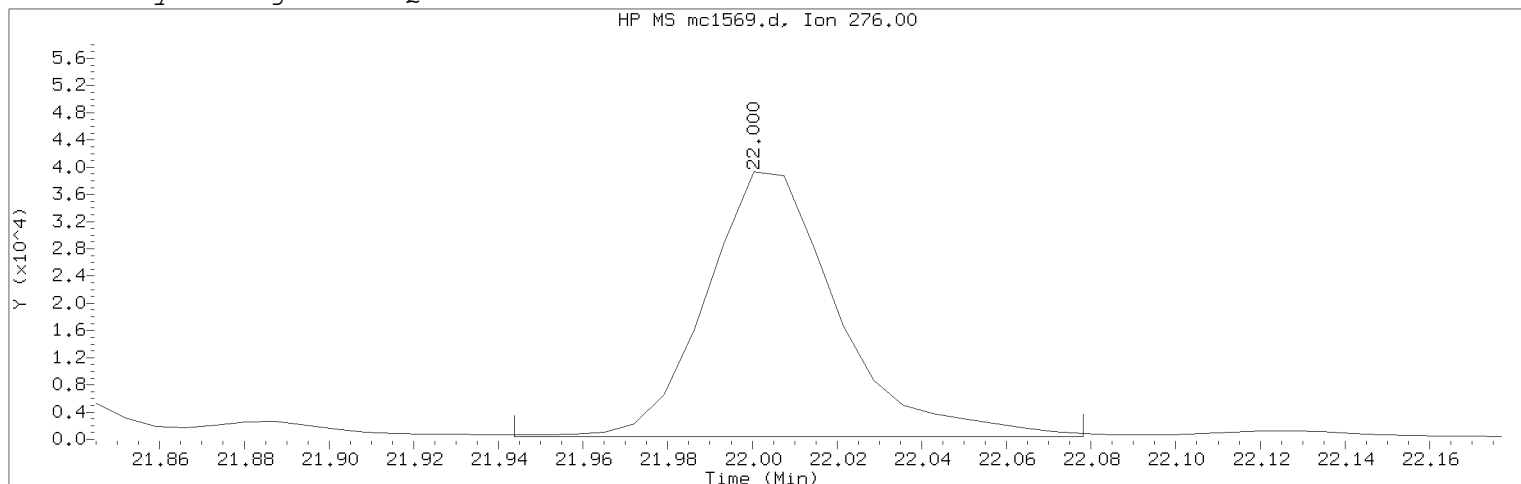
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user ID: art12405
GPY68 Page 436 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1569.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 15:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

Lab Sample ID: 1285722

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area (flag)	: 84003M	
On-column Amount (ng/ul)	: 0.1933	
Integration start scan	: 2135	Integration stop scan: 2154
Y at integration start	: 409	Y at integration end: 409

Reason for manual integration: improper integration

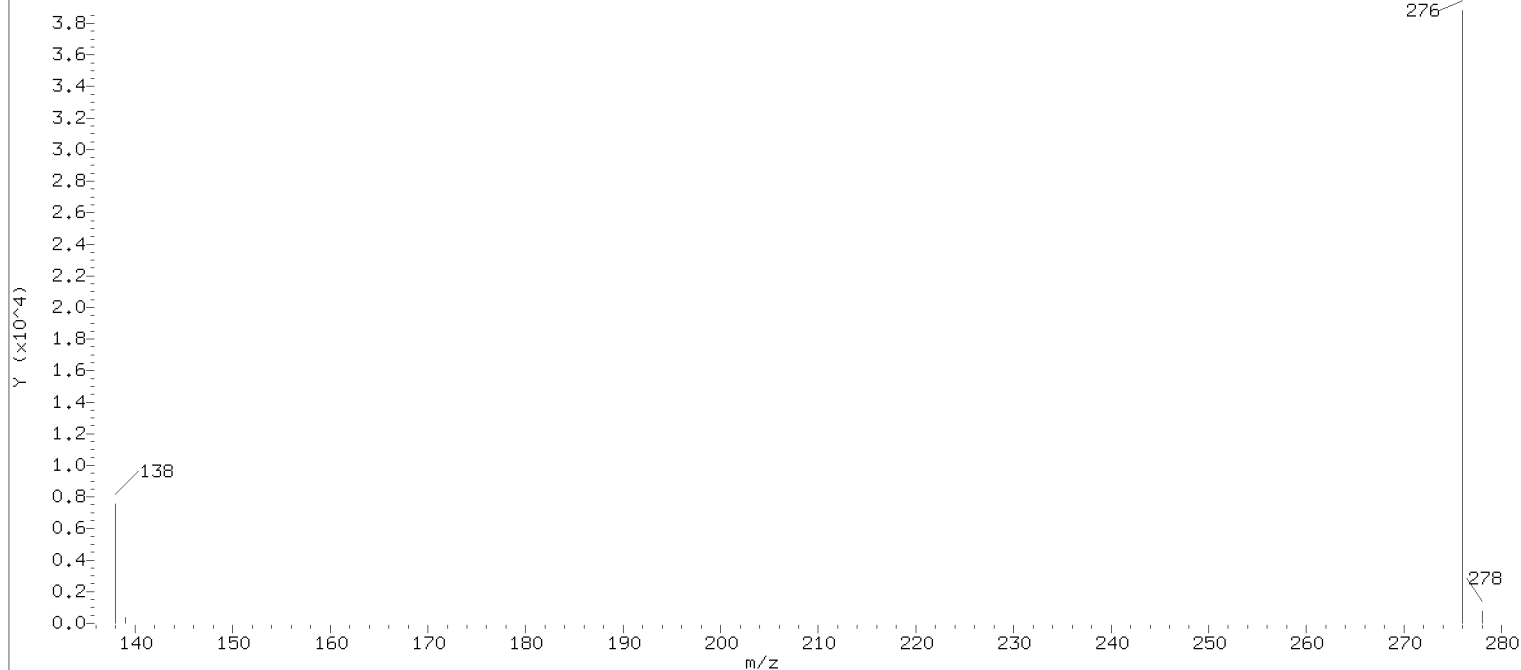
Analyst responsible for change:

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:27.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:59.
PARALLAX ID: cam01237

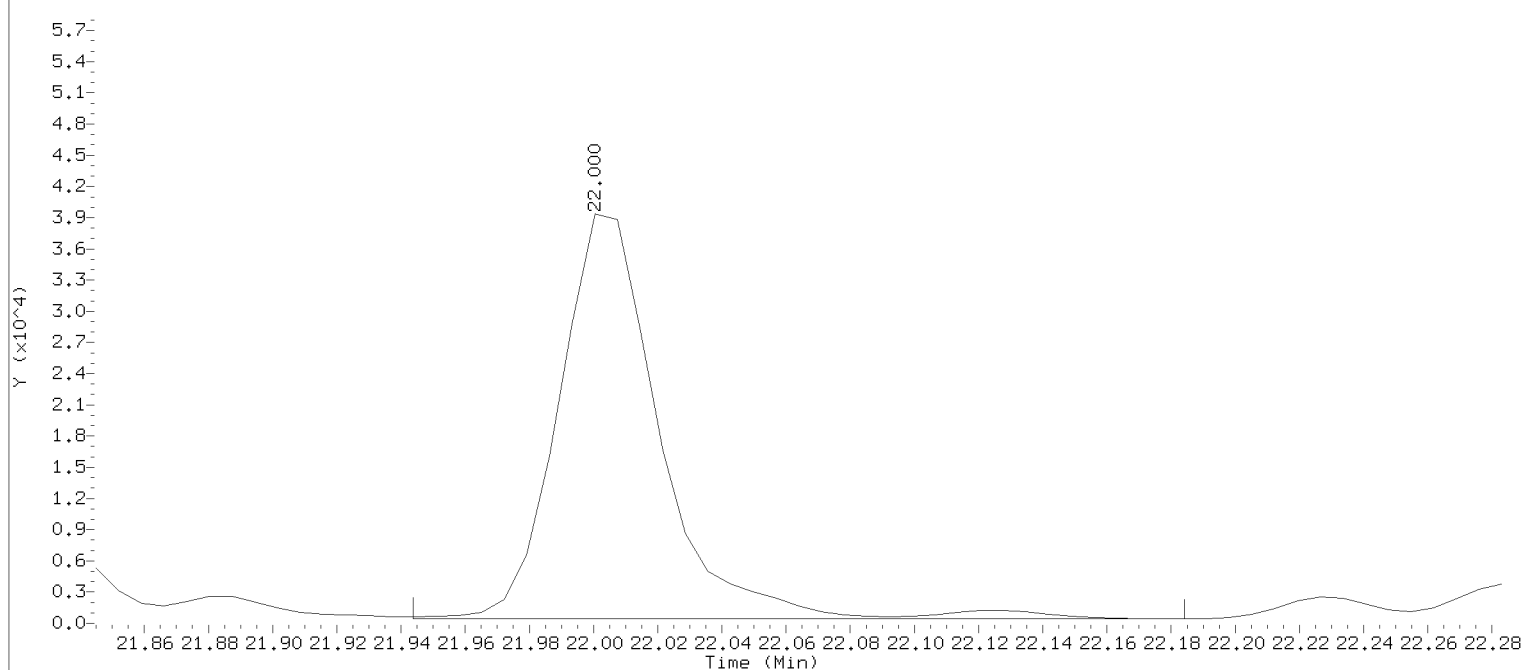
Sample Spectrum (Background Subtracted)

HP ChemStation MS mc1569.d, Scan 2144: 22.000 min. (SUB)



Original Integration of Quant Ion

HP MS mc1569.d, Ion 276.00



Data File: /chem/HP21585.i/20mar26.b/mc1569.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 15:07

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331

Calibration date and time: 26-MAR-2020 11:08

Date, time and analyst ID of latest file update: 26-Mar-2020 15:43 Unknown

Sample Name: DUP10

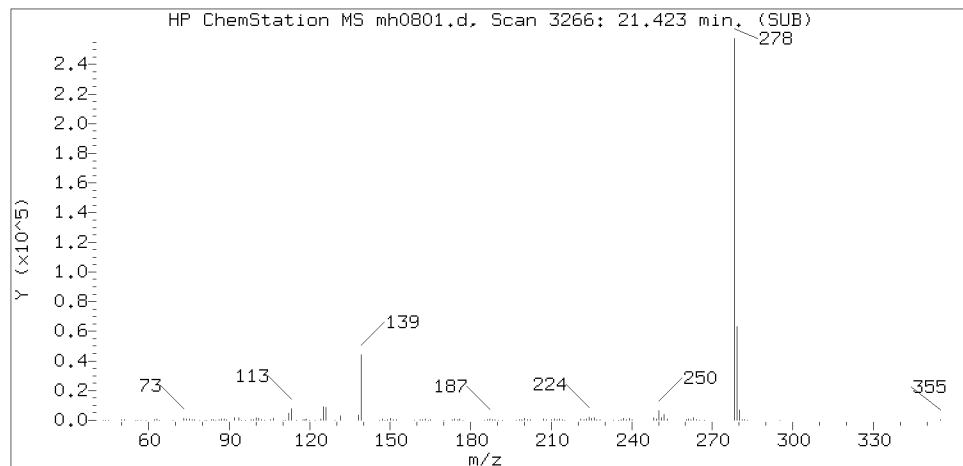
Lab Sample ID: 1285722

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area	: 86145	
On-column Amount (ng/ul)	: 0.1982	
Integration start scan	: 2135	Integration stop scan: 2169
Y at integration start	: 409	Y at integration end: 409

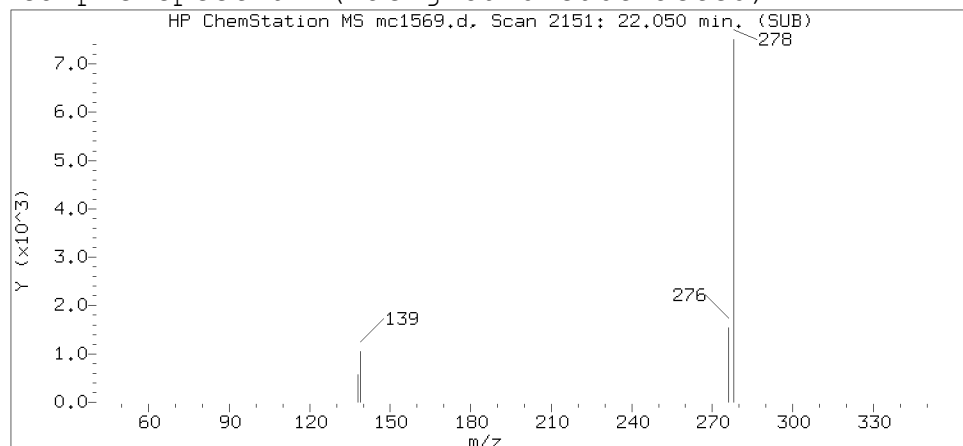
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user GPV68 Page 438 of 586

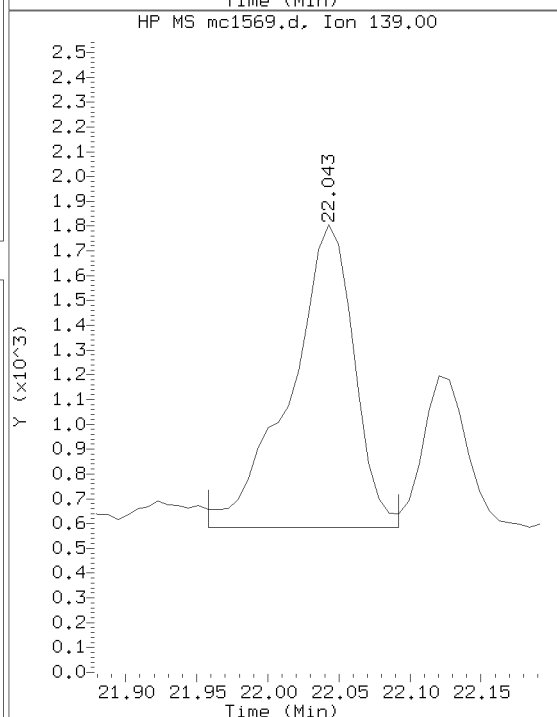
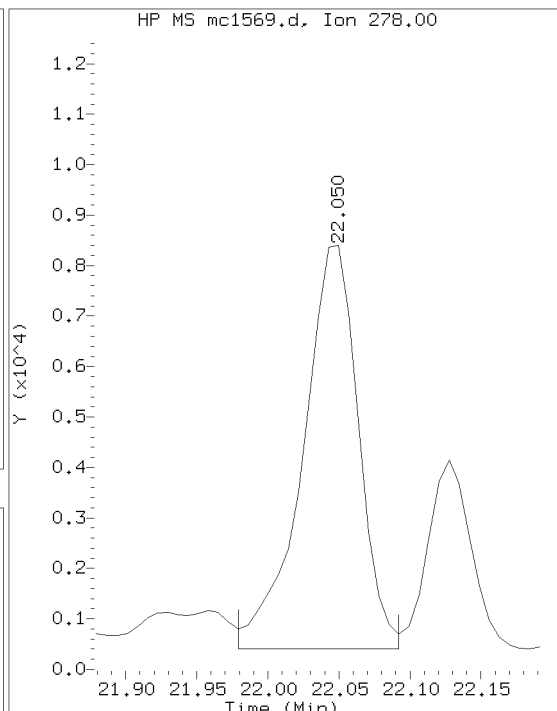
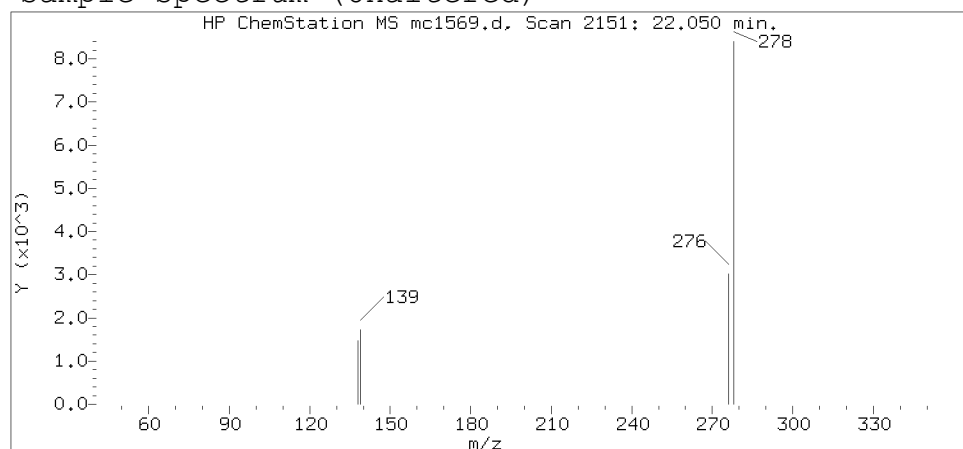
Reference Standard Spectrum for Dibenz(a,h)anthracene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

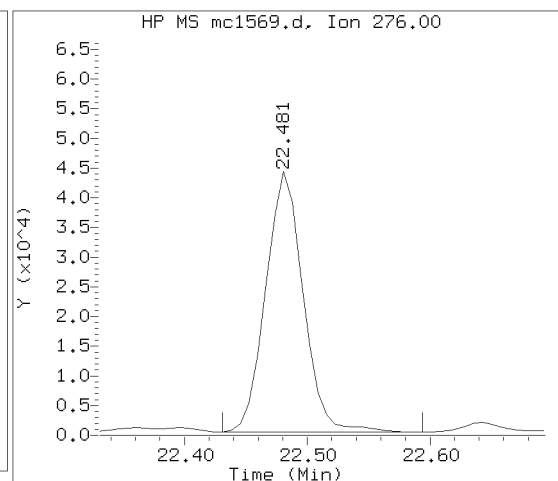
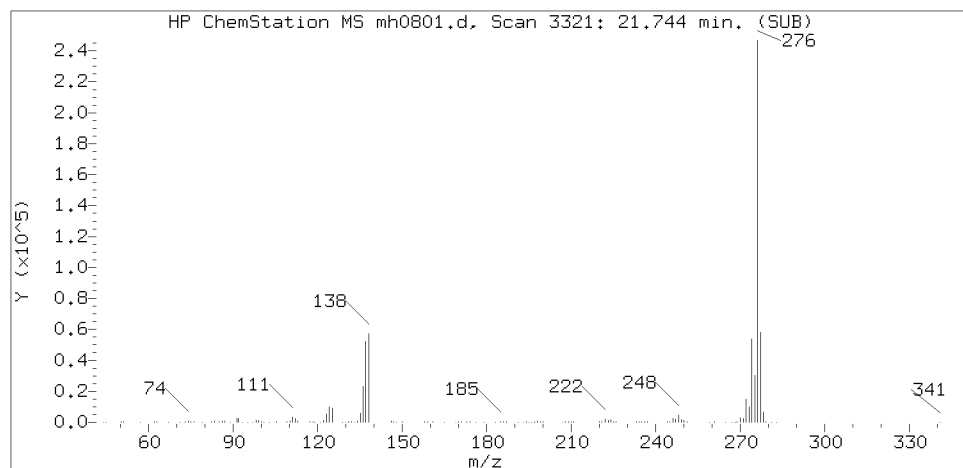
Lab Sample ID: 1285722

Compound Number : 40
Compound Name : Dibenz(a,h)anthracene
Scan Number : 2151
Retention Time (minutes) : 22.050
Relative Retention Time : -0.00000
Quant Ion : 278.00
Area (flag) : 21828
On-column Amount (ng/ul) : 0.0445

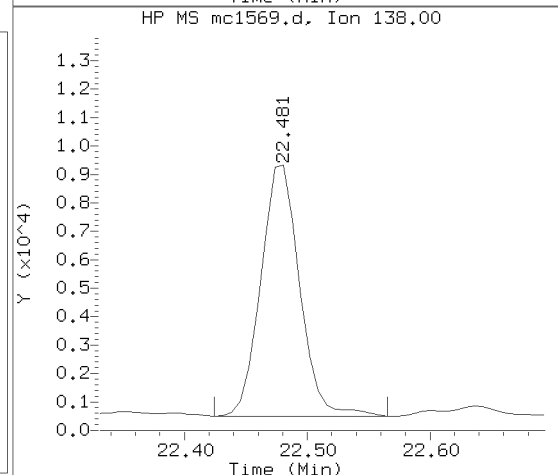
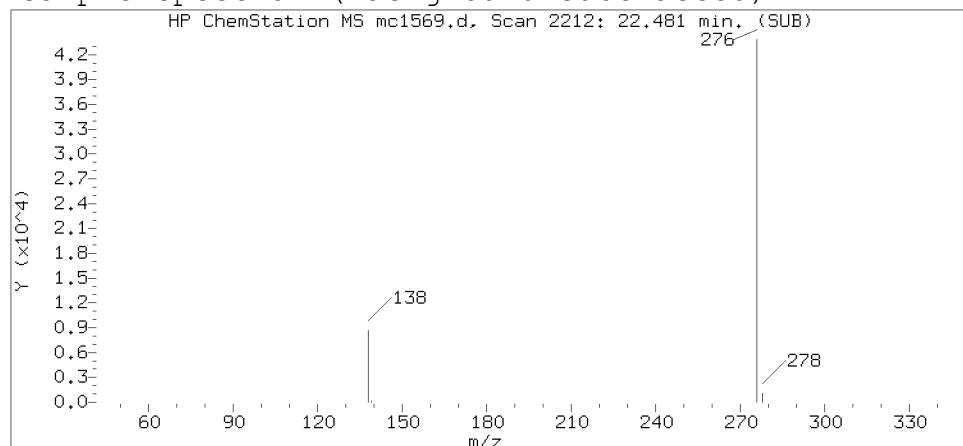
Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user art12405
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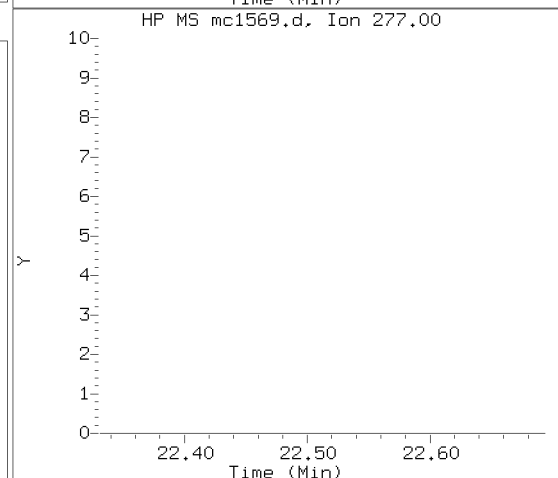
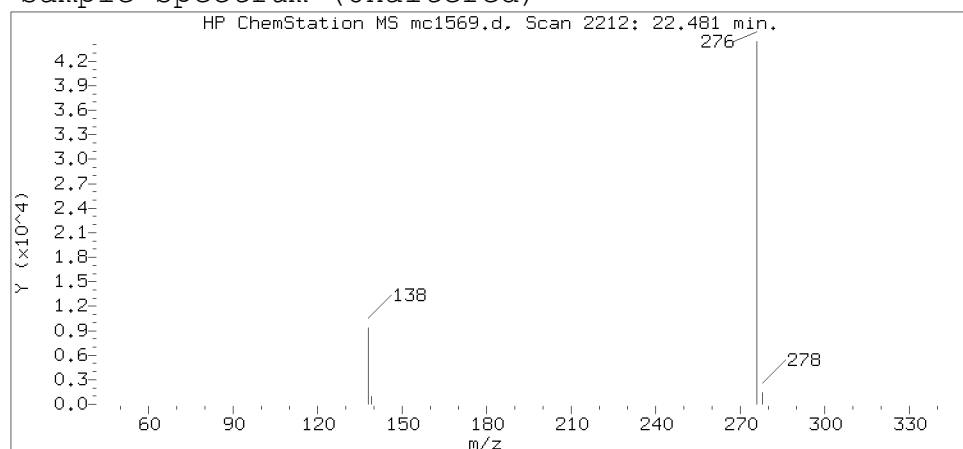
Reference Standard Spectrum for Benzo(g,h,i)perylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP21585.i/20mar26.b/mc1569.d
Injection date and time: 26-MAR-2020 15:07

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 21331
Calibration date and time: 26-MAR-2020 11:08
Date, time and analyst ID of latest file update: 26-Mar-2020 18:22 art12405

Sample Name: DUP10

Lab Sample ID: 1285722

Compound Number : 41
Compound Name : Benzo(g,h,i)perylene
Scan Number : 2212
Retention Time (minutes) : 22.481
Relative Retention Time : -0.00000
Quant Ion : 276.00
Area (flag) : 93154
On-column Amount (ng/ul) : 0.1816

Digitally signed by Ashley R. Transue on 03/26/2020 at 18:27.

Target 3.5 esignature user: art12405
GPY68 Page 440 of 586

Standards Data

Semivolatiles by GC/MS-SIM

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP21585 **HP #13**

Data Directory Path is - D:\data\20mar04\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ceb05247	MC0100.D	RVDFTPP0430	03/04/2020	18:05		
ceb05247	MC0100a.D	RVDFTPP0430	03/04/2020	18:20		
ceb05247	MC0100b.D	RVDFTPP0430	03/04/2020	18:37		
ceb05247	MC0100c.D	RVDFTPP0430	03/04/2020	19:06		
ceb05247	MC0100d.D	RVDFTPP0430	03/04/2020	19:28		
ceb05247	MC0101.D	RVSIM0130	03/04/2020	19:45		
ceb05247	MC0101a.D	RVSIM0130	03/04/2020	22:06		
ceb05247	MC0102.D	RVSIM0130	03/04/2020	23:03		
ceb05247	MC0103.D	RVSIM0130	03/04/2020	23:33		
ceb05247	MC0104.D	RVSIM0130	03/05/2020	00:03		
ceb05247	MC0105.D	RVSIM0130	03/05/2020	00:34		
ceb05247	MC0106.D	RVSIM0130	03/05/2020	01:04		
ceb05247	MC0107.D	RVSIM0130	03/05/2020	01:34		
ceb05247	MC0108.D	RVSICV0170	03/05/2020	02:05		
ceb05247	MC0109.D	RVSICV3399	03/05/2020	03:46		

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP21585 **HP #13**

Data Directory Path is - D:\data\20mar26\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ceb05247	MC1550.D	RVDFTPP0430	03/26/2020	05:39		
ceb05247	MC1551.D	SIM0750	03/26/2020	05:54		
ceb05247	MC1552.D	SBLKWB085	03/26/2020	06:33	20085WAB	
ceb05247	MC1553.D	085WBLCS	03/26/2020	07:03	20085WAB	
ceb05247	MC1554.D	085WBLCS	03/26/2020	07:33	20085WAB	
ceb05247	MC1555.D	1285937	03/26/2020	08:03	20084WAF	
ceb05247	MC1556.D	1285988DL	03/26/2020	08:34	20084WAF	5
ceb05247	MC1557.D	1286052	03/26/2020	09:04	20084WAF	
ceb05247	MC1558.D	1286053	03/26/2020	09:34	20084WAF	
ceb05247	MC1559.D	1286054	03/26/2020	10:05	20084WAF	
ceb05247	MC1560.D	1285000	03/26/2020	10:35	20085WAB	
ceb05247	MC1561.D	1285022	03/26/2020	11:05	20085WAB	
ceb05247	MC1562.D	rvSIM0750	03/26/2020	11:35		
ceb05247	MC1563.D	1285716	03/26/2020	12:06	20085WAB	
ceb05247	MC1564.D	1285717	03/26/2020	12:36	20085WAB	
ceb05247	MC1565.D	1285718	03/26/2020	13:06	20085WAB	
ceb05247	MC1566.D	1285719	03/26/2020	13:36	20085WAB	
ceb05247	MC1567.D	1285720	03/26/2020	14:07	20085WAB	
ceb05247	MC1568.D	1285721	03/26/2020	14:37	20085WAB	
ceb05247	MC1569.D	1285722	03/26/2020	15:07	20085WAB	
ceb05247	MC1570.D	1286190	03/26/2020	15:38	20085WAB	
ceb05247	MC1571.D	1286191	03/26/2020	16:08	20085WAB	

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP21585 **HP #13**

Data Directory Path is - D:\data\20mar26a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ceb05247	MC1600.D	RVDFTPP0430	03/26/2020	16:48		
ceb05247	MC1601.D	SIM0750	03/26/2020	17:17		
ceb05247	MC1602.D	1286192	03/26/2020	22:54	20085WAB	
ceb05247	MC1603.D	1286758	03/26/2020	23:25	20085WAB	
ceb05247	MC1604.D	1286760	03/26/2020	23:55	20085WAB	
ceb05247	MC1605.D	1286762	03/27/2020	00:25	20085WAB	
ceb05247	MC1606.D	1285717DL	03/27/2020	03:21	20085WAB	10
ceb05247	MC1606a.D	1285717DL2	03/27/2020	03:58	20085WAB	20

Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

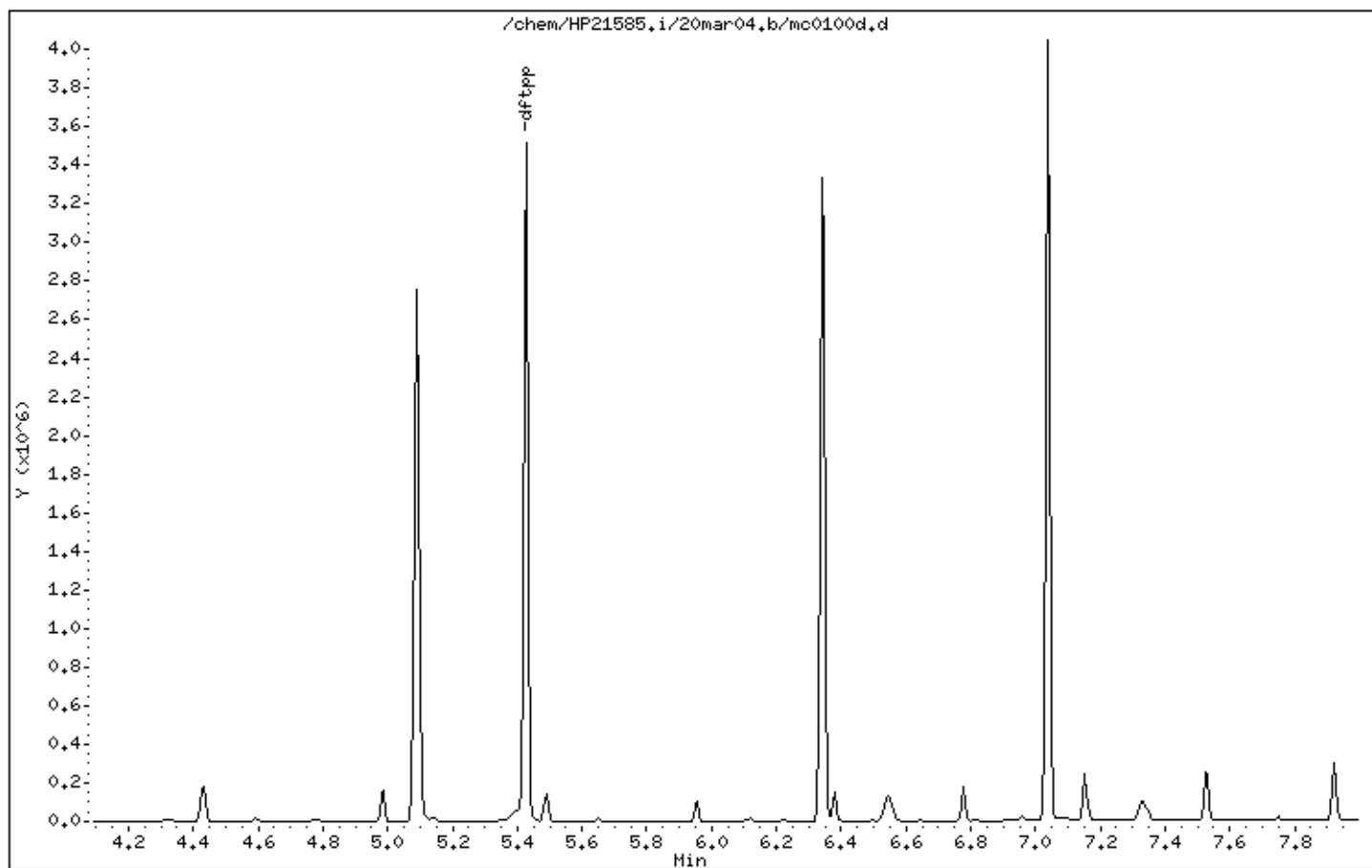
Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18



Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

Instrument: HP21585.i

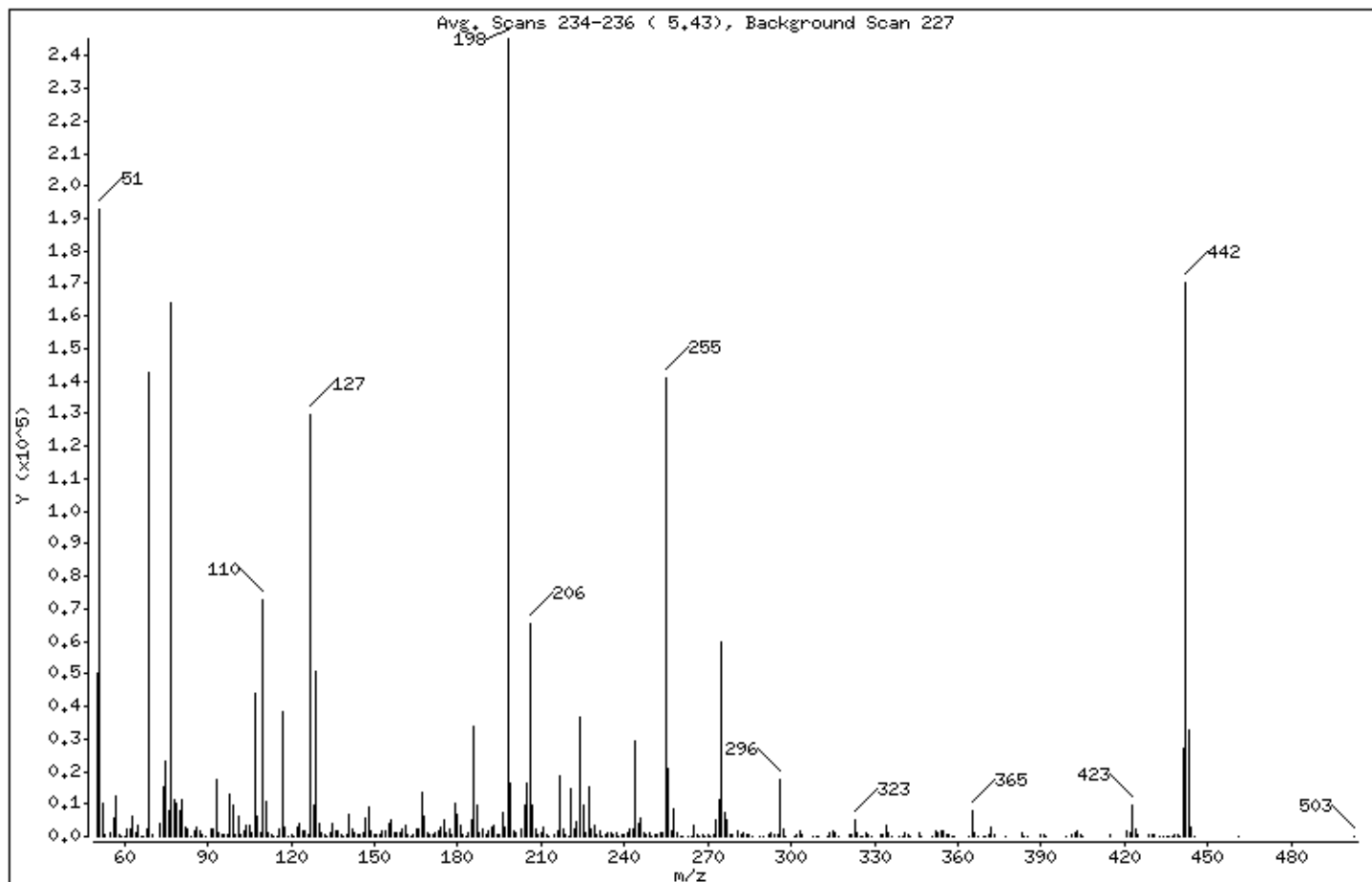
Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	78.74
68	Less than 2.00% of mass 69	0.96 (1.65)
69	Mass 69 relative abundance	58.25
70	Less than 2.00% of mass 69	0.27 (0.46)
127	10.00 - 80.00% of mass 198	52.81
197	Less than 2.00% of mass 198	1.05
199	5.00 - 9.00% of mass 198	6.76
275	10.00 - 60.00% of mass 198	24.32
365	Greater than 1.00% of mass 198	3.22
441	0.01 - 24.00% of mass 442	11.13 (16.06)
442	50.00 - 99.99% of mass 198	69.34
443	15.00 - 24.00% of mass 442	13.33 (19.22)

Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc0100d.d

Spectrum: Avg. Scans 234-236 (5.43), Background Scan 227

Location of Maximum: 198.00

Number of points: 326

m/z	Y	m/z	Y	m/z	Y	m/z	Y

50.00	49960	136.00	1625	220.00	132	314.00	887
51.00	193088	137.00	1944	221.00	14461	315.00	1825
52.00	9954	138.00	412	222.00	2448	316.00	1015
53.00	455	139.00	236	223.00	4455	317.00	91
55.00	961	140.00	643	224.00	36752	321.00	561

56.00	5483	141.00	6515	225.00	9359	322.00	329
57.00	12583	142.00	2056	226.00	1129	323.00	5027
58.00	637	143.00	1252	227.00	15085	324.00	1089
59.00	270	144.00	387	228.00	2166	325.00	42
60.00	173	145.00	451	229.00	3403	326.00	192

61.00	2034	146.00	1280	230.00	449	327.00	1012
62.00	2314	147.00	5537	231.00	1418	328.00	548
63.00	6447	148.00	9047	232.00	223	329.00	55
64.00	888	149.00	1415	233.00	370	332.00	435
65.00	3264	150.00	486	234.00	1030	333.00	462

66.00	215	151.00	791	235.00	1090	334.00	3620
67.00	259	152.00	399	236.00	662	335.00	919
68.00	2353	153.00	1928	237.00	1263	336.00	105
69.00	142848	154.00	1667	238.00	184	339.00	261
70.00	652	155.00	3743	239.00	579	340.00	54

73.00	3805	156.00	4939	240.00	500	341.00	1004
74.00	15149	157.00	976	241.00	955	342.00	345
75.00	23040	158.00	1080	242.00	2109	343.00	191
76.00	8107	159.00	1008	243.00	2332	346.00	1159
77.00	164224	160.00	2163	244.00	29136	347.00	237

78.00	11038	161.00	3165	245.00	3734	351.00	131
79.00	10075	162.00	768	246.00	5376	352.00	1465
80.00	8143	163.00	238	247.00	1195	353.00	1175
81.00	11035	164.00	328	248.00	368	354.00	1666
82.00	2906	165.00	2436	249.00	1200	355.00	1414

83.00	2530	166.00	2019	250.00	250	356.00	422
84.00	192	167.00	13795	251.00	372	357.00	300
85.00	1817	168.00	6402	252.00	484	358.00	167
86.00	3080	169.00	1116	253.00	977	359.00	113
87.00	1537	170.00	516	254.00	886	364.00	61

Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc0100d.d

Spectrum: Avg. Scans 234-236 (5.43), Background Scan 227

Location of Maximum: 198.00

Number of points: 326

m/z	Y	m/z	Y	m/z	Y	m/z	Y

88.00	613	171.00	541	255.00	140864	365.00	7890
89.00	234	172.00	1125	256.00	20656	366.00	1096
91.00	2321	173.00	1561	257.00	1508	367.00	59
92.00	2499	174.00	2734	258.00	8339	369.00	149
93.00	17400	175.00	4929	259.00	1223	370.00	257

94.00	1246	176.00	1324	260.00	197	371.00	441
95.00	316	177.00	2214	261.00	195	372.00	2827
96.00	759	178.00	745	263.00	55	373.00	763
97.00	410	179.00	10020	264.00	254	377.00	83
98.00	13125	180.00	6573	265.00	3470	383.00	901

99.00	9306	181.00	3120	266.00	632	384.00	155
100.00	769	182.00	455	267.00	277	385.00	91
101.00	5956	183.00	273	268.00	297	390.00	282
102.00	304	184.00	867	269.00	157	391.00	318
103.00	1716	185.00	4820	270.00	315	392.00	233

104.00	3380	186.00	33720	271.00	234	399.00	134
105.00	3399	187.00	9585	272.00	562	401.00	298
106.00	983	188.00	968	273.00	4859	402.00	1233
107.00	43896	189.00	2240	274.00	11111	403.00	1761
108.00	6208	190.00	336	275.00	59640	404.00	689

109.00	1115	191.00	1411	276.00	7587	405.00	114
110.00	72448	192.00	3067	277.00	4811	415.00	379
111.00	10879	193.00	3510	278.00	787	421.00	1587
112.00	1301	194.00	631	279.00	542	422.00	1350
113.00	586	195.00	667	281.00	1800	423.00	9366

114.00	159	196.00	7582	282.00	561	424.00	2147
115.00	224	197.00	2570	283.00	869	425.00	309
116.00	2135	198.00	245248	284.00	366	429.00	661
117.00	38080	199.00	16584	285.00	797	430.00	412
118.00	2690	200.00	1552	286.00	54	431.00	451

119.00	278	201.00	1048	289.00	166	433.00	191
120.00	479	203.00	2048	290.00	238	434.00	54
121.00	59	204.00	9533	292.00	295	435.00	242
122.00	2728	205.00	16258	293.00	976	436.00	261
123.00	3961	206.00	65328	294.00	330	437.00	177

Date : 04-MAR-2020 19:28

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18

Data File: mc0100d.d

Spectrum: Avg. Scans 234-236 (5.43), Background Scan 227

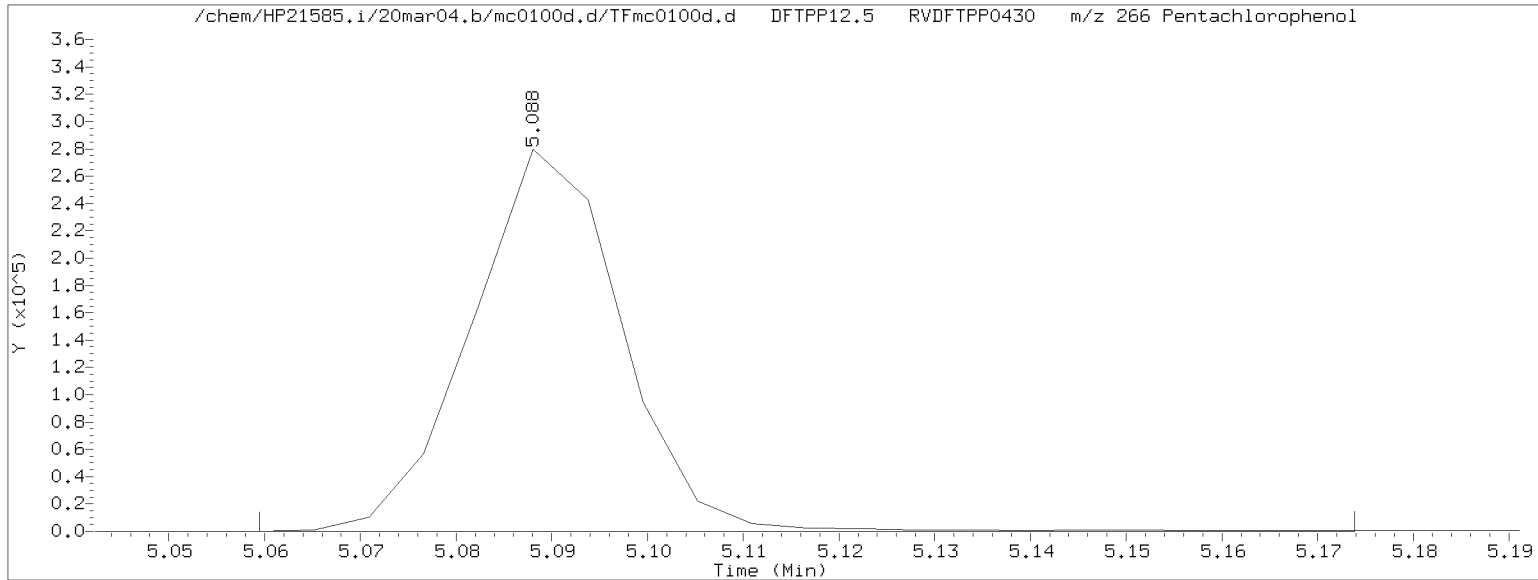
Location of Maximum: 198.00

Number of points: 326

m/z	Y	m/z	Y	m/z	Y	m/z	Y
124.00	1750	207.00	9723	295.00	612	438.00	296
125.00	1630	208.00	2165	296.00	17336	439.00	323
126.00	840	209.00	744	297.00	2445	440.00	262
127.00	129528	210.00	1146	298.00	176	441.00	27304
128.00	9815	211.00	2627	301.00	217	442.00	170048
129.00	50920	212.00	622	302.00	285	443.00	32688
130.00	3917	213.00	161	303.00	1973	444.00	2961
131.00	1137	215.00	787	304.00	519	445.00	143
132.00	437	216.00	1534	308.00	204	461.00	51
133.00	223	217.00	18608	309.00	78	503.00	170
134.00	1336	218.00	2296	310.00	274		
135.00	3895	219.00	495	313.00	129		

Assessment of GC Column Performance and Injection Port Inertness for

Instrument ID: HP21585.i Injection Date: 04-MAR-2020 19:28 Operator: ceb05247

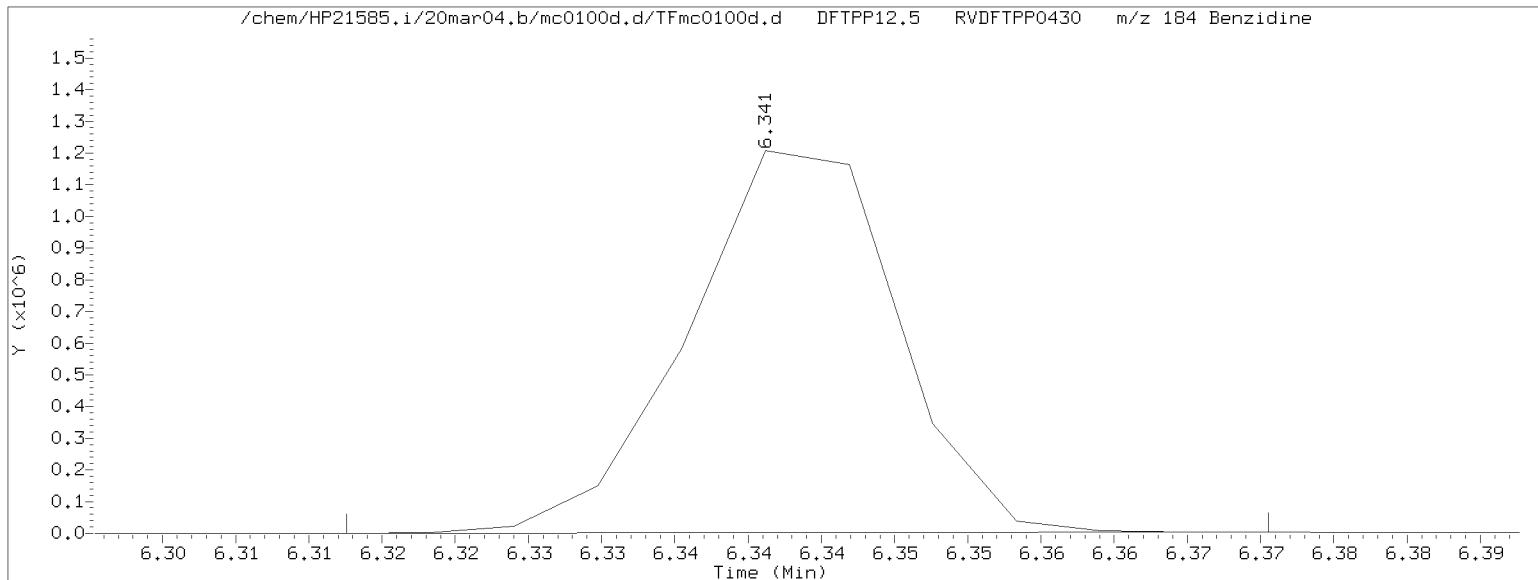


Pentachlorophenol EICP peak height = 279872 EICP peak height at 10% = 27987 Pentachlorophenol EICP area = 305083

Pentachlorophenol EICP peak apex (min.) = 5.088
RT at 10% of front half of EICP (min.) = 5.073
RT at 10% of back half of EICP (min.) = 5.105

'Front' peak width (min.) = 0.014983333
'Tailing' peak width (min.) = 0.016700000

$$\text{PCP tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.016700000}{0.014983333} = 1.115$$



Benzidine EICP peak height = 1206402 EICP peak height at 10% = 120640 Benzidine EICP area = 1202803

Benzidine EICP peak apex (min.) = 6.341
RT at 10% of front half of EICP (min.) = 6.329
RT at 10% of back half of EICP (min.) = 6.357

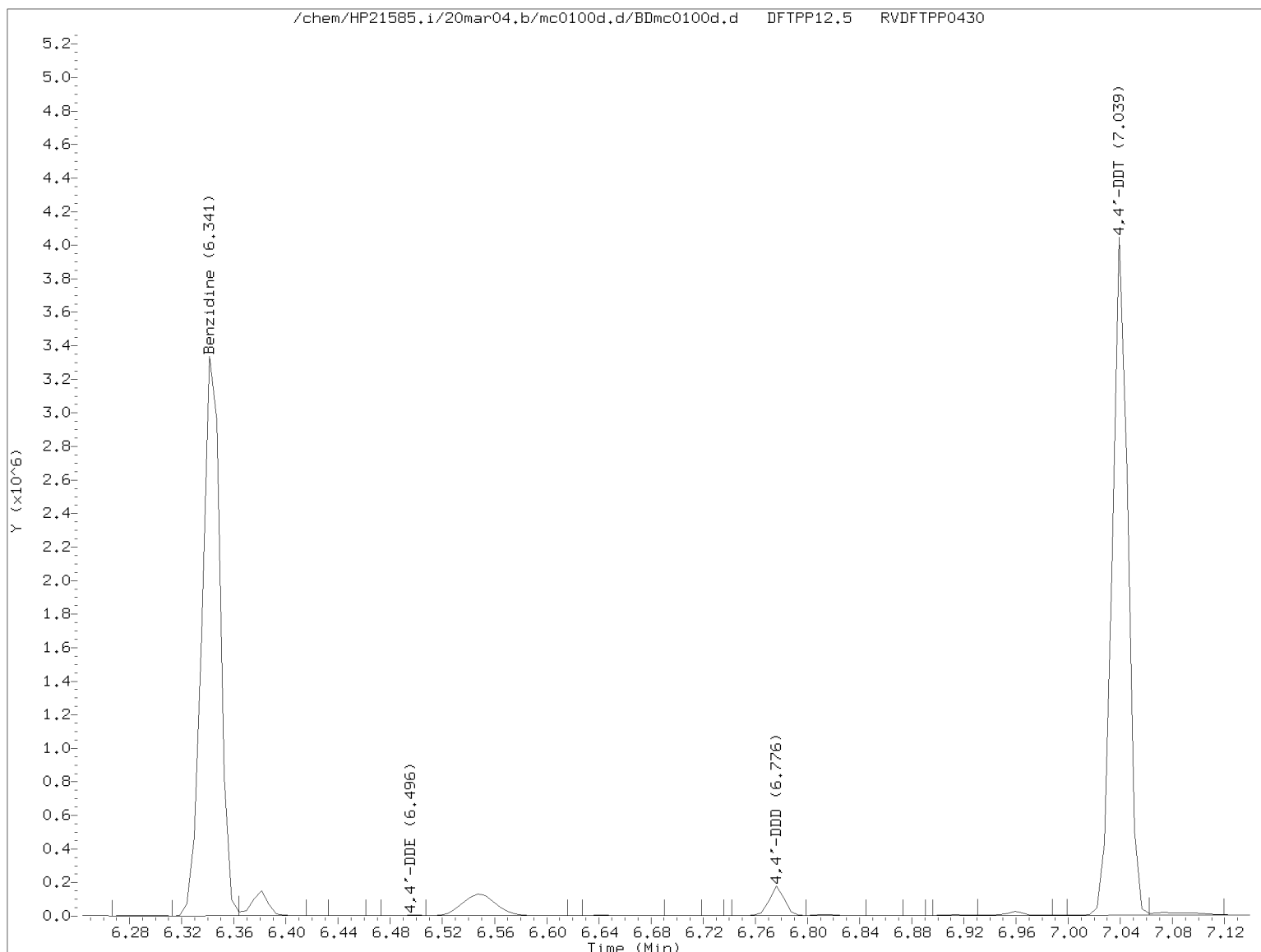
'Front' peak width (min.) = 0.012650000
'Tailing' peak width (min.) = 0.015600000

$$\text{Benzidine tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.015600000}{0.012650000} = 1.233$$

page 1 of 2
printed on 03/04/2020 at 19:47

Assessment of GC Column Performance and Injection Port Inertness for

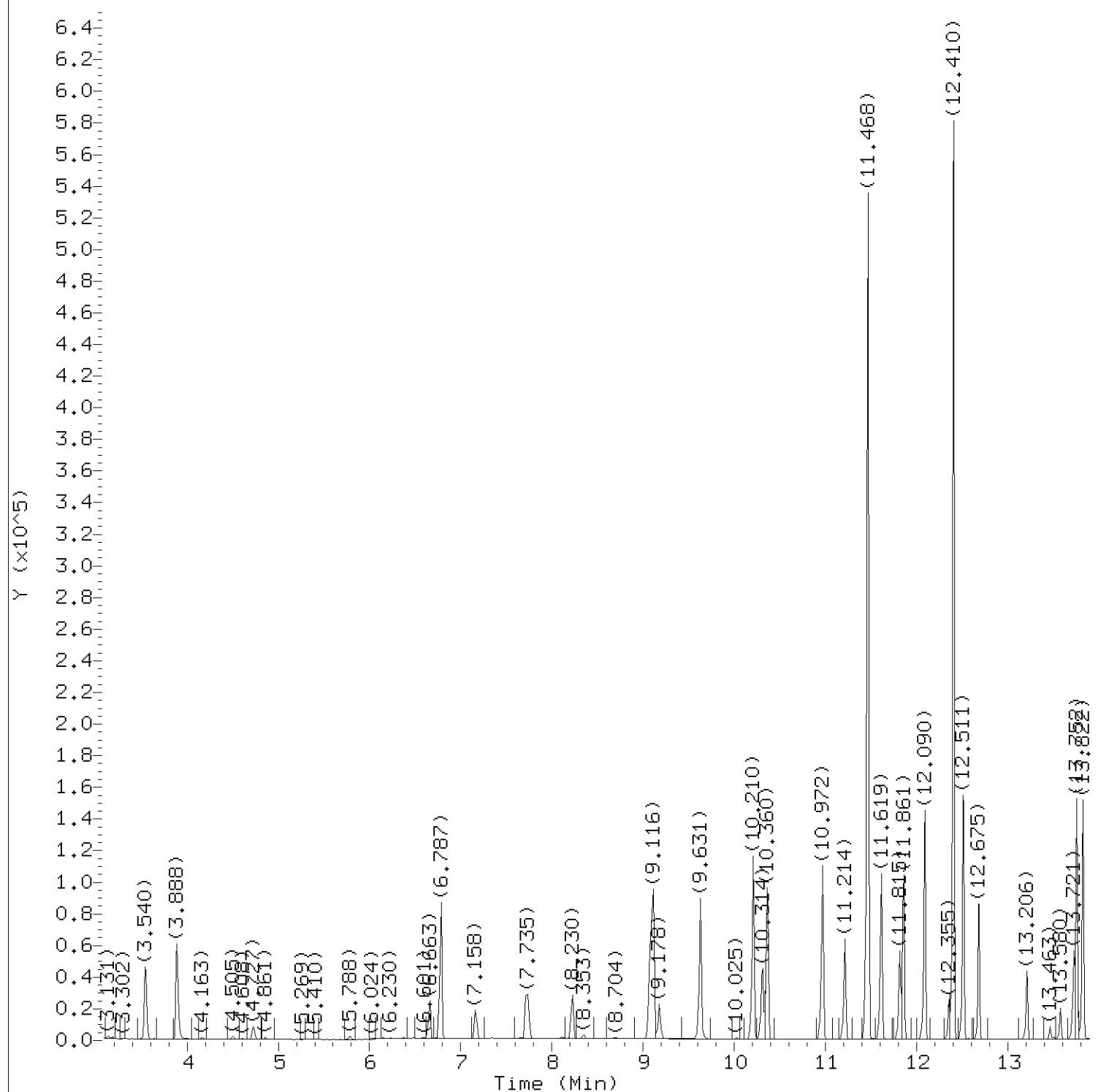
Instrument ID: HP21585.i Injection Date: 04-MAR-2020 19:28 Operator: ceb05247



$$\% \text{ 4,4'-DDT breakdown} = \frac{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area}}{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area} + 4,4'\text{-DDT TIC area}} \times 100$$

$$\% \text{ 4,4'-DDT breakdown} = \frac{3422 + 138380}{3422 + 138380 + 3353571} \times 100 = 4.1$$

page 2 of 2
printed on 03/04/2020 at 19:48



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0101a.d
Injection date and time: 04-MAR-2020 22:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

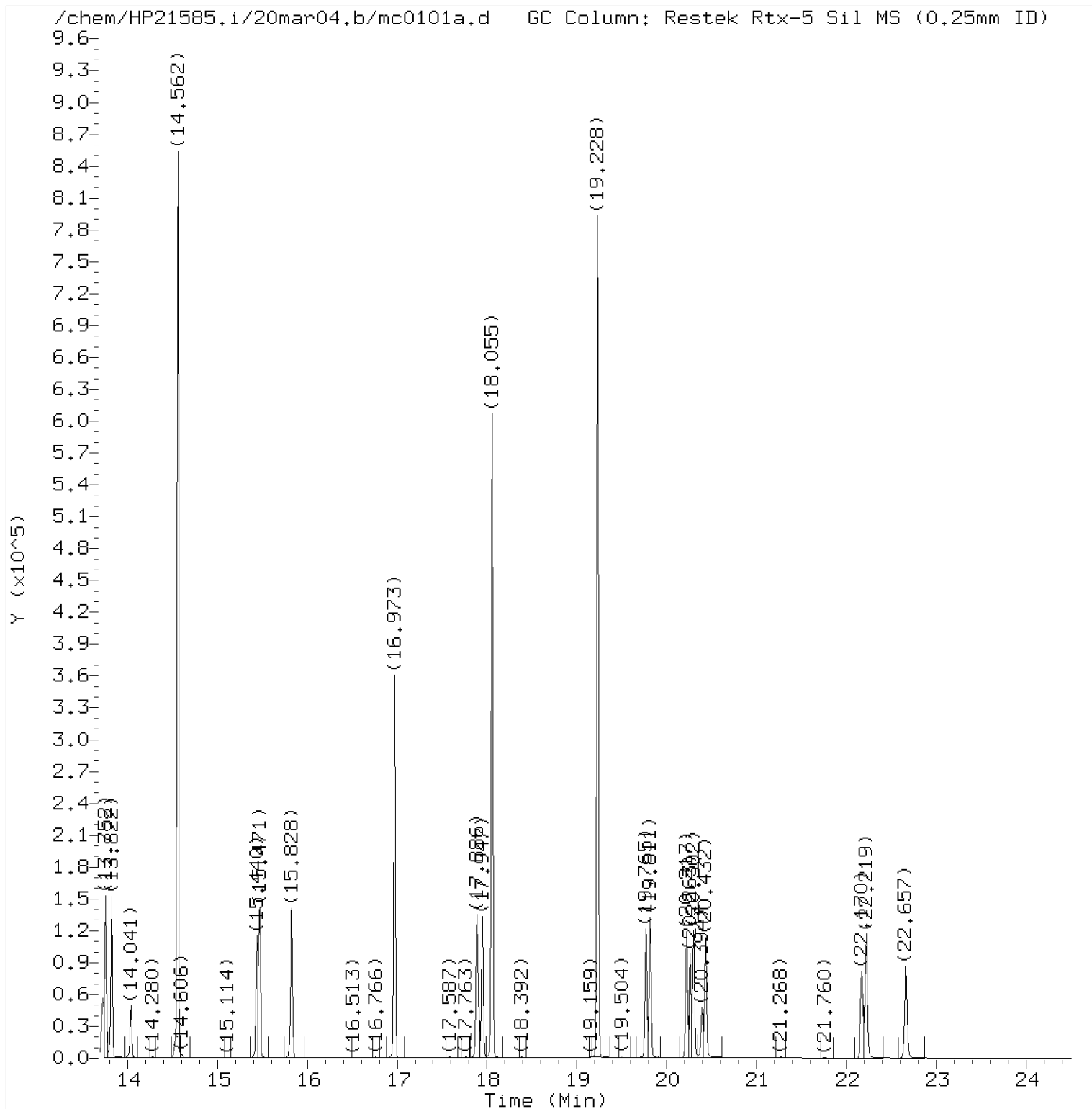
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.5

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0101a.d
Injection date and time: 04-MAR-2020 22:06

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.5

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0101a.d
 Injection date and time: 04-MAR-2020 22:06

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.5

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.547	88	25551	0.500
2) N-Nitrosodimethylamine	(1)	3.888	74	38472	0.500
4) bis(2-Chloroethyl)ether	(2)	6.787	93	55825	0.500
5)*1,4-Dichlorobenzene-d4	(1)	7.158	152	18450	0.250
6)*Naphthalene-d8	(2)	9.075	136	63212	0.250
7) Naphthalene	(2)	9.116	128	156281	0.500
8) Quinoline	(2)	9.631	129	70798	0.500
9) 2-Methylnaphthalene	(2)	10.210	142	97194	0.500
10)\$1-Methylnaphthalene-d10	(2)	10.314	152	67470	0.500
11) 1-Methylnaphthalene	(2)	10.360	142	92555	0.500
12) Dimethylphthalate	(3)	11.468	163	510530	2.500
13) Acenaphthylene	(3)	11.619	152	148606	0.500
14)*Acenaphthene-d10	(3)	11.815	164	26999	0.250
15) Acenaphthene	(3)	11.861	154	79005	0.500
16) Dibenzofuran	(3)	12.090	168	153533	0.500
17) Diethylphthalate	(3)	12.402	149	520010	2.500
18) Fluorene	(3)	12.511	166	105029	0.500
43) N-Nitrosodiphenylamine	(4)	12.683	169	58946	0.500
19) Hexachlorobenzene	(4)	13.206	284	39223	0.500
20)*Phenanthrene-d10	(4)	13.721	188	58317	0.250
21) Phenanthrene	(4)	13.752	178	154202	0.500
22) Anthracene	(4)	13.822	178	155263	0.500
23) Di-n-butylphthalate	(4)	14.562	149	908446	2.500
24)\$Fluoranthene-d10	(4)	15.440	212	133179	0.500
25) Fluoranthene	(4)	15.471	202	182907	0.500
26) Pyrene	(5)	15.828	202	184172	0.500
27) Butylbenzylphthalate	(5)	16.973	149	370884	2.500
28) Benzo(a)anthracene	(5)	17.886	228	153283	0.500
29)*Chrysene-d12	(5)	17.901	240	48974	0.250
30) Chrysene	(5)	17.947	228	159682	0.500
31) bis(2-Ethylhexyl)phthalate	(5)	18.055	149	559076	2.500
32) Di-n-octylphthalate	(6)	19.228	149	935489	2.500
33) Benzo(b)fluoranthene	(6)	19.765	252	153276	0.500
34) Benzo(k)fluoranthene	(6)	19.811	252	163351	0.500
35) Benzo(e)pyrene	(6)	20.217	252	146761	0.500
36)\$Benzo(a)pyrene-d12	(6)	20.263	264	105698	0.500
37) Benzo(a)pyrene	(6)	20.302	252	148723	0.500
38)*Perylene-d12	(6)	20.394	264	49204	0.250
45) Perylene	(6)	20.432	252	150411	0.500
39) Indeno(1,2,3-cd)pyrene	(6)	22.170	276	129571M	0.500

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0101a.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 22:06

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.5

Lab Sample ID: RVSIM0130

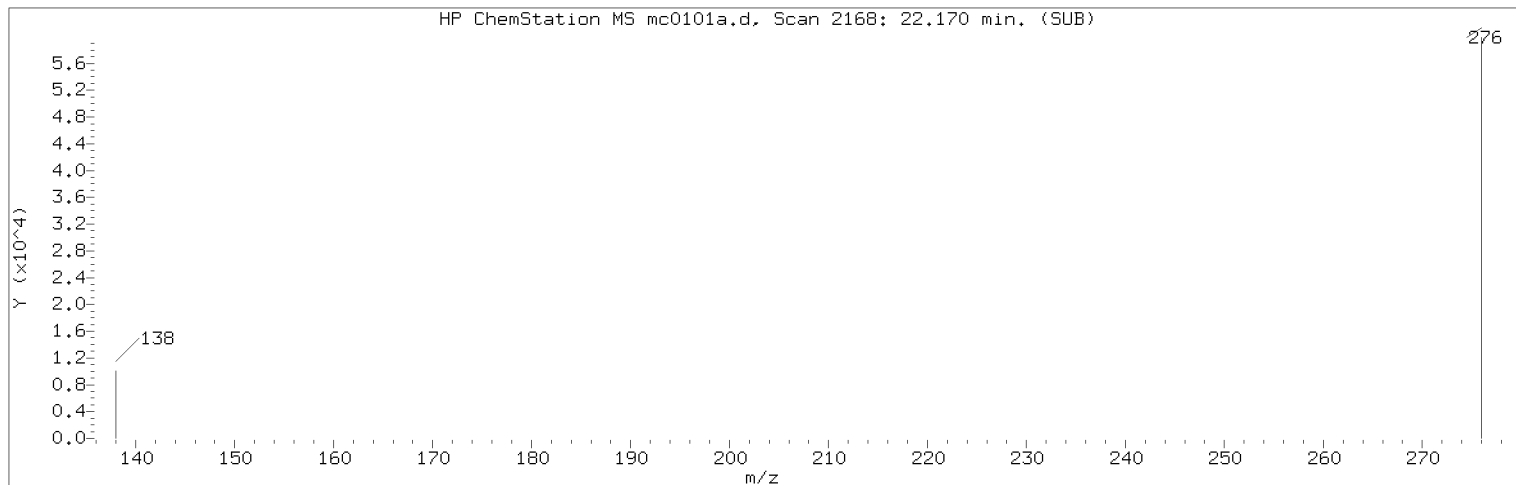
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.219	278	150158	0.500
41) Benzo(g,h,i)perylene	(6)	22.664	276	153641	0.500

Digitally signed by Joseph M. Gambler

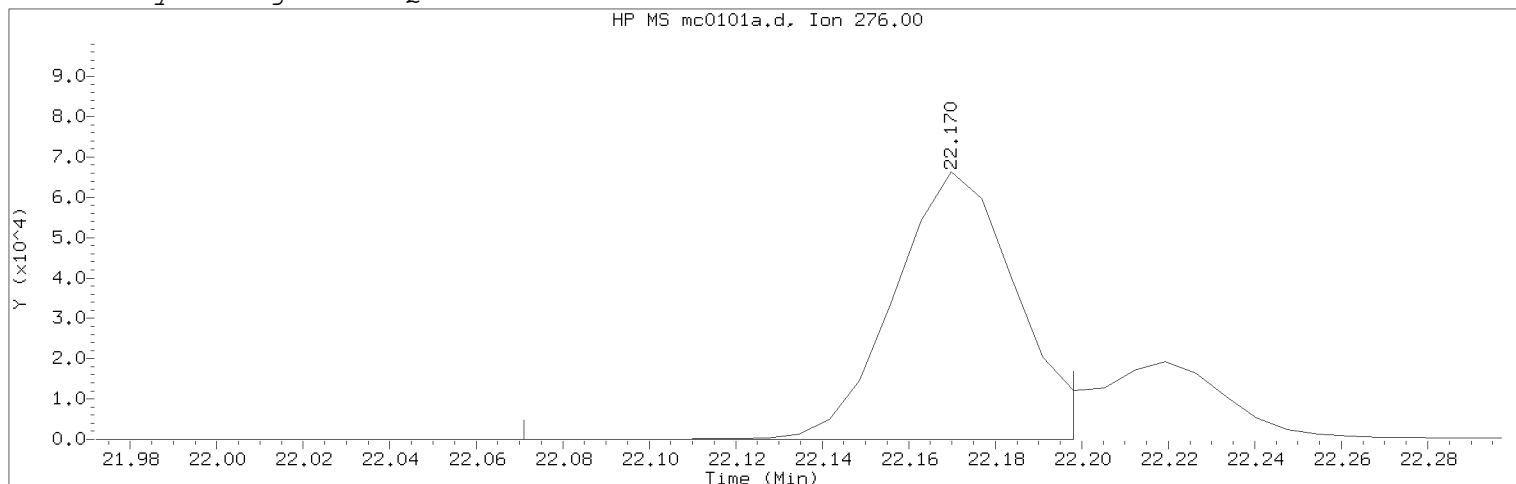
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0101a.d Instrument ID: HP21585.i
Injection date and time: 04-MAR-2020 22:06 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.5 Lab Sample ID: RVSIM0130

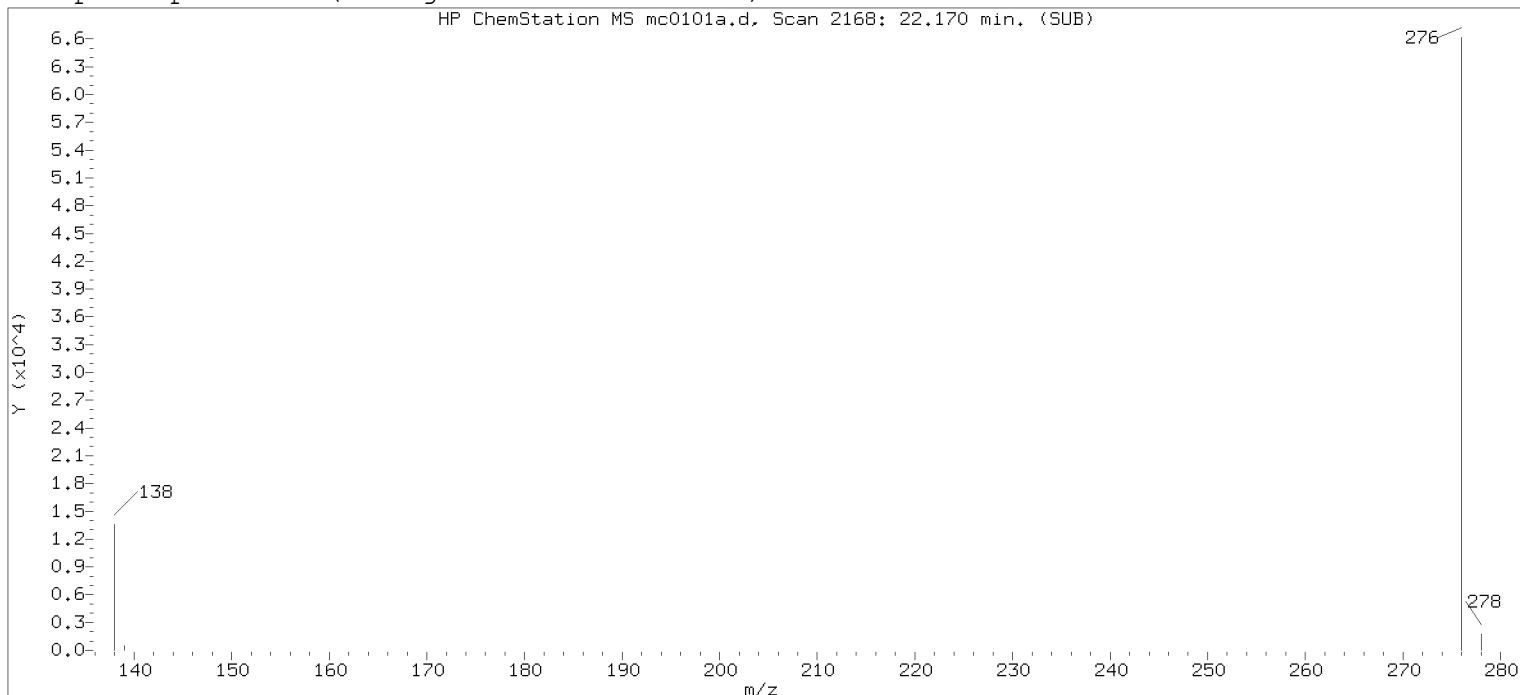
Compound Number : 39
Compound Name : Indeno(1,2,3-cd)pyrene
Scan Number : 2168
Retention Time (minutes) : 22.170
Quant Ion : 276.00
Area (flag) : 129571M
On-Column Amount (ng/ul) : 0.5000
Integration start scan : 2153 Integration stop scan: 2171
Y at integration start : 48 Y at integration end: 48

Reason for manual integration: improper integration

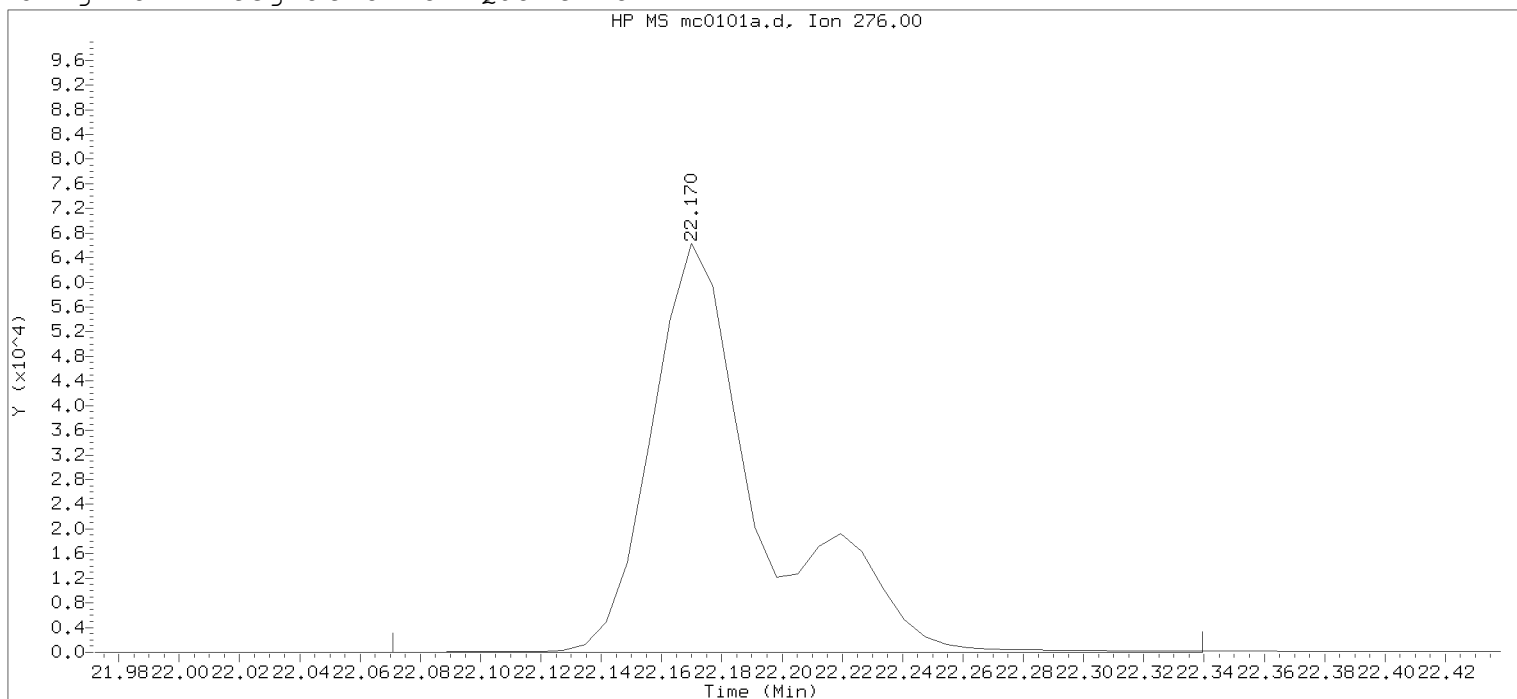
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion

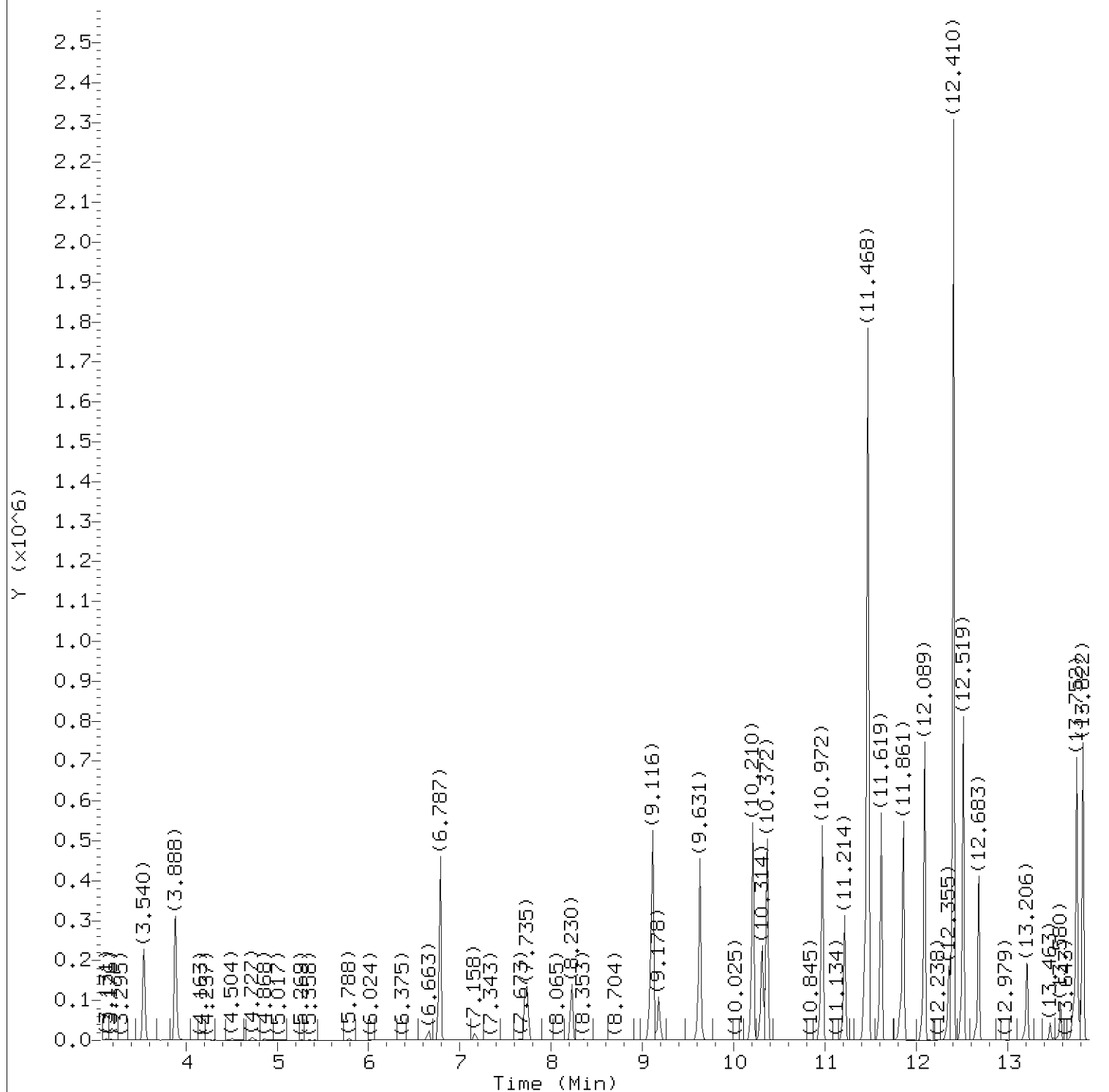


Data File: /chem/HP21585.i/20mar04.b/mc0101a.d Instrument ID: HP21585.i
Injection date and time: 04-MAR-2020 22:06 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:29
Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.5 Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2168	
Retention Time (minutes)	: 22.170	
Quant Ion	: 276.00	
Area	: 166872	
On-column Amount (ng/ul)	: 0.6261	
Integration start scan	: 2153	Integration stop scan: 2191
Y at integration start	: 48	Y at integration end: 48



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0102.d
Injection date and time: 04-MAR-2020 23:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

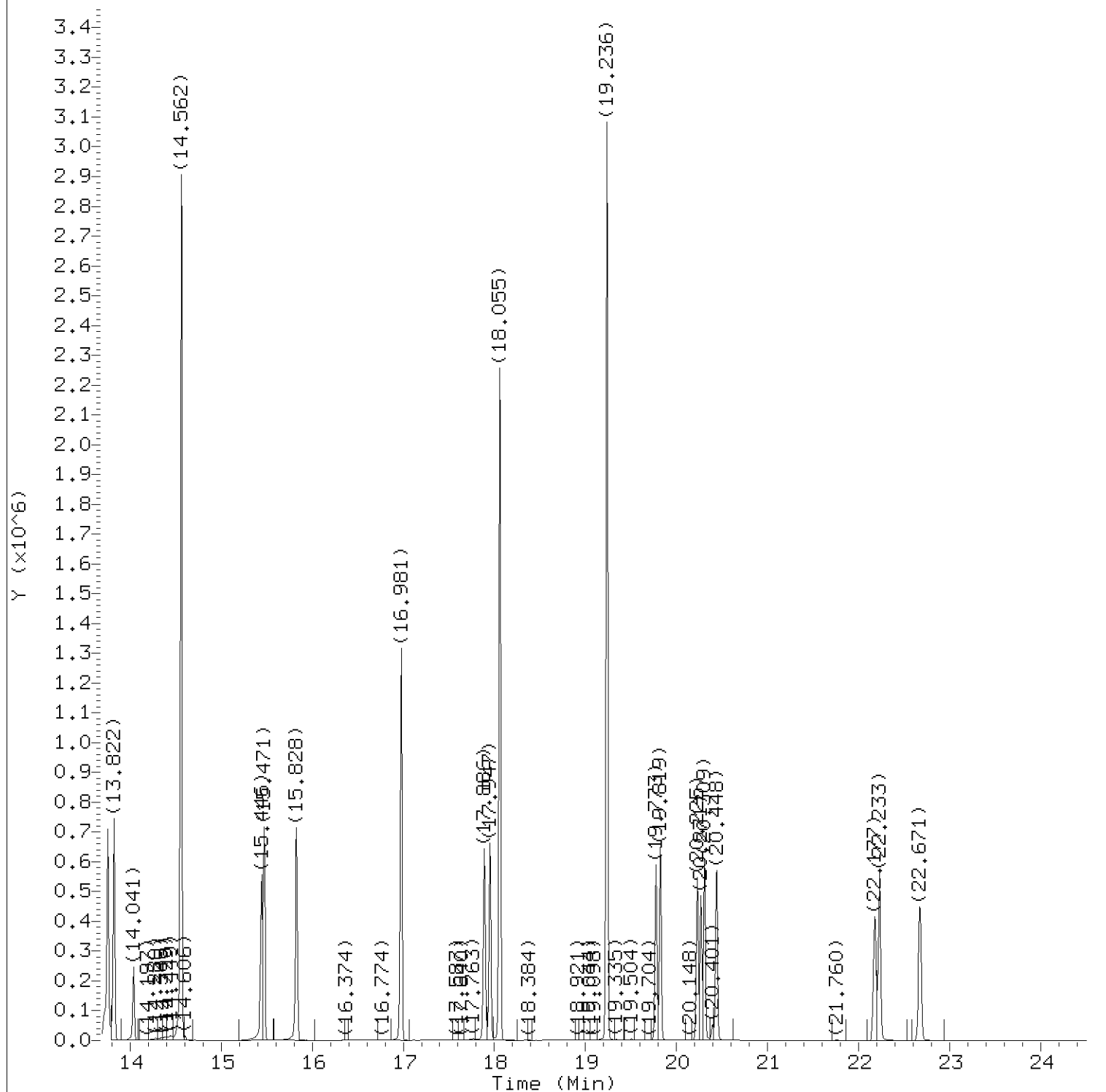
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0102.d
Injection date and time: 04-MAR-2020 23:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0102.d
 Injection date and time: 04-MAR-2020 23:03

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.540	88	121933	2.510
2) N-Nitrosodimethylamine	(1)	3.888	74	190091	2.554
4) bis(2-Chloroethyl)ether	(2)	6.787	93	281118	2.516
5) *1,4-Dichlorobenzene-d4	(1)	7.158	152	17464	0.250
6) *Naphthalene-d8	(2)	9.075	136	62864	0.250
7) Naphthalene	(2)	9.116	128	780989	2.506
8) Quinoline	(2)	9.631	129	357889	2.521
9) 2-Methylnaphthalene	(2)	10.210	142	484953	2.504
10) \$1-Methylnaphthalene-d10	(2)	10.314	152	337685	2.508
11) 1-Methylnaphthalene	(2)	10.372	142	465980	2.516
12) Dimethylphthalate	(3)	11.468	163	2062243	9.955
13) Acenaphthylene	(3)	11.619	152	771602	2.524
14) *Acenaphthene-d10	(3)	11.815	164	27514	0.250
15) Acenaphthene	(3)	11.861	154	402290	2.499
16) Dibenzofuran	(3)	12.089	168	773851	2.486
17) Diethylphthalate	(3)	12.410	149	2131898	10.029
18) Fluorene	(3)	12.519	166	546613	2.526
43) N-Nitrosodiphenylamine	(4)	12.683	169	288983	2.309
19) Hexachlorobenzene	(4)	13.213	284	198994	2.352
20) *Phenanthrene-d10	(4)	13.721	188	66626	0.250
21) Phenanthrene	(4)	13.752	178	836727	2.436
22) Anthracene	(4)	13.822	178	760118	2.308
23) Di-n-butylphthalate	(4)	14.562	149	3504104	9.154
24) \$Fluoranthene-d10	(4)	15.446	212	693753	2.385
25) Fluoranthene	(4)	15.471	202	914239	2.333
26) Pyrene	(5)	15.828	202	953992	2.337
27) Butylbenzylphthalate	(5)	16.981	149	1486013	9.182
28) Benzo(a)anthracene	(5)	17.886	228	792352	2.335
29) *Chrysene-d12	(5)	17.901	240	57800	0.250
30) Chrysene	(5)	17.947	228	793852	2.286
31) bis(2-Ethylhexyl)phthalate	(5)	18.055	149	2212909	9.121
32) Di-n-octylphthalate	(6)	19.236	149	3744665	9.126
33) Benzo(b)fluoranthene	(6)	19.773	252	760666	2.271
34) Benzo(k)fluoranthene	(6)	19.819	252	796961	2.250
35) Benzo(e)pyrene	(6)	20.225	252	728731	2.272
36) \$Benzo(a)pyrene-d12	(6)	20.271	264	537576	2.302
37) Benzo(a)pyrene	(6)	20.309	252	745386	2.283
38) *Perylene-d12	(6)	20.401	264	58676	0.250
45) Perylene	(6)	20.448	252	747249	2.273
39) Indeno(1,2,3-cd)pyrene	(6)	22.177	276	697356M	2.372

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0102.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

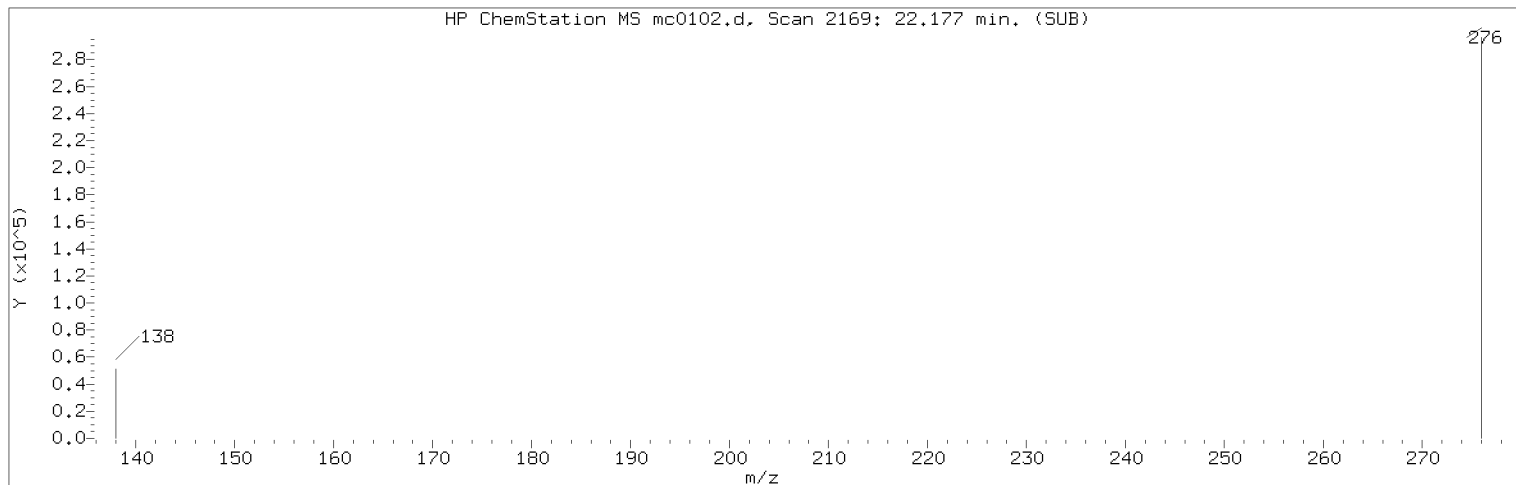
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.233	278	764708	2.303
41) Benzo(g,h,i)perylene	(6)	22.678	276	793386	2.321

Digitally signed by Joseph M. Gambler

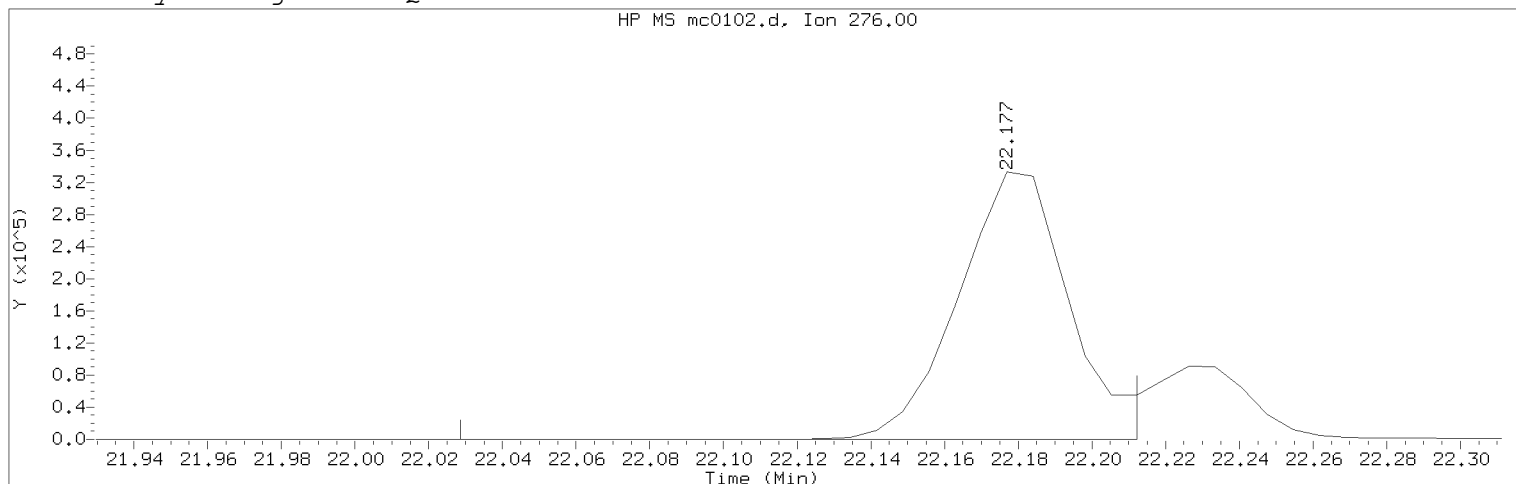
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0102.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

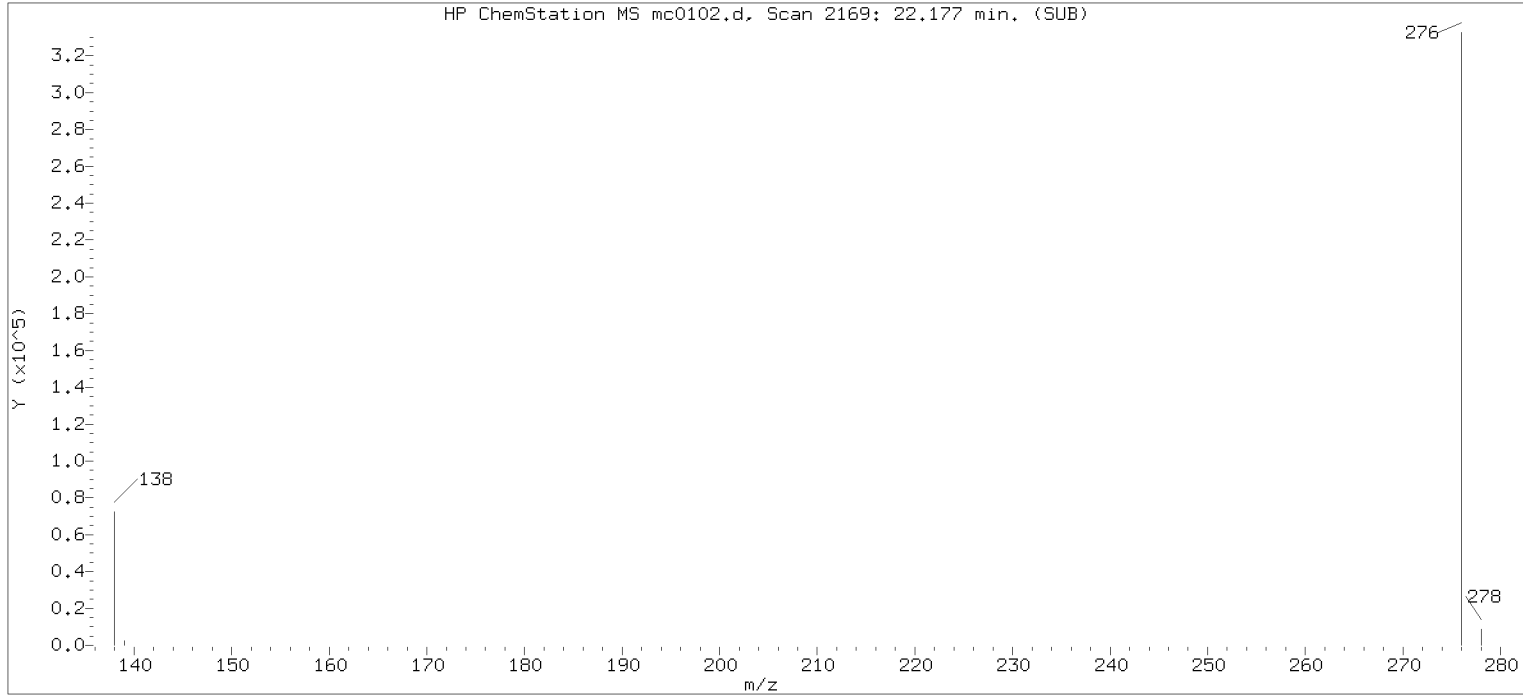
Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2169	
Retention Time (minutes)	: 22.177	
Quant Ion	: 276.00	
Area (flag)	: 697356M	
On-Column Amount (ng/ul)	: 2.3721	
Integration start scan	: 2147	Integration stop scan: 2173
Y at integration start	: 105	Y at integration end: 105

Reason for manual integration: improper integration

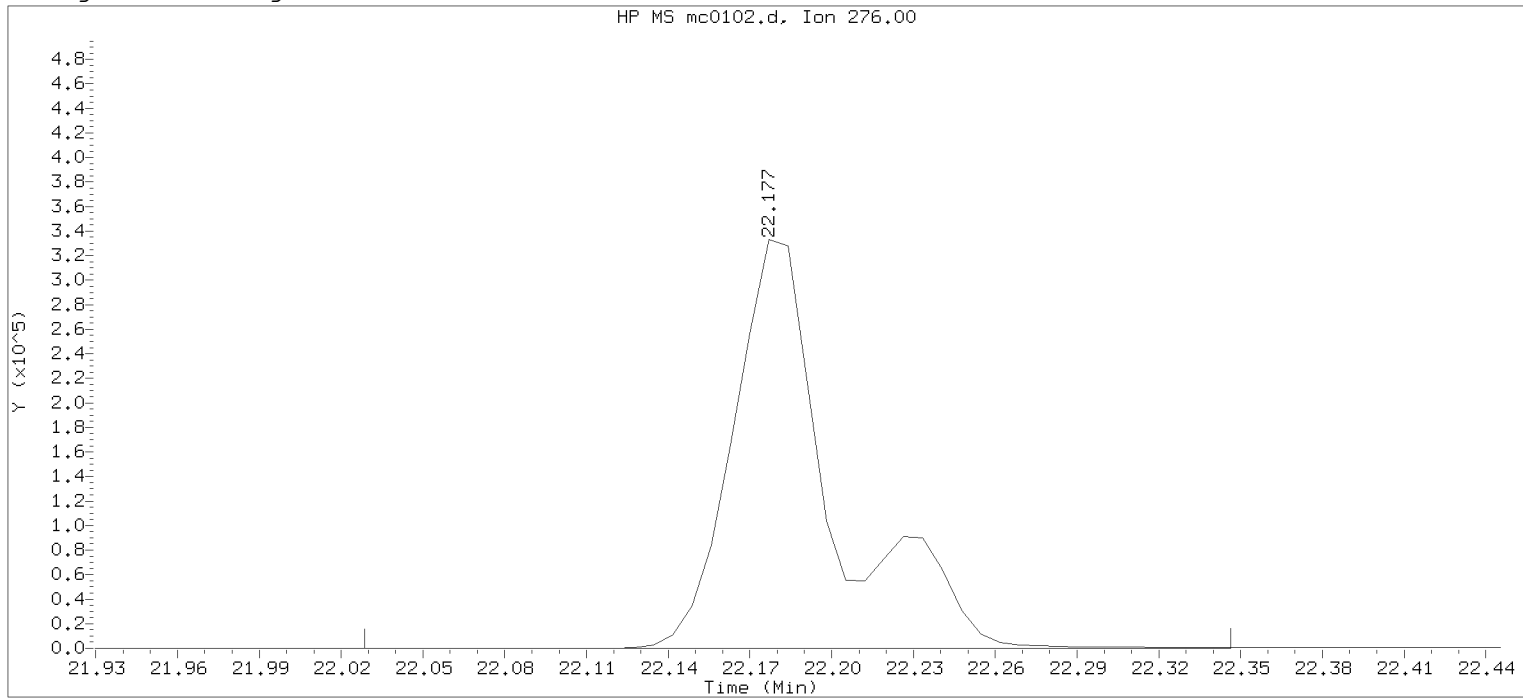
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0102.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

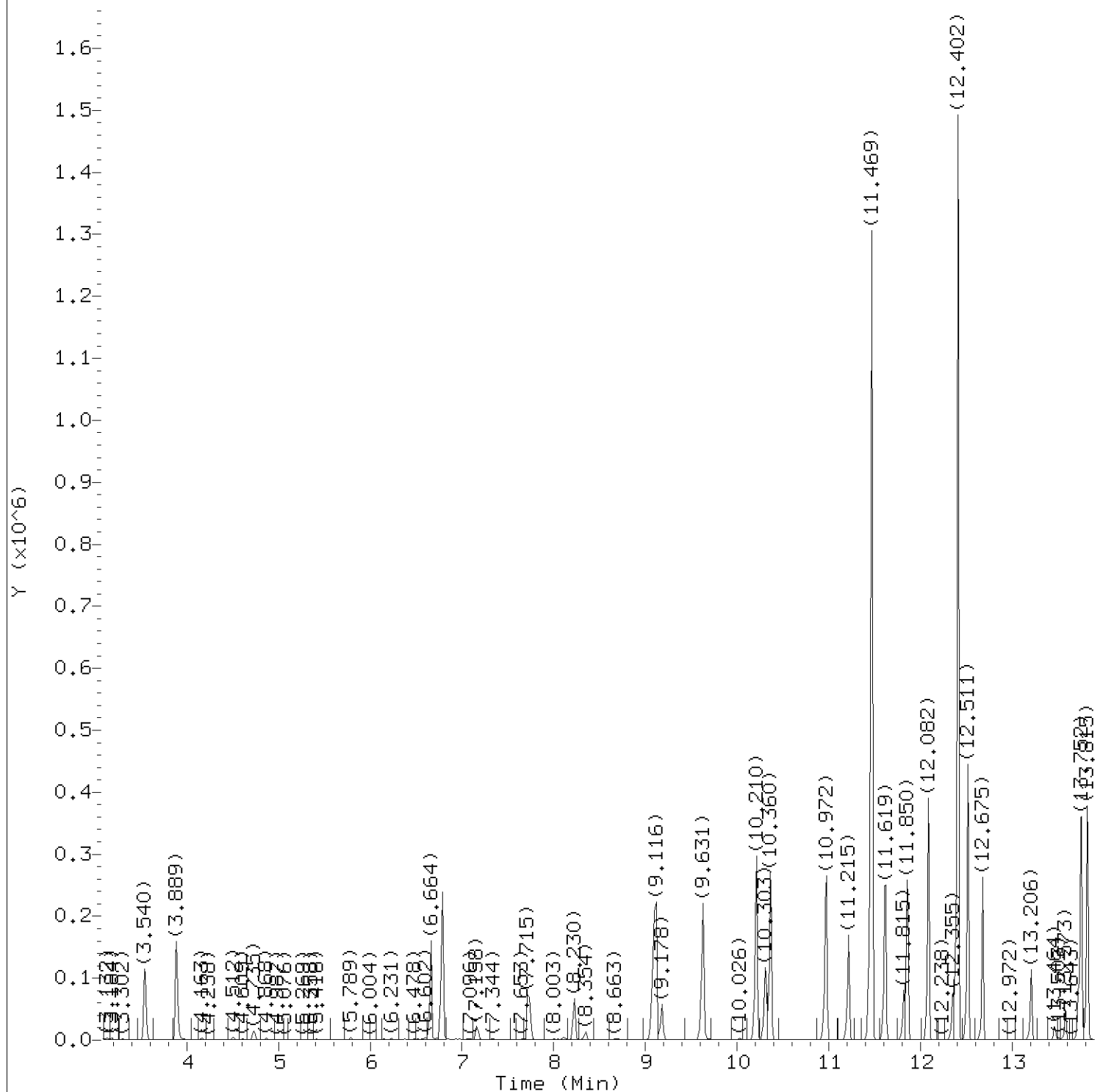
Sample Name: SSTD2.5

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2169	
Retention Time (minutes)	: 22.177	
Quant Ion	: 276.00	
Area	: 857315	
On-column Amount (ng/ul)	: 2.6491	
Integration start scan	: 2147	Integration stop scan: 2192
Y at integration start	: 105	Y at integration end: 105

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPY68 Page 463 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0103.d
Injection date and time: 04-MAR-2020 23:33

Instrument ID: HP21585.i
Analyst ID: ceb05247

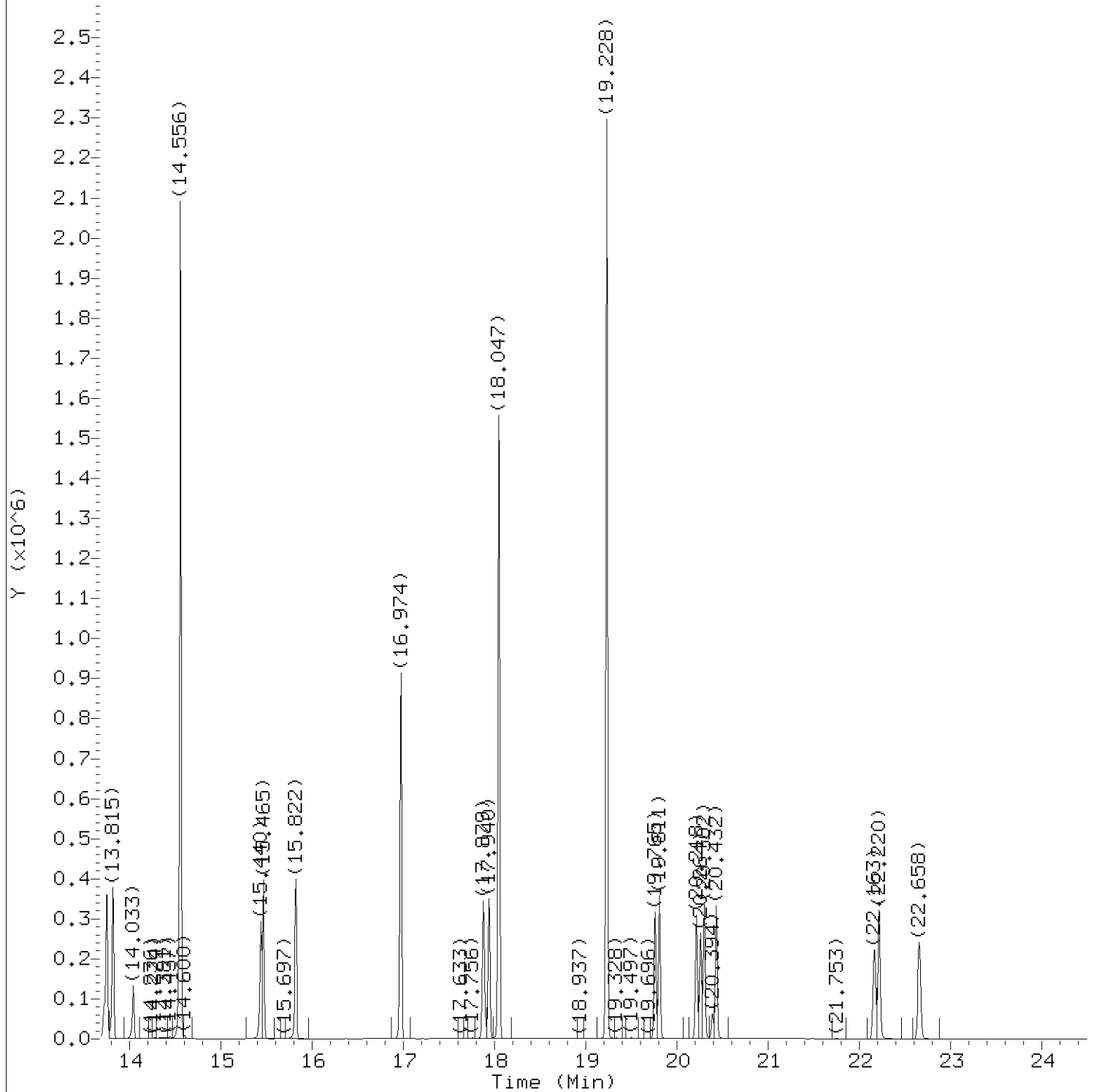
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0103.d
Injection date and time: 04-MAR-2020 23:33

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0103.d
 Injection date and time: 04-MAR-2020 23:33

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.547	88	63049	0.996
2) N-Nitrosodimethylamine	(1)	3.889	74	98084	1.006
4) bis(2-Chloroethyl)ether	(2)	6.787	93	149504	1.000
5)*1,4-Dichlorobenzene-d4	(1)	7.158	152	22793	0.250
6)*Naphthalene-d8	(2)	9.075	136	84165	0.250
7) Naphthalene	(2)	9.116	128	401117	0.974
8) Quinoline	(2)	9.631	129	193333	1.011
9) 2-Methylnaphthalene	(2)	10.210	142	255204	0.989
10)\$1-Methylnaphthalene-d10	(2)	10.303	152	177980	0.992
11) 1-Methylnaphthalene	(2)	10.360	142	241280	0.982
12) Dimethylphthalate	(3)	11.469	163	1334261	4.967
13) Acenaphthylene	(3)	11.619	152	403498	1.010
14)*Acenaphthene-d10	(3)	11.815	164	35792	0.250
15) Acenaphthene	(3)	11.861	154	208964	0.999
16) Dibenzofuran	(3)	12.082	168	403304	0.997
17) Diethylphthalate	(3)	12.402	149	1382951	5.001
18) Fluorene	(3)	12.511	166	284938	1.008
43) N-Nitrosodiphenylamine	(4)	12.675	169	162766	1.067
19) Hexachlorobenzene	(4)	13.206	284	104174	1.029
20)*Phenanthrene-d10	(4)	13.721	188	78539	0.250
21) Phenanthrene	(4)	13.752	178	420318	1.025
22) Anthracene	(4)	13.815	178	411416	1.039
23) Di-n-butylphthalate	(4)	14.556	149	2395635	5.202
24)\$Fluoranthene-d10	(4)	15.440	212	361948	1.036
25) Fluoranthene	(4)	15.465	202	490824	1.041
26) Pyrene	(5)	15.822	202	500074	1.047
27) Butylbenzylphthalate	(5)	16.974	149	1008365	5.294
28) Benzo(a)anthracene	(5)	17.879	228	419715	1.054
29)*Chrysene-d12	(5)	17.894	240	66019	0.250
30) Chrysene	(5)	17.940	228	427963	1.051
31) bis(2-Ethylhexyl)phthalate	(5)	18.047	149	1532973	5.343
32) Di-n-octylphthalate	(6)	19.228	149	2616329	5.216
33) Benzo(b)fluoranthene	(6)	19.765	252	419840	1.032
34) Benzo(k)fluoranthene	(6)	19.811	252	433817	1.016
35) Benzo(e)pyrene	(6)	20.218	252	394835	1.019
36)\$Benzo(a)pyrene-d12	(6)	20.264	264	293443	1.033
37) Benzo(a)pyrene	(6)	20.302	252	407030	1.028
38)*Perylene-d12	(6)	20.394	264	70177	0.250
45) Perylene	(6)	20.432	252	413173	1.033
39) Indeno(1,2,3-cd)pyrene	(6)	22.170	276	372186M	1.038

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0103.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:33

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

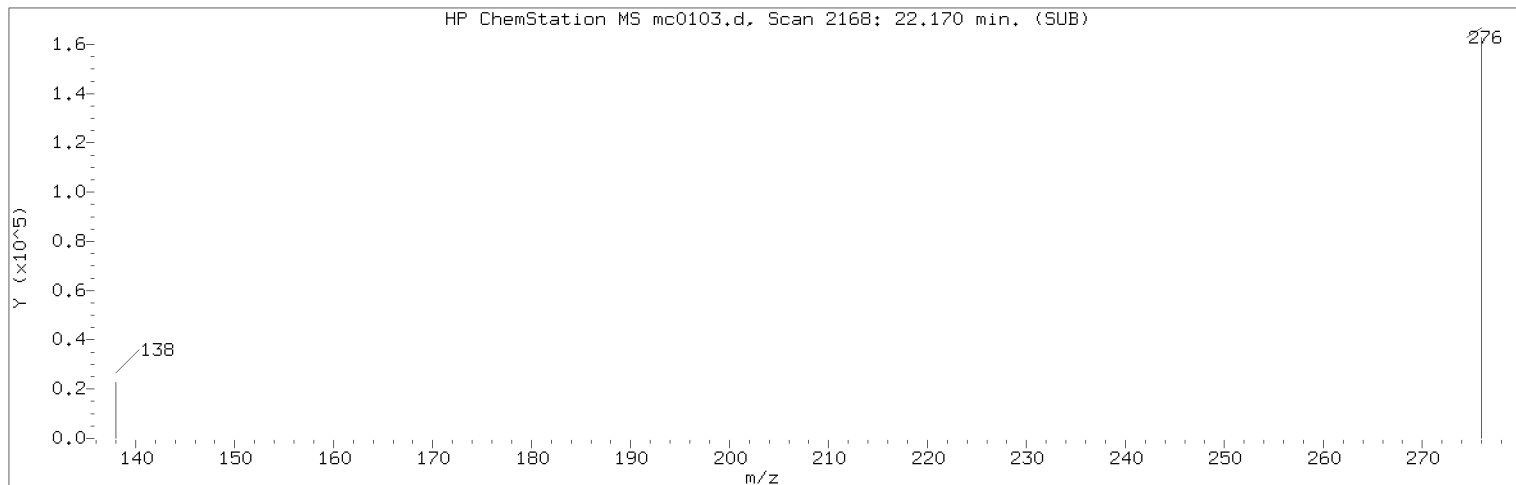
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.220	278	421208	1.040
41) Benzo(g,h,i)perylene	(6)	22.658	276	430843	1.035

Digitally signed by Joseph M. Gambler

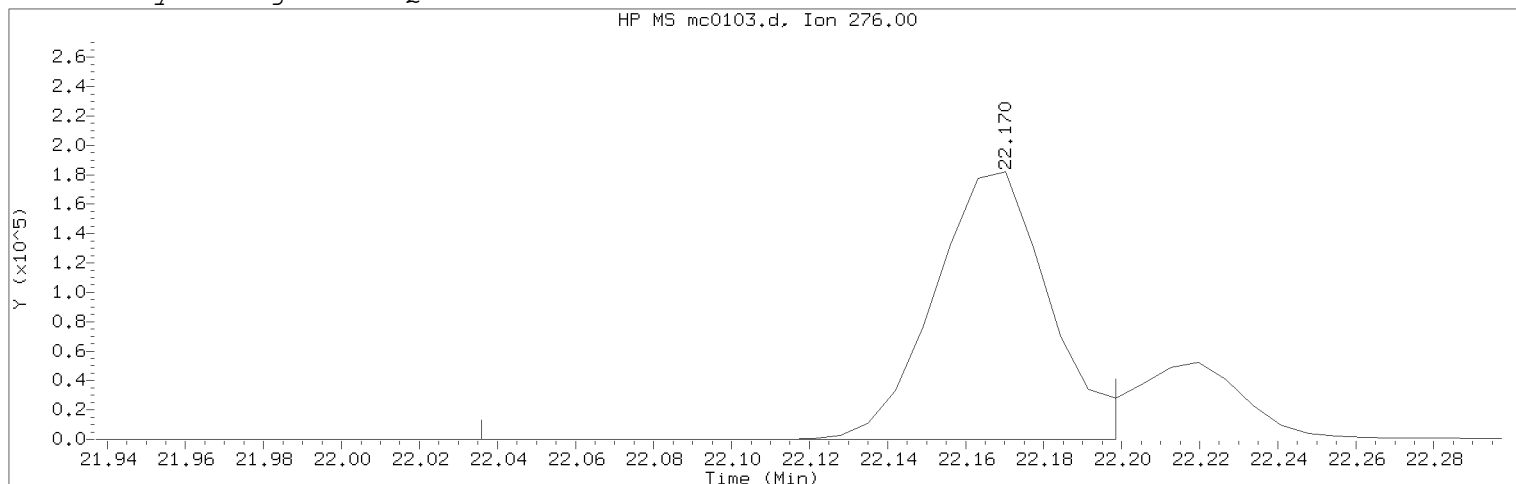
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0103.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:33

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2168	
Retention Time (minutes)	: 22.170	
Quant Ion	: 276.00	
Area (flag)	: 372186M	
On-Column Amount (ng/ul)	: 1.0383	
Integration start scan	: 2148	Integration stop scan: 2171
Y at integration start	: 60	Y at integration end: 60

Reason for manual integration: improper integration

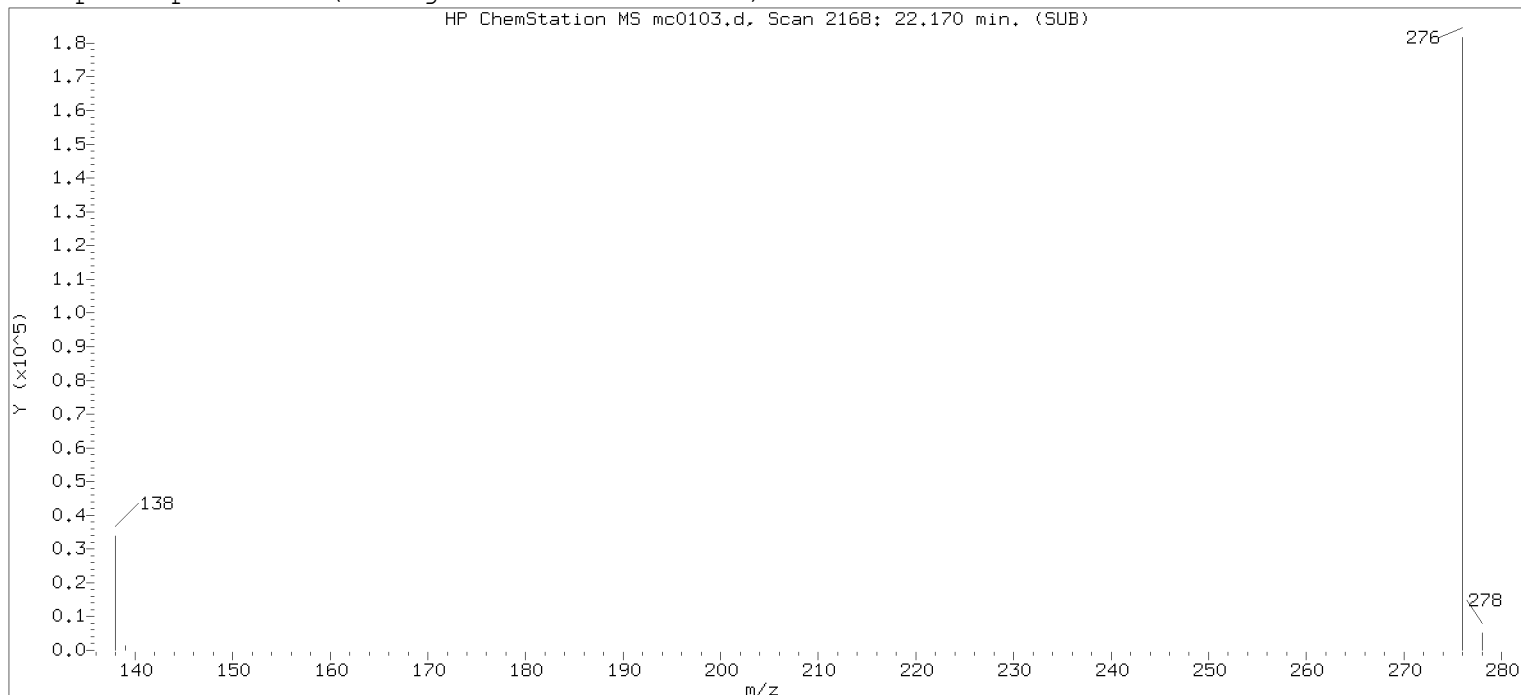
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

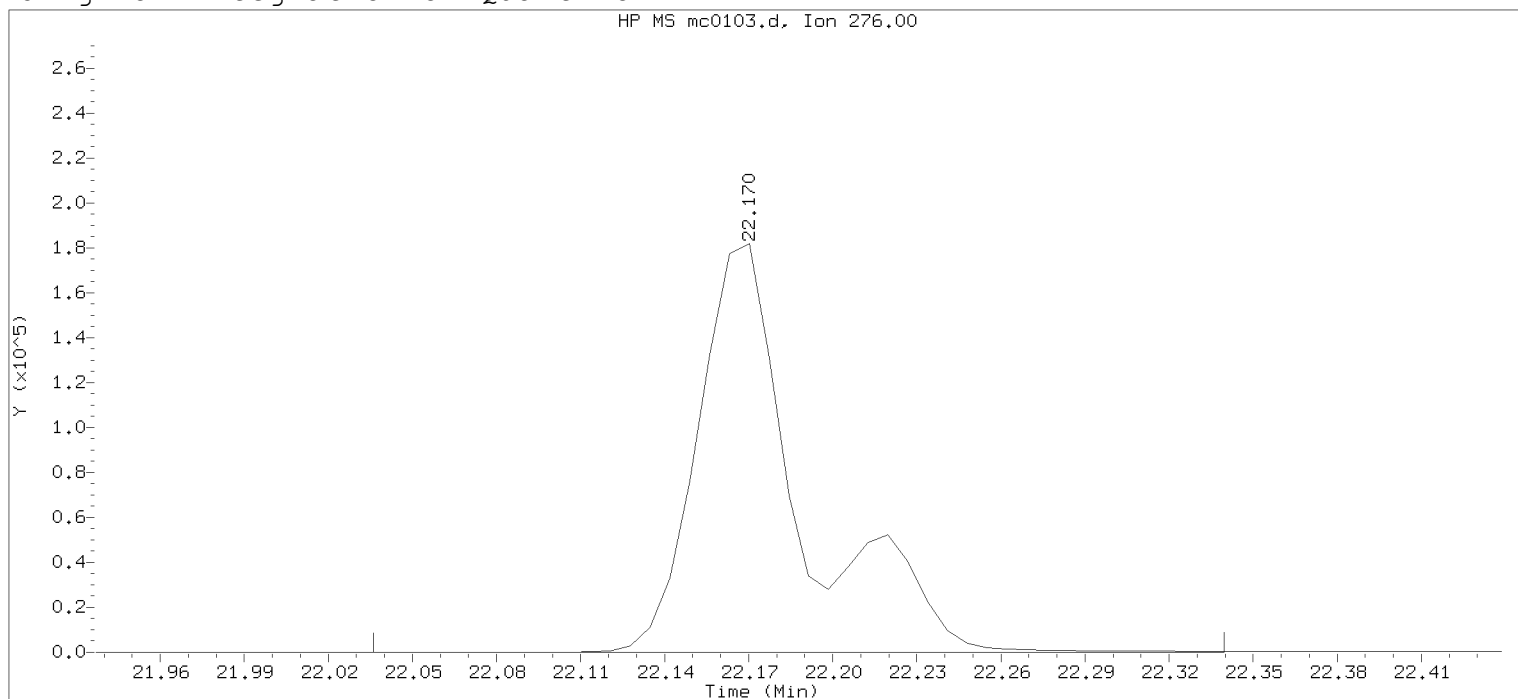
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0103.d

Instrument ID: HP21585.i

Injection date and time: 04-MAR-2020 23:33

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD001

Lab Sample ID: RVSIM0130

Compound Number : 39

Compound Name : Indeno(1,2,3-cd)pyrene

Scan Number : 2168

Retention Time (minutes) : 22.170

Quant Ion : 276.00

Area : 467331

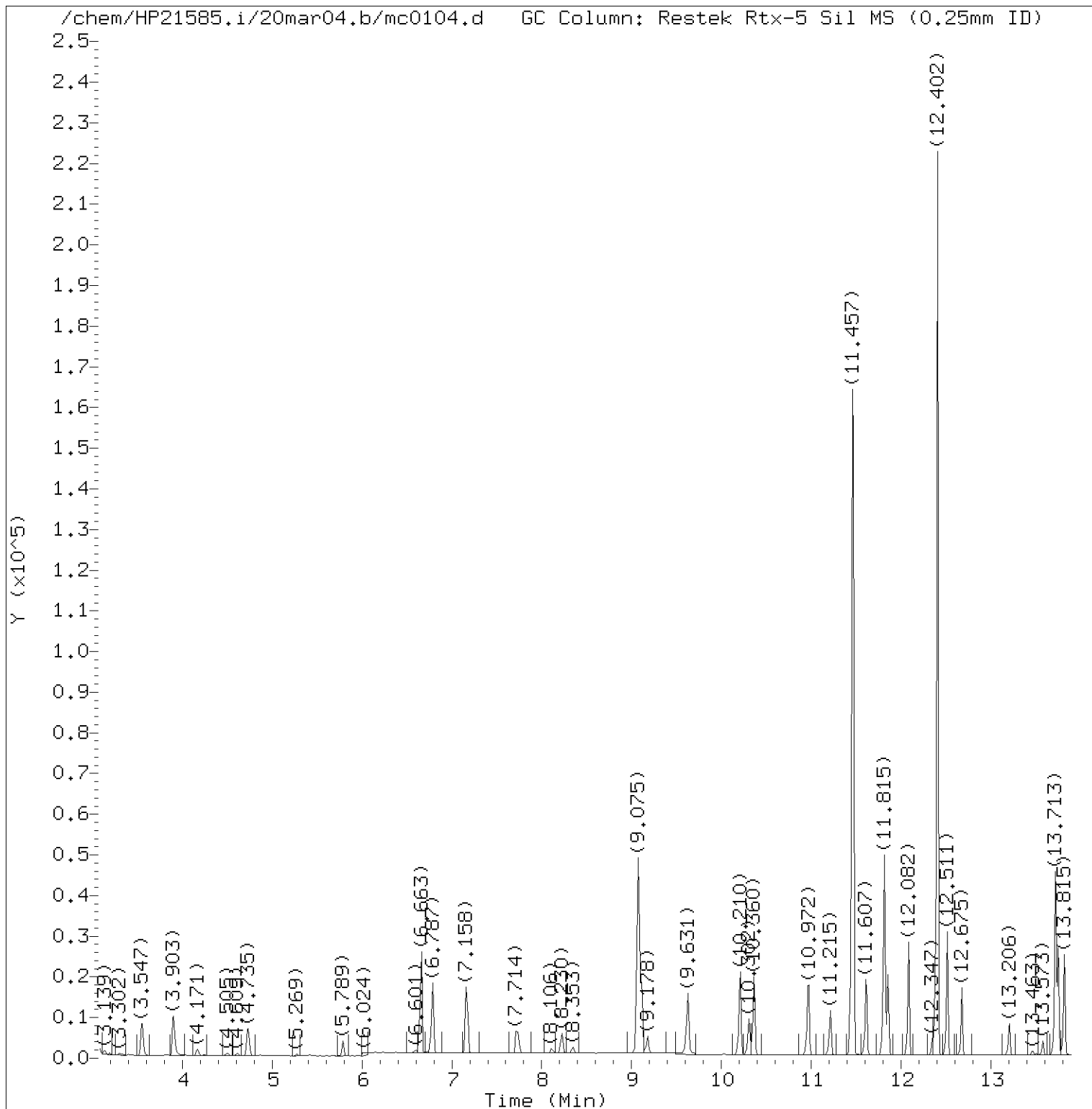
On-column Amount (ng/ul) : 1.1597

Integration start scan : 2148 Integration stop scan: 2191

Y at integration start : 60 Y at integration end: 60

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPY68 Page 469 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0104.d
Injection date and time: 05-MAR-2020 00:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

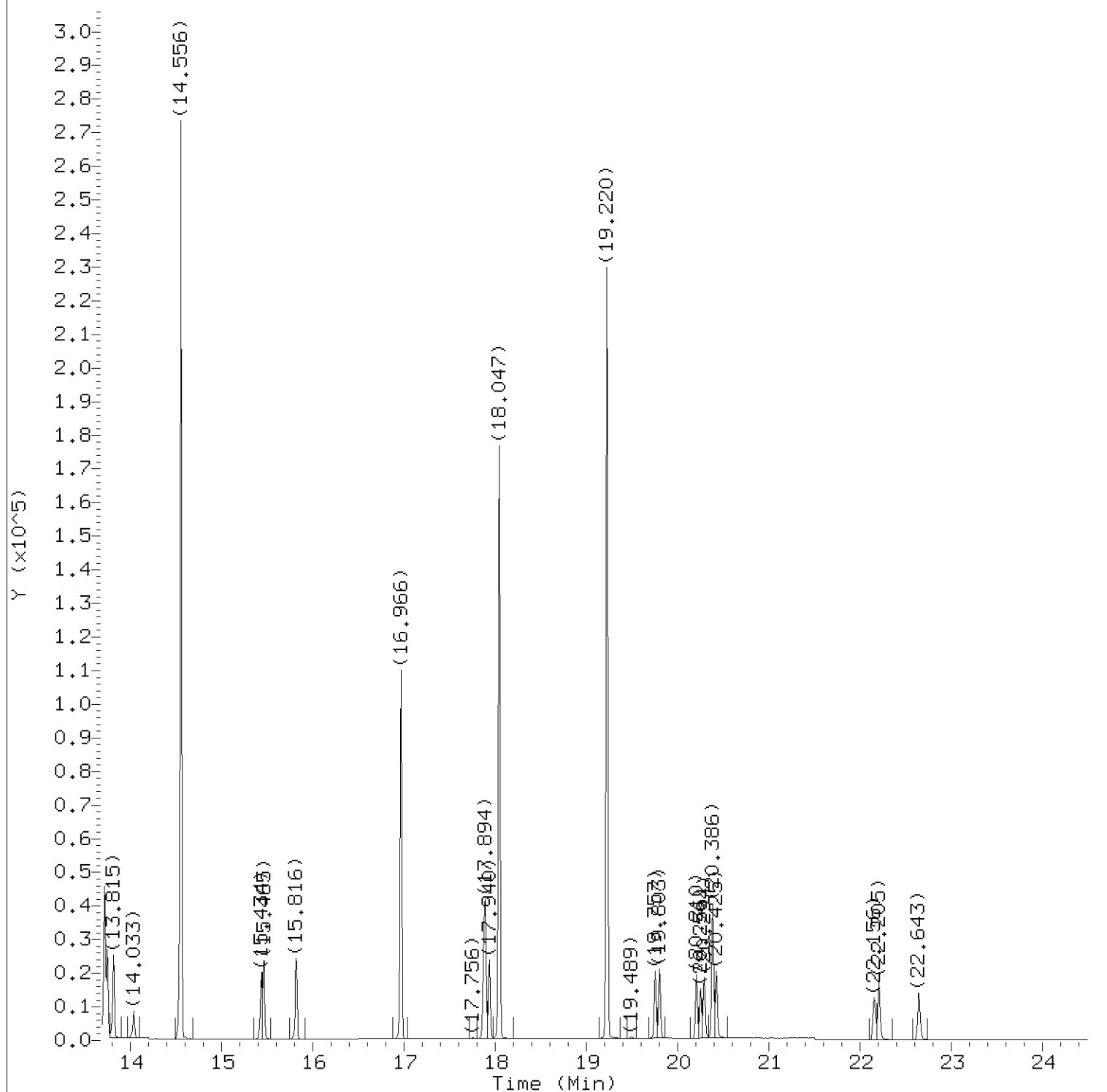
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.10

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0104.d
Injection date and time: 05-MAR-2020 00:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.10

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0104.d
 Injection date and time: 05-MAR-2020 00:03

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.10

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.555	88	4749	0.098
2) N-Nitrosodimethylamine	(1)	3.903	74	6883	0.094
4) bis(2-Chloroethyl)ether	(2)	6.787	93	10771	0.097
5)*1,4-Dichlorobenzene-d4	(1)	7.158	152	17528	0.250
6)*Naphthalene-d8	(2)	9.075	136	62688	0.250
7) Naphthalene	(2)	9.116	128	28213	0.094
8) Quinoline	(2)	9.631	129	13356	0.095
9) 2-Methylnaphthalene	(2)	10.210	142	17707	0.094
10)\$1-Methylnaphthalene-d10	(2)	10.302	152	12375	0.094
11) 1-Methylnaphthalene	(2)	10.360	142	16697	0.093
12) Dimethylphthalate	(3)	11.469	163	186663	0.987
13) Acenaphthylene	(3)	11.607	152	26662	0.096
14)*Acenaphthene-d10	(3)	11.815	164	25314	0.250
15) Acenaphthene	(3)	11.850	154	15067	0.101
16) Dibenzofuran	(3)	12.082	168	28452	0.100
17) Diethylphthalate	(3)	12.402	149	182671	0.950
18) Fluorene	(3)	12.511	166	18936	0.096
43) N-Nitrosodiphenylamine	(4)	12.675	169	10439	0.097
19) Hexachlorobenzene	(4)	13.206	284	7313	0.101
20)*Phenanthrene-d10	(4)	13.713	188	55991	0.250
21) Phenanthrene	(4)	13.744	178	28924	0.099
22) Anthracene	(4)	13.815	178	26910	0.096
23) Di-n-butylphthalate	(4)	14.556	149	305441	0.947
24)\$Fluoranthene-d10	(4)	15.434	212	23335	0.095
25) Fluoranthene	(4)	15.465	202	31710	0.096
26) Pyrene	(5)	15.816	202	32007	0.100
27) Butylbenzylphthalate	(5)	16.966	149	115263	0.927
28) Benzo(a)anthracene	(5)	17.878	228	26595	0.100
29)*Chrysene-d12	(5)	17.894	240	44118	0.250
30) Chrysene	(5)	17.940	228	28561	0.104
31) bis(2-Ethylhexyl)phthalate	(5)	18.047	149	164526	0.890
32) Di-n-octylphthalate	(6)	19.220	149	262445	0.894
33) Benzo(b)fluoranthene	(6)	19.757	252	24579	0.100
34) Benzo(k)fluoranthene	(6)	19.803	252	26058	0.101
35) Benzo(e)pyrene	(6)	20.210	252	23492	0.100
36)\$Benzo(a)pyrene-d12	(6)	20.256	264	16143	0.095
37) Benzo(a)pyrene	(6)	20.294	252	23183	0.097
38)*Perylene-d12	(6)	20.386	264	42539	0.250
45) Perylene	(6)	20.425	252	24762	0.102
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	20311M	0.095

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0104.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.10

Lab Sample ID: RVSIM0130

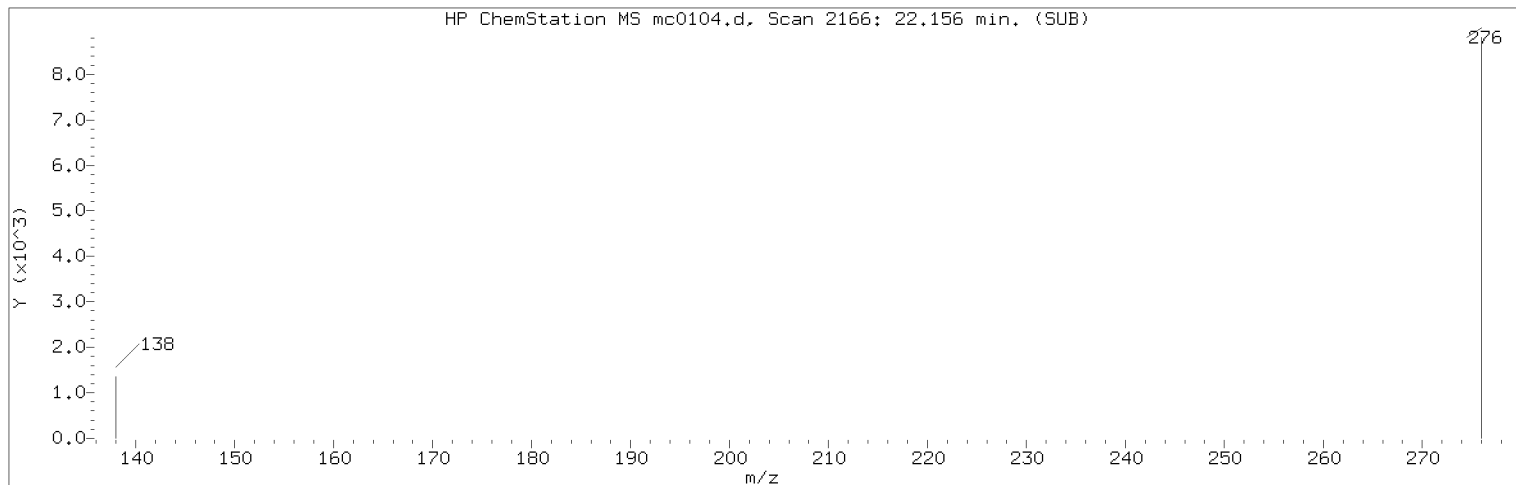
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.212	278	23439	0.097
41) Benzo(g,h,i)perylene	(6)	22.650	276	24239	0.097

Digitally signed by Joseph M. Gambler

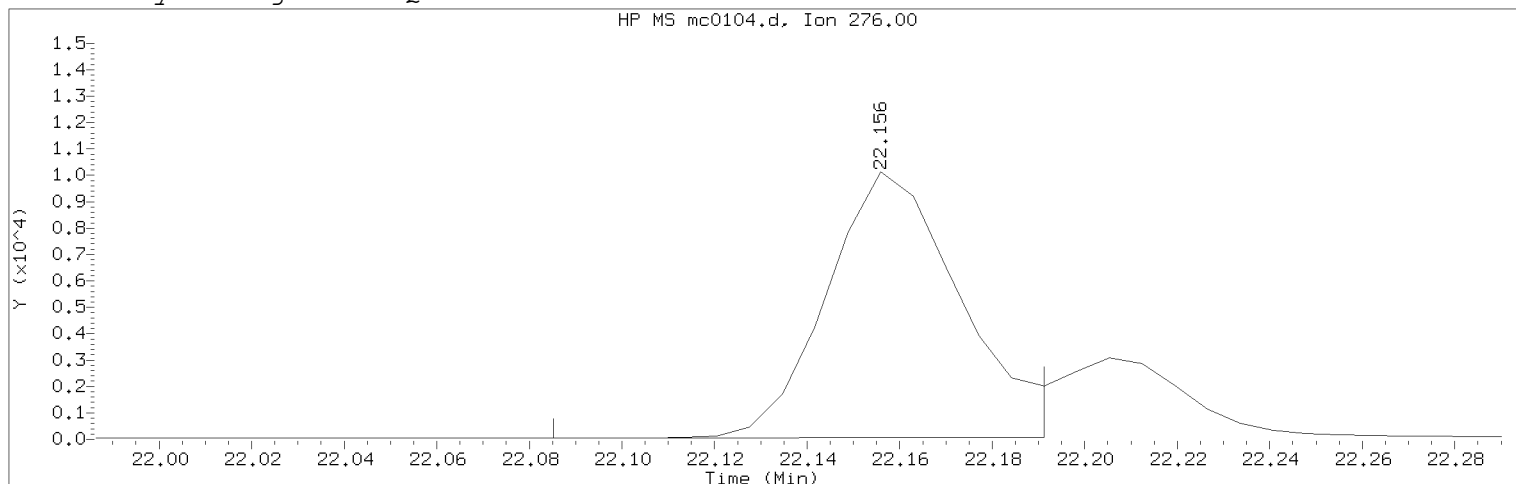
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0104.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.10

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 20311M	
On-Column Amount (ng/ul)	: 0.0950	
Integration start scan	: 2155	Integration stop scan: 2170
Y at integration start	: 51	Y at integration end: 61

Reason for manual integration: improper integration

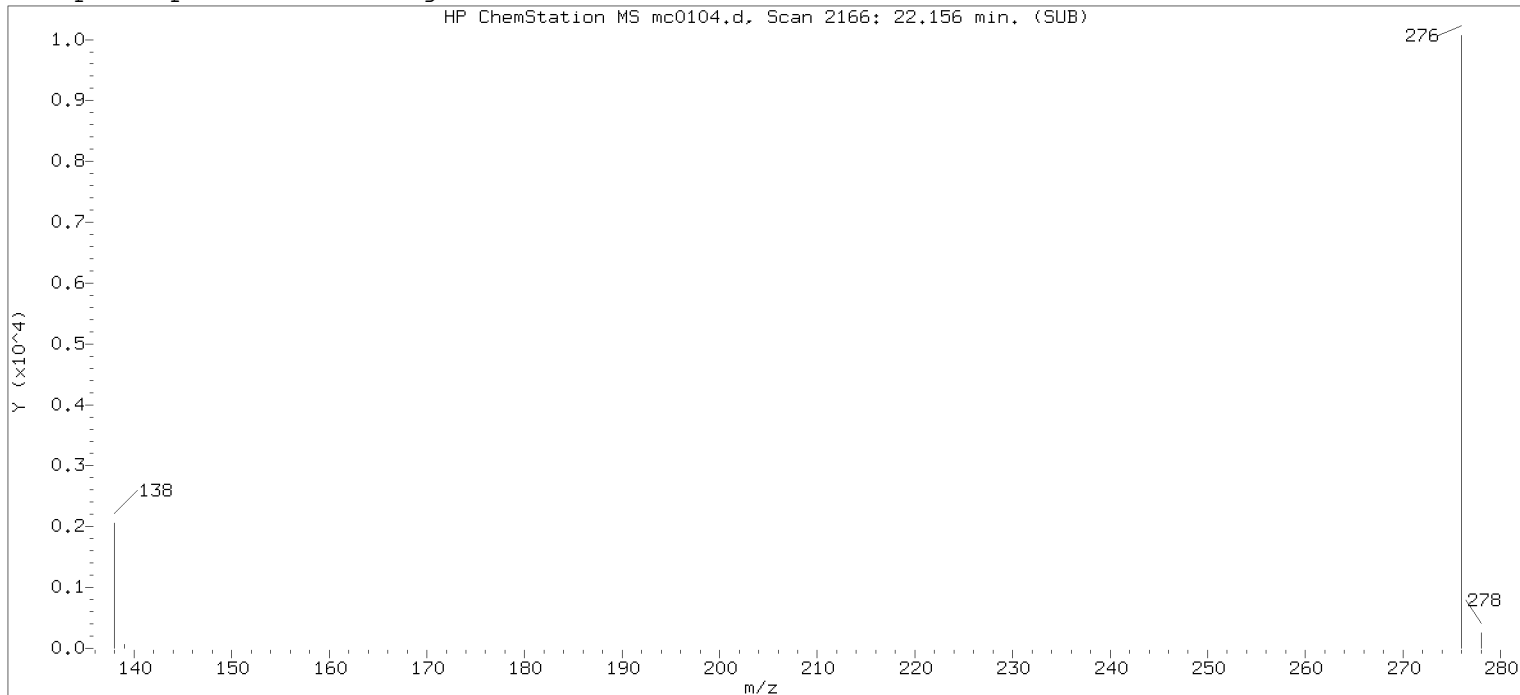
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

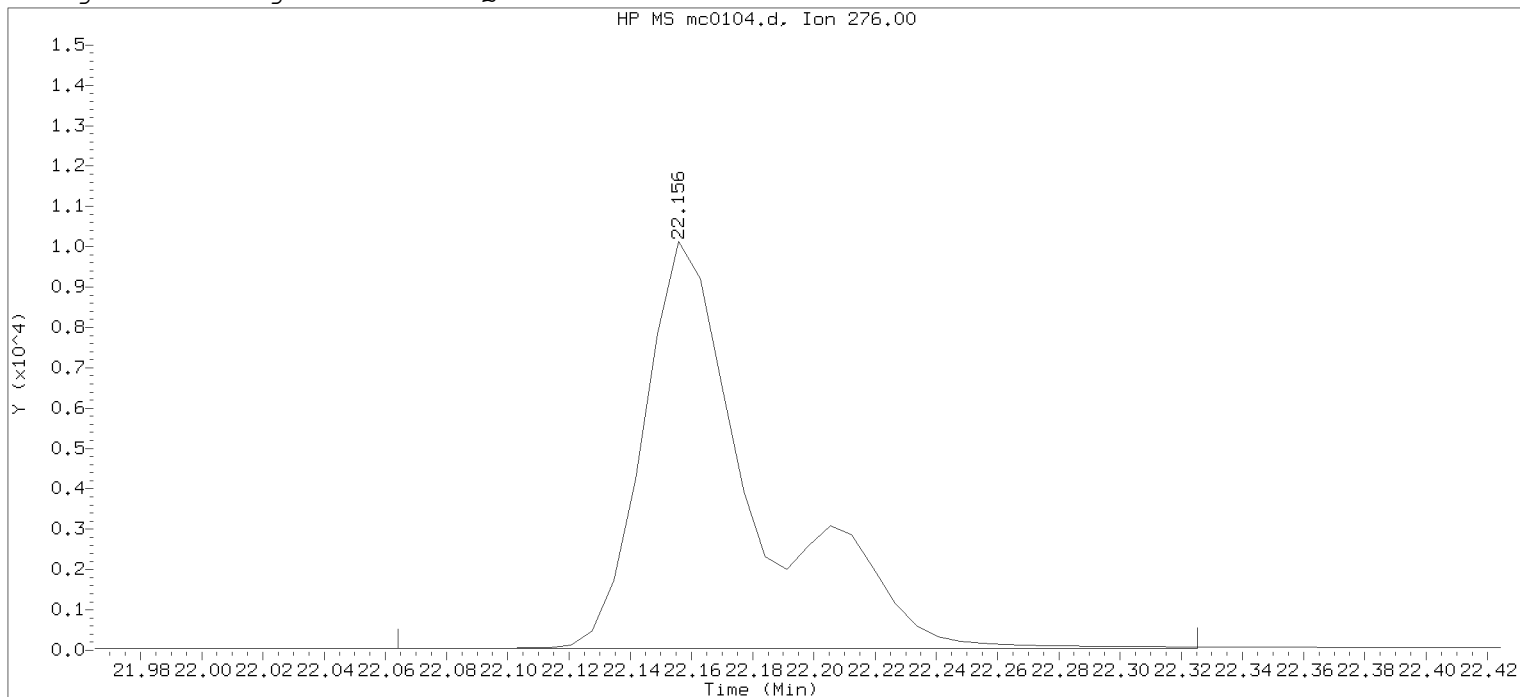
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0104.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

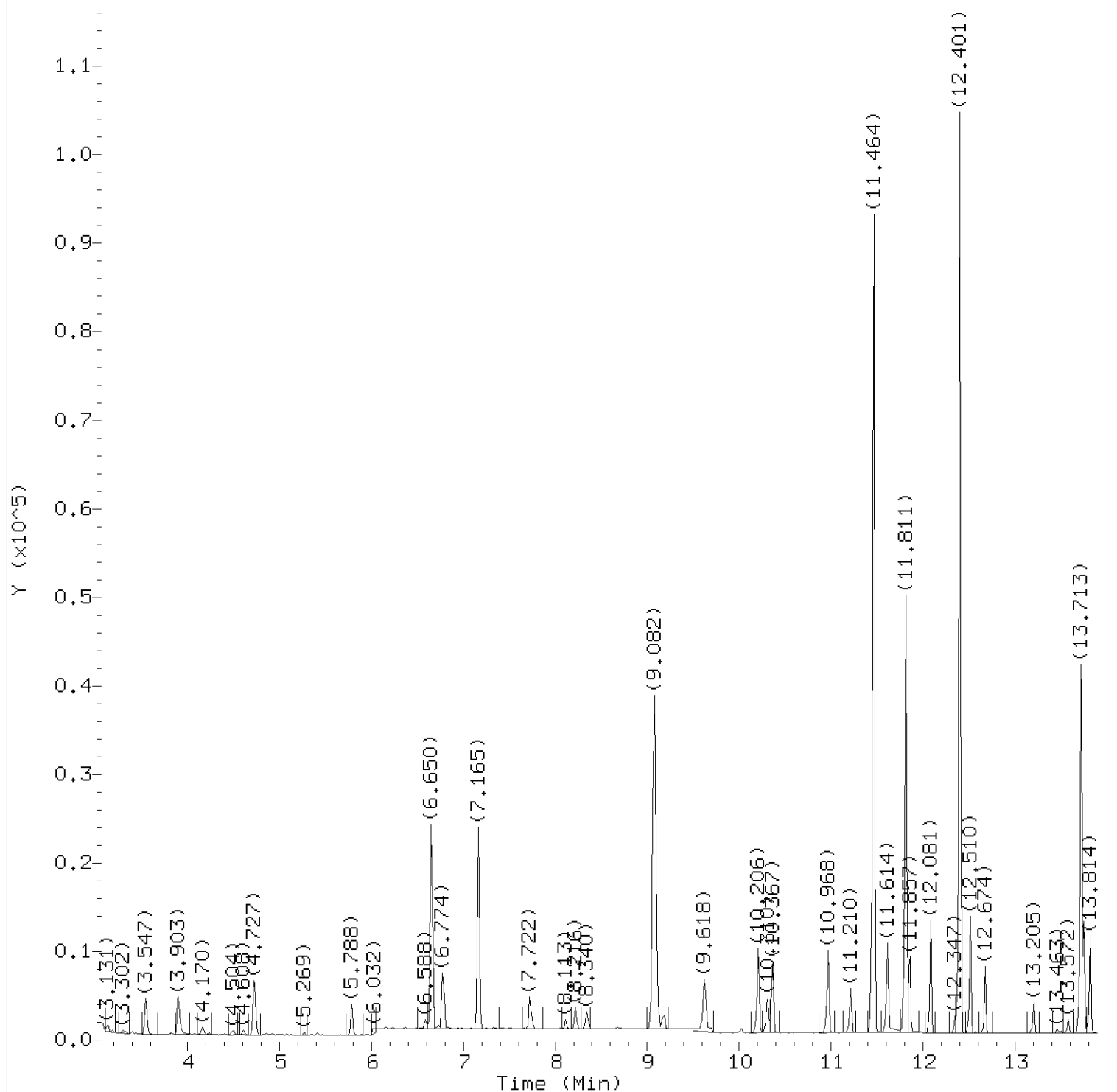
Sample Name: SSTD0.10

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 25947	
On-column Amount (ng/ul)	: 0.1033	
Integration start scan	: 2152	Integration stop scan: 2189
Y at integration start	: 48	Y at integration end: 48

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV68 Page 475 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0105.d
Injection date and time: 05-MAR-2020 00:34

Instrument ID: HP21585.i
Analyst ID: ceb05247

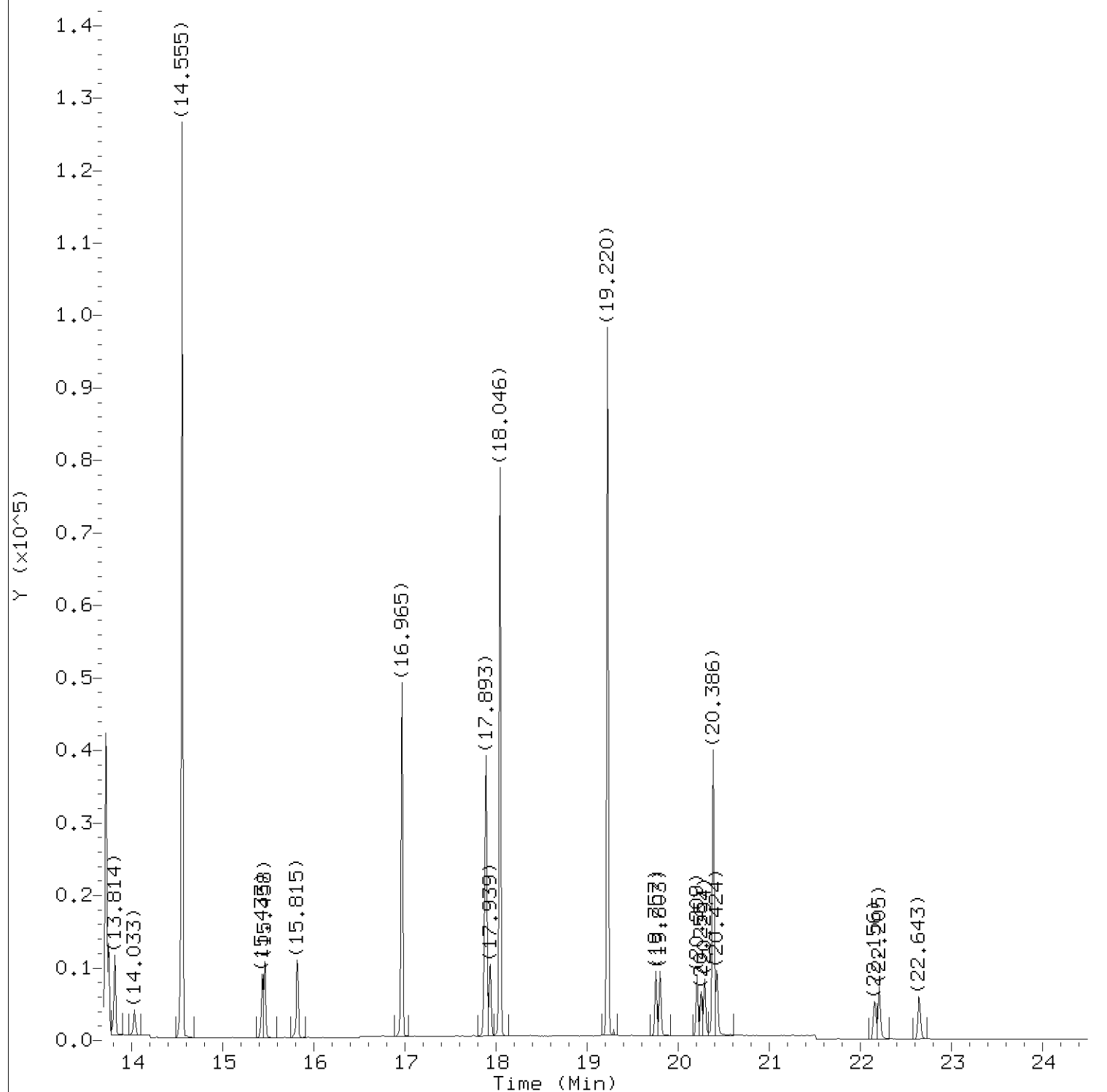
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.050

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0105.d
Injection date and time: 05-MAR-2020 00:34

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m
Calibration date and time: 05-MAR-2020 03:33

Sublist used: all1

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.050

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0105.d
 Injection date and time: 05-MAR-2020 00:34

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.050

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.547	88	2304	0.045
2) N-Nitrosodimethylamine	(1)	3.903	74	3093	0.040
4) bis(2-Chloroethyl)ether	(2)	6.794	93	4392	0.043
5)*1,4-Dichlorobenzene-d4	(1)	7.165	152	19183	0.250
6)*Naphthalene-d8	(2)	9.082	136	60213	0.250
7) Naphthalene	(2)	9.102	128	13264	0.047
8) Quinoline	(2)	9.638	129	6033	0.046
9) 2-Methylnaphthalene	(2)	10.206	142	8218	0.046
10)\$1-Methylnaphthalene-d10	(2)	10.310	152	5715	0.046
11) 1-Methylnaphthalene	(2)	10.367	142	7640	0.045
12) Dimethylphthalate	(3)	11.464	163	90498	0.483
13) Acenaphthylene	(3)	11.614	152	12040	0.044
14)*Acenaphthene-d10	(3)	11.811	164	25297	0.250
15) Acenaphthene	(3)	11.857	154	7308	0.049
16) Dibenzofuran	(3)	12.081	168	13404	0.048
17) Diethylphthalate	(3)	12.401	149	87289	0.463
18) Fluorene	(3)	12.510	166	8506	0.044
43) N-Nitrosodiphenylamine	(4)	12.674	169	4691	0.046
19) Hexachlorobenzene	(4)	13.205	284	3362	0.048
20)*Phenanthrene-d10	(4)	13.713	188	54166	0.250
21) Phenanthrene	(4)	13.744	178	13296	0.048
22) Anthracene	(4)	13.814	178	12183	0.046
23) Di-n-butylphthalate	(4)	14.555	149	140157	0.458
24)\$Fluoranthene-d10	(4)	15.433	212	10385	0.045
25) Fluoranthene	(4)	15.464	202	14071	0.045
26) Pyrene	(5)	15.815	202	14230	0.048
27) Butylbenzylphthalate	(5)	16.965	149	51704	0.452
28) Benzo(a)anthracene	(5)	17.878	228	12065	0.048
29)*Chrysene-d12	(5)	17.893	240	41561	0.250
30) Chrysene	(5)	17.939	228	12744	0.049
31) bis(2-Ethylhexyl)phthalate	(5)	18.046	149	71887	0.428
32) Di-n-octylphthalate	(6)	19.220	149	113084	0.414
33) Benzo(b)fluoranthene	(6)	19.757	252	10787	0.046
34) Benzo(k)fluoranthene	(6)	19.803	252	11284	0.046
35) Benzo(e)pyrene	(6)	20.209	252	10193	0.046
36)\$Benzo(a)pyrene-d12	(6)	20.255	264	6813	0.043
37) Benzo(a)pyrene	(6)	20.294	252	10046	0.045
38)*Perylene-d12	(6)	20.386	264	41234	0.250
45) Perylene	(6)	20.424	252	11166	0.048
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	8745M	0.044

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0105.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.050

Lab Sample ID: RVSIM0130

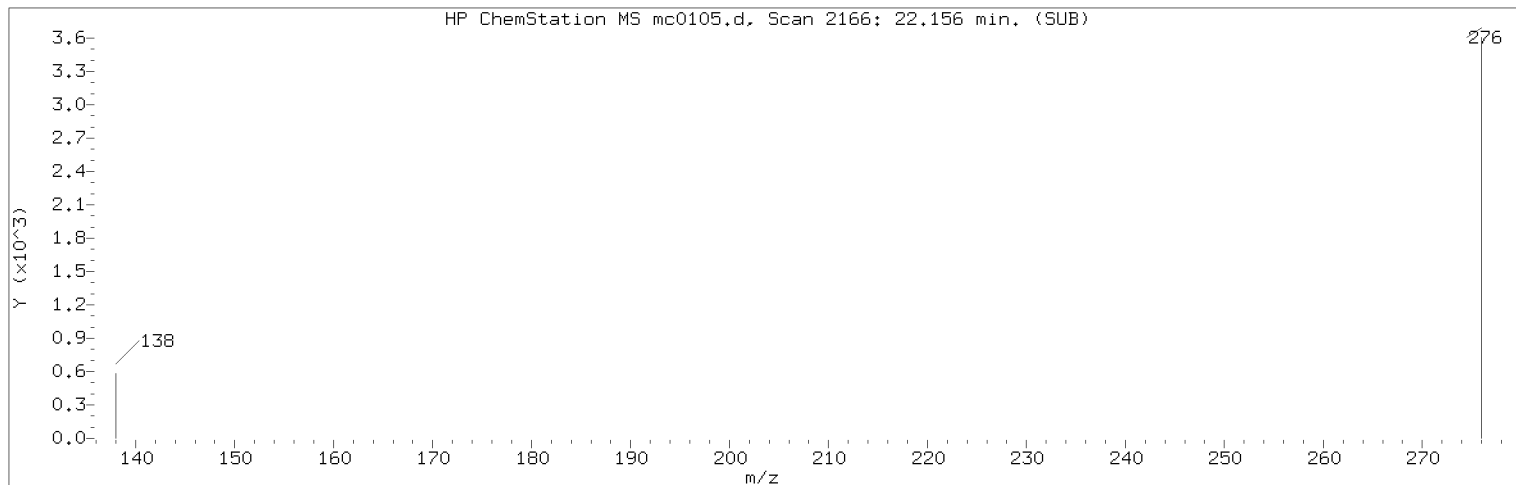
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.212	278	9950	0.044
41) Benzo(g,h,i)perylene	(6)	22.643	276	10455	0.044

Digitally signed by Joseph M. Gambler

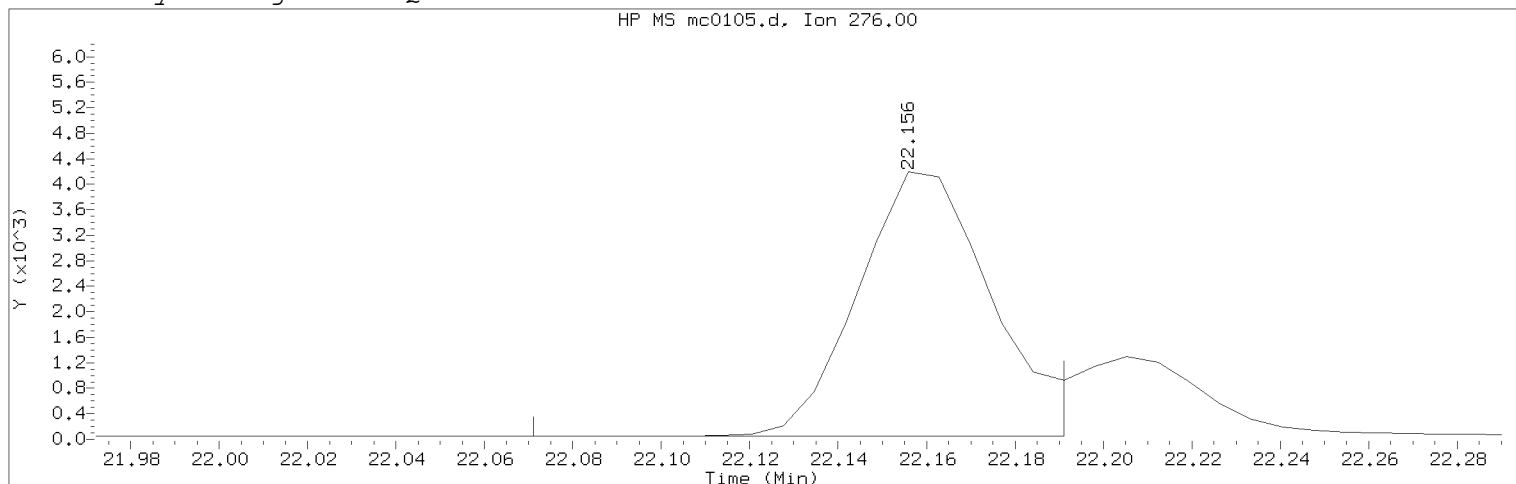
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0105.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.050

Lab Sample ID: RVSIM0130

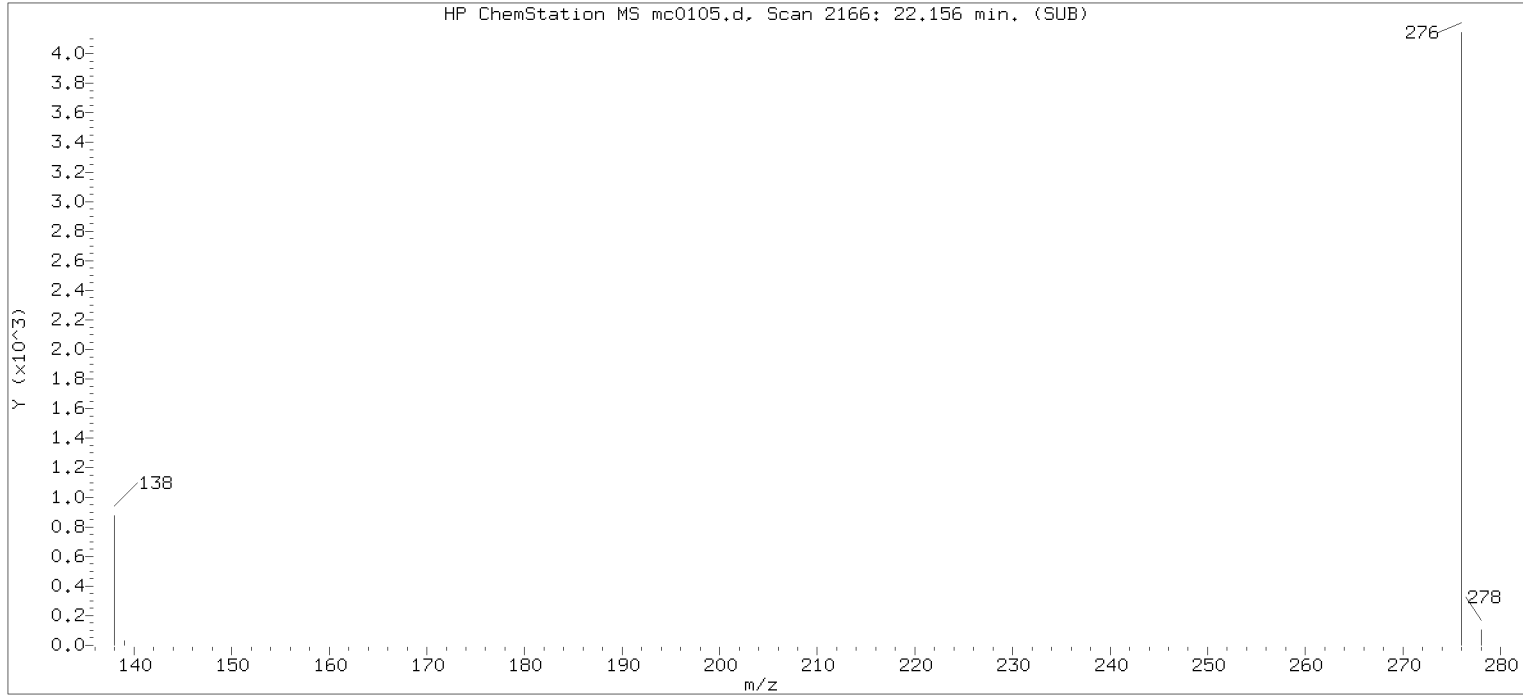
Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 8745M	
On-Column Amount (ng/ul)	: 0.0436	
Integration start scan	: 2153	Integration stop scan: 2170
Y at integration start	: 48	Y at integration end: 48

Reason for manual integration: improper integration

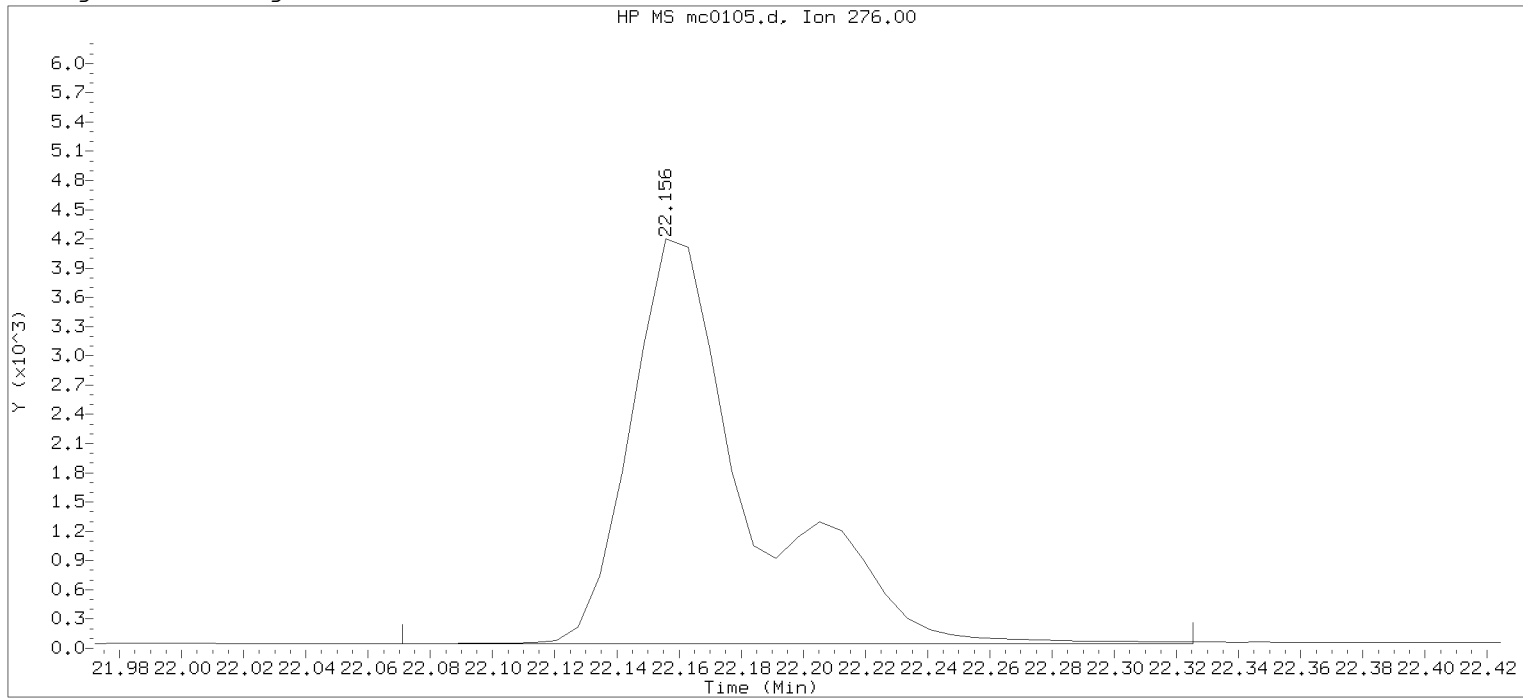
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0105.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 00:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

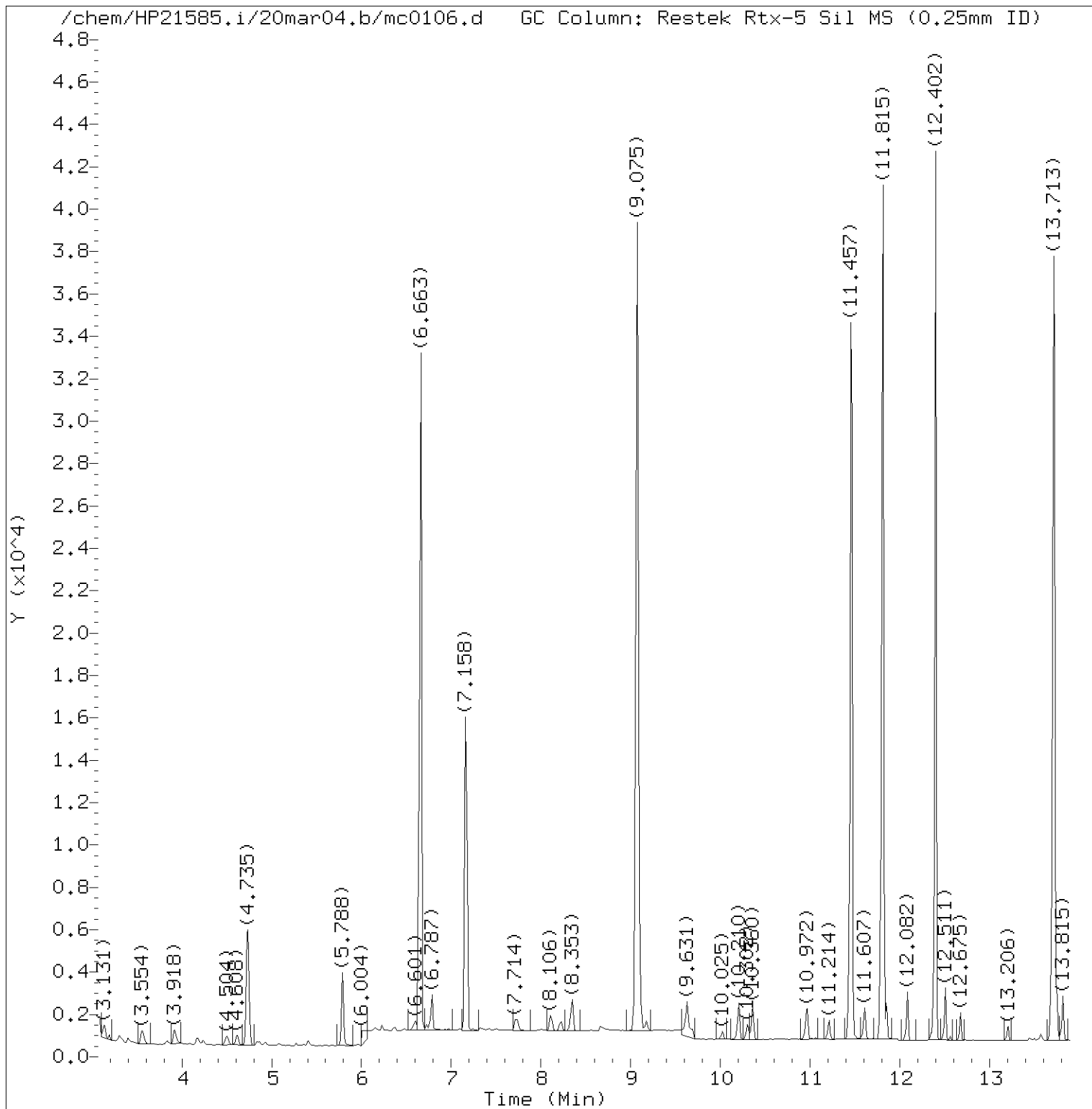
Sample Name: SSTD0.050

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 11159	
On-column Amount (ng/ul)	: 0.0451	
Integration start scan	: 2153	Integration stop scan: 2189
Y at integration start	: 48	Y at integration end: 48

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPY68 Page 481 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0106.d
Injection date and time: 05-MAR-2020 01:04

Instrument ID: HP21585.i
Analyst ID: ceb05247

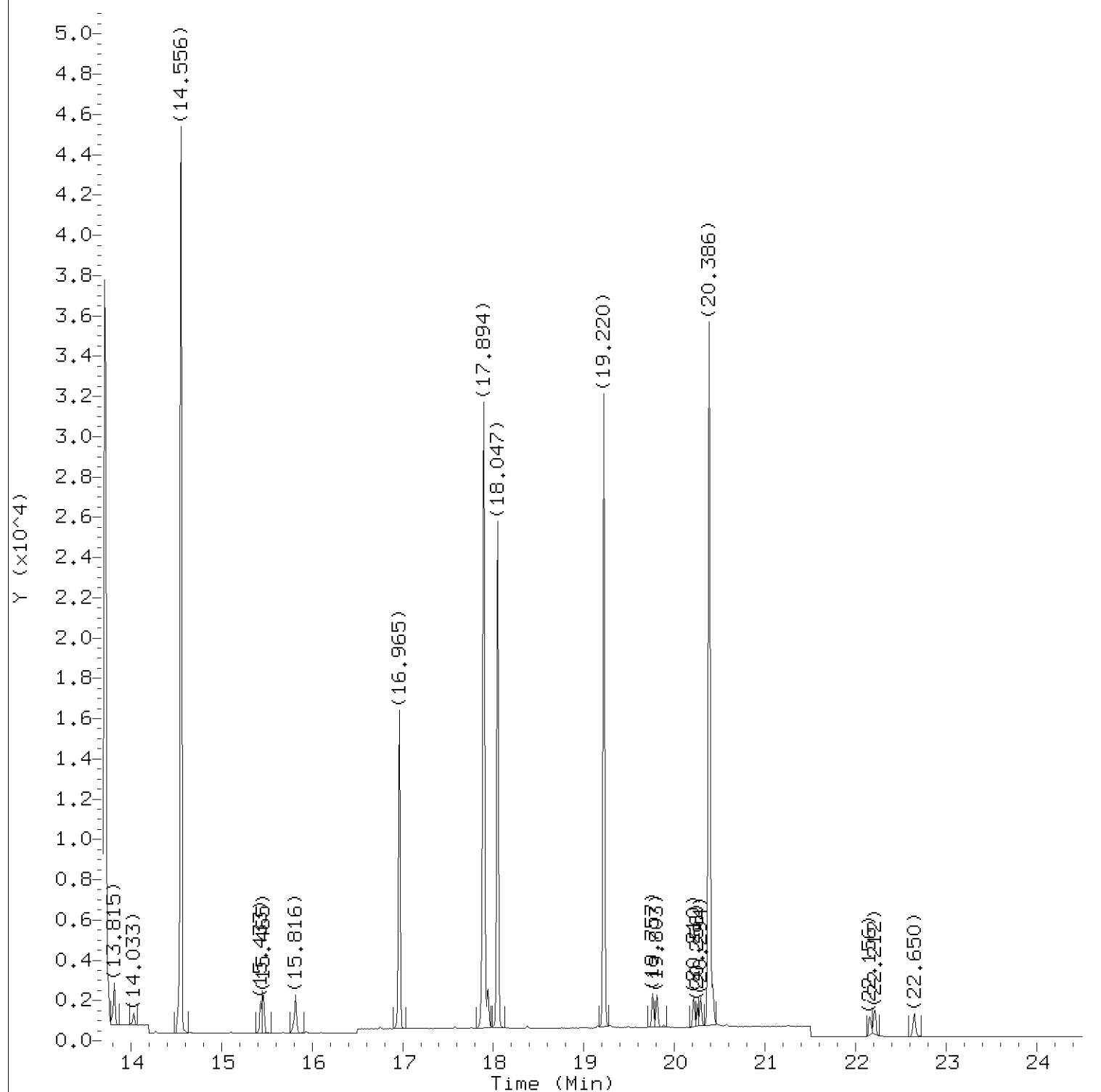
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.01

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0106.d
Injection date and time: 05-MAR-2020 01:04

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:33
Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST00.01

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0106.d
 Injection date and time: 05-MAR-2020 01:04

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:33
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.01

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.554	88	465M	0.011
2) N-Nitrosodimethylamine	(1)	3.918	74	557M	0.009
4) bis(2-Chloroethyl)ether	(2)	6.787	93	1106	0.012
5) *1,4-Dichlorobenzene-d4	(1)	7.158	152	15746	0.250
6) *Naphthalene-d8	(2)	9.075	136	54779	0.250
7) Naphthalene	(2)	9.116	128	2630	0.010
8) Quinoline	(2)	9.631	129	1247M	0.010
9) 2-Methylnaphthalene	(2)	10.210	142	1577	0.010
10) \$1-Methylnaphthalene-d10	(2)	10.302	152	1103	0.010
11) 1-Methylnaphthalene	(2)	10.360	142	1470	0.010
12) Dimethylphthalate	(3)	11.468	163	37409	0.230
13) Acenaphthylene	(3)	11.607	152	2261	0.010
14) *Acenaphthene-d10	(3)	11.815	164	22343	0.250
15) Acenaphthene	(3)	11.849	154	1392M	0.011
16) Dibenzofuran	(3)	12.082	168	2468M	0.010
17) Diethylphthalate	(3)	12.402	149	34878	0.215
18) Fluorene	(3)	12.511	166	1584	0.009
43) N-Nitrosodiphenylamine	(4)	12.675	169	874	0.010
19) Hexachlorobenzene	(4)	13.206	284	649	0.010
20) *Phenanthrene-d10	(4)	13.713	188	47835	0.250
21) Phenanthrene	(4)	13.744	178	2582	0.010
22) Anthracene	(4)	13.815	178	2280	0.010
23) Di-n-butylphthalate	(4)	14.556	149	52309	0.201
24) \$Fluoranthene-d10	(4)	15.433	212	1912	0.009
25) Fluoranthene	(4)	15.465	202	2570	0.009
26) Pyrene	(5)	15.822	202	2636	0.010
27) Butylbenzylphthalate	(5)	16.965	149	16706	0.175
28) Benzo(a)anthracene	(5)	17.878	228	2357	0.011
29) *Chrysene-d12	(5)	17.894	240	36762	0.250
30) Chrysene	(5)	17.940	228	2411	0.010
31) bis(2-Ethylhexyl)phthalate	(5)	18.047	149	24449	0.174
32) Di-n-octylphthalate	(6)	19.220	149	37342	0.162
33) Benzo(b)fluoranthene	(6)	19.757	252	2048	0.010
34) Benzo(k)fluoranthene	(6)	19.803	252	2067	0.009
35) Benzo(e)pyrene	(6)	20.210	252	1917	0.010
36) \$Benzo(a)pyrene-d12	(6)	20.256	264	1253	0.009
37) Benzo(a)pyrene	(6)	20.294	252	1846	0.009
38) *Perylene-d12	(6)	20.386	264	37291	0.250
45) Perylene	(6)	20.424	252	2226	0.010
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	1663M	0.009

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.01

Lab Sample ID: RVSIM0130

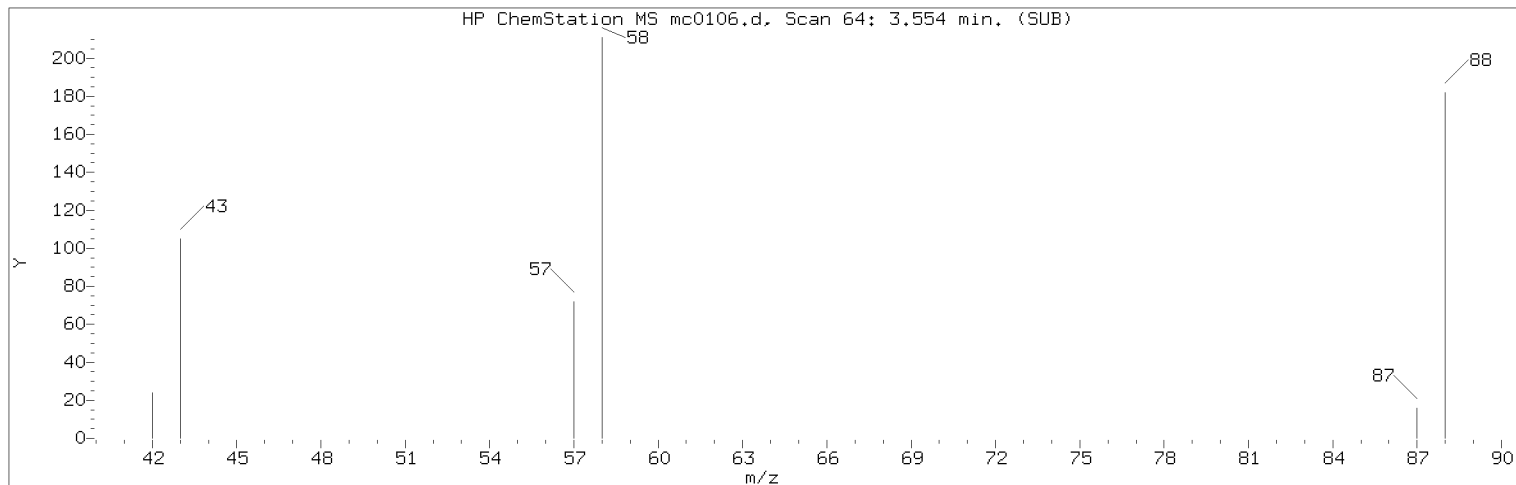
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.212	278	1813	0.009
41) Benzo(g,h,i)perylene	(6)	22.650	276	2027	0.010

Digitally signed by Joseph M. Gambler

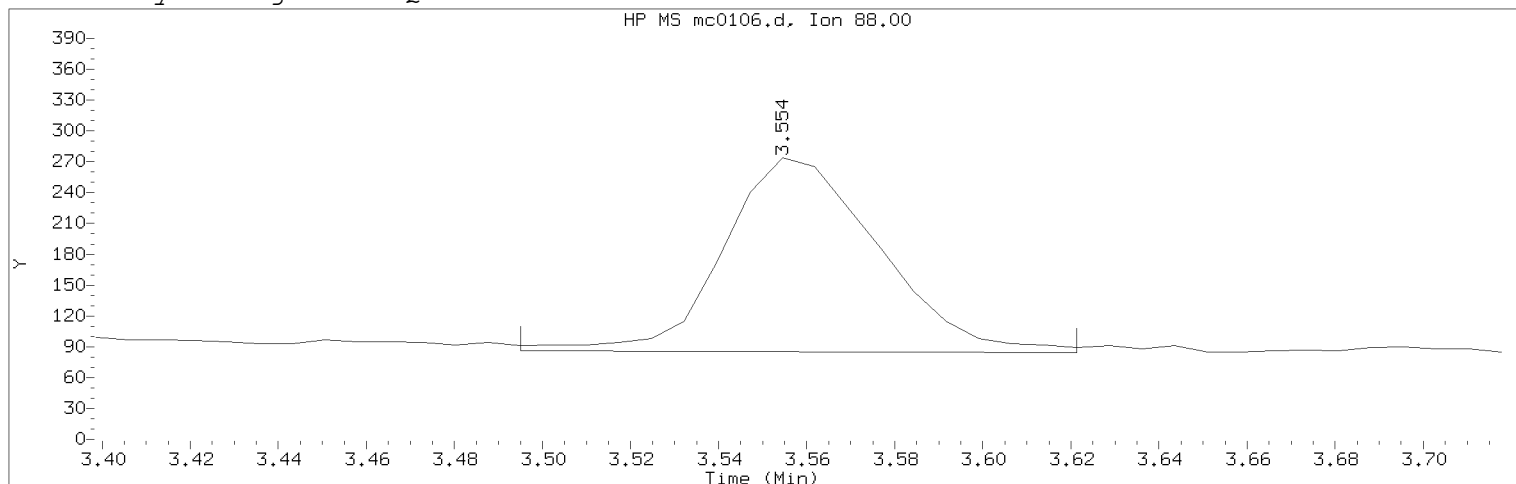
on 03/05/2020 at 03:36.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST0.01

Lab Sample ID: RVSIM0130

Compound Number	: 1	
Compound Name	: 1,4-Dioxane	
Scan Number	: 64	
Retention Time (minutes)	: 3.554	
Quant Ion	: 88.00	
Area (flag)	: 465M	
On-Column Amount (ng/ul)	: 0.0110	
Integration start scan	: 55	Integration stop scan: 72
Y at integration start	: 86	Y at integration end: 84

Reason for manual integration: improper integration

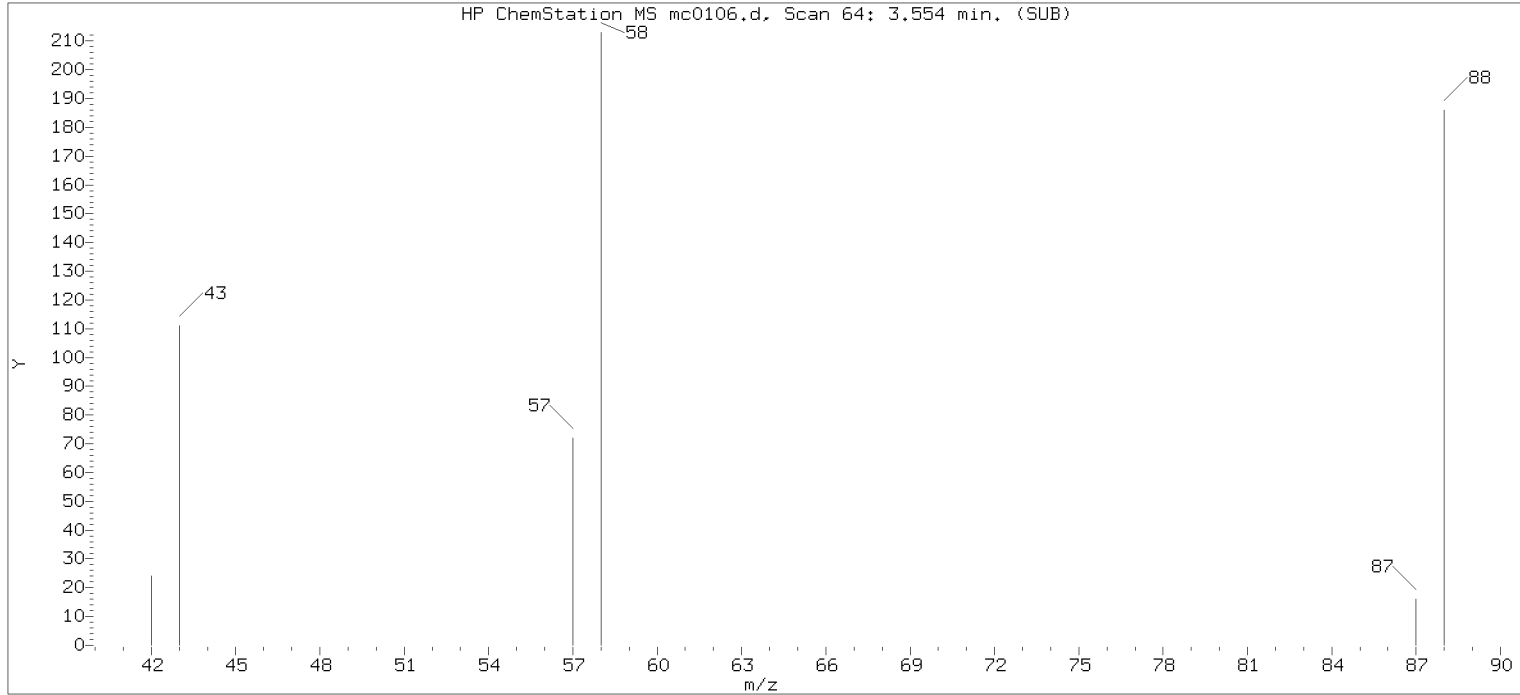
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

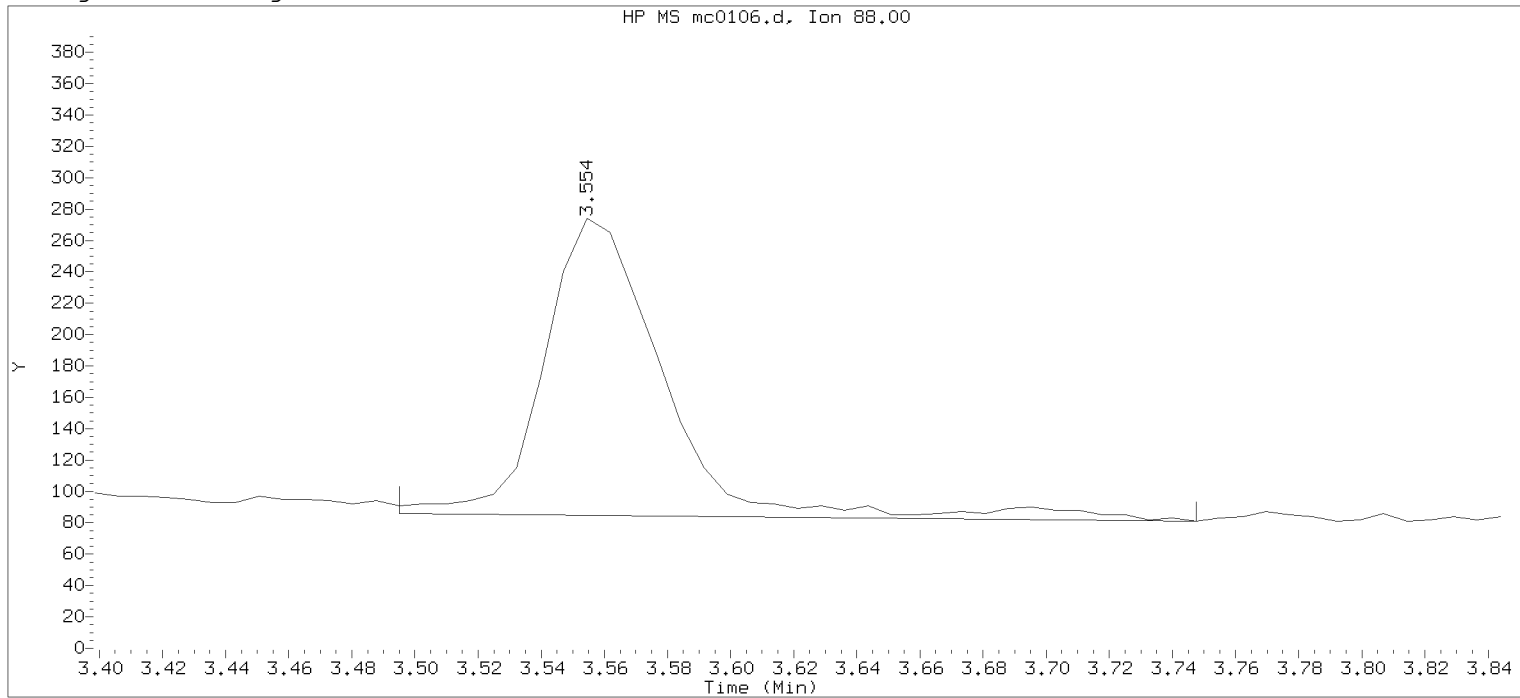
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.01

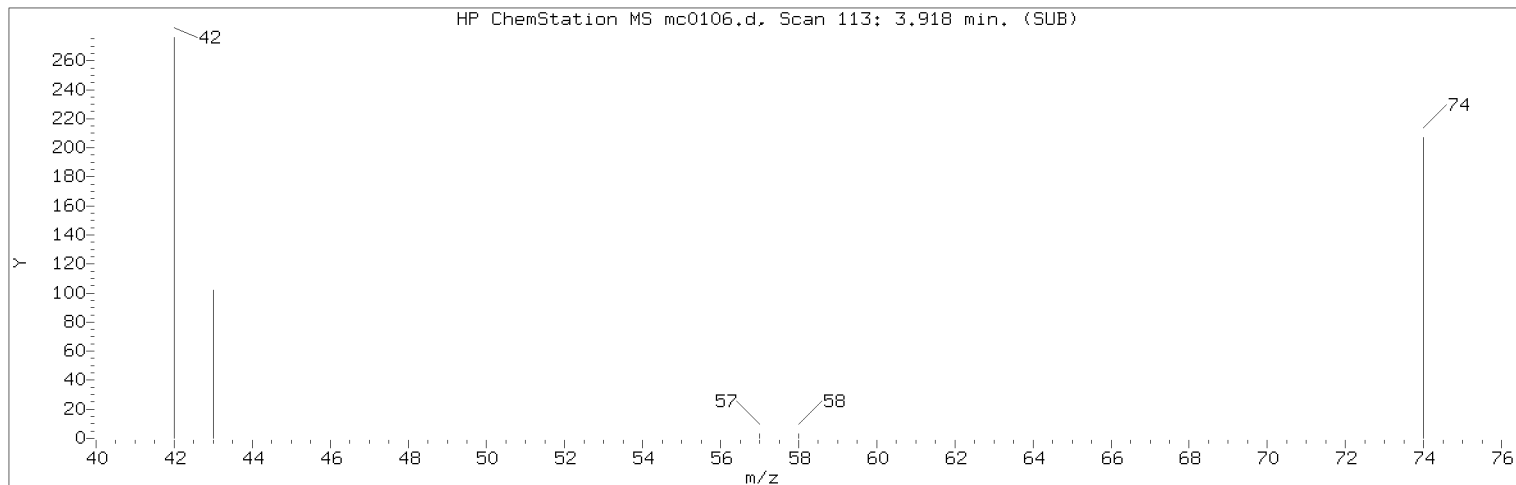
Lab Sample ID: RVSIM0130

Compound Number	: 1	
Compound Name	: 1,4-Dioxane	
Scan Number	: 64	
Retention Time (minutes)	: 3.554	
Quant Ion	: 88.00	
Area	: 499	
On-column Amount (ng/ul)	: 0.0118	
Integration start scan	: 55	Integration stop scan: 89
Y at integration start	: 86	Y at integration end: 81

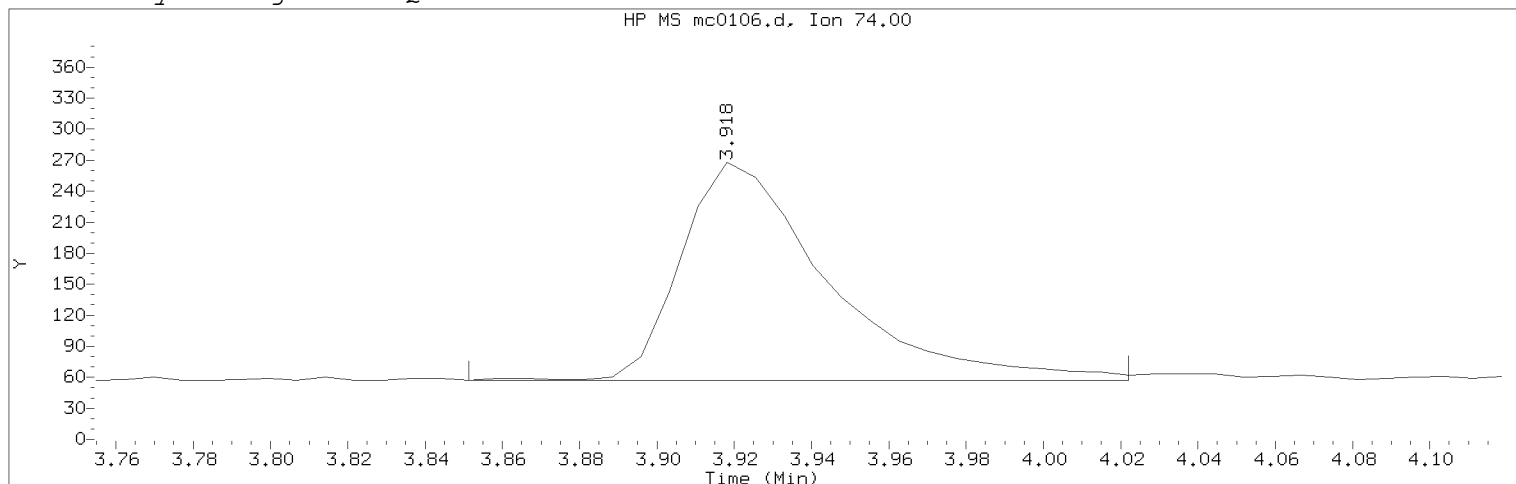
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV68 Page 487 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST0.01

Lab Sample ID: RVSIM0130

Compound Number	: 2	
Compound Name	: N-Nitrosodimethylamine	
Scan Number	: 113	
Retention Time (minutes)	: 3.918	
Quant Ion	: 74.00	
Area (flag)	: 557M	
On-Column Amount (ng/ul)	: 0.0090	
Integration start scan	: 103	Integration stop scan: 126
Y at integration start	: 57	Y at integration end: 57

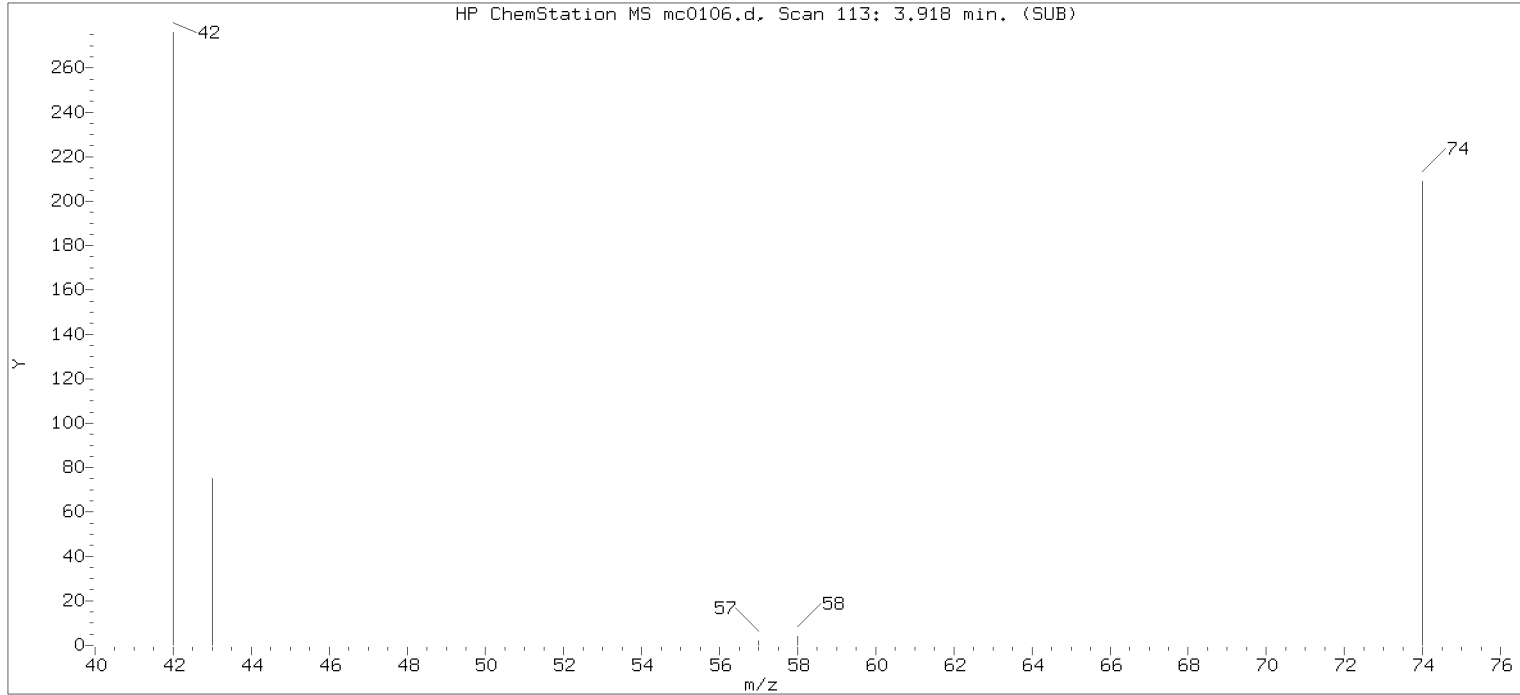
Reason for manual integration: improper integration

Analyst responsible for change:

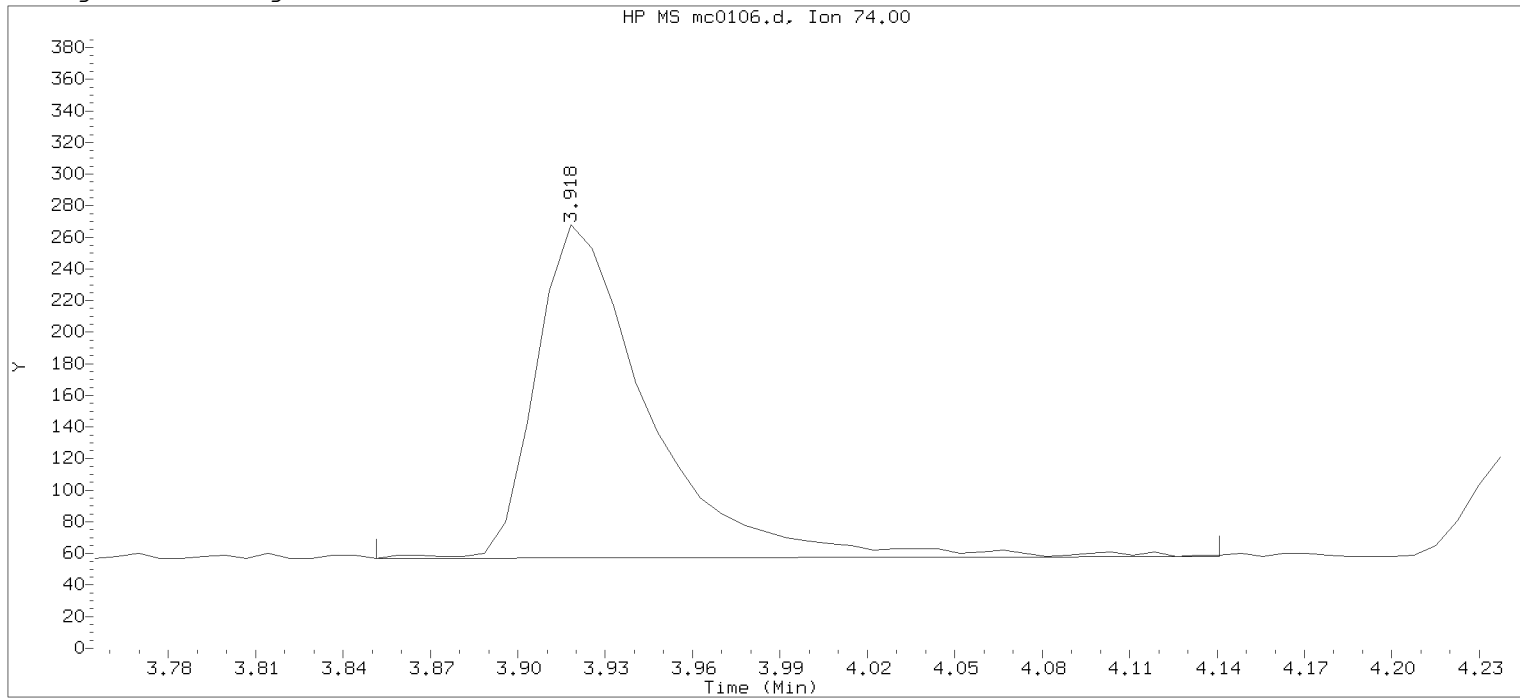
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.01

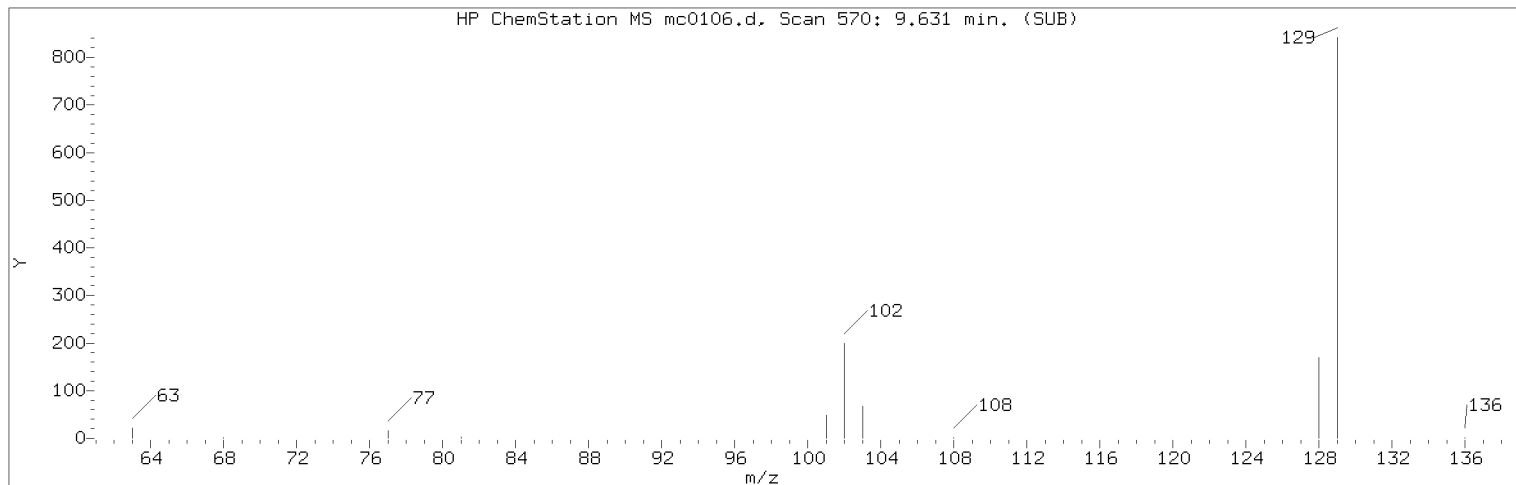
Lab Sample ID: RVSIM0130

Compound Number	: 2	
Compound Name	: N-Nitrosodimethylamine	
Scan Number	: 113	
Retention Time (minutes)	: 3.918	
Quant Ion	: 74.00	
Area	: 572	
On-column Amount (ng/ul)	: 0.0202	
Integration start scan	: 103	Integration stop scan: 142
Y at integration start	: 57	Y at integration end: 58

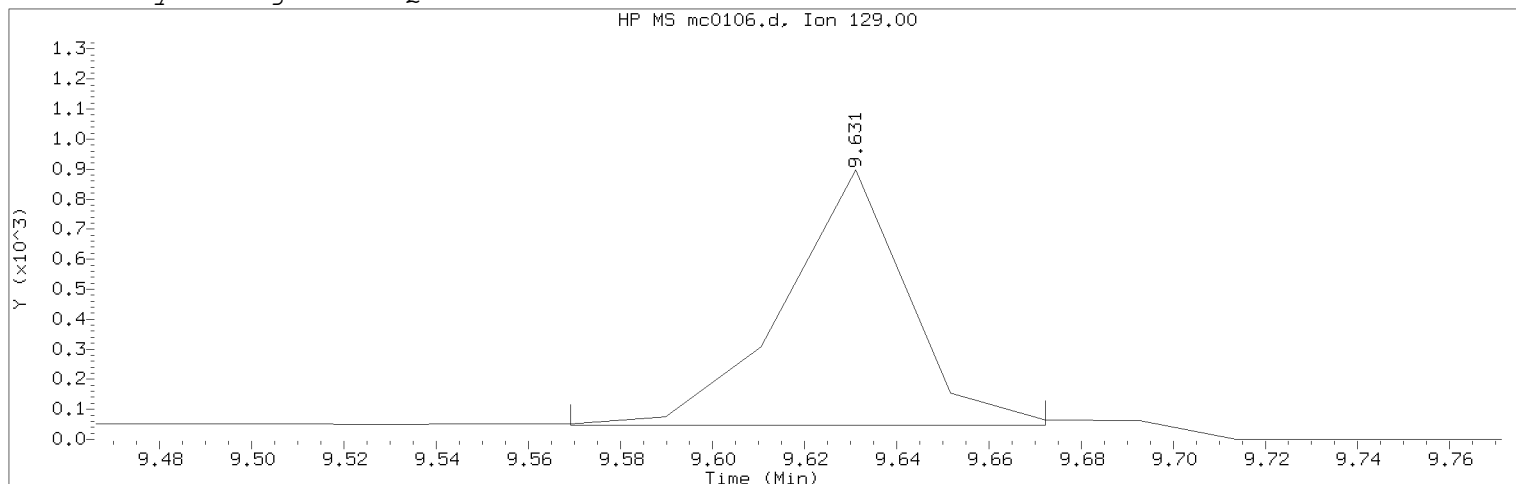
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV68 Page 489 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTDO.01

Lab Sample ID: RVSIM0130

Compound Number	: 8	
Compound Name	: Quinoline	
Scan Number	: 570	
Retention Time (minutes)	: 9.631	
Quant Ion	: 129.00	
Area (flag)	: 1247M	
On-Column Amount (ng/ul)	: 0.0103	
Integration start scan	: 566	Integration stop scan: 571
Y at integration start	: 47	Y at integration end: 47

Reason for manual integration: improper integration

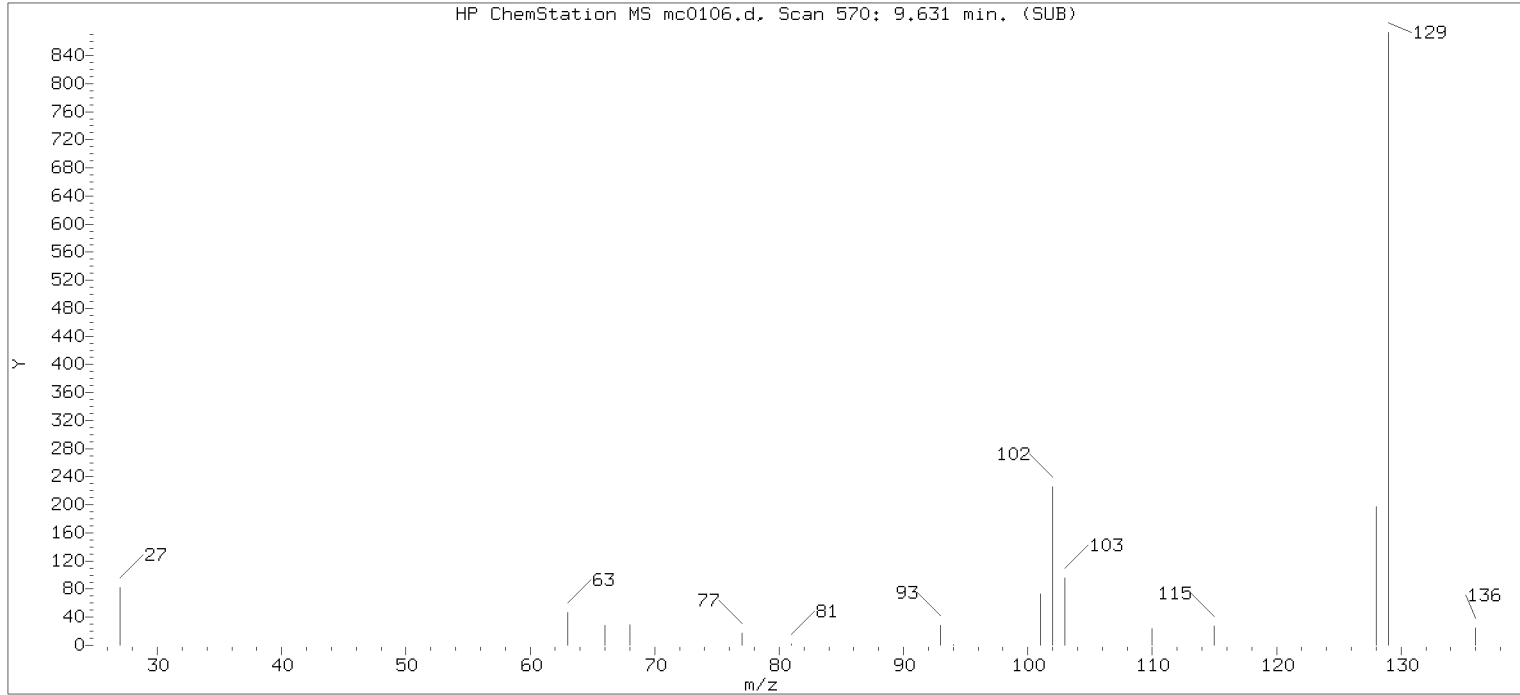
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

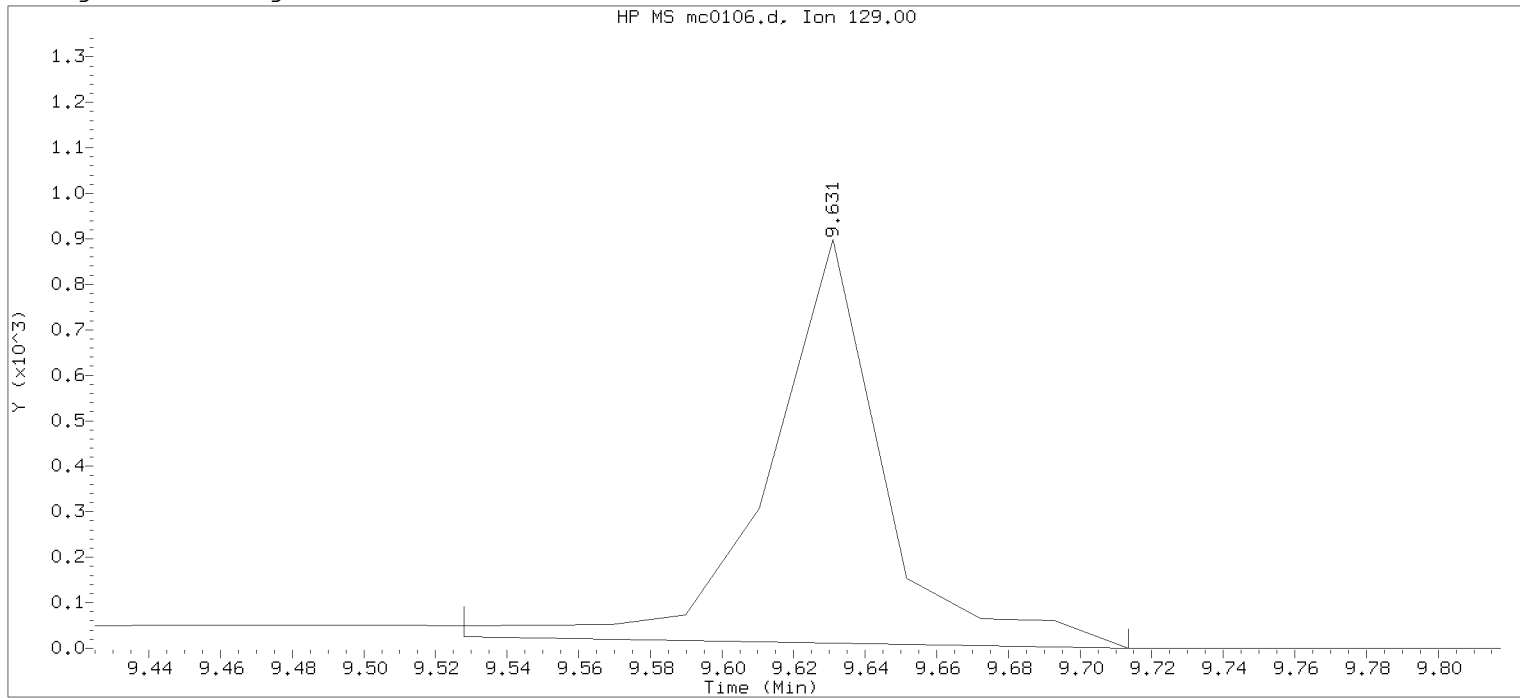
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

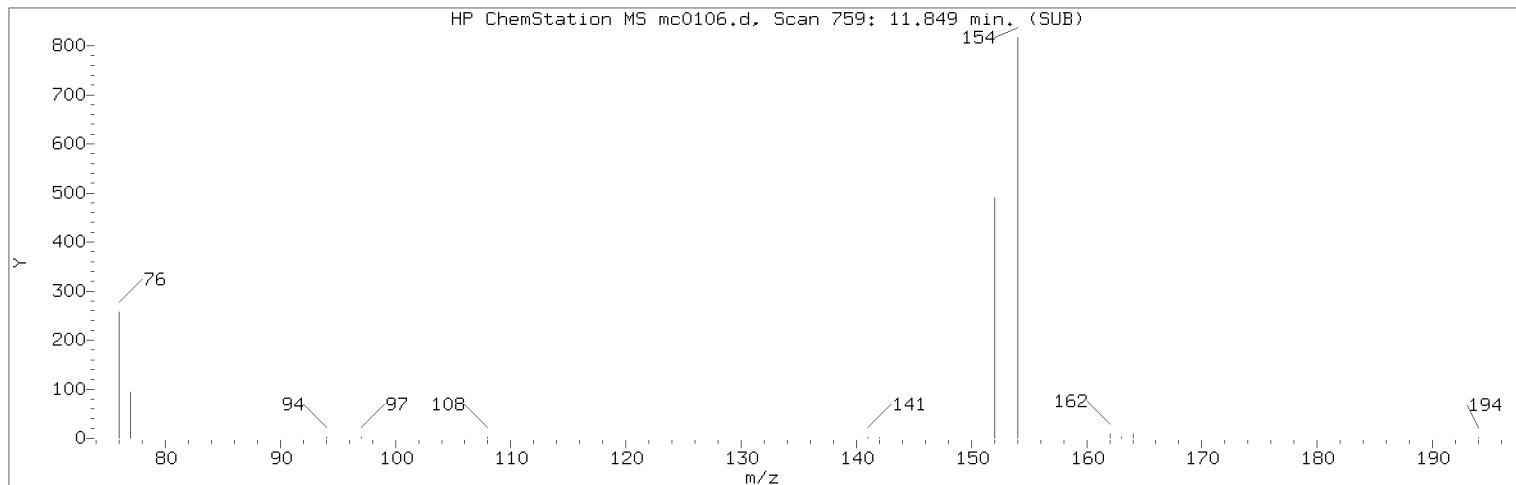
Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

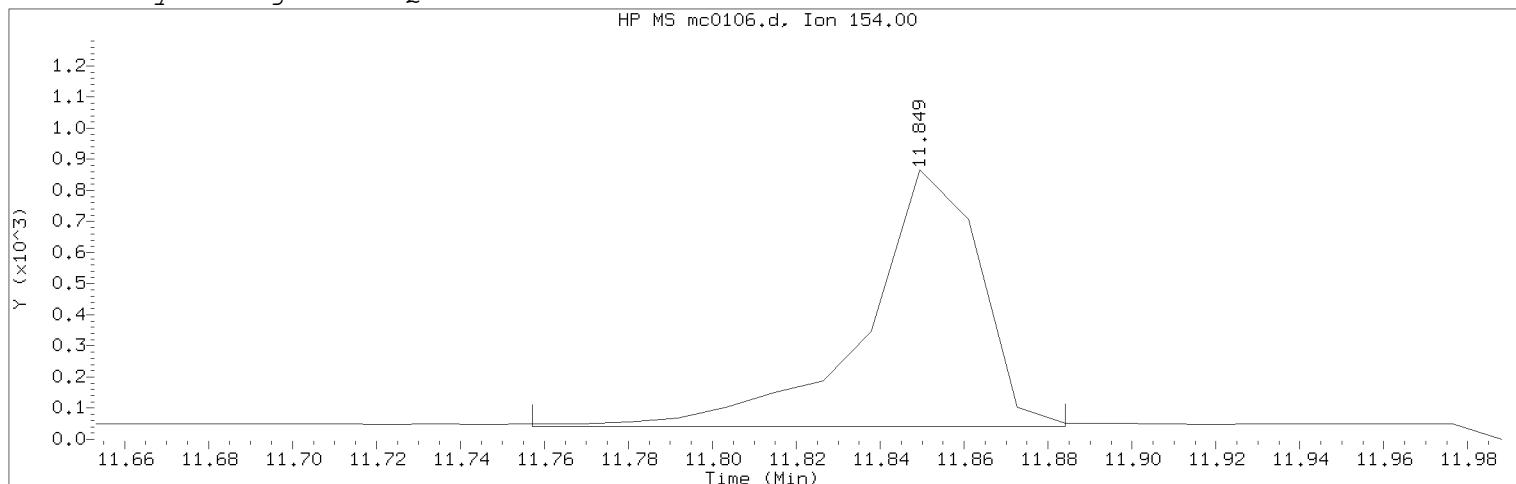
Compound Number : 8
 Compound Name : Quinoline
 Scan Number : 570
 Retention Time (minutes) : 9.631
 Quant Ion : 129.00
 Area : 1533
 On-column Amount (ng/ul) : 0.0154
 Integration start scan : 564
 Y at integration start : 25

Integration stop scan: 573
 Y at integration end: 0

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SST0.01

Lab Sample ID: RVSIM0130

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 759	
Retention Time (minutes)	: 11.849	
Quant Ion	: 154.00	
Area (flag)	: 1392M	
On-Column Amount (ng/ul)	: 0.0105	
Integration start scan	: 750	Integration stop scan: 761
Y at integration start	: 42	Y at integration end: 42

Reason for manual integration: improper integration

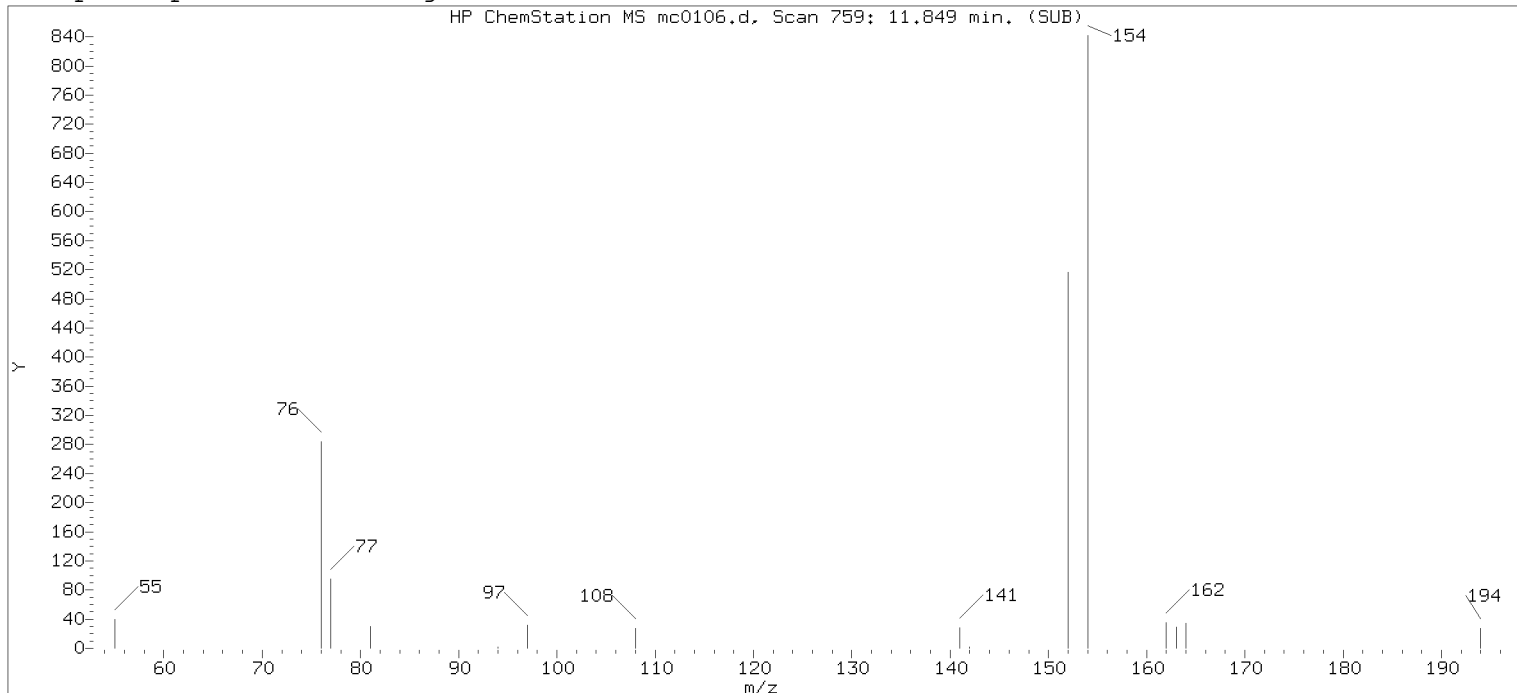
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

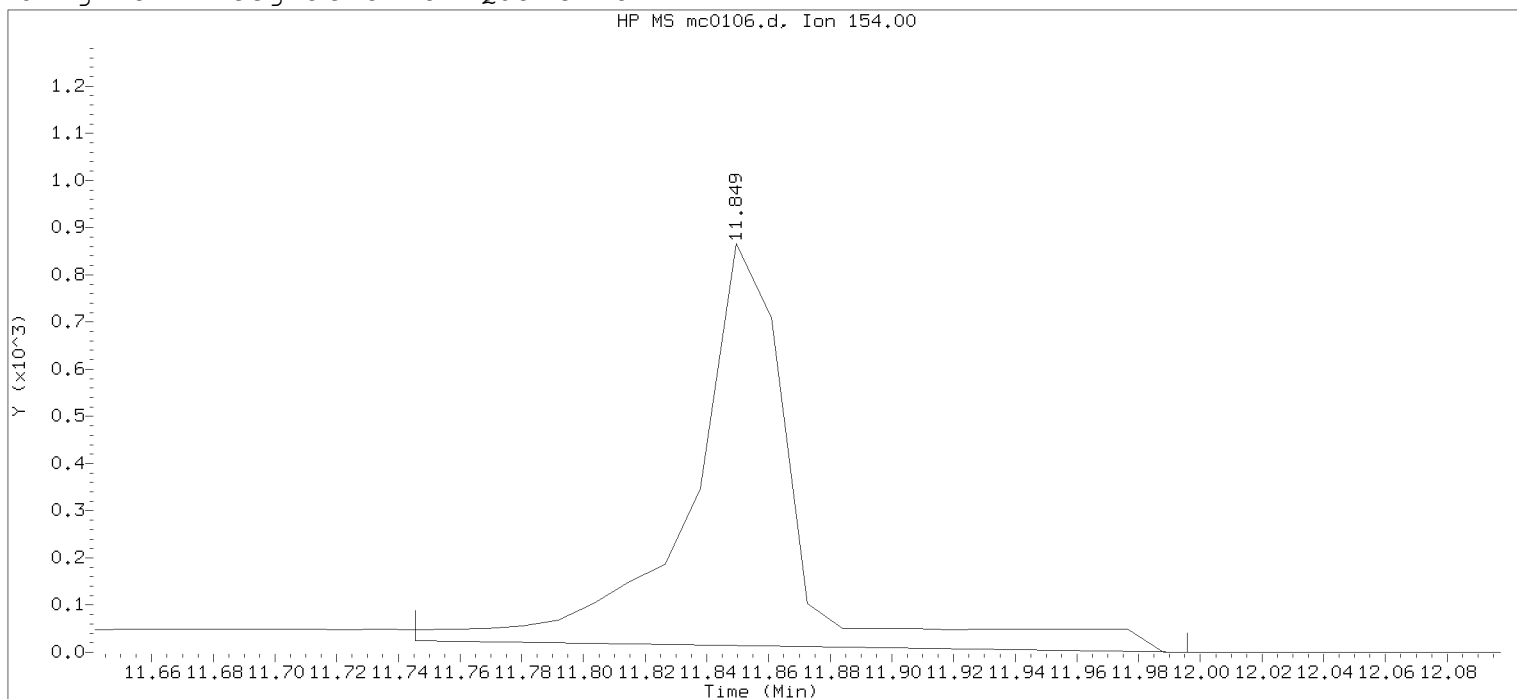
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTD0.01

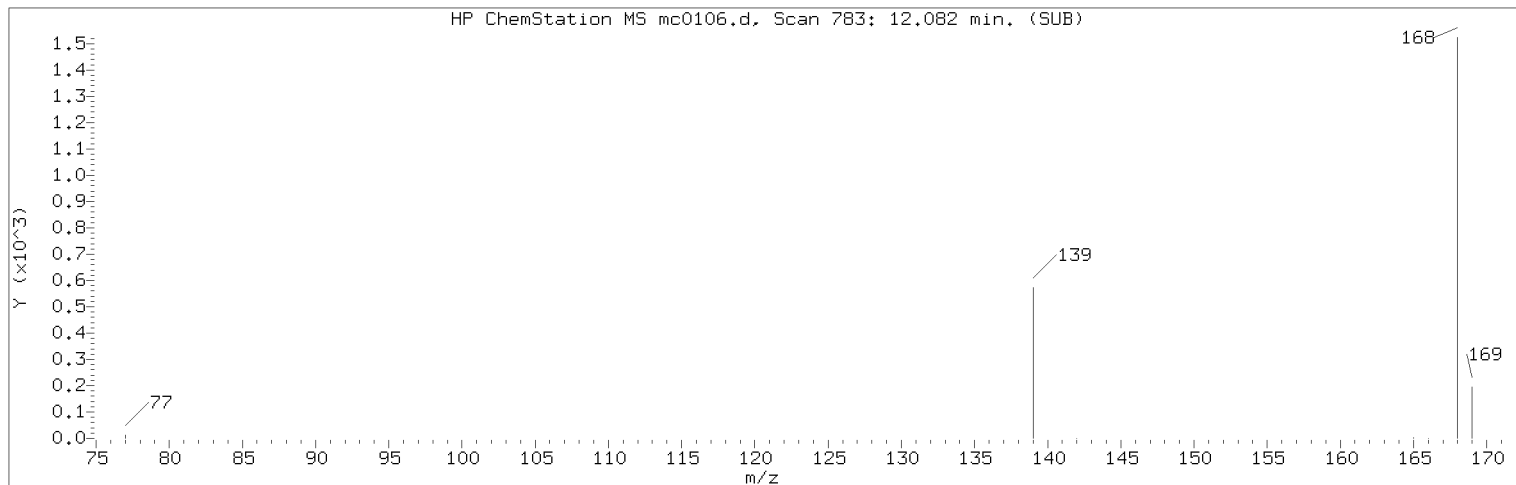
Lab Sample ID: RVSIM0130

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 759	
Retention Time (minutes)	: 11.849	
Quant Ion	: 154.00	
Area	: 1795	
On-column Amount (ng/ul)	: 0.0129	
Integration start scan	: 749	Integration stop scan: 771
Y at integration start	: 24	Y at integration end: 0

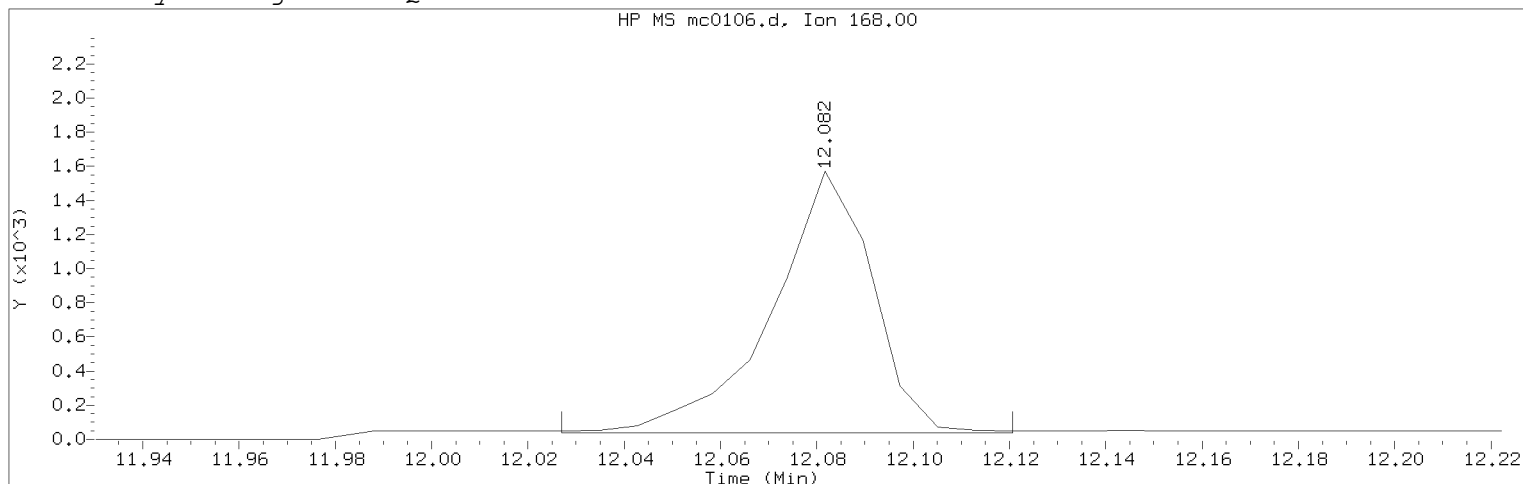
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV68 Page 493 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

Compound Number	: 16	
Compound Name	: Dibenzofuran	
Scan Number	: 783	
Retention Time (minutes)	: 12.082	
Quant Ion	: 168.00	
Area (flag)	: 2468M	
On-Column Amount (ng/ul)	: 0.0099	
Integration start scan	: 775	Integration stop scan: 787
Y at integration start	: 39	Y at integration end: 39

Reason for manual integration: improper integration

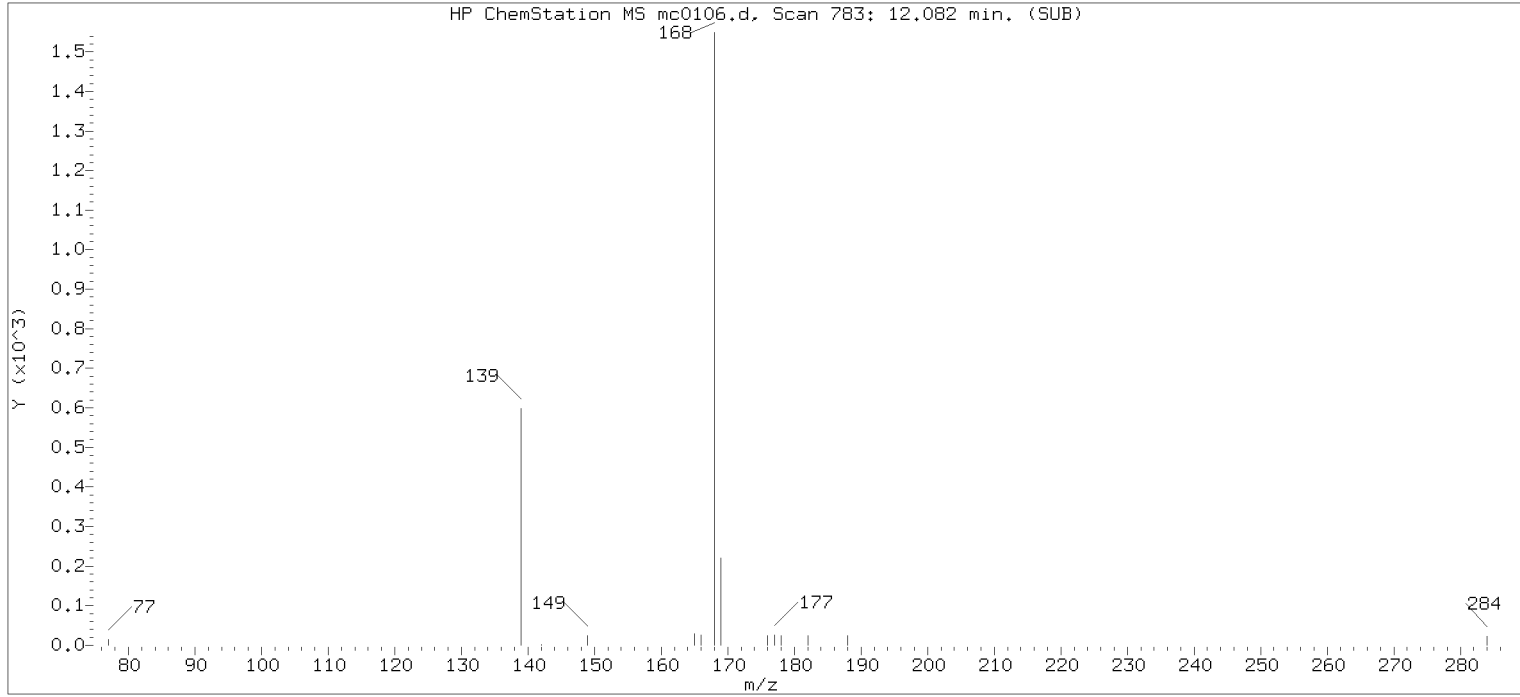
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

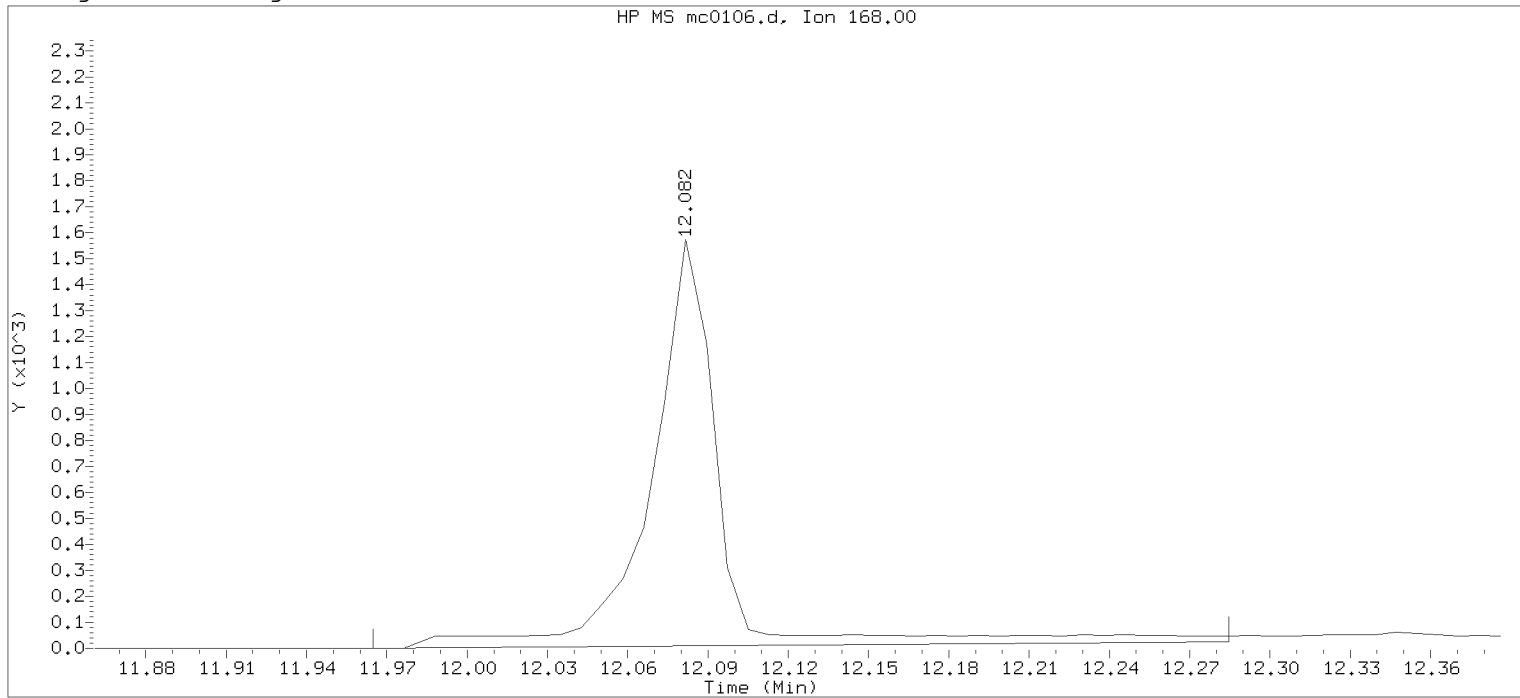
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

Sample Name: SSTDO.01

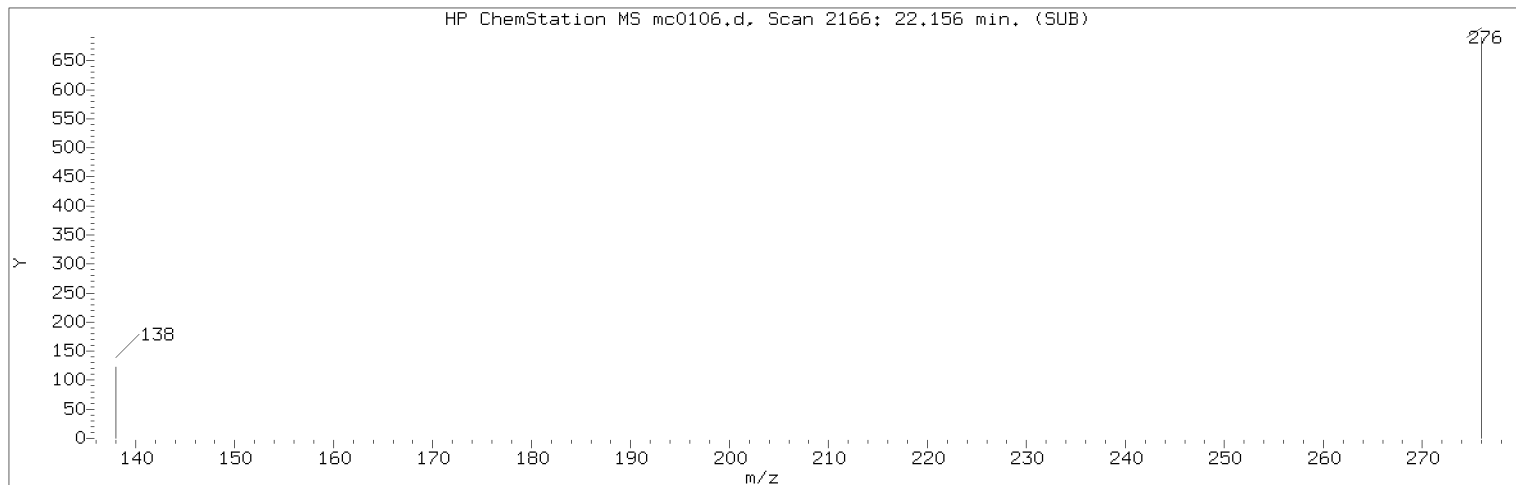
Lab Sample ID: RVSIM0130

Compound Number	: 16	
Compound Name	: Dibenzofuran	
Scan Number	: 783	
Retention Time (minutes)	: 12.082	
Quant Ion	: 168.00	
Area	: 3120	
On-column Amount (ng/ul)	: 0.0120	
Integration start scan	: 768	Integration stop scan: 808
Y at integration start	: 0	Y at integration end: 24

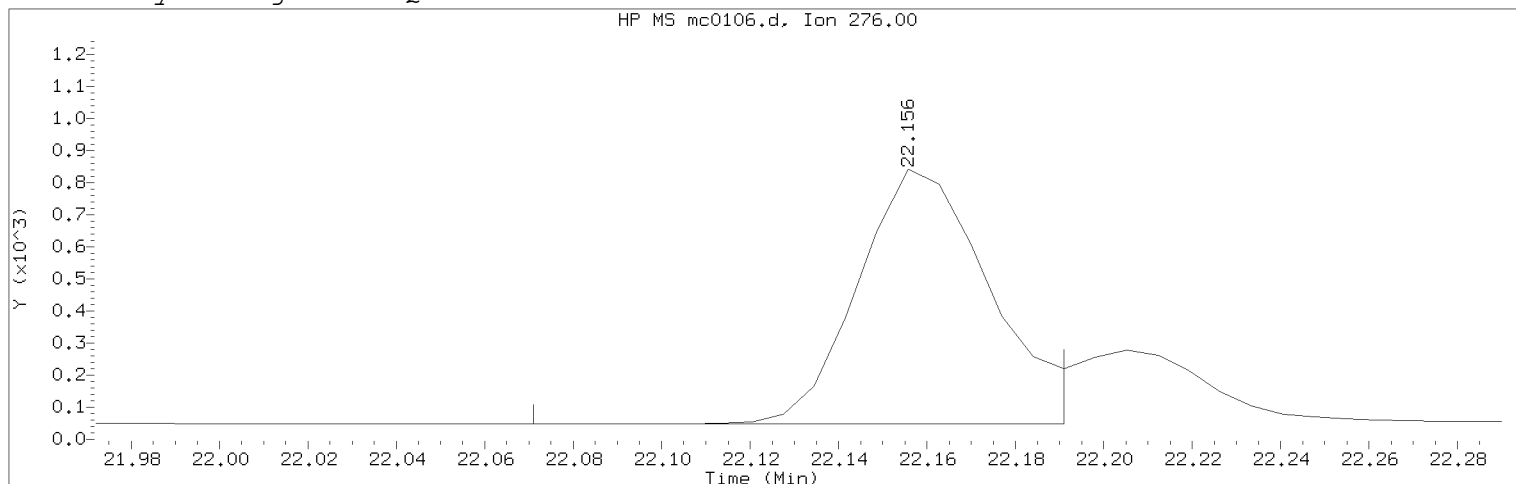
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:36.

Target 3.5 esignature user GPV68 Page 495 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:33

Date, time and analyst ID of latest file update: 05-Mar-2020 03:33 jmg00346

Sample Name: SSTD0.01

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 1663M	
On-Column Amount (ng/ul)	: 0.0093	
Integration start scan	: 2153	Integration stop scan: 2170
Y at integration start	: 47	Y at integration end: 47

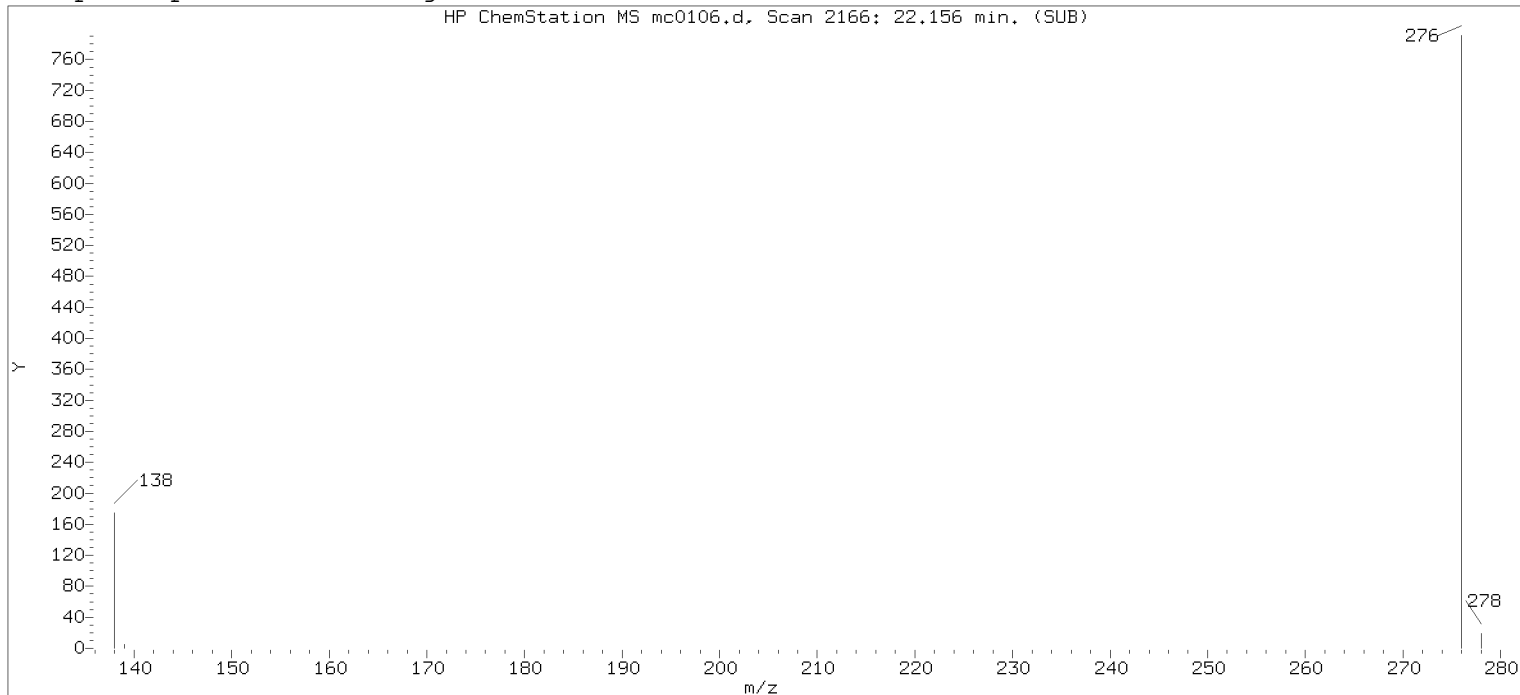
Reason for manual integration: improper integration

Analyst responsible for change:

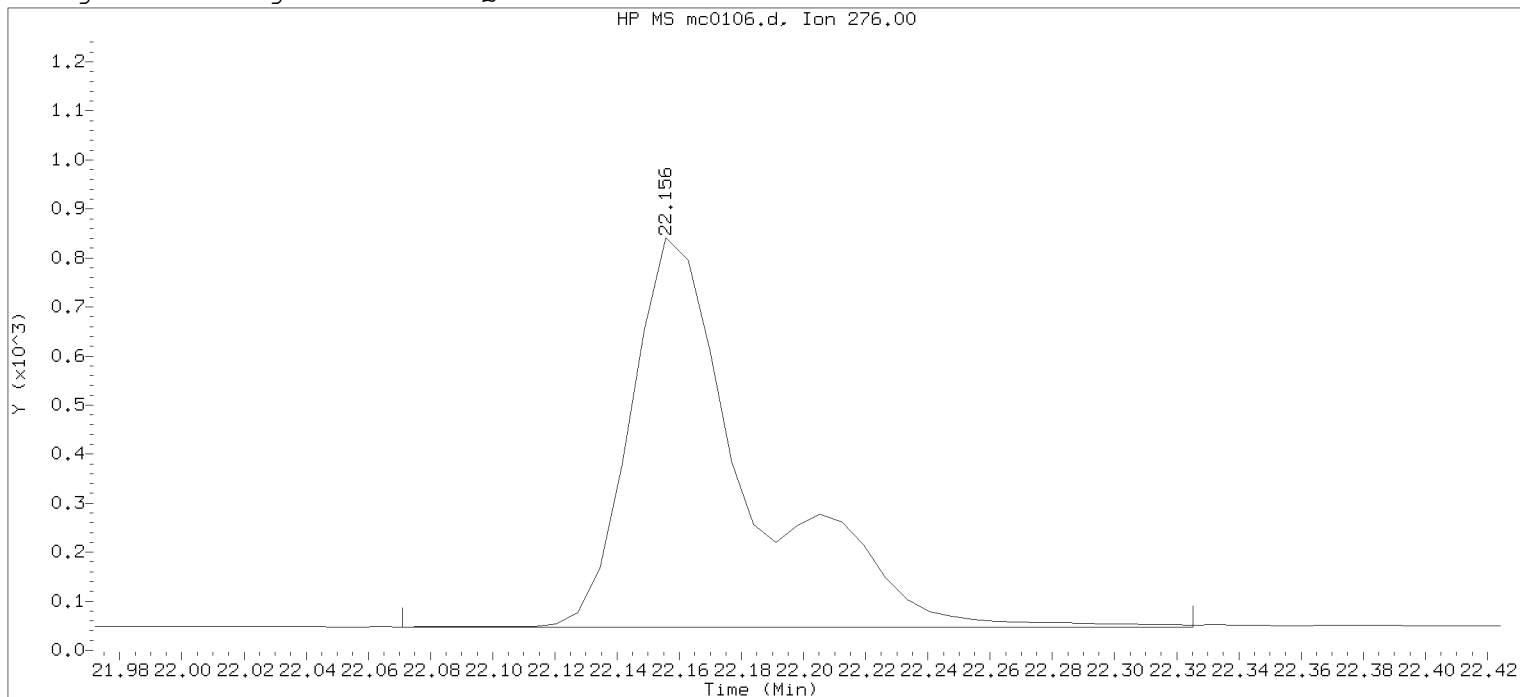
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:36.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0106.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:04

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:29

Date, time and analyst ID of latest file update: 05-Mar-2020 03:29 jmg00346

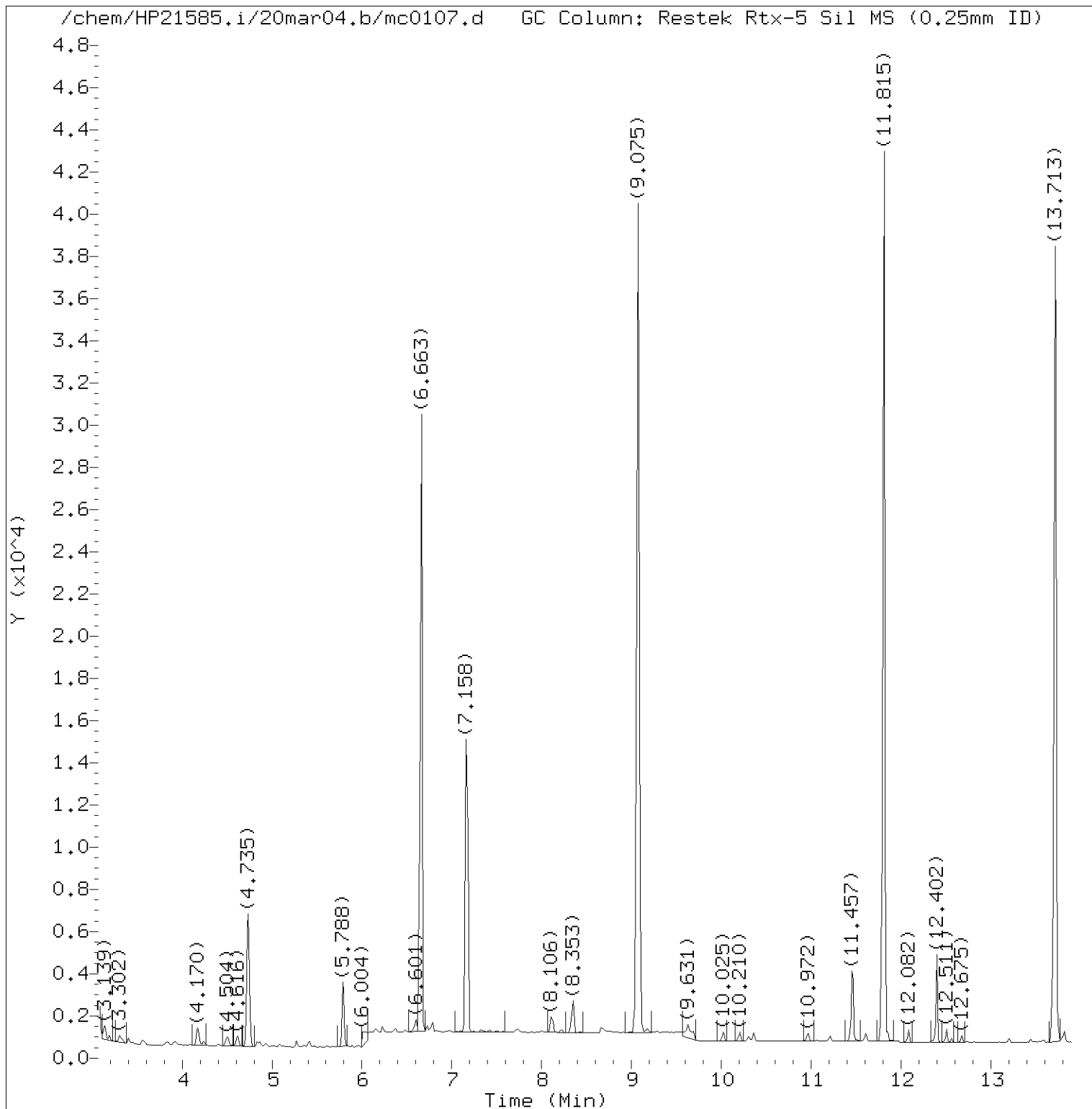
Sample Name: SSTDO.01

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 2138	
On-column Amount (ng/ul)	: 0.0094	
Integration start scan	: 2153	Integration stop scan: 2189
Y at integration start	: 47	Y at integration end: 47

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Target 3.5 esignature user GPV68 Page 497 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0107.d
Injection date and time: 05-MAR-2020 01:34

Instrument ID: HP21585.i
Analyst ID: ceb05247

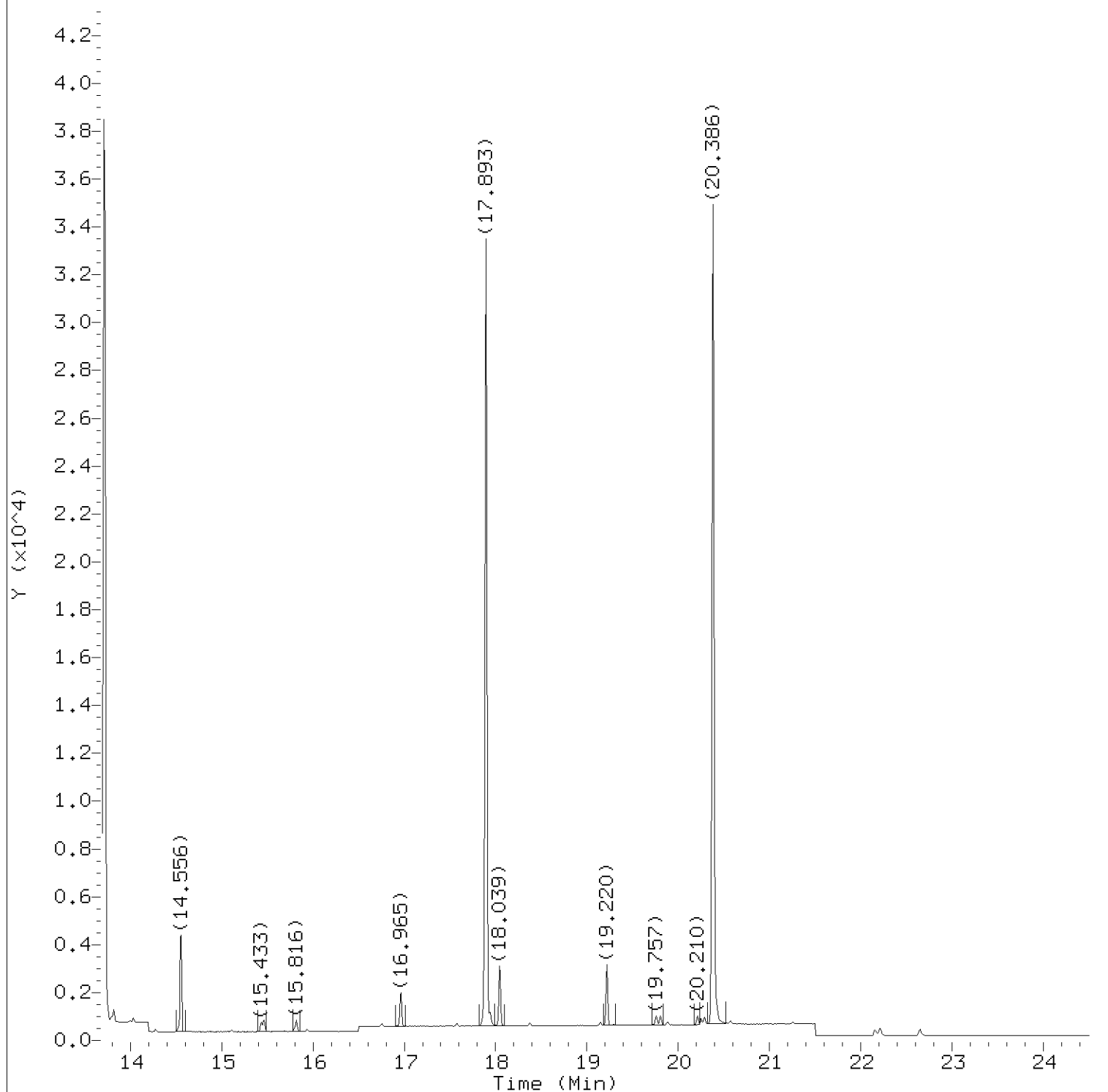
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:35
Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0107.d
Injection date and time: 05-MAR-2020 01:34

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 05-MAR-2020 03:35
Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0107.d
 Injection date and time: 05-MAR-2020 01:34

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 05-MAR-2020 03:35
 Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.562	88	141M	0.003
2) N-Nitrosodimethylamine	(1)	3.926	74	150	0.002
4) bis(2-Chloroethyl)ether	(2)	6.787	93	351M	0.004
5)*1,4-Dichlorobenzene-d4	(1)	7.178	152	16207	0.250
6)*Naphthalene-d8	(2)	9.075	136	56134	0.250
7) Naphthalene	(2)	9.116	128	686	0.003
8) Quinoline	(2)	9.631	129	325M	0.003
9) 2-Methylnaphthalene	(2)	10.210	142	385	0.002
10)\$1-Methylnaphthalene-d10	(2)	10.302	152	289	0.003
11) 1-Methylnaphthalene	(2)	10.360	142	360	0.002
12) Dimethylphthalate	(3)	11.468	163	3760	0.023
13) Acenaphthylene	(3)	11.607	152	569	0.002
14)*Acenaphthene-d10	(3)	11.815	164	22000	0.250
15) Acenaphthene	(3)	11.849	154	342M	0.003
16) Dibenzofuran	(3)	12.082	168	631M	0.003
17) Diethylphthalate	(3)	12.402	149	3478	0.022
18) Fluorene	(3)	12.511	166	397	0.002
43) N-Nitrosodiphenylamine	(4)	12.675	169	232	0.003
19) Hexachlorobenzene	(4)	13.206	284	167	0.003
20)*Phenanthrene-d10	(4)	13.713	188	48794	0.250
21) Phenanthrene	(4)	13.744	178	700	0.003
22) Anthracene	(4)	13.814	178	571	0.002
23) Di-n-butylphthalate	(4)	14.556	149	4831	0.018
24)\$Fluoranthene-d10	(4)	15.433	212	490	0.002
25) Fluoranthene	(4)	15.465	202	643	0.002
26) Pyrene	(5)	15.822	202	664	0.002
27) Butylbenzylphthalate	(5)	16.965	149	1616	0.017
28) Benzo(a)anthracene	(5)	17.878	228	673	0.003
29)*Chrysene-d12	(5)	17.893	240	37726	0.250
30) Chrysene	(5)	17.939	228	603	0.003
31) bis(2-Ethylhexyl)phthalate	(5)	18.039	149	2472	0.017
32) Di-n-octylphthalate	(6)	19.220	149	3074	0.254
33) Benzo(b)fluoranthene	(6)	19.757	252	508M	0.002
34) Benzo(k)fluoranthene	(6)	19.803	252	485M	0.002
35) Benzo(e)pyrene	(6)	20.210	252	472	0.002
36)\$Benzo(a)pyrene-d12	(6)	20.256	264	299	0.002
37) Benzo(a)pyrene	(6)	20.294	252	427	0.002
38)*Perylene-d12	(6)	20.386	264	36527	0.250
45) Perylene	(6)	20.424	252	535M	0.003
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	383M	0.002

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/05/2020 at 03:44.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

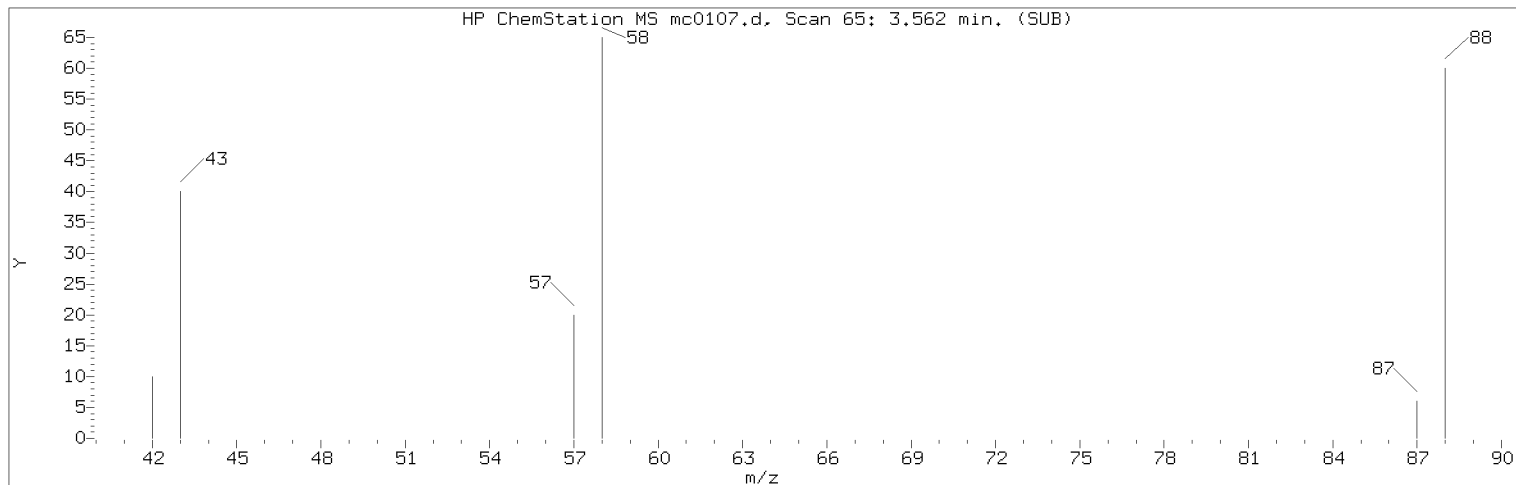
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.212	278	420	0.002
41) Benzo(g,h,i)perylene	(6)	22.650	276	469	0.002

Digitally signed by Joseph M. Gambler

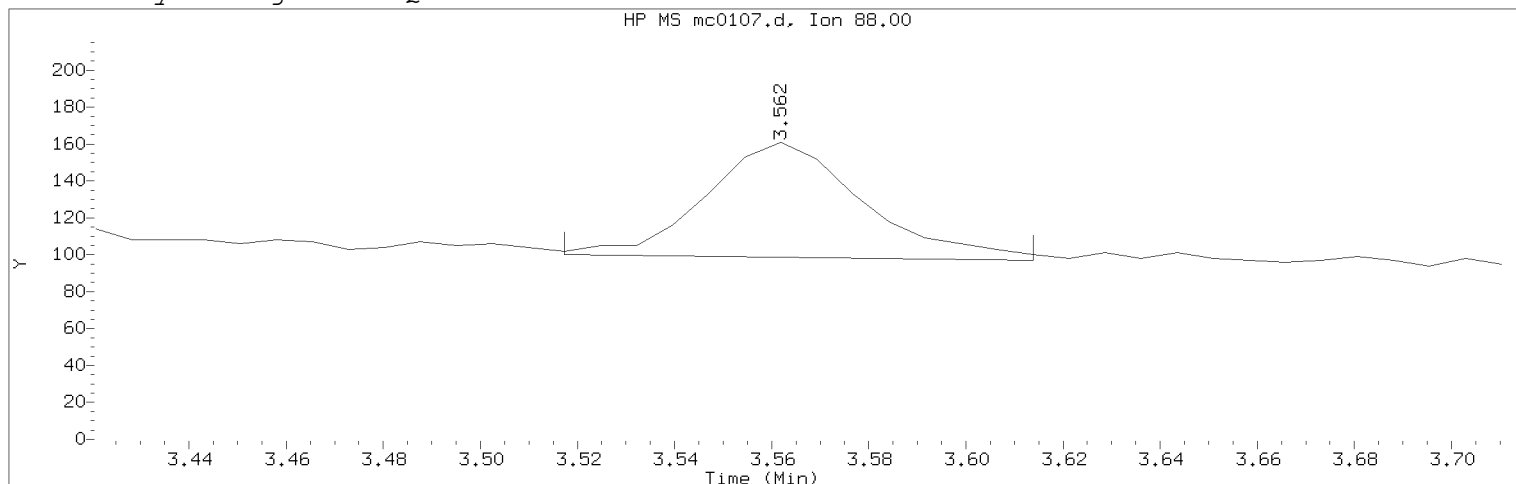
on 03/05/2020 at 03:44.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 1	
Compound Name	: 1,4-Dioxane	
Scan Number	: 65	
Retention Time (minutes)	: 3.562	
Quant Ion	: 88.00	
Area (flag)	: 141M	
On-Column Amount (ng/ul)	: 0.0032	
Integration start scan	: 58	Integration stop scan: 71
Y at integration start	: 100	Y at integration end: 97

Reason for manual integration: improper integration

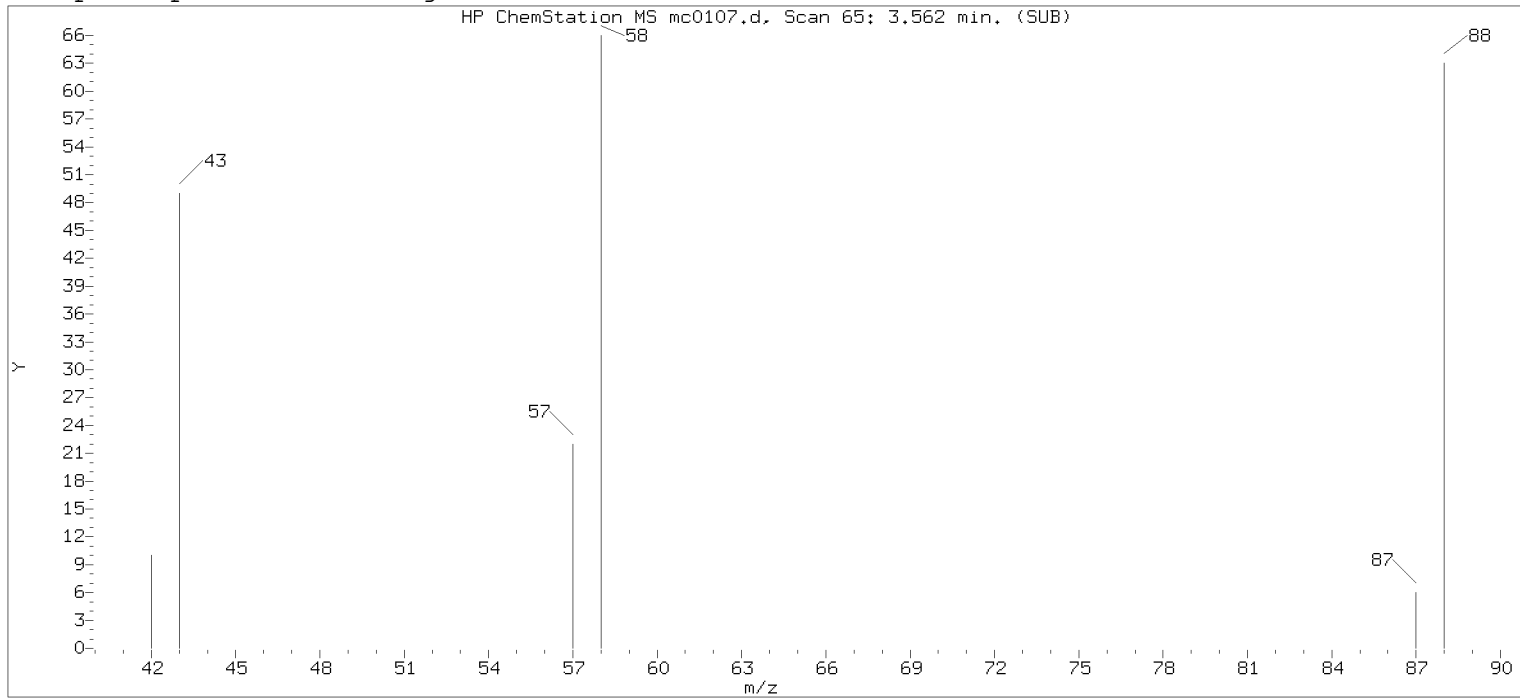
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

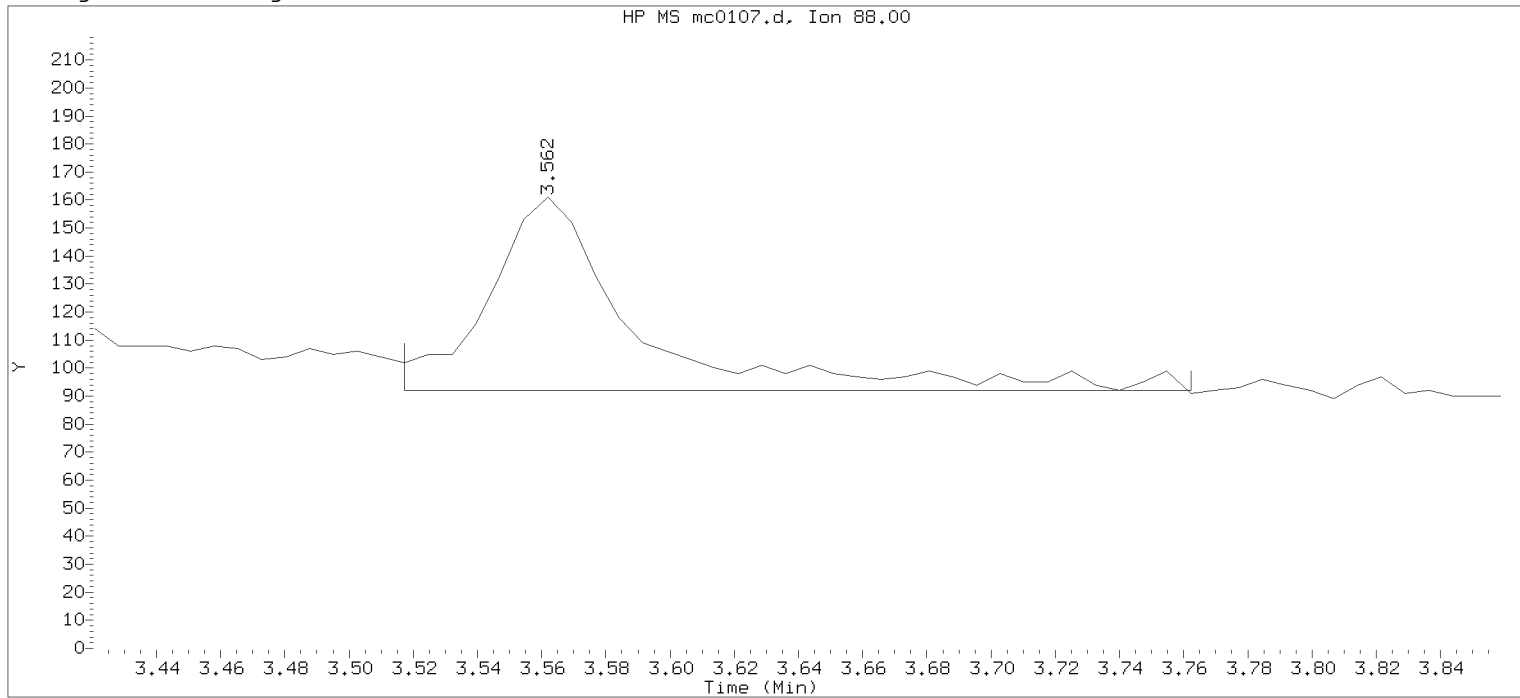
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.0025

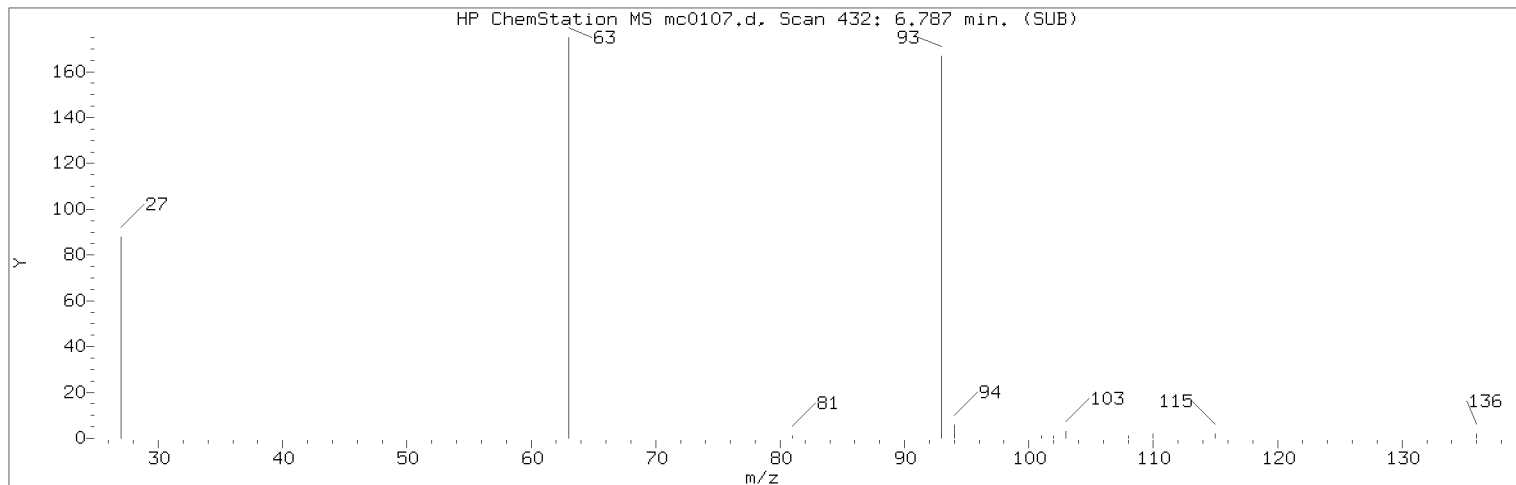
Lab Sample ID: RVSIM0130

Compound Number	: 1	
Compound Name	: 1,4-Dioxane	
Scan Number	: 65	
Retention Time (minutes)	: 3.562	
Quant Ion	: 88.00	
Area	: 221	
On-column Amount (ng/ul)	: 0.0051	
Integration start scan	: 58	Integration stop scan: 91
Y at integration start	: 92	Y at integration end: 92

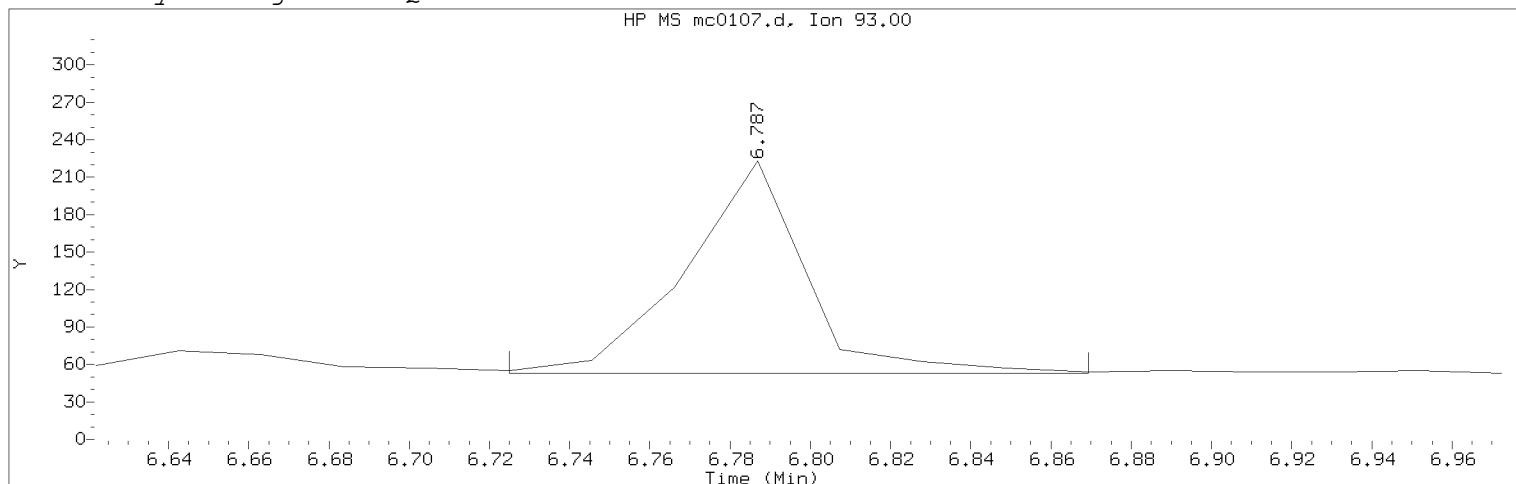
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV68 Page 503 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 4	
Compound Name	: bis(2-Chloroethyl)ether	
Scan Number	: 432	
Retention Time (minutes)	: 6.787	
Quant Ion	: 93.00	
Area (flag)	: 351M	
On-Column Amount (ng/ul)	: 0.0036	
Integration start scan	: 428	Integration stop scan: 435
Y at integration start	: 53	Y at integration end: 53

Reason for manual integration: improper integration

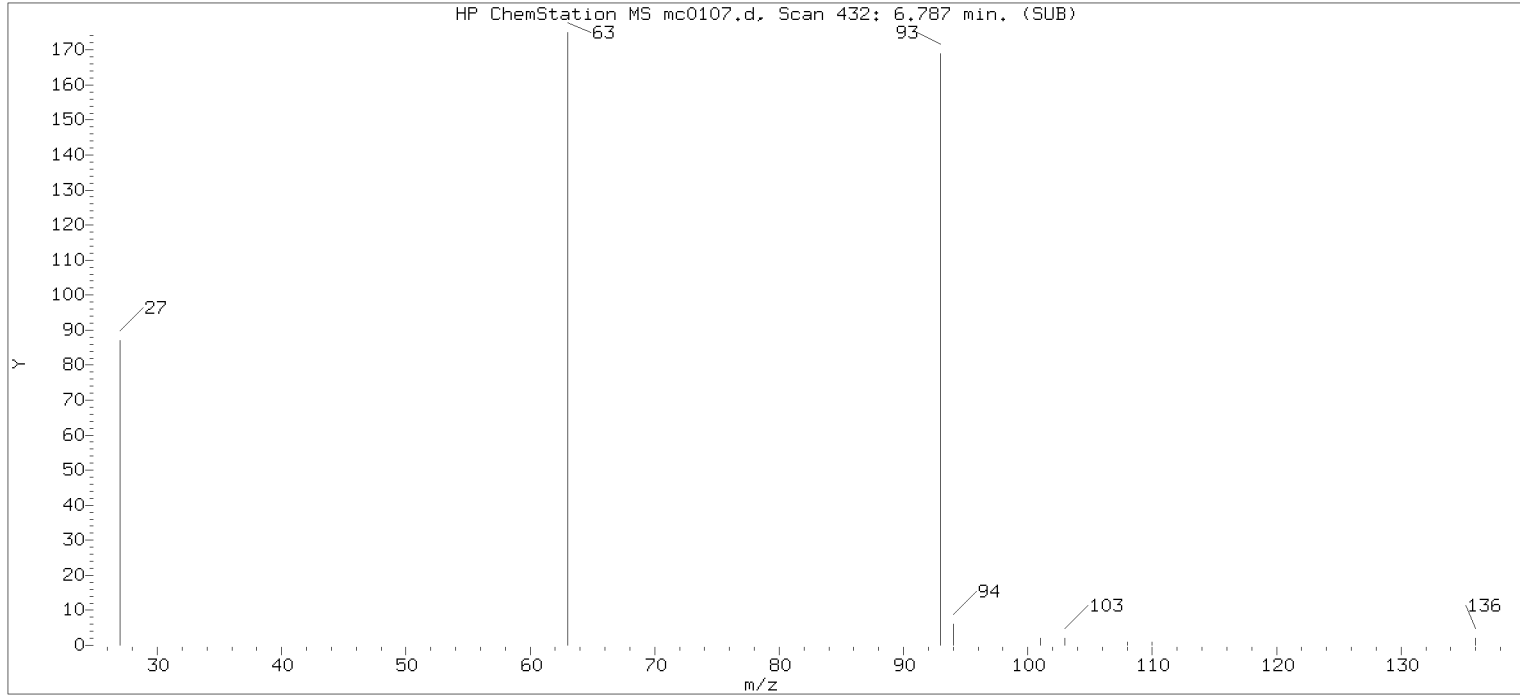
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

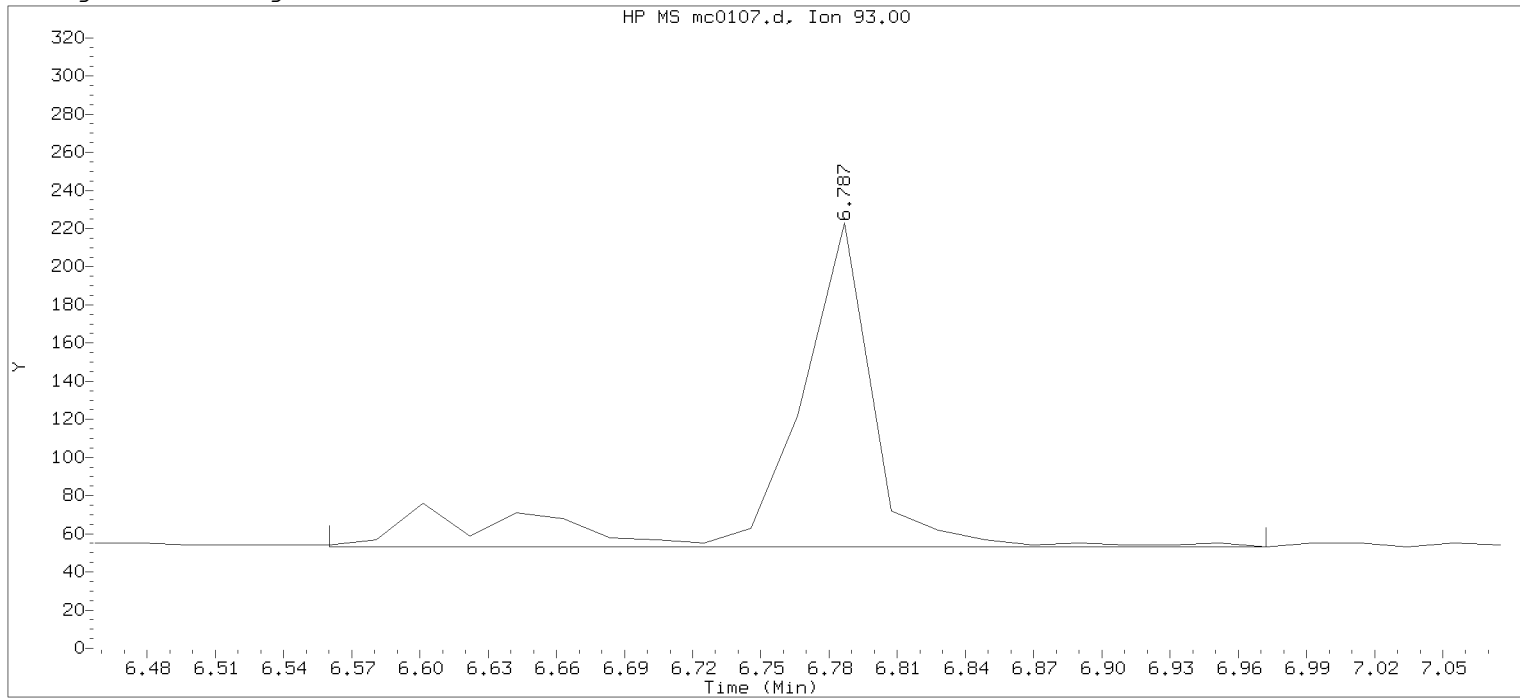
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.0025

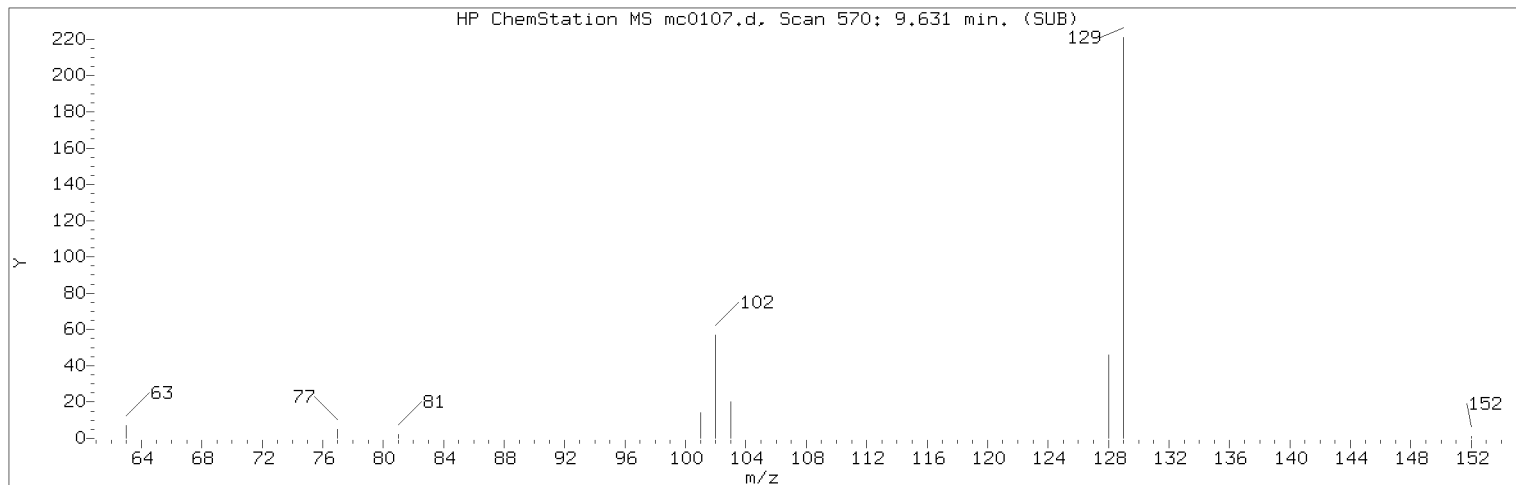
Lab Sample ID: RVSIM0130

Compound Number	: 4	
Compound Name	: bis(2-Chloroethyl)ether	
Scan Number	: 432	
Retention Time (minutes)	: 6.787	
Quant Ion	: 93.00	
Area	: 451	
On-column Amount (ng/ul)	: 0.0046	
Integration start scan	: 420	Integration stop scan: 440
Y at integration start	: 53	Y at integration end: 53

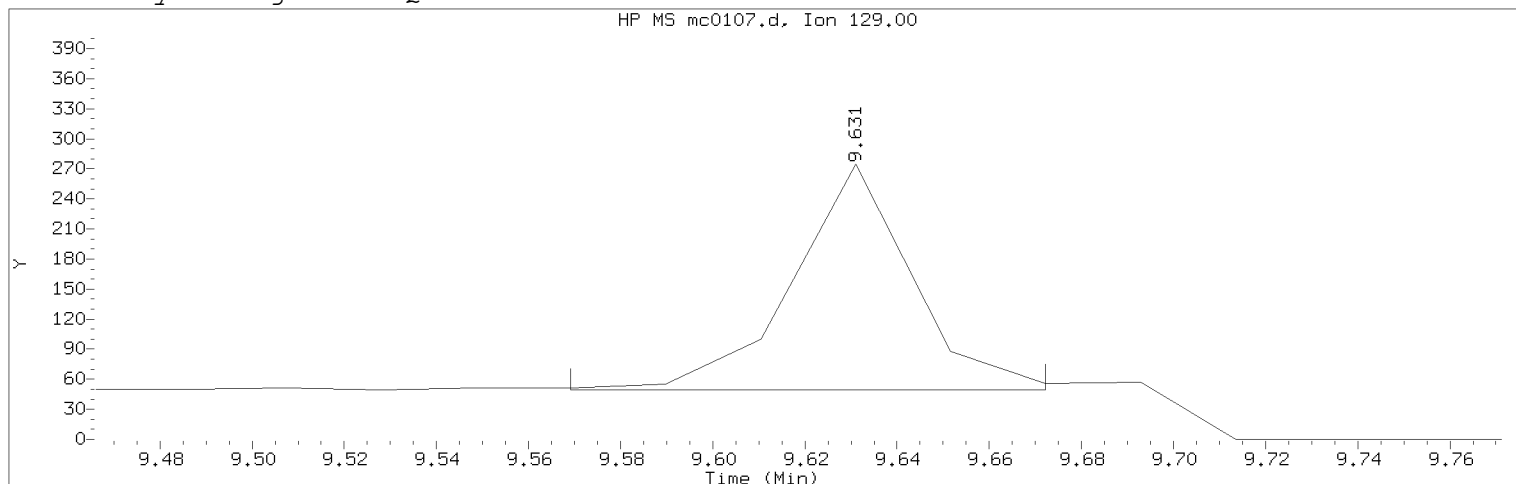
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV68 Page 505 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

Compound Number	: 8	
Compound Name	: Quinoline	
Scan Number	: 570	
Retention Time (minutes)	: 9.631	
Quant Ion	: 129.00	
Area (flag)	: 325M	
On-Column Amount (ng/ul)	: 0.0026	
Integration start scan	: 566	Integration stop scan: 571
Y at integration start	: 49	Y at integration end: 49

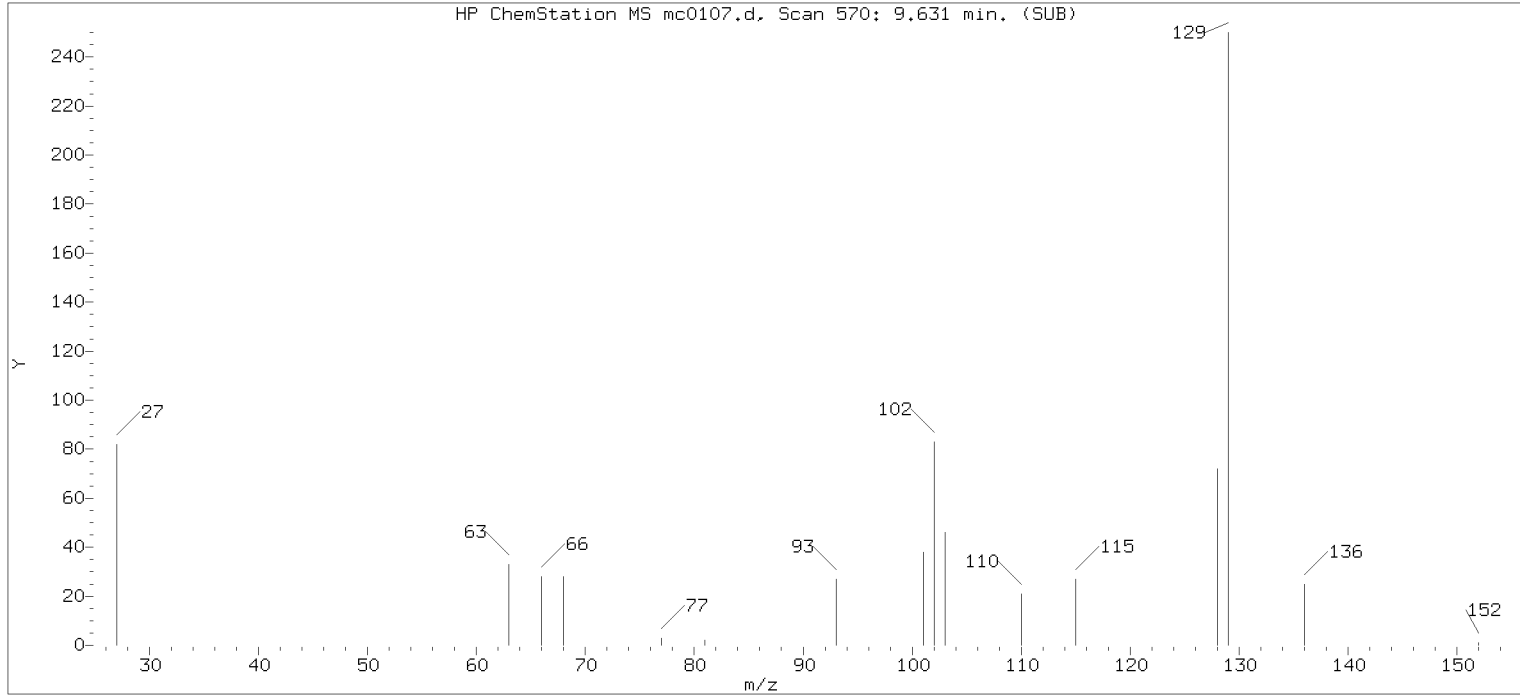
Reason for manual integration: improper integration

Analyst responsible for change:

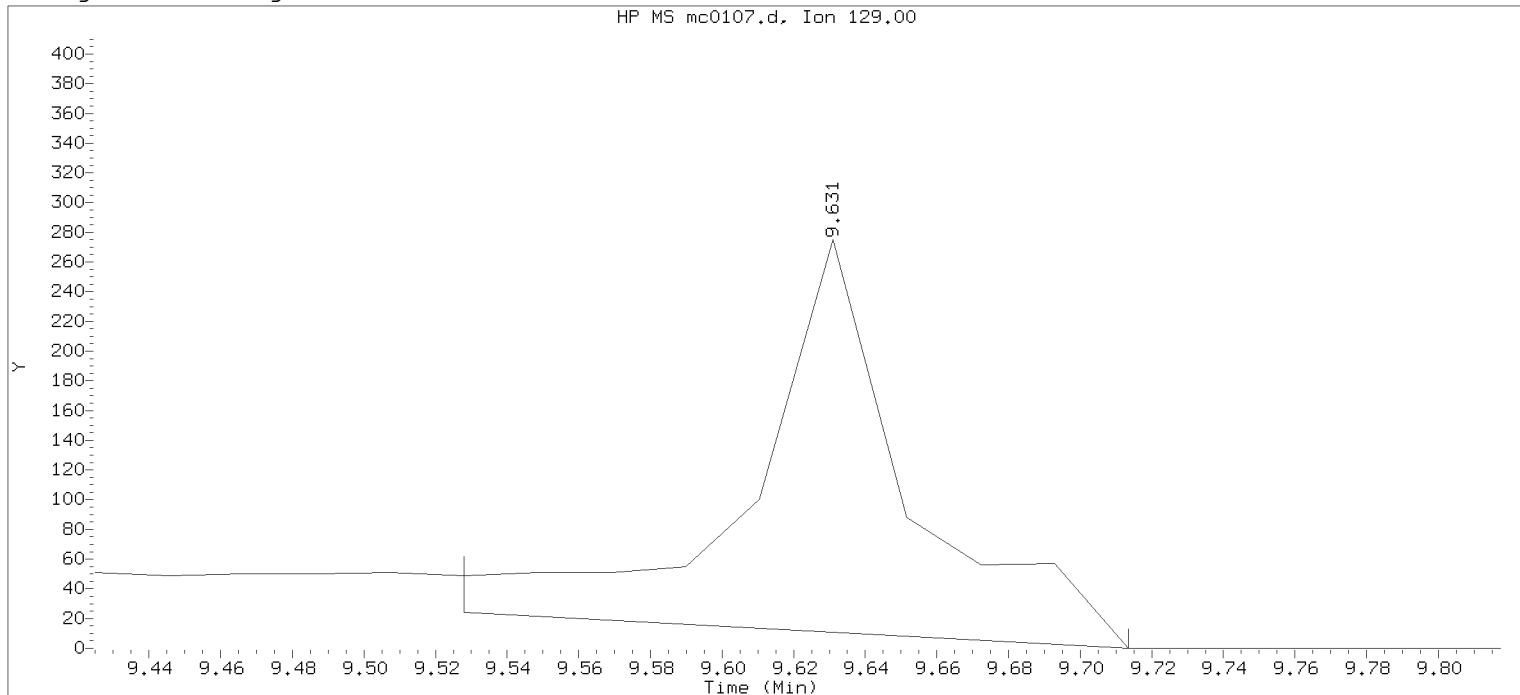
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

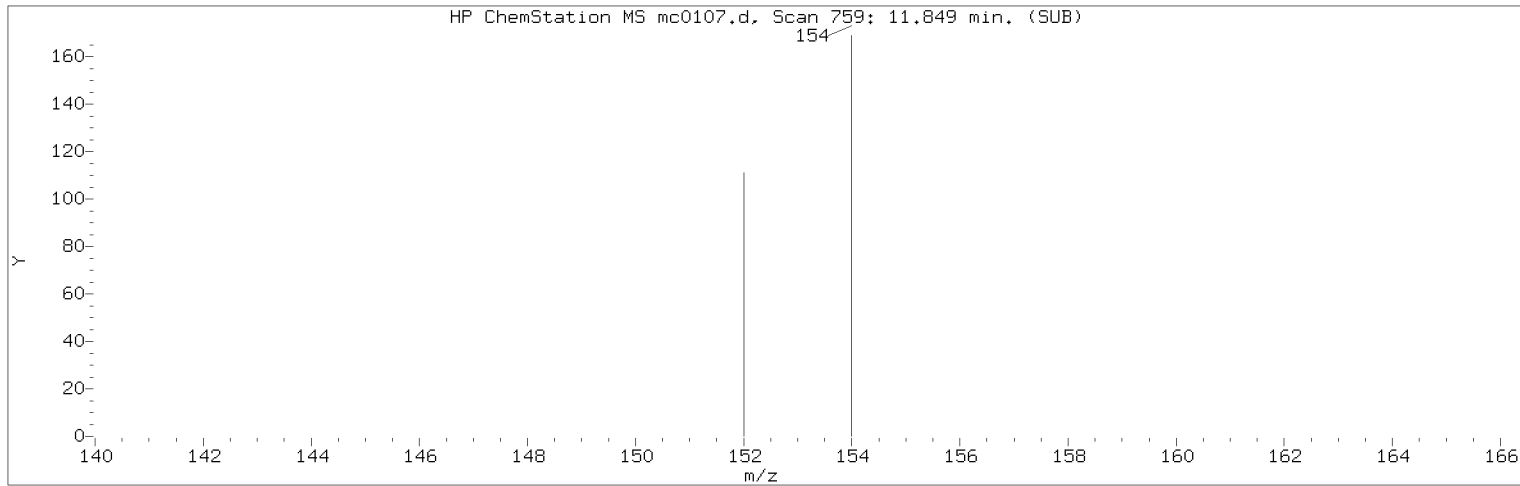
Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

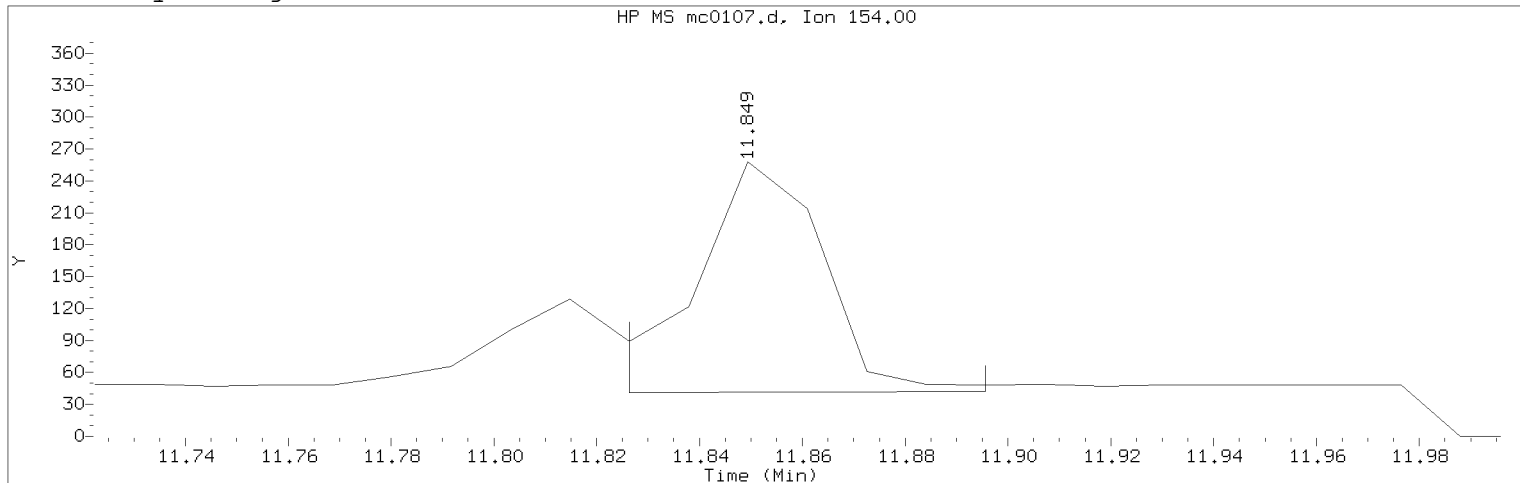
Compound Number : 8
 Compound Name : Quinoline
 Scan Number : 570
 Retention Time (minutes) : 9.631
 Quant Ion : 129.00
 Area : 632
 On-column Amount (ng/ul) : 0.0051
 Integration start scan : 564
 Y at integration start : 24

Integration stop scan: 573
 Y at integration end: 0

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 759	
Retention Time (minutes)	: 11.849	
Quant Ion	: 154.00	
Area (flag)	: 342M	
On-Column Amount (ng/ul)	: 0.0026	
Integration start scan	: 756	Integration stop scan: 762
Y at integration start	: 41	Y at integration end: 42

Reason for manual integration: improper integration

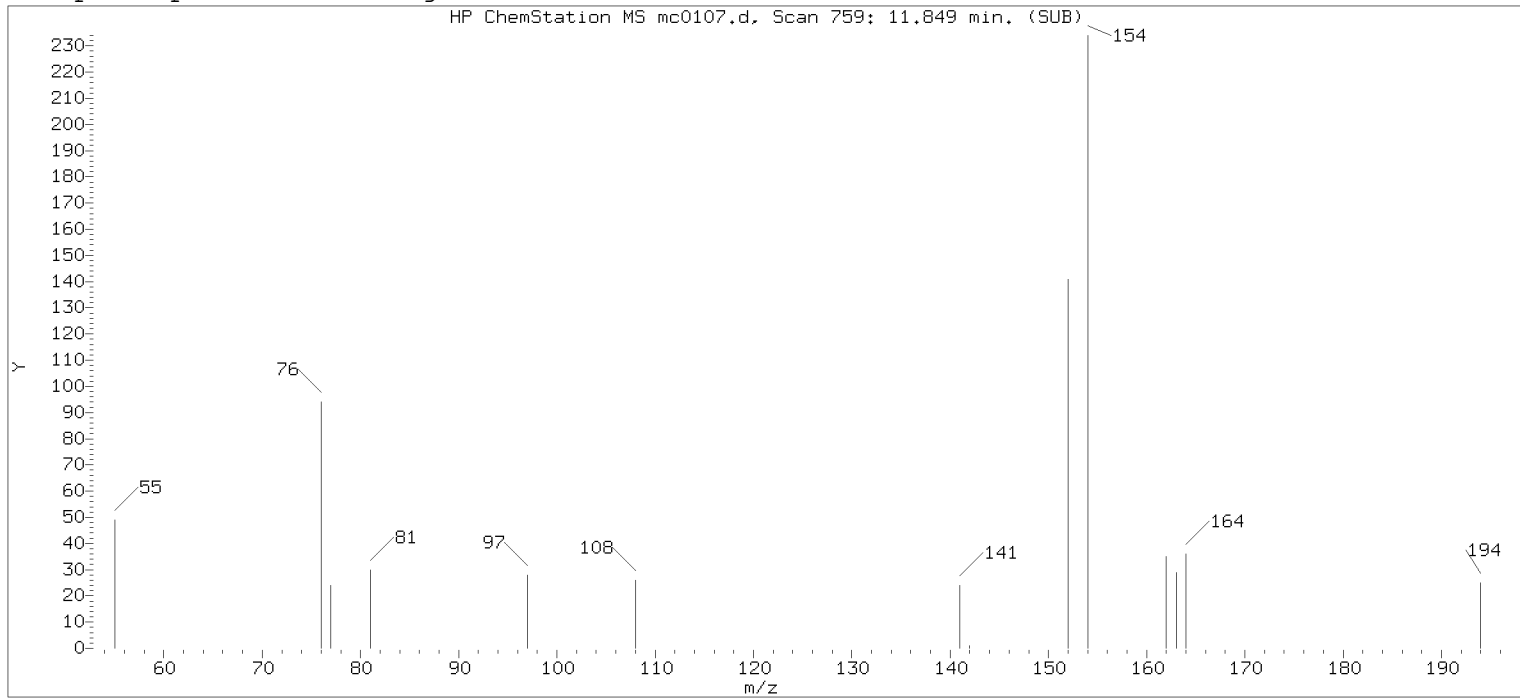
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

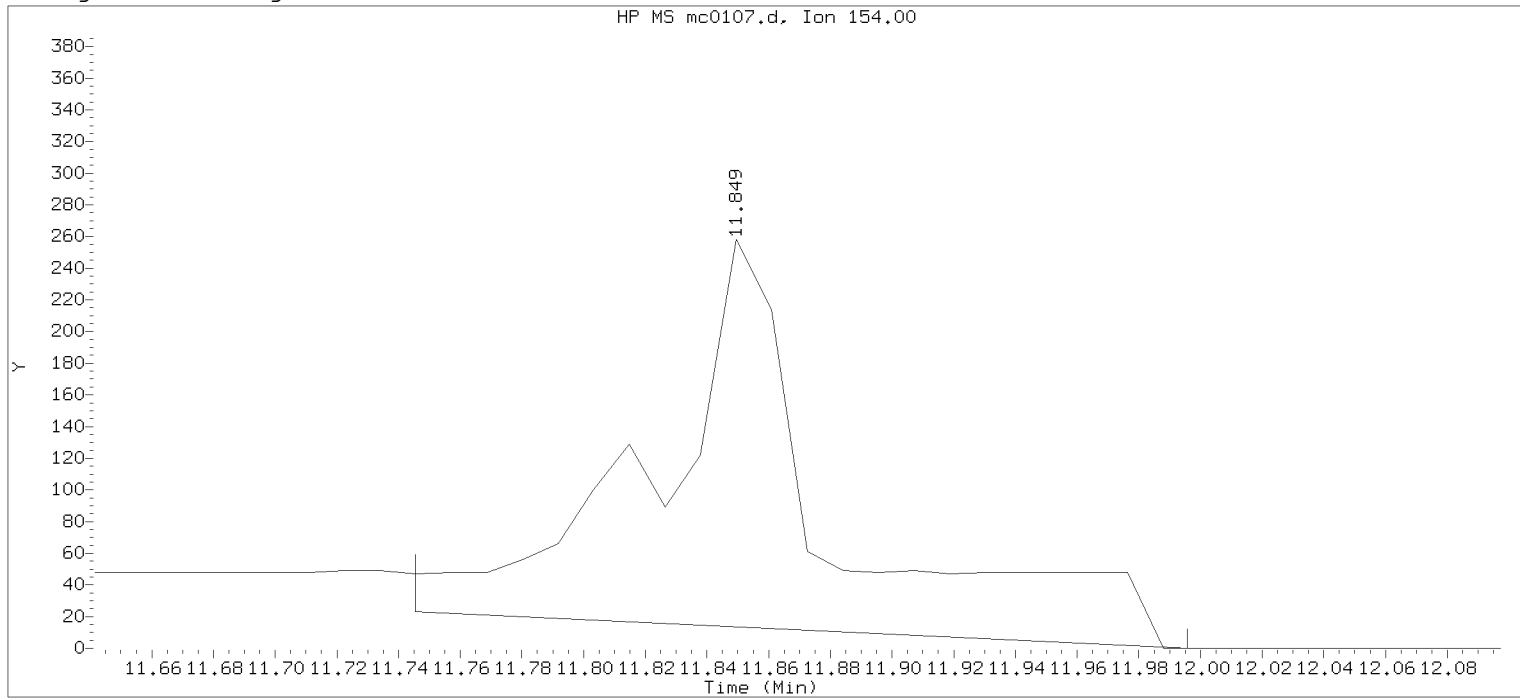
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.0025

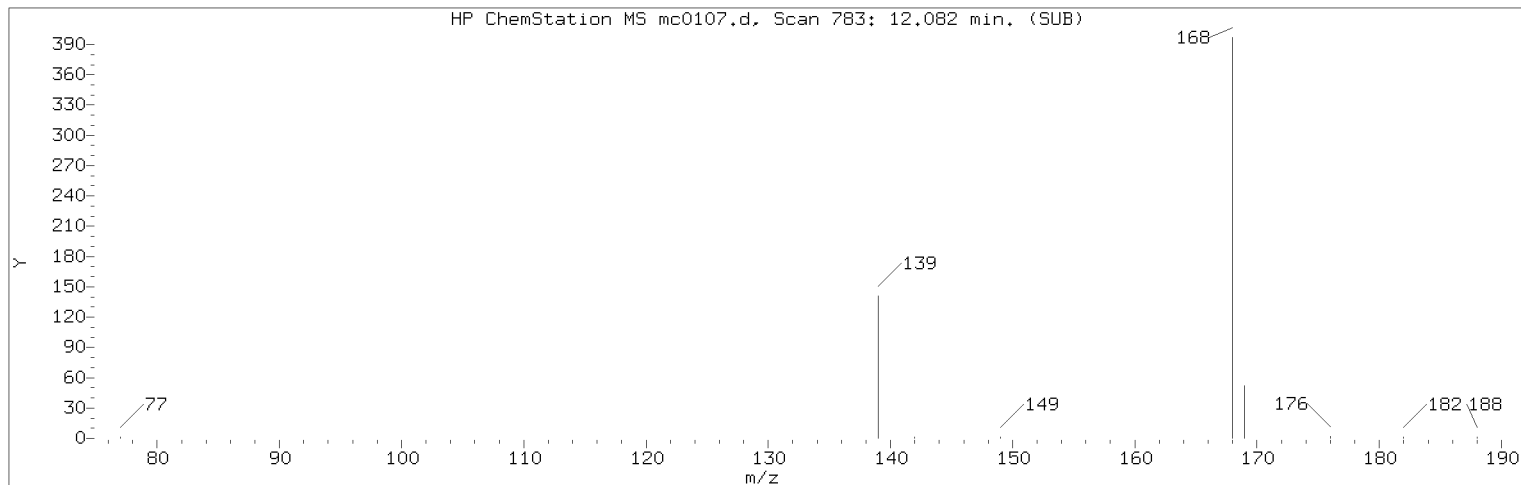
Lab Sample ID: RVSIM0130

Compound Number	: 15	
Compound Name	: Acenaphthene	
Scan Number	: 759	
Retention Time (minutes)	: 11.849	
Quant Ion	: 154.00	
Area	: 866	
On-column Amount (ng/ul)	: 0.0067	
Integration start scan	: 749	Integration stop scan: 771
Y at integration start	: 23	Y at integration end: 0

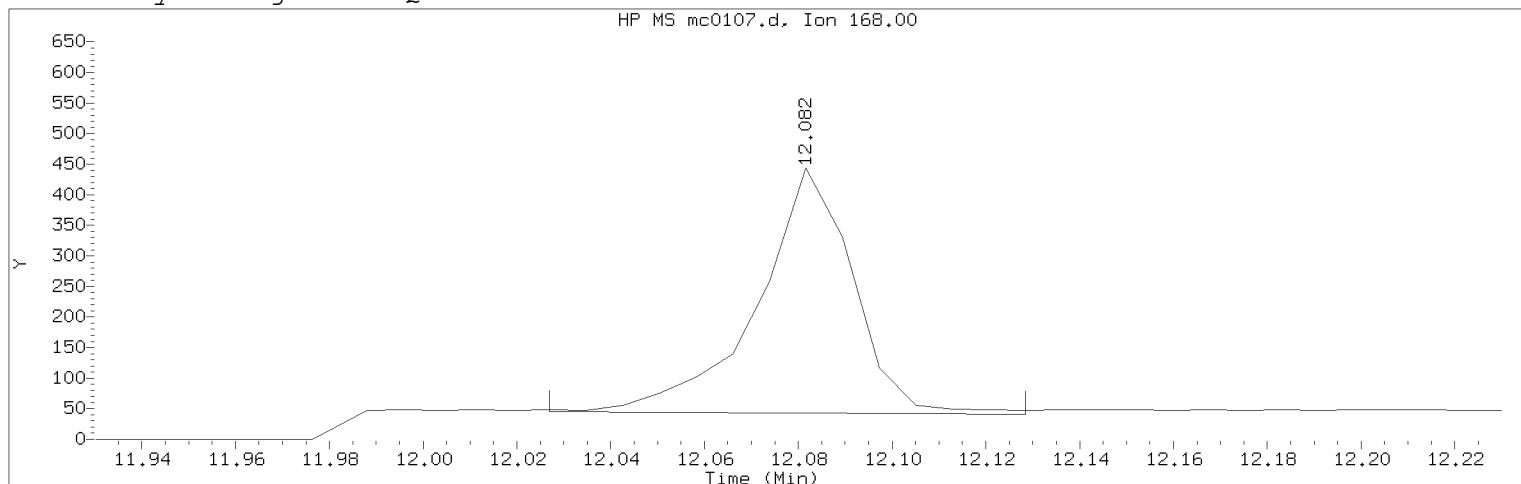
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV68 Page 509 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

Compound Number	: 16	
Compound Name	: Dibenzofuran	
Scan Number	: 783	
Retention Time (minutes)	: 12.082	
Quant Ion	: 168.00	
Area (flag)	: 631M	
On-Column Amount (ng/ul)	: 0.0026	
Integration start scan	: 775	Integration stop scan: 788
Y at integration start	: 45	Y at integration end: 41

Reason for manual integration: improper integration

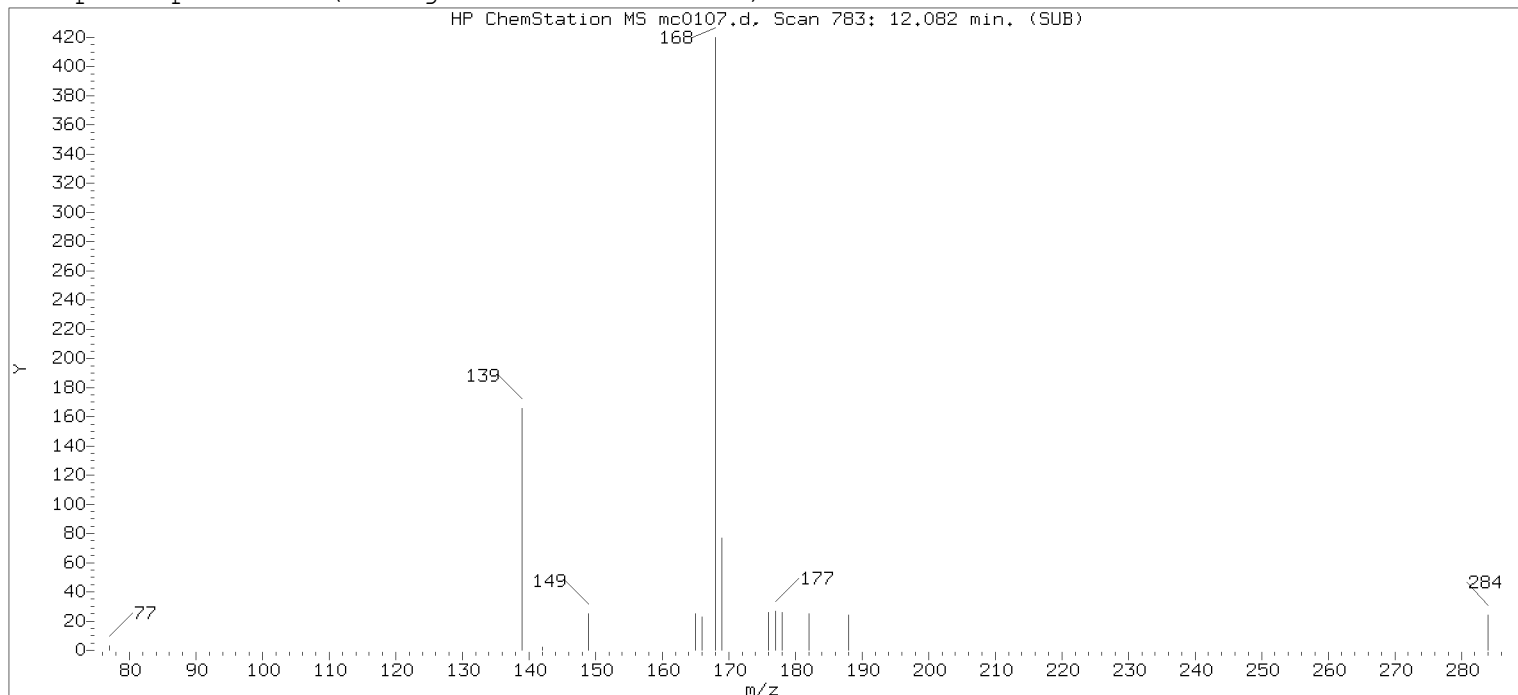
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

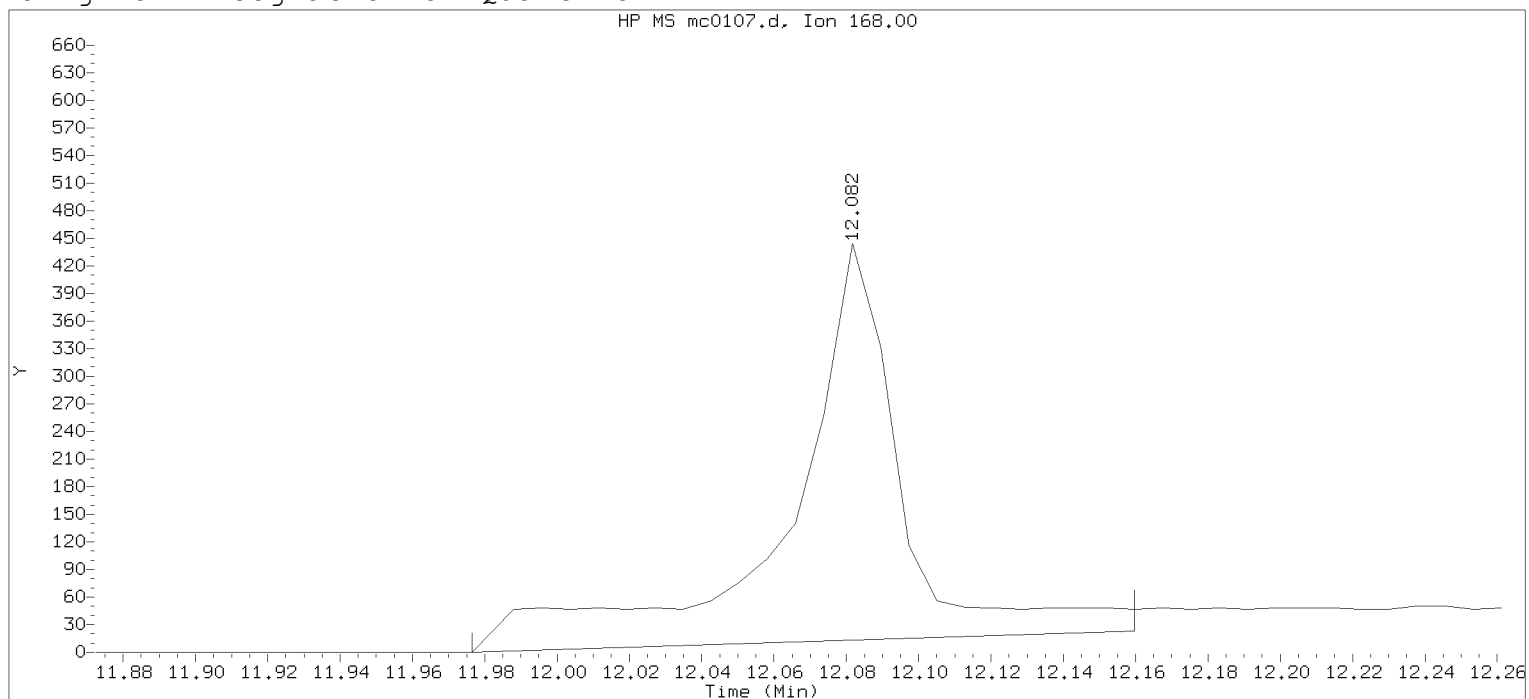
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTDO.0025

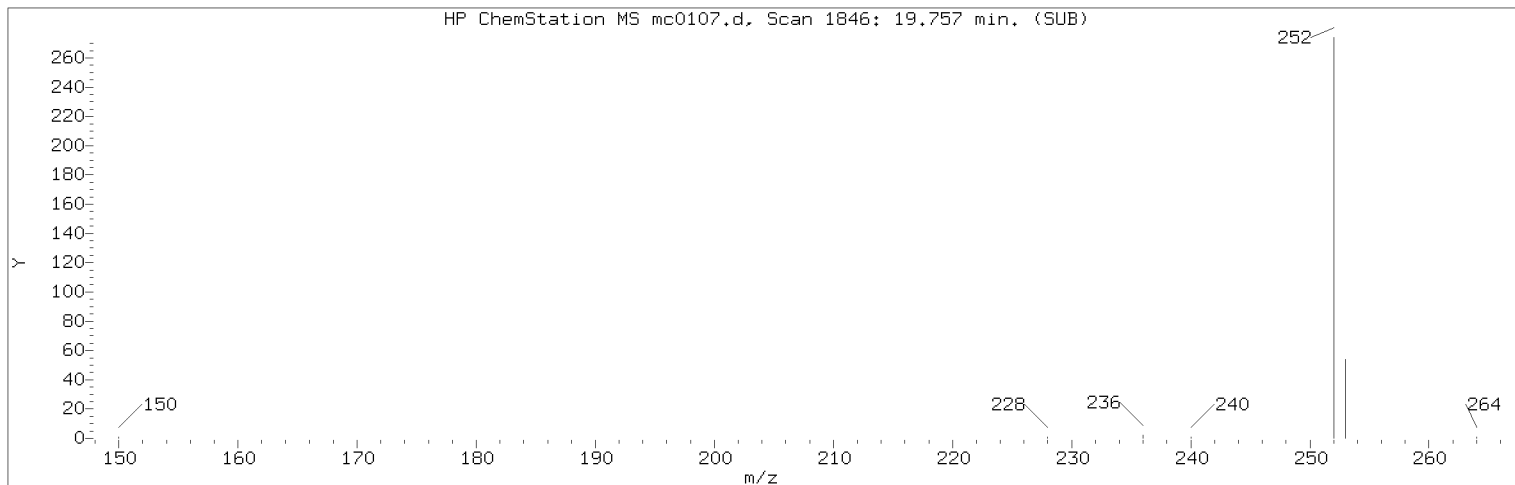
Lab Sample ID: RVSIM0130

Compound Number	: 16	
Compound Name	: Dibenzofuran	
Scan Number	: 783	
Retention Time (minutes)	: 12.082	
Quant Ion	: 168.00	
Area	: 1012	
On-column Amount (ng/ul)	: 0.0041	
Integration start scan	: 769	Integration stop scan: 792
Y at integration start	: 0	Y at integration end: 23

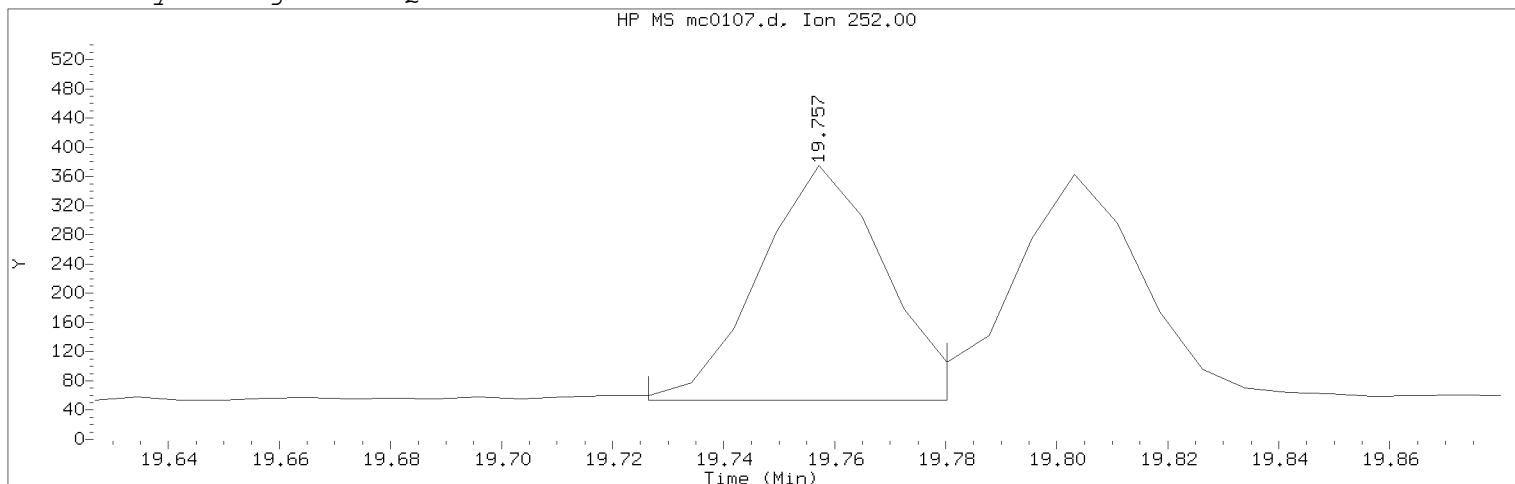
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV68jmg Page 511 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1846	
Retention Time (minutes)	: 19.757	
Quant Ion	: 252.00	
Area (flag)	: 508M	
On-Column Amount (ng/ul)	: 0.0025	
Integration start scan	: 1841	Integration stop scan: 1848
Y at integration start	: 54	Y at integration end: 54

Reason for manual integration: improper integration

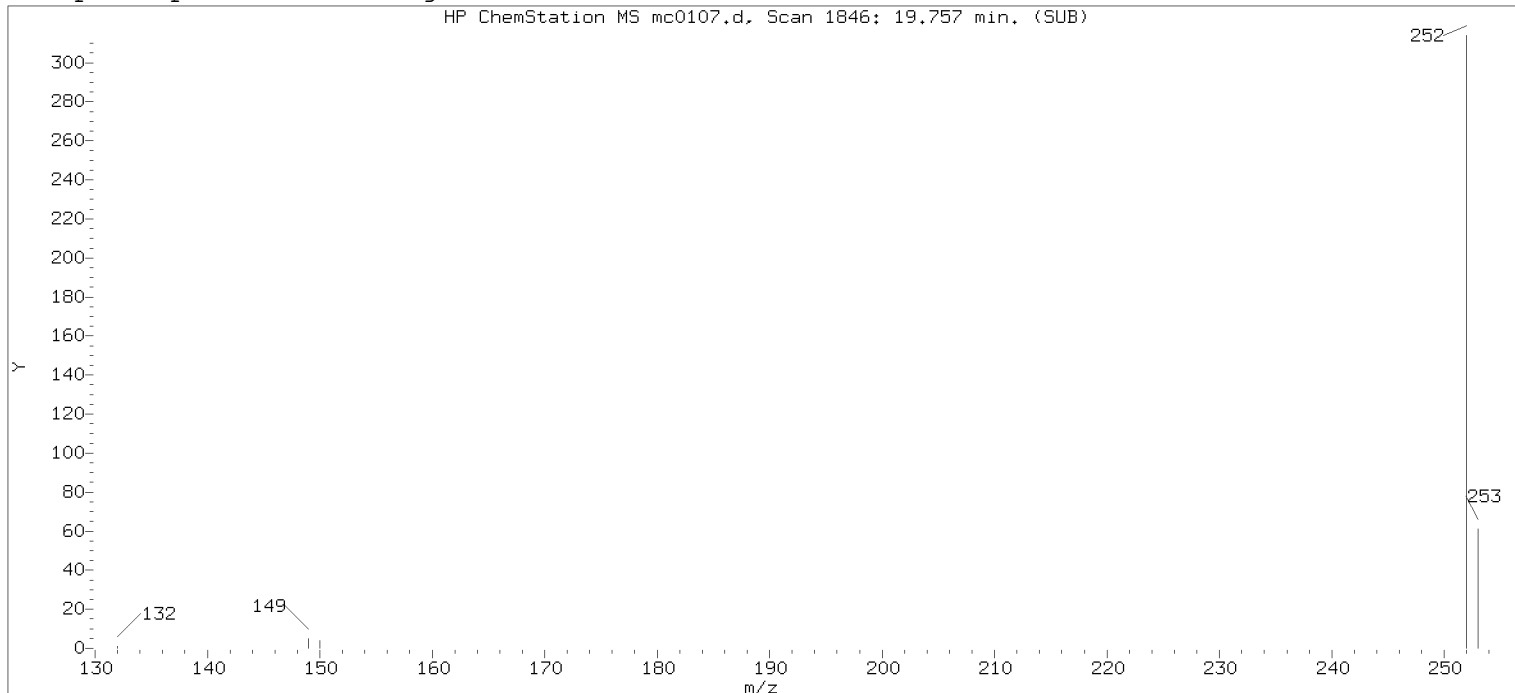
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

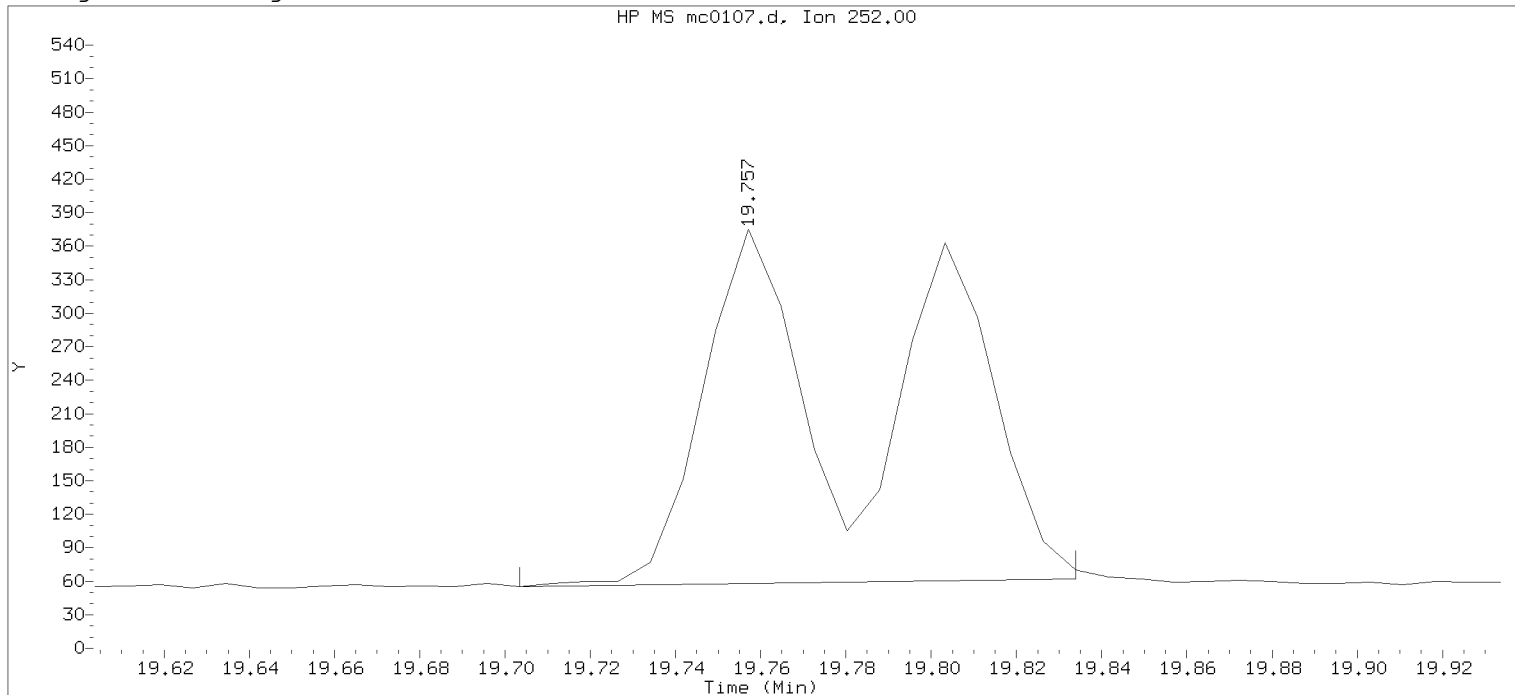
Sample Spectrum (Background Subtracted)

HP ChemStation MS mc0107.d, Scan 1846: 19.757 min. (SUB)



Original Integration of Quant Ion

HP MS mc0107.d, Ion 252.00



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.0025

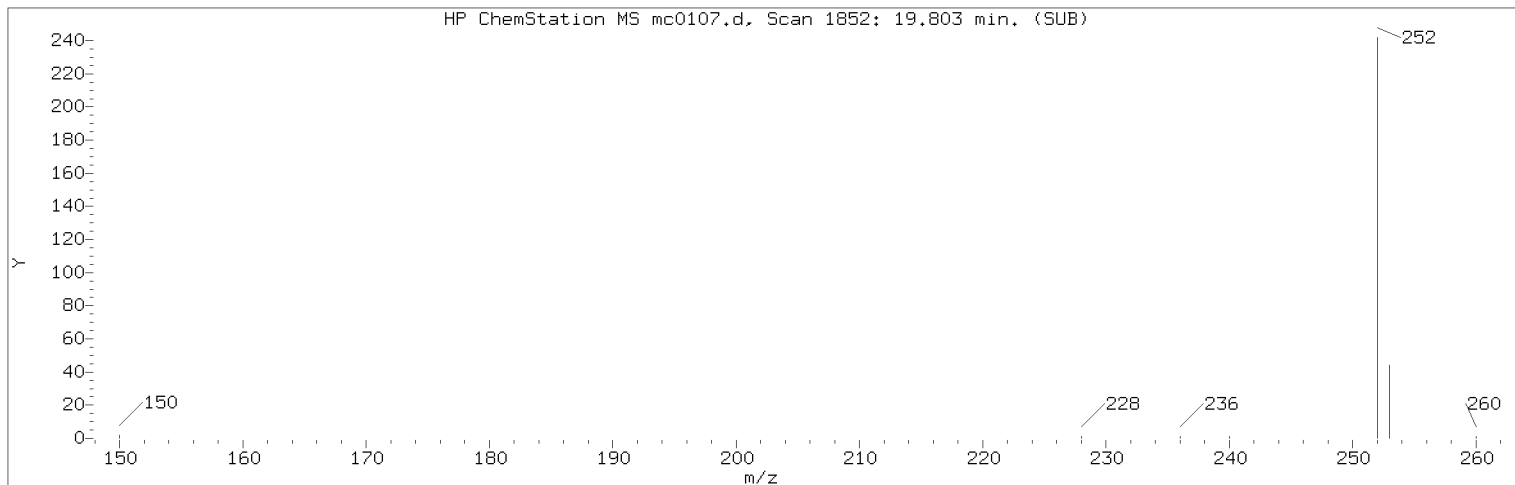
Lab Sample ID: RVSIM0130

Compound Number	: 33	
Compound Name	: Benzo(b)fluoranthene	
Scan Number	: 1846	
Retention Time (minutes)	: 19.757	
Quant Ion	: 252.00	
Area	: 953	
On-column Amount (ng/ul)	: 0.0046	
Integration start scan	: 1838	Integration stop scan: 1855
Y at integration start	: 55	Y at integration end: 62

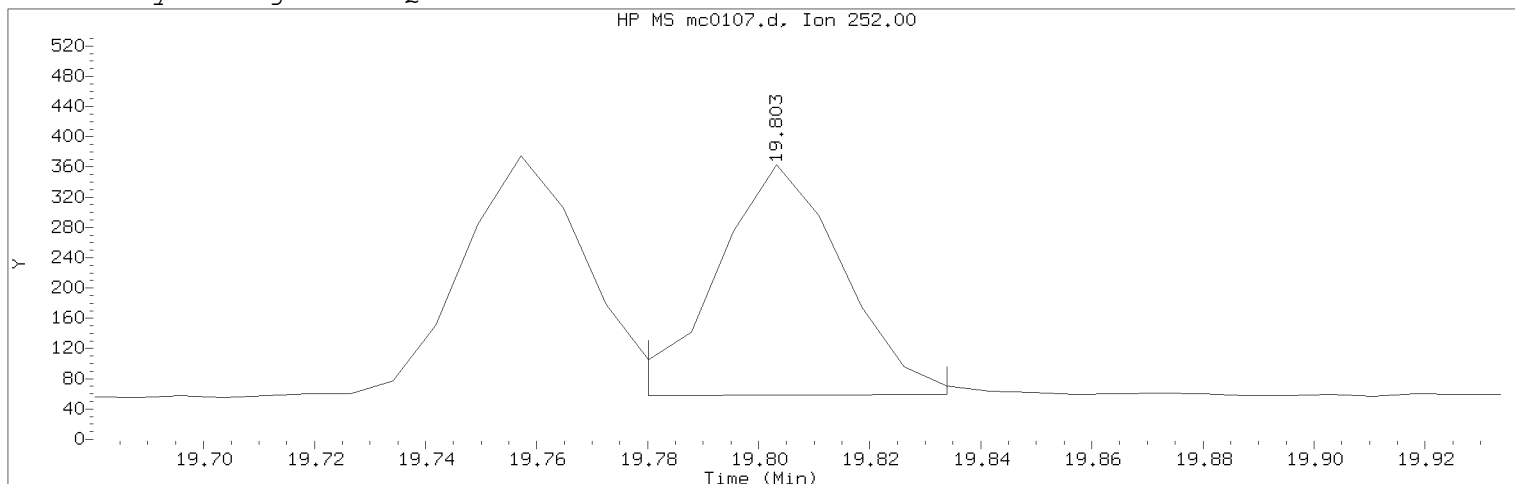
Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV68 Page 513 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTD0.0025

Lab Sample ID: RVSIM0130

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1852	
Retention Time (minutes)	: 19.803	
Quant Ion	: 252.00	
Area (flag)	: 485M	
On-Column Amount (ng/ul)	: 0.0023	
Integration start scan	: 1848	Integration stop scan: 1855
Y at integration start	: 58	Y at integration end: 59

Reason for manual integration: improper integration

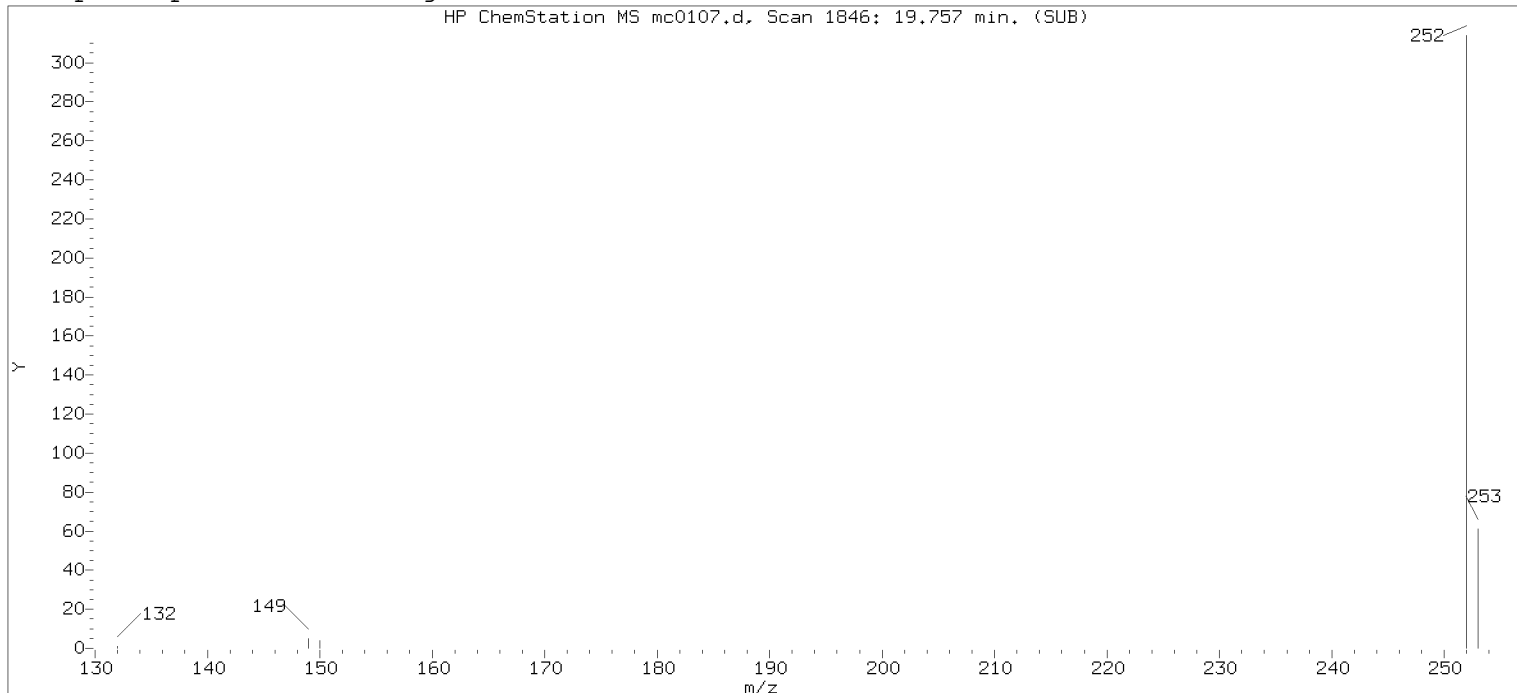
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

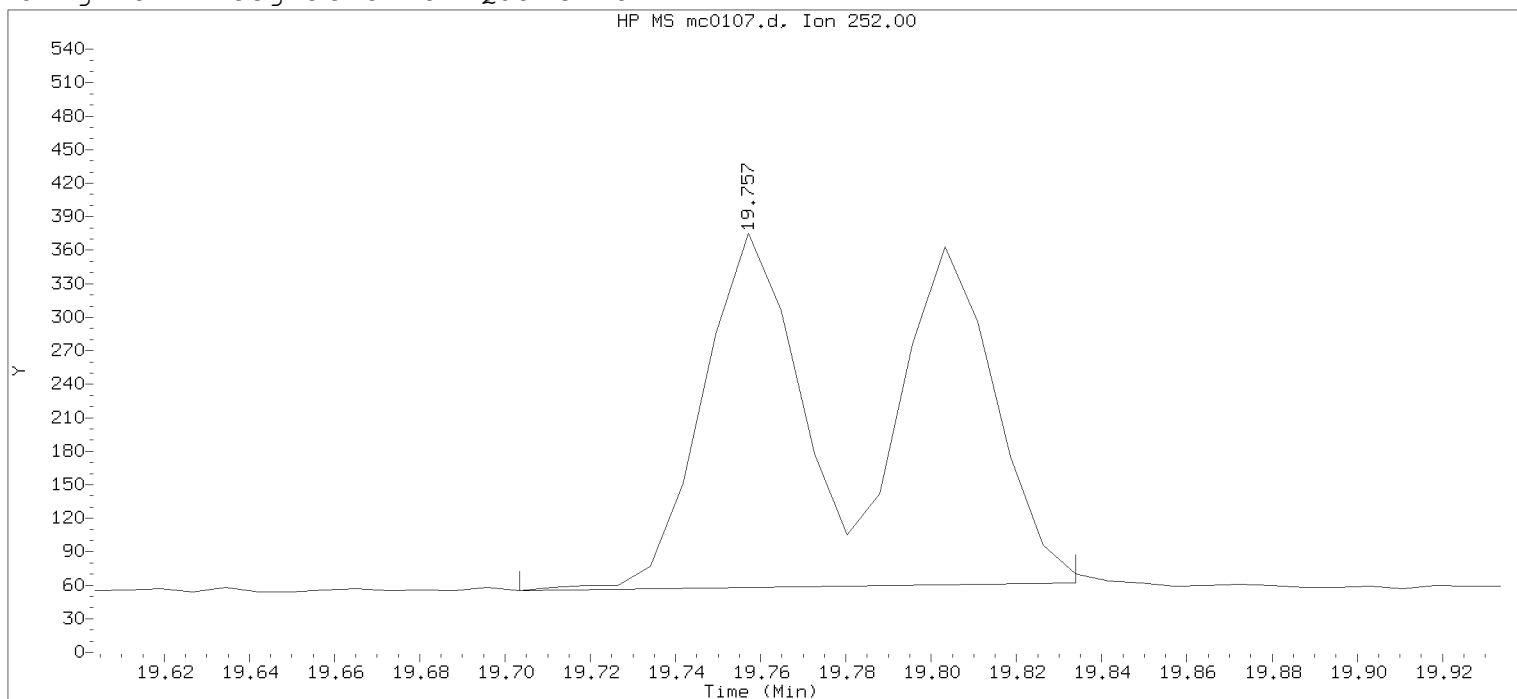
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

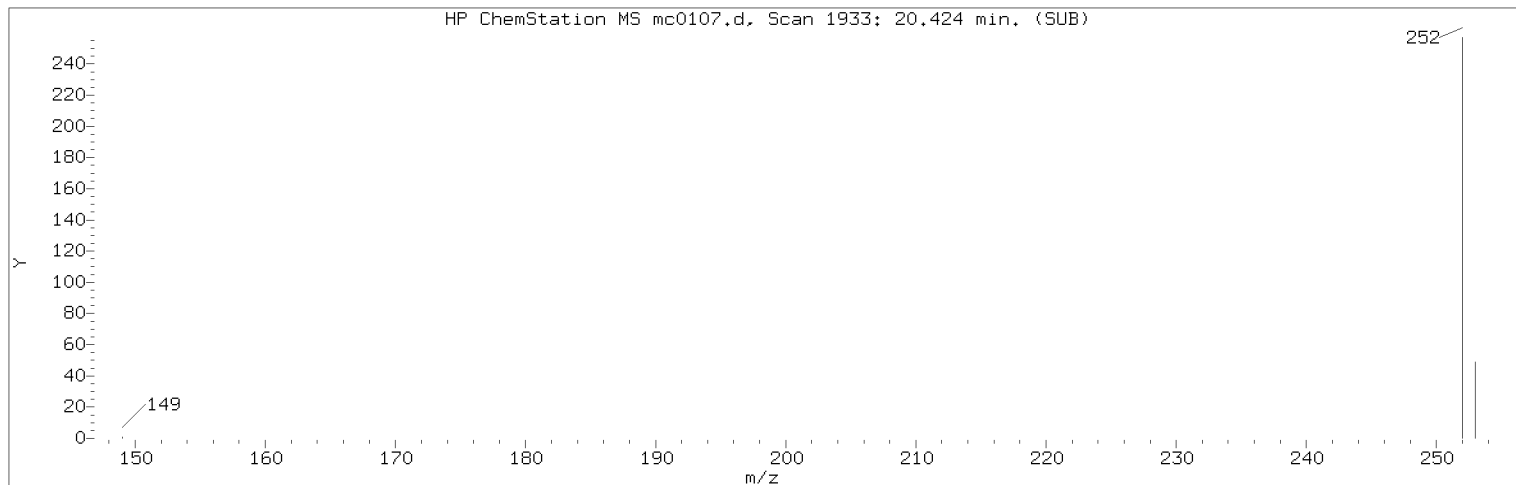
Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.0025

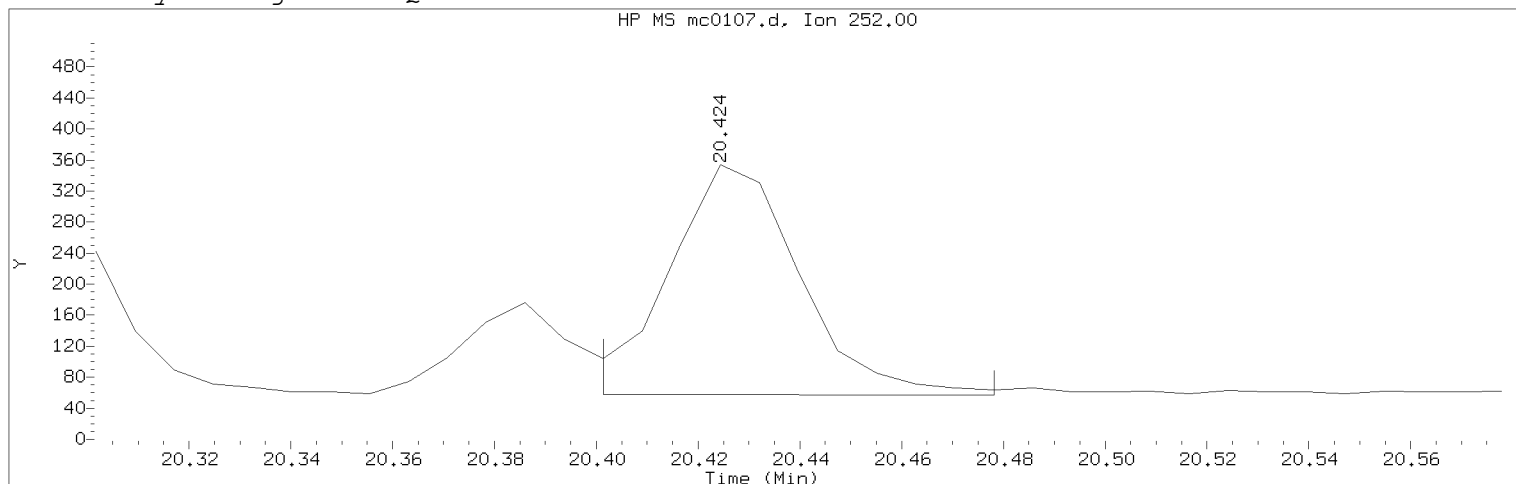
Lab Sample ID: RVSIM0130

Compound Number	: 34	
Compound Name	: Benzo(k)fluoranthene	
Scan Number	: 1846	
Retention Time (minutes)	: 19.757	
Quant Ion	: 252.00	
Area	: 953	
On-column Amount (ng/ul)	: 0.0044	
Integration start scan	: 1838	Integration stop scan: 1855
Y at integration start	: 55	Y at integration end: 62

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 45	
Compound Name	: Perylene	
Scan Number	: 1933	
Retention Time (minutes)	: 20.424	
Quant Ion	: 252.00	
Area (flag)	: 535M	
On-Column Amount (ng/ul)	: 0.0026	
Integration start scan	: 1929	Integration stop scan: 1939
Y at integration start	: 58	Y at integration end: 57

Reason for manual integration: improper integration

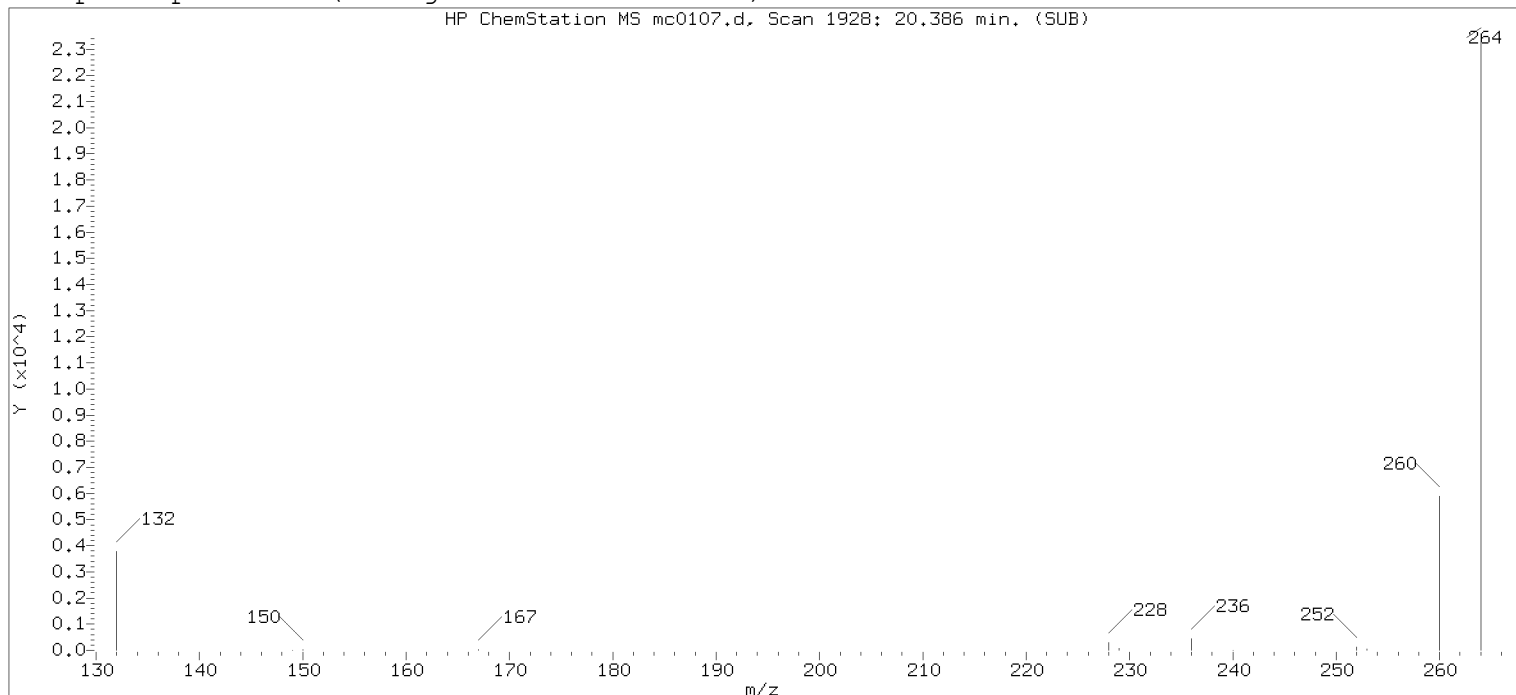
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

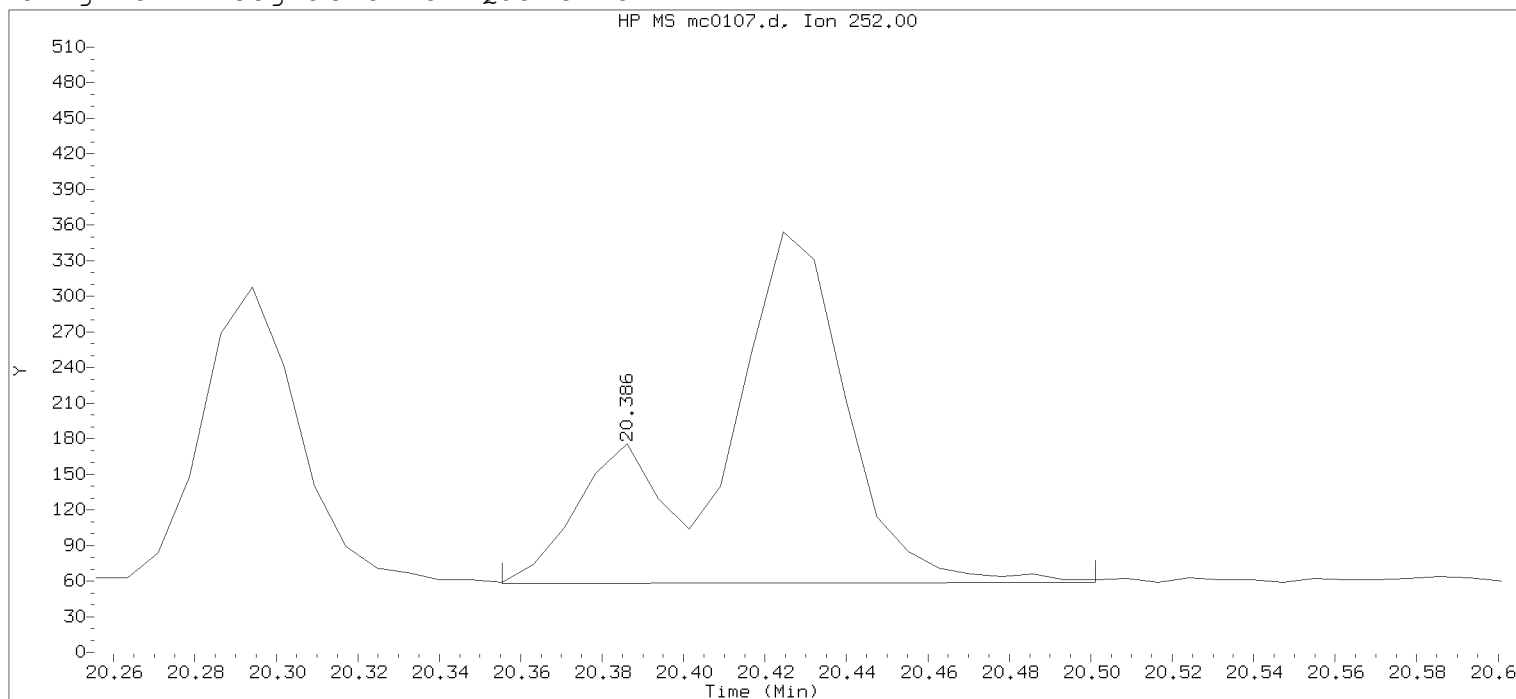
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.0025

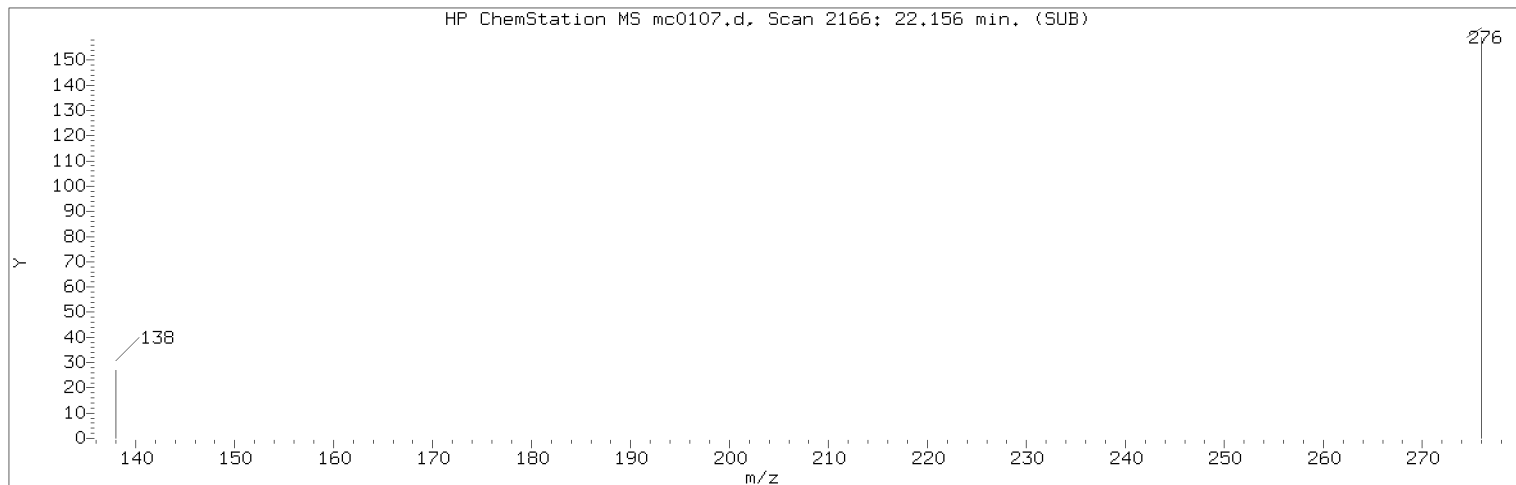
Lab Sample ID: RVSIM0130

Compound Number : 45
 Compound Name : Perylene
 Scan Number : 1928
 Retention Time (minutes) : 20.386
 Quant Ion : 252.00
 Area : 693
 On-column Amount (ng/ul) : 0.0033
 Integration start scan : 1923
 Y at integration start : 58

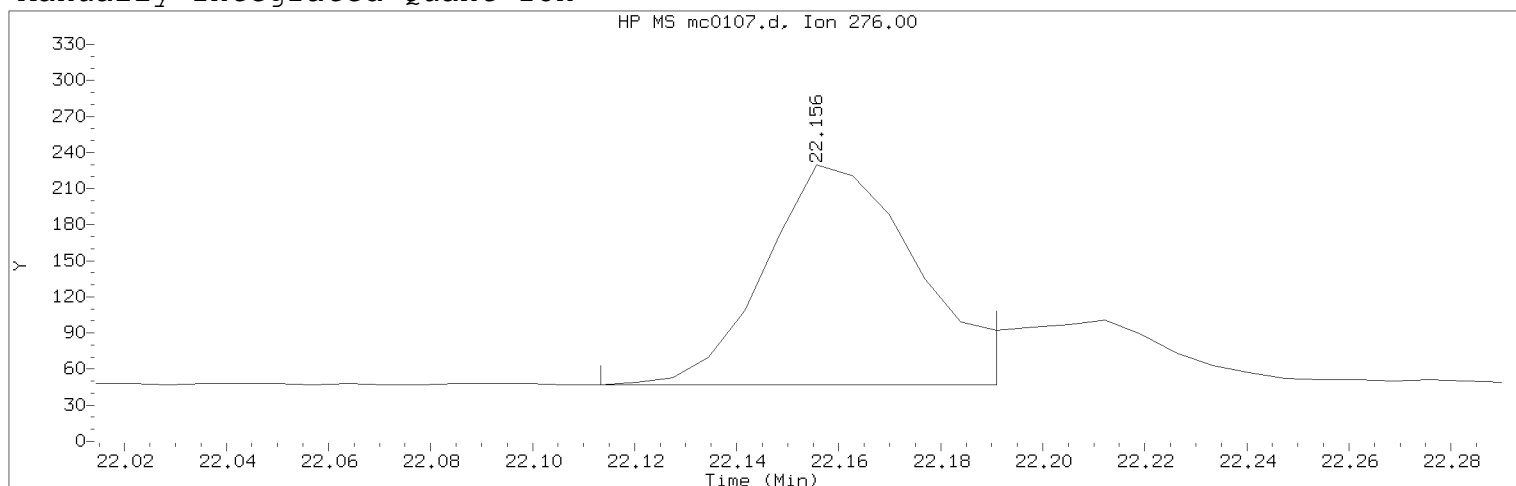
Integration stop scan: 1942
 Y at integration end: 59

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.
 Target 3.5 esignature user GPV68jmg Page 517 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:38 jmg00346

Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 383M	
On-Column Amount (ng/ul)	: 0.0022	
Integration start scan	: 2159	Integration stop scan: 2170
Y at integration start	: 47	Y at integration end: 47

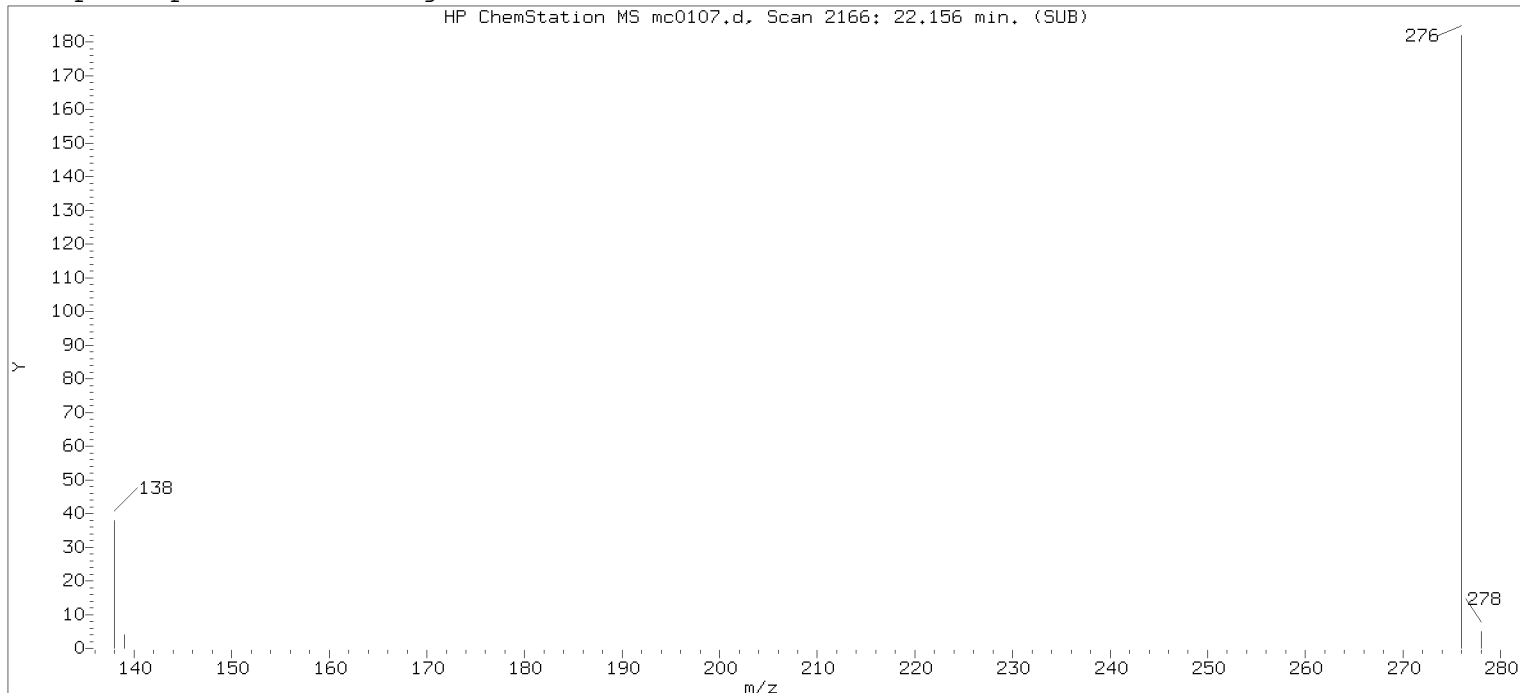
Reason for manual integration: improper integration

Analyst responsible for change:

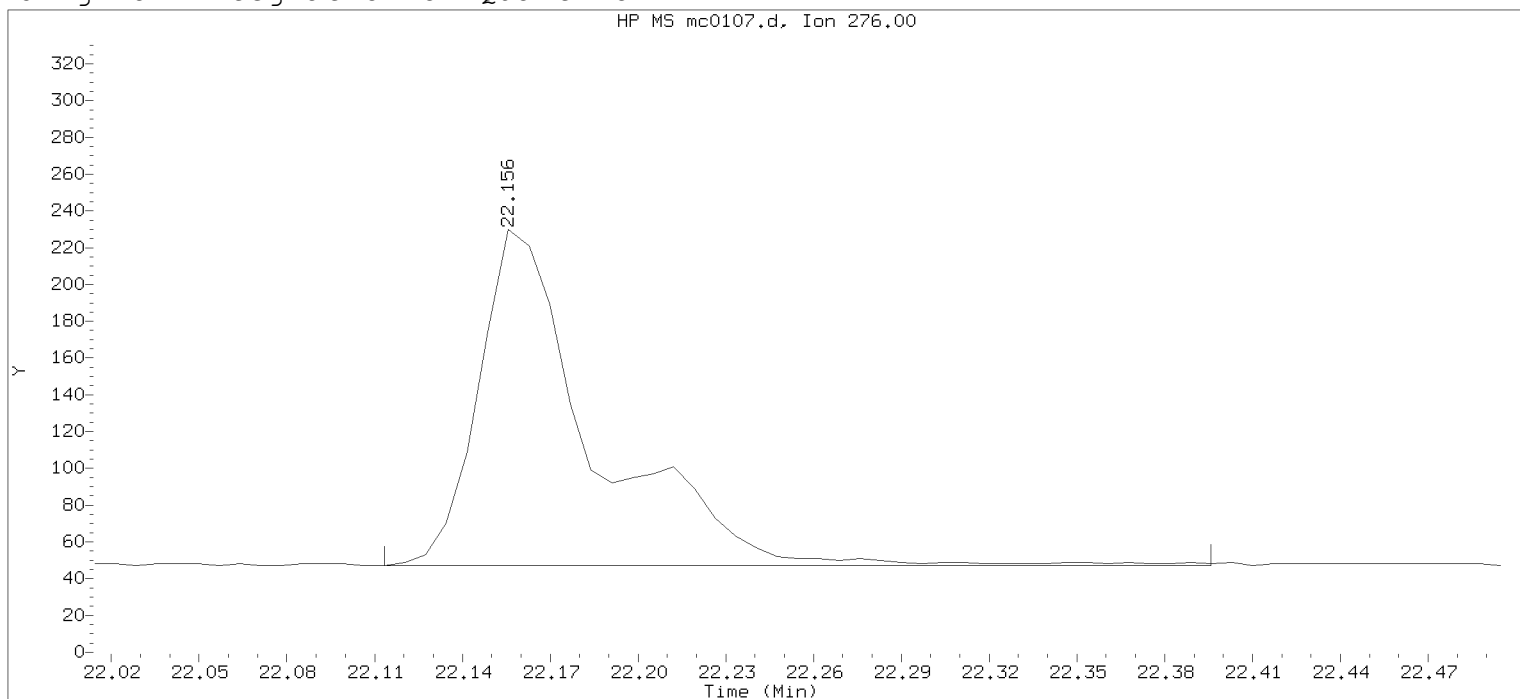
Digitally signed by Joseph M. Gambler
on 03/05/2020 at 03:44.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:18.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0107.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 01:34

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

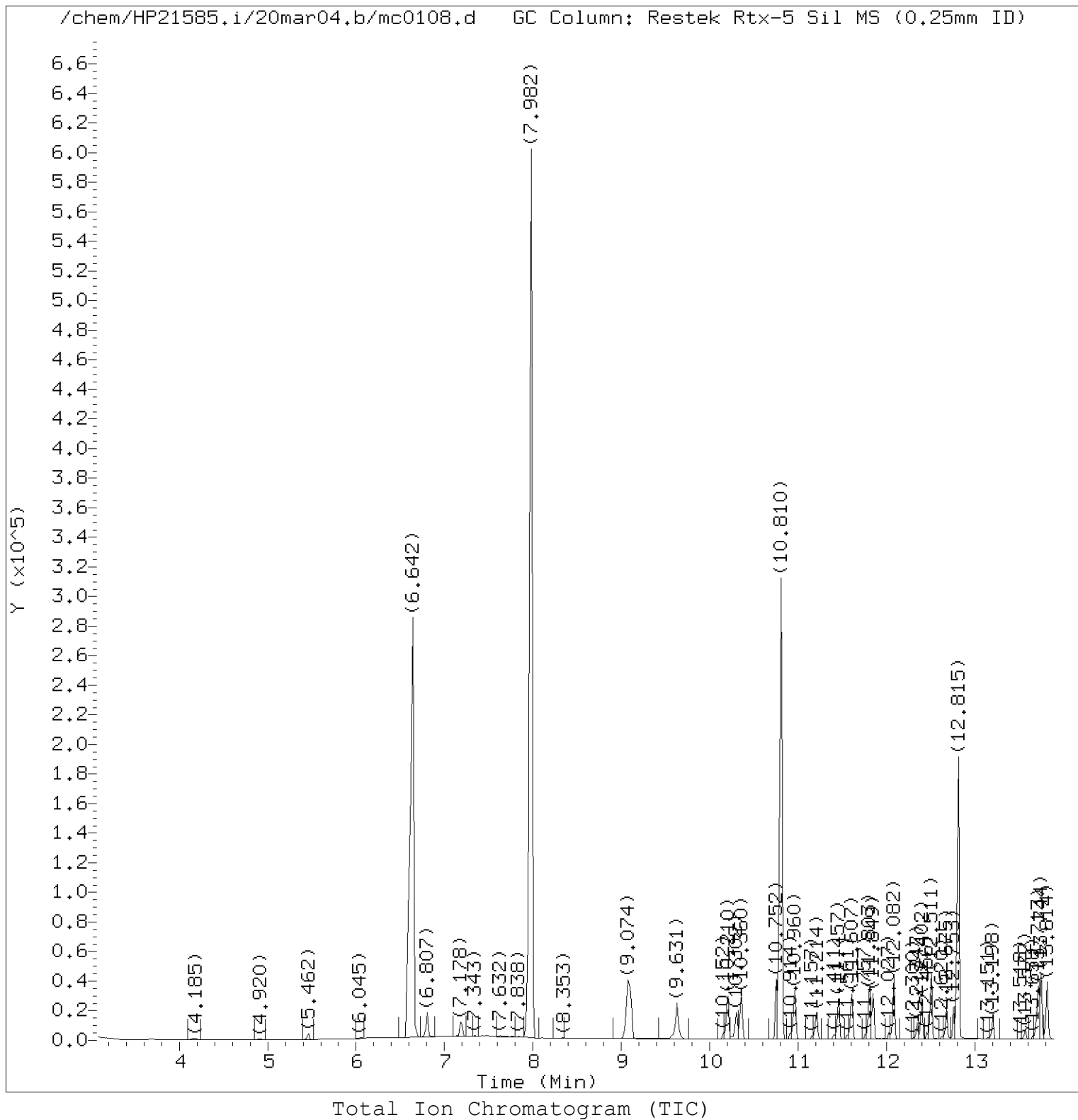
Sample Name: SSTDO.0025

Lab Sample ID: RVSIM0130

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 506	
On-column Amount (ng/ul)	: 0.0029	
Integration start scan	: 2159	Integration stop scan: 2199
Y at integration start	: 47	Y at integration end: 47

Digitally signed by Joseph M. Gambler on 03/05/2020 at 03:44.

Target 3.5 esignature user GPV68jmg Page 519 of 586



Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0108.d
Injection date and time: 05-MAR-2020 02:05

Instrument ID: HP21585.i
Analyst ID: ceb05247

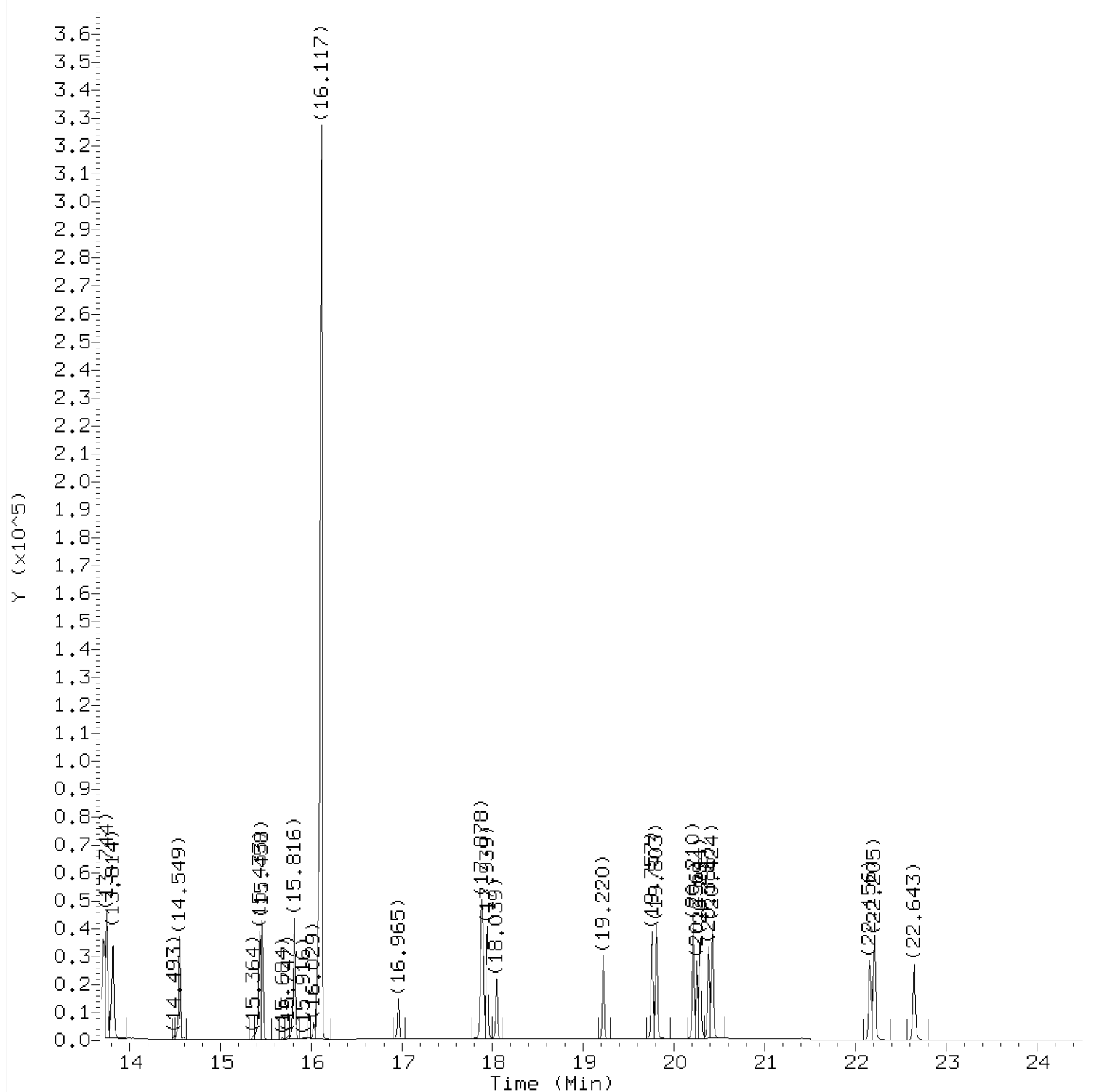
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1x
Calibration date and time: 11-MAR-2020 03:51
Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV0170

Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0108.d
Injection date and time: 05-MAR-2020 02:05

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1x
Calibration date and time: 11-MAR-2020 03:51
Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: RVSICV0170

Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: RVSICV0170

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.199	152	13683MA	0.250
6) *Naphthalene-d8	(2)	9.074	136	52470	0.250
7) Naphthalene	(2)	9.116	128	57185	0.230
9) 2-Methylnaphthalene	(2)	10.210	142	31691	0.206
11) 1-Methylnaphthalene	(2)	10.360	142	33274	0.229
12) Dimethylphthalate	(3)	11.457	163	32097	0.198
13) Acenaphthylene	(3)	11.607	152	53880	0.229
14) *Acenaphthene-d10	(3)	11.815	164	22191	0.250
15) Acenaphthene	(3)	11.849	154	27679	0.211
17) Diethylphthalate	(3)	12.402	149	31334	0.195
18) Fluorene	(3)	12.511	166	34741	0.209
43) N-Nitrosodiphenylamine	(4)	12.675	169	16949	0.191
19) Hexachlorobenzene	(4)	13.206	284	14035	0.230
20) *Phenanthrene-d10	(4)	13.713	188	47216	0.250
21) Phenanthrene	(4)	13.744	178	56641	0.231
22) Anthracene	(4)	13.814	178	50771	0.221
23) Di-n-butylphthalate	(4)	14.549	149	47632	0.186
25) Fluoranthene	(4)	15.465	202	61026	0.226
26) Pyrene	(5)	15.816	202	60320	0.226
28) Benzo(a)anthracene	(5)	17.870	228	51720	0.229
29) *Chrysene-d12	(5)	17.893	240	37293	0.250
30) Chrysene	(5)	17.939	228	52317	0.223
33) Benzo(b)fluoranthene	(6)	19.757	252	48429	0.240
34) Benzo(k)fluoranthene	(6)	19.803	252	49980	0.237
37) Benzo(a)pyrene	(6)	20.294	252	48518	0.253
38) *Perylene-d12	(6)	20.386	264	35706	0.250
45) Perylene	(6)	20.424	252	51335	0.251
39) Indeno(1,2,3-cd)pyrene	(6)	22.156	276	45249M	0.264
40) Dibenz(a,h)anthracene	(6)	22.205	278	46930	0.243
41) Benzo(g,h,i)perylene	(6)	22.643	276	47288	0.234

M = Compound was manually integrated.

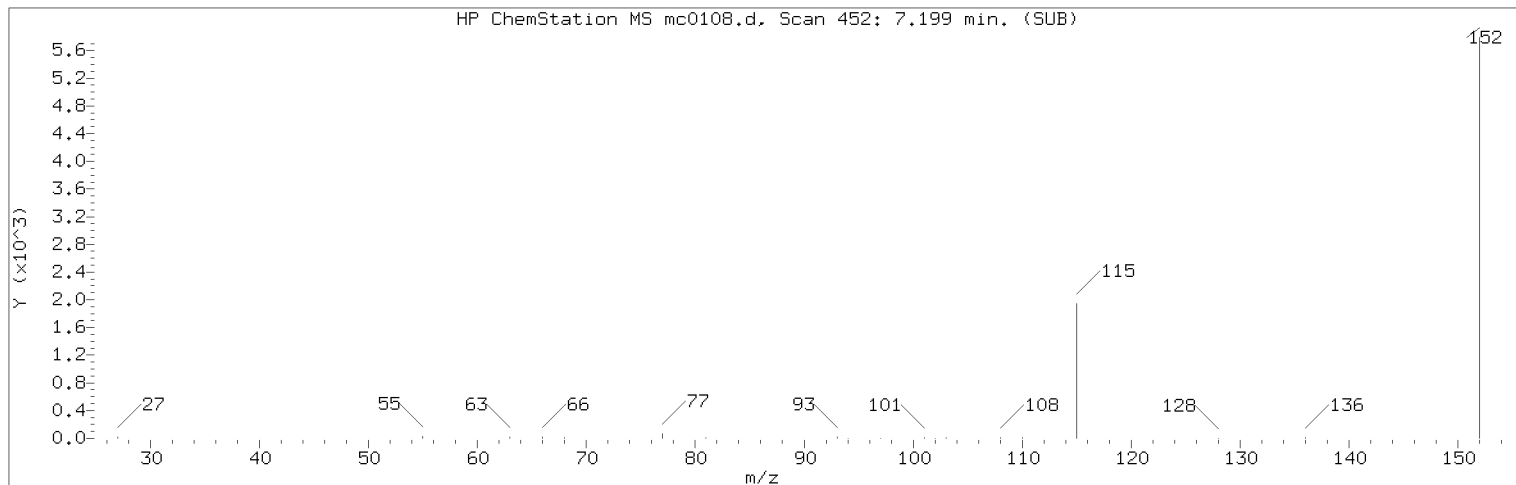
A = User selected an alternate hit.

* = Compound is an internal standard.

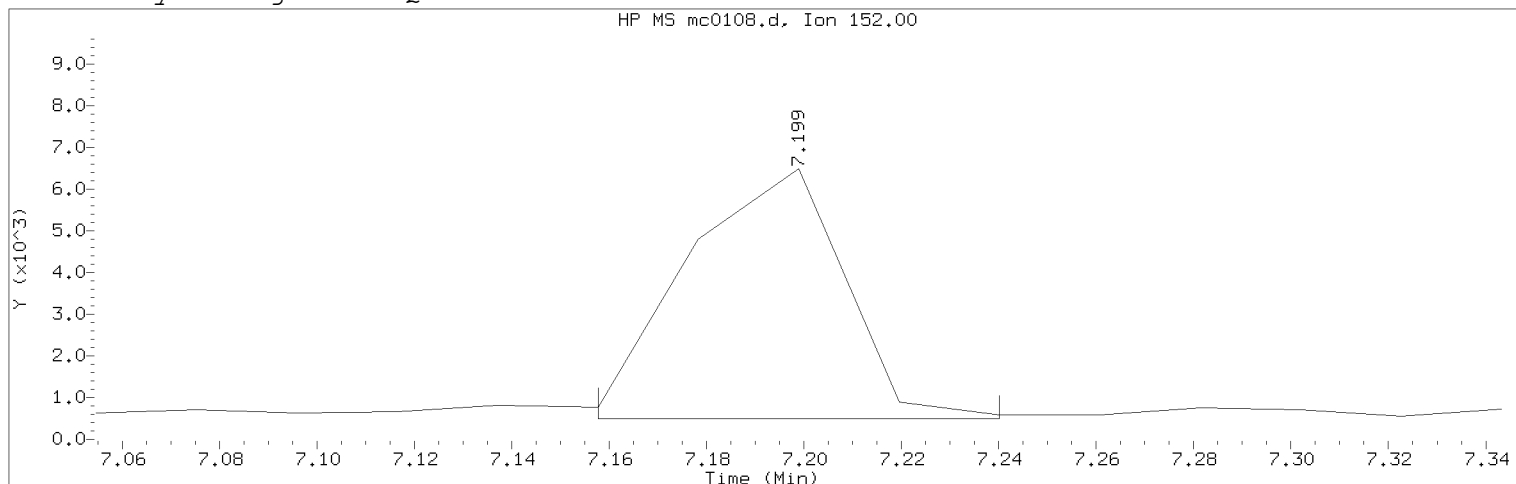
Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: RVSICV0170

Compound Number	: 5	
Compound Name	: 1,4-Dichlorobenzene-d4	
Scan Number	: 452	
Retention Time (minutes)	: 7.199	
Quant Ion	: 152.00	
Area (flag)	: 13683MA	
On-Column Amount (ng/ul)	: 0.2500	
Integration start scan	: 449	Integration stop scan: 453
Y at integration start	: 489	Y at integration end: 497

Reason for manual integration: improper integration

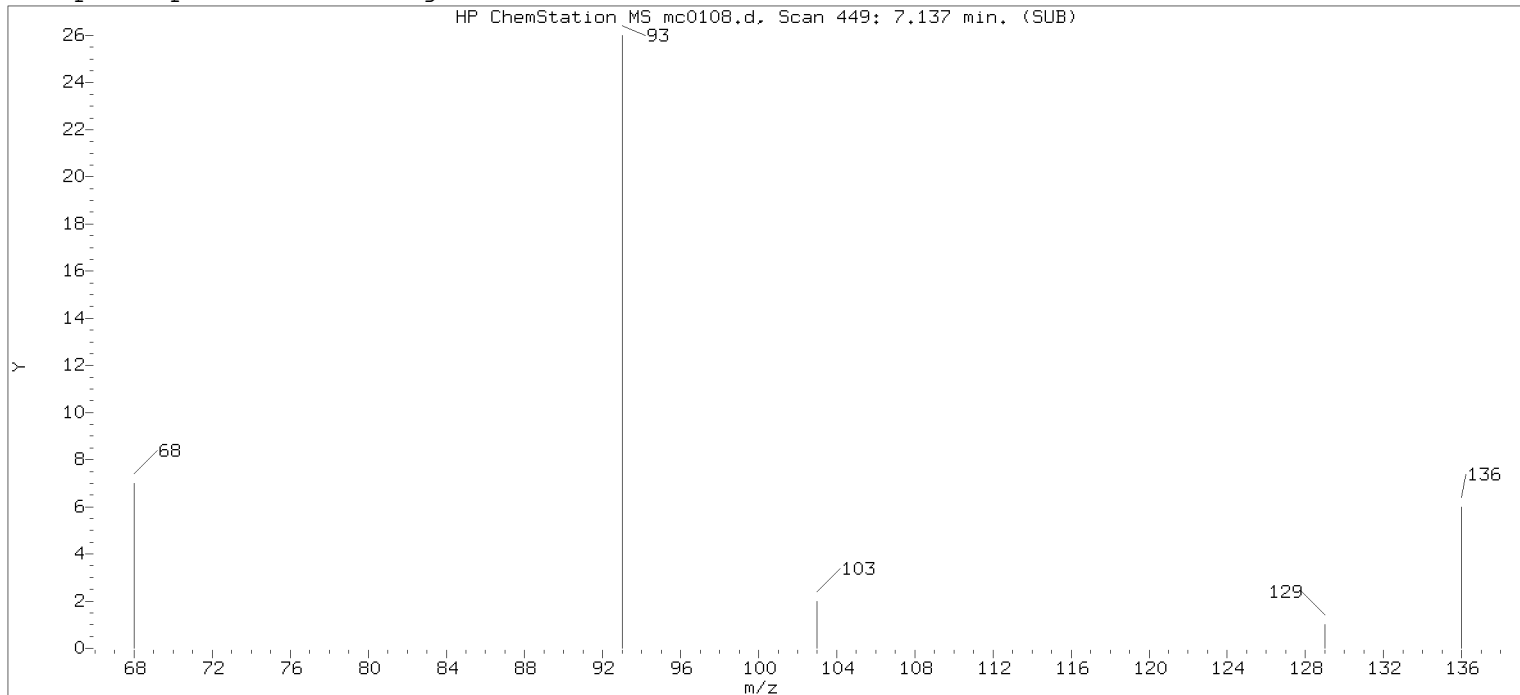
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

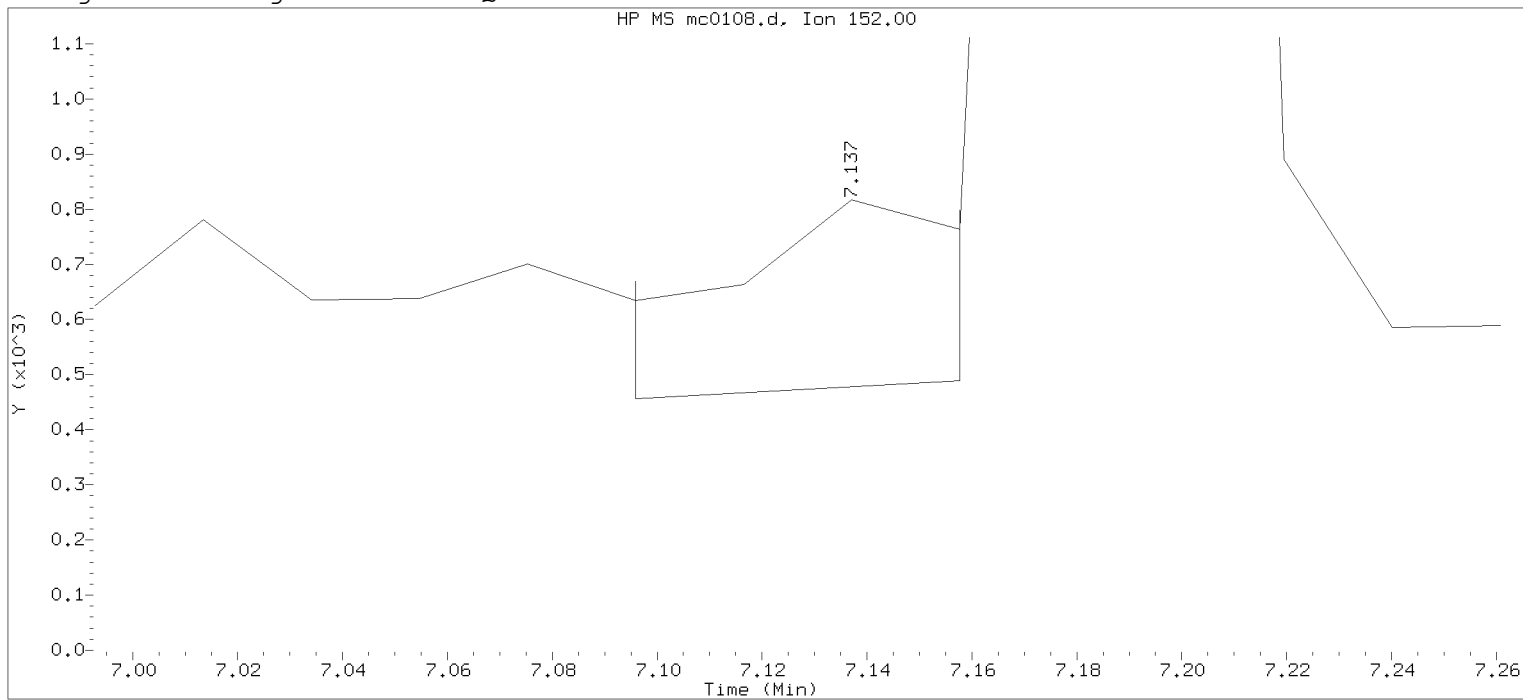
Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: icvall1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.50

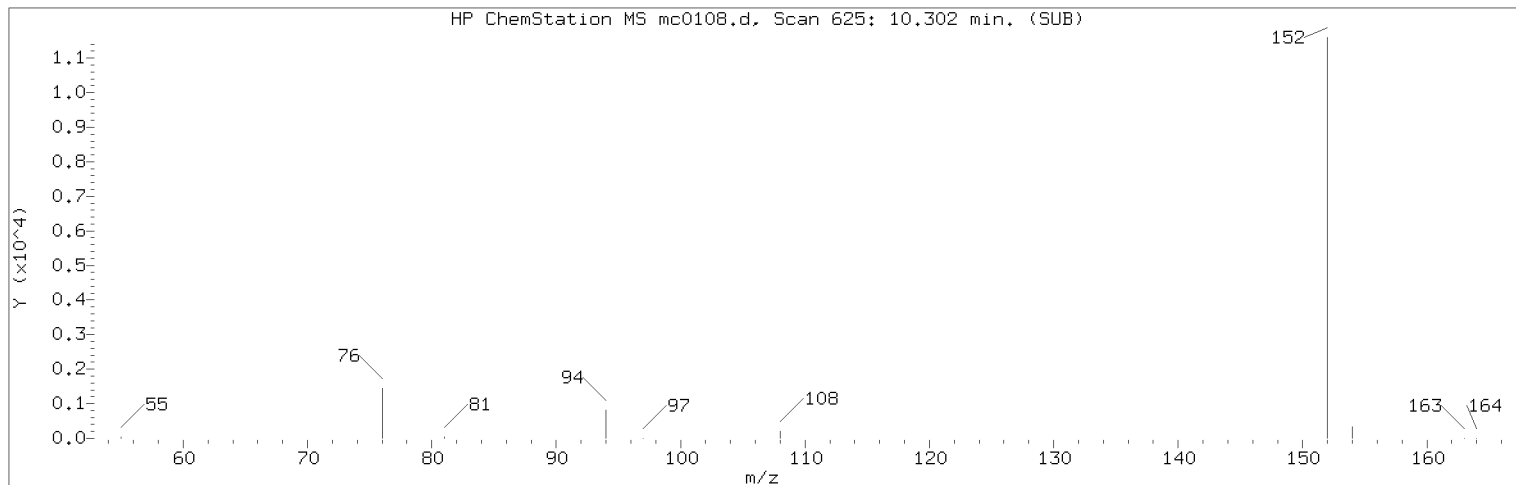
Lab Sample ID: RVSICV0170

Compound Number	: 5	
Compound Name	: 1,4-Dichlorobenzene-d4	
Scan Number	: 449	
Retention Time (minutes)	: 7.137	
Quant Ion	: 152.00	
Area	: 941	
On-column Amount (ng/ul)	: 0.2500	
Integration start scan	: 446	Integration stop scan: 449
Y at integration start	: 456	Y at integration end: 489

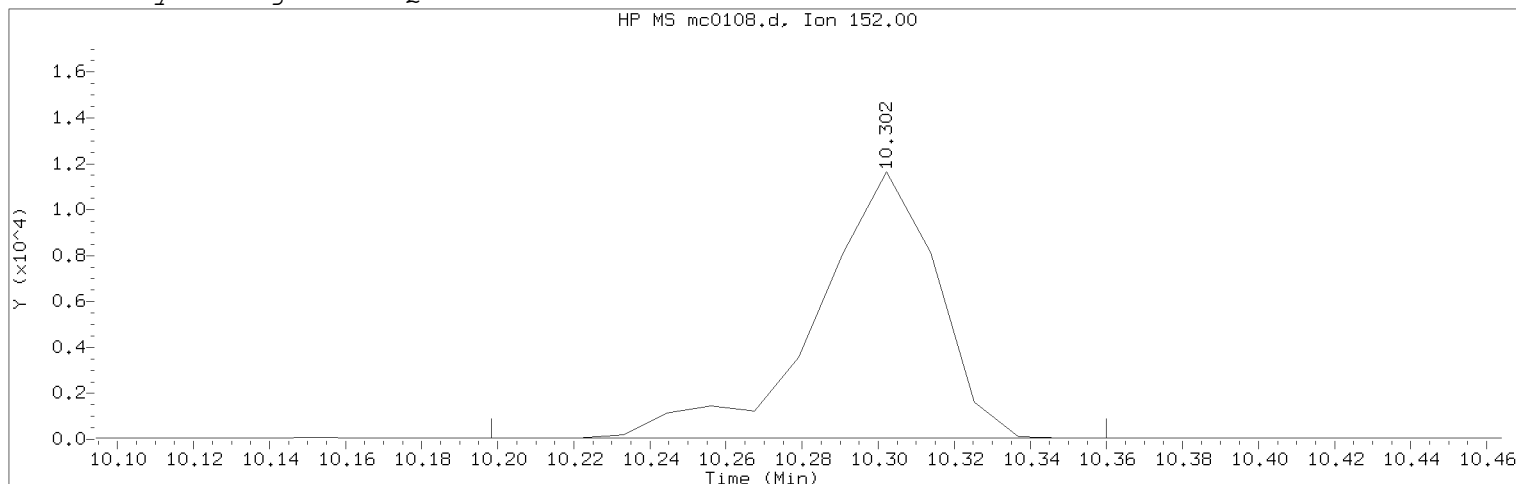
Digitally signed by Joseph M. Gambler on 03/11/2020 at 03:53.

Target 3.5 esignature user GPV68 Page 524 of 586

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: RVSICV0170

Compound Number	: 10	
Compound Name	: 1-Methylnaphthalene-d10	
Scan Number	: 625	
Retention Time (minutes)	: 10.302	
Quant Ion	: 152.00	
Area (flag)	: 25385M	
On-Column Amount (ng/ul)	: 0.2363	
Integration start scan	: 615	Integration stop scan: 629
Y at integration start	: 51	Y at integration end: 58

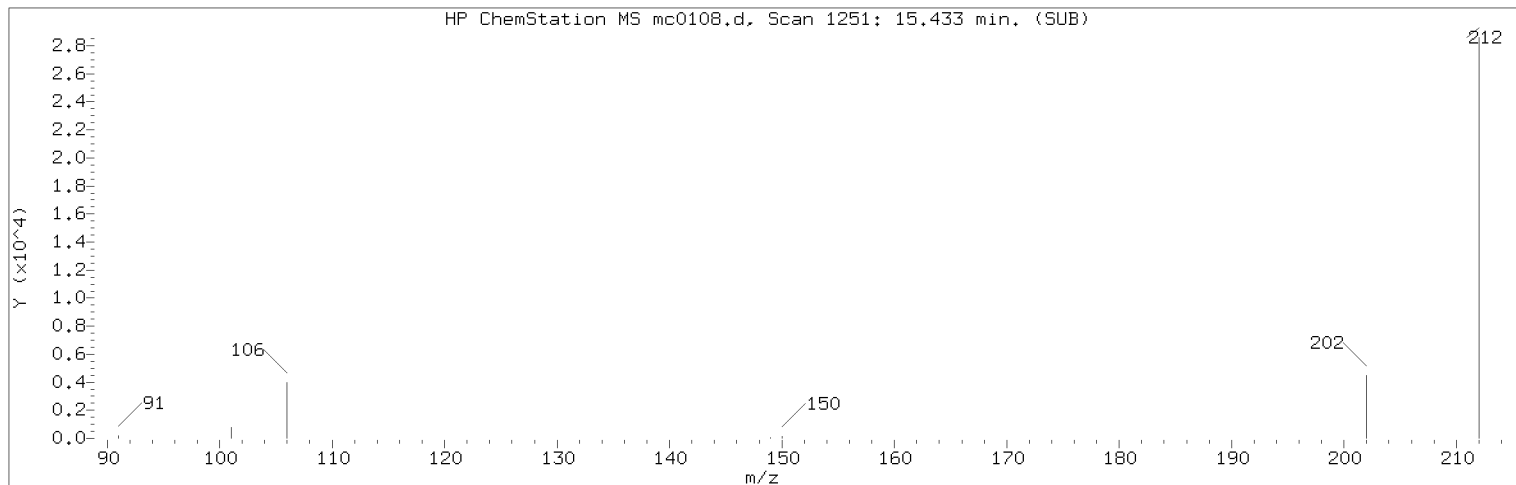
Reason for manual integration: compound not in processing sublist

Analyst responsible for change:

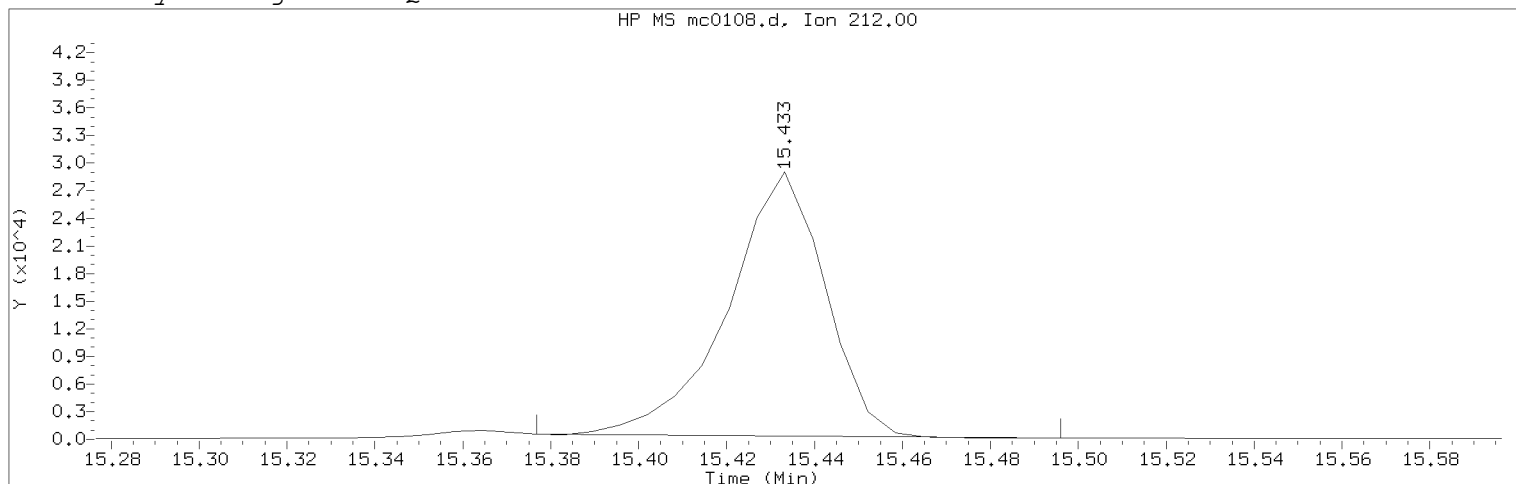
Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV0170

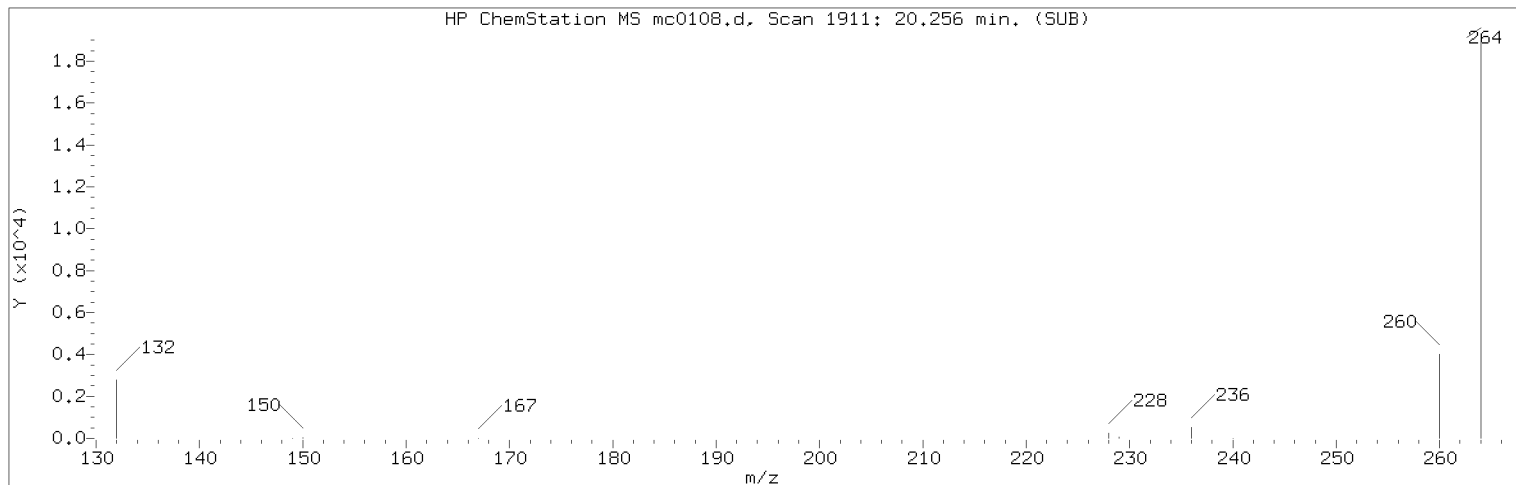
Compound Number	: 24	
Compound Name	: Fluoranthene-d10	
Scan Number	: 1251	
Retention Time (minutes)	: 15.433	
Quant Ion	: 212.00	
Area (flag)	: 43750M	
On-Column Amount (ng/ul)	: 0.2194	
Integration start scan	: 1241	Integration stop scan: 1260
Y at integration start	: 537	Y at integration end: 130

Reason for manual integration: compound not in processing sublist

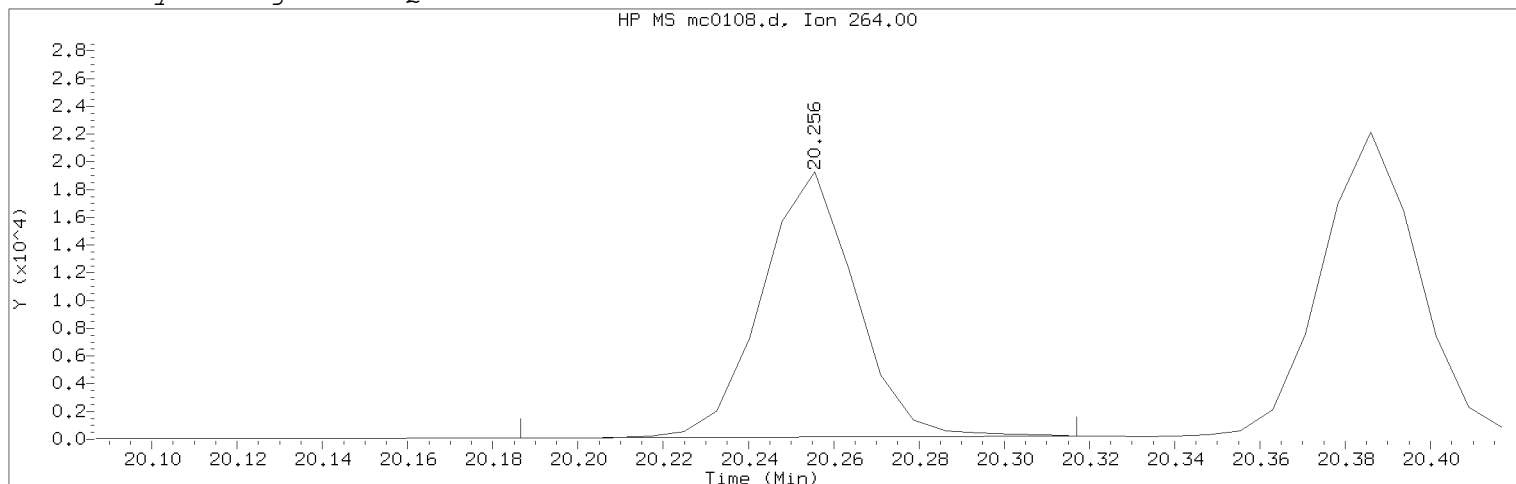
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV0170

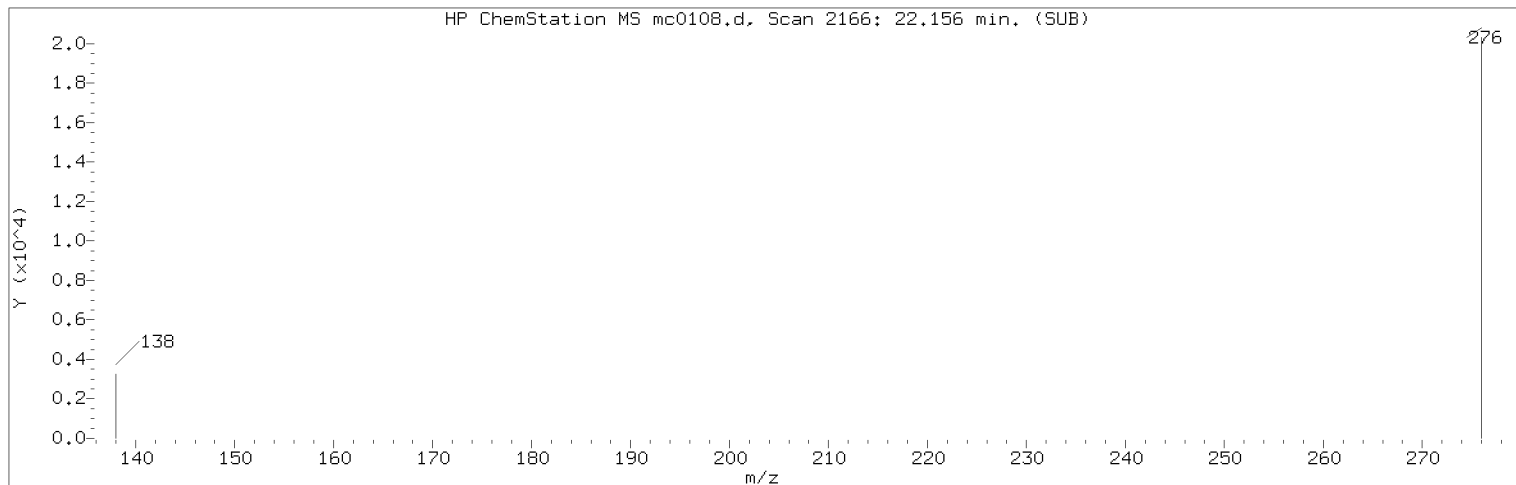
Compound Number	: 36	
Compound Name	: Benzo(a)pyrene-d12	
Scan Number	: 1911	
Retention Time (minutes)	: 20.256	
Quant Ion	: 264.00	
Area (flag)	: 29073M	
On-Column Amount (ng/ul)	: 0.2161	
Integration start scan	: 1901	Integration stop scan: 1918
Y at integration start	: 77	Y at integration end: 235

Reason for manual integration: compound not in processing sublist

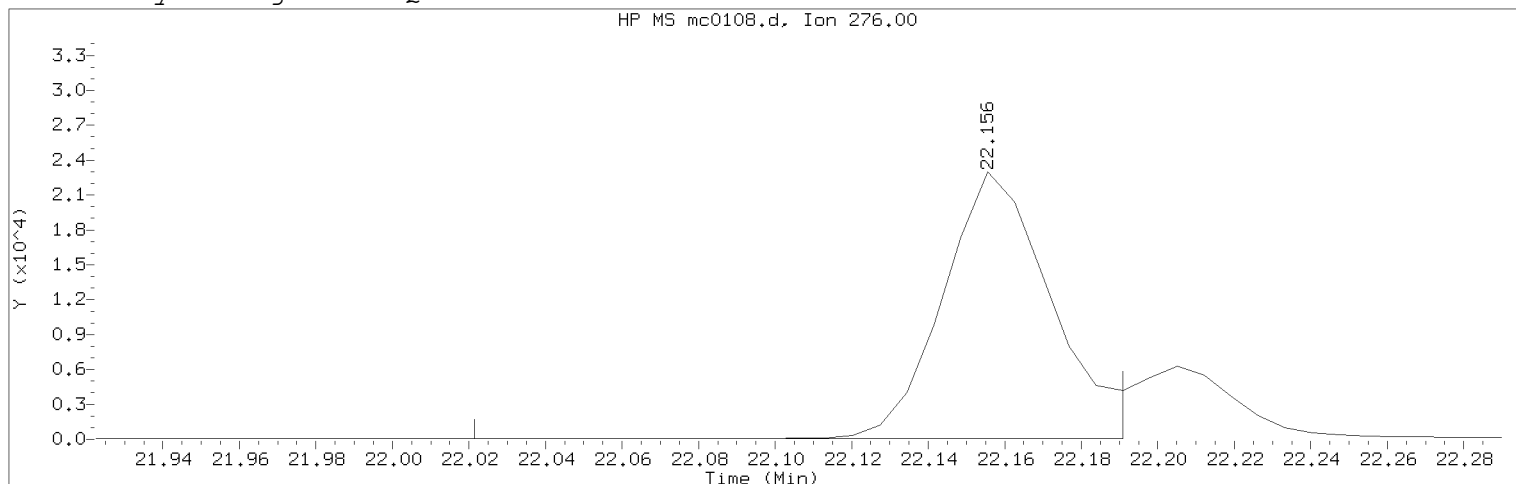
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: all1x

Calibration date and time: 11-MAR-2020 03:51

Date, time and analyst ID of latest file update: 11-Mar-2020 03:51 jmg00346

Sample Name: SST0.50

Lab Sample ID: RVSICV0170

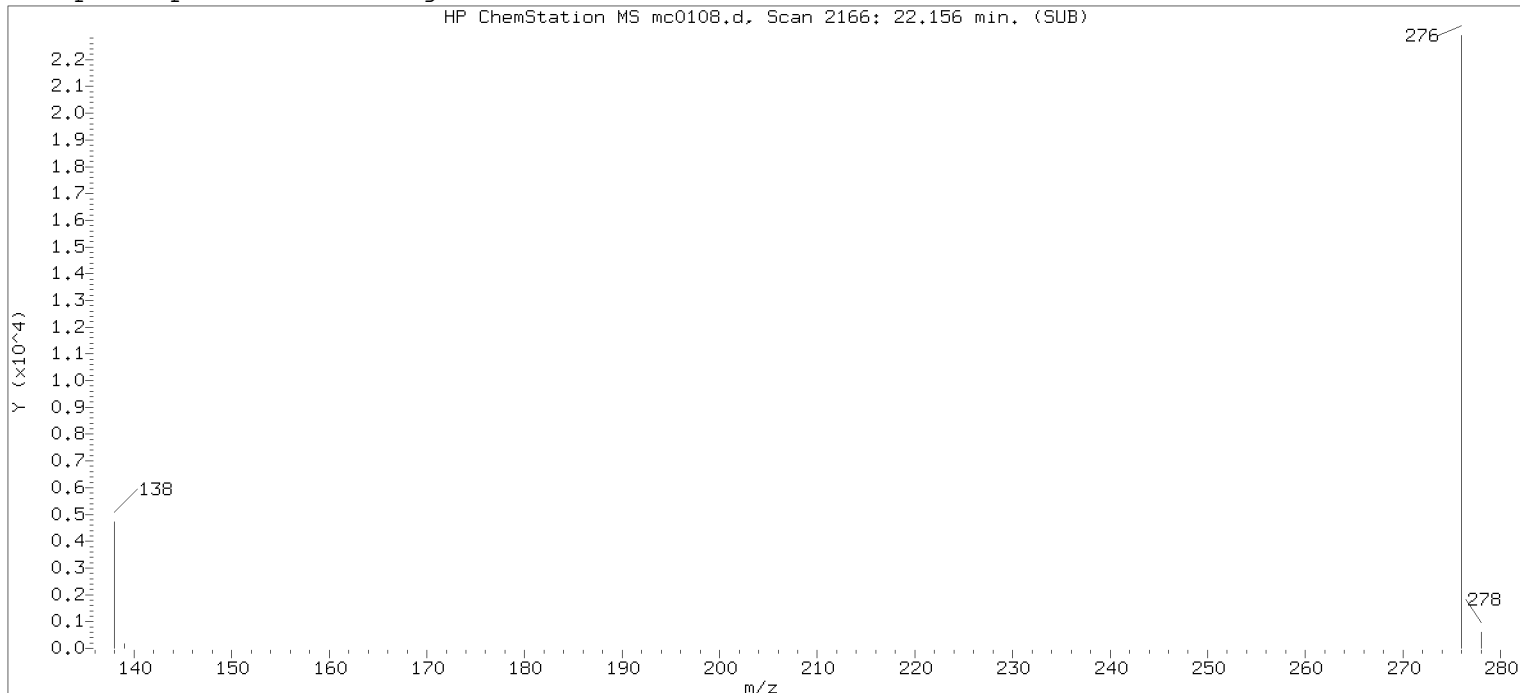
Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area (flag)	: 45249M	
On-Column Amount (ng/ul)	: 0.2640	
Integration start scan	: 2146	Integration stop scan: 2170
Y at integration start	: 49	Y at integration end: 49

Reason for manual integration: improper integration

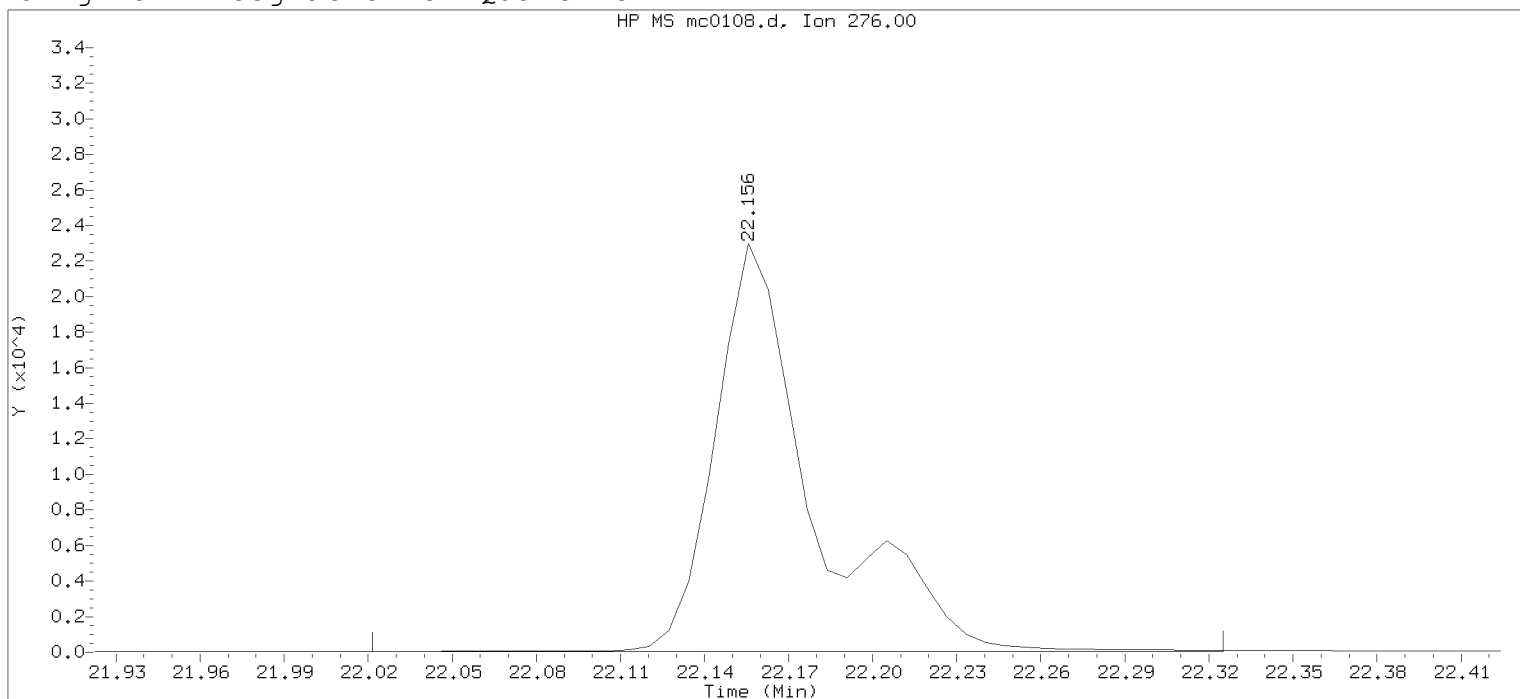
Analyst responsible for change: Digitally signed by Joseph M. Gambler
on 03/11/2020 at 03:53.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/11/2020 at 08:10.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0108.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 02:05

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: icvall1

Calibration date and time: 05-MAR-2020 03:35

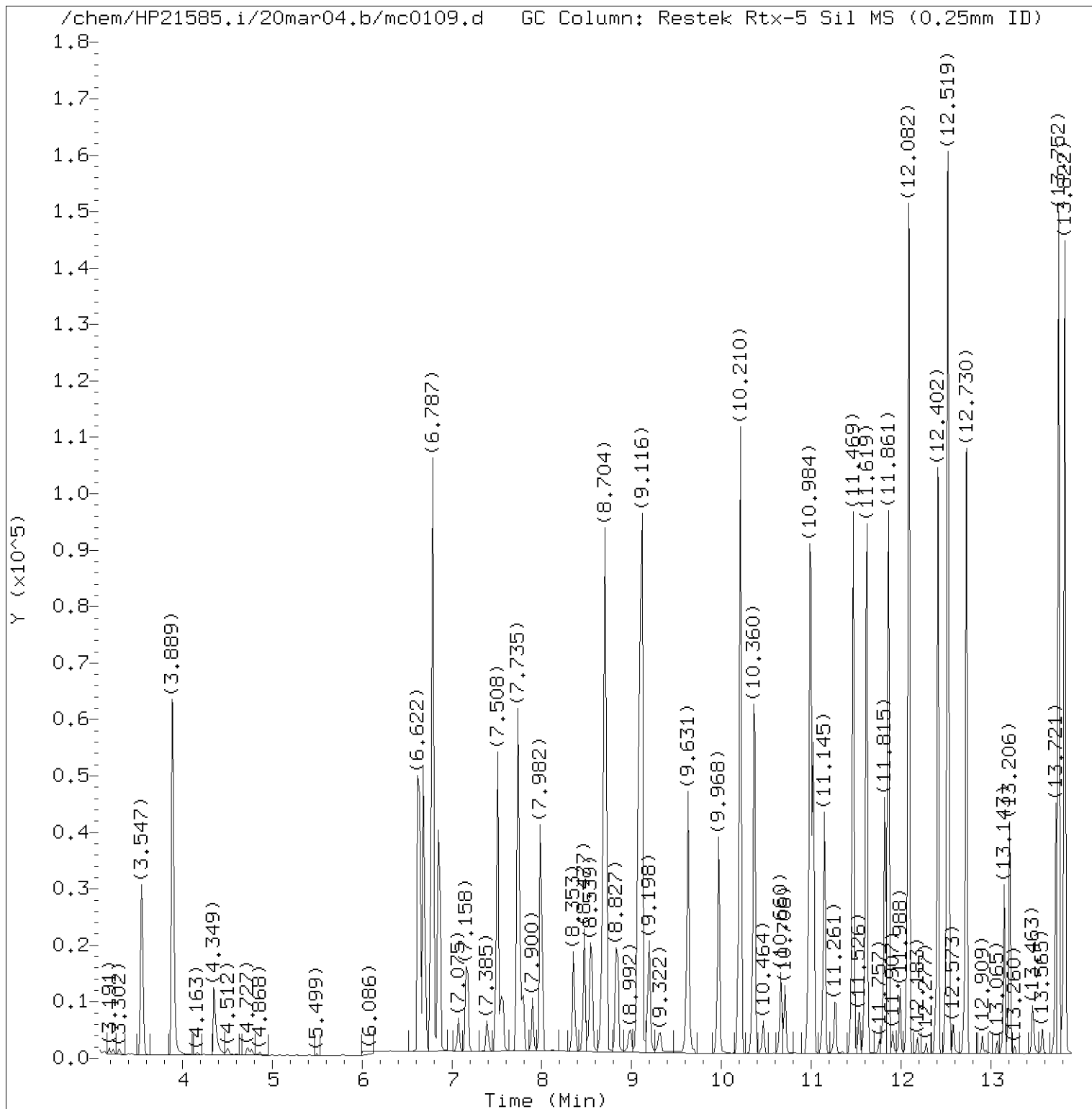
Date, time and analyst ID of latest file update: 05-Mar-2020 03:37 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV0170

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2166	
Retention Time (minutes)	: 22.156	
Quant Ion	: 276.00	
Area	: 56055	
On-column Amount (ng/ul)	: 0.3271	
Integration start scan	: 2146	Integration stop scan: 2189
Y at integration start	: 49	Y at integration end: 49

Digitally signed by Joseph M. Gambler on 03/11/2020 at 03:53.
Target 3.5 esignature user GPV68jmg Page 529 of 586



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0109.d
Injection date and time: 05-MAR-2020 03:46

Instrument ID: HP21585.i
Analyst ID: ceb05247

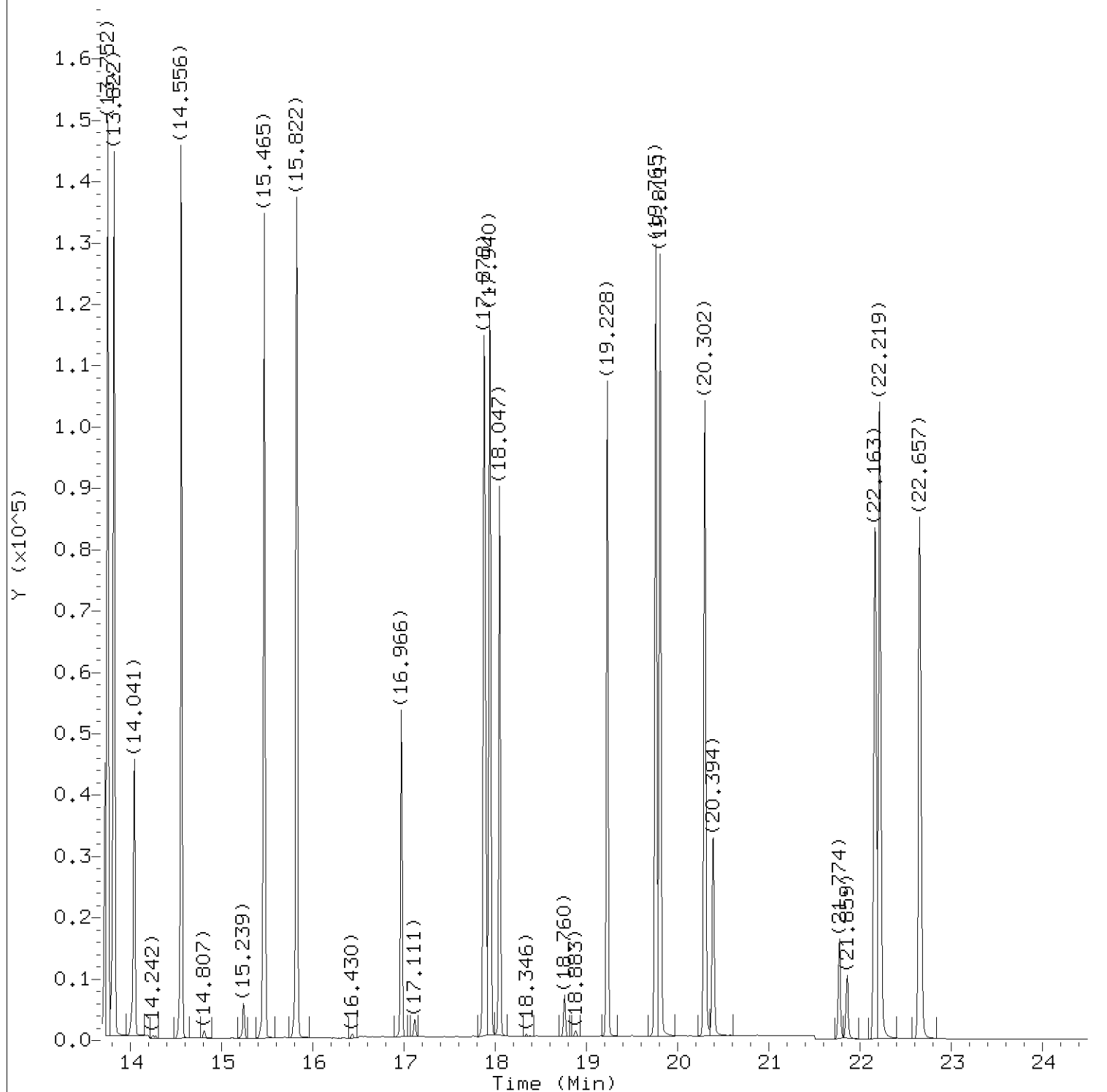
Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: pass
Calibration date and time: 06-MAR-2020 10:33
Date, time and analyst ID of latest file update: 06-Mar-2020 10:33 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV3399

Digitally signed by Joseph M. Gambler
on 03/06/2020 at 10:33.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0109.d
Injection date and time: 05-MAR-2020 03:46

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: pass
Calibration date and time: 06-MAR-2020 10:33
Date, time and analyst ID of latest file update: 06-Mar-2020 10:33 jmg00346

Sample Name: SST0.50

Lab Sample ID: RVSICV3399

Digitally signed by Joseph M. Gambler
on 03/06/2020 at 10:33.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar04.b/mc0109.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 03:46

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: pass

Calibration date and time: 06-MAR-2020 10:33

Date, time and analyst ID of latest file update: 06-Mar-2020 10:33 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV3399

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.547	88	16579	0.414
2) N-Nitrosodimethylamine	(1)	3.896	74	38478	0.659
4) bis(2-Chloroethyl)ether	(2)	6.787	93	64518M	0.708
5) *1,4-Dichlorobenzene-d4	(1)	7.158	152	14901	0.250
6) *Naphthalene-d8	(2)	9.075	136	51950	0.250
14) *Acenaphthene-d10	(3)	11.815	164	21671	0.250
20) *Phenanthrene-d10	(4)	13.721	188	43705	0.250
27) Butylbenzylphthalate	(5)	16.966	149	55442	0.617
29) *Chrysene-d12	(5)	17.901	240	34643	0.250
31) bis(2-Ethylhexyl)phthalate	(5)	18.047	149	81155	0.614
32) Di-n-octylphthalate	(6)	19.228	149	126472	0.606
38) *Perylene-d12	(6)	20.394	264	35645	0.250

M = Compound was manually integrated.

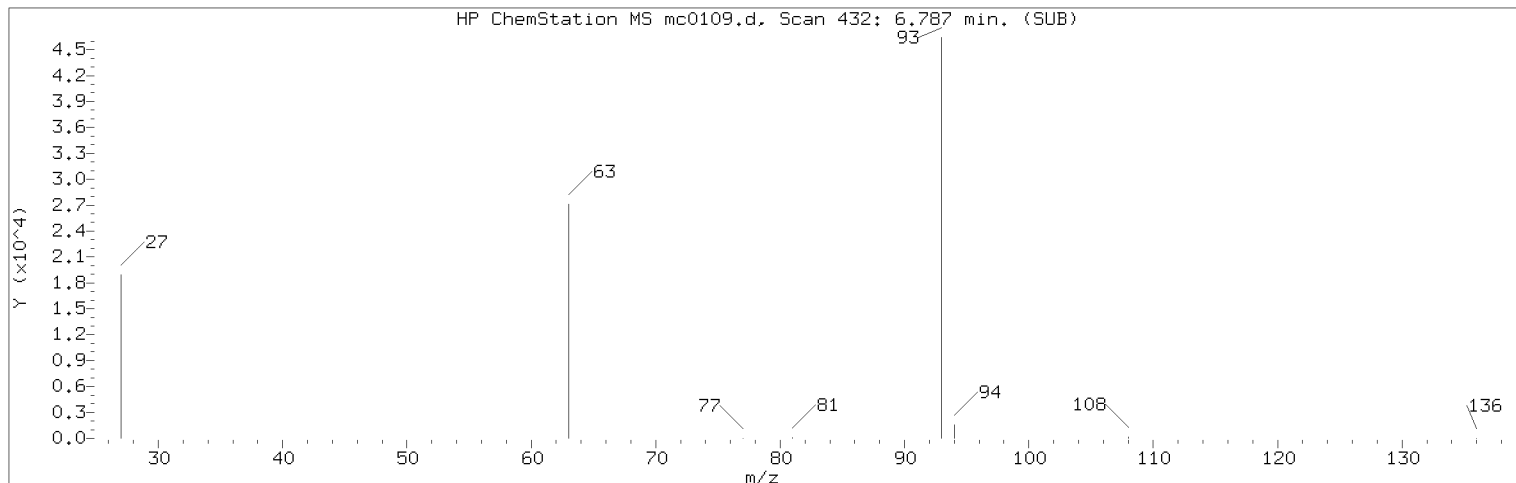
* = Compound is an internal standard.

Digitally signed by Joseph M. Gambler

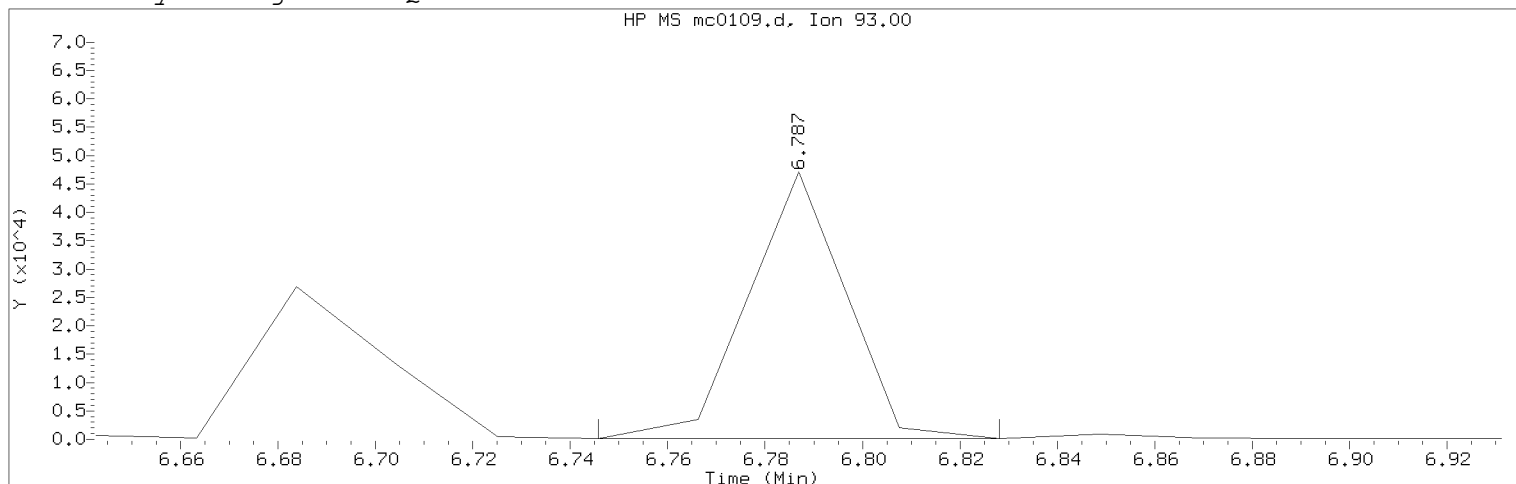
on 03/06/2020 at 10:33.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0109.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 03:46

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m

Sublist used: pass

Calibration date and time: 06-MAR-2020 10:33

Date, time and analyst ID of latest file update: 06-Mar-2020 10:33 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: RVSICV3399

Compound Number	: 4	
Compound Name	: bis(2-Chloroethyl)ether	
Scan Number	: 432	
Retention Time (minutes)	: 6.787	
Quant Ion	: 93.00	
Area (flag)	: 64518M	
On-Column Amount (ng/ul)	: 0.7078	
Integration start scan	: 429	Integration stop scan: 433
Y at integration start	: 164	Y at integration end: 150

Reason for manual integration: improper integration

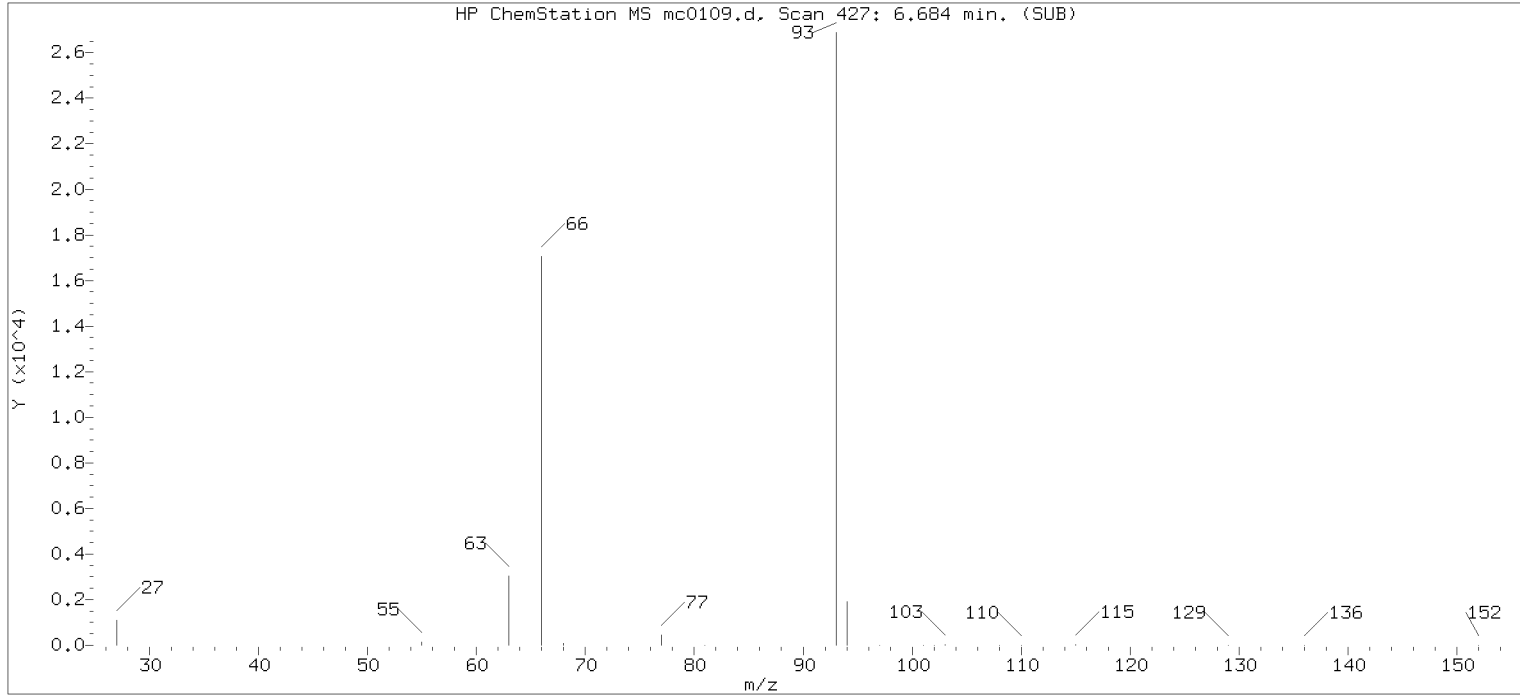
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/06/2020 at 10:33.
Target 3.5 esignature user ID: jmg00346

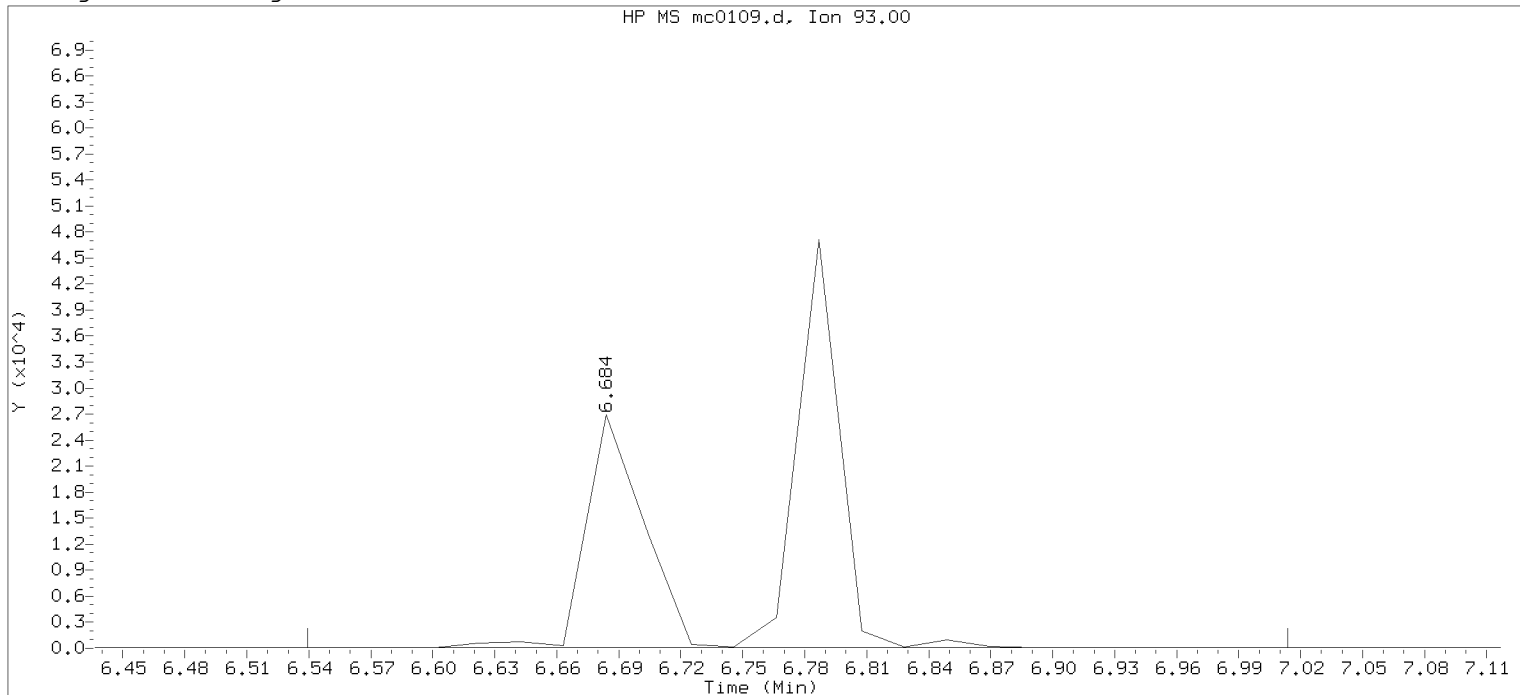
Secondary review performed and digitally signed by Chad A. Moline on 03/06/2020 at 10:47.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar04.b/mc0109.d

Instrument ID: HP21585.i

Injection date and time: 05-MAR-2020 03:46

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar04.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 05-MAR-2020 03:35

Date, time and analyst ID of latest file update: 05-Mar-2020 04:21 Unknown

Sample Name: SST0.50

Lab Sample ID: RVSICV3399

Compound Number	: 4	
Compound Name	: bis(2-Chloroethyl)ether	
Scan Number	: 427	
Retention Time (minutes)	: 6.684	
Quant Ion	: 93.00	
Area	: 118244	
On-column Amount (ng/ul)	: 1.2972	
Integration start scan	: 419	Integration stop scan: 442
Y at integration start	: 54	Y at integration end: 54

Digitally signed by Joseph M. Gambler on 03/06/2020 at 10:33.

Target 3.5 esignature user GPV68 Page 534 of 586

Date : 26-MAR-2020 05:39

Client ID: DFTPP12.5

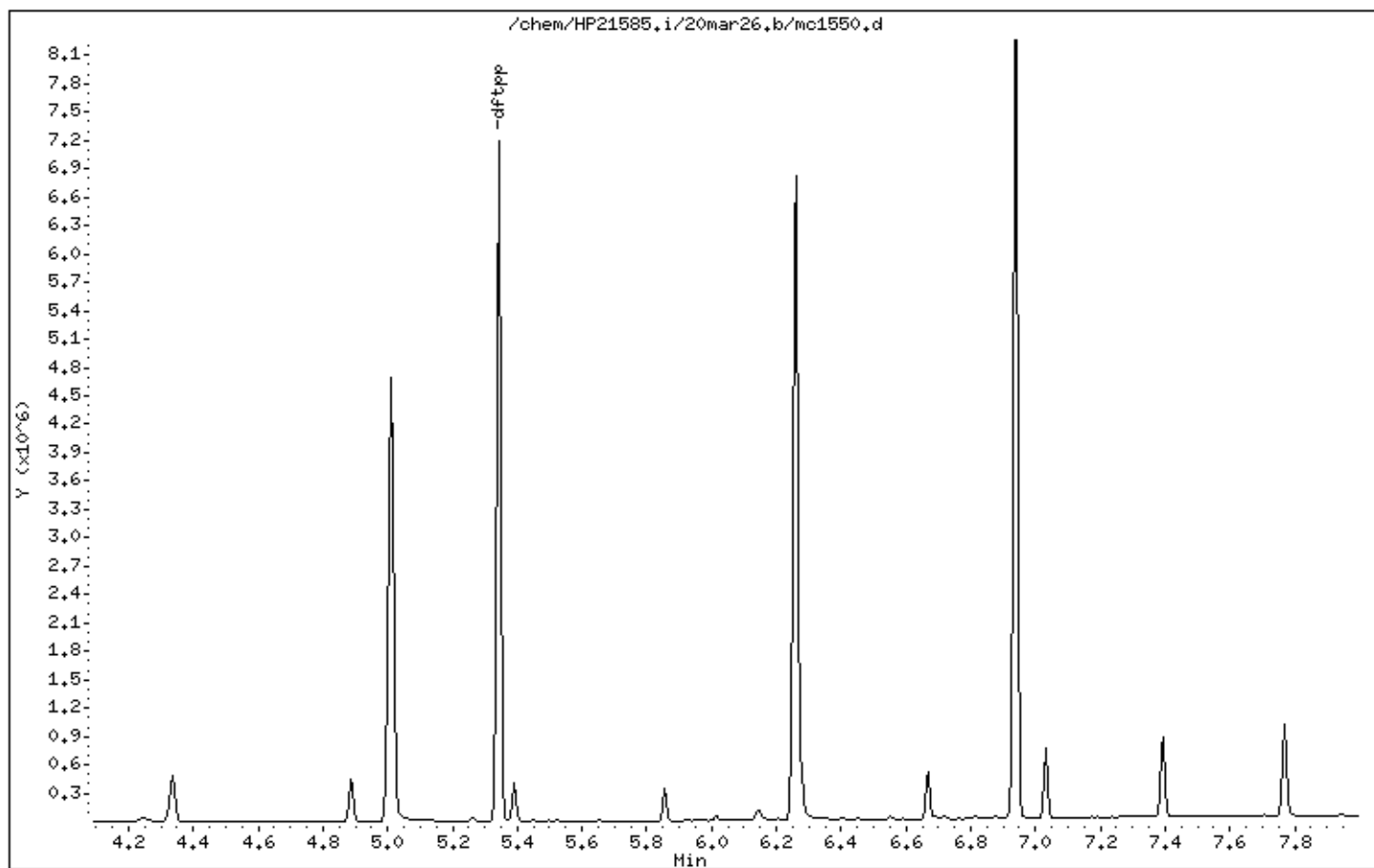
Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18



Date : 26-MAR-2020 05:39

Client ID: DFTPP12.5

Instrument: HP21585.i

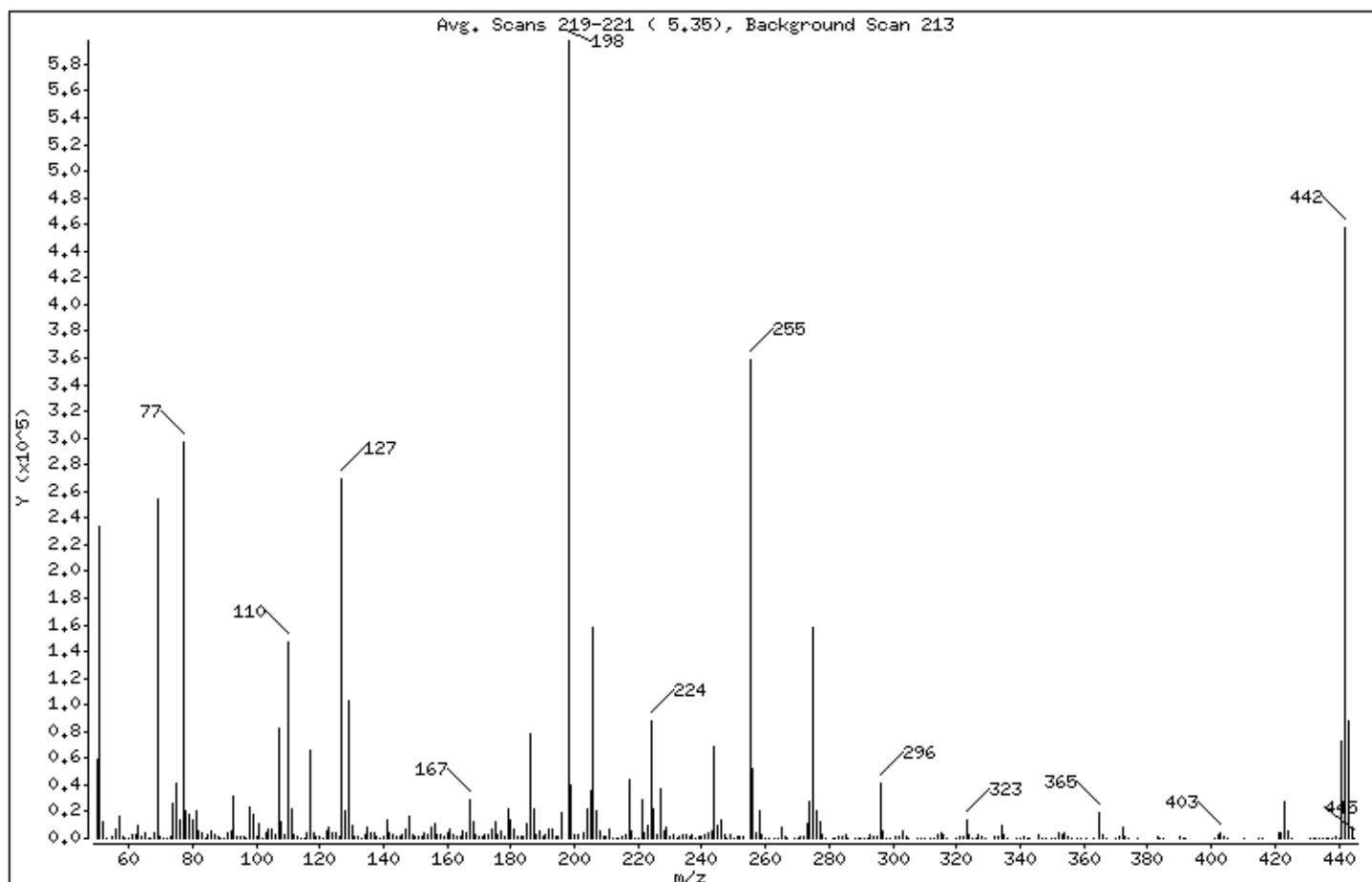
Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	39.10
68	Less than 2.00% of mass 69	0.75 (1.75)
69	Mass 69 relative abundance	42.60
70	Less than 2.00% of mass 69	0.23 (0.55)
127	10.00 - 80.00% of mass 198	45.05
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.64
275	10.00 - 60.00% of mass 198	26.46
365	Greater than 1.00% of mass 198	3.33
441	0.01 - 24.00% of mass 442	12.27 (16.02)
442	50.00 - 99.99% of mass 198	76.59
443	15.00 - 24.00% of mass 442	14.67 (19.15)

Date : 26-MAR-2020 05:39

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18

Data File: mc1550.d

Spectrum: Avg. Scans 219-221 (5,35), Background Scan 213

Location of Maximum: 198,00

Number of points: 333

m/z	Y	m/z	Y	m/z	Y	m/z	Y

50,00	58448	135,00	8306	221,00	28976	314,00	2090
51,00	233664	136,00	3694	222,00	3681	315,00	4725
52,00	12077	137,00	4068	223,00	10045	316,00	2537
53,00	523	138,00	911	224,00	88328	317,00	557
55,00	944	139,00	399	225,00	22600	320,00	148

56,00	7252	140,00	1409	226,00	2623	321,00	1526
57,00	16488	141,00	13745	227,00	37472	322,00	836
58,00	781	142,00	4291	228,00	5036	323,00	13952
59,00	263	143,00	3011	229,00	7707	324,00	2598
60,00	217	144,00	871	230,00	1259	325,00	293

61,00	2839	145,00	892	231,00	3220	326,00	325
62,00	3366	146,00	2347	232,00	587	327,00	2586
63,00	9602	147,00	6681	233,00	753	328,00	1188
64,00	1390	148,00	16107	234,00	2422	329,00	222
65,00	4581	149,00	3169	235,00	2614	332,00	1112

66,00	494	150,00	815	236,00	1674	333,00	1373
67,00	231	151,00	1857	237,00	2935	334,00	8939
68,00	4455	152,00	1158	238,00	412	335,00	2156
69,00	254592	153,00	4588	239,00	1340	336,00	336
70,00	1399	154,00	3282	240,00	1122	339,00	261

71,00	301	155,00	7930	241,00	2306	340,00	248
72,00	140	156,00	10942	242,00	4648	341,00	1693
73,00	1994	157,00	2479	243,00	5590	342,00	447
74,00	25728	158,00	2521	244,00	68480	343,00	63
75,00	41008	159,00	1931	245,00	9239	346,00	2873

76,00	14342	160,00	4444	246,00	13093	347,00	508
77,00	296640	161,00	6505	247,00	2651	348,00	59
78,00	20096	162,00	2088	248,00	675	350,00	112
79,00	17952	163,00	702	249,00	2669	351,00	336
80,00	14286	164,00	925	250,00	580	352,00	4485

81,00	20168	165,00	5550	251,00	857	353,00	3126
82,00	5002	166,00	4344	252,00	870	354,00	4428
83,00	4674	167,00	29208	253,00	1604	355,00	948
84,00	400	168,00	12211	255,00	358016	356,00	107
85,00	3113	169,00	2260	256,00	51904	358,00	56

Date : 26-MAR-2020 05:39

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc1550.d

Spectrum: Avg. Scans 219-221 (5.35), Background Scan 213

Location of Maximum: 198.00

Number of points: 333

m/z	Y	m/z	Y	m/z	Y	m/z	Y

86.00	5488	170.00	996	257.00	4217	359.00	350
87.00	2482	171.00	1231	258.00	20112	361.00	111
88.00	841	172.00	2653	259.00	3253	363.00	118
89.00	511	173.00	3386	260.00	594	365.00	19880
90.00	66	174.00	6299	261.00	588	366.00	2871

91.00	3790	175.00	11789	263.00	260	367.00	106
92.00	5150	176.00	3274	264.00	564	370.00	477
93.00	31552	177.00	5269	265.00	8292	371.00	1235
94.00	1989	178.00	1899	266.00	994	372.00	7565
95.00	790	179.00	22280	267.00	228	373.00	1796

96.00	1256	180.00	14006	269.00	56	374.00	253
97.00	618	181.00	6837	270.00	500	377.00	131
98.00	23744	182.00	1082	271.00	702	383.00	2009
99.00	17328	183.00	701	272.00	823	384.00	656
100.00	1580	184.00	1846	273.00	10863	385.00	162

101.00	11238	185.00	10730	274.00	27400	390.00	1090
102.00	625	186.00	77768	275.00	158144	391.00	672
103.00	3792	187.00	22248	276.00	21112	392.00	534
104.00	6534	188.00	2250	277.00	12628	401.00	459
105.00	6327	189.00	5181	278.00	2086	402.00	2957

106.00	2330	190.00	942	279.00	550	403.00	4528
107.00	82640	191.00	2549	281.00	33	404.00	1463
108.00	12613	192.00	6651	282.00	480	405.00	273
109.00	2526	193.00	7038	283.00	1445	410.00	126
110.00	147584	194.00	1841	284.00	987	415.00	231

111.00	21896	195.00	1138	285.00	2437	416.00	55
112.00	2723	196.00	18744	286.00	367	421.00	3954
113.00	946	198.00	597696	288.00	154	422.00	3454
114.00	192	199.00	39688	289.00	544	423.00	26856
115.00	332	200.00	3355	290.00	513	424.00	5577

116.00	4429	201.00	2949	291.00	325	425.00	581
117.00	65344	203.00	4629	292.00	633	431.00	50
118.00	4582	204.00	21680	293.00	2828	432.00	126
119.00	693	205.00	36040	294.00	706	433.00	59
120.00	1103	206.00	158336	295.00	1326	434.00	259

Date : 26-MAR-2020 05:39

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18

Data File: mc1550.d

Spectrum: Avg. Scans 219-221 (5,35), Background Scan 213

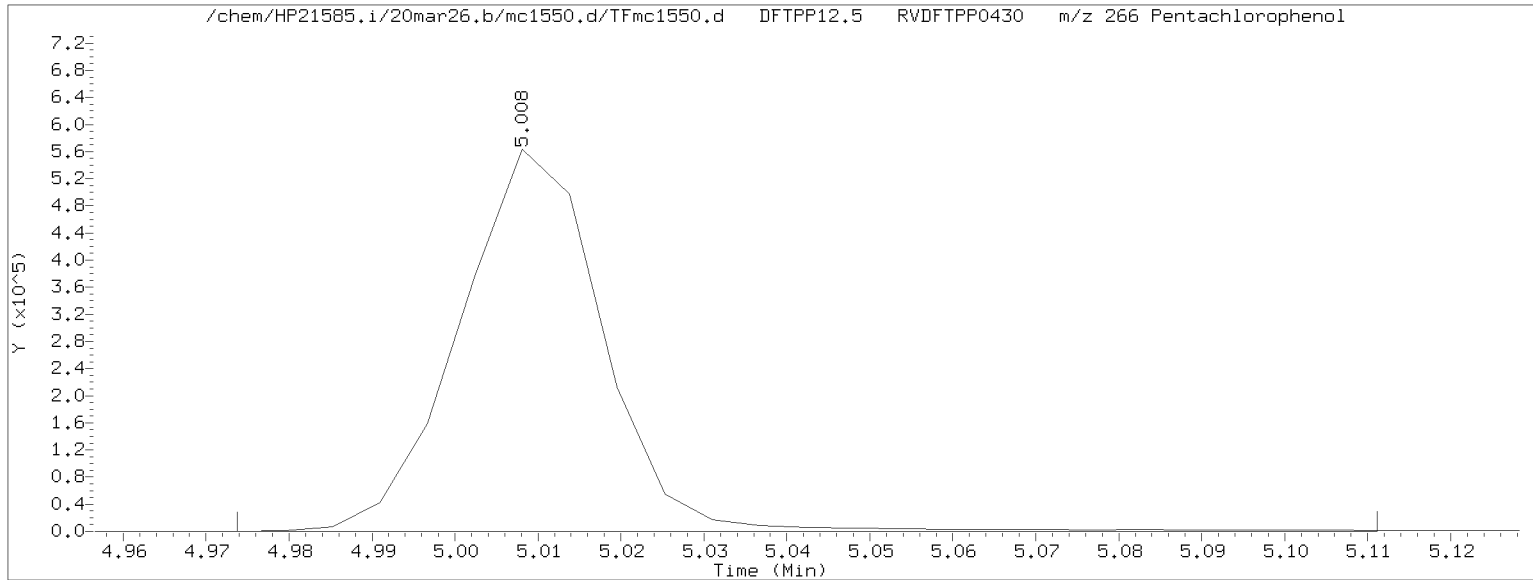
Location of Maximum: 198,00

Number of points: 333

m/z	Y	m/z	Y	m/z	Y	m/z	Y
121,00	434	207,00	20448	296,00	41896	435,00	154
122,00	5089	208,00	5511	297,00	5711	436,00	436
123,00	8189	209,00	1734	298,00	446	437,00	425
124,00	3612	210,00	1753	299,00	52	438,00	674
125,00	3442	211,00	6414	301,00	770	439,00	739
126,00	1212	212,00	444	302,00	721	440,00	435
127,00	269248	213,00	539	303,00	5327	441,00	73352
128,00	20528	214,00	208	304,00	1191	442,00	457792
129,00	102368	215,00	1813	305,00	220	443,00	87664
130,00	9013	216,00	3349	308,00	585	444,00	7945
131,00	1671	217,00	43360	309,00	444	445,00	435
132,00	902	218,00	5563	310,00	640		
133,00	244	219,00	519	312,00	89		
134,00	3018	220,00	295	313,00	449		

Assessment of GC Column Performance and Injection Port Inertness for

Instrument ID: HP21585.i Injection Date: 26-MAR-2020 05:39 Operator: ceb05247



Pentachlorophenol EICP peak height = 563809 EICP peak height at 10% = 56381 Pentachlorophenol EICP area = 676992

Pentachlorophenol EICP peak apex (min.) = 5.008

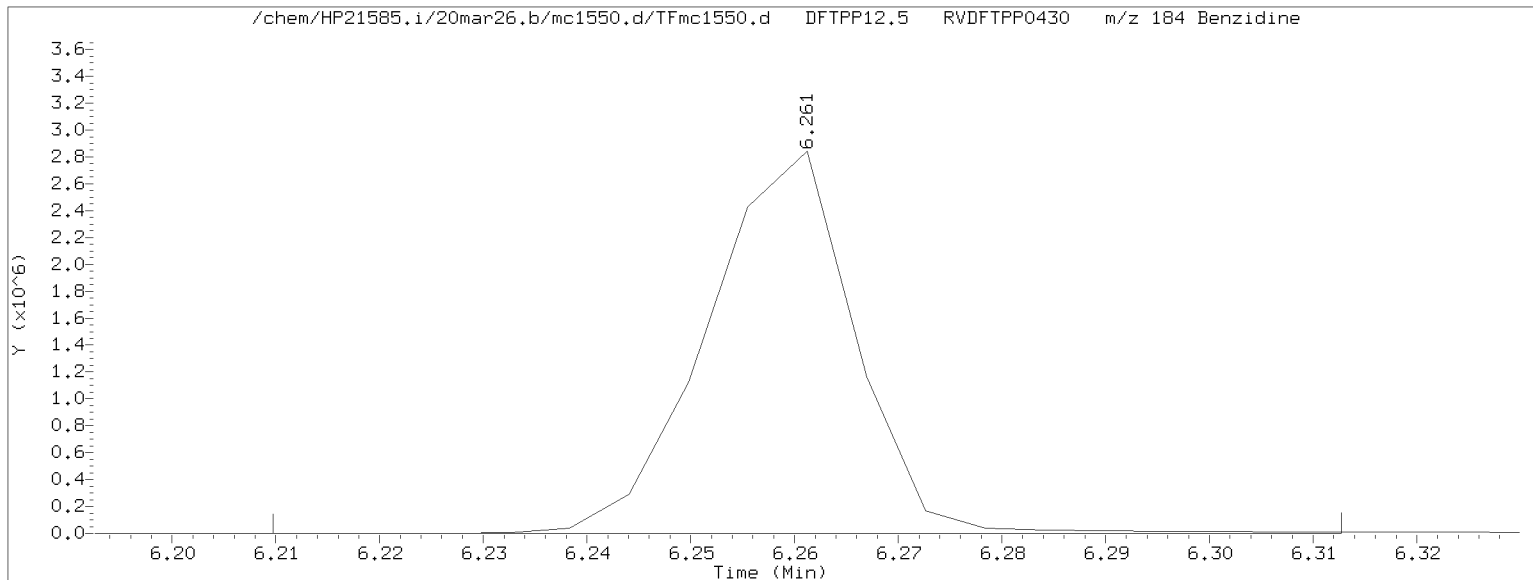
RT at 10% of front half of EICP (min.) = 4.992

RT at 10% of back half of EICP (min.) = 5.025

'Front' peak width (min.) = 0.0164500000

'Tailing' peak width (min.) = 0.0170833333

$$\text{PCP tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.0170833333}{0.0164500000} = 1.039$$



Benzidine EICP peak height = 2843426 EICP peak height at 10% = 284343 Benzidine EICP area = 2805214

Benzidine EICP peak apex (min.) = 6.261

RT at 10% of front half of EICP (min.) = 6.244

RT at 10% of back half of EICP (min.) = 6.272

'Front' peak width (min.) = 0.0172333333

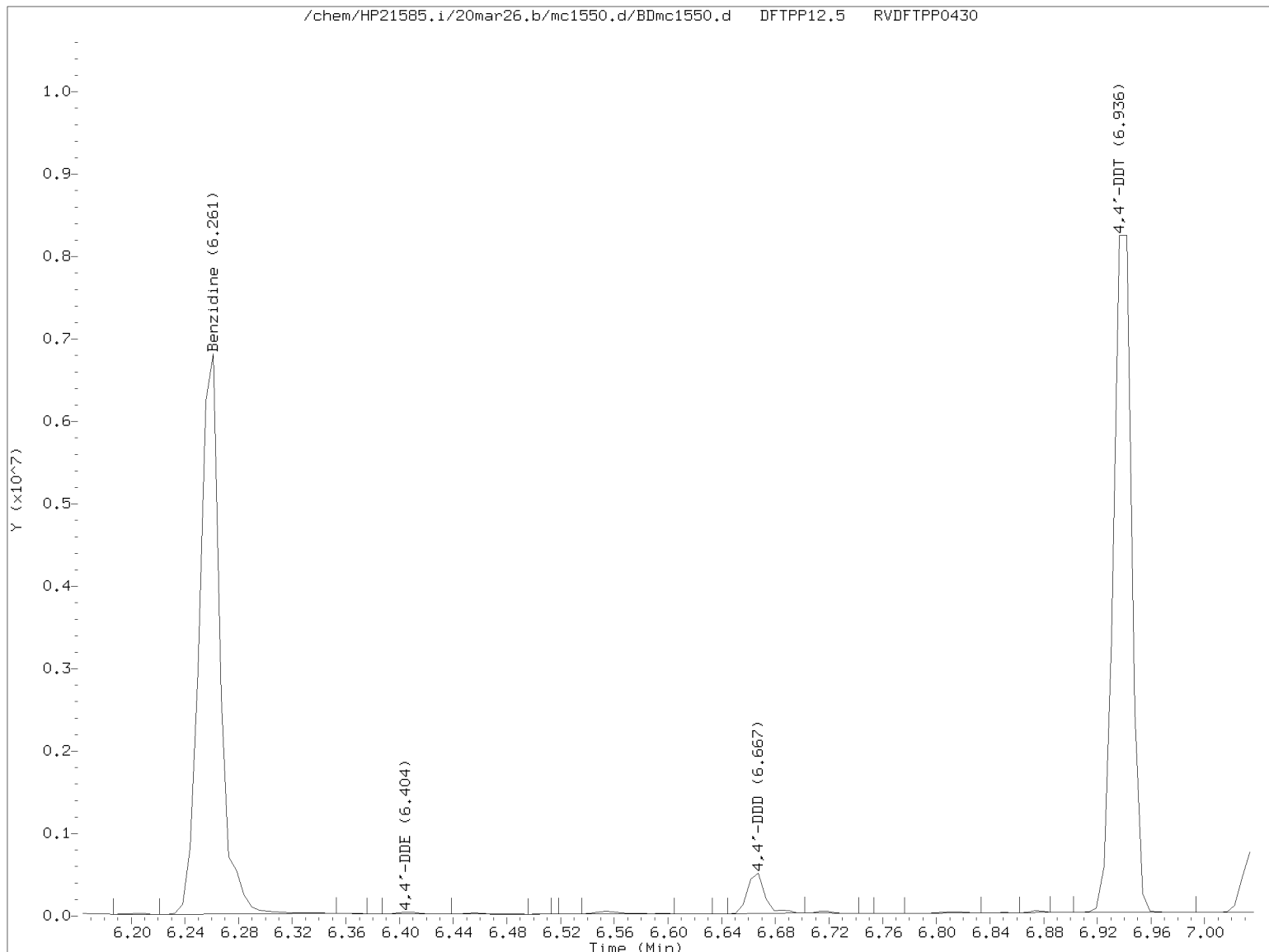
'Tailing' peak width (min.) = 0.0107166667

$$\text{Benzidine tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.0107166667}{0.0172333333} = 0.622$$

page 1 of 2
printed on 03/26/2020 at 05:58

Assessment of GC Column Performance and Injection Port Inertness for

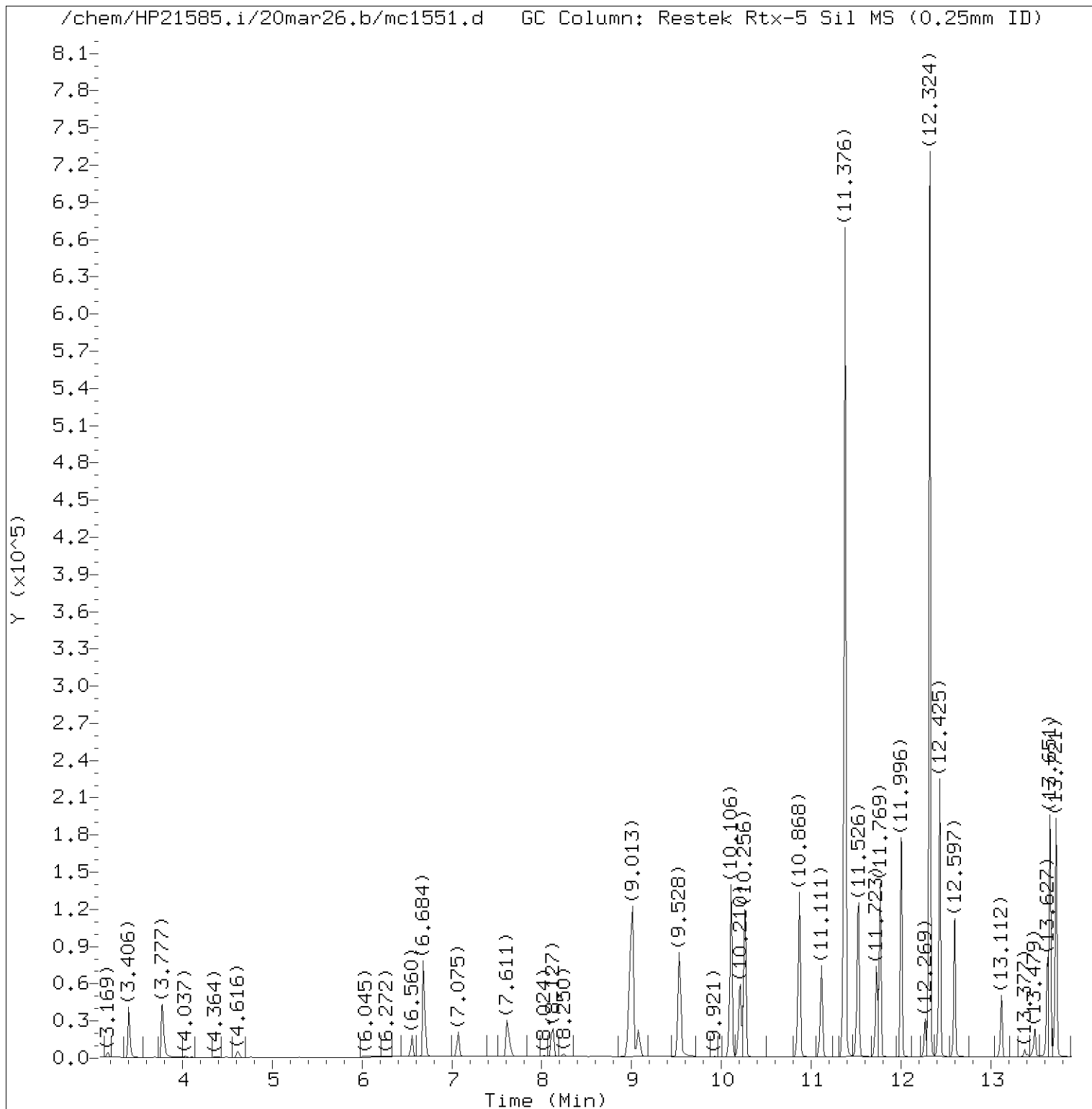
Instrument ID: HP21585.i Injection Date: 26-MAR-2020 05:39 Operator: ceb05247



$$\% \text{ 4,4'-DDT breakdown} = \frac{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area}}{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area} + 4,4'\text{-DDT TIC area}} \times 100$$

$$\% \text{ 4,4'-DDT breakdown} = \frac{19910 + 445238}{19910 + 445238 + 7925390} \times 100 = 5.5$$

page 2 of 2
printed on 03/26/2020 at 05:58



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1551.d
Injection date and time: 26-MAR-2020 05:54

Instrument ID: HP21585.i
Analyst ID: ceb05247

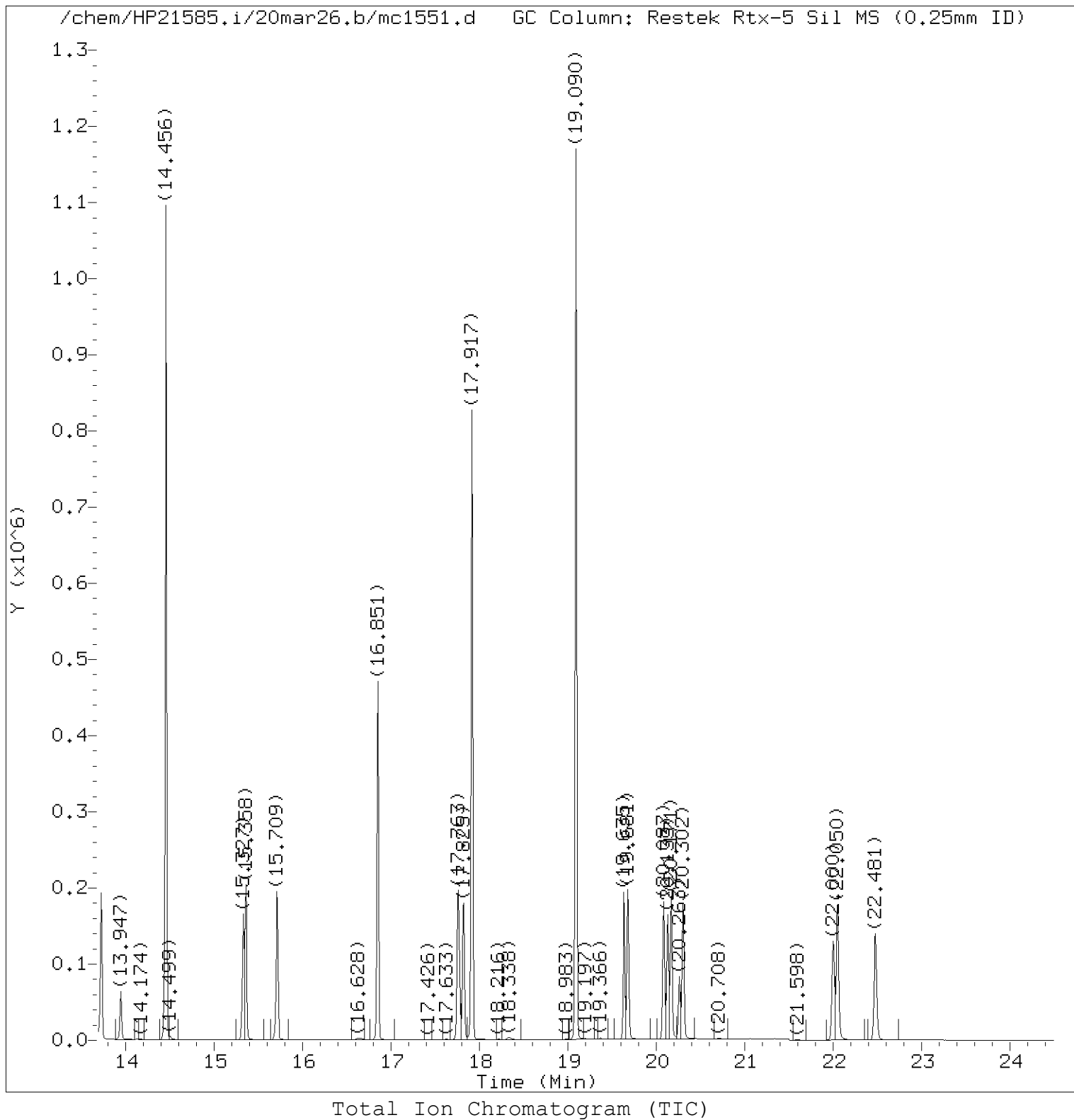
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 26-MAR-2020 06:30
Date, time and analyst ID of latest file update: 26-Mar-2020 06:30 jmg00346

Sample Name: SSTDO.50

Lab Sample ID: SIM0750

Digitally signed by Joseph M. Gambler
on 03/26/2020 at 06:31.

Target 3.5 esignature user ID: jmg00346



Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1551.d
Injection date and time: 26-MAR-2020 05:54

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 26-MAR-2020 06:30
Date, time and analyst ID of latest file update: 26-Mar-2020 06:30 jmg00346

Sample Name: SST0.50

Lab Sample ID: SIM0750

Digitally signed by Joseph M. Gambler
on 03/26/2020 at 06:31.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1551.d
 Injection date and time: 26-MAR-2020 05:54

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 26-MAR-2020 06:30
 Date, time and analyst ID of latest file update: 26-Mar-2020 06:30 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.406	88	30617	0.494
2) N-Nitrosodimethylamine	(1)	3.777	74	44914	0.497
4) bis(2-Chloroethyl)ether	(2)	6.684	93	59829	0.433
5)*1,4-Dichlorobenzene-d4	(1)	7.075	152	23072	0.250
6)*Naphthalene-d8	(2)	8.972	136	78699	0.250
7) Naphthalene	(2)	9.013	128	194061	0.521
8) Quinoline	(2)	9.528	129	95183	0.549
9) 2-Methylnaphthalene	(2)	10.106	142	127308	0.551
10)\$1-Methylnaphthalene-d10	(2)	10.210	152	94984	0.590
11) 1-Methylnaphthalene	(2)	10.268	142	123319	0.565
12) Dimethylphthalate	(3)	11.376	163	689995	2.300
13) Acenaphthylene	(3)	11.526	152	198608	0.455
14)*Acenaphthene-d10	(3)	11.723	164	41158	0.250
15) Acenaphthene	(3)	11.769	154	117245	0.481
16) Dibenzofuran	(3)	12.004	168	196185	0.428
17) Diethylphthalate	(3)	12.316	149	667846	2.236
18) Fluorene	(3)	12.425	166	146112	0.474
43) N-Nitrosodiphenylamine	(4)	12.597	169	83235	0.500
19) Hexachlorobenzene	(4)	13.112	284	50497	0.439
20)*Phenanthrene-d10	(4)	13.627	188	88774	0.250
21) Phenanthrene	(4)	13.651	178	215655	0.468
22) Anthracene	(4)	13.721	178	216910	0.502
23) Di-n-butylphthalate	(4)	14.456	149	1182006	2.451
24)\$Fluoranthene-d10	(4)	15.327	212	207752	0.554
25) Fluoranthene	(4)	15.358	202	260897	0.515
26) Pyrene	(5)	15.709	202	265035	0.443
27) Butylbenzylphthalate	(5)	16.851	149	498179	2.298
28) Benzo(a)anthracene	(5)	17.756	228	227282	0.449
29)*Chrysene-d12	(5)	17.779	240	83519	0.250
30) Chrysene	(5)	17.825	228	245040	0.467
31) bis(2-Ethylhexyl)phthalate	(5)	17.917	149	758734	2.382
32) Di-n-octylphthalate	(6)	19.090	149	1316136	1.934
33) Benzo(b)fluoranthene	(6)	19.635	252	236100	0.481
34) Benzo(k)fluoranthene	(6)	19.681	252	253451	0.495
35) Benzo(e)pyrene	(6)	20.087	252	229999	0.494
36)\$Benzo(a)pyrene-d12	(6)	20.133	264	183491	0.561
37) Benzo(a)pyrene	(6)	20.171	252	234681	0.503
38)*Perylene-d12	(6)	20.263	264	86854	0.250
45) Perylene	(6)	20.302	252	234246	0.472
39) Indeno(1,2,3-cd)pyrene	(6)	22.000	276	211054M	0.506

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler
 on 03/26/2020 at 06:31.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1551.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 05:54

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 26-MAR-2020 06:30

Date, time and analyst ID of latest file update: 26-Mar-2020 06:30 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

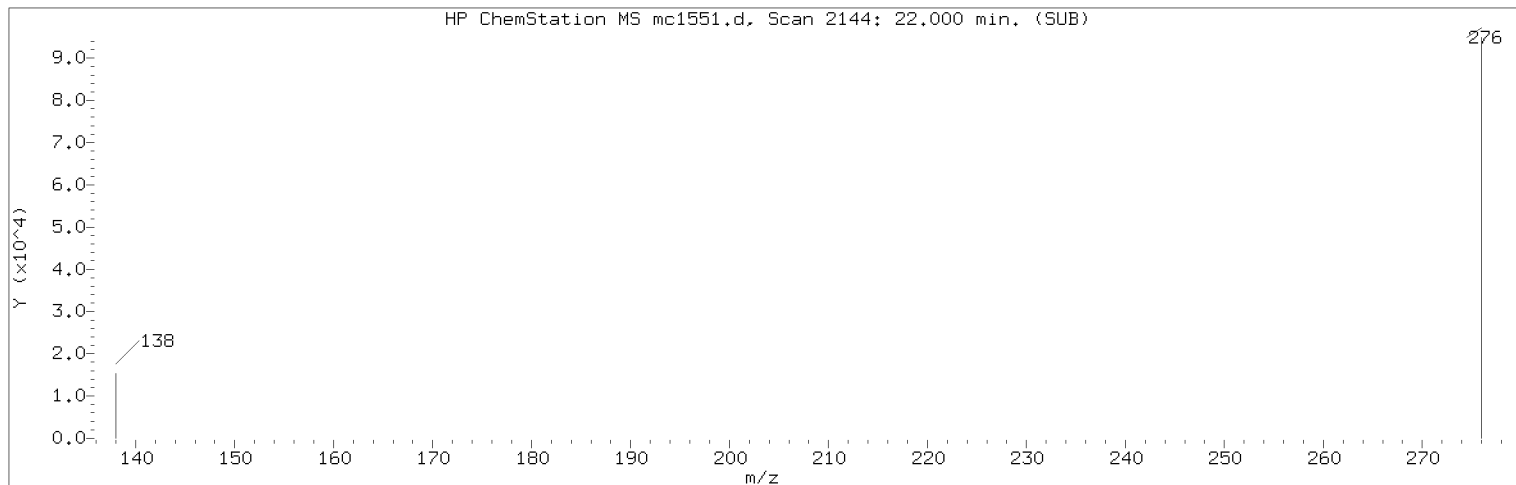
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.050	278	246887	0.525
41) Benzo(g,h,i)perylene	(6)	22.481	276	249665	0.507

Digitally signed by Joseph M. Gambler

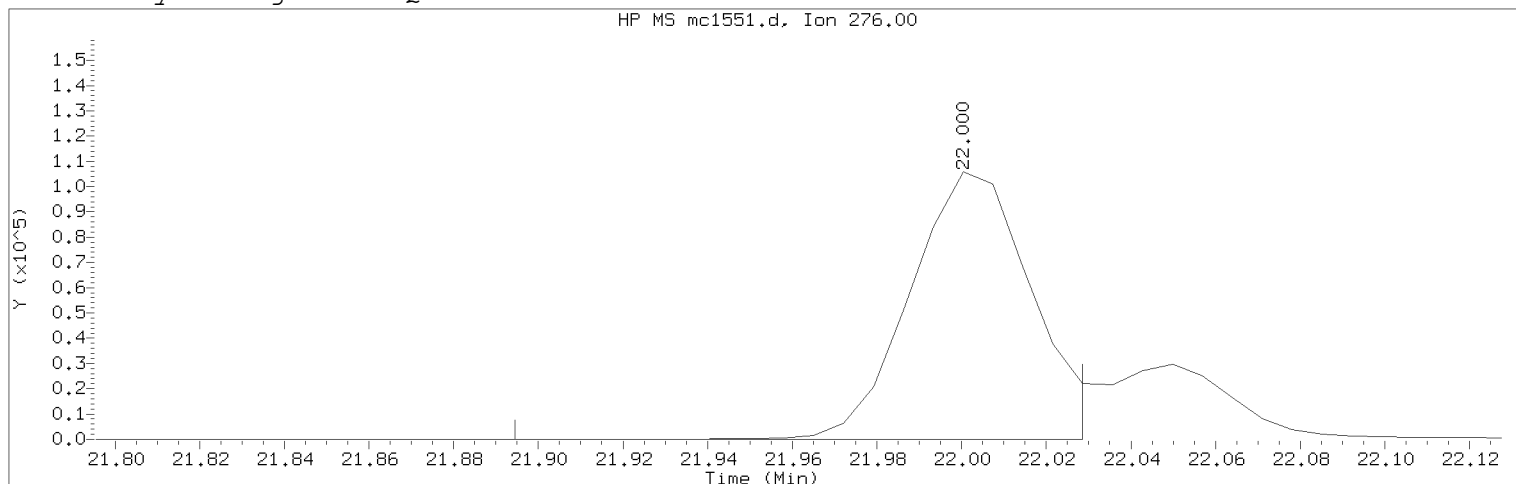
on 03/26/2020 at 06:31.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1551.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 05:54

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: all1

Calibration date and time: 26-MAR-2020 06:30

Date, time and analyst ID of latest file update: 26-Mar-2020 06:30 jmg00346

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area (flag)	: 211054M	
On-Column Amount (ng/ul)	: 0.5062	
Integration start scan	: 2128	Integration stop scan: 2147
Y at integration start	: 67	Y at integration end: 67

Reason for manual integration: improper integration

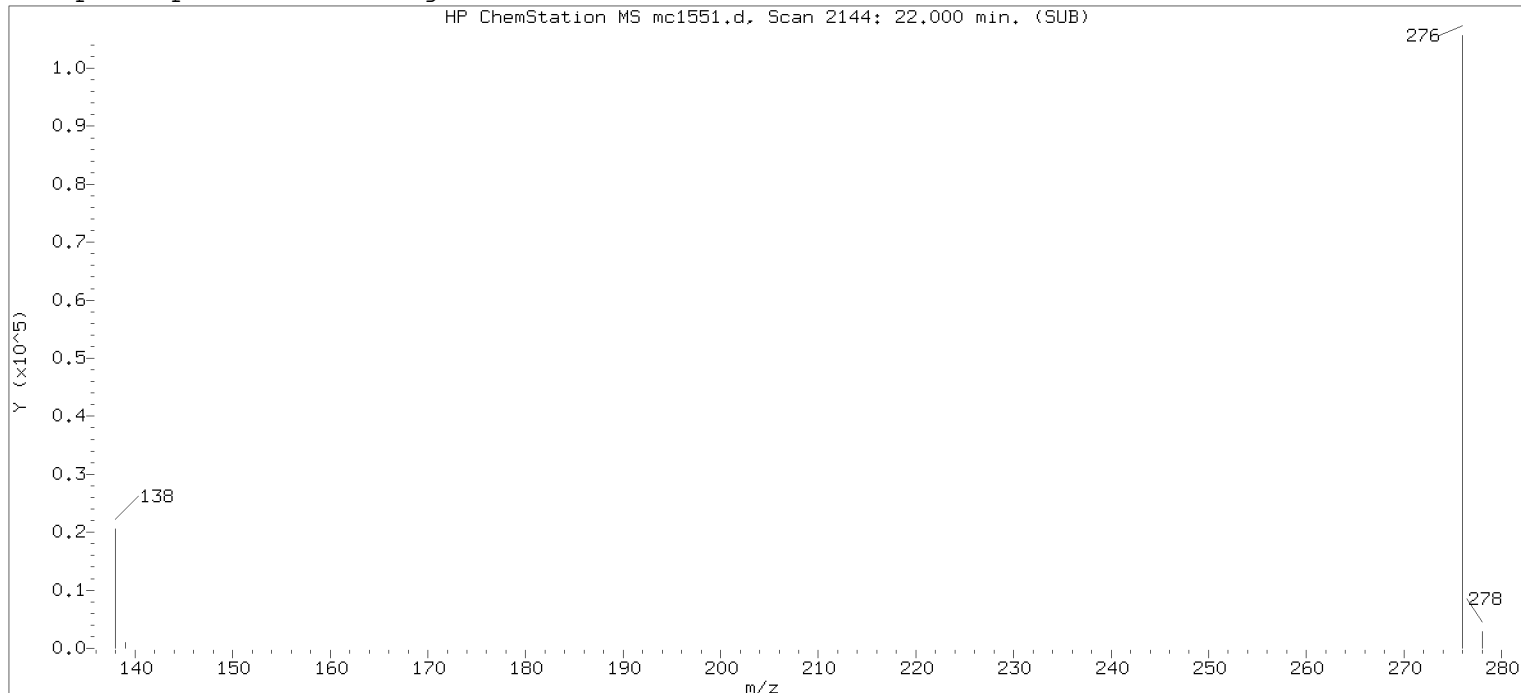
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/26/2020 at 06:31.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Matthew E. Barton on 03/27/2020 at 10:48.
PARALLAX ID: reb00745

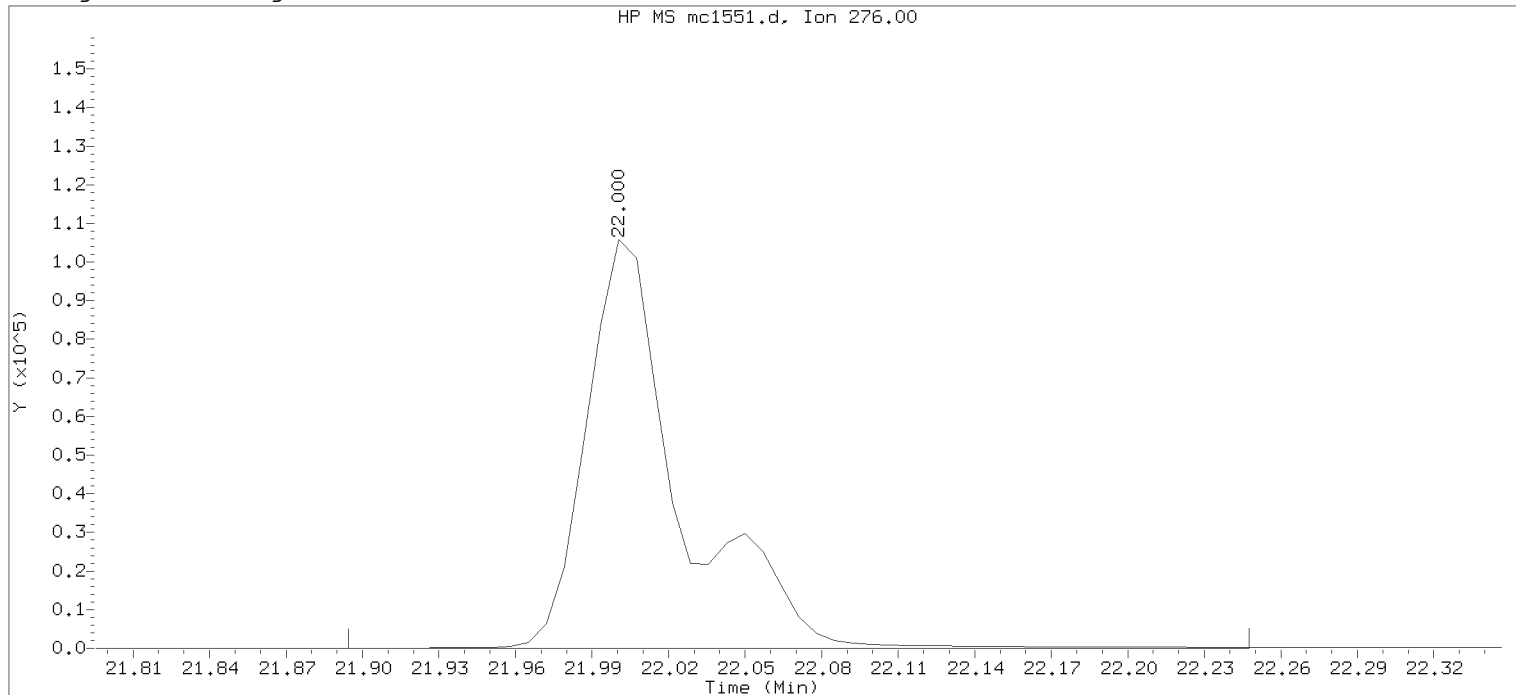
Sample Spectrum (Background Subtracted)

HP ChemStation MS mc1551.d, Scan 2144: 22.000 min. (SUB)



Original Integration of Quant Ion

HP MS mc1551.d, Ion 276.00



Data File: /chem/HP21585.i/20mar26.b/mc1551.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 05:54

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 26-MAR-2020 06:29

Date, time and analyst ID of latest file update: 26-Mar-2020 06:29 Unknown

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area	: 271607	
On-column Amount (ng/ul)	: 0.6515	
Integration start scan	: 2128	Integration stop scan: 2178
Y at integration start	: 67	Y at integration end: 67

Digitally signed by Joseph M. Gambler on 03/26/2020 at 06:31.

Target 3.5 esignature user GPY68 Page 547 of 586

Date : 26-MAR-2020 16:48

Client ID: DFTPP12.5

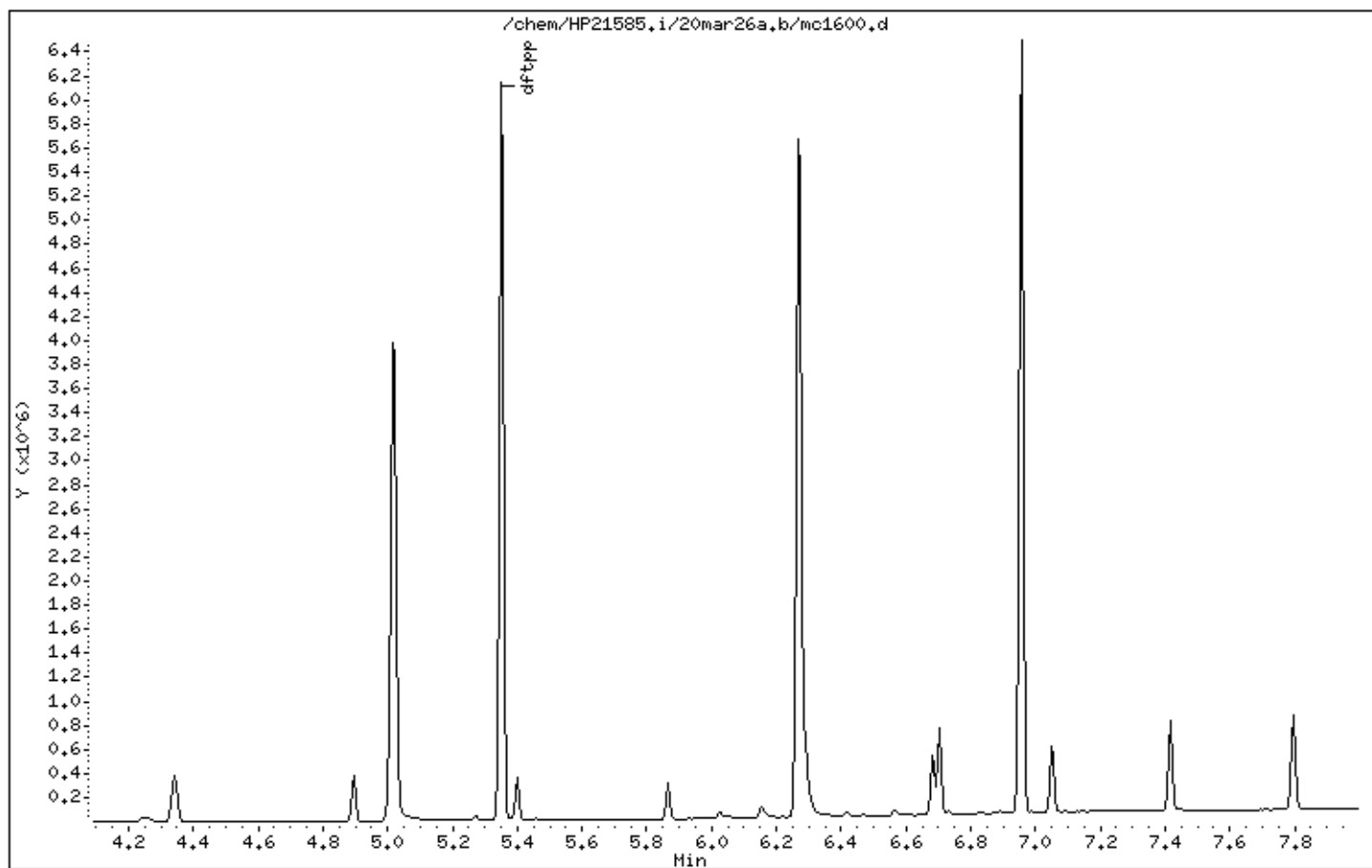
Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18



Date : 26-MAR-2020 16:48

Client ID: DFTPP12.5

Instrument: HP21585.i

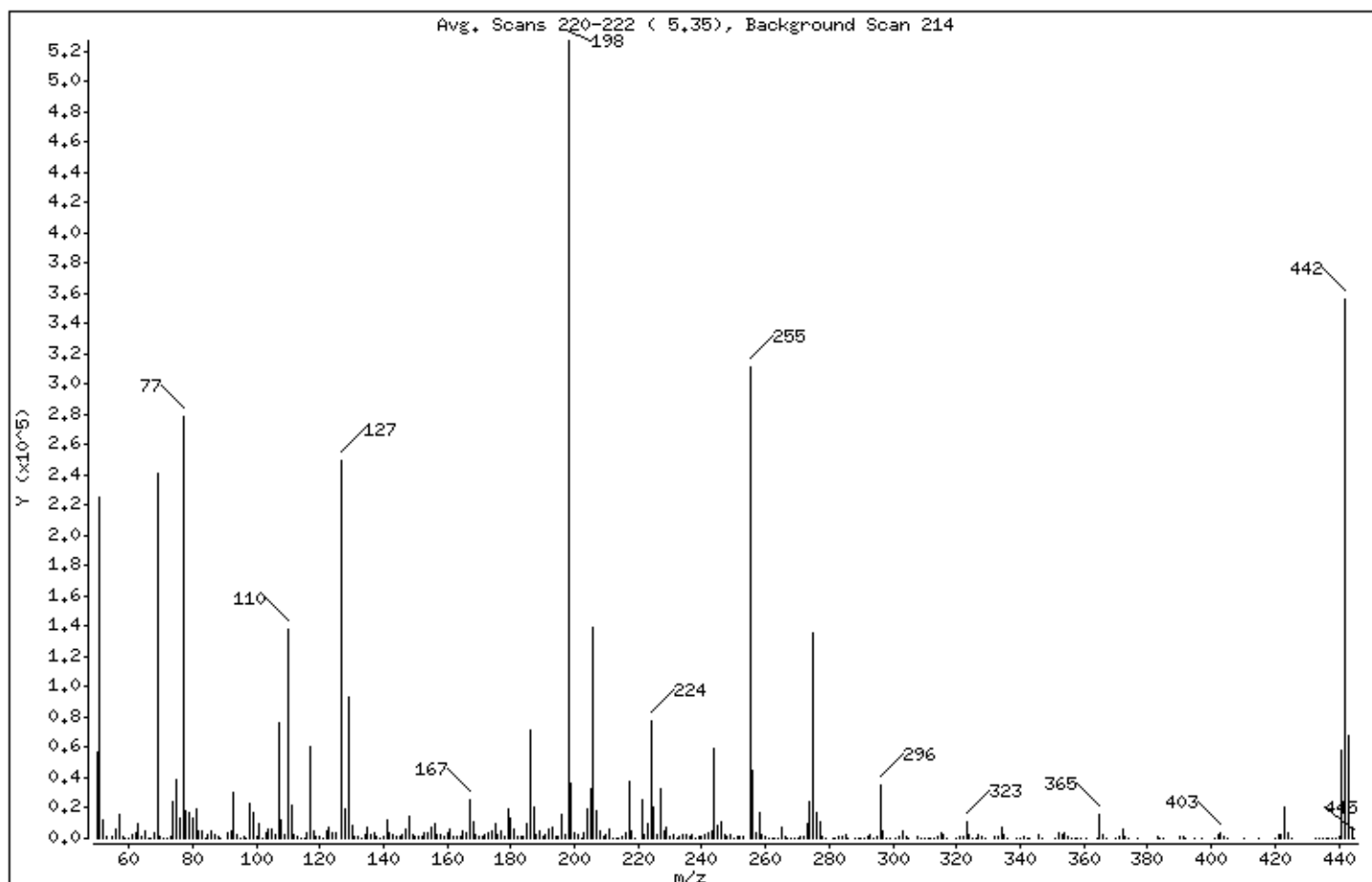
Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	42.66
68	Less than 2.00% of mass 69	0.80 (1.75)
69	Mass 69 relative abundance	45.78
70	Less than 2.00% of mass 69	0.24 (0.53)
127	10.00 - 80.00% of mass 198	47.39
197	Less than 2.00% of mass 198	0.37
199	5.00 - 9.00% of mass 198	6.93
275	10.00 - 60.00% of mass 198	25.65
365	Greater than 1.00% of mass 198	3.05
441	0.01 - 24.00% of mass 442	10.92 (16.14)
442	50.00 - 99.99% of mass 198	67.64
443	15.00 - 24.00% of mass 442	12.92 (19.10)

Date : 26-MAR-2020 16:48

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0.18

Data File: mc1600.d

Spectrum: Avg. Scans 220-222 (5.35), Background Scan 214

Location of Maximum: 198.00

Number of points: 334

m/z	Y	m/z	Y	m/z	Y	m/z	Y

50.00	56608	137.00	3936	222.00	2390	312.00	124
51.00	224768	138.00	834	223.00	9136	313.00	290
52.00	11658	139.00	597	224.00	77584	314.00	1564
53.00	672	140.00	1309	225.00	20024	315.00	3729
55.00	1091	141.00	12445	226.00	2467	316.00	2276

56.00	6356	142.00	3811	227.00	32440	317.00	339
57.00	15871	143.00	2738	228.00	4581	320.00	78
58.00	783	144.00	872	229.00	6812	321.00	1207
59.00	256	145.00	869	230.00	919	322.00	697
60.00	152	146.00	2179	231.00	2805	323.00	11050

61.00	2894	147.00	6159	232.00	581	324.00	2061
62.00	3284	148.00	14538	233.00	614	325.00	312
63.00	9231	149.00	2982	234.00	2132	326.00	272
64.00	1294	150.00	802	235.00	2393	327.00	2147
65.00	4896	151.00	1377	236.00	1564	328.00	1085

66.00	487	152.00	893	237.00	2791	329.00	166
67.00	289	153.00	4110	238.00	393	332.00	961
68.00	4225	154.00	3182	239.00	1275	333.00	1032
69.00	241152	155.00	6828	240.00	1136	334.00	7214
70.00	1286	156.00	10186	241.00	2046	335.00	1817

71.00	250	157.00	2381	242.00	3918	336.00	273
72.00	159	158.00	2288	243.00	4888	339.00	165
73.00	1726	159.00	1795	244.00	59872	340.00	170
74.00	24576	160.00	3842	245.00	7939	341.00	1387
75.00	38680	161.00	5899	246.00	11006	342.00	400

76.00	13414	162.00	1701	247.00	2447	343.00	58
77.00	278016	163.00	618	248.00	616	346.00	2409
78.00	18208	164.00	1023	249.00	2334	347.00	509
79.00	17224	165.00	4914	250.00	529	351.00	303
80.00	13265	166.00	3658	251.00	755	352.00	3445

81.00	19128	167.00	25752	252.00	666	353.00	2509
82.00	4845	168.00	11225	253.00	1681	354.00	3313
83.00	4492	169.00	2204	255.00	310784	355.00	701
84.00	563	170.00	852	256.00	44392	356.00	51
85.00	2942	171.00	1271	257.00	3418	357.00	61

Date : 26-MAR-2020 16:48

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18

Data File: mc1600.d

Spectrum: Avg. Scans 220-222 (5,35), Background Scan 214

Location of Maximum: 198,00

Number of points: 334

m/z	Y	m/z	Y	m/z	Y	m/z	Y

86,00	5111	172,00	2097	258,00	16872	358,00	51
87,00	2451	173,00	3183	259,00	2939	359,00	267
88,00	881	174,00	5309	260,00	613	361,00	50
89,00	448	175,00	9868	261,00	571	364,00	97
91,00	3939	176,00	2802	262,00	122	365,00	16058

92,00	4827	177,00	4604	263,00	189	366,00	2191
93,00	30472	178,00	1688	264,00	596	367,00	65
94,00	1952	179,00	19320	265,00	6732	370,00	340
95,00	392	180,00	12953	266,00	896	371,00	1131
96,00	1264	181,00	6503	267,00	290	372,00	5543

97,00	555	182,00	1074	268,00	113	373,00	1579
98,00	22528	183,00	628	269,00	59	374,00	221
99,00	16648	184,00	1699	270,00	485	377,00	196
100,00	1423	185,00	9462	271,00	630	383,00	1774
101,00	10165	186,00	71872	272,00	1173	384,00	408

102,00	574	187,00	20384	273,00	9333	385,00	176
103,00	3463	188,00	2163	274,00	24824	390,00	911
104,00	6275	189,00	4417	275,00	135104	391,00	627
105,00	5969	190,00	863	276,00	17512	392,00	394
106,00	2038	191,00	2304	277,00	10779	395,00	52

107,00	76512	192,00	6389	278,00	1796	397,00	56
108,00	11780	193,00	6819	279,00	297	401,00	357
109,00	2221	194,00	1669	281,00	248	402,00	2397
110,00	137600	195,00	1085	282,00	394	403,00	3494
111,00	21208	196,00	15683	283,00	1225	404,00	1449

112,00	2462	197,00	1955	284,00	989	405,00	193
113,00	896	198,00	526784	285,00	2045	410,00	52
114,00	223	199,00	36528	286,00	411	415,00	197
115,00	155	200,00	3034	288,00	148	420,00	59
116,00	4057	201,00	2602	289,00	430	421,00	2894

117,00	60720	202,00	493	290,00	297	422,00	2864
118,00	4331	203,00	4118	291,00	330	423,00	20744
119,00	637	204,00	19120	292,00	661	424,00	4211
120,00	1036	205,00	33224	293,00	2347	425,00	376
121,00	388	206,00	139776	294,00	533	433,00	51

Date : 26-MAR-2020 16:48

Client ID: DFTPP12.5

Instrument: HP21585.i

Sample Info: DFTPP12.5;RVDFTPP0430;1;3;DFTPP;

Operator: ceb05247

Column phase: DB-5MS

Column diameter: 0,18

Data File: mc1600.d

Spectrum: Avg. Scans 220-222 (5,35), Background Scan 214

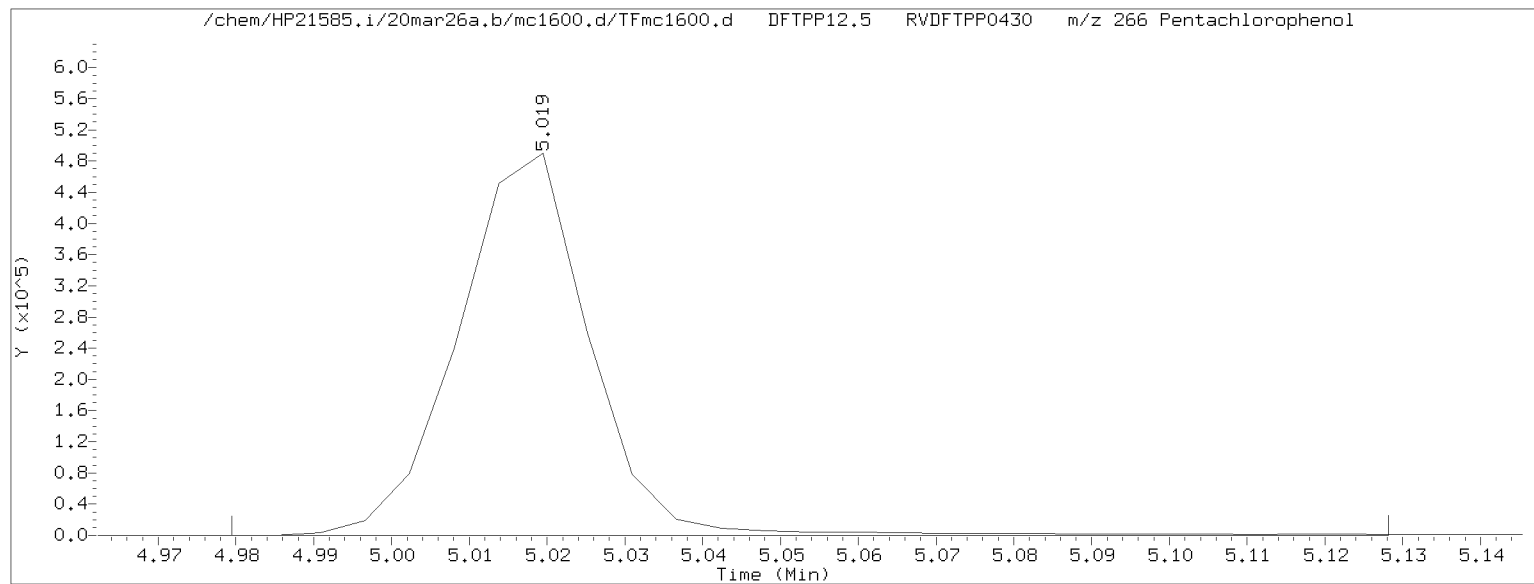
Location of Maximum: 198,00

Number of points: 334

m/z	Y	m/z	Y	m/z	Y	m/z	Y
122,00	4709	207,00	18208	295,00	748	434,00	52
123,00	7046	208,00	4635	296,00	34592	435,00	158
124,00	3477	209,00	1478	297,00	5096	436,00	166
125,00	3390	210,00	2312	298,00	351	437,00	374
127,00	249664	211,00	5606	299,00	55	438,00	472
128,00	18920	212,00	511	301,00	600	439,00	569
129,00	93744	213,00	341	302,00	843	440,00	712
130,00	7978	214,00	133	303,00	4531	441,00	57528
131,00	1569	215,00	1535	304,00	1129	442,00	356352
132,00	927	216,00	3117	305,00	147	443,00	68048
133,00	368	217,00	37560	308,00	614	444,00	6454
134,00	2873	218,00	4958	309,00	392	445,00	314
135,00	7574	219,00	473	310,00	582		
136,00	2927	221,00	25032	311,00	140		

Assessment of GC Column Performance and Injection Port Inertness for

Instrument ID: HP21585.i Injection Date: 26-MAR-2020 16:48 Operator: ceb05247



Pentachlorophenol EICP peak height = 490240 EICP peak height at 10% = 49024 Pentachlorophenol EICP area = 577919

Pentachlorophenol EICP peak apex (min.) = 5.019

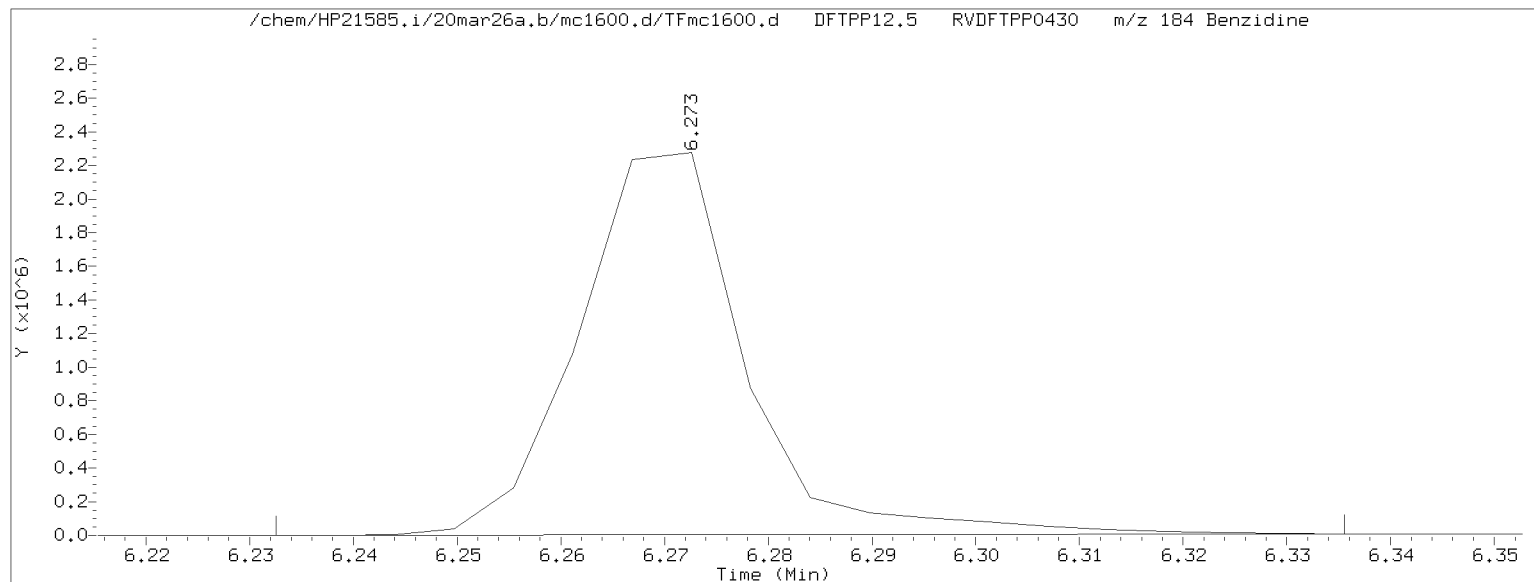
RT at 10% of front half of EICP (min.) = 5.000

RT at 10% of back half of EICP (min.) = 5.034

'Front' peak width (min.) = 0.019983333

'Tailing' peak width (min.) = 0.014283333

$$\text{PCP tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.014283333}{0.019983333} = 0.715$$



Benzidine EICP peak height = 2273587 EICP peak height at 10% = 227359 Benzidine EICP area = 2541708

Benzidine EICP peak apex (min.) = 6.273

RT at 10% of front half of EICP (min.) = 6.254

RT at 10% of back half of EICP (min.) = 6.284

'Front' peak width (min.) = 0.018366667

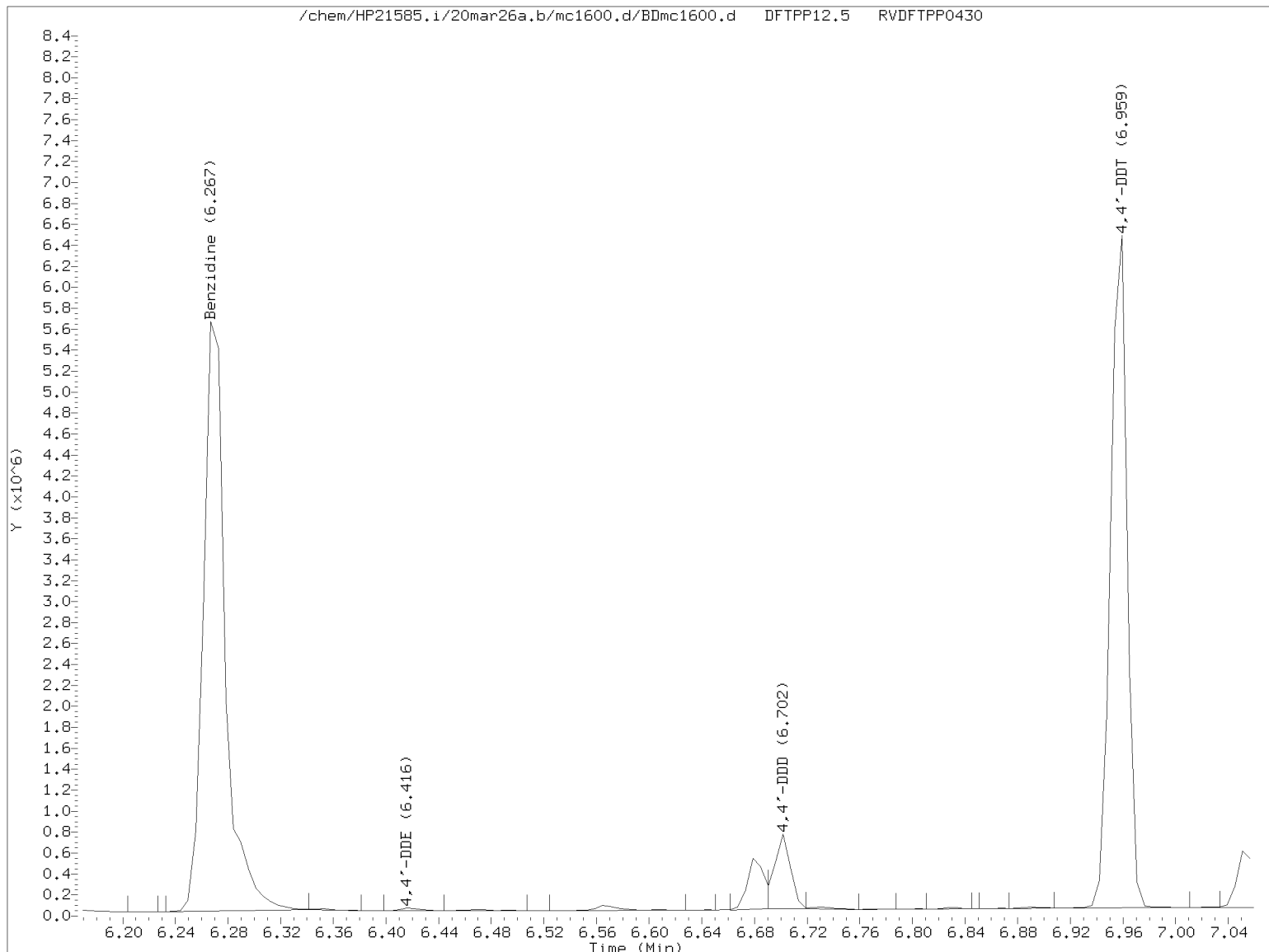
'Tailing' peak width (min.) = 0.011383333

$$\text{Benzidine tailing factor} = \frac{\text{'Tailing' peak width (min.)}}{\text{'Front' peak width (min.)}} = \frac{0.011383333}{0.018366667} = 0.620$$

page 1 of 2
printed on 03/26/2020 at 17:08

Assessment of GC Column Performance and Injection Port Inertness for

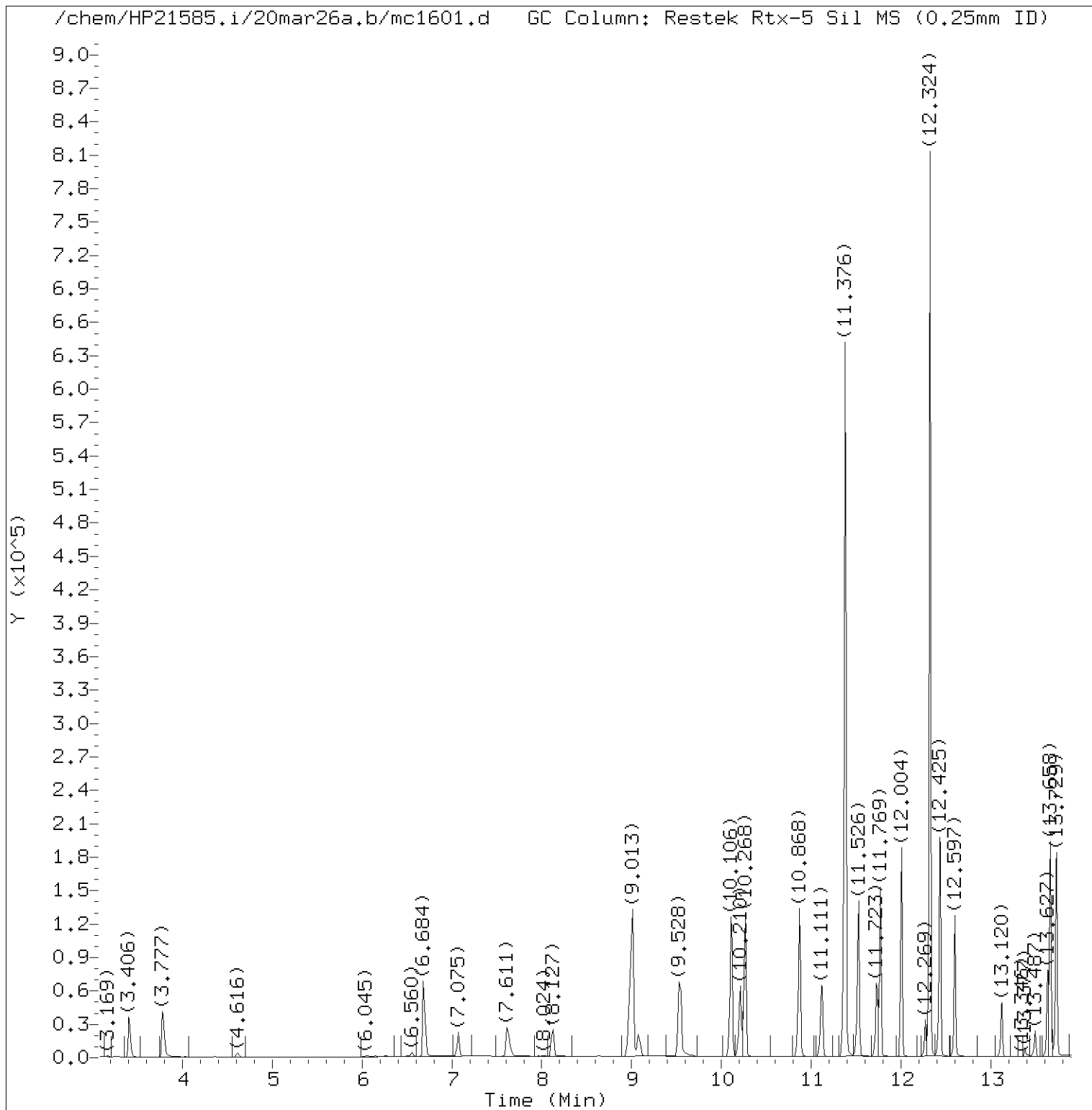
Instrument ID: HP21585.i Injection Date: 26-MAR-2020 16:48 Operator: ceb05247



$$\% \text{ 4,4'-DDT breakdown} = \frac{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area}}{4,4'\text{-DDE TIC area} + 4,4'\text{-DDD TIC area} + 4,4'\text{-DDT TIC area}} \times 100$$

$$\% \text{ 4,4'-DDT breakdown} = \frac{24698 + 598363}{24698 + 598363 + 5712185} \times 100 = 9.8$$

page 2 of 2
printed on 03/26/2020 at 17:08



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a.b/mc1601.d
Injection date and time: 26-MAR-2020 17:17

Instrument ID: HP21585.i
Analyst ID: ceb05247

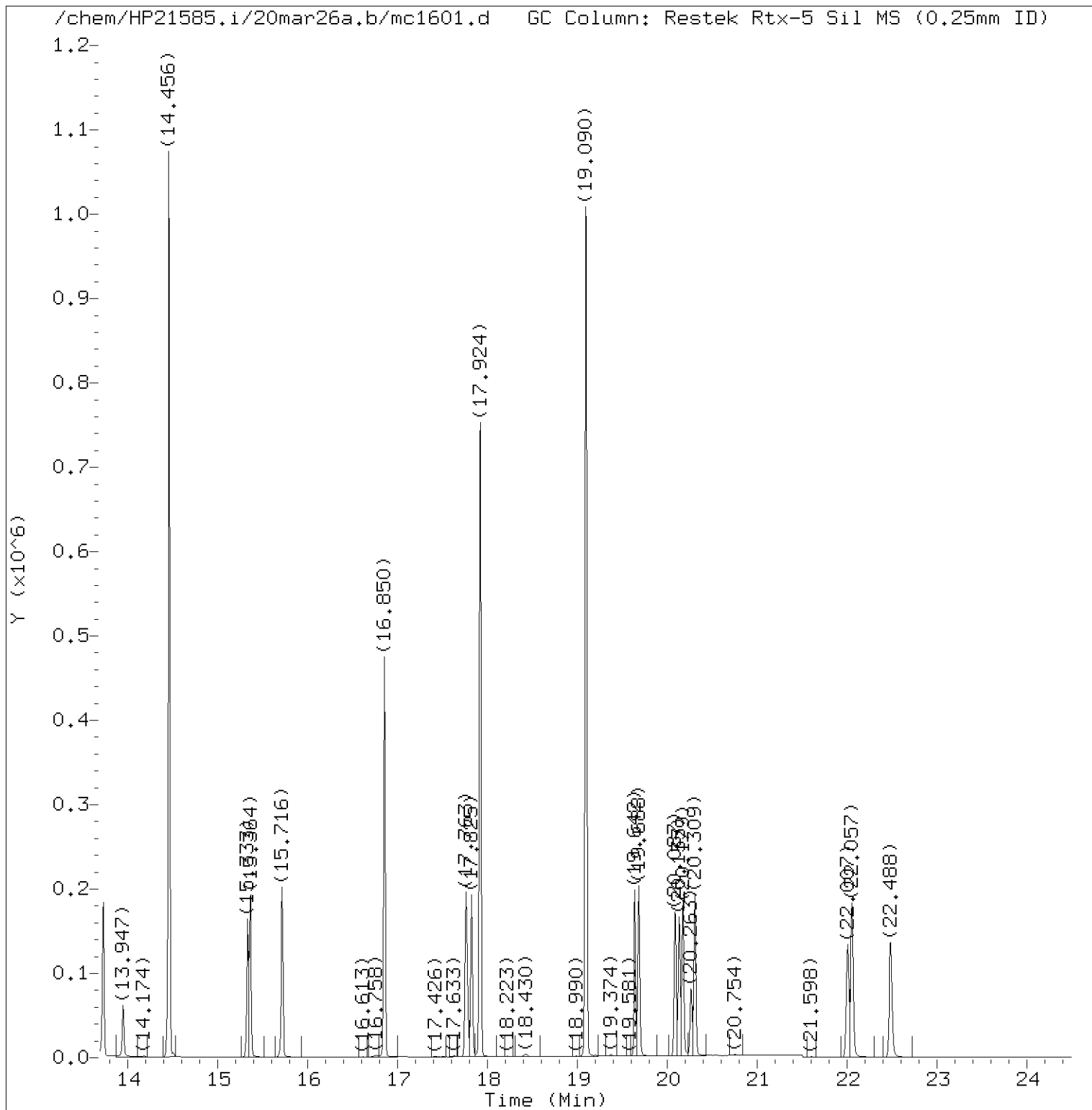
Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 26-Mar-2020 18:31 art12405

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:52.

Target 3.5 esignature user ID: art12405



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a,b/mc1601.d
Injection date and time: 26-MAR-2020 17:17

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a,b/rvsim8270d.m Sublist used: all1
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 26-Mar-2020 18:31 art12405

Sample Name: SSTDO.50

Lab Sample ID: SIM0750

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:52.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a.b/mc1601.d
 Injection date and time: 26-MAR-2020 17:17

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: all1
 Calibration date and time: 26-MAR-2020 18:31
 Date, time and analyst ID of latest file update: 26-Mar-2020 18:31 art12405

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.414	88	29859	0.489
2) N-Nitrosodimethylamine	(1)	3.785	74	44038	0.495
4) bis(2-Chloroethyl)ether	(2)	6.684	93	56182	0.421
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	22711	0.250
6) *Naphthalene-d8	(2)	8.972	136	76064	0.250
7) Naphthalene	(2)	9.013	128	193609	0.538
8) Quinoline	(2)	9.549	129	94113	0.561
9) 2-Methylnaphthalene	(2)	10.106	142	122614	0.549
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	92622	0.595
11) 1-Methylnaphthalene	(2)	10.268	142	120292	0.570
12) Dimethylphthalate	(3)	11.376	163	656627	2.243
13) Acenaphthylene	(3)	11.526	152	191777M	0.450
14) *Acenaphthene-d10	(3)	11.723	164	40164	0.250
15) Acenaphthene	(3)	11.769	154	114823	0.483
16) Dibenzofuran	(3)	12.004	168	192816	0.431
17) Diethylphthalate	(3)	12.324	149	652784	2.240
18) Fluorene	(3)	12.433	166	139542	0.463
43) N-Nitrosodiphenylamine	(4)	12.597	169	83224	0.538
19) Hexachlorobenzene	(4)	13.120	284	48287	0.452
20) *Phenanthrene-d10	(4)	13.627	188	82445	0.250
21) Phenanthrene	(4)	13.658	178	202480	0.473
22) Anthracene	(4)	13.729	178	207327	0.517
23) Di-n-butylphthalate	(4)	14.456	149	1161222	2.593
24) \$Fluoranthene-d10	(4)	15.333	212	196717	0.565
25) Fluoranthene	(4)	15.364	202	246919	0.525
26) Pyrene	(5)	15.716	202	252766	0.447
27) Butylbenzylphthalate	(5)	16.850	149	490553	2.394
28) Benzo(a)anthracene	(5)	17.763	228	223056	0.466
29) *Chrysene-d12	(5)	17.779	240	78938	0.250
30) Chrysene	(5)	17.825	228	235389	0.475
31) bis(2-Ethylhexyl)phthalate	(5)	17.917	149	746958	2.481
32) Di-n-octylphthalate	(6)	19.090	149	1306215	1.877
33) Benzo(b)fluoranthene	(6)	19.642	252	243938	0.486
34) Benzo(k)fluoranthene	(6)	19.688	252	247372	0.472
35) Benzo(e)pyrene	(6)	20.087	252	231858	0.486
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	184746	0.552
37) Benzo(a)pyrene	(6)	20.179	252	237274	0.497
38) *Perylene-d12	(6)	20.271	264	88897	0.250
45) Perylene	(6)	20.309	252	241154	0.475
39) Indeno(1,2,3-cd)pyrene	(6)	22.007	276	220985M	0.518

M = Compound was manually integrated.

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Ashley R. Transue
 on 03/26/2020 at 18:52.

Target 3.5 esignature user ID: art12405

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26a.b/mc1601.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 17:17

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 26-MAR-2020 18:31

Date, time and analyst ID of latest file update: 26-Mar-2020 18:31 art12405

Sample Name: SSTDO.50

Lab Sample ID: SIM0750

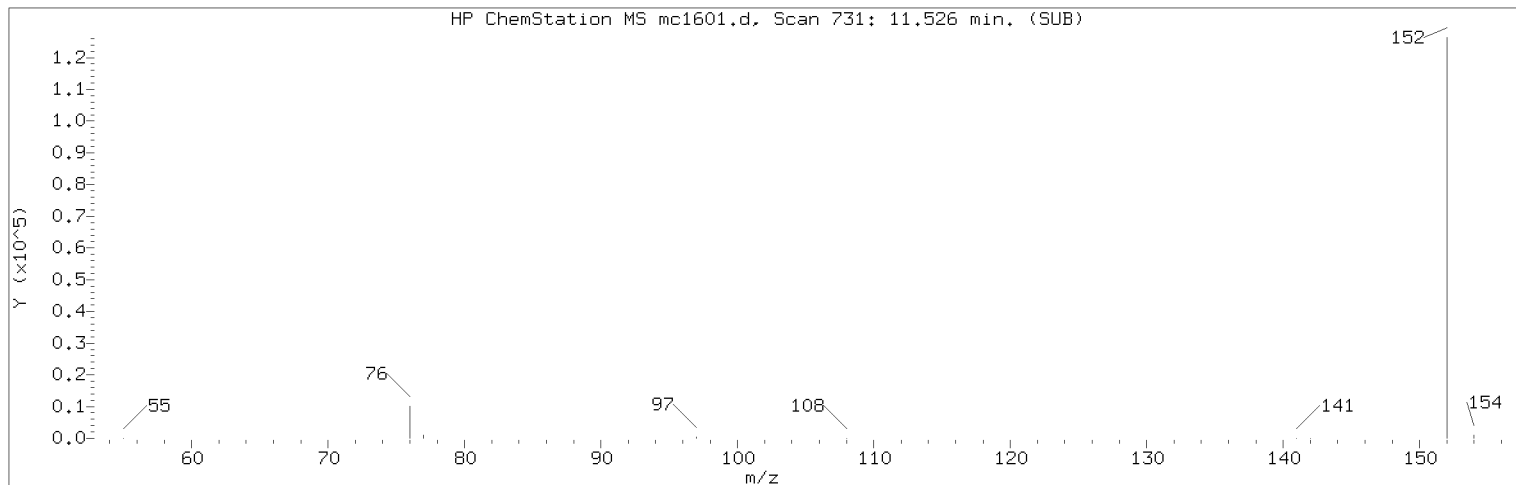
Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
40) Dibenz(a,h)anthracene	(6)	22.057	278	251630	0.522
41) Benzo(g,h,i)perylene	(6)	22.488	276	255305	0.507

Digitally signed by Ashley R. Transue

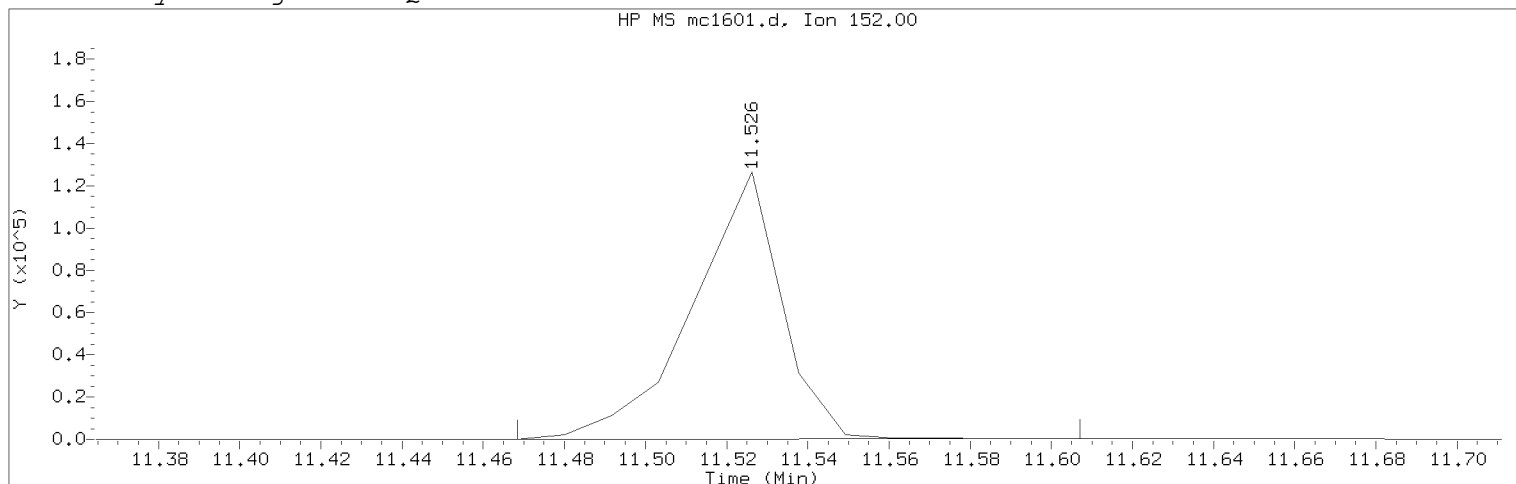
on 03/26/2020 at 18:52.

Target 3.5 esignature user ID: art12405

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26a.b/mc1601.d Instrument ID: HP21585.i
Injection date and time: 26-MAR-2020 17:17 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 26-MAR-2020 18:31
Date, time and analyst ID of latest file update: 26-Mar-2020 18:31 art12405

Sample Name: SSTDO.50

Lab Sample ID: SIM0750

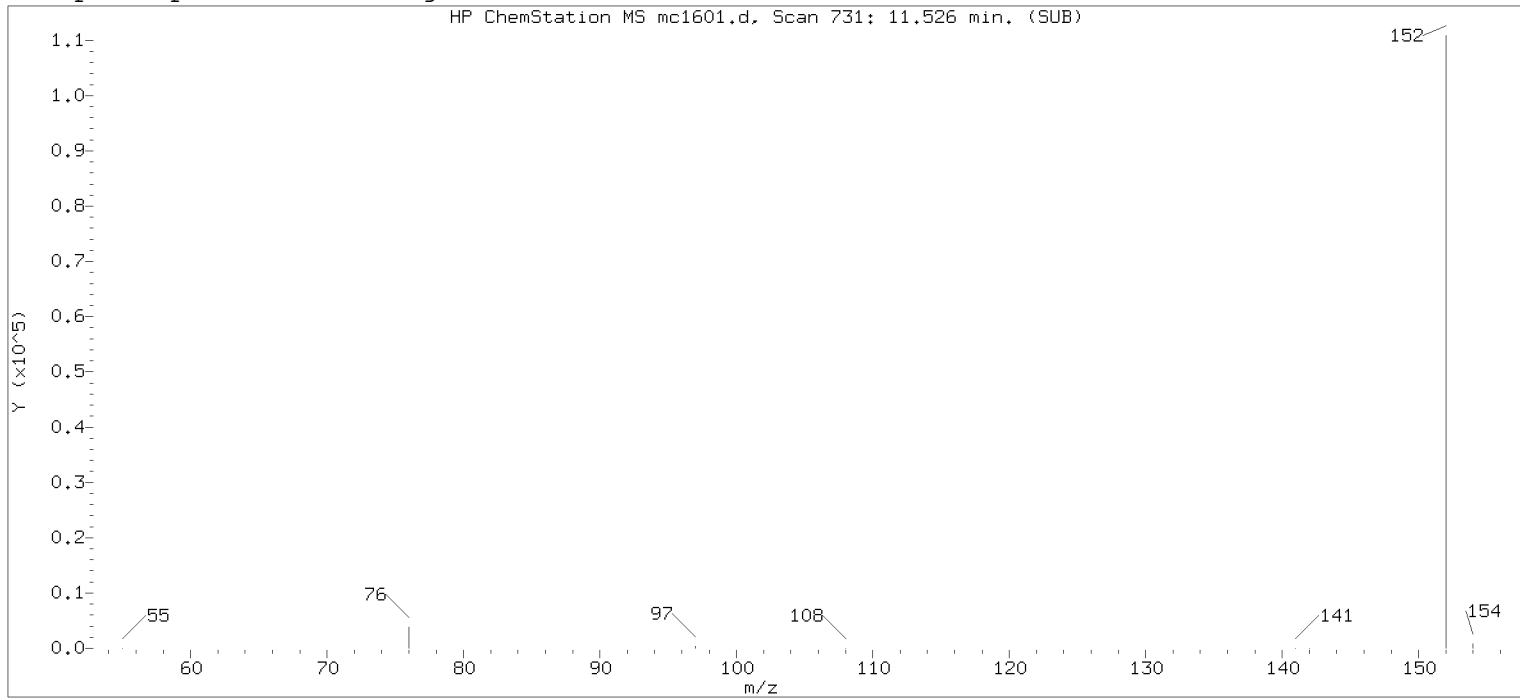
Compound Number : 13
Compound Name : Acenaphthylene
Scan Number : 731
Retention Time (minutes) : 11.526
Quant Ion : 152.00
Area (flag) : 191777M
On-Column Amount (ng/ul) : 0.4500
Integration start scan : 725 Integration stop scan: 737
Y at integration start : 138 Y at integration end: 263

Reason for manual integration: improper integration

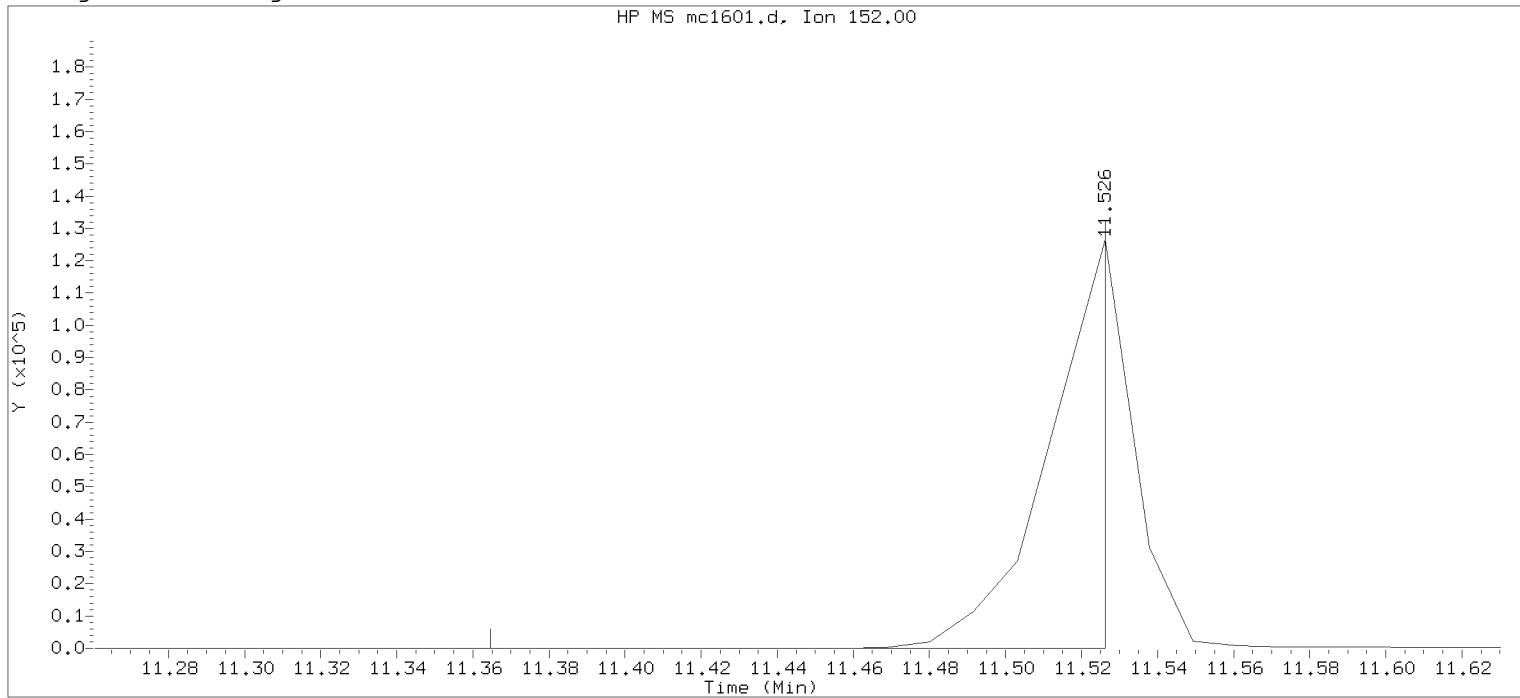
Analyst responsible for change: Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:52.
Target 3.5 esignature user ID: art12405

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:40.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26a.b/mc1601.d Instrument ID: HP21585.i
Injection date and time: 26-MAR-2020 17:17 Analyst ID: ceb05247

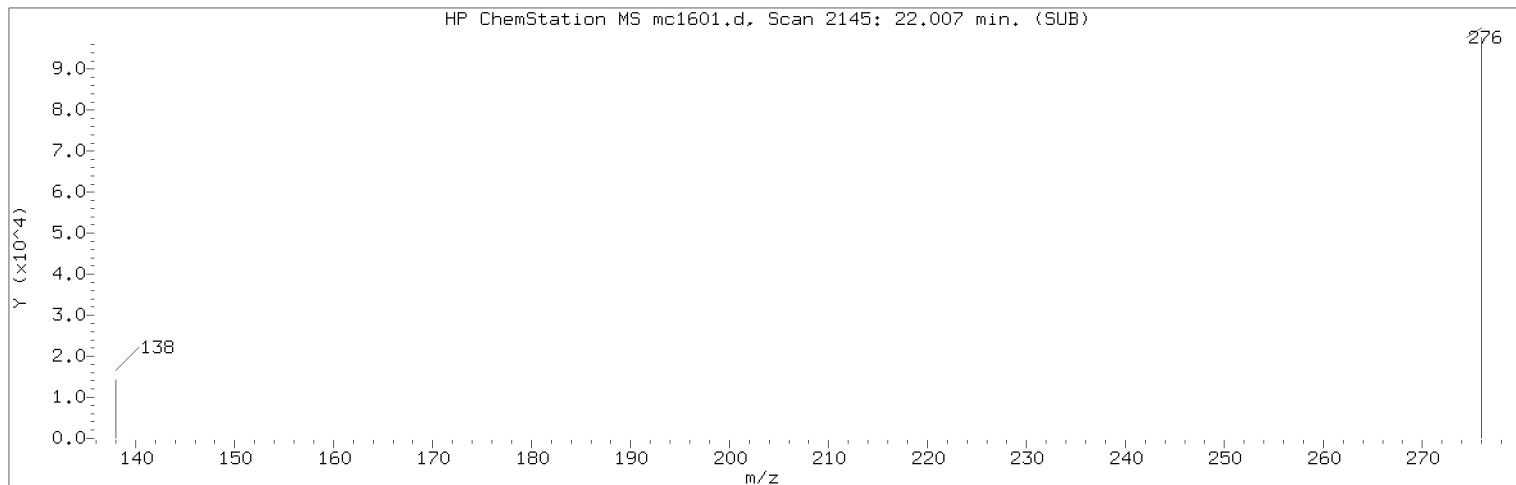
Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 26-MAR-2020 17:53
Date, time and analyst ID of latest file update: 26-Mar-2020 17:53 Unknown

Sample Name: SSTD0.50

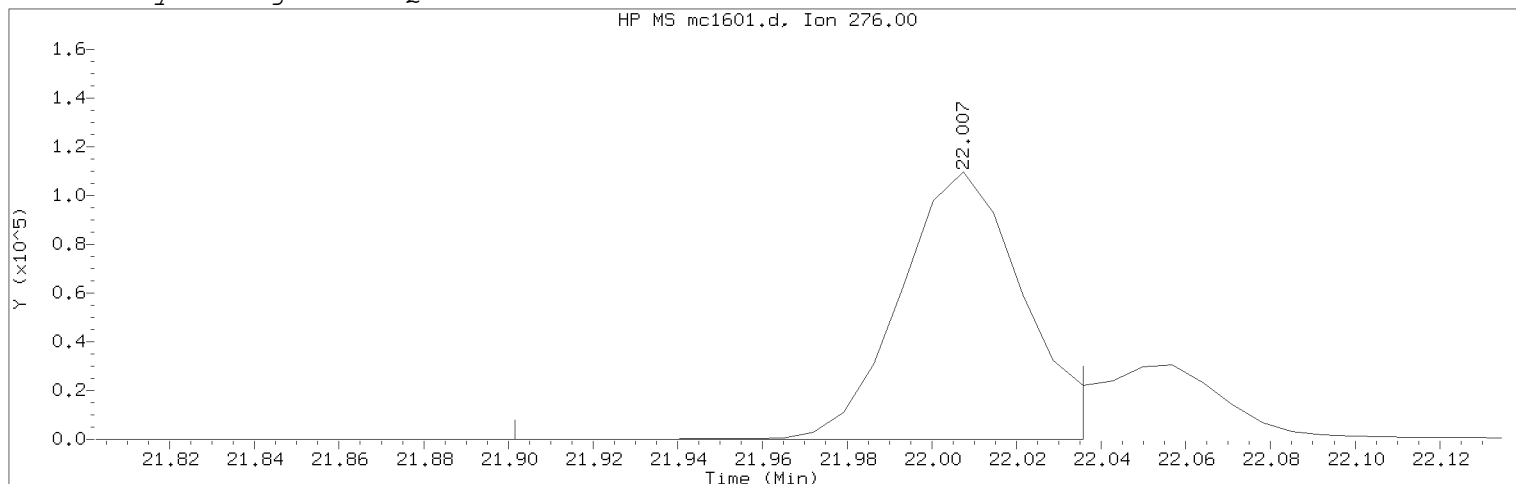
Lab Sample ID: SIM0750

Compound Number	: 13	
Compound Name	: Acenaphthylene	
Scan Number	: 731	
Retention Time (minutes)	: 11.526	
Quant Ion	: 152.00	
Area	: 124880	
On-column Amount (ng/ul)	: 0.2930	
Integration start scan	: 716	Integration stop scan: 730
Y at integration start	: 77	Y at integration end: 77

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26a.b/mc1601.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 17:17

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: all1

Calibration date and time: 26-MAR-2020 18:31

Date, time and analyst ID of latest file update: 26-Mar-2020 18:31 art12405

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2145	
Retention Time (minutes)	: 22.007	
Quant Ion	: 276.00	
Area (flag)	: 220985M	
On-Column Amount (ng/ul)	: 0.5179	
Integration start scan	: 2129	Integration stop scan: 2148
Y at integration start	: 95	Y at integration end: 95

Reason for manual integration: improper integration

Analyst responsible for change:

Digitally signed by Ashley R. Transue
on 03/26/2020 at 18:52.

Target 3.5 esignature user ID: art12405

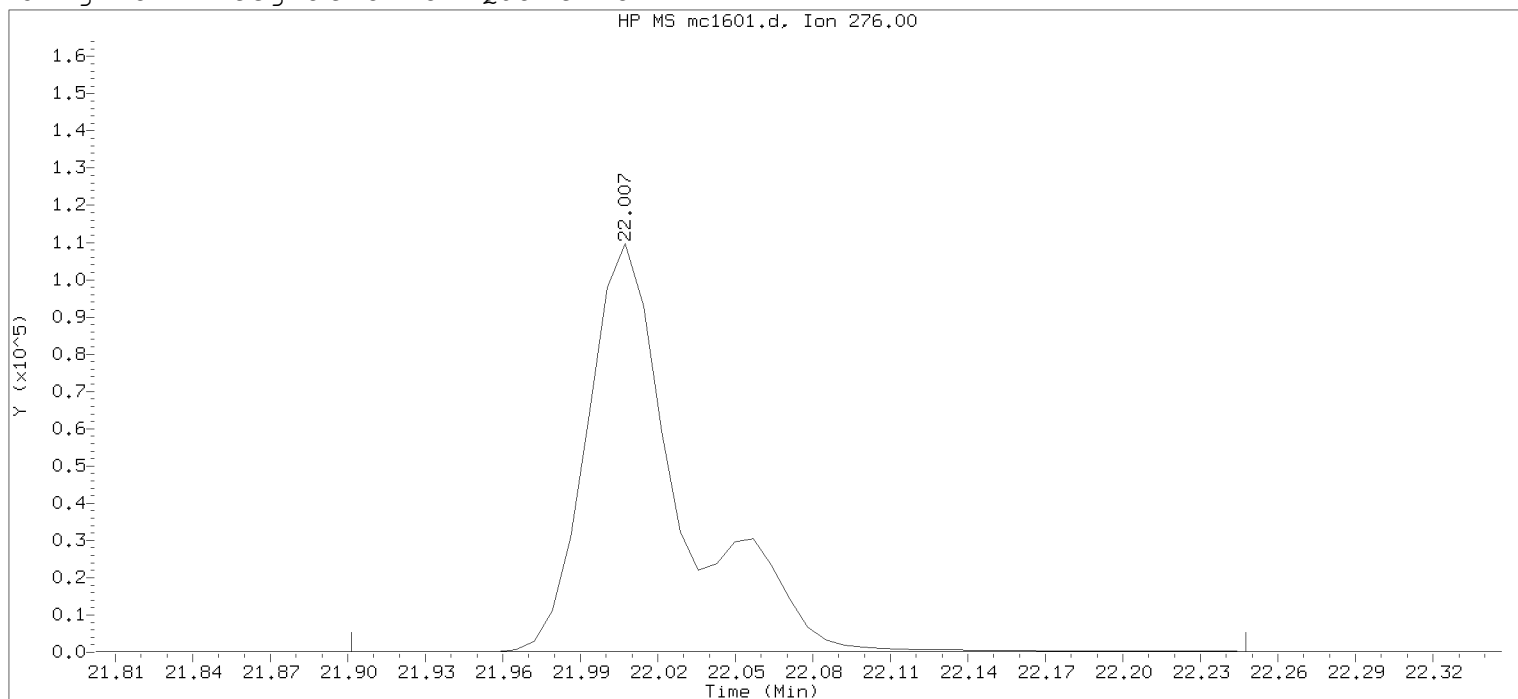
Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:40.

PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26a.b/mc1601.d Instrument ID: HP21585.i
Injection date and time: 26-MAR-2020 17:17 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26a.b/rvsim8270d.m Sublist used: all1
Calibration date and time: 26-MAR-2020 17:53
Date, time and analyst ID of latest file update: 26-Mar-2020 17:53 Unknown

Sample Name: SSTD0.50

Lab Sample ID: SIM0750

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2145	
Retention Time (minutes)	: 22.007	
Quant Ion	: 276.00	
Area	: 281034	
On-column Amount (ng/ul)	: 0.6586	
Integration start scan	: 2129	Integration stop scan: 2178
Y at integration start	: 95	Y at integration end: 95

Raw QC Data

Semivolatiles by GC/MS-SIM

SBLKWB085 Lancaster Laboratories, Inc. SBLKWB085

Analysis Summary for GC/MS Semivolatiles

Data file: /chem/HP21585.i/20mar26.b/mc1552.d Injection date and time: 26-MAR-2020 06:33
 Data file Sample Info. Line: SBLKWB085;SBLKWB085;1;3;BLANK;; Instrument ID: HP21585.i Batch: 20085WAB
 Date, time and analyst ID of latest file update: 26-Mar-2020 07:08 Unknown

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 085WAB
 Calibration date and time (Last Method Edit): 26-MAR-2020 06:47
 Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
 Sample Volume (Vo): 250 ml Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	23240 (1)	0.25	
6) Naphthalene-d8	8.972 (0.000)	538	136	78328 (0)	0.25	
14) Acenaphthene-d10	11.723 (0.000)	748	164	37008 (-10)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	80933 (-9)	0.25	
29) Chrysene-d12	17.779 (0.000)	1588	240	65331 (-22)	0.25	
38) Perylene-d12	20.263 (0.000)	1912	264	78768 (-9)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	26906	0.168	67%
24) Fluoranthene-d10	(4)	15.333 (0.000)	212	73384	0.215	86%
36) Benzo (a)pyrene-d12	(6)	20.133 (0.000)	264	53301	0.180	72%

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
1) 1,4-Dioxane	(1)			Not Detected					0.03
7) Naphthalene	(2)			Not Detected					0.008
9) 2-Methylnaphthalene	(2)			Not Detected					0.005
11) 1-Methylnaphthalene	(2)			Not Detected					0.003
13) Acenaphthylene	(3)			Not Detected					0.003
15) Acenaphthene	(3)			Not Detected					0.003
18) Fluorene	(3)			Not Detected					0.003
19) Hexachlorobenzene	(4)			Not Detected					0.003
21) Phenanthrene	(4)			Not Detected					0.008
22) Anthracene	(4)			Not Detected					0.003
25) Fluoranthene	(4)			Not Detected					0.003
26) Pyrene	(5)			Not Detected					0.003
31) bis(2-Ethylhexyl)phthalate	(5)			Not Detected					0.02
28) Benzo (a)anthracene	(5)			Not Detected					0.003
30) Chrysene	(5)			Not Detected					0.003
33) Benzo (b)fluoranthene	(6)			Not Detected					0.003
34) Benzo (k)fluoranthene	(6)			Not Detected					0.003
37) Benzo (a)pyrene	(6)			Not Detected					0.003
39) Indeno (1,2,3-cd)pyrene	(6)			Not Detected					0.003
40) Dibenz (a,h)anthracene	(6)			Not Detected					0.005
41) Benzo (g,h,i)perylene	(6)			Not Detected					0.003

SBLKWB085

Lancaster Laboratories, Inc.
Analysis Summary for GC/MS Semivolatiles

SBLKWB085

Data file: /chem/HP21585.i/20mar26.b/mc1552.d

Injection date and time: **26-MAR-2020 06:33**

Data file Sample Info. Line: SBLKWB085;SBLKWB085;1;3;BLANK;;;

Instrument ID: **HP21585.i** Batch: **20085WAB**

Date, time and analyst ID of latest file update: 26-Mar-2020 07:08 Unknown

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: **085WAB**

Calibration date and time (Last Method Edit): 26-MAR-2020 06:47

Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1

Unit Correction Factor (Uf): 1

Final Extract Volume (Vt): 1000 ul

Sample Volume (Vo): 250 ml

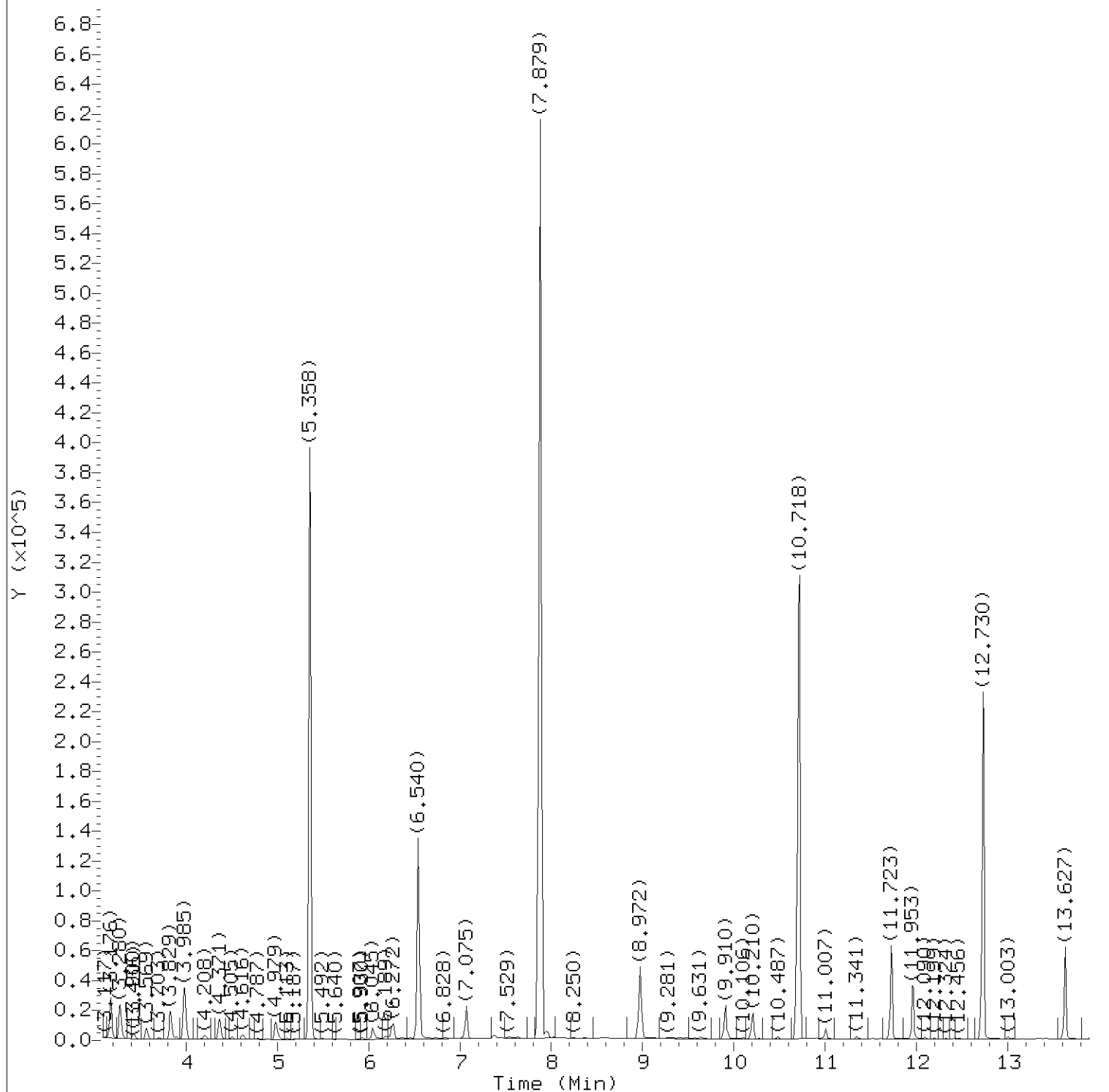
Volume Injected (Vi): 2 ul

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Total number of targets = 21

Digitally signed by Joseph M. Gambler on 03/26/2020 at 07:50. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58. PARALLAX ID: cam01237



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1552.d
Injection date and time: 26-MAR-2020 06:33

Instrument ID: HP21585.i
Analyst ID: ceb05247

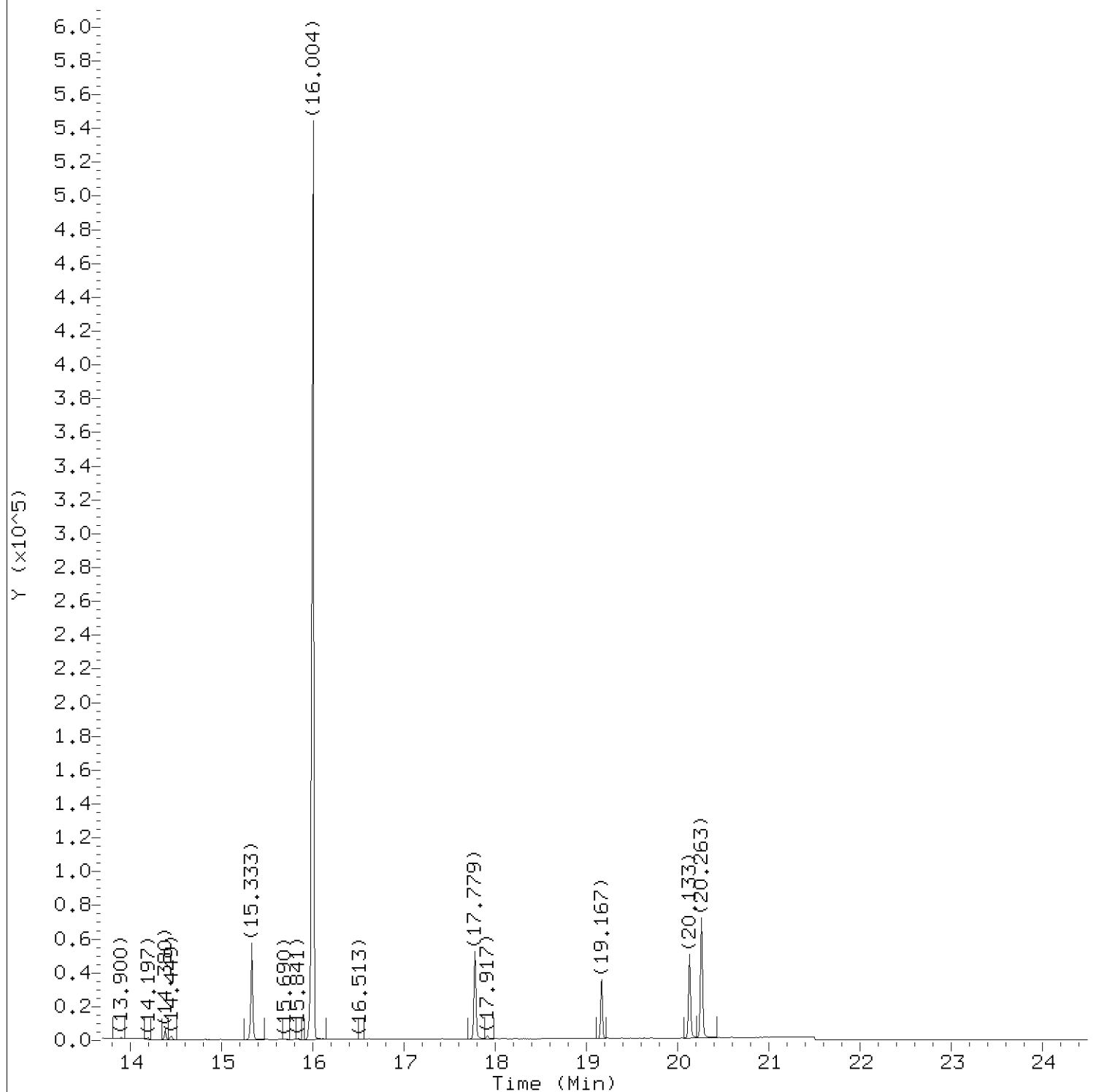
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 085WAB
Calibration date and time: 26-MAR-2020 06:47
Date, time and analyst ID of latest file update: 26-Mar-2020 07:08 Unknown

Sample Name: SBLKWB085

Lab Sample ID: SBLKWB085

Digitally signed by Joseph M. Gambler
on 03/26/2020 at 07:50.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1552.d
Injection date and time: 26-MAR-2020 06:33

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m
Calibration date and time: 26-MAR-2020 06:47

Sublist used: 085WAB

Date, time and analyst ID of latest file update: 26-Mar-2020 07:08 Unknown

Sample Name: SBLKWB085

Lab Sample ID: SBLKWB085

Digitally signed by Joseph M. Gambler
on 03/26/2020 at 07:50.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1552.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 06:33

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 085WAB

Calibration date and time: 26-MAR-2020 06:47

Date, time and analyst ID of latest file update: 26-Mar-2020 07:08 Unknown

Sample Name: SBLKWB085

Lab Sample ID: SBLKWB085

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	23240	0.250
6) *Naphthalene-d8	(2)	8.972	136	78328	0.250
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	26906	0.168
14) *Acenaphthene-d10	(3)	11.723	164	37008	0.250
20) *Phenanthrene-d10	(4)	13.627	188	80933	0.250
24) \$Fluoranthene-d10	(4)	15.333	212	73384	0.215
29) *Chrysene-d12	(5)	17.779	240	65331	0.250
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	53301	0.180
38) *Perylene-d12	(6)	20.263	264	78768	0.250

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Digitally signed by Joseph M. Gambler

on 03/26/2020 at 07:50.

Target 3.5 esignature user ID: jmg00346

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

085WBLCS

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 085WBLCS

Sample wt/vol: 250 (g/mL)ML Lab File ID: mc1553.d

Level: (low/med) LOW Date Received: _____

% Moisture: not dec: dec: Date Extracted: 03/25/20

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/26/20

Injection Volume: 2 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
123-91-1-----	1,4-Dioxane		0.4	
91-20-3-----	Naphthalene		0.7	
91-57-6-----	2-Methylnaphthalene		0.7	
90-12-0-----	1-Methylnaphthalene		0.7	
208-96-8-----	Acenaphthylene		0.6	
83-32-9-----	Acenaphthene		0.8	
86-73-7-----	Fluorene		0.8	
118-74-1-----	Hexachlorobenzene		0.6	
85-01-8-----	Phenanthrene		0.9	
120-12-7-----	Anthracene		0.9	
206-44-0-----	Fluoranthene		0.9	
129-00-0-----	Pyrene		0.8	
56-55-3-----	Benzo (a) anthracene		0.8	
218-01-9-----	Chrysene		0.9	
117-81-7-----	bis (2-Ethylhexyl) phthalate		0.8	J
205-99-2-----	Benzo (b) fluoranthene		0.9	
207-08-9-----	Benzo (k) fluoranthene		0.9	
50-32-8-----	Benzo (a) pyrene		0.9	
193-39-5-----	Indeno (1,2,3-cd) pyrene		1	
53-70-3-----	Dibenz (a,h) anthracene		0.9	
191-24-2-----	Benzo (g,h,i) perylene		0.9	

FORM I SV-1

085WBLCS Lancaster Laboratories, Inc. 085WBLCS

Analysis Summary for GC/MS Semivolatiles

Data file: /chem/HP21585.i/20mar26.b/mc1553.d Injection date and time: **26-MAR-2020 07:03**
 Data file Sample Info. Line: 085WBLCS;085WBLCS;1;3;LCS;;; Instrument ID: **HP21585.i** Batch: **20085WAB**
 Date, time and analyst ID of latest file update: 26-Mar-2020 07:50 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: **085WAB**
 Calibration date and time (Last Method Edit): 26-MAR-2020 06:47
 Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
 Sample Volume (Vo): 250 ml Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	23698 (3)	0.25	
6) Naphthalene-d8	8.971 (0.000)	538	136	81831 (4)	0.25	
14) Acenaphthene-d10	11.722 (0.000)	748	164	39947 (-3)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	81004 (-9)	0.25	
29) Chrysene-d12	17.778 (0.000)	1588	240	75496 (-10)	0.25	
38) Perylene-d12	20.263 (0.000)	1912	264	78612 (-9)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	29229	0.174	70%
24) Fluoranthene-d10	(4)	15.327 (0.000)	212	78453	0.229	92%
36) Benzo (a)pyrene-d12	(6)	20.133 (0.000)	264	60868	0.206	82%

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
1) 1,4-Dioxane	(1)	3.517(-0.015)	88	6992	0.110	0.44			0.03
7) Naphthalene	(2)	9.013(-0.000)	128	68700	0.177	0.71			0.008
9) 2-Methylnaphthalene	(2)	10.106(-0.000)	142	41536	0.173	0.69			0.005
11) 1-Methylnaphthalene	(2)	10.256 (0.001)	142	39668	0.175	0.70			0.003
13) Acenaphthylene	(3)	11.526 (0.000)	152	67655	0.160	0.64			0.003
15) Acenaphthene	(3)	11.768(-0.000)	154	49746	0.210	0.84			0.003
18) Fluorene	(3)	12.425(-0.000)	166	58111	0.194	0.78			0.003
19) Hexachlorobenzene	(4)	13.112(-0.000)	284	15691	0.150	0.60			0.003
21) Phenanthrene	(4)	13.650(-0.000)	178	89675	0.213	0.85			0.008
22) Anthracene	(4)	13.721(-0.000)	178	88225	0.224	0.90			0.003
25) Fluoranthene	(4)	15.358(-0.000)	202	108374	0.234	0.94			0.003
26) Pyrene	(5)	15.709 (0.000)	202	107552	0.199	0.80			0.003
31) bis(2-Ethylhexyl)phthalate	(5)	17.916(-0.000)	149	55676	0.193	0.77			0.02
28) Benzo (a)anthracene	(5)	17.755(-0.000)	228	94478	0.207	0.83			0.003
30) Chrysene	(5)	17.817 (0.000)	228	103607	0.219	0.87			0.003
33) Benzo (b)fluoranthene	(6)	19.634(-0.000)	252	99875	0.225	0.90			0.003
34) Benzo (k)fluoranthene	(6)	19.680(-0.000)	252	104313	0.225	0.90			0.003
37) Benzo (a)pyrene	(6)	20.171 (0.000)	252	97078	0.230	0.92			0.003
39) Indeno (1,2,3-cd)pyrene	(6)	22.000(-0.000)	276	90554M	0.240	0.96			0.003
40) Dibenz (a,h)anthracene	(6)	22.050(-0.000)	278	99954	0.235	0.94			0.005
41) Benzo (g,h,i)perylene	(6)	22.480(-0.000)	276	99524	0.223	0.89			0.003

M = Compound was manually integrated.

085WBLCS Lancaster Laboratories, Inc. 085WBLCS
Analysis Summary for GC/MS Semivolatiles

Data file: /chem/HP21585.i/20mar26.b/mc1553.d Injection date and time: **26-MAR-2020 07:03**
Data file Sample Info. Line: 085WBLCS;085WBLCS;1;3;LCS;; Instrument ID: **HP21585.i** Batch: **20085WAB**
Date, time and analyst ID of latest file update: 26-Mar-2020 07:50 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: **085WAB**
Calibration date and time (Last Method Edit): 26-MAR-2020 06:47
Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

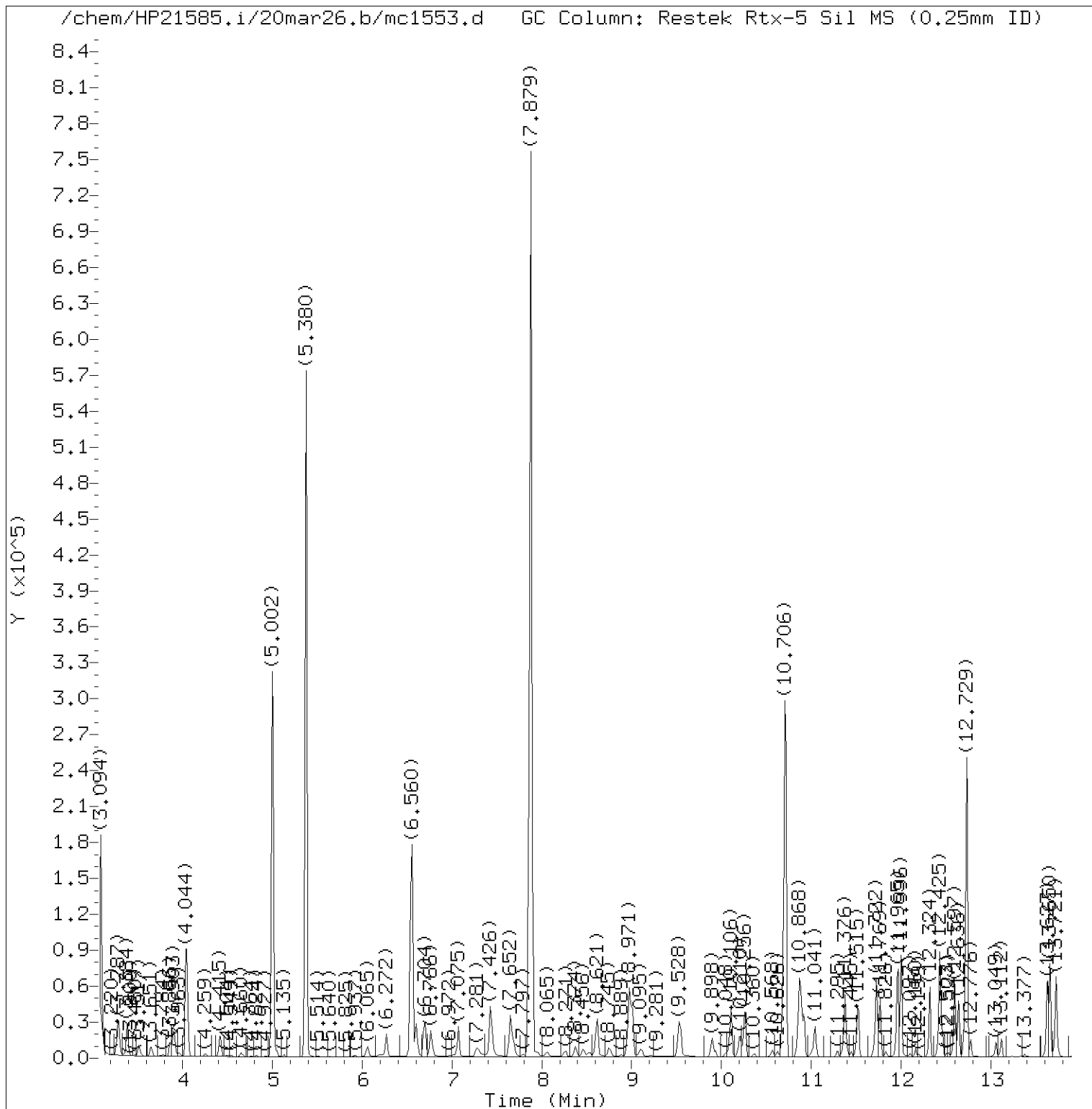
Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
Sample Volume (Vo): 250 ml Volume Injected (Vi): 2 ul

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Total number of targets = 21

Digitally signed by Joseph M. Gambler on 03/26/2020 at 07:50. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58. PARALLAX ID: cam01237



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1553.d
Injection date and time: 26-MAR-2020 07:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

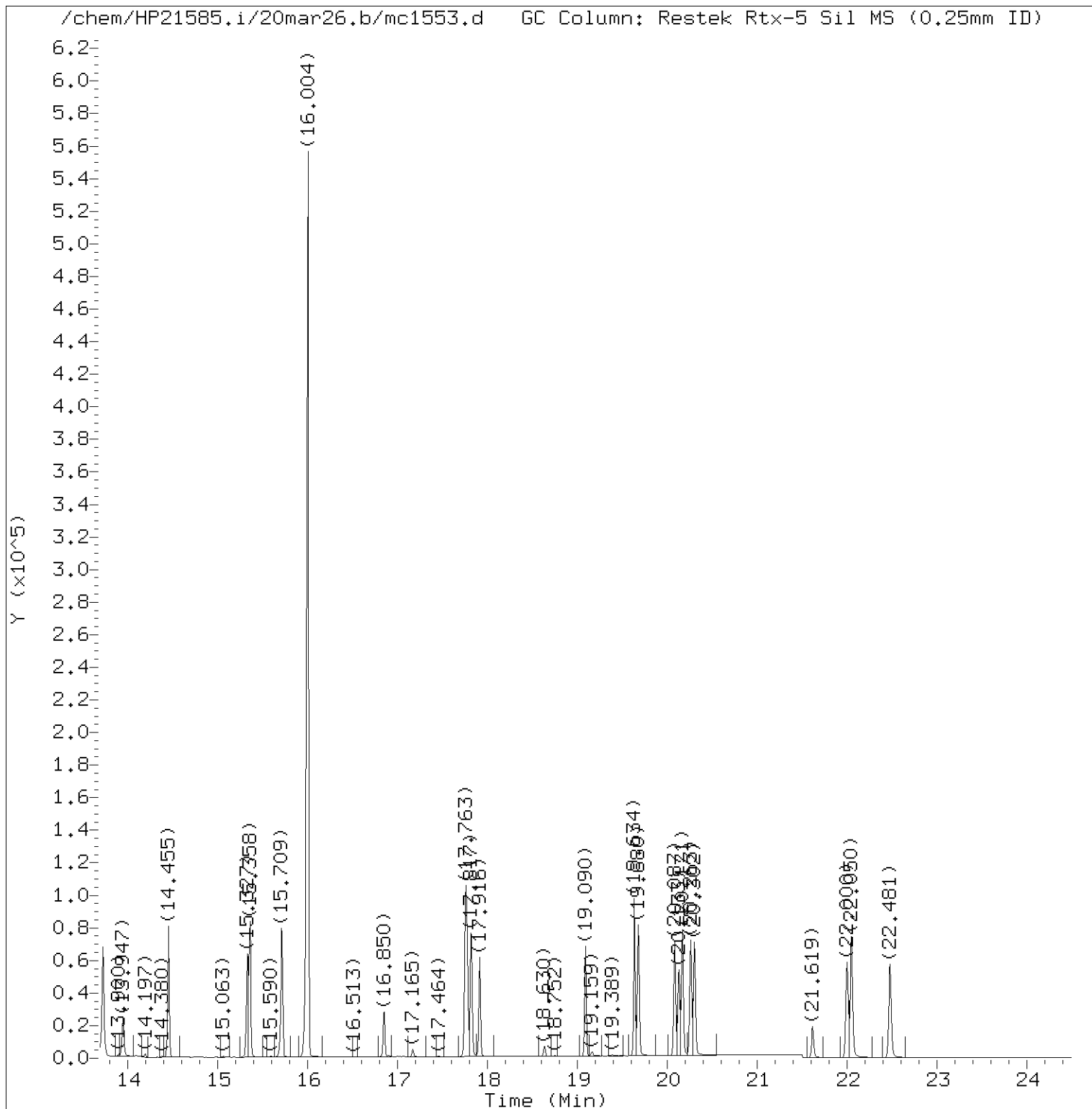
Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 085WAB
Calibration date and time: 26-MAR-2020 06:47
Date, time and analyst ID of latest file update: 26-Mar-2020 07:50 jmg00346

Sample Name: 085WBLCS

Lab Sample ID: 085WBLCS

Digitally signed by Joseph M. Gambler
on 03/26/2020 at 07:50.

Target 3.5 esignature user ID: jmg00346



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1553.d
Injection date and time: 26-MAR-2020 07:03

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 085WAB
Calibration date and time: 26-MAR-2020 06:47
Date, time and analyst ID of latest file update: 26-Mar-2020 07:50 jmg00346

Sample Name: 085WBLCS

Lab Sample ID: 085WBLCS

Digitally signed by Joseph M. Gambler
on 03/26/2020 at 07:50.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1553.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 07:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 085WAB

Calibration date and time: 26-MAR-2020 06:47

Date, time and analyst ID of latest file update: 26-Mar-2020 07:50 jmg00346

Sample Name: 085WBLCS

Lab Sample ID: 085WBLCS

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.517	88	6992	0.110
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	23698	0.250
6) *Naphthalene-d8	(2)	8.971	136	81831	0.250
7) Naphthalene	(2)	9.013	128	68700	0.177
9) 2-Methylnaphthalene	(2)	10.106	142	41536	0.173
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	29229	0.174
11) 1-Methylnaphthalene	(2)	10.256	142	39668	0.175
13) Acenaphthylene	(3)	11.526	152	67655	0.160
14) *Acenaphthene-d10	(3)	11.722	164	39947	0.250
15) Acenaphthene	(3)	11.769	154	49746	0.210
18) Fluorene	(3)	12.425	166	58111	0.194
19) Hexachlorobenzene	(4)	13.112	284	15691	0.150
20) *Phenanthrene-d10	(4)	13.627	188	81004	0.250
21) Phenanthrene	(4)	13.650	178	89675	0.213
22) Anthracene	(4)	13.721	178	88225	0.224
24) \$Fluoranthene-d10	(4)	15.327	212	78453	0.229
25) Fluoranthene	(4)	15.358	202	108374	0.234
26) Pyrene	(5)	15.709	202	107552	0.199
28) Benzo(a)anthracene	(5)	17.755	228	94478	0.207
29) *Chrysene-d12	(5)	17.778	240	75496	0.250
30) Chrysene	(5)	17.817	228	103607	0.219
31) bis(2-Ethylhexyl)phthalate	(5)	17.916	149	55676	0.193
33) Benzo(b)fluoranthene	(6)	19.634	252	99875	0.225
34) Benzo(k)fluoranthene	(6)	19.680	252	104313	0.225
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	60868	0.206
37) Benzo(a)pyrene	(6)	20.171	252	97078	0.230
38) *Perylene-d12	(6)	20.263	264	78612	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.000	276	90554M	0.240
40) Dibenz(a,h)anthracene	(6)	22.050	278	99954	0.235
41) Benzo(g,h,i)perylene	(6)	22.481	276	99524	0.223

M = Compound was manually integrated.

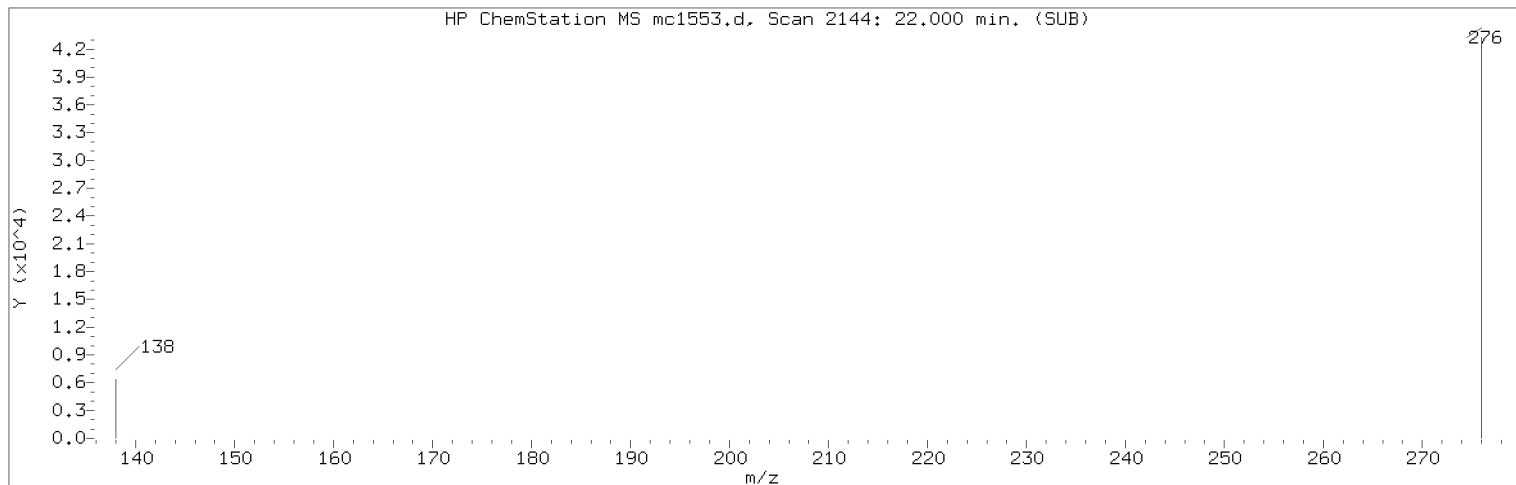
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

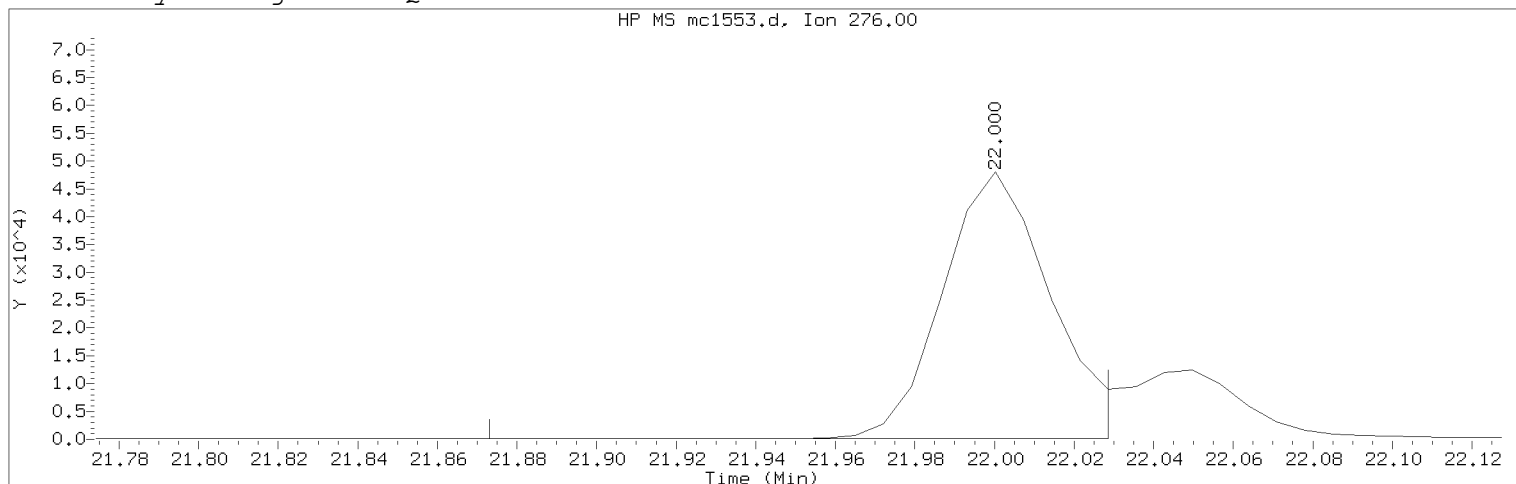
Digitally signed by Joseph M. Gambler
on 03/26/2020 at 07:50.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1553.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 07:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 085WAB

Calibration date and time: 26-MAR-2020 06:47

Date, time and analyst ID of latest file update: 26-Mar-2020 07:50 jmg00346

Sample Name: 085WBLCS

Lab Sample ID: 085WBLCS

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area (flag)	: 90554M	
On-Column Amount (ng/ul)	: 0.2400	
Integration start scan	: 2125	Integration stop scan: 2147
Y at integration start	: 70	Y at integration end: 70

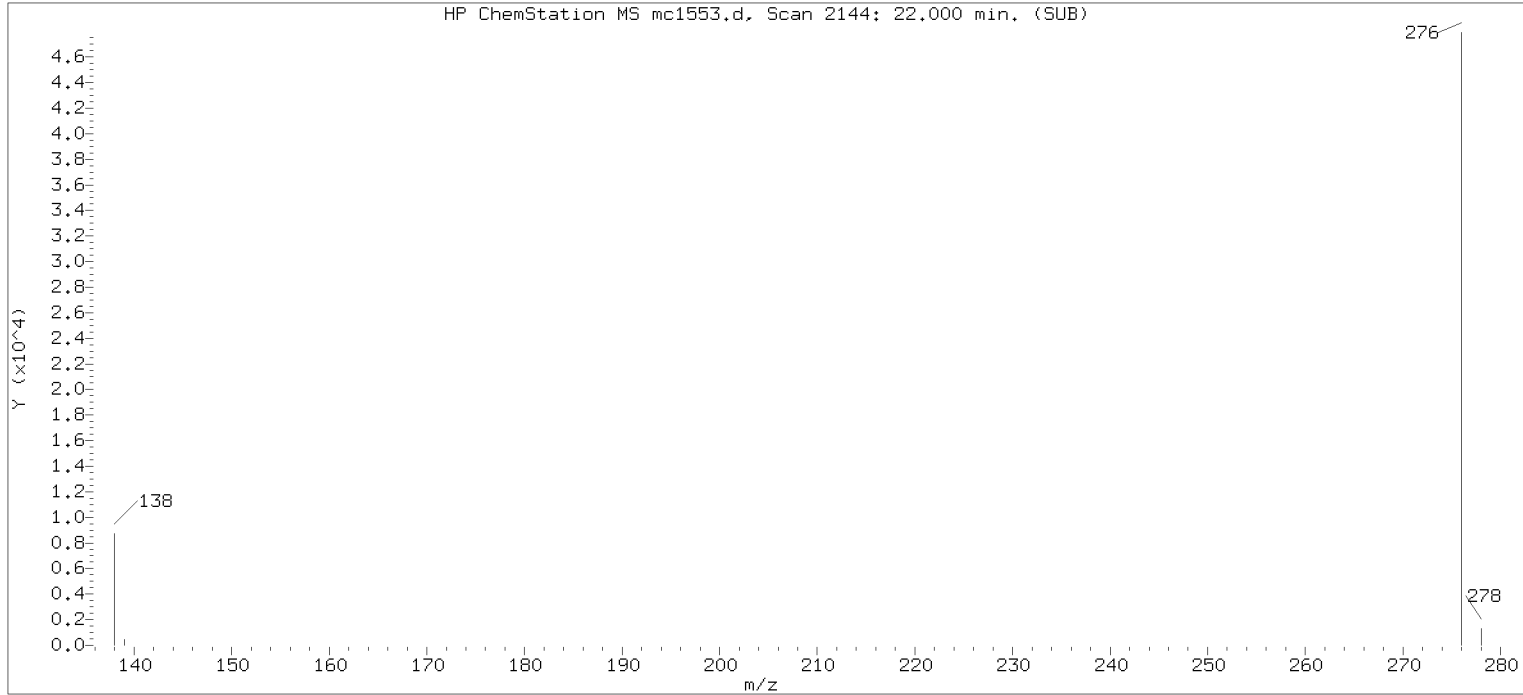
Reason for manual integration: improper integration

Analyst responsible for change:

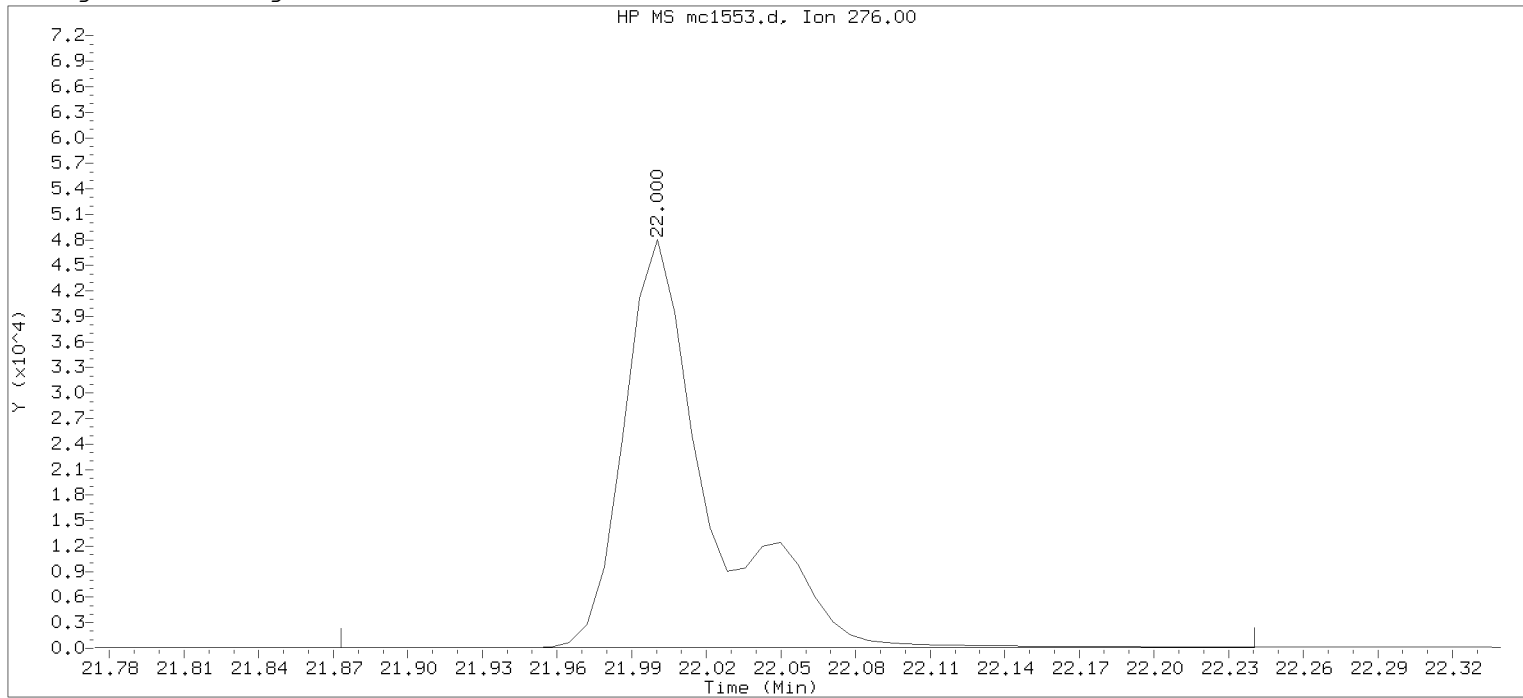
Digitally signed by Joseph M. Gambler
on 03/26/2020 at 07:50.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58.
PARALLAX ID: cam01237

Sample Spectrum (Background Subtracted)



Original Integration of Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1553.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 07:03

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 085WAB

Calibration date and time: 26-MAR-2020 06:47

Date, time and analyst ID of latest file update: 26-Mar-2020 07:38 Unknown

Sample Name: 085WBLCS

Lab Sample ID: 085WBLCS

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area	: 115658	
On-column Amount (ng/ul)	: 0.3065	
Integration start scan	: 2125	Integration stop scan: 2177
Y at integration start	: 70	Y at integration end: 70

Digitally signed by Joseph M. Gambler on 03/26/2020 at 07:50.

Target 3.5 esignature user GPV68 Page 576 of 586

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

085WBLCSD

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Matrix: (soil/water) WATER Lab Sample ID: 085WBLCSD
 Sample wt/vol: 250 (g/mL) ML Lab File ID: mc1554.d
 Level: (low/med) LOW Date Received: _____
 % Moisture: not dec: dec: Date Extracted: 03/25/20
 Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/26/20
 Injection Volume: 2 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) N pH: _____ Extraction: Sepf

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
		(ug/L or ug/Kg) MDL	UG/L	Q
123-91-1-----	1,4-Dioxane		0.4	
91-20-3-----	Naphthalene		0.8	
91-57-6-----	2-Methylnaphthalene		0.7	
90-12-0-----	1-Methylnaphthalene		0.7	
208-96-8-----	Acenaphthylene		0.6	
83-32-9-----	Acenaphthene		0.8	
86-73-7-----	Fluorene		0.7	
118-74-1-----	Hexachlorobenzene		0.6	
85-01-8-----	Phenanthrene		0.8	
120-12-7-----	Anthracene		0.7	
206-44-0-----	Fluoranthene		0.8	
129-00-0-----	Pyrene		0.8	
56-55-3-----	Benzo (a) anthracene		0.8	
218-01-9-----	Chrysene		0.8	
117-81-7-----	bis (2-Ethylhexyl) phthalate		0.8	J
205-99-2-----	Benzo (b) fluoranthene		0.9	
207-08-9-----	Benzo (k) fluoranthene		0.9	
50-32-8-----	Benzo (a) pyrene		0.9	
193-39-5-----	Indeno (1,2,3-cd) pyrene		1	
53-70-3-----	Dibenz (a,h) anthracene		0.9	
191-24-2-----	Benzo (g,h,i) perylene		0.9	

FORM I SV-1

085WBLCSD Lancaster Laboratories, Inc. 085WBLCSD

Analysis Summary for GC/MS Semivolatiles

Data file: /chem/HP21585.i/20mar26.b/mc1554.d Injection date and time: **26-MAR-2020 07:33**
 Data file Sample Info. Line: 085WBLCSD;085WBLCSD;1;3;LCSD;;; Instrument ID: **HP21585.i** Batch: **20085WAB**
 Date, time and analyst ID of latest file update: 26-Mar-2020 08:11 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: **085WAB**
 Calibration date and time (Last Method Edit): 26-MAR-2020 06:47
 Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
 Sample Volume (Vo): 250 ml Volume Injected (Vi): 2 ul

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area (+/- %Change)	Conc. (on-column)	QC Flag
5) 1,4-Dichlorobenzene-d4	7.075 (0.000)	446	152	23713 (3)	0.25	
6) Naphthalene-d8	8.971 (0.000)	538	136	82645 (5)	0.25	
14) Acenaphthene-d10	11.722 (0.000)	748	164	40869 (-1)	0.25	
20) Phenanthrene-d10	13.627 (0.000)	981	188	89930 (1)	0.25	
29) Chrysene-d12	17.778 (0.000)	1588	240	73193 (-12)	0.25	
38) Perylene-d12	20.263 (0.000)	1912	264	82275 (-5)	0.25	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.
10) 1-Methylnaphthalene-d10	(2)	10.210 (0.000)	152	29298	0.173	69%
24) Fluoranthene-d10	(4)	15.327 (0.000)	212	74626	0.196	79%
36) Benzo (a)pyrene-d12	(6)	20.133 (0.000)	264	63456	0.205	82%

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (on-column)
1) 1,4-Dioxane	(1)	3.488 (-0.011)	88	5922	0.093	0.37			0.03
7) Naphthalene	(2)	9.013 (-0.000)	128	75860	0.194	0.78			0.008
9) 2-Methylnaphthalene	(2)	10.106 (-0.000)	142	42603	0.175	0.70			0.005
11) 1-Methylnaphthalene	(2)	10.256 (0.001)	142	39839	0.174	0.70			0.003
13) Acenaphthylene	(3)	11.526 (-0.000)	152	65414	0.151	0.60			0.003
15) Acenaphthene	(3)	11.768 (-0.000)	154	48243	0.200	0.80			0.003
18) Fluorene	(3)	12.425 (-0.000)	166	57222	0.187	0.75			0.003
19) Hexachlorobenzene	(4)	13.112 (0.000)	284	16266	0.140	0.56			0.003
21) Phenanthrene	(4)	13.650 (-0.000)	178	91092	0.195	0.78			0.008
22) Anthracene	(4)	13.721 (-0.000)	178	80752	0.185	0.74			0.003
25) Fluoranthene	(4)	15.358 (0.000)	202	98823	0.193	0.77			0.003
26) Pyrene	(5)	15.709 (0.000)	202	100991	0.193	0.77			0.003
31) bis(2-Ethylhexyl)phthalate	(5)	17.916 (-0.000)	149	56333	0.202	0.81			0.02
28) Benzo (a)anthracene	(5)	17.755 (0.000)	228	92605	0.209	0.84			0.003
30) Chrysene	(5)	17.824 (-0.000)	228	96940	0.211	0.84			0.003
33) Benzo (b)fluoranthene	(6)	19.634 (-0.000)	252	102191	0.220	0.88			0.003
34) Benzo (k)fluoranthene	(6)	19.680 (-0.000)	252	105549	0.217	0.87			0.003
37) Benzo (a)pyrene	(6)	20.171 (0.000)	252	97866	0.222	0.89			0.003
39) Indeno (1,2,3-cd)pyrene	(6)	22.000 (-0.000)	276	98099M	0.248	0.99			0.003
40) Dibenz (a,h)anthracene	(6)	22.050 (-0.000)	278	100353	0.225	0.90			0.005
41) Benzo (g,h,i)perylene	(6)	22.480 (-0.000)	276	103939	0.223	0.89			0.003

M = Compound was manually integrated.

085WBLCSD Lancaster Laboratories, Inc. 085WBLCSD
Analysis Summary for GC/MS Semivolatiles

Data file: /chem/HP21585.i/20mar26.b/mc1554.d Injection date and time: **26-MAR-2020 07:33**
Data file Sample Info. Line: 085WBLCSD;085WBLCSD;1;3;LCSD;;; Instrument ID: **HP21585.i** Batch: **20085WAB**
Date, time and analyst ID of latest file update: 26-Mar-2020 08:11 jmg00346

Blank Data file reference: /chem/HP21585.i/20mar26.b/mc1552.d

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: **085WAB**
Calibration date and time (Last Method Edit): 26-MAR-2020 06:47
Mid Level Daily Calibration Standard Reference: /chem/HP21585.i/20mar26.b/mc1551.d

Matrix: WATER Level: Low GPC clean-up: No On-Column Amount units: ng/ul In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * DF * GPCf * Uf * Vt/(Vo)

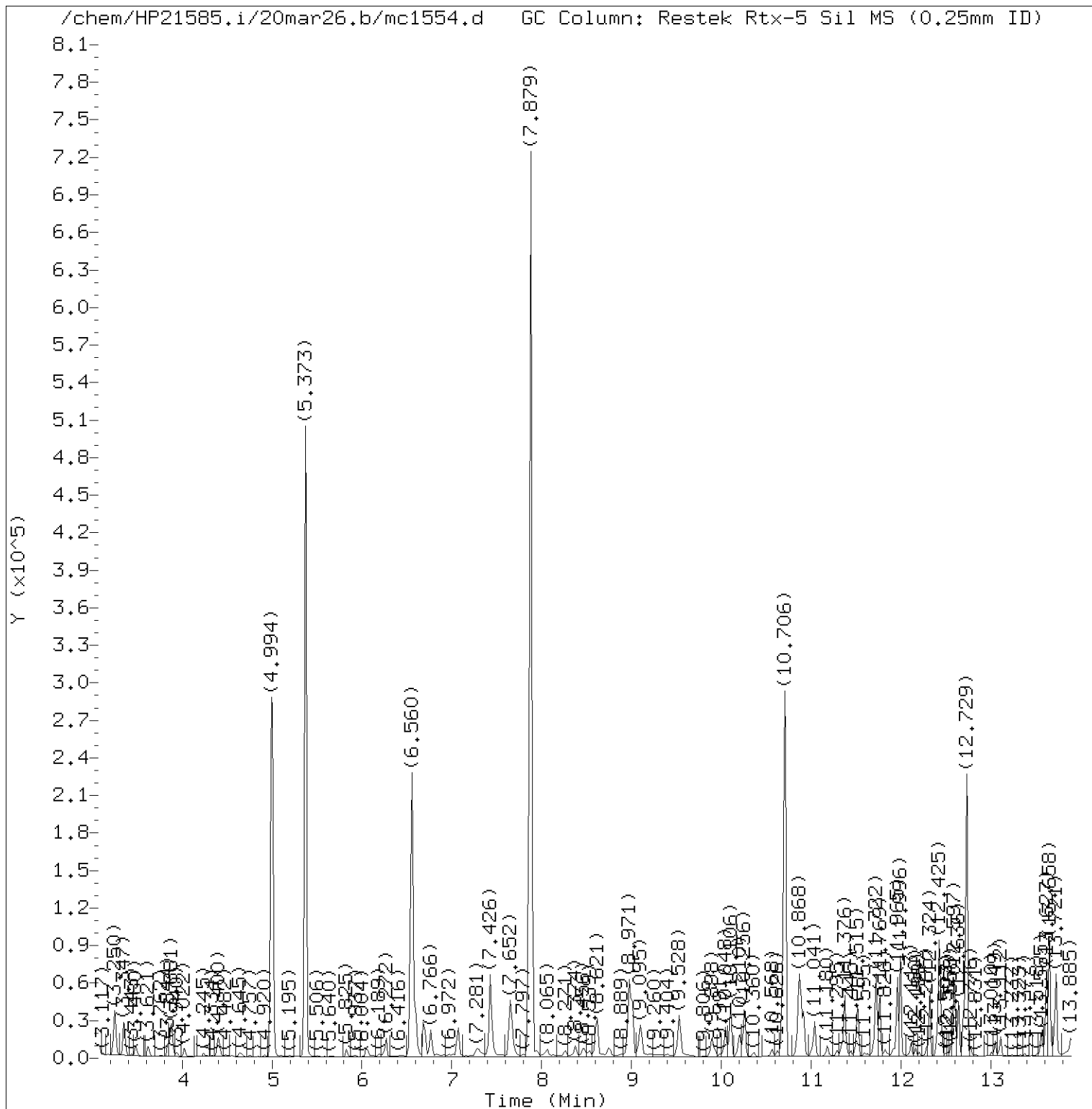
Dilution Factor (DF): 1 Unit Correction Factor (Uf): 1 Final Extract Volume (Vt): 1000 ul
Sample Volume (Vo): 250 ml Volume Injected (Vi): 2 ul

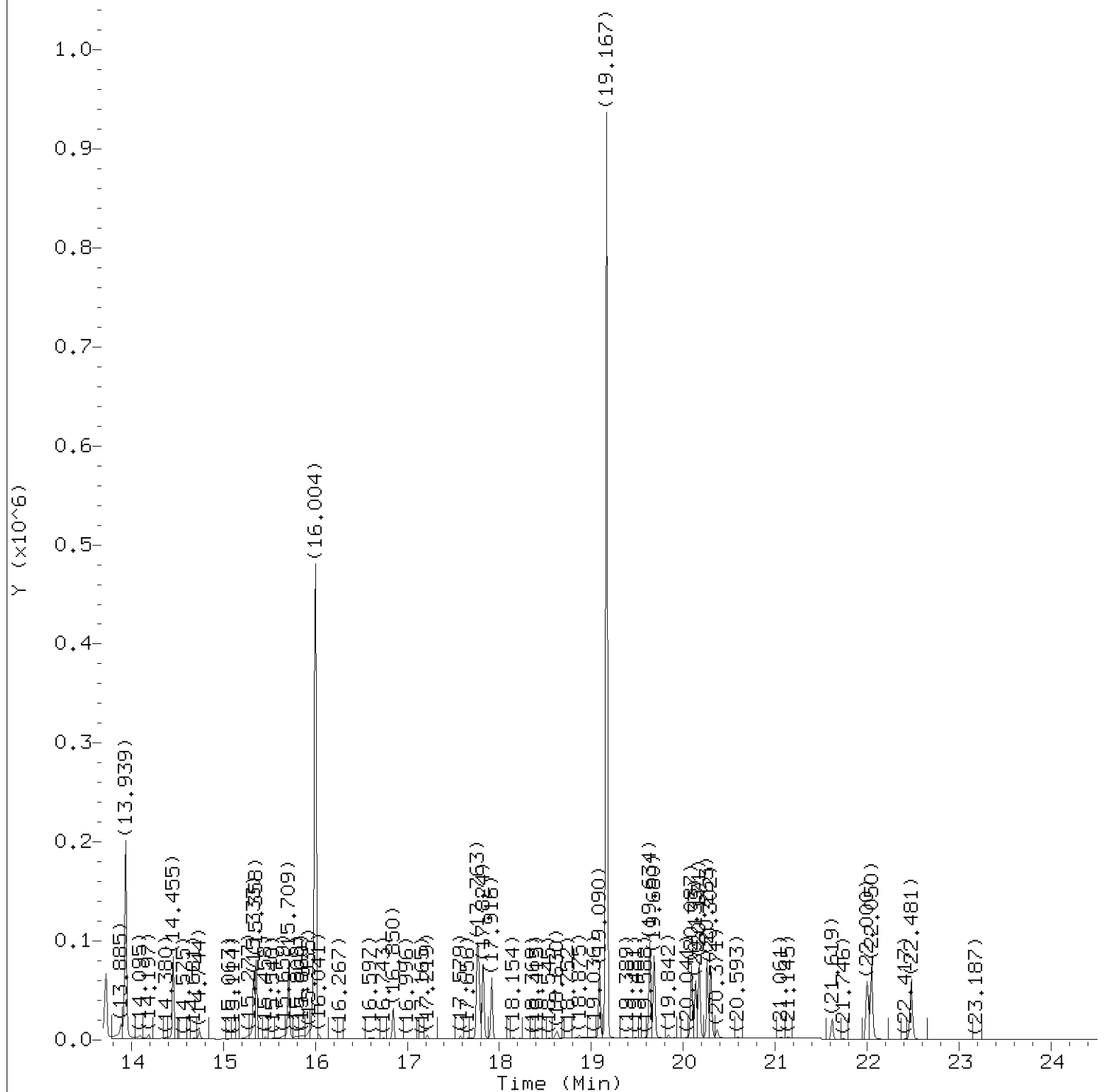
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WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 21

Digitally signed by Joseph M. Gambler on 03/26/2020 at 08:11. Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58. PARALLAX ID: cam01237





Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1554.d
Injection date and time: 26-MAR-2020 07:33

Instrument ID: HP21585.i
Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 085WAB
Calibration date and time: 26-MAR-2020 06:47
Date, time and analyst ID of latest file update: 26-Mar-2020 08:11 jmg00346

Sample Name: 085WBLCSO

Lab Sample ID: 085WBLCSO

Digitally signed by Joseph M. Gambler
on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: jmg00346

Quant Report

Target Revision 3.5

Data File: /chem/HP21585.i/20mar26.b/mc1554.d
 Injection date and time: 26-MAR-2020 07:33

Instrument ID: HP21585.i
 Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 085WAB
 Calibration date and time: 26-MAR-2020 06:47
 Date, time and analyst ID of latest file update: 26-Mar-2020 08:11 jmg00346

Sample Name: 085WBLCSD

Lab Sample ID: 085WBLCSD

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng/ul)
=====	=====	=====	=====	=====	=====
1) 1,4-Dioxane	(1)	3.488	88	5922	0.093
5) *1,4-Dichlorobenzene-d4	(1)	7.075	152	23713	0.250
6) *Naphthalene-d8	(2)	8.971	136	82645	0.250
7) Naphthalene	(2)	9.013	128	75860	0.194
9) 2-Methylnaphthalene	(2)	10.106	142	42603	0.175
10) \$1-Methylnaphthalene-d10	(2)	10.210	152	29298	0.173
11) 1-Methylnaphthalene	(2)	10.256	142	39839	0.174
13) Acenaphthylene	(3)	11.526	152	65414	0.151
14) *Acenaphthene-d10	(3)	11.722	164	40869	0.250
15) Acenaphthene	(3)	11.769	154	48243	0.200
18) Fluorene	(3)	12.425	166	57222	0.187
19) Hexachlorobenzene	(4)	13.112	284	16266	0.140
20) *Phenanthrene-d10	(4)	13.627	188	89930	0.250
21) Phenanthrene	(4)	13.651	178	91092	0.195
22) Anthracene	(4)	13.721	178	80752	0.185
24) \$Fluoranthene-d10	(4)	15.327	212	74626	0.196
25) Fluoranthene	(4)	15.358	202	98823	0.193
26) Pyrene	(5)	15.709	202	100991	0.193
28) Benzo(a)anthracene	(5)	17.755	228	92605	0.209
29) *Chrysene-d12	(5)	17.778	240	73193	0.250
30) Chrysene	(5)	17.824	228	96940	0.211
31) bis(2-Ethylhexyl)phthalate	(5)	17.916	149	56333	0.202
33) Benzo(b)fluoranthene	(6)	19.634	252	102191	0.220
34) Benzo(k)fluoranthene	(6)	19.680	252	105549	0.217
36) \$Benzo(a)pyrene-d12	(6)	20.133	264	63456	0.205
37) Benzo(a)pyrene	(6)	20.171	252	97866	0.222
38) *Perylene-d12	(6)	20.263	264	82275	0.250
39) Indeno(1,2,3-cd)pyrene	(6)	22.000	276	98099M	0.248
40) Dibenz(a,h)anthracene	(6)	22.050	278	100353	0.225
41) Benzo(g,h,i)perylene	(6)	22.481	276	103939	0.223

M = Compound was manually integrated.

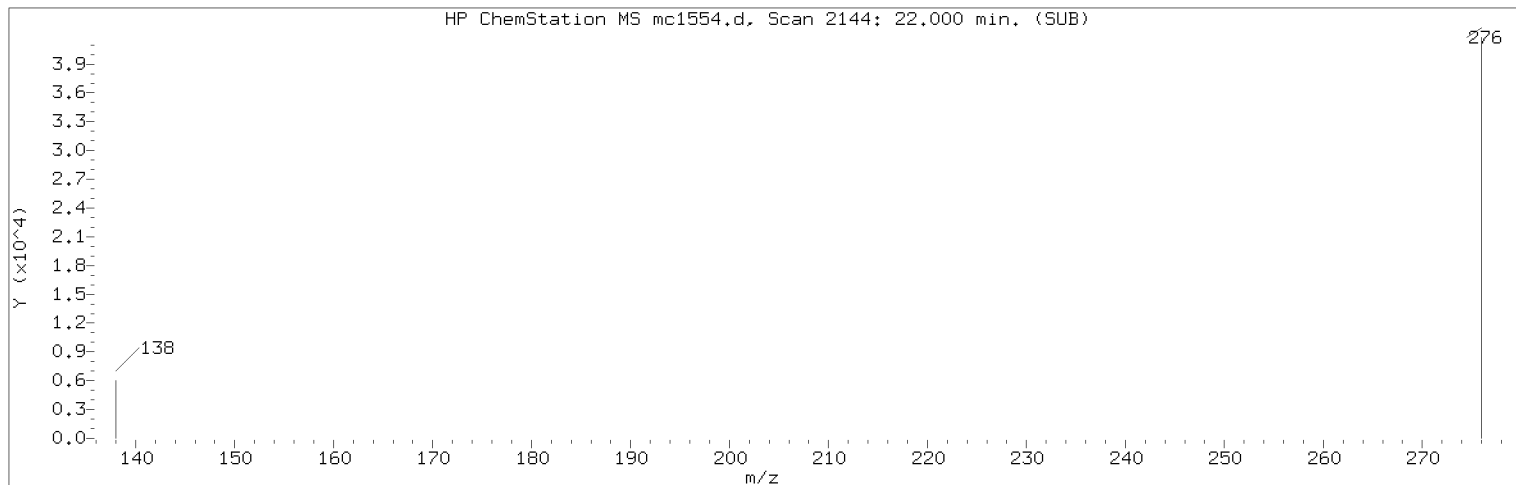
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

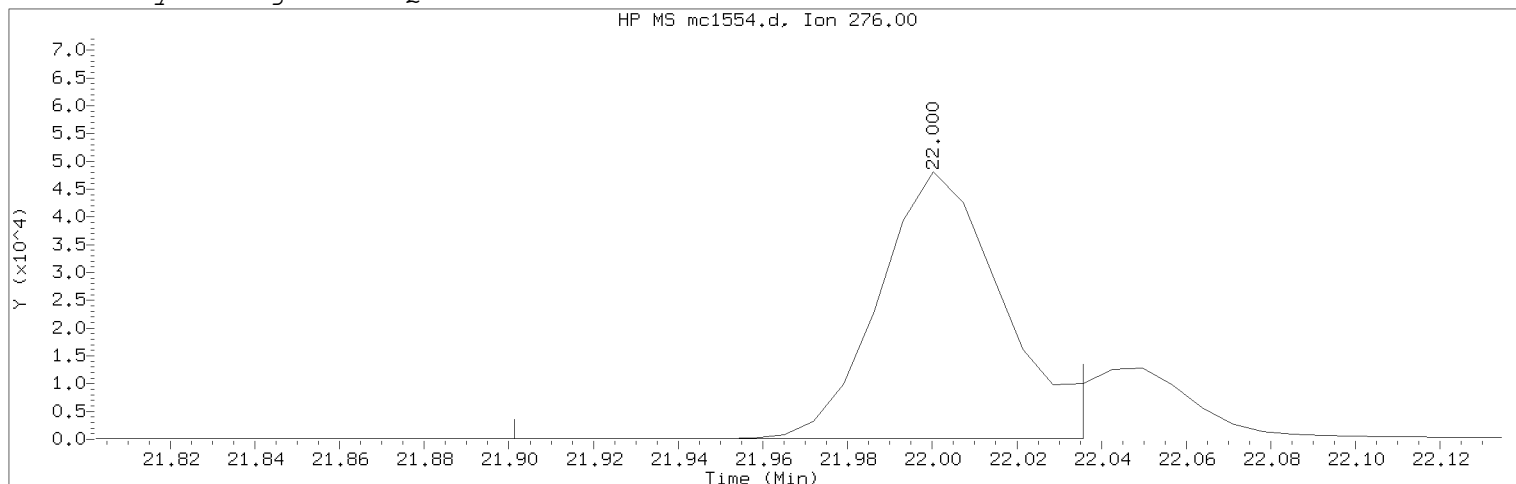
Digitally signed by Joseph M. Gambler
 on 03/26/2020 at 08:11.

Target 3.5 esignature user ID: jmg00346

Sample Spectrum (Background Subtracted)



Manually Integrated Quant Ion



Data File: /chem/HP21585.i/20mar26.b/mc1554.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 07:33

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m

Sublist used: 085WAB

Calibration date and time: 26-MAR-2020 06:47

Date, time and analyst ID of latest file update: 26-Mar-2020 08:11 jmg00346

Sample Name: 085WBLCSD

Lab Sample ID: 085WBLCSD

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area (flag)	: 98099M	
On-Column Amount (ng/ul)	: 0.2484	
Integration start scan	: 2129	Integration stop scan: 2148
Y at integration start	: 94	Y at integration end: 94

Reason for manual integration: improper integration

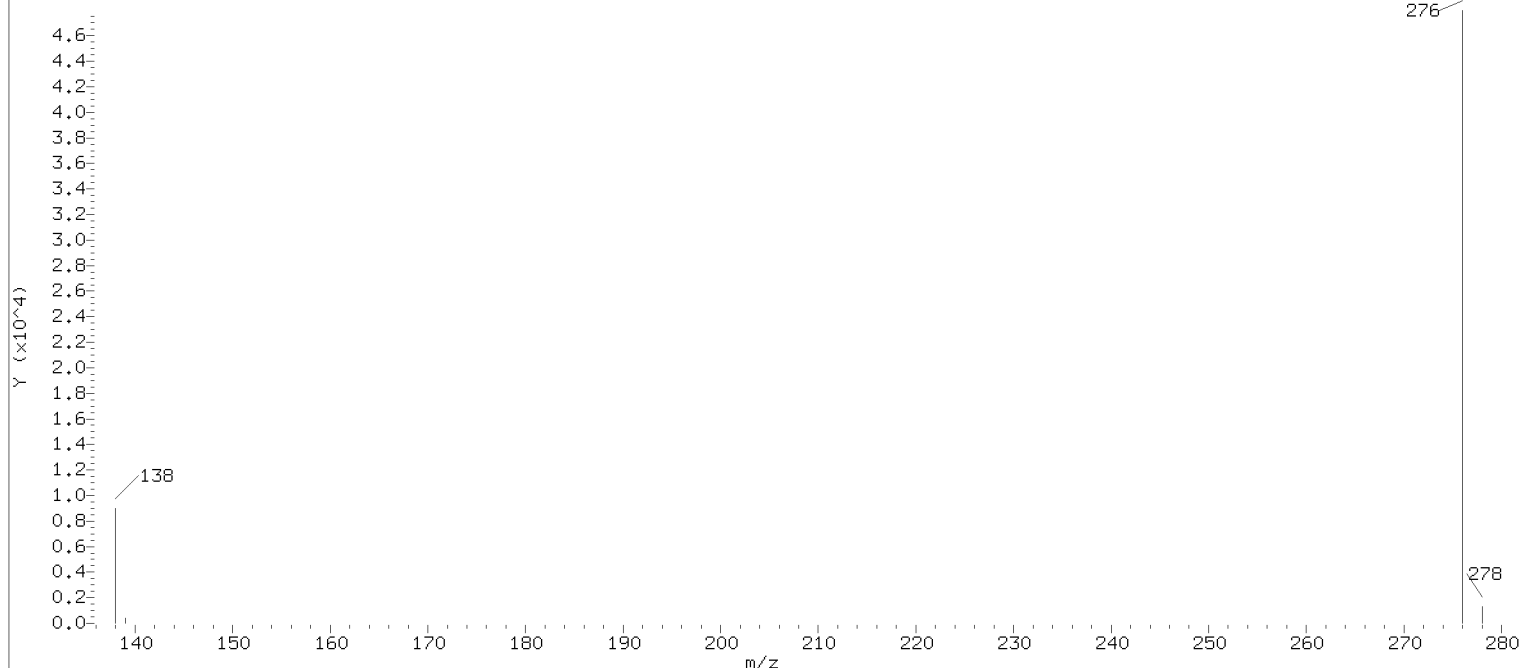
Analyst responsible for change:

Digitally signed by Joseph M. Gambler
on 03/26/2020 at 08:11.
Target 3.5 esignature user ID: jmg00346

Secondary review performed and digitally signed by Chad A. Moline on 03/30/2020 at 14:58.
PARALLAX ID: cam01237

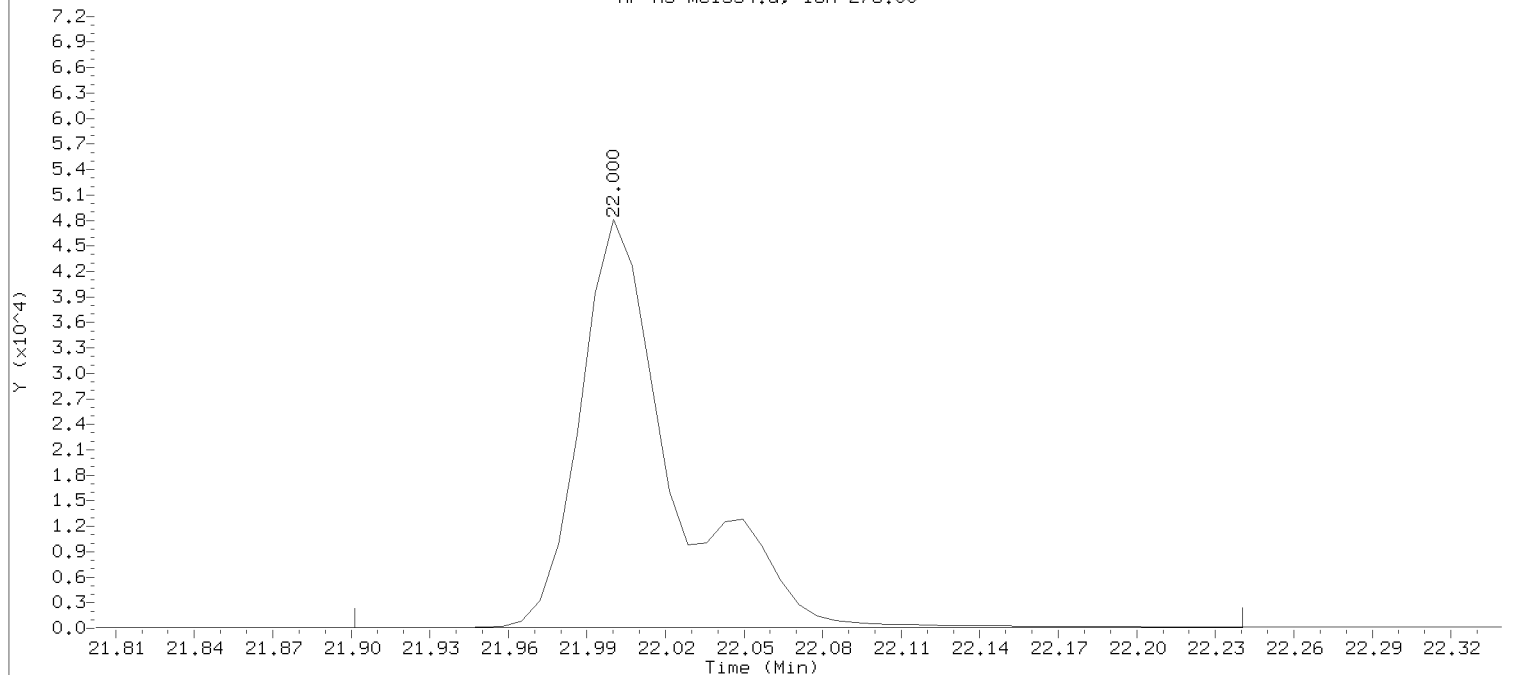
Sample Spectrum (Background Subtracted)

HP ChemStation MS mc1554.d, Scan 2144: 22.000 min. (SUB)



Original Integration of Quant Ion

HP MS mc1554.d, Ion 276.00



Data File: /chem/HP21585.i/20mar26.b/mc1554.d

Instrument ID: HP21585.i

Injection date and time: 26-MAR-2020 07:33

Analyst ID: ceb05247

Method used: /chem/HP21585.i/20mar26.b/rvsim8270d.m Sublist used: 085WAB

Calibration date and time: 26-MAR-2020 06:47

Date, time and analyst ID of latest file update: 26-Mar-2020 08:09 Unknown

Sample Name: 085WBLCSO

Lab Sample ID: 085WBLCSO

Compound Number	: 39	
Compound Name	: Indeno(1,2,3-cd)pyrene	
Scan Number	: 2144	
Retention Time (minutes)	: 22.000	
Quant Ion	: 276.00	
Area	: 119069	
On-column Amount (ng/ul)	: 0.3015	
Integration start scan	: 2129	Integration stop scan: 2177
Y at integration start	: 94	Y at integration end: 94

Digitally signed by Joseph M. Gambler on 03/26/2020 at 08:11.

Target 3.5 esignature user GPV68 Page 584 of 586

Extraction/Distillation/Digestion Logs

Semivolatiles by GC/MS-SIM

20085WAB026

Tech 1: LED 28104

Tech 2: _____

Dept: 26	Prep Analysis: 10466	BNA Water Extraction SIM	SIM SVOAs 8270D MINI								
QC	Sample Code	Amt (µL)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH <2	pH >11	BC	Comments
BLANKA	SBKWB085	350	SS2007326A	1.0			1	✓	✓	7	Tap H ₂ O
LCSA	085WBLC5	350	SS2007326A		MS2007326B	1.0	1	✓	✓		
LCSDA	085WBLCSD	350	SS2007326A	✓	MS2007326B	1.0	1	✓	✓	7	✓

60 Samples split with 20085WAB026. SM7964 3/25/20

Solvent Used	Lot No.
10N NaOH	4908648
Methylene Chloride	198368
Sodium Sulfate	20083A
Sulfuric Acid	193876

Spike Solutions: _____ Witness: _____
MS2007326B MINI SIM SPIKE
SS2007326A MINI SEP. BNA SURROGATE

Not enough volume for MS/MSD. SM7964 3/25/20

Sample #	Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	FV (mL)	pH <2	pH >11	BC	Comments	Analyses	List	Due Date	Prio	H	A	Q
11285000	T6118	244	SS2007326A	1.0	1				Clear	14244	32712	03/31/2020	N	N	N	N
21285022	T6222	246	SS2007326A		1				Clear	14244	32712	03/31/2020	N	N	N	N
31285716	32020	240	SS2007326A		1				Orange	14244	21331	03/31/2020	N	N	N	N
41285717	13200	246	SS2007326A		1				Orange, cloudy	14244	21331	03/31/2020	N	N	N	N
51285718	13D01	245	SS2007326A		1				Clear	14244	21331	03/31/2020	N	N	N	N
61285719	12S01	240	SS2007326A		1				tan tint w/ sed.	14244	21331	03/31/2020	N	N	N	N
71285720	FB003	239	SS2007326A		1				Clear	14244	21331	03/31/2020	N	N	N	N
81285721	12D01	239	SS2007326A		1				Clear	14244	21331	03/31/2020	N	N	N	N
91285722	DUP10	247	SS2007326A		1				tan w/ sed.	14244	21331	03/31/2020	N	N	N	N
101286190	A18MC	244	SS2007326A		1				tan tint	14244	25272	03/31/2020	P	N	N	N
111286191	A18PD	238	SS2007326A		1				tan tint	14244	25272	03/31/2020	P	N	N	N
121286192	A18FB	243	SS2007326A		1				Clear	14244	25272	03/31/2020	P	N	N	N
131286758	42078	227	SS2007326A		1				tan tint	14244	26319	04/01/2020	P	N	N	N
141286760	42080	233	SS2007326A		1				Clear	14244	26319	04/01/2020	P	N	N	N
151286762	42082	235	SS2007326A		1				Clear	14244	26319	04/01/2020	P	N	N	N

Bench#	Bench#	Bench#
Rack ID:	Work Station	Micro Temp
Internal Standard	Balance #	100?

R-VAP ID 1	90	C	R-VAP ID 2	70	C	R-VAP ID	C
S-bath ID	6	S-bath ID	6	N-Evap	C	M-vap	C

NA
LC028104
3126126

Appendix C: Data Validator Qualifications



Experience Summary

Kelly Donahue has more than 18 years of experience as a geologist and geochemist with specialization in environmental assessment, prediction of water quality chemistry and water contamination mitigation strategies. Her experience encompasses soil and water sampling, geotechnical testing, field investigations, drilling oversight, and monitoring well installation. She also is adept at analyzing and interpreting of geological, hydrologic and geochemical data for a variety of technical environmental and hydrogeological projects. Kelly is proficient in PHREEQC, AquaChem, Goldsim and Arc GIS applications for geochemical modeling and data analysis.

Assignment

Chemistry/Data Validation

Education

*M.S., Geochemistry, New Mexico
Institute of Mining and Technology*

*B.S., Geology University of
Wisconsin at Madison*

Registration

*Professional Geologist 59596,
Arizona*

*Professional Geologist 1510,
Idaho*

*Professional Geologist PG-3822,
Wyoming*

Training

*MSHA-certified Instructor, Surface
Part 46 and 48 Training, 2013*

OSHA 10-hour General Contractor

OSHA 40-hr HAZWOPER

First aid and CPR

Experience

18 years

Joined Firm

2014

Relevant Expertise

- *Surface and groundwater aqueous geochemistry*
- *Geochemical modeling*
- *Field investigations*
- *Advanced mineralogy and petrography*
- *Monitor well installation and instrumentation*
- *Data management and GIS applications*
- *Data validation*
- *Project management*

Data Validation and Verification, Nationwide

Data Validator, Multiple On-going Projects. Provides all Levels, Stages, and Tiers of data validation for Level I through III laboratory reports including air, surface water, groundwater, soil, and soil gas samples. [2015 to present]

National Mobile Communications Facility, Wayne, New Jersey

Project Chemist. Conducted data review and usability analysis for a multi-media site characterization and implementation of remedial action. Data review was performed in accordance with the general guidance provided by the National Functional Guidelines. During the validation process, laboratory-qualified and unqualified data are verified against the available supporting documentation. Quality of the data was evaluated for the suitability for the project objectives. [2017 to present]

MERECO Post-Remedial Monitoring, Colonie, New York

Project Chemist. Level 2 Data validation and Data Usability Review was performed on soil water and vapor analytical datasets to evaluate the data on a technical basis. Data review was performed in accordance with the general guidance provided by the National Functional Guidelines. Qualifier codes were added, deleted, or modified based on meeting project objectives. [2017 to present]

North Rasmussen, Rasmussen Valley and Lanes Creek Data Validation Nu-West Agrium, Soda Springs, Idaho

Project Chemist. Level 2 Data Validation was performed on surface and groundwater analytical data from three operating mine properties owned by Nu-West Agrium to evaluate the data for submission to the state regulatory agencies. Data validation was performed in accordance to the state approved, project-specific data validation procedures and included a review of all relative field information to evaluate if surface or groundwater samples exceed the project-specific water quality criteria. [2017 to present]

Confidential Client, East Berlin, Connecticut

Project Data Validator. Working under Connecticut Department of Energy and Environmental Protection: Responsibilities include laboratory data management. This includes Level 2 report validation, database management, and data usability. Also, assisted in full validation of PFAS chemicals. [2019 to present]

Environmental Investigation

Site-Wide Water Balance Modeling, Midas Gold–Stibnite Idaho

Modeler, Geochemist. Lead modeler in developing a site-wide water balance using Goldsim software to support for the environmental impact analysis.

Several simulations were analyzed to determine the water balance for varying precipitation scenarios, changes in mine operations, and for water use optimization. Results of the model simulations were used to develop a project water management plan and multiple permitting applications. [2017-current]

Water Quality Investigation, CEMEX, Lyons, Colorado

Geochemist. Lead an assessment of groundwater quality from a network of monitoring well surrounding the backfilled open pit. Materials used to backfill the pit included cement kiln dust resulting in pit water quality with elevated regulated constituents. The geochemical analysis of the historical water quality data on-site was used to identify trends in the groundwater chemistry and water flow in the upgradient canal network. Results of the analysis indicated water leaking from the canal is adding water to the backfilled pit. [2016 to present]

Tri-State New Horizon Mine Spoils Spring Investigation, Nucla, Colorado

Geochemist. Lead an investigation to determine the source of discharge from a spoils spring with elevated concentrations of regulated constituents. Evaluated the results of a backfill geochemical characterization study to identify chemical markers which could indicate the source of the chemical mass to the spoils spring. Results of the geochemical analysis were used to evaluate the potential source of chemical mass and the projected period of time the chemical loading from the backfill material. Assisted in developing the plan to install a monitoring well network to evaluate the presence and quality of water moving the backfill contributing to the spoils spring. [2017 to present]

Soquel Creek Pilot Well Geochemical Characterization

Geochemist. Lead the development of the geochemical characterization sampling and analysis plan to collect data during the installation of a pilot injection well. Provide on-site well oversight for the collection of geochemical characterization samples and data from the pilot test well. Responsibilities included development of planning documents, the collection and analysis of samples, laboratory analysis and testing, and data evaluation and reporting of results. [2018 to present]

Groundwater Contamination Investigation, Arco, Yerington, Nevada

Geochemist. Conducted groundwater geochemical data analysis at and EPA Superfund Site to determine the potential groundwater chemistry signatures associated with natural and mining related impacts. Investigation included evaluation of water quality data signatures, stable and radiogenic isotopes, soil chemical characteristics, and hydrologic data to develop a conceptualization of the geochemical system. Evaluated chemical speciation of regulated groundwater constituents using geochemical modeling to assess potential mobility of contaminants in the aquifer and potential responsible parties' impact to the groundwater. [2014-2017]

Waste Rock Geochemical Characterization, Freeport-McMoran–Bagdad, Arizona

Project Manager, Geochemist. Provided technical support for the project designed to determine the acid generation potential of waste rock materials at an open pit copper mine in Arizona. Data from analytical static tests was combined with mineralogy descriptions of the rock units to determine which units required additional kinetic testing to provide chemical release rates for geochemical modeling. [2014 - 2016]

Rasmussen Valley Mine Project Geochemical Testing Program Analysis, Nu-West Agrium, Soda Springs, Idaho

Geochemist. Provided the client with a comprehensive analysis of the geochemical characterization program conducted by a third-party contractor for an Environmental Impact Assessment to determine the potential effects of the testing design on the data to be used for the water quality impact assessment. Determined the sampling methods used by the third party contractor resulted in unrepresentative and overly conservative approximation of water quality predictions. Presented the finding to the client and regulatory agencies to initiate a conversation on the approach used for geochemical characterization methods and the implications on the subsequent water quality impact analysis. [2014 - 2015]

Rasmussen Valley Mine Project Batch Adsorption Program Analysis, Nu-West Agrium, Soda Springs, Idaho

Geochemist. Conducted an analytical review of the batch adsorption methods and data analysis conducted by a third party contractor for an Environmental Impact Assessment. Results of the batch adsorption analysis

identified potential flaws in the analytical methods and data analysis used by the third party contractor. Provided the client with information to discuss an alternative method for batch adsorption testing to overcome the analytical flaws with the regulatory agencies. Reanalysis of the batch adsorption data provided the client with proof of adsorption to allow for adsorption during groundwater modeling. [2014 - 2015]

Rasmussen Valley Mine Project Alternative Source Term Development Analysis, Nu-West Agrium, Soda Springs, Idaho

Geochemist. Provided the client with a scientifically defensible analysis for the development of an alternative source term using data previously collected as part of a baseline geochemical analysis for an Environmental Impact Assessment. Utilizing previously collected data allowed for the project to continue forward without delays that would have been the result of additional geochemical data collection. [2016]

Husky 1 North Dry Ridge Mine Project Geochemical Testing Plan Analysis, Nu-West Agrium, Soda Springs, Idaho

Geochemist. Provided the client with a comprehensive review of the geochemical characterization plan for an Environmental Impact Assessment to assess the potential effects of the testing plan design on the data to be used for the water quality impact assessment. Provided client with information on the sample compositing method to present to the regulatory agencies in order to obtain results representative of the future waste rock piles. [2014 - 2015]

Monitoring Well Investigation, North Rasmussen Ridge Mine, Caribou County, Idaho

Geochemist. Analysis of surface and groundwater data to identify potential mining related impacts to a groundwater monitoring well. Data assessment included evaluating the chemical signatures of potential source waters and evaluating the feasibility of several scenarios to identify the most likely source of contamination to the alluvial monitoring well. Presented the results of the analysis to the Idaho regulatory agencies during a discussion on methods to remediate the observed elevated regulated constituents. [2015 - 2018]

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2. Donahue, K.M., Dunbar, N.W., and McLemore, V.T., 2009, "Clay mineralogy of the Goathill North rock pile, Questa mine, Taos County, NM: Origins and indications of in-situ weathering", Society of Mining, Metallurgy and Exploration Annual Convention, Denver, Feb 2009, Preprint 09-98, 7 p.
3. Donahue, Kelly M., Dubar, N.W., and McLemore, V. T., 2007, "Origins of clay minerals in the MolyCorp Mine Goathill North Rock Pile, Questa, NM", Clay Mineral Society Annual meeting, June 2007, Preprint 07-100, 8 p.
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5. McLemore, V.T., Sweeney, D., and Donahue, K., 2009, Lithologic atlas: New Mexico Bureau of Geology and Mineral Resources, Open-file Report 516, 73 p.,
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10. McLemore, V.T., Donahue, K. M., Walsh, P., Tachie-Menson, S., Phillips, E.H., Gutierrez, L. A. F., and Shannon, H. R., 2005, "Trench Sampling of the MolyCorp Goathill North rock piles, Questa Rock Pile Stability Study, New Mexico" National Meeting of the American Society of Mining and Reclamation, Breckenridge, Colo, June, CD-ROM, 26 p.

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Appendix D: Data Usability Summary Report



DATA USABILITY SUMMARY REPORT PATCHOGUE FORMER MGP SITE

Client: Brown and Caldwell, Albany, New York
SDGs: GPY67
Laboratory: Eurofins Lancaster Laboratories, Lancaster, Pennsylvania
Site: Patchogue, NY
Date: June 11, 2020

Client Sample ID	Laboratory Sample ID	Matrix
MW-1-20200317	1283809	Groundwater
MW-10S-20200317	1283810	Groundwater
MW-10D-20200317	1283811	Groundwater
MW-8S-20200317	1283812	Groundwater
MW-8D-20200317	1283813	Water
MW-11S-20200318	1283814	Groundwater
MW-11D-20200318	1283815	Groundwater
MW-7S-20200318	1283816	Groundwater
MW-7D-20200318	1283817	Groundwater
MW-7D-20200318-MS	1283818	Groundwater
MW-7D-20200318-MSD	1283819	Groundwater
MW-14S-20200318	1283820	Groundwater
MW-14D-20200318	1283821	Groundwater
MW-4S-20200318	1283822	Groundwater
MW-4D-20200318	1283823	Groundwater
TB-20200317	1283824	Water

Data validation was performed on the analytical data for six samples collected on March 19, 2020 by Brown and Caldwell Associates at the Patchogue Site in New York. The samples were analyzed under the Environmental Protection Agency (USEPA) “Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS), SW-846 Method 8020C”, August 2006, “Test Methods for Evaluating Solid Wastes, SW-846 Method 8270D (SIM), February 2007” and “Test Methods for Evaluating Solid Wastes, SW-846 Method 3510C, Rev 3”, December 1996. Specific method references are as follows:

Analysis

Volatile Organic Compounds (VOCs)

Semi Volatile Organic Compounds (SVOCs)

Method References

USEPA SW-846 SW8260

USEPA SW-846 SW8270

The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods and the USEPA Region II Data Review Standard Operating Procedures (SOPs) as follows:

- SOP Number HW-34a, Revision 0, July 2015, Trace Volatile Data Validation;
- SOP Number HW-35a, Revision 0, June 2015, Semivolatile Data Validation;
- and the reviewer's professional judgment.

The following items/criteria were reviewed for this report:

- Data Completeness
- Holding times and sample preservation
- Field Duplicate Accuracy
- Internal Standard Area and RT
- Surrogates
- Laboratory Control Sample (LCS) recoveries
- Matrix Spike and Matrix Spike Duplicate Samples
- Method and field blank contamination
- Initial and continuing calibration summaries
- Compound Quantitation
- Primary and Confirmation Columns
- Reporting Limits
- Sample comments and Quality Control Summaries

Overall Usability Issues:

Overall, the data is acceptable for the intended purposes. No analytical or quality issues were noted.

Holding Times

- All samples were analyzed within 30 days.

Field Duplicate Accuracy

- No field duplicates were collected for this SDG.

Internal Standard Areas

- All samples exhibited acceptable internal standard values.

Surrogates

- All samples exhibited acceptable surrogate quality control ranges.

Laboratory Control Samples

- The LCS samples exhibited acceptable %REC.

Matric Spike and Matrix Spike Duplicate (MS/MSD) Samples

- The MS/MSD samples exhibited acceptable %REC.

Method and Field Blanks

- The blanks were free of contamination.

Initial Calibration

- All %RSD and/or correlation coefficient criteria were met.

Continuing Calibration

- All %Drift criteria were met.

Compound Quantitation

- The laboratory qualifier, E, indicates the concentration of the compound exceeded the calibration range. Laboratory qualification stands and is changed to a J, with a reason code E.

Primary and Confirmation Columns

- All criteria were met.

Reporting Limits

- The laboratory reporting limits were met.

Please contact the undersigned if you have any questions or need further information.

Signed:



Kelly Donahue
Principle Geochemist
Brown and Caldwell

Dated: June 11, 2020

Data Qualifiers

J	=	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	=	The analyte was not detected above the sample reporting limit; and the reporting limit is approximate.
U	=	The analyte was analyzed for but was not detected above the sample reporting limit.
R	=	The sample results is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified.

Reason Codes

1	Holding time violation
2	Method blank contamination
3	Surrogate recovery
4	MS/MSD recovery
5	MS/MSD precision outside limits
6	LCS recovery
7	Field blank contamination
8	Field duplicate precision outside limits
9	Other deficiencies (including cooler temperature)
A	Absence of supporting QC
S	ICV, CCV or column performance check problem
Y	Initial and continuing calibration blank problem
M	Interference check samples problem
O	Post digestion spike outside of 85-115%
F	MSA correlation coefficient <0.995, or MSA not done
G	Serial dilution problem
K	DFTTP or BFB tuning problem
Q	Initial calibration problem
X	Internal standard recovery problem
V	Second source standard calibration verification problem
L	Low bias
Z	Retention time problem
N	Counting time error (radionuclide chemistry)
W	Detector instability (radionuclide chemistry)
C	Co-elution of compounds
E	Value exceeds linear calibration range
I	Interferences present during analysis
T	Trace level compound, poor quantitation
P	1C/2C precision outside limits
B	LCS/LCSD precision outside limits
D	Lab Dup/Rep precision outside limits
H	High bias

DATA USABILITY SUMMARY REPORT PATCHOGUE FORMER MGP SITE

Client: Brown and Caldwell, Albany, New York
SDGs: GPY68
Laboratory: Eurofins Lancaster Laboratories, Lancaster, Pennsylvania
Site: Patchogue, NY
Date: June 11, 2020

Client Sample ID	Laboratory Sample ID	Matrix
MW-3-20200319	1285716	Groundwater
MW-13S-20200319	1285717	Groundwater
MW-13D-20200319	1285718	Groundwater
MW-12S-20200319	1285719	Groundwater
FB-20200319	1285720	Water
MW-12D-20200319	1285721	Groundwater
DUP-20200319	1285722	Groundwater
Trip Blank	1285750	Water

Data validation was performed on the analytical data for six samples collected on March 19, 2020 by Brown and Caldwell Associates at the Patchogue Site in New York. The samples were analyzed under the Environmental Protection Agency (USEPA) “Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS), SW-846 Method 8020C”, August 2006, “Test Methods for Evaluating Solid Wastes, SW-846 Method 8270D (SIM), February 2007” and “Test Methods for Evaluating Solid Wastes, SW-846 Method 3510C, Rev 3”, December 1996. Specific method references are as follows:

Analysis

Volatile Organic Compounds (VOCs)

Semi Volatile Organic Compounds (SVOCs)

Method References

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The data have been validated according to the protocols and quality control (QC) requirements of the analytical methods and the USEPA Region II Data Review Standard Operating Procedures (SOPs) as follows:

- SOP Number HW-34a, Revision 0, July 2015, Trace Volatile Data Validation;
- SOP Number HW-35a, Revision 0, June 2015, Semivolatile Data Validation;
- and the reviewer's professional judgment.

The following items/criteria were reviewed for this report:

- Data Completeness
- Holding times and sample preservation
- Field Duplicate Accuracy
- Internal Standard Area and RT

- Surrogates
- Laboratory Control Sample (LCS) recoveries
- Matrix Spike and Matrix Spike Duplicate Samples
- Method and field blank contamination
- Initial and continuing calibration summaries
- Compound Quantitation
- Reporting Limits
- Sample comments and Quality Control Summaries

Overall Usability Issues:

Overall, the data is acceptable for the intended purposes. No analytical or quality issues were noted.

Holding Times

- All samples were analyzed within 14 days.

Field Duplicate Accuracy

- One field duplicate was collected for the data set: DUP-20200319 is the duplicate for MW-12S-20200319. Several RPDs were outside control limits of 30% for analytes measured at concentrations more than 5X the detection limit. Parent and duplicate concentrations are qualified as estimated, J, with reason code 8. See attached for calculated RPDs of detected constituents.

Internal Standard Areas

- All samples exhibited acceptable internal standard values.

Surrogates

- All samples exhibited acceptable surrogate quality control ranges.

Laboratory Control Samples

- The LCS samples exhibited acceptable %REC.

Matrix Spike and Matrix Spike Duplicate (MS/MSD) Samples

- No site specific MS/MSD samples were submitted with this SDG..

Method and Field Blanks

- The blanks were free of contamination.

Initial Calibration

- All %RSD and/or correlation coefficient criteria were met.

Continuing Calibration

- All %Drift criteria were met.

Compound Quantitation

- The laboratory qualifier, E, indicates the concentration of the compound exceeded the calibration range. Laboratory qualification stands and is changed to a J, with a reason code E.

Reporting Limits

- The laboratory reporting limits were met.

Please contact the undersigned if you have any questions or need further information.

Signed: 
Kelly Donahue
Principle Geochemist
Brown and Caldwell

Dated: June 11, 2020

Data Qualifiers

J	=	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	=	The analyte was not detected above the sample reporting limit; and the reporting limit is approximate.
U	=	The analyte was analyzed for but was not detected above the sample reporting limit.
R	=	The sample results is rejected due to serious deficiencies. The presence or absence of the analyte cannot be verified.

Reason Codes

1	Holding time violation
2	Method blank contamination
3	Surrogate recovery
4	MS/MSD recovery
5	MS/MSD precision outside limits
6	LCS recovery
7	Field blank contamination
8	Field duplicate precision outside limits
9	Other deficiencies (including cooler temperature)
A	Absence of supporting QC
S	ICV, CCV or column performance check problem
Y	Initial and continuing calibration blank problem
M	Interference check samples problem
O	Post digestion spike outside of 85-115%
F	MSA correlation coefficient <0.995, or MSA not done
G	Serial dilution problem
K	DFTPP or BFB tuning problem
Q	Initial calibration problem
X	Internal standard recovery problem
V	Second source standard calibration verification problem
L	Low bias
Z	Retention time problem
N	Counting time error (radionuclide chemistry)
W	Detector instability (radionuclide chemistry)
C	Co-elution of compounds
E	Value exceeds linear calibration range
I	Interferences present during analysis
T	Trace level compound, poor quantitation
P	1C/2C precision outside limits
B	LCS/LCSD precision outside limits
D	Lab Dup/Rep precision outside limits
H	High bias



LABORATORY DATA VERIFICATION

Sample Duplicate Comparison

PROJECT INFORMATION			
Project Number: 153466	Project Name: Patchogue, NY	Task/Purpose of Sampling: Groundwater Sampling	
Project Manager: Jim Mardola	Client: National Grid		
Laboratory: Eurofins	Data Report: GPY68		

DUPLICATE INFORMATION			
Parent Sample ID: MW-12S-20200319	Date/Time: 3/26/2020 13:36	Matrix: GW	
Duplicate Sample ID: DUP-20200319	Date/Time: 3/26/2020 15:07	Matrix: GW	

Analytes (ug/L unless noted)	Analytical Results ^a		Relative Percent Difference (RPD) Comparison		Method Detection Limit (MDL) Comparison (If Needed)					Actions Required
	MW-12S-20200319	DUP-20200319	RPD	Inorg: RPD > 20%? Org: RPD > 30%?	MW-12S-20200319		DUP-20200319		Either Sample Conc. ≥ 5X MDLs?	
					MDL	5x MDL	MDL	5x MDL		
Acenaphthene	0.08	0.1	22%	NO	0.01	0.05	0.01	0.05	Yes	No further action required.
Acenaphthylene	0.06	0.2	108%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Anthracene	0.2	0.3	40%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Benzo(a)anthracene	0.6	2	108%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Benzo(a)pyrene	0.5	2	120%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Benzo(b)fluoranthene	0.5	1	67%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Benzo(g,h,i)perylene	0.2	0.7	111%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Benzo(k)fluoranthene	0.2	0.5	86%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Chrysene	0.5	1	67%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Dibenz(a,h)anthracene	0.06	0.2	108%	Yes	0.02	0.10	0.02	0.10	Yes	Parent and duplicate are qualified as estimated
Fluoranthene	0.8	2	86%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Fluorene	0.08	0.2	86%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Indeno(1,2,3-c,d)pyrene	0.3	0.8	91%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated
Naphthalene	0.09	0.1	11%	No	0.03	0.15	0.03	0.15	No	No further action required.
Phenanthrene	0.4	0.8	67%	Yes	0.03	0.15	0.03	0.15	Yes	Parent and duplicate are qualified as estimated
Pyrene	1	2	67%	Yes	0.01	0.05	0.01	0.05	Yes	Parent and duplicate are qualified as estimated

^a Results in red text and italics were below reporting limits. Values are reporting limits for comparison purposes only.

Relative Percent Difference (RPD) is a quantitative indicator of quality assurance and quality control (QA/QC) for repeated measurements (i.e. duplicates) where the outcome is expected to be the same. It is calculated using the following equation:

$$RPD = \left| \frac{x_1 - x_2}{(x_1 + x_2) / 2} \right| \times 100$$

Appendix E: Electronic Data Deliverable



Appendix F: Evaluation of Potential Impact to River from Site Constituents in Groundwater



Appendix F

Evaluation of Potential Impact to River from Site Constituents in Groundwater Patchogue Former MGP Site Patchogue, New York

As described in the First Quarter 2020 Groundwater Monitoring Report, some potentially MGP-related constituents were detected in the shallow groundwater (i.e., the upper ± 18 feet) in the vicinity of the ISS mass during the first groundwater monitoring event following implementation of the site remedy. It is expected these constituents are a result of the short-term disturbance of the subsurface that occurred during implementation of the ISS and, their presence is temporary. Shallow groundwater generally flows from northwest to the south and southeast across the Site toward the Patchogue River (see Figure F-1 for a depiction of shallow groundwater flow). The concentrations of most of the constituents that were detected and potentially mobile in the dissolved phase in groundwater (benzene, ethylbenzene, xylenes and naphthalene) were below surface water quality criteria listed in the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004) that are applicable to the Patchogue River (the portion of the Patchogue River proximal to the Site is classified as a Class C water body per 6 NYCRR Part 897). Therefore, they do not have the potential to impact the river. However, the concentration in groundwater of three potentially mobile constituents (acenaphthene, fluorene and pyrene) were slightly above their respective applicable surface water quality criteria. Although it was not anticipated that these constituent concentrations would result in an impact to surface water quality if they discharged to the river, the following analysis was conducted to confirm this.

An analysis was conducted to assess the potential for discharge of site-related constituents in shallow groundwater to impact water quality in the Patchogue River. The evaluation was conducted by estimating the rate at which a mass of site-related constituents, dissolved in groundwater, may be contributing to the surface water in the Patchogue River (i.e., the mass flux of constituents from groundwater to surface water). This approach is consistent with that described in the document entitled "Groundwater Remediation Strategies Tool" (American Petroleum Institute Publication 4730, December 2003). The equation for calculating the mass flux of a constituent is:

$$mf = \sum C_i q_i A_i$$

Where: mf = total mass flux of dissolved constituent from the source ($\mu\text{g}/\text{sec}$)

C_i = concentration of the constituent ($\mu\text{g}/\text{mL} = \mu\text{g}/\text{cm}^3$)

q_i = specific discharge through the flow area (cm/sec)

where: $q_i = K_i i$, with K = hydraulic conductivity (cm/sec) and i = hydraulic gradient (cm/cm)

A_i = flow area perpendicular to flow (cm^2)

where: $A_i = (L)(b)$, with L = width of constituent plume perpendicular to flow and b = plume thickness

In applying this evaluation to the Site, an estimate of mass flux of a constituent (in $\mu\text{g}/\text{sec}$) was calculated shallow groundwater. The mass flux for the shallow groundwater was calculated across a cross-sectional flow area positioned at the downgradient side of the former MGP site, aligned perpendicular to groundwater flow (which in this case is typically parallel or sub-parallel to the shore line). The vertical dimension of the flow area is equal to the plume thickness (b) within the shallow groundwater. The horizontal dimension of the flow area, L, is equal to the width of the constituent plume, which is based on the isoconcentration contours developed from the results of the March 2020 sampling event (see Figures F-2 through F-4). The concentration of site constituents in the Patchogue River resulting from groundwater discharge was estimated using the following equation:

$$C_R = mf_{sgw} / D_R$$

Where: C_R = Concentration of constituent in the river ($\mu\text{g}/\text{L}$)

mf_{sgw} = Mass flux to the river from shallow groundwater ($\mu\text{g}/\text{s}$)

D_R = Patchogue River volumetric flow (L/s)

To address some of the uncertainties in this evaluation, conservative assumptions were made in the above-described calculations which result in river water concentration estimates that are biased high. These assumptions are as follows:

- The hydraulic gradient (i) of groundwater is variable across the Site and thus, the highest hydraulic gradient value was used in the calculation. The larger the value of i, the greater the calculated value of mass flux.
- The plume thickness (b) was estimated conservatively by using the distance from the top of the water table to the top of the well screen of a deeper well at a well couplet, yet the actual plume thickness may be somewhat less, as site constituents were either not detected or detected at very low levels in the deeper wells positioned adjacent to the river. The larger the value of b, the greater the calculated value of mass flux.
- The river volumetric flow value used to calculate in river concentrations ($11.2 \text{ ft}^3/\text{s}$ or $317 \text{ L}/\text{s}$) was derived using a 7Q10 flow analysis (the lowest 7-day average flow that occurs, on average, once every 10 years) for the period April 1, 1958 through March 31, 1968 using data from a USGS river gauging station proximal the Site (USGS 01306000, Patchogue River at Patchogue New York). Thus, it was assumed for this estimate that the flow rate in the river is equal to that during periods of very low flow, and the lower the assumed river flow, the greater the estimated concentration in the river water. For comparison, the mean river flow rate at the same river gauging location using data from 1945 to 1976 is $20.4 \text{ ft}^3/\text{s}$ ($579 \text{ L}/\text{s}$). Table F-1 provides the data used to determine the 7Q10 flow in the Patchogue River. Attachment F-1 presents the data plotted on log probability paper and the resultant 7Q10 flow value.

To screen for potential impacts to the river, the estimated concentrations of acenaphthene, fluorene and pyrene were developed using the above-described method and compared to the New York State Ambient Water Quality Standards and Guidance Values (NYSDEC, June 1998 with Addenda dated April 2000 and June 2004). Listed in the table below are standards and guidance values for acenaphthene, fluorene and pyrene that are applicable to the various classes of fresh water.

Fresh Surface Water Standards and Guidance Values

Substance	Water Class (per 6NYCRR Part 701)	Standard (µg/l)	Guidance Value (µg/l)	Protection for:
Acenaphthene	A, A-S, AA, AA-S, B, C	--	5.3	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	48	Fish survival
	A, A-S, AA, AA-S	20	--	Aesthetics
Fluorene	A, A-S, AA, AA-S	--	50	Drinking water source
	A, A-S, AA, AA-S, B, C	--	0.54	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	4.8	Fish survival
Pyrene	A, A-S, AA, AA-S	--	50	Drinking water source
	A, A-S, AA, AA-S, B, C	--	4.6	Fish propagation
	A, A-S, AA, AA-S, B, C, D	--	42	Fish survival

Attachments F-2 through F-4 contain the calculations and results for each of these constituents. The estimated concentrations in the Patchogue River resulting from site groundwater impacts are as follows:

- Acenaphthene = 0.0033 µg/L
- Fluorene = 0.00050 µg/L
- Pyrene = 0.00127 µg/L

These conservatively-estimated (i.e., biased high) concentrations are three orders of magnitude below the surface water standards and guidance values listed above, including the lowest standard applicable to Class C surface waters. Also, the estimated concentration of fluorene is below the analytical laboratory detection limits for this constituent. Based on the evaluation conducted, site-related constituents in shallow groundwater do not impact surface water quality in the Patchogue River.

Tables



TABLE F-1
SUMMARY OF DATA USED TO CALCULATE 7Q10 FLOW IN PATCHOGUE RIVER
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

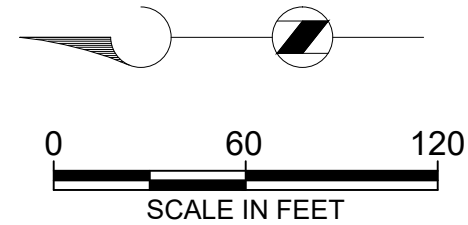
Water Year ⁽¹⁾	Low Flow (ft ³ /s)	Rank	Probability
1961	20.1	1	0.091
1958	19.1	2	0.182
1960	16.9	3	0.273
1962	16.6	4	0.364
1959	16.0	5	0.455
1967	14.4	6	0.545
1964	13.6	7	0.636
1965	12.9	8	0.727
1963	12.4	9	0.818
1966	11.1	10	0.909

Notes:

(1) - 7Q10 flow (ft³/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through 3/31/1968.

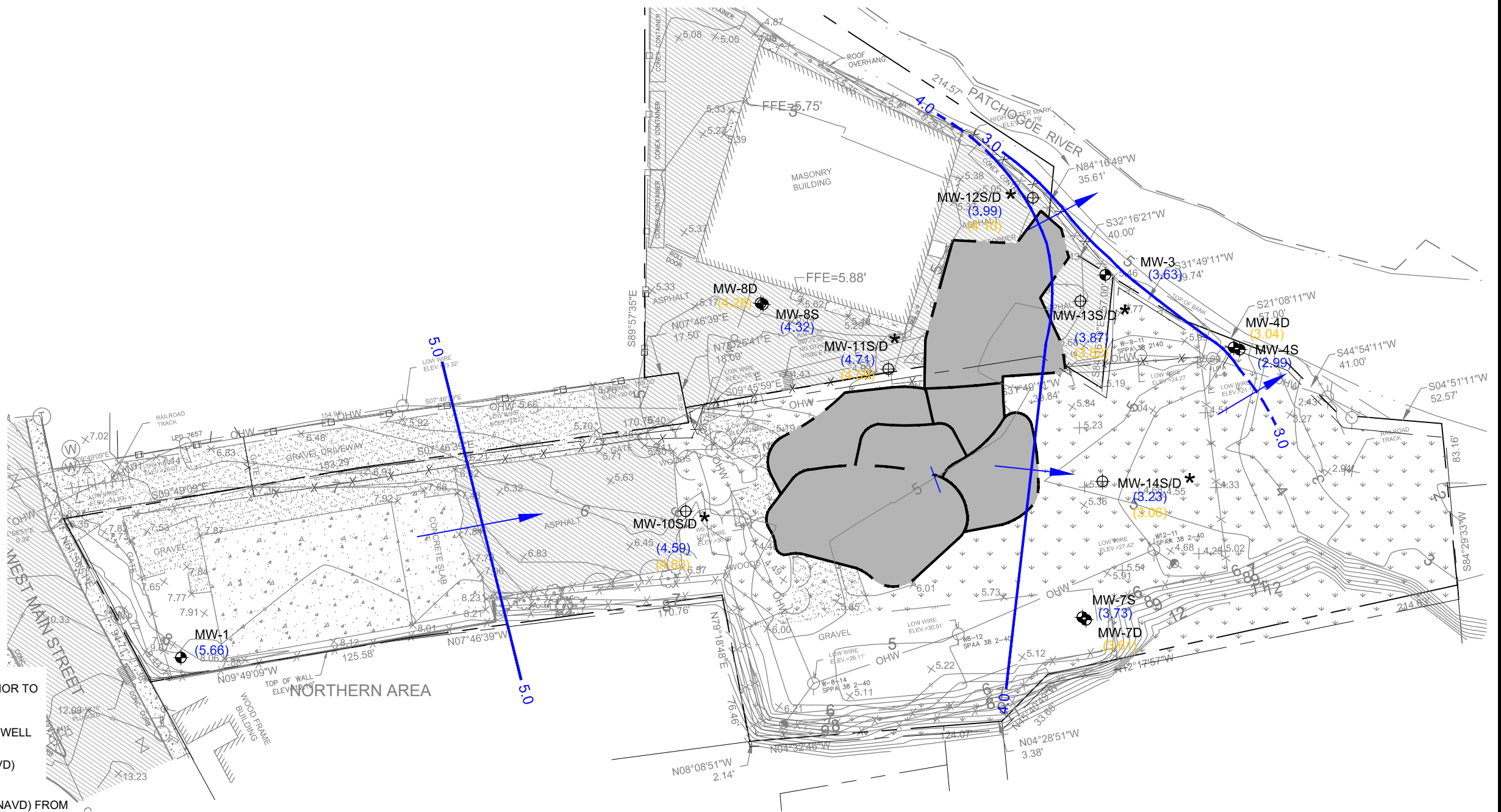
ft³/s - cubic feet per second

Figures



- LEGEND:
- PROPERTY LINE
 - x x FENCE
 - 10 TOPOGRAPHIC CONTOUR
 - ⊕ MONITORING WELL INSTALLED PRIOR TO REMEDIATION
 - ⊕ POST-REMEDIATION MONITORING WELL
 - 4 WATER TABLE CONTOUR (FT., NAVD)
DASHED WHERE INFERRED
 - (3.87) GROUNDWATER ELEVATION (FT., NAVD) FROM SHALLOW MONITORING WELL (SCREENED ACROSS OR CLOSE TO WATER TABLE)
 - (3.06) GROUNDWATER ELEVATION (FT., NAVD) FROM DEEP MONITORING WELL (SCREENED BELOW WATER TABLE). VALUE NOT USED FOR CONTOURING.
 - GENERALIZED DIRECTION OF GROUNDWATER FLOW
 - * HORIZONTAL LOCATION AND POSTED GROUNDWATER ELEVATION DATA IS APPROXIMATE, AS SURVEYING OF WELLS WILL BE PERFORMED FOLLOWING COMPLETION OF FINAL SITE RESTORATION ACTIVITIES.

NOTES:
1. BASE MAP INFORMATION OBTAINED FROM TETRA TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE MODEL", DATED DECEMBER 17, 2008.



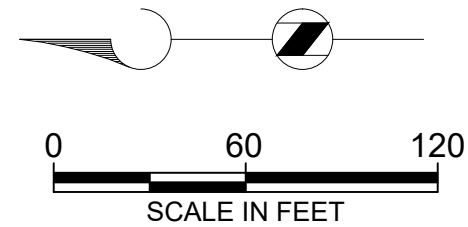
SCALE: 1" = 60'
153021
DATE: May 6, 2020

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

WATER TABLE ELEVATION CONTOUR MAP
MARCH 17, 2020

FIGURE

F-1



- LEGEND:
- PROPERTY LINE
 - x x FENCE
 - 10 TOPOGRAPHIC CONTOUR
 - ⊕ MONITORING WELL INSTALLED PRIOR TO REMEDIATION
 - ⊕ POST-REMEDIATION MONITORING WELL
 - 4 WATER TABLE CONTOUR (FT., NAVD) - MARCH 17, 2020
DASHED WHERE INFERRED
 - GENERALIZED DIRECTION OF GROUNDWATER FLOW
 - 1 ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED).
LOGARITHMIC CONTOUR INTERVAL (µg/L)
 - 12 ACENAPHTHENE CONCENTRATION IN GROUNDWATER (µg/L) -
MARCH 2020
 - J ESTIMATED CONCENTRATION
 - ND NOT DETECTED

NOTES:
1. BASE MAP INFORMATION OBTAINED FROM TETRA
TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE
MODEL", DATED DECEMBER 17, 2008.

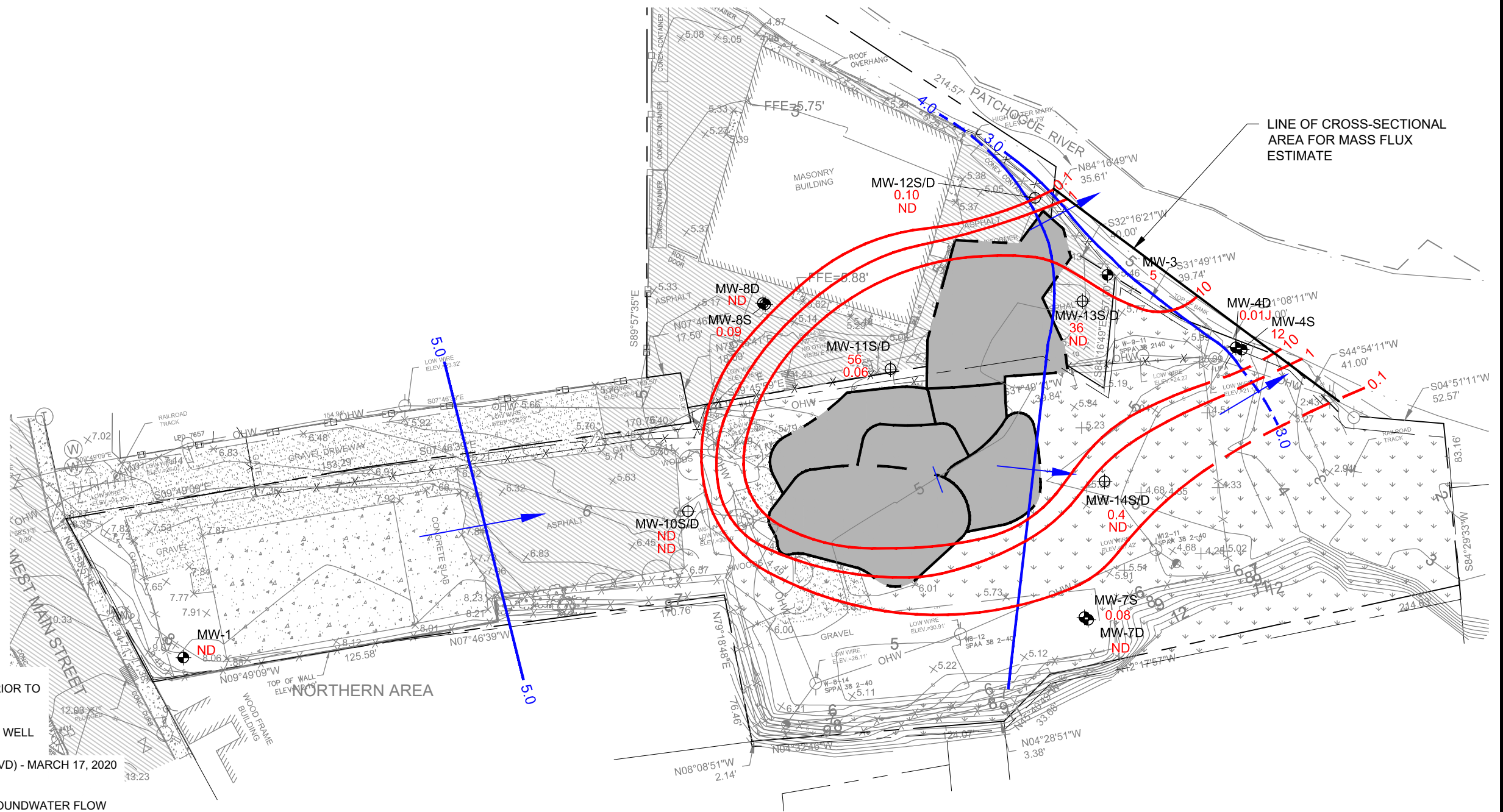


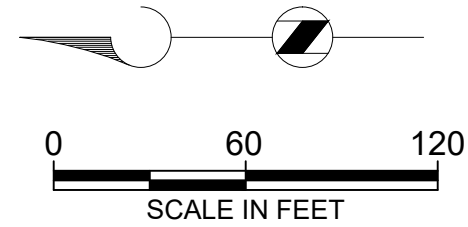
SCALE: 1" = 60'
153021
DATE: May 6, 2020

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

ACENAPHTHENE IN GROUNDWATER
MARCH 2020

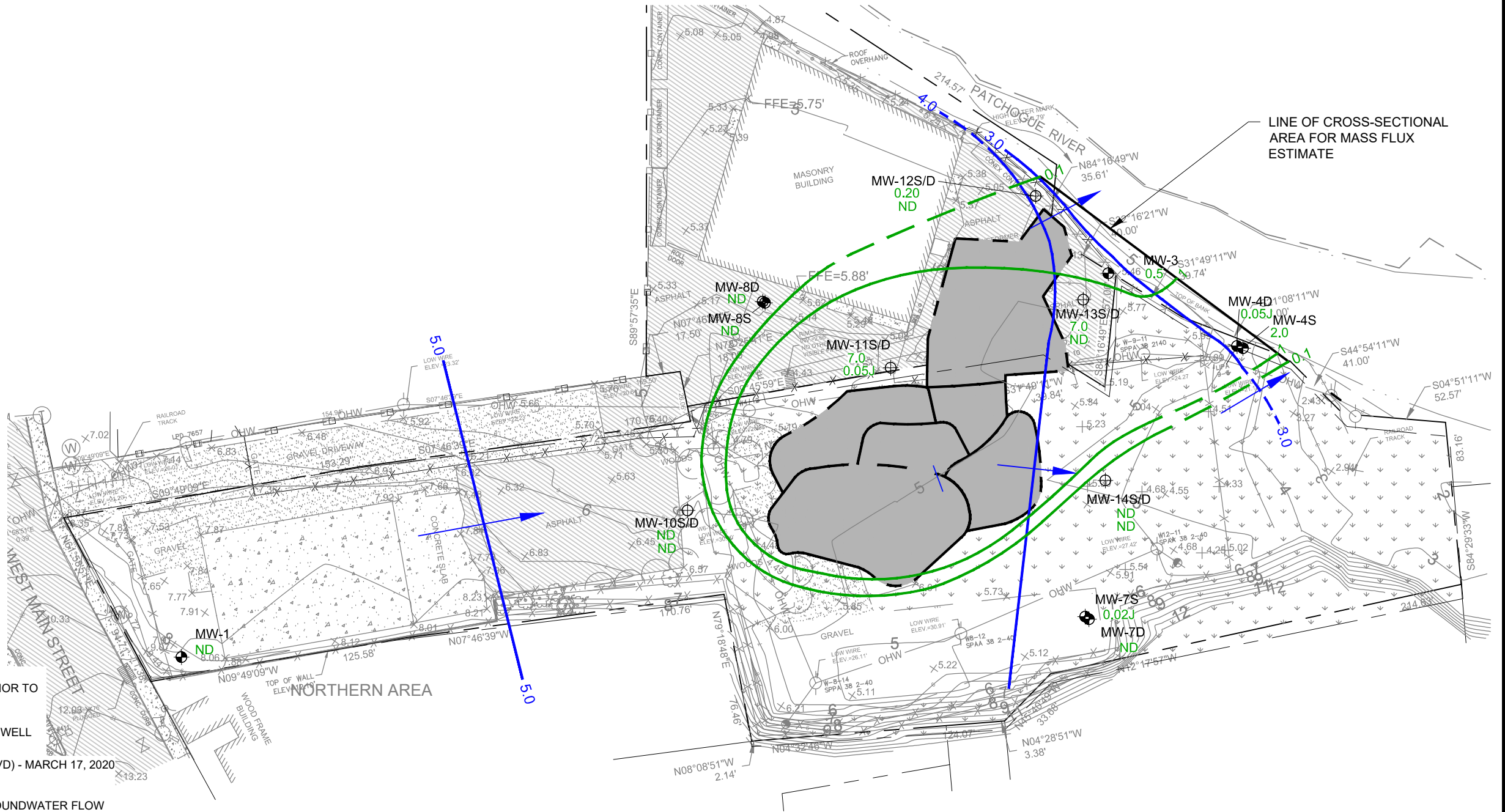
FIGURE
F-2





- LEGEND:
- PROPERTY LINE
 - x x FENCE
 - 10 TOPOGRAPHIC CONTOUR
 - MONITORING WELL INSTALLED PRIOR TO REMEDIATION
 - ⊕ POST-REMEDIATION MONITORING WELL
 - 4 WATER TABLE CONTOUR (FT., NAVD) - MARCH 17, 2020
DASHED WHERE INFERRED
 - GENERALIZED DIRECTION OF GROUNDWATER FLOW
 - 1 ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED).
LOGARITHMIC CONTOUR INTERVAL (µg/L)
 - 0.5 FLUORENE CONCENTRATION IN GROUNDWATER (µg/L) -
MARCH 2020
 - J ESTIMATED CONCENTRATION
 - ND NOT DETECTED

NOTES:
1. BASE MAP INFORMATION OBTAINED FROM TETRA
TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE
MODEL", DATED DECEMBER 17, 2008.

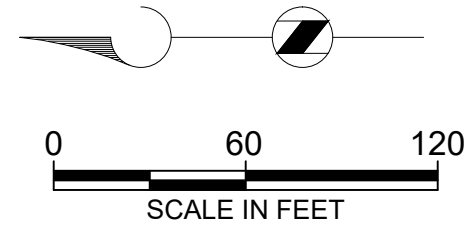


SCALE: 1" = 60'
153021
DATE: May 6, 2020

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

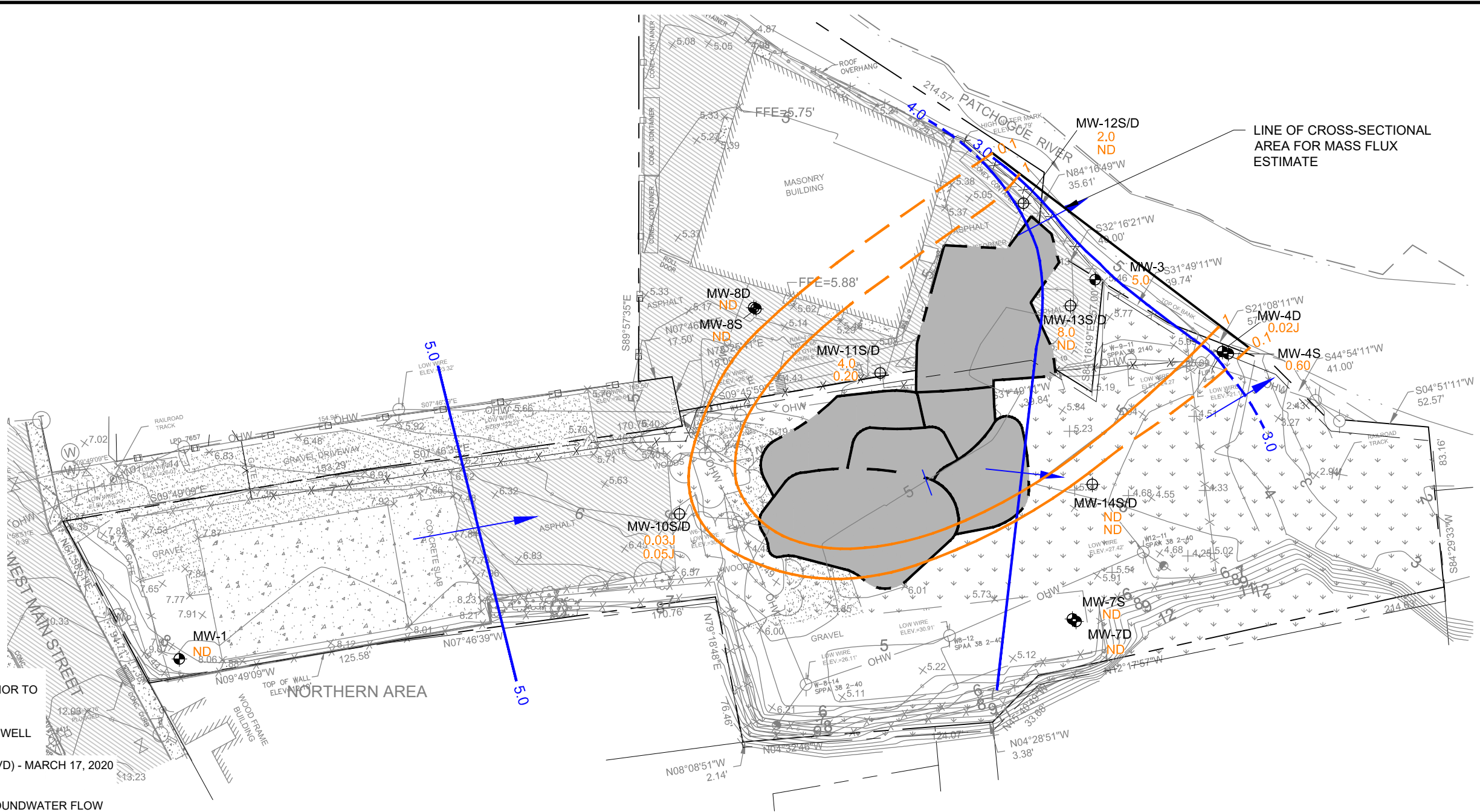
FLUORENE IN GROUNDWATER
MARCH 2020

FIGURE
F-3



- LEGEND:
- PROPERTY LINE
 - x x FENCE
 - 10 TOPOGRAPHIC CONTOUR
 - ⊕ MONITORING WELL INSTALLED PRIOR TO REMEDIATION
 - ⊕ POST-REMEDIATION MONITORING WELL
 - 4 WATER TABLE CONTOUR (FT., NAVD) - MARCH 17, 2020
DASHED WHERE INFERRED
 - ➔ GENERALIZED DIRECTION OF GROUNDWATER FLOW
 - 1 ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED).
LOGARITHMIC CONTOUR INTERVAL (µg/L)
 - 5.0 PYRENE CONCENTRATION IN GROUNDWATER (µg/L) - MARCH 2020
 - J ESTIMATED CONCENTRATION
 - ND NOT DETECTED

NOTES:
1. BASE MAP INFORMATION OBTAINED FROM TETRA
TECH EC, INC. DRAWING ENTITLED "CONCEPTUAL SITE
MODEL", DATED DECEMBER 17, 2008.

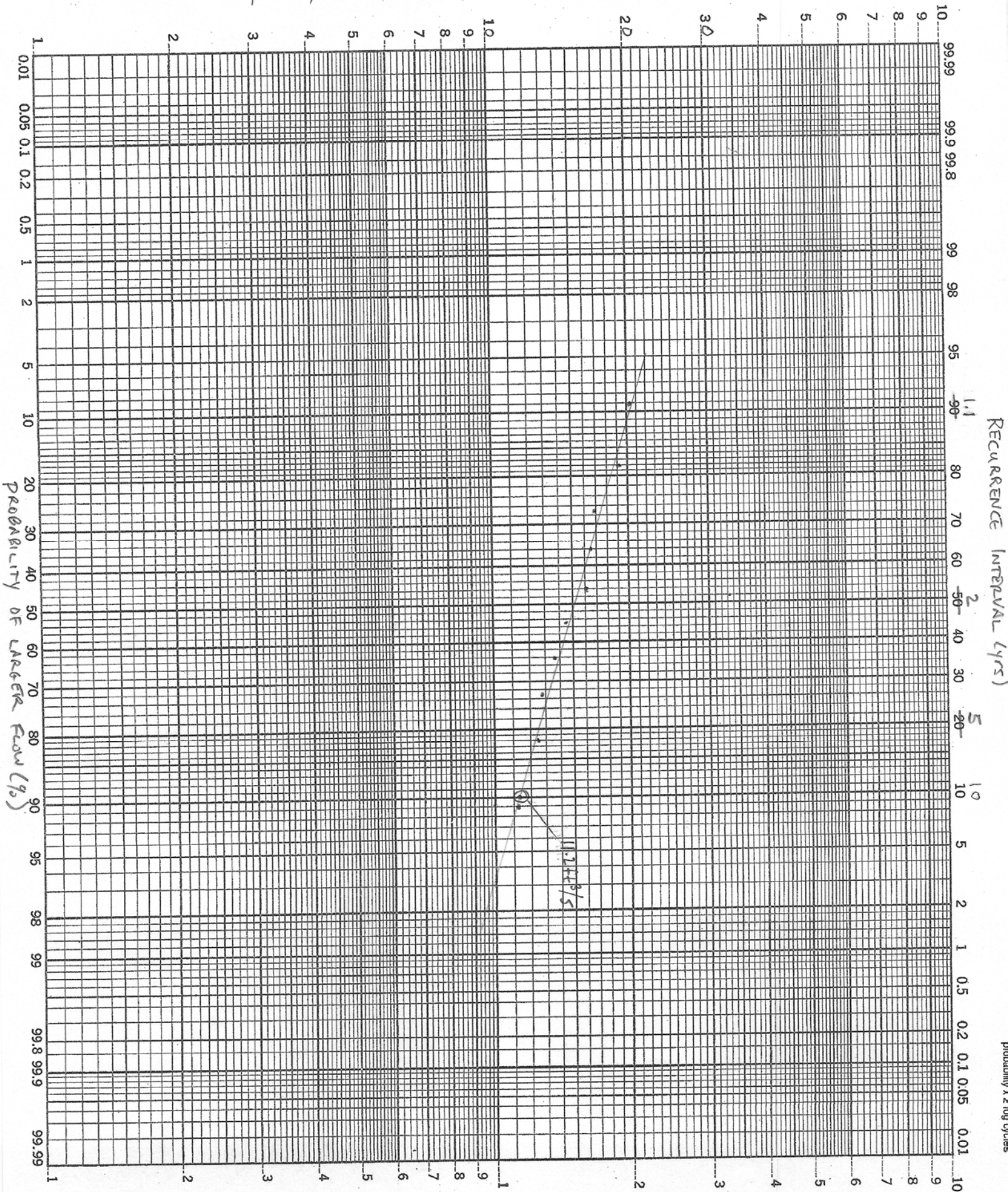


	SCALE: 1" = 60' 153021 DATE: May 6, 2020	NATIONAL GRID PATCHOGUE FORMER MGP SITE VILLAGE OF PATCHOGUE, NEW YORK	PYRENE IN GROUNDWATER MARCH 2020	FIGURE F-4

Attachments



YEARLY 7 CONSECUTIVE DAY FLOW (ft³/s)



**ATTACHMENT F-2
MASS FLUX CALCULATIONS - ACENAPHTHENE
PATCHOGUE RIVER**

Mass Flux Calculation

Enter site data in yellow highlighted cells

Acenaphthene (March 2020)

Figure No.

See Figure F-2

mf =	kiA	* C
Where:	mf = mass flux, µg/s	
	k = hydraulic conductivity, cm/s	
	i = hydraulic gradient, dimensionless	
	A = cross-sectional area, cm ² (l * b)	
	C = (µg/L)/1000=µg/cm ³	

Shallow Groundwater Flux

0.1-1 Contour

k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells	Contour Interval	Geomean	Segment Length	Thickness
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours	0.1			
C =	0.316227766	µg/L =	Geometric mean concentration between selected contours	1	0.32	36	18
L =	36	ft =	Length of segment between selected contours [C]	10	3.16	90	18
b =	18	ft =	Saturated thickness	12	10.95	45	18
mf =	1.5E-02	µg/s	4.8E-01 g/yr	0.00105	lbs/yr		

1-10 Contour

k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours
C =	3.16	µg/L =	Geometric mean concentration between selected contours
L =	90	ft =	Length of segment between selected contours [C]
b =	18	ft =	Saturated thickness
mf =	3.8E-01	µg/s	1.2E+01 g/yr
			0.0262 lbs/yr

10-12 Contour

k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours
C =	10.95	µg/L =	Geometric mean concentration between selected contours
L =	45	ft =	Length of segment between selected contours [C]
b =	18	ft =	Saturated thickness
mf =	6.5E-01	µg/s	2.1E+01 g/yr
			0.045 lbs/yr
mf _{sgw} =	1	µg/s	33 g/yr
			0.1 lbs/yr

River Concentration

C _R =	mf _{sgw}	
	D _R	
Where:	D _R =	Patchogue River flow, L/s
	mf _{sgw} =	Shallow groundwater flux
	D _R =	11.2 ft ³ /s = 317 L/s
C _R =	0.0033	µg/L

**ATTACHMENT F-3
MASS FLUX CALCULATIONS - FLUORENE
PATCHOGUE RIVER**

Mass Flux Calculation

Enter site data in yellow highlighted cells

Fluorene (March 2020)

Figure No.

See Figure F-3

mf =	kiA	* C
Where:	mf = mass flux, µg/s k = hydraulic conductivity, cm/s i = hydraulic gradient, dimensionless A = cross-sectional area, cm ² (l * b) C = (µg/L)/1000=µg/cm ³	

Shallow Groundwater Flux

0.1-1 Contour

k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells	Contour Interval	Geomean	Segment Length	Thickness
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours	0.1			
C =	0.316227766	µg/L =	Geometric mean concentration between selected contours	1	0.32	90	18
L =	90	ft =	Length of segment between selected contours [C]	2	1.41	65	18
b =	18	ft =	Saturated thickness				
mf =	3.8E-02	µg/s	1.2E+00 g/yr				
			0.00262 lbs/yr				

1-2 Contour

k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours
C =	1.41	µg/L =	Geometric mean concentration between selected contours
L =	65	ft =	Length of segment between selected contours [C]
b =	18	ft =	Saturated thickness
mf =	1.2E-01	µg/s	3.8E+00 g/yr
			0.0085 lbs/yr
mf _{sgw} =	0	µg/s	5 g/yr
			0.0 lbs/yr

River Concentration

C _R =	mf _{sgw}	
	D _R	
Where:	D _R =	Patchogue River flow, L/s
	mf _{sgw} =	Shallow groundwater flux
	D _R =	11.2 ft ³ /s = 317 L/s
C _R =	0.00050	µg/L

11.2 7Q10 flow (ft³/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through

**ATTACHMENT F-4
MASS FLUX CALCULATIONS - PYRENE
PATCHOGUE RIVER**

Mass Flux Calculation

Enter site data in yellow highlighted cells

Pyrene (March 2020)

Figure No.

See Figure F-4

mf =	kiA	* C
Where:	mf = mass flux, µg/s k = hydraulic conductivity, cm/s i = hydraulic gradient, dimensionless A = cross-sectional area, cm ² (l * b) C = (µg/L)/1000=µg/cm ³	

Shallow Groundwater Flux

0.1-1 Contour

					Contour Interval	Geomean	Segment	
							Length	Thickness
k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells					
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours		0.1			
C =	0.316227766	µg/L =	Geometric mean concentration between selected contours		1	0.32	38	18
L =	38	ft =	Length of segment between selected contours [C]		5	2.24	130	18
b =	18	ft =	Saturated thickness					
mf =	1.6E-02	µg/s	5.0E-01 g/yr	0.00111 lbs/yr				

1-5 Contour

k =	6.1E-03	hydraulic conductivity, cm/s	Geometric mean of PDI slug tests for shallow water table wells
i =	0.013	hydraulic gradient, dimensionless	Measured in vicinity of selected contours
C =	2.24	µg/L =	Geometric mean concentration between selected contours
L =	130	ft =	Length of segment between selected contours [C]
b =	18	ft =	Saturated thickness
mf =	3.9E-01	µg/s	1.2E+01 g/yr
mf _{sgw} =	0	µg/s	13 g/yr

River Concentration

C _R =	mf _{sgw}	D _R
Where:	D _R =	Patchogue River flow, L/s
	mf _{sgw} =	Shallow groundwater flux
	D _R =	11.2 ft ³ /s = 317 L/s
C _R =	0.00127	µg/L

11.2 7Q10 flow (ft³/s) calculated using data from a USGS river gauging station (USGS 01306000 PATCHOGUE RIVER AT PATCHOGUE NY), for period 4/1/1958 through