



SITE MANAGEMENT PLAN

Ilion (East Street) Former Manufactured Gas Plant Site
Village of Ilion, Herkimer County, New York
NYSDEC Site No. 6-22-019

October 2018

A large, solid orange geometric shape in the bottom right corner of the page, consisting of a large triangle and a smaller rectangle, separated by a diagonal line. A thin white horizontal line crosses the page just above this shape.

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I, Michael J. Benoit, certify that I am currently a New York State-registered professional engineer, and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).




Michael J. Benoit

October 22, 2018
Date

SITE MANAGEMENT PLAN

Ilion (East Street) Former Manufactured Gas Plant Site

Village of Ilion, Herkimer County, New York

NYSDEC Site No. 6-22-019

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ACRONYMS AND ABBREVIATIONS

Arcadis	Arcadis of New York, Inc.
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAMP	Community Air Monitoring Plan
COC	constituent of concern
cy	in-situ cubic yard
ECL	Environmental Conservation Law
EWP	Excavation Work Plan
FS	feasibility study
HASP	Health and Safety Plan
IRM	interim remedial measure
MGP	manufactured gas plant
NAPL	non-aqueous phase liquid
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	polycyclic aromatic hydrocarbon
PDI	pre-design investigation
ppm	parts per million
PSA	preliminary site assessment
RAO	remedial action objective
RI	remedial investigation
SCO	soil cleanup objective
SMP	Site Management Plan
Tetra Tech	Tetra Tech EC, Inc.

EXECUTIVE SUMMARY

Table ES-1 summarizes the institutional and engineering controls implemented for the former manufactured gas plant (MGP) site located at 1 East Street in the Village of Ilion, Herkimer County, New York (hereinafter, the “Site”; designated as Site No. 6-22-019), as well as the monitoring, inspection, maintenance, and reporting requirements of this Site Management Plan (SMP).

Table ES-1. Site Management Plan Summary

SMP Element	Requirement
Institutional Controls	1. The Site may only be used for restricted-residential, commercial, and industrial enterprises allowable under current zoning provided that the long-term institutional and engineering controls identified in this SMP are employed. 2. All engineering controls must be operated and maintained as specified in this SMP. 3. All engineering controls must be inspected at the frequency and in the manner defined in this SMP. 4. The use of groundwater underlying the Site is prohibited without necessary water quality treatment, as determined by the New York State Department of Health or the Herkimer County Department of Health, to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the New York State Department of Environmental Conservation. 5. Groundwater and other environmental or public health monitoring must be performed as defined in this SMP. 6. Data and information pertinent to the management of the Site must be reported at the frequency and in the manner defined in this SMP. 7. All future activities at the Site that will disturb remaining MGP-impacted material must be conducted in accordance with this SMP. 8. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP. 9. Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy must be performed as defined in this SMP. 10. Access to the Site must be provided to agents, employees, or other representatives of the State of New York, with reasonable prior notice to the Site owner, to assure compliance with the restrictions identified in the environmental easement.
Engineering Controls	Soil cover system.
Monitoring	Groundwater monitoring will be performed at monitoring wells MW-02R, MW-03, MW-06, MW-07, MW-08R, and MW-13 on a semi-annual basis for the first five years. Each monitoring event will include: (1) an integrity assessment of each well; (2) measurement of groundwater level and, where present, non-aqueous phase liquid thickness at each well; and (3) collection and analysis of groundwater samples from those wells where non-aqueous phase liquid is not observed.
Inspections	Site-wide inspections will be performed on an annual basis and within five days after an emergency, such as a natural disaster (e.g., flood, tornado, etc.) or an unforeseen failure of an engineering control, to verify the continued effectiveness of the institutional and engineering controls on the Site.

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SMP Element	Requirement
Maintenance	Not applicable.
Reporting	A periodic review report will be submitted to the New York State Department of Environmental Conservation on an annual basis beginning 16 months after the Certificate of Completion is issued.

1 INTRODUCTION

1.1 General

This Site Management Plan (SMP) has been prepared by Arcadis of New York, Inc. (Arcadis), on behalf of National Grid, to present the post-remediation monitoring, sampling, inspection, certification, and reporting requirements for the former manufactured gas plant (MGP) site located at 1 East Street in the Village of Ilion, Herkimer County, New York (hereinafter referred to as the “Site”). The Site is currently in the New York State Superfund Program (designated as Site No. 6-22-019), which is administered by the New York State Department of Environmental Conservation (NYSDEC). On November 7, 2003, Niagara Mohawk Power Corporation (National Grid’s predecessor) and NYSDEC entered into a multi-site Order on Consent (Index No. A4-0473-0000), which requires National Grid to implement a full remedial program for several former MGP sites across New York State, including the Site.

The Site, along with two adjacent off-Site areas commonly referred to as the “near-Site” areas¹, were remediated between June and December 2015 in accordance with the *Record of Decision* (ROD; NYSDEC 2011b) and the *Final (100%) Remedial Design for the Phase 1 Remedial Action* (Remedial Design; Arcadis 2015)². During the remediation activities, limited MGP-related impacts were left in place at the Site with the approval of NYSDEC. As further described in Section 3 of this SMP, institutional and engineering controls have been incorporated into the Site remedy to control exposure to these remaining MGP-related impacts, and thereby ensure the protection of public health and the environment.

An environmental easement (hereinafter, the “Environmental Easement”; provided in Appendix A of this SMP) granted to NYSDEC pursuant to Article 71, Title 36 of the New York State Environmental Conservation Law (ECL), and recorded with the Herkimer County Clerk, requires compliance with this SMP and all institutional and engineering controls placed on the Site. Failure to properly implement this SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion. Failure to comply with this SMP is also a violation of the New York State ECL, Title 6, Part 375 of the New York Codes, Rules, and Regulations (6 NYCRR 375), and the Order on Consent, and thereby subject to applicable penalties.

This SMP has been prepared in accordance with Section 6.2 of NYSDEC’s *Technical Guidance for Site Investigation and Remediation* (DER-10; NYSDEC 2010) and other applicable NYSDEC guidelines.

1.2 Revisions

This SMP is a required element of the remedial program for the Site and may only be revised with the approval of NYSDEC. Proposed revisions to this SMP will be submitted in writing to the NYSDEC project manager. Revisions will be necessary upon, but not limited to, the following occurring:

- A change in media monitoring requirements;

¹ The off-Site area, which includes the “near-Site” areas located adjacent to the Site, is not addressed by nor subject to this SMP.

² The remainder of the off-Site area was remediated between May and November 2016 in accordance with the ROD and the *Final (100%) Remedial Design for the Phase 2 Remedial Action* (Arcadis 2016).

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- Post-remediation removal of impacted soil;
- A change in Site ownership or responsibility for implementing this SMP; or
- Other significant change to the Site conditions.

In accordance with the Environmental Easement for the Site (provided in Appendix A of this SMP), NYSDEC will provide notice of any approved changes to the SMP and append such notices to the SMP that is retained in its files. All Site-related documents can be viewed by contacting NYSDEC or its successor agency managing environmental issues in New York State.

1.3 Notifications

As necessary, the NYSDEC project manager will be notified by the Site owner for the reasons and in the time frames identified below:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the Order on Consent, 6 NYCRR 375, or the New York State ECL;
- Seven-day advance notice of any field activity associated with the remedial program;
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the *Excavation Work Plan* (EWP; Arcadis 2018), which is provided in Appendix B of this SMP;
- Notice within 48-hours of any damage to or defect in any engineering control on the Site that reduces or has the potential to reduce the effectiveness of the engineering control, and likewise, any action to be taken to mitigate the damage or defect;
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake, that reduces, or has the potential to reduce, the effectiveness of the engineering controls on the Site, with written notice to NYSDEC within seven days after the emergency describing the actions taken, or to be taken, and the potential impact to the environment and the public; and
- Within 45 days of any emergency requiring on-going responsive action, submittal of a follow-up status report to NYSDEC that describes and documents the actions taken to restore the effectiveness of the engineering controls on the Site.

In addition to the above, NYSDEC will be notified in writing at least 60 days prior to any change in the ownership of the Site or the responsibility for implementing this SMP. In the case of a change in ownership, the written notification will include a certification that the prospective purchaser has been provided with a copy of the Order on Consent and all approved work plans and reports, including this SMP. Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing to NYSDEC.

The current contact information for the NYSDEC project manager and other Site-related contacts is provided in Appendix C of this SMP. The list of Site-related contacts will be updated as necessary to provide accurate contact information.

1.4 Contents and Organization

To satisfy the applicable requirements of DER-10, the remainder of this SMP is organized into six sections as follows:

- Section 2 (Site Background), presents general information regarding the pre- and post-remediation conditions at the Site, including the investigation and remediation activities performed by National Grid and its consultants;
- Section 3 (Institutional and Engineering Control Plan), provides additional information regarding the specific function and intended role of each institutional and engineering control on the Site, and describes the procedures required to implement and manage those controls;
- Section 4 (Monitoring, Sampling, and Inspection Plan), describes the periodic monitoring, sampling, and inspection requirements for the Site;
- Section 5 (Operation and Maintenance Plan), as applicable, describes the operation and maintenance requirements for engineering control systems at the Site;
- Section 6 (Certification and Reporting Requirements), describes the annual certification and reporting requirements for the institutional and engineering controls on the Site and the monitoring, sampling, and inspection programs; and
- Section 7 (References), presents a list of reference documents used in the preparation of this SMP.

2 SITE BACKGROUND

2.1 General

This section provides general information regarding the pre- and post-remediation conditions at the Site, including the investigations and remediation activities conducted by National Grid and its consultants.

2.2 Site Location and Description

The Site is located at 1 East Street in a mixed commercial/residential area of the Village of Ilion, Herkimer County, New York (Figure 1), and is identified as Block 4, Lot 19 on Section 120.037 of the Village of Ilion Tax Map. The 1.3-acre property is generally bounded by East Clark Street and privately-owned residential properties (tax parcels 120.037-4-15, 120.037-4-16, 120.037-4-17, and 120.037-4-18) to the north, State Street to the south, East Street to the east, and privately-owned commercial and residential properties (tax parcel 120.037-4-22.1) to the west (Figure 2). The Site boundaries are more fully-described in Schedule A of the Environmental Easement, which is provided in Appendix A of this SMP.

As of the date of this SMP, the property is grass-covered, vacant, and surrounded by a 6-foot high chain-link fence. A gravel driveway leads from an access gate along East Street to a gravel parking area in the center of the Site. Surface topography at the Site is generally flat with a gentle slope from south to north.

The off-Site area, which is not addressed by nor subject to this SMP, is located approximately 550 feet north-northeast of the Site at 125 East Street and occupies a portion of the Village of Ilion's Department of Public Works facility. The off-Site area is generally bounded by New York State Route 5S to the north, East North Street and privately-owned residential properties to the south, state- and federally-regulated wetlands to the east, and East Street and privately-owned residential properties to the west. The Mohawk River is located approximately 750 feet north of the off-Site area (beyond New York State Route 5S). The off-Site area generally follows the alignment of a nominal 24-inch diameter Village of Ilion storm sewer and open drainage ditch, which run through the middle of the Department of Public Works facility and convey storm water from areas south and west of the off-Site area. The drainage ditch continues north of the off-Site area, passes beneath New York State Route 5S, and ultimately discharges to the Mohawk River.

2.3 Site History

2.3.1 Operational History

Coal gas was produced at the Site from the 1870s through 1912. Thereafter, the Site was used for various utility operations (including gas storage and distribution), and as an electrical substation and service center.

The early gas works was located on a 0.7-acre parcel of land at the intersection of East Street and the former north towpath of the Erie Canal. By 1881, the gas works was fully operational and consisted of a coal shed, an octagonal gas holder, and a gas house with retorts, lime purifiers, and dynamos. The gas works was expanded to the north in 1890 with the purchase of an additional 0.31-acre parcel at the

intersection of East Street and East Clark Street. In that same year, the Ilion and Mohawk Gas Light Company was contracted by the Village of Ilion to furnish power for lighting, and by 1891, an electric light station was added on the north side of the gas house. By 1897, an 80,000-cubic-foot gas holder was constructed on the parcel to the north of the main gas works, near East Clark Street, and the use of the octagonal gas holder was discontinued. Around this same time the former towpath of the Erie Canal, which ran along the south side of the gas works, was converted into a public street known as East Canal Street (now, State Street).

Between 1897 and 1907, additional retorts and dynamos were added to the gas works to increase production capacity, and the lime purifiers were replaced with iron oxide purifiers. During this period, carburetted water gas was also being produced at the Site on an as-needed basis using an auxiliary 50,000-cubic-foot-per-day water gas set, which was located in the retort room of the gas house.

Operations at the former gas works were discontinued sometime between 1912 and 1917, although the plant may have been used on a limited basis during peak demand periods. In 1917, a 200,000-cubic-foot gas distribution holder was constructed between the gas house and the 80,000-cubic-foot gas holder to store and distribute manufactured gas from the Harbor Point MGP in Utica, New York. Site operations were subsequently converted to manufactured gas storage and distribution. The octagonal gas holder was removed sometime before 1924 and the 80,000-cubic-foot gas holder was removed by 1942.

In 1940, an outdoor electrical substation was constructed at the southeast corner of the Site, in the general area of the former octagonal gas holder. Niagara Mohawk Power Corporation (National Grid's predecessor) assumed control of the Site operations in 1950 and introduced natural gas into the local distribution system beginning in 1951. A gas regulator building was constructed east of the 200,000-cubic-foot gas holder to support Site operations. In 1956, the 200,000-cubic-foot gas holder was demolished and most of the remaining gas equipment was removed from the Site. The outdoor electrical substation was decommissioned and removed in 1997, and the remaining buildings associated with the former gas works were demolished in September 2000.

2.3.2 Regulatory History

Niagara Mohawk Power Corporation (National Grid's predecessor) and NYSDEC entered into a multi-site Order on Consent (Index No. D0-0001-9210) on December 12, 1992. The Order on Consent required National Grid to implement a full remedial program for several former MGP sites across New York State, including the Site. Order on Consent Index No. D0-0001-9210 was superseded and replaced by Order on Consent Index No. A4-0473-0000 on November 7, 2003.

2.4 Previous Investigations and Evaluations

2.4.1 Preliminary Site Assessment/Interim Remedial Measure Study

A preliminary site assessment (PSA)/interim remedial measure (IRM) study was performed between June and October 1997 to determine whether: (1) contamination was present at the Site as a result of previous (historical) property use and operations; (2) any detected substances constituted a significant threat to public health or the environment; (3) a remedial investigation (RI) was necessary at the Site; and (4) IRMs might be appropriate based on the results of the PSA. The PSA field activities generally included surface

soil sampling, drilling and subsurface soil sampling, test pit excavation, monitoring well installation and development, groundwater elevation monitoring, groundwater sampling, and hydraulic conductivity testing. The results of the PSA/IRM study were presented in the *Report for PSA/IRM Study at the Ilion (East Street) Site* (Parsons Engineering Science, Inc. 1998), and indicated that (1) MGP-related impacts were present at the Site and (2) an RI was warranted to fully characterize environmental conditions at the Site and in the off-Site area.

2.4.2 Remedial Investigation

An RI was performed between August 1999 and December 2008 to determine the nature and extent of MGP-related impacts at the Site and in the off-Site area. Through extensive sampling and laboratory testing, the RI: (1) identified the horizontal and vertical extent of MGP-related impacts; (2) defined the pathways of migration; and (3) quantified the degree of MGP-related impacts in all potentially-affected environmental media, including groundwater, soil, soil vapor, and sediment. The results of the RI were presented in the *Revised Remedial Investigation Report for the Ilion (East Street) Site* (Tetra Tech EC, Inc. [Tetra Tech] 2009), which was approved by NYSDEC on May 6, 2009.

2.4.3 Feasibility Study

A feasibility study (FS) was conducted to identify and evaluate potential remedial alternatives for the Site and off-Site area. The FS generally included the following:

- Establishment of remedial action objectives (RAOs);
- Identification of general response actions to address the RAOs;
- Identification and screening of technologies applicable to each general response action;
- Selection of process options for retained technologies;
- Combination of selected process options to form remedial alternatives;
- Detailed evaluation of remedial alternatives; and
- Selection of the preferred remedial alternative.

The results of the FS were presented in the *Final Feasibility Study Report for the Ilion (East Street) Site* (Tetra Tech 2010), which was approved by NYSDEC on June 8, 2010.

2.4.4 Pre-Design Investigation

A pre-design investigation (PDI) was conducted at the Site and in the off-Site area between November 2011 and January 2013 to collect additional data necessary for the design of the remedy. The scope of the PDI field activities generally included the following:

- Supplemental topographic and utility surveys;
- Monitoring well integrity assessments;
- Groundwater level measurements;

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- Groundwater sampling;
- Monitoring well decommissioning; and
- Soil investigations, consisting of surface soil sampling, drilling and subsurface soil sampling, and test pit excavation.

The results of the PDI were presented in the *Revised Initial PDI Report and Second PDI Work Plan* (National Grid 2012) and the *Second PDI Report* (Second PDI Report; National Grid 2013), which were approved by NYSDEC on April 16, 2012 and September 5, 2013, respectively.

2.5 Surface Water Hydrology

The nearest surface water body is the unclassified open drainage ditch in the off-Site area, which begins approximately 1,500 feet north-northeast of the Site at the outfall of a nominal 24-inch diameter Village of Ilion storm sewer. Surface water in the open drainage ditch flows northeast approximately 1,030 feet before joining the Mohawk River. The Mohawk River, a NYSDEC Class B surface water body, is located approximately 2,500 feet northeast of the Site and flows east approximately 80 miles before joining the Hudson River. Other surface water bodies within 1 mile of the Site include Fulmer Creek, which is located approximately 4,000 feet east of the Site, and Steele Creek, which is located approximately 3,500 feet west of the Site. Both Fulmer Creek and Steele Creek are tributaries of the Mohawk River and are classified by NYSDEC as Class C surface water bodies.

2.6 Geology

The unconsolidated stratigraphic units at the Site consist of (from top to bottom) fill, peat, lacustrine deposits, and sand and gravel. The fill unit ranges in thickness from approximately 2.5 feet to 13 feet and generally comprises sand, gravel, silt, clay, and anthropogenic materials, including ash, cinders, clinkers, brick fragments, and wood chips. A thin layer of peat, ranging in thickness from approximately 0.5 foot to 3 feet, underlies the fill unit in the northern portion of the Site. The depth to the top of the peat unit ranges from approximately 7.5 to 11.5 feet below ground surface (bgs). Except where it is locally covered by sedimentary deposits, such as silts, sands, and clays, the peat (where present) appears to have been the historical ground cover prior to the development of the Site. Underlying the fill and peat (where present) are lacustrine deposits of silt, sand, and clay. The depth to the top of the lacustrine unit ranges from approximately 2.5 to 12.5 feet bgs. The lacustrine deposits generally range in thickness from approximately 2 feet to 27 feet and appear to decrease in thickness to the north. A regional sand and gravel unit underlies the lacustrine deposits at the Site and is generally encountered at depths ranging from approximately 12 to 34 feet bgs. The sand and gravel unit also contains fluctuating amounts of silts and clays. The thickness of the sand and gravel unit has not been determined with certainty, but is likely 250 feet or greater.

The upper-most continuous bedrock formation in the region is the Late Ordovician-age Utica Shale. The top of bedrock is generally located at depths of approximately 250 feet bgs or greater. The general dip of the bedding planes is to the south-southwest. Utica Shale is underlain by the Trenton Group limestones and Black River Group limestones, dolomites, and shales. Younger Frankfort Formation shales and

siltstone are locally present above the Utica Shale in the hills south and north of the Site (Tetra Tech 2009). Bedrock was not encountered in any of the soil borings drilled during the PSA, RI, and PDI.

2.7 Hydrogeology

The predominant regional groundwater discharge feature is the Mohawk River. Given the Site's location and proximity to the river, groundwater in the unconsolidated deposits is expected to flow north (towards the river). At the Site, groundwater is encountered within the fill or lacustrine deposits at depths ranging from approximately 4 feet to 17 feet bgs, depending on location. A thin saturated zone of up to approximately 3 feet in thickness is locally present within the fill above the lacustrine deposits. In the southern and central portions of the Site, the top of the lacustrine deposits is located close to ground surface, and the saturated zone is absent within the fill unit. The groundwater flow direction within the fill unit, where the saturated zone is present, is determined by the local topography of the underlying lacustrine deposits. The flow rate is likely negligible since the saturated zone is relatively thin (less than 3 feet thick). The saturated zone of the fill unit is fed directly by infiltration from ground surface; however, the majority of groundwater at the Site flows within the saturated zone of the sand and gravel unit and originates from areas south (upgradient) of the Site.

The saturated zone of the sand and gravel unit is present throughout the Site and is regional in nature. Based on the eight complete synoptic rounds of groundwater level measurements collected during the PSA/IRM study and RI, there appears to be a moderate hydraulic gradient of approximately 5/1,000 within the saturated zone of the sand and gravel unit (Parsons Engineering Science, Inc. 1998, Tetra Tech 2009). The flow direction is to the north and northwest, towards the Mohawk River. Slug tests conducted during the RI in wells screened within the sand and gravel unit indicated relatively high values of hydraulic conductivity, on the order of 10^{-3} to 10^{-2} centimeters per second (Tetra Tech 2009). The magnitude of flow within the saturated zone of the sand and gravel unit is likely significant due to the: (1) significant thickness of the unit (greater than 250 feet); (2) moderate hydraulic gradient; and (3) high hydraulic conductivity.

2.8 Pre-Remediation Nature and Extent of MGP-Related Impacts

As described in the ROD, environmental media at the Site and in the off-Site area were impacted by waste by-products of the gas manufacturing process – specifically, coal tar and purifier waste. Coal tar, a reddish-brown to black non-aqueous phase liquid (NAPL), contains a complex mixture of organic chemicals, including volatile organic compounds and semi-volatile organic compounds. Chief among these compounds are benzene, toluene, ethylbenzene, and xylenes (collectively, “BTEX”) and a more general class of semi-volatile organic compounds known as polycyclic aromatic hydrocarbons (PAHs). The specific PAHs of concern are acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene. The sum of the individual concentrations of these PAHs is hereinafter referred to as “total PAHs”.

Purifier waste is typically found as a dark mixture of wood chips and often contains high concentrations of cyanide. Although some cyanide compounds are highly toxic, there is evidence that the cyanide

compounds typically leached from purifier waste are in a chemically complexed form, which is significantly less toxic than free cyanide (CN⁻). As described in the ROD, cyanide was generally found to be co-located with areas with high concentrations of BTEX and PAHs in environmental media. Collectively, BTEX, PAHs, and cyanide are considered the primary constituents of concern (COCs) at the Site and in the off-Site area.

The pre-remediation nature and extent of MGP-related impacts in environmental media at the Site were summarized in (1) Exhibit A of the ROD and (2) Tables 1 through 3 and Figure 4 of the Second PDI Report.

2.9 Remedial Action Objectives

The RAOs for the remedial program, as identified in Exhibit B of the ROD, were established through the remedy selection process set forth in 6 NYCRR 375 and are summarized in Table 1 below.

Table 1. Remedial Action Objectives

Environmental Media	Protection of Public Health	Protection of the Environment
Soil	Prevent ingestion/direct contact with MGP-impacted soil. Prevent inhalation of, or exposure to, volatilized COCs from MGP-impacted soil.	Prevent migration of MGP-related impacts that will result in groundwater impacts.
Groundwater	Prevent people from drinking groundwater with MGP-related COCs exceeding drinking water standards. Prevent contact with, or inhalation of, volatilized COCs from MGP-impacted groundwater.	Restore the groundwater aquifer to meet ambient groundwater quality criteria, to the extent feasible.
Soil Vapor	Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the Site.	--

2.10 Selected Remedy

NYSDEC, in consultation with the New York State Department of Health (NYSDOH), selected an appropriate remedy for the Site and off-Site area: (1) based on the results of the RI and FS; and (2) in consideration of public comments received on the *Proposed Remedial Action Plan* (NYSDEC 2011a). The primary elements of the selected remedy are summarized as follows:

1. Implementation of a remedial design program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. To the extent practicable, green remediation and sustainability efforts will be considered in the design and implementation of the remedy.

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2. Excavation and disposal of surface and subsurface soil, structures, and piping from the Site. On-Site soil will be excavated where it contains visible tar, NAPL, and/or total MGP-related PAHs at concentrations greater than 500 parts per million (ppm). Excavated materials that are below the remediation criteria may be stockpiled and evaluated for re-use as backfill. On-Site excavation areas will be backfilled with stockpiled soils and/or imported soil that meets 6 NYCRR 375-6.7(d) criteria for backfill. The backfill material will be blended with an oxygen-release compound to enhance the bioremediation of dissolved-phase COCs in groundwater. The preliminary limits of excavation for the Site were shown on Figure 6 of the ROD Exhibits and were later revised based on the results of the PDI. The revised limits of excavation were shown on Figure 4 of the Second PDI Report.
3. Bioremediation of dissolved-phase COCs in groundwater at the Site through the use of oxygen-release compound amendments as described above. The addition of oxygen-release compound will stimulate the naturally-occurring microorganisms and enhance the aerobic biodegradation of dissolved-phase COCs in groundwater.
4. Establishment of a site cover to allow for restricted-residential use of the Site. The cover will consist either of the structures comprising the Site development, such as buildings, pavement, or sidewalks, or a soil cover in areas where the upper two feet of exposed surface soil exceeds the soil clean-up objectives (SCOs) for restricted-residential use. Where the soil cover is required, it will consist of two feet of soil meeting the SCOs for cover material as set forth in 6 NYCRR 375-6.7(d) for restricted-residential use. The soil cover will be placed over a demarcation layer, and the upper 6 inches of soil will be of sufficient quality to maintain vegetation.
5. Excavation and disposal of MGP-impacted soil from the off-Site area. The off-Site area includes two areas adjacent to the Site (the "near-Site" areas) where surface soil samples exceed background concentrations of PAHs. These "near-Site" areas include a small area on the property west of the Site, along East Clark Street, and the narrow strip between the Site and the East Street roadway. Soils in the "near-Site" areas will be excavated where visible tar, NAPL, and/or total MGP-related PAHs greater than background concentration are identified. Soils in the larger off-Site area located approximately 550 feet north-northeast of the Site at the Village of Ilion's Department of Public Works facility will be excavated where visible tar, NAPL, and/or total MGP-related PAHs greater than 500 ppm are identified. Off-Site excavation areas will be restored with a minimum of 2 feet of soil meeting the SCOs for residential use. The preliminary limits of excavation for the off-Site area were shown on Figures 6 and 7 of the ROD Exhibits and were later revised based on the results of the PDI. The revised limits of excavation were shown on Figures 4 through 6 of the Second PDI Report.
6. Imposition of an institutional control in the form of an environmental easement for the Site that: (a) requires the remedial party or Site owner to complete and submit to NYSDEC a periodic certification of institutional and engineering controls in accordance with 6 NYCRR 375-1.8(h)(3); (b) allows the use and development of the Site for restricted-residential use, provided however that the actual use is subject to local zoning; (c) restricts the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by NYSDEC, NYSDOH, or Herkimer County Public Health Department; (d) prohibits agriculture or vegetable gardens on the Site; and (e) requires compliance with the NYSDEC-approved SMP.
7. Development of a SMP for the Site, which will include: (a) an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the Site and details the steps and

media-specific requirements necessary to assure that the institutional and/or engineering controls remain in place and effective; and (b) a Monitoring Plan to assess the performance and effectiveness of the remedy.

2.11 Overview of Site Remediation Activities

The Site and the “near-Site” areas¹ located adjacent to the Site were remediated between June and December 2015³ in accordance with the NYSDEC-approved Remedial Design (Arcadis 2015). The remediation activities were performed on behalf of National Grid by Ontario Specialty Contracting, Inc. of Buffalo, New York and generally included the following:

- Pre-demolition abatement of asbestos-containing materials and loose lead-containing paint and debris located within or upon the former gas regulator house;
- Demolition of the former gas regulator house and certain surface structures and facilities;
- Excavation of approximately 6,120 in-situ cubic yards (cy) of soil and debris to depths ranging from approximately 1 foot to 13 feet below existing grade;
- Demolition of former building foundations, underground facilities, and former MGP structures located within the remedial excavation limits;
- Installation of approximately 335 linear feet of nominal 24-inch diameter high-density polyethylene gravity storm sewer pipe and two precast concrete manholes;
- Abandonment of approximately 325 linear feet of existing nominal 24-inch diameter gravity vitrified clay and concrete storm sewer pipe by filling with controlled low-strength material and capping in place;
- Off-Site treatment/disposal of approximately 4,176 tons of clearing, demolition, excavation, and construction waste;
- Off-Site disposal of approximately 70,829 gallons of construction wastewater;
- Backfilling on-Site remedial excavation areas with excavated material observed to be free of visible NAPL, and containing total PAHs at concentrations less than 500 ppm and total cyanide at concentrations less than 27 ppm, amended with 0.18 pounds per cy of PermeOx Ultra by PeroxyChem (an aerobic bioremediation enhancer);
- Backfilling on-Site pipe trenches with a combination of: (1) clean imported pipe bedding material; and (2) clean imported general fill material meeting the lower of the restricted use SCOs for protection of public health (restricted-residential use⁴) or protection of groundwater, as set forth in Table 375-6.8(b) of 6 NYCRR 375, amended with 0.18 pounds per cy of PermeOx Ultra by PeroxyChem;

³ Tree planting and lawn reseeding activities were conducted in May 2016.

⁴ The chemical testing results for the imported general fill material, subbase material, and topsoil used during the remediation activities also met the lower of the restricted use SCOs for protection of public health (residential use) or protection of groundwater, as set forth in Table 375-6.8(b) of 6 NYCRR 375.

- Backfilling “near-Site” remedial excavation areas with either: (1) 21 inches of clean imported subbase material meeting the lower of the restricted use SCOs for protection of public health (residential use) or protection of groundwater, as set forth in Table 375-6.8(b) of 6 NYCRR 375, and 3 inches of clean imported crushed stone material; or (2) 18 inches of clean imported general fill material and 6 inches of clean imported topsoil meeting the lower of the restricted use SCOs for protection of public health (residential use) or protection of groundwater, as set forth in Table 375-6.8(b) of 6 NYCRR 375;
- Installation of a permeable, 2-foot thick soil cover system across the Site, comprising a woven geotextile demarcation fabric and either: (1) 18 inches of clean imported general fill material and 6 inches of clean imported topsoil meeting the lower of the restricted use SCOs for protection of public health (restricted-residential use⁴) or protection of groundwater, as set forth in Table 375-6.8(b) of 6 NYCRR 375; or (2) 21 inches of clean imported subbase material meeting the lower of the restricted use SCOs for protection of public health (restricted-residential use⁴) or protection of groundwater, as set forth in Table 375-6.8(b), and 3 inches of clean imported crushed stone material; and
- Restoration of the Site and “near-Site” areas, including the planting of new trees and lawns, installation of new chain-link fencing and gates, and installation of new concrete sidewalks.

The remedial excavation limits are shown on Figure 3.

2.12 Nature and Extent of Remaining MGP-Related Impacts

The remediation activities summarized in Section 2.11 of this SMP resulted in the removal of existing soil at the Site to the horizontal limits shown on Figure 3. Remedial excavations and pipe trenches at the Site were backfilled with a combination of: (1) excavated material observed to be free of visible NAPL, and containing total PAHs at concentrations less than 500 ppm and total cyanide at concentrations less than 27 ppm, amended with 0.18 pounds per cy of PermeOx Ultra by PeroxyChem; (2) clean imported pipe bedding material; and (3) clean imported general fill material meeting the lower of the restricted use SCOs for protection of public health (restricted-residential use⁴) or protection of groundwater, as set forth in Table 375-6.8(b) of 6 NYCRR 375, amended with 0.18 pounds per cy of PermeOx Ultra by PeroxyChem. The soil removal and backfilling activities, together with the installation of the 2-foot thick soil cover system, will allow for the future restricted-residential use of the Site; however, soils at the Site still exceed the SCOs for unrestricted use, as shown on Figure 3.

Monitoring well locations and groundwater sampling results are shown on Figure 4. Post-remediation shallow groundwater contours and interpreted groundwater flow direction are shown on Figure 5. Well construction logs are provided in Appendix D of this SMP, and construction details are summarized in Table D-1 of Appendix D. Post-remediation groundwater sampling results are provided in Appendix E of this SMP and are summarized in Table E-1 of Appendix E.

3 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

As described in Section 1.1, institutional and engineering controls have been established on the Site to protect human health and the environment from residual MGP-related impacts in soil and groundwater at the Site. This section provides additional information regarding the specific function and intended role of each institutional and engineering control on the Site and describes the procedures required to implement and manage those controls.

The contents and requirements of this section may only be revised with the approval of NYSDEC.

3.2 Institutional Controls

Institutional controls are required by the ROD to: (1) implement, maintain, and monitor the engineering controls; (2) prevent future exposure to remaining MGP-related impacts by controlling subsurface disturbances; and (3) limit the use and development of the Site to restricted-residential, commercial, or industrial enterprises only. Adherence to the institutional controls on the Site is required by the Environmental Easement (provided in Appendix A of this SMP).

The specific institutional controls to be implemented under this SMP are summarized as follows:

1. The Site may only be used for restricted-residential, commercial, and industrial enterprises allowable under current zoning provided that the long-term institutional and engineering controls identified in this SMP are employed.
2. All engineering controls must be operated and maintained as specified in this SMP.
3. All engineering controls must be inspected at the frequency and in the manner defined in this SMP.
4. The use of groundwater underlying the Site is prohibited without necessary water quality treatment, as determined by NYSDOH or the Herkimer County Department of Health, to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from NYSDEC.
5. Groundwater and other environmental or public health monitoring must be performed as defined in this SMP.
6. Data and information pertinent to the management of the Site must be reported at the frequency and in the manner defined in this SMP.
7. All future activities at the Site that will disturb remaining MGP-impacted material must be conducted in accordance with this SMP.
8. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP.
9. Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy must be performed as defined in this SMP.

10. Access to the Site must be provided to agents, employees, or other representatives of the State of New York, with reasonable prior notice to the Site owner, to assure compliance with the restrictions identified in the Environmental Easement.

The Site may not be used for residential purposes, as defined in 6 NYCRR 375-1.8(g)(2)(i), and the institutional and engineering controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

3.3 Engineering Controls

3.3.1 Soil Cover System

Exposure to remaining MGP-related impacts in soil at the Site is prevented by a permeable soil cover system, which comprises a woven geotextile (demarcation) fabric and a minimum of 2 feet of clean soil meeting the SCOs for restricted-residential use, as set forth in 6 NYCRR 375-6.8(b). The EWP (provided in Appendix B of this SMP) outlines the procedures required to be implemented in the event that the soil cover system is breached, penetrated, or temporarily removed, and any underlying remaining impacts are disturbed. Procedures for the inspection and maintenance of the soil cover system are described in Section 4 of this SMP.

Any work conducted pursuant to the EWP will also be conducted in accordance with a task-specific Health and Safety Plan (HASP) and a Community Air Monitoring Plan (CAMP), which will be prepared by the party performing the work. The party performing the work is responsible for addressing task-specific hazards/hazard controls and must verify that its HASP is in current compliance with DER-10, Title 29, Section 1910 of the Code of Federal Regulations (29 CFR 1910), 29 CFR 1926, and all other applicable federal, state, and local regulations. NYSDOH's *Generic Community Air Monitoring Plan* (NYSDOH 2009) is provided in Appendix F of this SMP and may be used as a guide by the party performing the ground-intrusive work under the EWP.

The HASP and CAMP will be submitted to NYSDEC as part of the written notification required for work under the EWP (refer to Section 1.3 of this SMP and Section 1 of the EWP). Any ground-intrusive work with the potential to encounter or disturb the area of potential remaining MGP-related impacts (Figure 3) will comply with the EWP, HASP, and CAMP, and will be documented in the subsequent periodic review report in accordance with Section 6.3 of this SMP.

3.3.2 Criteria for Completion of Remediation

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the RAOs identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of DER-10.

3.3.2.1 Soil Cover System

The soil cover system is a permanent control and the quality and integrity of this system will be inspected in accordance with this SMP at defined, regular intervals in perpetuity.

3.3.2.2 Monitoring Wells Associated with Monitored Natural Attenuation

Groundwater monitoring to assess the effectiveness of natural attenuation will continue, as determined by NYSDEC with consultation with NYSDOH, until residual dissolved-phase concentrations of COCs in groundwater: (1) are found to be consistently below New York State Class GA ambient water quality standards or guidance values; or (2) have become asymptotic at an acceptable level over an extended period. In the event that monitoring data indicates that monitoring for natural attenuation may no longer be required, a proposal to discontinue monitoring will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by NYSDEC. If impacted groundwater levels become asymptotic at a level that is not acceptable to NYSDEC, additional treatment and/or control measures will be evaluated.

4 MONITORING, SAMPLING, AND INSPECTION PLAN

4.1 General

This section describes the periodic monitoring, sampling, and inspection requirements for the Site, including the methods to be used for the following:

- Monitoring groundwater;
- Assessing compliance with applicable NYSDEC standards, criteria, and guidance, particularly the New York State Class GA ambient water quality standards and guidance values;
- Assessing achievement of the remedial performance criteria;
- Conducting periodic Site-wide inspections and evaluating Site information to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Documenting and preparing the necessary reports for the various monitoring and inspection activities.

Monitoring of the performance of the remedy and overall reduction in MGP-related impacts at the Site will be conducted for the first five years. The frequency thereafter will be determined by NYSDEC. Trends in the concentrations of dissolved-phase COCs in groundwater will be evaluated to determine if the remedy continues to be effective in achieving the RAOs identified in Section 2.9 of this SMP.

Monitoring, sampling, and inspection results will be evaluated on a periodic basis as part of the institutional and engineering control certification described in Section 6.2 of this SMP to confirm that: (1) the institutional and engineering controls on the Site are in place, are performing properly, and remain effective; (2) monitoring, sampling, and inspections are being conducted in accordance with this section; and (3) based on these items, the Site remedy continues to be protective of human health and the environment, and is performing as designed in the *Final (100%) Remedial Design* (Arcadis 2012) and *Final Sanitary Sewer Replacement Design* (Arcadis 2015).

The contents and requirements of this section may only be revised with the approval of NYSDEC.

4.2 Post-Remediation Media Monitoring and Sampling

4.2.1 Groundwater Monitoring

Groundwater monitoring will be performed at monitoring wells MW-02R, MW-03, MW-06, MW-07, MW-08R, and MW-13 on a semi-annual basis for the first five years to assess the effectiveness of the remedy at reducing residual dissolved-phase concentrations of the MGP-related COCs in groundwater.

Monitoring well locations and groundwater sampling results are shown on Figure 4. Post-remediation shallow groundwater contours and interpreted groundwater flow direction are shown on Figure 5. Well construction logs are provided in Appendix D of this SMP, and construction details are summarized in Table D-1 of Appendix D. Post-remediation groundwater sampling results are provided in Appendix E of this SMP and are summarized in Table E-1 of Appendix E.

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Each groundwater monitoring event will include the following:

- Integrity assessment of each well;
- Measurement of groundwater level and, where present, NAPL thickness at each well; and
- Collection and analysis of groundwater samples from those wells where NAPL is not observed.

At each well, an oil-water interface probe will be used to measure the depth to groundwater, depth to NAPL (where present), and total depth of the well. Depths will be measured to the nearest one-hundredth (0.01) of a foot from the reference point at the top of the inner well casing. To the extent practicable, groundwater levels will be measured within one day of sampling to minimize potential relative changes in measurements due to seasonal conditions or precipitation events.

Groundwater samples will be collected using low-flow purging and sampling techniques in accordance with National Grid's *Generic Field Sampling Plan for Site Investigations at Manufactured Gas Plants* (GFSP; Foster Wheeler Environmental Corporation 2002a), which is provided as Appendix G of this SMP. Each sample will be analyzed for BTEX, PAHs⁵, and total cyanide in accordance with the most-recent versions of United States Environmental Protection Agency SW-846 Methods 8260, 8270, and 9012, respectively, as referenced in NYSDEC's Analytical Services Protocol. Quality assurance/quality control samples will also be collected and analyzed in accordance with the *Generic Quality Assurance Project Plan for Site Investigations at Non-Owned Former MGP Sites* (GQAPP; Foster Wheeler Environmental Corporation 2002b), which is provided as Appendix H of this SMP.

Groundwater sampling activities and observations (e.g., condition of sample, integrity of well, etc.) will be recorded on the low-flow groundwater sampling log included in the GFSP. Field measurements and other information pertinent to each monitoring event will be recorded in a dedicated field log book in accordance with the GFSP.

4.2.2 Monitoring Well Repairs, Decommissioning, and Replacement

Monitoring wells may require redevelopment if biofouling or silt accumulation occurs. If redevelopment is deemed warranted, the well will be physically agitated/surged and redeveloped using the procedures described in the GFSP. The decommissioning and replacement of a monitoring well may be warranted if: (1) the well is broken, obstructed, or otherwise compromised; (2) cannot be adequately repaired; and (3) is required for the purpose of future monitoring. Well decommissioning will be performed in accordance with NYSDEC's *Groundwater Monitoring Well Decommissioning Policy* (NYSDEC 2009). The specific decommissioning method – grouting in-place, pulling the casing, or over-drilling – will be determined based on the construction and current condition of the well. The replacement monitoring well will be installed in the nearest available location and will be constructed in the same manner as the original well, unless otherwise approved by NYSDEC.

⁵ PAH analyte list comprises acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene.

NYSDEC will be notified before repairing or replacing any unusable monitoring wells. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. All monitoring well maintenance activities, including redevelopment, repair, replacement, and decommissioning, will be documented in the subsequent periodic review report.

4.3 Site-Wide Inspections

Site-wide inspections will be conducted on an annual basis, regardless of the frequency of the periodic review report, to assess the following:

- Condition and continued effectiveness of the soil cover system;
- Compliance with all institutional controls, including administrative requirements and Site activity and use restrictions;
- General Site conditions at the time of the inspection; and
- As appropriate, completeness of Site records.

In the event of an emergency, such as a natural disaster (e.g., flood, tornado, etc.) or an unforeseen failure of the soil cover system, an additional inspection will be conducted, within five days after the emergency, to verify the continued effectiveness of the soil cover system and institutional controls on the Site. As required by Section 1.3 of this SMP, NYSDEC will be verbally notified by noon of the following day of any such emergency. Written notice will be provided to NYSDEC within seven days after the emergency describing the actions taken, or to be taken, and the potential impact to the environment and the public.

The results of each inspection will be recorded on the Site-wide inspection form provided in Appendix I of this SMP and will be documented in the periodic review report in accordance with Section 6.3 of this SMP.

4.4 Documentation and Recordkeeping

Field observations, measurements, notes, and other relevant information generated during monitoring events and inspections will be recorded on an appropriate form or in a field log book, as appropriate, in accordance with the GFSP and GQAPP. Completed forms and other field records will be maintained in a central project file and, as appropriate, will be included in the periodic review report.

All forms and other relevant reporting formats used during monitoring events and inspections are subject to NYSDEC review and approval.

5 OPERATION AND MAINTENANCE PLAN

The Site remedy does not rely on any mechanical systems, such as groundwater treatment systems, sub-slab depressurization systems, or air sparge/soil vapor extraction systems, to protect public health and the environment. Therefore, the operation and maintenance of such components are not included in this SMP.

6 CERTIFICATION AND REPORTING REQUIREMENTS

6.1 General

This section describes the annual certification and reporting requirements for the institutional and engineering controls on the Site and the monitoring, sampling, and inspection programs. The contents and requirements of this section may only be revised with the approval of NYSDEC.

6.2 Certification of Institutional and Engineering Controls

After the last Site-wide inspection of the reporting period, a qualified environmental professional will prepare and sign the following certification statement:

“For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the institutional or engineering control required by the remedial program was performed under my direction;
- The institutional or engineering control employed at the Site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect public health and the environment;
- Nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this control;
- Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- Use of the Site is compliant with the Environmental Easement;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program; and
- The information presented in this report is accurate and complete.

I understand that a false statement made herein is punishable as a Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [NAME], of [BUSINESS ADDRESS], am certifying as [OWNER or OWNER’S DESIGNATED SITE REPRESENTATIVE or REMEDIAL PARTY or REMEDIAL PARTY’S DESIGNATED SITE REPRESENTATIVE].”

A signed certification statement will be included in each periodic review report described in Section 6.3 below.

6.3 Periodic Review Report

A periodic review report will be submitted to NYSDEC on an annual basis beginning 16 months after the Certificate of Completion is issued. In the event that the Site is subdivided into separate parcels with different ownership, a single periodic review report will be prepared that addresses the site described in Schedule A of the Environmental Easement (provided in Appendix A of this SMP).

The periodic review report will be prepared in accordance with Section 6.3 of DER-10 and will include, at a minimum, the following:

- Identification, assessment, and certification of all institutional and engineering controls required by the remedy for the Site;
- Description of any ground-intrusive work that encountered or disturbed the area of potential remaining MGP-related impacts pursuant to Section 3.3.1 of this SMP;
- Date(s) and description of each monitoring event, including summary of results;
- Data summary tables for all samples collected during the reporting period, with listing of all compounds analyzed and comparison to applicable standards with all exceedances highlighted;
- Laboratory data sheets, electronic data deliverable(s), and data usability summary report(s) for all samples collected during the reporting period;
- Figure(s) depicting monitoring well locations, shallow groundwater contours, and interpreted groundwater flow direction for each groundwater monitoring event;
- Date(s) and results of the required annual Site-wide inspection and any other inspections performed in response to a natural disaster (e.g., flood, tornado, etc.) or unforeseen failure of an engineering control;
- All applicable inspection forms and other records generated for the Site during the reporting period;
- A Site evaluation, which includes the following:
 - o Compliance of the remedy with the requirements of the ROD;
 - o Any new conclusions or observations regarding Site impacts based on monitoring and inspection results;
 - o Recommendations regarding any necessary changes to the remedy or monitoring/inspection programs;
 - o Trends in levels of MGP-related impacts in the affected environmental media; and
 - o Overall performance and effectiveness of the remedy.

The periodic review report will be submitted within 30 days of the end of each certification period to both NYSDEC and NYSDOH. Electronic data deliverable(s) for all samples collected during the reporting period will also be submitted electronically to NYSDEC's Environmental Information Management System administrator.

6.4 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures work plan will be prepared and submitted to NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures work plan until it has been approved by NYSDEC.

7 REFERENCES

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FIGURES





0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

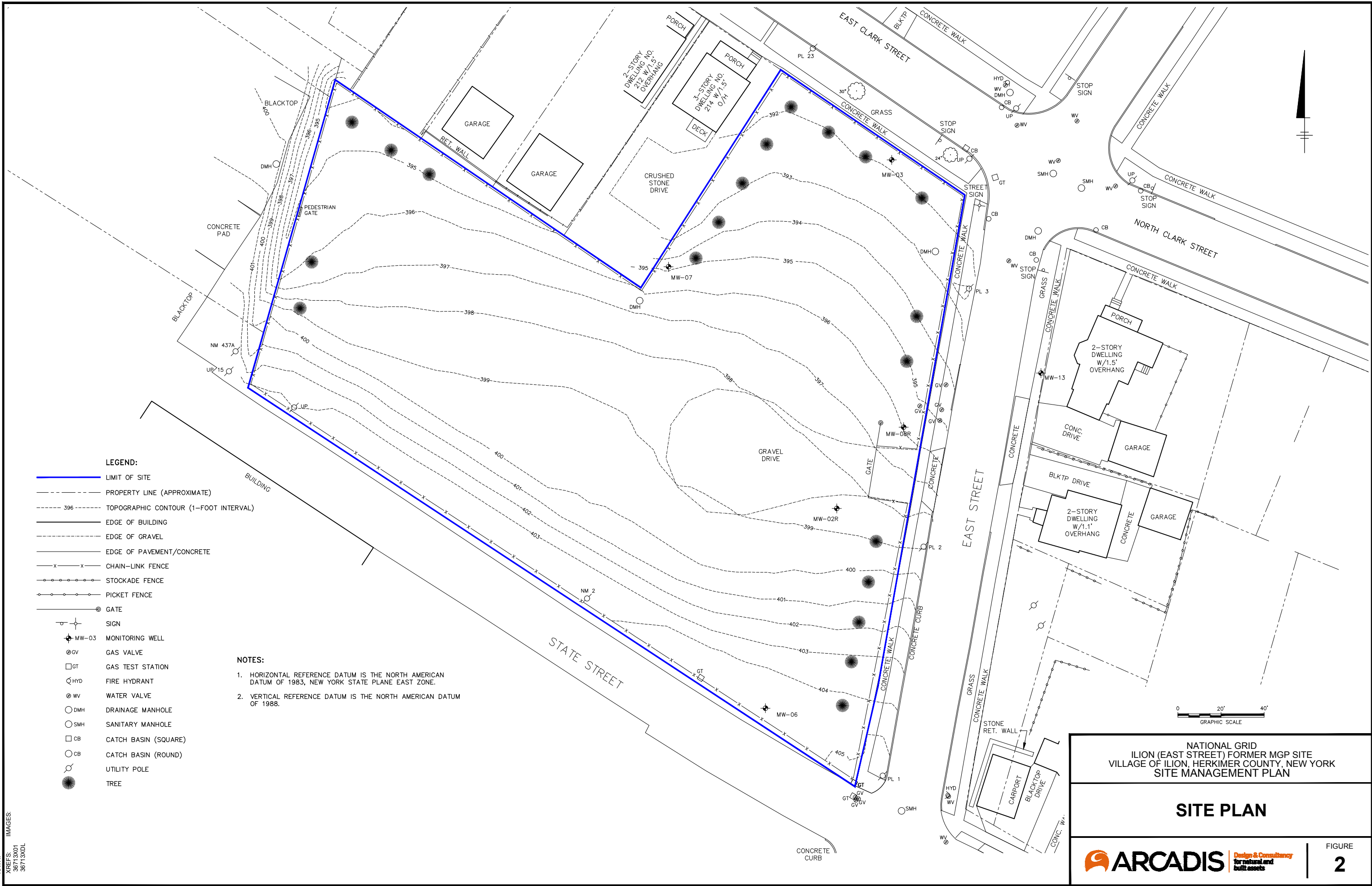


SITE LOCATION MAP



- LEGEND:**
- LIMIT OF SITE
 - - - - - PROPERTY LINE (APPROXIMATE)
 - - - - - 396 TOPOGRAPHIC CONTOUR (1-FOOT INTERVAL)
 - EDGE OF BUILDING
 - - - - - EDGE OF GRAVEL
 - - - - - EDGE OF PAVEMENT/CONCRETE
 - x - x - CHAIN-LINK FENCE
 - o - o - STOCKADE FENCE
 - o - o - PICKET FENCE
 - ⊙ GATE
 - ⊙ SIGN
 - ⊙ MW-03 MONITORING WELL
 - ⊙ GV GAS VALVE
 - ⊙ GT GAS TEST STATION
 - ⊙ HYD FIRE HYDRANT
 - ⊙ WV WATER VALVE
 - ⊙ DMH DRAINAGE MANHOLE
 - ⊙ SMH SANITARY MANHOLE
 - ⊙ CB CATCH BASIN (SQUARE)
 - ⊙ CB CATCH BASIN (ROUND)
 - ⊙ UTILITY POLE
 - TREE

- NOTES:**
1. HORIZONTAL REFERENCE DATUM IS THE NORTH AMERICAN DATUM OF 1983, NEW YORK STATE PLANE EAST ZONE.
 2. VERTICAL REFERENCE DATUM IS THE NORTH AMERICAN DATUM OF 1988.



NATIONAL GRID
ILION (EAST STREET) FORMER MGP SITE
VILLAGE OF ILION, HERKIMER COUNTY, NEW YORK
SITE MANAGEMENT PLAN

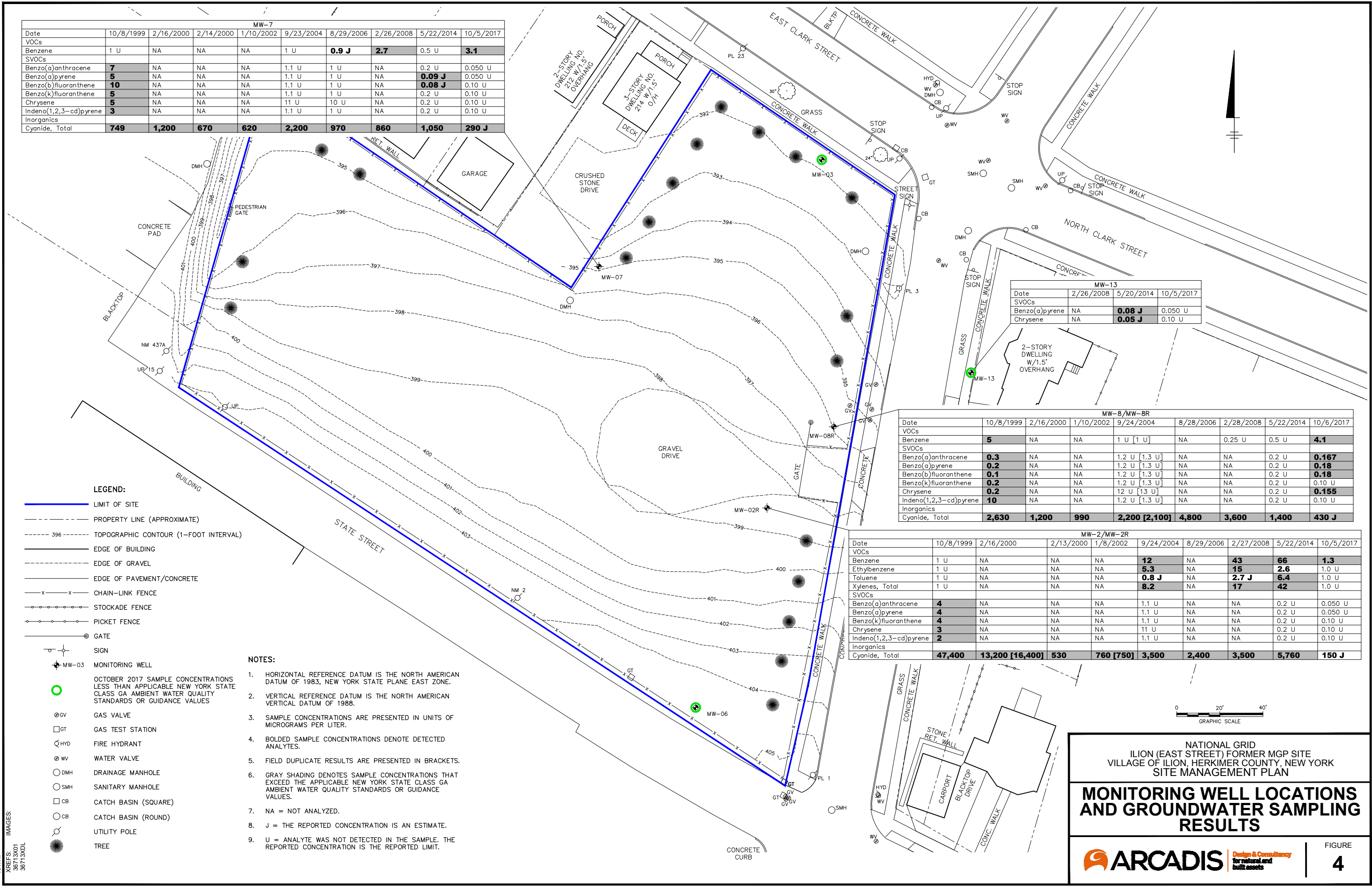
SITE PLAN

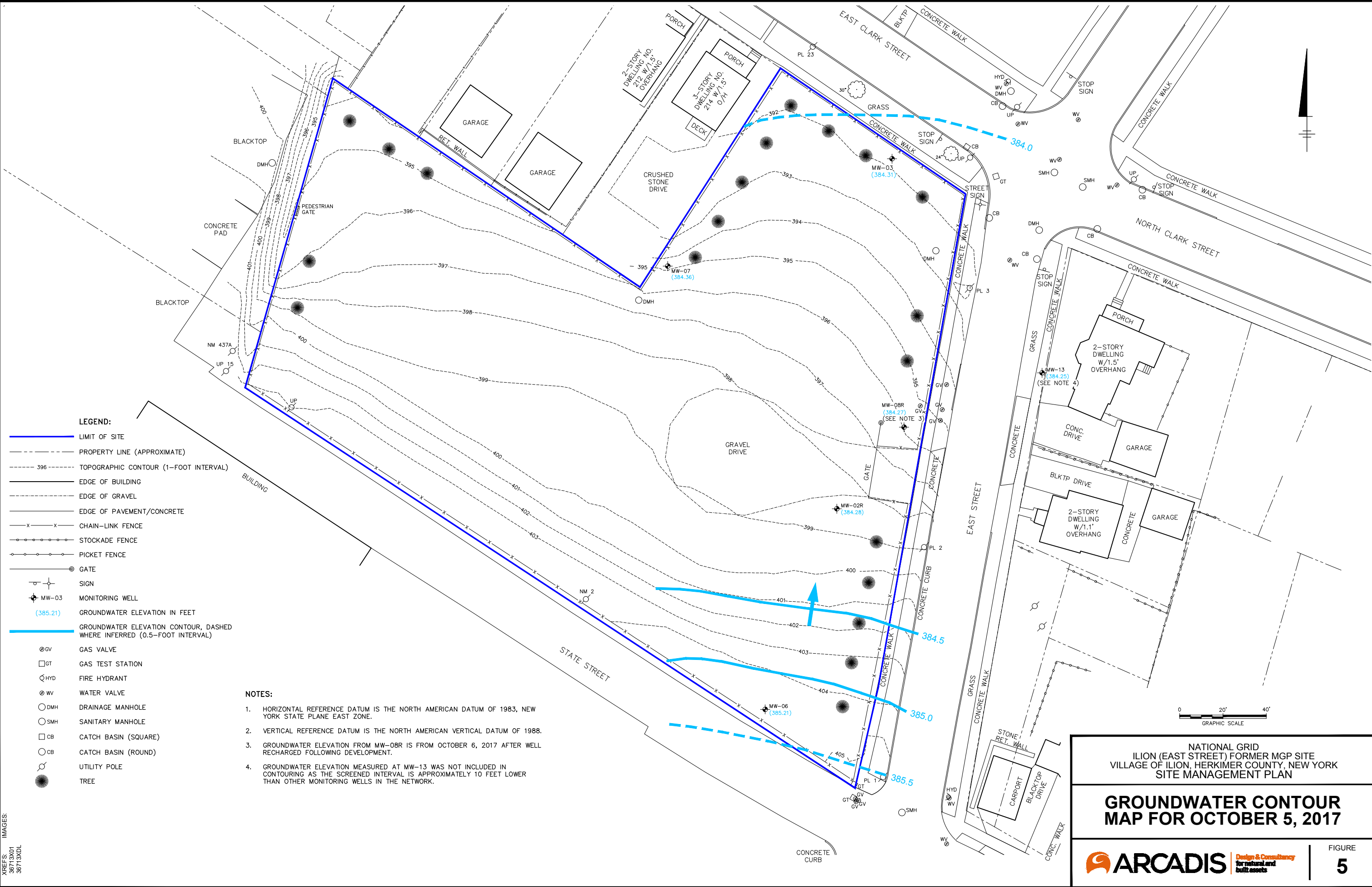
- LEGEND:**
- LIMIT OF SITE
 - PROPERTY LINE (APPROXIMATE)
 - TOPOGRAPHIC CONTOUR (1-FOOT INTERVAL)
 - EDGE OF BUILDING
 - EDGE OF GRAVEL
 - EDGE OF PAVEMENT/CONCRETE
 - CHAIN-LINK FENCE
 - STOCKADE FENCE
 - PICKET FENCE
 - GATE
 - SIGN
 - MONITORING WELL
 - GAS VALVE
 - GAS TEST STATION
 - FIRE HYDRANT
 - WATER VALVE
 - DRAINAGE MANHOLE
 - SANITARY MANHOLE
 - CATCH BASIN (SQUARE)
 - CATCH BASIN (ROUND)
 - UTILITY POLE
 - TREE
 - AREA EXCEEDING SCOs FOR UNRESTRICTED USE
 - HORIZONTAL LIMIT OF EXCAVATION
 - SOIL COVER SYSTEM



NATIONAL GRID
ILION (EAST STREET) FORMER MGP SITE
VILLAGE OF ILION, HERKIMER COUNTY, NEW YORK
SITE MANAGEMENT PLAN

AREAS OF POTENTIAL REMAINING MGP-RELATED IMPACTS





APPENDICES



APPENDIX A

Environmental Easement





HERKIMER COUNTY – STATE OF NEW YORK
SYLVIA M. ROWAN COUNTY CLERK
109 MARY STREET, SUITE 1111, HERKIMER, NY 13350-2923

COUNTY CLERK'S RECORDING PAGE
THIS PAGE IS PART OF THE DOCUMENT – DO NOT DETACH



INSTRUMENT #: RP2018-2131

Receipt#: 379592
Clerk: CS
Rec Date: 05/09/2018 09:47:54 AM
Doc Grp: RP
Descrip: EASEMENT/RIGHT OF WAY
Num Pgs: 11
Rec'd Frm: ADVANTAGE ABSTRACT COMPANY LLC

Party1: NIAGARA MOHAWK POWER
CORPORATION
Party2: PEOPLE OF THE STATE OF NEW YORK
Town: ILION V GERMAN FLATTS

Recording:

Cover Page	5.00
ENVIRONMENTAL EASEMENT	
Recording Fee	70.00
Cultural Ed	14.25
Records Management - Coun	1.00
Records Management - Stat	4.75
TP584	5.00

Sub Total: 100.00

Transfer Tax
Transfer Tax - State 0.00

Sub Total: 0.00

Total: 100.00

**** NOTICE: THIS IS NOT A BILL ****

***** Transfer Tax *****
Transfer Tax #: 1844
Transfer Tax
Consideration: 0.00

Total: 0.00

Record and Return To:

BARCLAY DAMON LLP
125 E JEFFERSON ST
SYRACUSE NY 13202

WARNING***

I hereby certify that the within and foregoing was recorded in the Herkimer County Clerk's Office, State of New York. This sheet constitutes the Clerks endorsement required by Section 316 of the Real Property Law of the State of New York.

A handwritten signature in cursive script, appearing to read "Sylvia M. Rowan".

Sylvia M. Rowan
Herkimer County Clerk

**ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36
OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW**

THIS INDENTURE made this 20th day of March, 2018, between Owner(s) Niagara Mohawk Power Corporation d/b/a National Grid, having an office at 300 Erie Boulevard West, Syracuse, New York 13202, County of Onondaga, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the address of East Clark Street in the Town of German Flatts, Village of Ilion, County of Herkimer and State of New York, known and designated on the tax map of the County Clerk of Herkimer as tax map parcel numbers: Section 120.37 Block 4 Lot 19, being the same as that property conveyed to Grantor by the following deeds:

- 1) Deed dated September 24, 1874 and recorded in the Herkimer County Clerk's Office in Liber and Page 103/389;
- 2) Deed dated June 23, 1890 and recorded in the Herkimer County Clerk's Office in Liber and Page 140/51;
- 3) Deed dated February 9, 1916 and recorded in the Herkimer County Clerk's Office in Liber and Page 228/276;
- 4) Deed dated March 1, 1926 and recorded in the Herkimer County Clerk's Office in Liber and Page 278/144; and

- 5) Deed dated January 1, 1942 and recorded in the Herkimer County Clerk's Office in Liber and Page 345/99.

The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 1.41 +/- acres, and is hereinafter more fully described in the Land Title Survey dated February 4, 2017 and last revised September 1, 2017 prepared by Raymond T. Luizzo, P.L.S. of C.T. Male Associates, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Order on Consent Index Number: A4-0473-0000, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

**Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii),
Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial
as described in 6 NYCRR Part 375-1.8(g)(2)(iv)**

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Herkimer County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

- (1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).
- (2) the institutional controls and/or engineering controls employed at such site:
 - (i) are in-place;
 - (ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and
 - (iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;
- (3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;
- (4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;
- (5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;
- (6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and
- (7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and

successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to: Site Number: 622019
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. Consistency with the SMP. To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SMP, the terms of the SMP will control.

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IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Niagara Mohawk Power Corporation d/b/a National Grid:

By: Charles Willard JSJ

Print Name: Charles Willard

Title: Authorized Rep Date: 3/1/2018

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Onondaga)

On the 1st day of MARCH, in the year 20 18, before me, the undersigned, personally appeared CHARLES WILLARD, personally known to me or proved to me on the basis of satisfactory evidence to be the individual ~~(s)~~ whose name is ~~(are)~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ capacity ~~(ies)~~, and that by his/~~her/their~~ signature ~~(s)~~ on the instrument, the individual ~~(s)~~, or the person upon behalf of which the individual ~~(s)~~ acted, executed the instrument.

Gayl Fransen
Notary Public - State of New York

4
GAYL-LYNN FRANSSEN
Notary Public, State of New York
No. 01FR6220451
Qualified in Onondaga County
Commission Expires Apr. 12, 20 18

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By:


Michael J. Ryan, Director
Division of Environmental Remediation

Grantee's Acknowledgment

[illegible]

On the 20th day of March, in the year 2018, before me, the undersigned, personally appeared Michael J. Ryan, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2018

SCHEDULE "A" PROPERTY DESCRIPTION

**DESCRIPTION
ENVIRONMENTAL EASEMENT
LANDS NOW OR FORMERLY OF
NATIONAL GRID CORPORATION
VILLAGE OF ILION, COUNTY OF HERKIMER, STATE OF NEW YORK
AREA = 1.41± ACRES OF LAND**

All that certain tract, piece or parcel of land situate in the Village of Ilion, County of Herkimer, State of New York, lying Northeasterly of State Street and Westerly of East Street; and being more particularly bounded and described as follows:

BEGINNING at the point of intersection of the Northeasterly street boundary of State Street with the Westerly street boundary of East Street and runs thence from said point of beginning along said Northeasterly street boundary of State Street North 56 deg. 41 min. 37 sec. West 336.63 feet to its point of intersection with the common division line between the lands now or formerly of National Grid Corporation formerly of Utica Gas and Electric Co. as described in Book 228 of Deeds at Page 276 on the East and the lands now or formerly of Herkimer County Chapter, NYSARC Inc. as described in Book 871 of Deeds at Page 13 and lands now or formerly of Herkimer County Community Residential Project, Inc. as described in Book 689 of Deeds at Page 940 on the West; thence North 15 deg. 50 min. 33 sec. East along the last mentioned common division line 148.30 feet to its point of intersection with the common division line between the said lands now or formerly of National Grid Corporation on the Southwest and the lands of owner unknown, lands now or formerly of Donald F. Lander, Jr. as described in Book 818 of Deeds at Page 693, lands now or formerly of Thomas Lesniak and Kristin Lesniak-Gage as described in Book 946 of Deeds at Page 353, lands now or formerly of Dennis Wright as described in Book 1406 of Deeds at Page 695 and lands now or formerly of James E. Miller and Patricia A. Miller as described in Book 879 of Deeds at Page 407 on the

Northeast; thence South 55 deg. 46 min. 27 sec. East along the last mentioned common division line 171.29 feet to its point of intersection with the division line between the said lands now or formerly of National Grid Corporation on the Southeast and the said lands now or formerly of James E. Miller and Patricia A. Miller on the Northwest; thence North 32 deg. 45 min. 19 sec. East along the last mentioned division line 120.04 feet to its point of intersection with the Southwesterly street boundary of East Clark Street; thence South 55 deg. 46 min. 29 sec. East along said Southwesterly street boundary of East Clark Street 103.20 feet to its point of intersection with the above mentioned Westerly street boundary of East Street; thence along said Westerly street boundary of East Street the following two courses: 1) South 10 deg. 02 min. 20 sec. West 231.83 feet to a point; and 2) South 13 deg. 00 min. 24 sec. West 47.04 feet to the point or place of beginning and containing 1.41 acres of land, more or less.

Subject to any existing covenants, easements or restrictions of record.

APPENDIX B

Excavation Work Plan





EXCAVATION WORK PLAN

Ilion (East Street) Former Manufactured Gas Plant Site
Village of Ilion, Herkimer County, New York
NYSDEC Site No. 6-22-019

October 2018

A large, solid orange geometric shape in the bottom right corner of the page, consisting of a large triangle and a smaller triangle attached to its hypotenuse. A thin white line runs diagonally across the orange shape. A thin horizontal white line runs across the page, intersecting the orange shape.

EXCAVATION WORK PLAN

EXCAVATION WORK PLAN

Ilion (East Street) Former Manufactured
Gas Plant Site

Village of Ilion, Herkimer County, New
York

NYSDEC Site No. 6-22-019

Prepared for:

National Grid

300 Erie Boulevard West

Syracuse, New York 13202

Prepared by:

Arcadis of New York, Inc.

One Lincoln Center

110 West Fayette Street

Suite 300

Syracuse

New York 13202

Tel 315 446 9120

Fax 315 449 0017

Our Ref.:

B0036713.0000.00004

Date:

October 2018

EXCAVATION WORK PLAN

RECORD OF CHANGE

Revision No.	Date Submitted	Date Approved By NYSDEC	Description of Change	Reviewed By

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EXCAVATION WORK PLAN

ACRONYMS AND ABBREVIATIONS

EWP	Excavation Work Plan
MGP	manufactured gas plant
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	polycyclic aromatic hydrocarbon
SCO	soil cleanup objective
SMP	Site Management Plan

1 INTRODUCTION

This Excavation Work Plan (EWP) is a component of the *Site Management Plan* (SMP; Arcadis of New York, Inc. 2018) for the former manufactured gas plant (MGP) site located at 1 East Street in the Village of Ilion, Herkimer County, New York (hereinafter referred to as the “Site”). It describes the procedures required to be implemented in the event that the soil cover system at the Site is breached, penetrated, or temporarily removed, and any underlying remaining MGP-related impacts are disturbed.

2 NOTIFICATION

At least 15 days prior to the start of any activity with the potential to encounter or disturb areas of potential remaining MGP-related impacts at the Site, the Site owner (National Grid) or a designated representative will notify the New York State Department of Environmental Conservation (NYSDEC). Table 1 lists the NYSDDEC contact information for such notifications.

Table 1. NYSDDEC Contact Information for Notifications

Organization	Primary Point-of-Contact	Contact Information
NYSDEC DER Project Manager	Mr. Scott Deyette	Telephone: (518) 402-9794 E-mail: scott.deyette@dec.ny.gov
NYSDEC Region 6 Hazardous Waste Engineer	Mr. Peter Taylor	Telephone: (315) 785-2513 E-mail: peter.taylor@dec.ny.gov
NYSDEC Site Control Section Chief	Ms. Kelly Lewandowski, PE	Telephone: (518) 402-9595 E-mail: kelly.lewandowski@dec.ny.gov

Table Notes:

1. Notifications are subject to change. Contact information in this table will be updated as necessary.
2. A full listing of Site-related contact information is provided in Appendix C of the SMP.

The NYSDDEC notification will include the following:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for Site re-grading, intrusive elements or utilities to be installed below the soil cover system, estimated volumes of impacted soil to be excavated, and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentrations of Site-related constituents of concern, potential presence of remaining MGP-related impacts, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all ground-intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and Title 29, Section 1910.120 of the Code of Federal Regulations;

EXCAVATION WORK PLAN

- Copies of the contractor's task-specific Health and Safety Plan and Community Air Monitoring Plan in electronic format;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

3 SOIL SCREENING METHODS

Visual, olfactory, and instrument-based (i.e., via photoionization detector) soil screening will be performed by a qualified environmental professional during all excavations into areas of known or potential remaining MGP-related impacts. Soil screening will be performed when ground-intrusive work is conducted and will include all excavation and other ground-intrusive work performed during any future development, such as excavations for foundations and utility work, after issuance of the Certificate of Completion.

Soil excavated from areas of potential remaining MGP-related impacts will be segregated based on previous environmental data and screening results into material that requires either (1) off-Site disposal or (2) sampling/testing to determine if the material can be reused on-Site as fill beneath the soil cover system. Stockpiles of potentially-reusable material will be sampled and tested as described in Section 8 of this EWP to evaluate whether it can be used as fill material at the Site or requires disposal off-Site.

4 SOIL STOCKPILING METHODS

Stockpiles of excavated material will, at minimum, be placed on top of polyethylene sheeting. If required by NYSDEC, stockpiles of excavated material will be placed within an engineered staging area. Stockpiles will be covered with polyethylene sheeting to reduce potential infiltration of precipitation, migration of wind-blown dust, and direct contact exposures. Stockpiles will be routinely inspected, and damaged polyethylene sheeting will be promptly replaced. During all soil disturbance activities, erosion and sediment controls will be employed in accordance with this EWP and in conformance with applicable laws and regulations (good work practices that require erosion and sediment controls are not limited to potentially impacted areas). Proven soil conservation practices will be incorporated into any such plans to mitigate soil erosion, off-Site sediment migration, and water pollution from erosion. Appropriate temporary erosion and sediment control measures (e.g., silt fencing, hay bales, etc.) will be installed and maintained around all impacted and potentially-impacted soil/fill stockpiles and bare soil surfaces during such activities. Such stockpiles will be graded and compacted as necessary for positive surface water run-off and dust control.

Stockpiles will be inspected not less than once each week and after every storm event. Inspection results will be recorded in a logbook, which will be maintained at the Site and made available for inspection by NYSDEC.

5 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional or person under their supervision will oversee all ground-intrusive work and the excavation and load-out of all excavated material. The Site owner, its contractors, and the remedial party (if applicable) will be solely responsible for safe execution of all ground-intrusive work and other work performed under this EWP.

The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this EWP is posed by utilities or easements on the Site.

To the extent practicable, queuing of trucks will be performed on-Site to minimize off-Site disturbance. Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with applicable federal, state, and local laws and regulations.

When necessary, a truck wash will be operated at the Site. The qualified environmental professional will be responsible for ensuring that all outbound trucks are washed (as necessary and appropriate) at the truck wash before leaving the Site until the activities performed under this EWP are complete. Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

Locations where vehicles enter or exit the Site will be inspected daily for evidence of off-Site soil tracking. The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are free of dirt and other materials derived from the Site during all ground-intrusive activities. Cleaning of the adjacent streets will be performed as needed to keep them clean with respect to Site-derived materials.

6 MATERIALS TRANSPORT OFF-SITE

All transportation of excavated materials will be performed by licensed haulers in accordance with appropriate federal, state, and local laws and regulations, including Title 6, Part 364 of the New York Codes, Rules, and Regulations (6 NYCRR 364). Haulers will be appropriately licensed, and trucks will be properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers are prohibited. If loads contain wet material capable of producing free liquid, truck liners will also be used. As necessary, all trucks will be washed prior to leaving the Site. As described in Section 5 of this EWP, truck wash waters will be collected and disposed of off-Site in an appropriate manner. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

The truck transport route for all vehicles leaving the Site with material destined for off-Site treatment/disposal is shown on Figure 1.

EXCAVATION WORK PLAN

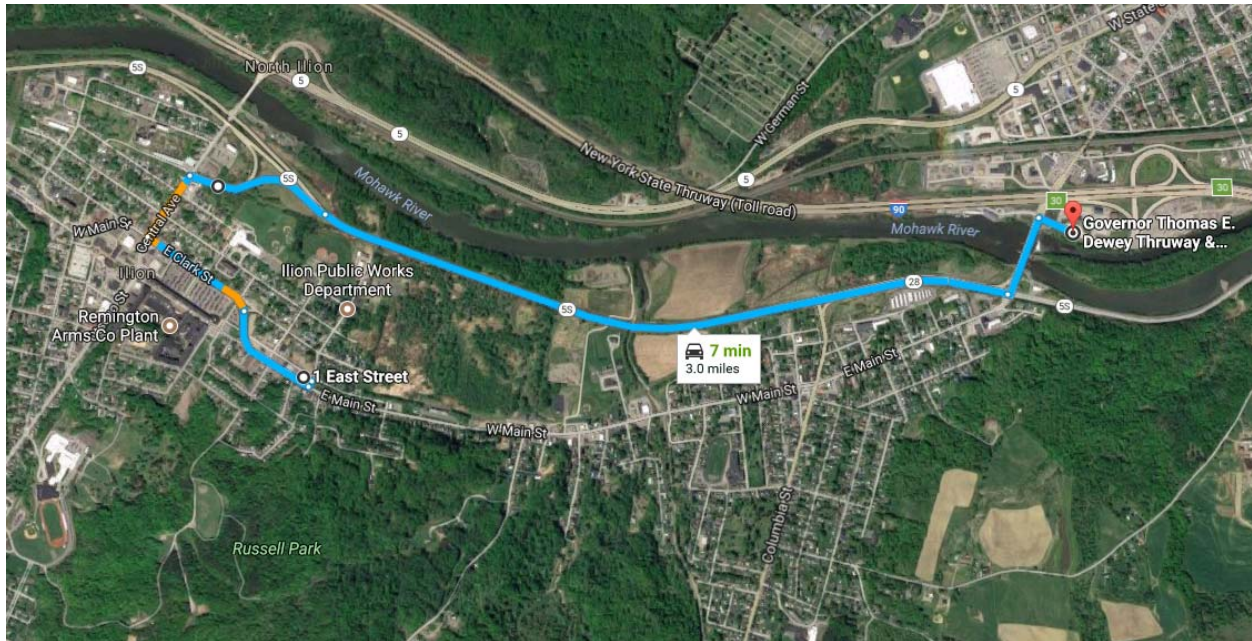


Figure 1. Truck Transport Route

Start: 1 East Street, Ilion, New York 13357

1. Head south on East Street toward Main Street	go 85 feet
2. Turn right onto Main Street	go 0.6 mile
3. Turn right onto Central Avenue	go 0.2 mile
4. Turn right to merge onto NY-5S East	go 2.1 miles
5. Turn left onto East Main Street	go 0.2 mile
6. Turn right onto the on-ramp for I-90	3.0 miles total

All trucks loaded with Site-related materials will exit the vicinity of the Site using only the approved truck route. This is the most appropriate route and takes into account: (1) limiting transport through residential areas and past sensitive sites; (2) use of city-mapped truck routes; (3) limiting total distance to major highways; (4) promoting safety in access to highways; and (5) overall safety in transport. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development. Trucks loaded with Site-related materials are prohibited from stopping and idling in the neighborhood outside the Site.

7 MATERIALS DISPOSAL OFF-SITE

All material excavated and removed from areas of potential remaining MGP-related impacts at the Site will be treated as impacted and regulated material and, unless determined to be suitable for reuse on-Site, will be transported and disposed of in accordance with applicable federal, state, and local laws and regulations, including 6 NYCRR 360. If disposal of excavated material from areas of potential remaining MGP-related impacts at the Site is proposed for unregulated off-Site disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made in writing to NYSDEC. Unregulated off-Site management of materials excavated from areas of potential remaining MGP-related impacts at the Site will not occur without formal NYSDEC approval.

Off-Site treatment/disposal locations for excavated materials will be identified in the pre-excavation notification. This will include estimated quantities and, if appropriate, a breakdown by class of disposal facility (e.g., hazardous waste disposal facility, thermal treatment facility, solid waste landfill, etc.). Actual disposal quantities and associated documentation will be reported to NYSDEC in the periodic review report (described in Section 6.3 of the SMP). This documentation will include waste profiles, laboratory testing results, facility acceptance letters, manifests, bills of lading, and facility receipts.

Non-hazardous historic fill and impacted soils taken off-Site will be handled, at a minimum, as municipal solid waste in accordance with 6 NYCRR 360-1.2. Materials that do not meet the soil cleanup objectives (SCOs) for unrestricted use, as set forth in Table 375-6.8(a) of 6 NYCRR 375, are prohibited from being taken to a New York State recycling facility (6 NYCRR 360-16).

8 MATERIALS REUSE ON-SITE

Material excavated from above the demarcation layer of the soil cover system may be reused as fill material at the Site without restriction – either as fill within the soil cover system or as fill below the soil cover system. Material excavated from below the demarcation layer of the soil cover system and within the remedial excavation limits may be reused as fill material at the Site below the soil cover system without sampling/testing. Material excavated from below the demarcation layer of the soil cover system and outside of the remedial excavation limits will be considered “potentially reusable” if such material is free of visible non-aqueous phase liquid. Potentially-reusable material will be placed on polyethylene sheeting in stockpiles not exceeding 250 cubic yards. Stockpiles will be covered with polyethylene sheeting whenever material is not being actively placed into or removed from the stockpile, during overnight/weekend hours, during periods of precipitation, or whenever dust action levels are exceeded.

Each stockpile of potentially-reusable material will be sampled and tested to evaluate its suitability for reuse as fill at the Site. One composite sample will be collected for each 250-cubic yard stockpile or fraction thereof. Each composite sample will comprise between three and five grab samples collected from spatially distributed locations within the stockpile. The composite sample will be formed by placing equal portions of soil from each grab sample into a pre-cleaned, stainless steel bowl or dedicated container. The grab samples will be thoroughly homogenized using a stainless-steel scoop or trowel before being transferred into the sample containers provided by the laboratory. The filled sample containers will be labeled and transported to the laboratory using a chain-of-custody form.

EXCAVATION WORK PLAN

Each composite sample will be analyzed for polycyclic aromatic hydrocarbons (PAHs)¹ and total cyanide in accordance with the most-recent versions of United States Environmental Protection Agency SW-846 Methods 8270 and 9012, respectively, as referenced in NYSDEC's Analytical Services Protocol. In order to be reused as fill material at the Site, potentially-reusable material must: (1) be free of visible non-aqueous phase liquid; (2) have a total PAH concentration less than 500 milligrams per kilogram; and (3) have a total cyanide concentration less than 27 milligrams per kilogram (the SCO for restricted-residential use). If determined to be suitable for reuse, potentially-reusable material will only be used as fill material below the soil cover system or an impermeable surface, such as buildings, pavement, or sidewalks. Potentially-reusable material will not be used as fill material within the soil cover system itself, within landscaping berms, or as backfill around subsurface utility lines. Potentially-reusable material that does not meet the reuse criteria described above will be removed from the Site and disposed of in accordance with Section 7 of this EWP.

Any demolition material proposed for reuse as fill material at the Site will be sampled and tested for asbestos, and the results will be reported to NYSDEC for acceptance. Concrete crushing or processing will not be performed at the Site without prior NYSDEC approval. Organic matter (e.g., wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused as backfill or landscaping material at the Site.

The qualified environmental professional will ensure that the procedures for material reuse described in this section of the EWP are followed, and that unacceptable material does not remain at the Site.

9 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported, and disposed of in accordance with applicable federal, state, and local laws and regulations. Discharge of water generated during large-scale construction activities to surface waters (i.e., a local pond, creek, stream, or river), if feasible, will be performed under a State Pollution Discharge Elimination System permit issued by NYSDEC. Run-off from surface discharges (if any) will be controlled. No discharges will be allowed to enter a surface water body or sewer without proper permits or approvals. Dewatering, purge, and development fluids will not be recharged back to the land surface or subsurface of the Site, but will be managed off-Site, unless prior approval is obtained from NYSDEC.

10 COVER SYSTEM RESTORATION

After the completion of excavation and any other ground-intrusive activities, the soil cover system will be restored in a manner that complies with the *Record of Decision* (NYSDEC 2011). The existing cover system at the Site comprises a woven geotextile demarcation fabric and a minimum of 2 feet of clean soil

¹ PAH analyte list will comprise acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene.

EXCAVATION WORK PLAN

meeting the lower of the restricted use SCOs for protection of public health (restricted-residential use) or protection of groundwater, as set forth in Table 375-6.8(b) of 6 NYCRR 375. The woven geotextile demarcation layer or an equivalent material will be replaced to provide a visual reference to the top of the area of potential remaining MGP-related impacts (i.e., the area that requires adherence to special conditions in accordance with the SMP and this EWP). If the type of cover system changes from that which exists prior to the excavation (i.e., the soil cover is replaced by asphalt or other impermeable structure), this will constitute a modification of the cover element of the remedy and the upper surface of the area of potential remaining MGP-related impacts. A figure showing the modified surface will be included in the subsequent periodic review report and in any updates to the SMP.

11 FILL MATERIALS FROM OFF-SITE SOURCES

All off-Site fill materials proposed for use at the Site will be approved by the qualified environmental professional and will comply with 6 NYCRR 375-6.7(d) and the lower of the restricted use SCOs for protection of public health (restricted-residential use) or protection of groundwater, as set forth in Table 375-6.8(b) of 6 NYCRR 375. To determine their suitability for use at the Site, off-Site fill materials will be sampled and tested in accordance with Table 5.4(e)10 of NYSDEC's *Technical Guidance for Site Investigation and Remediation* (NYSDEC 2010). A Request to Import/Reuse Fill or Soil form (<http://www.dec.ny.gov/regulations/67386.html>) will be prepared and submitted to the NYSDEC project manager, allowing a minimum of five business days for review.

Material from industrial sites, spill sites, other environmental remediation sites, or potentially-contaminated sites will not be used as fill material at the Site. Materials that meet "exempt" fill requirements under 6 NYCRR 360, but do not comply with the applicable SCOs, will not be used as fill material at the Site without prior approval by NYSDEC. Solid waste will not be used as fill material at Site.

Trucks entering the Site with off-Site fill material will be securely covered with tight-fitting covers. Off-Site fill material will be stockpiled separately from excavated material and will be covered to prevent dust releases.

12 STORM WATER POLLUTION PREVENTION

General storm water pollution prevention activities to be conducted in support of Site excavation activities include the following:

- Silt fencing or hay bale dikes will be installed around the entire perimeter of the construction area;
- Accumulated sediments will be removed as required to keep the silt fencing and hay bale dikes functional;
- All undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials;
- Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering;

EXCAVATION WORK PLAN

- Erosion and sediment control measures identified in the SMP must be inspected to ensure that they are operating correctly; and
- Where discharge locations or points are accessible, they must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Temporary erosion and sediment controls will be inspected not less than once per week and after each storm event. Inspection results will be recorded in a logbook, which will be maintained at the Site and made available for inspection by NYSDEC.

13 CONTINGENCY PLAN

If underground tanks or other previously unidentified sources of environmental impacts are found during post-remediation subsurface excavations or development-related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment, and surrounding soils as necessary to determine the nature of the material and proper disposal method. Chemical testing will be performed for a full list of analytes (target analyte list metals, target compound list volatile organic compounds, target compound list semi-volatile organic compounds, target compound list pesticides, and polychlorinated biphenyls), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during ground-intrusive work will be promptly communicated by phone to the NYSDEC project manager (identified in Table 1 of this EWP). Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic review report prepared pursuant to Section 6.3 of the SMP.

14 COMMUNITY AIR MONITORING PLAN

Community air monitoring for total volatile organic compounds and respirable dust (particulate matter less than 10 micrometers in diameter) will be performed in accordance with the New York State Department of Health (NYSDOH) *Generic Community Air Monitoring Plan* (GCAMP; NYSDOH 2009; Appendix F of the SMP) for soil disturbance activities conducted within areas of potential remaining MGP-related impacts. The quantity and locations of community air monitoring stations will be determined in conjunction with NYSDOH, based on the size and location of the proposed excavation; however, at a minimum there will be one upwind and one downwind monitoring location. Community air monitoring results will be included in the subsequent periodic review report. Exceedances of the action levels identified in the GCAMP will be reported to the NYSDEC and NYSDOH project managers.

15 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors on- and off-Site. Specific odor control methods to be used on a routine basis are described below and in the GCAMP (Appendix F of the SMP). If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. The NYSDEC and NYSDOH project managers will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's qualified environmental professional, and any measures that are implemented will be described in the subsequent periodic review report.

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, these measures will include: (1) limiting the area of open excavations and size of soil stockpiles; (2) shrouding open excavations with tarps and other covers; and (3) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (a) direct load-out of soils to trucks for off-Site disposal; (b) use of chemical odorants in spray or misting systems; and (c) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during ground-intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

16 DUST CONTROL PLAN

Dust monitoring will be performed in accordance with the GCAMP (Appendix F of the SMP). A dust suppression plan that addresses dust management during ground-intrusive work within areas of potential remaining MGP-related impacts will include, at a minimum, the following:

- Dust suppression will be achieved through the use of a dedicated on-Site water truck, which will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles;
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, un-vegetated soils vulnerable to dust production;
- Gravel will be used on roadways to provide a clean and dust-free road surface;
- On-Site roads will be limited in total area to minimize the area required for water truck sprinkling;
- Vehicle speeds on temporary access roads and active haul routes will be restricted;
- Excavated material and clean fill material will be hauled in properly covered vehicles;
- Shallow excavations and stockpiles of clean fill material will be covered with polyethylene liners (anchored appropriately to resist wind forces) before extended work breaks and at the end of each work day; and
- Paved surfaces over which construction vehicles travel will be cleaned on a periodic basis.

17 REFERENCES

- Arcadis of New York, Inc. 2018. *Site Management Plan*. Ilion (East Street) Former MGP Site, Ilion, New York. Prepared for National Grid. October.
- NYSDEC. 2010. *Technical Guidance for Site Investigation and Remediation*. Program Policy DER-10. Division of Environmental Remediation. May.
- NYSDEC. 2011. *Record of Decision*. Ilion (East Street) Former MGP Site, Ilion, New York. Division of Environmental Remediation. March.
- NYSDOH. 2009. *Generic Community Air Monitoring Plan*. Center for Environmental Health, Bureau of Environmental Exposure Investigation. December.

Arcadis of New York, Inc.

One Lincoln Center

110 West Fayette Street

Suite 300

Syracuse, New York 13202

Tel 315 446 9120

Fax 315 449 0017

www.arcadis.com

A decorative graphic consisting of three thin orange lines. One line is horizontal, extending from the left edge of the page towards the right. Two other lines are diagonal, starting from the bottom left and extending towards the top right, intersecting the horizontal line.

APPENDIX C

List of Site Contacts



Appendix C
List of Site Contacts
Site Management Plan

National Grid
Ilion (East Street) Former Manufactured Gas Plant Site
Village of Ilion, Herkimer County, New York

Organization	Primary Point-of-Contact	Contact Information
Site Owner/Remedial Party		
National Grid	Mr. Steven Stucker	300 Erie Boulevard West Syracuse, New York 13202 Telephone: (315) 428-5652 E-mail: steven.stucker@nationalgrid.com
Qualified Environmental Professional		
TBD	TBD	TBD
NYSDEC		
NYSDEC DER Project Manager	Mr. Scott Deyette	625 Broadway, 11th Floor Albany, New York 12233-7014 Telephone: (518) 402-9794 E-mail: scott.deyette@dec.ny.gov
NYSDEC Region 6 Hazardous Waste Engineer	Mr. Peter Taylor	317 Washington Street Watertown, New York 13601 Telephone: (315) 785-2513 E-mail: peter.taylor@dec.ny.gov
NYSDEC Site Control Section Chief	Ms. Kelly Lewandowski, PE	625 Broadway, 11th Floor Albany, New York 12233-7014 Telephone: (518) 402-9595 E-mail: kelly.lewandowski@dec.ny.gov
NYSDOH		
NYSDOH BEEI Project Manager	Ms. Maureen Schuck	Empire State Plaza Corning Tower, Room 1787 Albany, New York 12237 Telephone: (518) 402-7860 E-mail: maureen.schuck@health.ny.gov

APPENDIX D

Monitoring Well Construction Summary and Logs



Table D-1
Monitoring Well Construction Summary
Site Management Plan

National Grid
Ilion (East Street) Former Manufactured Gas Plant Site
Village of Ilion, Herkimer County, New York

Well ID	Date Installed	Northing (feet NAD83)	Easting (feet NAD83)	Measuring Point Elevation (feet NAVD88)	Ground Surface Elevation (feet NAVD88)	Surface Completion	Well Casing and Screen Material	Nominal Well Diameter (inches)	Screen Slot Size (inches)	Screen Length (feet)	Screened Interval (feet bgs)	Sump Length (feet)	Total Depth of Well (feet bgs)
MW-02R	9/5/2017	1522756.15	351054.51	398.43	398.68	FM	PVC	2.0	0.010	10.0	8.0 - 18.0	0.0	18.0
MW-03	7/10/1997	1522917.71	351080.20	391.44	391.80	FM	PVC	2.0	0.010	10.0	15.0 - 25.0	3.0	28.0
MW-06	7/14/1997	1522663.47	351021.29	404.21	404.71	FM	PVC	2.0	0.010	10.0	15.0 - 25.0	3.0	28.0
MW-07	9/1/1999	1522867.67	350976.64	394.54	394.93	FM	PVC	2.0	0.010	10.0	8.4 - 18.4	0.0	18.4
MW-08R	9/6/2017	1522793.80	351085.51	396.00	396.25	FM	PVC	2.0	0.010	10.0	10.0 - 20.0	0.0	20.0
MW-13	8/8/2006	1522819.00	351148.70	392.20	392.59	FM	PVC	2.0	0.010	10.0	14.0 - 24.0	0.0	24.0

Notes:

1. Horizontal reference datum is the North American Datum of 1983 (NAD83), New York State Plane East Zone.
2. Vertical reference datum is the North American Vertical Datum of 1988 (NAVD88).
3. bgs: below ground surface.
4. FM: flush-mount.
5. PVC: polyvinyl chloride.

Date Start/Finish: 9/5/17 Drilling Company: NYEG Drilling, LLC Driller's Name: Jesse Howe Drilling Method: Hollow Stem Auger Auger Size: 4.25 inches Rig Type: 474 Geoprobe (7822DT) Sampling Method: 2-inch x 2-foot Split Spoon	Northing: 1522756.150 Easting: 351054.506 Casing Elevation: 398.43 feet Borehole Depth: 21 feet bgs Surface Elevation: 398.68 feet Descriptions By: Lacey Mikochik	Well/Boring ID: MW-2R Client: National Grid Location: Ilion (East St) Former MGP Site 1 East Street Ilion, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
400										
0									Gray to brown fine SAND and fine to medium GRAVEL (subrounded), some Silt and Clay, trace red brick (fragmented), hard, dry.	Steel Flush Mount (4-inch Diameter)
		NA	NA	NA	NA	NA	NA		Black Liner (2-2.1 feet bgs).	2-inch Locking J-Plug
395										Concrete Pad
5									Hand-cleared to 5 feet bgs. Loose, moist, trace of black coal, weathered mortar (6.4-6.5 feet bgs).	Cement Grout
		S-1	5-7	1.5	5 5 3 5	8	0.0			2-inch Diameter Schedule 40 PVC Riser (0.2-8 feet bgs)
									No weathered mortar and medium dense.	Medium Grade Bentonite Chips (5-7 feet bgs)
390		S-2	7-9	1.5	4 5 6 6	11	0.0			
10		S-3	9-11	1.0	3 5 3 4	8	0.0		Loose.	
		S-4	11-13	2	2 2 2 2	4	0.0		Brown to orange fine SAND, some Clay, little Silt, very loose, wet.	#0 Sand (7-21 feet bgs)
385									Gray.	0.01-inch slot, 2-inch Diameter Schedule 40 PVC Screen (8-18 feet bgs)
		S-5	13-15	2	1 1 2	2	0.0			
15		S-6	15-17	1.8	2 2	5	0.0		Gray fine SAND, some Gravel and Clay, little Silt, loose, wet.	

 ARCADIS Design & Consultancy for natural and built assets	Remarks: bgs = below ground surface; ppm = parts per million; MGP = manufactured gas plant; NA = Not Applicable/Available. Borehole hand-cleared (by air knife) to 5 feet bgs and drilled to 19 feet bgs. Split-spoon sampling conducted from 5 feet bgs to 21 feet bgs. Horizontal reference datum is the North American Datum of 1983 (NAD83), New York State Plane East Zone (FIPS 3101). Vertical reference datum is the North American Vertical Datum of 1988 (NAVD88).	Water Level Data		
		Date	Depth	Elev.
		9/5/17	*11.0'	387.68'
		9/6/17	**13.45'	384.98'
		*Depth measured from bgs		
		**Depth measured from top of casing		

Client: National Grid

Well/Boring ID: MW-2R

Site Location:

Borehole Depth: 21 feet bgs

Ilion (East St) Former MGP Site
1 East Street
Ilion, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
20	380	S-6	15-17	1.8	3	5	0.0		Gray fine SAND, some Gravel and Clay, little Silt, loose, wet.	0.01-inch slot, 2-inch Diameter Schedule 40 PVC Screen (8-18 feet bgs) #0 Sand (7-21 feet bgs)
					4				Medium dense.	
					5					
		S-7	17-19	2.0	8	14	0.0			
					6				Gray fine SAND and fine GRAVEL (subrounded), some Silt and Clay, medium dense, moist.	
					11					
					14				Orangish gray SAND and GRAVEL (subrounded), some Silt and Clay, medium dense, moist.	
		S-8	19-21	2.0	11	25	0.0			
					14					
					10					
25	375								End of boring at 21 feet bgs.	
30	370									
35	365									

Remarks:

bgs = below ground surface; ppm = parts per million; MGP = manufactured gas plant; NA = Not Applicable/Available.
Borehole hand-cleared (by air knife) to 5 feet bgs and drilled to 19 feet bgs. Split-spoon sampling conducted from 5 feet bgs to 21 feet bgs. Horizontal reference datum is the North American Datum of 1983 (NAD83), New York State Plane East Zone (FIPS 3101). Vertical reference datum is the North American Vertical Datum of 1988 (NAVD88).

Water Level Data

Date	Depth	Elev.
9/5/17	*11.0'	387.68'
9/6/17	**13.45'	384.98'
*Depth measured from bgs		
**Depth measured from top of casing		



Contractor: Maxim Technologies		PARSONS ENGINEERING SCIENCE, INC.		BORING/ WELL NO. SB-3/ M-3			
Driller: J. Leonard		DRILLING RECORD		Sheet 1 of 2			
Inspector: Ed Ashton		PROJECT NAME: Niagara Mohawk Power Corp. - Ilion East Street Site		Location Description: North of Facility Building			
Rig Type: CME-550		PROJECT NUMBER: 731791.02000					
GROUNDWATER OBSERVATIONS				Location Plan			
Water Level:	9.35'	9.99'	Weather: Rainy - 70°F				
Date:	7/25/97	7/25/97	Date/Time Start: 7/9/97/1615				
Time:	0824	1211	Date/Time Finish: 7/10/97/1017				
Meas. From:	TOC	TOC					
Sample Depth	Sample ID	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	Schematic	COMMENTS
+2							
+1							
0		SS					
1		3/7	75	-	(0'-2') Top soil, roots		
2	SB-3B	5/8	80	-	(2'-1') Br, silt, fr. f-sand, roots, wood, moist - Fill		
3		9/11			(1'-2') Br, silt, minor silt, roots, coal, wood, fr. brick, moist-Fill		
4	SB-3C	12/8	80	-	(2'-5') Br, f-sand, minor f-c gravel, roots, dry-Fill		
5	MS/MSD	40/20					
6		6/4	100	-	(5'-7.5') Br, f-sand, coal, slag, petrochemical order, moist-Fill		
7		10/3					
8	SB-3E	2/2	100	-	(7.5'-8') Br. to black, peat, moist-PT		
9		3/2			(8'-8.5') Gr, silt, f-sand, f-gravel, well sorted, wet-SP		
10	SB-3F	6/9	100	-	(8.5'-10.5') Br, peat, roots, wood, moist-PT		
11		11/9			(10.5'-11') Gr, clay, silt, soft, high plasticity, moist to wet-LL		
12		7/14	100	0.0	(11'-12') Br, f-m sand, f-c gravel, fr. silt, subrounded to subangular, moderately sorted, wet-SP		
13		17/17			(12'-12.25') Br, f-m sand, roots, wood, wet-SP		
14		16/12	100	0.0	(12.25'-15') Br, f-m sand, f-c gravel, fr. silt, subrounded to subangular, moderately sorted, wet-SP		
15		16/16					
16	GT-2	14/13	100	0.0	(15'-16') Br, f-c gravel, f-m sand, fr. silt, subrounded to subangular, moderately sorted, wet-GM		
17	IJ	2/20			(16'-18') Br, f-m sand, f-c gravel, subrounded to subangular, moderately sorted, wet-GM/SP		
18		15/15	50	0.0			
		8/12			(18'-18.5') Br, f-m sand, fr. f-c gravel, subrounded to		
SAMPLING METHOD					COMMENTS:		
SS = SPLIT SPOON					Submitted SB-3B, SB-3E and SB-3F for BTEX PAHs and Cu analysis. Submitted SB-3C and SB-3C MS/MSD for TCL/TAH VCEs, SVOCs, PCBs (W- and metal analysis). All samples for TOC.		
A = AUGER CUTTINGS							
C = CORED							

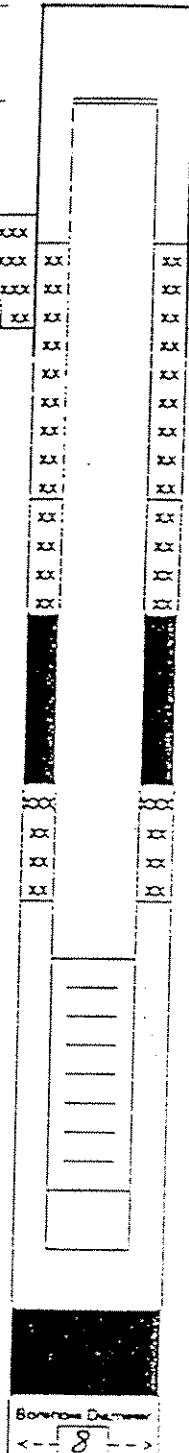
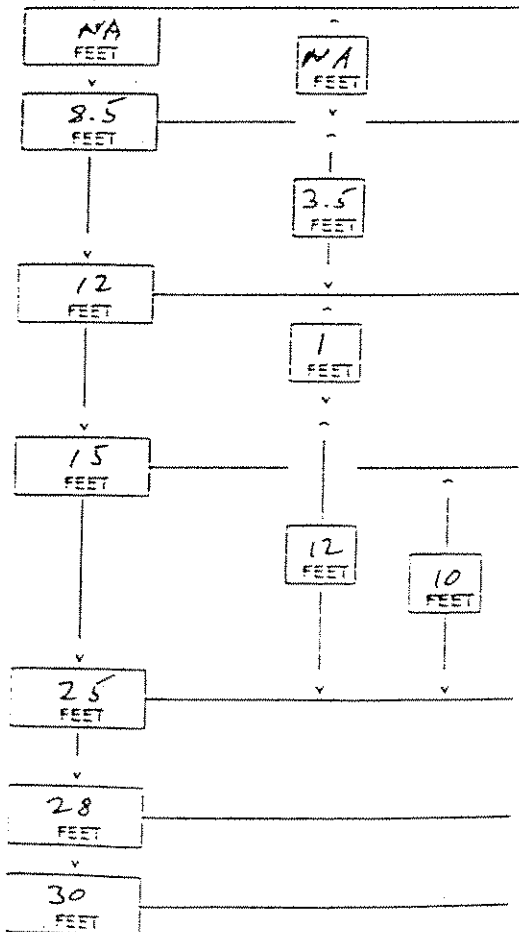
SINGLE CASED MONITORING WELL CONSTRUCTION LOG

WELL NO.: MW-3
 PROJ. NO.: 7317910200
 INSPECTOR: E. J. Ashton
 DATE START: 7/10/97

FACILITY/SITE NAME: NMPCL - Elm East Street, N.Y.
 CLIENT: NMPCL
 DRILLING CONTACTOR: Maxin Technologies, Inc.
 DATE END: 7/10/97
 WELL COORDINATES:

Elevation: _____ FEET
 Height: _____ FEET
 Elevation: 393.94 FEET
 Height: _____ FEET

GS Elevation: 391.84 FEET
 Depth BGS: _____



PROTECTIVE CASING

Material: Steel
 Diameter: 4-inch
 Depth BGS: 2.5-feet
 Water Tight Seal Type: vented locking cap
 Flushmount: NA
 Weep hole: Yes

GUARD POSTS

Material: NA
 No. & Size: NA

SURFACE PAD

Composition: CEMENT / Bentonite mixture
 Size: 2 x 2 - feet

RISER PIPE

Material: PVC
 Schedule: Sch. 40
 Joint Type: Threaded
 O-ring: Rubber
 Diameter: 2-inch

GROUT

Am cement: 1 bag
 Am bentonite: 1/2 bag
 Am water: 10 gallons
 Tremied: Yes
 Interval: 0-8.5 feet

SEAL

Material: Bentonite Pellets
 Brand Name: Baroid
 Setup/Hydration Time: 30 minutes
 Vol. Fluid Added: 5 gallons

FILTER PACK / CHOKE SAND

Material: Silica Sand
 Brand Name: Morie
 Amount Used: 2 1/2 bag / 1/4 bag
 Grain Size Dist: 50 / 100
 Tremied: NO

SCREEN

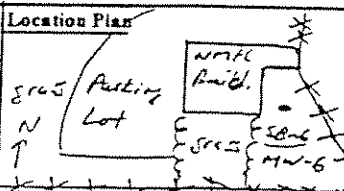
Material: PVC
 Diameter: 2-inch
 Slot Size & Type: .010-inch / Sch 40
 Interval BGS: 15-25 feet

SUMP

Interval BGS: 25-28 feet
 Bottom Cap: Yes

BACKFILL PLUG

Material: NA
 Setup/Hydration Time: NA

Contractor: <u>Maxim Technologies</u>		PARSONS ENGINEERING SCIENCE, INC. DRILLING RECORD		BORING/ WELL NO. <u>SB-61 Mark 6</u> Sheet: <u>1 of 2</u>	
Driller: <u>J. Leinhardt</u>		PROJECT NAME: <u>Niagara Mohawk Power Corp. - Ilion East Street Site</u> PROJECT NUMBER: <u>731791.02000</u>		Location Description:	
Inspector: <u>Ed Ashton</u>				<u>South of Facility Building</u>	
Rig Type: <u>1 ME-350</u>					
GROUNDWATER OBSERVATIONS					
Water Level	<u>19.00</u>	<u>19.30</u>			
Date	<u>7/28/97</u>	<u>7/29/97</u>			
Time	<u>0829</u>	<u>1445</u>			
Meas. From	<u>TOL</u>	<u>TOL</u>			
Weather: <u>Sunny - 75°F</u>			Location Plan: 		
Date/Time Start: <u>7/14/97/1050</u>					
Date/Time Finish: <u>7/14/97/1421</u>					
Sample Depth	Sample LD.	SPT	% Rec.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL
+2					
+1					
0		SS			
1		2/4	95	0.0	(0'-1.5') Br to Blck, f-sand, f-gravel, dry-Fill
2	SB-6A	3/4	50	0.0	(1.5'-1.8') Br, silt, clay, f-sand, fr. brick, moist-Fill
3		5/4			(1.8'-2') Brck - Fill
4		2/4	100	0.0	(2'-4') Br, silt, f-sand, fr. clay, fr. brick, well sorted, moist-Fill
5		5/5			
6	SB-6A	3/2	100	0.0	(4'-6') Br, f-sand, silt, well sorted, moist to wet-SM
7		2/5			(6'-8') Br, f-sand, silt, fr. f-gravel, well sorted, moist to wet-SM
8		2/1	100	0.0	
9		1/3			(8'-11') Br, f-sand, silt, fr. f-gravel, well sorted, iron staining, moist to wet-SM
10	SB-6F	2/5	100	0.0	
11	SB-60F	7/7			
12		3/3	95	0.0	(11'-12') Gr, f-m sand, fr. silt, subrounded to subangular, moderately to well sorted, wet-SM
13		5/7			(12'-14') Br. to Gr, f-m sand, silt, minor f-gravel, subrounded to subangular, moderately sorted, wet-SM
14		12/14	100	0.0	
15		16/16			(14'-16') Br, f-sand, silt, minor f-gravel, moderately sorted, wet-SM
16		12/13	100	0.0	
17		14/16			(16'-18') Br, f-m sand, minor silt, f-gravel, subrounded to subangular, moderately sorted, wet-SM
18		10/25	100	0.0	
		20/15			(18'-20') Br, f-m sand, minor silt, f-gravel, 18'
COMMENTS:					
Submitted SB-6D, SB-6F, and SB-60F for BTEX					
PAHs and Cr analysis. Submitted SB-6B for TEL/TAL					
VOCs, SVOCs, Metals, GCN, and Pest. PCBs analysis. All samples for TOC. GT-4M for sieve analysis.					

SAMPLING METHOD

SS - SPLIT SPOON

A - AUGER CUTTINGS

C - CORED

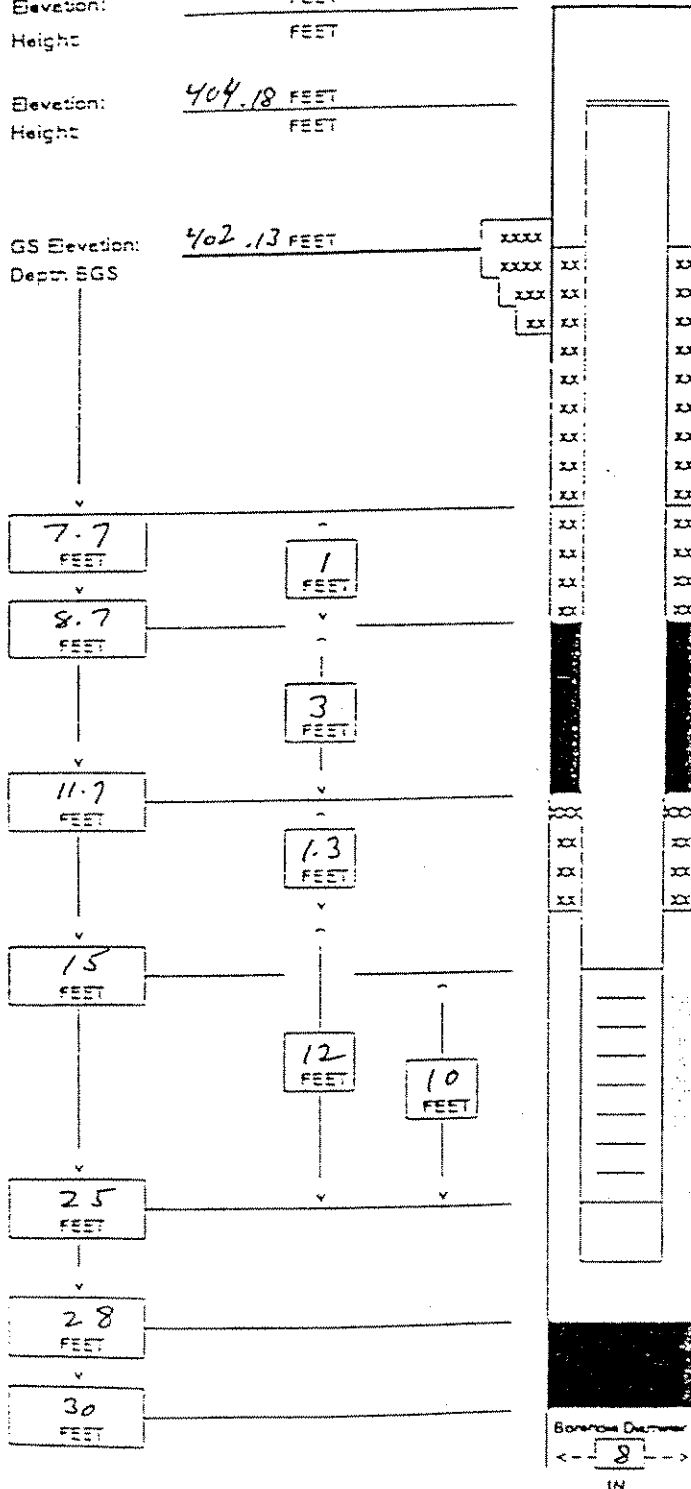
SINGLE CASED MONITORING WELL CONSTRUCTION LOG

WELL NO.: MW-6
 PROJ. NO.: 73/79/.02000
 INSPECTOR: E. J. Ashton
 DATE START: 7/14/97

FACILITY/SITE NAME: NMPL - Blinn East Street, N.Y.
 CLIENT: NMPL
 DRILLING CONTACTOR: Maxim Technologies, Inc.
 DATE END: 7/14/97
 WELL COORDINATES:

Elevation: _____ FEET
 Height: _____ FEET
 Elevation: 404.18 FEET
 Height: _____ FEET

GS Elevation: 402.13 FEET
 Depth BGS: _____



PROTECTIVE CASING

Material: Steel
 Diameter: 2-inch
 Depth BGS: 2.5 - feet
 Water Tight Seal Type: vented locking cap
 Flushmount: NA
 Weep hole: Yes

GUARD POSTS

Material: NA
 No. & Size: NA

SURFACE PAD

Composition: Cement / bentonite mixture
 Size: 2' x 2' - feet

RISER PIPE

Material: PVC
 Schedule: Sch. 40
 Joint Type: Threaded
 O-ring: Rubber
 Diameter: 2-inch

GROUT

Amnt cement: 1 bag
 Amnt bentonite: 1 bag
 Amnt water: 10 gallons
 Trained: Yes
 Interval: 0-7.7 feet

SEAL

Material: Bentonite Pellets
 Brand Name: Baroid
 Setup/hydration Time: 30 minutes
 Vol. Fluid Added: 5 gallons

FILTER PACK / CHOKE SAND

Material: Silica Sand
 Brand Name: maxie
 Amount Used: 3 1/2 bags / 1/4 bag
 Grain Size Dist: 20 / 100
 Trained: NO

SCREEN

Material: PVC
 Diameter: 2-inch
 Slot Size & Type: .010 / sch. 40
 Interval BGS: 15-25 feet

SUMP

Interval BGS: 25-28
 Bottom Cap: Yes

BACKFILL PLUG

Material: NA
 Setup/hydration Time: NA

Niagara Mohawk Power Corporation
 Ilion East Street Site
 East Street, Ilion NY

 Date Started : 8/30/99
 Date Completed : 9/1/99
 Hole Diameter : 4.1/4 inch
 Drilling Method : HSA
 Sampling Method : Continuous Split Spoon

 Drilling Company : Lyon Drilling
 Northing Coord. :
 Easting Coord. :
 Survey By : NMPC
 Logged By : C. JONES

On-Site Subsurface Investigation

Depth in Feet	Blow Count	Samples	DESCRIPTION	GRAPHIC
0	5		Brown to black SILTS with trace CLAY (top soil), no odor, dry, PID 0.0	
1	2	1		
2	2		Mixed FILL comprised of black and white ash, clinker, brick fragments, brittle white material, PID 0.0	
3	2			
4	1	2	7.4 to 7.7 red brick 7.7 to 8.0 white brick, faint organic odor, PID 0.0 9.0 clinker ash FILL, moist, moderate organic odor, PID 73.0	
5	1			
6	12	3		
7	2			
8	2			
9	1	4		
10	2			
11	2			
12	3	5		
13	1		Soft Humic rich soil black to brown in color, very faint organic odor, PID 0.0	
14	2		Medium Sand with little SILT, grey to brown, wet, no odor, PID 0.0	
15	1	6		
16	3		Grey medium to fine SAND, saturated, no odor, PID 0.0	
17	3		Medium brown SILT, tight, no odor, PID 0.0	
18	2	7	Medium to coarse SAND, with some GRAVEL, saturated, no odor, PID 0.0	
19	3		Brown SILT unit, no odor, PID 0.0	
20	2		Medium to coarse SAND with subangular GRAVEL (Start of KAME Unit), brown and grey, saturated, no odor, PID 0.0	
21	3	8		
22	3			
23	5			
24	8			
25	22	9		
26	22			
27	23			
28	12			
29	21			
30	15	10		
31	16			

 Well: MW-7
 Elev.: 394.59 f.m.

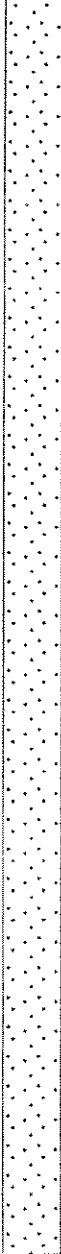
 Flush Mount
 Portland Cement
 2" PVC Riser
 Bentonite Chips
 Size 0 Morie Sand
 0.010 Slot Screen
 Bentonite Chips

Niagara Mohawk Power Corporation
 Ilion East Street Site
 East Street, Ilion NY

 Date Started : 8/30/99
 Date Completed : 9/1/99
 Hole Diameter : 4. 1/4 inch
 Drilling Method : HSA
 Sampling Method : Continuous Split Spoon

 Drilling Company : Lyon Drilling
 Northing Coord. :
 Easting Coord. :
 Survey By : NMPC
 Logged By : C. JONES

On-Site Subsurface Investigation

Depth in Feet	Blow Count		Samples	DESCRIPTION	GRAPHIC	Well: MW-7 Elev.: 394.59 f.m.
20	5			Medium to coarse SAND with subangular GRAVEL (Start of KAME Unit), brown and grey, saturated, no odor, PID 0.0		
7	50 %		11			
15						
22	10					
32	70 %		12			
42						
50						
24	12					
20	75 %		13			
15						
8						
26	1					
5	65 %		14			
7						
8						
28	6					
4	80 %		15			
5						
30	9					
30	30					
35	55 %		16			
30/0.2						
32	29					
30/0.4	45 %		17			
34						
35						
46	50 %		18			
35						
40						
36	25					
32	60 %		19			
35						
30/0.2						
38	34					
45 %			20			
40	30/0.4					

Grout Slurry

Niagara Mohawk Power Corporation
 Ilion East Street Site
 East Street, Ilion NY

 Date Started : 8/30/99
 Date Completed : 9/1/99
 Hole Diameter : 4.1/4 inch
 Drilling Method : HSA
 Sampling Method : Continuous Split Spoon

 Drilling Company : Lyon Drilling
 Northing Coord. :
 Easting Coord. :
 Survey By : NMPC
 Logged By : C. JONES

On-Site Subsurface Investigation

Depth in Feet	Blow Count		Samples	DESCRIPTION	GRAPHIC
40	21				
40	45 %		21	Fine black and dark grey SAND, no odor, PID 0.0	
42				Fine black to dark grey SAND with few interbedded stones, saturated, no odor, PID 0.0	
42	50 %		22	End of Boring 44.0	
44					
44	17				
44	8		23		
44	13				
46	7				
46	20				
46	24		24		
46	65 %				
48	30/0.3				
48	6				
48	14		25		
48	55 %				
50	37				
50	5				
50	14		26		
50	70 %				
52	22				
52	34				
52	10				
52	28		27		
52	80 %				
54	33				
54	35				
54	4				
54	8		28		
54	80 %				
56	18				
56	14				
56	17		29		
56	70 %				
58	22				
58	34				
58	12				
58	18		30		
58	80 %				
60	24				
60	35				

 Well: MW-7
 Elev.: 394.59 f.m.

Grout Slurry

Date Start/Finish: 9/6/17 Drilling Company: NYEG Drilling, LLC Driller's Name: Jesse Howe Drilling Method: Hollow Stem Auger Auger Size: 4.25 inches Rig Type: 474 Geoprobe (7822DT) Sampling Method: 2-inch x 2-foot Split Spoon	Northing: 1522793.801 Easting: 351085.508 Casing Elevation: 396.00 feet Borehole Depth: 20.5 feet bgs Surface Elevation: 396.25 feet Descriptions By: Lacey Mikochik	Well/Boring ID: MW-8R Client: National Grid Location: Ilion (East St) Former MGP Site 1 East Street Ilion, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0										
395		NA	NA	NA	NA	NA	NA		Gray to brown fine SAND and fine to medium GRAVEL (subrounded), some Silt and Clay, trace red brick (fragmented), hard, moist.	Steel Flush Mount (4-inch Diameter)
									Black Liner (3.0-3.1 feet bgs).	2-inch Locking J-Plug
									Hand-cleared to 5 feet bgs. Loose.	Concrete Pad
5					6					
390		S-1	5-7	1.0	4	10	0.0			
					6					
					4				Wet.	
		S-2	7-9	2.0	3	7	0.0		Orangish brown fine SAND, some Clay, little Silt, loose, moist.	Cement Grout
					3					
					4				Very loose.	
					4					
10		S-3	9-11	1.5	2	2	0.0		Brown to gray.	2-inch Diameter Schedule 40 PVC Riser (0.2-10.0 feet bgs)
385					1					
					1					
		S-4	11-13	2.0	1	2	0.0		Brown to gray Clayey fine SAND, some Clay, trace Silt, very loose, low plasticity, moist. Black, faint MGP-like odor (12.8-13.0 feet bgs).	Medium Grade Bentonite Chips (7-9 feet bgs)
					1					
					1				Brown to gray fine to medium SAND, some Silt, trace Clay, very loose, moist.	
		S-5	13-15	1.5	2	3	0.0		Orangish brown fine SAND, some Silt, very loose, moist.	#0 Sand (9-20.5 feet bgs)
					5					0.01-inch slot, 2-inch Diameter Schedule 40 PVC Screen (10-20 feet bgs)
15		S-6	15-17	1.5	1	4	0.0		Brown to gray fine to medium SAND, some Silt and Clay, very loose, moist.	
20					1					

 ARCADIS Design & Consultancy for natural and built assets	Remarks:		Water Level Data		
	bgs = below ground surface; ppm = parts per million; MGP = manufactured gas plant; NA = Not Applicable/Available. Borehole hand-cleared (by air knife) to 5 feet bgs and drilled to 20.5 feet bgs. Split-spoon sampling conducted from 5 feet bgs to 20.5 feet bgs. Horizontal reference datum is the North American Datum of 1983 (NAD83), New York State Plane East Zone (FIPS 3101). Vertical reference datum is the North American Vertical Datum of 1988 (NAVD88).		Date	Depth	Elev.
			9/6/17	*7.0'	389.29'
			10/5/17	**11.55'	384.45'
			*Depth measured from bgs		
	**Depth measured from top of casing				

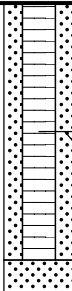
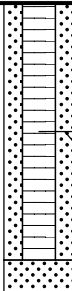
Client: National Grid

Well/Boring ID: MW-8R

Site Location:

Borehole Depth: 20.5 feet bgs

Ilion (East St) Former MGP Site
1 East Street
Ilion, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
388		S-6	15-17	1.5	3	4	0.0		Brown to gray fine to medium SAND, some Silt and Clay, very loose, moist.	
					4				Medium dense.	
		S-7	17-19	1.5	8	21	0.0			
					11				Brown to gray fine to medium GRAVEL, some fine Sand, little Silt and Clay, medium dense, moist.	
					10					
					10				Brown to gray fine to medium SAND, some Silt, loose, moist.	
20		S-8	19-21	1.5	3	5	0.0			
					4					
					1					
									End of boring at 20.5 feet bgs.	
375										
25										
370										
30										
365										
35										
360										

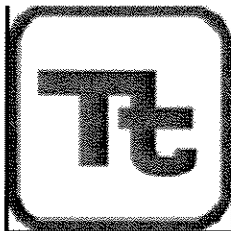
Remarks:

bgs = below ground surface; ppm = parts per million; MGP = manufactured gas plant; NA = Not Applicable/Available.
Borehole hand-cleared (by air knife) to 5 feet bgs and drilled to 20.5 feet bgs. Split-spoon sampling conducted from 5 feet bgs to 20.5 feet bgs. Horizontal reference datum is the North American Datum of 1983 (NAD83), New York State Plane East Zone (FIPS 3101). Vertical reference datum is the North American Vertical Datum of 1988 (NAVD88).

Water Level Data

Date	Depth	Elev.
9/6/17	*7.0'	389.29'
10/5/17	**11.55'	384.45'
*Depth measured from bgs		
**Depth measured from top of casing		





Project Name: National Grid -- Ilion	Site Id: MW-13
Location: Ilion, NY	Coordinate X: 351180.53
Logged By: Kelly Millet	Coordinate Y: 1522957.47
Drilling Method: Hollow Stem Auger	Total Depth: 24.00'
	Date Started: 08/08/06

Remarks: Base of boring at 24 feet below ground surface.	Date Completed: 08/08/06

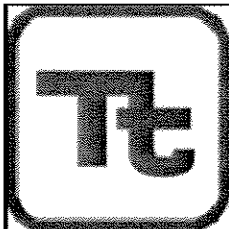
Depth	Blow Count	Recovery %	USCS Code	Graphic Log	Material Description	PID	Notes
1	2 2 3	40	SM		0-0.5': Concrete (sidewalk). 0.5-2': Dark brown to brown SILT and fine to medium Sand, dry.	0 ppm 0 ppm 0 ppm 0 ppm	0-0.5': Auger thru cement sidewalk
2	2 3 3 6	15			2-4': Brown fine to medium SAND, some Silt, dry.	0 ppm	
3						0 ppm	
4	2 1 1 4	5			4-6': Brown find to medium SAND, some Silt, wet.	0 ppm	
5							
6	5 4 1 1	55			6-8': Grayish brown SILT, trace Clay, moist, trace organic matter.	0 ppm 0 ppm	
7						0 ppm	



Project Name: National Grid — Ilion	Site Id: MW-13
Location: Ilion, NY	Coordinate X: 351180.53
Logged By: Kelly Millet	Coordinate Y: 1522957.47
Drilling Method: Hollow Stem Auger	Total Depth: 24.00'
	Date Started: 08/08/06

Remarks: Base of boring at 24 feet below ground surface.	Date Completed: 08/08/06

Depth	Blow Count	Recovery %	USCS Code	Graphic Log	Material Description	PID	Notes
8	1 1 1 3	50	OL		8-9.5': SILT, trace Clay, moist, trace organic matter.	0 ppm 0 ppm 0 ppm 0 ppm	
9						0 ppm	
10	5 5 5 4	25			9.5-10': Brown fine to medium Gravel (angular), some fine to coarse Sand, little Silt, wet.	0 ppm	
11			GM		10-12': Brown fine to medium GRAVEL (angular) some fine to coarse Sand, little Silt, trace Clay, wet.	0 ppm 0 ppm 0 ppm 0 ppm	
12	4 4 6 13	100			12-12.7': Brown fine to medium GRAVEL (angular) some fine to coarse Sand, wet, trace Silt.	0 ppm	
13			SP		12.7-12.9': Light yellow brown fine SAND, little Silt, wet.	0 ppm	
					12.9-13.5': Brown fine to coarse SAND, trace fine gravel (subangular), little silt, wet.	0 ppm	
					13.5-13.8': Light yellow brown SILT, little fine Sand, trace Clay, wet.	0 ppm	
14	10 19 20 19	60	ML		13.8-14': Brown fine to coarse SAND, some fine subangular Gravel, little Silt, wet.	0 ppm	



Project Name: National Grid – Ilion	Site Id: MW-13
Location: Ilion, NY	Coordinate X: 351180.53
Logged By: Kelly Millet	Coordinate Y: 1522957.47
Drilling Method: Hollow Stem Auger	Total Depth: 24.00'
	Date Started: 08/08/06
Remarks: Base of boring at 24 feet below ground surface.	Date Completed: 08/08/06

Depth	Blow Count	Recovery %	USCS Code	Graphic Log	Material Description	PID	Notes		
15	20 20 24 50	80	SP		14-16': Brown fine to coarse SAND, some fine to medium subangular Gravel, little Silt, wet.	0 ppm			
						0 ppm			
						0 ppm			
16						0 ppm			
					16-18': Brown fine to coarse SAND, some fine to medium subangular Gravel, trace Silt, wet.	0 ppm			
17								0 ppm	
								0 ppm	
18	18 18 26 31	85						18-20': Brown fine to coarse SAND, some fine to medium subangular Gravel, trace Silt, wet.	0 ppm
									0 ppm
									0 ppm
19						0 ppm			
					0 ppm				
20	60	0			20-22': No recovery.				
21									



Project Name: National Grid – Ilion

Site Id: MW-13

Location: Ilion, NY

Coordinate X: 351180.53

Logged By: Kelly Millet

Coordinate Y: 1522957.47

Drilling Method: Hollow Stem Auger

Total Depth: 24.00'

Date Started: 08/08/06

Remarks: Base of boring at 24 feet below ground surface.

Date Completed: 08/08/06

Depth	Blow Count	Recovery %	USCS Code	Graphic Log	Material Description	PID	Notes
22	24	10	GP		22-24': Brown fine to coarse SAND, some fine to medium subangular Gravel, trace Silt, wet.	0 ppm	
23							
24							
25							
26							
27							
28							

MONITORING WELL CONSTRUCTION DIAGRAM

UNCONSOLIDATED MONITORING WELL CONSTRUCTION DIAGRAM (FLUSH MOUNT)			
PROJECT: National Grid - I lion, NY PROJECT NO.: 2907.0003.0002.00000 BORING NUMBER: MW-11 ELEVATION (FT): 391.7900 FIELD GEOLOGIST: Kelly Millet DRILLER: Parrett Wolff DRILLING METHOD: Hollow Stem Auger DEVELOPMENT METHOD: Submersible Pump SUMP INSTALLED?(Y/N): N SUMP LENGTH (FT): 0	WELL NUMBER: MW-13 WELL LOCATION (STATION) ID: MW-13 DATE COMPLETED: 08/08/06 SURVEY DATE: X COORDINATE: Y COORDINATE: DATUM: NAVD88 START DEPTH (FT): 0.0 METHOD TO MEASURE WELL DEPTH: Casing/screen used		

Elevation of Top of Surface Casing	
Type of Surface Plug	bentonite
Depth of Surface Plug (bgs in feet)	4
Diameter of Surface Plug (Ft)	
Riser Pipe	
Elevation of Top of Riser Pipe	
Depth of Top of Riser Pipe (bgs in feet)	0.5
I.D. of Surface Casing (Inches)	
Type of Surface Casing	steel
Depth of Surface Casing (Ft)	
I.D. of Riser (Inches)	2
Type of Riser	PVC sch 40
Borehole Diameter (Inches)	
Type of Backfill	unknown
Backfill - Tremied (Y or N)	
Depth of Top of Seal (Ft)	
Elevation of Top of Seal	0.0000
Type of Seal:	unknown
Seal - Tremied (Y or N)	
Depth of Top of Filter Pack (Ft)	
Depth of Top of Screen (Ft)	14
Elevation of Top of Screen	-14.0000
Type of Screen:	PVC sch 40
I.D. of Screen (Inches)	2
Slot Size of Screen (Inches)	0.01
Length of Screen (Ft)	10
Type of Filter Pack:	sand pack
Filter Pack - Tremied (Y or N)	
Well Construction Remarks:	
Depth of Bottom of Screen (Ft)	24
Depth of Bottom of Filter Pack (Ft)	24
Elevation of Bottom of Filter Pack	-24.0000
Type of Backfill Below Filter Pack	unknown
Depth of Hole (Ft)	24
Elevation of Hole	-24.0000

NOT TO SCALE

APPENDIX E

Post-Remediation Groundwater Sampling Results



Table E-1
October 2017 Groundwater Sampling Results
Site Management Plan

National Grid
Ilion (East Street) Former Manufactured Gas Plant Site
Village of Ilion, Herkimer County, New York

Location ID:	NYS Class GA Ambient Water Quality Standard or Guidance Value ¹	MW-02R	MW-03	MW-06	MW-07	MW-08R	MW-13
Parameter	Sample Date:	10/5/2017	10/5/2017	10/5/2017	10/5/2017	10/6/2017	10/5/2017
Volatile Organic Compounds (USEPA SW-846 Method 8260)							
Benzene	1	1.3	0.50 U [0.50 U]	0.50 U	3.1	4.1	0.50 U
Ethylbenzene	5	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	3.6	1.0 U
Toluene	5	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	0.38 J	1.0 U
Xylenes, Total	--	1.0 U	1.0 U [1.0 U]	1.0 U	2.2	1.5	1.0 U
Polycyclic Aromatic Hydrocarbons (USEPA SW-846 Method 8270)							
Acenaphthene	20	2.4	0.10 U [0.10 U]	0.10 U	0.10 U	2.46	0.10 U
Acenaphthylene	--	1.5	0.10 U [0.10 U]	0.10 U	0.498	9.24	0.10 U
Anthracene	50	0.10 U	0.10 U [0.10 U]	0.10 U	0.10 U	0.214	0.10 U
Benzo(a)anthracene	0.002	0.050 U	0.050 U [0.050 U]	0.050 U	0.050 U	0.167	0.050 U
Benzo(a)pyrene	ND	0.050 U	0.050 U [0.050 U]	0.050 U	0.050 U	0.18	0.050 U
Benzo(b)fluoranthene	0.002	0.10 U	0.10 U [0.10 U]	0.10 U	0.10 U	0.18	0.10 U
Benzo(g,h,i)perylene	--	0.10 U	0.10 U [0.10 U]	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)fluoranthene	0.002	0.10 U	0.10 U [0.10 U]	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene	0.002	0.10 U	0.10 U [0.10 U]	0.10 U	0.10 U	0.155	0.10 U
Dibenzo(a,h)anthracene	--	0.10 U	0.10 U [0.10 U]	0.10 U	0.10 U	0.10 U	0.10 U
Fluoranthene	50	0.0982 J	0.10 U [0.10 U]	0.10 U	0.10 U	0.514	0.10 U
Fluorene	50	1.08	0.10 U [0.10 U]	0.10 U	0.10 U	4.65	0.10 U
Indeno(1,2,3-cd)pyrene	0.002	0.10 U	0.10 U [0.10 U]	0.10 U	0.10 U	0.10 U	0.10 U
2-Methylnaphthalene	--	0.10 U	0.10 U [0.10 U]	0.10 U	0.10 U	0.10 U	0.10 U
Naphthalene	10	0.285	0.10 U [0.10 U]	0.10 U	3.23	0.845	0.10 U
Phenanthrene	50	0.554	0.10 U [0.10 U]	0.10 U	0.10 U	2.26	0.10 U
Pyrene	50	0.10 U	0.10 U [0.10 U]	0.10 U	0.10 U	0.421	0.10 U
Cyanide (USEPA SW-846 Method 9012)							
Cyanide, Total	200	150 J	10 UJ [10 UJ]	10 UJ	290 J	430 J	10 UJ

See notes on page 2.

Table E-1
October 2017 Groundwater Sampling Results
Site Management Plan

National Grid
Ilion (East Street) Former Manufactured Gas Plant Site
Village of Ilion, Herkimer County, New York

Notes:

1. Sample results are presented in units of micrograms per liter ($\mu\text{g/L}$).
2. New York State Class GA (groundwater) ambient water quality standards and guidance values are from the New York State Department of Environmental Conservation's Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, titled *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (NYSDEC 1998).
3. --: No standard or guidance value is listed in TOGS 1.1.1 for this analyte.
4. ND: Non-detect.
5. Bolded sample concentrations denote detected analytes.
6. Field duplicate results are presented in brackets.
7. Gray shading denotes sample concentrations that exceed the applicable New York State Class GA ambient water quality standards or guidance values.

Data Qualifiers:

1. J: Concentration is less than the reporting limit, but greater than or equal to the method detection limit. The reported concentration is an estimate.
2. U: Analyte was not detected in the sample. The reported concentration is the reporting limit.

Technical Report for

Arcadis

National Grid, Ilion, NY

B0036713.0000.00004

SGS Accutest Job Number: JC52695

Sampling Dates: 10/05/17 - 10/06/17

Report to:

Arcadis U.S.
100 West Fayette Street Suite 300
Syracuse, NY 13202
Douglas.Nodine@arcadis.com

ATTN: Doug Nodine

Total number of pages in report: **713**



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

Nancy F. Cole

Nancy Cole
Laboratory Director

Client Service contact: Diane Komar 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC,
OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.



ACCUTEST

November 16, 2017

Mr. Doug Nodine
Arcadis U.S.
100 West Fayette Street
Suite 300
Syracuse, NY 13202

RE: SGS Accutest – Dayton, Jobs # JC52695 - Reissues

Dear Mr. Nodine,

The final reports for SGS Accutest jobs number **JC52695** has been edited to reflect corrections to the final results. These edits have been incorporated into the revised report which is attached.

The relogged samples have been combined to original report per your request on 11/15/2017. The attached revised report incorporates these revisions.

Please contact me if I can be of further assistance in this matter.

Sincerely,

Report Department

SGS Accutest

SGS ACCUTEST IS PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION,
TESTING AND CERTIFICATION COMPANY.

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Sample Summary

Arcadis

Job No: JC52695

National Grid, Ilion, NY
Project No: B0036713.0000.00004

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JC52695-1	10/05/17	11:15 AG	10/07/17	AQ	Ground Water	MW-13
JC52695-1R	10/05/17	11:15 AG	10/07/17	AQ	Ground Water	MW-13
JC52695-2	10/05/17	13:15 AG	10/07/17	AQ	Ground Water	MW-3
JC52695-2R	10/05/17	13:15 AG	10/07/17	AQ	Ground Water	MW-3
JC52695-3	10/05/17	15:40 AG	10/07/17	AQ	Ground Water	MW-7
JC52695-3R	10/05/17	15:40 AG	10/07/17	AQ	Ground Water	MW-7
JC52695-4	10/05/17	12:45 LM	10/07/17	AQ	Ground Water	MW-2R
JC52695-4R	10/05/17	12:45 LM	10/07/17	AQ	Ground Water	MW-2R
JC52695-5	10/05/17	14:55 LM	10/07/17	AQ	Ground Water	MW-6
JC52695-5D	10/05/17	14:55 LM	10/07/17	AQ	Water Dup/MSD	MW-6-MSD
JC52695-5DR	10/05/17	14:55 LM	10/07/17	AQ	Water Dup/MSD	MW-6-MSD
JC52695-5R	10/05/17	14:55 LM	10/07/17	AQ	Ground Water	MW-6
JC52695-5S	10/05/17	14:55 LM	10/07/17	AQ	Water Matrix Spike	MW-6-MS



Sample Summary
(continued)

Arcadis

Job No: JC52695

National Grid, Ilion, NY
Project No: B0036713.0000.00004

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JC52695-5SR	10/05/17	14:55 LM	10/07/17	AQ	Water Matrix Spike	MW-6-MS
JC52695-6	10/05/17	00:00	10/07/17	AQ	Ground Water	DUP-100517
JC52695-6R	10/05/17	00:00	10/07/17	AQ	Ground Water	DUP-100517
JC52695-7	10/06/17	08:35 AG	10/07/17	AQ	Ground Water	MW-8R
JC52695-7R	10/06/17	08:35 AG	10/07/17	AQ	Ground Water	MW-8R
JC52695-8	10/06/17	08:35 AG	10/07/17	AQ	Trip Blank Water	TRIP BLANK

CASE NARRATIVE / CONFORMANCE SUMMARY

2

Client: Arcadis

Job No JC52695

Site: National Grid, Ilion, NY

Report Date 11/16/2017 12:07:06 P

On 10/07/2017, 7 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were received at SGS Accutest at a maximum corrected temperature of 0.7 C. Samples were intact and chemically preserved, unless noted below. A SGS Accutest Job Number of JC52695 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

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

Volatiles by GCMS By Method SW846 8260C

Matrix: AQ

Batch ID: V4D3589

- All samples were analyzed within the recommended method holding time.
- Sample(s) JC52695-5MS, JC52695-5MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270D BY SIM

Matrix: AQ

Batch ID: OP6819A

- All samples were extracted within the recommended method holding time.
- Sample(s) JC52695-5MS, JC52695-5MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Sample(s) OP6819A-MB1 have surrogates outside control limits. Probable cause due to matrix interference.
- OP6819A-MB1 for Terphenyl-d14: Outside of in house control limits.

Wet Chemistry By Method EPA 335.4/LACHAT

Matrix: AQ

Batch ID: GP8534

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC52695-5DUP, JC52695-5MS, JC52695-6MS were used as the QC samples for Cyanide.
- Matrix Spike Recovery(s) for Cyanide are outside control limits. Spike recovery indicates possible matrix interference.
- JC52695-2 for Cyanide: The QC criteria for SW846 9012b was met.
- JC52695-5 for Cyanide: The QC criteria for SW846 9012b was met.
- JC52695-4 for Cyanide: The QC criteria for SW846 9012b was met.
- JC52695-6 for Cyanide: The QC criteria for SW846 9012b was met.
- JC52695-1 for Cyanide: The QC criteria for SW846 9012b was met.
- JC52695-3 for Cyanide: The QC criteria for SW846 9012b was met.
- JC52695-7 for Cyanide: The QC criteria for SW846 9012b was met.

Matrix: AQ

Batch ID: GP9059

- All method blanks for this batch meet method specific criteria.
- Sample(s) JC52695-5RDUP, JC52695-5RMS were used as the QC samples for Cyanide.
- The following samples were prepared outside of holding time for method EPA 335.4/LACHAT: JC52695-7R, JC52695-1R, JC52695-2R, JC52695-3R, JC52695-4R, JC52695-5R, JC52695-6R Analysis done out of holding time.
- Matrix Spike Recovery(s) for Cyanide are outside control limits. Spike recovery indicates possible matrix interference.
- JC52695-5R for Cyanide: The QC criteria for SW846 9012b was met. Analyzed out of holding time.
- JC52695-4R for Cyanide: The QC criteria for SW846 9012b was met. Analyzed out of holding time.
- JC52695-3R for Cyanide: The QC criteria for SW846 9012b was met. Analyzed out of holding time.
- JC52695-2R for Cyanide: The QC criteria for SW846 9012b was met. Analyzed out of holding time.
- JC52695-1R for Cyanide: The QC criteria for SW846 9012b was met. Analyzed out of holding time.
- JC52695-6R for Cyanide: The QC criteria for SW846 9012b was met. Analyzed out of holding time.

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

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

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

Summary of Hits

Job Number: JC52695
Account: Arcadis
Project: National Grid, Ilion, NY
Collected: 10/05/17 thru 10/06/17



Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method

JC52695-1 MW-13

No hits reported in this sample.

JC52695-1R MW-13

No hits reported in this sample.

JC52695-2 MW-3

No hits reported in this sample.

JC52695-2R MW-3

No hits reported in this sample.

JC52695-3 MW-7

Benzene	3.1	0.50	0.17	ug/l	SW846 8260C
Xylene (total)	2.2	1.0	0.22	ug/l	SW846 8260C
Acenaphthylene	0.498	0.10	0.021	ug/l	SW846 8270D BY SIM
Naphthalene	3.23	0.10	0.029	ug/l	SW846 8270D BY SIM
Cyanide ^a	0.29	0.010		mg/l	EPA 335.4/LACHAT

JC52695-3R MW-7

Cyanide ^b	0.29	0.010		mg/l	EPA 335.4/LACHAT

JC52695-4 MW-2R

Benzene	1.3	0.50	0.17	ug/l	SW846 8260C
Acenaphthene	2.40	0.10	0.025	ug/l	SW846 8270D BY SIM
Acenaphthylene	1.50	0.10	0.021	ug/l	SW846 8270D BY SIM
Fluoranthene	0.0982 J	0.10	0.022	ug/l	SW846 8270D BY SIM
Fluorene	1.08	0.10	0.025	ug/l	SW846 8270D BY SIM
Naphthalene	0.285	0.10	0.029	ug/l	SW846 8270D BY SIM
Phenanthrene	0.554	0.10	0.023	ug/l	SW846 8270D BY SIM
Cyanide ^a	0.15	0.010		mg/l	EPA 335.4/LACHAT

JC52695-4R MW-2R

Cyanide ^b	0.14	0.010		mg/l	EPA 335.4/LACHAT

Summary of Hits

Job Number: JC52695
Account: Arcadis
Project: National Grid, Ilion, NY
Collected: 10/05/17 thru 10/06/17



Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method

JC52695-5 MW-6

No hits reported in this sample.

JC52695-5R MW-6

No hits reported in this sample.

JC52695-6 DUP-100517

No hits reported in this sample.

JC52695-6R DUP-100517

No hits reported in this sample.

JC52695-7 MW-8R

Benzene	4.1	0.50	0.17	ug/l	SW846 8260C
Toluene	0.38 J	1.0	0.25	ug/l	SW846 8260C
Ethylbenzene	3.6	1.0	0.22	ug/l	SW846 8260C
Xylene (total)	1.5	1.0	0.22	ug/l	SW846 8260C
Acenaphthene	2.46	0.10	0.025	ug/l	SW846 8270D BY SIM
Acenaphthylene	9.24	1.0	0.021	ug/l	SW846 8270D BY SIM
Anthracene	0.214	0.10	0.020	ug/l	SW846 8270D BY SIM
Benzo(a)anthracene	0.167	0.050	0.023	ug/l	SW846 8270D BY SIM
Benzo(a)pyrene	0.180	0.050	0.033	ug/l	SW846 8270D BY SIM
Benzo(b)fluoranthene	0.180	0.10	0.043	ug/l	SW846 8270D BY SIM
Chrysene	0.155	0.10	0.026	ug/l	SW846 8270D BY SIM
Fluoranthene	0.514	0.10	0.022	ug/l	SW846 8270D BY SIM
Fluorene	4.65	1.0	0.025	ug/l	SW846 8270D BY SIM
Naphthalene	0.845	0.10	0.029	ug/l	SW846 8270D BY SIM
Phenanthrene	2.26	0.10	0.023	ug/l	SW846 8270D BY SIM
Pyrene	0.421	0.10	0.019	ug/l	SW846 8270D BY SIM
Cyanide ^a	0.43	0.010		mg/l	EPA 335.4/LACHAT

JC52695-7R MW-8R

Cyanide ^c	0.47	0.010		mg/l	EPA 335.4/LACHAT

JC52695-8 TRIP BLANK

No hits reported in this sample.

(a) The QC criteria for SW846 9012b was met.

Summary of Hits

Job Number: JC52695
Account: Arcadis
Project: National Grid, Ilion, NY
Collected: 10/05/17 thru 10/06/17



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Analyte						

- (b) The QC criteria for SW846 9012b was met. Analyzed out of holding time.
(c) Analysis done out of holding time.



Sample Results

Report of Analysis

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-13	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-1	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83147.D	1	10/13/17 01:19	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	100%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

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

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-13	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-1	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72037.D	1	10/20/17 23:37	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		29-124%
321-60-8	2-Fluorobiphenyl	70%		23-122%
1718-51-0	Terphenyl-d14	98%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-13	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-1	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010	0.010	mg/l	1	10/17/17 12:12	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-13		
Lab Sample ID:	JC52695-1R	Date Sampled:	10/05/17
Matrix:	AQ - Ground Water	Date Received:	10/07/17
Method:	SW846 8270D BY SIM SW846 3510C	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72037.D	1	10/20/17 23:37	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		29-124%
321-60-8	2-Fluorobiphenyl	70%		23-122%
1718-51-0	Terphenyl-d14	98%		22-130%

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

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

Report of Analysis

Client Sample ID:	MW-13	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-1R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010	0.010	mg/l	1	11/07/17 14:10	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met. Analyzed out of holding time.

RL = Reporting Limit

4.2
4

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-3	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-2	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83148.D	1	10/13/17 01:46	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	101%		81-124%
2037-26-5	Toluene-D8	94%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

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

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-3	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-2	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72033.D	1	10/20/17 21:29	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		29-124%
321-60-8	2-Fluorobiphenyl	65%		23-122%
1718-51-0	Terphenyl-d14	87%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-2	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010	0.010	mg/l	1	10/17/17 12:13	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

4.3
4

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-3		
Lab Sample ID:	JC52695-2R	Date Sampled:	10/05/17
Matrix:	AQ - Ground Water	Date Received:	10/07/17
Method:	SW846 8270D BY SIM SW846 3510C	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72033.D	1	10/20/17 21:29	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		29-124%
321-60-8	2-Fluorobiphenyl	65%		23-122%
1718-51-0	Terphenyl-d14	87%		22-130%

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

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

Report of Analysis

Client Sample ID:	MW-3	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-2R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010	0.010	mg/l	1	11/07/17 14:11	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met. Analyzed out of holding time.

RL = Reporting Limit

4.4
4

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-7	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-3	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83149.D	1	10/13/17 02:13	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	3.1	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	2.2	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		80-120%
17060-07-0	1,2-Dichloroethane-D4	102%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	92%		80-120%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-7	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-3	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72036.D	1	10/20/17 23:05	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	0.498	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	3.23	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		29-124%
321-60-8	2-Fluorobiphenyl	61%		23-122%
1718-51-0	Terphenyl-d14	70%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-7	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-3	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	0.29	0.010	mg/l	1	10/17/17 12:14	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

4.5
4

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-7						
Lab Sample ID:	JC52695-3R					Date Sampled:	10/05/17
Matrix:	AQ - Ground Water					Date Received:	10/07/17
Method:	SW846 8270D BY SIM	SW846 3510C				Percent Solids:	n/a
Project:	National Grid, Ilion, NY						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72036.D	1	10/20/17 23:05	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		29-124%
321-60-8	2-Fluorobiphenyl	61%		23-122%
1718-51-0	Terphenyl-d14	70%		22-130%

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

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

Report of Analysis

Client Sample ID:	MW-7	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-3R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	0.29	0.010	mg/l	1	11/07/17 14:13	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met. Analyzed out of holding time.

RL = Reporting Limit

4.6
4

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-2R	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-4	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83150.D	1	10/13/17 02:41	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1.3	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		80-120%
17060-07-0	1,2-Dichloroethane-D4	103%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-2R	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-4	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72038.D	1	10/21/17 00:08	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	2.40	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	1.50	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	0.0982	0.10	0.022	ug/l	J
86-73-7	Fluorene	1.08	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	0.285	0.10	0.029	ug/l	
85-01-8	Phenanthrene	0.554	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		29-124%
321-60-8	2-Fluorobiphenyl	64%		23-122%
1718-51-0	Terphenyl-d14	66%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2R	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-4	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	0.15	0.010	mg/l	1	10/17/17 12:16	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-2R	
Lab Sample ID:	JC52695-4R	Date Sampled: 10/05/17
Matrix:	AQ - Ground Water	Date Received: 10/07/17
Method:	SW846 8270D BY SIM SW846 3510C	Percent Solids: n/a
Project:	National Grid, Ilion, NY	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72038.D	1	10/21/17 00:08	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		29-124%
321-60-8	2-Fluorobiphenyl	64%		23-122%
1718-51-0	Terphenyl-d14	66%		22-130%

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

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

Report of Analysis

Client Sample ID:	MW-2R	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-4R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	0.14	0.010	mg/l	1	11/07/17 14:14	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met. Analyzed out of holding time.

RL = Reporting Limit

4.8
4

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-6	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-5	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83146.D	1	10/13/17 00:51	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	100%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	94%		80-120%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-6	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-5	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72030.D	1	10/20/17 19:54	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	76%		29-124%
321-60-8	2-Fluorobiphenyl	68%		23-122%
1718-51-0	Terphenyl-d14	86%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-6	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-5	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010	0.010	mg/l	1	10/17/17 12:17	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-6						
Lab Sample ID:	JC52695-5R					Date Sampled:	10/05/17
Matrix:	AQ - Ground Water					Date Received:	10/07/17
Method:	SW846 8270D BY SIM	SW846 3510C				Percent Solids:	n/a
Project:	National Grid, Ilion, NY						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72030.D	1	10/20/17 19:54	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	76%		29-124%
321-60-8	2-Fluorobiphenyl	68%		23-122%
1718-51-0	Terphenyl-d14	86%		22-130%

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

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

Report of Analysis

Client Sample ID:	MW-6	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-5R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010	0.010	mg/l	1	11/07/17 14:16	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met. Analyzed out of holding time.

RL = Reporting Limit

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	DUP-100517	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-6	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83151.D	1	10/13/17 03:08	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	103%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

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

4.11
4

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	DUP-100517	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-6	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72035.D	1	10/20/17 22:33	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		29-124%
321-60-8	2-Fluorobiphenyl	63%		23-122%
1718-51-0	Terphenyl-d14	103%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-100517	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-6	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010	0.010	mg/l	1	10/17/17 12:18	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	DUP-100517	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-6R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72035.D	1	10/20/17 22:33	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		29-124%
321-60-8	2-Fluorobiphenyl	63%		23-122%
1718-51-0	Terphenyl-d14	103%		22-130%

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

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

Report of Analysis

Client Sample ID:	DUP-100517	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-6R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010	0.010	mg/l	1	11/07/17 14:17	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met. Analyzed out of holding time.

RL = Reporting Limit

4.12
4

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-8R	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-7	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83152.D	1	10/13/17 03:36	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	4.1	0.50	0.17	ug/l	
108-88-3	Toluene	0.38	1.0	0.25	ug/l	J
100-41-4	Ethylbenzene	3.6	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	1.5	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

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

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

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-8R	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-7	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72034.D	1	10/20/17 22:01	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2	3E97845A.D	1	10/23/17 17:39	VP	10/11/17 17:35	OP6819A	E3E4350

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	2.46	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	9.24 ^a	1.0	0.021	ug/l	
120-12-7	Anthracene	0.214	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	0.167	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	0.180	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	0.180	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	0.155	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	0.514	0.10	0.022	ug/l	
86-73-7	Fluorene	4.65 ^a	1.0	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	0.845	0.10	0.029	ug/l	
85-01-8	Phenanthrene	2.26	0.10	0.023	ug/l	
129-00-0	Pyrene	0.421	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	73%	67%	29-124%
321-60-8	2-Fluorobiphenyl	62%	70%	23-122%
1718-51-0	Terphenyl-d14	83%	70%	22-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-8R	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-7	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	0.43	0.010	mg/l	1	10/17/17 12:20	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

4.13
4

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-8R	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-7R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72034.D	1	10/20/17 22:01	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	73%		29-124%
321-60-8	2-Fluorobiphenyl	62%		23-122%
1718-51-0	Terphenyl-d14	83%		22-130%

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

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

Report of Analysis

Client Sample ID:	MW-8R	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-7R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	0.47	0.010	mg/l	1	11/07/17 14:18	BM	EPA 335.4/LACHAT

(a) Analysis done out of holding time.

RL = Reporting Limit

4.14
4

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	TRIP BLANK	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-8	Date Received:	10/07/17
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83145.D	1	10/13/17 00:23	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		80-120%
17060-07-0	1,2-Dichloroethane-D4	99%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	94%		80-120%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody



ACCUTEST

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking # 4077 3091 7339
Bottle Order Control #
SGS Accutest Quote # JC52695
SGS Accutest Job #

Client / Reporting Information			Project Information			Requested Analysis (see TEST CODE sheet)										Matrix Codes	
Company Name Arcadis			Project Name: Ilion (East Street) Former MGP Site														
Street Address 110 W Fayette St Suite 300			Street East Street														
City State Zip Syracuse NY 13202			City State Ilion NY														
Project Contact Doug Nadine douglas.nadine@arcadis.com			Project # R0036713.00000004														
Phone # 315 671 9377			Client Purchase Order #														
Fax #			Street Address														
Sampler(s) Name(s) A. George, L. Mikochuk			Project Manager Mike Benoit														
Phone # 315 671 9556			Attention:														
Field ID / Point of Collection			MECH/DI Val #														
Date			Time														
Sampled by			Matrix														
# of bottles			HCl														
NaOH			HNO3														
H2SO4			NONE														
DI Water			MECH														
ENGINE																	
1 MW-13			10/5/17 1115			APG GW 6			3 1 2			3 1 2					
2 MW-3			10/5/17 1315			APG GW 6			3 1 2			3 1 2					
3 MW-7			10/5/17 1540			APG GW 6			3 1 2			3 1 2					
4 MW-2R			10/5/17 1245			LMM GW 6			3 1 2			3 1 2					
5 MW-6			10/5/17 1455			LMM GW 6			3 1 2			3 1 2					
6 MW-6-MS			10/5/17 1455			LMM GW 6			3 1 2			3 1 2					
7 MW-6-MSD			10/5/17 1455			LMM GW 6			3 1 2			3 1 2					
8 DUP-100517			10/5/17 /			GW 6			3 1 2			3 1 2					
9 MW-8R			10/6/17 0835			APG GW 6			3 1 2			3 1 2			INITIAL ASSESSMENT 2/1/08		
10 Trip blank			/			W 2 2			2			2			LABEL VERIFICATION MHA		
Turnaround Time (Business days)			Data Deliverable Information			Comments / Special Instructions											
☒ Std. 10 Business Days			Approved By (SGS Accutest PM) / Date:			☐ Commercial "A" (Level 1)										☐ NYASP Category A	
☐ 5 Day RUSH						☐ Commercial "B" (Level 2)										☐ NYASP Category B	
☐ 3 Day RUSH						☐ FULLT1 (Level 3+4)										☐ State Forms	
☐ 2 Day RUSH						☐ NJ Reduced										☒ EDD Format CDE	
☐ 1 Day RUSH						☐ Commercial "C"										☐ Other	
☐ other						☐ NJ Data of Known Quality Protocol Reporting											
Emergency & Rush T/A data available VIA Lablink			Commercial "A" = Results Only, Commercial "B" = Results + QC Summary														
			NJ Reduced = Results + QC Summary + Partial Raw data														
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler: 1 A. George			Date Time: 10/6/17 1041			Received By: 2 C. Massim			Date Time: 10-06-17 10:43			Received By: 3					
Relinquished by Sampler: 3			Date Time: 10/3/17 1017			Received By: 4			Date Time: 10-06-17 10:43			Received By: 4					
Relinquished by: 5			Date Time: 10/3/17 1017			Received By: 5			Date Time: 10-06-17 10:43			Received By: 5					
Custody Seal # 764			☐ Intact			☐ Not Intact			Preserved when applicable ☒			On Ice ☒ Cooler Temp. 1.9°C					
												2.3°F					

Form SM088-01 Rev. Date: 9/13/16

JC52695: Chain of Custody

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ACCUTEST
JC52695

SGS Accutest Sample Receipt Summary

Job Number: JC52695

Client: _____

Project: _____

Date / Time Received: 10/7/2017 10:12:00 AM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (1.8); Cooler 2: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (0.2); Cooler 2: (0.7);

Cooler Security

Y or N

Y or N

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

Cooler Temperature

Y or N

1. Temp criteria achieved: ☒ ☐	IR Gun
2. Cooler temp verification: _____	
3. Cooler media: _____	Ice (Bag)
4. No. Coolers: _____	2

Quality Control Preservation

Y or N

N/A

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

Sample Integrity - Documentation

Y or N

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

Sample Integrity - Condition

Y or N

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

Sample Integrity - Instructions

Y or N N/A

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

Comments

SM089-02
Rev. Date 12/1/16

JC52695: Chain of Custody

Page 2 of 4

Job Change Order: JC52695

Requested Date: 11/3/2017 Received Date: 10/7/2017
Account Name: Arcadis Due Date: 10/23/2017
Project Description: National Grid, Ilion, NY Deliverable: NYASPB
C/O Initiated By: kristin.degra PM: DK TAT (Days): 3

Sample #: JC52695-1 through -7 Change:
Dept: Please relog/retrieve BR8270SIM2MNP
TAT: 3

Sample #: JC52695-1 through -7 Change:
Dept: Please relog and re-analyze for CN via method 9012
TAT: 3

Above Changes Per: Client / Doug Nodine Date/Time: 11/3/2017 4:45:34 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the SGS Accutest Client Service Representative.

Job Change Order: JC52695R

Requested Date: 11/15/2017 Received Date: 10/7/2017
Account Name: Arcadis Due Date: 11/8/2017
Project Description: National Grid, Ilion, NY Deliverable: NYASPB
C/O Initiated By: dianek PM: DK TAT (Days): 2

Sample #: JC52695R-all Change:
Dept: Move to original job and send a revised report.
TAT: 2

Above Changes Per: Doug Nodine

Date/Time: 11/15/2017 5:33:42 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the SGS Accutest Client Service Representative.

Internal Sample Tracking Chronicle

Arcadis

Job No: JC52695

National Grid, Ilion, NY

Project No: B0036713.0000.00004

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC52695-1 MW-13	Collected: 05-OCT-17 11:15	By: AG	Received: 07-OCT-17	By: MH		
JC52695-1	SW846 8260C	13-OCT-17 01:19	JP			V8260BTX
JC52695-1	EPA 335.4/LACHAT	17-OCT-17 12:12	BM	16-OCT-17	TG	CN
JC52695-1	SW846 8270D BY SIM	20-OCT-17 23:37	KM	11-OCT-17	AF	B8270SIMPAH
JC52695-2 MW-3	Collected: 05-OCT-17 13:15	By: AG	Received: 07-OCT-17	By: MH		
JC52695-2	SW846 8260C	13-OCT-17 01:46	JP			V8260BTX
JC52695-2	EPA 335.4/LACHAT	17-OCT-17 12:13	BM	16-OCT-17	TG	CN
JC52695-2	SW846 8270D BY SIM	20-OCT-17 21:29	KM	11-OCT-17	AF	B8270SIMPAH
JC52695-3 MW-7	Collected: 05-OCT-17 15:40	By: AG	Received: 07-OCT-17	By: MH		
JC52695-3	SW846 8260C	13-OCT-17 02:13	JP			V8260BTX
JC52695-3	EPA 335.4/LACHAT	17-OCT-17 12:14	BM	16-OCT-17	TG	CN
JC52695-3	SW846 8270D BY SIM	20-OCT-17 23:05	KM	11-OCT-17	AF	B8270SIMPAH
JC52695-4 MW-2R	Collected: 05-OCT-17 12:45	By: LM	Received: 07-OCT-17	By: MH		
JC52695-4	SW846 8260C	13-OCT-17 02:41	JP			V8260BTX
JC52695-4	EPA 335.4/LACHAT	17-OCT-17 12:16	BM	16-OCT-17	TG	CN
JC52695-4	SW846 8270D BY SIM	21-OCT-17 00:08	KM	11-OCT-17	AF	B8270SIMPAH
JC52695-5 MW-6	Collected: 05-OCT-17 14:55	By: LM	Received: 07-OCT-17	By: MH		
JC52695-5	SW846 8260C	13-OCT-17 00:51	JP			V8260BTX
JC52695-5	EPA 335.4/LACHAT	17-OCT-17 12:17	BM	16-OCT-17	TG	CN
JC52695-5	SW846 8270D BY SIM	20-OCT-17 19:54	KM	11-OCT-17	AF	B8270SIMPAH
JC52695-6 DUP-100517	Collected: 05-OCT-17 00:00	By:	Received: 07-OCT-17	By: MH		
JC52695-6	SW846 8260C	13-OCT-17 03:08	JP			V8260BTX
JC52695-6	EPA 335.4/LACHAT	17-OCT-17 12:18	BM	16-OCT-17	TG	CN

Internal Sample Tracking Chronicle

Arcadis

Job No: JC52695

National Grid, Ilion, NY

Project No: B0036713.0000.00004

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JC52695-6	SW846 8270D BY SIM	20-OCT-17 22:33	KM	11-OCT-17	AF	B8270SIMPAH
JC52695-7	Collected: 06-OCT-17 08:35	By: AG	Received: 07-OCT-17	By: MH		
MW-8R						
JC52695-7	SW846 8260C	13-OCT-17 03:36	JP			V8260BTX
JC52695-7	EPA 335.4/LACHAT	17-OCT-17 12:20	BM	16-OCT-17	TG	CN
JC52695-7	SW846 8270D BY SIM	20-OCT-17 22:01	KM	11-OCT-17	AF	B8270SIMPAH
JC52695-7	SW846 8270D BY SIM	23-OCT-17 17:39	VP	11-OCT-17	AF	B8270SIMPAH
JC52695-8	Collected: 06-OCT-17 08:35	By: AG	Received: 07-OCT-17	By: MH		
TRIP BLANK						
JC52695-8	SW846 8260C	13-OCT-17 00:23	JP			V8260BTX
JC52695-1R	Collected: 05-OCT-17 11:15	By: AG	Received: 07-OCT-17	By: MH		
MW-13						
JC52695-1R	SW846 8270D BY SIM	20-OCT-17 23:37	KM	11-OCT-17	AF	BR8270SIM2MNAP
JC52695-1R	EPA 335.4/LACHAT	07-NOV-17 14:10	BM	06-NOV-17	TG	CN
JC52695-2R	Collected: 05-OCT-17 13:15	By: AG	Received: 07-OCT-17	By: MH		
MW-3						
JC52695-2R	SW846 8270D BY SIM	20-OCT-17 21:29	KM	11-OCT-17	AF	BR8270SIM2MNAP
JC52695-2R	EPA 335.4/LACHAT	07-NOV-17 14:11	BM	06-NOV-17	TG	CN
JC52695-3R	Collected: 05-OCT-17 15:40	By: AG	Received: 07-OCT-17	By: MH		
MW-7						
JC52695-3R	SW846 8270D BY SIM	20-OCT-17 23:05	KM	11-OCT-17	AF	BR8270SIM2MNAP
JC52695-3R	EPA 335.4/LACHAT	07-NOV-17 14:13	BM	06-NOV-17	TG	CN
JC52695-4R	Collected: 05-OCT-17 12:45	By: LM	Received: 07-OCT-17	By: MH		
MW-2R						
JC52695-4R	SW846 8270D BY SIM	21-OCT-17 00:08	KM	11-OCT-17	AF	BR8270SIM2MNAP
JC52695-4R	EPA 335.4/LACHAT	07-NOV-17 14:14	BM	06-NOV-17	TG	CN

Internal Sample Tracking Chronicle

Arcadis

Job No: JC52695

National Grid, Ilion, NY

Project No: B0036713.0000.00004

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes

JC52695-5R Collected: 05-OCT-17 14:55 By: LM Received: 07-OCT-17 By: MH
MW-6

JC52695-5R SW846 8270D BY SIM 20-OCT-17 19:54 KM 11-OCT-17 AF BR8270SIM2MNAP
JC52695-5R EPA 335.4/LACHAT 07-NOV-17 14:16 BM 06-NOV-17 TG CN

JC52695-6R Collected: 05-OCT-17 00:00 By: Received: 07-OCT-17 By: MH
DUP-100517

JC52695-6R SW846 8270D BY SIM 20-OCT-17 22:33 KM 11-OCT-17 AF BR8270SIM2MNAP
JC52695-6R EPA 335.4/LACHAT 07-NOV-17 14:17 BM 06-NOV-17 TG CN

JC52695-7R Collected: 06-OCT-17 08:35 By: AG Received: 07-OCT-17 By: MH
MW-8R

JC52695-7R SW846 8270D BY SIM 20-OCT-17 22:01 KM 11-OCT-17 AF BR8270SIM2MNAP
JC52695-7R EPA 335.4/LACHAT 07-NOV-17 14:18 BM 06-NOV-17 TG CN

SGS Accutest Internal Chain of Custody

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY
Received: 10/07/17

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC52695-1.2	Secured Storage	Todd Shoemaker	10/11/17 14:04	Retrieve from Storage
JC52695-1.2	Todd Shoemaker	Secured Staging Area	10/11/17 14:04	Return to Storage
JC52695-1.2	Secured Staging Area	Ryan Callaghan	10/11/17 16:39	Retrieve from Storage
JC52695-1.2	Ryan Callaghan		10/12/17 01:41	Depleted
JC52695-1.2.1	Ryan Callaghan	Organics Prep	10/11/17 16:40	Extract from JC52695-1.2
JC52695-1.2.1	Organics Prep	Amanda Furka	10/12/17 00:30	Extract from JC52695-1.2
JC52695-1.2.1	Amanda Furka	Extract Storage	10/12/17 00:30	Return to Storage
JC52695-1.3	Secured Storage	Todd Shoemaker	10/16/17 09:07	Retrieve from Storage
JC52695-1.3	Todd Shoemaker	Secured Staging Area	10/16/17 09:07	Return to Storage
JC52695-1.3	Secured Staging Area	Thomas Gabriel	10/16/17 11:23	Retrieve from Storage
JC52695-1.3	Thomas Gabriel	Secured Storage	10/16/17 17:08	Return to Storage
JC52695-1.3	Secured Storage	Dwayne Johnson	11/06/17 09:08	Retrieve from Storage
JC52695-1.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
JC52695-1.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
Analyst chain of custody update error.				
JC52695-1.3	Secured Staging Area	Thomas Gabriel	11/06/17 09:45	Retrieve from Storage
JC52695-1.3	Thomas Gabriel	Secured Storage	11/06/17 16:47	Return to Storage
JC52695-1.4	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage
JC52695-1.4	Toan Pham	GCMDS	10/12/17 21:51	Load on Instrument
JC52695-1.4	GCMDS	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-1.4	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage
JC52695-2.1	Secured Storage	Todd Shoemaker	10/11/17 14:04	Retrieve from Storage
JC52695-2.1	Todd Shoemaker	Secured Staging Area	10/11/17 14:04	Return to Storage
JC52695-2.1	Secured Staging Area	Ryan Callaghan	10/11/17 16:39	Retrieve from Storage
JC52695-2.1	Ryan Callaghan		10/12/17 01:41	Depleted
JC52695-2.1.1	Ryan Callaghan	Organics Prep	10/11/17 16:40	Extract from JC52695-2.1
JC52695-2.1.1	Organics Prep	Amanda Furka	10/12/17 00:30	Extract from JC52695-2.1
JC52695-2.1.1	Amanda Furka	Extract Storage	10/12/17 00:30	Return to Storage
JC52695-2.3	Secured Storage	Todd Shoemaker	10/16/17 09:07	Retrieve from Storage
JC52695-2.3	Todd Shoemaker	Secured Staging Area	10/16/17 09:07	Return to Storage
JC52695-2.3	Secured Staging Area	Thomas Gabriel	10/16/17 11:23	Retrieve from Storage
JC52695-2.3	Thomas Gabriel	Secured Storage	10/16/17 17:08	Return to Storage
JC52695-2.3	Secured Storage	Dwayne Johnson	11/06/17 09:08	Retrieve from Storage
JC52695-2.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
JC52695-2.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
Analyst chain of custody update error.				
JC52695-2.3	Secured Staging Area	Thomas Gabriel	11/06/17 09:45	Retrieve from Storage
JC52695-2.3	Thomas Gabriel	Secured Storage	11/06/17 16:47	Return to Storage

SGS Accutest Internal Chain of Custody

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY
Received: 10/07/17

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC52695-2.5	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage
JC52695-2.5	Toan Pham	GCMSD	10/12/17 21:51	Load on Instrument
JC52695-2.5	GCMSD	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-2.5	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage
JC52695-3.2	Secured Storage	Todd Shoemaker	10/11/17 14:04	Retrieve from Storage
JC52695-3.2	Todd Shoemaker	Secured Staging Area	10/11/17 14:04	Return to Storage
JC52695-3.2	Secured Staging Area	Ryan Callaghan	10/11/17 16:39	Retrieve from Storage
JC52695-3.2	Ryan Callaghan		10/12/17 01:41	Depleted
JC52695-3.2.1	Ryan Callaghan	Organics Prep	10/11/17 16:40	Extract from JC52695-3.2
JC52695-3.2.1	Organics Prep	Amanda Furka	10/12/17 00:30	Extract from JC52695-3.2
JC52695-3.2.1	Amanda Furka	Extract Storage	10/12/17 00:30	Return to Storage
JC52695-3.3	Secured Storage	Todd Shoemaker	10/16/17 09:07	Retrieve from Storage
JC52695-3.3	Todd Shoemaker	Secured Staging Area	10/16/17 09:07	Return to Storage
JC52695-3.3	Secured Staging Area	Thomas Gabriel	10/16/17 11:23	Retrieve from Storage
JC52695-3.3	Thomas Gabriel	Secured Storage	10/16/17 17:08	Return to Storage
JC52695-3.3	Secured Storage	Dwayne Johnson	11/06/17 09:08	Retrieve from Storage
JC52695-3.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
JC52695-3.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
Analyst chain of custody update error.				
JC52695-3.3	Secured Staging Area	Thomas Gabriel	11/06/17 09:45	Retrieve from Storage
JC52695-3.3	Thomas Gabriel	Secured Storage	11/06/17 16:47	Return to Storage
JC52695-3.4	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage
JC52695-3.4	Toan Pham	GCMSD	10/12/17 21:51	Load on Instrument
JC52695-3.4	GCMSD	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-3.4	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage
JC52695-4.2	Secured Storage	Todd Shoemaker	10/11/17 14:04	Retrieve from Storage
JC52695-4.2	Todd Shoemaker	Secured Staging Area	10/11/17 14:04	Return to Storage
JC52695-4.2	Secured Staging Area	Ryan Callaghan	10/11/17 16:39	Retrieve from Storage
JC52695-4.2	Ryan Callaghan		10/12/17 01:41	Depleted
JC52695-4.2.1	Ryan Callaghan	Organics Prep	10/11/17 16:40	Extract from JC52695-4.2
JC52695-4.2.1	Organics Prep	Amanda Furka	10/12/17 00:30	Extract from JC52695-4.2
JC52695-4.2.1	Amanda Furka	Extract Storage	10/12/17 00:30	Return to Storage
JC52695-4.3	Secured Storage	Todd Shoemaker	10/16/17 09:07	Retrieve from Storage
JC52695-4.3	Todd Shoemaker	Secured Staging Area	10/16/17 09:07	Return to Storage
JC52695-4.3	Secured Staging Area	Thomas Gabriel	10/16/17 11:23	Retrieve from Storage
JC52695-4.3	Thomas Gabriel	Secured Storage	10/16/17 17:08	Return to Storage

SGS Accutest Internal Chain of Custody

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY
Received: 10/07/17

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC52695-4.3	Secured Storage	Dwayne Johnson	11/06/17 09:08	Retrieve from Storage
JC52695-4.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
JC52695-4.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
Analyst chain of custody update error.				
JC52695-4.3	Secured Staging Area	Thomas Gabriel	11/06/17 09:45	Retrieve from Storage
JC52695-4.3	Thomas Gabriel	Secured Storage	11/06/17 16:47	Return to Storage
JC52695-4.5	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage
JC52695-4.5	Toan Pham	GCMSD	10/12/17 21:51	Load on Instrument
JC52695-4.5	GCMSD	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-4.5	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage
JC52695-5.1	Secured Storage	Ryan Callaghan	10/11/17 17:21	Retrieve from Storage
JC52695-5.1	Ryan Callaghan		10/12/17 01:41	Depleted
JC52695-5.1.1	Ryan Callaghan	Organics Prep	10/11/17 17:22	Extract from JC52695-5.1
JC52695-5.1.1	Organics Prep	Amanda Furka	10/12/17 00:30	Extract from JC52695-5.1
JC52695-5.1.1	Amanda Furka	Extract Storage	10/12/17 00:30	Return to Storage
JC52695-5.2	Secured Storage	Todd Shoemaker	10/11/17 14:04	Retrieve from Storage
JC52695-5.2	Todd Shoemaker	Secured Staging Area	10/11/17 14:04	Return to Storage
JC52695-5.2	Secured Staging Area	Ryan Callaghan	10/11/17 16:39	Retrieve from Storage
JC52695-5.2	Ryan Callaghan		10/12/17 01:41	Depleted
JC52695-5.2.1	Ryan Callaghan	Organics Prep	10/11/17 16:40	Extract from JC52695-5.2
JC52695-5.2.1	Organics Prep	Amanda Furka	10/12/17 00:30	Extract from JC52695-5.2
JC52695-5.2.1	Amanda Furka	Extract Storage	10/12/17 00:30	Return to Storage
JC52695-5.6	Secured Storage	Ryan Callaghan	10/11/17 17:21	Retrieve from Storage
JC52695-5.6	Ryan Callaghan		10/12/17 01:41	Depleted
JC52695-5.6.1	Ryan Callaghan	Organics Prep	10/11/17 17:22	Extract from JC52695-5.6
JC52695-5.6.1	Organics Prep	Amanda Furka	10/12/17 00:30	Extract from JC52695-5.6
JC52695-5.6.1	Amanda Furka	Extract Storage	10/12/17 00:30	Return to Storage
JC52695-5.7	Secured Storage	Dwayne Johnson	11/06/17 09:08	Retrieve from Storage
JC52695-5.7	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
JC52695-5.7	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
Analyst chain of custody update error.				
JC52695-5.7	Secured Staging Area	Thomas Gabriel	11/06/17 09:45	Retrieve from Storage
JC52695-5.7	Thomas Gabriel	Secured Storage	11/06/17 16:47	Return to Storage
JC52695-5.8	Secured Storage	Dwayne Johnson	11/06/17 09:08	Retrieve from Storage
JC52695-5.8	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage

SGS Accutest Internal Chain of Custody

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY
Received: 10/07/17

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC52695-5.8	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
Analyst chain of custody update error.				
JC52695-5.8	Secured Staging Area	Thomas Gabriel	11/06/17 09:45	Retrieve from Storage
JC52695-5.8	Thomas Gabriel	Secured Storage	11/06/17 16:47	Return to Storage
JC52695-5.9	Secured Storage	Todd Shoemaker	10/16/17 09:07	Retrieve from Storage
JC52695-5.9	Todd Shoemaker	Secured Staging Area	10/16/17 09:07	Return to Storage
JC52695-5.9	Secured Staging Area	Thomas Gabriel	10/16/17 11:23	Retrieve from Storage
JC52695-5.9	Thomas Gabriel	Secured Storage	10/16/17 17:08	Return to Storage
JC52695-5.9	Secured Storage	Dwayne Johnson	11/06/17 09:08	Retrieve from Storage
JC52695-5.9	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
JC52695-5.9	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
Analyst chain of custody update error.				
JC52695-5.9	Secured Staging Area	Thomas Gabriel	11/06/17 09:45	Retrieve from Storage
JC52695-5.9	Thomas Gabriel	Secured Storage	11/06/17 16:47	Return to Storage
JC52695-5.13	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage
JC52695-5.13	Toan Pham	GCMSD	10/12/17 21:51	Load on Instrument
JC52695-5.13	GCMSD	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-5.13	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage
JC52695-5.14	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage
JC52695-5.14	Toan Pham	GCMSD	10/12/17 21:51	Load on Instrument
JC52695-5.14	GCMSD	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-5.14	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage
JC52695-5.15	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage
JC52695-5.15	Toan Pham	GCMSD	10/12/17 21:51	Load on Instrument
JC52695-5.15	GCMSD	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-5.15	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage
JC52695-6.1	Secured Storage	Todd Shoemaker	10/11/17 14:04	Retrieve from Storage
JC52695-6.1	Todd Shoemaker	Secured Staging Area	10/11/17 14:04	Return to Storage
JC52695-6.1	Secured Staging Area	Ryan Callaghan	10/11/17 16:39	Retrieve from Storage
JC52695-6.1	Ryan Callaghan		10/12/17 01:41	Depleted
JC52695-6.1.1	Ryan Callaghan	Organics Prep	10/11/17 16:40	Extract from JC52695-6.1
JC52695-6.1.1	Organics Prep	Amanda Furka	10/12/17 00:30	Extract from JC52695-6.1
JC52695-6.1.1	Amanda Furka	Extract Storage	10/12/17 00:30	Return to Storage
JC52695-6.3	Secured Storage	Todd Shoemaker	10/16/17 09:07	Retrieve from Storage
JC52695-6.3	Todd Shoemaker	Secured Staging Area	10/16/17 09:07	Return to Storage
JC52695-6.3	Secured Staging Area	Thomas Gabriel	10/16/17 11:23	Retrieve from Storage
JC52695-6.3	Thomas Gabriel	Secured Storage	10/16/17 17:08	Return to Storage

SGS Accutest Internal Chain of Custody

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY
Received: 10/07/17

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC52695-6.3	Secured Storage	Dwayne Johnson	11/06/17 09:08	Retrieve from Storage
JC52695-6.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
JC52695-6.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
Analyst chain of custody update error.				
JC52695-6.3	Secured Staging Area	Thomas Gabriel	11/06/17 09:45	Retrieve from Storage
JC52695-6.3	Thomas Gabriel	Secured Storage	11/06/17 16:47	Return to Storage
JC52695-6.5	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage
JC52695-6.5	Toan Pham	GCMSD	10/12/17 21:51	Load on Instrument
JC52695-6.5	GCMSD	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-6.5	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage
JC52695-7.2	Secured Storage	Todd Shoemaker	10/11/17 14:04	Retrieve from Storage
JC52695-7.2	Todd Shoemaker	Secured Staging Area	10/11/17 14:04	Return to Storage
JC52695-7.2	Secured Staging Area	Ryan Callaghan	10/11/17 16:39	Retrieve from Storage
JC52695-7.2	Ryan Callaghan		10/12/17 01:41	Depleted
JC52695-7.2.1	Ryan Callaghan	Organics Prep	10/11/17 16:40	Extract from JC52695-7.2
JC52695-7.2.1	Organics Prep	Amanda Furka	10/12/17 00:30	Extract from JC52695-7.2
JC52695-7.2.1	Amanda Furka	Extract Storage	10/12/17 00:30	Return to Storage
JC52695-7.2.1	Extract Storage	Vivek Patel	10/23/17 16:21	Retrieve from Storage
JC52695-7.2.1	Vivek Patel	GCMS3E	10/23/17 16:21	Load on Instrument
JC52695-7.2.1	GCMS3E	Kristi Schollenberger	10/24/17 12:36	Unload from Instrument
JC52695-7.2.1	Kristi Schollenberger	GCMS3E	10/24/17 12:36	Load on Instrument
JC52695-7.2.1	GCMS3E	Kristi Schollenberger	10/25/17 12:59	Unload from Instrument
JC52695-7.2.1	Kristi Schollenberger	Extract Freezer	10/25/17 12:59	Return to Storage
JC52695-7.3	Secured Storage	Todd Shoemaker	10/16/17 09:07	Retrieve from Storage
JC52695-7.3	Todd Shoemaker	Secured Staging Area	10/16/17 09:07	Return to Storage
JC52695-7.3	Secured Staging Area	Thomas Gabriel	10/16/17 11:23	Retrieve from Storage
JC52695-7.3	Thomas Gabriel	Secured Storage	10/16/17 17:08	Return to Storage
JC52695-7.3	Secured Storage	Dwayne Johnson	11/06/17 09:08	Retrieve from Storage
JC52695-7.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
JC52695-7.3	Dwayne Johnson	Secured Staging Area	11/06/17 09:08	Return to Storage
Analyst chain of custody update error.				
JC52695-7.3	Secured Staging Area	Thomas Gabriel	11/06/17 09:45	Retrieve from Storage
JC52695-7.3	Thomas Gabriel	Secured Storage	11/06/17 16:47	Return to Storage
JC52695-7.4	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage
JC52695-7.4	Toan Pham	GCMSD	10/12/17 21:51	Load on Instrument
JC52695-7.4	GCMSD	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-7.4	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage
JC52695-8.1	Secured Storage	Toan Pham	10/12/17 21:51	Retrieve from Storage

SGS Accutest Internal Chain of Custody

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY
Received: 10/07/17

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC52695-8.1	Toan Pham	GCMSD	10/12/17 21:51	Load on Instrument
JC52695-8.1	GCMSD	Jessica Potts	10/13/17 09:08	Unload from Instrument
JC52695-8.1	Jessica Potts	Secured Storage	10/13/17 09:08	Return to Storage

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MS Volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V4D3589-MB	4D83140.D	1	10/12/17	JP	n/a	n/a	V4D3589

The QC reported here applies to the following samples: Method: SW846 8260C

JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7, JC52695-8

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	91% 80-120%
17060-07-0	1,2-Dichloroethane-D4	100% 81-124%
2037-26-5	Toluene-D8	93% 80-120%
460-00-4	4-Bromofluorobenzene	94% 80-120%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Blank Spike Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V4D3589-BS	4D83141.D	1	10/12/17	JP	n/a	n/a	V4D3589

The QC reported here applies to the following samples: Method: SW846 8260C

JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7, JC52695-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	41.1	82	80-120
100-41-4	Ethylbenzene	50	41.7	83	80-120
108-88-3	Toluene	50	40.8	82	80-120
1330-20-7	Xylene (total)	150	124	83	80-120

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	93%	80-120%
17060-07-0	1,2-Dichloroethane-D4	101%	81-124%
2037-26-5	Toluene-D8	89%	80-120%
460-00-4	4-Bromofluorobenzene	91%	80-120%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: JC52695

Account: BBLNYS Arcadis

Project: National Grid, Ilion, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC52695-5MS	4D83142.D	1	10/12/17	JP	n/a	n/a	V4D3589
JC52695-5MSD	4D83143.D	1	10/12/17	JP	n/a	n/a	V4D3589
JC52695-5	4D83146.D	1	10/13/17	JP	n/a	n/a	V4D3589

The QC reported here applies to the following samples:

Method: SW846 8260C

JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7, JC52695-8

CAS No.	Compound	JC52695-5 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	50	52.6	105	50	48.8	98	7	54-136/10
100-41-4	Ethylbenzene	ND	50	53.8	108	50	49.7	99	8	51-140/20
108-88-3	Toluene	ND	50	53.0	106	50	48.8	98	8	60-135/10
1330-20-7	Xylene (total)	ND	150	158	105	150	146	97	8	56-139/20

CAS No.	Surrogate Recoveries	MS	MSD	JC52695-5	Limits
1868-53-7	Dibromofluoromethane	91%	91%	92%	80-120%
17060-07-0	1,2-Dichloroethane-D4	99%	98%	100%	81-124%
2037-26-5	Toluene-D8	91%	91%	92%	80-120%
460-00-4	4-Bromofluorobenzene	92%	92%	94%	80-120%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3564-BFB	Injection Date: 09/26/17
Lab File ID: 4D82596.D	Injection Time: 18:49
Instrument ID: GCMS4D	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	25853	17.0	Pass
75	30.0 - 60.0% of mass 95	67979	44.7	Pass
95	Base peak, 100% relative abundance	151936	100.0	Pass
96	5.0 - 9.0% of mass 95	9944	6.54	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	128013	84.3	Pass
175	5.0 - 9.0% of mass 174	9870	6.50 (7.71) ^a	Pass
176	95.0 - 101.0% of mass 174	124536	82.0 (97.3) ^a	Pass
177	5.0 - 9.0% of mass 176	8452	5.56 (6.79) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V4D3564-IC3564	4D82598.D	09/26/17	22:35	03:46	Initial cal 0.5
V4D3564-IC3564	4D82599.D	09/26/17	23:02	04:13	Initial cal 1
V4D3564-IC3564	4D82600.D	09/26/17	23:30	04:41	Initial cal 2
V4D3564-IC3564	4D82601.D	09/26/17	23:58	05:09	Initial cal 5
V4D3564-IC3564	4D82602.D	09/27/17	00:26	05:37	Initial cal 10
V4D3564-IC3564	4D82603.D	09/27/17	00:54	06:05	Initial cal 20
V4D3564-ICC3564	4D82604.D	09/27/17	01:22	06:33	Initial cal 50
V4D3564-IC3564	4D82605.D	09/27/17	01:50	07:01	Initial cal 100
V4D3564-IC3564	4D82606.D	09/27/17	02:18	07:29	Initial cal 200
V4D3564-ICV3564	4D82609.D	09/27/17	03:42	08:53	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample:	V4D3565-BFB	Injection Date:	09/27/17
Lab File ID:	4D82612.D	Injection Time:	12:33
Instrument ID:	GCMS4D		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	29232	16.6	Pass
75	30.0 - 60.0% of mass 95	78373	44.5	Pass
95	Base peak, 100% relative abundance	176149	100.0	Pass
96	5.0 - 9.0% of mass 95	11813	6.71	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	151659	86.1	Pass
175	5.0 - 9.0% of mass 174	11660	6.62 (7.69) ^a	Pass
176	95.0 - 101.0% of mass 174	146880	83.4 (96.8) ^a	Pass
177	5.0 - 9.0% of mass 176	9783	5.55 (6.66) ^b	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V4D3565-ICV3564	4D82613.D	09/27/17	13:05	00:32	Initial cal verification 50

6.4.2
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Instrument Performance Check (BFB)

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3589-BFB
Lab File ID: 4D83138A.D
Instrument ID: GCMS4D

Injection Date: 10/12/17
Injection Time: 21:06

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	18560	19.7	Pass
75	30.0 - 60.0% of mass 95	45549	48.4	Pass
95	Base peak, 100% relative abundance	94088	100.0	Pass
96	5.0 - 9.0% of mass 95	6357	6.76	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	74608	79.3	Pass
175	5.0 - 9.0% of mass 174	6095	6.48 (8.17) ^a	Pass
176	95.0 - 101.0% of mass 174	73147	77.7 (98.0) ^a	Pass
177	5.0 - 9.0% of mass 176	5015	5.33 (6.86) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V4D3589-CC3564	4D83138.D	10/12/17	21:06	00:00	Continuing cal 50
V4D3589-MB	4D83140.D	10/12/17	22:06	01:00	Method Blank
V4D3589-BS	4D83141.D	10/12/17	22:33	01:27	Blank Spike
JC52695-5MS	4D83142.D	10/12/17	23:01	01:55	Matrix Spike
JC52695-5MSD	4D83143.D	10/12/17	23:28	02:22	Matrix Spike Duplicate
JC52695-8	4D83145.D	10/13/17	00:23	03:17	TRIP BLANK
JC52695-5	4D83146.D	10/13/17	00:51	03:45	MW-6
JC52695-1	4D83147.D	10/13/17	01:19	04:13	MW-13
JC52695-2	4D83148.D	10/13/17	01:46	04:40	MW-3
JC52695-3	4D83149.D	10/13/17	02:13	05:07	MW-7
JC52695-4	4D83150.D	10/13/17	02:41	05:35	MW-2R
JC52695-6	4D83151.D	10/13/17	03:08	06:02	DUP-100517
JC52695-7	4D83152.D	10/13/17	03:36	06:30	MW-8R
ZZZZZZ	4D83153.D	10/13/17	04:04	06:58	(unrelated sample)
ZZZZZZ	4D83154.D	10/13/17	04:31	07:25	(unrelated sample)
ZZZZZZ	4D83155.D	10/13/17	04:59	07:53	(unrelated sample)
ZZZZZZ	4D83156.D	10/13/17	05:27	08:21	(unrelated sample)
ZZZZZZ	4D83158.D	10/13/17	06:22	09:16	(unrelated sample)

Internal Standard Area Summary

Page 1 of 1

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Check Std: V4D3589-CC3564	Injection Date: 10/12/17
Lab File ID: 4D83138.D	Injection Time: 21:06
Instrument ID: GCMS4D	Method: SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	172680	7.54	266125	10.09	395984	11.03	332222	14.19	170447	16.57
Upper Limit ^a	345360	8.04	532250	10.59	791968	11.53	664444	14.69	340894	17.07
Lower Limit ^b	86340	7.04	133063	9.59	197992	10.53	166111	13.69	85224	16.07

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V4D3589-MB	145036	7.54	252716	10.09	385049	11.04	314459	14.19	158958	16.57
V4D3589-BS	154624	7.54	272084	10.09	410639	11.04	353333	14.19	188091	16.57
JC52695-5MS	143095	7.54	238581	10.09	355857	11.04	302410	14.19	156656	16.57
JC52695-5MSD	153833	7.54	246347	10.09	370655	11.04	318291	14.19	163457	16.57
JC52695-8	150969	7.54	264247	10.09	396247	11.04	327530	14.19	164726	16.57
JC52695-5	163109	7.54	298424	10.09	452103	11.04	376209	14.19	193268	16.57
JC52695-1	143536	7.54	246804	10.09	377815	11.04	310091	14.19	160200	16.57
JC52695-2	132690	7.54	235485	10.09	356226	11.04	288533	14.19	149468	16.57
JC52695-3	139552	7.54	237710	10.09	358167	11.04	295376	14.19	154819	16.57
JC52695-4	140394	7.54	238131	10.09	359069	11.04	292892	14.19	153161	16.57
JC52695-6	153263	7.54	271635	10.09	407641	11.04	338772	14.19	175133	16.57
JC52695-7	132798	7.54	236090	10.09	353831	11.04	290178	14.19	152107	16.57
ZZZZZZ	133342	7.53	231053	10.09	349314	11.04	292801	14.19	145336	16.57
ZZZZZZ	154831	7.54	269392	10.09	409214	11.04	338553	14.19	168013	16.57
ZZZZZZ	156221	7.54	257703	10.09	386046	11.04	327733	14.19	160451	16.57
ZZZZZZ	178135	7.54	324681	10.09	494344	11.04	408604	14.19	215094	16.57
ZZZZZZ	161543	7.54	277337	10.09	419425	11.04	345915	14.19	179369	16.57

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

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

Surrogate Recovery Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Method: SW846 8260C	Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JC52695-1	4D83147.D	92	100	92	93
JC52695-2	4D83148.D	92	101	94	93
JC52695-3	4D83149.D	91	102	92	92
JC52695-4	4D83150.D	93	103	93	93
JC52695-5	4D83146.D	92	100	92	94
JC52695-6	4D83151.D	92	103	92	93
JC52695-7	4D83152.D	93	105	93	93
JC52695-8	4D83145.D	90	99	92	94
JC52695-5MS	4D83142.D	91	99	91	92
JC52695-5MSD	4D83143.D	91	98	91	92
V4D3589-BS	4D83141.D	93	101	89	91
V4D3589-MB	4D83140.D	91	100	93	94

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-120%
S2 = 1,2-Dichloroethane-D4	81-124%
S3 = Toluene-D8	80-120%
S4 = 4-Bromofluorobenzene	80-120%

Initial Calibration Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3564-ICC3564
Lab FileID: 4D82604.D

Response Factor Report MS4D											
Method : C:\MSDCHEM\1\METHODS\M4D3564.M (RTE Integrator)											
Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um											
Last Update : Wed Sep 27 12:07:44 2017											
Response via : Initial Calibration											
Calibration Files											
1	=4D82599.D	0.5	=4D82598.D	100	=4D82605.D	50	=4D82604.D				
20	=4D82603.D	200	=4D82606.D	5	=4D82601.D	2	=4D82600.D				
10	=4D82602.D	=									
Compound											
	1	0.5	100	50	20	200	5	2	10	Avg	%RSD

1)	tert butyl alcohol-d9 -----ISTD-----										
2)	tertiary butyl alcohol										
	1.370		1.465	1.472	1.441	1.439	1.320	1.401	1.432	1.417	3.62
3)	Ethanol										
	0.120		0.116	0.116	0.109	0.108	0.091	0.111	0.107	0.110	8.02
4)	1,4-dioxane										
	0.085		0.085	0.097	0.095	0.098	0.079	0.088	0.093	0.090	7.54
5) I	pentafluorobenzene -----ISTD-----										
6)	chlorodifluoromethane										
			0.554	0.528	0.460	0.499	0.397	0.340	0.435	0.459	16.40
7)	dichlorodifluoromethane										
	0.659		0.914	0.895	0.808	0.808	0.720	0.668	0.801	0.784	12.18
8)	chloromethane										
	0.785	0.800	1.013	0.984	0.882	0.932	0.780	0.760	0.885	0.869	10.76
9)	vinyl chloride										
	0.773		1.015	0.979	0.862	0.910	0.780	0.745	0.864	0.866	11.36
10)	1,3-butadiene										
										0.000#	-1.00
11)	bromomethane										
	0.587	0.521	0.663	0.691	0.637	0.550	0.574	0.562	0.653	0.604	9.66
12)	chloroethane										
	0.398	0.350	0.517	0.514	0.470	0.443	0.424	0.421	0.478	0.446	12.26
13)	trichlorofluoromethane										
	0.888	0.753	1.119	1.118	1.021	1.001	0.923	0.860	1.031	0.968	12.61
14)	vinyl bromide*****This compound did not meet initial calibration criteria.										
	0.542	0.454	0.690	0.682	0.613	0.628	0.540	0.518	0.615	0.587	13.38
15)	ethyl ether										
	0.237	0.240	0.337	0.343	0.324	0.319	0.283	0.275	0.317	0.297	13.48
16)	acrolein										
			0.155	0.158	0.147	0.149	0.126	0.112	0.150	0.143	11.81
17)	freon 113										
	0.296	0.272	0.418	0.425	0.398	0.377	0.369	0.350	0.392	0.366	14.34
18)	1,1-dichloroethene										
	0.388	0.424	0.530	0.553	0.511	0.495	0.478	0.448	0.504	0.481	10.94
19)	acetone										
	0.054	0.056	0.068	0.074	0.068	0.062	0.062	0.065	0.071	0.064	10.46
20)	acetonitrile										
	0.075	0.076	0.090	0.095	0.090	0.086	0.081	0.084	0.092	0.085	8.40
21)	iodomethane										
	0.782	0.885	1.064	1.097	1.032	1.007	0.938	0.937	1.038	0.976	10.20
22)	carbon disulfide										
	1.563	1.818	1.923	2.023	1.909	1.801	1.754	1.726	1.915	1.826	7.44
23)	methylene chloride										

Initial Calibration Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3564-ICC3564
Lab FileID: 4D82604.D

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	0.528	0.636	0.634	0.664	0.629	0.605	0.589	0.590	0.639	0.613	6.60
24) methyl acetate	0.421	0.572	0.607	0.576	0.537	0.526	0.518	0.598	0.544	10.95	
25) methyl tert butyl ether	1.389	1.532	1.777	1.855	1.764	1.678	1.595	1.607	1.755	1.661	8.75
26) trans-1,2-dichloroethene	0.455	0.578	0.579	0.606	0.579	0.551	0.555	0.534	0.579	0.557	7.87
27) di-isopropyl ether	1.573	1.810	1.950	2.049	1.986	1.852	1.840	1.825	2.018	1.878	7.72
28) 2-butanone	0.060	0.055	0.083	0.087	0.082	0.079	0.073	0.076	0.084	0.075	14.76
29) 1,1-dichloroethane	0.867	0.976	1.091	1.142	1.099	1.039	1.022	1.005	1.096	1.038	8.00
30) chloroprene	0.625	0.662	0.832	0.873	0.827	0.777	0.757	0.732	0.813	0.766	10.70
31) acrylonitrile	0.146	0.258	0.272	0.250	0.252	0.225	0.213	0.252	0.233	17.11	
32) hexane	0.311	0.320	0.410	0.421	0.406	0.370	0.378	0.362	0.392	0.374	10.30
33) vinyl acetate	0.107	0.113	0.103	0.105	0.082	0.103	0.102	0.102	0.102	10.14	
34) ethyl tert-butyl ether	1.471	1.669	1.936	1.996	1.910	1.835	1.748	1.767	1.932	1.807	9.10
35) ethyl acetate	0.098	0.105	0.100	0.092	0.088	0.092	0.112	0.098	0.098	8.33	
36) 2,2-dichloropropane	0.691	0.779	0.800	0.840	0.826	0.732	0.784	0.784	0.837	0.786	6.25
37) cis-1,2-dichloroethene	0.542	0.570	0.655	0.672	0.655	0.622	0.614	0.634	0.664	0.625	7.09
38) methyl acrylate	0.110	0.113	0.105	0.107	0.090	0.078	0.106	0.101	0.101	12.27	
39) propionitrile	0.089	0.093	0.110	0.116	0.111	0.105	0.102	0.103	0.116	0.105	9.04
40) bromochloromethane	0.251	0.281	0.338	0.351	0.338	0.330	0.313	0.308	0.345	0.317	10.45
41) tetrahydrofuran	0.097	0.099	0.095	0.094	0.084	0.086	0.095	0.093	0.093	6.27	
42) chloroform	0.597	0.759	0.697	0.722	0.704	0.664	0.666	0.678	0.716	0.689	6.63
43) t-butyl formate*****This compound did not meet initial calibration criteria.	0.152	0.227	0.229	0.220	0.219	0.198	0.193	0.224	0.208	12.52	
44) dibromofluoromethane (s)	0.577	0.579	0.568	0.574	0.575	0.573	0.581	0.578	0.577	0.576	0.63
45) methacrylonitrile	0.206	0.203	0.296	0.307	0.295	0.286	0.268	0.265	0.297	0.269	14.50
46) 1,1,1-trichloroethane	0.724	0.771	0.905	0.932	0.904	0.853	0.829	0.807	0.880	0.845	8.12
47) cyclohexane	0.611	0.827	0.824	0.799	0.794	0.746	0.754	0.824	0.772	9.38	
48) 1,1-dichloropropene	0.644	0.685	0.807	0.824	0.804	0.765	0.759	0.735	0.801	0.758	8.02
49) iso-butyl alcohol	0.036	0.035	0.035	0.033	0.033	0.029	0.034	0.036	0.034#	6.49	
50) carbon tetrachloride	0.624	0.677	0.810	0.833	0.812	0.765	0.755	0.728	0.798	0.756	9.14
51) tert amyl alcohol	0.032	0.030	0.031	0.030	0.029	0.027	0.029	0.031	0.030#	5.18	
52) I 1,4-difluorobenzene -----ISTD-----											
53) 1,2-dichloroethane-d4 (s)											

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Initial Calibration Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3564-ICC3564
Lab FileID: 4D82604.D

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	0.404	0.409	0.407	0.398	0.402	0.383	0.414	0.410	0.405	0.404	2.21
54) n-butyl alcohol	0.014	0.013	0.013	0.014	0.013	0.013	0.011	0.012	0.013	0.013#	7.81
55) 2,2,4-trimethylpentane	1.181	1.275	1.479	1.457	1.451	1.288	1.407	1.348	1.416	1.367	7.38
56) benzene	1.217	1.404	1.520	1.499	1.497	1.400	1.426	1.389	1.495	1.427	6.56
57) tert-amyl methyl ether	0.193	0.238	0.278	0.277	0.267	0.257	0.249	0.242	0.270	0.252	10.53
58) heptane	0.235	0.246	0.299	0.298	0.298	0.270	0.287	0.277	0.290	0.278	8.36
59) isopropyl acetate	0.090	0.088	0.087	0.084	0.076	0.074	0.086	0.084	0.084	7.50	
60) 1,2-dichloroethane	0.423	0.462	0.538	0.534	0.534	0.493	0.502	0.496	0.535	0.502	7.84
61) trichloroethene	0.273	0.324	0.363	0.385	0.369	0.364	0.347	0.342	0.367	0.348	9.56
62) ethyl acrylate	0.409	0.538	0.585	0.562	0.547	0.492	0.484	0.560	0.522	10.95	
63) 2-nitropropane	0.079	0.092	0.106	0.101	0.099	0.092	0.093	0.103	0.096	8.96	
64) 2-chloroethyl vinyl ether	0.214	0.247	0.240	0.224	0.213	0.207	0.238	0.226	6.83		
65) methyl methacrylate	0.097	0.107	0.104	0.103	0.091	0.084	0.100	0.098	8.25		
66) 1,2-dichloropropane	0.327	0.348	0.391	0.426	0.418	0.399	0.386	0.389	0.413	0.389	8.36
67) dibromomethane	0.228	0.246	0.258	0.290	0.285	0.272	0.262	0.264	0.286	0.266	7.57
68) methylcyclohexane	0.506	0.541	0.621	0.686	0.668	0.625	0.619	0.593	0.641	0.611	9.40
69) bromodichloromethane	0.421	0.466	0.483	0.545	0.531	0.511	0.490	0.487	0.529	0.496	7.73
70) epichlorohydrin	0.032	0.039	0.044	0.042	0.042	0.037	0.038	0.043	0.040#	9.70	
71) cis-1,3-dichloropropene	0.488	0.551	0.577	0.659	0.637	0.624	0.585	0.579	0.634	0.593	8.88
72) 4-methyl-2-pentanone	0.142	0.151	0.150	0.177	0.172	0.159	0.156	0.162	0.174	0.160	7.46
73) 3-methyl-1-butanol	0.021	0.021	0.019	0.023	0.021	0.021	0.018	0.020	0.021	0.021#	6.44
74) I chlorobenzene-d5	-----ISTD-----										
75) toluene-d8 (s)	1.358	1.362	1.350	1.337	1.349	1.316	1.356	1.378	1.358	1.352	1.27
76) toluene	0.772	0.875	0.972	0.978	0.967	0.900	0.904	0.891	0.970	0.914	7.32
77) trans-1,3-dichloropropene	0.542	0.574	0.678	0.681	0.680	0.633	0.615	0.620	0.672	0.633	7.95
78) ethyl methacrylate	0.426	0.458	0.612	0.613	0.600	0.571	0.520	0.529	0.601	0.548	12.67
79) 1,1,2-trichloroethane	0.274	0.326	0.364	0.373	0.369	0.345	0.339	0.343	0.370	0.345	9.10
80) tetrachloroethene	0.272	0.288	0.336	0.338	0.334	0.309	0.313	0.315	0.333	0.315	7.28
81) 1,3-dichloropropane	0.526	0.581	0.647	0.663	0.657	0.607	0.596	0.632	0.671	0.620	7.61
82) 2-hexanone	0.170	0.168	0.194	0.202	0.197	0.179	0.178	0.187	0.203	0.186	7.20
83) butyl acetate											

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Initial Calibration Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3564-ICC3564
Lab FileID: 4D82604.D

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		0.274	0.267	0.319	0.326	0.322	0.300	0.290	0.293	0.324	0.302	7.39
84)	3,3-dimethyl-1-butanol	0.052	0.051	0.052	0.052	0.049	0.050	0.041	0.047	0.049	0.049#	7.36
85)	dibromochloromethane	0.405	0.446	0.514	0.520	0.514	0.487	0.463	0.465	0.519	0.481	8.29
86)	1,2-dibromoethane	0.378	0.406	0.467	0.477	0.473	0.448	0.431	0.435	0.482	0.444	7.95
87)	n-butyl ether	1.381	1.486	1.779	1.816	1.779	1.641	1.612	1.633	1.767	1.655	8.94
88)	chlorobenzene	0.913	0.999	1.106	1.124	1.111	1.048	1.043	1.054	1.121	1.058	6.54
89)	1,1,1,2-tetrachloroethane	0.343	0.356	0.431	0.435	0.427	0.407	0.392	0.399	0.428	0.402	8.35
90)	ethylbenzene	1.489	1.641	1.848	1.876	1.830	1.726	1.717	1.711	1.856	1.744	7.19
91)	m,p-xylene	0.538	0.618	0.685	0.695	0.695	0.641	0.640	0.636	0.698	0.650	8.00
92)	o-xylene	0.545	0.581	0.693	0.703	0.697	0.652	0.641	0.646	0.696	0.650	8.55
93)	styrene	0.916	1.016	1.198	1.209	1.186	1.129	1.074	1.068	1.180	1.109	8.92
94)	bromoform	0.327	0.347	0.398	0.405	0.393	0.385	0.346	0.355	0.398	0.373	7.78
95)	butyl acrylate	0.698	0.646	0.952	0.955	0.939	0.913	0.789	0.794	0.926	0.846	13.89
96)	isopropylbenzene	1.405	1.583	1.836	1.870	1.835	1.736	1.664	1.657	1.816	1.711	8.83
97)	cis-1,4-dichloro-2-butene	0.217	0.223	0.210	0.213	0.174	0.181	0.206			0.203	9.11
98)	I 1,4-dichlorobenzene-d -----ISTD-----											
99)	4-bromofluorobenzene (s)	0.998	1.010	1.002	0.990	0.983	0.994	0.988	0.992	0.981	0.993	0.92
100)	bromobenzene	0.768	0.889	0.970	0.978	0.952	0.933	0.883	0.882	0.948	0.911	7.14
101)	1,1,2,2-tetrachloroethane	1.186	1.181	1.252	1.290	1.261	1.210	1.154	1.199	1.274	1.223	3.87
102)	trans-1,4-dichloro-2-butene	0.193		0.292	0.291	0.278	0.282	0.248	0.226	0.274	0.260	13.58
103)	1,2,3-trichloropropane	0.239	0.232	0.282	0.287	0.281	0.273	0.254	0.257	0.289	0.266	7.93
104)	n-propylbenzene	3.378	3.776	4.337	4.397	4.319	4.070	4.015	3.934	4.281	4.057	8.13
105)	2-chlorotoluene	0.691	0.807	0.876	0.882	0.858	0.835	0.804	0.787	0.862	0.822	7.26
106)	4-chlorotoluene	2.125	2.391	2.603	2.635	2.573	2.467	2.405	2.440	2.600	2.471	6.44
107)	1,3,5-trimethylbenzene	2.290	2.513	2.994	3.025	2.932	2.771	2.671	2.633	2.898	2.747	8.90
108)	tert-butylbenzene	0.389	0.416	0.549	0.547	0.528	0.514	0.477	0.468	0.506	0.488	11.53
109)	1,2,4-trimethylbenzene	2.368	2.605	3.091	3.116	3.017	2.888	2.784	2.709	3.007	2.843	8.78
110)	sec-butylbenzene	3.035	3.381	4.034	4.110	3.980	3.722	3.661	3.516	3.934	3.708	9.50
111)	1,3-dichlorobenzene	1.477	1.682	1.779	1.789	1.754	1.679	1.654	1.637	1.785	1.693	5.93
112)	p-isopropyltoluene	2.354	2.627	3.253	3.304	3.147	2.997	2.897	2.772	3.110	2.940	10.60
113)	1,4-dichlorobenzene											

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Initial Calibration Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3564-ICC3564
Lab FileID: 4D82604.D

	1.539	1.685	1.804	1.812	1.758	1.721	1.635	1.656	1.784	1.710	5.29
114) benzyl chloride	1.873	1.880	2.155	2.209	2.100	2.069	1.927	1.921	2.130	2.029	6.36
115) 1,2-dichlorobenzene	1.499	1.521	1.790	1.802	1.757	1.699	1.607	1.624	1.795	1.677	7.08
116) n-butylbenzene	1.266	1.335	1.798	1.827	1.733	1.660	1.573	1.475	1.710	1.597	12.56
117) 1,2-dibromo-3-chloropropane	0.192	0.239	0.243	0.230	0.225	0.207	0.197	0.227	0.220	8.62	
118) 1,3,5-trichlorobenzene	1.102	1.177	1.514	1.554	1.470	1.356	1.285	1.237	1.439	1.348	11.71
119) 2-ethylhexyl acrylate	0.737	0.659	0.367	0.751				0.204	0.543	45.06	
----- Linear regression ----- Coefficient = 0.9984											
Response Ratio = -0.02633 + 0.78696 *A											
120) 1,2,4-trichlorobenzene	0.866	0.858	1.385	1.426	1.300	1.238	1.064	0.945	1.234	1.146	19.11
121) hexachlorobutadiene	0.496	0.576	0.687	0.721	0.686	0.596	0.609	0.579	0.653	0.623	11.32
122) naphthalene	3.305	3.384	3.099	2.995	2.370			2.943	3.016	11.94	
123) 1,2,3-trichlorobenzene	0.773	1.251	1.291	1.205	1.125	0.953	0.861	1.144	1.075	17.71	
124) hexachloroethane	0.432	0.470	0.631	0.627	0.589	0.589	0.534	0.511	0.575	0.551	12.58
125) 2-methylnaphthalene	1.481	1.502	1.106	1.439				0.843	1.274	22.76	
----- Linear regression ----- Coefficient = 0.9977											
Response Ratio = -0.06329 + 1.50842 *A											

(#) = Out of Range ### Number of calibration levels exceeded format ###

M4D3564.M Wed Sep 27 12:13:16 2017 RPT1

Initial Calibration Verification

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Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: V4D3564-ICV3564
 Lab FileID: 4D82609.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\4D82609.D Vial: 17
 Acq On : 27 Sep 2017 3:42 am Operator: oyinadei
 Sample : icv3564-50 Inst : MS4D
 Misc : MS20204,V4D3564,5,,,,,1 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M4D3564.M (RTE Integrator)
 Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 Last Update : Wed Sep 27 12:07:44 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	tert butyl alcohol-d9	1.000	1.000	0.0	84	0.01	7.55
2 M	tertiary butyl alcohol	1.417	1.463	-3.2	84	0.01	7.68
3	Ethanol	0.110	0.115	-4.5	84	0.01	6.10
4 M	1,4-dioxane	0.090	0.103	-14.4	89	0.00	11.74
5 I	pentafluorobenzene	1.000	1.000	0.0	86	0.00	10.10
6 M	chlorodifluoromethane	0.459	0.579	-26.1	95	0.00	3.82
7 M	dichlorodifluoromethane	0.784	0.898	-14.5	87	0.00	3.81
8 M	chloromethane	0.869	1.003	-15.4	88	0.00	4.16
9 M	vinyl chloride	0.866	0.959	-10.7	85	0.00	4.44
10	1,3-butadiene	-----NA-----					
11 M	bromomethane	0.604	0.657	-8.8	82	0.00	5.14
12 M	chloroethane	0.446	0.500	-12.1	84	0.00	5.34
13 M	trichlorofluoromethane	0.968	1.026	-6.0	79	0.00	5.88
14	vinyl bromide	0.587	0.980	-67.0#	124	0.00	5.73
15 M	ethyl ether	0.297	0.358	-20.5	90	0.00	6.36
16 M	acrolein	0.143	0.164	-14.7	89	0.00	6.56
17	freon 113	0.366	0.540	-47.5#	110	0.00	6.83
18 M	1,1-dichloroethene	0.481	0.550	-14.3	86	0.00	6.80
19 M	acetone	0.064	0.065	-1.6	76	0.00	6.81
20 M	acetonitrile	0.085	0.085	0.0	77	0.00	7.26
21 M	iodomethane	0.976	1.123	-15.1	88	0.00	7.07
22 M	carbon disulfide	1.826	2.161	-18.3	92	0.00	7.22
23 M	methylene chloride	0.613	0.680	-10.9	88	0.00	7.58
24 M	methyl acetate	0.544	0.548	-0.7	78	0.00	7.38
25 M	methyl tert butyl ether	1.661	1.897	-14.2	89	0.00	8.04
26 M	trans-1,2-dichloroethene	0.557	0.616	-10.6	88	0.00	8.05
27 M	di-isopropyl ether	1.878	2.062	-9.8	87	0.00	8.75
28 M	2-butanone	0.075	0.085	-13.3	84	0.00	9.44
29 M	1,1-dichloroethane	1.038	1.172	-12.9	89	0.00	8.67
30 M	chloroprene	0.766	0.891	-16.3	88	0.00	8.81
31 M	acrylonitrile	0.233	0.273	-17.2	87	0.00	7.92
32	hexane	0.374	0.333	11.0	68	0.00	8.48
33 M	vinyl acetate	0.102	0.120	-17.6	92	0.00	8.69
34 M	ethyl tert-butyl ether	1.807	2.006	-11.0	87	0.00	9.26
35 M	ethyl acetate	0.098	0.106	-8.2	87	0.00	9.51
36 M	2,2-dichloropropane	0.786	0.829	-5.5	85	0.00	9.51
37 M	cis-1,2-dichloroethene	0.625	0.705	-12.8	91	0.00	9.47
38	methyl acrylate	0.101	0.115	-13.9	89	0.00	9.57
39 M	propionitrile	0.105	0.108	-2.9	81	0.00	9.50
40 M	bromochloromethane	0.317	0.354	-11.7	87	0.00	9.79
41 M	tetrahydrofuran	0.093	0.104	-11.8	91	0.00	9.86

Initial Calibration Verification

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3564-ICV3564
Lab FileID: 4D82609.D

42	M	chloroform	0.689	0.737	-7.0	88	0.00	9.87
43	M	t-butyl formate	0.208	0.358	-72.1#	135	0.00	9.96
44	S	dibromofluoromethane (s)	0.576	0.573	0.5	86	0.00	10.08
45	M	methacrylonitrile	0.269	0.306	-13.8	86	0.00	9.73
46	M	1,1,1-trichloroethane	0.845	0.937	-10.9	87	0.00	10.18
47		cyclohexane	0.772	0.849	-10.0	89	0.00	10.29
48		1,1-dichloropropene	0.758	0.852	-12.4	89	0.00	10.38
49		iso-butyl alcohol	0.034	0.036#	-5.9	90	0.00	10.35
50		carbon tetrachloride	0.756	0.847	-12.0	88	0.00	10.41
51		tert amyl alcohol	0.030	0.031#	-3.3	87	0.00	10.51
52	I	1,4-difluorobenzene	1.000	1.000	0.0	86	0.00	11.04
53	S	1,2-dichloroethane-d4 (s)	0.404	0.386	4.5	84	0.00	10.52
54	M	n-butyl alcohol	0.013	0.014#	-7.7	90	0.00	11.14
55		2,2,4-trimethylpentane	1.367	1.522	-11.3	90	0.00	10.74
56	M	benzene	1.427	1.569	-10.0	90	0.00	10.64
57	M	tert-amyl methyl ether	0.252	0.282	-11.9	88	0.00	10.73
58	M	heptane	0.278	0.335	-20.5	98	0.00	10.92
59	M	isopropyl acetate	0.084	0.090	-7.1	89	0.00	10.61
60	M	1,2-dichloroethane	0.502	0.558	-11.2	90	0.00	10.62
61	M	trichloroethene	0.348	0.400	-14.9	90	0.00	11.39
62		ethyl acrylate	0.522	0.596	-14.2	88	0.00	11.41
63	M	2-nitropropane	0.096	0.104	-8.3	85	0.00	12.12
64	M	2-chloroethyl vinyl ether	0.226	0.289	-27.9	101	0.00	12.18
65	M	methyl methacrylate	0.098	0.111	-13.3	90	0.00	11.68
66	M	1,2-dichloropropane	0.389	0.446	-14.7	91	0.00	11.63
67	M	dibromomethane	0.266	0.297	-11.7	89	0.00	11.77
68	M	methylcyclohexane	0.611	0.647	-5.9	82	0.00	11.66
69	M	bromodichloromethane	0.496	0.563	-13.5	89	0.00	11.91
70		epichlorohydrin	0.040	0.046#	-15.0	90	0.00	12.27
71	M	cis-1,3-dichloropropene	0.593	0.677	-14.2	89	0.00	12.39
72	M	4-methyl-2-pentanone	0.160	0.181	-13.1	88	0.00	12.50
73	M	3-methyl-1-butanol	0.021	0.022#	-4.8	84	0.00	12.51
74	I	chlorobenzene-d5	1.000	1.000	0.0	85	0.00	14.19
75	S	toluene-d8 (s)	1.352	1.347	0.4	86	0.00	12.70
76		toluene	0.914	1.016	-11.2	89	0.00	12.78
77		trans-1,3-dichloropropene	0.633	0.705	-11.4	88	0.00	12.94
78		ethyl methacrylate	0.548	0.611	-11.5	85	0.00	12.98
79		1,1,2-trichloroethane	0.345	0.390	-13.0	89	0.00	13.14
80	M	tetrachloroethene	0.315	0.361	-14.6	91	0.00	13.36
81	M	1,3-dichloropropane	0.620	0.677	-9.2	87	0.00	13.33
82		2-hexanone	0.186	0.201	-8.1	85	0.00	13.35
83	M	butyl acetate	0.302	0.340	-12.6	89	0.00	13.45
84	M	3,3-dimethyl-1-butanol	0.049	0.053	-8.2	86	0.00	13.51
85	M	dibromochloromethane	0.481	0.550	-14.3	90	0.00	13.58
86	M	1,2-dibromoethane	0.444	0.502	-13.1	90	0.00	13.73
87		n-butyl ether	1.655	1.799	-8.7	85	0.00	14.21
88	M	chlorobenzene	1.058	1.170	-10.6	89	0.00	14.22
89	M	1,1,1,2-tetrachloroethane	0.402	0.447	-11.2	88	0.00	14.28
90	M	ethylbenzene	1.744	1.904	-9.2	87	0.00	14.30
91	M	m,p-xylene	0.650	0.723	-11.2	89	0.00	14.41
92	M	o-xylene	0.650	0.725	-11.5	88	0.00	14.83
93	M	styrene	1.109	1.252	-12.9	88	0.00	14.83
94	M	bromoform	0.373	0.417	-11.8	88	0.00	15.06
95		butyl acrylate	0.846	0.983	-16.2	88	0.00	14.66
96		isopropylbenzene	1.711	1.896	-10.8	87	0.00	15.19
97		cis-1,4-dichloro-2-butene	0.203	0.211	-3.9	81	0.00	15.22
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	85	0.00	16.57

6.7.2
6

Initial Calibration Verification

Page 3 of 3

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: V4D3564-ICV3564
 Lab FileID: 4D82609.D

99 S	4-bromofluorobenzene (s)	0.993	0.991	0.2	85	0.00	15.37
100 M	bromobenzene	0.911	1.022	-12.2	89	0.00	15.56
101 M	1,1,2,2-tetrachloroethane	1.223	1.342	-9.7	88	0.00	15.45
102 M	trans-1,4-dichloro-2-bute	0.260	0.317	-21.9	93	0.00	15.50
103 M	1,2,3-trichloropropane	0.266	0.297	-11.7	88	0.00	15.52
104 M	n-propylbenzene	4.057	4.537	-11.8	88	0.00	15.61
105 M	2-chlorotoluene	0.822	0.926	-12.7	89	0.00	15.74
106 M	4-chlorotoluene	2.471	2.682	-8.5	86	0.00	15.84
107 M	1,3,5-trimethylbenzene	2.747	3.096	-12.7	87	0.00	15.77
108 M	tert-butylbenzene	0.488	0.578	-18.4	90	0.00	16.13
109 M	1,2,4-trimethylbenzene	2.843	3.242	-14.0	88	0.00	16.17
110 M	sec-butylbenzene	3.708	4.145	-11.8	86	0.00	16.36
111 M	1,3-dichlorobenzene	1.693	1.892	-11.8	90	0.00	16.52
112 M	p-isopropyltoluene	2.940	3.423	-16.4	88	0.00	16.48
113 M	1,4-dichlorobenzene	1.710	1.908	-11.6	89	0.00	16.60
114	benzyl chloride	2.029	1.842	9.2	71	0.00	16.71
115 M	1,2-dichlorobenzene	1.677	1.878	-12.0	89	0.00	17.00
116 M	n-butylbenzene	1.597	1.883	-17.9	88	0.00	16.91
117 M	1,2-dibromo-3-chloropropa	0.220	0.249	-13.2	87	0.00	17.80
118	1,3,5-trichlorobenzene	1.348	1.674	-24.2	92	0.00	18.04
----- True Calc. % Drift -----							
119	2-ethylhexyl acrylate	10.000	12.091	-20.9	106	0.00	18.74
----- AvgRF CCRF % Dev -----							
120 M	1,2,4-trichlorobenzene	1.146	1.473	-28.5	88	0.00	18.71
121 M	hexachlorobutadiene	0.623	0.737	-18.3	87	0.00	18.87
122 M	naphthalene	3.016	3.476	-15.3	87	0.00	19.00
123 M	1,2,3-trichlorobenzene	1.075	1.350	-25.6	89	0.00	19.26
124 m	hexachloroethane	0.551	0.646	-17.2	87	0.00	17.31
----- True Calc. % Drift -----							
125	2-methylnaphthalene	25.000	25.795	-3.2	81	0.00	20.24

(#) = Out of Range
 4D82604.D M4D3564.M

SPCC's out = 0 CCC's out = 0
 Wed Sep 27 12:13:31 2017 RPT1

6.7.2
6

Initial Calibration Verification

Page 1 of 3

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: V4D3565-ICV3564
 Lab FileID: 4D82613.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\4D82613.D Vial: 2
 Acq On : 27 Sep 2017 1:05 pm Operator: jessicap
 Sample : icv3564-50 Inst : MS4D
 Misc : MS20204,V4D3565,5,,,,,1 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M4D3564.M (RTE Integrator)
 Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 Last Update : Wed Sep 27 12:07:44 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	tert butyl alcohol-d9	1.000	1.000	0.0	91	0.01	7.55
2 M	tertiary butyl alcohol			NA			
3	Ethanol			NA			
4 M	1,4-dioxane			NA			
5 I	pentafluorobenzene	1.000	1.000	0.0	92	0.00	10.09
6 M	chlorodifluoromethane			NA			
7 M	dichlorodifluoromethane			NA			
8 M	chloromethane			NA			
9 M	vinyl chloride			NA			
10	1,3-butadiene			NA			
11 M	bromomethane			NA			
12 M	chloroethane			NA			
13 M	trichlorofluoromethane			NA			
14	vinyl bromide			NA			
15 M	ethyl ether			NA			
16 M	acrolein			NA			
17	freon 113	0.366	0.452	-23.5	98	0.00	6.83
18 M	1,1-dichloroethene			NA			
19 M	acetone			NA			
20 M	acetonitrile			NA			
21 M	iodomethane			NA			
22 M	carbon disulfide			NA			
23 M	methylene chloride			NA			
24 M	methyl acetate			NA			
25 M	methyl tert butyl ether			NA			
26 M	trans-1,2-dichloroethene			NA			
27 M	di-isopropyl ether			NA			
28 M	2-butanone			NA			
29 M	1,1-dichloroethane			NA			
30 M	chloroprene			NA			
31 M	acrylonitrile			NA			
32	hexane			NA			
33 M	vinyl acetate			NA			
34 M	ethyl tert-butyl ether			NA			
35 M	ethyl acetate			NA			
36 M	2,2-dichloropropane			NA			
37 M	cis-1,2-dichloroethene			NA			
38	methyl acrylate			NA			
39 M	propionitrile			NA			
40 M	bromochloromethane			NA			
41 M	tetrahydrofuran			NA			

Initial Calibration Verification

Page 2 of 3

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: V4D3565-ICV3564
 Lab FileID: 4D82613.D

42	M	chloroform			-----NA-----			
43	M	t-butyl formate			-----NA-----			
44	S	dibromofluoromethane (s)	0.576	0.585	-1.6	93	0.00	10.08
45	M	methacrylonitrile			-----NA-----			
46	M	1,1,1-trichloroethane			-----NA-----			
47		cyclohexane			-----NA-----			
48		1,1-dichloropropene			-----NA-----			
49		iso-butyl alcohol			-----NA-----			
50		carbon tetrachloride			-----NA-----			
51		tert amyl alcohol			-----NA-----			
52	I	1,4-difluorobenzene	1.000	1.000	0.0	93	0.00	11.04
53	S	1,2-dichloroethane-d4 (s)	0.404	0.408	-1.0	96	0.00	10.52
54	M	n-butyl alcohol			-----NA-----			
55		2,2,4-trimethylpentane			-----NA-----			
56	M	benzene			-----NA-----			
57	M	tert-amyl methyl ether			-----NA-----			
58	M	heptane			-----NA-----			
59	M	isopropyl acetate			-----NA-----			
60	M	1,2-dichloroethane			-----NA-----			
61	M	trichloroethene			-----NA-----			
62		ethyl acrylate			-----NA-----			
63	M	2-nitropropane			-----NA-----			
64	M	2-chloroethyl vinyl ether			-----NA-----			
65	M	methyl methacrylate			-----NA-----			
66	M	1,2-dichloropropane			-----NA-----			
67	M	dibromomethane			-----NA-----			
68	M	methylcyclohexane			-----NA-----			
69	M	bromodichloromethane			-----NA-----			
70		epichlorohydrin			-----NA-----			
71	M	cis-1,3-dichloropropene			-----NA-----			
72	M	4-methyl-2-pentanone			-----NA-----			
73	M	3-methyl-1-butanol			-----NA-----			
74	I	chlorobenzene-d5	1.000	1.000	0.0	90	0.00	14.19
75	S	toluene-d8 (s)	1.352	1.364	-0.9	92	0.00	12.70
76		toluene			-----NA-----			
77		trans-1,3-dichloropropene			-----NA-----			
78		ethyl methacrylate			-----NA-----			
79		1,1,2-trichloroethane			-----NA-----			
80	M	tetrachloroethene			-----NA-----			
81	M	1,3-dichloropropane			-----NA-----			
82		2-hexanone			-----NA-----			
83	M	butyl acetate			-----NA-----			
84	M	3,3-dimethyl-1-butanol			-----NA-----			
85	M	dibromochloromethane			-----NA-----			
86	M	1,2-dibromoethane			-----NA-----			
87		n-butyl ether			-----NA-----			
88	M	chlorobenzene			-----NA-----			
89	M	1,1,1,2-tetrachloroethane			-----NA-----			
90	M	ethylbenzene			-----NA-----			
91	M	m,p-xylene			-----NA-----			
92	M	o-xylene			-----NA-----			
93	M	styrene			-----NA-----			
94	M	bromoform			-----NA-----			
95		butyl acrylate			-----NA-----			
96		isopropylbenzene			-----NA-----			
97		cis-1,4-dichloro-2-butene			-----NA-----			
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	88	0.00	16.57

6.7.3

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Initial Calibration Verification

Page 3 of 3

Job Number: JC52695

Sample: V4D3565-ICV3564

Account: BBLNYS Arcadis

Lab FileID: 4D82613.D

Project: National Grid, Ilion, NY

99 S	4-bromofluorobenzene (s)	0.993	1.002	-0.9	89	0.00	15.37
100 M	bromobenzene			-----NA-----			
101 M	1,1,2,2-tetrachloroethane			-----NA-----			
102 M	trans-1,4-dichloro-2-bute			-----NA-----			
103 M	1,2,3-trichloropropane			-----NA-----			
104 M	n-propylbenzene			-----NA-----			
105 M	2-chlorotoluene			-----NA-----			
106 M	4-chlorotoluene			-----NA-----			
107 M	1,3,5-trimethylbenzene			-----NA-----			
108 M	tert-butylbenzene			-----NA-----			
109 M	1,2,4-trimethylbenzene			-----NA-----			
110 M	sec-butylbenzene			-----NA-----			
111 M	1,3-dichlorobenzene			-----NA-----			
112 M	p-isopropyltoluene			-----NA-----			
113 M	1,4-dichlorobenzene			-----NA-----			
114	benzyl chloride			-----NA-----			
115 M	1,2-dichlorobenzene			-----NA-----			
116 M	n-butylbenzene			-----NA-----			
117 M	1,2-dibromo-3-chloropropa			-----NA-----			
118	1,3,5-trichlorobenzene			-----NA-----			

	----- True	Calc.	% Drift	-----
119	2-ethylhexyl acrylate		-----NA-----	

	----- AvgRF	CCRF	% Dev	-----
120 M	1,2,4-trichlorobenzene		-----NA-----	
121 M	hexachlorobutadiene		-----NA-----	
122 M	naphthalene		-----NA-----	
123 M	1,2,3-trichlorobenzene		-----NA-----	
124 m	hexachloroethane		-----NA-----	

	----- True	Calc.	% Drift	-----
125	2-methylnaphthalene		-----NA-----	

(#) = Out of Range

4D82604.D M4D3564.M

SPCC's out = 0 CCC's out = 0

Wed Sep 27 14:58:06 2017 RPT1

6.7.3

6

Continuing Calibration Summary

Page 1 of 3

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: V4D3589-CC3564
 Lab FileID: 4D83138.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\v4d3589\4d83138.d Vial: 3
 Acq On : 12 Oct 2017 9:06 pm Operator: jessicap
 Sample : CC3564-50 Inst : MS4D
 Misc : MS20734,V4D3589,5,,,,,1 Multiplr: 1.00
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M4D3564.M (RTE Integrator)
 Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 Last Update : Wed Sep 27 12:07:44 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	tert butyl alcohol-d9	1.000	1.000	0.0	96	0.00	7.54
2 M	tertiary butyl alcohol	1.417	1.237	12.7	81	0.00	7.68
3	Ethanol	0.110	0.096	12.7	80	0.00	6.09
4 M	1,4-dioxane	0.090	0.078	13.3	77	0.00	11.74
5 I	pentafluorobenzene	1.000	1.000	0.0	95	0.00	10.09
6 M	chlorodifluoromethane	0.459	0.565	-23.1#	101	0.00	3.81
7 M	dichlorodifluoromethane	0.784	0.582	25.8#	62	0.00	3.80
8 M	chloromethane	0.869	0.717	17.5	69	0.00	4.15
9 M	vinyl chloride	0.866	0.685	20.9#	66	-0.01	4.43
10	1,3-butadiene	-----NA-----					
11 M	bromomethane	0.604	0.474	21.5#	65	0.00	5.13
12 M	chloroethane	0.446	0.372	16.6	68	0.00	5.34
13 M	trichlorofluoromethane	0.968	0.830	14.3	70	-0.02	5.86
14	vinyl bromide	0.587	0.798	-35.9#	111	0.00	5.72
15 M	ethyl ether	0.297	0.265	10.8	73	0.00	6.35
16 M	acrolein	0.143	0.102	28.7#	61	0.00	6.56
17	freon 113	0.366	0.332	9.3	74	0.00	6.82
18 M	1,1-dichloroethene	0.481	0.418	13.1	72	0.00	6.79
19 M	acetone	0.064	0.062	3.1	79	0.00	6.81
20 M	acetonitrile	0.085	0.081	4.7	81	0.00	7.26
21 M	iodomethane	0.976	0.870	10.9	75	0.00	7.06
22 M	carbon disulfide	1.826	1.625	11.0	76	0.00	7.21
23 M	methylene chloride	0.613	0.508	17.1	72	0.00	7.57
24 M	methyl acetate	0.544	0.517	5.0	81	0.00	7.37
25 M	methyl tert butyl ether	1.661	1.497	9.9	76	0.00	8.03
26 M	trans-1,2-dichloroethene	0.557	0.460	17.4	72	0.00	8.04
27 M	di-isopropyl ether	1.878	1.756	6.5	81	0.00	8.75
28 M	2-butanone	0.075	0.069	8.0	75	0.00	9.43
29 M	1,1-dichloroethane	1.038	0.916	11.8	76	0.00	8.66
30 M	chloroprene	0.766	0.731	4.6	79	0.00	8.81
31 M	acrylonitrile	0.233	0.212	9.0	74	0.00	7.91
32	hexane	0.374	0.347	7.2	78	0.00	8.47
33 M	vinyl acetate	0.102	0.082	19.6	69	0.00	8.68
34 M	ethyl tert-butyl ether	1.807	1.638	9.4	78	0.00	9.25
35 M	ethyl acetate	0.098	0.087	11.2	79	0.00	9.50
36 M	2,2-dichloropropane	0.786	0.753	4.2	85	0.00	9.51
37 M	cis-1,2-dichloroethene	0.625	0.514	17.8	72	0.00	9.47
38	methyl acrylate	0.101	0.085	15.8	71	0.00	9.57
39 M	propionitrile	0.105	0.094	10.5	77	0.00	9.49
40 M	bromochloromethane	0.317	0.267	15.8	72	0.00	9.79
41 M	tetrahydrofuran	0.093	0.077	17.2	73	0.00	9.86

Continuing Calibration Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3589-CC3564
Lab FileID: 4D83138.D

42	M	chloroform	0.689	0.585	15.1	77	0.00	9.87
43	M	t-butyl formate	0.208	0.134	35.6#	56	0.00	9.96
44	S	dibromofluoromethane (s)	0.576	0.521	9.5	86	0.00	10.07
45	M	methacrylonitrile	0.269	0.237	11.9	73	0.00	9.72
46	M	1,1,1-trichloroethane	0.845	0.776	8.2	79	0.00	10.18
47		cyclohexane	0.772	0.588	23.8#	68	0.00	10.29
48		1,1-dichloropropene	0.758	0.663	12.5	76	0.00	10.37
49		iso-butyl alcohol	0.034	0.031#	8.8	84	0.00	10.35
50		carbon tetrachloride	0.756	0.699	7.5	79	0.00	10.41
51		tert amyl alcohol	0.030	0.027#	10.0	83	0.00	10.50
52	I	1,4-difluorobenzene	1.000	1.000	0.0	93	0.00	11.03
53	S	1,2-dichloroethane-d4 (s)	0.404	0.396	2.0	93	0.00	10.52
54	M	n-butyl alcohol	0.013	0.012#	7.7	80	0.00	11.14
55		2,2,4-trimethylpentane	1.367	1.229	10.1	78	0.00	10.74
56	M	benzene	1.427	1.206	15.5	75	0.00	10.64
57	M	tert-amyl methyl ether	0.252	0.226	10.3	76	0.00	10.73
58	M	heptane	0.278	0.248	10.8	77	0.00	10.92
59	M	isopropyl acetate	0.084	0.069	17.9	73	0.00	10.60
60	M	1,2-dichloroethane	0.502	0.481	4.2	84	0.00	10.61
61	M	trichloroethene	0.348	0.298	14.4	72	0.00	11.38
62		ethyl acrylate	0.522	0.484	7.3	77	0.00	11.40
63	M	2-nitropropane	0.096	0.100	-4.2	87	0.00	12.12
64	M	2-chloroethyl vinyl ether	0.226	0.194	14.2	73	0.00	12.18
65	M	methyl methacrylate	0.098	0.084	14.3	73	0.00	11.68
66	M	1,2-dichloropropane	0.389	0.346	11.1	76	0.00	11.63
67	M	dibromomethane	0.266	0.234	12.0	75	0.00	11.76
68	M	methylcyclohexane	0.611	0.531	13.1	72	0.00	11.66
69	M	bromodichloromethane	0.496	0.458	7.7	78	0.00	11.91
70		epichlorohydrin	0.040	0.037#	7.5	78	0.00	12.26
71	M	cis-1,3-dichloropropene	0.593	0.542	8.6	77	0.00	12.38
72	M	4-methyl-2-pentanone	0.160	0.146	8.8	77	0.00	12.50
73	M	3-methyl-1-butanol	0.021	0.020#	4.8	80	0.00	12.50
74	I	chlorobenzene-d5	1.000	1.000	0.0	91	0.00	14.19
75	S	toluene-d8 (s)	1.352	1.240	8.3	84	0.00	12.70
76		toluene	0.914	0.784	14.2	73	0.00	12.77
77		trans-1,3-dichloropropene	0.633	0.576	9.0	77	0.00	12.93
78		ethyl methacrylate	0.548	0.504	8.0	75	0.00	12.98
79		1,1,2-trichloroethane	0.345	0.300	13.0	73	0.00	13.14
80	M	tetrachloroethene	0.315	0.270	14.3	73	0.00	13.36
81	M	1,3-dichloropropane	0.620	0.537	13.4	74	0.00	13.32
82		2-hexanone	0.186	0.174	6.5	78	0.00	13.34
83	M	butyl acetate	0.302	0.273	9.6	76	0.00	13.44
84	M	3,3-dimethyl-1-butanol	0.049	0.044#	10.2	78	0.00	13.51
85	M	dibromochloromethane	0.481	0.429	10.8	75	0.00	13.58
86	M	1,2-dibromoethane	0.444	0.395	11.0	75	0.00	13.73
87		n-butyl ether	1.655	1.549	6.4	78	0.00	14.21
88	M	chlorobenzene	1.058	0.897	15.2	73	0.00	14.22
89	M	1,1,1,2-tetrachloroethane	0.402	0.359	10.7	75	0.00	14.28
90	M	ethylbenzene	1.744	1.533	12.1	74	0.00	14.30
91	M	m,p-xylene	0.650	0.557	14.3	73	0.00	14.41
92	M	o-xylene	0.650	0.570	12.3	74	0.00	14.83
93	M	styrene	1.109	0.976	12.0	73	0.00	14.83
94	M	bromoform	0.373	0.324	13.1	73	0.00	15.05
95		butyl acrylate	0.846	0.823	2.7	78	0.00	14.66
96		isopropylbenzene	1.711	1.515	11.5	74	0.00	15.19
97		cis-1,4-dichloro-2-butene	0.203	0.175	13.8	72	0.00	15.21
98	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	90	0.00	16.57

Continuing Calibration Summary

Page 3 of 3

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: V4D3589-CC3564
Lab FileID: 4D83138.D

99	S	4-bromofluorobenzene (s)	0.993	0.915	7.9	83	0.00	15.36
100	M	bromobenzene	0.911	0.783	14.1	72	0.00	15.56
101	M	1,1,2,2-tetrachloroethane	1.223	1.032	15.6	72	0.00	15.44
102	M	trans-1,4-dichloro-2-bute	0.260	0.245	5.8	76	0.00	15.49
103	M	1,2,3-trichloropropane	0.266	0.240	9.8	75	0.00	15.52
104	M	n-propylbenzene	4.057	3.683	9.2	76	0.00	15.61
105	M	2-chlorotoluene	0.822	0.713	13.3	73	0.00	15.74
106	M	4-chlorotoluene	2.471	2.199	11.0	75	0.00	15.84
107	M	1,3,5-trimethylbenzene	2.747	2.516	8.4	75	0.00	15.77
108	M	tert-butylbenzene	0.488	0.434	11.1	72	0.00	16.13
109	M	1,2,4-trimethylbenzene	2.843	2.608	8.3	76	0.00	16.17
110	M	sec-butylbenzene	3.708	3.352	9.6	74	0.00	16.35
111	M	1,3-dichlorobenzene	1.693	1.459	13.8	74	0.00	16.51
112	M	p-isopropyltoluene	2.940	2.737	6.9	75	0.00	16.48
113	M	1,4-dichlorobenzene	1.710	1.474	13.8	73	0.00	16.59
114		benzyl chloride	2.029	1.984	2.2	81	0.00	16.71
115	M	1,2-dichlorobenzene	1.677	1.476	12.0	74	0.00	17.00
116	M	n-butylbenzene	1.597	1.514	5.2	75	0.00	16.91
117	M	1,2-dibromo-3-chloropropa	0.220	0.213	3.2	79	0.00	17.79
118		1,3,5-trichlorobenzene	1.348	1.291	4.2	75	0.00	18.04

		----- True	Calc.	% Drift	-----
119		2-ethylhexyl acrylate	-----NA-----		

----- AvgRF			CCRF	% Dev	-----			
120	M	1,2,4-trichlorobenzene	1.146	1.188	-3.7	75	0.00	18.71
121	M	hexachlorobutadiene	0.623	0.611	1.9	76	0.00	18.87
122	M	naphthalene	3.016	2.844	5.7	76	0.00	19.00
123	M	1,2,3-trichlorobenzene	1.075	1.084	-0.8	76	0.00	19.26
124	m	hexachloroethane	0.551	0.512	7.1	74	0.00	17.30

		----- True	Calc.	% Drift	-----			
125		2-methylnaphthalene	25.000	23.982	4.1	79	0.00	20.23

(#) = Out of Range
 4D82604.D M4D3564.M

SPCC's out = 0 CCC's out = 0
 Mon Oct 16 04:42:01 2017

6.7.4
6



MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83147.d
Acq On : 13 Oct 2017 1:19 am
Operator : jessicap
Sample : jc52695-1 Inst : MS4D
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 12 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:54:16 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:44 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	143536	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	246804	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	377815	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	310091	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.568	152	160200	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	131009	46.10	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.20%
53) 1,2-dichloroethane-d4 (s)	10.523	65	152319	49.94	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	99.88%
75) toluene-d8 (s)	12.704	98	385744	46.02	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.04%
99) 4-bromofluorobenzene (s)	15.367	95	147382	46.32	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.64%

Target Compounds Qvalue

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

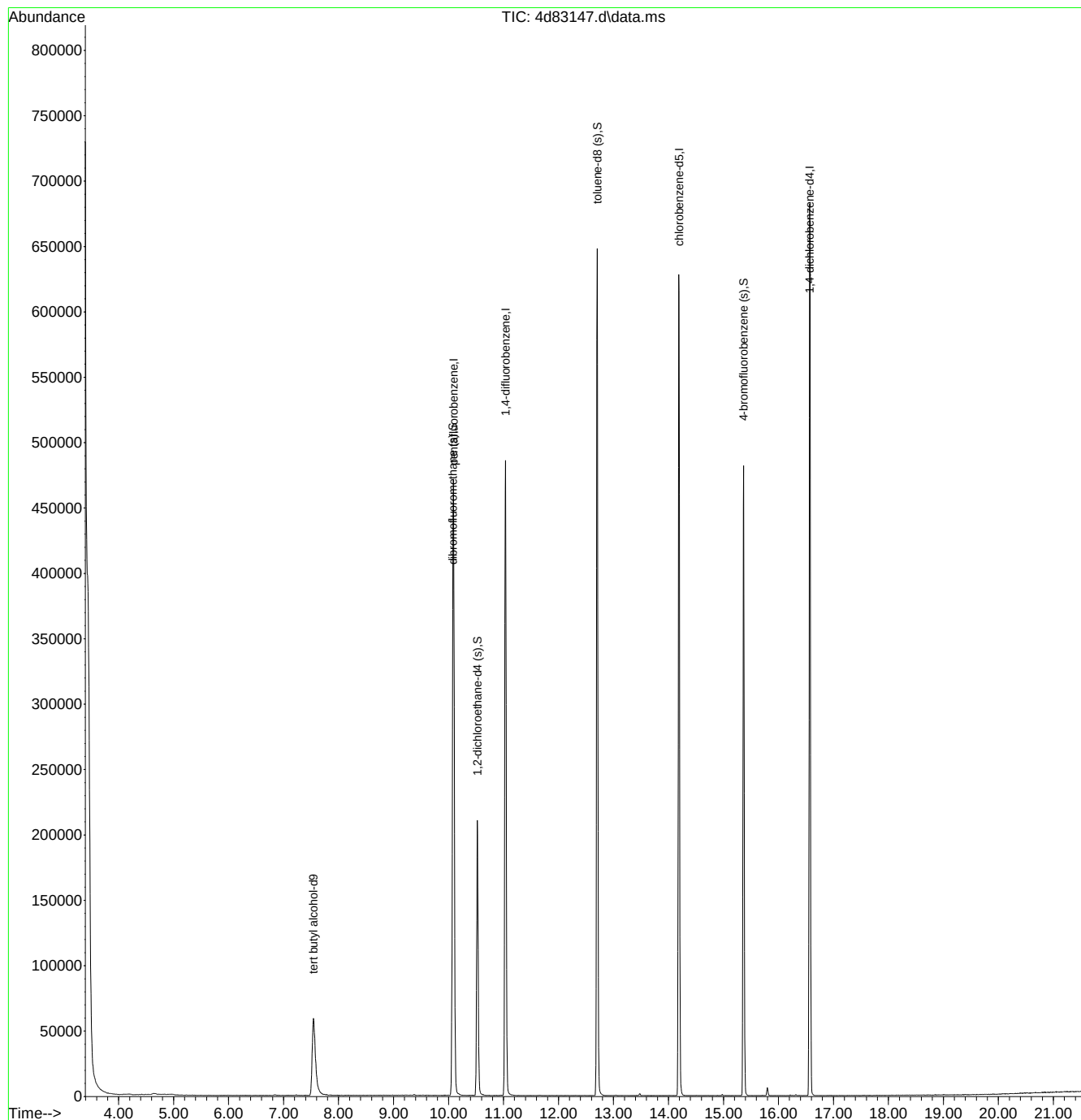
7.1.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83147.d
Acq On : 13 Oct 2017 1:19 am
Operator : jessicap
Sample : jc52695-1
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 12 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:54:16 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:44 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83148.d
Acq On : 13 Oct 2017 1:46 am
Operator : jessicap
Sample : jc52695-2 Inst : MS4D
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 13 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:55:55 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.544	65	132690	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	235485	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	356226	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	288533	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.568	152	149468	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	124778	46.02	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.04%
53) 1,2-dichloroethane-d4 (s)	10.522	65	145097	50.45	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	100.90%
75) toluene-d8 (s)	12.704	98	367333	47.10	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	94.20%
99) 4-bromofluorobenzene (s)	15.367	95	138319	46.59	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	93.18%

Target Compounds	Qvalue

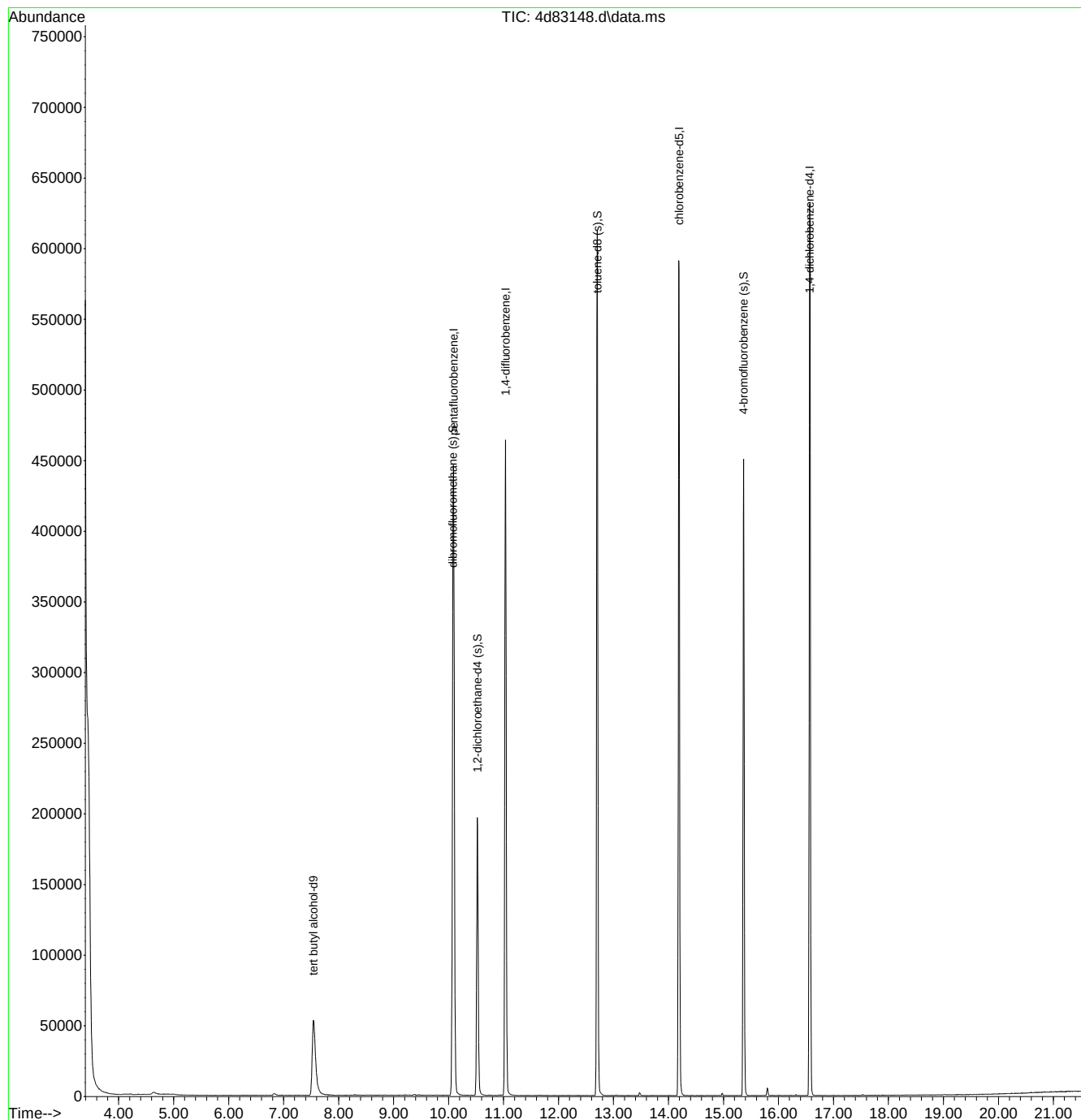
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83148.d
Acq On : 13 Oct 2017 1:46 am
Operator : jessicap
Sample : jc52695-2
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 13 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:55:55 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : X:\Complete\dayton 20171016\v4d3589\
 Data File : 4d83149.d
 Acq On : 13 Oct 2017 2:13 am
 Operator : jessicap
 Sample : jc52695-3 Inst : MS4D
 Misc : MS21008,V4D3589,5,,,,,1
 ALS Vial : 14 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 24 08:56:20 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:44 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	139552	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	237710	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	358167	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	295376	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.568	152	154819	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	124971	45.66	ug/L	0.00
Spiked Amount	50.000	Range	76 - 120	Recovery	=	91.32%
53) 1,2-dichloroethane-d4 (s)	10.523	65	147183	50.90	ug/L	0.00
Spiked Amount	50.000	Range	73 - 122	Recovery	=	101.80%
75) toluene-d8 (s)	12.704	98	367944	46.08	ug/L	0.00
Spiked Amount	50.000	Range	84 - 119	Recovery	=	92.16%
99) 4-bromofluorobenzene (s)	15.367	95	142129	46.22	ug/L	0.00
Spiked Amount	50.000	Range	78 - 117	Recovery	=	92.44%
Target Compounds						
56) benzene	10.643	78	32190	3.15	ug/L	99
91) m,p-xylene	14.418	106	2429	0.63	ug/L	88
92) o-xylene	14.832	106	6065	1.58	ug/L	92

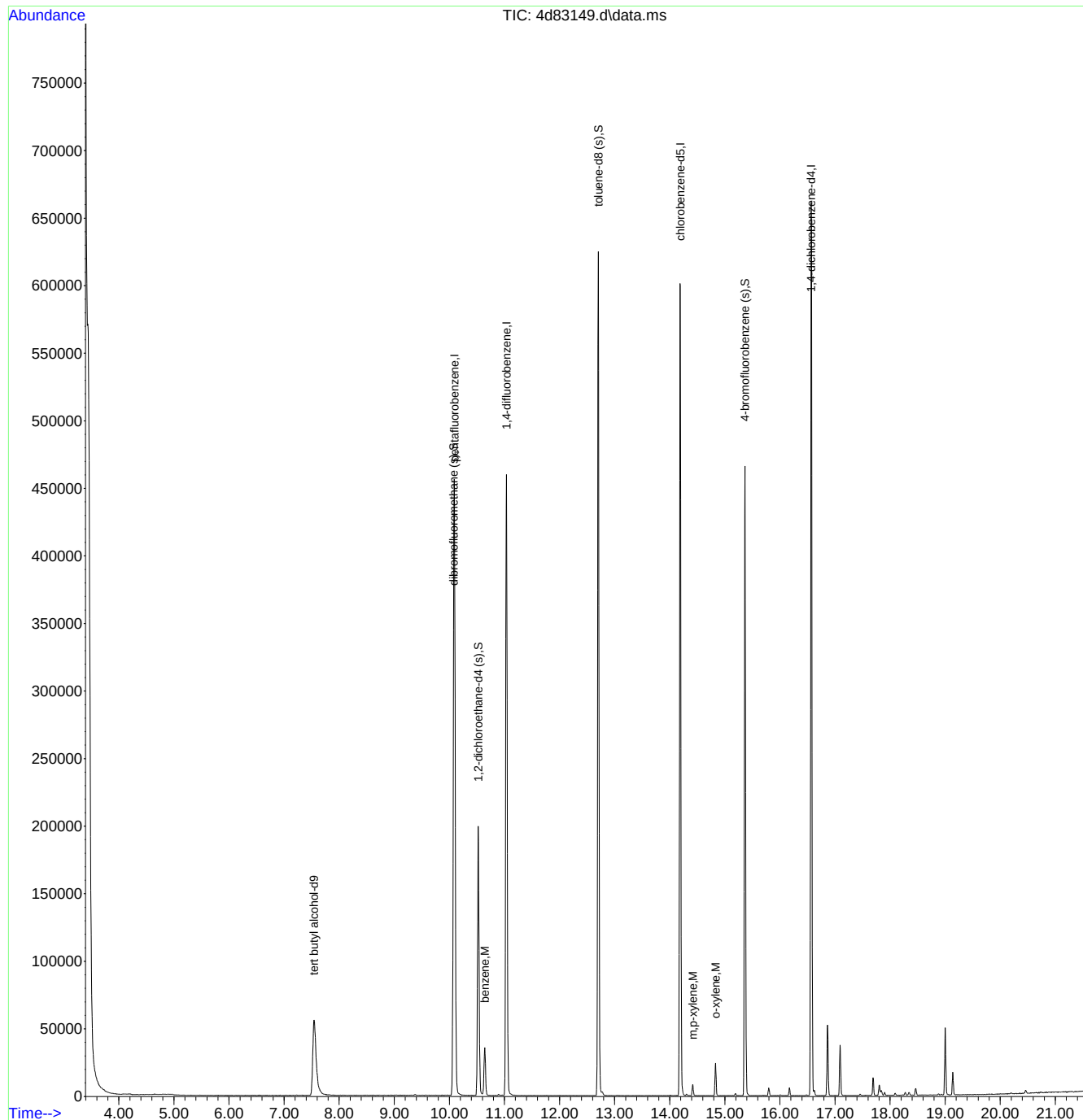
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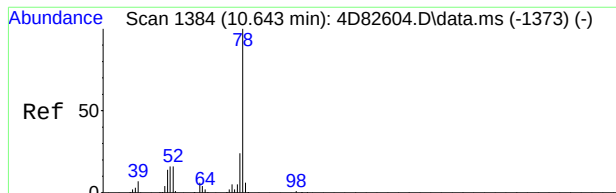
Quantitation Report (QT Reviewed)

Data Path : X:\Complete\dayton 20171016\v4d3589\
Data File : 4d83149.d
Acq On : 13 Oct 2017 2:13 am
Operator : jessicap
Sample : jc52695-3
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 14 Sample Multiplier: 1

Inst : MS4D

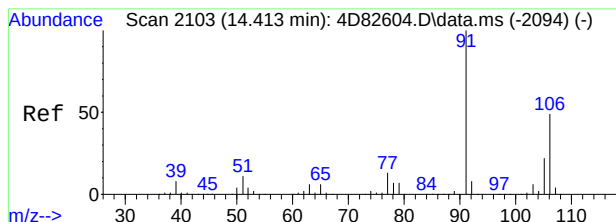
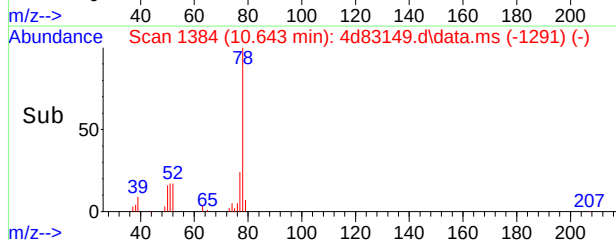
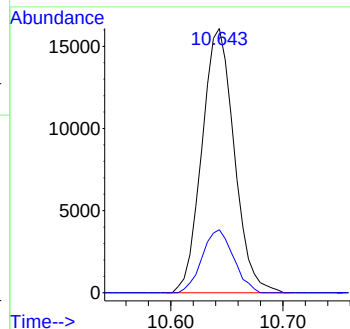
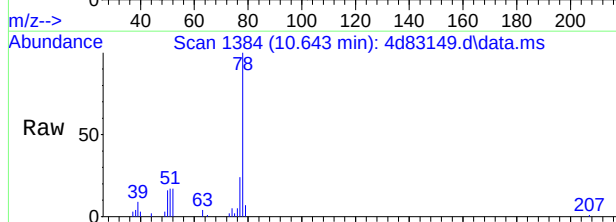
Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 24 08:56:20 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:44 2017
Response via : Initial Calibration





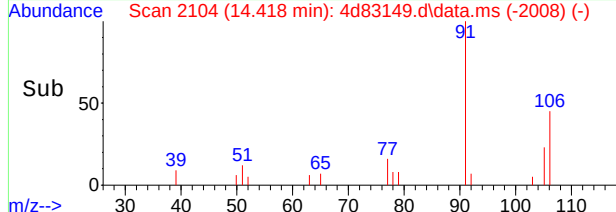
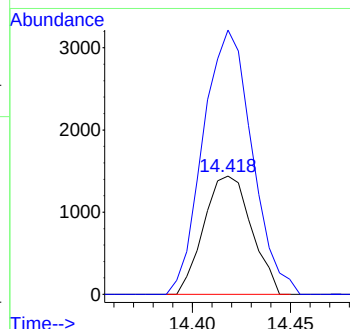
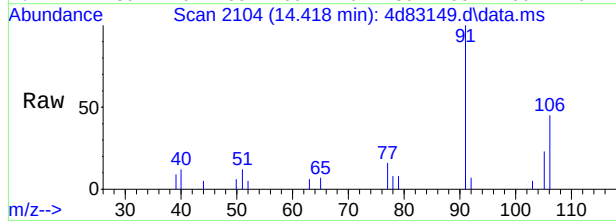
#56
benzene
Concen: 3.15 ug/L
RT: 10.643 min Scan# 1384
Delta R.T. 0.000 min
Lab File: 4d83149.d
Acq: 13 Oct 2017 2:13 am

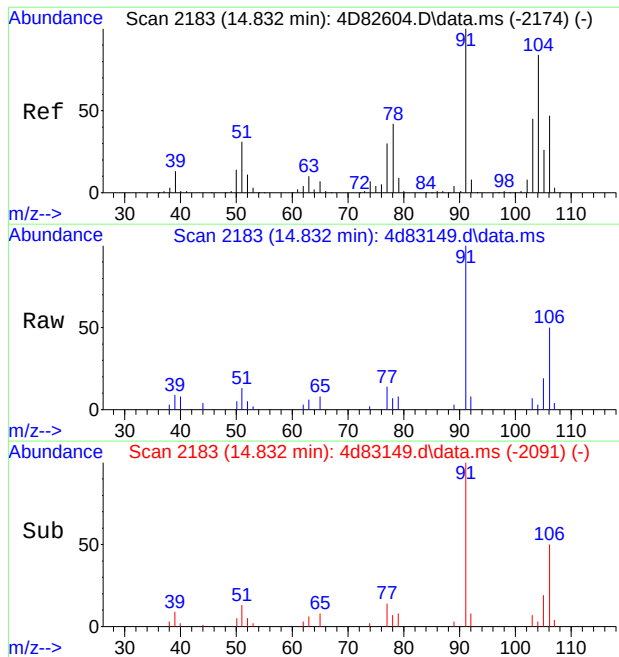
Tgt Ion: 78 Resp: 32190
Ion Ratio Lower Upper
78 100
77 23.9 0.0 53.6



#91
m,p-xylene
Concen: 0.63 ug/L
RT: 14.418 min Scan# 2104
Delta R.T. 0.005 min
Lab File: 4d83149.d
Acq: 13 Oct 2017 2:13 am

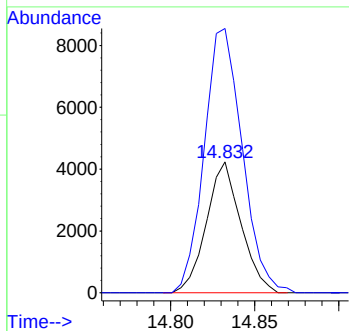
Tgt Ion: 106 Resp: 2429
Ion Ratio Lower Upper
106 100
91 223.3 174.7 234.7





#92
o-xylene
Concen: 1.58 ug/L
RT: 14.832 min Scan# 2183
Delta R.T. 0.000 min
Lab File: 4d83149.d
Acq: 13 Oct 2017 2:13 am

Tgt Ion:	106	Resp:	6065
Ion Ratio	Lower	Upper	
106	100		
91	201.8	183.7	243.7



Quantitation Report (QT Reviewed)

Data Path : X:\Complete\dayton 20171016\v4d3589\
Data File : 4d83150.d
Acq On : 13 Oct 2017 2:41 am
Operator : jessicap
Sample : jc52695-4 Inst : MS4D
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 15 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:58:37 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.539	65	140394	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	238131	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	359069	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	292892	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	153161	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	127087	46.35	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.70%
53) 1,2-dichloroethane-d4 (s)	10.523	65	148827	51.34	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	102.68%
75) toluene-d8 (s)	12.704	98	368637	46.56	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	93.12%
99) 4-bromofluorobenzene (s)	15.367	95	141459	46.50	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	93.00%
Target Compounds						
56) benzene	10.643	78	12826	1.25	ug/L	Qvalue 98

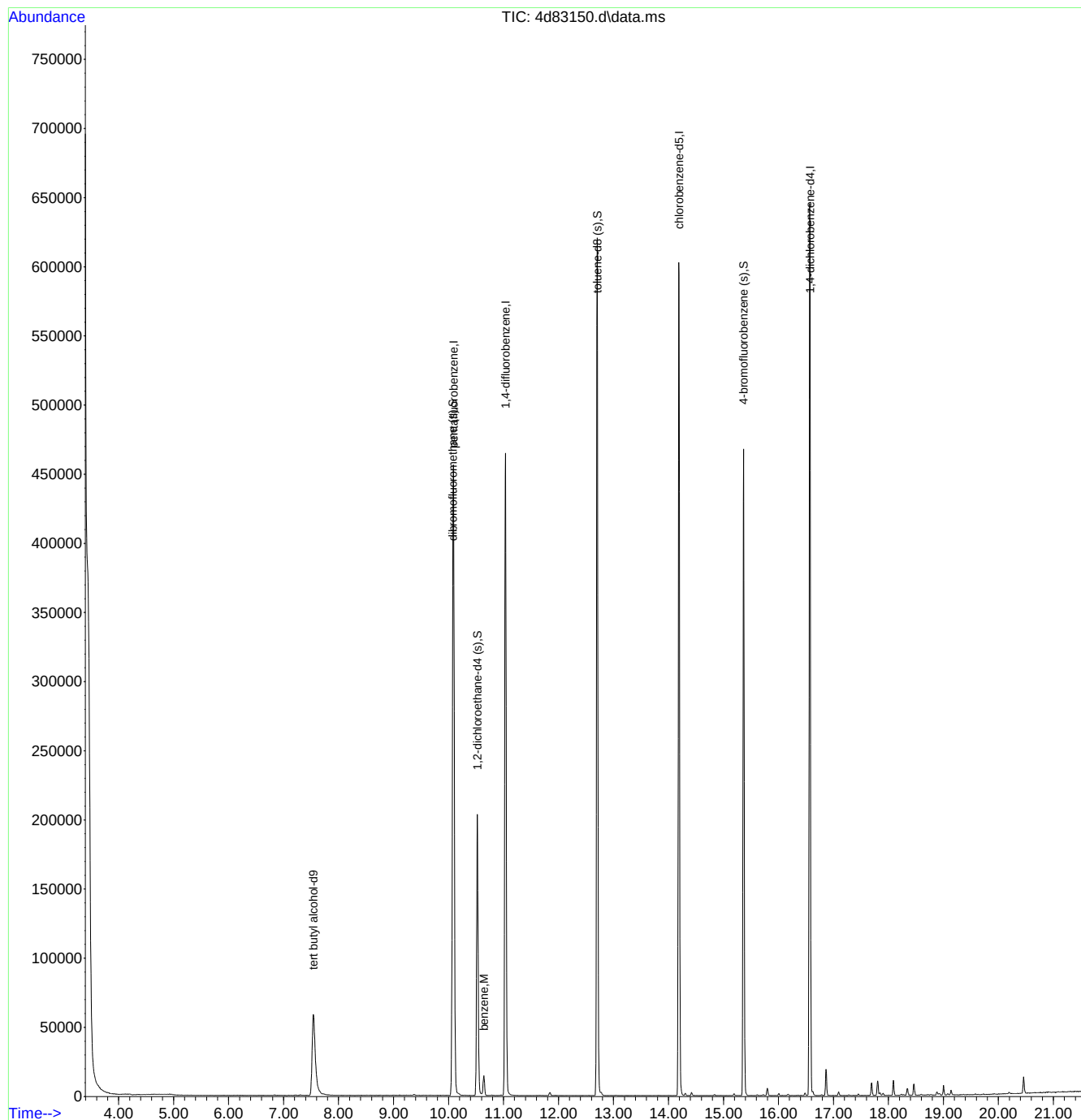
(#) = qualifier out of range (m) = manual integration (+) = signals summed

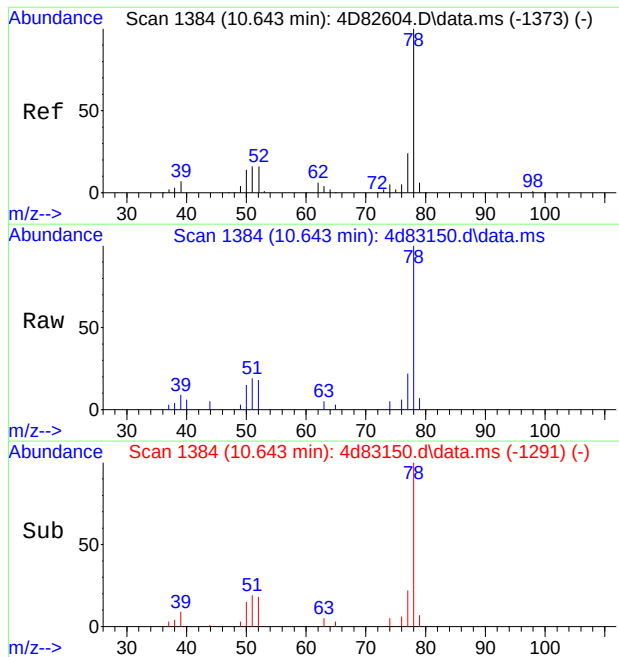
Quantitation Report (QT Reviewed)

Data Path : X:\Complete\dayton 20171016\v4d3589\
Data File : 4d83150.d
Acq On : 13 Oct 2017 2:41 am
Operator : jessicap
Sample : jc52695-4
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 15 Sample Multiplier: 1

Inst : MS4D

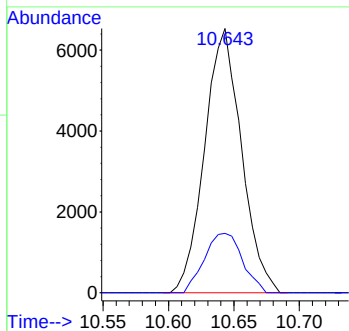
Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:58:37 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration





#56
benzene
Concen: 1.25 ug/L
RT: 10.643 min Scan# 1384
Delta R.T. 0.000 min
Lab File: 4d83150.d
Acq: 13 Oct 2017 2:41 am

Tgt Ion: 78	Resp: 12826
Ion Ratio	Lower Upper
78 100	
77 22.5	0.0 53.6



Quantitation Report (QT Reviewed)

Data Path : X:\Complete\dayton 20171016\v4d3589\
Data File : 4d83146.d
Acq On : 13 Oct 2017 12:51 am
Operator : jessicap
Sample : jc52695-5 Inst : MS4D
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:53:31 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.544	65	163109	500.00	ug/L	0.00
5) pentafluorobenzene	10.092	168	298424	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	452103	50.00	ug/L	0.00
74) chlorobenzene-d5	14.192	117	376209	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	193268	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	158162	46.03	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.06%
53) 1,2-dichloroethane-d4 (s)	10.522	65	181771	49.80	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	99.60%
75) toluene-d8 (s)	12.703	98	466471	45.87	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	91.74%
99) 4-bromofluorobenzene (s)	15.367	95	179763	46.83	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	93.66%
Target Compounds						
29) 1,1-dichloroethane	8.666	63	2536	0.41	ug/L	Qvalue 88

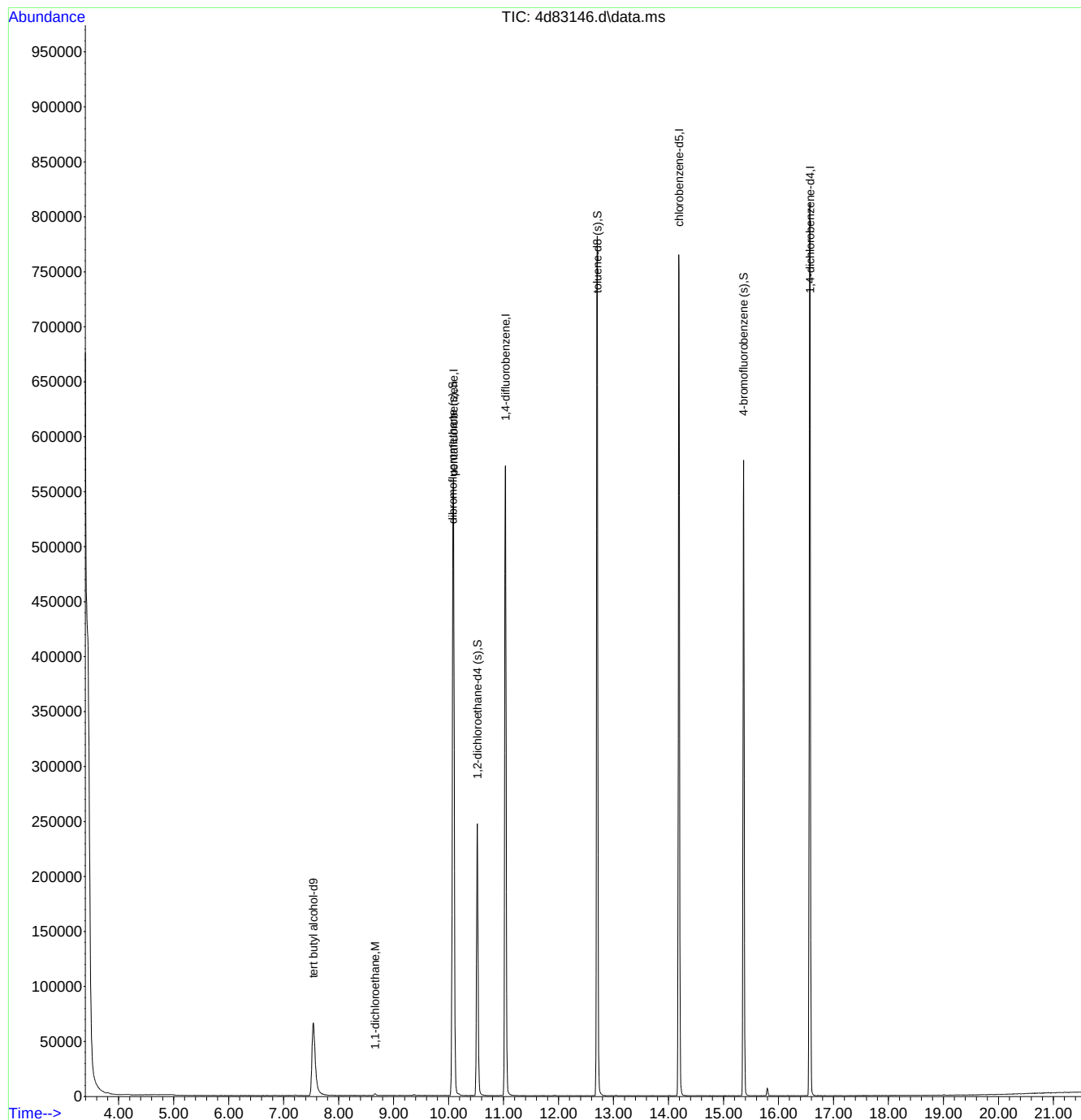
(#) = qualifier out of range (m) = manual integration (+) = signals summed

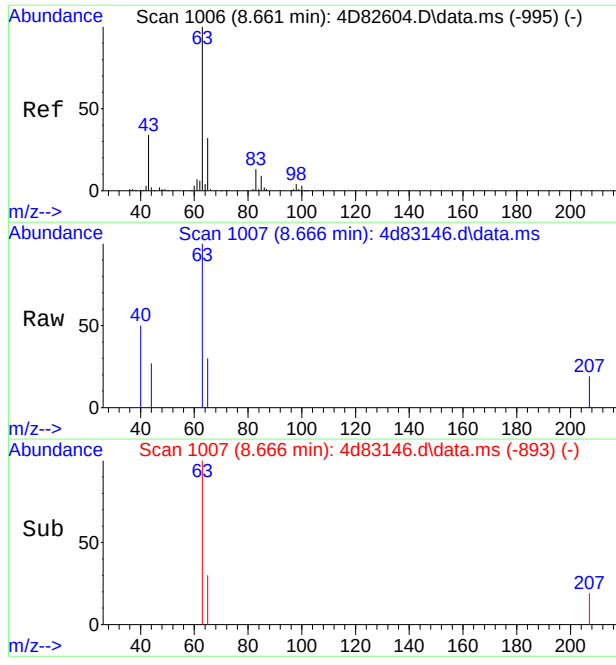
Quantitation Report (QT Reviewed)

Data Path : X:\Complete\dayton 20171016\v4d3589\
Data File : 4d83146.d
Acq On : 13 Oct 2017 12:51 am
Operator : jessicap
Sample : jc52695-5
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 11 Sample Multiplier: 1

Inst : MS4D

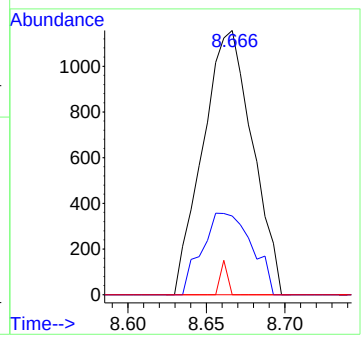
Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:53:31 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration





#29
1,1-dichloroethane
Concen: 0.41 ug/L
RT: 8.666 min Scan# 1007
Delta R.T. 0.005 min
Lab File: 4d83146.d
Acq: 13 Oct 2017 12:51 am

Tgt Ion:	63	Resp:	2536
Ion	Ratio	Lower	Upper
63	100		
65	29.8	1.8	61.8
83	0.0	0.0	43.1



7.1.5
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83151.d
Acq On : 13 Oct 2017 3:08 am
Operator : jessicap
Sample : jc52695-6 Inst : MS4D
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 16 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:59:19 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	153263	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	271635	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	407641	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	338772	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.568	152	175133	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	144129	46.09	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.18%
53) 1,2-dichloroethane-d4 (s)	10.523	65	170167	51.71	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	103.42%
75) toluene-d8 (s)	12.704	98	420626	45.93	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	91.86%
99) 4-bromofluorobenzene (s)	15.367	95	160983	46.28	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.56%

Target Compounds	Qvalue

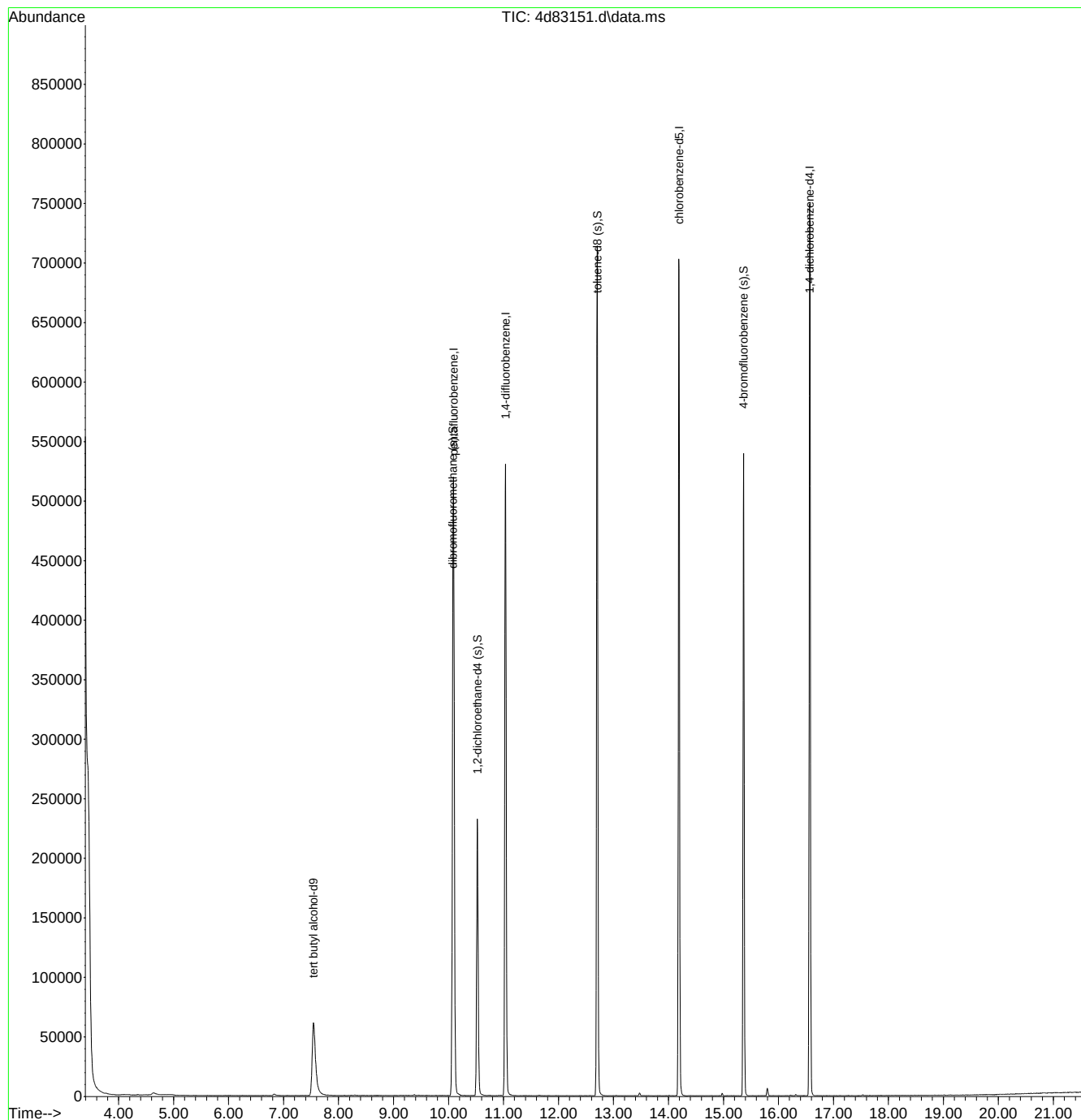
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83151.d
Acq On : 13 Oct 2017 3:08 am
Operator : jessicap
Sample : jc52695-6
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 16 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:59:19 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : X:\Complete\dayton 20171016\v4d3589\
 Data File : 4d83152.d
 Acq On : 13 Oct 2017 3:36 am
 Operator : jessicap
 Sample : jc52695-7 Inst : MS4D
 Misc : MS21008,V4D3589,5,,,,,1
 ALS Vial : 17 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 05:00:14 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.539	65	132798	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	236090	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	353831	50.00	ug/L	0.00
74) chlorobenzene-d5	14.187	117	290178	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.568	152	152107	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	126116	46.40	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.80%
53) 1,2-dichloroethane-d4 (s)	10.523	65	149927	52.49	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	104.98%
75) toluene-d8 (s)	12.704	98	364935	46.53	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	93.06%
99) 4-bromofluorobenzene (s)	15.367	95	140551	46.52	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	93.04%
Target Compounds						
56) benzene	10.638	78	41047	4.06	ug/L	98
76) toluene	12.777	92	2029	0.38	ug/L	92
90) ethylbenzene	14.303	91	36532	3.61	ug/L	99
91) m,p-xylene	14.418	106	2309	0.61	ug/L	98
92) o-xylene	14.832	106	3342	0.89	ug/L	99

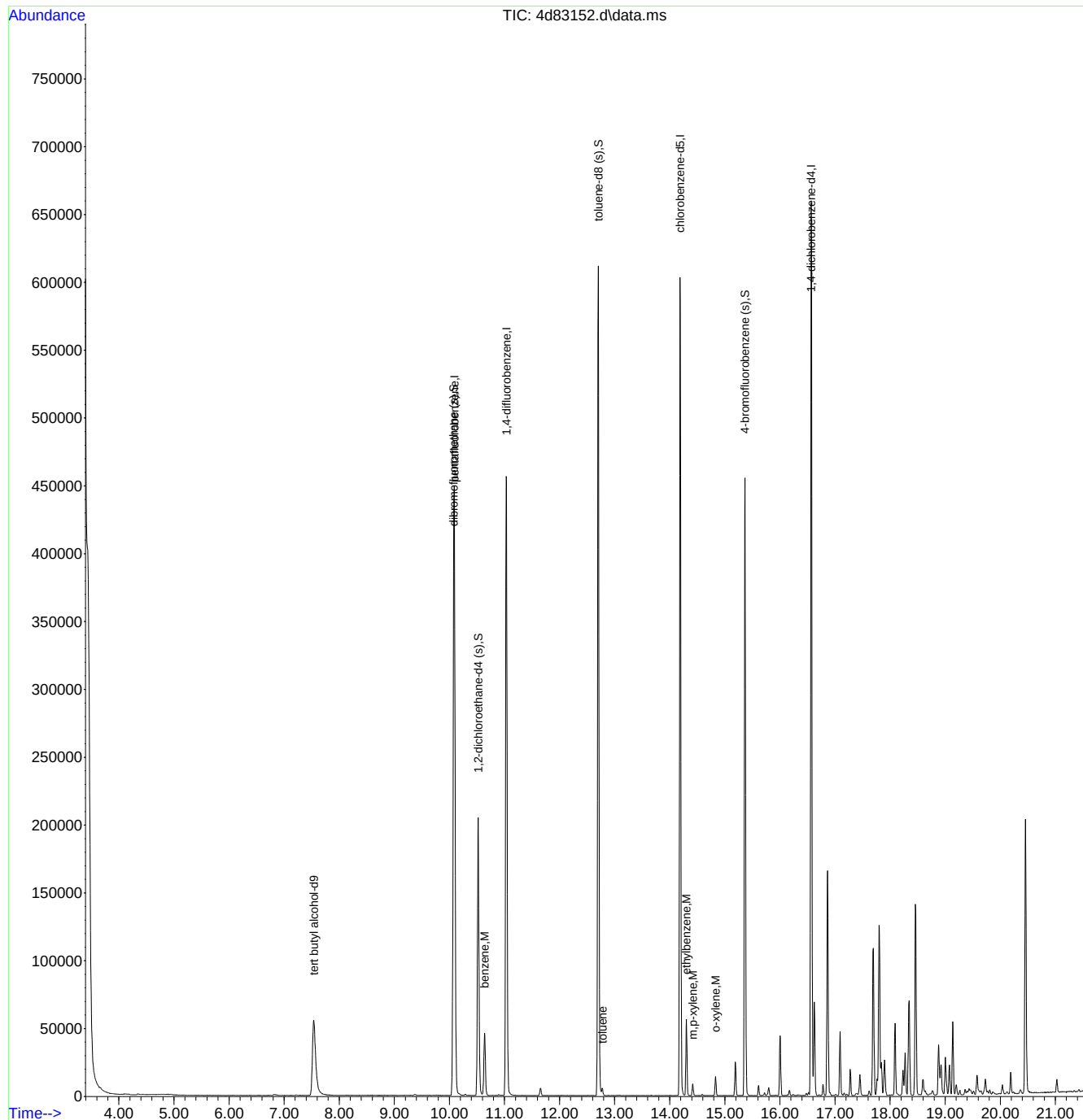
(#) = qualifier out of range (m) = manual integration (+) = signals summed

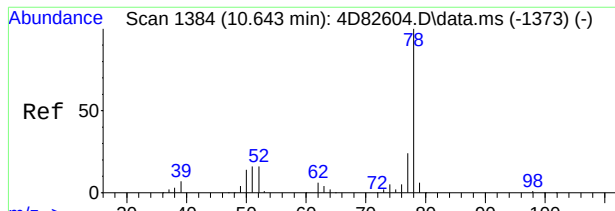
Quantitation Report (QT Reviewed)

Data Path : X:\Complete\dayton 20171016\v4d3589\
Data File : 4d83152.d
Acq On : 13 Oct 2017 3:36 am
Operator : jessicap
Sample : jc52695-7
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 17 Sample Multiplier: 1

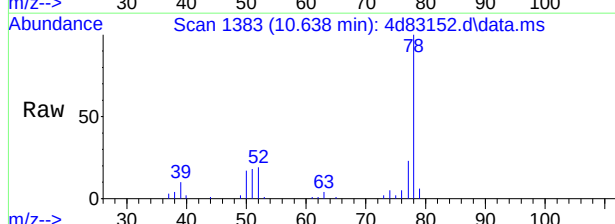
Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 05:00:14 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration

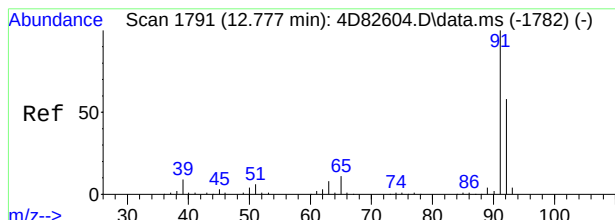
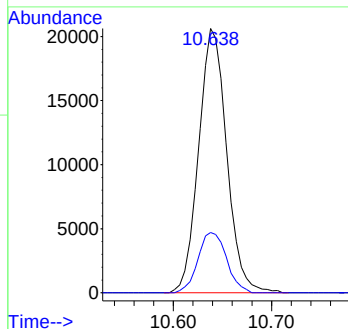
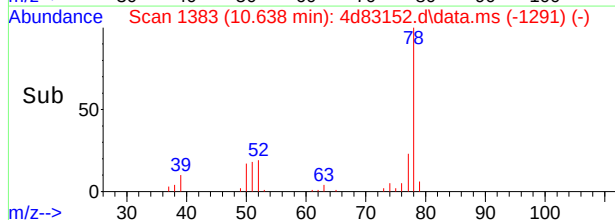




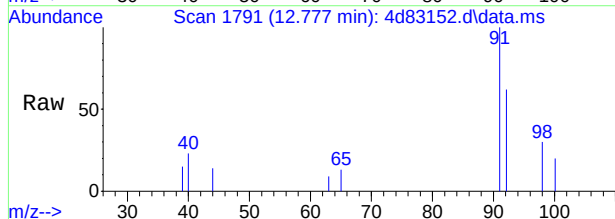
#56
benzene
Concen: 4.06 ug/L
RT: 10.638 min Scan# 1383
Delta R.T. -0.005 min
Lab File: 4d83152.d
Acq: 13 Oct 2017 3:36 am



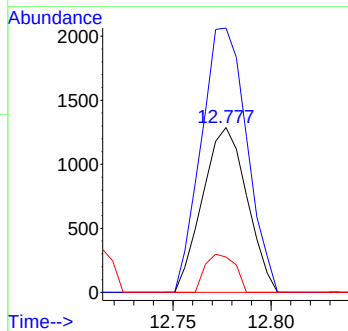
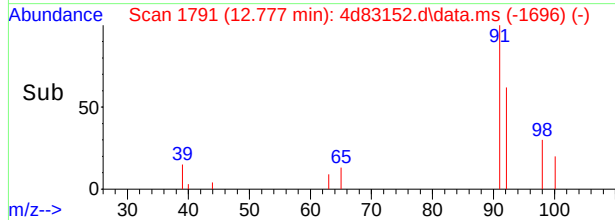
Tgt Ion: 78 Resp: 41047
Ion Ratio Lower Upper
78 100
77 22.8 0.0 53.6

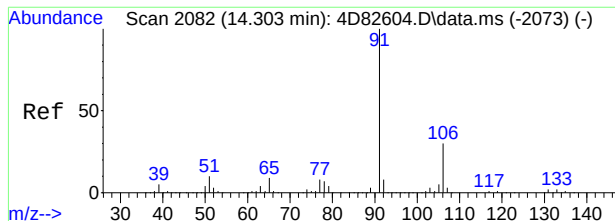


#76
toluene
Concen: 0.38 ug/L
RT: 12.777 min Scan# 1791
Delta R.T. 0.000 min
Lab File: 4d83152.d
Acq: 13 Oct 2017 3:36 am



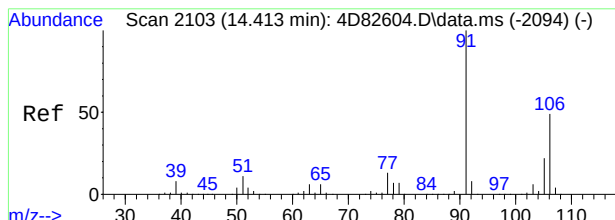
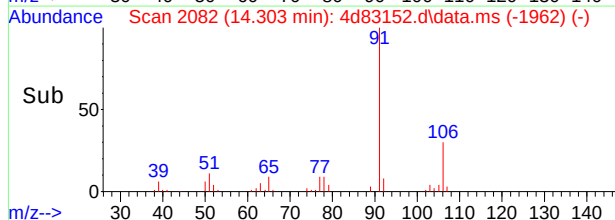
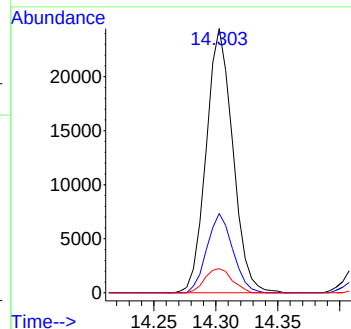
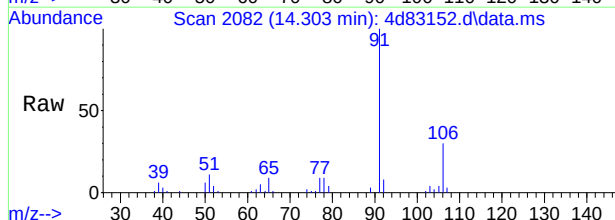
Tgt Ion: 92 Resp: 2029
Ion Ratio Lower Upper
92 100
91 160.5 152.5 192.5
65 21.4 0.0 39.5





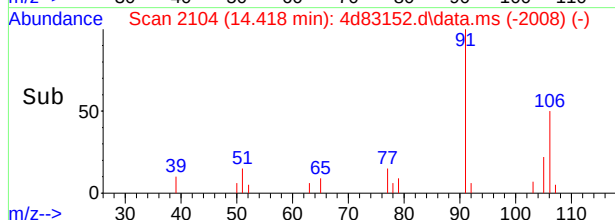
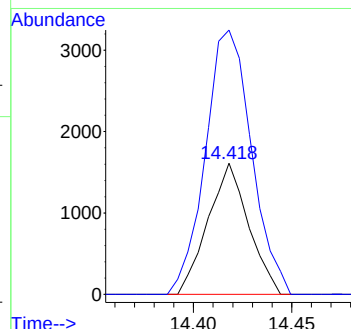
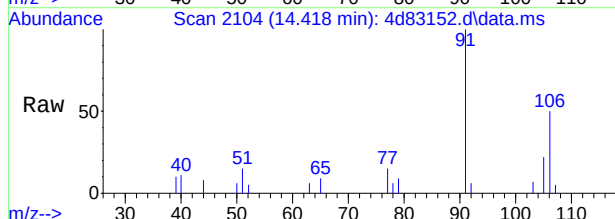
#90
ethylbenzene
Concen: 3.61 ug/L
RT: 14.303 min Scan# 2082
Delta R.T. -0.000 min
Lab File: 4d83152.d
Acq: 13 Oct 2017 3:36 am

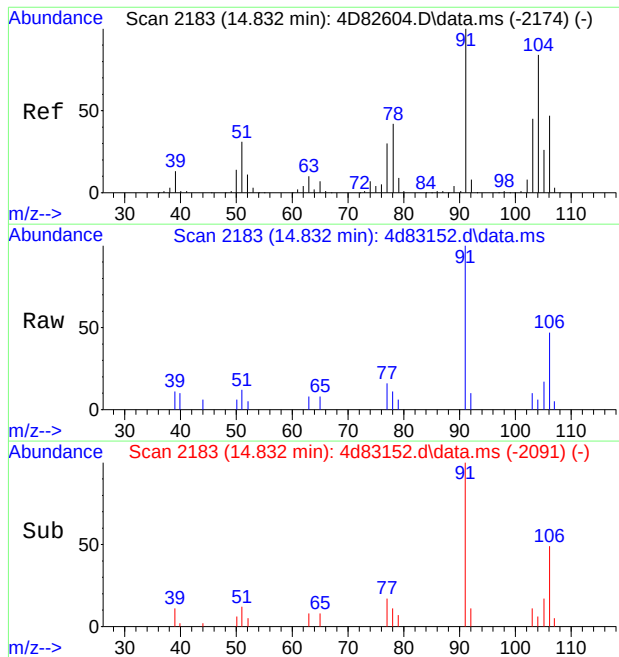
Tgt Ion	Ratio	Lower	Upper
91	100		
106	30.1	0.4	60.4
65	9.2	0.0	38.6



#91
m,p-xylene
Concen: 0.61 ug/L
RT: 14.418 min Scan# 2104
Delta R.T. 0.005 min
Lab File: 4d83152.d
Acq: 13 Oct 2017 3:36 am

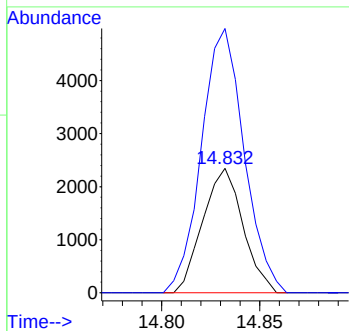
Tgt Ion	Ratio	Lower	Upper
106	100		
91	201.6	174.7	234.7





#92
o-xylene
Concen: 0.89 ug/L
RT: 14.832 min Scan# 2183
Delta R.T. 0.000 min
Lab File: 4d83152.d
Acq: 13 Oct 2017 3:36 am

Tgt Ion:106 Resp: 3342
Ion Ratio Lower Upper
106 100
91 212.3 183.7 243.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83145.d
Acq On : 13 Oct 2017 12:23 am
Operator : jessicap
Sample : jc52695-8
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 10 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:51:44 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.539	65	150969	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	264247	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	396247	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	327530	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	164726	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	136797	44.96	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	89.92%
53) 1,2-dichloroethane-d4 (s)	10.523	65	158397	49.52	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	99.04%
75) toluene-d8 (s)	12.704	98	407915	46.07	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.14%
99) 4-bromofluorobenzene (s)	15.367	95	153014	46.77	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	93.54%

Target Compounds	Qvalue

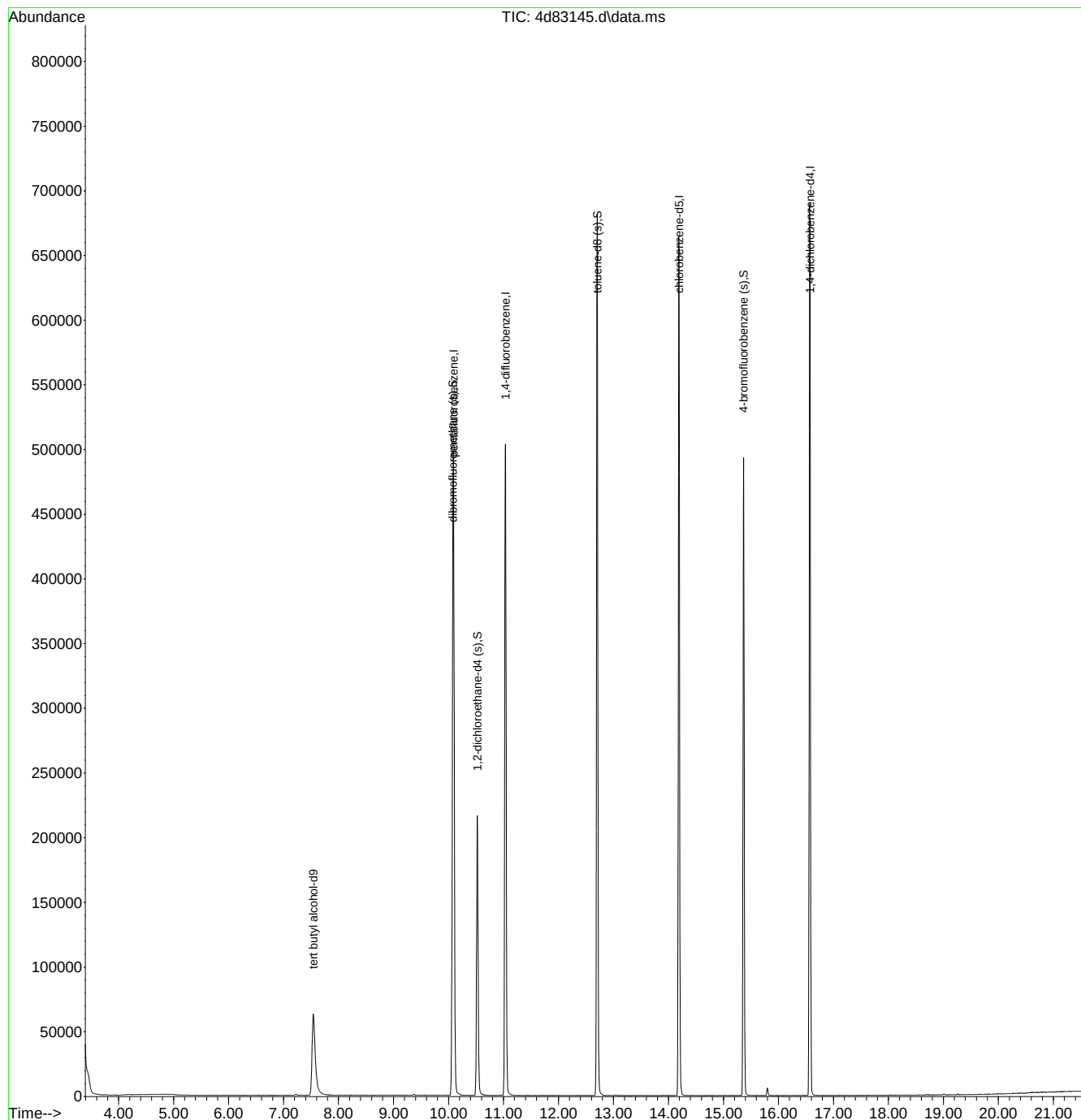
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83145.d
Acq On : 13 Oct 2017 12:23 am
Operator : jessicap
Sample : jc52695-8
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 10 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:51:44 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83140.d
 Acq On : 12 Oct 2017 10:06 pm
 Operator : jessicap
 Sample : MB Inst : MS4D
 Misc : MS20734,V4D3589,5,,,,,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:47:24 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	145036	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	252716	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	385049	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	314459	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	158958	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	132855	45.66	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	91.32%
53) 1,2-dichloroethane-d4 (s)	10.523	65	155099	49.90	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	99.80%
75) toluene-d8 (s)	12.704	98	393605	46.31	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.62%
99) 4-bromofluorobenzene (s)	15.367	95	148062	46.90	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	93.80%

Target Compounds	Qvalue

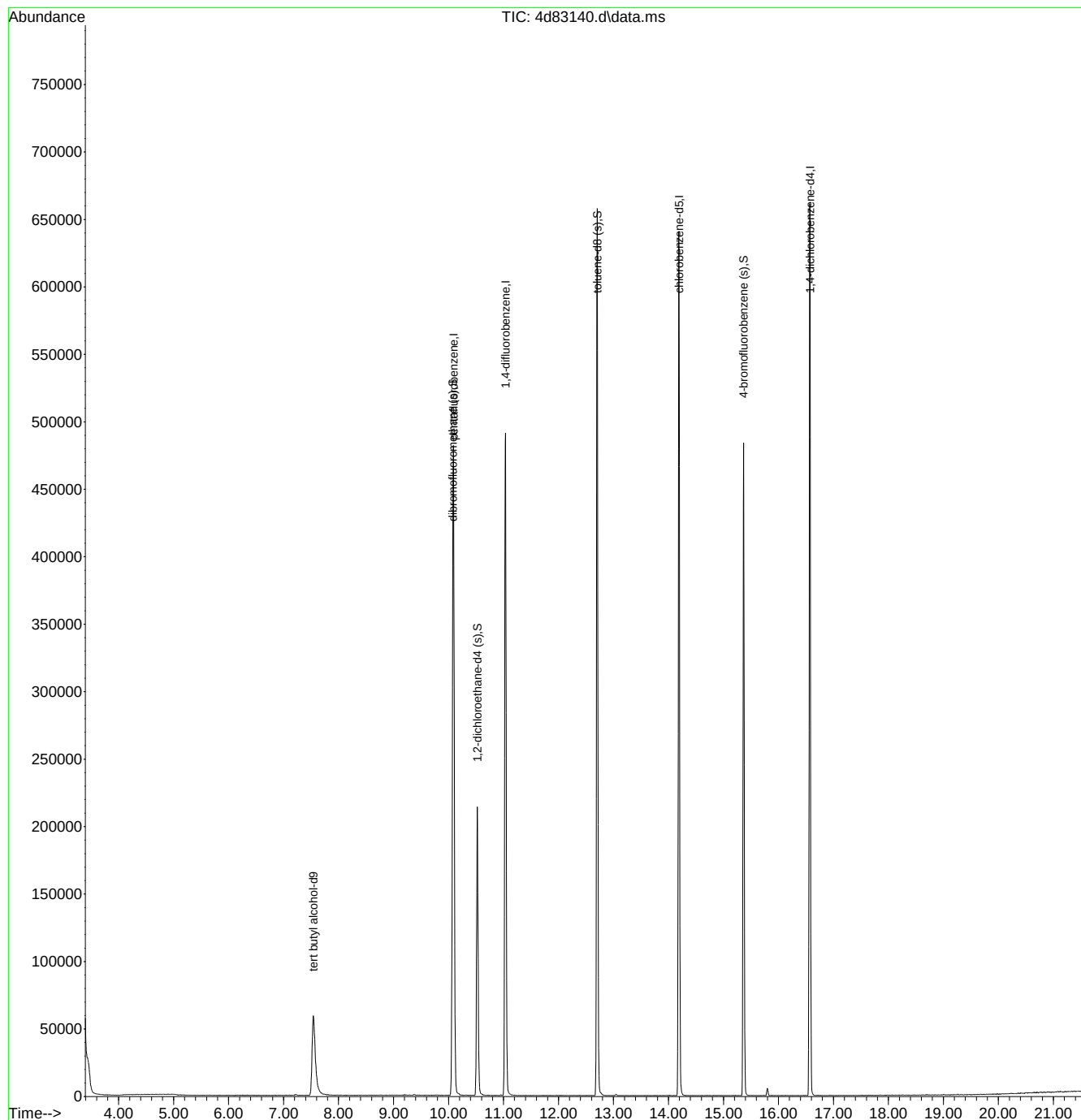
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83140.d
Acq On : 12 Oct 2017 10:06 pm
Operator : jessicap
Sample : MB
Misc : MS20734,V4D3589,5,,,,,1
ALS Vial : 5 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:47:24 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83141.d
 Acq On : 12 Oct 2017 10:33 pm
 Operator : jessicap
 Sample : BS
 Misc : MS20734,V4D3589,5,,,,,1
 ALS Vial : 6 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:48:43 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	154624	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	272084	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	410639	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	353333	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.568	152	188091	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	145964	46.60	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	93.20%
53) 1,2-dichloroethane-d4 (s)	10.523	65	166837	50.33	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	100.66%
75) toluene-d8 (s)	12.704	98	426718	44.68	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	89.36%
99) 4-bromofluorobenzene (s)	15.367	95	169897	45.48	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	90.96%
Target Compounds						
2) tertiary butyl alcohol	7.676	59	93283	212.82	ug/L	96
3) Ethanol	6.092	45	146105	4305.35	ug/L	98
4) 1,4-dioxane	11.744	88	29227	1051.73	ug/L	99
6) chlorodifluoromethane	3.806	51	138266	55.38	ug/L	96
7) dichlorodifluoromethane	3.796	85	156935	36.79	ug/L	99
8) chloromethane	4.158	50	194064	41.04	ug/L	100
9) vinyl chloride	4.430	62	179281	38.05	ug/L	99
11) bromomethane	5.133	94	133382	40.56	ug/L	96
12) chloroethane	5.337	64	99614	41.02	ug/L	97
13) trichlorofluoromethane	5.883	101	219726	41.70	ug/L	98
14) vinyl bromide	5.720	106	133855	41.92	ug/L	# 98
15) ethyl ether	6.354	74	70391	43.51	ug/L	95
16) acrolein	6.559	56	29586	38.10	ug/L	97
17) freon 113	6.826	151	85753	43.01	ug/L	99
18) 1,1-dichloroethene	6.800	96	109504	41.83	ug/L	88
19) acetone	6.805	58	49268	140.50	ug/L	# 83
20) acetonitrile	7.256	41	197128	424.20	ug/L	99
21) iodomethane	7.067	142	227853	42.92	ug/L	96
22) carbon disulfide	7.219	76	422809	42.55	ug/L	97
23) methylene chloride	7.576	84	136048	40.81	ug/L	94
24) methyl acetate	7.377	43	128696	43.45	ug/L	96
25) methyl tert butyl ether	8.032	73	395083	43.70	ug/L	100
26) trans-1,2-dichloroethene	8.043	96	122268	40.32	ug/L	93
27) di-isopropyl ether	8.745	45	472099	46.19	ug/L	98
28) 2-butanone	9.432	72	63743	155.34	ug/L	# 76
29) 1,1-dichloroethane	8.661	63	244167	43.25	ug/L	100
30) chloroprene	8.813	53	193008	46.29	ug/L	95
31) acrylonitrile	7.917	53	52357	41.22	ug/L	99
32) hexane	8.473	56	90506	44.43	ug/L	94
33) vinyl acetate	8.682	86	21018	37.81	ug/L	67
34) ethyl tert-butyl ether	9.259	59	439417	44.69	ug/L	98
35) ethyl acetate	9.505	45	21617	40.49	ug/L	91
36) 2,2-dichloropropane	9.505	77	198450	46.41	ug/L	94
37) cis-1,2-dichloroethene	9.474	96	139118	40.89	ug/L	94
38) methyl acrylate	9.574	85	21687	39.35	ug/L	95
39) propionitrile	9.495	54	229410	401.88	ug/L	98
40) bromochloromethane	9.794	128	72118	41.78	ug/L	95
41) tetrahydrofuran	9.862	72	18775	37.18	ug/L	93
42) chloroform	9.872	85	158258	42.20	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83141.d
 Acq On : 12 Oct 2017 10:33 pm
 Operator : jessicap
 Sample : BS Inst : MS4D
 Misc : MS20734,V4D3589,5,,,,,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:48:43 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) t-butyl formate	9.956	59	32322	28.61	ug/L	92
45) methacrylonitrile	9.726	67	59264	40.46	ug/L	86
46) 1,1,1-trichloroethane	10.182	97	204465	44.46	ug/L	96
47) cyclohexane	10.292	84	157031	37.36	ug/L	90
48) 1,1-dichloropropene	10.376	75	176371	42.75	ug/L	98
49) iso-butyl alcohol	10.350	43	73907	400.42	ug/L	98
50) carbon tetrachloride	10.407	117	185609	45.12	ug/L	98
51) tert amyl alcohol	10.507	55	31674	194.12	ug/L	91
54) n-butyl alcohol	11.141	56	206538	1941.86	ug/L	94
55) 2,2,4-trimethylpentane	10.738	57	473287	42.16	ug/L	96
56) benzene	10.638	78	481844	41.10	ug/L	100
57) tert-amyl methyl ether	10.732	87	90748	43.80	ug/L	99
58) heptane	10.916	71	95622	41.93	ug/L	97
59) isopropyl acetate	10.601	87	26135	38.11	ug/L #	70
60) 1,2-dichloroethane	10.617	62	194384	47.16	ug/L	99
61) trichloroethene	11.382	130	118595	41.47	ug/L	97
62) ethyl acrylate	11.403	55	183260	42.74	ug/L	99
63) 2-nitropropane	12.116	41	36736	46.81	ug/L	96
64) 2-chloroethyl vinyl ether	12.179	63	376997	202.90	ug/L	99
65) methyl methacrylate	11.676	100	32022	39.84	ug/L #	82
66) 1,2-dichloropropane	11.634	63	140134	43.92	ug/L	99
67) dibromomethane	11.765	93	93906	43.03	ug/L	99
68) methylcyclohexane	11.655	83	206429	41.14	ug/L	93
69) bromodichloromethane	11.907	83	186687	45.84	ug/L	99
70) epichlorohydrin	12.263	57	67438	207.55	ug/L	97
71) cis-1,3-dichloropropene	12.384	75	216689	44.52	ug/L	91
72) 4-methyl-2-pentanone	12.504	58	220807	167.60	ug/L	89
73) 3-methyl-1-butanol	12.510	55	139080	816.74	ug/L	94
76) toluene	12.777	92	263528	40.78	ug/L	99
77) trans-1,3-dichloropropene	12.934	75	196860	44.03	ug/L	97
78) ethyl methacrylate	12.982	69	165882	42.84	ug/L	92
79) 1,1,2-trichloroethane	13.144	83	101182	41.54	ug/L	96
80) tetrachloroethene	13.364	164	89173	40.04	ug/L	98
81) 1,3-dichloropropane	13.328	76	183369	41.85	ug/L	92
82) 2-hexanone	13.349	58	210155	159.46	ug/L #	87
83) butyl acetate	13.448	56	88116	41.34	ug/L	88
84) 3,3-dimethyl-1-butanol	13.511	57	132409	379.41	ug/L	96
85) dibromochloromethane	13.579	129	146327	43.01	ug/L	100
86) 1,2-dibromoethane	13.731	107	128490	40.94	ug/L	100
87) n-butyl ether	14.208	57	514538	44.00	ug/L	98
88) chlorobenzene	14.224	112	302371	40.46	ug/L	98
89) 1,1,1,2-tetrachloroethane	14.282	131	122453	43.10	ug/L	99
90) ethylbenzene	14.303	91	513379	41.66	ug/L	98
91) m,p-xylene	14.413	106	376789	82.07	ug/L	95
92) o-xylene	14.832	106	191731	41.71	ug/L	96
93) styrene	14.832	104	329159	42.02	ug/L	95
94) bromoform	15.053	173	108563	41.21	ug/L	99
95) butyl acrylate	14.665	55	272215	45.54	ug/L	98
96) isopropylbenzene	15.189	105	509529	42.13	ug/L	98
97) cis-1,4-dichloro-2-butene	15.215	88	54143	37.67	ug/L	94
100) bromobenzene	15.561	156	138122	40.29	ug/L	99
101) 1,1,2,2-tetrachloroethane	15.446	83	175715	38.20	ug/L	99
102) trans-1,4-dichloro-2-b...	15.498	53	39172	39.99	ug/L	94
103) 1,2,3-trichloropropane	15.524	110	39849	39.81	ug/L	98
104) n-propylbenzene	15.608	91	634317	41.57	ug/L	97
105) 2-chlorotoluene	15.739	126	124874	40.37	ug/L	97
106) 4-chlorotoluene	15.839	91	387970	41.74	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83141.d
Acq On : 12 Oct 2017 10:33 pm
Operator : jessicap
Sample : BS Inst : MS4D
Misc : MS20734,V4D3589,5,,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:48:43 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
107)	1,3,5-trimethylbenzene	15.766	105	435523	42.14	ug/L	97
108)	tert-butylbenzene	16.133	134	74816	40.74	ug/L	95
109)	1,2,4-trimethylbenzene	16.169	105	451275	42.20	ug/L	99
110)	sec-butylbenzene	16.353	105	570649	40.91	ug/L	98
111)	1,3-dichlorobenzene	16.510	146	256358	40.26	ug/L	98
112)	p-isopropyltoluene	16.479	119	462444	41.81	ug/L	97
113)	1,4-dichlorobenzene	16.599	146	259120	40.27	ug/L	100
114)	benzyl chloride	16.709	91	335555	43.95	ug/L	98
115)	1,2-dichlorobenzene	17.003	146	257045	40.74	ug/L	100
116)	n-butylbenzene	16.909	92	259842	43.24	ug/L	98
117)	1,2-dibromo-3-chloropr...	17.795	75	34681	41.93	ug/L	85
118)	1,3,5-trichlorobenzene	18.041	180	221882	43.75	ug/L	100
120)	1,2,4-trichlorobenzene	18.712	180	199685	46.31	ug/L	99
121)	hexachlorobutadiene	18.869	225	101399	43.30	ug/L	98
122)	naphthalene	19.001	128	457102	40.29	ug/L	100
123)	1,2,3-trichlorobenzene	19.263	180	181758	44.93	ug/L	99
124)	hexachloroethane	17.307	201	88142	42.53	ug/L	99
125)	2-methylnaphthalene	20.233	142	98746	19.50	ug/L	99

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

Quantitation Report (QT Reviewed)

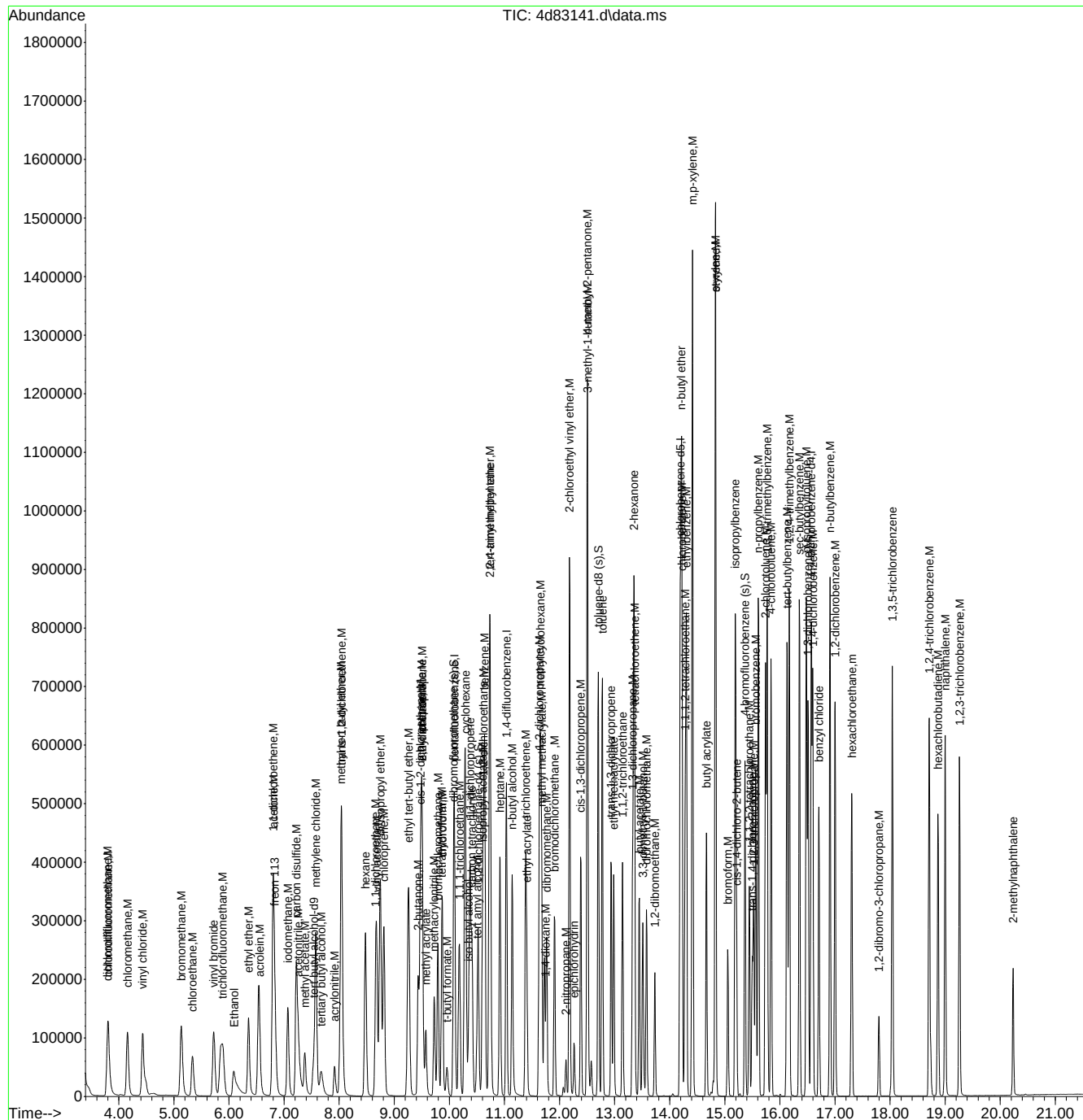
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Data Path   : C:\msdchem\1\data\v4d3589\
Data File   : 4d83141.d
Acq On      : 12 Oct 2017  10:33 pm
Operator    : jessicap
Sample      : BS
Misc        : MS20734,V4D3589,5,,,,1
ALS Vial    : 6      Sample Multiplier: 1

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Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:48:43 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83142.d
 Acq On : 12 Oct 2017 11:01 pm
 Operator : jessicap
 Sample : jc52695-5ms
 Misc : MS21008,V4D3589,5,,,,,1
 ALS Vial : 7 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:49:06 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	143095	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	238581	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.037	114	355857	50.00	ug/L	0.00
74) chlorobenzene-d5	14.188	117	302410	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.568	152	156656	50.00	ug/L	0.00

System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	124388	45.28	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	90.56%
53) 1,2-dichloroethane-d4 (s)	10.523	65	142247	49.51	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	99.02%
75) toluene-d8 (s)	12.704	98	372133	45.52	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	91.04%
99) 4-bromofluorobenzene (s)	15.367	95	143406	46.09	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.18%

Target Compounds					Qvalue	
2) tertiary butyl alcohol	7.676	59	106465	262.46	ug/L	98
3) Ethanol	6.087	45	160229	5101.96	ug/L	100
4) 1,4-dioxane	11.744	88	32412	1260.31	ug/L	97
6) chlorodifluoromethane	3.817	51	171915	78.52	ug/L	96
7) dichlorodifluoromethane	3.806	85	197623	52.84	ug/L	98
8) chloromethane	4.168	50	213043	51.38	ug/L	99
9) vinyl chloride	4.441	62	203302	49.21	ug/L	99
11) bromomethane	5.143	94	137454	47.67	ug/L	97
12) chloroethane	5.343	64	104582	49.11	ug/L	96
13) trichlorofluoromethane	5.883	101	238176	51.55	ug/L	97
14) vinyl bromide	5.731	106	227781	81.35	ug/L	98
15) ethyl ether	6.360	74	75487	53.22	ug/L	92
16) acrolein	6.564	56	29870	43.87	ug/L	96
17) freon 113	6.832	151	100563	57.52	ug/L	98
18) 1,1-dichloroethene	6.805	96	127638	55.60	ug/L	89
19) acetone	6.811	58	52257	169.95	ug/L	# 84
20) acetonitrile	7.256	41	215494	528.84	ug/L	98
21) iodomethane	7.073	142	254888	54.76	ug/L	98
22) carbon disulfide	7.225	76	498350	57.20	ug/L	98
23) methylene chloride	7.576	84	146514	50.12	ug/L	93
24) methyl acetate	7.382	43	140797	54.21	ug/L	95
25) methyl tert butyl ether	8.037	73	419137	52.88	ug/L	99
26) trans-1,2-dichloroethene	8.048	96	139114	52.32	ug/L	96
27) di-isopropyl ether	8.745	45	499803	55.77	ug/L	97
28) 2-butanone	9.437	72	70105	194.83	ug/L	# 79
29) 1,1-dichloroethane	8.667	63	274769	55.50	ug/L	99
30) chloroprene	8.813	53	223493	61.13	ug/L	94
31) acrylonitrile	7.917	53	57712	51.81	ug/L	98
32) hexane	8.478	56	112923	63.22	ug/L	94
33) vinyl acetate	8.688	86	23243	47.68	ug/L	68
34) ethyl tert-butyl ether	9.259	59	464675	53.89	ug/L	98
35) ethyl acetate	9.506	45	23921	51.10	ug/L	94
36) 2,2-dichloropropane	9.506	77	223115	59.51	ug/L	93
37) cis-1,2-dichloroethene	9.474	96	151666	50.84	ug/L	93
38) methyl acrylate	9.574	85	24052	49.77	ug/L	# 89
39) propionitrile	9.495	54	250764	500.97	ug/L	99
40) bromochloromethane	9.794	128	76697	50.67	ug/L	93
41) tetrahydrofuran	9.867	72	20920	47.25	ug/L	93
42) chloroform	9.873	85	172132	52.34	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83142.d
 Acq On : 12 Oct 2017 11:01 pm
 Operator : jessicap
 Sample : jc52695-5ms
 Misc : MS21008,V4D3589,5,,,,1
 ALS Vial : 7 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:49:06 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) t-butyl formate	9.962	59	17406	17.57	ug/L	90
45) methacrylonitrile	9.726	67	65659	51.12	ug/L	84
46) 1,1,1-trichloroethane	10.182	97	228180	56.58	ug/L	97
47) cyclohexane	10.292	84	162217	44.01	ug/L #	73
48) 1,1-dichloropropene	10.376	75	204365	56.50	ug/L	97
49) iso-butyl alcohol	10.350	43	82706	511.02	ug/L	98
50) carbon tetrachloride	10.407	117	208132	57.71	ug/L	97
51) tert amyl alcohol	10.507	55	35629	249.02	ug/L	90
54) n-butyl alcohol	11.141	56	228221	2476.05	ug/L	92
55) 2,2,4-trimethylpentane	10.738	57	565104	58.09	ug/L	98
56) benzene	10.643	78	534462	52.61	ug/L	99
57) tert-amyl methyl ether	10.732	87	94640	52.71	ug/L	97
58) heptane	10.921	71	116631	59.02	ug/L	99
59) isopropyl acetate	10.607	87	28680	48.25	ug/L #	79
60) 1,2-dichloroethane	10.617	62	204295	57.20	ug/L	99
61) trichloroethene	11.388	130	135063	54.50	ug/L	99
62) ethyl acrylate	11.409	55	201231	54.15	ug/L	98
63) 2-nitropropane	12.117	41	40006	58.82	ug/L	97
65) methyl methacrylate	11.676	100	34581	49.64	ug/L #	73
66) 1,2-dichloropropane	11.634	63	151645	54.84	ug/L	99
67) dibromomethane	11.765	93	99459	52.60	ug/L	98
68) methylcyclohexane	11.655	83	242182	55.70	ug/L	95
69) bromodichloromethane	11.907	83	197065	55.84	ug/L	99
70) epichlorohydrin	12.269	57	68261	242.42	ug/L	99
71) cis-1,3-dichloropropene	12.389	75	235210	55.76	ug/L	94
72) 4-methyl-2-pentanone	12.505	58	243904	213.64	ug/L	89
73) 3-methyl-1-butanol	12.510	55	153847	1042.55	ug/L	94
76) toluene	12.777	92	292930	52.97	ug/L	99
77) trans-1,3-dichloropropene	12.934	75	210560	55.02	ug/L	97
78) ethyl methacrylate	12.982	69	179628	54.21	ug/L	93
79) 1,1,2-trichloroethane	13.144	83	107234	51.43	ug/L	96
80) tetrachloroethene	13.364	164	103938	54.52	ug/L	99
81) 1,3-dichloropropane	13.328	76	194928	51.98	ug/L	91
82) 2-hexanone	13.349	58	233157	206.70	ug/L	89
83) butyl acetate	13.448	56	95991	52.61	ug/L	88
84) 3,3-dimethyl-1-butanol	13.511	57	148990	498.81	ug/L	96
85) dibromochloromethane	13.579	129	152768	52.46	ug/L	100
86) 1,2-dibromoethane	13.731	107	139743	52.03	ug/L	100
87) n-butyl ether	14.209	57	568427	56.79	ug/L	97
88) chlorobenzene	14.224	112	330297	51.64	ug/L	99
89) 1,1,1,2-tetrachloroethane	14.282	131	128175	52.71	ug/L	98
90) ethylbenzene	14.303	91	567079	53.77	ug/L	98
91) m,p-xylene	14.413	106	413697	105.29	ug/L	96
92) o-xylene	14.832	106	205822	52.32	ug/L	95
93) styrene	14.832	104	353962	52.79	ug/L	95
94) bromoform	15.053	173	114013	50.57	ug/L	100
95) butyl acrylate	14.665	55	293744	57.41	ug/L	98
96) isopropylbenzene	15.189	105	560103	54.11	ug/L	98
97) cis-1,4-dichloro-2-butene	15.210	88	59693	48.52	ug/L	94
100) bromobenzene	15.561	156	146146	51.18	ug/L	99
101) 1,1,2,2-tetrachloroethane	15.446	83	186064	48.56	ug/L	99
102) trans-1,4-dichloro-2-b...	15.498	53	42845	52.52	ug/L	96
103) 1,2,3-trichloropropane	15.525	110	42273	50.71	ug/L	99
104) n-propylbenzene	15.608	91	703165	55.33	ug/L	97
105) 2-chlorotoluene	15.740	126	134761	52.31	ug/L	96
106) 4-chlorotoluene	15.839	91	414869	53.59	ug/L	99
107) 1,3,5-trimethylbenzene	15.766	105	468583	54.43	ug/L	97

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83142.d
 Acq On : 12 Oct 2017 11:01 pm
 Operator : jessicap
 Sample : jc52695-5ms Inst : MS4D
 Misc : MS21008,V4D3589,5,,,,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:49:06 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
108)	tert-butylbenzene	16.133	134	80908	52.90	ug/L	95
109)	1,2,4-trimethylbenzene	16.169	105	483756	54.31	ug/L	99
110)	sec-butylbenzene	16.353	105	637983	54.91	ug/L	98
111)	1,3-dichlorobenzene	16.510	146	266560	50.26	ug/L	98
112)	p-isopropyltoluene	16.479	119	505456	54.87	ug/L	97
113)	1,4-dichlorobenzene	16.599	146	274262	51.18	ug/L	99
114)	benzyl chloride	16.709	91	362788	57.06	ug/L	98
115)	1,2-dichlorobenzene	17.003	146	271184	51.61	ug/L	100
116)	n-butylbenzene	16.909	92	288925	57.73	ug/L	98
117)	1,2-dibromo-3-chloropr...	17.795	75	37268	54.10	ug/L	85
118)	1,3,5-trichlorobenzene	18.041	180	236152	55.91	ug/L	99
120)	1,2,4-trichlorobenzene	18.712	180	212030	59.05	ug/L	100
121)	hexachlorobutadiene	18.870	225	113463	58.17	ug/L	99
122)	naphthalene	19.001	128	493156	52.19	ug/L	100
123)	1,2,3-trichlorobenzene	19.258	180	189680	56.30	ug/L	98
124)	hexachloroethane	17.307	201	96409	55.85	ug/L	99
125)	2-methylnaphthalene	20.233	142	109237	25.21	ug/L	99

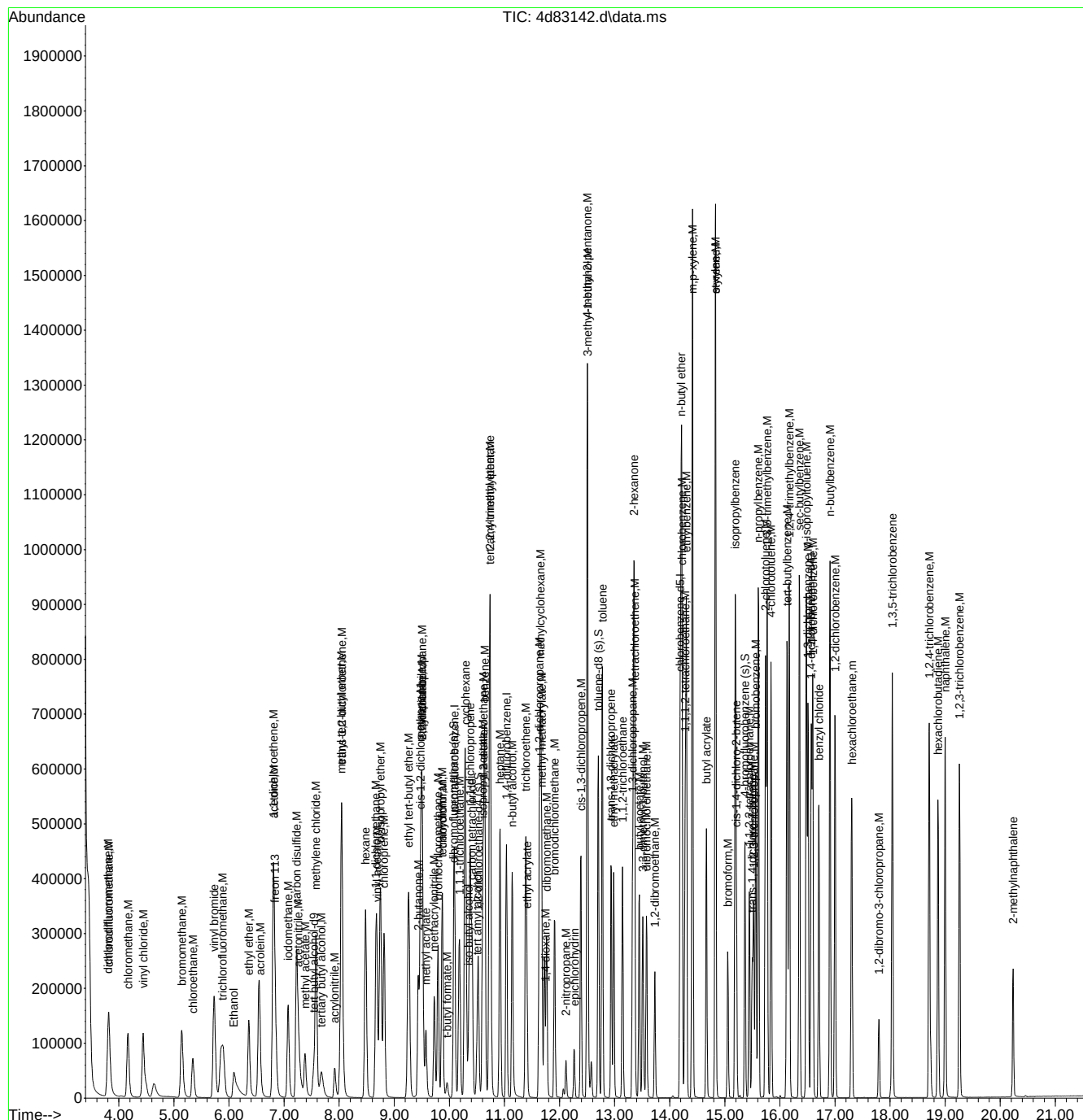
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83142.d
Acq On : 12 Oct 2017 11:01 pm
Operator : jessicap
Sample : jc52695-5ms
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 7 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:49:06 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration



7.4.1



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83143.d
 Acq On : 12 Oct 2017 11:28 pm
 Operator : jessicap
 Sample : jc52695-5msd Inst : MS4D
 Misc : MS21008,V4D3589,5,,,,,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:49:24 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	153833	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	246347	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.037	114	370655	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	318291	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.568	152	163457	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	128640	45.36	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	90.72%
53) 1,2-dichloroethane-d4 (s)	10.523	65	146823	49.07	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	98.14%
75) toluene-d8 (s)	12.704	98	390711	45.41	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	90.82%
99) 4-bromofluorobenzene (s)	15.367	95	148724	45.81	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	91.62%
Target Compounds						
2) tertiary butyl alcohol	7.681	59	108777	249.44	ug/L	98
3) Ethanol	6.092	45	161069	4770.71	ug/L	99
4) 1,4-dioxane	11.744	88	31296	1131.97	ug/L	99
6) chlorodifluoromethane	3.817	51	167190	73.95	ug/L	97
7) dichlorodifluoromethane	3.801	85	204037	52.83	ug/L	99
8) chloromethane	4.168	50	226329	52.86	ug/L	99
9) vinyl chloride	4.441	62	218892	51.31	ug/L	100
11) bromomethane	5.138	94	148075	49.73	ug/L	99
12) chloroethane	5.343	64	112063	50.97	ug/L	98
13) trichlorofluoromethane	5.877	101	250190	52.44	ug/L	97
14) vinyl bromide	5.731	106	242709	83.95	ug/L	98
15) ethyl ether	6.360	74	74061	50.56	ug/L	92
16) acrolein	6.564	56	30275	43.06	ug/L	93
17) freon 113	6.832	151	99171	54.93	ug/L	98
18) 1,1-dichloroethene	6.800	96	124665	52.59	ug/L	91
19) acetone	6.811	58	52523	165.43	ug/L #	86
20) acetonitrile	7.262	41	217775	517.59	ug/L	99
21) iodomethane	7.073	142	248763	51.76	ug/L	97
22) carbon disulfide	7.225	76	487627	54.21	ug/L	98
23) methylene chloride	7.581	84	144455	47.85	ug/L	96
24) methyl acetate	7.377	43	140730	52.48	ug/L	96
25) methyl tert butyl ether	8.043	73	416745	50.92	ug/L	99
26) trans-1,2-dichloroethene	8.048	96	134367	48.94	ug/L	94
27) di-isopropyl ether	8.751	45	493898	53.38	ug/L	97
28) 2-butanone	9.437	72	70514	189.79	ug/L #	82
29) 1,1-dichloroethane	8.667	63	266043	52.04	ug/L	99
30) chloroprene	8.813	53	215688	57.14	ug/L	95
31) acrylonitrile	7.917	53	57436	49.94	ug/L	98
32) hexane	8.478	56	108910	59.05	ug/L	93
33) vinyl acetate	8.688	86	22541	44.78	ug/L	75
34) ethyl tert-butyl ether	9.259	59	459545	51.62	ug/L	98
35) ethyl acetate	9.506	45	23900	49.44	ug/L	91
36) 2,2-dichloropropane	9.506	77	217844	56.27	ug/L	95
37) cis-1,2-dichloroethene	9.474	96	148599	48.24	ug/L	93
38) methyl acrylate	9.574	85	23477	47.05	ug/L #	82
39) propionitrile	9.495	54	251164	485.95	ug/L	98
40) bromochloromethane	9.794	128	74366	47.58	ug/L	92
41) tetrahydrofuran	9.862	72	21029	46.00	ug/L	93
42) chloroform	9.873	85	165871	48.85	ug/L	97

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83143.d
 Acq On : 12 Oct 2017 11:28 pm
 Operator : jessicap
 Sample : jc52695-5msd Inst : MS4D
 Misc : MS21008,V4D3589,5,,,,,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:49:24 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) t-butyl formate	9.962	59	12038	11.77	ug/L	93
45) methacrylonitrile	9.726	67	64604	48.71	ug/L	88
46) 1,1,1-trichloroethane	10.182	97	222268	53.38	ug/L	98
47) cyclohexane	10.297	84	163653	43.00	ug/L	95
48) 1,1-dichloropropene	10.376	75	196510	52.61	ug/L	99
49) iso-butyl alcohol	10.355	43	83190	497.81	ug/L	98
50) carbon tetrachloride	10.413	117	202505	54.38	ug/L	100
51) tert amyl alcohol	10.507	55	35658	241.37	ug/L	96
54) n-butyl alcohol	11.141	56	229994	2395.66	ug/L	95
55) 2,2,4-trimethylpentane	10.738	57	556693	54.94	ug/L	99
56) benzene	10.643	78	516773	48.84	ug/L	100
57) tert-amyl methyl ether	10.732	87	93226	49.85	ug/L	97
58) heptane	10.921	71	113430	55.11	ug/L	98
59) isopropyl acetate	10.601	87	28676	46.32	ug/L #	75
60) 1,2-dichloroethane	10.617	62	197288	53.03	ug/L	99
61) trichloroethene	11.388	130	129189	50.05	ug/L	99
62) ethyl acrylate	11.409	55	200932	51.91	ug/L	99
63) 2-nitropropane	12.117	41	39368	55.57	ug/L	96
65) methyl methacrylate	11.676	100	34316	47.30	ug/L #	82
66) 1,2-dichloropropane	11.634	63	146411	50.83	ug/L	99
67) dibromomethane	11.765	93	96473	48.98	ug/L	98
68) methylcyclohexane	11.655	83	234521	51.79	ug/L	94
69) bromodichloromethane	11.907	83	192762	52.44	ug/L	99
70) epichlorohydrin	12.263	57	64864	221.16	ug/L	98
71) cis-1,3-dichloropropene	12.389	75	228641	52.04	ug/L	95
72) 4-methyl-2-pentanone	12.505	58	245090	206.11	ug/L	90
73) 3-methyl-1-butanol	12.505	55	155793	1013.58	ug/L	91
76) toluene	12.777	92	283923	48.78	ug/L	98
77) trans-1,3-dichloropropene	12.940	75	204390	50.74	ug/L	97
78) ethyl methacrylate	12.982	69	178170	51.08	ug/L	93
79) 1,1,2-trichloroethane	13.144	83	105812	48.22	ug/L	97
80) tetrachloroethene	13.364	164	99744	49.71	ug/L	99
81) 1,3-dichloropropane	13.328	76	189324	47.96	ug/L	92
82) 2-hexanone	13.349	58	235090	198.02	ug/L	90
83) butyl acetate	13.448	56	95891	49.94	ug/L	89
84) 3,3-dimethyl-1-butanol	13.511	57	152906	486.38	ug/L	97
85) dibromochloromethane	13.579	129	149372	48.74	ug/L	100
86) 1,2-dibromoethane	13.731	107	136638	48.33	ug/L	100
87) n-butyl ether	14.209	57	556718	52.85	ug/L	98
88) chlorobenzene	14.219	112	321349	47.73	ug/L	96
89) 1,1,1,2-tetrachloroethane	14.282	131	125903	49.20	ug/L	98
90) ethylbenzene	14.303	91	551647	49.70	ug/L	99
91) m,p-xylene	14.413	106	400059	96.74	ug/L	96
92) o-xylene	14.832	106	201913	48.77	ug/L	96
93) styrene	14.832	104	345990	49.03	ug/L	95
94) bromoform	15.053	173	110647	46.62	ug/L	98
95) butyl acrylate	14.665	55	290822	54.01	ug/L	98
96) isopropylbenzene	15.189	105	543982	49.93	ug/L	98
97) cis-1,4-dichloro-2-butene	15.210	88	58184	44.94	ug/L	94
100) bromobenzene	15.561	156	141300	47.43	ug/L	100
101) 1,1,2,2-tetrachloroethane	15.446	83	184000	46.02	ug/L	99
102) trans-1,4-dichloro-2-b...	15.498	53	42421	49.84	ug/L	92
103) 1,2,3-trichloropropane	15.519	110	42055	48.35	ug/L	99
104) n-propylbenzene	15.608	91	681076	51.36	ug/L	97
105) 2-chlorotoluene	15.740	126	130881	48.69	ug/L	97
106) 4-chlorotoluene	15.839	91	403107	49.90	ug/L	99
107) 1,3,5-trimethylbenzene	15.766	105	460988	51.32	ug/L	96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83143.d
 Acq On : 12 Oct 2017 11:28 pm
 Operator : jessicap
 Sample : jc52695-5msd Inst : MS4D
 Misc : MS21008,V4D3589,5,,,,,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:49:24 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:51 2017
 Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
108)	tert-butylbenzene	16.133	134	79960	50.11	ug/L	97
109)	1,2,4-trimethylbenzene	16.169	105	472501	50.84	ug/L	97
110)	sec-butylbenzene	16.353	105	620072	51.15	ug/L	98
111)	1,3-dichlorobenzene	16.510	146	263456	47.60	ug/L	99
112)	p-isopropyltoluene	16.484	119	495342	51.54	ug/L	99
113)	1,4-dichlorobenzene	16.594	146	265613	47.50	ug/L	99
114)	benzyl chloride	16.709	91	355110	53.53	ug/L	98
115)	1,2-dichlorobenzene	17.003	146	263453	48.05	ug/L	100
116)	n-butylbenzene	16.909	92	281082	53.83	ug/L	98
117)	1,2-dibromo-3-chloropr...	17.795	75	36831	51.24	ug/L	87
118)	1,3,5-trichlorobenzene	18.041	180	233874	53.07	ug/L	100
120)	1,2,4-trichlorobenzene	18.712	180	209247	55.85	ug/L	99
121)	hexachlorobutadiene	18.870	225	113339	55.69	ug/L	99
122)	naphthalene	19.001	128	497210	50.43	ug/L	100
123)	1,2,3-trichlorobenzene	19.258	180	191165	54.38	ug/L	99
124)	hexachloroethane	17.307	201	93344	51.83	ug/L	99
125)	2-methylnaphthalene	20.233	142	108730	24.15	ug/L	98

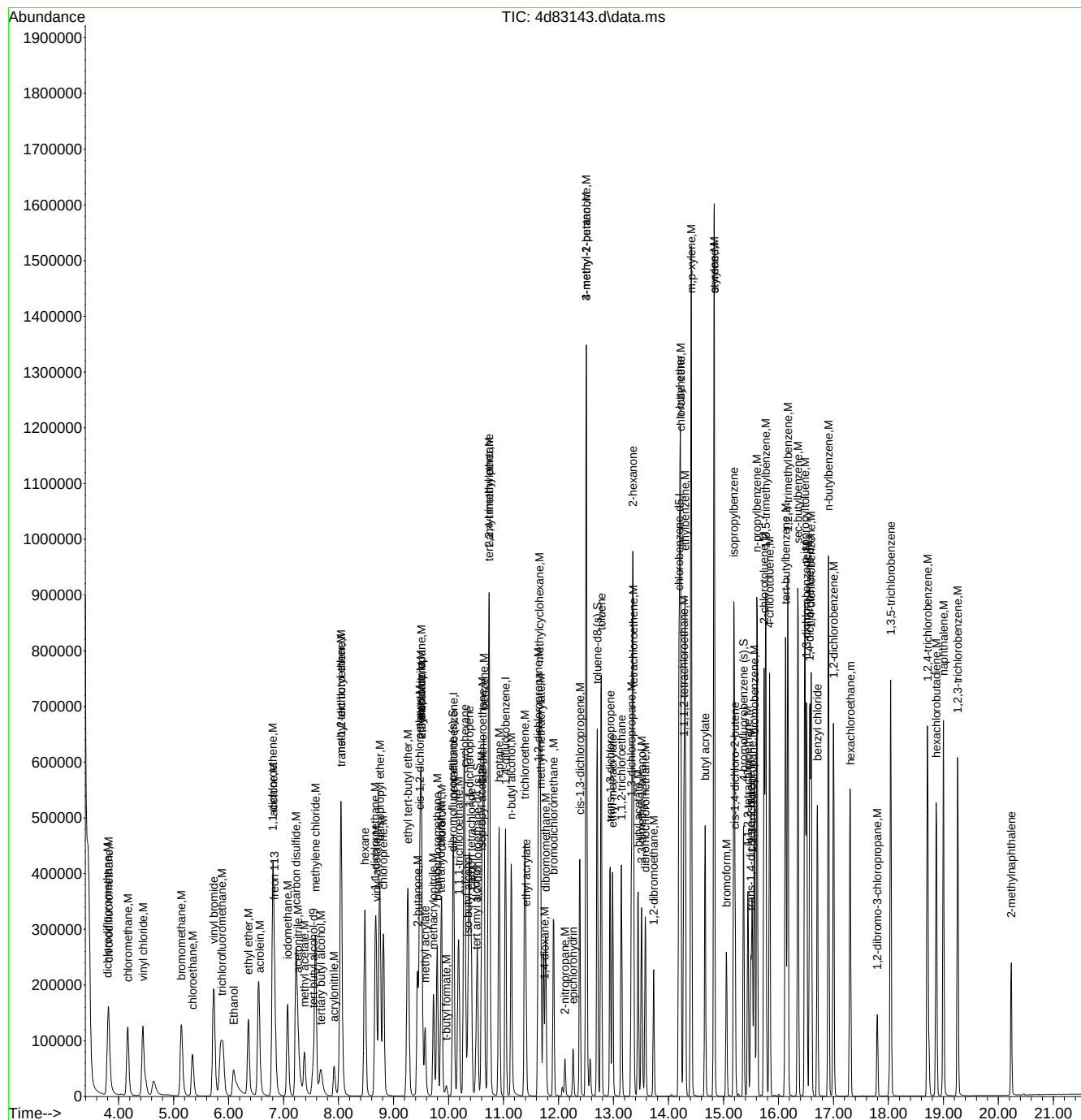
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83143.d
Acq On : 12 Oct 2017 11:28 pm
Operator : jessicap
Sample : jc52695-5msd
Misc : MS21008,V4D3589,5,,,,,1
ALS Vial : 8 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:49:24 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:51 2017
Response via : Initial Calibration

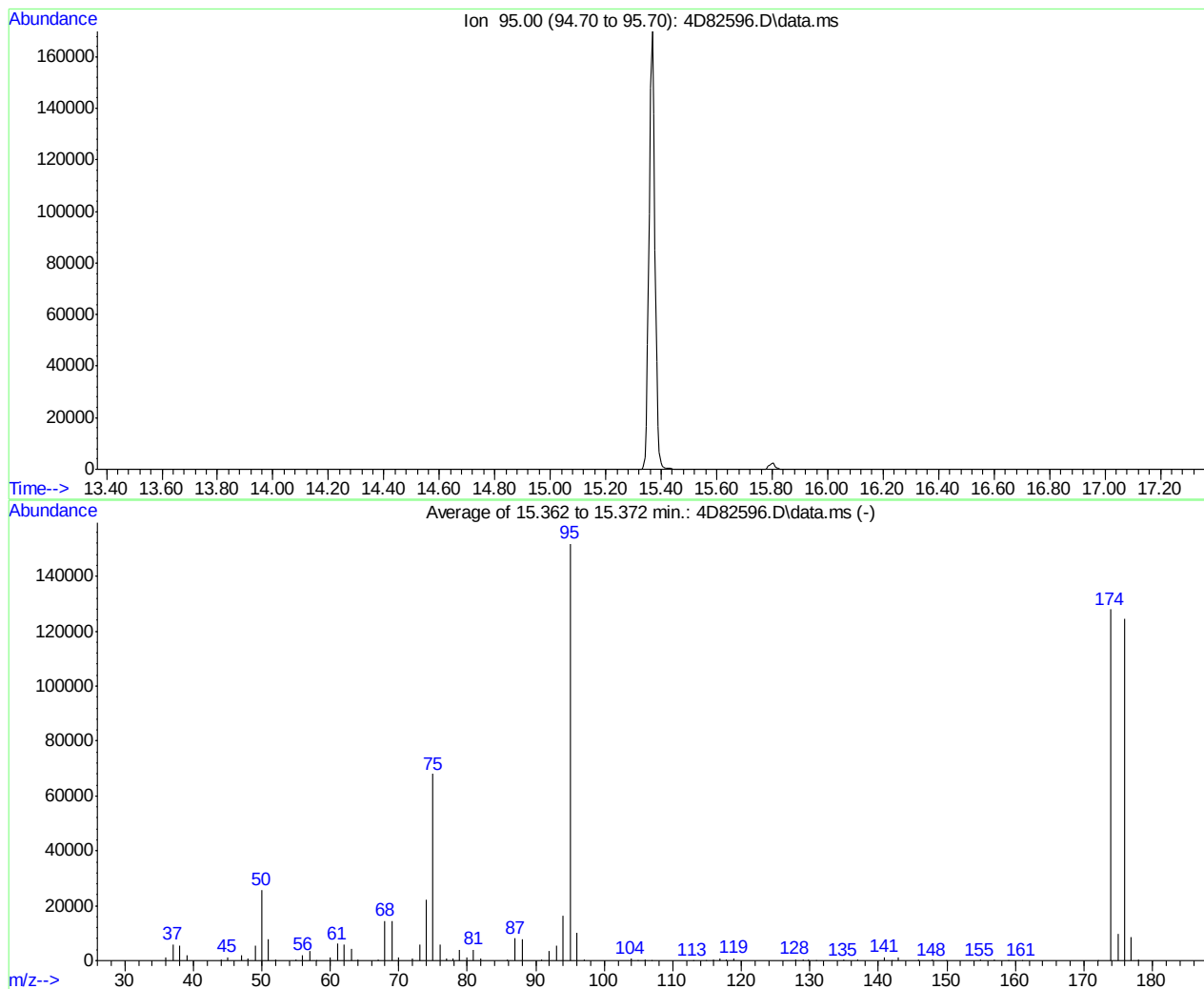


SW-846 Method 8260

Data File : C:\msdchem\1\data\4D82596.D
Acq On : 26 Sep 2017 6:49 pm
Sample : bfb
Misc : MS20204,V4D3564,5,,,1
MS Integration Params: rteint.p

Vial: 4
Operator: oyinadei
Inst : MS4D
Multiplr: 1.00

Method : C:\msdchem\1\methods\M4D3564.M (RTE Integrator)
Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um



AutoFind: Scans 2284, 2285, 2286; Background Corrected with Scan 2275

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	17.0	25853	PASS
75	95	30	60	44.7	67979	PASS
95	95	100	100	100.0	151936	PASS
96	95	5	9	6.5	9944	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	84.3	128013	PASS
175	174	5	9	7.7	9870	PASS
176	174	95	101	97.3	124536	PASS
177	176	5	9	6.8	8452	PASS

Average of 15.362 to 15.372 min.: 4D82596.D\data.ms

bfb

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.00	1101	52.05	323	68.00	14404	79.95	1126
37.05	5954	55.00	337	69.00	14314	80.90	3935
38.00	5512	56.00	1971	70.00	1014	81.90	813
39.05	2078	57.00	3573	72.00	718	85.90	213
44.00	560	57.90	56	73.00	5734	87.00	8008
45.00	1173	60.00	1207	74.00	22331	88.00	7759
47.00	2094	61.00	6072	75.00	67979	90.90	494
48.00	749	62.00	5882	76.00	5955	92.00	3702
49.00	5346	63.05	4342	76.95	909	93.00	5626
50.00	25853	64.00	382	77.95	779	94.00	16202
51.00	7863	67.05	359	78.90	3893	95.00	151936

Average of 15.362 to 15.372 min.: 4D82596.D\data.ms

bfb

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
96.00	9944	118.90	828	147.85	334	177.95	223
97.00	273	127.90	523	149.85	102		
103.90	642	128.95	229	154.90	366		
104.90	121	129.85	516	156.90	276		
105.90	588	130.85	174	158.90	124		
106.90	66	134.90	224	160.95	177		
112.90	53	136.90	238	172.00	196		
114.85	188	140.90	1299	173.90	128013		
115.90	479	141.90	182	175.00	9870		
116.90	814	142.95	1294	175.90	124536		
117.85	527	145.90	234	176.95	8452		

7.5.1

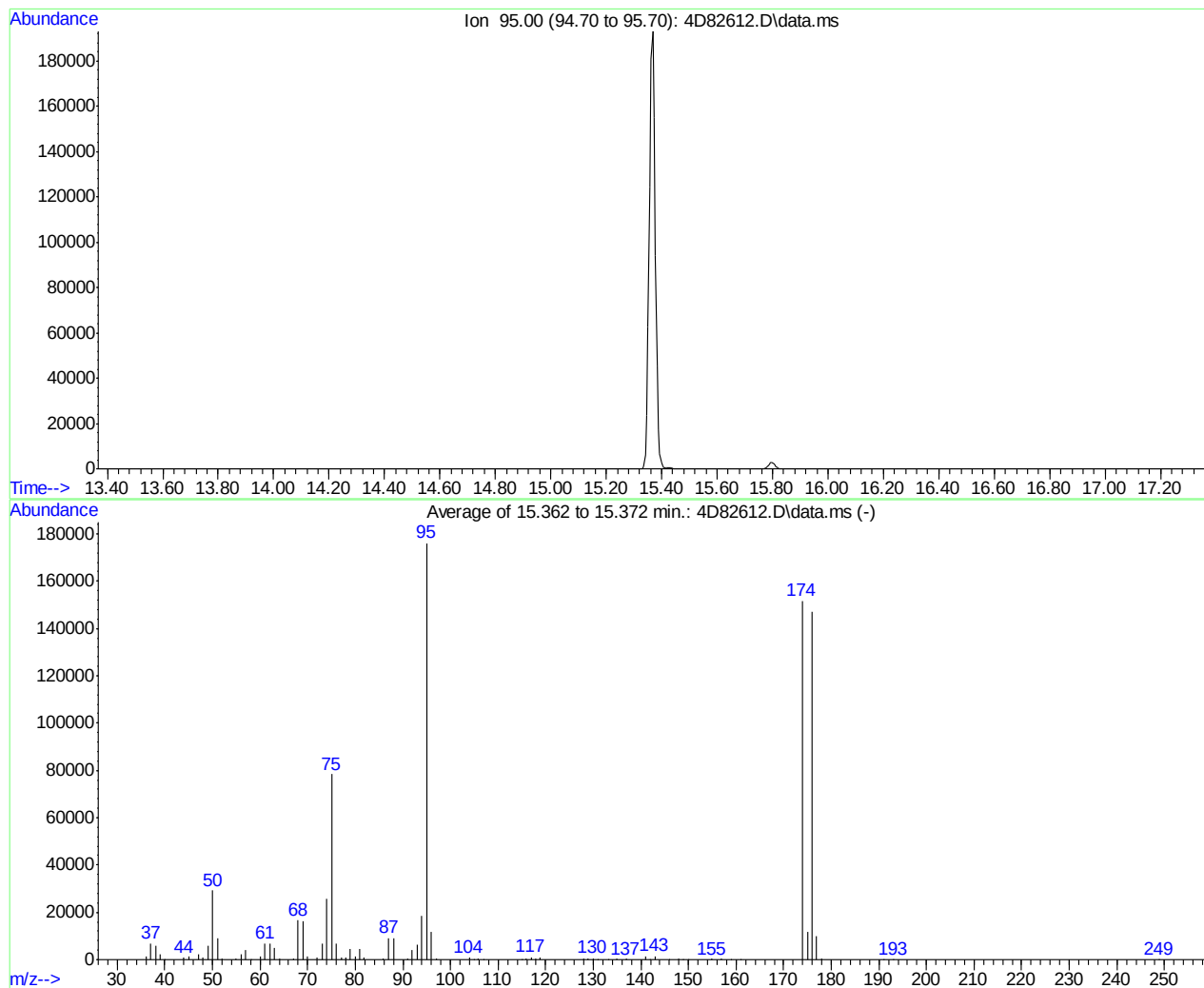
7

SW-846 Method 8260

Data File : C:\msdchem\1\data\4D82612.D
Acq On : 27 Sep 2017 12:33 pm
Sample : bfb
Misc : MS20204,V4D3565,5,,,1
MS Integration Params: rteint.p

Vial: 1
Operator: jessicap
Inst : MS4D
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\M4D3564.M (RTE Integrator)
Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um



AutoFind: Scans 2284, 2285, 2286; Background Corrected with Scan 2275

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.6	29232	PASS
75	95	30	60	44.5	78373	PASS
95	95	100	100	100.0	176149	PASS
96	95	5	9	6.7	11813	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	86.1	151659	PASS
175	174	5	9	7.7	11660	PASS
176	174	95	101	96.8	146880	PASS
177	176	5	9	6.7	9783	PASS

Average of 15.362 to 15.372 min.: 4D82612.D\data.ms

bfb

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.00	1301	51.00	8968	67.00	407	78.90	4369
37.00	6888	52.00	416	68.00	16548	80.00	1152
38.05	6062	55.00	370	69.00	16203	80.90	4488
39.05	2346	56.00	2211	70.00	1176	81.90	953
39.90	67	57.00	4061	72.00	799	85.95	256
44.00	755	58.00	134	73.00	6794	87.00	9125
45.00	1404	60.00	1388	74.00	25896	88.00	8863
47.00	2333	61.00	6922	75.00	78373	90.90	586
48.00	880	62.00	6827	76.00	6604	92.00	4240
49.00	6059	63.00	5032	77.00	1101	93.00	6524
50.00	29232	64.00	487	77.95	823	94.00	18640

Average of 15.362 to 15.372 min.: 4D82612.D\data.ms

bfb

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
95.00	176149	118.90	807	145.90	237	176.95	9783
96.00	11813	127.90	548	147.90	389	177.90	285
97.00	336	128.90	268	148.80	56	191.00	52
103.90	720	129.90	623	149.85	119	193.00	57
104.90	238	130.90	236	154.90	384	248.90	51
105.90	676	133.10	55	156.85	289		
106.90	62	134.90	288	158.85	203		
114.90	196	136.90	267	160.90	201		
115.90	578	140.90	1465	173.90	151659		
116.90	1026	141.85	215	175.00	11660		
117.90	575	142.90	1523	175.90	146880		

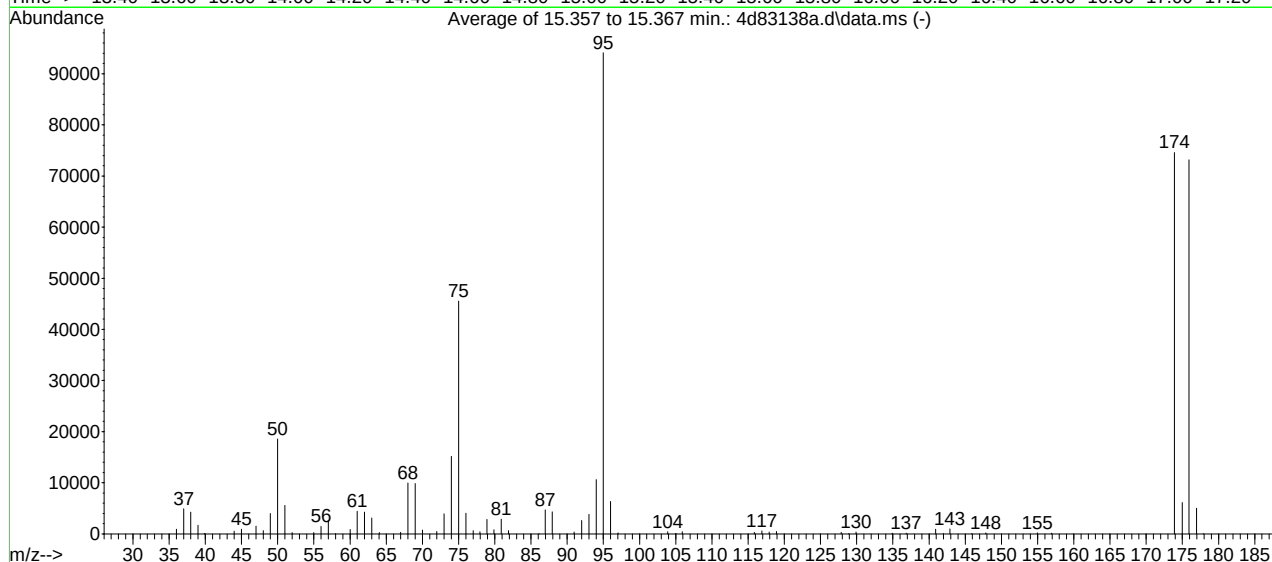
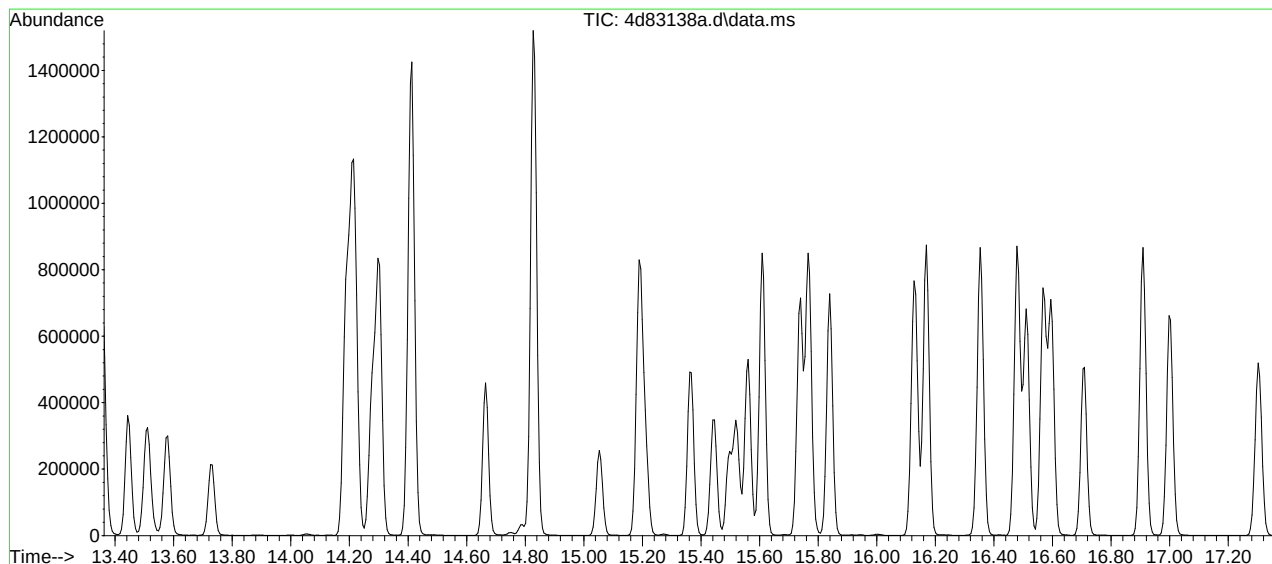
7.5.2

7

SW-846 Method 8260

Data File : C:\msdchem\1\data\v4d3589\4d83138a.d Vial: 3
Acq On : 12 Oct 2017 9:06 pm Operator: jessicap
Sample : bfb Inst : MS4D
Misc : MS20734,V4D3589,5,,,1 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\M4D3564.M (RTE Integrator)
Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um



AutoFind: Scans 2283, 2284, 2285; Background Corrected with Scan 2275

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.7	18560	PASS
75	95	30	60	48.4	45549	PASS
95	95	100	100	100.0	94088	PASS
96	95	5	9	6.8	6357	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	79.3	74608	PASS
175	174	5	9	8.2	6095	PASS
176	174	95	101	98.0	73147	PASS
177	176	5	9	6.9	5015	PASS

4d83138a.d M4D3564.M Mon Oct 16 04:38:44 2017

Average of 15.357 to 15.367 min.: 4d83138a.d\data.ms

bfb

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.00	928	51.00	5581	67.00	308	78.90	2825
37.00	4898	52.00	265	68.00	9941	79.90	804
38.00	4265	55.00	270	69.00	9841	80.90	2894
39.00	1657	56.00	1451	70.00	732	81.90	638
39.90	95	57.00	2573	72.00	494	86.10	56
44.00	498	58.00	54	73.00	3931	86.95	4676
45.00	885	60.00	879	74.00	15143	87.95	4315
47.00	1493	61.00	4410	75.00	45549	90.95	371
48.00	608	62.00	4279	76.00	4017	92.00	2629
49.00	3966	63.00	3075	77.00	621	93.00	3818
50.00	18560	64.05	274	77.95	425	94.00	10599

Average of 15.357 to 15.367 min.: 4d83138a.d\data.ms

bfb

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
95.00	94088	128.90	56	173.90	74608		
96.00	6357	129.90	351	175.00	6095		
97.05	202	134.90	127	175.90	73147		
103.90	412	136.85	132	176.95	5015		
105.00	63	140.90	898	177.90	53		
105.90	400	142.00	50				
115.85	325	142.90	938				
116.90	557	145.90	54				
117.90	348	147.85	216				
118.90	471	154.95	212				
127.85	331	156.90	130				

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82598.D
 Acq On : 26 Sep 2017 10:35 pm
 Operator : oycinadei
 Sample : ic3564-0.5
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 27 11:58:41 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	199545	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	321961	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.037	114	493860	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	404760	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	207885	50.00	ug/L	0.00

System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	186321	50.51	ug/L	0.00
Spiked Amount	50.000	Range	76 - 120	Recovery	=	101.02%
53) 1,2-dichloroethane-d4 (s)	10.523	65	202006	50.86	ug/L	0.00
Spiked Amount	50.000	Range	73 - 122	Recovery	=	101.72%
75) toluene-d8 (s)	12.704	98	551184	49.84	ug/L	0.00
Spiked Amount	50.000	Range	84 - 119	Recovery	=	99.68%
99) 4-bromofluorobenzene (s)	15.367	95	209911	50.53	ug/L	0.00
Spiked Amount	50.000	Range	78 - 117	Recovery	=	101.06%

Target Compounds					Qvalue	
8) chloromethane	4.137	50	2576	0.45	ug/L	84
11) bromomethane	5.128	94	1678	0.43	ug/L	94
12) chloroethane	5.337	64	1127	0.41	ug/L	66
13) trichlorofluoromethane	5.856	101	2424	0.43	ug/L	87
14) vinyl bromide	5.720	106	1462	0.43	ug/L #	84
15) ethyl ether	6.365	74	773	0.37	ug/L #	85
17) freon 113	6.826	151	877	0.38	ug/L	98
18) 1,1-dichloroethene	6.800	96	1365	0.41	ug/L	90
19) acetone	6.826	58	716	1.60	ug/L #	31
20) acetonitrile	7.277	41	2440	4.04	ug/L	70
21) iodomethane	7.068	142	2850	0.42	ug/L	98
22) carbon disulfide	7.220	76	5854	0.44	ug/L	96
23) methylene chloride	7.581	84	2049	0.41	ug/L	95
25) methyl tert butyl ether	8.048	73	4931	0.43	ug/L	99
26) trans-1,2-dichloroethene	8.048	96	1861	0.49	ug/L	95
27) di-isopropyl ether	8.751	45	5829	0.42	ug/L	97
28) 2-butanone	9.448	72	703	1.25	ug/L #	92
29) 1,1-dichloroethane	8.667	63	3142	0.45	ug/L	89
30) chloroprene	8.813	53	2131	0.43	ug/L	90
32) hexane	8.478	56	1029	0.48	ug/L #	85
34) ethyl tert-butyl ether	9.264	59	5374	0.42	ug/L	99
36) 2,2-dichloropropane	9.511	77	2509	0.51	ug/L	97
37) cis-1,2-dichloroethene	9.479	96	1834	0.43	ug/L	97
39) propionitrile	9.511	54	2981	4.19	ug/L	93
40) bromochloromethane	9.794	128	906	0.43	ug/L	97
42) chloroform	9.873	85	2443	0.53	ug/L	83
45) methacrylonitrile	9.736	67	655	0.35	ug/L #	70
46) 1,1,1-trichloroethane	10.177	97	2482	0.46	ug/L #	71
48) 1,1-dichloropropene	10.376	75	2206	0.46	ug/L	90
50) carbon tetrachloride	10.407	117	2181	0.46	ug/L	99
54) n-butyl alcohol	11.152	56	3202	25.36	ug/L	98
55) 2,2,4-trimethylpentane	10.738	57	6295	0.52	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82598.D
 Acq On : 26 Sep 2017 10:35 pm
 Operator : ovinadei
 Sample : ic3564-0.5
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 27 11:58:41 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
56) benzene	10.643	78	6935	0.46	ug/L	96
57) tert-amyl methyl ether	10.738	87	1175	0.46	ug/L #	60
58) heptane	10.921	71	1215	0.53	ug/L	84
60) 1,2-dichloroethane	10.622	62	2282	0.44	ug/L	89
61) trichloroethene	11.388	130	1599	0.46	ug/L	92
66) 1,2-dichloropropane	11.634	63	1717	0.42	ug/L	97
67) dibromomethane	11.765	93	1217	0.45	ug/L	94
68) methylcyclohexane	11.660	83	2672	0.50	ug/L	95
69) bromodichloromethane	11.912	83	2302	0.45	ug/L	92
71) cis-1,3-dichloropropene	12.389	75	2721	0.44	ug/L	98
72) 4-methyl-2-pentanone	12.510	58	2986	1.72	ug/L	95
73) 3-methyl-1-butanol	12.515	55	2117	10.37	ug/L	93
76) toluene	12.777	92	3540	0.45	ug/L #	83
77) trans-1,3-dichloropropene	12.945	75	2322	0.43	ug/L	96
78) ethyl methacrylate	12.992	69	1855	0.40	ug/L	93
79) 1,1,2-trichloroethane	13.144	83	1319	0.45	ug/L	99
80) tetrachloroethene	13.364	164	1167	0.47	ug/L	96
81) 1,3-dichloropropane	13.328	76	2353	0.44	ug/L	99
82) 2-hexanone	13.359	58	2714	1.50	ug/L	99
83) butyl acetate	13.459	56	1080	0.43	ug/L #	69
84) 3,3-dimethyl-1-butanol	13.516	57	2078	5.12	ug/L	90
85) dibromochloromethane	13.585	129	1805	0.44	ug/L	87
86) 1,2-dibromoethane	13.731	107	1643	0.44	ug/L	100
87) n-butyl ether	14.214	57	6015	0.42	ug/L	92
88) chlorobenzene	14.224	112	4042	0.44	ug/L	97
89) 1,1,1,2-tetrachloroethane	14.282	131	1440	0.42	ug/L	96
90) ethylbenzene	14.303	91	6644	0.44	ug/L	99
91) m,p-xylene	14.418	106	5000	0.91	ug/L	92
92) o-xylene	14.832	106	2353	0.42	ug/L	99
93) styrene	14.838	104	4111	0.44	ug/L	99
94) bromoform	15.058	173	1406	0.46	ug/L	92
95) butyl acrylate	14.680	55	2615	0.36	ug/L #	93
96) isopropylbenzene	15.194	105	6408	0.45	ug/L	99
100) bromobenzene	15.561	156	1848	0.46	ug/L	98
101) 1,1,2,2-tetrachloroethane	15.446	83	2456	0.46	ug/L	98
103) 1,2,3-trichloropropane	15.525	110	483	0.44	ug/L	80
104) n-propylbenzene	15.614	91	7850	0.45	ug/L	98
105) 2-chlorotoluene	15.740	126	1677	0.48	ug/L #	81
106) 4-chlorotoluene	15.844	91	4971	0.46	ug/L	99
107) 1,3,5-trimethylbenzene	15.771	105	5224	0.44	ug/L	97
108) tert-butylbenzene	16.133	134	865	0.42	ug/L	97
109) 1,2,4-trimethylbenzene	16.175	105	5415	0.43	ug/L	100
110) sec-butylbenzene	16.353	105	7028	0.45	ug/L	98
111) 1,3-dichlorobenzene	16.521	146	3496	0.48	ug/L	89
112) p-isopropyltoluene	16.484	119	5461	0.44	ug/L	99
113) 1,4-dichlorobenzene	16.599	146	3502	0.46	ug/L	97
114) benzyl chloride	16.715	91	3908	0.47	ug/L	92
115) 1,2-dichlorobenzene	17.008	146	3161	0.43	ug/L	91
116) n-butylbenzene	16.914	92	2775	0.42	ug/L	98
118) 1,3,5-trichlorobenzene	18.046	180	2446	0.43	ug/L	93

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
Data File : 4D82598.D
Acq On : 26 Sep 2017 10:35 pm
Operator : oyinadei
Sample : ic3564-0.5
Misc : MS20204,V4D3564,5,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 27 11:58:41 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 10:19:20 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
120) 1,2,4-trichlorobenzene	18.718	180	1783	0.38	ug/L	99
121) hexachlorobutadiene	18.875	225	1197	0.49	ug/L	92
124) hexachloroethane	17.302	201	977	0.43	ug/L	94

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82599.D
 Acq On : 26 Sep 2017 11:02 pm
 Operator : oyinadei
 Sample : ic3564-1
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 27 12:00:07 2017

Quant Method : C:\msdchem\1\methods\M4D3564.M

Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um

QLast Update : Wed Sep 27 10:19:20 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	195156	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	314914	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	480893	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	396946	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	204595	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	181685	50.35	ug/L	0.00
Spiked Amount	50.000	Range	76 - 120	Recovery	=	100.70%
53) 1,2-dichloroethane-d4 (s)	10.523	65	194052	50.18	ug/L	0.00
Spiked Amount	50.000	Range	73 - 122	Recovery	=	100.36%
75) toluene-d8 (s)	12.704	98	539125	49.71	ug/L	0.00
Spiked Amount	50.000	Range	84 - 119	Recovery	=	99.42%
99) 4-bromofluorobenzene (s)	15.367	95	204210	49.94	ug/L	0.00
Spiked Amount	50.000	Range	78 - 117	Recovery	=	99.88%
Target Compounds						
2) tertiary butyl alcohol	7.676	59	2674	4.82	ug/L	82
3) Ethanol	6.113	45	4682	105.64	ug/L	86
4) 1,4-dioxane	11.750	88	828	23.03	ug/L	99
7) dichlorodifluoromethane	3.812	85	4148	0.95	ug/L	88
8) chloromethane	4.147	50	4943	0.89	ug/L	98
9) vinyl chloride	4.425	62	4867	0.99	ug/L	98
11) bromomethane	5.133	94	3694	0.96	ug/L	97
12) chloroethane	5.348	64	2506	0.93	ug/L	95
13) trichlorofluoromethane	5.888	101	5596	1.01	ug/L	93
14) vinyl bromide	5.731	106	3411	1.03	ug/L	96
15) ethyl ether	6.365	74	1493	0.73	ug/L	83
17) freon 113	6.837	151	1862	0.82	ug/L #	75
18) 1,1-dichloroethene	6.805	96	2442	0.74	ug/L	96
19) acetone	6.826	58	1357	3.10	ug/L #	43
20) acetonitrile	7.282	41	4697	7.95	ug/L	91
21) iodomethane	7.078	142	4925	0.74	ug/L	99
22) carbon disulfide	7.225	76	9847	0.76	ug/L	98
23) methylene chloride	7.581	84	3323	0.68	ug/L	93
24) methyl acetate	7.398	43	2652	0.68	ug/L	98
25) methyl tert butyl ether	8.032	73	8746	0.78	ug/L	96
26) trans-1,2-dichloroethene	8.048	96	2863	0.78	ug/L	89
27) di-isopropyl ether	8.751	45	9907	0.73	ug/L	99
28) 2-butanone	9.448	72	1518	2.76	ug/L #	87
29) 1,1-dichloroethane	8.672	63	5463	0.79	ug/L	98
30) chloroprene	8.813	53	3934	0.80	ug/L	99
31) acrylonitrile	7.933	53	920	0.60	ug/L #	71
32) hexane	8.483	56	1958	0.93	ug/L	91
34) ethyl tert-butyl ether	9.259	59	9263	0.74	ug/L	95
36) 2,2-dichloropropane	9.505	77	4353	0.90	ug/L	96
37) cis-1,2-dichloroethene	9.479	96	3412	0.81	ug/L	97
39) propionitrile	9.500	54	5578	8.02	ug/L	98
40) bromochloromethane	9.799	128	1578	0.76	ug/L	96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82599.D
 Acq On : 26 Sep 2017 11:02 pm
 Operator : oyinadei
 Sample : ic3564-1
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 27 12:00:07 2017

Quant Method : C:\msdchem\1\methods\M4D3564.M

Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um

QLast Update : Wed Sep 27 10:19:20 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
42) chloroform	9.873	85	3761	0.84	ug/L	89
43) t-butyl formate	9.951	59	959	0.69	ug/L #	70
45) methacrylonitrile	9.731	67	1297	0.72	ug/L	94
46) 1,1,1-trichloroethane	10.187	97	4562	0.87	ug/L	98
47) cyclohexane	10.292	84	3846	1.02	ug/L	96
48) 1,1-dichloropropene	10.376	75	4055	0.86	ug/L	96
49) iso-butyl alcohol	10.360	43	2292	10.01	ug/L	88
50) carbon tetrachloride	10.407	117	3930	0.84	ug/L	98
51) tert amyl alcohol	10.517	55	1020	5.49	ug/L	82
54) n-butyl alcohol	11.152	56	6808	55.38	ug/L	98
55) 2,2,4-trimethylpentane	10.738	57	11360	0.97	ug/L	97
56) benzene	10.643	78	11706	0.80	ug/L	99
57) tert-amyl methyl ether	10.727	87	1858	0.74	ug/L #	81
58) heptane	10.921	71	2264	1.01	ug/L	93
60) 1,2-dichloroethane	10.622	62	4068	0.81	ug/L	95
61) trichloroethene	11.388	130	2628	0.78	ug/L	98
62) ethyl acrylate	11.414	55	3933	0.74	ug/L	83
63) 2-nitropropane	12.122	41	760	0.79	ug/L	94
66) 1,2-dichloropropane	11.634	63	3147	0.80	ug/L	97
67) dibromomethane	11.765	93	2196	0.84	ug/L	91
68) methylcyclohexane	11.655	83	4862	0.93	ug/L	99
69) bromodichloromethane	11.912	83	4045	0.81	ug/L	99
70) epichlorohydrin	12.269	57	1557	3.97	ug/L	94
71) cis-1,3-dichloropropene	12.389	75	4696	0.78	ug/L	98
72) 4-methyl-2-pentanone	12.510	58	5462	3.23	ug/L	98
73) 3-methyl-1-butanol	12.515	55	4029	20.28	ug/L	98
76) toluene	12.777	92	6132	0.80	ug/L	98
77) trans-1,3-dichloropropene	12.945	75	4306	0.82	ug/L	100
78) ethyl methacrylate	12.987	69	3380	0.74	ug/L	95
79) 1,1,2-trichloroethane	13.144	83	2172	0.75	ug/L	93
80) tetrachloroethene	13.364	164	2158	0.89	ug/L	98
81) 1,3-dichloropropane	13.333	76	4175	0.80	ug/L	98
82) 2-hexanone	13.354	58	5414	3.04	ug/L	99
83) butyl acetate	13.459	56	2177	0.88	ug/L #	81
84) 3,3-dimethyl-1-butanol	13.516	57	4161	10.45	ug/L	97
85) dibromochloromethane	13.579	129	3217	0.81	ug/L	97
86) 1,2-dibromoethane	13.737	107	3000	0.82	ug/L	95
87) n-butyl ether	14.214	57	10961	0.77	ug/L	90
88) chlorobenzene	14.224	112	7249	0.81	ug/L	99
89) 1,1,1,2-tetrachloroethane	14.282	131	2724	0.82	ug/L	86
90) ethylbenzene	14.303	91	11819	0.81	ug/L	96
91) m,p-xylene	14.413	106	8543	1.58	ug/L	99
92) o-xylene	14.832	106	4329	0.79	ug/L	98
93) styrene	14.838	104	7275	0.79	ug/L	98
94) bromoform	15.058	173	2595	0.86	ug/L	94
95) butyl acrylate	14.675	55	5545	0.78	ug/L #	92
96) isopropylbenzene	15.194	105	11158	0.80	ug/L	98
100) bromobenzene	15.566	156	3144	0.79	ug/L	92
101) 1,1,2,2-tetrachloroethane	15.446	83	4852	0.92	ug/L	94
102) trans-1,4-dichloro-2-b...	15.504	53	791	0.80	ug/L	86

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82599.D
 Acq On : 26 Sep 2017 11:02 pm
 Operator : oyinadei
 Sample : ic3564-1
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 27 12:00:07 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

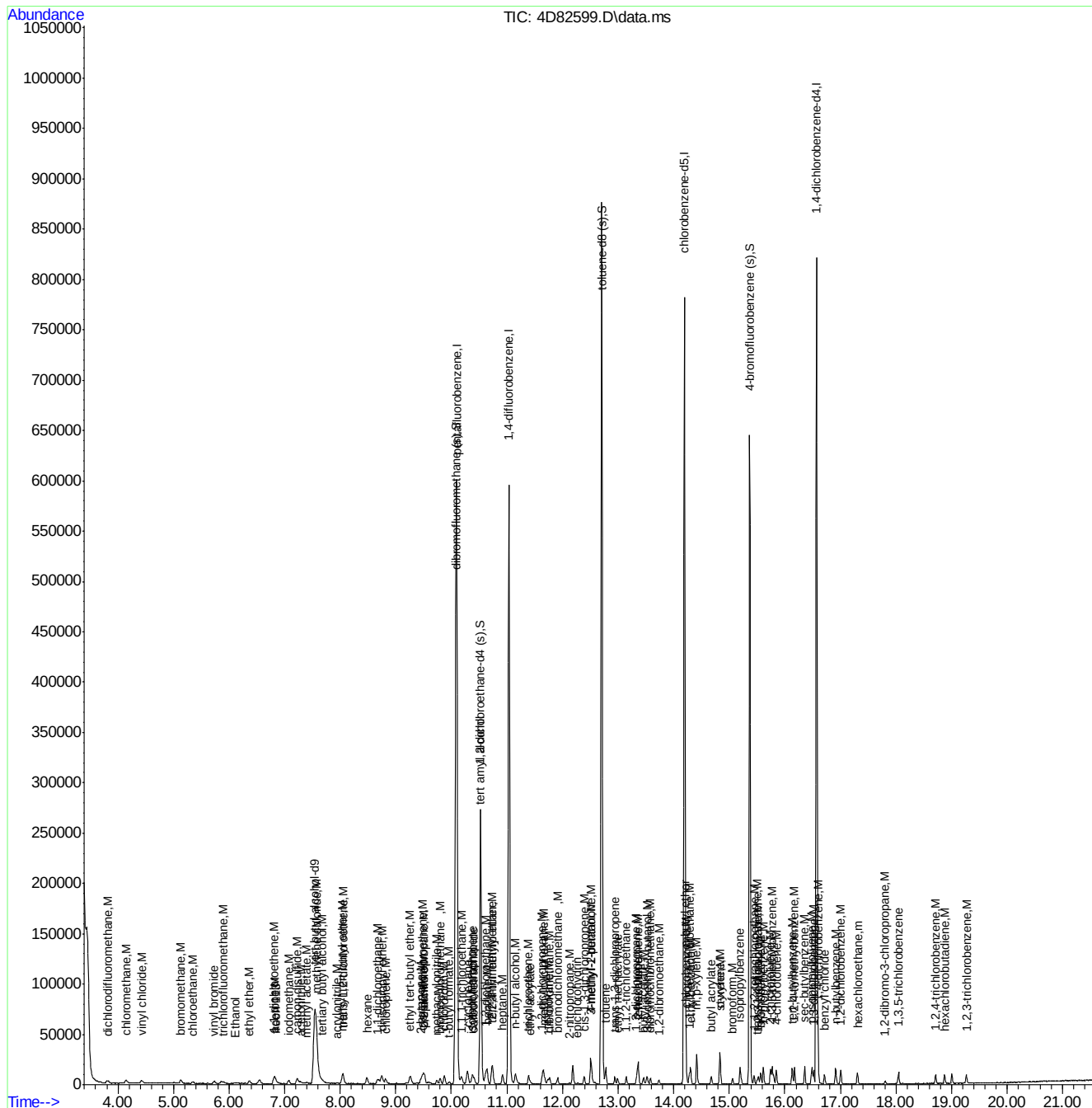
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
103)	1,2,3-trichloropropane	15.525	110	980	0.90	ug/L	96
104)	n-propylbenzene	15.614	91	13822	0.80	ug/L	100
105)	2-chlorotoluene	15.739	126	2826	0.81	ug/L	92
106)	4-chlorotoluene	15.844	91	8695	0.82	ug/L	96
107)	1,3,5-trimethylbenzene	15.771	105	9371	0.79	ug/L	96
108)	tert-butylbenzene	16.133	134	1590	0.79	ug/L	91
109)	1,2,4-trimethylbenzene	16.175	105	9690	0.79	ug/L	97
110)	sec-butylbenzene	16.358	105	12417	0.81	ug/L	97
111)	1,3-dichlorobenzene	16.515	146	6042	0.83	ug/L	99
112)	p-isopropyltoluene	16.484	119	9633	0.78	ug/L	96
113)	1,4-dichlorobenzene	16.599	146	6299	0.84	ug/L	92
114)	benzyl chloride	16.715	91	7666	0.94	ug/L	98
115)	1,2-dichlorobenzene	17.003	146	6135	0.84	ug/L	96
116)	n-butylbenzene	16.914	92	5181	0.79	ug/L	98
117)	1,2-dibromo-3-chloropr...	17.800	75	787	0.91	ug/L	81
118)	1,3,5-trichlorobenzene	18.046	180	4511	0.80	ug/L	98
120)	1,2,4-trichlorobenzene	18.718	180	3543	0.76	ug/L	98
121)	hexachlorobutadiene	18.875	225	2030	0.85	ug/L	98
123)	1,2,3-trichlorobenzene	19.268	180	3163	0.75	ug/L	96
124)	hexachloroethane	17.307	201	1766	0.78	ug/L	92

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
Data File : 4D82599.D
Acq On : 26 Sep 2017 11:02 pm
Operator : oyinadei
Sample : ic3564-1
Misc : MS20204,V4D3564,5,,,,,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 27 12:00:07 2017
Quant Method : C:\msdchem\1\methods\M4D3564.M
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 10:19:20 2017
Response via : Initial Calibration



M4D3564.M Wed Oct 04 08:59:14 2017 RPT1

Page: 4

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82600.D
 Acq On : 26 Sep 2017 11:30 pm
 Operator : ovinadei
 Sample : ic3564-2
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 27 12:01:10 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.539	65	189396	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	315044	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.037	114	479680	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	392365	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	206242	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	181969	50.41	ug/L	0.00
Spiked Amount	50.000	Range	76 - 120	Recovery	=	100.82%
53) 1,2-dichloroethane-d4 (s)	10.523	65	196823	51.02	ug/L	0.00
Spiked Amount	50.000	Range	73 - 122	Recovery	=	102.04%
75) toluene-d8 (s)	12.704	98	540516	50.42	ug/L	0.00
Spiked Amount	50.000	Range	84 - 119	Recovery	=	100.84%
99) 4-bromofluorobenzene (s)	15.367	95	204562	49.63	ug/L	0.00
Spiked Amount	50.000	Range	78 - 117	Recovery	=	99.26%
Target Compounds						
2) tertiary butyl alcohol	7.670	59	5308	9.86	ug/L	86
3) Ethanol	6.092	45	8442	196.28	ug/L	99
4) 1,4-dioxane	11.750	88	1671	47.90	ug/L	99
6) chlorodifluoromethane	3.812	51	4280	1.15	ug/L	91
7) dichlorodifluoromethane	3.806	85	8417	1.94	ug/L	96
8) chloromethane	4.142	50	9577	1.72	ug/L	99
9) vinyl chloride	4.415	62	9383	1.91	ug/L	100
11) bromomethane	5.128	94	7087	1.84	ug/L	89
12) chloroethane	5.337	64	5309	1.96	ug/L	95
13) trichlorofluoromethane	5.867	101	10841	1.95	ug/L	96
14) vinyl bromide	5.725	106	6531	1.96	ug/L	# 99
15) ethyl ether	6.354	74	3464	1.70	ug/L	94
16) acrolein	6.569	56	1416	2.20	ug/L	92
17) freon 113	6.816	151	4411	1.95	ug/L	87
18) 1,1-dichloroethene	6.800	96	5651	1.71	ug/L	98
19) acetone	6.811	58	3282	7.49	ug/L	# 83
20) acetonitrile	7.272	41	10539	17.82	ug/L	92
21) iodomethane	7.068	142	11809	1.78	ug/L	93
22) carbon disulfide	7.220	76	21750	1.69	ug/L	97
23) methylene chloride	7.576	84	7429	1.53	ug/L	98
24) methyl acetate	7.382	43	6525	1.68	ug/L	98
25) methyl tert butyl ether	8.037	73	20245	1.79	ug/L	97
26) trans-1,2-dichloroethene	8.048	96	6727	1.82	ug/L	95
27) di-isopropyl ether	8.751	45	22998	1.71	ug/L	97
28) 2-butanone	9.443	72	3816	6.94	ug/L	88
29) 1,1-dichloroethane	8.661	63	12664	1.84	ug/L	97
30) chloroprene	8.813	53	9224	1.88	ug/L	99
31) acrylonitrile	7.933	53	2685	1.76	ug/L	95
32) hexane	8.478	56	4560	2.18	ug/L	91
34) ethyl tert-butyl ether	9.254	59	22263	1.79	ug/L	97
35) ethyl acetate	9.511	45	1163	1.76	ug/L	# 65
36) 2,2-dichloropropane	9.506	77	9877	2.04	ug/L	96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82600.D
 Acq On : 26 Sep 2017 11:30 pm
 Operator : ovinadei
 Sample : ic3564-2
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 27 12:01:10 2017

Quant Method : C:\msdchem\1\methods\M4D3564.M

Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um

QLast Update : Wed Sep 27 10:19:20 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
37) cis-1,2-dichloroethene	9.474	96	7987	1.91	ug/L	96
38) methyl acrylate	9.579	85	988	1.53	ug/L #	67
39) propionitrile	9.495	54	13025	18.73	ug/L	98
40) bromochloromethane	9.789	128	3879	1.87	ug/L	90
41) tetrahydrofuran	9.867	72	1079	1.85	ug/L	93
42) chloroform	9.867	85	8550	1.91	ug/L	98
43) t-butyl formate	9.956	59	2426	1.75	ug/L	87
45) methacrylonitrile	9.736	67	3343	1.85	ug/L	96
46) 1,1,1-trichloroethane	10.182	97	10175	1.93	ug/L	95
47) cyclohexane	10.292	84	9505	2.51	ug/L	94
48) 1,1-dichloropropene	10.376	75	9260	1.95	ug/L	98
49) iso-butyl alcohol	10.360	43	4299	18.77	ug/L	88
50) carbon tetrachloride	10.407	117	9177	1.96	ug/L	99
51) tert amyl alcohol	10.507	55	1844	9.93	ug/L	91
54) n-butyl alcohol	11.147	56	11813	96.34	ug/L	95
55) 2,2,4-trimethylpentane	10.738	57	25867	2.21	ug/L	97
56) benzene	10.638	78	26645	1.83	ug/L	98
57) tert-amyl methyl ether	10.732	87	4639	1.85	ug/L	97
58) heptane	10.916	71	5312	2.37	ug/L	99
59) isopropyl acetate	10.607	87	1414	1.82	ug/L #	86
60) 1,2-dichloroethane	10.617	62	9521	1.89	ug/L	99
61) trichloroethene	11.388	130	6558	1.96	ug/L	96
62) ethyl acrylate	11.414	55	9296	1.75	ug/L	98
63) 2-nitropropane	12.122	41	1776	1.85	ug/L	92
64) 2-chloroethyl vinyl ether	12.185	63	19899	8.94	ug/L	100
65) methyl methacrylate	11.681	100	1607	1.71	ug/L #	75
66) 1,2-dichloropropane	11.634	63	7461	1.89	ug/L	97
67) dibromomethane	11.765	93	5073	1.95	ug/L	91
68) methylcyclohexane	11.655	83	11376	2.17	ug/L	97
69) bromodichloromethane	11.912	83	9346	1.87	ug/L	100
70) epichlorohydrin	12.269	57	3619	9.26	ug/L	94
71) cis-1,3-dichloropropene	12.389	75	11108	1.86	ug/L	98
72) 4-methyl-2-pentanone	12.510	58	12452	7.38	ug/L	92
73) 3-methyl-1-butanol	12.510	55	7748	39.09	ug/L	90
76) toluene	12.777	92	13990	1.84	ug/L	100
77) trans-1,3-dichloropropene	12.940	75	9732	1.88	ug/L	94
78) ethyl methacrylate	12.987	69	8304	1.83	ug/L	95
79) 1,1,2-trichloroethane	13.144	83	5376	1.88	ug/L	96
80) tetrachloroethene	13.364	164	4944	2.05	ug/L	96
81) 1,3-dichloropropane	13.328	76	9924	1.93	ug/L	96
82) 2-hexanone	13.354	58	11712	6.66	ug/L	99
83) butyl acetate	13.454	56	4601	1.89	ug/L	99
84) 3,3-dimethyl-1-butanol	13.516	57	7346	18.67	ug/L	97
85) dibromochloromethane	13.579	129	7301	1.85	ug/L	97
86) 1,2-dibromoethane	13.731	107	6834	1.88	ug/L	100
87) n-butyl ether	14.214	57	25637	1.83	ug/L	95
88) chlorobenzene	14.219	112	16537	1.87	ug/L	98
89) 1,1,1,2-tetrachloroethane	14.282	131	6258	1.89	ug/L	97
90) ethylbenzene	14.303	91	26846	1.85	ug/L	99
91) m,p-xylene	14.413	106	19959	3.73	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82600.D
 Acq On : 26 Sep 2017 11:30 pm
 Operator : oyinadei
 Sample : ic3564-2
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 27 12:01:10 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

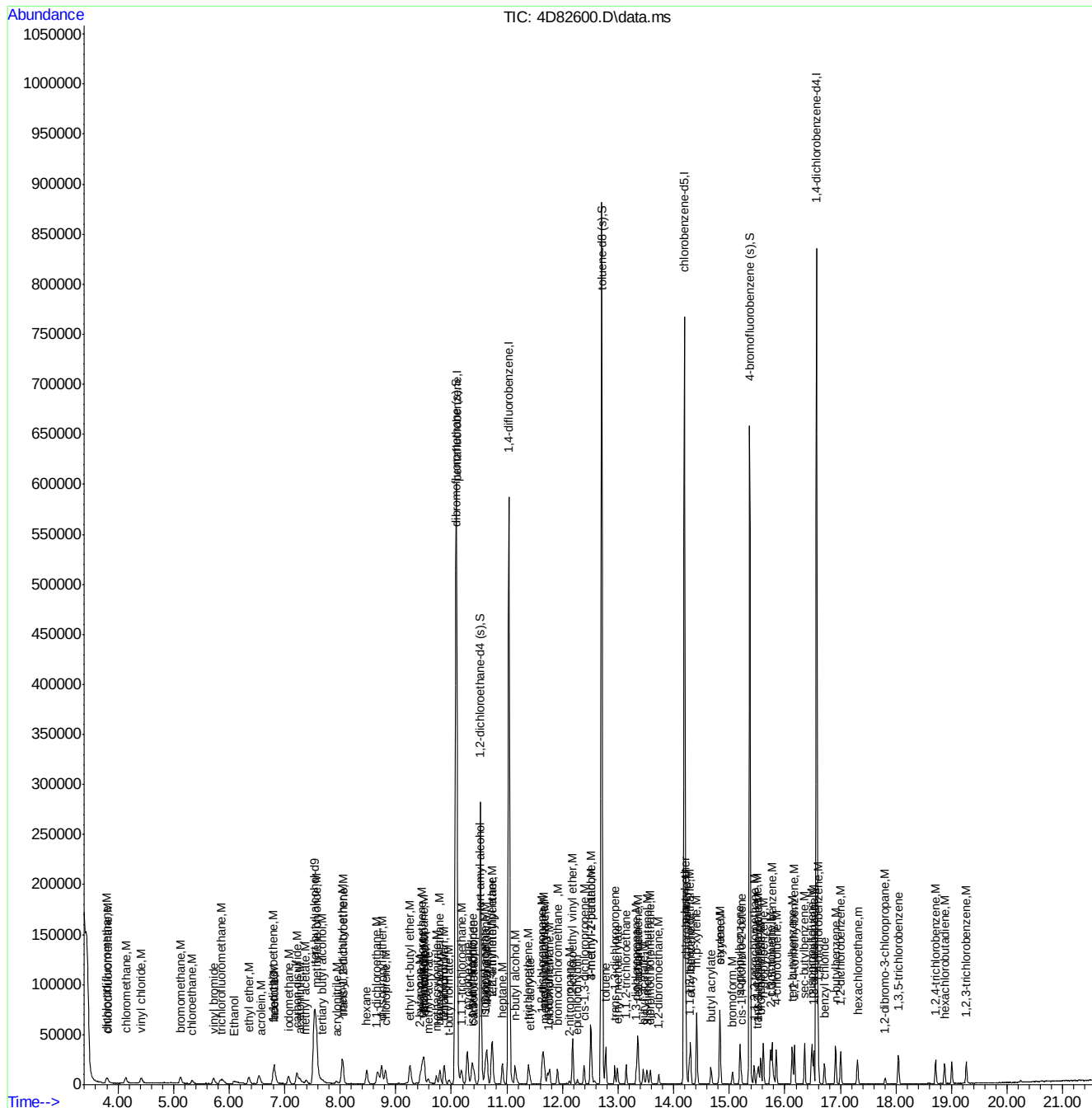
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
92) o-xylene	14.832	106	10132	1.86	ug/L	97
93) styrene	14.832	104	16766	1.84	ug/L	96
94) bromoform	15.058	173	5573	1.87	ug/L	98
95) butyl acrylate	14.670	55	12459	1.77	ug/L	98
96) isopropylbenzene	15.194	105	26005	1.88	ug/L	99
97) cis-1,4-dichloro-2-butene	15.215	88	2848	2.07	ug/L	98
100) bromobenzene	15.567	156	7275	1.82	ug/L	87
101) 1,1,2,2-tetrachloroethane	15.446	83	9894	1.87	ug/L	97
102) trans-1,4-dichloro-2-b...	15.498	53	1861	1.87	ug/L	95
103) 1,2,3-trichloropropane	15.525	110	2124	1.94	ug/L	94
104) n-propylbenzene	15.614	91	32458	1.86	ug/L	100
105) 2-chlorotoluene	15.745	126	6490	1.85	ug/L	90
106) 4-chlorotoluene	15.844	91	20128	1.88	ug/L	94
107) 1,3,5-trimethylbenzene	15.771	105	21723	1.83	ug/L	97
108) tert-butylbenzene	16.133	134	3861	1.90	ug/L #	85
109) 1,2,4-trimethylbenzene	16.175	105	22350	1.81	ug/L	100
110) sec-butylbenzene	16.353	105	29004	1.87	ug/L	98
111) 1,3-dichlorobenzene	16.515	146	13506	1.85	ug/L	98
112) p-isopropyltoluene	16.484	119	22870	1.85	ug/L	99
113) 1,4-dichlorobenzene	16.599	146	13659	1.81	ug/L	99
114) benzyl chloride	16.709	91	15850	1.92	ug/L	98
115) 1,2-dichlorobenzene	17.003	146	13400	1.83	ug/L	97
116) n-butylbenzene	16.909	92	12171	1.84	ug/L	98
117) 1,2-dibromo-3-chloropr...	17.800	75	1624	1.87	ug/L	91
118) 1,3,5-trichlorobenzene	18.046	180	10201	1.80	ug/L	98
120) 1,2,4-trichlorobenzene	18.712	180	7799	1.67	ug/L	97
121) hexachlorobutadiene	18.875	225	4780	1.98	ug/L	99
123) 1,2,3-trichlorobenzene	19.263	180	7100	1.67	ug/L	98
124) hexachloroethane	17.307	201	4219	1.86	ug/L	96

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

Quantitation Report (QT Reviewed)

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Data Path   : C:\msdchem\1\data\4d82001-84000\  
Data File   : 4D82600.D  
Acq On      : 26 Sep 2017   11:30 pm  
Operator    : oyinadei  
Sample      : ic3564-2  
Misc        : MS20204,V4D3564,5,,,,,1  
ALS Vial    : 8      Sample Multiplier: 1
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Quant Time: Sep 27 12:01:10 2017
Quant Method : C:\msdchem\1\methods\M4D3564.M
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 10:19:20 2017
Response via : Initial Calibration



M4D3564.M Wed Oct 04 08:59:22 2017 RPT1

Page: 4

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82601.D
 Acq On : 26 Sep 2017 11:58 pm
 Operator : ovinadei
 Sample : ic3564-5
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 27 12:01:39 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.550	65	177675	500.00	ug/L	0.01
5) pentafluorobenzene	10.093	168	309539	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	467080	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	389762	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	204089	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	179710	50.67	ug/L	0.00
Spiked Amount	50.000	Range	76 - 120	Recovery	=	101.34%
53) 1,2-dichloroethane-d4 (s)	10.523	65	193176	51.43	ug/L	0.00
Spiked Amount	50.000	Range	73 - 122	Recovery	=	102.86%
75) toluene-d8 (s)	12.704	98	528625	49.64	ug/L	0.00
Spiked Amount	50.000	Range	84 - 119	Recovery	=	99.28%
99) 4-bromofluorobenzene (s)	15.367	95	201614	49.43	ug/L	0.00
Spiked Amount	50.000	Range	78 - 117	Recovery	=	98.86%
Target Compounds						
2) tertiary butyl alcohol	7.681	59	11725	23.21	ug/L	97
3) Ethanol	6.103	45	16202	401.55	ug/L	95
4) 1,4-dioxane	11.749	88	3503	107.04	ug/L	94
6) chlorodifluoromethane	3.811	51	12299	3.37	ug/L	95
7) dichlorodifluoromethane	3.806	85	22279	5.21	ug/L	97
8) chloromethane	4.152	50	24158	4.42	ug/L	98
9) vinyl chloride	4.430	62	24148	5.00	ug/L	99
11) bromomethane	5.138	94	17763	4.70	ug/L	97
12) chloroethane	5.348	64	13137	4.93	ug/L	99
13) trichlorofluoromethane	5.893	101	28578	5.23	ug/L	98
14) vinyl bromide	5.725	106	16721	5.12	ug/L	99
15) ethyl ether	6.365	74	8768	4.39	ug/L	88
16) acrolein	6.569	56	3913	6.19	ug/L	97
17) freon 113	6.826	151	11411	5.13	ug/L	96
18) 1,1-dichloroethene	6.805	96	14785	4.56	ug/L	98
19) acetone	6.821	58	7693	17.87	ug/L	96
20) acetonitrile	7.272	41	25178	43.34	ug/L	99
21) iodomethane	7.073	142	29022	4.46	ug/L	99
22) carbon disulfide	7.230	76	54301	4.29	ug/L	100
23) methylene chloride	7.581	84	18223	3.81	ug/L	98
24) methyl acetate	7.387	43	16274	4.26	ug/L	97
25) methyl tert butyl ether	8.043	73	49378	4.45	ug/L	100
26) trans-1,2-dichloroethene	8.048	96	17168	4.73	ug/L	98
27) di-isopropyl ether	8.745	45	56945	4.30	ug/L	99
28) 2-butanone	9.443	72	9023	16.71	ug/L	97
29) 1,1-dichloroethane	8.672	63	31631	4.67	ug/L	98
30) chloroprene	8.819	53	23417	4.87	ug/L	98
31) acrylonitrile	7.933	53	6953	4.63	ug/L	95
32) hexane	8.478	56	11704	5.68	ug/L	94
33) vinyl acetate	8.688	86	2548	4.16	ug/L	87
34) ethyl tert-butyl ether	9.264	59	54120	4.42	ug/L	99
35) ethyl acetate	9.511	45	2727	4.20	ug/L	96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82601.D
 Acq On : 26 Sep 2017 11:58 pm
 Operator : ovinadei
 Sample : ic3564-5
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 27 12:01:39 2017

Quant Method : C:\msdchem\1\methods\M4D3564.M

Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um

QLast Update : Wed Sep 27 10:19:20 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) 2,2-dichloropropane	9.505	77	24253	5.09	ug/L	99
37) cis-1,2-dichloroethene	9.474	96	18996	4.62	ug/L	99
38) methyl acrylate	9.579	85	2782	4.39	ug/L	91
39) propionitrile	9.500	54	31639	46.30	ug/L	99
40) bromochloromethane	9.794	128	9677	4.76	ug/L	98
41) tetrahydrofuran	9.872	72	2591	4.53	ug/L	90
42) chloroform	9.872	85	20601	4.68	ug/L	97
43) t-butyl formate	9.956	59	6135	4.49	ug/L	92
45) methacrylonitrile	9.731	67	8281	4.67	ug/L	97
46) 1,1,1-trichloroethane	10.182	97	25662	4.95	ug/L	95
47) cyclohexane	10.292	84	23093	6.21	ug/L	96
48) 1,1-dichloropropene	10.376	75	23483	5.04	ug/L	99
49) iso-butyl alcohol	10.360	43	9053	40.23	ug/L	95
50) carbon tetrachloride	10.412	117	23369	5.08	ug/L	99
51) tert amyl alcohol	10.512	55	4200	23.01	ug/L	89
54) n-butyl alcohol	11.146	56	24835	208.00	ug/L	99
55) 2,2,4-trimethylpentane	10.738	57	65709	5.77	ug/L	98
56) benzene	10.643	78	66586	4.70	ug/L	100
57) tert-amyl methyl ether	10.732	87	11607	4.76	ug/L	97
58) heptane	10.921	71	13394	6.15	ug/L	96
59) isopropyl acetate	10.606	87	3540	4.68	ug/L	96
60) 1,2-dichloroethane	10.622	62	23425	4.77	ug/L	99
61) trichloroethene	11.388	130	16205	4.97	ug/L	100
62) ethyl acrylate	11.409	55	22998	4.46	ug/L	99
63) 2-nitropropane	12.122	41	4306	4.61	ug/L	92
64) 2-chloroethyl vinyl ether	12.185	63	49854	23.01	ug/L	100
65) methyl methacrylate	11.681	100	4257	4.66	ug/L #	87
66) 1,2-dichloropropane	11.634	63	18026	4.70	ug/L	98
67) dibromomethane	11.765	93	12241	4.82	ug/L	97
68) methylcyclohexane	11.655	83	28889	5.67	ug/L	99
69) bromodichloromethane	11.912	83	22908	4.71	ug/L	100
70) epichlorohydrin	12.269	57	8690	22.83	ug/L	98
71) cis-1,3-dichloropropene	12.389	75	27333	4.69	ug/L	97
72) 4-methyl-2-pentanone	12.504	58	29223	17.79	ug/L	98
73) 3-methyl-1-butanol	12.515	55	16879	87.45	ug/L	97
76) toluene	12.777	92	35225	4.66	ug/L	96
77) trans-1,3-dichloropropene	12.940	75	23978	4.66	ug/L	99
78) ethyl methacrylate	12.987	69	20278	4.50	ug/L	98
79) 1,1,2-trichloroethane	13.144	83	13209	4.65	ug/L	99
80) tetrachloroethene	13.364	164	12193	5.10	ug/L	98
81) 1,3-dichloropropane	13.328	76	23227	4.55	ug/L	98
82) 2-hexanone	13.349	58	27732	15.87	ug/L	98
83) butyl acetate	13.448	56	11294	4.67	ug/L	98
84) 3,3-dimethyl-1-butanol	13.516	57	16022	40.98	ug/L	98
85) dibromochloromethane	13.579	129	18033	4.60	ug/L	99
86) 1,2-dibromoethane	13.731	107	16791	4.65	ug/L	98
87) n-butyl ether	14.208	57	62837	4.51	ug/L	99
88) chlorobenzene	14.224	112	40645	4.62	ug/L	99
89) 1,1,1,2-tetrachloroethane	14.282	131	15267	4.65	ug/L	98
90) ethylbenzene	14.303	91	66918	4.65	ug/L	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82601.D
 Acq On : 26 Sep 2017 11:58 pm
 Operator : ovinadei
 Sample : ic3564-5
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 27 12:01:39 2017

Quant Method : C:\msdchem\1\methods\M4D3564.M

Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um

QLast Update : Wed Sep 27 10:19:20 2017

Response via : Initial Calibration

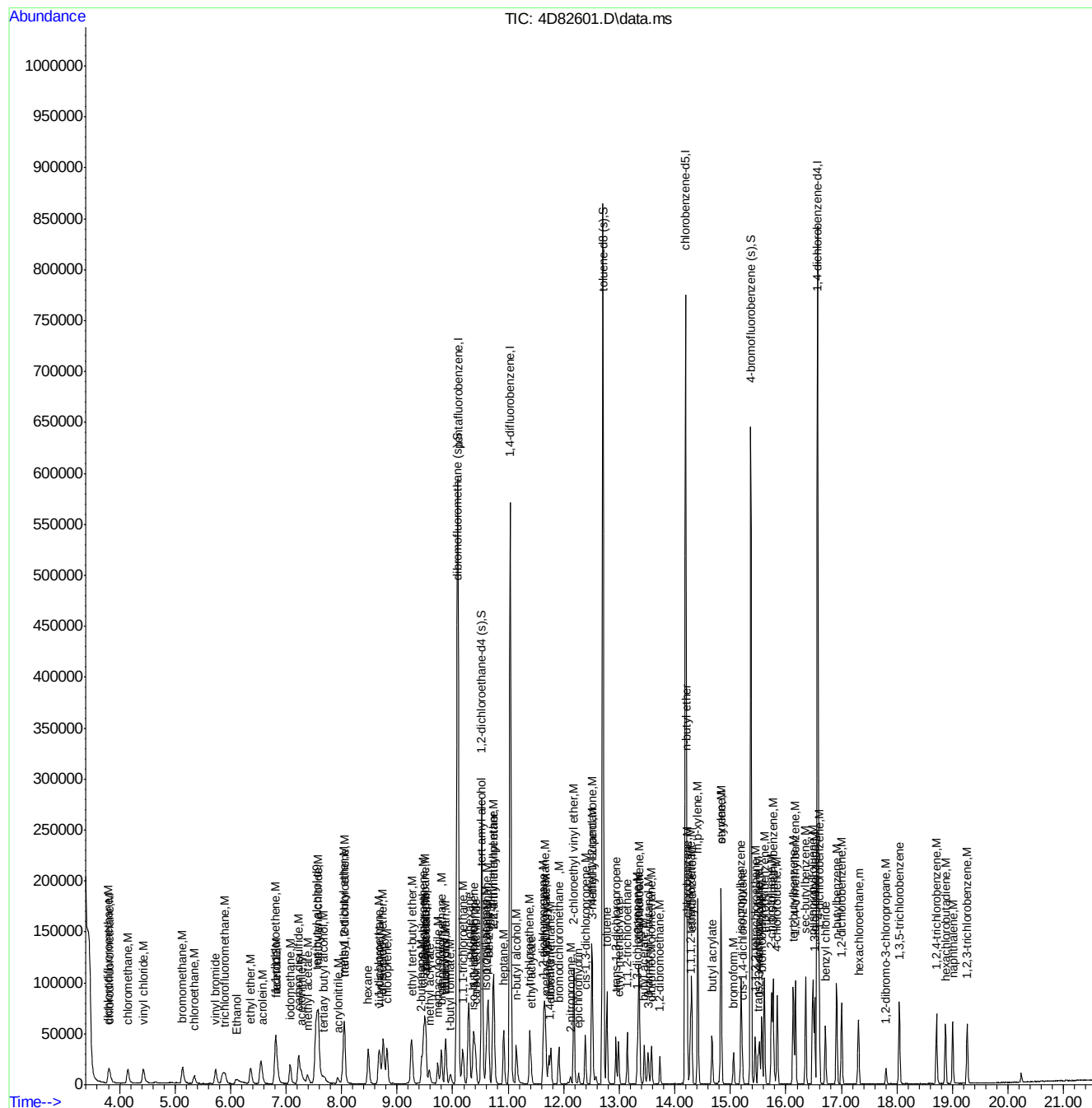
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
91) m,p-xylene	14.413	106	49924	9.39	ug/L	100
92) o-xylene	14.832	106	24984	4.63	ug/L	97
93) styrene	14.832	104	41860	4.61	ug/L	96
94) bromoform	15.058	173	13475	4.56	ug/L	95
95) butyl acrylate	14.670	55	30766	4.40	ug/L	98
96) isopropylbenzene	15.194	105	64856	4.73	ug/L	99
97) cis-1,4-dichloro-2-butene	15.215	88	6773	4.95	ug/L	95
100) bromobenzene	15.561	156	18015	4.55	ug/L	89
101) 1,1,2,2-tetrachloroethane	15.446	83	23545	4.49	ug/L	100
102) trans-1,4-dichloro-2-b...	15.498	53	5052	5.13	ug/L	89
103) 1,2,3-trichloropropane	15.524	110	5174	4.78	ug/L	89
104) n-propylbenzene	15.614	91	81948	4.73	ug/L	100
105) 2-chlorotoluene	15.739	126	16411	4.74	ug/L	97
106) 4-chlorotoluene	15.839	91	49079	4.63	ug/L	99
107) 1,3,5-trimethylbenzene	15.771	105	54502	4.63	ug/L	100
108) tert-butylbenzene	16.133	134	9733	4.84	ug/L	95
109) 1,2,4-trimethylbenzene	16.169	105	56819	4.64	ug/L	98
110) sec-butylbenzene	16.358	105	74727	4.88	ug/L	99
111) 1,3-dichlorobenzene	16.515	146	33761	4.67	ug/L	99
112) p-isopropyltoluene	16.484	119	59121	4.83	ug/L	100
113) 1,4-dichlorobenzene	16.599	146	33378	4.47	ug/L	98
114) benzyl chloride	16.709	91	39332	4.82	ug/L	96
115) 1,2-dichlorobenzene	17.003	146	32791	4.52	ug/L	99
116) n-butylbenzene	16.909	92	32096	4.90	ug/L	99
117) 1,2-dibromo-3-chloropr...	17.800	75	4218	4.91	ug/L	93
118) 1,3,5-trichlorobenzene	18.046	180	26221	4.66	ug/L	100
120) 1,2,4-trichlorobenzene	18.712	180	21721	4.70	ug/L	99
121) hexachlorobutadiene	18.875	225	12425	5.21	ug/L	100
122) naphthalene	19.006	128	48369	4.44	ug/L	98
123) 1,2,3-trichlorobenzene	19.263	180	19444	4.63	ug/L	100
124) hexachloroethane	17.307	201	10894	4.85	ug/L	97

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

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\data\4d82001-84000\  
Data File : 4D82601.D  
Acq On : 26 Sep 2017 11:58 pm  
Operator : oyinadei  
Sample : ic3564-5  
Misc : MS20204,V4D3564,5,,,,,1  
ALS Vial : 9 Sample Multiplier: 1
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Quant Time: Sep 27 12:01:39 2017
Quant Method : C:\msdchem\1\methods\M4D3564.M
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 10:19:20 2017
Response via : Initial Calibration



M4D3564.M Wed Oct 04 08:59:29 2017 RPT1

Page: 4

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82602.D
 Acq On : 27 Sep 2017 12:26 am
 Operator : ovinadei
 Sample : ic3564-10
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 27 10:23:01 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	184935	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	299572	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.037	114	455799	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	375264	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	196995	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	172861	50.36	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery =	100.72%		
53) 1,2-dichloroethane-d4 (s)	10.523	65	184754	50.40	ug/L	0.00
Spiked Amount 50.000	Range 73 - 122		Recovery =	100.80%		
75) toluene-d8 (s)	12.704	98	509486	49.69	ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery =	99.38%		
99) 4-bromofluorobenzene (s)	15.367	95	193231	49.08	ug/L	0.00
Spiked Amount 50.000	Range 78 - 117		Recovery =	98.16%		
Target Compounds						
2) tertiary butyl alcohol	7.676	59	26476	50.35	ug/L	97
3) Ethanol	6.098	45	39420	938.63	ug/L	94
4) 1,4-dioxane	11.750	88	8639	253.62	ug/L	92
6) chlorodifluoromethane	3.812	51	26037	7.37	ug/L	99
7) dichlorodifluoromethane	3.801	85	47975	11.60	ug/L	98
8) chloromethane	4.147	50	53024	10.02	ug/L	99
9) vinyl chloride	4.425	62	51774	11.09	ug/L	99
11) bromomethane	5.128	94	39144	10.70	ug/L	98
12) chloroethane	5.337	64	28638	11.12	ug/L	98
13) trichlorofluoromethane	5.862	101	61754	11.69	ug/L	99
14) vinyl bromide	5.725	106	36834	11.65	ug/L	99
15) ethyl ether	6.354	74	18990	9.81	ug/L	97
16) acrolein	6.564	56	9007	14.72	ug/L	99
17) freon 113	6.826	151	23503	10.91	ug/L	94
18) 1,1-dichloroethene	6.800	96	30217	9.64	ug/L	97
19) acetone	6.816	58	16994	40.80	ug/L	99
20) acetonitrile	7.267	41	55179	98.13	ug/L	97
21) iodomethane	7.068	142	62164	9.88	ug/L	99
22) carbon disulfide	7.220	76	114727	9.37	ug/L	99
23) methylene chloride	7.576	84	38271	8.27	ug/L	97
24) methyl acetate	7.377	43	35812	9.68	ug/L	97
25) methyl tert butyl ether	8.037	73	105126	9.79	ug/L	100
26) trans-1,2-dichloroethene	8.043	96	34711	9.88	ug/L	99
27) di-isopropyl ether	8.745	45	120896	9.43	ug/L	99
28) 2-butanone	9.437	72	20169	38.59	ug/L	96
29) 1,1-dichloroethane	8.667	63	65652	10.01	ug/L	100
30) chloroprene	8.813	53	48688	10.46	ug/L	98
31) acrylonitrile	7.917	53	15080	10.38	ug/L	98
32) hexane	8.478	56	23514	11.80	ug/L	99
33) vinyl acetate	8.688	86	6170	10.40	ug/L	85
34) ethyl tert-butyl ether	9.254	59	115763	9.77	ug/L	99
35) ethyl acetate	9.506	45	6683	10.64	ug/L	97

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82602.D
 Acq On : 27 Sep 2017 12:26 am
 Operator : ovinadei
 Sample : ic3564-10
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 27 10:23:01 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) 2,2-dichloropropane	9.500	77	50147	10.88	ug/L	99
37) cis-1,2-dichloroethene	9.474	96	39766	9.98	ug/L	99
38) methyl acrylate	9.574	85	6336	10.32	ug/L	97
39) propionitrile	9.495	54	69246	104.70	ug/L	98
40) bromochloromethane	9.794	128	20693	10.51	ug/L	97
41) tetrahydrofuran	9.862	72	5683	10.26	ug/L	95
42) chloroform	9.873	85	42903	10.07	ug/L	98
43) t-butyl formate	9.951	59	13425	10.16	ug/L	92
45) methacrylonitrile	9.726	67	17768	10.34	ug/L	94
46) 1,1,1-trichloroethane	10.177	97	52719	10.52	ug/L	98
47) cyclohexane	10.292	84	49384	13.72	ug/L	93
48) 1,1-dichloropropene	10.376	75	47977	10.65	ug/L	99
49) iso-butyl alcohol	10.355	43	21542	98.92	ug/L	96
50) carbon tetrachloride	10.407	117	47833	10.75	ug/L	97
51) tert amyl alcohol	10.507	55	9325	52.80	ug/L	94
54) n-butyl alcohol	11.141	56	59501	510.67	ug/L	99
55) 2,2,4-trimethylpentane	10.738	57	129107	11.62	ug/L	98
56) benzene	10.638	78	136260	9.85	ug/L	100
57) tert-amyl methyl ether	10.732	87	24632	10.34	ug/L	95
58) heptane	10.921	71	26395	12.42	ug/L	98
59) isopropyl acetate	10.601	87	7850	10.64	ug/L	91
60) 1,2-dichloroethane	10.617	62	48736	10.18	ug/L	99
61) trichloroethene	11.388	130	33486	10.52	ug/L	97
62) ethyl acrylate	11.409	55	51005	10.13	ug/L	99
63) 2-nitropropane	12.117	41	9376	10.28	ug/L	96
64) 2-chloroethyl vinyl ether	12.179	63	108604	51.36	ug/L	99
65) methyl methacrylate	11.676	100	9086	10.20	ug/L #	91
66) 1,2-dichloropropane	11.634	63	37638	10.05	ug/L	97
67) dibromomethane	11.765	93	26058	10.52	ug/L	98
68) methylcyclohexane	11.655	83	58390	11.74	ug/L	98
69) bromodichloromethane	11.907	83	48213	10.17	ug/L	100
70) epichlorohydrin	12.269	57	19527	52.58	ug/L	100
71) cis-1,3-dichloropropene	12.389	75	57794	10.17	ug/L	99
72) 4-methyl-2-pentanone	12.505	58	63595	39.67	ug/L	99
73) 3-methyl-1-butanol	12.510	55	39182	208.03	ug/L	95
76) toluene	12.777	92	72832	10.00	ug/L	99
77) trans-1,3-dichloropropene	12.940	75	50419	10.17	ug/L	99
78) ethyl methacrylate	12.987	69	45143	10.39	ug/L	98
79) 1,1,2-trichloroethane	13.144	83	27772	10.15	ug/L	99
80) tetrachloroethene	13.364	164	24964	10.84	ug/L	98
81) 1,3-dichloropropane	13.328	76	50390	10.24	ug/L	98
82) 2-hexanone	13.349	58	60940	36.22	ug/L	98
83) butyl acetate	13.448	56	24328	10.44	ug/L	99
84) 3,3-dimethyl-1-butanol	13.516	57	36421	96.76	ug/L	97
85) dibromochloromethane	13.579	129	38960	10.33	ug/L	98
86) 1,2-dibromoethane	13.731	107	36164	10.40	ug/L	97
87) n-butyl ether	14.209	57	132605	9.89	ug/L	99
88) chlorobenzene	14.224	112	84099	9.92	ug/L	98
89) 1,1,1,2-tetrachloroethane	14.282	131	32093	10.16	ug/L	98
90) ethylbenzene	14.303	91	139277	10.05	ug/L	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82602.D
 Acq On : 27 Sep 2017 12:26 am
 Operator : ovinadei
 Sample : ic3564-10
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 27 10:23:01 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

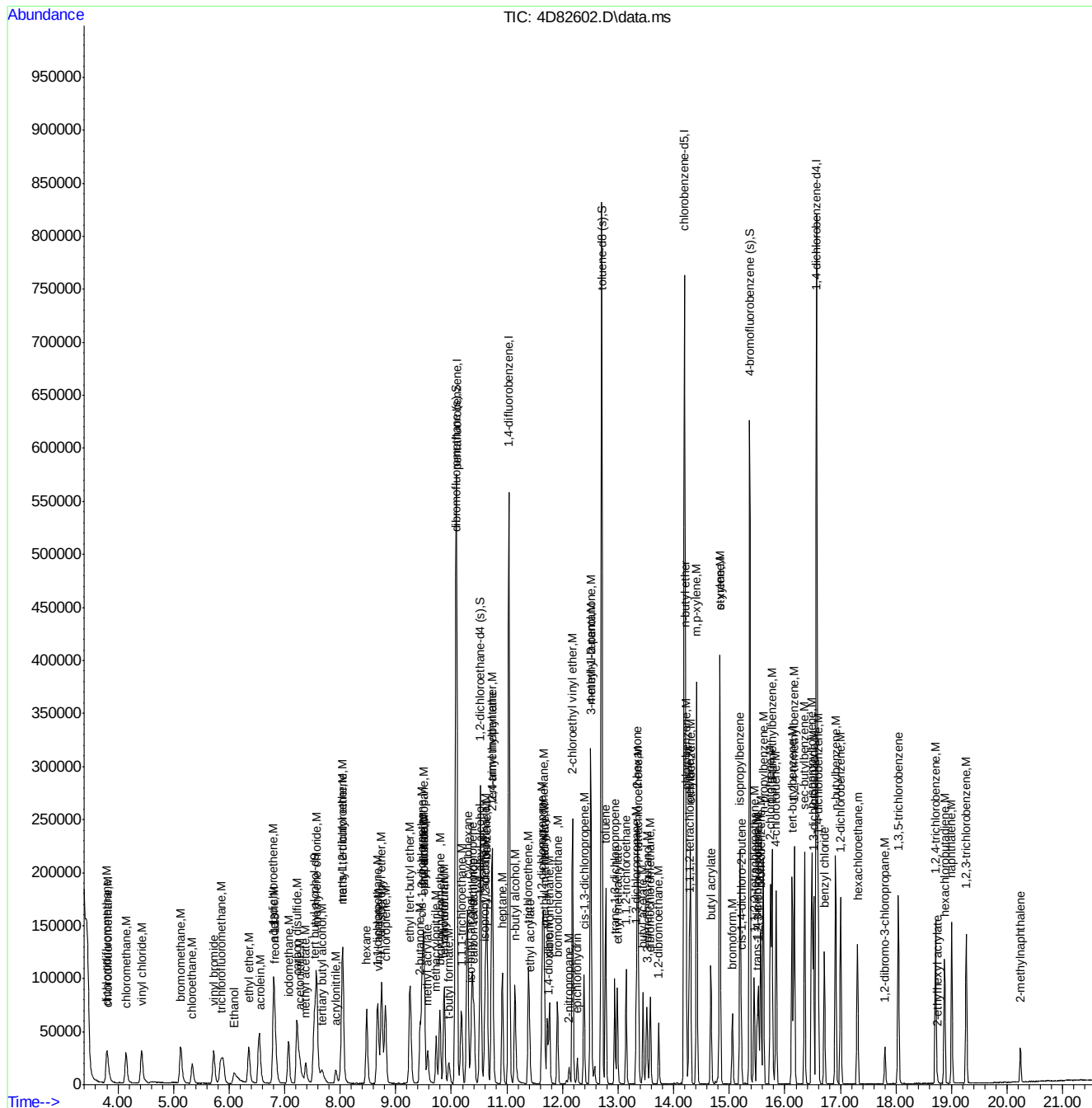
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
91) m,p-xylene	14.413	106	104774	20.48	ug/L	98
92) o-xylene	14.832	106	52250	10.05	ug/L	98
93) styrene	14.832	104	88554	10.14	ug/L	98
94) bromoform	15.058	173	29853	10.49	ug/L	100
95) butyl acrylate	14.670	55	69505	10.32	ug/L	99
96) isopropylbenzene	15.194	105	136288	10.32	ug/L	99
97) cis-1,4-dichloro-2-butene	15.215	88	15460	11.74	ug/L	98
100) bromobenzene	15.561	156	37334	9.76	ug/L	93
101) 1,1,2,2-tetrachloroethane	15.446	83	50187	9.91	ug/L	99
102) trans-1,4-dichloro-2-b...	15.498	53	10781	11.34	ug/L	96
103) 1,2,3-trichloropropane	15.525	110	11380	10.89	ug/L	97
104) n-propylbenzene	15.614	91	168682	10.09	ug/L	99
105) 2-chlorotoluene	15.740	126	33946	10.15	ug/L	98
106) 4-chlorotoluene	15.839	91	102418	10.00	ug/L	98
107) 1,3,5-trimethylbenzene	15.771	105	114173	10.05	ug/L	99
108) tert-butylbenzene	16.133	134	19938	10.27	ug/L	95
109) 1,2,4-trimethylbenzene	16.169	105	118470	10.02	ug/L	100
110) sec-butylbenzene	16.358	105	155000	10.48	ug/L	99
111) 1,3-dichlorobenzene	16.515	146	70342	10.09	ug/L	98
112) p-isopropyltoluene	16.484	119	122548	10.37	ug/L	99
113) 1,4-dichlorobenzene	16.599	146	70282	9.75	ug/L	100
114) benzyl chloride	16.709	91	83917	10.66	ug/L	100
115) 1,2-dichlorobenzene	17.003	146	70714	10.10	ug/L	98
116) n-butylbenzene	16.914	92	67367	10.65	ug/L	99
117) 1,2-dibromo-3-chloropr...	17.800	75	8934	10.77	ug/L	96
118) 1,3,5-trichlorobenzene	18.041	180	56692	10.45	ug/L	97
119) 2-ethylhexyl acrylate	18.739	70	1608	0.71	ug/L	98
120) 1,2,4-trichlorobenzene	18.712	180	48621	10.89	ug/L	98
121) hexachlorobutadiene	18.875	225	25730	11.18	ug/L	98
122) naphthalene	19.001	128	115948	11.02	ug/L	100
123) 1,2,3-trichlorobenzene	19.263	180	45066	11.13	ug/L	98
124) hexachloroethane	17.307	201	22636	10.44	ug/L	97
125) 2-methylnaphthalene	20.238	142	16598	4.24	ug/L	97

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82602.D
 Acq On : 27 Sep 2017 12:26 am
 Operator : oyinadei
 Sample : ic3564-10
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 27 10:23:01 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82603.D
 Acq On : 27 Sep 2017 12:54 am
 Operator : oycinadei
 Sample : ic3564-20
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 27 10:22:18 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.544	65	183062	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	301792	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	449525	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	372876	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	195255	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	173593	50.20	ug/L	0.00
Spiked Amount	50.000	Range	76 - 120	Recovery	=	100.40%
53) 1,2-dichloroethane-d4 (s)	10.528	65	180897	50.04	ug/L	0.00
Spiked Amount	50.000	Range	73 - 122	Recovery	=	100.08%
75) toluene-d8 (s)	12.704	98	503185	49.39	ug/L	0.00
Spiked Amount	50.000	Range	84 - 119	Recovery	=	98.78%
99) 4-bromofluorobenzene (s)	15.367	95	191896	49.18	ug/L	0.00
Spiked Amount	50.000	Range	78 - 117	Recovery	=	98.36%
Target Compounds						
2) tertiary butyl alcohol	7.675	59	52746	101.33	ug/L	99
3) Ethanol	6.092	45	79724	1917.72	ug/L	100
4) 1,4-dioxane	11.744	88	17313	513.46	ug/L	98
6) chlorodifluoromethane	3.817	51	55512	15.60	ug/L	98
7) dichlorodifluoromethane	3.806	85	97568	23.42	ug/L	98
8) chloromethane	4.157	50	106483	19.98	ug/L	100
9) vinyl chloride	4.435	62	104004	22.11	ug/L	100
11) bromomethane	5.138	94	76944	20.87	ug/L	100
12) chloroethane	5.342	64	56794	21.88	ug/L	99
13) trichlorofluoromethane	5.893	101	123276	23.16	ug/L	100
14) vinyl bromide	5.730	106	73956	23.21	ug/L	99
15) ethyl ether	6.359	74	39146	20.08	ug/L	95
16) acrolein	6.564	56	17739	28.77	ug/L	95
17) freon 113	6.831	151	48053	22.14	ug/L	97
18) 1,1-dichloroethene	6.805	96	61663	19.53	ug/L	98
19) acetone	6.810	58	32842	78.26	ug/L	96
20) acetonitrile	7.261	41	108064	190.77	ug/L	99
21) iodomethane	7.073	142	124625	19.66	ug/L	99
22) carbon disulfide	7.225	76	230490	18.68	ug/L	100
23) methylene chloride	7.581	84	75983	16.30	ug/L	98
24) methyl acetate	7.382	43	69474	18.64	ug/L	98
25) methyl tert butyl ether	8.037	73	212987	19.70	ug/L	100
26) trans-1,2-dichloroethene	8.048	96	69864	19.75	ug/L	99
27) di-isopropyl ether	8.745	45	239689	18.55	ug/L	99
28) 2-butanone	9.437	72	39421	74.87	ug/L	90
29) 1,1-dichloroethane	8.666	63	132709	20.08	ug/L	99
30) chloroprene	8.813	53	99851	21.30	ug/L	99
31) acrylonitrile	7.922	53	30223	20.65	ug/L	99
32) hexane	8.478	56	48951	24.38	ug/L	99
33) vinyl acetate	8.687	86	12423	20.78	ug/L	97
34) ethyl tert-butyl ether	9.259	59	230511	19.31	ug/L	99
35) ethyl acetate	9.511	45	12118	19.16	ug/L	95

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82603.D
 Acq On : 27 Sep 2017 12:54 am
 Operator : ovinadei
 Sample : ic3564-20
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 27 10:22:18 2017

Quant Method : C:\msdchem\1\methods\M4D3564.M

Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um

QLast Update : Wed Sep 27 10:19:20 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) 2,2-dichloropropane	9.511	77	99673	21.47	ug/L	97
37) cis-1,2-dichloroethene	9.474	96	79061	19.70	ug/L	99
38) methyl acrylate	9.573	85	12711	20.56	ug/L	100
39) propionitrile	9.495	54	133629	200.56	ug/L	99
40) bromochloromethane	9.794	128	40820	20.58	ug/L	98
41) tetrahydrofuran	9.867	72	11508	20.62	ug/L	94
42) chloroform	9.872	85	84995	19.81	ug/L	96
43) t-butyl formate	9.956	59	26509	19.91	ug/L	96
45) methacrylonitrile	9.731	67	35628	20.59	ug/L	96
46) 1,1,1-trichloroethane	10.182	97	109099	21.61	ug/L	100
47) cyclohexane	10.297	84	96511	26.62	ug/L #	79
48) 1,1-dichloropropene	10.376	75	97074	21.39	ug/L	99
49) iso-butyl alcohol	10.355	43	40049	182.55	ug/L	99
50) carbon tetrachloride	10.412	117	98079	21.88	ug/L	99
51) tert amyl alcohol	10.507	55	17936	100.80	ug/L	91
54) n-butyl alcohol	11.141	56	116634	1014.99	ug/L	99
55) 2,2,4-trimethylpentane	10.737	57	260835	23.81	ug/L	99
56) benzene	10.643	78	269233	19.74	ug/L	100
57) tert-amyl methyl ether	10.737	87	48074	20.46	ug/L	98
58) heptane	10.921	71	53574	25.55	ug/L	100
59) isopropyl acetate	10.606	87	15580	21.42	ug/L #	93
60) 1,2-dichloroethane	10.617	62	96098	20.35	ug/L	99
61) trichloroethene	11.388	130	66409	21.16	ug/L	99
62) ethyl acrylate	11.409	55	101077	20.36	ug/L	99
63) 2-nitropropane	12.116	41	18120	20.15	ug/L	96
64) 2-chloroethyl vinyl ether	12.185	63	215845	103.49	ug/L	99
65) methyl methacrylate	11.681	100	18676	21.26	ug/L #	72
66) 1,2-dichloropropane	11.634	63	75174	20.35	ug/L	99
67) dibromomethane	11.765	93	51269	20.98	ug/L	98
68) methylcyclohexane	11.655	83	120155	24.49	ug/L	99
69) bromodichloromethane	11.912	83	95404	20.40	ug/L	100
70) epichlorohydrin	12.268	57	37708	102.95	ug/L	98
71) cis-1,3-dichloropropene	12.389	75	114576	20.44	ug/L	99
72) 4-methyl-2-pentanone	12.504	58	123558	78.16	ug/L	98
73) 3-methyl-1-butanol	12.510	55	76401	411.31	ug/L	99
76) toluene	12.777	92	144168	19.92	ug/L	99
77) trans-1,3-dichloropropene	12.940	75	101375	20.59	ug/L	99
78) ethyl methacrylate	12.987	69	89451	20.73	ug/L	98
79) 1,1,2-trichloroethane	13.144	83	55057	20.25	ug/L	98
80) tetrachloroethene	13.364	164	49796	21.77	ug/L	98
81) 1,3-dichloropropane	13.327	76	97971	20.04	ug/L	98
82) 2-hexanone	13.348	58	117750	70.43	ug/L	96
83) butyl acetate	13.448	56	48056	20.75	ug/L	95
84) 3,3-dimethyl-1-butanol	13.511	57	73825	197.38	ug/L	98
85) dibromochloromethane	13.579	129	76621	20.44	ug/L	99
86) 1,2-dibromoethane	13.731	107	70583	20.42	ug/L	98
87) n-butyl ether	14.208	57	265265	19.91	ug/L	100
88) chlorobenzene	14.224	112	165760	19.67	ug/L	97
89) 1,1,1,2-tetrachloroethane	14.282	131	63726	20.30	ug/L	99
90) ethylbenzene	14.303	91	272945	19.82	ug/L	100

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82603.D
 Acq On : 27 Sep 2017 12:54 am
 Operator : ovinadei
 Sample : ic3564-20
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 27 10:22:18 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

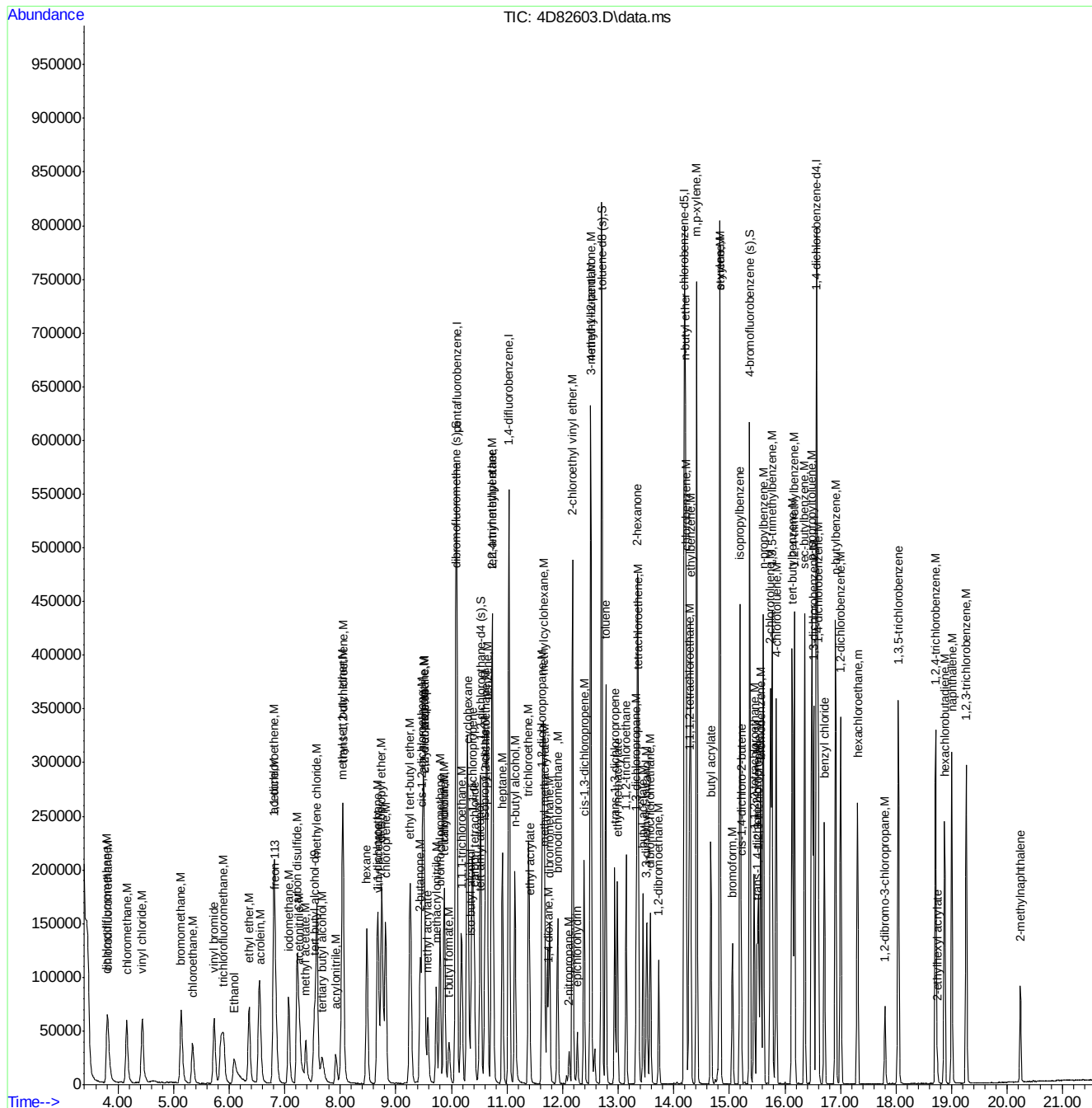
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
91) m,p-xylene	14.413	106	207421	40.79	ug/L	99
92) o-xylene	14.832	106	103927	20.12	ug/L	99
93) styrene	14.832	104	176952	20.38	ug/L	99
94) bromoform	15.058	173	58674	20.75	ug/L	99
95) butyl acrylate	14.670	55	140114	20.95	ug/L	99
96) isopropylbenzene	15.194	105	273685	20.86	ug/L	100
97) cis-1,4-dichloro-2-butene	15.215	88	31278	23.91	ug/L	96
100) bromobenzene	15.566	156	74370	19.61	ug/L	88
101) 1,1,2,2-tetrachloroethane	15.446	83	98454	19.62	ug/L	100
102) trans-1,4-dichloro-2-b...	15.498	53	21740	23.08	ug/L	95
103) 1,2,3-trichloropropane	15.524	110	21928	21.17	ug/L	100
104) n-propylbenzene	15.613	91	337338	20.37	ug/L	100
105) 2-chlorotoluene	15.739	126	66977	20.20	ug/L	99
106) 4-chlorotoluene	15.844	91	200934	19.80	ug/L	99
107) 1,3,5-trimethylbenzene	15.771	105	229031	20.34	ug/L	98
108) tert-butylbenzene	16.133	134	41203	21.42	ug/L	98
109) 1,2,4-trimethylbenzene	16.169	105	235604	20.10	ug/L	99
110) sec-butylbenzene	16.358	105	310884	21.20	ug/L	99
111) 1,3-dichlorobenzene	16.515	146	136957	19.82	ug/L	99
112) p-isopropyltoluene	16.484	119	245758	20.98	ug/L	100
113) 1,4-dichlorobenzene	16.599	146	137274	19.20	ug/L	100
114) benzyl chloride	16.709	91	164013	21.02	ug/L	99
115) 1,2-dichlorobenzene	17.003	146	137187	19.76	ug/L	99
116) n-butylbenzene	16.914	92	135344	21.58	ug/L	99
117) 1,2-dibromo-3-chloropr...	17.800	75	17942	21.82	ug/L	93
118) 1,3,5-trichlorobenzene	18.046	180	114836	21.35	ug/L	98
119) 2-ethylhexyl acrylate	18.738	70	5735	2.56	ug/L	97
120) 1,2,4-trichlorobenzene	18.712	180	101515	22.95	ug/L	99
121) hexachlorobutadiene	18.875	225	53557	23.48	ug/L	99
122) naphthalene	19.006	128	242007	23.21	ug/L	99
123) 1,2,3-trichlorobenzene	19.263	180	94136	23.45	ug/L	99
124) hexachloroethane	17.307	201	46015	21.42	ug/L	99
125) 2-methylnaphthalene	20.238	142	43201	11.13	ug/L	99

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
Data File : 4D82603.D
Acq On : 27 Sep 2017 12:54 am
Operator : oyinadei
Sample : ic3564-20
Misc : MS20204,V4D3564,5,,,,,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 27 10:22:18 2017
Quant Method : C:\msdchem\1\methods\M4D3564.M
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 10:19:20 2017
Response via : Initial Calibration



M4D3564.M Wed Oct 04 08:59:58 2017 RPT1

Page: 4

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82604.D
 Acq On : 27 Sep 2017 1:22 am
 Operator : ovinadei
 Sample : icc3564-50
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 27 10:19:43 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.539	65	180144	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	281062	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	425676	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	364990	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	188789	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	161331	50.10	ug/L	0.00
Spiked Amount	50.000	Range	76 - 120	Recovery	=	100.20%
53) 1,2-dichloroethane-d4 (s)	10.522	65	169515	49.52	ug/L	0.00
Spiked Amount	50.000	Range	73 - 122	Recovery	=	99.04%
75) toluene-d8 (s)	12.704	98	487932	48.93	ug/L	0.00
Spiked Amount	50.000	Range	84 - 119	Recovery	=	97.86%
99) 4-bromofluorobenzene (s)	15.367	95	186941	49.55	ug/L	0.00
Spiked Amount	50.000	Range	78 - 117	Recovery	=	99.10%
Target Compounds						
2) tertiary butyl alcohol	7.670	59	132587	258.83	ug/L	100
3) Ethanol	6.087	45	208639	5100.01	ug/L	100
4) 1,4-dioxane	11.744	88	43549	1312.48	ug/L	100
6) chlorodifluoromethane	3.811	51	148473	44.80	ug/L	100
7) dichlorodifluoromethane	3.801	85	251422	64.79	ug/L	100
8) chloromethane	4.157	50	276445	55.69	ug/L	100
9) vinyl chloride	4.441	62	275074	62.78	ug/L	100
11) bromomethane	5.138	94	194092	56.53	ug/L	100
12) chloroethane	5.337	64	144526	59.79	ug/L	100
13) trichlorofluoromethane	5.882	101	314273	63.40	ug/L	100
14) vinyl bromide	5.725	106	191568	64.56	ug/L	100
15) ethyl ether	6.354	74	96383	53.09	ug/L	100
16) acrolein	6.559	56	44539	77.56	ug/L	100
17) freon 113	6.826	151	119539	59.15	ug/L	100
18) 1,1-dichloroethene	6.800	96	155387	52.83	ug/L	100
19) acetone	6.805	58	83400	213.40	ug/L	100
20) acetonitrile	7.256	41	267618	507.28	ug/L	100
21) iodomethane	7.067	142	308437	52.24	ug/L	100
22) carbon disulfide	7.219	76	568463	49.48	ug/L	100
23) methylene chloride	7.576	84	186729	43.02	ug/L	100
24) methyl acetate	7.377	43	170687	49.18	ug/L	100
25) methyl tert butyl ether	8.037	73	521430	51.78	ug/L	100
26) trans-1,2-dichloroethene	8.043	96	170423	51.73	ug/L	100
27) di-isopropyl ether	8.745	45	575763	47.86	ug/L	100
28) 2-butanone	9.437	72	97437	198.70	ug/L	100
29) 1,1-dichloroethane	8.661	63	321039	52.17	ug/L	100
30) chloroprene	8.813	53	245270	56.17	ug/L	100
31) acrylonitrile	7.917	53	76431	56.08	ug/L	100
32) hexane	8.478	56	118207	63.21	ug/L	100
33) vinyl acetate	8.682	86	31648	56.85	ug/L	100
34) ethyl tert-butyl ether	9.259	59	560878	50.46	ug/L	100
35) ethyl acetate	9.505	45	29392	49.89	ug/L	100

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82604.D
 Acq On : 27 Sep 2017 1:22 am
 Operator : ovinadei
 Sample : icc3564-50
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 27 10:19:43 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) 2,2-dichloropropane	9.505	77	236111	54.61	ug/L	100
37) cis-1,2-dichloroethene	9.474	96	188907	50.55	ug/L	100
38) methyl acrylate	9.573	85	31645	54.96	ug/L	100
39) propionitrile	9.495	54	324707	523.28	ug/L	100
40) bromochloromethane	9.794	128	98583	53.36	ug/L	100
41) tetrahydrofuran	9.862	72	27889	53.66	ug/L	100
42) chloroform	9.872	85	202862	50.76	ug/L	100
43) t-butyl formate	9.956	59	64263	51.83	ug/L	100
45) methacrylonitrile	9.726	67	86285	53.53	ug/L	100
46) 1,1,1-trichloroethane	10.176	97	262044	55.72	ug/L	100
47) cyclohexane	10.292	84	231593	68.59	ug/L	100
48) 1,1-dichloropropene	10.376	75	231547	54.77	ug/L	100
49) iso-butyl alcohol	10.355	43	97175	475.61	ug/L	100
50) carbon tetrachloride	10.407	117	234057	56.06	ug/L	100
51) tert amyl alcohol	10.507	55	43416	262.00	ug/L	100
54) n-butyl alcohol	11.141	56	292185	2685.16	ug/L	100
55) 2,2,4-trimethylpentane	10.737	57	620299	59.80	ug/L	100
56) benzene	10.643	78	638195	49.41	ug/L	100
57) tert-amyl methyl ether	10.732	87	117925	53.01	ug/L	100
58) heptane	10.916	71	126652	63.79	ug/L	100
59) isopropyl acetate	10.606	87	37433	54.35	ug/L	100
60) 1,2-dichloroethane	10.617	62	227416	50.85	ug/L	100
61) trichloroethene	11.388	130	163774	55.11	ug/L	100
62) ethyl acrylate	11.409	55	248864	52.93	ug/L	100
63) 2-nitropropane	12.116	41	45109	52.98	ug/L	100
64) 2-chloroethyl vinyl ether	12.179	63	525292	265.97	ug/L	100
65) methyl methacrylate	11.676	100	45505	54.70	ug/L	100
66) 1,2-dichloropropane	11.634	63	181356	51.84	ug/L	100
67) dibromomethane	11.765	93	123244	53.26	ug/L	100
68) methylcyclohexane	11.655	83	291823	62.82	ug/L	100
69) bromodichloromethane	11.912	83	231989	52.37	ug/L	100
70) epichlorohydrin	12.268	57	93732	270.24	ug/L	100
71) cis-1,3-dichloropropene	12.389	75	280431	52.84	ug/L	100
72) 4-methyl-2-pentanone	12.504	58	300904	201.00	ug/L	100
73) 3-methyl-1-butanol	12.510	55	193053	1097.54	ug/L	100
76) toluene	12.777	92	357100	50.41	ug/L	100
77) trans-1,3-dichloropropene	12.940	75	248634	51.58	ug/L	100
78) ethyl methacrylate	12.981	69	223766	52.98	ug/L	100
79) 1,1,2-trichloroethane	13.144	83	136166	51.15	ug/L	100
80) tetrachloroethene	13.364	164	123191	55.02	ug/L	100
81) 1,3-dichloropropane	13.328	76	241909	50.55	ug/L	100
82) 2-hexanone	13.348	58	295180	180.36	ug/L	100
83) butyl acetate	13.448	56	118865	52.43	ug/L	100
84) 3,3-dimethyl-1-butanol	13.511	57	189468	517.52	ug/L	100
85) dibromochloromethane	13.579	129	189813	51.74	ug/L	100
86) 1,2-dibromoethane	13.731	107	174031	51.44	ug/L	100
87) n-butyl ether	14.208	57	662735	50.82	ug/L	100
88) chlorobenzene	14.224	112	410351	49.76	ug/L	100
89) 1,1,1,2-tetrachloroethane	14.282	131	158897	51.72	ug/L	100
90) ethylbenzene	14.303	91	684598	50.78	ug/L	100

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82604.D
 Acq On : 27 Sep 2017 1:22 am
 Operator : ovinadei
 Sample : icc3564-50
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 27 10:19:43 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

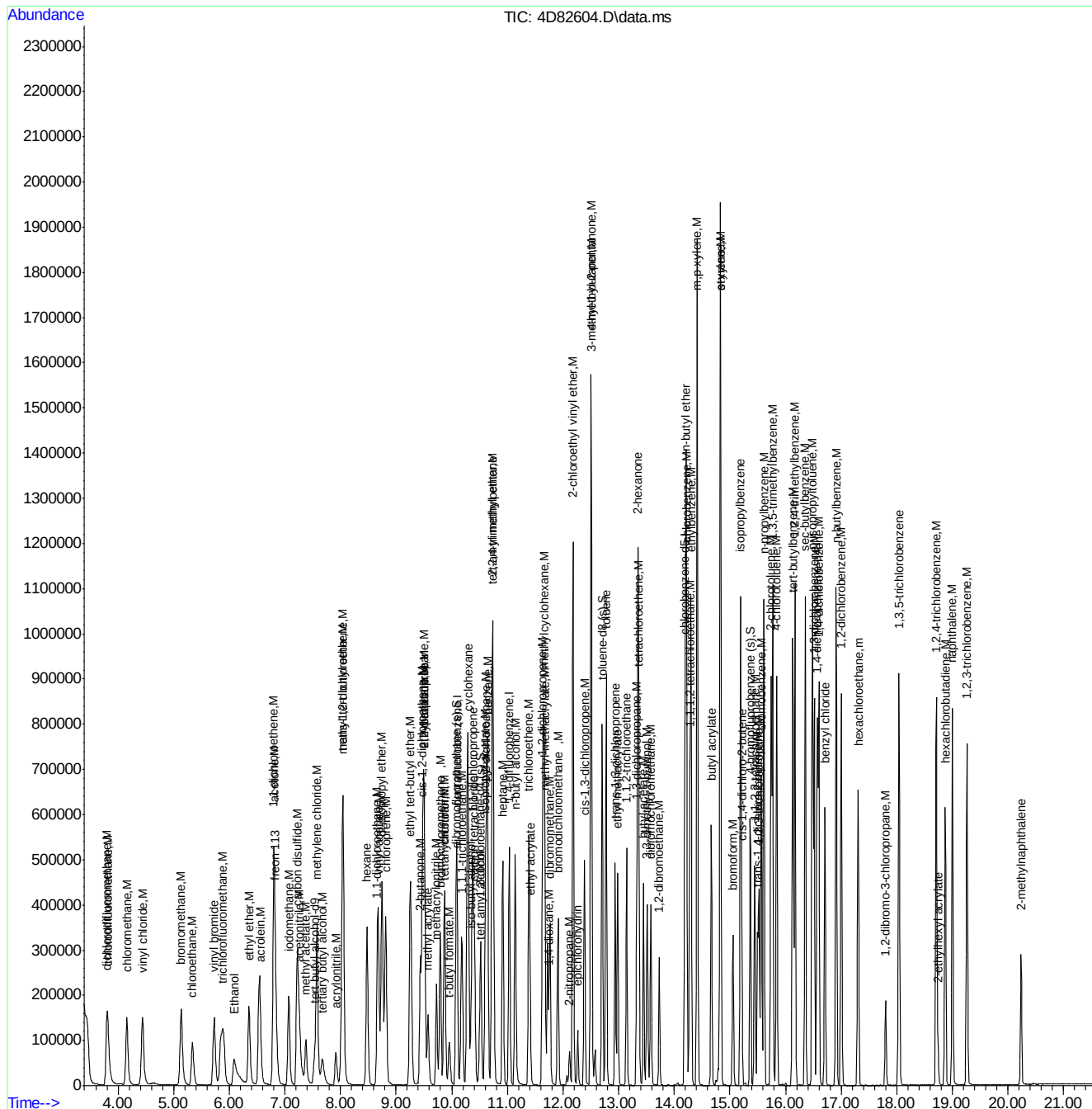
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
91) m,p-xylene	14.413	106	507607	101.99	ug/L	100
92) o-xylene	14.832	106	256479	50.72	ug/L	100
93) styrene	14.832	104	441382	51.94	ug/L	100
94) bromoform	15.058	173	147986	53.46	ug/L	100
95) butyl acrylate	14.664	55	348383	53.21	ug/L	100
96) isopropylbenzene	15.194	105	682566	53.15	ug/L	100
97) cis-1,4-dichloro-2-butene	15.215	88	81340	63.51	ug/L	100
100) bromobenzene	15.561	156	184605	50.35	ug/L	100
101) 1,1,2,2-tetrachloroethane	15.446	83	243484	50.18	ug/L	100
102) trans-1,4-dichloro-2-b...	15.498	53	54854	60.22	ug/L	100
103) 1,2,3-trichloropropane	15.524	110	54222	54.14	ug/L	100
104) n-propylbenzene	15.613	91	830181	51.84	ug/L	100
105) 2-chlorotoluene	15.739	126	166513	51.94	ug/L	100
106) 4-chlorotoluene	15.839	91	497510	50.69	ug/L	100
107) 1,3,5-trimethylbenzene	15.771	105	571146	52.45	ug/L	100
108) tert-butylbenzene	16.133	134	103297	55.53	ug/L	100
109) 1,2,4-trimethylbenzene	16.169	105	588209	51.90	ug/L	100
110) sec-butylbenzene	16.358	105	775833	54.73	ug/L	100
111) 1,3-dichlorobenzene	16.515	146	337693	50.53	ug/L	100
112) p-isopropyltoluene	16.484	119	623781	55.07	ug/L	100
113) 1,4-dichlorobenzene	16.599	146	342083	49.50	ug/L	100
114) benzyl chloride	16.709	91	417016	55.27	ug/L	100
115) 1,2-dichlorobenzene	17.003	146	340188	50.68	ug/L	100
116) n-butylbenzene	16.909	92	344903	56.89	ug/L	100
117) 1,2-dibromo-3-chloropr...	17.800	75	45821	57.63	ug/L	100
118) 1,3,5-trichlorobenzene	18.041	180	293413	56.43	ug/L	100
119) 2-ethylhexyl acrylate	18.738	70	24870	11.50	ug/L	100
120) 1,2,4-trichlorobenzene	18.712	180	269220	62.95	ug/L	100
121) hexachlorobutadiene	18.875	225	136152	61.72	ug/L	100
122) naphthalene	19.000	128	638781	63.36	ug/L	100
123) 1,2,3-trichlorobenzene	19.263	180	243737	62.79	ug/L	100
124) hexachloroethane	17.307	201	118456	57.03	ug/L	100
125) 2-methylnaphthalene	20.238	142	141820	37.78	ug/L	100

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

Quantitation Report (QT Reviewed)

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Data Path   : C:\msdchem\1\data\4d82001-84000\  
Data File   : 4D82604.D  
Acq On      : 27 Sep 2017    1:22 am  
Operator    : oyinadei  
Sample      : icc3564-50  
Misc        : MS20204,V4D3564,5,,,,,1  
ALS Vial    : 12    Sample Multiplier: 1
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Quant Time: Sep 27 10:19:43 2017
Quant Method : C:\msdchem\1\methods\M4D3564.M
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 10:19:20 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82605.D
 Acq On : 27 Sep 2017 1:50 am
 Operator : ovinadei
 Sample : ic3564-100
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 27 10:20:32 2017

Quant Method : C:\msdchem\1\methods\M4D3564.M

Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um

QLast Update : Wed Sep 27 10:19:20 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	175650	500.00	ug/L	0.00
5) pentafluorobenzene	10.093	168	279166	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.037	114	405595	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	304822	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	156555	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	158693	49.61	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery =	99.22%		
53) 1,2-dichloroethane-d4 (s)	10.523	65	165138	50.63	ug/L	0.00
Spiked Amount 50.000	Range 73 - 122		Recovery =	101.26%		
75) toluene-d8 (s)	12.704	98	411515	49.41	ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery =	98.82%		
99) 4-bromofluorobenzene (s)	15.367	95	156868	50.14	ug/L	0.00
Spiked Amount 50.000	Range 78 - 117		Recovery =	100.28%		
Target Compounds						
					Qvalue	
2) tertiary butyl alcohol	7.676	59	257307	515.15	ug/L	99
3) Ethanol	6.092	45	407873	10225.21	ug/L	100
4) 1,4-dioxane	11.744	88	74218	2294.02	ug/L	100
6) chlorodifluoromethane	3.812	51	309039	93.87	ug/L	99
7) dichlorodifluoromethane	3.801	85	510069	132.34	ug/L	100
8) chloromethane	4.163	50	565664	114.73	ug/L	99
9) vinyl chloride	4.446	62	566722	130.23	ug/L	100
11) bromomethane	5.133	94	370367	108.60	ug/L	99
12) chloroethane	5.332	64	288740	120.26	ug/L	99
13) trichlorofluoromethane	5.883	101	624553	126.84	ug/L	97
14) vinyl bromide	5.725	106	385278	130.73	ug/L	99
15) ethyl ether	6.354	74	188011	104.27	ug/L	98
16) acrolein	6.559	56	86444	151.55	ug/L	97
17) freon 113	6.826	151	233570	116.35	ug/L	97
18) 1,1-dichloroethene	6.800	96	295724	101.23	ug/L	99
19) acetone	6.805	58	151933	391.41	ug/L	97
20) acetonitrile	7.256	41	504222	962.27	ug/L	99
21) iodomethane	7.068	142	593916	101.27	ug/L	98
22) carbon disulfide	7.220	76	1073644	94.09	ug/L	99
23) methylene chloride	7.576	84	354170	82.16	ug/L	98
24) methyl acetate	7.377	43	319351	92.64	ug/L	100
25) methyl tert butyl ether	8.038	73	992143	99.19	ug/L	99
26) trans-1,2-dichloroethene	8.043	96	323019	98.71	ug/L	98
27) di-isopropyl ether	8.745	45	1088934	91.12	ug/L	100
28) 2-butanone	9.432	72	186187	382.27	ug/L	98
29) 1,1-dichloroethane	8.667	63	609414	99.70	ug/L	100
30) chloroprene	8.813	53	464415	107.08	ug/L	99
31) acrylonitrile	7.917	53	144135	106.47	ug/L	98
32) hexane	8.478	56	228750	123.15	ug/L	100
33) vinyl acetate	8.682	86	59818	108.18	ug/L	97
34) ethyl tert-butyl ether	9.259	59	1081100	97.92	ug/L	99
35) ethyl acetate	9.506	45	54737	93.54	ug/L	94

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82605.D
 Acq On : 27 Sep 2017 1:50 am
 Operator : oyinadei
 Sample : ic3564-100
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 27 10:20:32 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) 2,2-dichloropropane	9.506	77	446667	104.01	ug/L	96
37) cis-1,2-dichloroethene	9.474	96	365828	98.57	ug/L	99
38) methyl acrylate	9.574	85	61363	107.29	ug/L	100
39) propionitrile	9.495	54	616349	1000.02	ug/L	100
40) bromochloromethane	9.794	128	188813	102.89	ug/L	98
41) tetrahydrofuran	9.862	72	54009	104.62	ug/L	96
42) chloroform	9.873	85	389147	98.03	ug/L	100
43) t-butyl formate	9.962	59	126575	102.79	ug/L	95
45) methacrylonitrile	9.726	67	165237	103.21	ug/L	98
46) 1,1,1-trichloroethane	10.177	97	505454	108.21	ug/L	100
47) cyclohexane	10.292	84	461767	137.69	ug/L	95
48) 1,1-dichloropropene	10.376	75	450398	107.27	ug/L	100
49) iso-butyl alcohol	10.355	43	193180	951.91	ug/L	99
50) carbon tetrachloride	10.407	117	452001	108.99	ug/L	99
51) tert amyl alcohol	10.507	55	83489	507.26	ug/L	96
54) n-butyl alcohol	11.141	56	543429	5241.34	ug/L	100
55) 2,2,4-trimethylpentane	10.743	57	1199676	121.38	ug/L	96
56) benzene	10.643	78	1233082	100.20	ug/L	100
57) tert-amyl methyl ether	10.732	87	225160	106.22	ug/L	99
58) heptane	10.921	71	242198	128.03	ug/L	98
59) isopropyl acetate	10.601	87	73050	111.31	ug/L	96
60) 1,2-dichloroethane	10.617	62	436247	102.37	ug/L	100
61) trichloroethene	11.388	130	294308	103.94	ug/L	99
62) ethyl acrylate	11.409	55	436596	97.46	ug/L	100
63) 2-nitropropane	12.117	41	74369	91.67	ug/L	98
64) 2-chloroethyl vinyl ether	12.185	63	867828	461.17	ug/L	98
65) methyl methacrylate	11.676	100	78614	99.18	ug/L	96
66) 1,2-dichloropropane	11.634	63	316919	95.07	ug/L	100
67) dibromomethane	11.765	93	209156	94.85	ug/L	100
68) methylcyclohexane	11.655	83	503675	113.79	ug/L	98
69) bromodichloromethane	11.912	83	391909	92.86	ug/L	100
70) epichlorohydrin	12.269	57	156392	473.23	ug/L	99
71) cis-1,3-dichloropropene	12.389	75	468007	92.55	ug/L	99
72) 4-methyl-2-pentanone	12.505	58	486979	341.40	ug/L	99
73) 3-methyl-1-butanol	12.510	55	315874	1884.70	ug/L	99
76) toluene	12.777	92	592617	100.16	ug/L	100
77) trans-1,3-dichloropropene	12.940	75	413298	102.67	ug/L	100
78) ethyl methacrylate	12.982	69	373179	105.79	ug/L	99
79) 1,1,2-trichloroethane	13.144	83	222001	99.86	ug/L	99
80) tetrachloroethene	13.364	164	204585	109.41	ug/L	99
81) 1,3-dichloropropane	13.328	76	394446	98.70	ug/L	100
82) 2-hexanone	13.349	58	474116	346.88	ug/L	98
83) butyl acetate	13.448	56	194263	102.60	ug/L	98
84) 3,3-dimethyl-1-butanol	13.511	57	319474	1044.87	ug/L	99
85) dibromochloromethane	13.579	129	313513	102.32	ug/L	100
86) 1,2-dibromoethane	13.731	107	284645	100.75	ug/L	99
87) n-butyl ether	14.209	57	1084416	99.57	ug/L	100
88) chlorobenzene	14.224	112	673975	97.86	ug/L	99
89) 1,1,1,2-tetrachloroethane	14.282	131	263017	102.50	ug/L	100
90) ethylbenzene	14.303	91	1126541	100.06	ug/L	100

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82605.D
 Acq On : 27 Sep 2017 1:50 am
 Operator : ovinadei
 Sample : ic3564-100
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Sep 27 10:20:32 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
91) m,p-xylene	14.413	106	835456	200.99	ug/L	99
92) o-xylene	14.833	106	422355	100.01	ug/L	100
93) styrene	14.833	104	730539	102.94	ug/L	99
94) bromoform	15.058	173	242898	105.07	ug/L	100
95) butyl acrylate	14.665	55	580585	106.17	ug/L	100
96) isopropylbenzene	15.194	105	1119293	104.35	ug/L	100
97) cis-1,4-dichloro-2-butene	15.215	88	132381	123.77	ug/L	99
100) bromobenzene	15.561	156	303626	99.86	ug/L	99
101) 1,1,2,2-tetrachloroethane	15.446	83	392083	97.45	ug/L	100
102) trans-1,4-dichloro-2-b...	15.498	53	91535	121.18	ug/L	99
103) 1,2,3-trichloropropane	15.525	110	88381	106.42	ug/L	100
104) n-propylbenzene	15.614	91	1358093	102.26	ug/L	99
105) 2-chlorotoluene	15.740	126	274161	103.13	ug/L	99
106) 4-chlorotoluene	15.839	91	814978	100.14	ug/L	100
107) 1,3,5-trimethylbenzene	15.771	105	937473	103.83	ug/L	100
108) tert-butylbenzene	16.133	134	171808	111.39	ug/L	99
109) 1,2,4-trimethylbenzene	16.169	105	967928	102.99	ug/L	100
110) sec-butylbenzene	16.358	105	1263136	107.44	ug/L	100
111) 1,3-dichlorobenzene	16.516	146	557173	100.54	ug/L	99
112) p-isopropyltoluene	16.484	119	1018404	108.42	ug/L	99
113) 1,4-dichlorobenzene	16.599	146	564930	98.57	ug/L	99
114) benzyl chloride	16.709	91	674760	107.85	ug/L	99
115) 1,2-dichlorobenzene	17.003	146	560398	100.67	ug/L	99
116) n-butylbenzene	16.914	92	562925	111.96	ug/L	99
117) 1,2-dibromo-3-chloropr...	17.800	75	74766	113.40	ug/L	97
118) 1,3,5-trichlorobenzene	18.041	180	474030	109.93	ug/L	100
119) 2-ethylhexyl acrylate	18.739	70	46125	25.73	ug/L	96
120) 1,2,4-trichlorobenzene	18.712	180	433530	122.23	ug/L	100
121) hexachlorobutadiene	18.875	225	215059	117.57	ug/L	99
122) naphthalene	19.001	128	1034943	123.79	ug/L	100
123) 1,2,3-trichlorobenzene	19.263	180	391609	121.66	ug/L	100
124) hexachloroethane	17.307	201	197657	114.75	ug/L	99
125) 2-methylnaphthalene	20.233	142	231900	74.49	ug/L	99

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

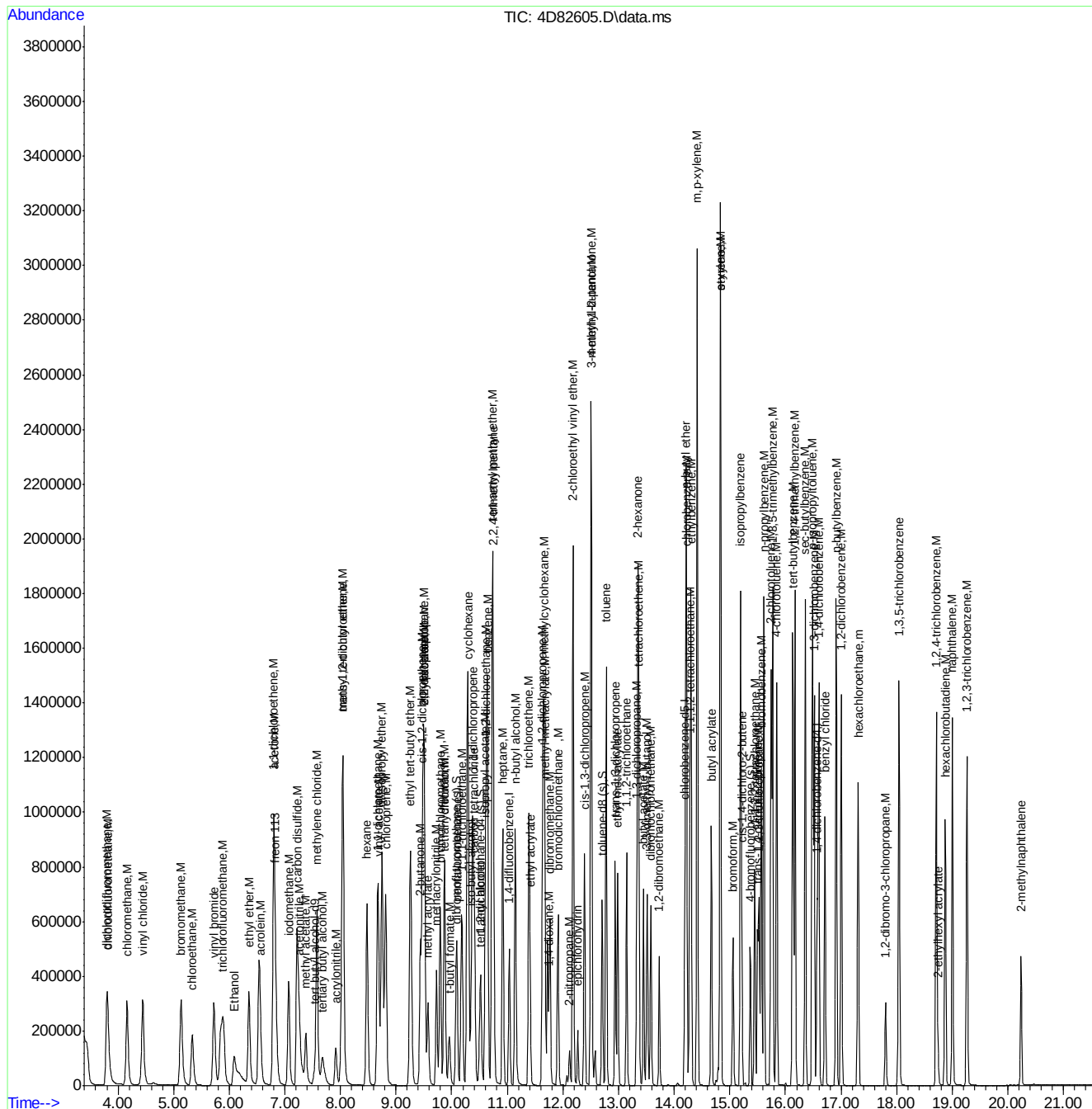
Quantitation Report (QT Reviewed)

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Data Path   : C:\msdchem\1\data\4d82001-84000\
Data File   : 4D82605.D
Acq On      : 27 Sep 2017    1:50 am
Operator    : oyinadei
Sample      : ic3564-100
Misc        : MS20204,V4D3564,5,,,,,1
ALS Vial    : 13    Sample Multiplier: 1

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Quant Time: Sep 27 10:20:32 2017
Quant Method : C:\msdchem\1\methods\M4D3564.M
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 10:19:20 2017
Response via : Initial Calibration



M4D3564.M Wed Oct 04 09:00:16 2017 RPT1

Page: 4

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82606.D
 Acq On : 27 Sep 2017 2:18 am
 Operator : ovinadei
 Sample : ic3564-200
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 27 10:21:13 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.550	65	146899	500.00	ug/L	0.01
5) pentafluorobenzene	10.093	168	236640	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	363628	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	318602	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	165044	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	135479	49.97	ug/L	0.00
Spiked Amount	50.000	Range	76 - 120	Recovery	=	99.94%
53) 1,2-dichloroethane-d4 (s)	10.523	65	139356	47.65	ug/L	0.00
Spiked Amount	50.000	Range	73 - 122	Recovery	=	95.30%
75) toluene-d8 (s)	12.704	98	419294	48.17	ug/L	0.00
Spiked Amount	50.000	Range	84 - 119	Recovery	=	96.34%
99) 4-bromofluorobenzene (s)	15.367	95	164039	49.73	ug/L	0.00
Spiked Amount	50.000	Range	78 - 117	Recovery	=	99.46%
Target Compounds						
2) tertiary butyl alcohol	7.681	59	422652	1011.80	ug/L	96
3) Ethanol	6.097	45	634230	19011.80	ug/L	99
4) 1,4-dioxane	11.744	88	143578	5306.46	ug/L	97
6) chlorodifluoromethane	3.811	51	472115	169.18	ug/L	98
7) dichlorodifluoromethane	3.796	85	764492	233.99	ug/L	99
8) chloromethane	4.168	50	882564	211.17	ug/L	100
9) vinyl chloride	4.446	62	861368	233.51	ug/L	99
11) bromomethane	5.133	94	520908	180.19	ug/L	99
12) chloroethane	5.332	64	419211	205.98	ug/L	99
13) trichlorofluoromethane	5.882	101	947574	227.03	ug/L	98
14) vinyl bromide	5.725	106	594207	237.85	ug/L	99
15) ethyl ether	6.354	74	302317	197.79	ug/L	98
16) acrolein	6.559	56	141475	292.60	ug/L	98
17) freon 113	6.821	151	357002	209.80	ug/L	98
18) 1,1-dichloroethene	6.795	96	468142	189.05	ug/L	100
19) acetone	6.811	58	235165	714.70	ug/L	94
20) acetonitrile	7.256	41	815013	1834.90	ug/L	99
21) iodomethane	7.067	142	952984	191.69	ug/L	99
22) carbon disulfide	7.219	76	1704692	176.24	ug/L	99
23) methylene chloride	7.576	84	572761	156.74	ug/L	97
24) methyl acetate	7.377	43	508446	174.01	ug/L	99
25) methyl tert butyl ether	8.037	73	1588508	187.36	ug/L	99
26) trans-1,2-dichloroethene	8.043	96	521998	188.18	ug/L	98
27) di-isopropyl ether	8.750	45	1753140	173.07	ug/L	99
28) 2-butanone	9.437	72	300720	728.37	ug/L	99
29) 1,1-dichloroethane	8.667	63	983631	189.84	ug/L	100
30) chloroprene	8.813	53	735087	199.95	ug/L	99
31) acrylonitrile	7.917	53	238108	207.50	ug/L	99
32) hexane	8.478	56	350410	222.55	ug/L	98
33) vinyl acetate	8.688	86	99399	212.06	ug/L	93
34) ethyl tert-butyl ether	9.259	59	1736637	185.55	ug/L	99
35) ethyl acetate	9.511	45	86954	175.30	ug/L	94

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82606.D
 Acq On : 27 Sep 2017 2:18 am
 Operator : ovinadei
 Sample : ic3564-200
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 27 10:21:13 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) 2,2-dichloropropane	9.505	77	692423	190.20	ug/L	96
37) cis-1,2-dichloroethene	9.474	96	588834	187.16	ug/L	99
38) methyl acrylate	9.579	85	101414	209.18	ug/L	98
39) propionitrile	9.500	54	995861	1906.14	ug/L	100
40) bromochloromethane	9.794	128	312470	200.88	ug/L	97
41) tetrahydrofuran	9.867	72	89016	203.42	ug/L	92
42) chloroform	9.872	85	628438	186.76	ug/L	99
43) t-butyl formate	9.962	59	207356	198.65	ug/L	94
45) methacrylonitrile	9.731	67	270454	199.29	ug/L	98
46) 1,1,1-trichloroethane	10.182	97	807402	203.92	ug/L	99
47) cyclohexane	10.292	84	751583	264.39	ug/L	99
48) 1,1-dichloropropene	10.376	75	724005	203.42	ug/L	99
49) iso-butyl alcohol	10.355	43	315104	1831.73	ug/L	99
50) carbon tetrachloride	10.407	117	724312	206.04	ug/L	99
51) tert amyl alcohol	10.512	55	139346	998.77	ug/L	95
54) n-butyl alcohol	11.146	56	969462	10429.54	ug/L	99
55) 2,2,4-trimethylpentane	10.743	57	1873752	211.45	ug/L	98
56) benzene	10.643	78	2035674	184.50	ug/L	100
57) tert-amyl methyl ether	10.738	87	373871	196.74	ug/L	97
58) heptane	10.921	71	393053	231.75	ug/L	98
59) isopropyl acetate	10.606	87	122669	208.49	ug/L	# 91
60) 1,2-dichloroethane	10.617	62	716552	187.56	ug/L	100
61) trichloroethene	11.388	130	528857	208.34	ug/L	99
62) ethyl acrylate	11.409	55	795011	197.94	ug/L	100
63) 2-nitropropane	12.116	41	144682	198.93	ug/L	99
64) 2-chloroethyl vinyl ether	12.185	63	1626337	963.99	ug/L	98
65) methyl methacrylate	11.676	100	149620	210.55	ug/L	97
66) 1,2-dichloropropane	11.634	63	581014	194.41	ug/L	100
67) dibromomethane	11.765	93	395185	199.91	ug/L	99
68) methylcyclohexane	11.655	83	908918	229.04	ug/L	99
69) bromodichloromethane	11.912	83	742982	196.35	ug/L	100
70) epichlorohydrin	12.269	57	304104	1026.39	ug/L	100
71) cis-1,3-dichloropropene	12.389	75	907411	200.15	ug/L	99
72) 4-methyl-2-pentanone	12.510	58	924603	723.02	ug/L	94
73) 3-methyl-1-butanol	12.510	55	613477	4082.84	ug/L	98
76) toluene	12.777	92	1146751	185.44	ug/L	99
77) trans-1,3-dichloropropene	12.940	75	806572	191.70	ug/L	100
78) ethyl methacrylate	12.987	69	727916	197.42	ug/L	96
79) 1,1,2-trichloroethane	13.144	83	439749	189.26	ug/L	99
80) tetrachloroethene	13.364	164	393921	201.56	ug/L	99
81) 1,3-dichloropropane	13.328	76	773853	185.26	ug/L	98
82) 2-hexanone	13.349	58	912296	638.60	ug/L	96
83) butyl acetate	13.448	56	382670	193.37	ug/L	99
84) 3,3-dimethyl-1-butanol	13.511	57	643053	2012.20	ug/L	99
85) dibromochloromethane	13.585	129	620591	193.79	ug/L	99
86) 1,2-dibromoethane	13.731	107	570794	193.29	ug/L	100
87) n-butyl ether	14.208	57	2091060	183.69	ug/L	99
88) chlorobenzene	14.224	112	1335349	185.50	ug/L	99
89) 1,1,1,2-tetrachloroethane	14.282	131	519039	193.53	ug/L	98
90) ethylbenzene	14.303	91	2200058	186.95	ug/L	100

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\4d82001-84000\
 Data File : 4D82606.D
 Acq On : 27 Sep 2017 2:18 am
 Operator : ovinadei
 Sample : ic3564-200
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Sep 27 10:21:13 2017
 Quant Method : C:\msdchem\1\methods\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 10:19:20 2017
 Response via : Initial Calibration

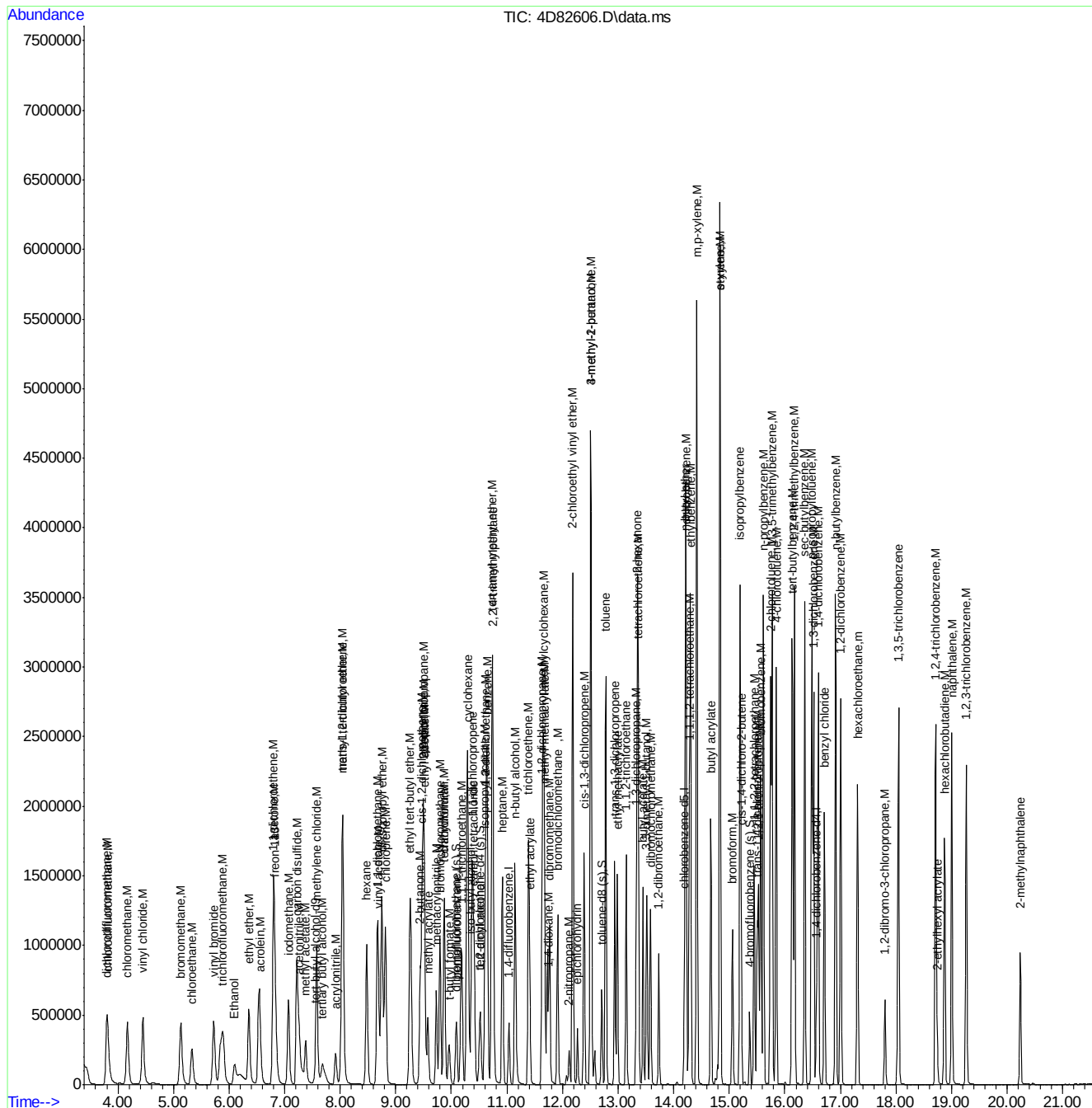
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
91) m,p-xylene	14.418	106	1633449	375.98	ug/L	98
92) o-xylene	14.832	106	831055	188.28	ug/L	98
93) styrene	14.832	104	1439187	194.03	ug/L	98
94) bromoform	15.058	173	490744	203.09	ug/L	99
95) butyl acrylate	14.670	55	1163749	203.61	ug/L	98
96) isopropylbenzene	15.194	105	2212635	197.37	ug/L	100
97) cis-1,4-dichloro-2-butene	15.215	88	271253	242.64	ug/L	98
100) bromobenzene	15.566	156	615815	192.12	ug/L	94
101) 1,1,2,2-tetrachloroethane	15.446	83	798628	188.28	ug/L	99
102) trans-1,4-dichloro-2-b...	15.498	53	185926	233.49	ug/L	97
103) 1,2,3-trichloropropane	15.524	110	180153	205.77	ug/L	99
104) n-propylbenzene	15.614	91	2686820	191.91	ug/L	99
105) 2-chlorotoluene	15.745	126	551478	196.77	ug/L	95
106) 4-chlorotoluene	15.844	91	1628949	189.86	ug/L	98
107) 1,3,5-trimethylbenzene	15.771	105	1829340	192.18	ug/L	100
108) tert-butylbenzene	16.133	134	339333	208.68	ug/L	99
109) 1,2,4-trimethylbenzene	16.175	105	1906813	192.45	ug/L	98
110) sec-butylbenzene	16.358	105	2457344	198.27	ug/L	99
111) 1,3-dichlorobenzene	16.515	146	1108421	189.73	ug/L	99
112) p-isopropyltoluene	16.484	119	1978318	199.78	ug/L	99
113) 1,4-dichlorobenzene	16.599	146	1135872	188.00	ug/L	99
114) benzyl chloride	16.709	91	1365816	207.08	ug/L	100
115) 1,2-dichlorobenzene	17.003	146	1121905	191.18	ug/L	99
116) n-butylbenzene	16.914	92	1095820	206.74	ug/L	99
117) 1,2-dibromo-3-chloropr...	17.800	75	148705	213.94	ug/L	98
118) 1,3,5-trichlorobenzene	18.046	180	894887	196.85	ug/L	99
119) 2-ethylhexyl acrylate	18.738	70	99136	52.45	ug/L	95
120) 1,2,4-trichlorobenzene	18.712	180	817001	218.50	ug/L	100
121) hexachlorobutadiene	18.875	225	393614	204.11	ug/L	98
122) naphthalene	19.006	128	1976970	224.30	ug/L	100
123) 1,2,3-trichlorobenzene	19.263	180	742663	218.86	ug/L	99
124) hexachloroethane	17.307	201	388923	214.17	ug/L	99
125) 2-methylnaphthalene	20.238	142	474928	144.72	ug/L	99

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

Quantitation Report (QT Reviewed)

```
Data Path : C:\msdchem\1\data\4d82001-84000\
Data File : 4D82606.D
Acq On    : 27 Sep 2017    2:18 am
Operator  : oyinadei
Sample    : ic3564-200
Misc      : MS20204,V4D3564,5,,,,,1
ALS Vial  : 14    Sample Multiplier: 1
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Quant Time: Sep 27 10:21:13 2017
Quant Method : C:\msdchem\1\methods\M4D3564.M
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 10:19:20 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\
 Data File : 4D82609.D
 Acq On : 27 Sep 2017 3:42 am
 Operator : ovinadei
 Sample : icv3564-50
 Misc : MS20204,V4D3564,5,,,,,1
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Sep 27 12:12:33 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:44 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.550	65	151342	500.00	ug/L	0.01
5) pentafluorobenzene	10.098	168	242647	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	368176	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	311762	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	160358	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	138961	49.74	ug/L	0.00
Spiked Amount	50.000	Range	76 - 120	Recovery	=	99.48%
53) 1,2-dichloroethane-d4 (s)	10.523	65	142210	47.85	ug/L	0.00
Spiked Amount	50.000	Range	73 - 122	Recovery	=	95.70%
75) toluene-d8 (s)	12.704	98	419935	49.83	ug/L	0.00
Spiked Amount	50.000	Range	84 - 119	Recovery	=	99.66%
99) 4-bromofluorobenzene (s)	15.367	95	158976	49.92	ug/L	0.00
Spiked Amount	50.000	Range	78 - 117	Recovery	=	99.84%
Target Compounds						
2) tertiary butyl alcohol	7.681	59	110737	258.12	ug/L	98
3) Ethanol	6.097	45	174538	5254.73	ug/L	99
4) 1,4-dioxane	11.744	88	38885	1429.61	ug/L	100
6) chlorodifluoromethane	3.817	51	140459	63.08	ug/L	99
7) dichlorodifluoromethane	3.806	85	217908	57.28	ug/L	98
8) chloromethane	4.163	50	243413	57.72	ug/L	100
9) vinyl chloride	4.441	62	232811	55.41	ug/L	99
11) bromomethane	5.138	94	159496	54.38	ug/L	100
12) chloroethane	5.342	64	121297	56.01	ug/L	99
13) trichlorofluoromethane	5.882	101	249070	53.00	ug/L	99
14) vinyl bromide	5.730	106	237705	83.48	ug/L	100
15) ethyl ether	6.360	74	86792	60.16	ug/L	99
16) acrolein	6.564	56	39835	57.53	ug/L	96
17) freon 113	6.831	151	130938	73.63	ug/L	96
18) 1,1-dichloroethene	6.800	96	133414	57.14	ug/L	99
19) acetone	6.810	58	63424	202.82	ug/L	98
20) acetonitrile	7.261	41	206946	499.35	ug/L	99
21) iodomethane	7.073	142	272382	57.54	ug/L	98
22) carbon disulfide	7.225	76	524400	59.18	ug/L	99
23) methylene chloride	7.581	84	165005	55.49	ug/L	98
24) methyl acetate	7.382	43	133052	50.37	ug/L	98
25) methyl tert butyl ether	8.037	73	920407	114.17	ug/L	100
26) trans-1,2-dichloroethene	8.048	96	149447	55.26	ug/L	98
27) di-isopropyl ether	8.750	45	500319	54.90	ug/L	99
28) 2-butanone	9.437	72	82210	224.65	ug/L	99
29) 1,1-dichloroethane	8.666	63	284413	56.48	ug/L	100
30) chloroprene	8.813	53	216283	58.17	ug/L	99
31) acrylonitrile	7.917	53	66178	58.42	ug/L	97
32) hexane	8.478	56	80896	44.53	ug/L	100
33) vinyl acetate	8.687	86	29093	58.68	ug/L	94
34) ethyl tert-butyl ether	9.259	59	486629	55.49	ug/L	99
35) ethyl acetate	9.505	45	25638	53.85	ug/L	90

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\
 Data File : 4D82609.D
 Acq On : 27 Sep 2017 3:42 am
 Operator : ovinadei
 Sample : icv3564-50
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Sep 27 12:12:33 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:44 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
36) 2,2-dichloropropane	9.505	77	201052	52.72	ug/L	99
37) cis-1,2-dichloroethene	9.474	96	171036	56.37	ug/L	99
38) methyl acrylate	9.574	85	28022	57.01	ug/L	97
39) propionitrile	9.500	54	262075	514.79	ug/L	100
40) bromochloromethane	9.794	128	85987	55.86	ug/L	97
41) tetrahydrofuran	9.862	72	25254	56.08	ug/L	97
42) chloroform	9.872	85	178743	53.44	ug/L	98
43) t-butyl formate	9.956	59	86883	86.23	ug/L	98
45) methacrylonitrile	9.726	67	74179	56.79	ug/L	98
46) 1,1,1-trichloroethane	10.182	97	227408	55.45	ug/L	98
47) cyclohexane	10.292	84	206052	54.97	ug/L	98
48) 1,1-dichloropropene	10.376	75	206708	56.19	ug/L	99
49) iso-butyl alcohol	10.355	43	87729	532.97	ug/L	99
50) carbon tetrachloride	10.407	117	205460	56.01	ug/L	98
51) tert amyl alcohol	10.507	55	37566	258.16	ug/L	98
54) n-butyl alcohol	11.141	56	263784	2766.12	ug/L	100
55) 2,2,4-trimethylpentane	10.743	57	560424	55.68	ug/L	95
56) benzene	10.643	78	577510	54.95	ug/L	100
57) tert-amyl methyl ether	10.732	87	103663	55.80	ug/L	99
58) heptane	10.921	71	123500	60.41	ug/L	99
59) isopropyl acetate	10.606	87	33233	54.04	ug/L	95
60) 1,2-dichloroethane	10.617	62	205484	55.61	ug/L	99
61) trichloroethene	11.388	130	147454	57.51	ug/L	100
62) ethyl acrylate	11.409	55	219280	57.04	ug/L	100
63) 2-nitropropane	12.116	41	38303	54.43	ug/L	97
64) 2-chloroethyl vinyl ether	12.185	63	531896	319.29	ug/L	99
65) methyl methacrylate	11.676	100	40988	56.87	ug/L	94
66) 1,2-dichloropropane	11.634	63	164272	57.42	ug/L	99
67) dibromomethane	11.765	93	109418	55.93	ug/L	97
68) methylcyclohexane	11.655	83	238123	52.94	ug/L	98
69) bromodichloromethane	11.912	83	207327	56.78	ug/L	99
70) epichlorohydrin	12.268	57	84444	289.86	ug/L	99
71) cis-1,3-dichloropropene	12.389	75	249125	57.08	ug/L	99
72) 4-methyl-2-pentanone	12.504	58	266028	225.22	ug/L	96
73) 3-methyl-1-butanol	12.510	55	162956	1067.33	ug/L	98
76) toluene	12.777	92	316621	55.53	ug/L	100
77) trans-1,3-dichloropropene	12.940	75	219675	55.68	ug/L	99
78) ethyl methacrylate	12.982	69	190540	55.77	ug/L	99
79) 1,1,2-trichloroethane	13.144	83	121553	56.55	ug/L	99
80) tetrachloroethene	13.364	164	112547	57.27	ug/L	100
81) 1,3-dichloropropane	13.328	76	211081	54.59	ug/L	100
82) 2-hexanone	13.349	58	250945	215.80	ug/L	96
83) butyl acetate	13.448	56	105969	56.34	ug/L	100
84) 3,3-dimethyl-1-butanol	13.511	57	163804	531.96	ug/L	99
85) dibromochloromethane	13.579	129	171583	57.16	ug/L	100
86) 1,2-dibromoethane	13.731	107	156615	56.56	ug/L	100
87) n-butyl ether	14.208	57	561003	54.37	ug/L	100
88) chlorobenzene	14.224	112	364911	55.34	ug/L	99
89) 1,1,1,2-tetrachloroethane	14.282	131	139363	55.60	ug/L	99
90) ethylbenzene	14.303	91	593640	54.60	ug/L	100

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\data\
 Data File : 4D82609.D
 Acq On : 27 Sep 2017 3:42 am
 Operator : ovinadei
 Sample : icv3564-50
 Misc : MS20204,V4D3564,5,,,1
 ALS Vial : 17 Sample Multiplier: 1

Quant Time: Sep 27 12:12:33 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:44 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
91) m,p-xylene	14.413	106	450696	111.26	ug/L	100
92) o-xylene	14.832	106	225919	55.71	ug/L	99
93) styrene	14.832	104	390290	56.46	ug/L	99
94) bromoform	15.058	173	129882	55.88	ug/L	99
95) butyl acrylate	14.665	55	306591	58.13	ug/L	99
96) isopropylbenzene	15.194	105	591139	55.40	ug/L	100
97) cis-1,4-dichloro-2-butene	15.215	88	65869	51.94	ug/L	96
100) bromobenzene	15.561	156	163889	56.07	ug/L	97
101) 1,1,2,2-tetrachloroethane	15.446	83	215123	54.85	ug/L	99
102) trans-1,4-dichloro-2-b...	15.498	53	50827	60.87	ug/L	99
103) 1,2,3-trichloropropane	15.524	110	47590	55.77	ug/L	99
104) n-propylbenzene	15.614	91	727468	55.92	ug/L	100
105) 2-chlorotoluene	15.739	126	148516	56.32	ug/L	99
106) 4-chlorotoluene	15.839	91	430157	54.28	ug/L	100
107) 1,3,5-trimethylbenzene	15.771	105	496410	56.34	ug/L	100
108) tert-butylbenzene	16.133	134	92695	59.21	ug/L	97
109) 1,2,4-trimethylbenzene	16.169	105	519885	57.02	ug/L	99
110) sec-butylbenzene	16.358	105	664616	55.89	ug/L	99
111) 1,3-dichlorobenzene	16.515	146	303445	55.89	ug/L	99
112) p-isopropyltoluene	16.484	119	548873	58.21	ug/L	100
113) 1,4-dichlorobenzene	16.599	146	306034	55.79	ug/L	99
114) benzyl chloride	16.709	91	295396	45.39	ug/L	99
115) 1,2-dichlorobenzene	17.003	146	301123	55.99	ug/L	99
116) n-butylbenzene	16.909	92	301953	58.94	ug/L	100
117) 1,2-dibromo-3-chloropr...	17.800	75	39976	56.69	ug/L	99
118) 1,3,5-trichlorobenzene	18.041	180	268493	62.10	ug/L	100
119) 2-ethylhexyl acrylate	18.738	70	26294	12.09	ug/L	93
120) 1,2,4-trichlorobenzene	18.712	180	236253	64.27	ug/L	100
121) hexachlorobutadiene	18.875	225	118166	59.18	ug/L	99
122) naphthalene	19.001	128	557377	57.63	ug/L	99
123) 1,2,3-trichlorobenzene	19.263	180	216548	62.79	ug/L	100
124) hexachloroethane	17.307	201	103526	58.59	ug/L	99
125) 2-methylnaphthalene	20.238	142	114642	25.80	ug/L	99

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
 Data File : 4D82613.D
 Acq On : 27 Sep 2017 1:05 pm
 Operator : jessicap
 Sample : icv3564-50
 Misc : MS20204,V4D3565,5,,,,,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 27 14:57:34 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:44 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) tert butyl alcohol-d9	7.550	65	163629	500.00	ug/L	0.01
5) pentafluorobenzene	10.093	168	258057	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.036	114	397840	50.00	ug/L	0.00
74) chlorobenzene-d5	14.193	117	328019	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.573	152	166487	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.077	113	150836	50.77	ug/L	0.00
Spiked Amount 50.000	Range 76 - 120		Recovery = 101.54%			
53) 1,2-dichloroethane-d4 (s)	10.523	65	162206	50.50	ug/L	0.00
Spiked Amount 50.000	Range 73 - 122		Recovery = 101.00%			
75) toluene-d8 (s)	12.704	98	447515	50.47	ug/L	0.00
Spiked Amount 50.000	Range 84 - 119		Recovery = 100.94%			
99) 4-bromofluorobenzene (s)	15.367	95	166797	50.44	ug/L	0.00
Spiked Amount 50.000	Range 78 - 117		Recovery = 100.88%			
Target Compounds						
17) freon 113	6.832	151	116623	61.67	ug/L	98

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

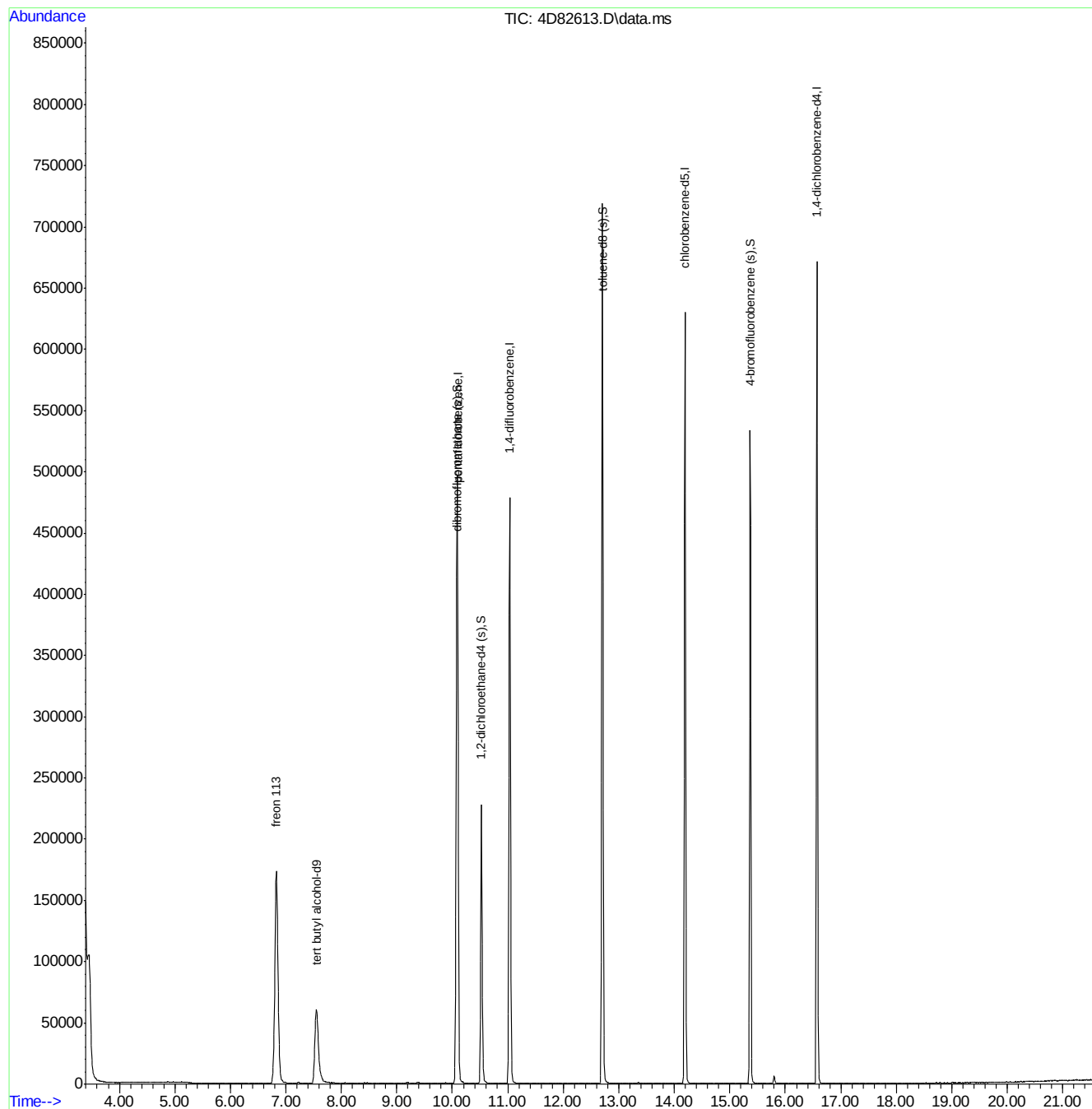
7.6.11

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\
Data File : 4D82613.D
Acq On : 27 Sep 2017 1:05 pm
Operator : jessicap
Sample : icv3564-50
Misc : MS20204,V4D3565,5,,,,,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 27 14:57:34 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:44 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83138.d
 Acq On : 12 Oct 2017 9:06 pm
 Operator : jessicap
 Sample : CC3564-50 Inst : MS4D
 Misc : MS20734,V4D3589,5,,,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:39:54 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:44 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) tert butyl alcohol-d9	7.545	65	172680	500.00	ug/L	0.00
5) pentafluorobenzene	10.087	168	266125	50.00	ug/L	0.00
52) 1,4-difluorobenzene	11.031	114	395984	50.00	ug/L	0.00
74) chlorobenzene-d5	14.188	117	332222	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	16.568	152	170447	50.00	ug/L	0.00
System Monitoring Compounds						
44) dibromofluoromethane (s)	10.072	113	138679	45.26	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	90.52%
53) 1,2-dichloroethane-d4 (s)	10.517	65	156973	49.10	ug/L	0.00
Spiked Amount	50.000	Range	81 - 1240	Recovery	=	98.20%
75) toluene-d8 (s)	12.704	98	412082	45.89	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	91.78%
99) 4-bromofluorobenzene (s)	15.362	95	155958	46.07	ug/L	0.00
Spiked Amount	50.000	Range	80 - 120	Recovery	=	92.14%
Target Compounds						
2) tertiary butyl alcohol	7.676	59	106780	218.14	ug/L	97
3) Ethanol	6.092	45	166445	4391.86	ug/L	97
4) 1,4-dioxane	11.744	88	33457	1078.06	ug/L	99
6) chlorodifluoromethane	3.806	51	150393	61.58	ug/L	96
7) dichlorodifluoromethane	3.796	85	154983	37.15	ug/L	100
8) chloromethane	4.152	50	190870	41.26	ug/L	98
9) vinyl chloride	4.430	62	182363	39.57	ug/L	98
11) bromomethane	5.133	94	126017	39.18	ug/L	97
12) chloroethane	5.337	64	98965	41.67	ug/L	97
13) trichlorofluoromethane	5.862	101	220815	42.85	ug/L	98
14) vinyl bromide	5.720	106	212449	68.03	ug/L #	99
15) ethyl ether	6.354	74	70443	44.52	ug/L	97
16) acrolein	6.559	56	27114	35.70	ug/L	99
17) freon 113	6.821	151	88414	45.33	ug/L	99
18) 1,1-dichloroethene	6.795	96	111211	43.43	ug/L	87
19) acetone	6.805	58	65894	192.12	ug/L	89
20) acetonitrile	7.256	41	215514	474.15	ug/L	99
21) iodomethane	7.062	142	231527	44.59	ug/L	95
22) carbon disulfide	7.214	76	432523	44.51	ug/L	98
23) methylene chloride	7.571	84	135149	41.44	ug/L	93
24) methyl acetate	7.372	43	137548	47.48	ug/L	95
25) methyl tert butyl ether	8.032	73	398310	45.05	ug/L	100
26) trans-1,2-dichloroethene	8.037	96	122425	41.27	ug/L	94
27) di-isopropyl ether	8.745	45	467419	46.76	ug/L	97
28) 2-butanone	9.432	72	73149	182.25	ug/L #	80
29) 1,1-dichloroethane	8.661	63	243900	44.17	ug/L	100
30) chloroprene	8.808	53	194659	47.73	ug/L	94
31) acrylonitrile	7.912	53	56545	45.51	ug/L	99
32) hexane	8.473	56	92353	46.35	ug/L	93
33) vinyl acetate	8.677	86	21925	40.32	ug/L	66
34) ethyl tert-butyl ether	9.254	59	435932	45.33	ug/L	98
35) ethyl acetate	9.500	45	23237	44.50	ug/L	92
36) 2,2-dichloropropane	9.505	77	200484	47.94	ug/L	94
37) cis-1,2-dichloroethene	9.469	96	136900	41.14	ug/L	92
38) methyl acrylate	9.568	85	22623	41.97	ug/L	92
39) propionitrile	9.490	54	249458	446.78	ug/L	99
40) bromochloromethane	9.789	128	70961	42.03	ug/L	93
41) tetrahydrofuran	9.862	72	20404	41.32	ug/L	93
42) chloroform	9.867	85	155617	42.42	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83138.d
 Acq On : 12 Oct 2017 9:06 pm
 Operator : jessicap
 Sample : CC3564-50 Inst : MS4D
 Misc : MS20734,V4D3589,5,,,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:39:54 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:44 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
43) t-butyl formate	9.956	59	35685	32.29	ug/L	94
45) methacrylonitrile	9.720	67	62978	43.96	ug/L	90
46) 1,1,1-trichloroethane	10.177	97	206409	45.89	ug/L	98
47) cyclohexane	10.292	84	156455	38.05	ug/L	94
48) 1,1-dichloropropene	10.371	75	176338	43.70	ug/L	97
49) iso-butyl alcohol	10.350	43	81648	452.27	ug/L	97
50) carbon tetrachloride	10.407	117	185901	46.21	ug/L	98
51) tert amyl alcohol	10.502	55	35830	224.51	ug/L	88
54) n-butyl alcohol	11.136	56	233831	2279.83	ug/L	92
55) 2,2,4-trimethylpentane	10.738	57	486636	44.95	ug/L	97
56) benzene	10.638	78	477402	42.23	ug/L	100
57) tert-amyl methyl ether	10.727	87	89616	44.85	ug/L	98
58) heptane	10.916	71	98118	44.62	ug/L	98
59) isopropyl acetate	10.601	87	27458	41.52	ug/L #	74
60) 1,2-dichloroethane	10.612	62	190460	47.92	ug/L	99
61) trichloroethene	11.383	130	118177	42.86	ug/L	98
62) ethyl acrylate	11.403	55	191659	46.35	ug/L	98
63) 2-nitropropane	12.117	41	39465	52.14	ug/L	98
64) 2-chloroethyl vinyl ether	12.179	63	383450	214.01	ug/L	100
65) methyl methacrylate	11.676	100	33067	42.66	ug/L	96
66) 1,2-dichloropropane	11.629	63	137033	44.53	ug/L	99
67) dibromomethane	11.760	93	92503	43.96	ug/L	97
68) methylcyclohexane	11.655	83	210464	43.50	ug/L	94
69) bromodichloromethane	11.907	83	181301	46.17	ug/L	99
70) epichlorohydrin	12.263	57	73532	234.68	ug/L	98
71) cis-1,3-dichloropropene	12.384	75	214559	45.71	ug/L	94
72) 4-methyl-2-pentanone	12.505	58	231102	181.91	ug/L	87
73) 3-methyl-1-butanol	12.505	55	154513	940.96	ug/L	92
76) toluene	12.772	92	260322	42.85	ug/L	98
77) trans-1,3-dichloropropene	12.934	75	191517	45.55	ug/L	97
78) ethyl methacrylate	12.982	69	167522	46.02	ug/L	93
79) 1,1,2-trichloroethane	13.139	83	99730	43.54	ug/L	96
80) tetrachloroethene	13.359	164	89538	42.75	ug/L	97
81) 1,3-dichloropropane	13.322	76	178505	43.33	ug/L	92
82) 2-hexanone	13.343	58	231270	186.63	ug/L #	86
83) butyl acetate	13.443	56	90655	45.23	ug/L	88
84) 3,3-dimethyl-1-butanol	13.511	57	147538	449.63	ug/L	96
85) dibromochloromethane	13.579	129	142416	44.52	ug/L	98
86) 1,2-dibromoethane	13.726	107	131169	44.45	ug/L	100
87) n-butyl ether	14.209	57	514545	46.80	ug/L	98
88) chlorobenzene	14.219	112	298112	42.43	ug/L	98
89) 1,1,1,2-tetrachloroethane	14.277	131	119123	44.59	ug/L	99
90) ethylbenzene	14.303	91	509251	43.95	ug/L	99
91) m,p-xylene	14.413	106	369958	85.71	ug/L	95
92) o-xylene	14.827	106	189275	43.80	ug/L	93
93) styrene	14.827	104	324250	44.02	ug/L	91
94) bromoform	15.053	173	107770	43.51	ug/L	100
95) butyl acrylate	14.665	55	273339	48.63	ug/L	98
96) isopropylbenzene	15.189	105	503442	44.27	ug/L	98
97) cis-1,4-dichloro-2-butene	15.210	88	58227	43.08	ug/L	94
100) bromobenzene	15.561	156	133543	42.99	ug/L	97
101) 1,1,2,2-tetrachloroethane	15.441	83	175951	42.21	ug/L	98
102) trans-1,4-dichloro-2-b...	15.493	53	41690	46.97	ug/L	87
103) 1,2,3-trichloropropane	15.519	110	40907	45.10	ug/L	98
104) n-propylbenzene	15.608	91	627820	45.40	ug/L	98
105) 2-chlorotoluene	15.739	126	121607	43.38	ug/L	96
106) 4-chlorotoluene	15.839	91	374842	44.50	ug/L	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
 Data File : 4d83138.d
 Acq On : 12 Oct 2017 9:06 pm
 Operator : jessicap
 Sample : CC3564-50 Inst : MS4D
 Misc : MS20734,V4D3589,5,,,,,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
 Quant Results File: M4D3564.RES
 Quant Time: Oct 16 04:39:54 2017
 Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
 QLast Update : Wed Sep 27 12:07:44 2017
 Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
107)	1,3,5-trimethylbenzene	15.766	105	428884	45.79	ug/L	97
108)	tert-butylbenzene	16.127	134	74053	44.50	ug/L	94
109)	1,2,4-trimethylbenzene	16.169	105	444454	45.86	ug/L	98
110)	sec-butylbenzene	16.353	105	571392	45.20	ug/L	98
111)	1,3-dichlorobenzene	16.510	146	248693	43.09	ug/L	98
112)	p-isopropyltoluene	16.479	119	466468	46.54	ug/L	98
113)	1,4-dichlorobenzene	16.594	146	251261	43.09	ug/L	99
114)	benzyl chloride	16.709	91	338103	48.87	ug/L	99
115)	1,2-dichlorobenzene	17.003	146	251635	44.02	ug/L	99
116)	n-butylbenzene	16.909	92	258081	47.39	ug/L	97
117)	1,2-dibromo-3-chloropr...	17.795	75	36331	48.47	ug/L	89
118)	1,3,5-trichlorobenzene	18.041	180	220027	47.88	ug/L	99
120)	1,2,4-trichlorobenzene	18.712	180	202542	51.84	ug/L	99
121)	hexachlorobutadiene	18.870	225	104135	49.07	ug/L	99
122)	naphthalene	19.001	128	484762	47.15	ug/L	100
123)	1,2,3-trichlorobenzene	19.258	180	184838	50.43	ug/L	99
124)	hexachloroethane	17.302	201	87334	46.50	ug/L	98
125)	2-methylnaphthalene	20.233	142	112531	23.98	ug/L	99

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

7.6.12

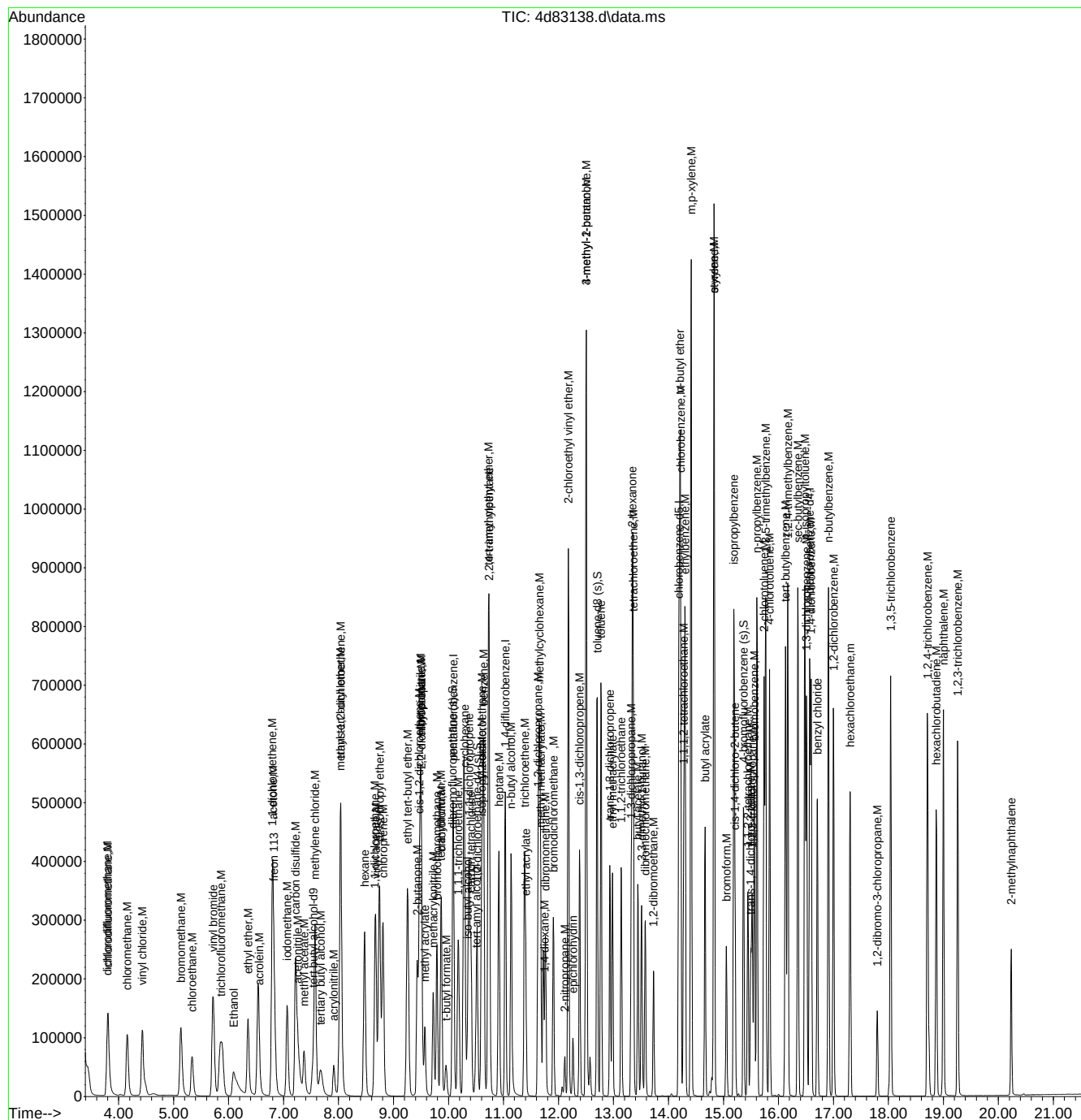
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\v4d3589\
Data File : 4d83138.d
Acq On : 12 Oct 2017 9:06 pm
Operator : jessicap
Sample : CC3564-50
Misc : MS20734,V4D3589,5,,,,,1
ALS Vial : 3 Sample Multiplier: 1

Inst : MS4D

Quant Method : C:\MSDCHEM\1\METHODS\M4D3564.M
Quant Results File: M4D3564.RES
Quant Time: Oct 16 04:39:54 2017
Quant Title : SW846 8260C, DB-624 60 m x 0.25 mm x 1.4 um
QLast Update : Wed Sep 27 12:07:44 2017
Response via : Initial Calibration



Date: 9/26/2017 (Tuesday)

[Initial]

Print Analyst Name: Jessica PottsAnalyst Signature: Jessica PottsColumns: DB624 (60m x 0.25 mm x 1.4um)Method V8260CInitial Cal. Method M4D3564

Standard Data

Standard Data

Lot #	Description	Conc.
V017-2530-123.12	ABK mix	100-10,000 ppm
V017-2530-103.63	ESTD	100 ppm
V017-2530-131.7	CSTD	100 ppm
V017-2530-80.12	ext. ABK mix	100-10,000 ppm
V017-2530-94.7	ext. E	100 ppm

Lot #	Description	Conc.
V017-2530-104.7	ext. hexane	100 ppm
V017-2530-131.2	ext. ketones	300 ppm
V017-2530-128.5	ext. C	100 ppm
V017-2530-101.8	ext. acetone/hex	100 ppm

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: [Signature]Date: 9/27/2017

R	Data File	Sample ID	Test	M T X	Vial #	ALS #	Samp. Amt (ml or g)	MOH amt. (ul)	Secondary dilution	L +	I S	S U	Status (Data)	Comments	pH < 2
	4D82593	IB													
	4D82594	IB													
	4D82595	BFB											OK		
	82596	BFB											OK	6.49 PM	
	82597	1C3564-0.2	8260 initial calibration				5	500 μ l					NG OK	100 μ l ABK, C/E / 500 μ l DI H ₂ O	
	82598	1C3564-0.5	✓				5	500 μ l					OK	250 μ l ABK, C/E / 500 μ l DI H ₂ O	
	82599	1C3564-1	✓				5						OK	100 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82600	1C3564-2	✓				5						OK	200 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82601	1C3564-5	✓				5						OK	500 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82602	1C3564-10	✓				5						OK	1000 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82603	1C3564-20	✓				5						OK	2000 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82604	1C3564-50	✓				5						OK	5000 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82605	1C3564-100	✓				5						OK	10000 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82606	1C3564-200	✓				5						OK	20000 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82607	IB											OK		
	82608	IB											OK		
	82609	1C3564-50	✓				5						OK	500 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82610	1C3564-50	✓				5						OK	500 μ l ABK, C/E / 100 μ l DI H ₂ O	
	82611	IB											OK		

MTX = Matrix Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

Sample Amt = Volume (ML) or Weight (g); MOH amt. = volume (ul) extract injected * IF pH > 2, comment on sample result.

All strike outs must be initialed, dated and reason code applied as follows: 1 = reviewer correction error; 2 = transcription error; 3 = computer miscalculation; 4 = analyst's correction error

VOLATILE ANALYSIS LOG

Batch ID: V4D3565

Date: 9/27/2017

Print Analyst Name: Robert Srof

Analyst Signature: [Signature]

Columns: DB-624 (60m x 0.25mm x 1-4 um)

Method V8260C

Initial Cal. Method *M403564*

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EOA044.

Supervisor Signature: [Signature] Date: 9/27/2014

Standard Data		
Lot #	Description	Conc.
W017-030138	F113 3rd source	100ppm
W017-2530106	8260 Int'l source	250/2500ppm

Standard Data		
Lot #	Description	Conc.

[illegible]

MTX = Matrix Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

Sample Amt = Volume (ML) or Weight (g); MOH amt. = volume (ul) extract injected * IF pH > 2, comment on sample result.

All strike outs must be initialed, dated and reason code applied as follows: 1 = reviewer correction error; 2 = transcription error; 3 = computer miscalculation; 4 = analyst's correction error

Form: OR001-10
Rev. Date: 1/10/16

219

Date: 10/12/17

Standard Data		
Lot #	Description	Conc.
	<u>(PMS SW)</u>	
	<u>Ag</u>	
	<u>Std</u>	

Standard Data		
Lot #	Description	Conc.
<u>W4-450-145.74 (10) 1L</u>		<u>100 ppm</u>
<u>W4-450-6.6 C</u>		<u>100 ppm</u>
<u>W4-450-143.4 E</u>		<u>100 ppm</u>
<u>W4-450-170 F13 210/1270 ppm</u>		
<u>W4-450 pH meter</u>		

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: [Signature]Date: 10/16/17

R	Data File	Sample ID	Test	M T X	Vial #	ALS #	Samp. Amt (ml or g)	MOH amt. (ul)	Secondary dilution	L + S	I S	Status (Data)	Comments	pH <2
	<u>4D83178A</u>	<u>AFB</u>												
	<u>83178</u>	<u>CC3584-50</u>				<u>1</u>	<u>5</u>					<u>Woh</u>	<u>[9.00 pm]</u>	
	<u>83179</u>	<u>IB</u>				<u>2</u>						<u>Woh</u>	<u>(Short story)</u>	
	<u>83140</u>	<u>W4B</u>				<u>3</u>	<u>5</u>					<u>Woh</u>	<u>THICK, LIE 2 full dose</u>	
	<u>83141</u>	<u>W4S</u>				<u>4</u>	<u>5</u>					<u>Woh</u>	<u>(Short story only BS)</u>	
	<u>83142</u>	<u>W52695-5 ml</u>	<u>21008</u> <u>MTX</u>	<u>6</u>	<u>13</u>	<u>5</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>	<u>THICK, LIE 2 full dose</u>	<u>✓</u>
	<u>83143</u>	<u>W52695-5 ml</u>	<u>✓</u>	<u>6</u>	<u>14</u>	<u>6</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>		<u>✓</u>
	<u>83144</u>	<u>IB</u>				<u>7</u>						<u>Woh</u>		
	<u>83145</u>	<u>W52695-8</u>	<u>✓</u>	<u>6</u>	<u>1</u>	<u>8</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>		<u>✓</u>
	<u>83146</u>	<u>W52695-5</u>	<u>✓</u>	<u>6</u>	<u>5</u>	<u>9</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>		<u>✓</u>
	<u>83147</u>	<u>W52695-1</u>	<u>✓</u>	<u>6</u>	<u>4</u>	<u>10</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>		<u>✓</u>
	<u>83148</u>	<u>W52695-2</u>	<u>✓</u>	<u>6</u>	<u>5</u>	<u>11</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>		<u>✓</u>
	<u>83149</u>	<u>W52695-3</u>	<u>✓</u>	<u>6</u>	<u>4</u>	<u>12</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>		<u>✓</u>
	<u>83150</u>	<u>W52695-4</u>	<u>✓</u>	<u>6</u>	<u>5</u>	<u>13</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>		<u>✓</u>
	<u>83151</u>	<u>W52695-6</u>	<u>✓</u>	<u>6</u>	<u>5</u>	<u>14</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>		<u>✓</u>
	<u>83152</u>	<u>W52695-7</u>	<u>✓</u>	<u>6</u>	<u>4</u>	<u>15</u>	<u>5</u>		<u>1x</u>			<u>Woh</u>		<u>✓</u>
	<u>83153</u>	<u>W52695-1</u>	<u>21008</u> <u>MTX</u>	<u>6</u>	<u>2</u>	<u>16</u>	<u>20/10</u>		<u>2.5x</u>			<u>Woh</u>		<u>✓</u>

MTX = Matrix Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.
 Sample Amt = Volume (ML) or Weight (g); MOH amt = volume (ul) extract injected * IF pH > 2, comment on sample result.
 All strike outs must be initialed, dated and reason code applied as follows: 1 = reviewer correction error; 2 = transcription error; 3 = computer miscalculation; 4 = analyst's correction error

Batch ID: W40 3589

Date: 15/12/18

Print Analyst Name: Dean Hearn

Analyst Signature:

Columns: DB614 60m x 0.5mm x 2.4um

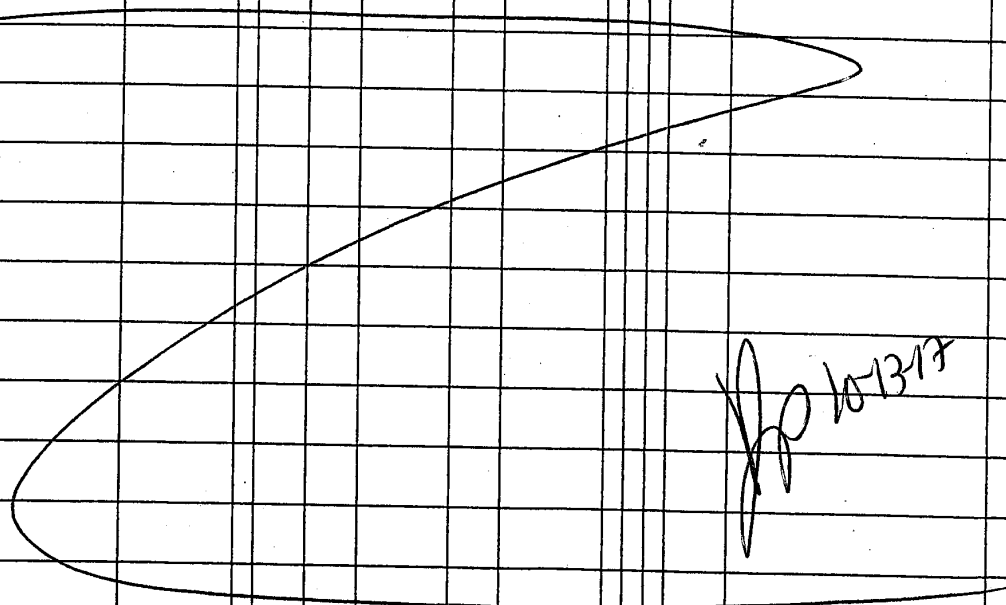
Method 82652

Initial Cal. Method MYD 3564

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature:

Date: 10/14/17

R	Data File	Sample ID	Test	M T X	Vial #	ALS #	Samp. Amt (ml or g)	MOH amt. (ul)	Secondary dilution	L + I S S U	Status (Data)	Comments	pH* <2
F0	4D83157	N5262-1	2008 PIT-YUNT MS		2		9/10		10x		Woh	+4D83153	✓
	83155	N5262-2	✓		1		5		1x		Woh		✓
D0	83158	N5262-2	✓		1		9/10		10x		Woh	+4D83155	✓
	83157	N52630-1	2008 PIT-YUNT		3		17/10		1x		Woh	+4D83158 252	✓
F0	83158	N52630-1	✓		3		4/10		25x		Woh	[G.22am]	✓
													

MTX = Matrix Designate W for water, S for soil, O for oil. L+ =Library Search. IS = Internal Standard Area. SU = Surrogate.
Sample Amt = Volume (ML) or Weight (g). MOH amt = volume (L) or weight (g) of hexane used for extraction.

Sample Amt = Volume (ML) or Weight (g); MOH amt.=volume (ul) extract injected * IF pH > 2, comment on sample result.

All strike outs must be initialed, dated and reason code applied as follows: 1 = reviewer correction error; 2 = transcription error; 3 = computer miscalculation; 4 = analyst's correction error

Form: OR001-10

Rev. Date: 1/19/16

5

MS Semi-volatiles

QC Data Summaries



Includes the following where applicable:

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

Method Blank Summary

Page 1 of 1

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6819A-MB1	4M73419.D	1	10/12/17	KM	10/11/17	OP6819A	E4M3433

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7, JC52695-1R, JC52695-2R, JC52695-3R, JC52695-4R, JC52695-5R, JC52695-6R, JC52695-7R

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	89% 29-124%
321-60-8	2-Fluorobiphenyl	85% 23-122%
1718-51-0	Terphenyl-d14	144%* a 22-130%

(a) Outside of in house control limits.

8.1.1

8

Method Blank Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6819A-MB1	3M72026.D	1	10/20/17	KM	10/11/17	OP6819A	E3M3454

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

JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7, JC52695-1R, JC52695-2R, JC52695-3R, JC52695-4R, JC52695-5R, JC52695-6R, JC52695-7R

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	72% 29-124%
321-60-8	2-Fluorobiphenyl	69% 23-122%
1718-51-0	Terphenyl-d14	114% 22-130%

8.1.2
8

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6819A-BS12	3M72025.D	1	10/20/17	KM	10/11/17	OP6819A	E3M3454
OP6819A-BSD12	3M72027.D	1	10/20/17	KM	10/11/17	OP6819A	E3M3454

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

JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7, JC52695-1R, JC52695-2R, JC52695-3R, JC52695-4R, JC52695-5R, JC52695-6R, JC52695-7R

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	1	0.796	80	0.862	86	8	31-135/38
208-96-8	Acenaphthylene	1	0.754	75	0.833	83	10	28-130/42
120-12-7	Anthracene	1	0.866	87	0.929	93	7	40-125/32
56-55-3	Benzo(a)anthracene	1	0.763	76	0.829	83	8	38-132/31
50-32-8	Benzo(a)pyrene	1	0.739	74	0.836	84	12	31-110/37
205-99-2	Benzo(b)fluoranthene	1	0.737	74	0.822	82	11	31-113/37
191-24-2	Benzo(g,h,i)perylene	1	0.585	59	0.718	72	20	18-110/54
207-08-9	Benzo(k)fluoranthene	1	0.612	61	0.687	69	12	31-119/43
218-01-9	Chrysene	1	0.854	85	0.909	91	6	43-119/33
53-70-3	Dibenzo(a,h)anthracene	1	0.712	71	0.868	87	20	20-112/50
206-44-0	Fluoranthene	1	0.774	77	0.833	83	7	48-118/27
86-73-7	Fluorene	1	0.832	83	0.905	91	8	42-123/34
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.603	60	0.733	73	19	18-113/49
91-57-6	2-Methylnaphthalene	1	0.799	80	0.816	82	2	26-126/37
91-20-3	Naphthalene	1	0.776	78	0.818	82	5	30-114/40
85-01-8	Phenanthrene	1	0.843	84	0.893	89	6	45-125/31
129-00-0	Pyrene	1	0.811	81	0.883	88	9	48-125/29

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
4165-60-0	Nitrobenzene-d5	72%	75%	29-124%
321-60-8	2-Fluorobiphenyl	66%	70%	23-122%
1718-51-0	Terphenyl-d14	108%	114%	22-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: JC52695

Account: BBLNYS Arcadis

Project: National Grid, Ilion, NY

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6819A-MS	3M72031.D	1	10/20/17	KM	10/11/17	OP6819A	E3M3454
OP6819A-MSD	3M72032.D	1	10/20/17	KM	10/11/17	OP6819A	E3M3454
JC52695-5	3M72030.D	1	10/20/17	KM	10/11/17	OP6819A	E3M3454

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7, JC52695-1R, JC52695-2R, JC52695-3R, JC52695-4R, JC52695-5R, JC52695-6R, JC52695-7R

CAS No.	Compound	JC52695-5 ug/l	Spike Q	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND	1	0.857	86	1	0.868	87	1	22-149/33
208-96-8	Acenaphthylene	ND	1	0.847	85	1	0.853	85	1	20-146/36
120-12-7	Anthracene	ND	1	1.06	106	1	0.960	96	10	28-144/32
56-55-3	Benzo(a)anthracene	ND	1	0.915	92	1	0.815	82	12	27-144/36
50-32-8	Benzo(a)pyrene	ND	1	0.899	90	1	0.723	72	22	21-113/41
205-99-2	Benzo(b)fluoranthene	ND	1	0.905	91	1	0.770	77	16	21-123/41
191-24-2	Benzo(g,h,i)perylene	ND	1	0.731	73	1	0.516	52	34	10-113/48
207-08-9	Benzo(k)fluoranthene	ND	1	0.728	73	1	0.521	52	33	23-122/42
218-01-9	Chrysene	ND	1	0.951	95	1	0.832	83	13	31-128/34
53-70-3	Dibenzo(a,h)anthracene	ND	1	0.889	89	1	0.637	64	33	12-114/47
206-44-0	Fluoranthene	ND	1	0.897	90	1	0.857	86	5	34-134/32
86-73-7	Fluorene	ND	1	0.925	93	1	0.899	90	3	32-138/33
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1	0.768	77	1	0.536	54	36	11-116/49
91-57-6	2-Methylnaphthalene	ND	1	0.856	86	1	0.902	90	5	17-148/33
91-20-3	Naphthalene	ND	1	0.878	88	1	0.959	96	9	13-141/33
85-01-8	Phenanthrene	ND	1	0.974	97	1	0.919	92	6	33-139/31
129-00-0	Pyrene	ND	1	0.973	97	1	0.937	94	4	35-142/33

CAS No.	Surrogate Recoveries	MS	MSD	JC52695-5	Limits
4165-60-0	Nitrobenzene-d5	83%	85%	76%	29-124%
321-60-8	2-Fluorobiphenyl	73%	73%	68%	23-122%
1718-51-0	Terphenyl-d14	124%	111%	86%	22-130%

* = Outside of Control Limits.

Instrument Performance Check (DFTPP)

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3E4280-DFTPP
Lab File ID: 3E96114.D
Instrument ID: GCMS3E

Injection Date: 08/15/17
Injection Time: 22:21

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	143464	37.6	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
69	Mass 69 relative abundance	164278	43.0	Pass
70	Less than 2.0% of mass 69	325	0.09 (0.20) ^a	Pass
127	40.0 - 60.0% of mass 198	196600	51.5	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	381781	100.0	Pass
199	5.0 - 9.0% of mass 198	25544	6.69	Pass
275	10.0 - 30.0% of mass 198	107941	28.3	Pass
365	1.0 - 100.0% of mass 198	12925	3.39	Pass
441	Present, but less than mass 443	49960	13.1 (73.6) ^b	Pass
442	40.0 - 100.0% of mass 198	335189	87.8	Pass
443	17.0 - 23.0% of mass 442	67904	17.8 (20.3) ^c	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E4280-IC4280	3E96115.D	08/15/17	22:43	00:22	Initial cal 100
E3E4280-IC4280	3E96116.D	08/15/17	23:09	00:48	Initial cal 80
E3E4280-ICC4280	3E96117.D	08/15/17	23:35	01:14	Initial cal 50
E3E4280-IC4280	3E96118.D	08/16/17	00:01	01:40	Initial cal 25
E3E4280-IC4280	3E96119.D	08/16/17	00:27	02:06	Initial cal 10
E3E4280-IC4280	3E96120.D	08/16/17	00:53	02:32	Initial cal 5
E3E4280-IC4280	3E96121.D	08/16/17	01:20	02:59	Initial cal 2
E3E4280-IC4280	3E96122.D	08/16/17	01:46	03:25	Initial cal 1
E3E4280-ICV4280	3E96123A.D	08/16/17	02:12	03:51	Initial cal verification 50
E3E4280-ICV4279	3E96123.D	08/16/17	02:12	03:51	Initial cal verification 50
E3E4280-ICV4280	3E96125A.D	08/16/17	04:06	05:45	Initial cal verification 50

Instrument Performance Check (DFTPP)

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3E4310-DFTPP
Lab File ID: 3E97161.D
Instrument ID: GCMS3E

Injection Date: 09/13/17
Injection Time: 09:17

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	285550	38.4	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
69	Mass 69 relative abundance	298825	40.2	Pass
70	Less than 2.0% of mass 69	1510	0.20 (0.51) ^a	Pass
127	40.0 - 60.0% of mass 198	382808	51.5	Pass
197	Less than 1.0% of mass 198	1153	0.16	Pass
198	Base peak, 100% relative abundance	742764	100.0	Pass
199	5.0 - 9.0% of mass 198	47813	6.44	Pass
275	10.0 - 30.0% of mass 198	206742	27.8	Pass
365	1.0 - 100.0% of mass 198	23702	3.19	Pass
441	Present, but less than mass 443	68216	9.18 (78.3) ^b	Pass
442	40.0 - 100.0% of mass 198	452296	60.9	Pass
443	17.0 - 23.0% of mass 442	87138	11.7 (19.3) ^c	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E4310-IC4310	3E97162.D	09/13/17	09:37	00:20	Initial cal 100
E3E4310-IC4310	3E97163.D	09/13/17	10:03	00:46	Initial cal 1
E3E4310-IC4310	3E97164.D	09/13/17	10:29	01:12	Initial cal 80
E3E4310-IC4310	3E97165.D	09/13/17	10:55	01:38	Initial cal 2
E3E4310-ICC4310	3E97166.D	09/13/17	11:21	02:04	Initial cal 50
E3E4310-IC4310	3E97167.D	09/13/17	11:47	02:30	Initial cal 5
E3E4310-IC4310	3E97168.D	09/13/17	12:13	02:56	Initial cal 25
E3E4310-IC4310	3E97169.D	09/13/17	12:39	03:22	Initial cal 10
E3E4310-ICV4310	3E97170.D	09/13/17	13:05	03:48	Initial cal verification 50
E3E4310-ICV4310	3E97171.D	09/13/17	13:31	04:14	Initial cal verification 50
E3E4310-ICV4305	3E97173.D	09/13/17	14:27	05:10	Initial cal verification 50

Instrument Performance Check (DFTPP)

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3E4350-DFTPP
Lab File ID: 3E97838A.D
Instrument ID: GCMS3E
Injection Date: 10/23/17
Injection Time: 14:45

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	211643	38.0	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
69	Mass 69 relative abundance	209354	37.6	Pass
70	Less than 2.0% of mass 69	215	0.04 (0.10) ^a	Pass
127	40.0 - 60.0% of mass 198	267719	48.0	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	557397	100.0	Pass
199	5.0 - 9.0% of mass 198	35616	6.39	Pass
275	10.0 - 30.0% of mass 198	154681	27.8	Pass
365	1.0 - 100.0% of mass 198	22565	4.05	Pass
441	Present, but less than mass 443	50376	9.04 (80.2) ^b	Pass
442	40.0 - 100.0% of mass 198	344533	61.8	Pass
443	17.0 - 23.0% of mass 442	62816	11.3 (18.2) ^c	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3E4350-CC4310	3E97839.D	10/23/17	14:57	00:12	Continuing cal 25
E3E4350-CC4280	3E97840A.D	10/23/17	15:24	00:39	Continuing cal 25
OP7146-MB1	3E97842A.D	10/23/17	16:18	01:33	Method Blank
OP7146-BS1	3E97843A.D	10/23/17	16:45	02:00	Blank Spike
ZZZZZZ	3E97844A.D	10/23/17	17:12	02:27	(unrelated sample)
JC52695-7	3E97845A.D	10/23/17	17:39	02:54	MW-8R
ZZZZZZ	3E97846A.D	10/23/17	18:06	03:21	(unrelated sample)
ZZZZZZ	3E97847A.D	10/23/17	18:33	03:48	(unrelated sample)
ZZZZZZ	3E97848A.D	10/23/17	19:00	04:15	(unrelated sample)
ZZZZZZ	3E97849A.D	10/23/17	19:27	04:42	(unrelated sample)
ZZZZZZ	3E97850A.D	10/23/17	19:54	05:09	(unrelated sample)
ZZZZZZ	3E97851A.D	10/23/17	20:21	05:36	(unrelated sample)
ZZZZZZ	3E97852A.D	10/23/17	20:48	06:03	(unrelated sample)
ZZZZZZ	3E97855A.D	10/23/17	22:08	07:23	(unrelated sample)
ZZZZZZ	3E97856A.D	10/23/17	22:35	07:50	(unrelated sample)
JC53478-1	3E97857A.D	10/23/17	23:02	08:17	(used for QC only; not part of job JC52695)
OP7146-MS	3E97858A.D	10/23/17	23:29	08:44	Matrix Spike
OP7146-MSD	3E97859A.D	10/23/17	23:56	09:11	Matrix Spike Duplicate
ZZZZZZ	3E97860A.D	10/24/17	00:23	09:38	(unrelated sample)

Instrument Performance Check (DFTPP)

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample:	E3E4350-DFTPP	Injection Date:	10/23/17
Lab File ID:	3E97838A.D	Injection Time:	14:45
Instrument ID:	GCMS3E		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	3E97861A.D	10/24/17	00:50	10:05	(unrelated sample)
ZZZZZZ	3E97863A.D	10/24/17	01:43	10:58	(unrelated sample)
ZZZZZZ	3E97864A.D	10/24/17	02:10	11:25	(unrelated sample)

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Instrument Performance Check (DFTPP)

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3M3448-DFTPP
Lab File ID: 3M71932.D
Instrument ID: GCMS3M
Injection Date: 10/17/17
Injection Time: 13:39

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	65015	46.0	Pass
68	Less than 2.0% of mass 69	1108	0.78 (1.43) ^a	Pass
69	Mass 69 relative abundance	77590	54.9	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	77165	54.6	Pass
197	Less than 1.0% of mass 198	510	0.36	Pass
198	Base peak, 100% relative abundance	141272	100.0	Pass
199	5.0 - 9.0% of mass 198	9853	6.97	Pass
275	10.0 - 30.0% of mass 198	24431	17.3	Pass
365	1.0 - 100.0% of mass 198	3248	2.30	Pass
441	Present, but less than mass 443	10694	7.57 (80.4) ^b	Pass
442	40.0 - 100.0% of mass 198	64585	45.7	Pass
443	17.0 - 23.0% of mass 442	13307	9.42 (20.6) ^c	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M3448-ICC3448	3M71933.D	10/17/17	14:34	00:55	Initial cal 1
E3M3448-IC3448	3M71934.D	10/17/17	15:26	01:47	Initial cal .5
E3M3448-IC3448	3M71935.D	10/17/17	16:08	02:29	Initial cal 2.5
E3M3448-IC3448	3M71936.D	10/17/17	16:39	03:00	Initial cal .2
E3M3448-IC3448	3M71937.D	10/17/17	17:10	03:31	Initial cal .1
E3M3448-IC3448	3M71938.D	10/17/17	17:42	04:03	Initial cal .05
E3M3448-IC3448	3M71939.D	10/17/17	18:13	04:34	Initial cal .02
E3M3448-IC3448	3M71940.D	10/17/17	18:44	05:05	Initial cal .01
E3M3448-IC3448	3M71941.D	10/17/17	19:15	05:36	Initial cal 5
E3M3448-ICV3448	3M71942.D	10/17/17	19:46	06:07	Initial cal verification 5
E3M3448-ICV3448	3M71943.D	10/17/17	20:17	06:38	Initial cal verification 1

Instrument Performance Check (DFTPP)

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3M3454-DFTPP	Injection Date: 10/20/17
Lab File ID: 3M72023.D	Injection Time: 16:14
Instrument ID: GCMS3M	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	68211	41.6	Pass
68	Less than 2.0% of mass 69	1370	0.83 (1.60) ^a	Pass
69	Mass 69 relative abundance	85625	52.2	Pass
70	Less than 2.0% of mass 69	1055	0.64 (1.23) ^a	Pass
127	40.0 - 60.0% of mass 198	87680	53.4	Pass
197	Less than 1.0% of mass 198	650	0.40	Pass
198	Base peak, 100% relative abundance	164157	100.0	Pass
199	5.0 - 9.0% of mass 198	11629	7.08	Pass
275	10.0 - 30.0% of mass 198	28339	17.3	Pass
365	1.0 - 100.0% of mass 198	3754	2.29	Pass
441	Present, but less than mass 443	14969	9.12 (90.7) ^b	Pass
442	40.0 - 100.0% of mass 198	88061	53.6	Pass
443	17.0 - 23.0% of mass 442	16500	10.1 (18.7) ^c	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M3454-CC3448	3M72024.D	10/20/17	16:33	00:19	Continuing cal .5
OP6819A-BS12	3M72025.D	10/20/17	17:15	01:01	Blank Spike
OP6819A-MB1	3M72026.D	10/20/17	17:46	01:32	Method Blank
OP6819A-BSD12	3M72027.D	10/20/17	18:18	02:04	Blank Spike Duplicate
ZZZZZZ	3M72028.D	10/20/17	18:50	02:36	(unrelated sample)
ZZZZZZ	3M72029.D	10/20/17	19:22	03:08	(unrelated sample)
JC52695-5	3M72030.D	10/20/17	19:54	03:40	MW-6
JC52695-5R	3M72030.D	10/20/17	19:54	03:40	MW-6
OP6819A-MS	3M72031.D	10/20/17	20:26	04:12	Matrix Spike
OP6819A-MSD	3M72032.D	10/20/17	20:57	04:43	Matrix Spike Duplicate
JC52695-2	3M72033.D	10/20/17	21:29	05:15	MW-3
JC52695-2R	3M72033.D	10/20/17	21:29	05:15	MW-3
JC52695-7R	3M72034.D	10/20/17	22:01	05:47	MW-8R
JC52695-7	3M72034.D	10/20/17	22:01	05:47	MW-8R
JC52695-6	3M72035.D	10/20/17	22:33	06:19	DUP-100517
JC52695-6R	3M72035.D	10/20/17	22:33	06:19	DUP-100517
JC52695-3	3M72036.D	10/20/17	23:05	06:51	MW-7
JC52695-3R	3M72036.D	10/20/17	23:05	06:51	MW-7
JC52695-1	3M72037.D	10/20/17	23:37	07:23	MW-13

8.4.5
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Instrument Performance Check (DFTPP)

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample:	E3M3454-DFTPP	Injection Date:	10/20/17
Lab File ID:	3M72023.D	Injection Time:	16:14
Instrument ID:	GCMS3M		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
JC52695-1R	3M72037.D	10/20/17	23:37	07:23	MW-13
JC52695-4R	3M72038.D	10/21/17	00:08	07:54	MW-2R
JC52695-4	3M72038.D	10/21/17	00:08	07:54	MW-2R
ZZZZZZ	3M72039.D	10/21/17	00:40	08:26	(unrelated sample)
ZZZZZZ	3M72040.D	10/21/17	01:12	08:58	(unrelated sample)
ZZZZZZ	3M72041.D	10/21/17	01:44	09:30	(unrelated sample)

8.4.5
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Instrument Performance Check (DFTPP)

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E4M3405-DFTPP
Lab File ID: 4M72936.D
Instrument ID: GCMS4M

Injection Date: 09/06/17
Injection Time: 12:22

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	25057	34.4	Pass
68	Less than 2.0% of mass 69	244	0.33 (0.81) ^a	Pass
69	Mass 69 relative abundance	30161	41.3	Pass
70	Less than 2.0% of mass 69	378	0.52 (1.25) ^a	Pass
127	40.0 - 60.0% of mass 198	37368	51.2	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	72941	100.0	Pass
199	5.0 - 9.0% of mass 198	5321	7.29	Pass
275	10.0 - 30.0% of mass 198	14758	20.2	Pass
365	1.0 - 100.0% of mass 198	2727	3.74	Pass
441	Present, but less than mass 443	10345	14.2 (80.3) ^b	Pass
442	40.0 - 100.0% of mass 198	66173	90.7	Pass
443	17.0 - 23.0% of mass 442	12877	17.7 (19.5) ^c	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E4M3405-IC3405	4M72937.D	09/06/17	12:45	00:23	Initial cal 5
E4M3405-IC3405	4M72938.D	09/06/17	13:17	00:55	Initial cal 2.5
E4M3405-ICC3405	4M72939.D	09/06/17	13:49	01:27	Initial cal 1
E4M3405-IC3405	4M72940.D	09/06/17	14:21	01:59	Initial cal 0.5
E4M3405-IC3405	4M72941.D	09/06/17	14:54	02:32	Initial cal 0.2
E4M3405-IC3405	4M72942.D	09/06/17	15:26	03:04	Initial cal 0.1
E4M3405-IC3405	4M72943.D	09/06/17	15:57	03:35	Initial cal 0.05
E4M3405-IC3405	4M72944.D	09/06/17	16:29	04:07	Initial cal 0.02
E4M3405-IC3405	4M72945.D	09/06/17	17:00	04:38	Initial cal 0.01
E4M3405-ICV3405	4M72946.D	09/06/17	17:30	05:08	Initial cal verification 5
E4M3405-ICV3405	4M72947.D	09/06/17	18:01	05:39	Initial cal verification 1

Instrument Performance Check (DFTPP)

Page 1 of 1

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E4M3433-DFTPP	Injection Date: 10/12/17
Lab File ID: 4M73405.D	Injection Time: 10:55
Instrument ID: GCMS4M	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	31448	37.9	Pass
68	Less than 2.0% of mass 69	294	0.35 (0.76) ^a	Pass
69	Mass 69 relative abundance	38708	46.6	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	44120	53.1	Pass
197	Less than 1.0% of mass 198	412	0.50	Pass
198	Base peak, 100% relative abundance	83083	100.0	Pass
199	5.0 - 9.0% of mass 198	5676	6.83	Pass
275	10.0 - 30.0% of mass 198	16941	20.4	Pass
365	1.0 - 100.0% of mass 198	2719	3.27	Pass
441	Present, but less than mass 443	9017	10.9 (66.2) ^b	Pass
442	40.0 - 100.0% of mass 198	65701	79.1	Pass
443	17.0 - 23.0% of mass 442	13628	16.4 (20.7) ^c	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

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

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E4M3433-CC3405	4M73406.D	10/12/17	11:10	00:15	Continuing cal 1
OP6529A-MB1	4M73409.D	10/12/17	12:56	02:01	Method Blank
ZZZZZZ	4M73410.D	10/12/17	13:26	02:31	(unrelated sample)
ZZZZZZ	4M73412.D	10/12/17	13:57	03:02	(unrelated sample)
ZZZZZZ	4M73413.D	10/12/17	14:27	03:32	(unrelated sample)
ZZZZZZ	4M73414.D	10/12/17	14:58	04:03	(unrelated sample)
ZZZZZZ	4M73415.D	10/12/17	15:28	04:33	(unrelated sample)
ZZZZZZ	4M73416.D	10/12/17	15:59	05:04	(unrelated sample)
ZZZZZZ	4M73417.D	10/12/17	16:29	05:34	(unrelated sample)
ZZZZZZ	4M73418.D	10/12/17	16:59	06:04	(unrelated sample)
OP6819A-MB1	4M73419.D	10/12/17	17:30	06:35	Method Blank
ZZZZZZ	4M73421.D	10/12/17	18:31	07:36	(unrelated sample)
ZZZZZZ	4M73422.D	10/12/17	19:01	08:06	(unrelated sample)
ZZZZZZ	4M73423.D	10/12/17	19:31	08:36	(unrelated sample)
ZZZZZZ	4M73424.D	10/12/17	20:01	09:06	(unrelated sample)

Internal Standard Area Summary

Page 1 of 1

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Check Std: E3E4350-CC4310	Injection Date: 10/23/17
Lab File ID: 3E97839.D	Injection Time: 14:57
Instrument ID: GCMS3E	Method: SW846 8270D BY SIM

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	838433	3.78	3071543	4.73	1772685	6.48	2918915	8.49	2932331	12.57	2185490	14.63
Upper Limit ^a	1676866	4.28	6143086	5.23	3545370	6.98	5837830	8.99	5864662	13.07	4370980	15.13
Lower Limit ^b	419217	3.28	1535772	4.23	886343	5.98	1459458	7.99	1466166	12.07	1092745	14.13

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
OP7146-MB1	711329	3.78	2597072	4.72	1508614	6.48	2444999	8.49	2154889	12.56	1918284	14.63
OP7146-BS1	643909	3.78	2142436	4.73	1159190	6.48	1879583	8.49	1882655	12.57	1347279	14.63
ZZZZZZ	628876	3.78	2341431	4.72	1386505	6.48	2308611	8.49	2118951	12.56	1962570	14.63
JC52695-7	566877	3.78	1996311	4.72	1153365	6.48	1887398	8.49	1804304	12.56	1682411	14.63
ZZZZZZ	817645	3.78	3008037	4.72	1668233	6.48	2345702	8.49	2178359	12.56	1855694	14.63
ZZZZZZ	735900	3.78	2733430	4.72	1555668	6.48	2396219	8.49	1887944	12.56	1580421	14.63
ZZZZZZ	776072	3.78	2860508	4.72	1669058	6.48	2704898	8.49	2297446	12.56	1990567	14.63
ZZZZZZ	869268	3.78	3185484	4.72	1828747	6.48	2886481	8.49	2502416	12.56	2142556	14.63
ZZZZZZ	568691	3.78	2144834	4.72	1250133	6.48	2051354	8.49	1948797	12.56	1855681	14.63
ZZZZZZ	549691	3.78	2087671	4.72	1293759	6.48	2200692	8.49	2144621	12.56	1952038	14.63
ZZZZZZ	561704	3.78	2023616	4.72	1167527	6.48	1957640	8.49	1888964	12.56	1770009	14.63
ZZZZZZ	465459	3.78	1770816	4.73	964975	6.48	1559468	8.49	1284671*	12.57	1172017	14.64
ZZZZZZ	547316	3.78	2015040	4.72	1147344	6.48	1914291	8.49	1770606	12.56	1585499	14.63
JC53478-1	554957	3.78	2048414	4.72	1146058	6.48	1820563	8.49	1546571	12.56	1221080	14.63
OP7146-MS	557229	3.78	1908369	4.73	1021030	6.48	1573390	8.49	1514934	12.57	1071426*	14.64
OP7146-MSD	553728	3.78	1947009	4.73	1051622	6.48	1628679	8.49	1486373	12.57	1038498*	14.64
ZZZZZZ	536793	3.78	1878963	4.72	1025870	6.48	1404321*	8.49	877762*	12.60	729992*	14.68
ZZZZZZ	495029	3.78	1821364	4.72	974242	6.48	1286747*	8.50	1099616*	12.58	845054*	14.65
ZZZZZZ	908301	3.78	3384005	4.73	1824826	6.48	2830252	8.50	2095828	12.58	1689812	14.66
ZZZZZZ	440555	3.78	1612248	4.73	884864*	6.48	1328841*	8.50	1045034*	12.58	810965*	14.66

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

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

Internal Standard Area Summary

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Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Check Std: E3M3454-CC3448	Injection Date: 10/20/17
Lab File ID: 3M72024.D	Injection Time: 16:33
Instrument ID: GCMS3M	Method: SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	184504	8.81	225128	11.75	313307	15.97	188172	20.59
Upper Limit ^a	369008	9.31	450256	12.25	626614	16.47	376344	21.09
Lower Limit ^b	92252	8.31	112564	11.25	156654	15.47	94086	20.09

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
OP6819A-BS12	166729	8.81	210303	11.75	282687	15.97	181531	20.59
OP6819A-MB1	166110	8.81	216740	11.75	287745	15.97	192726	20.59
OP6819A-BSD12	152020	8.81	190097	11.75	253964	15.97	167717	20.59
ZZZZZZ	140522	8.81	200149	11.75	247177	15.97	158955	20.59
ZZZZZZ	165732	8.81	226932	11.75	267731	15.99	147389	20.60
JC52695-5	143287	8.81	194803	11.75	242616	15.97	160265	20.59
JC52695-5R	143287	8.81	194803	11.75	242616	15.97	160265	20.59
OP6819A-MS	164200	8.81	226004	11.75	268559	15.97	177608	20.59
OP6819A-MSD	150992	8.81	213329	11.75	266857	15.97	172763	20.59
JC52695-2	143754	8.79	205494	11.75	268021	15.97	154901	20.60
JC52695-2R	143754	8.79	205494	11.75	268021	15.97	154901	20.60
JC52695-7R	142184	8.81	217379	11.75	272653	15.97	166545	20.59
JC52695-7	142184	8.81	217379	11.75	272653	15.97	166545	20.59
JC52695-6	143613	8.79	197794	11.75	259693	15.97	153289	20.60
JC52695-6R	143613	8.79	197794	11.75	259693	15.97	153289	20.60
JC52695-3	147660	8.79	211240	11.75	287945	15.97	181419	20.59
JC52695-3R	147660	8.79	211240	11.75	287945	15.97	181419	20.59
JC52695-1	157205	8.79	218058	11.75	286014	15.97	165956	20.60
JC52695-1R	157205	8.79	218058	11.75	286014	15.97	165956	20.60
JC52695-4R	161985	8.79	218544	11.75	286229	15.97	167543	20.60
JC52695-4	161985	8.79	218544	11.75	286229	15.97	167543	20.60
ZZZZZZ	170614	8.79	259576	11.75	300351	15.97	183394	20.59
ZZZZZZ	142903	8.79	200322	11.75	288723	15.97	159942	20.60
ZZZZZZ	147636	8.79	216042	11.75	283351	15.97	156303	20.59

IS 1 = 1-Methylnaphthalene-d10
IS 2 = Fluorene-d10
IS 3 = Fluoranthene-d10
IS 4 = Benzo(a)pyrene-d12

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

8.5.2
8

Internal Standard Area Summary

Page 1 of 1

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Check Std: E4M3433-CC3405	Injection Date: 10/12/17
Lab File ID: 4M73406.D	Injection Time: 11:10
Instrument ID: GCMS4M	Method: SW846 8270D BY SIM

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
Check Std	142562	9.34	256086	12.28	303472	16.49	271120	21.10
Upper Limit ^a	285124	9.84	512172	12.78	606944	16.99	542240	21.60
Lower Limit ^b	71281	8.84	128043	11.78	151736	15.99	135560	20.60

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT
OP6529A-MB1	110606	9.34	171777	12.28	278424	16.49	220676	21.10
ZZZZZZ	136573	9.34	223033	12.28	323832	16.49	237469	21.10
ZZZZZZ	169522	9.34	284087	12.28	385988	16.49	265767	21.10
ZZZZZZ	215833	9.34	367611	12.28	472100	16.49	321556	21.10
ZZZZZZ	148466	9.34	244056	12.28	338698	16.49	225466	21.10
ZZZZZZ	144453	9.34	234656	12.28	333855	16.49	219443	21.10
ZZZZZZ	137855	9.34	217701	12.28	324769	16.49	216529	21.10
ZZZZZZ	144456	9.34	211473	12.28	369655	16.49	247615	21.10
ZZZZZZ	139243	9.34	204008	12.28	350607	16.49	238421	21.10
OP6819A-MB1	133541	9.34	190923	12.28	322149	16.49	215108	21.10
ZZZZZZ	119763	9.36	175894	12.30	319608	16.49	221966	21.10
ZZZZZZ	170304	9.34	293556	12.28	391576	16.49	253765	21.10
ZZZZZZ	139293	9.34	215150	12.28	327542	16.49	214915	21.10
ZZZZZZ	155557	9.34	278791	12.28	516263	16.53	181223	21.10

IS 1 = 1-Methylnaphthalene-d10
IS 2 = Fluorene-d10
IS 3 = Fluoranthene-d10
IS 4 = Benzo(a)pyrene-d12

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

8.5.3

8

Surrogate Recovery Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Method: SW846 8270D BY SIM	Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JC52695-1	3M72037.D	75	70	98
JC52695-2	3M72033.D	75	65	87
JC52695-3	3M72036.D	65	61	70
JC52695-4	3M72038.D	65	64	66
JC52695-5	3M72030.D	76	68	86
JC52695-6	3M72035.D	69	63	103
JC52695-7	3E97845A.D	67	70	70
JC52695-7	3M72034.D	73	62	83
JC52695-1R	3M72037.D	75	70	98
JC52695-2R	3M72033.D	75	65	87
JC52695-3R	3M72036.D	65	61	70
JC52695-4R	3M72038.D	65	64	66
JC52695-5R	3M72030.D	76	68	86
JC52695-6R	3M72035.D	69	63	103
JC52695-7R	3M72034.D	73	62	83
OP6819A-BS12	3M72025.D	72	66	108
OP6819A-BSD12	3M72027.D	75	70	114
OP6819A-MB1	4M73419.D	89	85	144* a
OP6819A-MB1	3M72026.D	72	69	114
OP6819A-MS	3M72031.D	83	73	124
OP6819A-MSD	3M72032.D	85	73	111

Surrogate Compounds	Recovery Limits
S1 = Nitrobenzene-d5	29-124%
S2 = 2-Fluorobiphenyl	23-122%
S3 = Terphenyl-d14	22-130%

(a) Outside of in house control limits.

Initial Calibration Summary

Job Number:

JC52695

Account:

BBLNYS Arcadis

Project:

National Grid, Ilion, NY

Sample:

E3E4280-ICC4280

Lab FileID:

3E96117.D

Response Factor Report SVOAMS3E

Method : C:\MSDCHEM\1\METHODS\M3E4280.M (RTE Integrator)

Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:53:08 2017

Last Update : Wed Aug 16 09:53:08 2017

Response via : Initial Calibration

Calibration Files

2 =3e96121.D 5 =3e96120.D 25 =3e96118.D 80 =3e96116.D

100 =3e96115.D 50 =3e96117.D 1 =3e96122.D 10 =3e96119.D

Compound	2	5	25	80	100	50	1	10	Avg %RSD

101) 1,4-Dichlorobenzene-d

-----ISTD-----

102) Benzaldehyde 0.510 0.502 0.596 0.615 0.647 0.628 0.453 0.492 0.555 13.32

103) Acenaphthene-d10a

-----ISTD-----

104) 1,2,4,5-Tetr 0.577 0.529 0.601 0.564 0.613 0.539 0.578 0.521 0.565 5.87

105) Phenanthrene-d10a

-----ISTD-----

106) Atrazine 0.091 0.096 0.128 0.119 0.126 0.114 0.074 0.100 0.106 17.75

107) o-Terphenyl 0.511 0.488 0.622 0.586 0.623 0.554 0.455 0.495 0.542 11.79

108) 1-Chloroocta 0.197 0.212 0.295 0.281 0.287 0.266 0.224 0.252 15.74

109) I Chrysene-d12a

-----ISTD-----

110) benzidine 0.090 0.183 0.348 0.374 0.397 0.425 0.263 0.297 41.68

---- Quadratic regression ---- Coefficient = 0.9957

Response Ratio = -0.02920 + 0.42964 *A + -0.01103 *A^2

111) I Naphthalene-d8a

-----ISTD-----

112) Hydroquinone 0.202 0.340 0.319 0.322 0.316 0.235 0.289 19.53

113) Phenanthrene-d10b

-----ISTD-----

114) Pentachloron 0.016 0.018 0.024 0.024 0.026 0.022 0.019 0.021# 17.55

(#) = Out of Range ### Number of calibration levels exceeded format ###

M3E4279.M

Wed Aug 16 15:33:45 2017

8.7.1

8

Initial Calibration Verification

Page 1 of 1

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3E4280-ICV4280
Lab FileID: 3E96123A.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E4280\3e96123a.D Vial: 10
 Acq On : 16 Aug 2017 2:12 am Operator: chriss2
 Sample : icv4280-50 Inst : SV0AMS3E
 Misc : op4655,e3e4280,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E4279.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:53:08 2017
 Last Update : Wed Aug 16 09:53:08 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
101	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	79	0.00	4.33
102	Benzaldehyde	0.555	0.570	-2.7	72	0.00	4.00
103	Acenaphthene-d10a	1.000	1.000	0.0	76	0.00	7.32
104	1,2,4,5-Tetrachlorobenzen	0.565	0.601	-6.4	85	0.00	6.26
105	Phenanthrene-d10a	1.000	1.000	0.0	77	0.00	9.44
106	Atrazine	0.106	0.103	2.8	69	0.02	9.14
109 I	Chrysene-d12a	1.000	1.000	0.0	77	0.01	13.59
	----- True Calc. % Drift -----						
110 T	benzidine	50.000	37.356	25.3	53	-0.01	11.60

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 3e96117a.D M3E4279.M Wed Aug 16 16:07:16 2017

8.7.2
8

Initial Calibration Verification

Page 1 of 1

Job Number: JC52695

Sample: E3E4280-ICV4280

Account: BBLNYS Arcadis

Lab FileID: 3E96125A.D

Project: National Grid, Ilion, NY

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E4280\3e96125a.D Vial: 12
Acq On : 16 Aug 2017 4:06 am Operator: chriss2
Sample : icv4280-50 Inst : SV0AMS3E
Misc : op4655,e3e4280,1000,,,1,1 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E4279.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:53:08 2017
Last Update : Wed Aug 16 09:53:08 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
111 I	Naphthalene-d8a	1.000	1.000	0.0	128	0.00	5.35
112 T	Hydroquinone	0.289	0.341	-18.0	138	0.01	5.80

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e96117a.D M3E4279.M Wed Aug 16 15:52:04 2017

8.7.3

8

Initial Calibration Summary

Page 1 of 3

Job Number: JC52695

Sample: E3E4310-ICC4310

Account: BBLNYS Arcadis

Lab FileID: 3E97166.D

Project: National Grid, Ilion, NY

Response Factor Report SVOAMS3E

Method : C:\MSDCHEM\1\METHODS\M3E4310.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 13:26:04 2017
 Last Update : Wed Sep 13 13:26:04 2017
 Response via : Initial Calibration

Calibration Files

2 =3e97165.D 5 =3e97167.D 25 =3e97168.D 80 =3e97164.D
 100 =3e97162.D 50 =3e97166.D 1 =3e97163.D 10 =3e97169.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD

1) I 1,4-Dichlorobenzene-d	-----ISTD-----									
2) 1,4-Dioxane	0.590	0.584	0.543	0.554	0.535	0.534	0.617	0.554	0.564	5.29
3) Pyridine	1.219	1.298	1.333	1.410	1.388	1.371	0.939	1.314	1.284	11.82
4) N-Nitrosodim	0.688	0.732	0.772	0.801	0.784	0.789	0.688	0.767	0.753	5.95
5) 2-Fluorophen	1.185	1.253	1.348	1.419	1.423	1.353	1.147	1.245	1.297	8.04
6) Indene	2.244	2.301	2.251	2.242	1.820	2.223	2.321	2.274	2.210	7.28
7) Cumene	3.329	3.323	3.305	3.303	2.722	3.294	3.590	3.316	3.273	7.43
8) Phenol-d5	1.610	1.647	1.725	1.811	1.739	1.744	1.689	1.691	1.707	3.65
9) Phenol	1.680	1.832	1.758	1.720	1.537	1.777	1.409	1.699	1.676	8.26
10) Aniline	1.998	2.081	2.036	2.123	2.018	2.015	2.032	2.054	2.045	1.98
11) bis(2-Chloro	1.345	1.250	1.250	1.287	1.230	1.239	1.326	1.268	1.274	3.28
12) 2-Chlorophen	1.361	1.377	1.386	1.421	1.425	1.378	1.511	1.412	1.409	3.35
13) Decane	1.680	1.616	1.512	1.538	1.330	1.476	1.707	1.579	1.555	7.76
14) 1,3-Dichloro	1.577	1.577	1.531	1.582	1.542	1.512	1.648	1.560	1.566	2.63
15) 1,4-Dichloro	1.656	1.599	1.575	1.579	1.519	1.525	1.660	1.591	1.588	3.27
16) Benzyl alcoh	0.769	0.826	0.843	0.875	0.818	0.855	0.792	0.843	0.828	4.16
17) 1,2-Dichloro	1.518	1.508	1.467	1.452	1.414	1.435	1.518	1.482	1.474	2.66
18) Acetophenone	1.765	1.818	1.789	1.784	1.660	1.760	1.736	1.792	1.763	2.74
19) 2-Methylphen	1.227	1.177	1.228	1.223	1.146	1.167	1.222	1.244	1.204	2.95
20) 2,2'-oxybis(	0.456	0.436	0.431	0.427	0.407	0.421	0.483	0.452	0.439	5.45
21) 3&4-Methylph	1.221	1.249	1.274	1.282	1.242	1.242	1.190	1.250	1.244	2.33
22) n-Nitroso-di	0.962	0.974	0.944	0.945	0.847	0.926	1.105	0.974	0.960	7.47
23) Hexachloroet	0.501	0.454	0.458	0.441	0.452	0.436	0.532	0.474	0.468	7.00
24) I Naphthalene-d8	-----ISTD-----									
25) Nitrobenzene	0.387	0.393	0.397	0.416	0.409	0.406	0.354	0.392	0.394	4.78
26) Nitrobenzene	0.395	0.386	0.388	0.416	0.393	0.398	0.372	0.388	0.392	3.24
27) Quinoline	0.652	0.684	0.653	0.651	0.647	0.636	0.633	0.674	0.654	2.67
28) Isophorone	0.633	0.644	0.662	0.694	0.670	0.665	0.644	0.641	0.656	3.05
29) 2-Nitropheno	0.177	0.188	0.205	0.218	0.222	0.209	0.163	0.194	0.197	10.44
30) 2,4-Dimethyl	0.333	0.351	0.342	0.359	0.349	0.342	0.343	0.346	0.346	2.24
31) Benzoic acid	0.129	0.177	0.255	0.299	0.288	0.276	0.121	0.218	0.220	32.12
---- Quadratic regression ---- Coefficient = 0.9986										
Response Ratio = -0.01152 + 0.28289 *A + 0.00568 *A^2										
32) bis(2-Chloro	0.387	0.381	0.381	0.400	0.389	0.377	0.377	0.380	0.384	2.05
33) 2,4-Dichloro	0.255	0.280	0.280	0.284	0.297	0.277	0.227	0.276	0.272	7.98
34) 2,6-Dichloro	0.263	0.276	0.276	0.274	0.281	0.270	0.258	0.277	0.272	2.88
35) 1,3,5-Trichl	0.326	0.322	0.325	0.329	0.343	0.321	0.339	0.322	0.328	2.56
36) 1,2,4-Trichl	0.308	0.310	0.299	0.301	0.306	0.302	0.301	0.305	0.304	1.27
37) 1,2,3-Trichl	0.307	0.299	0.289	0.271	0.274	0.271	0.281	0.293	0.286	4.72
38) Naphthalene	1.093	1.111	1.074	0.866	0.721	1.040	1.112	1.068	1.010	14.02
39) 4-Chloroanil	0.428	0.461	0.453	0.471	0.454	0.455	0.384	0.454	0.445	6.15
40) 2,3-Dichloro	0.327	0.345	0.316	0.315	0.298	0.309	0.331	0.329	0.321	4.60
41) Caprolactam	0.145	0.159	0.161	0.166	0.157	0.162	0.129	0.159	0.155	7.90
42) Hexachlorobu	0.152	0.157	0.149	0.139	0.148	0.140	0.154	0.153	0.149	4.38

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Initial Calibration Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3E4310-ICC4310
Lab FileID: 3E97166.D

43)	4-Chloro-3-m	0.269	0.301	0.295	0.298	0.291	0.293	0.286	0.291	0.291	3.36
44)	2-Methylnaph	0.622	0.638	0.610	0.616	0.582	0.596	0.611	0.623	0.612	2.82
45)	1-Methylnaph	0.653	0.644	0.620	0.617	0.579	0.603	0.661	0.637	0.627	4.35
46)	Dimethylnaph	0.615	0.625	0.583	0.569	0.533	0.561	0.621	0.603	0.589	5.59
47)	I Acenaphthene-d10	-----ISTD-----									
48)	Hexachlorocy	0.139	0.177	0.249	0.279	0.316	0.273	0.107	0.217	0.220	33.34
---- Quadratic regression ---- Coefficient = 0.9984											
Response Ratio = -0.00459 + 0.21878 *A + 0.01853 *A^2											
49)	2,4,6-Trichl	0.301	0.329	0.335	0.340	0.345	0.338	0.340	0.332	0.333	4.16
50)	2,4,5-Trichl	0.345	0.339	0.357	0.350	0.366	0.357	0.323	0.371	0.351	4.36
51)	2-Fluorobiph	1.350	1.363	1.334	1.352	1.299	1.340	1.355	1.348	1.343	1.47
52)	2-Chloronaph	1.108	1.086	1.087	1.118	1.092	1.129	1.112	1.098	1.104	1.41
53)	Biphenyl	1.534	1.499	1.519	1.605	1.385	1.586	1.470	1.512	1.514	4.52
54)	2-Nitroanili	0.368	0.389	0.410	0.464	0.444	0.446	0.349	0.386	0.407	10.04
55)	Dimethylphth	1.217	1.225	1.215	1.215	1.207	1.219	1.233	1.226	1.220	0.66
56)	Acenaphthyle	1.850	1.907	1.910	1.970	1.694	1.927	1.941	1.959	1.895	4.71
57)	2,6-Dinitrot	0.263	0.272	0.278	0.292	0.282	0.284	0.258	0.274	0.275	4.12
58)	3-Nitroanili	0.290	0.330	0.355	0.379	0.363	0.368	0.267	0.352	0.338	11.78
59)	Acenaphthene	1.231	1.251	1.205	1.292	1.225	1.239	1.241	1.231	1.239	2.02
60)	2,4-Dinitrop	0.037	0.075	0.143	0.183	0.182	0.172		0.109	0.129	44.29
---- Quadratic regression ---- Coefficient = 0.9991											
Response Ratio = -0.02558 + 0.17181 *A + 0.00347 *A^2											
61)	4-Nitropheno	0.093	0.119	0.164	0.192	0.173	0.180		0.140	0.151	23.71
---- Quadratic regression ---- Coefficient = 0.9961											
Response Ratio = -0.01298 + 0.20704 *A + -0.00964 *A^2											
62)	Dibenzofuran	1.615	1.569	1.549	1.601	1.524	1.585	1.554	1.576	1.572	1.87
63)	2,4-Dinitrot	0.325	0.357	0.367	0.384	0.370	0.382	0.275	0.370	0.354	10.39
64)	2,3,4,6-Tetr	0.266	0.256	0.259	0.259	0.257	0.258	0.233	0.267	0.257	4.10
65)	Diethylphtha	1.224	1.258	1.241	1.282	1.221	1.264	1.233	1.235	1.245	1.71
66)	Fluorene	1.274	1.294	1.256	1.330	1.248	1.292	1.252	1.286	1.279	2.13
67)	4-Chlorophen	0.560	0.561	0.540	0.530	0.497	0.530	0.620	0.567	0.551	6.56
68)	4-Nitroanili	0.261	0.295	0.324	0.348	0.332	0.345	0.249	0.320	0.309	12.08
69)	I Phenanthrene-d10	-----ISTD-----									
70)	4,6-Dinitro-		0.102	0.132	0.146	0.150	0.140		0.114	0.131	14.53
71)	n-Nitrosodip	0.515	0.546	0.546	0.575	0.579	0.576	0.568	0.543	0.556	3.99
72)	1,2-Diphenyl	0.774	0.799	0.840	0.920	0.914	0.893	0.767	0.807	0.839	7.44
73)	2,4,6-Tribo	0.111	0.119	0.120	0.099	0.108	0.110	0.111	0.122	0.112	6.74
74)	4-Bromopheny	0.191	0.190	0.187	0.180	0.188	0.188	0.179	0.191	0.187	2.53
75)	Hexachlorobe	0.231	0.232	0.213	0.188	0.195	0.199	0.221	0.232	0.214	8.44
76)	Pentachlorop	0.088	0.105	0.126	0.127	0.136	0.128		0.116	0.118	13.84
77)	Phenanthrene	1.113	1.073	1.043	1.115	1.106	1.096	1.132	1.050	1.091	2.97
78)	Anthracene	1.097	1.111	1.073	1.100	1.060	1.100	1.049	1.082	1.084	2.02
79)	Carbazole	0.961	0.973	0.967	1.055	1.044	1.023	0.879	0.973	0.984	5.72
80)	Di-n-butylph	1.142	1.181	1.272	1.400	1.354	1.364	1.158	1.212	1.260	8.07
81)	Fluoranthene	1.040	1.060	1.115	1.208	1.192	1.172	1.043	1.098	1.116	6.06
82)	Octadecane	0.493	0.499	0.518	0.581	0.577	0.559	0.450	0.497	0.522	8.87
83)	I Chrysene-d12	-----ISTD-----									
84)	Pyrene	1.248	1.290	1.274	1.321	1.366	1.300	1.255	1.274	1.291	2.97
85)	Terphenyl-d1	0.809	0.823	0.813	0.830	0.852	0.834	0.795	0.812	0.821	2.14
86)	Butylbenzylp	0.524	0.542	0.609	0.695	0.699	0.646	0.528	0.558	0.600	12.15
87)	Benzo[a]anth	1.136	1.109	1.121	1.166	1.194	1.141	1.213	1.100	1.147	3.52
88)	3,3'-Dichlor	0.361	0.387	0.402	0.396	0.397	0.404	0.360	0.385	0.387	4.49
89)	Chrysene	1.104	1.097	1.064	1.042	1.017	1.057	1.094	1.077	1.069	2.79
90)	bis(2-Ethylh	0.689	0.736	0.783	0.857	0.855	0.828	0.693	0.727	0.771	9.03

Initial Calibration Summary

Job Number: JC52695
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Project: National Grid, Ilion, NY

Sample: E3E4310-ICC4310
Lab FileID: 3E97166.D

91) I Perylene-d12 -----ISTD-----
92) Di-n-octylph 1.162 1.297 1.603 2.031 2.094 1.852 1.179 1.352 1.571 24.16
---- Quadratic regression ---- Coefficient = 0.9997
Response Ratio = -0.04451 + 1.62864 *A + 0.19890 *A^2

93) Benzo[b]fluo 1.112 1.139 1.341 1.526 1.492 1.444 1.111 1.195 1.295 13.63
94) Benzo[k]fluo 1.194 1.258 1.203 1.118 1.121 1.186 1.179 1.183 1.180 3.81
95) Benzo[a]pyre 1.018 1.023 1.147 1.176 1.166 1.175 1.031 1.050 1.098 6.71
96) Indeno[1,2,3 0.849 0.894 1.026 1.139 1.161 1.120 0.830 0.927 0.993 13.63
97) Dibenz(a,h)a 0.838 0.847 0.989 1.087 1.102 1.044 0.766 0.891 0.945 13.43
98) Dibenz[a,h]a 0.972 1.000 1.114 1.099 1.062 1.101 0.948 1.050 1.043 6.07
99) 7,12-Dimethy 0.535 0.543 0.624 0.661 0.663 0.646 0.556 0.574 0.600 9.02
100) Benzo[g,h,i] 1.005 1.027 1.090 1.077 1.042 1.088 0.971 1.016 1.040 4.14

(#) = Out of Range ### Number of calibration levels exceeded format ###

M3E4310.M Wed Sep 13 17:16:18 2017

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Initial Calibration Verification

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: E3E4310-ICV4310
 Lab FileID: 3E97170.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E4310\3e97170.D Vial: 10
 Acq On : 13 Sep 2017 1:05 pm Operator: kristis
 Sample : icv4310-50 Inst : SVOAMS3E
 Misc : op4655,e3e4310,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E4310.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 13:26:04 2017
 Last Update : Wed Sep 13 13:26:04 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.

1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	89	0.00	3.98
2 t	1,4-Dioxane	0.564	0.539	4.4	89	0.00	1.37
3 t	Pyridine	1.284	1.474	-14.8	95	0.00	1.62
4 t	N-Nitrosodimethylamine	0.753	0.706	6.2	79	0.00	1.60
6 t	Indene	2.210	2.522	-14.1	101	0.00	4.17
7 t	Cumene	3.273	3.330	-1.7	90	0.00	3.35
9 t	Phenol	1.676	1.884	-12.4	94	0.00	3.76
10	Aniline	2.045	2.094	-2.4	92	0.00	3.73
11 t	bis(2-Chloroethyl)ether	1.274	1.404	-10.2	101	0.00	3.80
12 t	2-Chlorophenol	1.409	1.345	4.5	87	0.00	3.83
13 t	Decane	1.555	1.595	-2.6	96	0.00	3.88
14 t	1,3-Dichlorobenzene	1.566	1.550	1.0	91	0.00	3.93
15 t	1,4-Dichlorobenzene	1.588	1.539	3.1	89	0.00	3.99
16 t	Benzyl alcohol	0.828	0.932	-12.6	97	0.00	4.10
17 t	1,2-Dichlorobenzene	1.474	1.474	0.0	91	0.00	4.10
18 t	Acetophenone	1.763	1.846	-4.7	93	0.00	4.29
19 t	2-Methylphenol	1.204	1.294	-7.5	98	0.00	4.21
20 t	2,2'-oxybis(1-Chloropropa	0.439	0.448	-2.1	94	0.00	4.21
21 t	3&4-Methylphenol	1.244	1.360	-9.3	97	0.00	4.32
22 t	n-Nitroso-di-n-propylamin	0.960	0.960	0.0	92	0.00	4.30
23 t	Hexachloroethane	0.468	0.451	3.6	92	0.00	4.34
24 I	Naphthalene-d8	1.000	1.000	0.0	94	0.00	4.94
26 t	Nitrobenzene	0.392	0.387	1.3	91	0.00	4.41
27 t	Quinoline	0.654	0.673	-2.9	99	0.00	5.26
28 t	Isophorone	0.656	0.685	-4.4	96	0.00	4.60
29 t	2-Nitrophenol	0.197	0.207	-5.1	93	0.00	4.64
30 t	2,4-Dimethylphenol	0.346	0.369	-6.6	101	0.00	4.71
	----- True	Calc.	% Drift	-----			
31 t	Benzoic acid	50.000	58.913	-17.8	113	0.03	4.86
	----- AvgRF	CCRF	% Dev	-----			
32 t	bis(2-Chloroethoxy)methan	0.384	0.412	-7.3	102	0.00	4.78
33 t	2,4-Dichlorophenol	0.272	0.284	-4.4	96	0.00	4.85
34 t	2,6-Dichlorophenol	0.272	0.282	-3.7	98	0.00	5.03
36 t	1,2,4-Trichlorobenzene	0.304	0.296	2.6	92	0.00	4.90
38 t	Naphthalene	1.010	1.071	-6.0	96	0.00	4.96
39 t	4-Chloroaniline	0.445	0.434	2.5	89	0.00	5.03
40 t	2,3-Dichloroaniline	0.321	0.309	3.7	94	0.00	5.90
41 t	Caprolactam	0.155	0.170	-9.7	98	0.02	5.38
42 t	Hexachlorobutadiene	0.149	0.143	4.0	95	0.00	5.08

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43	t	4-Chloro-3-methylphenol	0.291	0.313	-7.6	100	0.00	5.50
44	t	2-Methylnaphthalene	0.612	0.597	2.5	94	0.00	5.60
45	t	1-Methylnaphthalene	0.627	0.587	6.4	91	0.00	5.70
46	t	Dimethylnaphthalene	0.589	0.592	-0.5	99	0.00	6.29
47	I	Acenaphthene-d10	1.000	1.000	0.0	99	0.00	6.78
----- True Calc. % Drift -----								
48	t	Hexachlorocyclopentadiene	100.000	97.921	2.1	93	0.00	5.77
----- AvgRF CCRF % Dev -----								
49	t	2,4,6-Trichlorophenol	0.333	0.329	1.2	96	0.00	5.92
50	t	2,4,5-Trichlorophenol	0.351	0.337	4.0	93	0.00	5.96
52	t	2-Chloronaphthalene	1.104	1.110	-0.5	97	0.00	6.11
53	t	Biphenyl	1.514	1.578	-4.2	98	0.00	6.11
54	t	2-Nitroaniline	0.407	0.419	-2.9	93	0.00	6.26
55	t	Dimethylphthalate	1.220	1.193	2.2	96	0.00	6.51
56	t	Acenaphthylene	1.895	1.858	2.0	95	0.00	6.60
57	t	2,6-Dinitrotoluene	0.275	0.275	0.0	95	0.00	6.57
58	t	3-Nitroaniline	0.338	0.340	-0.6	91	0.00	6.77
59	t	Acenaphthene	1.239	1.255	-1.3	100	0.00	6.82
----- True Calc. % Drift -----								
60	t	2,4-Dinitrophenol	100.000	104.551	-4.6	102	0.00	6.92
61	t	4-Nitrophenol	50.000	48.900	2.2	99	0.00	7.07
----- AvgRF CCRF % Dev -----								
62	t	Dibenzofuran	1.572	1.510	3.9	94	0.00	7.05
63	t	2,4-Dinitrotoluene	0.354	0.368	-4.0	95	0.00	7.09
64	t	2,3,4,6-Tetrachlorophenol	0.257	0.234	8.9	89	0.00	7.24
65	t	Diethylphthalate	1.245	1.254	-0.7	98	0.00	7.45
66	t	Fluorene	1.279	1.272	0.5	97	0.00	7.51
67	t	4-Chlorophenyl-phenylether	0.551	0.530	3.8	99	0.00	7.55
68	t	4-Nitroaniline	0.309	0.317	-2.6	91	0.00	7.59
69	I	Phenanthrene-d10	1.000	1.000	0.0	102	0.00	8.84
70	t	4,6-Dinitro-2-methylpheno	0.131	0.137	-4.6	100	0.00	7.64
71	t	n-Nitrosodiphenylamine	0.556	0.535	3.8	95	0.00	7.72
72	t	1,2-Diphenylhydrazine	0.839	0.868	-3.5	100	0.00	7.77
74	t	4-Bromophenyl-phenylether	0.187	0.182	2.7	100	0.00	8.23
75	t	Hexachlorobenzene	0.214	0.193	9.8	99	0.00	8.28
76	t	Pentachlorophenol	0.118	0.121	-2.5	89	0.00	8.60
77	t	Phenanthrene	1.091	1.043	4.4	98	0.00	8.87
78	t	Anthracene	1.084	1.047	3.4	98	0.00	8.94
79	t	Carbazole	0.984	0.991	-0.7	99	0.00	9.23
80	t	Di-n-butylphthalate	1.260	1.287	-2.1	97	0.00	9.92
81	t	Fluoranthene	1.116	1.086	2.7	95	0.00	10.68
82	t	Octadecane	0.522	0.528	-1.1	97	0.00	8.90
83	I	Chrysene-d12	1.000	1.000	0.0	101	0.00	12.93
84	t	Pyrene	1.291	1.229	4.8	95	0.00	11.01
86	t	Butylbenzylphthalate	0.600	0.637	-6.2	99	0.00	12.24
87	t	Benzo[a]anthracene	1.147	1.093	4.7	96	0.00	12.92
88	t	3,3'-Dichlorobenzidine	0.387	0.362	6.5	90	0.00	12.97
89	t	Chrysene	1.069	1.006	5.9	96	0.01	12.98
90	t	bis(2-Ethylhexyl)phthalat	0.771	0.805	-4.4	98	0.00	13.23
91	I	Perylene-d12	1.000	1.000	0.0	104	0.00	15.01
----- True Calc. % Drift -----								

8.7.5

8

Initial Calibration Verification

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3E4310-ICV4310
Lab FileID: 3E97170.D

92	t	Di-n-octylphthalate	50.000	47.096	5.8	96	0.00	14.22
			AvgRF	CCRF	% Dev			
93	t	Benzo[b]fluoranthene	1.295	1.360	-5.0	98	0.00	14.51
94	t	Benzo[k]fluoranthene	1.180	1.105	6.4	96	0.01	14.55
95	t	Benzo[a]pyrene	1.098	1.119	-1.9	99	0.00	14.93
96	t	Indeno[1,2,3-cd]pyrene	0.993	1.032	-3.9	95	0.00	16.32
98	t	Dibenz[a,h]anthracene	1.043	1.084	-3.9	102	0.01	16.36
99	t	7,12-Dimethylbenz(a)anthr	0.600	0.615	-2.5	99	0.00	14.52
100	t	Benzo[g,h,i]perylene	1.040	1.069	-2.8	102	0.01	16.61

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e97166.D M3E4310.M Wed Sep 13 17:16:35 2017

8.7.5
8

Initial Calibration Verification

Page 1 of 1

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3E4310-ICV4310
Lab FileID: 3E97171.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E4310\3e97171.D Vial: 11
Acq On : 13 Sep 2017 1:31 pm Operator: kristis
Sample : icv4310-50 Inst : SVOAMS3E
Misc : op4655,e3e4310,1000,,,1,1 Multiplr: 1.00
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E4310.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 13:26:04 2017
Last Update : Wed Sep 13 13:26:04 2017
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	3.98
5 S	2-Fluorophenol	1.297	1.368	-5.5	101	0.00	2.96
8 S	Phenol-d5	1.707	1.711	-0.2	98	0.00	3.75
24 I	Naphthalene-d8	1.000	1.000	0.0	108	0.00	4.94
25 S	Nitrobenzene-d5	0.394	0.408	-3.6	109	0.00	4.39
47 I	Acenaphthene-d10	1.000	1.000	0.0	116	0.00	6.77
51 S	2-Fluorobiphenyl	1.343	1.408	-4.8	122	0.00	6.00
69 I	Phenanthrene-d10	1.000	1.000	0.0	115	0.00	8.83
73 S	2,4,6-Tribromophenol	0.112	0.118	-5.4	124	0.00	7.84
83 I	Chrysene-d12	1.000	1.000	0.0	107	0.00	12.92
85 S	Terphenyl-d14	0.821	0.994	-21.1	127	0.00	11.37

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e97166.D M3E4310.M Wed Sep 13 17:16:53 2017

8.7.6
8

Continuing Calibration Summary

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: E3E4350-CC4310
 Lab FileID: 3E97839.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E4350\3e97839.D Vial: 2
 Acq On : 23 Oct 2017 2:57 pm Operator: vivekp
 Sample : cc4310-25 Inst : SVOAMS3E
 Misc : op7023,e3e4350,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E4310.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017
 Last Update : Sun Oct 22 16:39:09 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	66	-0.02	3.78
2 t	1,4-Dioxane	0.564	0.433	23.2#	53	-0.02	1.15
3 t	Pyridine	1.284	0.933	27.3#	46#	-0.05	1.38
4 t	N-Nitrosodimethylamine	0.753	0.587	22.0#	50	-0.03	1.35
5 S	2-Fluorophenol	1.297	1.185	8.6	58	-0.03	2.74
6 t	Indene	2.210	2.075	6.1	61	-0.02	3.97
7 t	Cumene	3.273	3.184	2.7	64	-0.02	3.14
8 S	Phenol-d5	1.707	1.459	14.5	56	-0.03	3.57
9 t	Phenol	1.676	1.476	11.9	56	-0.02	3.58
10	Aniline	2.045	1.286	37.1#	42#	-0.03	3.54
11 t	bis(2-Chloroethyl)ether	1.274	1.115	12.5	59	-0.02	3.61
12 t	2-Chlorophenol	1.409	1.335	5.3	64	-0.02	3.63
13 t	Decane	1.555	1.409	9.4	62	-0.02	3.69
14 t	1,3-Dichlorobenzene	1.566	1.595	-1.9	69	-0.02	3.73
15 t	1,4-Dichlorobenzene	1.588	1.651	-4.0	69	-0.02	3.79
16 t	Benzyl alcohol	0.828	0.609	26.4#	48#	-0.02	3.92
17 t	1,2-Dichlorobenzene	1.474	1.518	-3.0	69	-0.02	3.90
18 t	Acetophenone	1.763	1.666	5.5	62	-0.02	4.10
19 t	2-Methylphenol	1.204	1.082	10.1	58	-0.02	4.03
20 t	2,2'-oxybis(1-Chloropropa	0.439	0.414	5.7	64	-0.02	4.02
21 t	3&4-Methylphenol	1.244	1.079	13.3	56	-0.02	4.15
22 t	n-Nitroso-di-n-propylamin	0.960	0.878	8.5	62	-0.02	4.12
23 t	Hexachloroethane	0.468	0.639	-36.5#	92	-0.02	4.15
24 I	Naphthalene-d8	1.000	1.000	0.0	67	-0.02	4.73
25 S	Nitrobenzene-d5	0.394	0.378	4.1	64	-0.02	4.21
26 t	Nitrobenzene	0.392	0.367	6.4	63	-0.02	4.22
27 t	Quinoline	0.654	0.595	9.0	61	-0.04	5.04
28 t	Isophorone	0.656	0.592	9.8	60	-0.03	4.40
29 t	2-Nitrophenol	0.197	0.226	-14.7	74	-0.02	4.46
30 t	2,4-Dimethylphenol	0.346	0.292	15.6	57	-0.02	4.53
	----- True Calc. % Drift -----						
31 t	Benzoic acid	25.000	22.685	9.3	63	-0.05	4.67
	----- AvgRF CCRF % Dev -----						
32 t	bis(2-Chloroethoxy)methan	0.384	0.327	14.8	57	-0.02	4.58
33 t	2,4-Dichlorophenol	0.272	0.309	-13.6	74	-0.02	4.66
34 t	2,6-Dichlorophenol	0.272	0.319	-17.3	77	-0.02	4.82
35	1,3,5-Trichlorobenzene	0.328	0.409	-24.7#	84	-0.02	4.46
36 t	1,2,4-Trichlorobenzene	0.304	0.362	-19.1	81	-0.02	4.69
37	1,2,3-Trichlorobenzene	0.286	0.349	-22.0#	81	-0.03	4.86

Continuing Calibration Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3E4350-CC4310
Lab FileID: 3E97839.D

38 t	Naphthalene	1.010	1.039	-2.9	65	-0.02	4.75
39 t	4-Chloroaniline	0.445	0.384	13.7	57	-0.03	4.81
40 t	2,3-Dichloroaniline	0.321	0.367	-14.3	78	-0.03	5.64
41 t	Caprolactam	0.155	0.144	7.1	60	-0.04	5.16
42 t	Hexachlorobutadiene	0.149	0.232	-55.7#	104	-0.02	4.86
43 t	4-Chloro-3-methylphenol	0.291	0.276	5.2	62	-0.03	5.29
44 t	2-Methylnaphthalene	0.612	0.619	-1.1	68	-0.03	5.35
45 t	1-Methylnaphthalene	0.627	0.638	-1.8	69	-0.02	5.45
46 t	Dimethylnaphthalene	0.589	0.656	-11.4	75	-0.03	6.01
47 I	Acenaphthene-d10	1.000	1.000	0.0	72	-0.03	6.48
		----- True	Calc.	% Drift	-----		
48 t	Hexachlorocyclopentadiene	50.000	69.266	-38.5#	100	-0.03	5.51
		----- AvgRF	CCRF	% Dev	-----		
49 t	2,4,6-Trichlorophenol	0.333	0.396	-18.9	85	-0.03	5.67
50 t	2,4,5-Trichlorophenol	0.351	0.426	-21.4#	86	-0.02	5.73
51 S	2-Fluorobiphenyl	1.343	1.501	-11.8	81	-0.03	5.74
52 t	2-Chloronaphthalene	1.104	1.261	-14.2	84	-0.03	5.84
53 t	Biphenyl	1.514	1.627	-7.5	77	-0.03	5.84
54 t	2-Nitroaniline	0.407	0.388	4.7	68	-0.03	6.00
55 t	Dimethylphthalate	1.220	1.319	-8.1	78	-0.03	6.24
56 t	Acenaphthylene	1.895	1.923	-1.5	73	-0.03	6.31
57 t	2,6-Dinitrotoluene	0.275	0.319	-16.0	83	-0.03	6.30
58 t	3-Nitroaniline	0.338	0.308	8.9	63	-0.03	6.49
59 t	Acenaphthene	1.239	1.169	5.6	70	-0.03	6.52
		----- True	Calc.	% Drift	-----		
60 t	2,4-Dinitrophenol	50.000	47.636	4.7	75	-0.03	6.65
61 t	4-Nitrophenol	25.000	22.921	8.3	72	-0.01	6.85
		----- AvgRF	CCRF	% Dev	-----		
62 t	Dibenzofuran	1.572	1.626	-3.4	76	-0.04	6.74
63 t	2,4-Dinitrotoluene	0.354	0.386	-9.0	76	-0.03	6.80
64	2,3,4,6-Tetrachlorophenol	0.257	0.329	-28.0#	92	-0.03	6.94
65 t	Diethylphthalate	1.245	1.307	-5.0	76	-0.04	7.15
66 t	Fluorene	1.279	1.328	-3.8	76	-0.03	7.19
67 t	4-Chlorophenyl-phenylethe	0.551	0.647	-17.4	87	-0.03	7.23
68 t	4-Nitroaniline	0.309	0.276	10.7	62	-0.05	7.29
69 I	Phenanthrene-d10	1.000	1.000	0.0	75	-0.04	8.49
70 t	4,6-Dinitro-2-methylpheno	0.131	0.144	-9.9	82	-0.04	7.35
71 t	n-Nitrosodiphenylamine	0.556	0.543	2.3	75	-0.04	7.41
72 t	1,2-Diphenylhydrazine	0.839	0.718	14.4	64	-0.04	7.45
73 S	2,4,6-Tribromophenol	0.112	0.127	-13.4	80	-0.04	7.53
74 t	4-Bromophenyl-phenylether	0.187	0.233	-24.6#	93	-0.04	7.91
75 t	Hexachlorobenzene	0.214	0.256	-19.6	90	-0.03	7.95
76 t	Pentachlorophenol	0.118	0.152	-28.8#	90	-0.04	8.28
77 t	Phenanthrene	1.091	1.110	-1.7	80	-0.04	8.53
78 t	Anthracene	1.084	1.052	3.0	74	-0.04	8.61
79 t	Carbazole	0.984	0.942	4.3	73	-0.04	8.91
80 t	Di-n-butylphthalate	1.260	1.227	2.6	73	-0.04	9.59
81 t	Fluoranthene	1.116	1.214	-8.8	82	-0.04	10.32
82 t	Octadecane	0.522	0.398	23.8#	58	-0.03	8.57
83 I	Chrysene-d12	1.000	1.000	0.0	83	-0.04	12.57
84 t	Pyrene	1.291	1.249	3.3	82	-0.04	10.65
85 S	Terphenyl-d14	0.821	0.795	3.2	81	-0.04	11.02
86 t	Butylbenzylphthalate	0.600	0.521	13.2	71	-0.04	11.90

8.7.7

8

Continuing Calibration Summary

Page 3 of 3

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3E4350-CC4310
Lab FileID: 3E97839.D

87	t	Benzo[a]anthracene	1.147	1.166	-1.7	87	-0.04	12.55
88	t	3,3'-Dichlorobenzidine	0.387	0.373	3.6	77	-0.04	12.61
89	t	Chrysene	1.069	1.062	0.7	83	-0.05	12.60
90	t	bis(2-Ethylhexyl)phthalat	0.771	0.651	15.6	69	-0.04	12.89
91	I	Perylene-d12	1.000	1.000	0.0	74	-0.04	14.63
----- True Calc. % Drift -----								
92	t	Di-n-octylphthalate	25.000	21.977	12.1	67	-0.04	13.87
----- AvgRF CCRF % Dev -----								
93	t	Benzo[b]fluoranthene	1.295	1.446	-11.7	79	-0.05	14.14
94	t	Benzo[k]fluoranthene	1.180	1.192	-1.0	73	-0.05	14.17
95	t	Benzo[a]pyrene	1.098	1.110	-1.1	71	-0.05	14.55
96	t	Indeno[1,2,3-cd]pyrene	0.993	1.051	-5.8	76	-0.05	15.95
97	t	Dibenz(a,h)acridine	0.945	0.966	-2.2	72	-0.05	15.70
98	t	Dibenz[a,h]anthracene	1.043	1.069	-2.5	71	-0.05	15.98
99	t	7,12-Dimethylbenz(a)anthr	0.600	0.649	-8.2	77	-0.04	14.14
100	t	Benzo[g,h,i]perylene	1.040	1.049	-0.9	71	-0.05	16.23

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3e96118a.D M3E4310.M Tue Oct 24 15:38:46 2017

8.7.7

8

Continuing Calibration Summary

Page 1 of 1

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: E3E4350-CC4280
 Lab FileID: 3E97840A.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3E4350\3e97840a.D Vial: 3
 Acq On : 23 Oct 2017 3:24 pm Operator: vivekp
 Sample : cc4280-25 Inst : SVOAMS3E
 Misc : op7023,e3e4350,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3E4310.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017
 Last Update : Sun Oct 22 16:39:09 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.

101	1,4-Dichlorobenzene-d4a	1.000	1.000	0.0	74	-0.02	3.78
102	Benzaldehyde	0.555	0.537	3.2	66	-0.09	3.45
103	Acenaphthene-d10a	1.000	1.000	0.0	76	-0.03	6.48
104	1,2,4,5-Tetrachlorobenzen	0.565	0.579	-2.5	73	-0.12	5.52
105	Phenanthrene-d10a	1.000	1.000	0.0	77	-0.04	8.49
106	Atrazine	0.106	0.117	-10.4	70	-0.16	8.26
107 s	o-Terphenyl	0.542	0.577	-6.5	71	-0.16	9.16
108 s	1-Chlorooctadecane	0.252	0.252	0.0	66	-0.15	10.41
109 I	Chrysene-d12a	1.000	1.000	0.0	80	-0.05	12.56
----- True Calc. % Drift -----							
110 T	benzidine	25.000	23.589	5.6	81	-0.16	10.64
----- AvgRF CCRF % Dev -----							
111 I	Naphthalene-d8a	1.000	1.000	0.0	74	-0.03	4.72
112 T	Hydroquinone	0.289	0.228	21.1#	50#	-0.09	5.19
113	Phenanthrene-d10b	1.000	1.000	0.0	77	-0.04	8.49
114	Pentachloronitrobenzene	0.021	0.022#	-4.8	69	-0.15	8.28

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 3e96118a.D M3E4310.M Tue Oct 24 12:21:50 2017

8.7.8
8

Initial Calibration Summary

Page 1 of 2

Job Number: JC52695

Account: BBLNYS Arcadis

Project: National Grid, Ilion, NY

Sample: E3M3448-ICC3448

Lab FileID: 3M71933.D

Response Factor Report MS3M											
Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M (RTE Integrator)											
Title : Semi Volatile Extractables by GC/MS											
Last Update : Wed Oct 18 10:30:04 2017											
Response via : Initial Calibration											
Calibration Files											
2.5 =3m71935.D 1.0 =3m71933.D 0.5 =3m71934.D 0.2 =3m71936.D											
0.1 =3m71937.D 0.05=3m71938.D 0.02=3m71939.D 0.01=3m71940.D											
5 =3m71941.D = = =											
Compound											
	2.5	1.0	0.5	0.2	0.1	0.05	0.02	0.01	5	Avg	%RSD

1) I 1-Methylnaphthalene-d -----ISTD-----											
2) 1,4-dioxane											
	0.291	0.350	0.372	0.281	0.370				0.299	0.327	12.65
3) 2-Fluorophenol											
	0.708	0.821	0.829	0.652	0.701	0.691	0.671	0.678	0.756	0.723	8.91
4) Phenol-d5											
	1.087	1.254	1.320	1.057	1.184	1.112	1.070	1.049	1.087	1.136	8.45
5) Phenol											
	1.192	1.355	1.421	1.136	1.262	1.193	1.188	1.181	1.170	1.233	7.71
6) bis(2-Chloroethyl)ether											
	0.941	1.061	1.104	0.820	0.921	0.881	0.853	0.876	0.914	0.930	10.15
7) Nitrobenzene-d5											
	1.070	1.133	1.211	0.950	1.066	0.977	0.971	0.964	0.981	1.036	8.72
8) Nitrobenzene											
	1.025	1.087	1.198	0.930	1.049	1.014	1.077	1.108	0.945	1.048	7.89
9) Naphthalene											
	2.499	2.895	3.023	2.423	2.638	2.641	2.713	2.789	2.540	2.685	7.19
10) Hexachlorobutadiene											
	0.303	0.351	0.368	0.296	0.333	0.322			0.310	0.326	8.07
11) 2-Methylnaphthalene											
	1.439	1.418	1.569	1.286	1.442	1.355	1.354	1.488	1.310	1.407	6.40
12) 1-Methylnaphthalene											
	1.443	1.454	1.614	1.356	1.506	1.494	1.543	1.561	1.321	1.477	6.43
13) Hexachlorocyclopentadiene											
	0.149	0.147	0.090	0.014	0.010	0.108			0.193	0.102	68.41
14) I Fluorene-d10 -----ISTD-----											
15) 2-Fluorobiphenyl											
	1.212	1.445	1.476	1.223	1.365	1.312	1.344	1.322	1.321	1.335	6.57
16) Acenaphthylene											
	1.603	1.773	1.856	1.510	1.655	1.587	1.643	1.633	1.555	1.646	6.53
17) Acenaphthene											
	1.032	1.170	1.208	0.994	1.112	1.091	1.110	1.180	0.963	1.096	7.76
18) 4,6-dinitro-2-methylphenol											
	0.125	0.088	0.069	0.051	0.040	0.112			0.150	0.091	44.28
---- Quadratic regression ---- Coefficient = 0.9991											
Response Ratio = -0.01113 + 0.09798 *A + 0.00867 *A^2											
19) Fluorene											
	1.042	1.266	1.298	1.084	1.172	1.166	1.295	1.381	1.024	1.192	10.55
20) 2,4,6-Tribromophenol											
	0.145	0.159	0.153	0.110	0.111	0.097			0.155	0.133	19.52
21) I Fluoranthene-d10 -----ISTD-----											

Initial Calibration Summary

Page 2 of 2

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3M3448-ICC3448
Lab FileID: 3M71933.D

22)	Hexachlorobenzene	0.206	0.211	0.221	0.181	0.200	0.203	0.227	0.239	0.202	0.210	8.20
23)	Pentachlorophenol	0.096	0.094	0.085	0.037	0.030	0.098	0.012	0.108	0.070	53.46	
	---- Quadratic regression ----	Coefficient = 0.9996										
	Response Ratio =	-0.00424 + 0.08806 *A + 0.00322 *A^2										
24)	Phenanthrene	1.182	1.217	1.265	1.008	1.145	1.160	1.325	1.580	1.108	1.221	13.29
25)	Anthracene	1.154	1.122	1.154	0.862	0.946	0.921	0.989	1.198	1.080	1.047	11.49
26)	Fluoranthene	1.148	1.190	1.340	1.097	1.321	1.516	1.102	1.245	12.38		
27)	Pyrene	1.170	1.171	1.293	1.003	1.133	1.250	1.113	1.162	8.15		
28)	Terphenyl-d14	0.838	0.786	0.786	0.581	0.655	0.609	0.645	0.682	0.935	0.724	16.32
29)	Benzo[a]anthracene	0.963	0.940	0.950	0.745	0.951	1.050	0.976	0.939	9.95		
30)	Chrysene	0.919	0.819	1.015	0.836	0.905	0.886	0.897	0.897	7.10		
31)	I Benzo(a)pyrene-d12	-----ISTD-----										
32)	Benzo[b]fluoranthene	1.350	1.375	1.501	1.176	1.237	1.340	1.707	2.097	1.442	1.470	19.12
33)	Benzo[k]fluoranthene	1.178	1.079	1.188	0.913	1.050	1.106	1.458	1.146	1.140	13.64	
34)	Benzo[a]pyrene	1.063	1.064	1.201	0.976	1.179	1.427	1.048	1.137	13.16		
35)	Indeno[1,2,3-cd]pyrene	1.170	1.174	1.259	1.045	1.106	1.204	1.510	1.788	1.186	1.271	18.33
36)	Dibenz[a,h]anthracene	0.892	0.892	1.001	0.841	0.869	0.937	0.890	0.903	5.74		
37)	Benzo[g,h,i]perylene	1.067	1.059	1.170	0.943	1.029	1.091	1.356	1.618	1.067	1.156	17.95

(#) = Out of Range ### Number of calibration levels exceeded format ###												

M3M3448SIM.M Wed Oct 18 11:08:23 2017 RPT1

8.7.9

8

Initial Calibration Verification

Page 1 of 1

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: E3M3448-ICV3448
 Lab FileID: 3M71942.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3M3448\3m71942.D Vial: 11
 Acq On : 17 Oct 2017 7:46 pm Operator: kevinm2
 Sample : icv3448-5 Inst : MS3M
 Misc : op6171a,e3m3448,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M (RTE Integrator)
 Title : Semi Volatile Extractables by GC/MS
 Last Update : Wed Oct 18 10:30:04 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	175	0.00	8.85
5	Phenol	1.233	1.285	-4.2	166	0.00	4.72
14 I	Fluorene-d10	1.000	1.000	0.0	159	0.00	11.81
	----- True Calc. % Drift -----						
18 t	4,6-dinitro-2-methylpheno	5.000	5.975	-19.5	223	0.00	12.07
	----- AvgRF CCRF % Dev -----						
21 I	Fluoranthene-d10	1.000	1.000	0.0	166	0.00	16.03
	----- True Calc. % Drift -----						
23 t	Pentachlorophenol	5.000	5.471	-9.4	174	-0.02	13.42
	----- AvgRF CCRF % Dev -----						
31 I	Benzo(a)pyrene-d12	1.000	1.000	0.0	194	0.00	20.65

(#) = Out of Range SPCC's out = 0 CCC's out = 0
 3m71933.D M3M3448SIM.M Wed Oct 18 10:55:31 2017 RPT1

8.7.10

8

Initial Calibration Verification

Page 1 of 1

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: E3M3448-ICV3448
 Lab FileID: 3M71943.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3M3448\3m71943.D Vial: 12
 Acq On : 17 Oct 2017 8:17 pm Operator: kevinm2
 Sample : icv3448-1 Inst : MS3M
 Misc : op6171a,e3m3448,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M (RTE Integrator)
 Title : Semi Volatile Extractables by GC/MS
 Last Update : Wed Oct 18 10:30:04 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	158	0.02	8.87
2 t	1,4-dioxane	0.327	0.235	28.1	106	0.00	1.70
6 t	bis(2-Chloroethyl)ether	0.930	0.983	-5.7	146	0.01	4.78
8 t	Nitrobenzene	1.048	0.804	23.3	117	0.02	6.12
9 t	Naphthalene	2.685	2.874	-7.0	156	0.00	7.40
10 t	Hexachlorobutadiene	0.326	0.350	-7.4	157	0.00	7.71
11 t	2-Methylnaphthalene	1.407	1.350	4.1	150	0.00	8.75
14 I	Fluorene-d10	1.000	1.000	0.0	158	0.02	11.82
16 t	Acenaphthylene	1.646	1.568	4.7	139	0.00	10.48
17 t	Acenaphthene	1.096	1.107	-1.0	149	0.00	10.84
----- True		Calc.	% Drift	-----			
----- AvgRF		CCRF	% Dev	-----			
19 t	Fluorene	1.192	1.128	5.4	140	0.00	11.86
21 I	Fluoranthene-d10	1.000	1.000	0.0	145	0.00	16.03
22 t	Hexachlorobenzene	0.210	0.187	11.0	129	0.00	12.97
----- True		Calc.	% Drift	-----			
----- AvgRF		CCRF	% Dev	-----			
24 t	Phenanthrene	1.221	1.123	8.0	134	0.00	13.74
25 t	Anthracene	1.047	0.999	4.6	129	0.00	13.85
26 t	Fluoranthene	1.245	1.107	11.1	135	0.00	16.06
27 t	Pyrene	1.162	1.054	9.3	131	0.00	16.45
29 t	Benzo[a]anthracene	0.939	1.143	-21.7	177	0.02	18.58
30 t	Chrysene	0.897	0.897	0.0	159	0.00	18.62
31 I	Benzo(a)pyrene-d12	1.000	1.000	0.0	137	0.00	20.65
32 t	Benzo[b]fluoranthene	1.470	1.253	14.8	125	0.00	20.23
33 t	Benzo[k]fluoranthene	1.140	0.996	12.6	127	0.00	20.27
34 t	Benzo[a]pyrene	1.137	1.049	7.7	135	0.02	20.69
35 t	Indeno[1,2,3-cd]pyrene	1.271	1.017	20.0	119	0.00	22.12
36 t	Dibenz[a,h]anthracene	0.903	0.849	6.0	131	0.00	22.13
37 t	Benzo[g,h,i]perylene	1.156	0.992	14.2	128	0.00	22.42

(#) = Out of Range
 3m71933.D M3M3448SIM.M

SPCC's out = 0 CCC's out = 0
 Wed Oct 18 12:10:58 2017 RPT1

Continuing Calibration Summary

Page 1 of 2

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: E3M3454-CC3448
 Lab FileID: 3M72024.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3M3454\3m72024.D Vial: 2
 Acq On : 20 Oct 2017 4:33 pm Operator: kevinm2
 Sample : cc3448-.5 Inst : MS3M
 Misc : op6171a,e3m3454,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M (RTE Integrator)
 Title : Semi Volatile Extractables by GC/MS
 Last Update : Mon Oct 23 11:30:15 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	124	0.02	8.81
2 t	1,4-dioxane	0.327	0.286	12.5	96	-0.03	1.66
3 S	2-Fluorophenol	0.723	0.751	-3.9	113	-0.01	3.30
4 S	Phenol-d5	1.136	1.178	-3.7	111	-0.02	4.66
5	Phenol	1.233	1.253	-1.6	110	-0.02	4.67
6 t	bis(2-Chloroethyl)ether	0.930	0.980	-5.4	110	0.01	4.72
7 S	Nitrobenzene-d5	1.036	1.111	-7.2	114	-0.01	6.03
8 t	Nitrobenzene	1.048	1.075	-2.6	112	0.00	6.07
9 t	Naphthalene	2.685	2.775	-3.4	114	0.00	7.35
10 t	Hexachlorobutadiene	0.326	0.345	-5.8	117	0.00	7.65
11 t	2-Methylnaphthalene	1.407	1.552	-10.3	123	0.00	8.69
12 t	1-Methylnaphthalene	1.477	1.555	-5.3	120	0.00	8.87
13	Hexachlorocyclopentadiene	0.102	0.119	-16.7	165	0.00	9.04
14 I	Fluorene-d10	1.000	1.000	0.0	115	0.00	11.75
15 S	2-Fluorobiphenyl	1.335	1.454	-8.9	113	-0.02	9.46
16 t	Acenaphthylene	1.646	1.867	-13.4	116	-0.01	10.42
17 t	Acenaphthene	1.096	1.193	-8.9	113	-0.01	10.78
	----- True Calc. % Drift -----						
18 t	4,6-dinitro-2-methylpheno	2.500	1.933	22.7#	101	0.00	12.01
	----- AvgRF CCRF % Dev -----						
19 t	Fluorene	1.192	1.362	-14.3	120	0.00	11.81
20 S	2,4,6-Tribromophenol	0.133	0.135	-1.5	102	0.00	12.31
21 I	Fluoranthene-d10	1.000	1.000	0.0	114	0.00	15.97
22 t	Hexachlorobenzene	0.210	0.222	-5.7	114	-0.01	12.91
	----- True Calc. % Drift -----						
23 t	Pentachlorophenol	2.500	2.872	-14.9	131	-0.03	13.36
	----- AvgRF CCRF % Dev -----						
24 t	Phenanthrene	1.221	1.258	-3.0	114	-0.01	13.68
25 t	Anthracene	1.047	1.240	-18.4	123	0.00	13.79
26 t	Fluoranthene	1.245	1.201	3.5	102	0.00	16.00
27 t	Pyrene	1.162	1.211	-4.2	107	0.02	16.40
28 S	Terphenyl-d14	0.724	0.774	-6.9	112	0.02	16.82
29 t	Benzo[a]anthracene	0.939	0.893	4.9	107	0.00	18.50
30 t	Chrysene	0.897	0.960	-7.0	108	0.00	18.56
31 I	Benzo(a)pyrene-d12	1.000	1.000	0.0	104	0.02	20.59

Continuing Calibration Summary

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E3M3454-CC3448
Lab FileID: 3M72024.D

32	t	Benzo[b]fluoranthene	1.470	1.613	-9.7	111	0.04	20.18
33	t	Benzo[k]fluoranthene	1.140	0.964	15.4	84	0.04	20.22
34	t	Benzo[a]pyrene	1.137	1.198	-5.4	103	0.02	20.61
35	t	Indeno[1,2,3-cd]pyrene	1.271	1.235	2.8	102	0.02	22.06
36	t	Dibenz[a,h]anthracene	0.903	0.936	-3.7	97	0.02	22.08
37	t	Benzo[g,h,i]perylene	1.156	1.066	7.8	94	0.00	22.34

(#) = Out of Range SPCC's out = 0 CCC's out = 0
3m71934.D M3M3448SIM.M Mon Oct 23 11:34:21 2017 RPT1

8.7.12
8

Initial Calibration Summary

Page 1 of 2

Job Number: JC52695

Account: BBLNYS Arcadis

Project: National Grid, Ilion, NY

Sample: E4M3405-ICC3405

Lab FileID: 4M72939.D

Response Factor Report GCMS4M											
Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M (RTE Integrator)											
Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um											
Last Update : Wed Sep 06 18:35:40 2017											
Response via : Initial Calibration											
Calibration Files											
0.05=4m72943.D .2 =4m72941.D 2.5 =4m72938.D .02 =4m72944.D											
.1 =4m72942.D 1 =4m72939.D .01 =4m72945.D .5 =4m72940.D											
5 =4m72937.D = = =											
Compound											
	0.05	.2	2.5	.02	.1	1	.01	.5	5	Avg	%RSD

1) I 1-Methylnaphthalene-d -----ISTD-----											
2) 2-Fluorophenol											
	0.581	0.860	0.795		0.644	0.783		0.778	0.847	0.755	13.77
3) Phenol-d5											
	0.832	1.373	1.216		0.977	1.185		1.223	1.279	1.155	16.12
4) Phenol											
	0.985	1.444	1.331		1.079	1.337		1.311	1.455	1.277	14.01
5) bis(2-Chloroethyl)ether											
	1.369	1.046		0.735	0.989		0.923	1.183		1.041	20.94
6) Nitrobenzene-d5											
	0.628	1.059	0.943		0.798	0.961		1.051	1.177	0.945	19.30
7) Naphthalene											
	2.855	3.561	2.838	2.650	2.893	2.918	2.810	3.129	3.089	2.972	8.87
8) Hexachlorobutadiene											
	0.412	0.517	0.421	0.411	0.410	0.427	0.422	0.438	0.444	0.434	7.72
9) 2-Methylnaphthalene											
										0.000#	-1.00
10) Hexachlorocyclopentadiene											
	0.055	0.203		0.010	0.147		0.096	0.292		0.134	76.87
11) 2-Fluorobiphenyl											
	1.573	1.616	1.409	1.403	1.419	1.497	1.415	1.490	1.597	1.491	5.76
12) I Fluorene-d10 -----ISTD-----											
13) Acenaphthylene											
	1.307	1.881	1.462	1.244	1.269	1.584	1.053	1.493	1.184	1.386	17.90
14) Acenaphthene											
	1.065	1.290	0.950	1.080	0.975	1.043	1.004	1.010	0.833	1.028	11.94
15) Dibenzofuran											
	1.424	1.893	1.228	1.484	1.362	1.561	1.384	1.513	1.061	1.435	16.07
16) Fluorene											
	1.617	1.877	1.349	1.820	1.413	1.644	1.661	1.520	1.151	1.561	14.74
17) 2,4,6-Tribromophenol											
	0.185	0.230		0.137	0.243		0.205	0.193		0.199	18.89
18) Hexachlorobenzene											
	0.487	0.472	0.355	0.564	0.392	0.343	0.532	0.346	0.317	0.423	21.72
---- Quadratic regression ---- Coefficient = 0.9994											
Response Ratio = 0.00039 + 0.37720 *A + -0.04797 *A^2											
19) Pentachlorophenol											
	0.019	0.087	0.167		0.041	0.137		0.111	0.174	0.105	57.09
---- Quadratic regression ---- Coefficient = 0.9994											
Response Ratio = -0.01953 + 0.16034 *A + 0.00274 *A^2											
20) Phenanthrene											

Initial Calibration Summary

Page 2 of 2

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E4M3405-ICC3405
Lab FileID: 4M72939.D

		2.067	2.634	1.734	2.386	1.925	2.204	2.532	2.168	1.589		2.138	16.39
21)	Anthracene												
		1.629	2.233	1.626	1.603	1.531	2.082	1.667	1.854	1.521		1.749	14.47
22)	I Fluoranthene-d10												
23)	Fluoranthene												
		1.267	1.395	1.185	1.606	1.157	1.166		1.184	1.278		1.280	12.03
24)	Pyrene												
		1.028	1.313	1.295	1.224	1.001	1.143	1.525	1.175	1.362		1.230	13.47
25)	Terphenyl-d14												
		0.589	0.906	0.733	0.600	0.687	0.849	0.651	0.812	0.699		0.725	15.24
26)	Benzo[a]anthracene												
		0.599	0.999	1.089	0.690	0.691	0.883	0.905	0.936	1.318		0.901	24.83
		---- Quadratic regression ---- Coefficient = 0.9999											
		Response Ratio = -0.00068 + 0.84350 *A + 0.38056 *A^2											
27)	Chrysene												
		1.173	1.236	1.108	1.509	1.035	1.054		1.077	1.231		1.178	13.08
28)	I Benzo(a)pyrene-d12												
29)	Benzo[b]fluoranthene												
		1.013	1.311	1.395	1.137	1.045	1.439	1.328	1.506	1.507		1.298	14.64
30)	Benzo[k]fluoranthene												
		1.356	1.650	1.374	1.604	1.326	1.357		1.247	1.388		1.413	9.87
31)	Benzo[a]pyrene												
		1.142	1.549	1.264	1.451	1.269	1.203	1.928	1.319	1.293		1.380	17.35
32)	Indeno[1,2,3-cd]pyrene												
		1.360	1.759	1.512	1.643	1.336	1.511	1.951	1.527	1.581		1.576	12.17
33)	Dibenz[a,h]anthracene												
		1.136	1.415	1.257	1.351	1.107	1.258	1.692	1.237	1.323		1.308	13.27
34)	Benzo[g,h,i]perylene												
		1.269	1.594	1.304	1.504	1.247	1.327	1.912	1.344	1.356		1.429	14.91
35)	I 1-Methylnaphthalene-d												
36)	1,4-Dioxane												
		0.274	0.396	0.337	0.203	0.305	0.352		0.348	0.376		0.324	19.13
37)	1-Methylnaphthalene												
		2.311	1.580		2.220	1.674		1.742	1.560			1.848	17.95
38)	I Fluorene-d10a												
39)	4,6-dinitro-2-methylphenol												
		0.028	0.069	0.144		0.031	0.154		0.089	0.146		0.095	57.61
		---- Linear regression ---- Coefficient = 0.9985											
		Response Ratio = -0.01493 + 0.14906 *A											

(#) = Out of Range ### Number of calibration levels exceeded format ###

M4M3405SIM.M Wed Sep 06 18:43:46 2017 MANAGER

8.7.13

8

Initial Calibration Verification

Page 1 of 1

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: E4M3405-ICV3405
 Lab FileID: 4M72946.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E4M3405\4m72946.D Vial: 11
 Acq On : 6 Sep 2017 5:30 pm Operator: kristis
 Sample : icv3405-5 Inst : GCMS4M
 Misc : op5441a,e4m3405,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 Last Update : Wed Sep 06 18:35:40 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	106	0.00	9.59
4 t	Phenol	1.277	1.204	5.7	96	0.03	5.53
12 I	Fluorene-d10	1.000	1.000	0.0	106	0.00	12.54
	----- True	Calc.	% Drift	-----			
19 t	Pentachlorophenol	5.000	4.634	7.3	105	0.00	14.18
38 I	Fluorene-d10a	1.000	1.000	0.0	106	0.00	12.54
	----- True	Calc.	% Drift	-----			
39 t	4,6-dinitro-2-methylpheno	5.000	4.358	12.8	81	0.00	12.79

(#) = Out of Range
 4m72939.D M4M3405SIM.M

SPCC's out = 0 CCC's out = 0
 Wed Sep 06 18:43:35 2017 MANAGER

8.7.14

8

Initial Calibration Verification

Page 1 of 2

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: E4M3405-ICV3405
 Lab FileID: 4M72947.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E4M3405\4m72947.D Vial: 12
 Acq On : 6 Sep 2017 6:01 pm Operator: kristis
 Sample : icv3405-1 Inst : GCMS4M
 Misc : op5441a,e4m3405,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 Last Update : Wed Sep 06 18:35:40 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	95	0.00	9.59
7 t	Naphthalene	2.972	2.863	3.7	93	0.00	8.13
8 t	Hexachlorobutadiene	0.434	0.409	5.8	91	0.00	8.41
12 I	Fluorene-d10	1.000	1.000	0.0	90	0.00	12.54
13 t	Acenaphthylene	1.386	1.376	0.7	78	0.02	11.23
14 t	Acenaphthene	1.028	1.051	-2.2	91	0.00	11.55
15 t	Dibenzofuran	1.435	1.324	7.7	77	0.02	11.94
16 t	Fluorene	1.561	1.366	12.5	75	0.03	12.61
----- True Calc. % Drift -----							
18 t	Hexachlorobenzene	1.000	0.786	21.4	77	0.03	13.71
----- AvgRF CCRF % Dev -----							
20 t	Phenanthrene	2.138	2.037	4.7	83	0.00	14.49
21 t	Anthracene	1.749	1.628	6.9	71	0.02	14.61
22 I	Fluoranthene-d10	1.000	1.000	0.0	90	0.00	16.72
23 t	Fluoranthene	1.280	1.028	19.7	79	0.00	16.76
24 t	Pyrene	1.230	0.966	21.5	76	0.00	17.15
----- True Calc. % Drift -----							
26 t	Benzo[a]anthracene	1.000	1.115	-11.5	107	-0.02	19.23
----- AvgRF CCRF % Dev -----							
27 t	Chrysene	1.178	0.916	22.2	78	0.00	19.30
28 I	Benzo(a)pyrene-d12	1.000	1.000	0.0	77	0.01	21.32
29 t	Benzo[b]fluoranthene	1.298	1.235	4.9	66	0.01	20.91
30 t	Benzo[k]fluoranthene	1.413	1.087	23.1	62	0.01	20.95
31 t	Benzo[a]pyrene	1.380	1.081	21.7	69	0.01	21.36
32 t	Indeno[1,2,3-cd]pyrene	1.576	1.233	21.8	63	0.00	22.86
33 t	Dibenz[a,h]anthracene	1.308	1.055	19.3	65	0.01	22.89
34 t	Benzo[g,h,i]perylene	1.429	1.146	19.8	66	0.01	23.24
35 I	1-Methylnaphthalene-d10a	1.000	1.000	0.0	95	0.00	9.59
36 t	1,4-Dioxane	0.324	0.310	4.3	84	0.01	2.19

8.7.15

8

Initial Calibration Verification

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E4M3405-ICV3405
Lab FileID: 4M72947.D

(#) = Out of Range SPCC's out = 0 CCC's out = 0
4m72939.D M4M3405SIM.M Wed Sep 06 18:43:37 2017 MANAGER

8.7.15
8

Continuing Calibration Summary

Page 1 of 2

Job Number: JC52695
 Account: BBLNYS Arcadis
 Project: National Grid, Ilion, NY

Sample: E4M3433-CC3405
 Lab FileID: 4M73406.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E4M3433\4m73406.D Vial: 2
 Acq On : 12 Oct 2017 11:10 am Operator: kevinm2
 Sample : cc3405-1 Inst : GCMS4M
 Misc : op6171a,e4m3433,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 Last Update : Mon Oct 02 11:48:14 2017
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	64	-0.06	9.34
2 S	2-Fluorophenol	0.755	0.643	14.8	53	-0.14	3.82
3 S	Phenol-d5	1.155	1.075	6.9	58	-0.14	5.20
4 t	Phenol	1.277	1.169	8.5	56	-0.15	5.21
5 t	bis(2-Chloroethyl)ether	1.041	0.853	18.1	56	-0.07	5.24
6 S	Nitrobenzene-d5	0.945	0.980	-3.7	66	-0.05	6.57
7 t	Naphthalene	2.972	2.762	7.1	61	-0.03	7.88
8 t	Hexachlorobutadiene	0.434	0.381	12.2	58	-0.03	8.17
9 t	2-Methylnaphthalene			-----NA-----			
10 t	Hexachlorocyclopentadiene	0.134	0.057	57.5#	25#	0.01	9.57
11 S	2-Fluorobiphenyl	1.491	1.445	3.1	62	0.02	9.98
12 I	Fluorene-d10	1.000	1.000	0.0	96	-0.07	12.28
13 t	Acenaphthylene	1.386	1.029	25.8#	63	-0.06	10.98
14 t	Acenaphthene	1.028	0.702	31.7#	65	-0.08	11.31
15 t	Dibenzofuran	1.435	0.972	32.3#	60	-0.05	11.70
16 t	Fluorene	1.561	1.061	32.0#	62	-0.07	12.33
17 S	2,4,6-Tribromophenol	0.199	0.148	25.6#	59	-0.06	12.84
	----- True Calc. % Drift -----						
18 t	Hexachlorobenzene	1.000	0.650	35.0#	68	-0.05	13.43
19 t	Pentachlorophenol	5.000	2.188	56.2#	39	-0.04	13.93
	----- AvgRF CCRF % Dev -----						
20 t	Phenanthrene	2.138	1.379	35.5#	60	-0.08	14.24
21 t	Anthracene	1.749	1.397	20.1#	65	-0.10	14.34
22 I	Fluoranthene-d10	1.000	1.000	0.0	60	-0.06	16.49
23 t	Fluoranthene	1.280	1.274	0.5	66	-0.08	16.51
24 t	Pyrene	1.230	1.304	-6.0	69	-0.07	16.91
25 S	Terphenyl-d14	0.725	1.046	-44.3#	74	-0.05	17.28
	----- True Calc. % Drift -----						
26 t	Benzo[a]anthracene	1.000	1.215	-21.5#	79	-0.07	19.02
	----- AvgRF CCRF % Dev -----						
27 t	Chrysene	1.178	1.170	0.7	67	-0.07	19.07
28 I	Benzo(a)pyrene-d12	1.000	1.000	0.0	73	-0.07	21.10
29 t	Benzo[b]fluoranthene	1.298	1.195	7.9	61	-0.07	20.68
30 t	Benzo[k]fluoranthene	1.413	1.344	4.9	72	-0.07	20.73
31 t	Benzo[a]pyrene	1.380	1.226	11.2	74	-0.07	21.14

8.7.16

8

Continuing Calibration Summary

Page 2 of 2

Job Number: JC52695
Account: BBLNYS Arcadis
Project: National Grid, Ilion, NY

Sample: E4M3433-CC3405
Lab FileID: 4M73406.D

32 t	Indeno[1,2,3-cd]pyrene	1.576	1.367	13.3	66	-0.10	22.61
33 t	Dibenz[a,h]anthracene	1.308	1.124	14.1	65	-0.10	22.63
34 t	Benzo[g,h,i]perylene	1.429	1.199	16.1	66	-0.11	22.96
35 I	1-Methylnaphthalene-d10a	1.000	1.000	0.0	64	-0.06	9.34
36 t	1,4-Dioxane	0.324	0.275	15.1	50	-0.05	2.00
37 t	1-Methylnaphthalene	1.848	1.625	12.1	62	-0.06	9.40
38 I	Fluorene-d10a	1.000	1.000	0.0	96	-0.07	12.28

		----- True	Calc.	% Drift	-----
39 t	4,6-dinitro-2-methylpheno		-----NA-----		

(#) = Out of Range
 4m72939.D M4M3405SIM.M

SPCC's out = 0 CCC's out = 0
 Thu Oct 12 14:47:42 2017 MANAGER

8.7.16

8



MS Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72037.D
Acq On : 20 Oct 2017 11:37 pm
Operator : kevinm2
Sample : jc52695-1
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 23 12:07:32 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

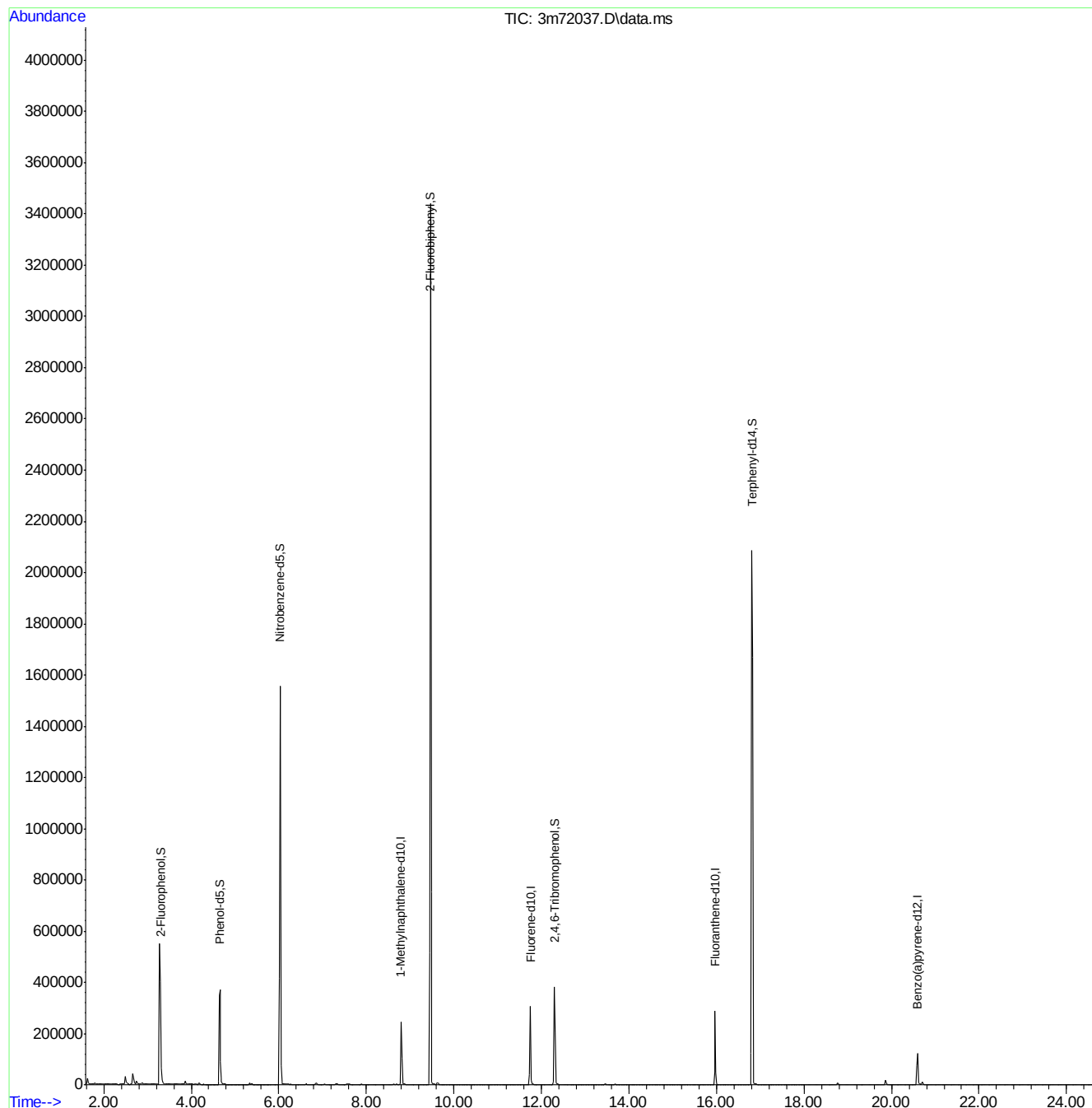
Internal Standards						
1) 1-Methylnaphthalene-d10	8.793	150	157205	4.00	ppm	0.00
14) Fluorene-d10	11.751	176	218058	4.00	ppm	0.00
21) Fluoranthene-d10	15.972	212	286014	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.596	264	165956	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	488910	17.21	ppm	-0.01
Spiked Amount 50.000			Recovery	=	34.42%	
4) Phenol-d5	4.656	99	600085	13.45	ppm	-0.02
Spiked Amount 50.000			Recovery	=	26.90%	
7) Nitrobenzene-d5	6.031	82	1520513	37.34	ppm	-0.01
Spiked Amount 50.000			Recovery	=	74.68%	
15) 2-Fluorobiphenyl	9.466	172	2548632	35.01	ppm	-0.02
Spiked Amount 50.000			Recovery	=	70.02%	
20) 2,4,6-Tribromophenol	12.297	330	276895	38.24	ppm	-0.02
Spiked Amount 50.000			Recovery	=	76.48%	
28) Terphenyl-d14	16.806	244	2544819	49.15	ppm	0.00
Spiked Amount 50.000			Recovery	=	98.30%	
Target Compounds						Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72037.D
Acq On : 20 Oct 2017 11:37 pm
Operator : kevinm2
Sample : jc52695-1
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 23 12:07:32 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72037.D
 Acq On : 20 Oct 2017 11:37 pm
 Operator : kevinm2
 Sample : jc52695-1
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 23 12:07:32 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.793	150	157205	4.00	ppm	0.00
14) Fluorene-d10	11.751	176	218058	4.00	ppm	0.00
21) Fluoranthene-d10	15.972	212	286014	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.596	264	165956	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	488910	17.21	ppm	-0.01
Spiked Amount 50.000			Recovery	=	34.42%	
4) Phenol-d5	4.656	99	600085	13.45	ppm	-0.02
Spiked Amount 50.000			Recovery	=	26.90%	
7) Nitrobenzene-d5	6.031	82	1520513	37.34	ppm	-0.01
Spiked Amount 50.000			Recovery	=	74.68%	
15) 2-Fluorobiphenyl	9.466	172	2548632	35.01	ppm	-0.02
Spiked Amount 50.000			Recovery	=	70.02%	
20) 2,4,6-Tribromophenol	12.297	330	276895	38.24	ppm	-0.02
Spiked Amount 50.000			Recovery	=	76.48%	
28) Terphenyl-d14	16.806	244	2544819	49.15	ppm	0.00
Spiked Amount 50.000			Recovery	=	98.30%	

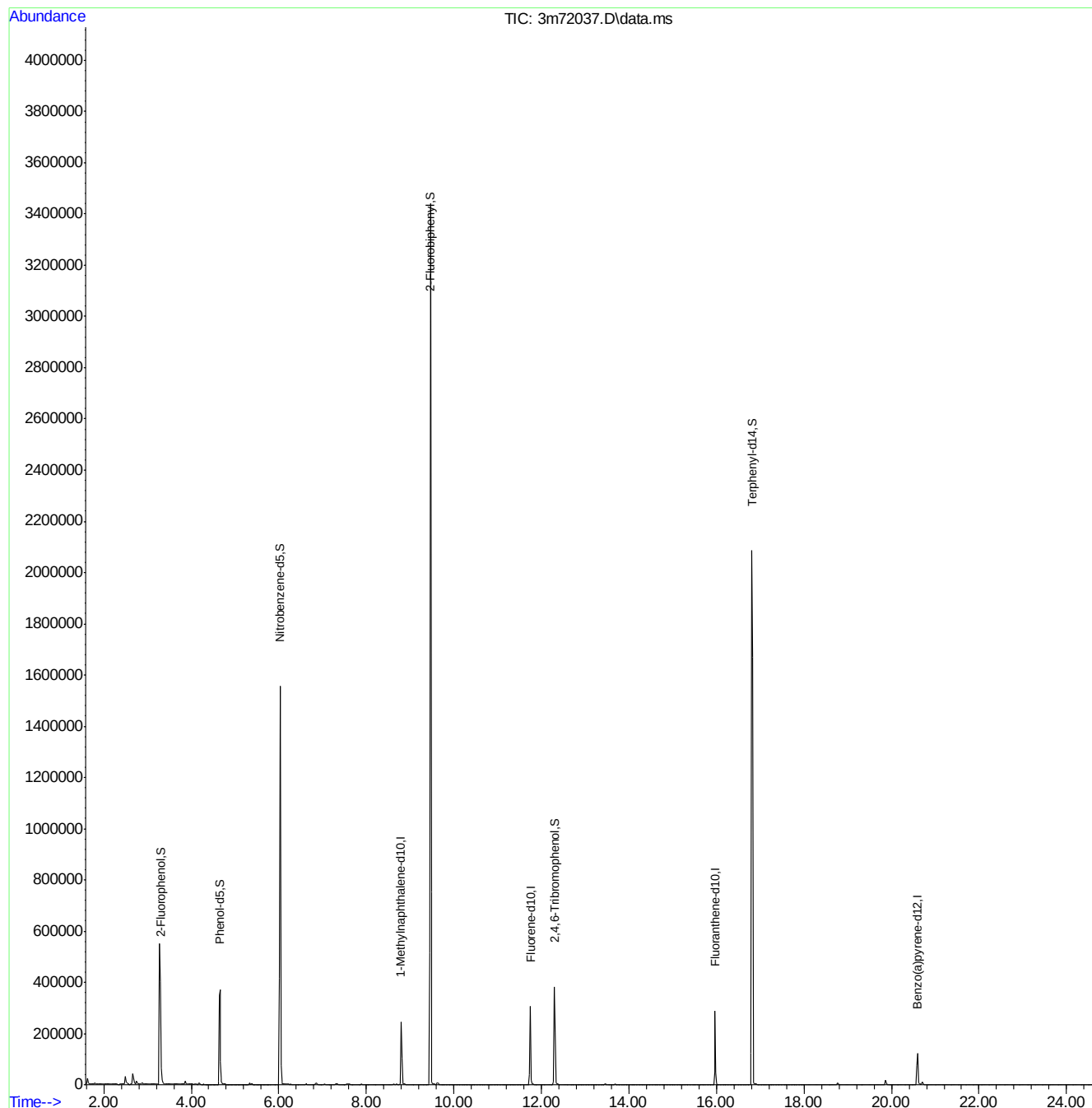
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72037.D
Acq On : 20 Oct 2017 11:37 pm
Operator : kevinm2
Sample : jc52695-1
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 23 12:07:32 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72033.D
 Acq On : 20 Oct 2017 9:29 pm
 Operator : kevinm2
 Sample : jc52695-2
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 23 12:01:23 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	8.793	150	143754	4.00	ppm	0.00
14) Fluorene-d10	11.751	176	205494	4.00	ppm	0.00
21) Fluoranthene-d10	15.972	212	268021	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.596	264	154901	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	299704	11.53	ppm	-0.01
Spiked Amount 50.000			Recovery =	23.06%		
4) Phenol-d5	4.656	99	320758	7.86	ppm	-0.02
Spiked Amount 50.000			Recovery =	15.72%		
7) Nitrobenzene-d5	6.031	82	1402404	37.67	ppm	-0.01
Spiked Amount 50.000			Recovery =	75.34%		
15) 2-Fluorobiphenyl	9.466	172	2244276	32.71	ppm	-0.02
Spiked Amount 50.000			Recovery =	65.42%		
20) 2,4,6-Tribromophenol	12.297	330	132718	19.45	ppm	-0.02
Spiked Amount 50.000			Recovery =	38.90%		
28) Terphenyl-d14	16.822	244	2105769	43.40	ppm	0.02
Spiked Amount 50.000			Recovery =	86.80%		

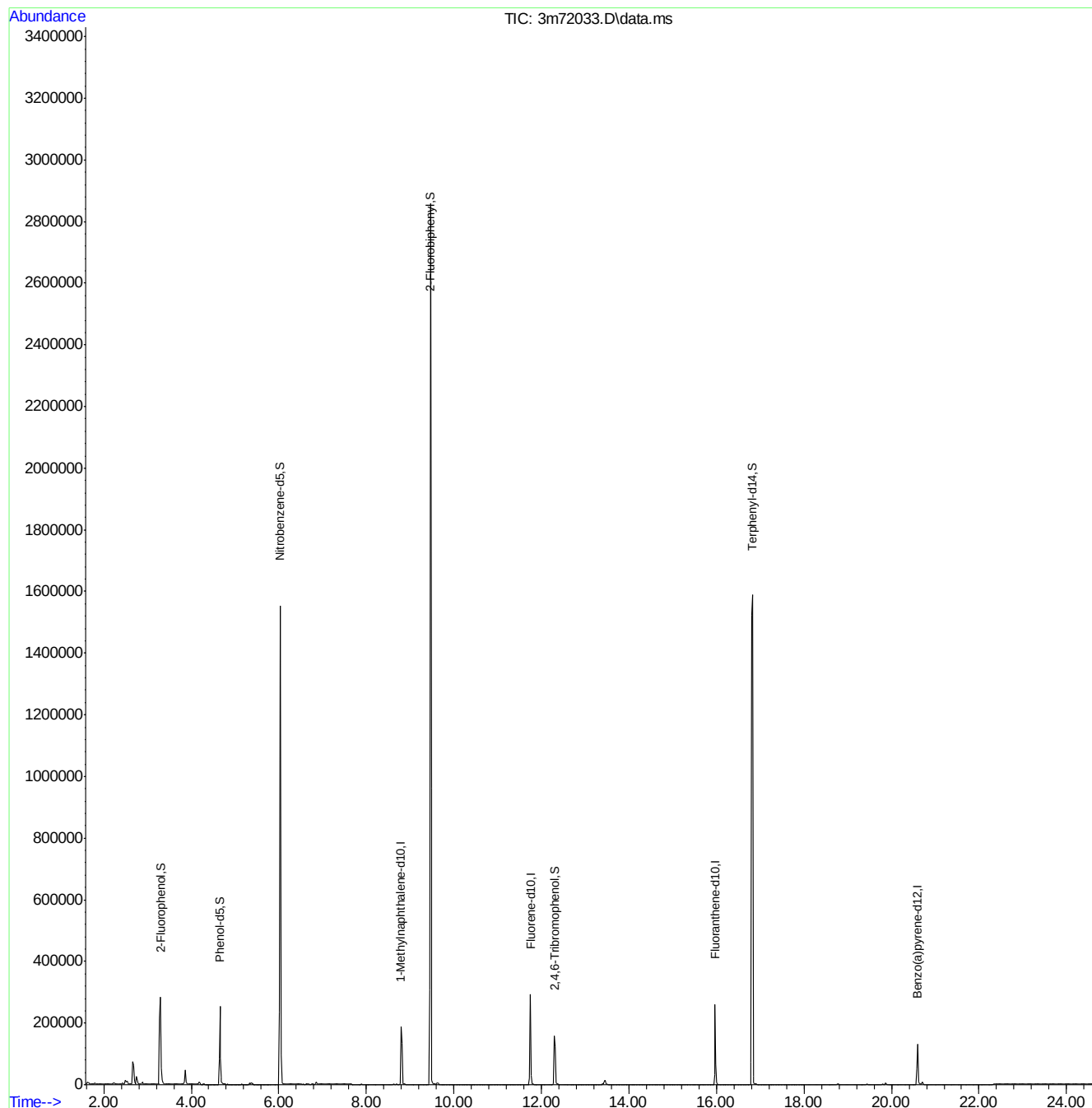
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72033.D
 Acq On : 20 Oct 2017 9:29 pm
 Operator : kevinm2
 Sample : jc52695-2
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 23 12:01:23 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72033.D
 Acq On : 20 Oct 2017 9:29 pm
 Operator : kevinm2
 Sample : jc52695-2
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 23 12:01:23 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.793	150	143754	4.00	ppm	0.00
14) Fluorene-d10	11.751	176	205494	4.00	ppm	0.00
21) Fluoranthene-d10	15.972	212	268021	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.596	264	154901	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	299704	11.53	ppm	-0.01
Spiked Amount 50.000			Recovery =	23.06%		
4) Phenol-d5	4.656	99	320758	7.86	ppm	-0.02
Spiked Amount 50.000			Recovery =	15.72%		
7) Nitrobenzene-d5	6.031	82	1402404	37.67	ppm	-0.01
Spiked Amount 50.000			Recovery =	75.34%		
15) 2-Fluorobiphenyl	9.466	172	2244276	32.71	ppm	-0.02
Spiked Amount 50.000			Recovery =	65.42%		
20) 2,4,6-Tribromophenol	12.297	330	132718	19.45	ppm	-0.02
Spiked Amount 50.000			Recovery =	38.90%		
28) Terphenyl-d14	16.822	244	2105769	43.40	ppm	0.02
Spiked Amount 50.000			Recovery =	86.80%		

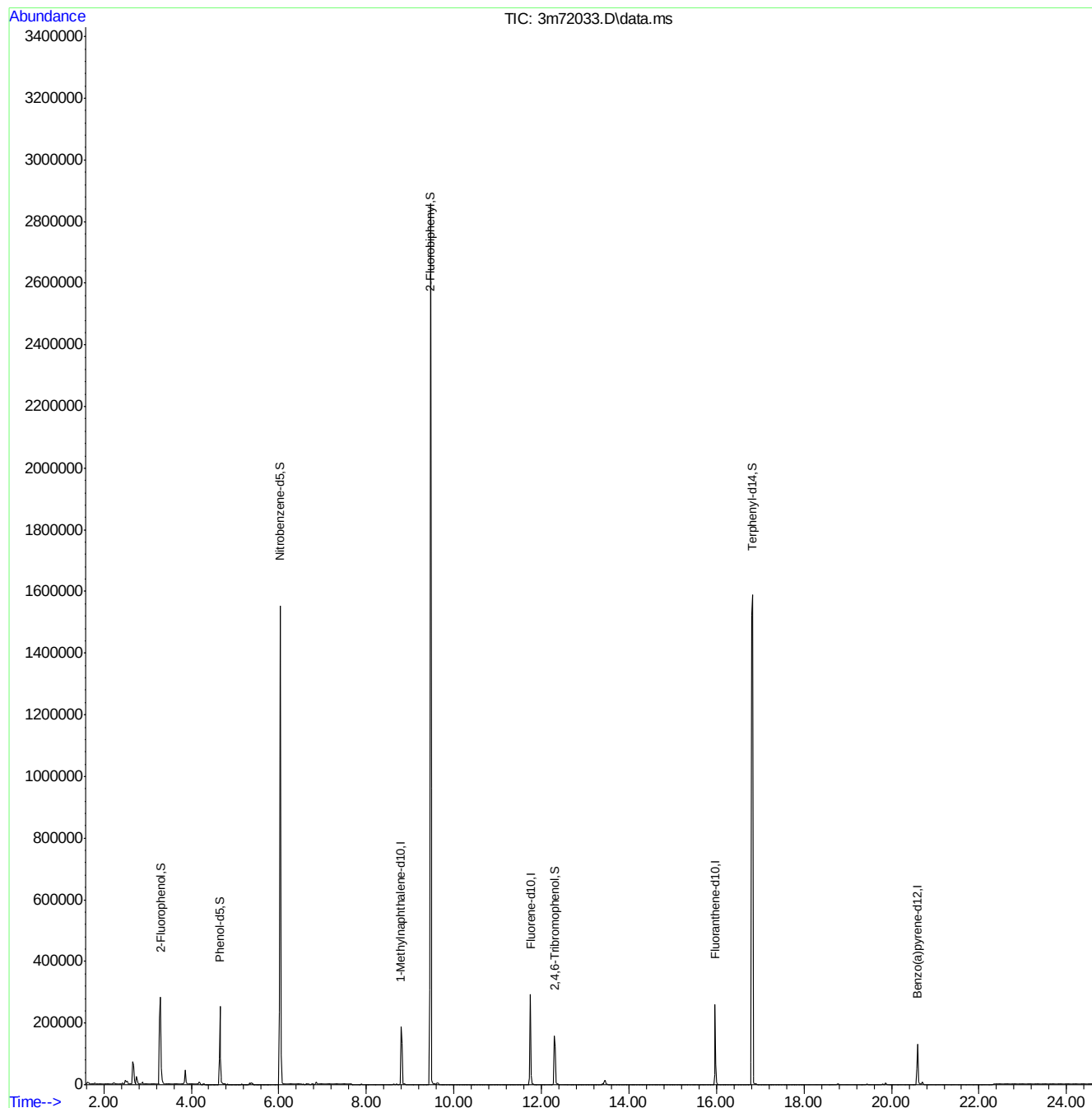
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72033.D
 Acq On : 20 Oct 2017 9:29 pm
 Operator : kevinm2
 Sample : jc52695-2
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 23 12:01:23 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72036.D
 Acq On : 20 Oct 2017 11:05 pm
 Operator : kevinm2
 Sample : jc52695-3
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 23 12:06:48 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

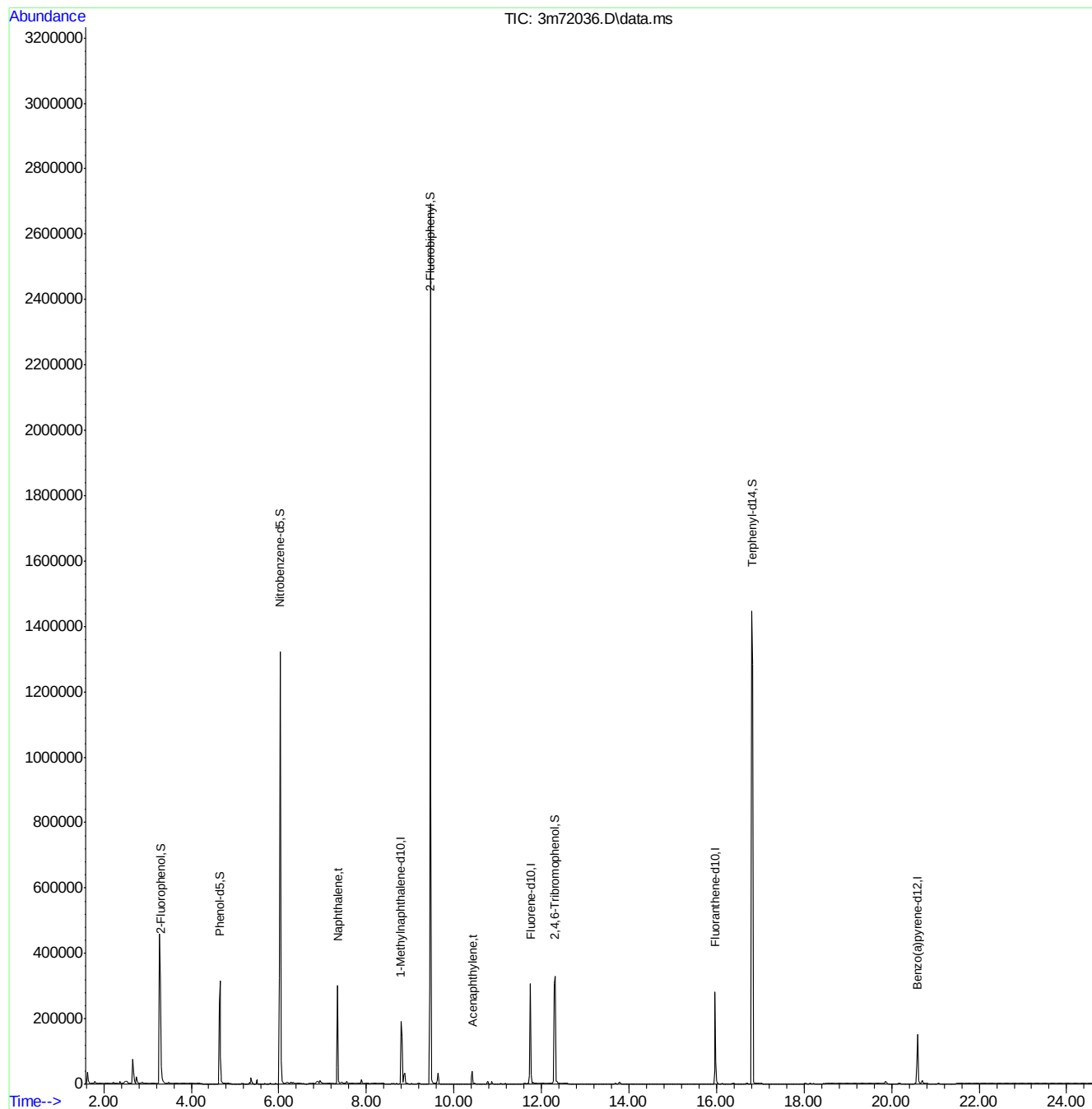
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.791	150	147660	4.00	ppm	0.00
14) Fluorene-d10	11.749	176	211240	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	287945	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	181419	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	401261	15.03	ppm	-0.01
Spiked Amount 50.000			Recovery	=	30.06%	
4) Phenol-d5	4.656	99	481536	11.49	ppm	-0.02
Spiked Amount 50.000			Recovery	=	22.98%	
7) Nitrobenzene-d5	6.030	82	1243456	32.51	ppm	-0.01
Spiked Amount 50.000			Recovery	=	65.02%	
15) 2-Fluorobiphenyl	9.464	172	2148624	30.47	ppm	-0.02
Spiked Amount 50.000			Recovery	=	60.94%	
20) 2,4,6-Tribromophenol	12.295	330	287987	41.05	ppm	-0.02
Spiked Amount 50.000			Recovery	=	82.10%	
28) Terphenyl-d14	16.805	244	1829183	35.09	ppm	0.00
Spiked Amount 50.000			Recovery	=	70.18%	
Target Compounds						
9) Naphthalene	7.348	128	320376	3.23	ppm	90
16) Acenaphthylene	10.422	152	43306	0.50	ppm	94

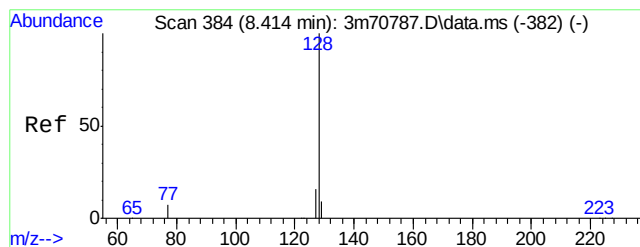
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72036.D
Acq On : 20 Oct 2017 11:05 pm
Operator : kevinm2
Sample : jc52695-3
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 14 Sample Multiplier: 1

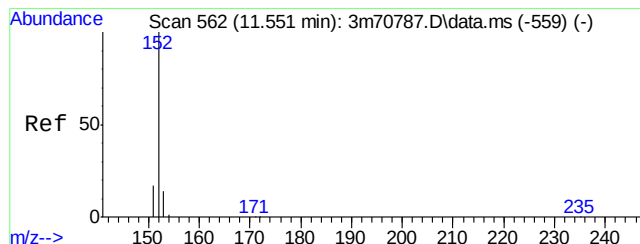
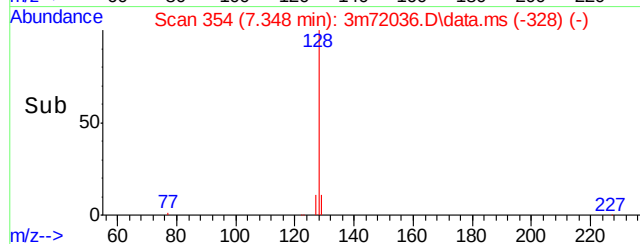
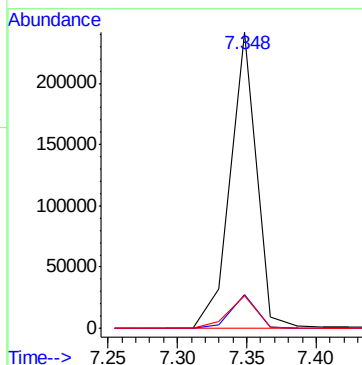
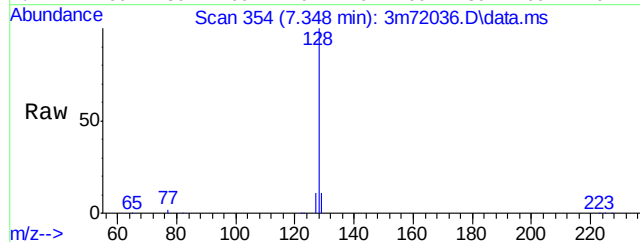
Quant Time: Oct 23 12:06:48 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration





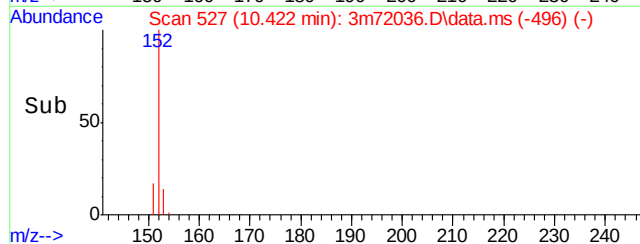
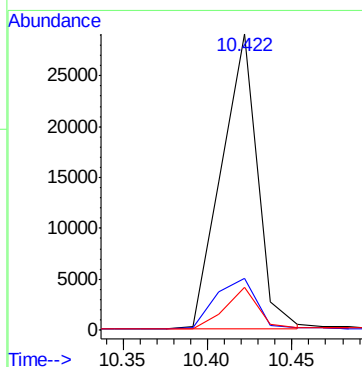
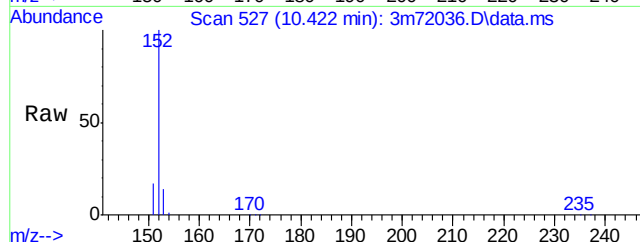
#9
Naphthalene
Concen: 3.23 ppm
RT: 7.348 min Scan# 354
Delta R.T. -0.006 min
Lab File: 3m72036.D
Acq: 20 Oct 2017 11:05 pm

Tgt Ion:	128	Resp:	320376
Ion Ratio	Lower	Upper	
128	100		
129	11.4	0.0	38.9
127	11.1	0.0	45.8



#16
Acenaphthylene
Concen: 0.50 ppm
RT: 10.422 min Scan# 527
Delta R.T. -0.013 min
Lab File: 3m72036.D
Acq: 20 Oct 2017 11:05 pm

Tgt Ion:	152	Resp:	43306
Ion Ratio	Lower	Upper	
152	100		
151	16.9	0.0	49.7
153	14.0	0.0	42.2



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72036.D
 Acq On : 20 Oct 2017 11:05 pm
 Operator : kevinm2
 Sample : jc52695-3
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 23 12:06:48 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

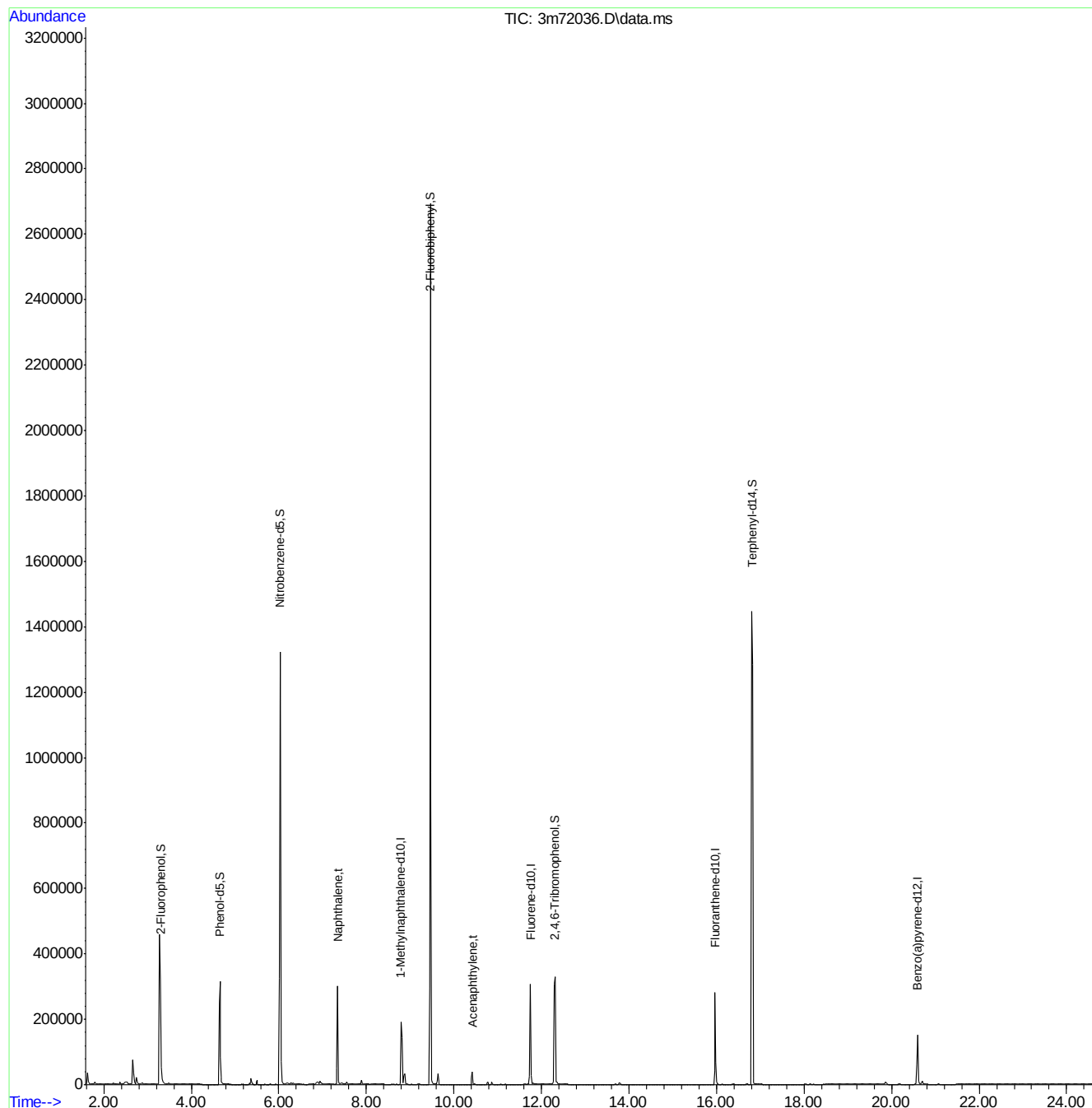
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.791	150	147660	4.00	ppm	0.00
14) Fluorene-d10	11.749	176	211240	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	287945	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	181419	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	401261	15.03	ppm	-0.01
Spiked Amount 50.000			Recovery	=	30.06%	
4) Phenol-d5	4.656	99	481536	11.49	ppm	-0.02
Spiked Amount 50.000			Recovery	=	22.98%	
7) Nitrobenzene-d5	6.030	82	1243456	32.51	ppm	-0.01
Spiked Amount 50.000			Recovery	=	65.02%	
15) 2-Fluorobiphenyl	9.464	172	2148624	30.47	ppm	-0.02
Spiked Amount 50.000			Recovery	=	60.94%	
20) 2,4,6-Tribromophenol	12.295	330	287987	41.05	ppm	-0.02
Spiked Amount 50.000			Recovery	=	82.10%	
28) Terphenyl-d14	16.805	244	1829183	35.09	ppm	0.00
Spiked Amount 50.000			Recovery	=	70.18%	
Target Compounds						
9) Naphthalene	7.348	128	320376	3.23	ppm	90
16) Acenaphthylene	10.422	152	43306	0.50	ppm	94

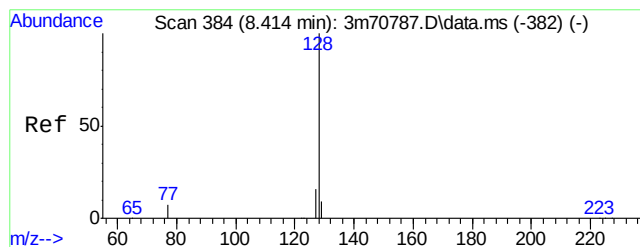
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72036.D
Acq On : 20 Oct 2017 11:05 pm
Operator : kevinm2
Sample : jc52695-3
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 14 Sample Multiplier: 1

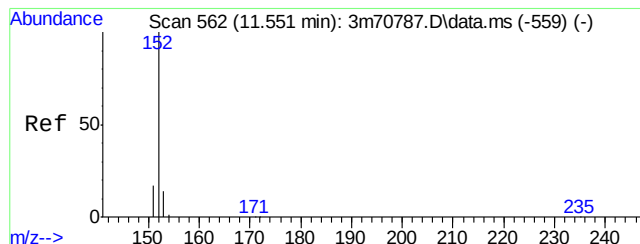
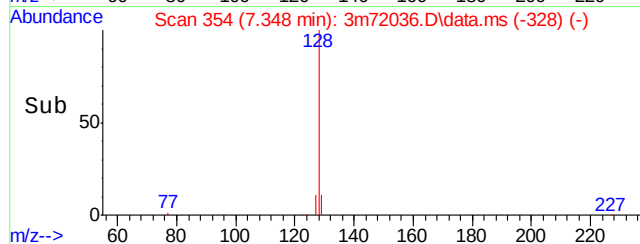
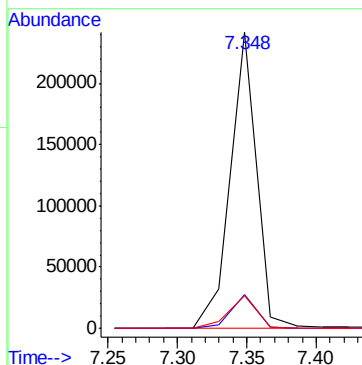
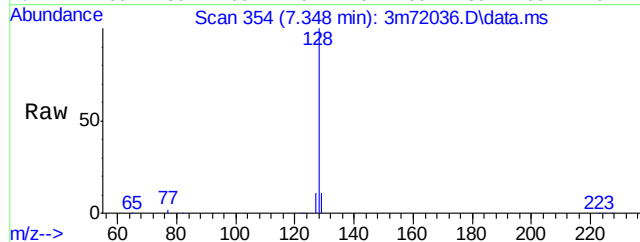
Quant Time: Oct 23 12:06:48 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration





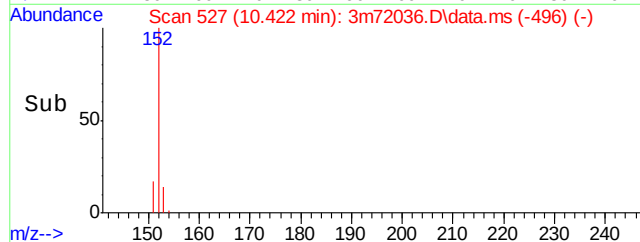
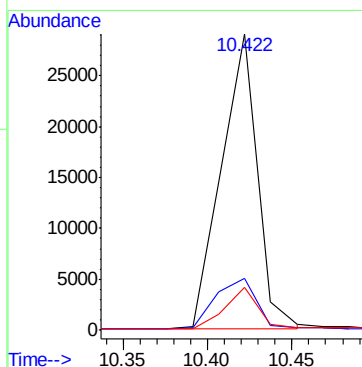
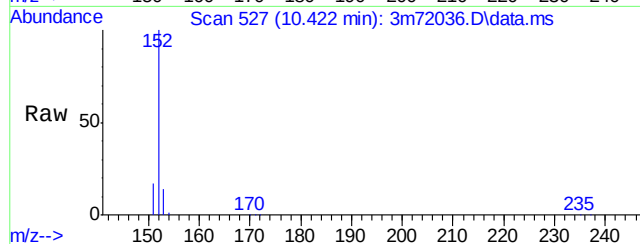
#9
Naphthalene
Concen: 3.23 ppm
RT: 7.348 min Scan# 354
Delta R.T. -0.006 min
Lab File: 3m72036.D
Acq: 20 Oct 2017 11:05 pm

Tgt Ion:	128	Resp:	320376
Ion Ratio	Lower	Upper	
128	100		
129	11.4	0.0	38.9
127	11.1	0.0	45.8



#16
Acenaphthylene
Concen: 0.50 ppm
RT: 10.422 min Scan# 527
Delta R.T. -0.013 min
Lab File: 3m72036.D
Acq: 20 Oct 2017 11:05 pm

Tgt Ion:	152	Resp:	43306
Ion Ratio	Lower	Upper	
152	100		
151	16.9	0.0	49.7
153	14.0	0.0	42.2



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72038.D
Acq On : 21 Oct 2017 12:08 am
Operator : kevinm2
Sample : jc52695-4
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 23 12:09:04 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration

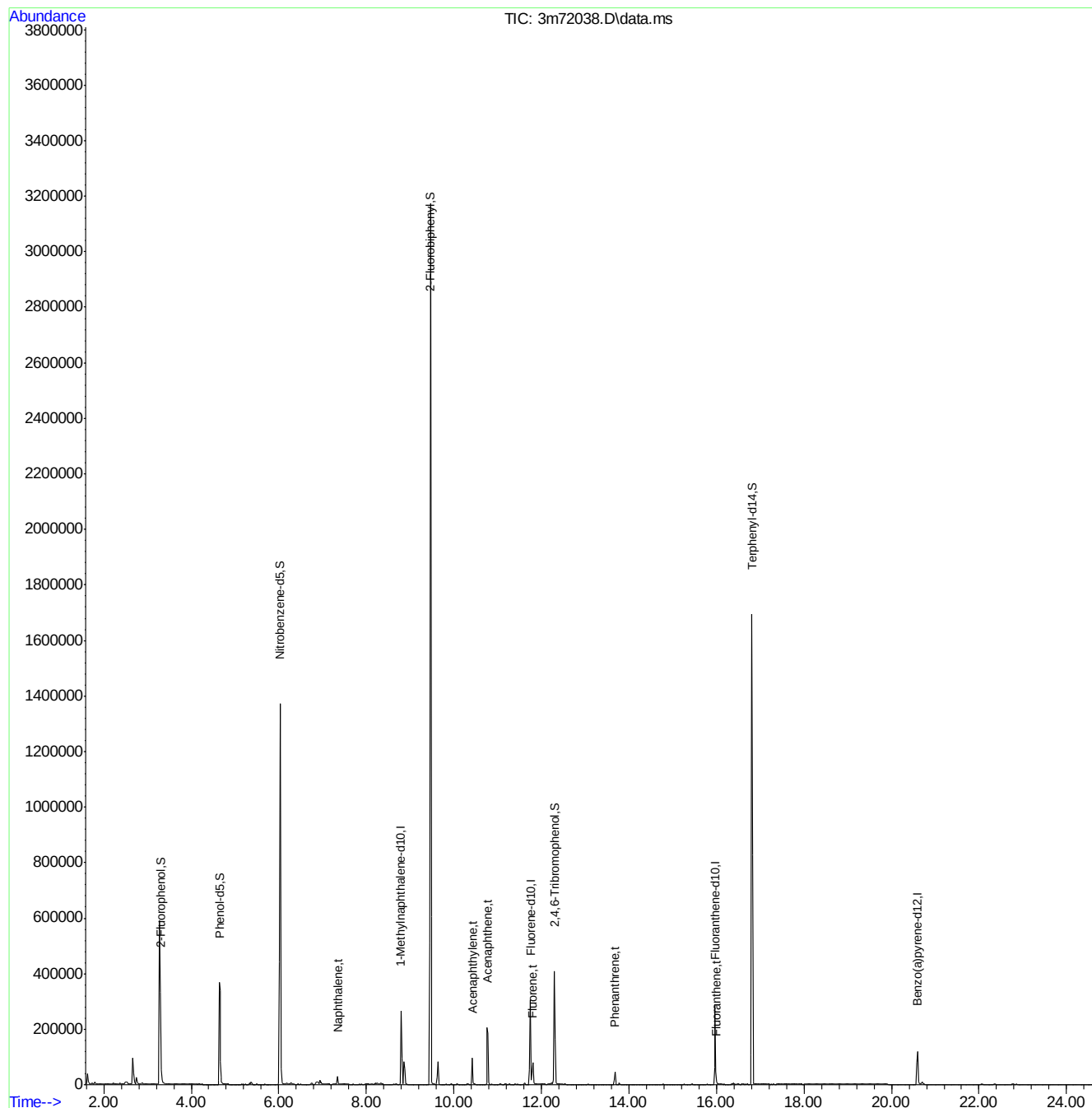
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.793	150	161985	4.00	ppm	0.00
14) Fluorene-d10	11.751	176	218544	4.00	ppm	0.00
21) Fluoranthene-d10	15.972	212	286229	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.596	264	167543	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	482989	16.50	ppm	-0.01
Spiked Amount 50.000			Recovery =	33.00%		
4) Phenol-d5	4.644	99	584540	12.71	ppm	-0.03
Spiked Amount 50.000			Recovery =	25.42%		
7) Nitrobenzene-d5	6.031	82	1358347	32.38	ppm	-0.01
Spiked Amount 50.000			Recovery =	64.76%		
15) 2-Fluorobiphenyl	9.466	172	2323227	31.84	ppm	-0.02
Spiked Amount 50.000			Recovery =	63.68%		
20) 2,4,6-Tribromophenol	12.297	330	272931	37.61	ppm	-0.02
Spiked Amount 50.000			Recovery =	75.22%		
28) Terphenyl-d14	16.806	244	1716366	33.12	ppm	0.00
Spiked Amount 50.000			Recovery =	66.24%		
Target Compounds						
						Qvalue
9) Naphthalene	7.349	128	31010	0.29	ppm	89
16) Acenaphthylene	10.424	152	134734	1.50	ppm	92
17) Acenaphthene	10.764	153	143823	2.40	ppm	95
19) Fluorene	11.807	166	70249	1.08	ppm	74
24) Phenanthrene	13.684	178	48417	0.55	ppm	92
26) Fluoranthene	16.003	202	8744	0.10	ppm	96

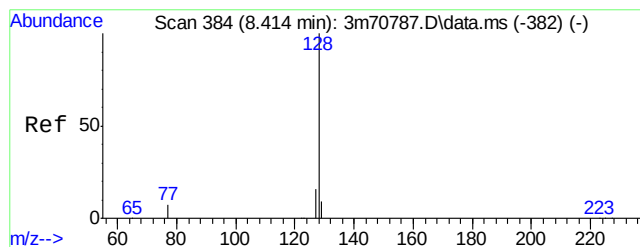
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72038.D
Acq On : 21 Oct 2017 12:08 am
Operator : kevinm2
Sample : jc52695-4
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 16 Sample Multiplier: 1

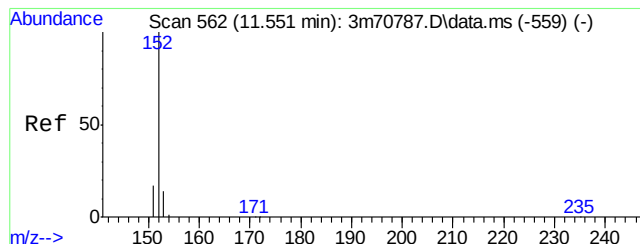
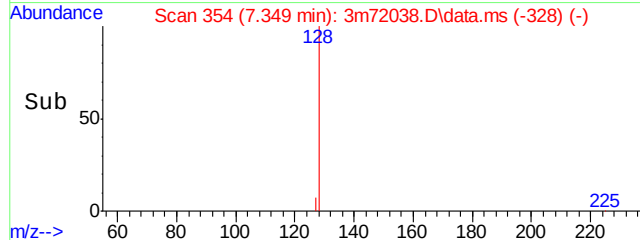
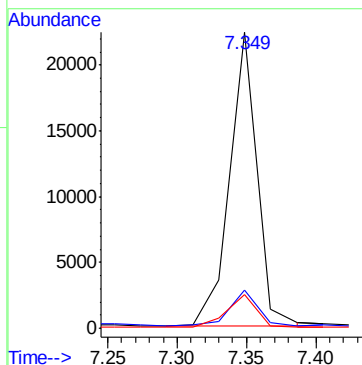
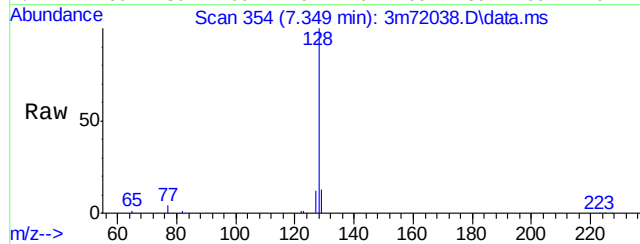
Quant Time: Oct 23 12:09:04 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration





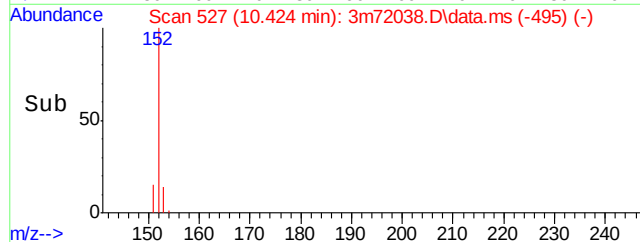
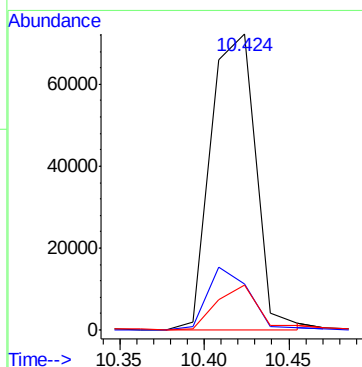
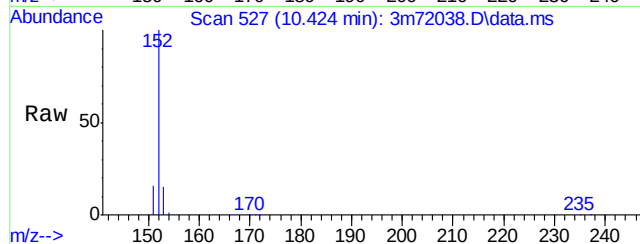
#9
Naphthalene
Concen: 0.29 ppm
RT: 7.349 min Scan# 354
Delta R.T. -0.005 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

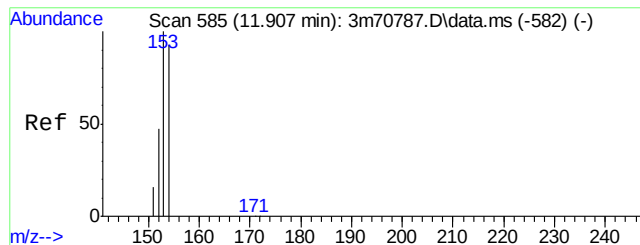
Tgt Ion:	128	Resp:	31010
Ion Ratio	Lower	Upper	
128	100		
129	12.5	0.0	38.9
127	11.2	0.0	45.8



#16
Acenaphthylene
Concen: 1.50 ppm
RT: 10.424 min Scan# 527
Delta R.T. -0.011 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

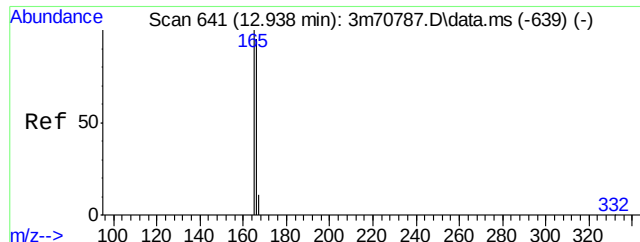
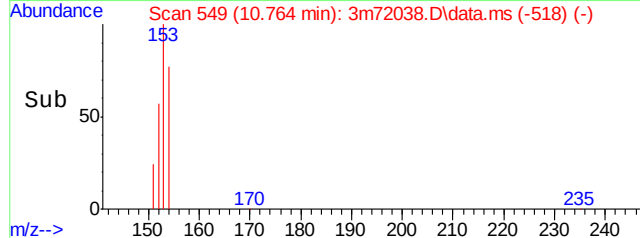
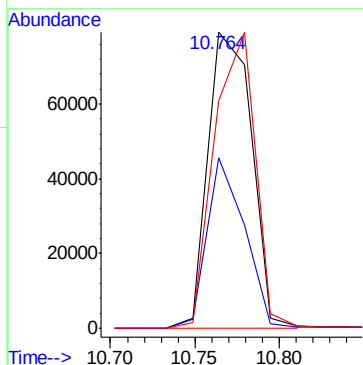
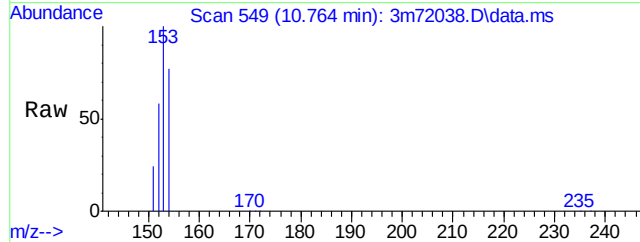
Tgt Ion:	152	Resp:	134734
Ion Ratio	Lower	Upper	
152	100		
151	15.4	0.0	49.7
153	14.5	0.0	42.2





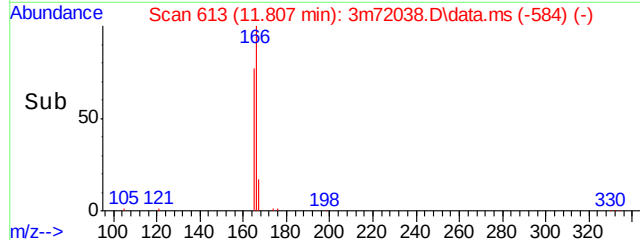
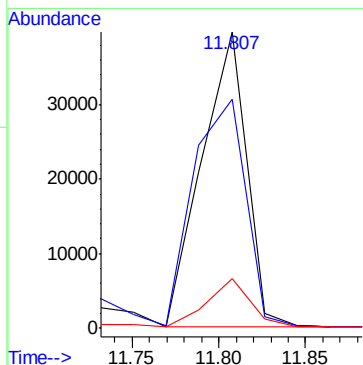
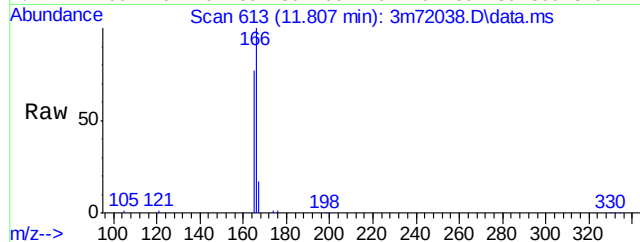
#17
Acenaphthene
Concen: 2.40 ppm
RT: 10.764 min Scan# 549
Delta R.T. -0.025 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

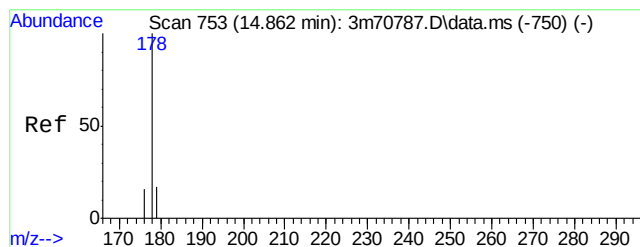
Tgt Ion:	153	Resp:	143823
Ion Ratio	Lower	Upper	
153	100		
152	57.5	24.0	84.0
154	76.8	50.9	110.9



#19
Fluorene
Concen: 1.08 ppm
RT: 11.807 min Scan# 613
Delta R.T. 0.001 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

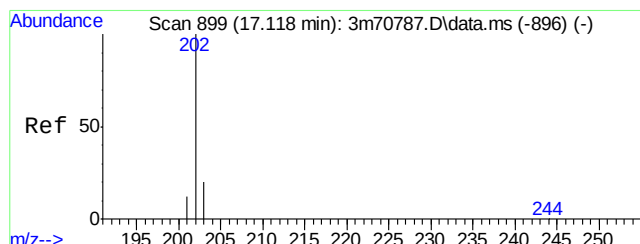
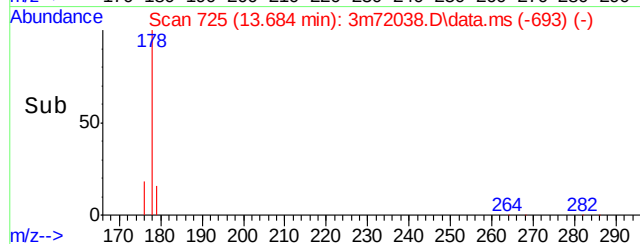
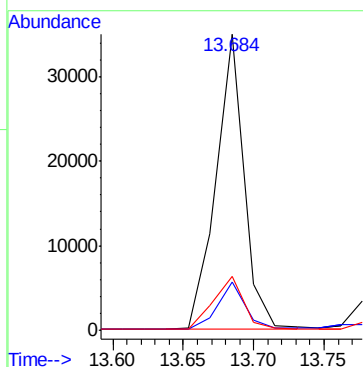
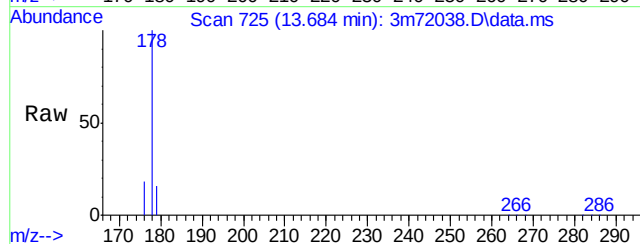
Tgt Ion:	166	Resp:	70249
Ion Ratio	Lower	Upper	
166	100		
165	77.0	74.8	134.8
167	16.4	0.0	41.2





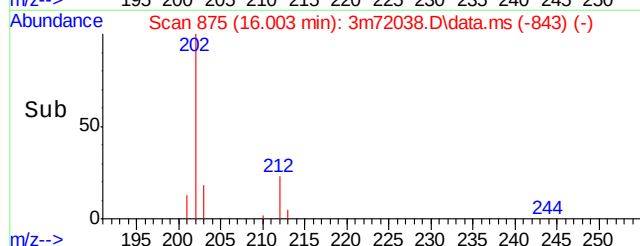
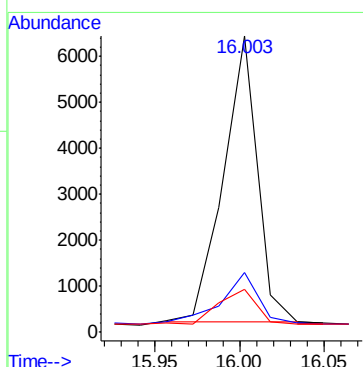
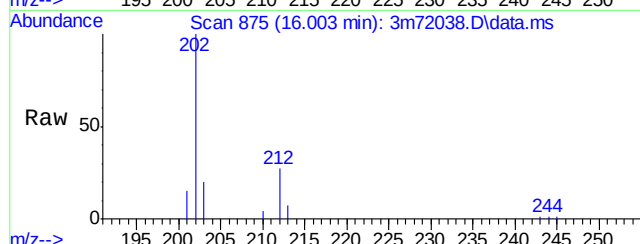
#24
Phenanthrene
Concen: 0.55 ppm
RT: 13.684 min Scan# 725
Delta R.T. -0.009 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

Tgt Ion:178	Resp:	48417
Ion Ratio	Lower	Upper
178	100	
179	15.7	0.0 43.5
176	17.8	0.0 52.2



#26
Fluoranthene
Concen: 0.10 ppm
RT: 16.003 min Scan# 875
Delta R.T. -0.000 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

Tgt Ion:202	Resp:	8744
Ion Ratio	Lower	Upper
202	100	
203	17.4	0.0 49.7
201	12.2	0.0 41.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72038.D
 Acq On : 21 Oct 2017 12:08 am
 Operator : kevinm2
 Sample : jc52695-4
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 23 12:09:04 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

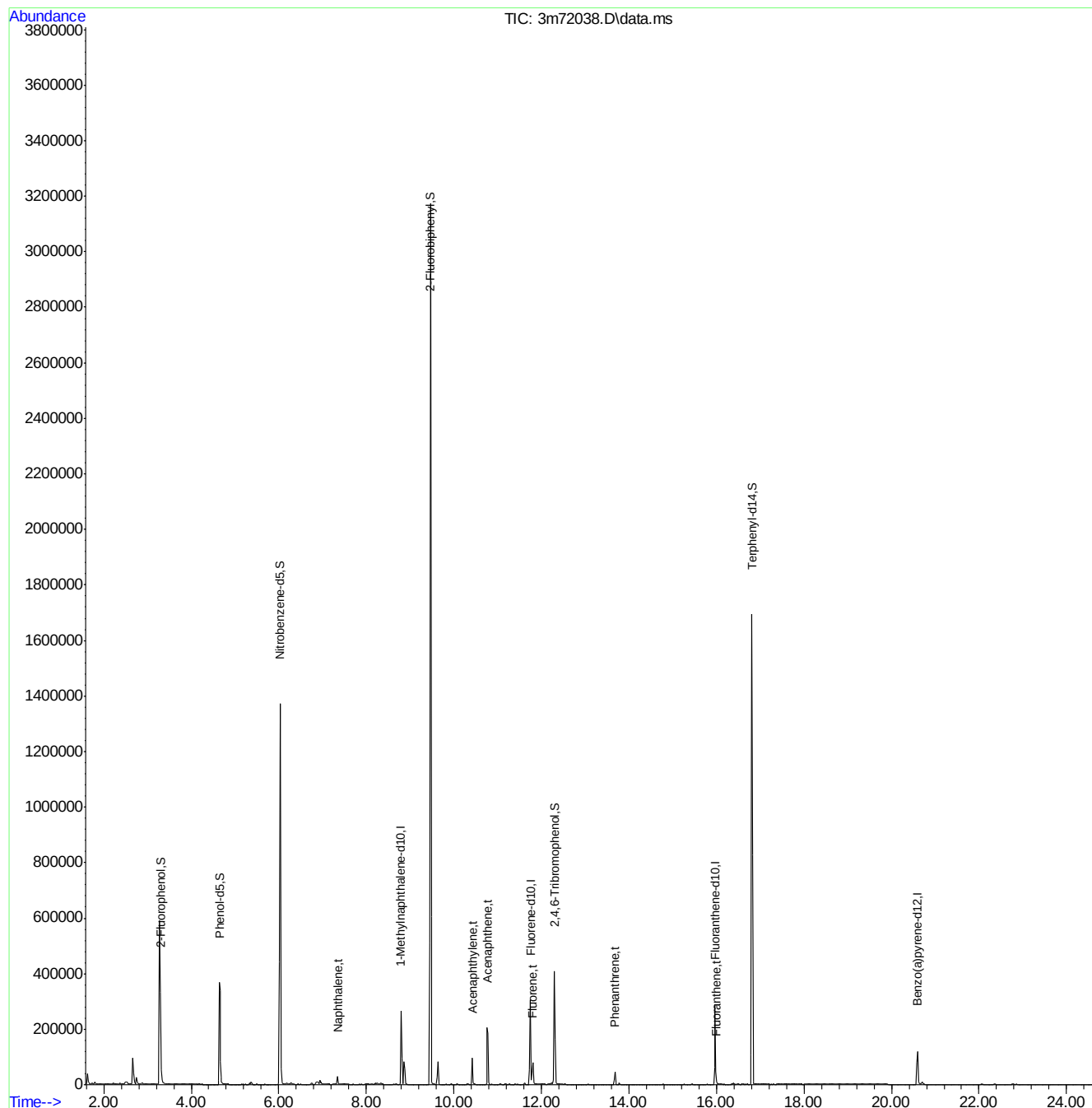
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.793	150	161985	4.00	ppm	0.00
14) Fluorene-d10	11.751	176	218544	4.00	ppm	0.00
21) Fluoranthene-d10	15.972	212	286229	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.596	264	167543	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	482989	16.50	ppm	-0.01
Spiked Amount 50.000			Recovery =	33.00%		
4) Phenol-d5	4.644	99	584540	12.71	ppm	-0.03
Spiked Amount 50.000			Recovery =	25.42%		
7) Nitrobenzene-d5	6.031	82	1358347	32.38	ppm	-0.01
Spiked Amount 50.000			Recovery =	64.76%		
15) 2-Fluorobiphenyl	9.466	172	2323227	31.84	ppm	-0.02
Spiked Amount 50.000			Recovery =	63.68%		
20) 2,4,6-Tribromophenol	12.297	330	272931	37.61	ppm	-0.02
Spiked Amount 50.000			Recovery =	75.22%		
28) Terphenyl-d14	16.806	244	1716366	33.12	ppm	0.00
Spiked Amount 50.000			Recovery =	66.24%		
Target Compounds						
9) Naphthalene	7.349	128	31010	0.29	ppm	Qvalue 89
16) Acenaphthylene	10.424	152	134734	1.50	ppm	92
17) Acenaphthene	10.764	153	143823	2.40	ppm	95
19) Fluorene	11.807	166	70249	1.08	ppm	74
24) Phenanthrene	13.684	178	48417	0.55	ppm	92
26) Fluoranthene	16.003	202	8744	0.10	ppm	96

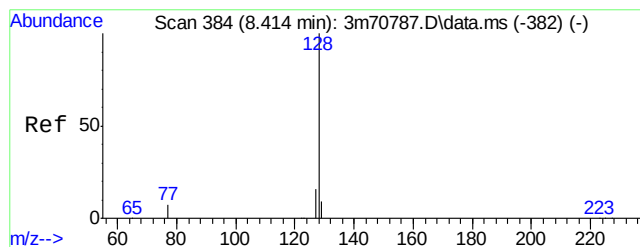
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72038.D
 Acq On : 21 Oct 2017 12:08 am
 Operator : kevinm2
 Sample : jc52695-4
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 16 Sample Multiplier: 1

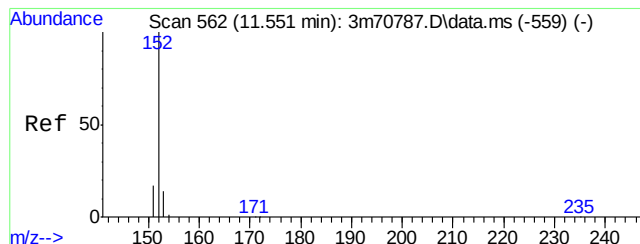
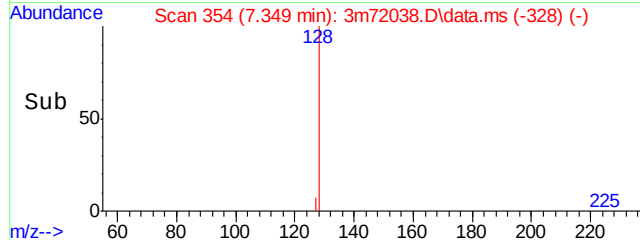
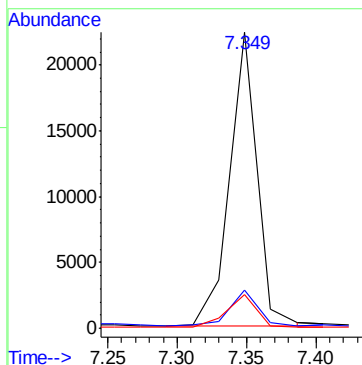
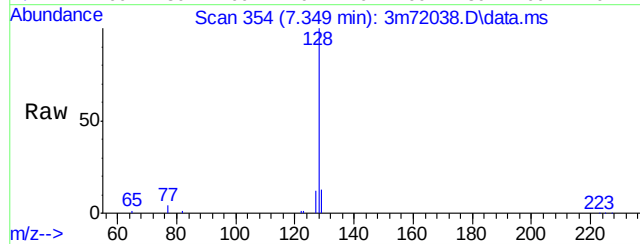
Quant Time: Oct 23 12:09:04 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration





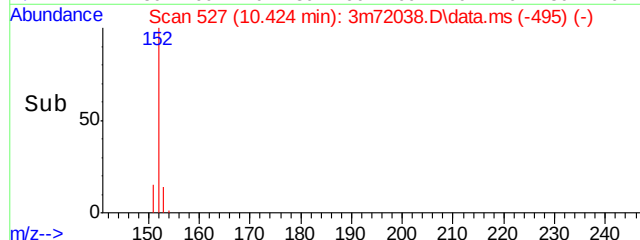
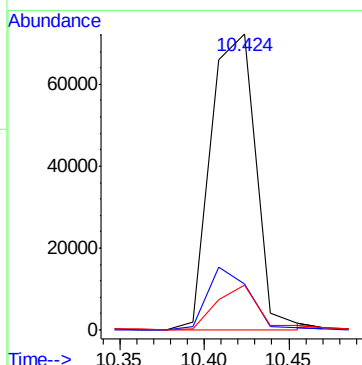
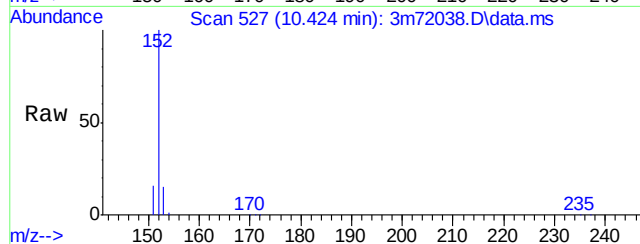
#9
Naphthalene
Concen: 0.29 ppm
RT: 7.349 min Scan# 354
Delta R.T. -0.005 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

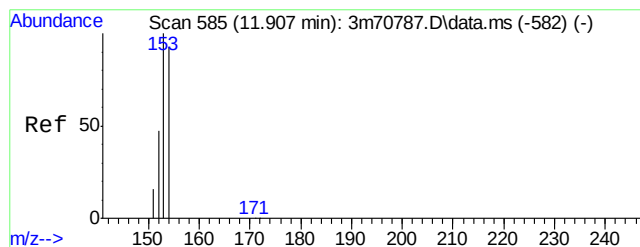
Tgt Ion:	128	Resp:	31010
Ion Ratio	Lower	Upper	
128	100		
129	12.5	0.0	38.9
127	11.2	0.0	45.8



#16
Acenaphthylene
Concen: 1.50 ppm
RT: 10.424 min Scan# 527
Delta R.T. -0.011 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

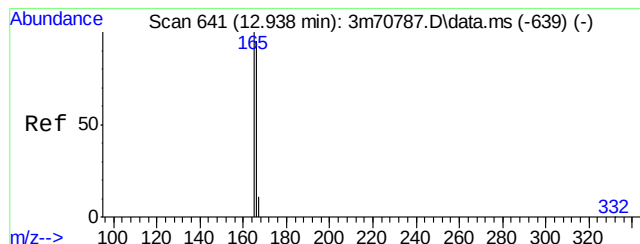
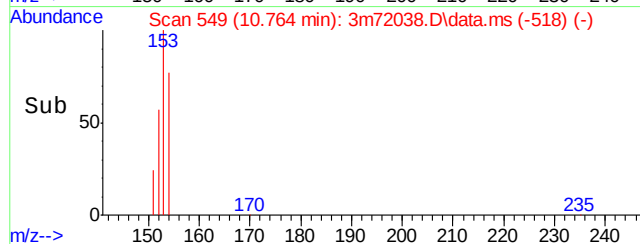
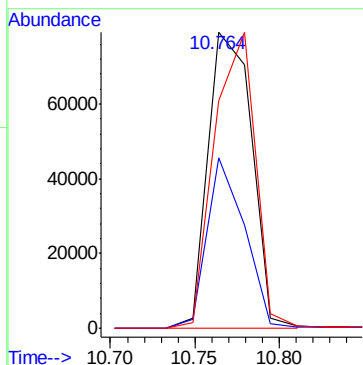
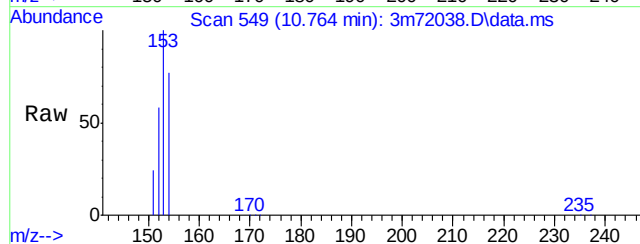
Tgt Ion:	152	Resp:	134734
Ion Ratio	Lower	Upper	
152	100		
151	15.4	0.0	49.7
153	14.5	0.0	42.2





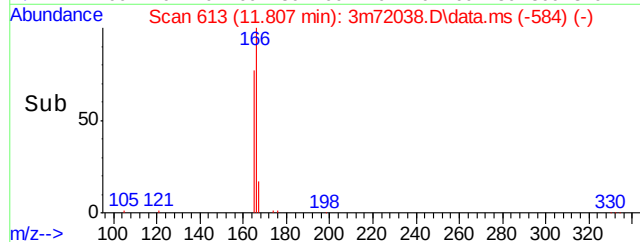
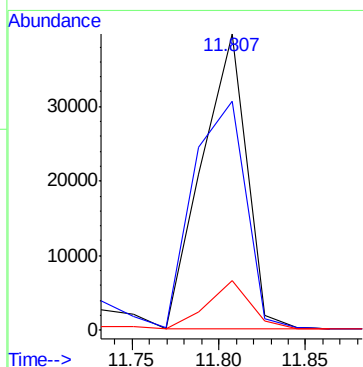
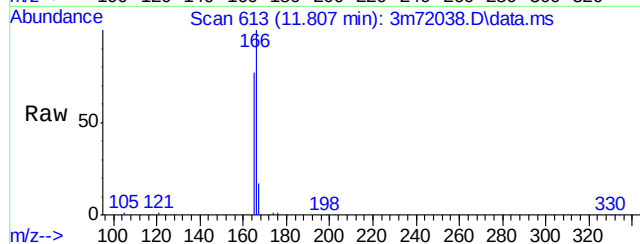
#17
Acenaphthene
Concen: 2.40 ppm
RT: 10.764 min Scan# 549
Delta R.T. -0.025 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

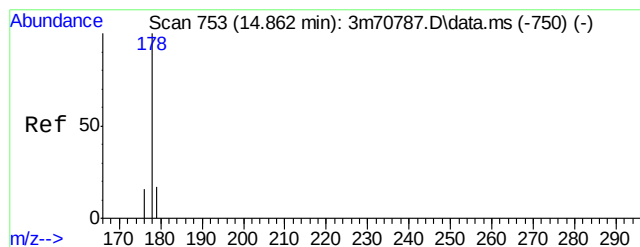
Tgt Ion	Ratio	Lower	Upper
153	100		
152	57.5	24.0	84.0
154	76.8	50.9	110.9



#19
Fluorene
Concen: 1.08 ppm
RT: 11.807 min Scan# 613
Delta R.T. 0.001 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

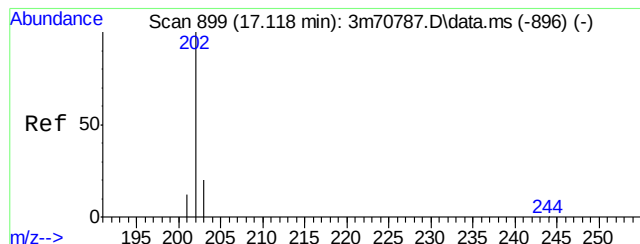
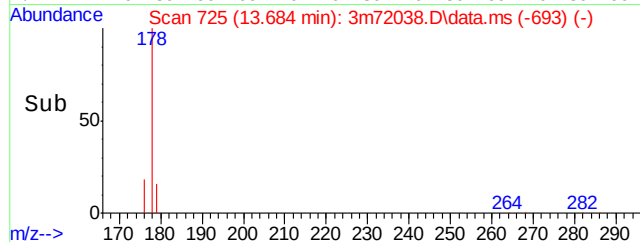
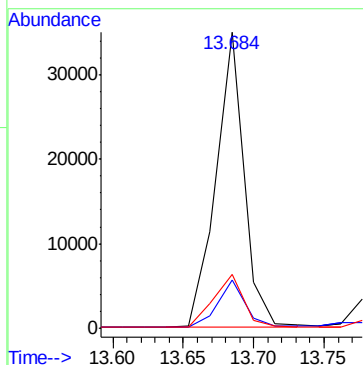
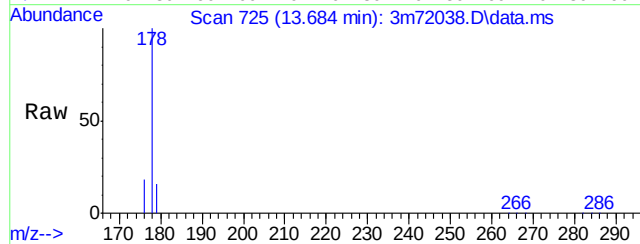
Tgt Ion	Ratio	Lower	Upper
166	100		
165	77.0	74.8	134.8
167	16.4	0.0	41.2





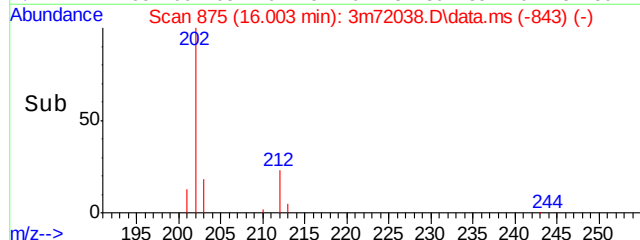
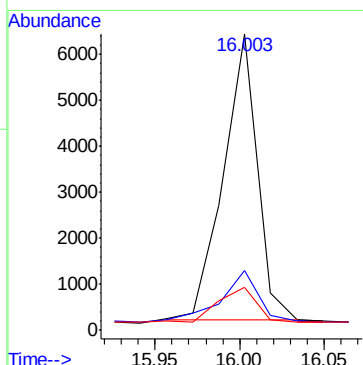
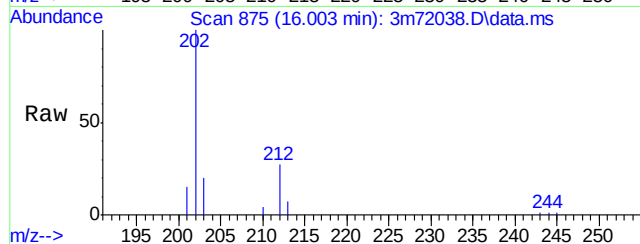
#24
Phenanthrene
Concen: 0.55 ppm
RT: 13.684 min Scan# 725
Delta R.T. -0.009 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

Tgt Ion:	178	Resp:	48417
Ion Ratio	Lower	Upper	
178	100		
179	15.7	0.0	43.5
176	17.8	0.0	52.2



#26
Fluoranthene
Concen: 0.10 ppm
RT: 16.003 min Scan# 875
Delta R.T. -0.000 min
Lab File: 3m72038.D
Acq: 21 Oct 2017 12:08 am

Tgt Ion:	202	Resp:	8744
Ion Ratio	Lower	Upper	
202	100		
203	17.4	0.0	49.7
201	12.2	0.0	41.7



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72030.D
 Acq On : 20 Oct 2017 7:54 pm
 Operator : kevinm2
 Sample : jc52695-5
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 23 11:57:07 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.812	150	143287	4.00	ppm	0.02
14) Fluorene-d10	11.749	176	194803	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	242616	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	160265	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	568653	21.96	ppm	-0.01
Spiked Amount 50.000			Recovery =	43.92%		
4) Phenol-d5	4.656	99	514961	12.66	ppm	-0.02
Spiked Amount 50.000			Recovery =	25.32%		
7) Nitrobenzene-d5	6.030	82	1418991	38.23	ppm	-0.01
Spiked Amount 50.000			Recovery =	76.46%		
15) 2-Fluorobiphenyl	9.479	172	2203341	33.88	ppm	0.00
Spiked Amount 50.000			Recovery =	67.76%		
20) 2,4,6-Tribromophenol	12.314	330	297318	45.96	ppm	0.00
Spiked Amount 50.000			Recovery =	91.92%		
28) Terphenyl-d14	16.820	244	1886729	42.95	ppm	0.02
Spiked Amount 50.000			Recovery =	85.90%		

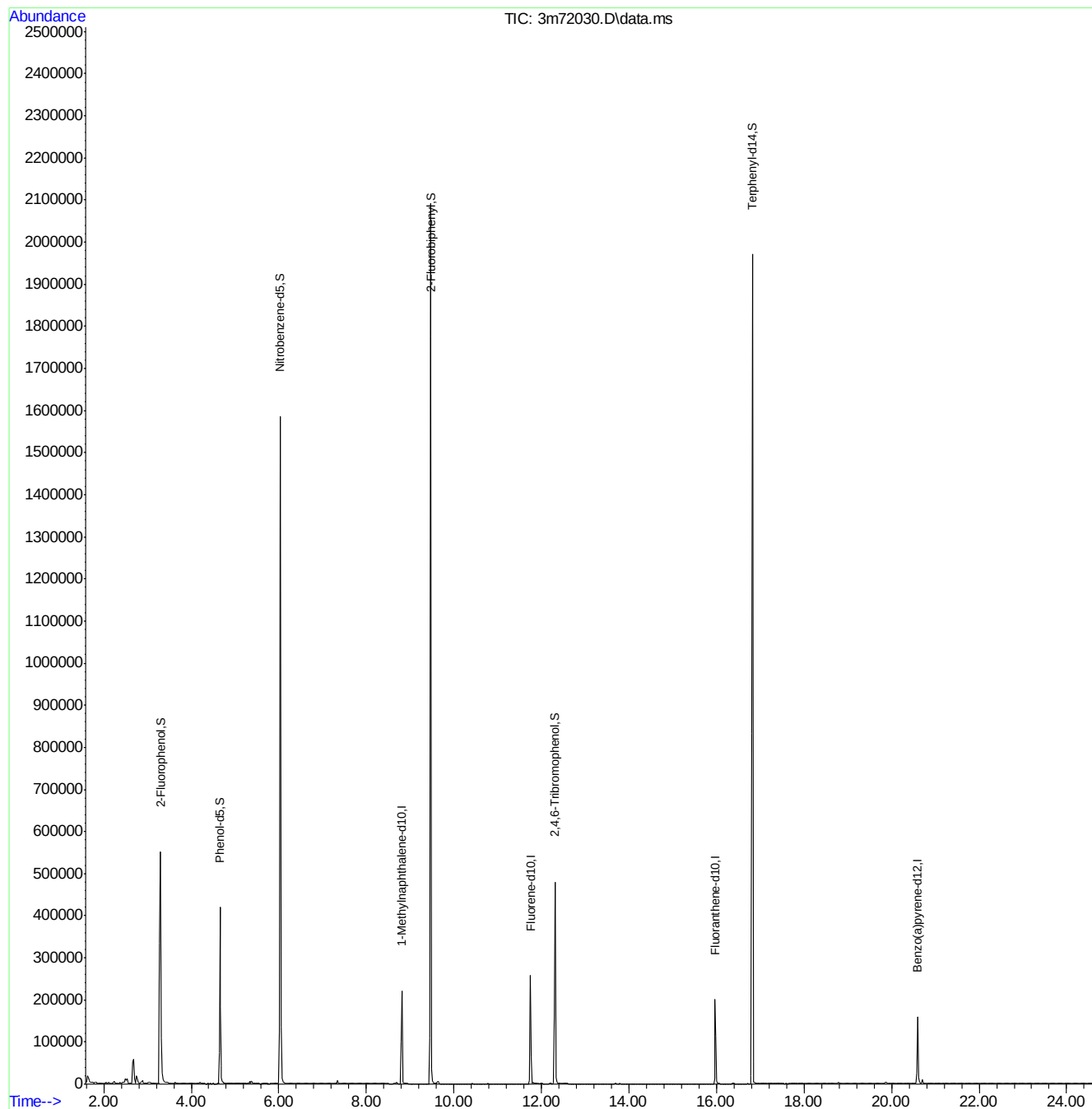
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72030.D
Acq On : 20 Oct 2017 7:54 pm
Operator : kevinm2
Sample : jc52695-5
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 23 11:57:07 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72030.D
 Acq On : 20 Oct 2017 7:54 pm
 Operator : kevinm2
 Sample : jc52695-5
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 23 11:57:07 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.812	150	143287	4.00	ppm	0.02
14) Fluorene-d10	11.749	176	194803	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	242616	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	160265	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	568653	21.96	ppm	-0.01
Spiked Amount 50.000			Recovery =	43.92%		
4) Phenol-d5	4.656	99	514961	12.66	ppm	-0.02
Spiked Amount 50.000			Recovery =	25.32%		
7) Nitrobenzene-d5	6.030	82	1418991	38.23	ppm	-0.01
Spiked Amount 50.000			Recovery =	76.46%		
15) 2-Fluorobiphenyl	9.479	172	2203341	33.88	ppm	0.00
Spiked Amount 50.000			Recovery =	67.76%		
20) 2,4,6-Tribromophenol	12.314	330	297318	45.96	ppm	0.00
Spiked Amount 50.000			Recovery =	91.92%		
28) Terphenyl-d14	16.820	244	1886729	42.95	ppm	0.02
Spiked Amount 50.000			Recovery =	85.90%		

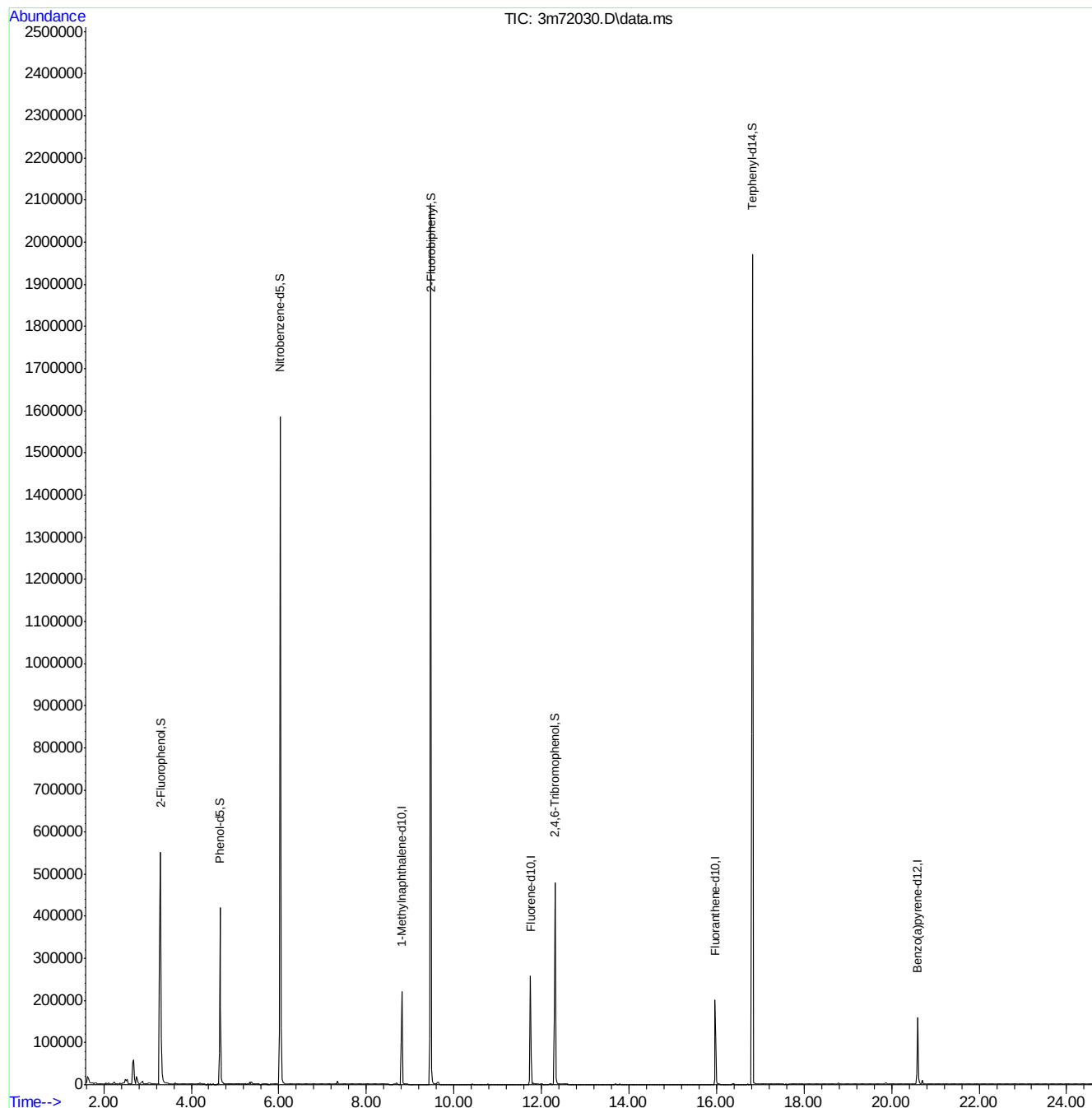
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72030.D
Acq On : 20 Oct 2017 7:54 pm
Operator : kevinm2
Sample : jc52695-5
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 23 11:57:07 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72035.D
 Acq On : 20 Oct 2017 10:33 pm
 Operator : kevinm2
 Sample : jc52695-6
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 23 12:05:45 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.793	150	143613	4.00	ppm	0.00
14) Fluorene-d10	11.751	176	197794	4.00	ppm	0.00
21) Fluoranthene-d10	15.972	212	259693	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.596	264	153289	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	221699	8.54	ppm	-0.01
Spiked Amount 50.000			Recovery	=	17.08%	
4) Phenol-d5	4.656	99	243751	5.98	ppm	-0.02
Spiked Amount 50.000			Recovery	=	11.96%	
7) Nitrobenzene-d5	6.031	82	1285711	34.56	ppm	-0.01
Spiked Amount 50.000			Recovery	=	69.12%	
15) 2-Fluorobiphenyl	9.466	172	2091180	31.67	ppm	-0.02
Spiked Amount 50.000			Recovery	=	63.34%	
20) 2,4,6-Tribromophenol	12.297	330	108625	16.54	ppm	-0.02
Spiked Amount 50.000			Recovery	=	33.08%	
28) Terphenyl-d14	16.807	244	2423114	51.54	ppm	0.00
Spiked Amount 50.000			Recovery	=	103.08%	

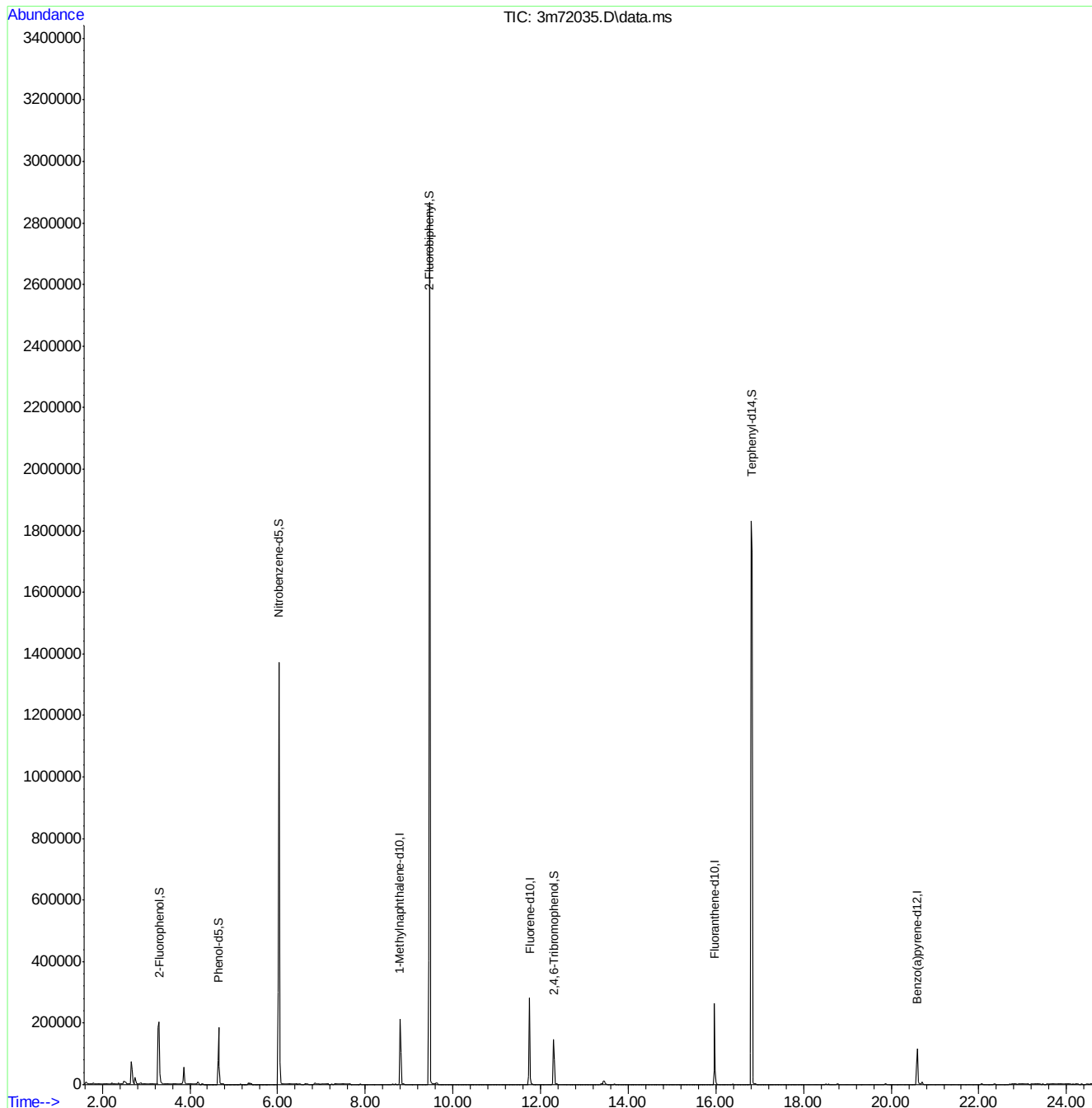
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72035.D
 Acq On : 20 Oct 2017 10:33 pm
 Operator : kevinm2
 Sample : jc52695-6
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 23 12:05:45 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72035.D
 Acq On : 20 Oct 2017 10:33 pm
 Operator : kevinm2
 Sample : jc52695-6
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 23 12:05:45 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.793	150	143613	4.00	ppm	0.00
14) Fluorene-d10	11.751	176	197794	4.00	ppm	0.00
21) Fluoranthene-d10	15.972	212	259693	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.596	264	153289	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	221699	8.54	ppm	-0.01
Spiked Amount 50.000			Recovery	=	17.08%	
4) Phenol-d5	4.656	99	243751	5.98	ppm	-0.02
Spiked Amount 50.000			Recovery	=	11.96%	
7) Nitrobenzene-d5	6.031	82	1285711	34.56	ppm	-0.01
Spiked Amount 50.000			Recovery	=	69.12%	
15) 2-Fluorobiphenyl	9.466	172	2091180	31.67	ppm	-0.02
Spiked Amount 50.000			Recovery	=	63.34%	
20) 2,4,6-Tribromophenol	12.297	330	108625	16.54	ppm	-0.02
Spiked Amount 50.000			Recovery	=	33.08%	
28) Terphenyl-d14	16.807	244	2423114	51.54	ppm	0.00
Spiked Amount 50.000			Recovery	=	103.08%	

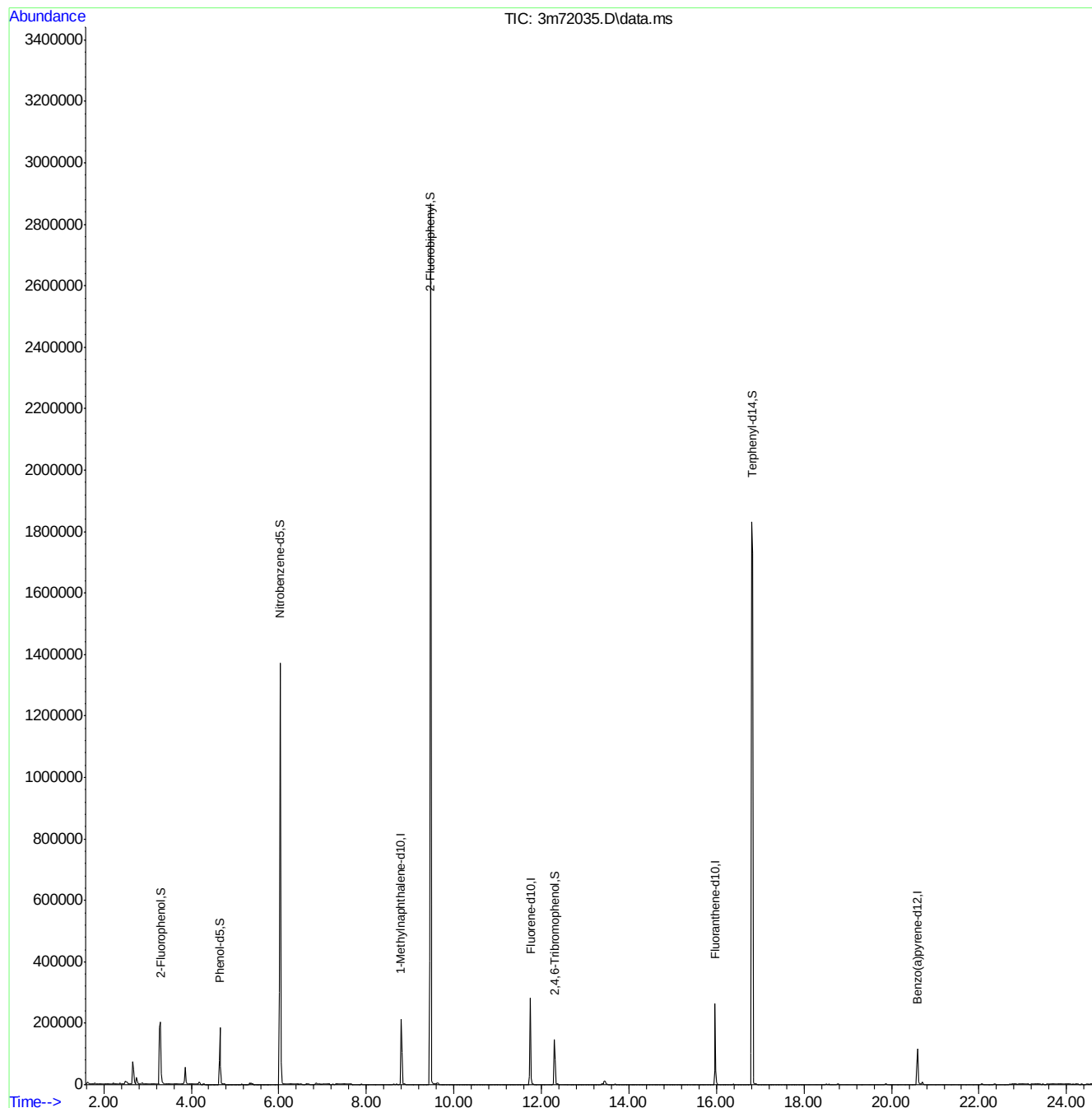
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72035.D
 Acq On : 20 Oct 2017 10:33 pm
 Operator : kevinm2
 Sample : jc52695-6
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 23 12:05:45 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4350\
 Data File : 3e97845a.D
 Acq On : 23 Oct 2017 5:39 pm
 Operator : vivekp
 Sample : jc52695-7
 Misc : op6819a,e3e4350,1000,,,1,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 24 10:24:29 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017

QLast Update : Sun Oct 22 16:39:09 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.777	152	566877	40.00	ppm	-0.02
24) Naphthalene-d8	4.724	136	1996311	40.00	ppm	-0.03
47) Acenaphthene-d10	6.478	164	1153365	40.00	ppm	-0.03
69) Phenanthrene-d10	8.489	188	1887398	40.00	ppm	-0.04
83) Chrysene-d12	12.560	240	1804304	40.00	ppm	-0.05
91) Perylene-d12	14.630	264	1682411	40.00	ppm	-0.05
101) 1,4-Dichlorobenzene-d4a	3.777	152	566877	40.00	ppm	-0.02
103) Acenaphthene-d10a	6.478	164	1153365	40.00	ppm	-0.03
105) Phenanthrene-d10a	8.489	188	1887398	40.00	ppm	-0.04
109) Chrysene-d12a	12.560	240	1804304	40.00	ppm	-0.05
111) Naphthalene-d8a	4.724	136	1996311	40.00	ppm	-0.03
113) Phenanthrene-d10b	8.489	188	1887398	40.00	ppm	-0.04
115) Chrysene-d12c	12.560	240	1804304	40.00	ppm	-0.05
117) Naphthalene-d8b	4.724	136	1996311	40.00	ppm	-0.03
120) Naphthalene-d8c	4.724	136	1996311	40.00	ppb	-0.03
System Monitoring Compounds						
5) 2-Fluorophenol	2.745	112	223968	12.19	ppm	-0.02
Spiked Amount 50.000			Recovery	=	24.38%	
8) Phenol-d5	3.579	99	162467	6.72	ppm	-0.02
Spiked Amount 50.000			Recovery	=	13.44%	
25) Nitrobenzene-d5	4.205	82	655219	33.31	ppm	-0.02
Spiked Amount 50.000			Recovery	=	66.62%	
51) 2-Fluorobiphenyl	5.740	172	1349904	34.87	ppm	-0.03
Spiked Amount 50.000			Recovery	=	69.74%	
73) 2,4,6-Tribromophenol	7.527	330	188377	35.49	ppm	-0.04
Spiked Amount 50.000			Recovery	=	70.98%	
85) Terphenyl-d14	11.019	244	1299445	35.09	ppm	-0.04
Spiked Amount 50.000			Recovery	=	70.18%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
38) Naphthalene	4.740	128	32394	0.64	ppm	Qvalue 86
56) Acenaphthylene	6.302	152	504995	9.24	ppm	99
59) Acenaphthene	6.516	153	78987	2.21	ppm	95
66) Fluorene	7.184	166	171380	4.65	ppm	98
77) Phenanthrene	8.522	178	104174	2.02	ppm	92
81) Fluoranthene	10.324	202	28916	0.55	ppm	87
84) Pyrene	10.650	202	22712	0.39	ppm	92

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4350\
Data File : 3e97845a.D
Acq On : 23 Oct 2017 5:39 pm
Operator : vivekp
Sample : jc52695-7
Misc : op6819a,e3e4350,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

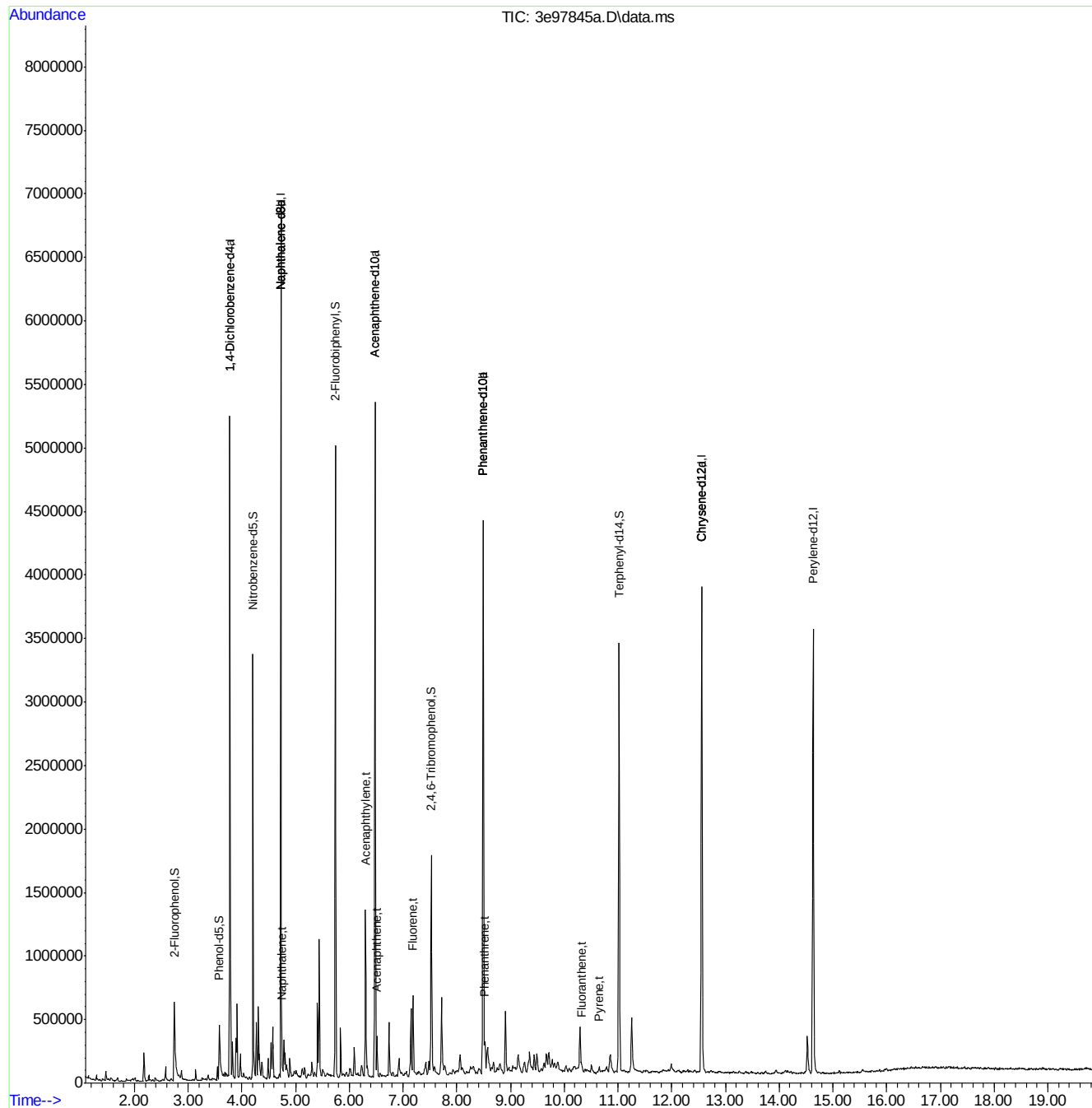
Quant Time: Oct 24 10:24:29 2017

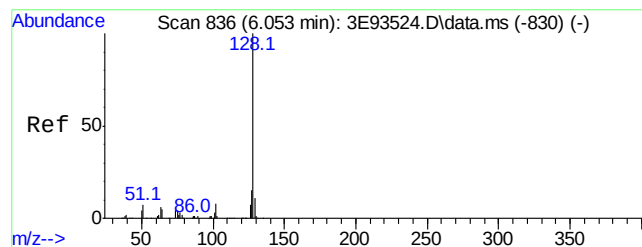
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017

QLast Update : Sun Oct 22 16:39:09 2017

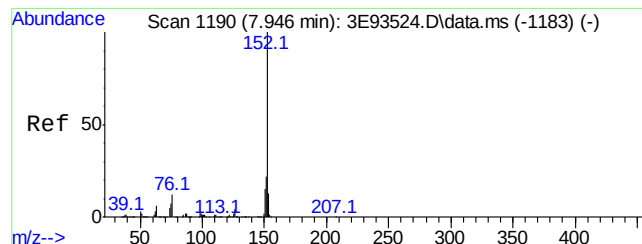
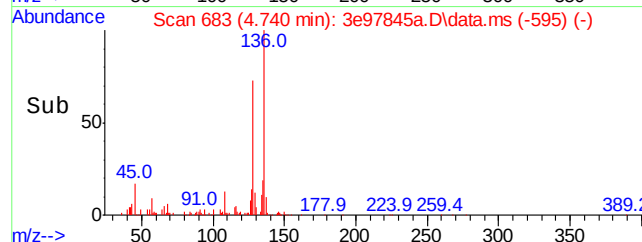
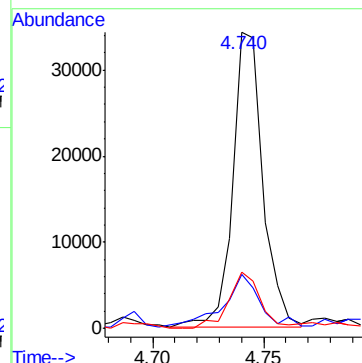
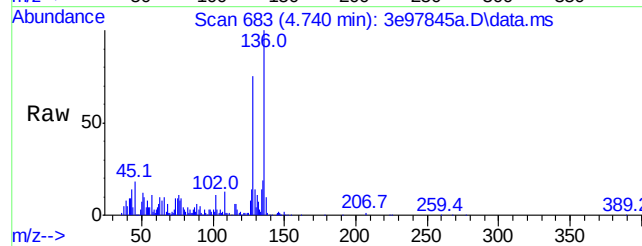
Response via : Initial Calibration





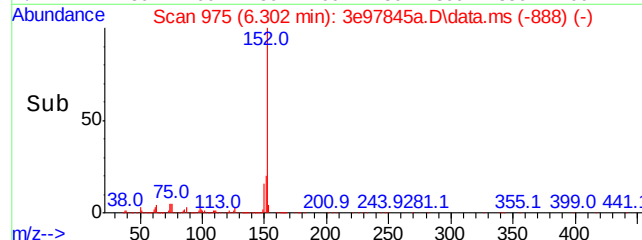
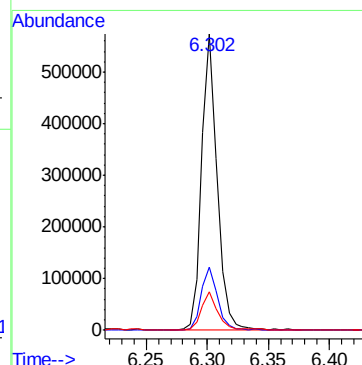
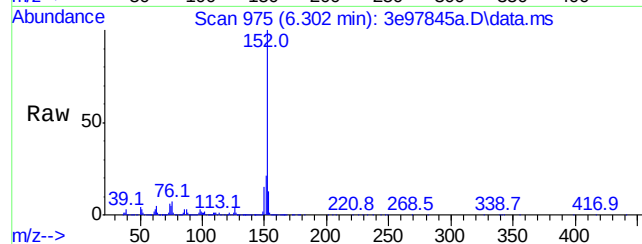
#38
Naphthalene
Concen: 0.64 ppm
RT: 4.740 min Scan# 683
Delta R.T. -0.027 min
Lab File: 3e97845a.D
Acq: 23 Oct 2017 5:39 pm

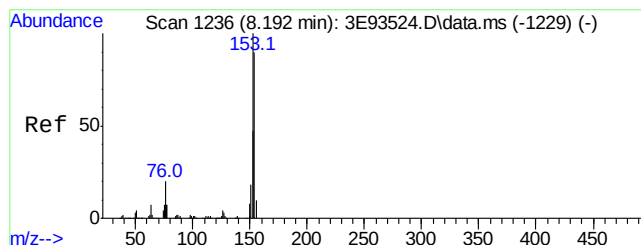
Tgt Ion	Ratio	Lower	Upper
128	100		
129	17.2	0.0	40.8
127	18.6	0.0	44.1



#56
Acenaphthylene
Concen: 9.24 ppm
RT: 6.302 min Scan# 975
Delta R.T. -0.032 min
Lab File: 3e97845a.D
Acq: 23 Oct 2017 5:39 pm

Tgt Ion	Ratio	Lower	Upper
152	100		
151	21.1	0.0	51.3
153	12.8	0.0	42.6





#59

Acenaphthene

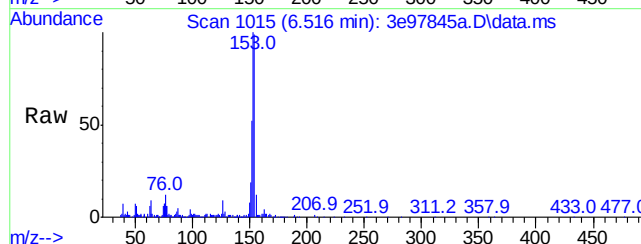
Concen: 2.21 ppm

RT: 6.516 min Scan# 1015

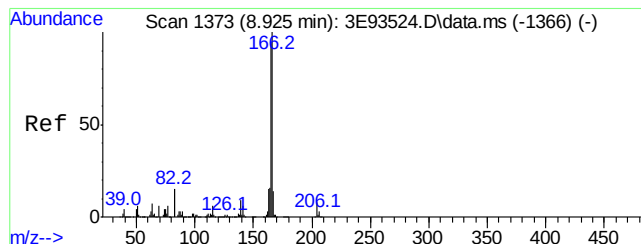
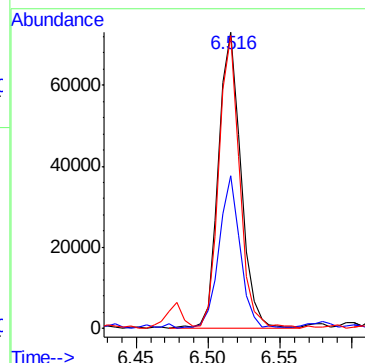
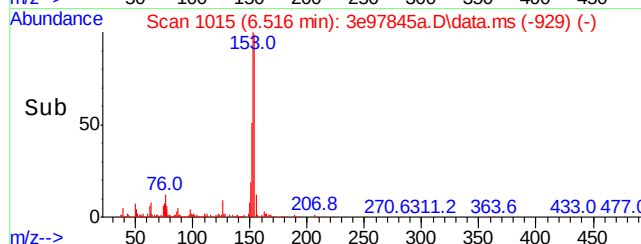
Delta R.T. -0.037 min

Lab File: 3e97845a.D

Acq: 23 Oct 2017 5:39 pm



Tgt Ion	Ratio	Lower	Upper
153	100		
152	50.5	20.2	80.2
154	96.1	58.4	118.4



#66

Fluorene

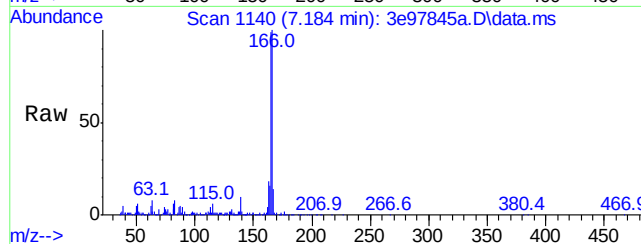
Concen: 4.65 ppm

RT: 7.184 min Scan# 1140

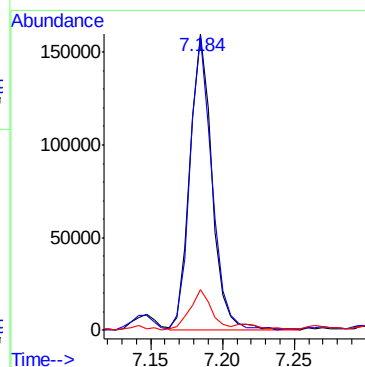
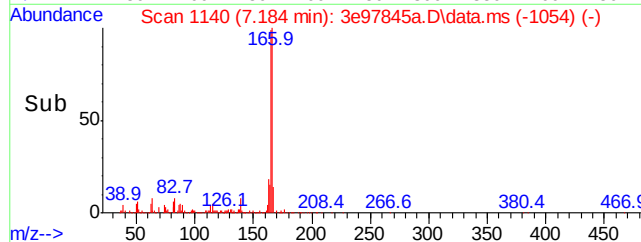
Delta R.T. -0.037 min

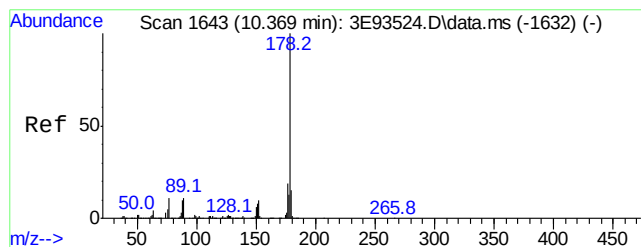
Lab File: 3e97845a.D

Acq: 23 Oct 2017 5:39 pm



Tgt Ion	Ratio	Lower	Upper
166	100		
165	99.3	66.6	126.6
167	13.3	0.0	43.2





#77

Phenanthrene

Concen: 2.02 ppm

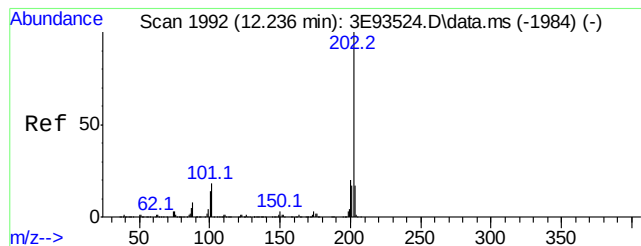
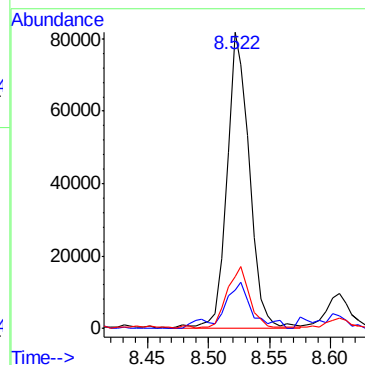
RT: 8.522 min Scan# 1390

Delta R.T. -0.048 min

Lab File: 3E97845a.D

Acq: 23 Oct 2017 5:39 pm

Tgt Ion:	178	Resp:	104174
Ion Ratio	Lower	Upper	
178	100		
179	11.0	0.0	45.3
176	17.0	0.0	49.7



#81

Fluoranthene

Concen: 0.55 ppm

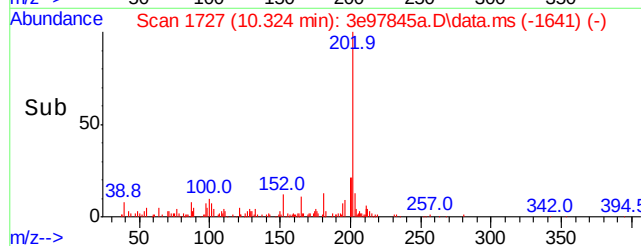
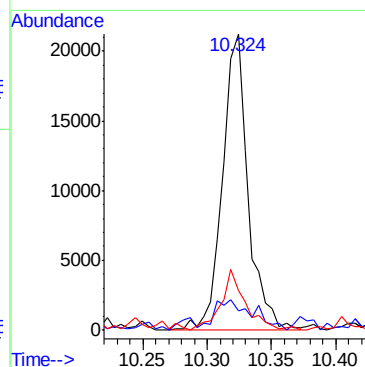
RT: 10.324 min Scan# 1727

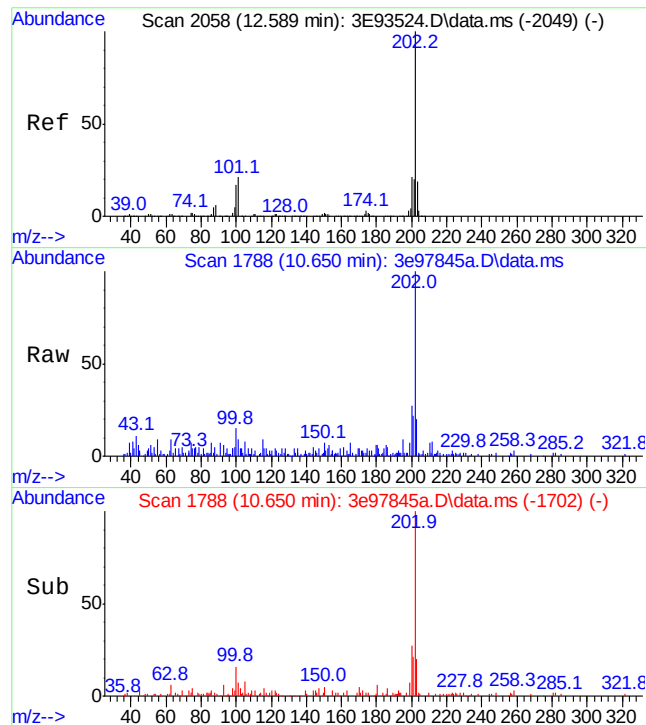
Delta R.T. -0.037 min

Lab File: 3E97845a.D

Acq: 23 Oct 2017 5:39 pm

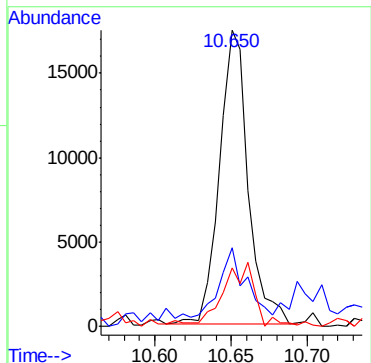
Tgt Ion:	202	Resp:	28916
Ion Ratio	Lower	Upper	
202	100		
101	7.3	0.0	43.7
203	12.7	0.0	47.1





#84
Pyrene
Concen: 0.39 ppm
RT: 10.650 min Scan# 1788
Delta R.T. -0.037 min
Lab File: 3E97845a.D
Acq: 23 Oct 2017 5:39 pm

Tgt	Ion:202	Resp:	22712
Ion	Ratio	Lower	Upper
202	100		
200	16.2	0.0	51.5
203	19.3	0.0	47.3



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72034.D
 Acq On : 20 Oct 2017 10:01 pm
 Operator : kevinm2
 Sample : jc52695-7
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 23 12:04:59 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

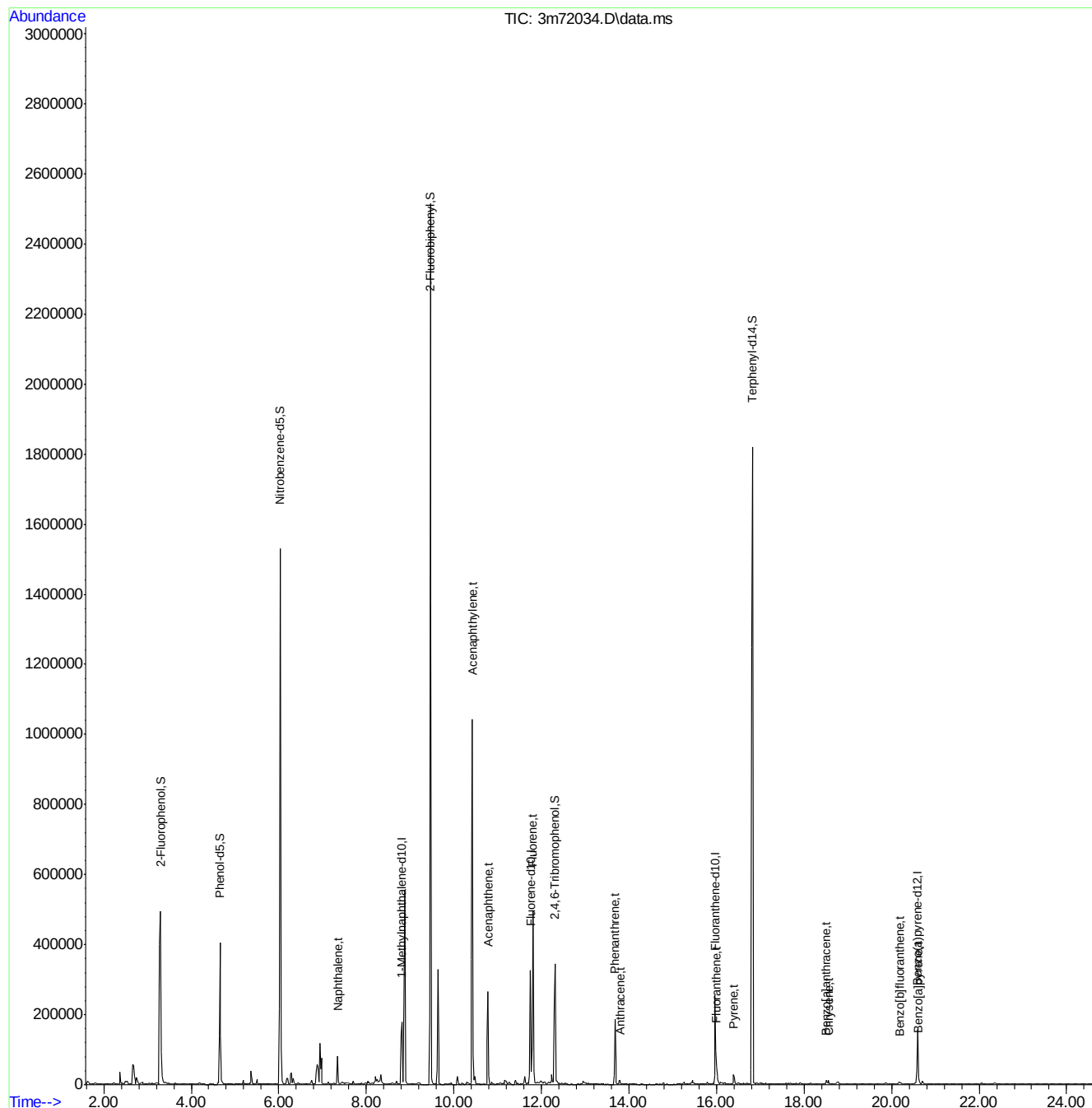
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.811	150	142184	4.00	ppm	0.02
14) Fluorene-d10	11.749	176	217379	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	272653	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	166545	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	519060	20.20	ppm	-0.01
Spiked Amount 50.000			Recovery =	40.40%		
4) Phenol-d5	4.656	99	504772	12.50	ppm	-0.02
Spiked Amount 50.000			Recovery =	25.00%		
7) Nitrobenzene-d5	6.030	82	1352339	36.72	ppm	-0.01
Spiked Amount 50.000			Recovery =	73.44%		
15) 2-Fluorobiphenyl	9.464	172	2261667	31.16	ppm	-0.02
Spiked Amount 50.000			Recovery =	62.32%		
20) 2,4,6-Tribromophenol	12.314	330	256993	35.60	ppm	0.00
Spiked Amount 50.000			Recovery =	71.20%		
28) Terphenyl-d14	16.820	244	2055701	41.64	ppm	0.02
Spiked Amount 50.000			Recovery =	83.28%		
Target Compounds						
9) Naphthalene	7.348	128	80664	0.85	ppm	Qvalue 91
16) Acenaphthylene	10.422	152	1039502	11.62	ppm	96
17) Acenaphthene	10.778	153	146464	2.46	ppm	80
19) Fluorene	11.806	166	342193	5.28	ppm	81
24) Phenanthrene	13.682	178	188299	2.26	ppm	97
25) Anthracene	13.791	178	15257	0.21	ppm	85
26) Fluoranthene	16.001	202	43583	0.51	ppm	94
27) Pyrene	16.387	202	33352	0.42	ppm	96
29) Benzo[a]anthracene	18.502	228	10722	0.17	ppm	98
30) Chrysene	18.563	228	9485	0.16	ppm	80
32) Benzo[b]fluoranthene	20.180	252	11018m	0.18	ppm	
34) Benzo[a]pyrene	20.613	252	8522	0.18	ppm	95

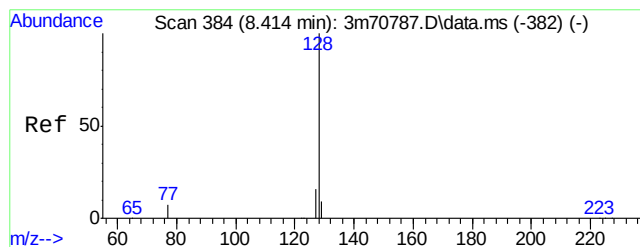
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72034.D
 Acq On : 20 Oct 2017 10:01 pm
 Operator : kevinm2
 Sample : jc52695-7
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

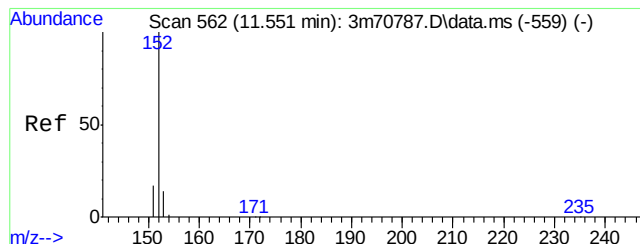
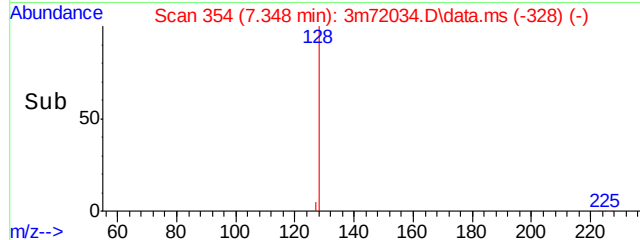
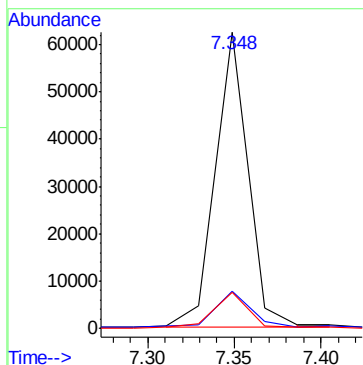
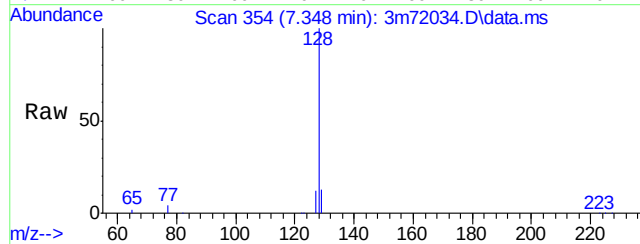
Quant Time: Oct 23 12:04:59 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration





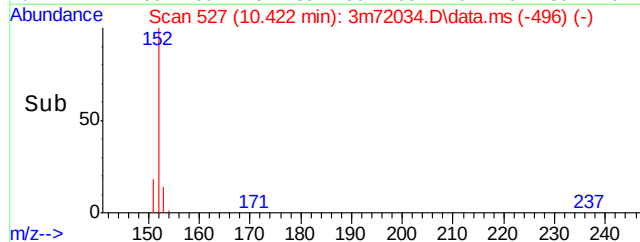
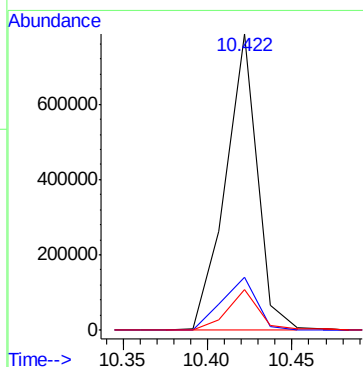
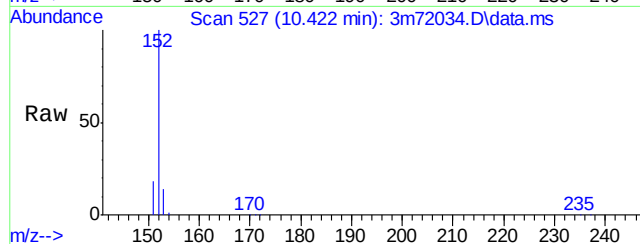
#9
Naphthalene
Concen: 0.85 ppm
RT: 7.348 min Scan# 354
Delta R.T. -0.006 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

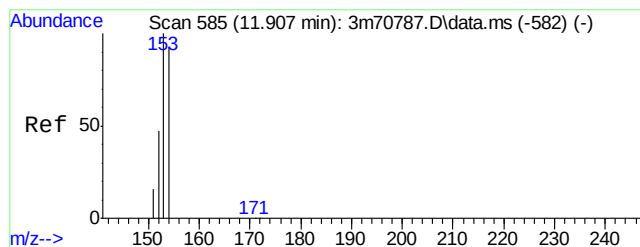
Tgt Ion:	128	Resp:	80664
Ion Ratio	Lower	Upper	
128	100		
129	12.2	0.0	38.9
127	12.0	0.0	45.8



#16
Acenaphthylene
Concen: 11.62 ppm
RT: 10.422 min Scan# 527
Delta R.T. -0.013 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

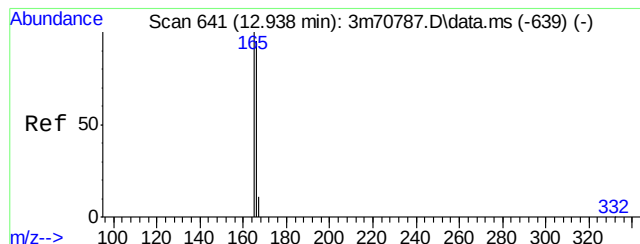
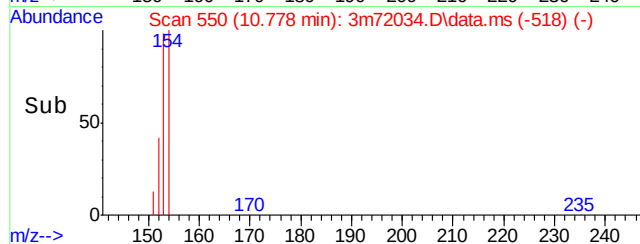
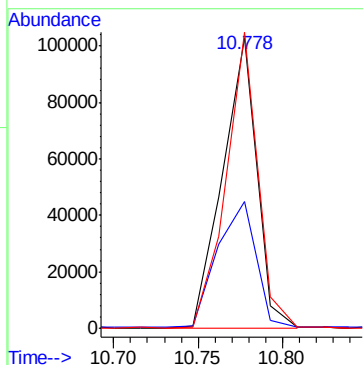
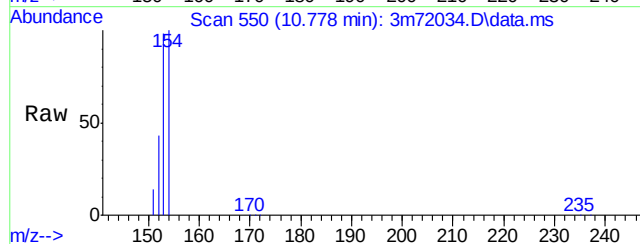
Tgt Ion:	152	Resp:	1039502
Ion Ratio	Lower	Upper	
152	100		
151	17.8	0.0	49.7
153	13.6	0.0	42.2





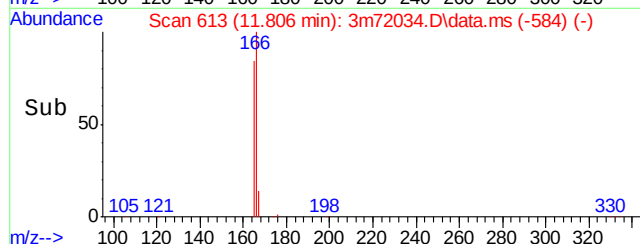
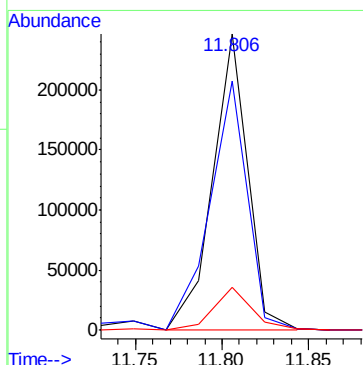
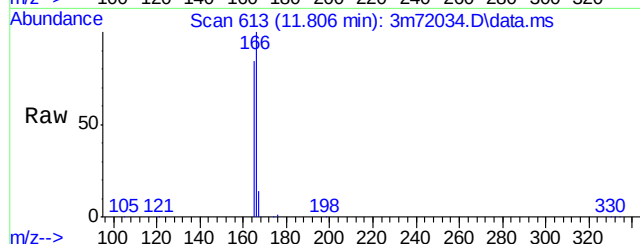
#17
Acenaphthene
Concen: 2.46 ppm
RT: 10.778 min Scan# 550
Delta R.T. -0.012 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

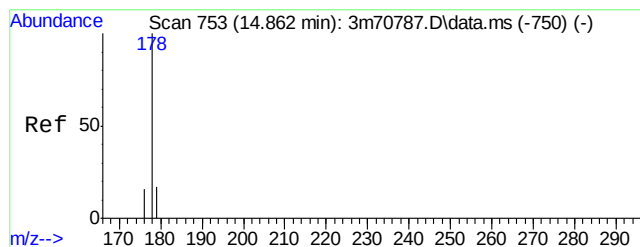
Tgt Ion:	153	Resp:	146464
Ion Ratio	Lower	Upper	
153	100		
152	43.4	24.0	84.0
154	101.9	50.9	110.9



#19
Fluorene
Concen: 5.28 ppm
RT: 11.806 min Scan# 613
Delta R.T. -0.001 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

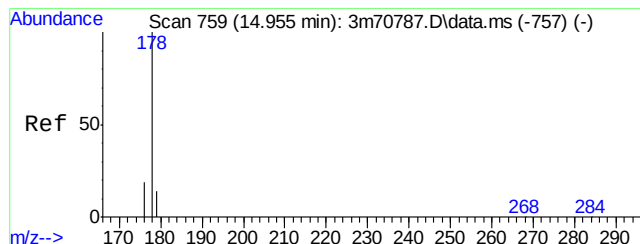
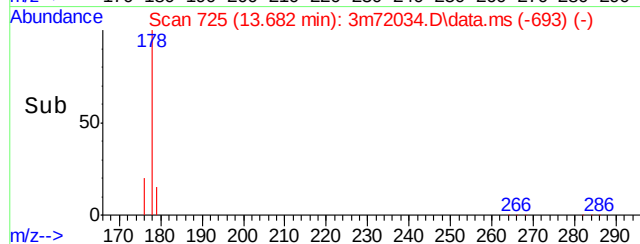
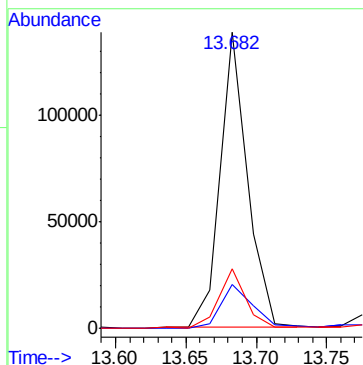
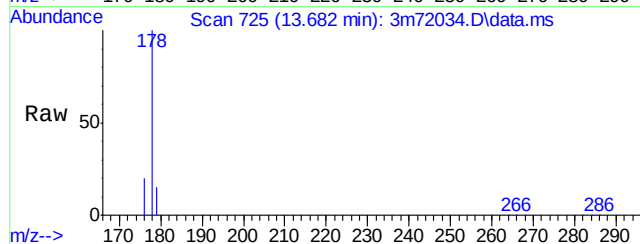
Tgt Ion:	166	Resp:	342193
Ion Ratio	Lower	Upper	
166	100		
165	83.9	74.8	134.8
167	14.2	0.0	41.2





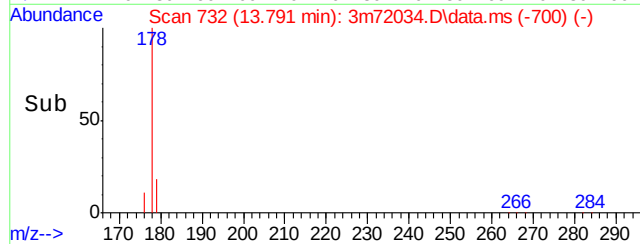
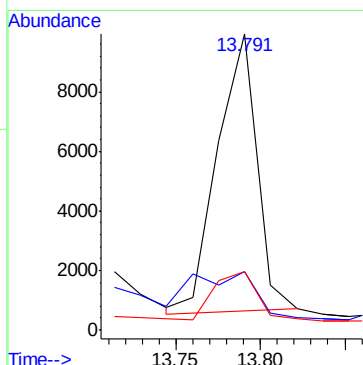
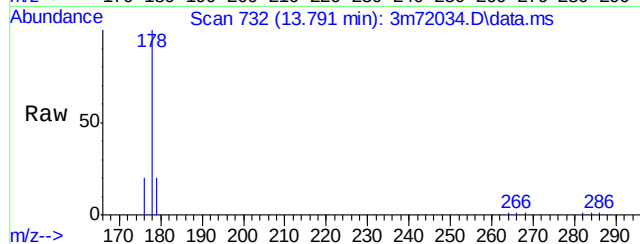
#24
Phenanthrene
Concen: 2.26 ppm
RT: 13.682 min Scan# 725
Delta R.T. -0.011 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

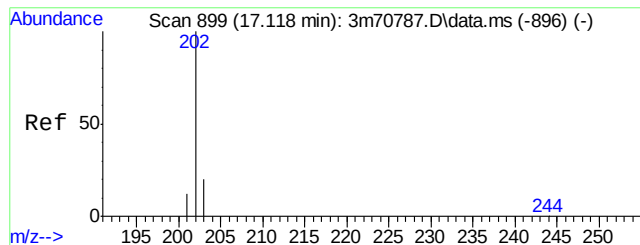
Tgt Ion:	178	Resp:	188299
Ion Ratio	Lower	Upper	
178	100		
179	14.3	0.0	43.5
176	20.1	0.0	52.2



#25
Anthracene
Concen: 0.21 ppm
RT: 13.791 min Scan# 732
Delta R.T. -0.010 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

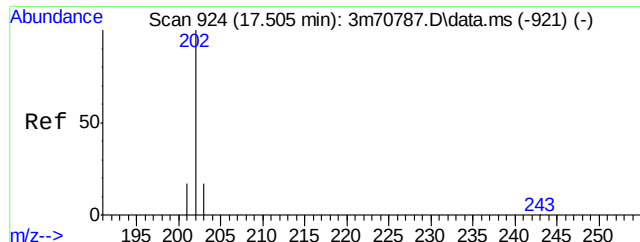
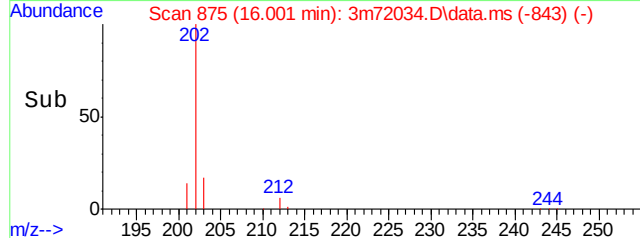
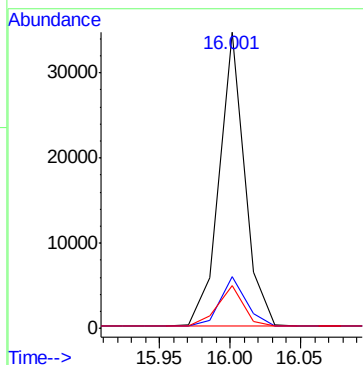
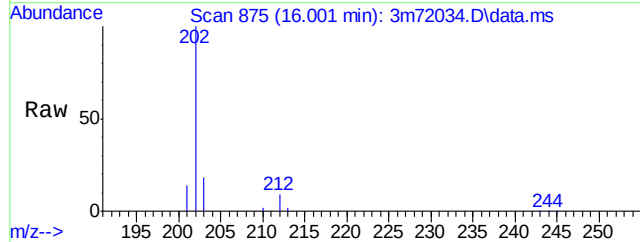
Tgt Ion:	178	Resp:	15257
Ion Ratio	Lower	Upper	
178	100		
179	14.7	0.0	56.2
176	17.4	0.0	49.0





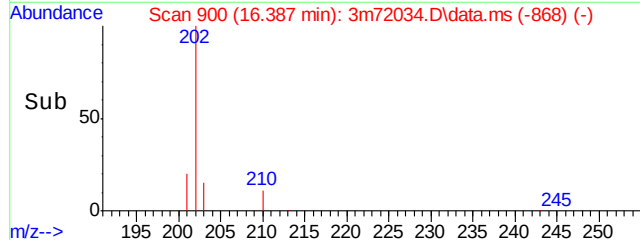
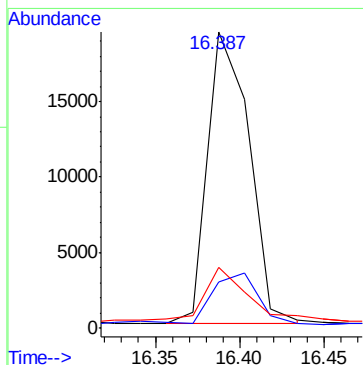
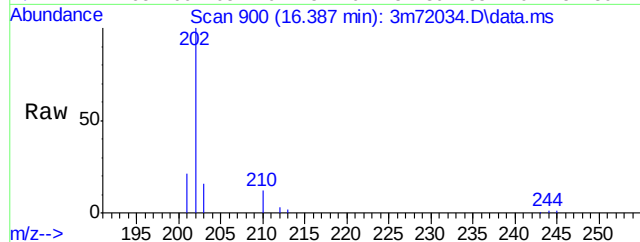
#26
Fluoranthene
Concen: 0.51 ppm
RT: 16.001 min Scan# 875
Delta R.T. -0.002 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

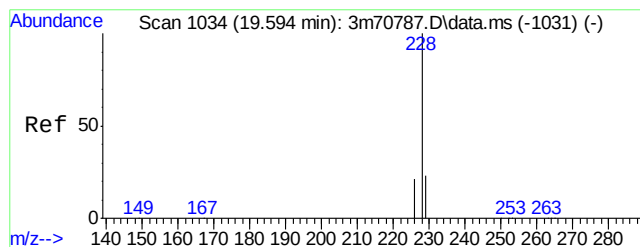
Tgt Ion	Ratio	Resp	Lower	Upper
202	100	43583		
203	17.0	0.0	49.7	
201	13.6	0.0	41.7	



#27
Pyrene
Concen: 0.42 ppm
RT: 16.387 min Scan# 900
Delta R.T. -0.000 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

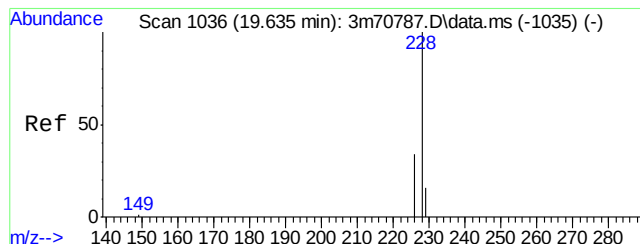
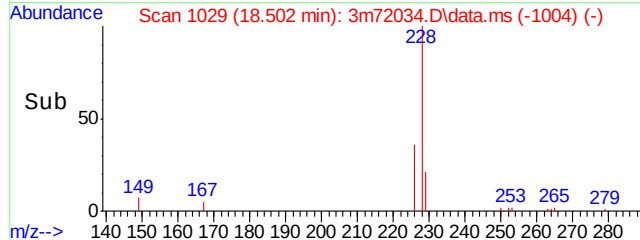
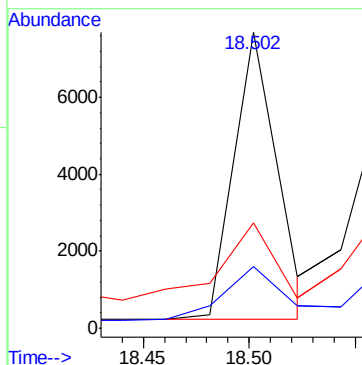
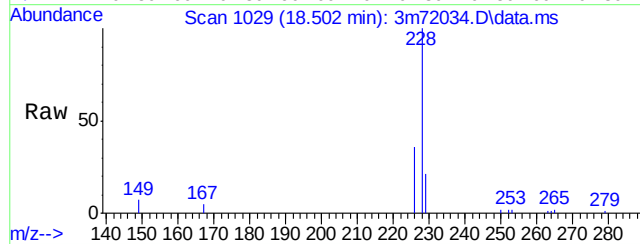
Tgt Ion	Ratio	Resp	Lower	Upper
202	100	33352		
203	14.3	0.0	47.3	
201	17.4	0.0	46.6	





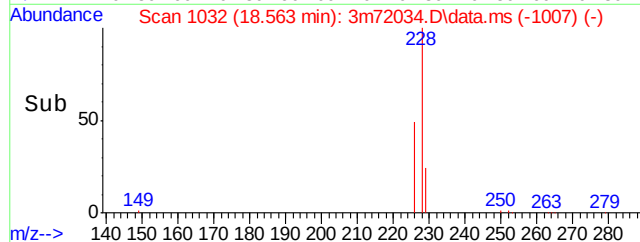
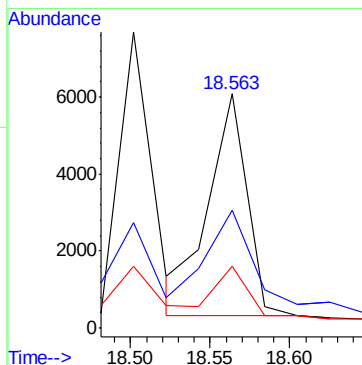
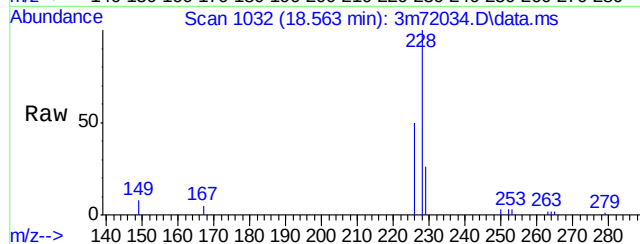
#29
Benzo[a]anthracene
Concen: 0.17 ppm
RT: 18.502 min Scan# 1029
Delta R.T. 0.008 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

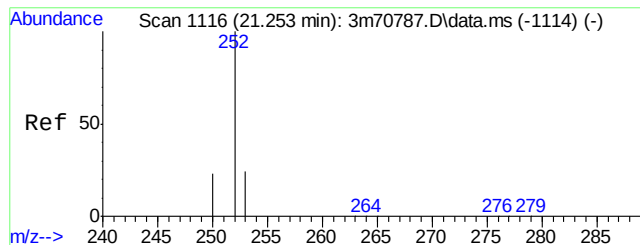
Tgt Ion	Ratio	Lower	Upper
228	100		
229	17.3	0.0	48.3
226	26.7	0.0	58.1



#30
Chrysene
Concen: 0.16 ppm
RT: 18.563 min Scan# 1032
Delta R.T. 0.008 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

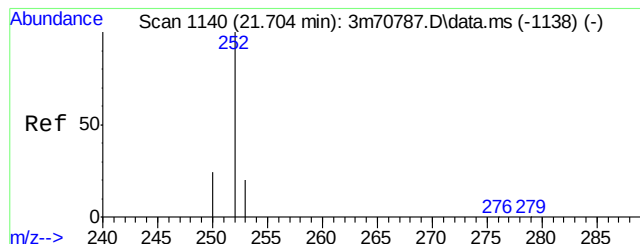
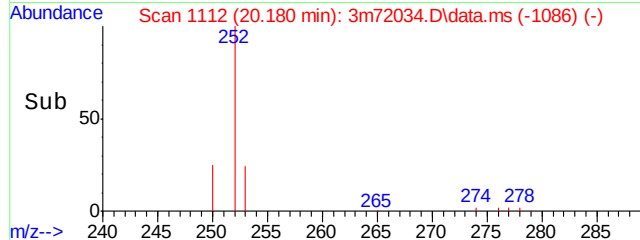
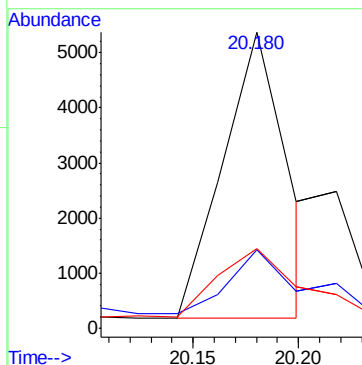
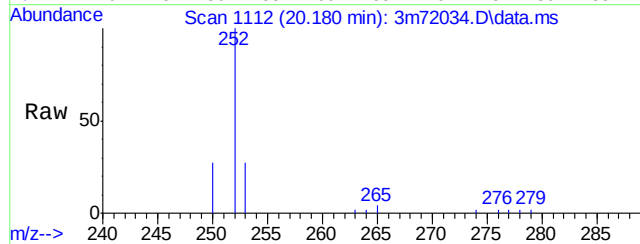
Tgt Ion	Ratio	Lower	Upper
228	100		
226	44.7	0.0	57.0
229	21.8	0.0	50.7





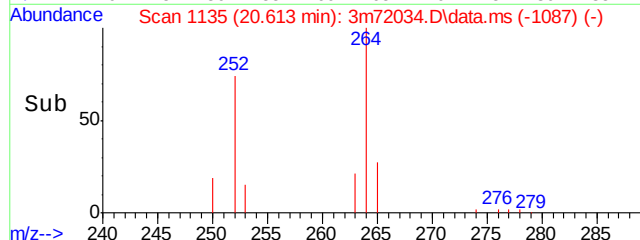
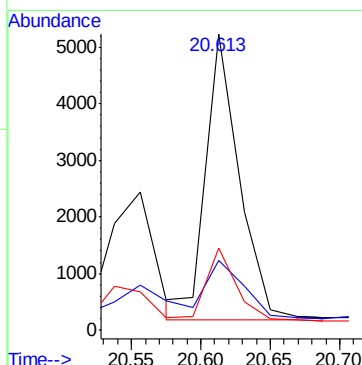
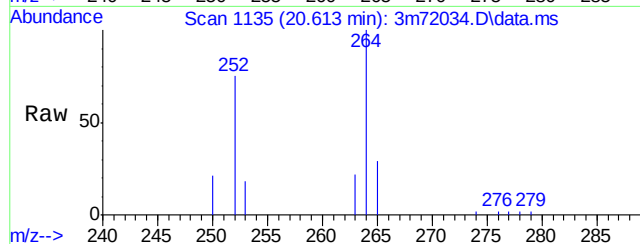
#32
Benzo[b]fluoranthene
Concen: 0.18 ppm
RT: 20.180 min Scan# 1112
Delta R.T. -0.000 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

Tgt Ion:	252	Resp:	11018
Ion Ratio	Lower	Upper	
252	100		
253	26.6	0.0	54.9
250	26.9	0.0	49.8



#34
Benzo[a]pyrene
Concen: 0.18 ppm
RT: 20.613 min Scan# 1135
Delta R.T. 0.017 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

Tgt Ion:	252	Resp:	8522
Ion Ratio	Lower	Upper	
252	100		
253	17.6	0.0	50.3
250	25.9	0.0	53.5



Manual Integration Approval Summary

Sample Number: JC52695-7R

Method: SW846 8270D BY SIM

Lab FileID: 3M72034.D

Analyst approved: 11/09/17 19:20 Kristi Schollenberger

Injection Time: 10/20/17 22:01

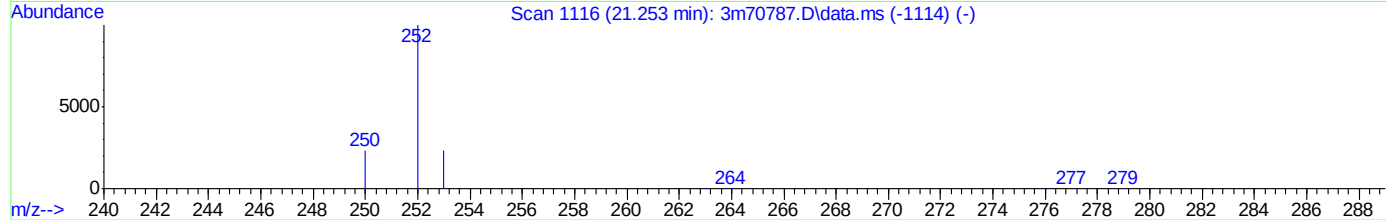
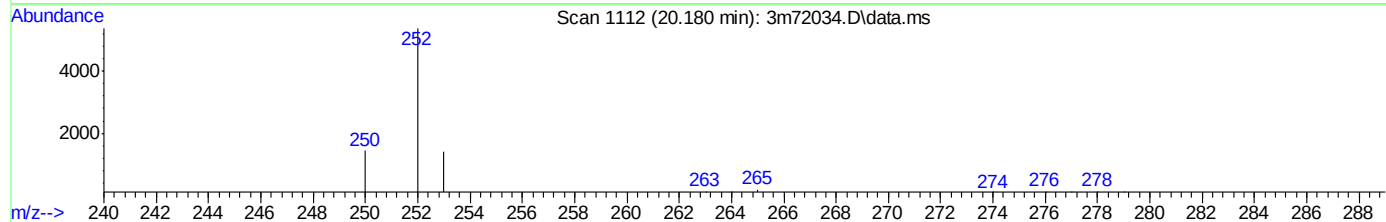
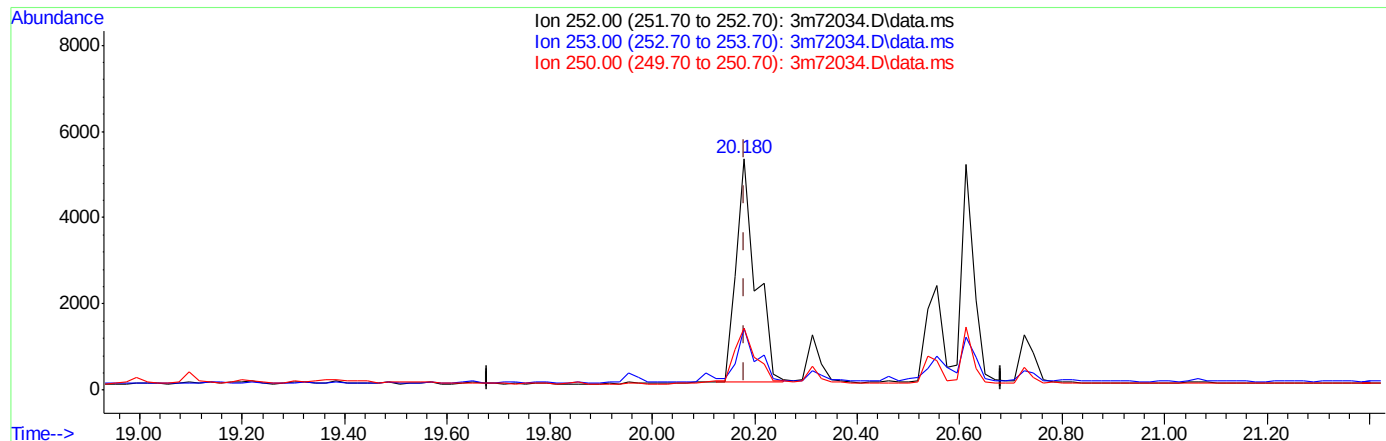
Supervisor approved: 11/10/17 00:13 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Benzo(b)fluoranthene	205-99-2		20.18	Overlapping peak

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72034.D
 Acq On : 20 Oct 2017 10:01 pm
 Operator : kevinm2
 Sample : jc52695-7
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 23 12:01:44 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration



TIC: 3m72034.D\data.ms

(32) Benzo[b]fluoranthene (t)

20.180min (-0.000) 0.23ppm

response 13959

Ion	Exp%	Act%
252.00	100	100
253.00	24.90	23.06
250.00	19.80	23.88
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72034.D
 Acq On : 20 Oct 2017 10:01 pm
 Operator : kevinm2
 Sample : jc52695-7
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 23 12:04:59 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

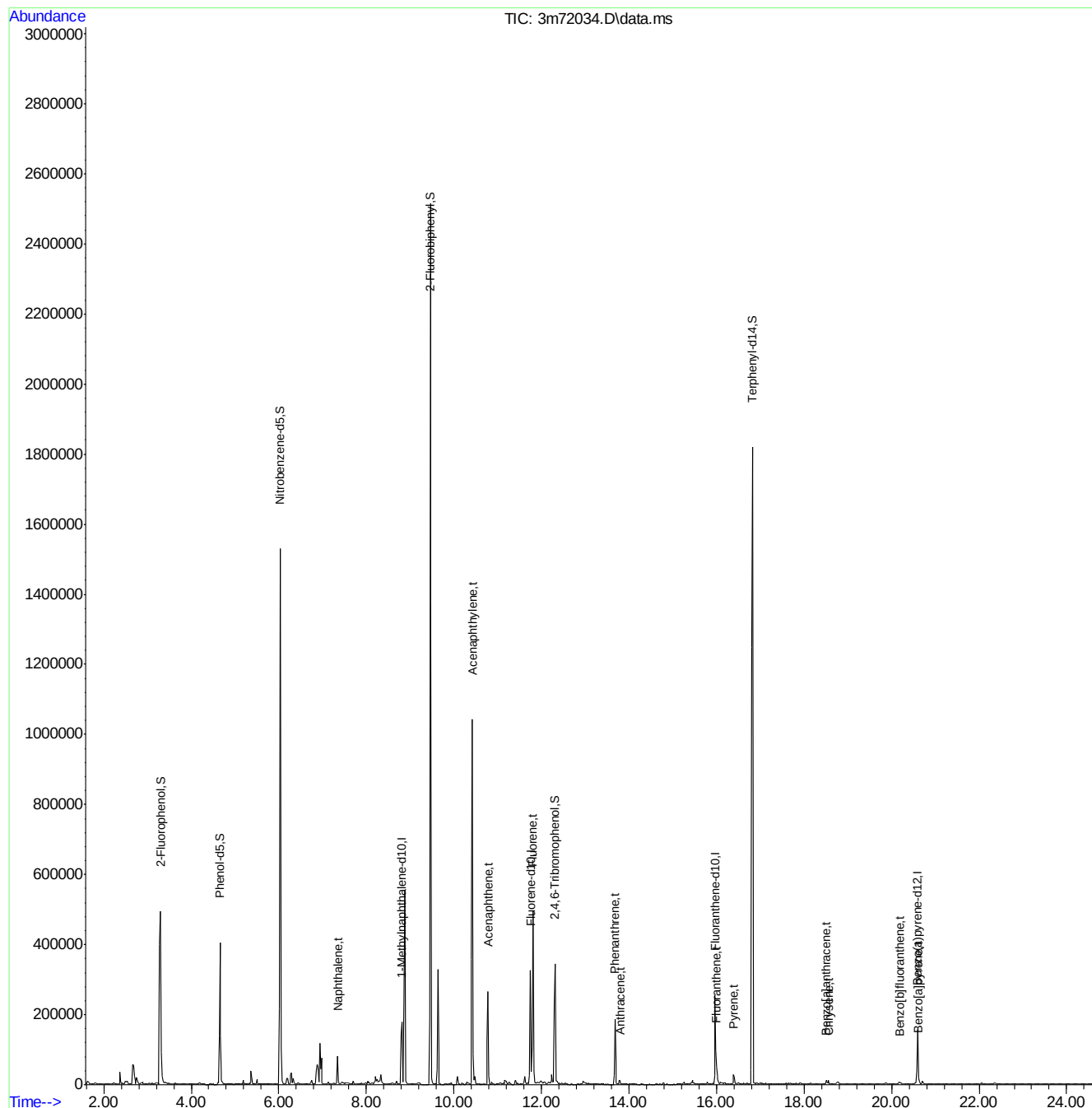
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.811	150	142184	4.00	ppm	0.02
14) Fluorene-d10	11.749	176	217379	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	272653	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	166545	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	519060	20.20	ppm	-0.01
Spiked Amount 50.000			Recovery =	40.40%		
4) Phenol-d5	4.656	99	504772	12.50	ppm	-0.02
Spiked Amount 50.000			Recovery =	25.00%		
7) Nitrobenzene-d5	6.030	82	1352339	36.72	ppm	-0.01
Spiked Amount 50.000			Recovery =	73.44%		
15) 2-Fluorobiphenyl	9.464	172	2261667	31.16	ppm	-0.02
Spiked Amount 50.000			Recovery =	62.32%		
20) 2,4,6-Tribromophenol	12.314	330	256993	35.60	ppm	0.00
Spiked Amount 50.000			Recovery =	71.20%		
28) Terphenyl-d14	16.820	244	2055701	41.64	ppm	0.02
Spiked Amount 50.000			Recovery =	83.28%		
Target Compounds						
					Qvalue	
9) Naphthalene	7.348	128	80664	0.85	ppm	91
16) Acenaphthylene	10.422	152	1039502	11.62	ppm	96
17) Acenaphthene	10.778	153	146464	2.46	ppm	80
19) Fluorene	11.806	166	342193	5.28	ppm	81
24) Phenanthrene	13.682	178	188299	2.26	ppm	97
25) Anthracene	13.791	178	15257	0.21	ppm	85
26) Fluoranthene	16.001	202	43583	0.51	ppm	94
27) Pyrene	16.387	202	33352	0.42	ppm	96
29) Benzo[a]anthracene	18.502	228	10722	0.17	ppm	98
30) Chrysene	18.563	228	9485	0.16	ppm	80
32) Benzo[b]fluoranthene	20.180	252	11018m	0.18	ppm	
34) Benzo[a]pyrene	20.613	252	8522	0.18	ppm	95

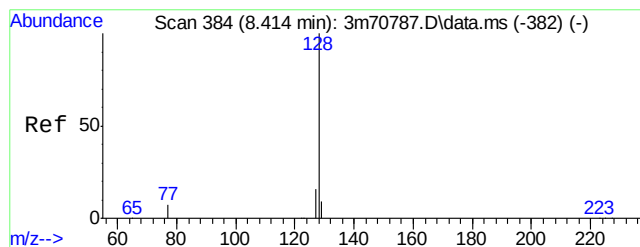
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72034.D
 Acq On : 20 Oct 2017 10:01 pm
 Operator : kevinm2
 Sample : jc52695-7
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

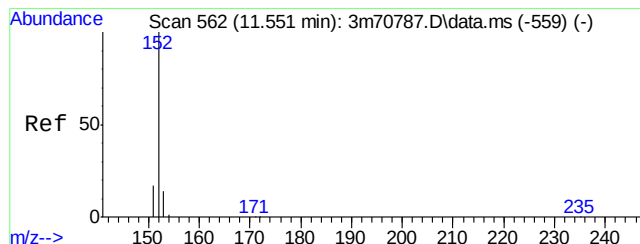
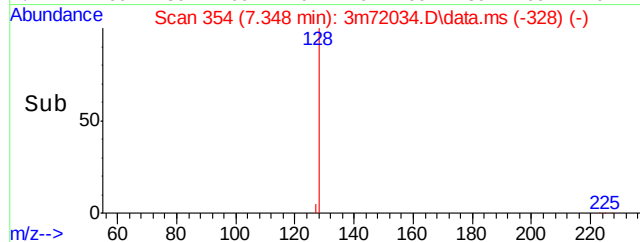
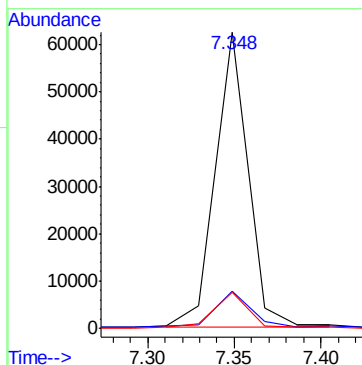
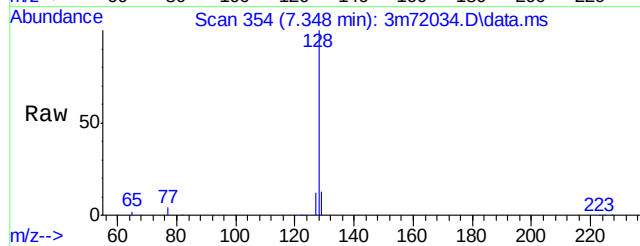
Quant Time: Oct 23 12:04:59 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration





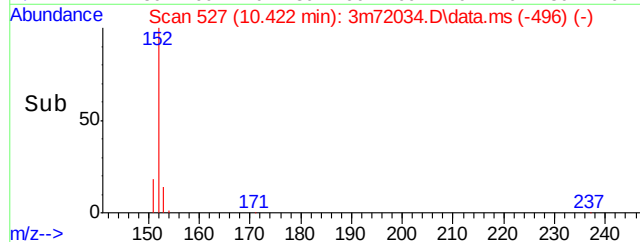
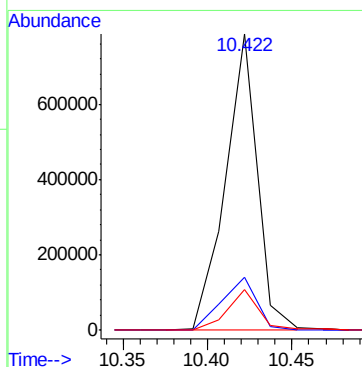
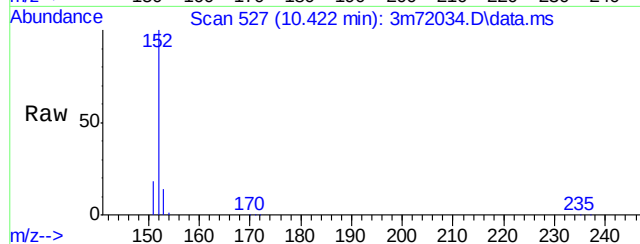
#9
Naphthalene
Concen: 0.85 ppm
RT: 7.348 min Scan# 354
Delta R.T. -0.006 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

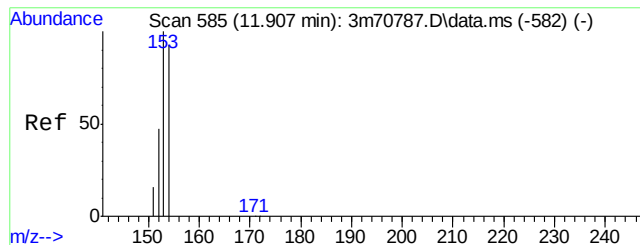
Tgt Ion:	128	Resp:	80664
Ion Ratio	Lower	Upper	
128	100		
129	12.2	0.0	38.9
127	12.0	0.0	45.8



#16
Acenaphthylene
Concen: 11.62 ppm
RT: 10.422 min Scan# 527
Delta R.T. -0.013 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

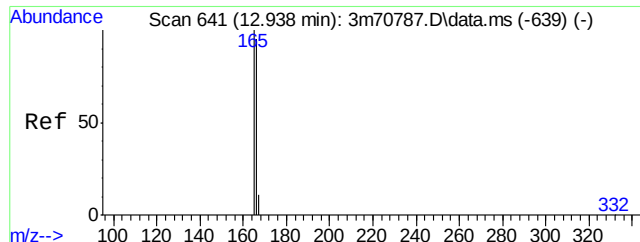
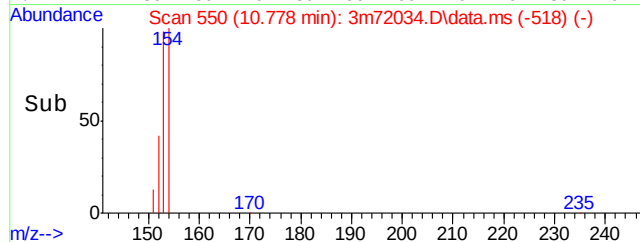
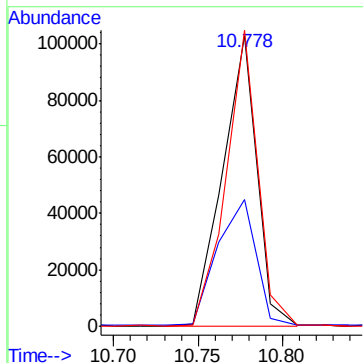
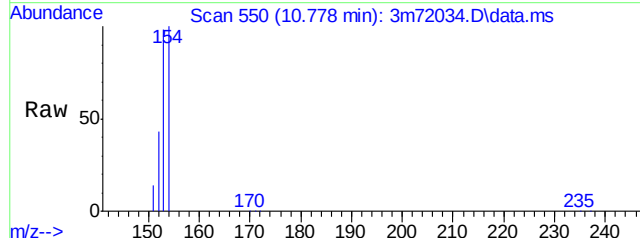
Tgt Ion:	152	Resp:	1039502
Ion Ratio	Lower	Upper	
152	100		
151	17.8	0.0	49.7
153	13.6	0.0	42.2





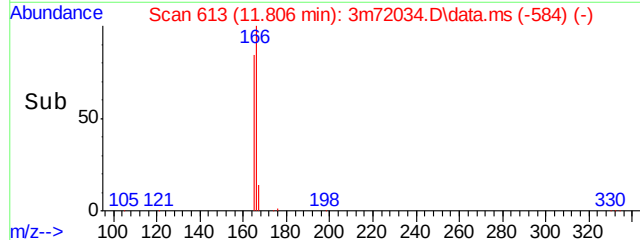
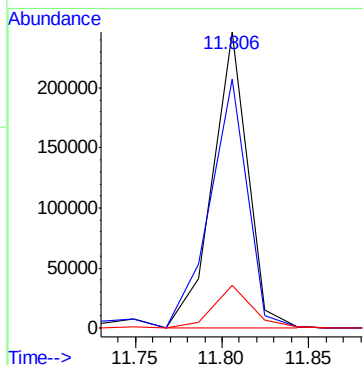
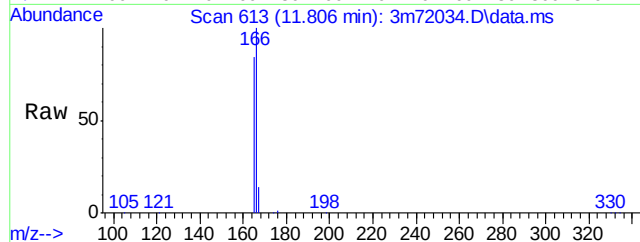
#17
Acenaphthene
Concen: 2.46 ppm
RT: 10.778 min Scan# 550
Delta R.T. -0.012 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

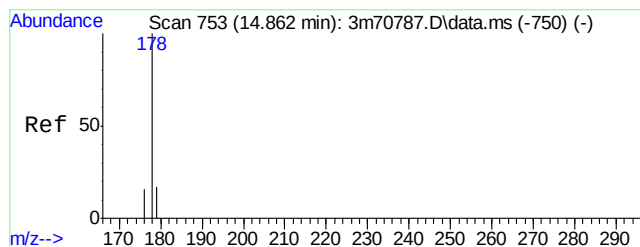
Tgt Ion:	153	Resp:	146464
Ion Ratio	Lower	Upper	
153	100		
152	43.4	24.0	84.0
154	101.9	50.9	110.9



#19
Fluorene
Concen: 5.28 ppm
RT: 11.806 min Scan# 613
Delta R.T. -0.001 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

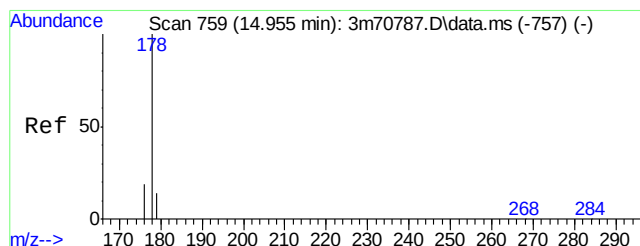
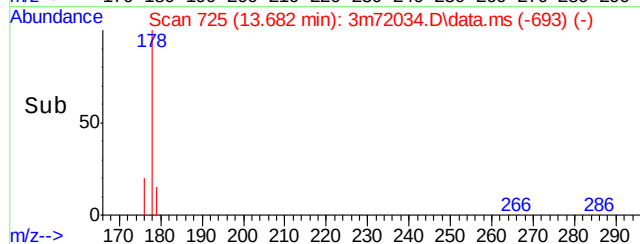
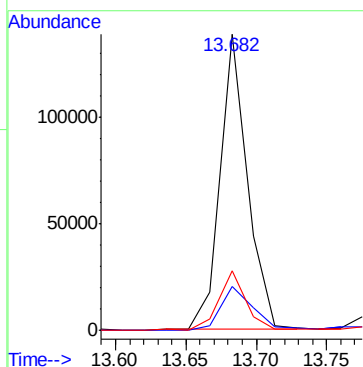
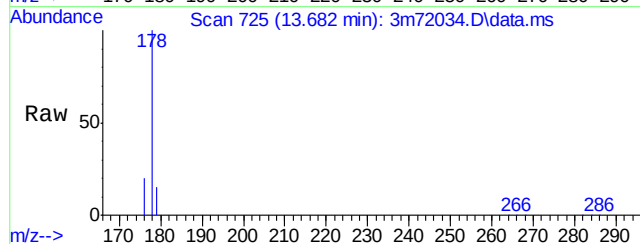
Tgt Ion:	166	Resp:	342193
Ion Ratio	Lower	Upper	
166	100		
165	83.9	74.8	134.8
167	14.2	0.0	41.2





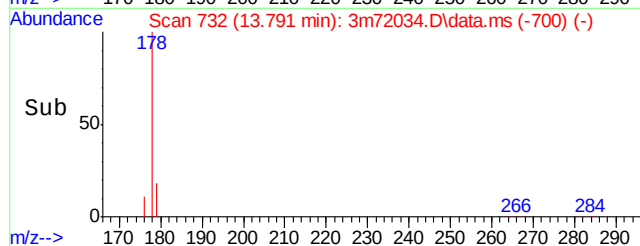
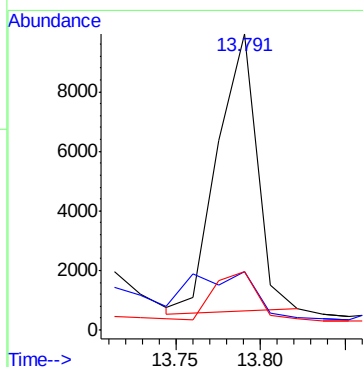
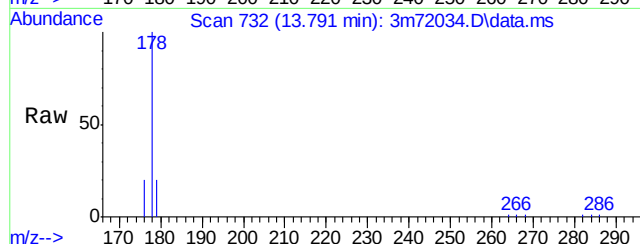
#24
Phenanthrene
Concen: 2.26 ppm
RT: 13.682 min Scan# 725
Delta R.T. -0.011 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

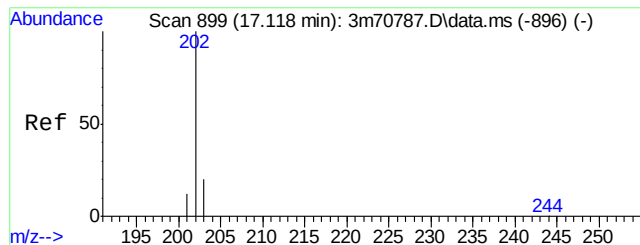
Tgt Ion	Ratio	Lower	Upper
178	100		
179	14.3	0.0	43.5
176	20.1	0.0	52.2



#25
Anthracene
Concen: 0.21 ppm
RT: 13.791 min Scan# 732
Delta R.T. -0.010 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

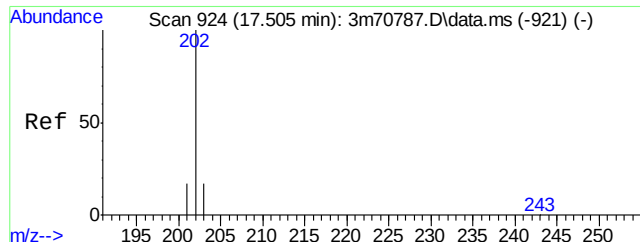
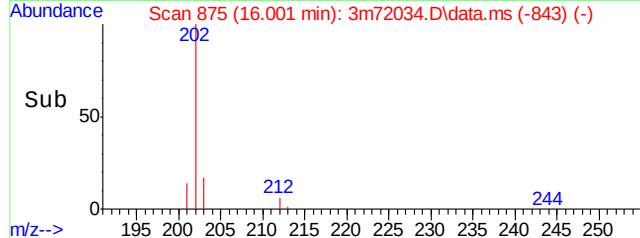
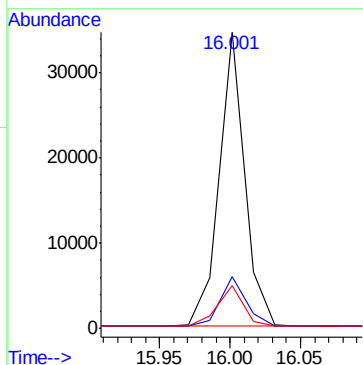
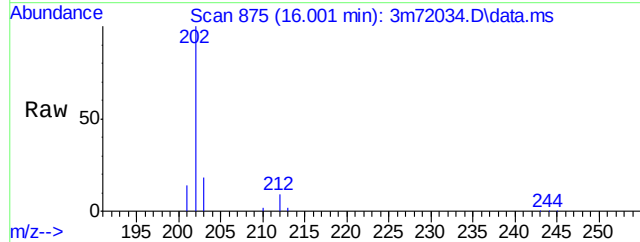
Tgt Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	56.2
176	17.4	0.0	49.0





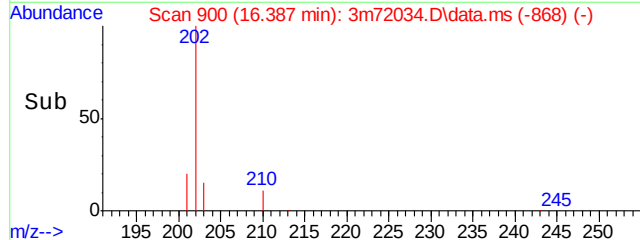
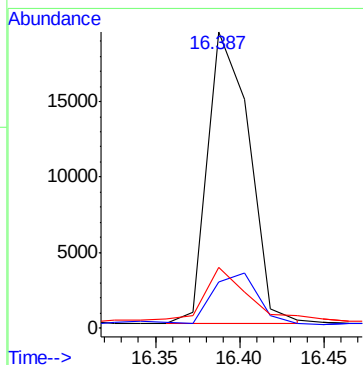
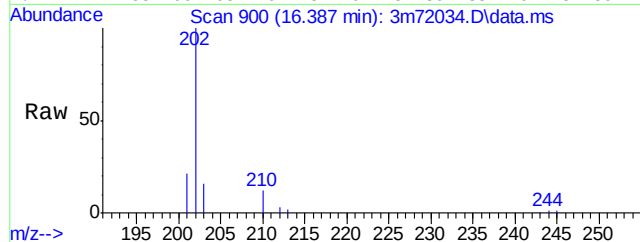
#26
Fluoranthene
Concen: 0.51 ppm
RT: 16.001 min Scan# 875
Delta R.T. -0.002 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

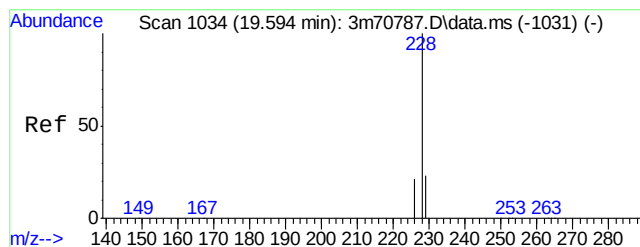
Tgt	Ion:202	Resp:	43583
Ion	Ratio	Lower	Upper
202	100		
203	17.0	0.0	49.7
201	13.6	0.0	41.7



#27
Pyrene
Concen: 0.42 ppm
RT: 16.387 min Scan# 900
Delta R.T. -0.000 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

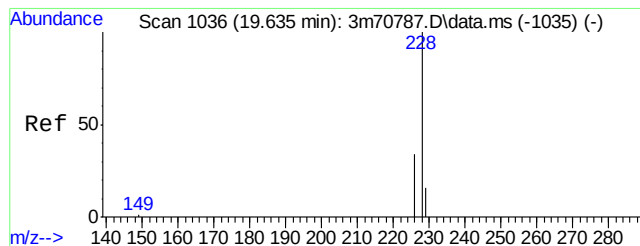
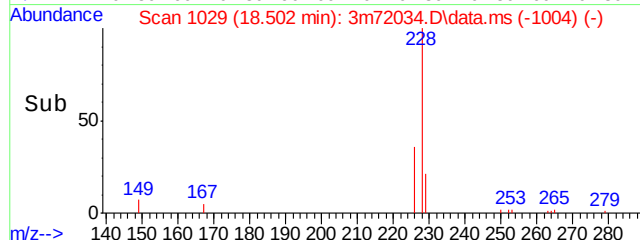
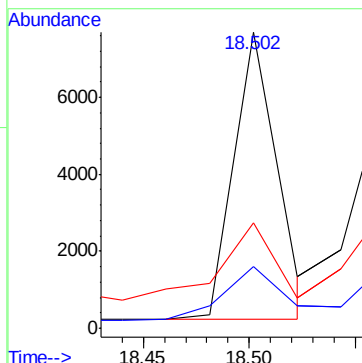
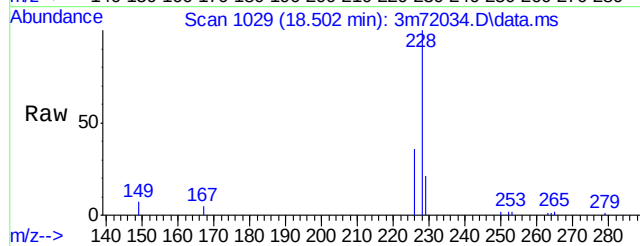
Tgt	Ion:202	Resp:	33352
Ion	Ratio	Lower	Upper
202	100		
203	14.3	0.0	47.3
201	17.4	0.0	46.6





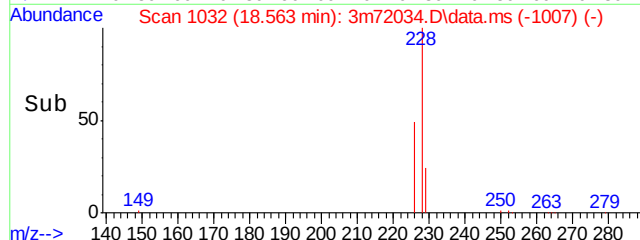
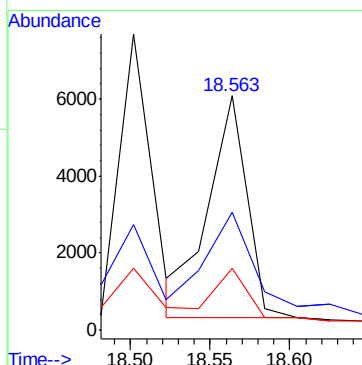
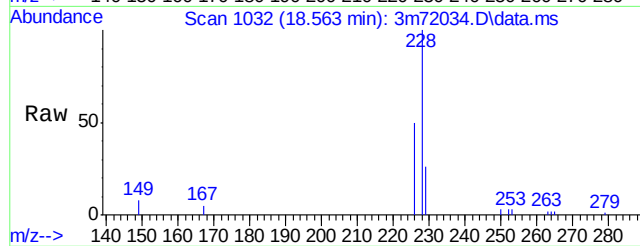
#29
Benzo[a]anthracene
Concen: 0.17 ppm
RT: 18.502 min Scan# 1029
Delta R.T. 0.008 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

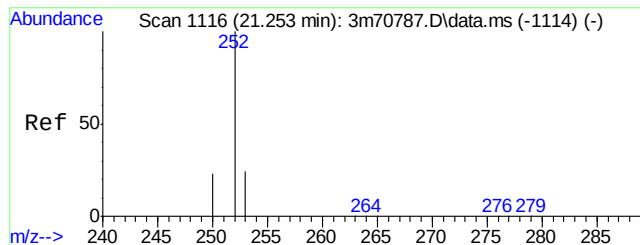
Tgt	Ion:228	Resp:	10722
Ion	Ratio	Lower	Upper
228	100		
229	17.3	0.0	48.3
226	26.7	0.0	58.1



#30
Chrysene
Concen: 0.16 ppm
RT: 18.563 min Scan# 1032
Delta R.T. 0.008 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

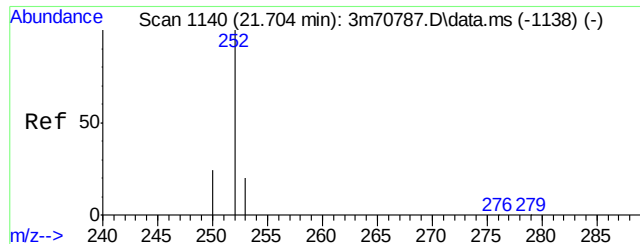
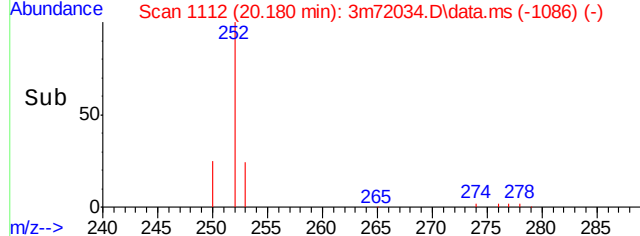
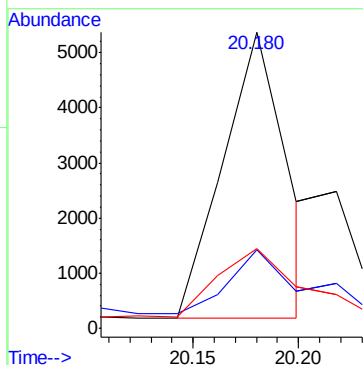
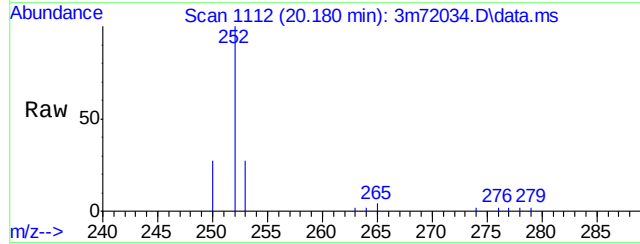
Tgt	Ion:228	Resp:	9485
Ion	Ratio	Lower	Upper
228	100		
226	44.7	0.0	57.0
229	21.8	0.0	50.7





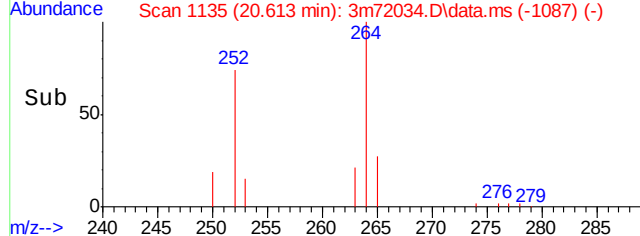
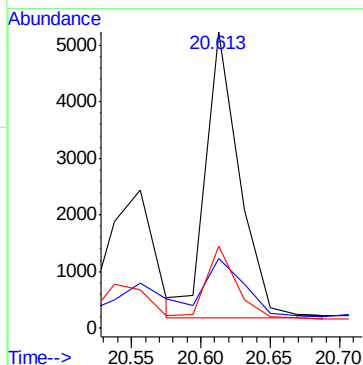
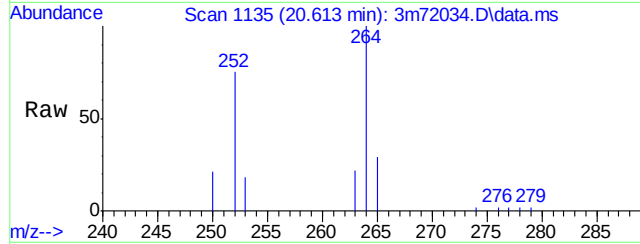
#32
Benzo[b]fluoranthene
Concen: 0.18 ppm
RT: 20.180 min Scan# 1112
Delta R.T. -0.000 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

Tgt Ion:	252	Resp:	11018
Ion Ratio	Lower	Upper	
252	100		
253	26.6	0.0	54.9
250	26.9	0.0	49.8



#34
Benzo[a]pyrene
Concen: 0.18 ppm
RT: 20.613 min Scan# 1135
Delta R.T. 0.017 min
Lab File: 3m72034.D
Acq: 20 Oct 2017 10:01 pm

Tgt Ion:	252	Resp:	8522
Ion Ratio	Lower	Upper	
252	100		
253	17.6	0.0	50.3
250	25.9	0.0	53.5



Manual Integration Approval Summary

Sample Number: JC52695-7R

Method: SW846 8270D BY SIM

Lab FileID: 3M72034.D

Analyst approved: 11/09/17 19:20 Kristi Schollenberger

Injection Time: 10/20/17 22:01

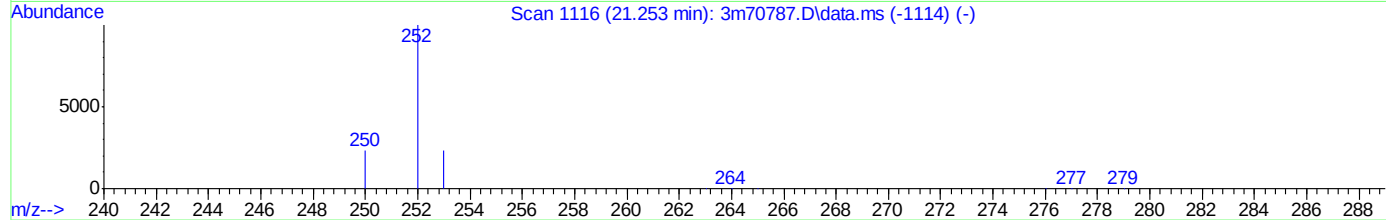
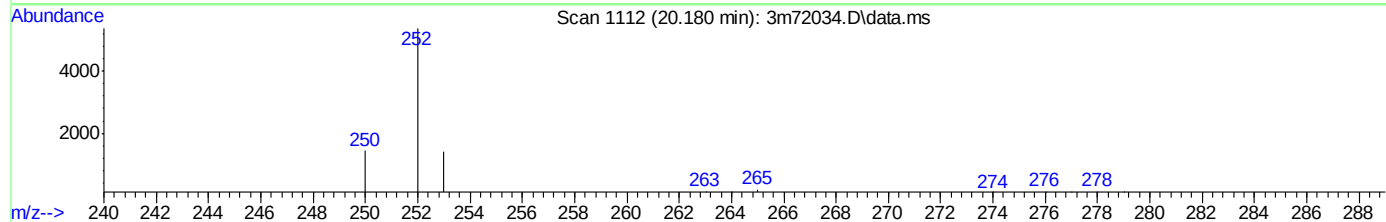
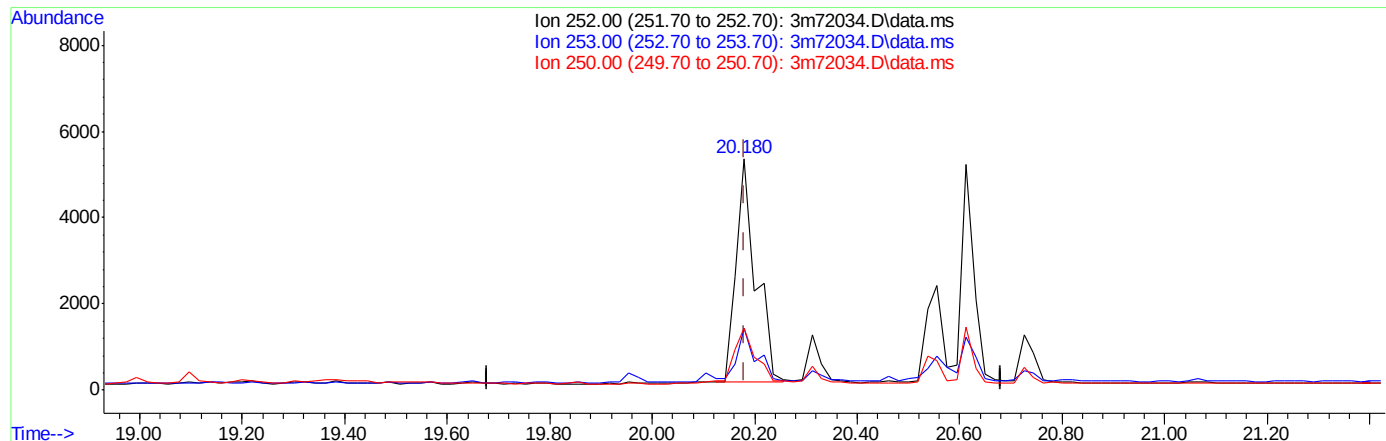
Supervisor approved: 11/10/17 00:13 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Benzo(b)fluoranthene	205-99-2		20.18	Overlapping peak

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72034.D
 Acq On : 20 Oct 2017 10:01 pm
 Operator : kevinm2
 Sample : jc52695-7
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 23 12:01:44 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration



TIC: 3m72034.D\data.ms

(32) Benzo[b]fluoranthene (t)

20.180min (-0.000) 0.23ppm

response 13959

Ion	Exp%	Act%
252.00	100	100
253.00	24.90	23.06
250.00	19.80	23.88
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3433\
 Data File : 4m73419.D
 Acq On : 12 Oct 2017 5:30 pm
 Operator : kevinm2
 Sample : op6819a-mb1
 Misc : op6819a,e4m3433,1000,,,1,1
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 13 16:59:09 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Mon Oct 09 18:29:08 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	9.335	152	133541	4.00	ppm	-0.06
12) Fluorene-d10	12.277	176	190923	4.00	ppm	#-0.08
22) Fluoranthene-d10	16.492	212	322149	4.00	ppm	-0.06
28) Benzo(a)pyrene-d12	21.097	264	215108	4.00	ppm	-0.07
35) 1-Methylnaphthalene-d10a	9.335	152	131995	4.00	ppm	-0.06
38) Fluorene-d10a	12.277	176	190923	4.00	ppm	#-0.08
System Monitoring Compounds						
2) 2-Fluorophenol	3.818	112	589901	23.39	ppm	-0.14
Spiked Amount 50.000	Range 11 - 58		Recovery =	46.78%		
3) Phenol-d5	5.214	99	599083	15.54	ppm	-0.12
Spiked Amount 50.000			Recovery =	31.08%		
6) Nitrobenzene-d5	6.561	82	1409022	44.64	ppm	-0.06
Spiked Amount 50.000			Recovery =	89.28%		
11) 2-Fluorobiphenyl	9.991	172	2117563	42.54	ppm	0.04
Spiked Amount 50.000			Recovery =	85.08%		
17) 2,4,6-Tribromophenol	12.840	330	391850	41.30	ppm	-0.06
Spiked Amount 50.000			Recovery =	82.60%		
25) Terphenyl-d14	17.283	244	4205490	72.02	ppm	-0.05
Spiked Amount 50.000			Recovery =	144.04%		

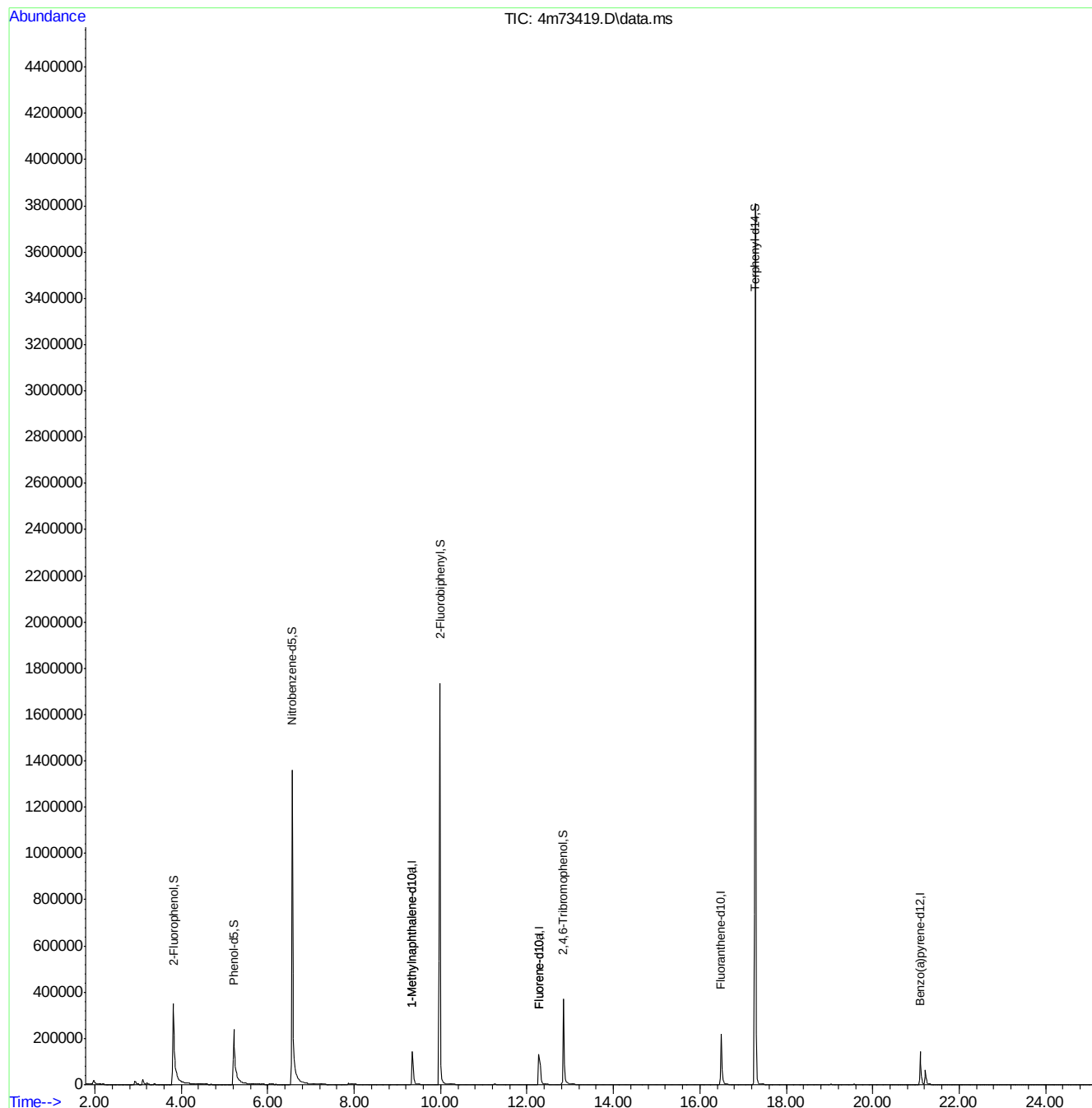
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3433\
Data File : 4m73419.D
Acq On : 12 Oct 2017 5:30 pm
Operator : kevinm2
Sample : op6819a-mb1
Misc : op6819a,e4m3433,1000,,,1,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Oct 13 16:59:09 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Mon Oct 09 18:29:08 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72026.D
 Acq On : 20 Oct 2017 5:46 pm
 Operator : kevinm2
 Sample : op6819a-mb1
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 23 11:41:20 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.811	150	166110	4.00	ppm	0.02
14) Fluorene-d10	11.749	176	216740	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	287745	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	192726	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	706119	23.52	ppm	-0.01
Spiked Amount 50.000			Recovery	=	47.04%	
4) Phenol-d5	4.656	99	725470	15.38	ppm	-0.02
Spiked Amount 50.000			Recovery	=	30.76%	
7) Nitrobenzene-d5	6.030	82	1552927	36.09	ppm	-0.01
Spiked Amount 50.000			Recovery	=	72.18%	
15) 2-Fluorobiphenyl	9.479	172	2487156	34.37	ppm	0.00
Spiked Amount 50.000			Recovery	=	68.74%	
20) 2,4,6-Tribromophenol	12.314	330	300368	41.73	ppm	0.00
Spiked Amount 50.000			Recovery	=	83.46%	
28) Terphenyl-d14	16.820	244	2971481	57.04	ppm	0.02
Spiked Amount 50.000			Recovery	=	114.08%	

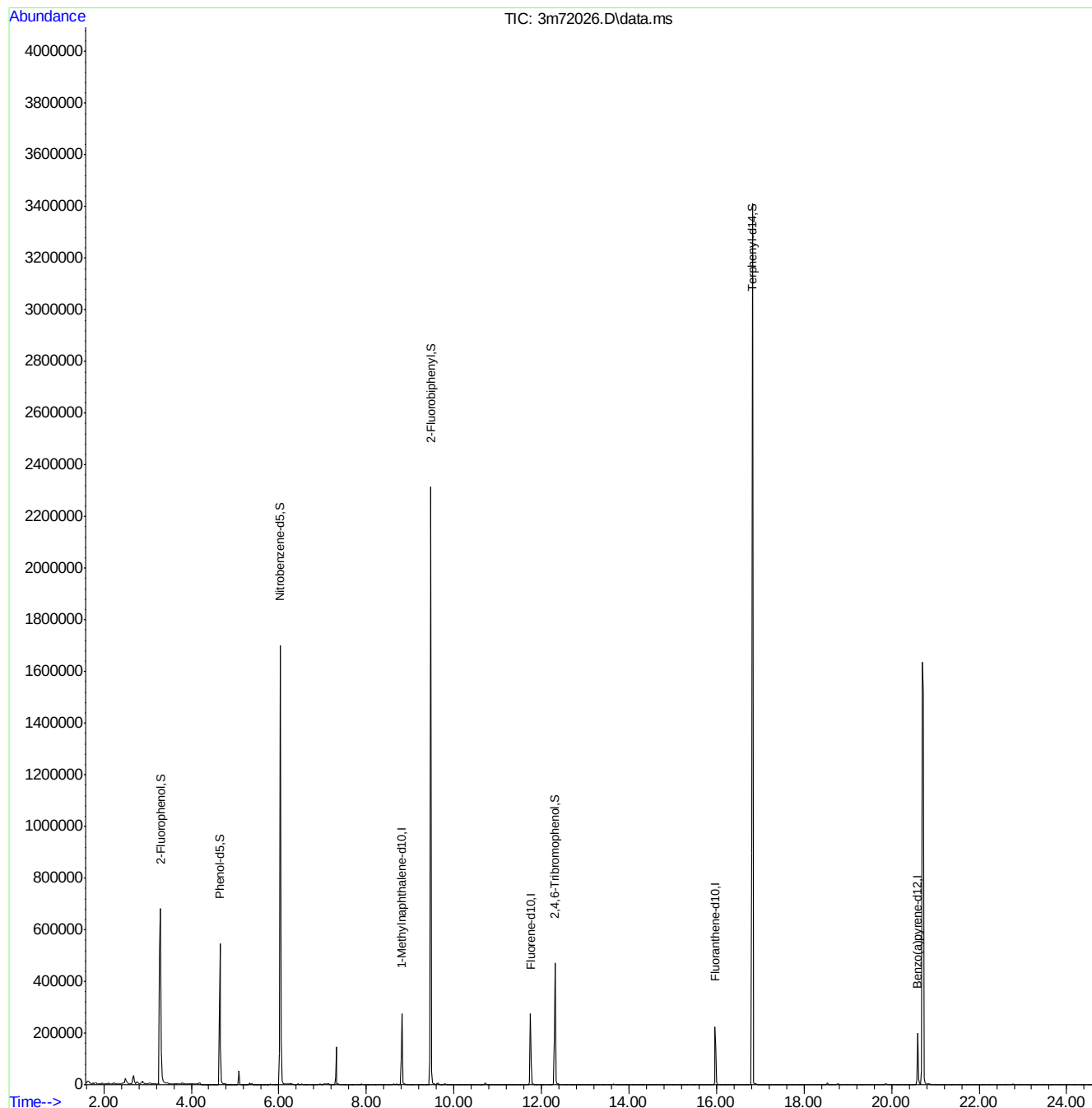
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72026.D
Acq On : 20 Oct 2017 5:46 pm
Operator : kevinm2
Sample : op6819a-mb1
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 23 11:41:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72025.D
 Acq On : 20 Oct 2017 5:15 pm
 Operator : kevinm2
 Sample : op6819a-bs12
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 23 11:39:46 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

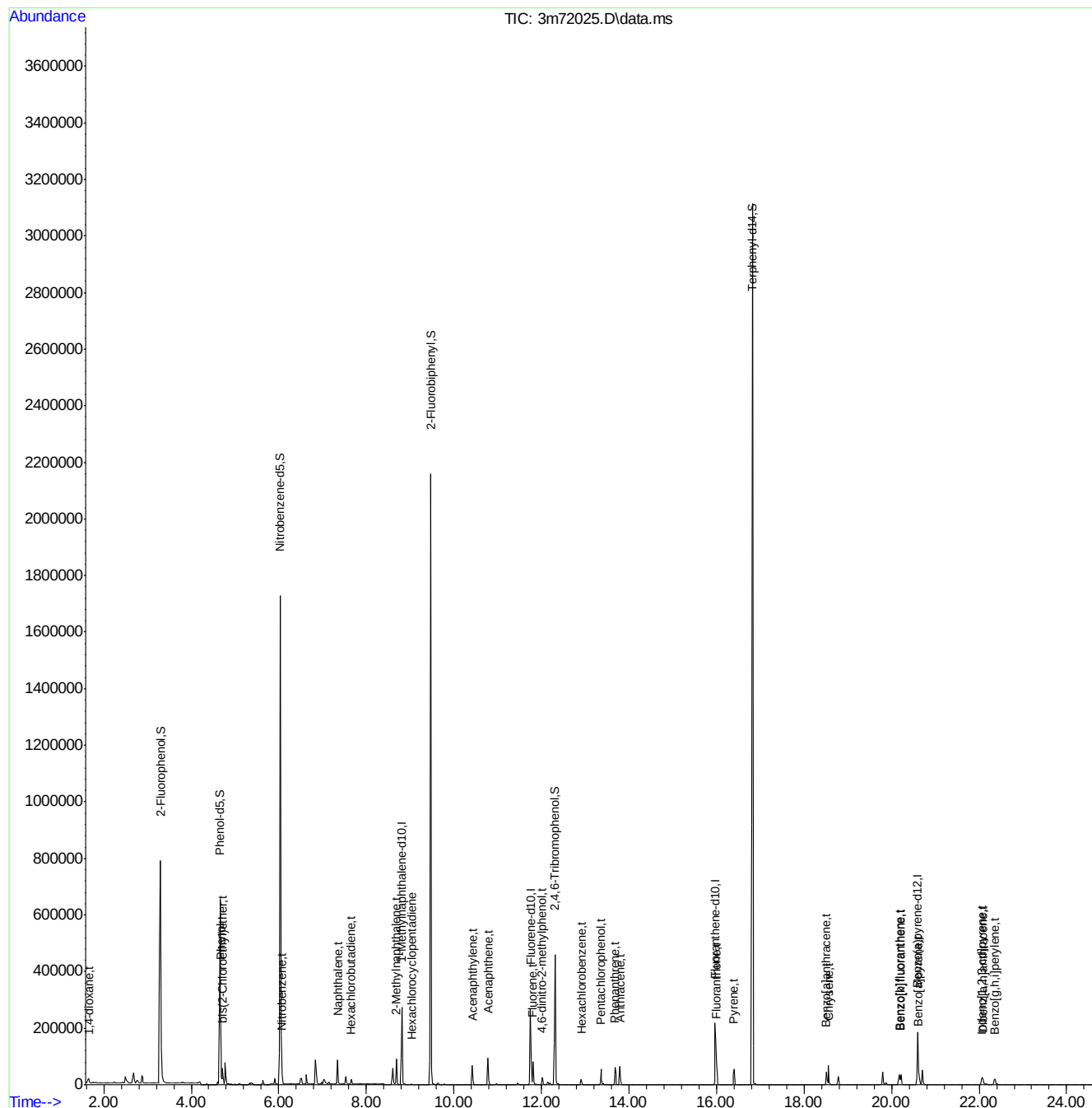
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.812	150	166729	4.00	ppm	0.02
14) Fluorene-d10	11.749	176	210303	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	282687	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	181531	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	794900	26.38	ppm	-0.01
Spiked Amount 50.000			Recovery =	52.76%		
4) Phenol-d5	4.656	99	754624	15.94	ppm	-0.02
Spiked Amount 50.000			Recovery =	31.88%		
7) Nitrobenzene-d5	6.030	82	1564573	36.23	ppm	-0.01
Spiked Amount 50.000			Recovery =	72.46%		
15) 2-Fluorobiphenyl	9.479	172	2328271	33.16	ppm	0.00
Spiked Amount 50.000			Recovery =	66.32%		
20) 2,4,6-Tribromophenol	12.314	330	282605	40.46	ppm	0.00
Spiked Amount 50.000			Recovery =	80.92%		
28) Terphenyl-d14	16.820	244	2761463	53.96	ppm	0.02
Spiked Amount 50.000			Recovery =	107.92%		
Target Compounds						
2) 1,4-dioxane	1.662	88	7112	0.52	ppm	Qvalue 87
5) Phenol	4.668	94	100680	1.96	ppm	# 67
6) bis(2-Chloroethyl)ether	4.716	93	28170	0.73	ppm	# 54
8) Nitrobenzene	6.068	77	33854	0.77	ppm	97
9) Naphthalene	7.348	128	86798	0.78	ppm	94
10) Hexachlorobutadiene	7.650	225	9019	0.66	ppm	70
11) 2-Methylnaphthalene	8.688	141	46851	0.80	ppm	94
13) Hexachlorocyclopentadiene	9.037	237	1911	0.45	ppm	# 73
16) Acenaphthylene	10.422	152	65278	0.75	ppm	98
17) Acenaphthene	10.778	153	45842	0.80	ppm	89
18) 4,6-dinitro-2-methylph...	12.013	198	19904	3.97	ppm	# 80
19) Fluorene	11.806	166	52117	0.83	ppm	88
22) Hexachlorobenzene	12.909	284	11375	0.77	ppm	94
23) Pentachlorophenol	13.358	266	37509	5.90	ppm	91
24) Phenanthrene	13.683	178	72740	0.84	ppm	99
25) Anthracene	13.791	178	64071	0.87	ppm	87
26) Fluoranthene	16.001	202	68087	0.77	ppm	91
27) Pyrene	16.403	202	66590	0.81	ppm	95
29) Benzo[a]anthracene	18.502	228	50655	0.76	ppm	96
30) Chrysene	18.563	228	54125m	0.85	ppm	
32) Benzo[b]fluoranthene	20.180	252	49126	0.74	ppm	96
33) Benzo[k]fluoranthene	20.218	252	31643m	0.61	ppm	
34) Benzo[a]pyrene	20.613	252	38109	0.74	ppm	94
35) Indeno[1,2,3-cd]pyrene	22.061	276	34802	0.60	ppm	94
36) Dibenz[a,h]anthracene	22.080	278	29169	0.71	ppm	94
37) Benzo[g,h,i]perylene	22.362	276	30681	0.59	ppm	99

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72025.D
Acq On : 20 Oct 2017 5:15 pm
Operator : kevinm2
Sample : op6819a-bs12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 23 11:39:46 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number: OP6819A-BS12

Method: SW846 8270D BY SIM

Lab FileID: 3M72025.D

Analyst approved: 10/23/17 12:13 Kevin Moyle

Injection Time: 10/20/17 17:15

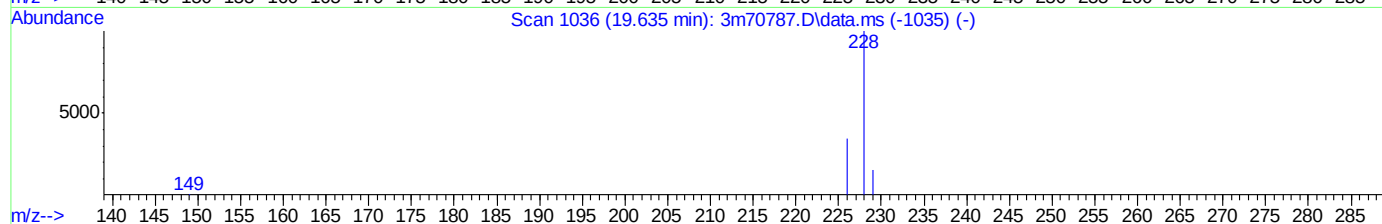
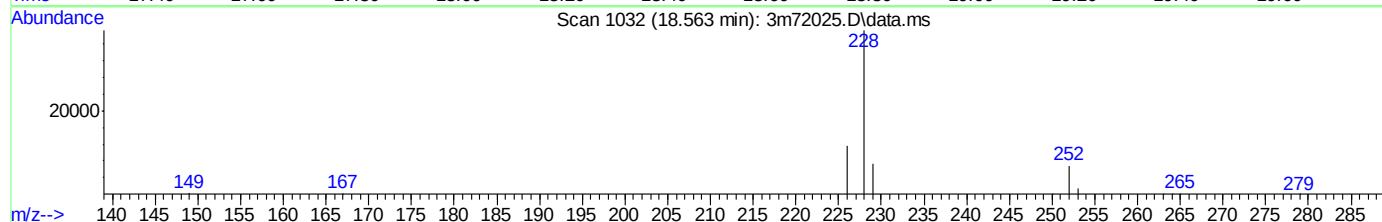
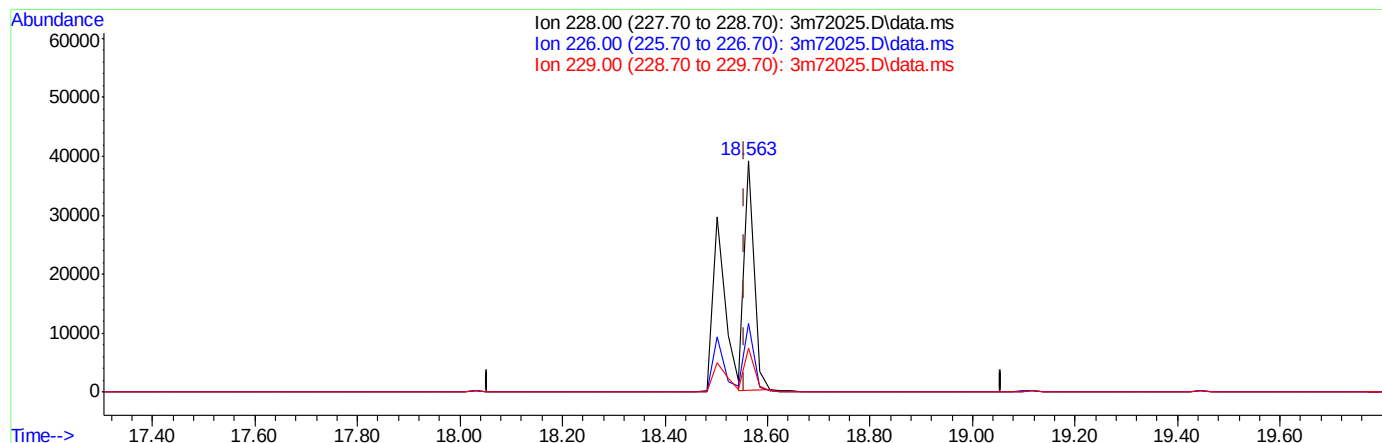
Supervisor approved: 10/23/17 17:27 Nancy Ma

Parameter	CAS	Sig#	R.T. (min.)	Reason
Chrysene	218-01-9		18.56	Poorly defined baseline
Benzo(k)fluoranthene	207-08-9		20.22	Poorly defined baseline

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72025.D
Acq On : 20 Oct 2017 5:15 pm
Operator : kevinm2
Sample : op6819a-bs12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 23 11:37:45 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:30:15 2017
Response via : Initial Calibration



TIC: 3m72025.D\data.ms

(30) Chrysene (t)

18.563min (+0.008) 0.82ppm

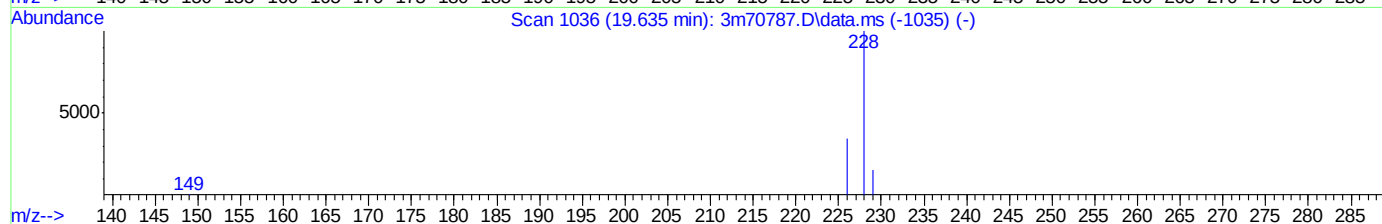
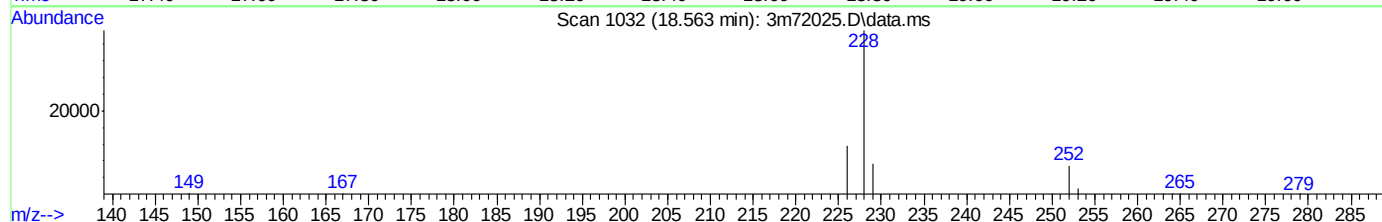
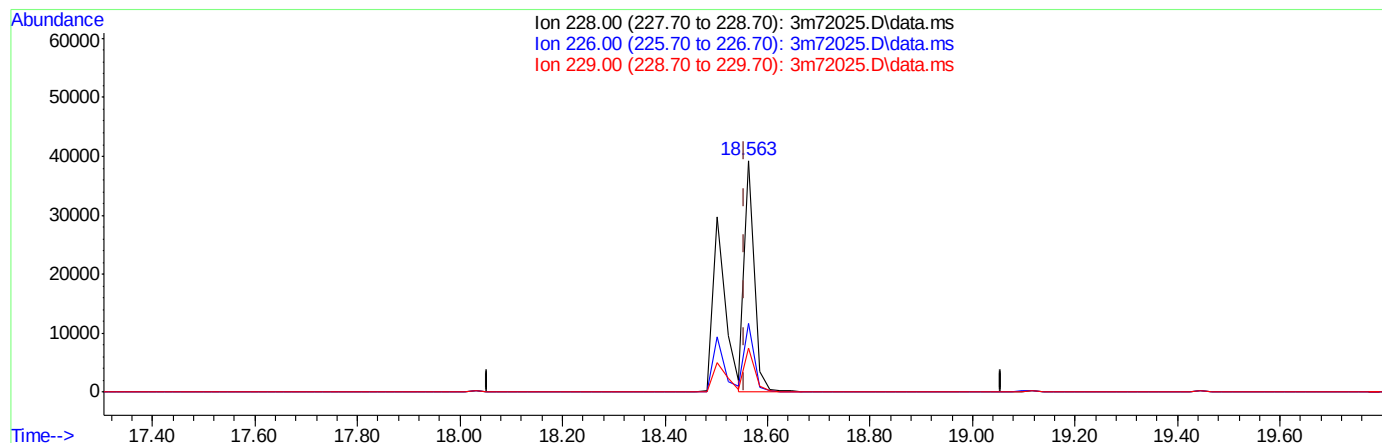
response 51753

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	28.92
229.00	20.70	18.90
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72025.D
Acq On : 20 Oct 2017 5:15 pm
Operator : kevinm2
Sample : op6819a-bs12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 23 11:38:53 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72025.D\data.ms

(30) Chrysene (t)

18.563min (+0.008) 0.85ppm m

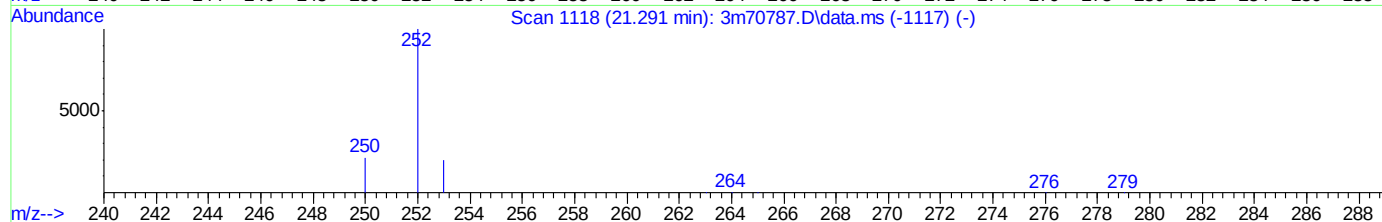
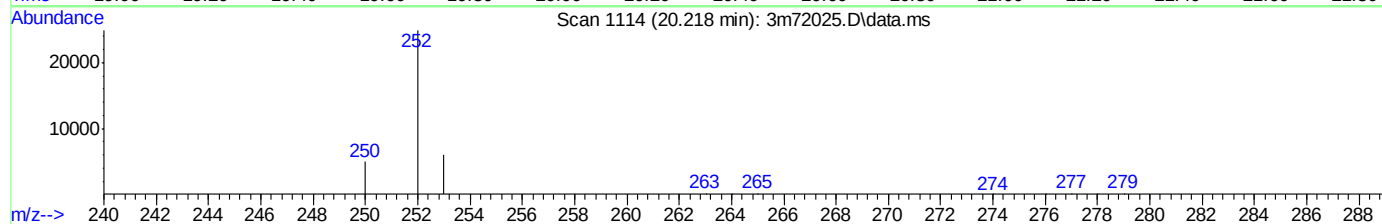
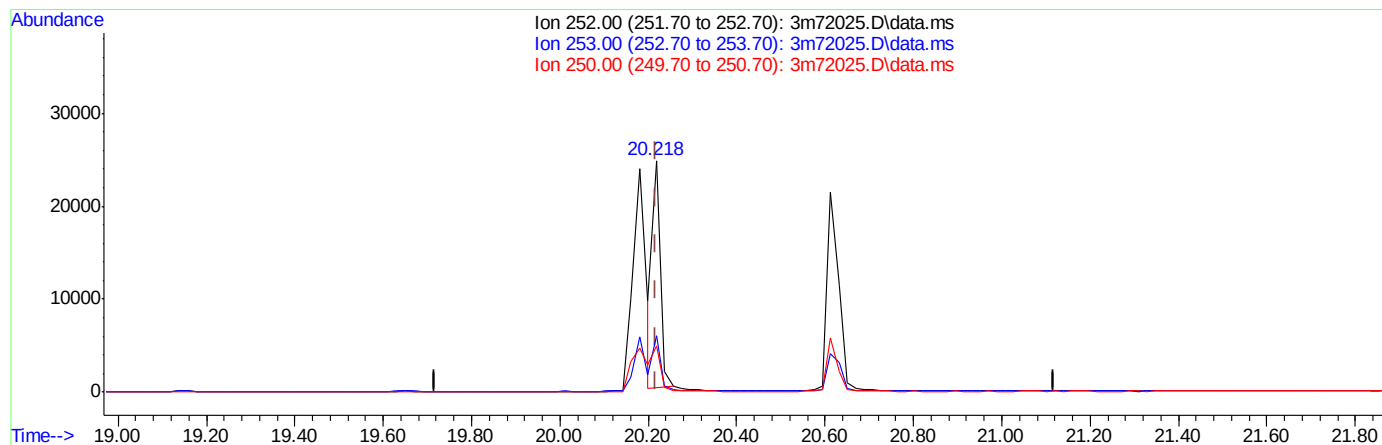
response 54125

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	29.55
229.00	20.70	18.97
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72025.D
Acq On : 20 Oct 2017 5:15 pm
Operator : kevinm2
Sample : op6819a-bs12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 23 11:38:53 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72025.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.218min (0.000) 0.57ppm

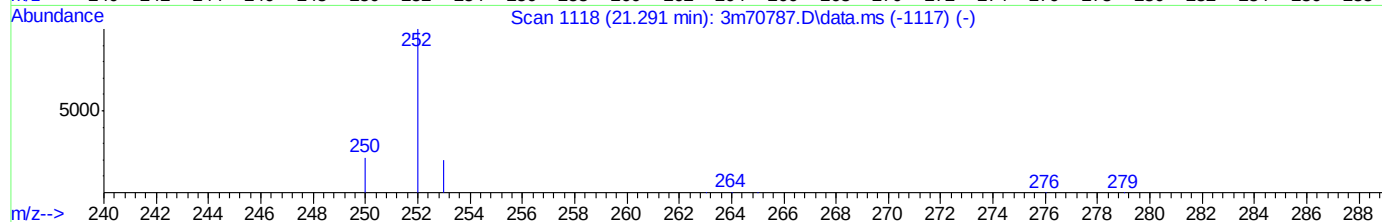
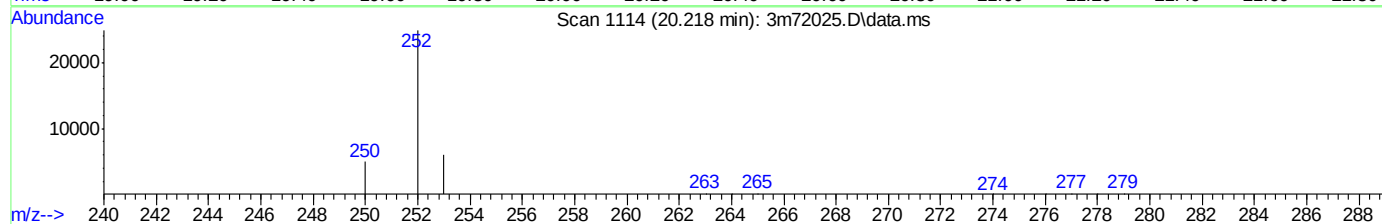
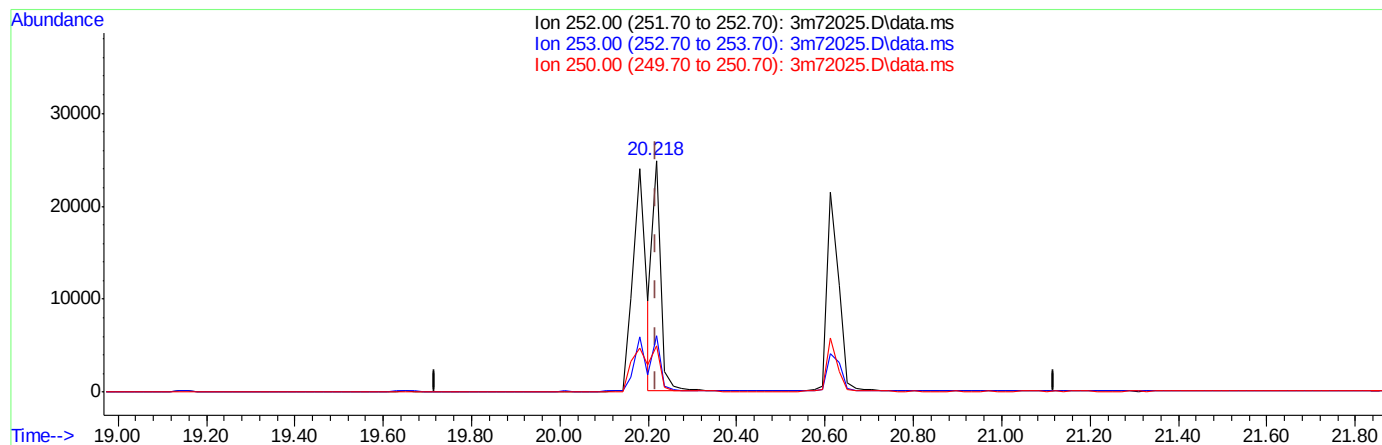
response 29486

Ion	Exp%	Act%
252.00	100	100
253.00	24.10	25.40
250.00	20.00	17.41
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72025.D
Acq On : 20 Oct 2017 5:15 pm
Operator : kevinm2
Sample : op6819a-bs12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 23 11:38:53 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72025.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.218min (0.000) 0.61ppm m

response 31643

Ion	Exp%	Act%
252.00	100	100
253.00	24.10	24.15
250.00	20.00	20.00
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72027.D
 Acq On : 20 Oct 2017 6:18 pm
 Operator : kevinm2
 Sample : op6819a-bsd12
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 23 11:43:09 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

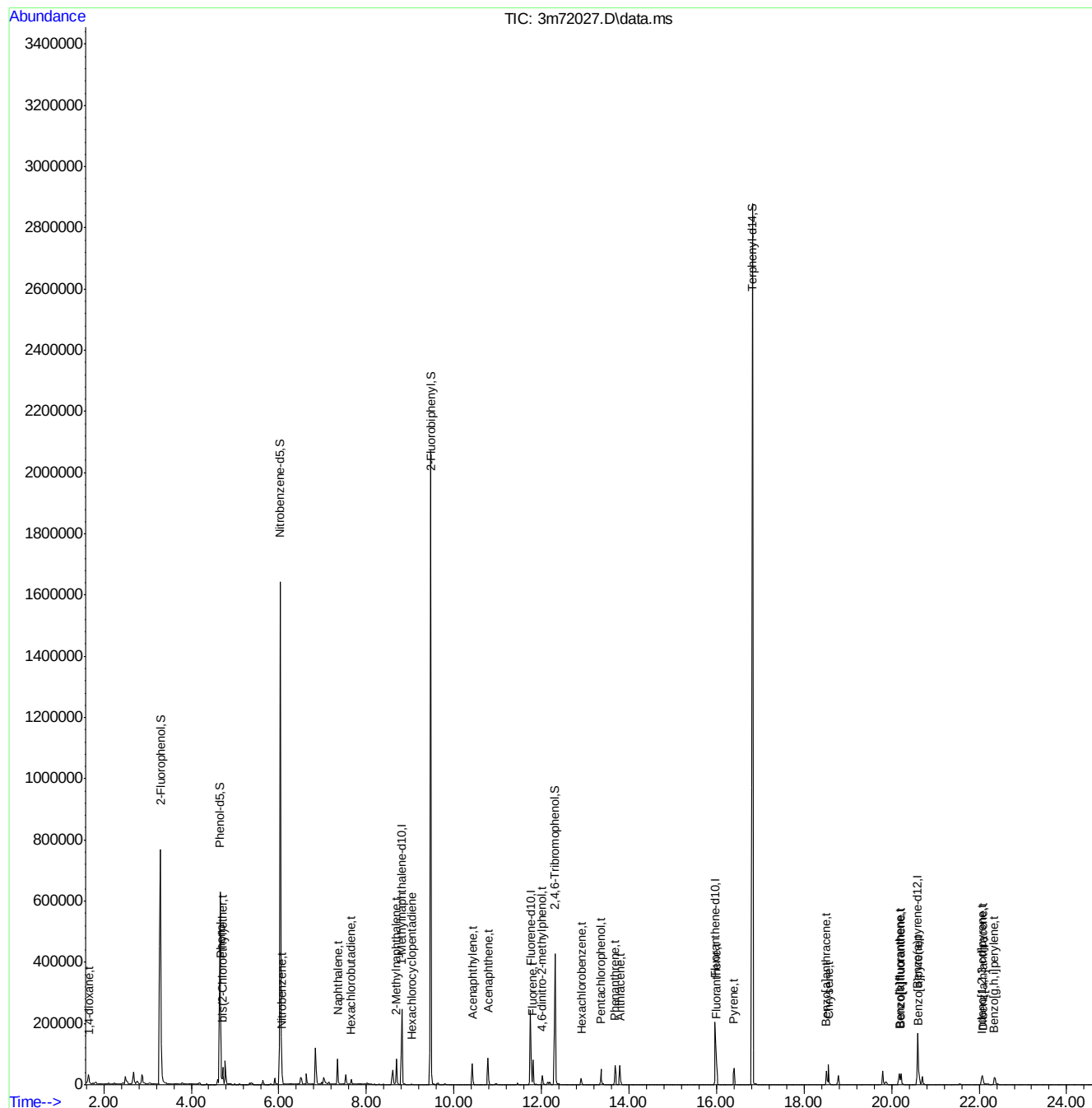
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.812	150	152020	4.00	ppm	0.02
14) Fluorene-d10	11.749	176	190097	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	253964	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	167717	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	779719	28.38	ppm	-0.01
Spiked Amount 50.000			Recovery =	56.76%		
4) Phenol-d5	4.656	99	745617	17.28	ppm	-0.02
Spiked Amount 50.000			Recovery =	34.56%		
7) Nitrobenzene-d5	6.031	82	1470935	37.36	ppm	-0.01
Spiked Amount 50.000			Recovery =	74.72%		
15) 2-Fluorobiphenyl	9.479	172	2225322	35.06	ppm	0.00
Spiked Amount 50.000			Recovery =	70.12%		
20) 2,4,6-Tribromophenol	12.314	330	280243	44.39	ppm	0.00
Spiked Amount 50.000			Recovery =	88.78%		
28) Terphenyl-d14	16.820	244	2614452	56.86	ppm	0.02
Spiked Amount 50.000			Recovery =	113.72%		
Target Compounds						
2) 1,4-dioxane	1.662	88	7510	0.60	ppm	88
5) Phenol	4.668	94	100206	2.14	ppm	# 71
6) bis(2-Chloroethyl)ether	4.716	93	27834	0.79	ppm	# 54
8) Nitrobenzene	6.068	77	33714	0.85	ppm	96
9) Naphthalene	7.349	128	83419	0.82	ppm	93
10) Hexachlorobutadiene	7.650	225	9116	0.74	ppm	71
11) 2-Methylnaphthalene	8.689	141	43607	0.82	ppm	95
13) Hexachlorocyclopentadiene	9.037	237	1249	0.32	ppm	# 71
16) Acenaphthylene	10.422	152	65149	0.83	ppm	98
17) Acenaphthene	10.778	153	44881	0.86	ppm	86
18) 4,6-dinitro-2-methylph...	12.013	198	23833	5.02	ppm	# 67
19) Fluorene	11.806	166	51260	0.90	ppm	88
22) Hexachlorobenzene	12.910	284	11044	0.83	ppm	95
23) Pentachlorophenol	13.358	266	37221	6.47	ppm	89
24) Phenanthrene	13.683	178	69204	0.89	ppm	99
25) Anthracene	13.791	178	61743	0.93	ppm	87
26) Fluoranthene	16.001	202	65808	0.83	ppm	92
27) Pyrene	16.403	202	65140	0.88	ppm	95
29) Benzo[a]anthracene	18.502	228	49435	0.83	ppm	96
30) Chrysene	18.564	228	51754m	0.91	ppm	
32) Benzo[b]fluoranthene	20.180	252	50654	0.82	ppm	96
33) Benzo[k]fluoranthene	20.218	252	32836m	0.69	ppm	
34) Benzo[a]pyrene	20.613	252	39868	0.84	ppm	94
35) Indeno[1,2,3-cd]pyrene	22.061	276	39053	0.73	ppm	94
36) Dibenz[a,h]anthracene	22.080	278	32859	0.87	ppm	94
37) Benzo[g,h,i]perylene	22.343	276	34790	0.72	ppm	97

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72027.D
Acq On : 20 Oct 2017 6:18 pm
Operator : kevinm2
Sample : op6819a-bsd12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 23 11:43:09 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

OP6819A-BSD12

Method:

SW846 8270D BY SIM

Lab FileID:

3M72027.D

Analyst approved:

10/23/17 12:13 Kevin Moyle

Injection Time:

10/20/17 18:18

Supervisor approved:

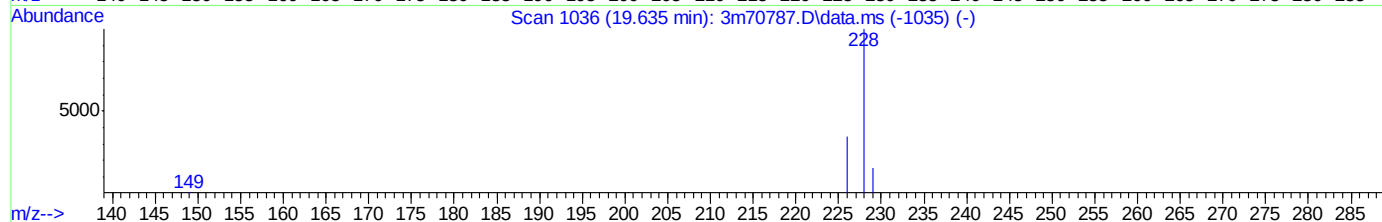
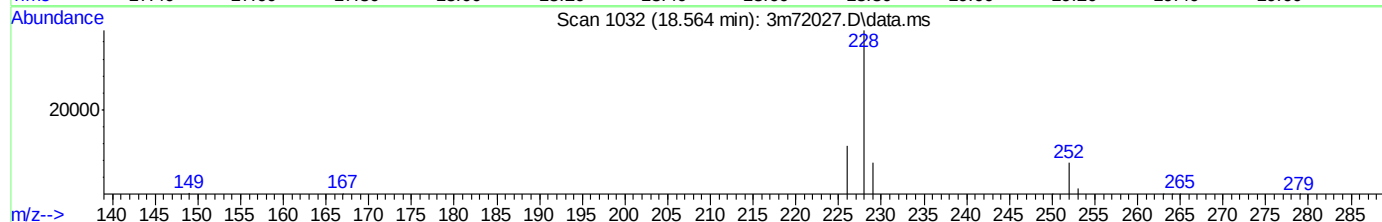
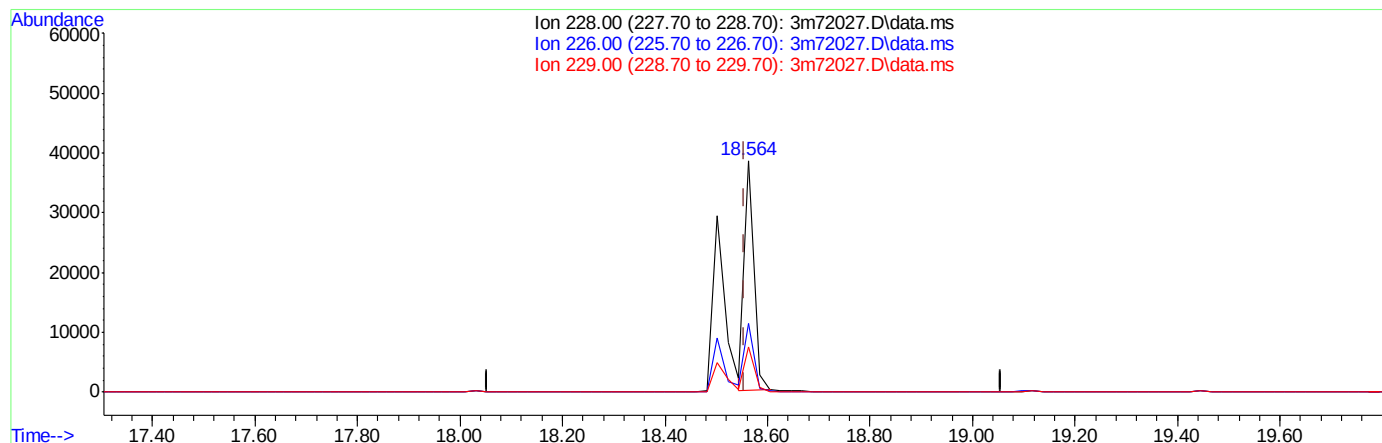
10/23/17 17:27 Nancy Ma

Parameter	CAS	Sig#	R.T. (min.)	Reason
Chrysene	218-01-9		18.56	Poorly defined baseline
Benzo(k)fluoranthene	207-08-9		20.22	Poorly defined baseline

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72027.D
Acq On : 20 Oct 2017 6:18 pm
Operator : kevinm2
Sample : op6819a-bsd12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 23 11:41:44 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72027.D\data.ms

(30) Chrysene (t)

18.564min (+0.008) 0.89ppm

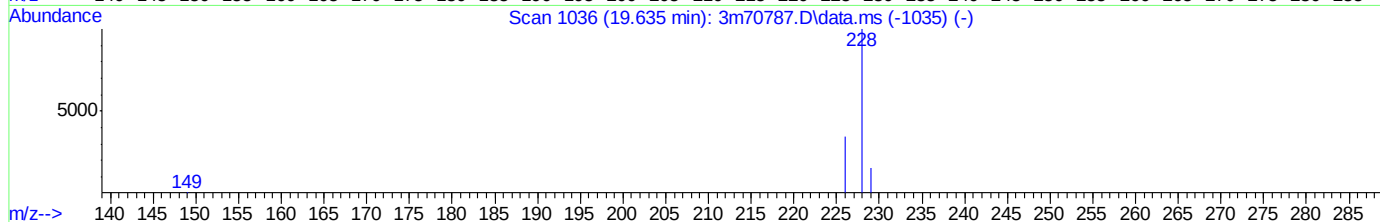
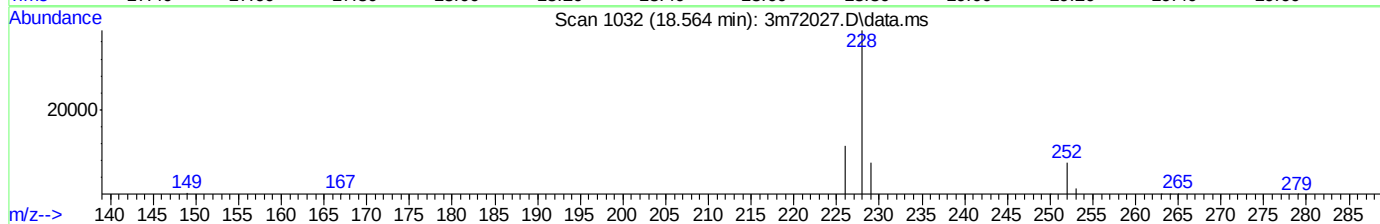
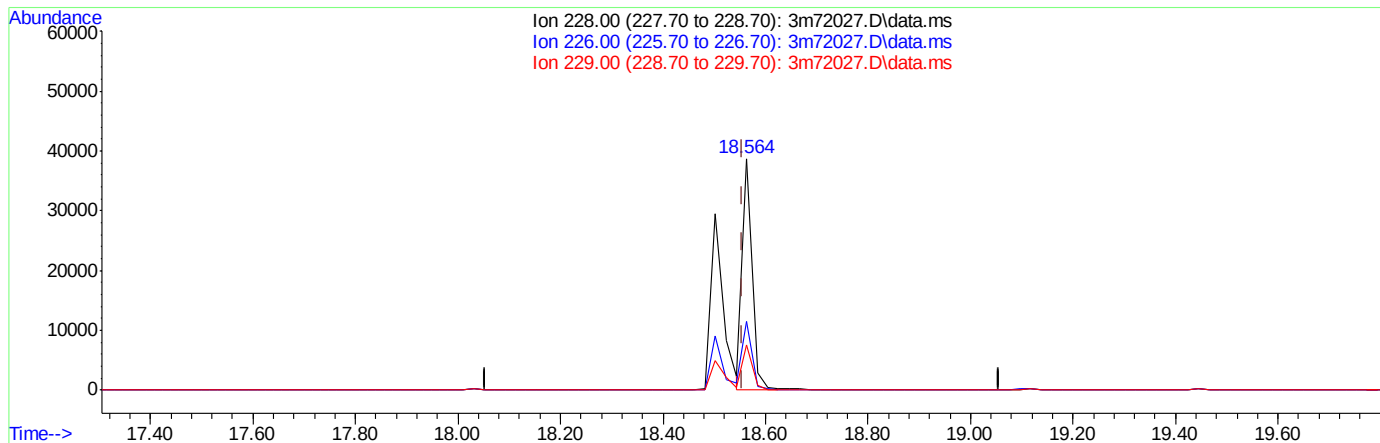
response 50403

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	28.94
229.00	20.70	19.43
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72027.D
Acq On : 20 Oct 2017 6:18 pm
Operator : kevinm2
Sample : op6819a-bsd12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 23 11:41:44 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72027.D\data.ms

(30) Chrysene (t)

18.564min (+0.008) 0.91ppm m

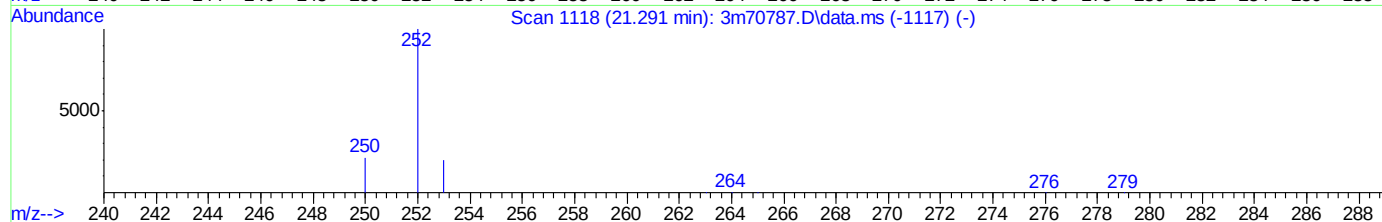
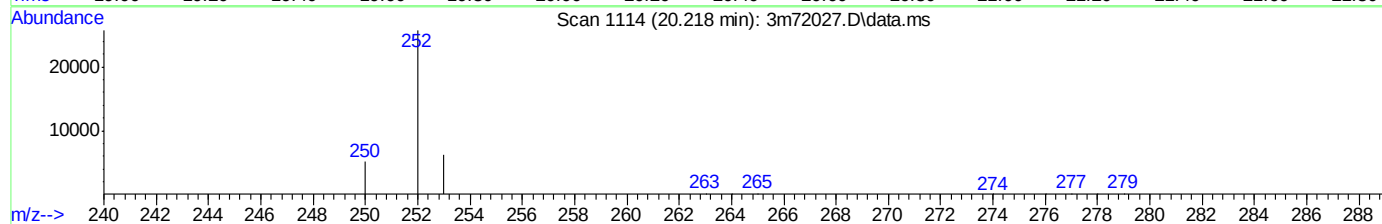
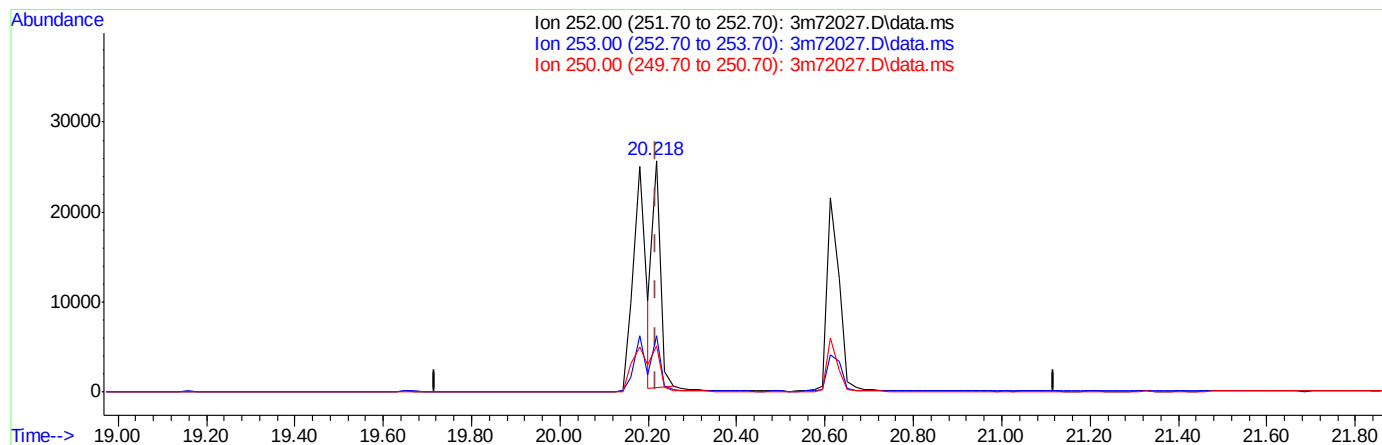
response 51754

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	29.66
229.00	20.70	19.42
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72027.D
Acq On : 20 Oct 2017 6:18 pm
Operator : kevinm2
Sample : op6819a-bsd12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 23 11:41:44 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72027.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.218min (+0.000) 0.64ppm

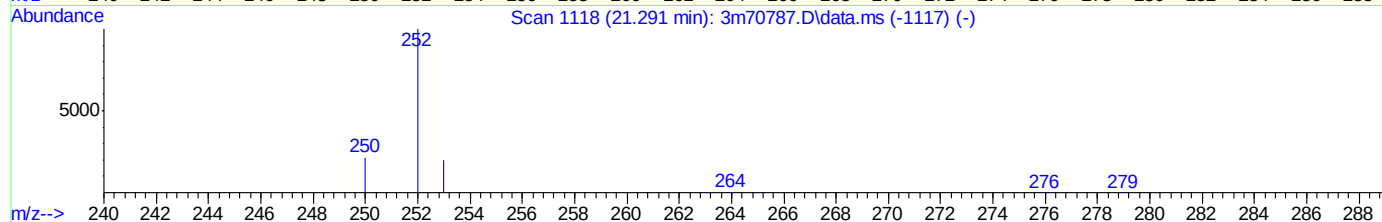
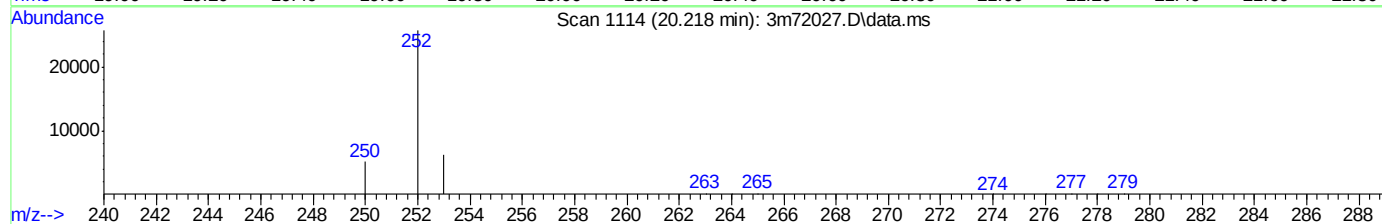
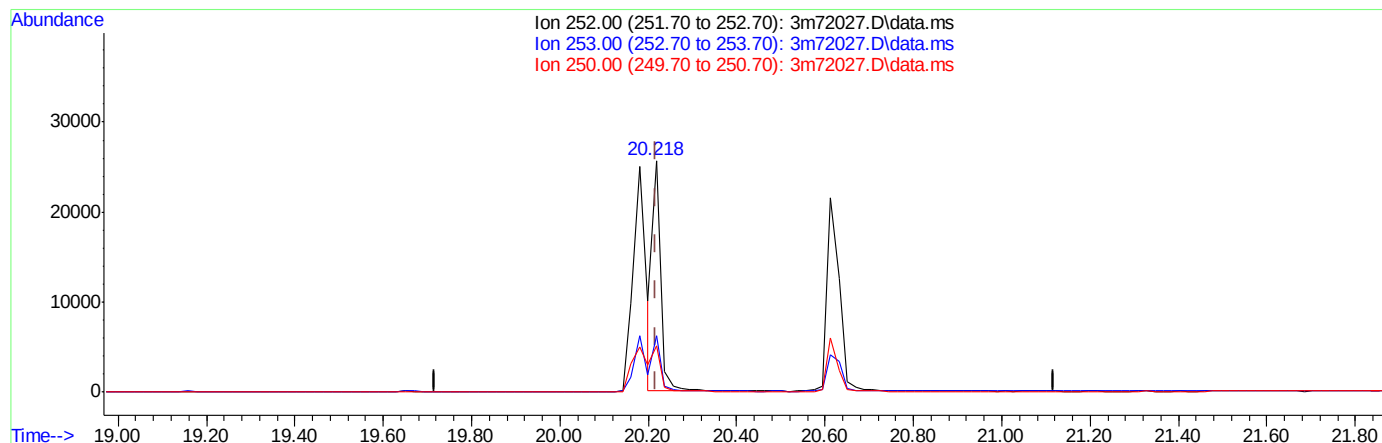
response 30447

Ion	Exp%	Act%
252.00	100	100
253.00	24.10	25.37
250.00	20.00	17.05
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72027.D
Acq On : 20 Oct 2017 6:18 pm
Operator : kevinm2
Sample : op6819a-bsd12
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 23 11:41:44 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72027.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.218min (+0.000) 0.69ppm m

response 32836

Ion	Exp%	Act%
252.00	100	100
253.00	24.10	24.16
250.00	20.00	19.79
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72031.D
 Acq On : 20 Oct 2017 8:26 pm
 Operator : kevinm2
 Sample : op6819a-ms
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 23 11:58:11 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

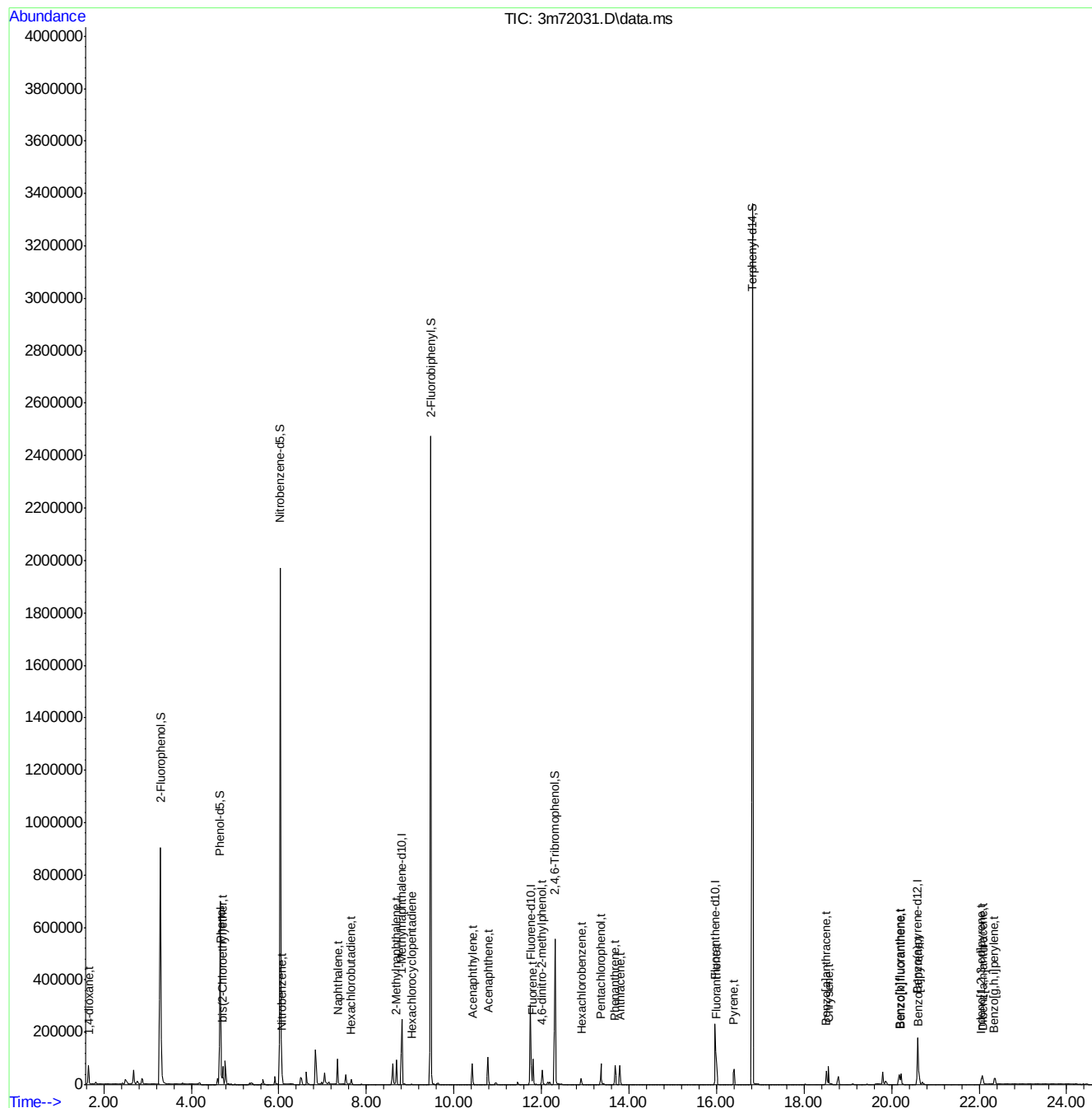
Internal Standards						
1) 1-Methylnaphthalene-d10	8.812	150	164200	4.00	ppm	0.02
14) Fluorene-d10	11.749	176	226004	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	268559	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	177608	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	884239	29.79	ppm	-0.01
Spiked Amount 50.000			Recovery	=	59.58%	
4) Phenol-d5	4.656	99	778602	16.70	ppm	-0.02
Spiked Amount 50.000			Recovery	=	33.40%	
7) Nitrobenzene-d5	6.030	82	1771900	41.66	ppm	-0.01
Spiked Amount 50.000			Recovery	=	83.32%	
15) 2-Fluorobiphenyl	9.479	172	2742856	36.35	ppm	0.00
Spiked Amount 50.000			Recovery	=	72.70%	
20) 2,4,6-Tribromophenol	12.314	330	355199	47.32	ppm	0.00
Spiked Amount 50.000			Recovery	=	94.64%	
28) Terphenyl-d14	16.820	244	3012647	61.96	ppm	0.02
Spiked Amount 50.000			Recovery	=	123.92%	
Target Compounds						Qvalue
2) 1,4-dioxane	1.662	88	7612	0.57	ppm	96
5) Phenol	4.668	94	109966	2.17	ppm	# 72
6) bis(2-Chloroethyl)ether	4.716	93	31906	0.84	ppm	# 60
8) Nitrobenzene	6.068	77	38917	0.90	ppm	98
9) Naphthalene	7.349	128	96709	0.88	ppm	93
10) Hexachlorobutadiene	7.650	225	10954	0.82	ppm	73
11) 2-Methylnaphthalene	8.689	141	49428	0.86	ppm	96
13) Hexachlorocyclopentadiene	9.037	237	2330	0.56	ppm	# 69
16) Acenaphthylene	10.422	152	78806	0.85	ppm	97
17) Acenaphthene	10.778	153	53071	0.86	ppm	86
18) 4,6-dinitro-2-methylph...	12.013	198	43961	7.24	ppm	# 59
19) Fluorene	11.806	166	62297	0.93	ppm	85
22) Hexachlorobenzene	12.910	284	12811	0.91	ppm	98
23) Pentachlorophenol	13.358	266	54482	8.71	ppm	87
24) Phenanthrene	13.683	178	79837	0.97	ppm	98
25) Anthracene	13.791	178	74498	1.06	ppm	86
26) Fluoranthene	16.001	202	75013	0.90	ppm	93
27) Pyrene	16.403	202	75895	0.97	ppm	94
29) Benzo[a]anthracene	18.502	228	57716	0.92	ppm	97
30) Chrysene	18.564	228	57255m	0.95	ppm	
32) Benzo[b]fluoranthene	20.180	252	59062	0.91	ppm	95
33) Benzo[k]fluoranthene	20.218	252	36843m	0.73	ppm	
34) Benzo[a]pyrene	20.613	252	45361	0.90	ppm	94
35) Indeno[1,2,3-cd]pyrene	22.042	276	43345	0.77	ppm	90
36) Dibenz[a,h]anthracene	22.080	278	35643	0.89	ppm	91
37) Benzo[g,h,i]perylene	22.343	276	37490	0.73	ppm	97

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72031.D
Acq On : 20 Oct 2017 8:26 pm
Operator : kevinm2
Sample : op6819a-ms
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 23 11:58:11 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number: OP6819A-MS

Method: SW846 8270D BY SIM

Lab FileID: 3M72031.D

Analyst approved: 10/23/17 12:13 Kevin Moyle

Injection Time: 10/20/17 20:26

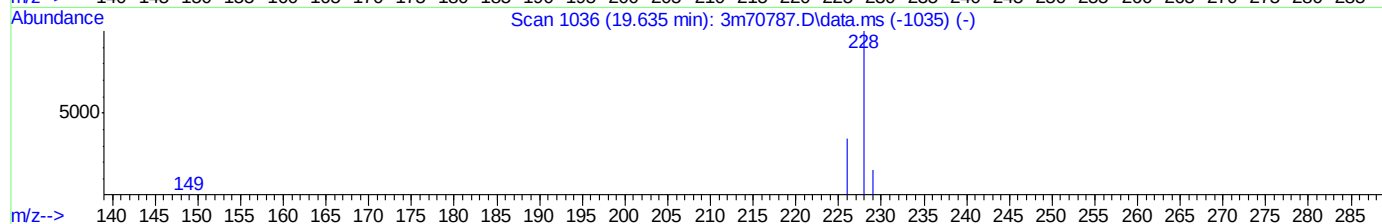
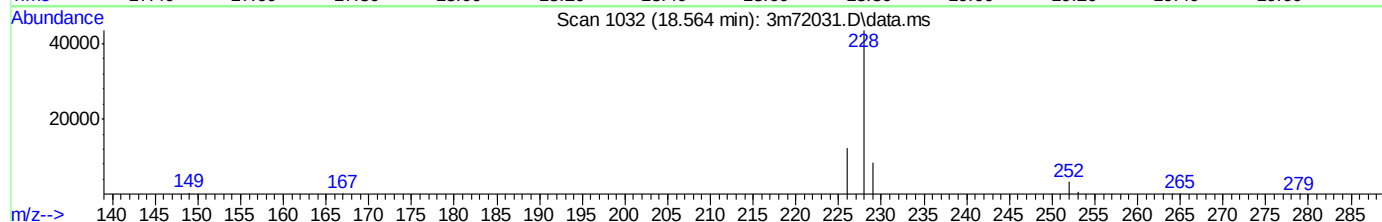
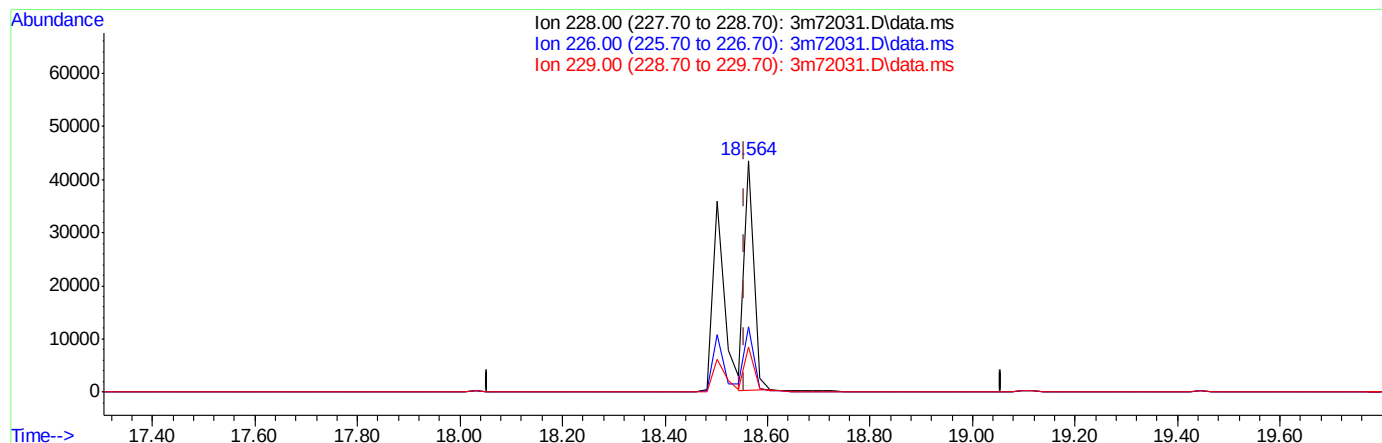
Supervisor approved: 10/23/17 17:36 Nancy Ma

Parameter	CAS	Sig#	R.T. (min.)	Reason
Chrysene	218-01-9		18.56	Poorly defined baseline
Benzo(k)fluoranthene	207-08-9		20.22	Poorly defined baseline

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72031.D
Acq On : 20 Oct 2017 8:26 pm
Operator : kevinm2
Sample : op6819a-ms
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 23 11:57:19 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72031.D\data.ms

(30) Chrysene (t)

18.564min (+0.008) 0.93ppm

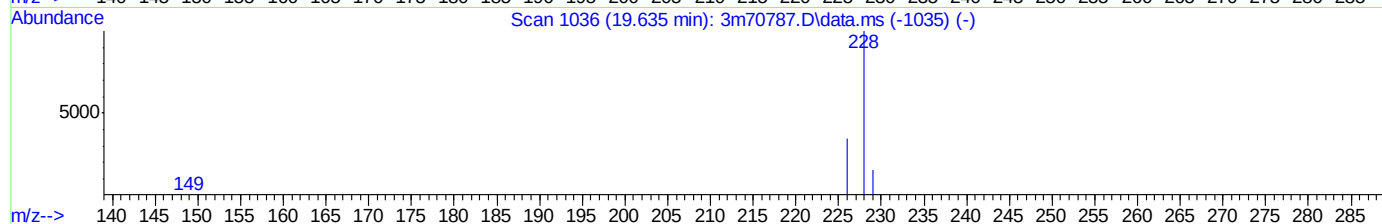
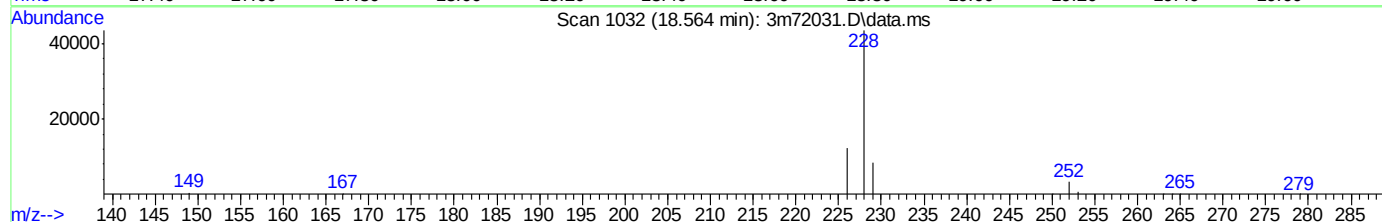
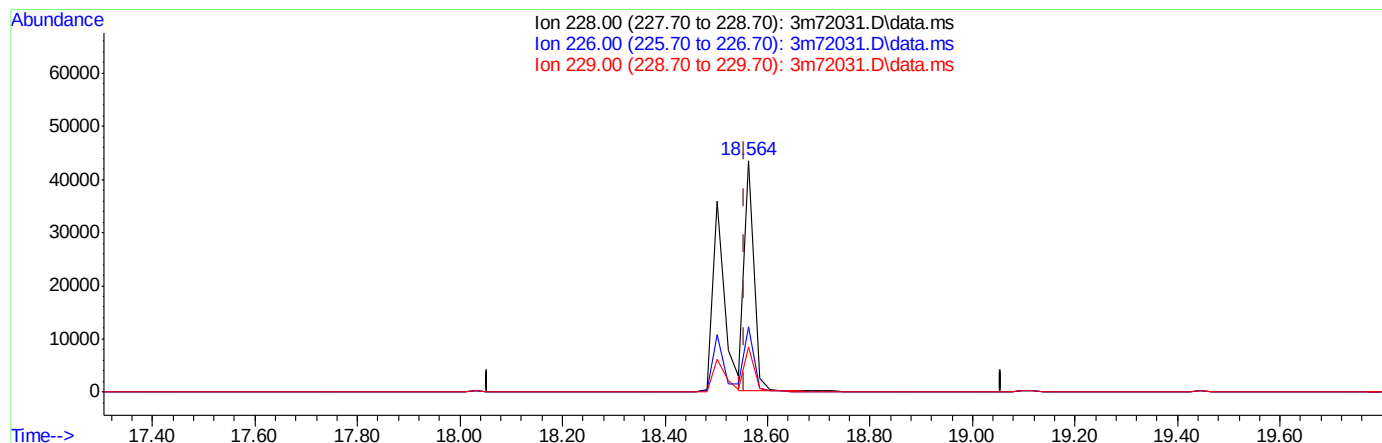
response 55807

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	27.28
229.00	20.70	19.39
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72031.D
Acq On : 20 Oct 2017 8:26 pm
Operator : kevinm2
Sample : op6819a-ms
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 23 11:57:19 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72031.D\data.ms

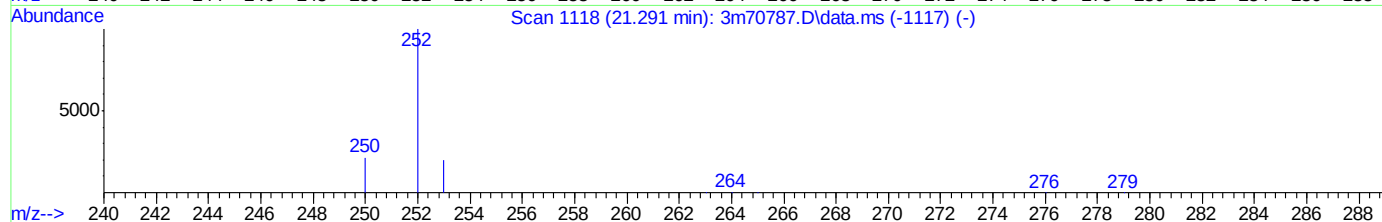
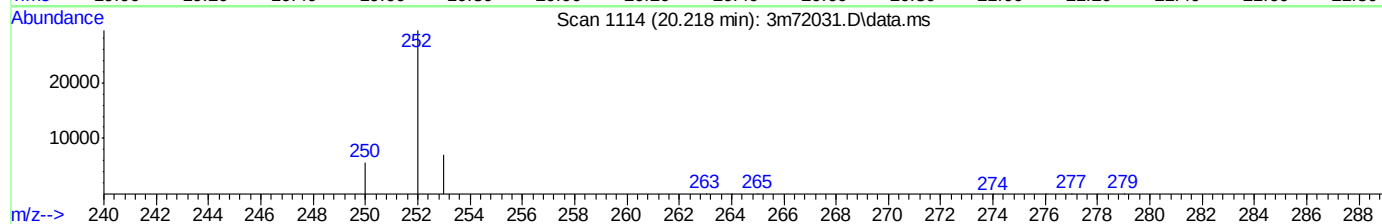
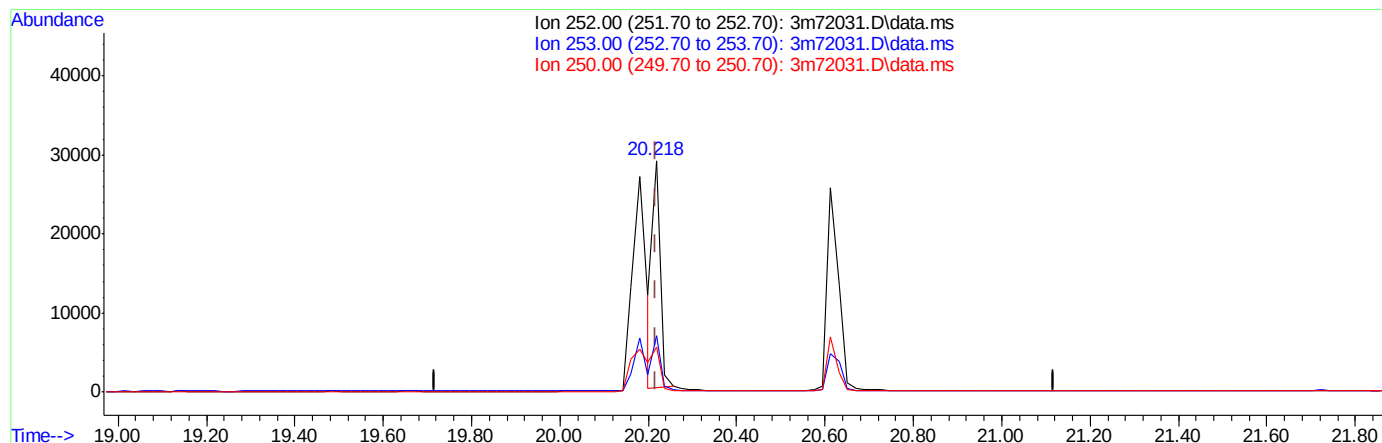
(30) Chrysene (t)
18.564min (+0.008) 0.95ppm m
response 57255

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	28.10
229.00	20.70	19.47
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72031.D
Acq On : 20 Oct 2017 8:26 pm
Operator : kevinm2
Sample : op6819a-ms
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 23 11:57:19 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72031.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.218min (+0.000) 0.68ppm

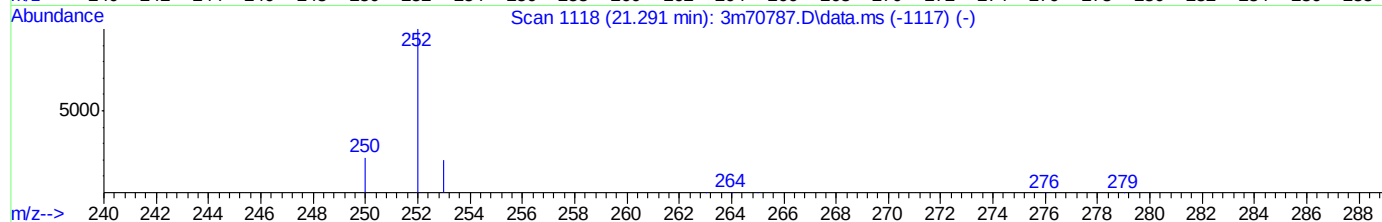
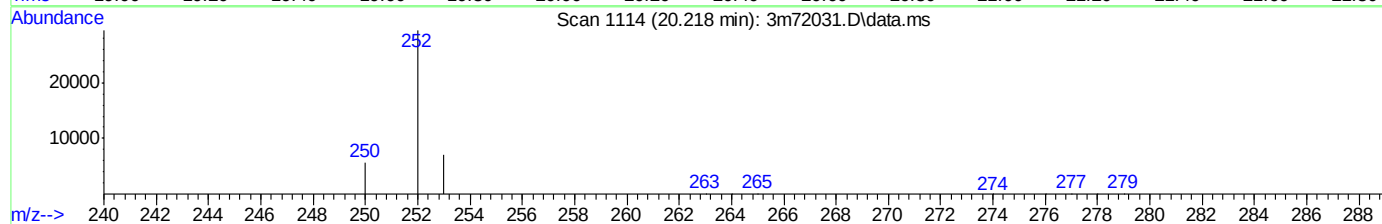
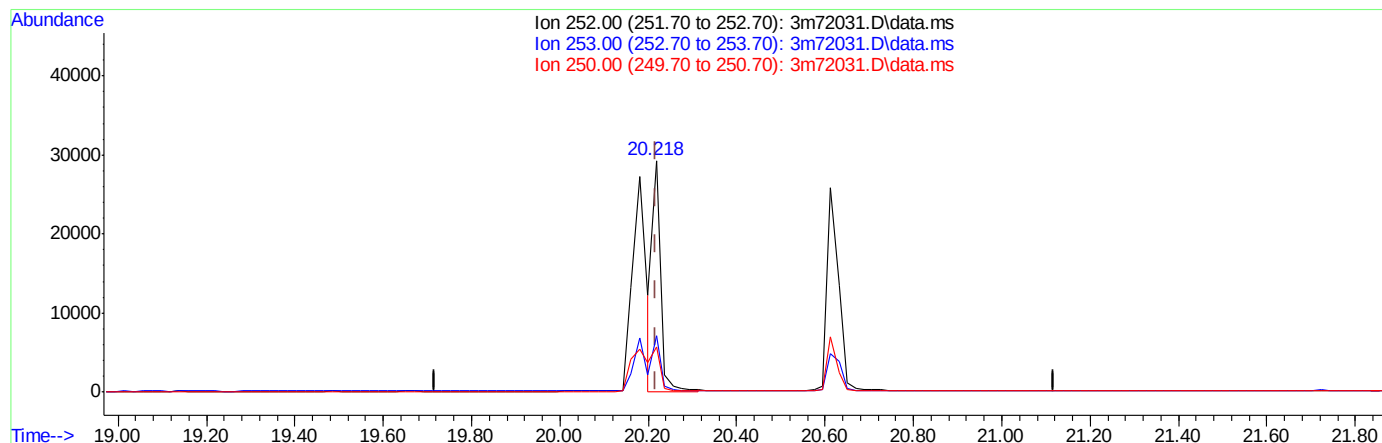
response 34361

Ion	Exp%	Act%
252.00	100	100
253.00	24.10	25.75
250.00	20.00	16.64
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72031.D
Acq On : 20 Oct 2017 8:26 pm
Operator : kevinm2
Sample : op6819a-ms
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 23 11:57:19 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72031.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.218min (+0.000) 0.73ppm m

response 36843

Ion	Exp%	Act%
252.00	100	100
253.00	24.10	24.36
250.00	20.00	19.65
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72032.D
 Acq On : 20 Oct 2017 8:57 pm
 Operator : kevinm2
 Sample : op6819a-msd
 Misc : op6819a,e3m3454,1000,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 23 12:00:00 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Mon Oct 23 11:38:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

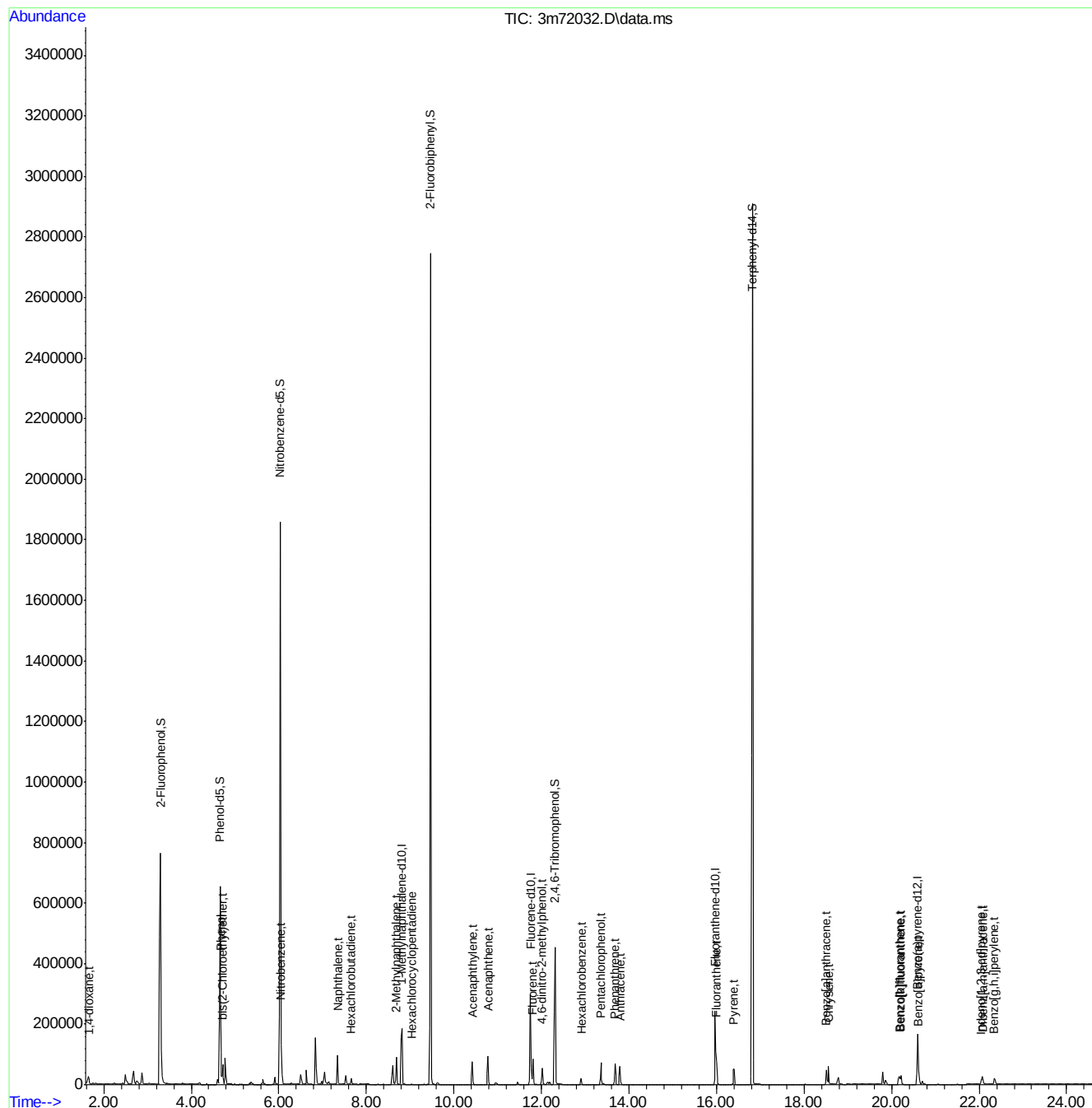
Internal Standards						
1) 1-Methylnaphthalene-d10	8.812	150	150992	4.00	ppm	0.02
14) Fluorene-d10	11.749	176	213329	4.00	ppm	0.00
21) Fluoranthene-d10	15.970	212	266857	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.594	264	172763	4.00	ppm	0.02
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	785197	28.77	ppm	-0.01
Spiked Amount 50.000			Recovery =	57.54%		
4) Phenol-d5	4.656	99	725137	16.92	ppm	-0.02
Spiked Amount 50.000			Recovery =	33.84%		
7) Nitrobenzene-d5	6.030	82	1668817	42.67	ppm	-0.01
Spiked Amount 50.000			Recovery =	85.34%		
15) 2-Fluorobiphenyl	9.464	172	2599900	36.50	ppm	-0.02
Spiked Amount 50.000			Recovery =	73.00%		
20) 2,4,6-Tribromophenol	12.314	330	319380	45.08	ppm	0.00
Spiked Amount 50.000			Recovery =	90.16%		
28) Terphenyl-d14	16.820	244	2678449	55.44	ppm	0.02
Spiked Amount 50.000			Recovery =	110.88%		
Target Compounds						Qvalue
2) 1,4-dioxane	1.662	88	6338	0.51	ppm	# 58
5) Phenol	4.668	94	104316	2.24	ppm	# 62
6) bis(2-Chloroethyl)ether	4.716	93	30699	0.87	ppm	74
8) Nitrobenzene	6.049	77	37401	0.95	ppm	# 45
9) Naphthalene	7.349	128	97137	0.96	ppm	91
10) Hexachlorobutadiene	7.650	225	10750	0.87	ppm	75
11) 2-Methylnaphthalene	8.689	141	47884	0.90	ppm	99
13) Hexachlorocyclopentadiene	9.037	237	2195	0.57	ppm	# 69
16) Acenaphthylene	10.422	152	74867	0.85	ppm	97
17) Acenaphthene	10.778	153	50709	0.87	ppm	81
18) 4,6-dinitro-2-methylph...	12.013	198	42103	7.32	ppm	# 47
19) Fluorene	11.806	166	57171	0.90	ppm	82
22) Hexachlorobenzene	12.910	284	11938	0.85	ppm	99
23) Pentachlorophenol	13.358	266	49822	8.08	ppm	85
24) Phenanthrene	13.683	178	74866	0.92	ppm	97
25) Anthracene	13.791	178	67065	0.96	ppm	87
26) Fluoranthene	16.001	202	71168	0.86	ppm	93
27) Pyrene	16.387	202	72604	0.94	ppm	93
29) Benzo[a]anthracene	18.502	228	51069	0.81	ppm	98
30) Chrysene	18.564	228	49757m	0.83	ppm	
32) Benzo[b]fluoranthene	20.180	252	48887	0.77	ppm	91
33) Benzo[k]fluoranthene	20.218	252	25665m	0.52	ppm	
34) Benzo[a]pyrene	20.613	252	35492	0.72	ppm	96
35) Indeno[1,2,3-cd]pyrene	22.042	276	29435	0.54	ppm	91
36) Dibenz[a,h]anthracene	22.080	278	24826	0.64	ppm	89
37) Benzo[g,h,i]perylene	22.343	276	25730	0.52	ppm	97

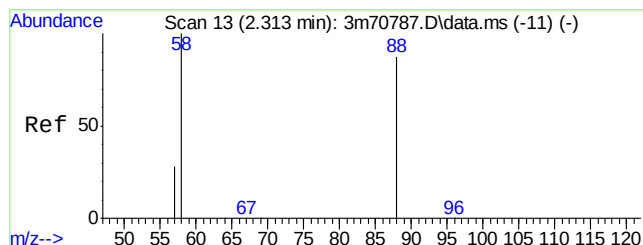
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72032.D
Acq On : 20 Oct 2017 8:57 pm
Operator : kevinm2
Sample : op6819a-msd
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

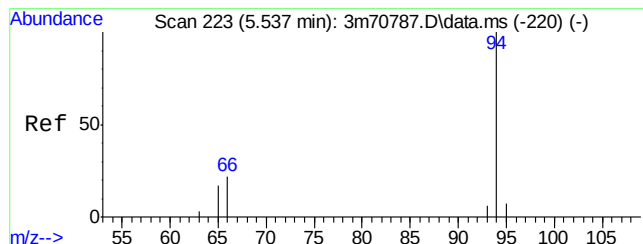
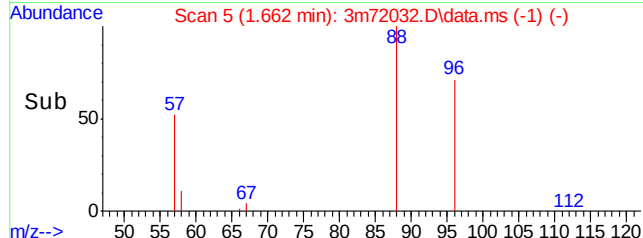
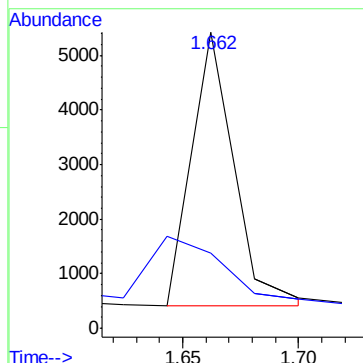
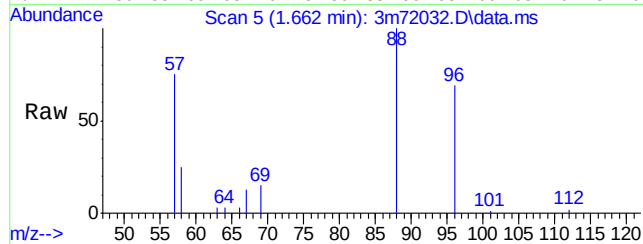
Quant Time: Oct 23 12:00:00 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration





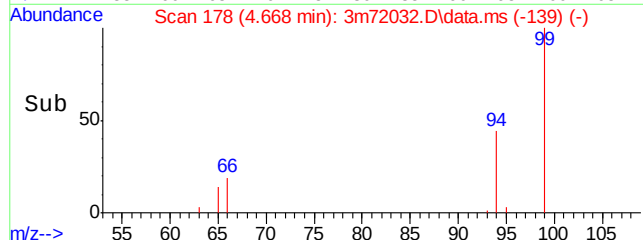
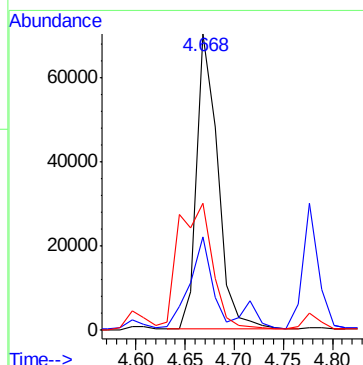
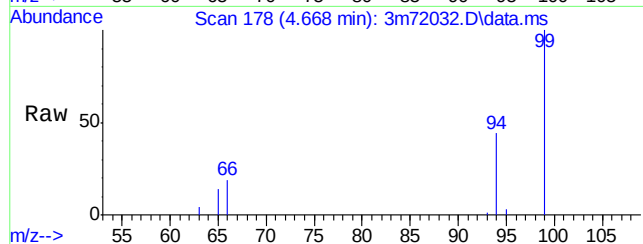
#2
1,4-dioxane
Concen: 0.51 ppm
RT: 1.662 min Scan# 5
Delta R.T. -0.026 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

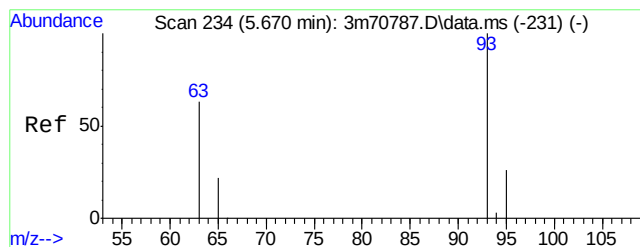
Tgt Ion: 88 Resp: 6338
Ion Ratio Lower Upper
88 100
58 5.4 6.9 46.9#



#5
Phenol
Concen: 2.24 ppm
RT: 4.668 min Scan# 178
Delta R.T. -0.016 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

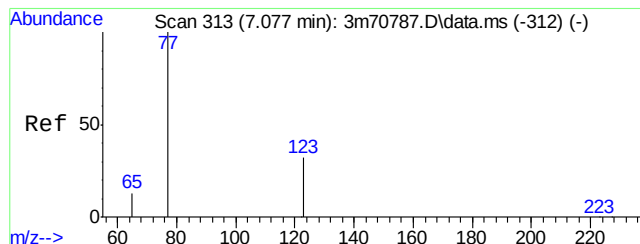
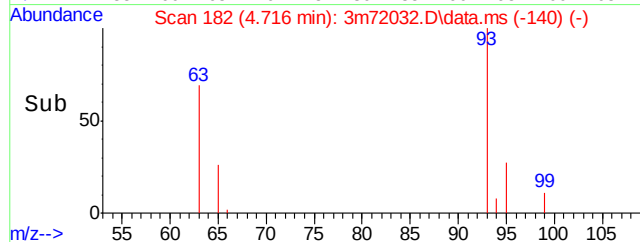
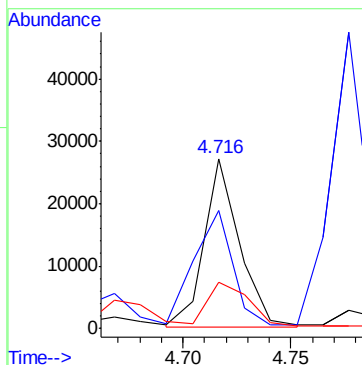
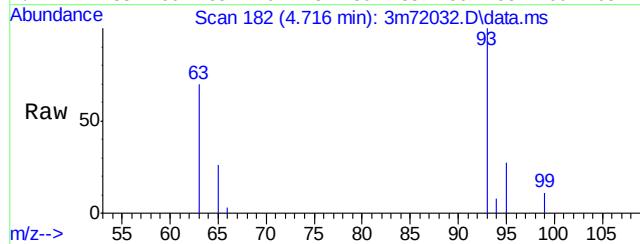
Tgt Ion: 94 Resp: 104316
Ion Ratio Lower Upper
94 100
65 26.6 10.6 16.0#
66 41.1 17.5 26.3#





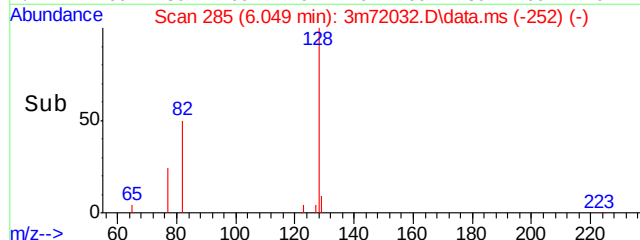
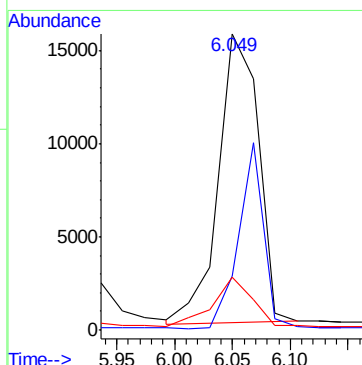
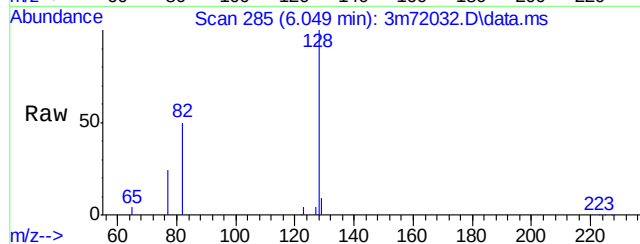
#6
bis(2-Chloroethyl)ether
Concen: 0.87 ppm
RT: 4.716 min Scan# 182
Delta R.T. 0.012 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

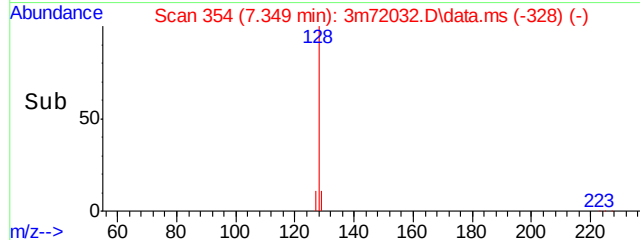
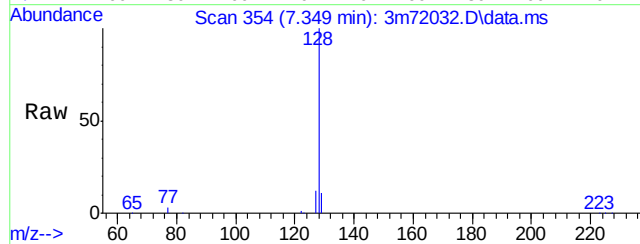
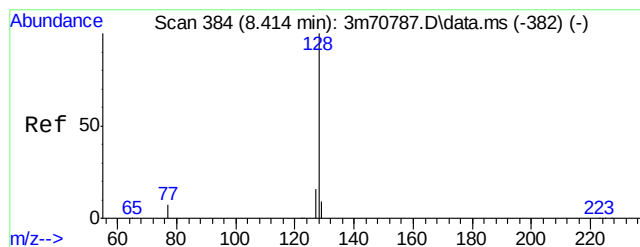
Tgt Ion	Ratio	Lower	Upper
93	100		
63	68.8	18.5	78.5
95	25.2	7.9	67.9



#8
Nitrobenzene
Concen: 0.95 ppm
RT: 6.049 min Scan# 285
Delta R.T. -0.014 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

Tgt Ion	Ratio	Lower	Upper
77	100		
123	18.1	38.1	98.1#
65	17.1	0.0	41.6





#9

Naphthalene

Concen: 0.96 ppm

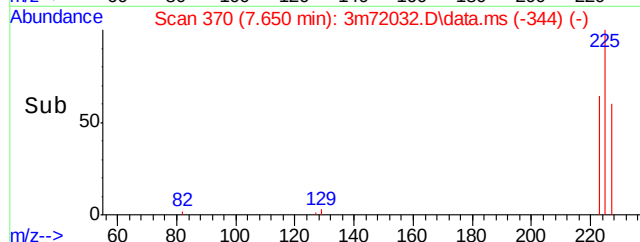
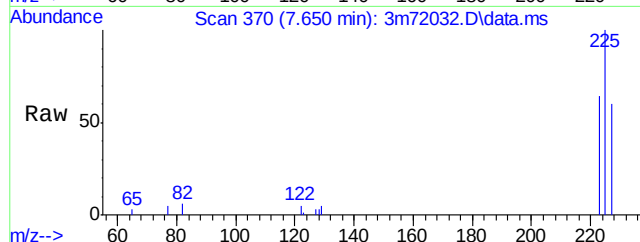
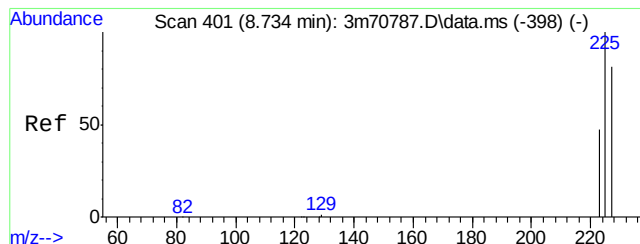
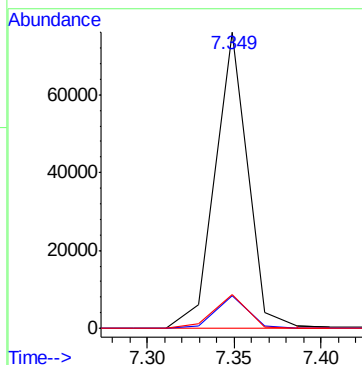
RT: 7.349 min Scan# 354

Delta R.T. -0.005 min

Lab File: 3m72032.D

Acq: 20 Oct 2017 8:57 pm

Tgt Ion:	128	Resp:	97137
Ion Ratio	Lower	Upper	
128	100		
129	10.9	0.0	38.9
127	11.5	0.0	45.8



#10

Hexachlorobutadiene

Concen: 0.87 ppm

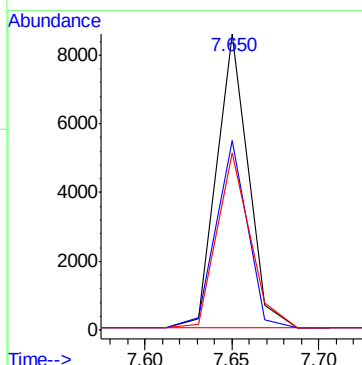
RT: 7.650 min Scan# 370

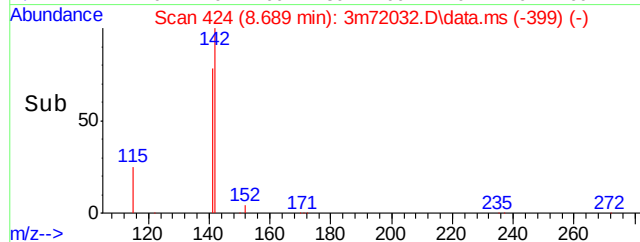
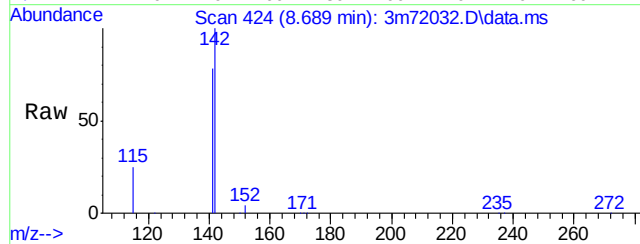
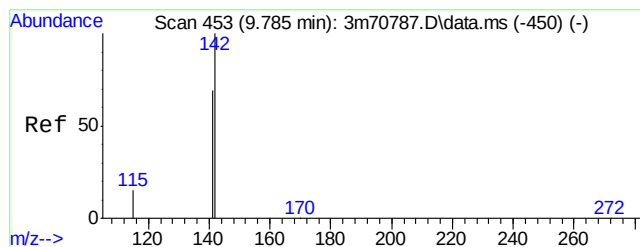
Delta R.T. -0.003 min

Lab File: 3m72032.D

Acq: 20 Oct 2017 8:57 pm

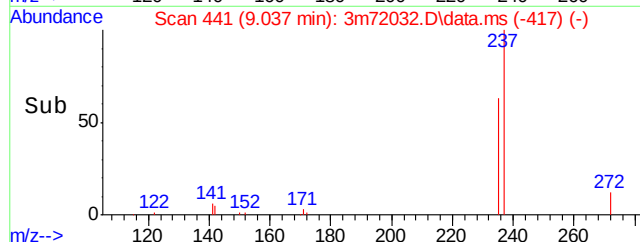
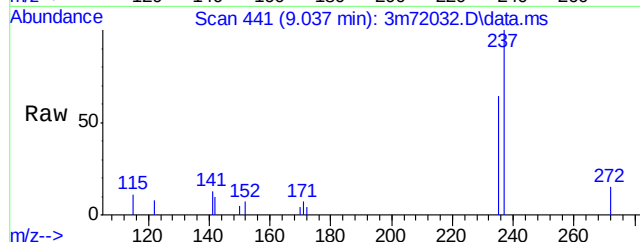
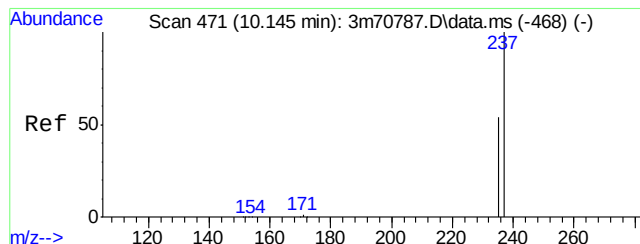
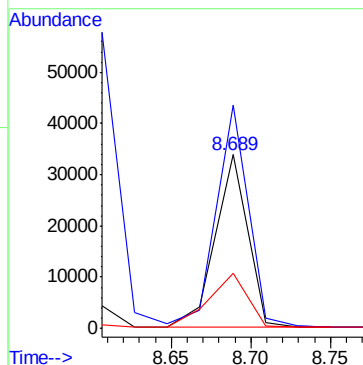
Tgt Ion:	225	Resp:	10750
Ion Ratio	Lower	Upper	
225	100		
223	63.9	16.7	76.7
227	59.7	51.1	111.1





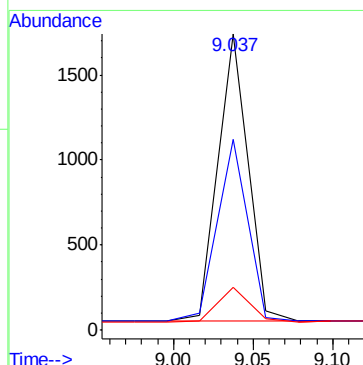
#11
2-Methylnaphthalene
Concen: 0.90 ppm
RT: 8.689 min Scan# 424
Delta R.T. -0.003 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

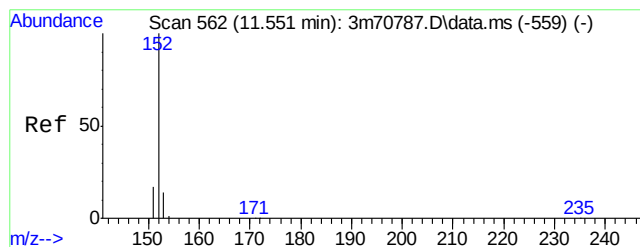
Tgt Ion	Ratio	Lower	Upper
141	100		
142	127.5	97.6	157.6
115	31.3	4.7	64.7



#13
Hexachlorocyclopentadiene
Concen: 0.57 ppm
RT: 9.037 min Scan# 441
Delta R.T. -0.000 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

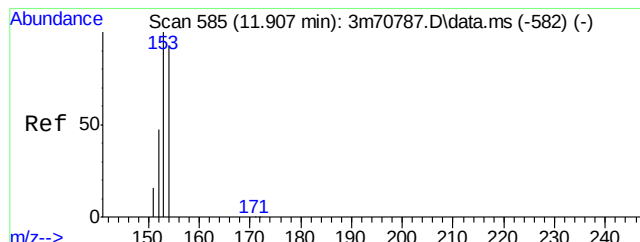
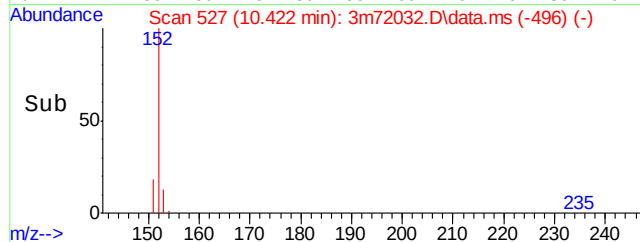
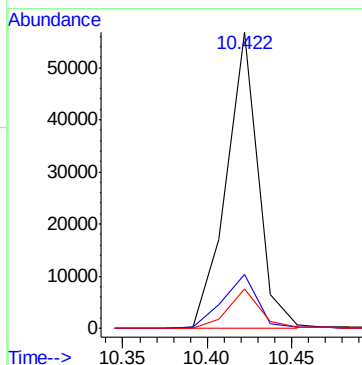
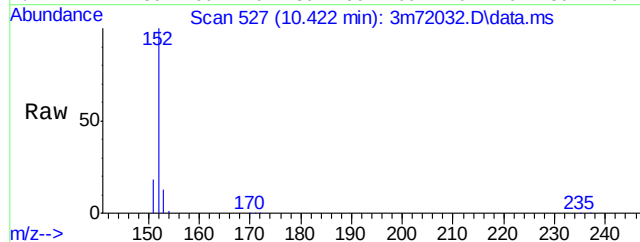
Tgt Ion	Ratio	Lower	Upper
237	100		
235	63.2	49.2	89.2
272	12.0	36.1	76.1#





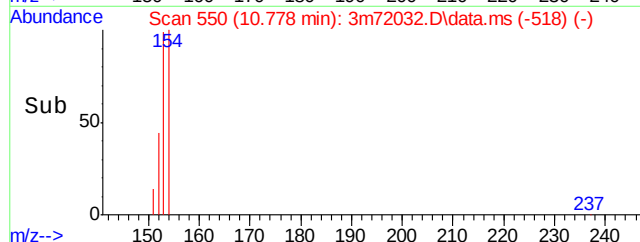
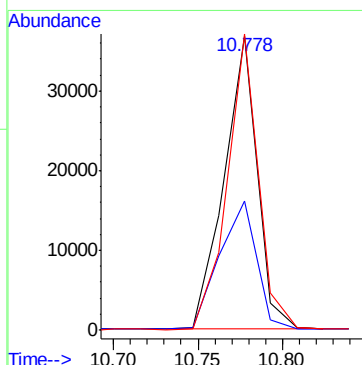
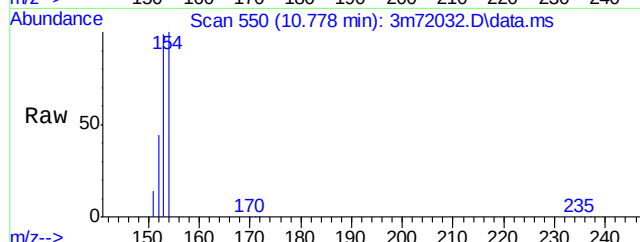
#16
Acenaphthylene
Concen: 0.85 ppm
RT: 10.422 min Scan# 527
Delta R.T. -0.013 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

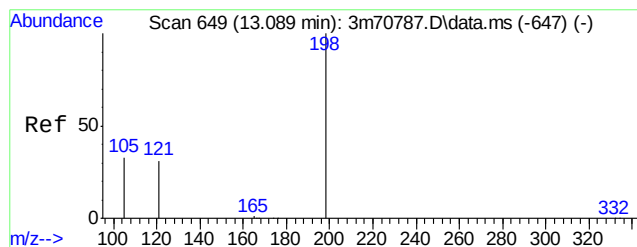
Tgt	Ion	Ratio	Resp	Lower	Upper
152	100		74867		
151	18.0			0.0	49.7
153	13.0			0.0	42.2



#17
Acenaphthene
Concen: 0.87 ppm
RT: 10.778 min Scan# 550
Delta R.T. -0.011 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

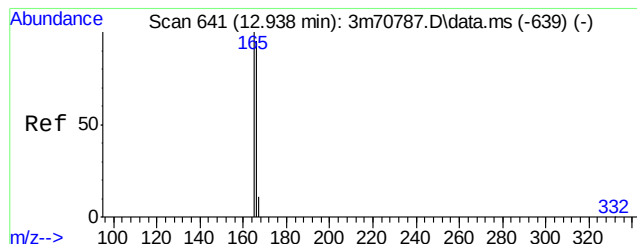
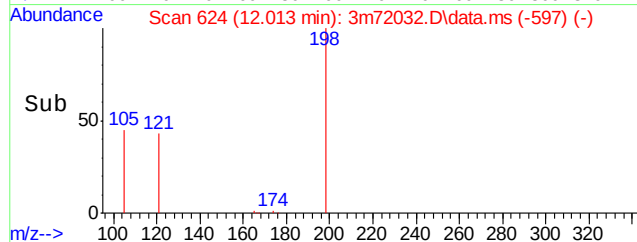
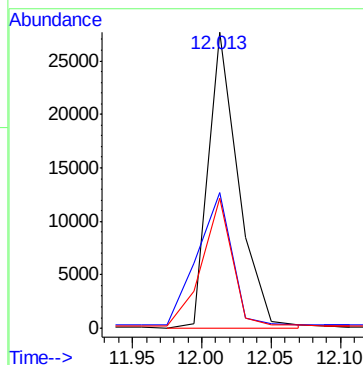
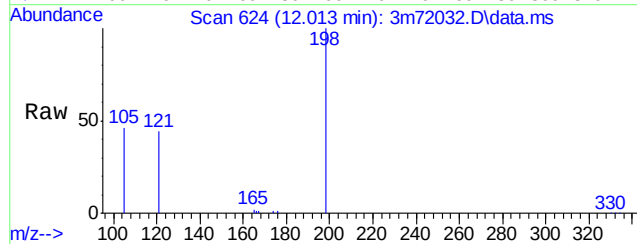
Tgt	Ion	Ratio	Resp	Lower	Upper
153	100		50709		
152	43.8			24.0	84.0
154	100.7			50.9	110.9





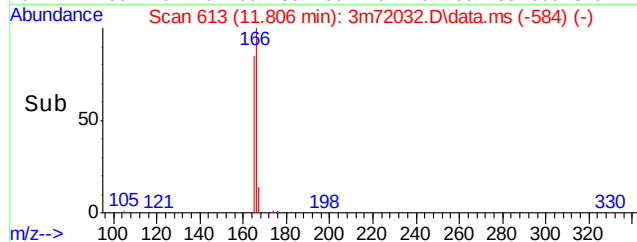
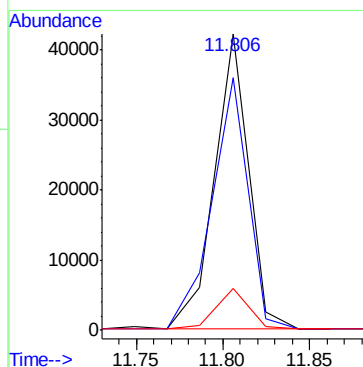
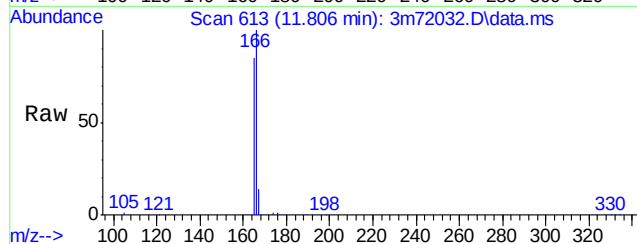
#18
4,6-dinitro-2-methylphenol
Concen: 7.32 ppm
RT: 12.013 min Scan# 624
Delta R.T. -0.000 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

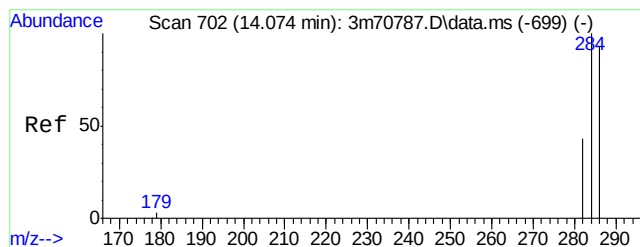
Tgt Ion	Ratio	Lower	Upper
198	100		
105	44.9	90.8	130.8#
121	43.3	58.4	98.4#



#19
Fluorene
Concen: 0.90 ppm
RT: 11.806 min Scan# 613
Delta R.T. -0.001 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

Tgt Ion	Ratio	Lower	Upper
166	100		
165	85.0	74.8	134.8
167	13.7	0.0	41.2





#22

Hexachlorobenzene

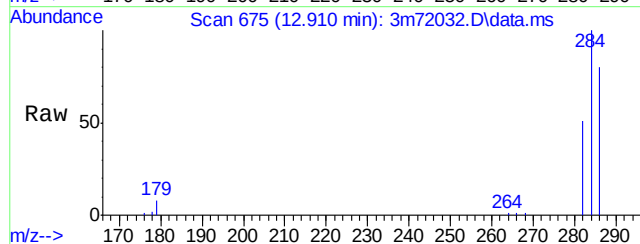
Concen: 0.85 ppm

RT: 12.910 min Scan# 675

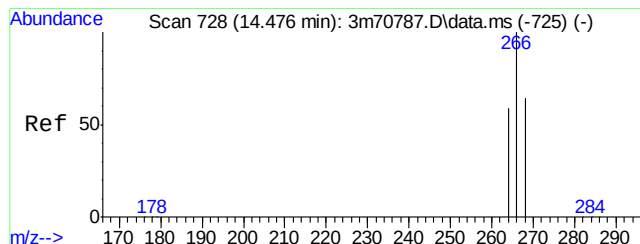
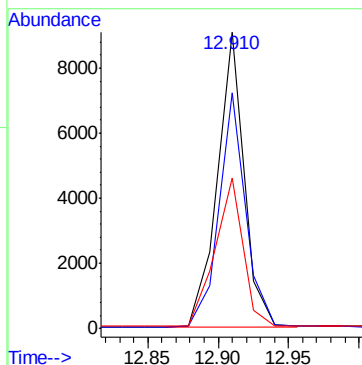
Delta R.T. -0.014 min

Lab File: 3m72032.D

Acq: 20 Oct 2017 8:57 pm



Tgt Ion:	284	Resp:	11938
Ion Ratio	Lower	Upper	
284	100		
286	79.5	48.9	108.9
282	50.3	20.8	80.8



#23

Pentachlorophenol

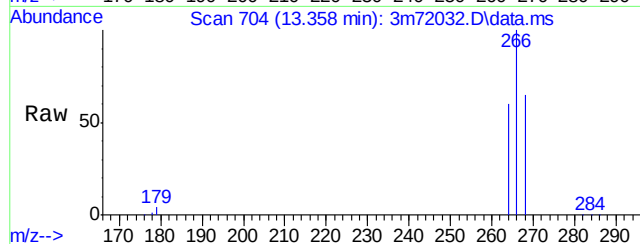
Concen: 8.08 ppm

RT: 13.358 min Scan# 704

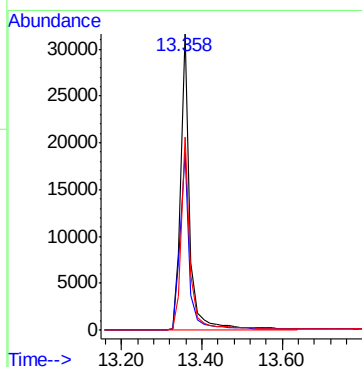
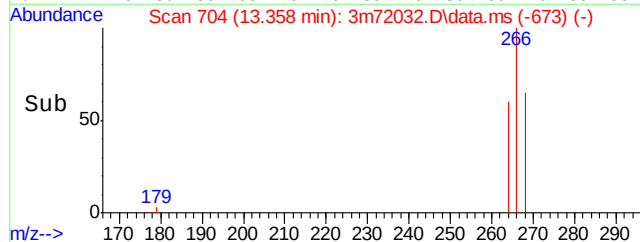
Delta R.T. -0.027 min

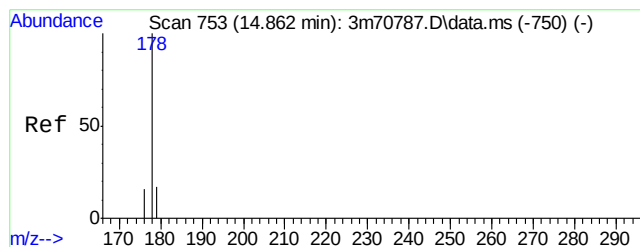
Lab File: 3m72032.D

Acq: 20 Oct 2017 8:57 pm



Tgt Ion:	266	Resp:	49822
Ion Ratio	Lower	Upper	
266	100		
264	59.7	41.7	101.7
268	65.0	23.6	83.6





#24

Phenanthrene

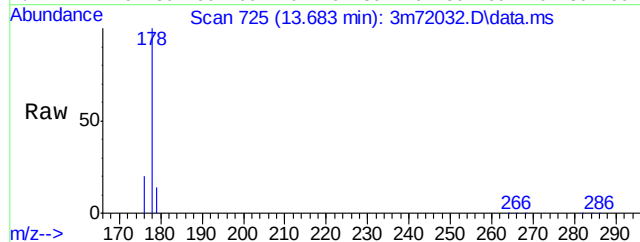
Concen: 0.92 ppm

RT: 13.683 min Scan# 725

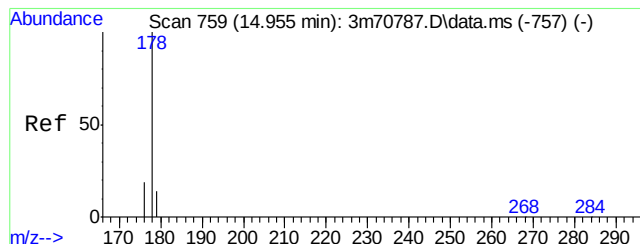
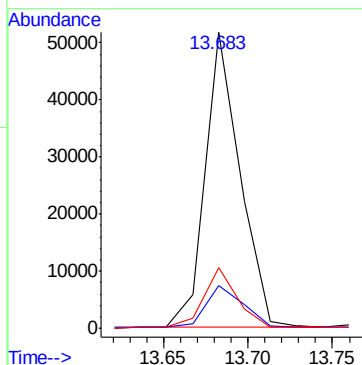
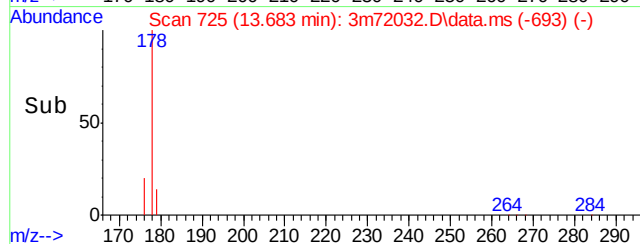
Delta R.T. -0.010 min

Lab File: 3m72032.D

Acq: 20 Oct 2017 8:57 pm



Tgt Ion:	178	Resp:	74866
Ion Ratio	Lower	Upper	
178	100		
179	14.1	0.0	43.5
176	20.2	0.0	52.2



#25

Anthracene

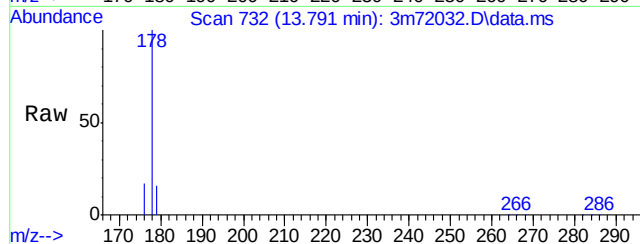
Concen: 0.96 ppm

RT: 13.791 min Scan# 732

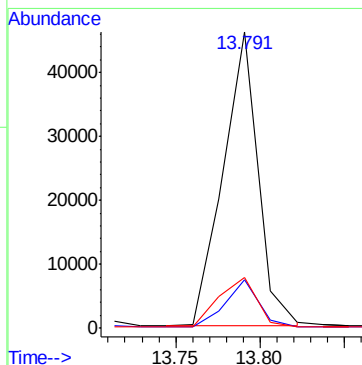
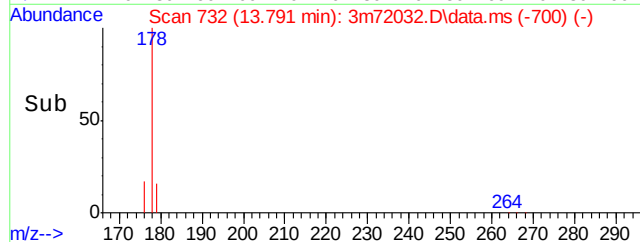
Delta R.T. -0.010 min

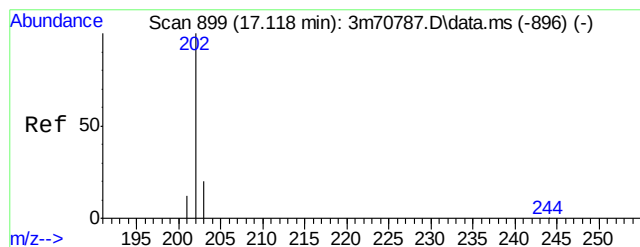
Lab File: 3m72032.D

Acq: 20 Oct 2017 8:57 pm



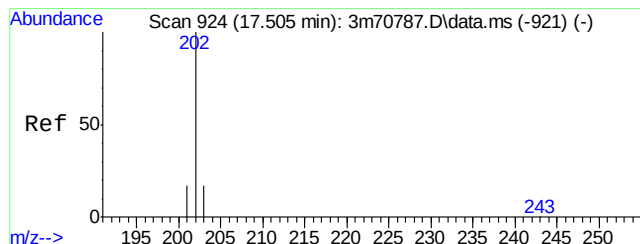
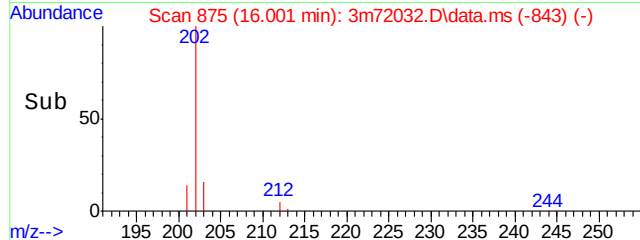
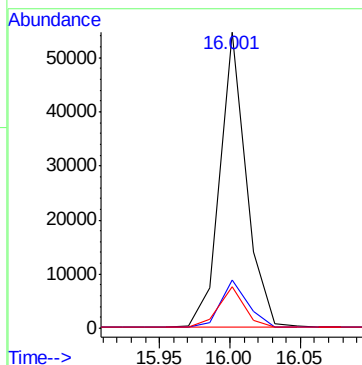
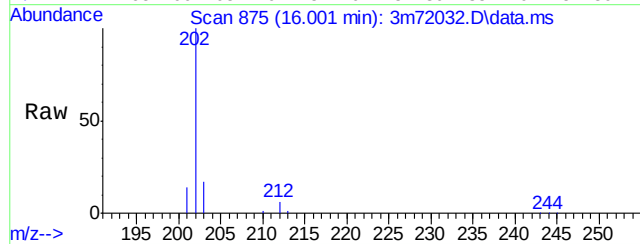
Tgt Ion:	178	Resp:	67065
Ion Ratio	Lower	Upper	
178	100		
179	16.1	0.0	56.2
176	17.0	0.0	49.0





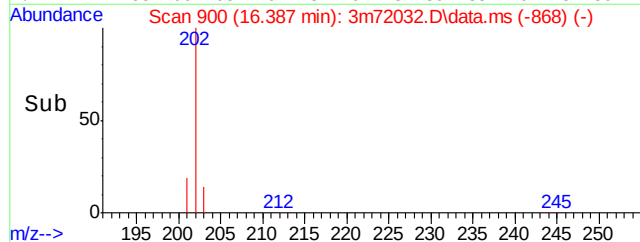
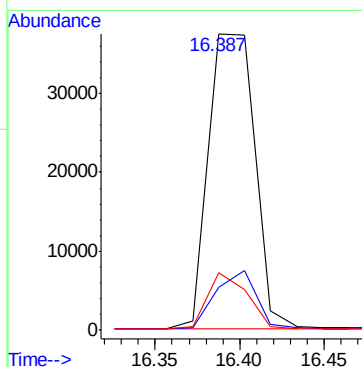
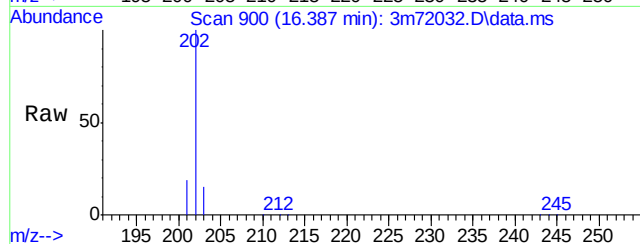
#26
Fluoranthene
Concen: 0.86 ppm
RT: 16.001 min Scan# 875
Delta R.T. -0.002 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

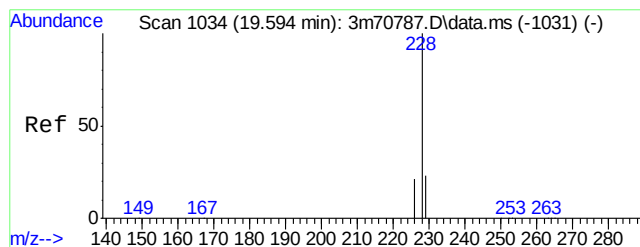
Tgt Ion	Ratio	Lower	Upper
202	100		
203	16.2	0.0	49.7
201	14.0	0.0	41.7



#27
Pyrene
Concen: 0.94 ppm
RT: 16.387 min Scan# 900
Delta R.T. -0.000 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

Tgt Ion	Ratio	Lower	Upper
202	100		
203	14.2	0.0	47.3
201	19.2	0.0	46.6





#29

Benzo[a]anthracene

Concen: 0.81 ppm

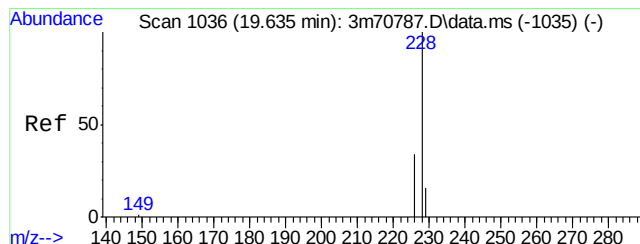
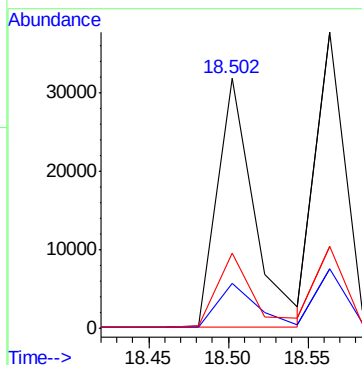
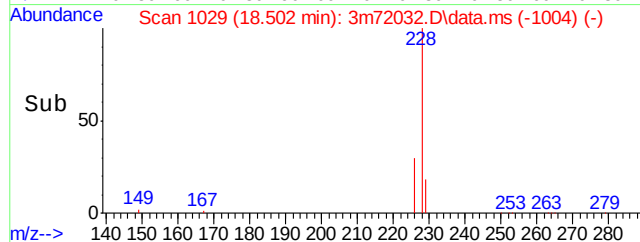
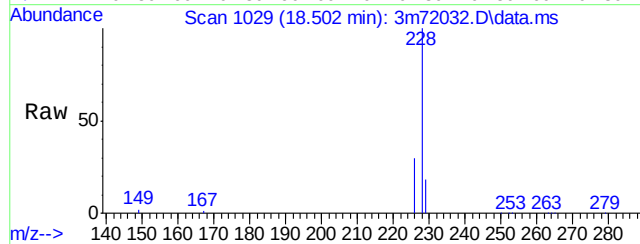
RT: 18.502 min Scan# 1029

Delta R.T. 0.009 min

Lab File: 3m72032.D

Acq: 20 Oct 2017 8:57 pm

Tgt	Ion:228	Resp:	51069
Ion	Ratio	Lower	Upper
228	100		
229	17.6	0.0	48.3
226	29.3	0.0	58.1



#30

Chrysene

Concen: 0.83 ppm m

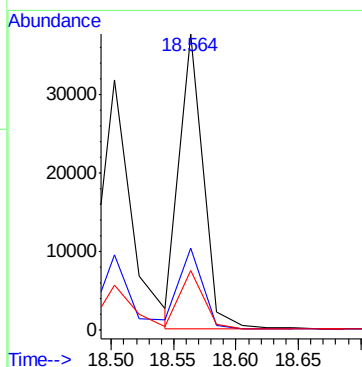
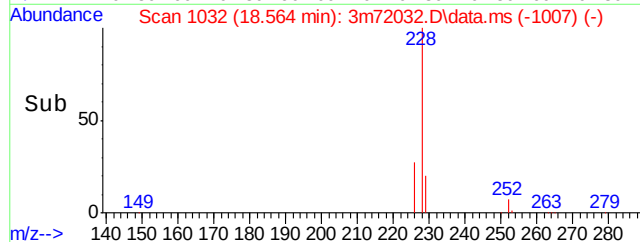
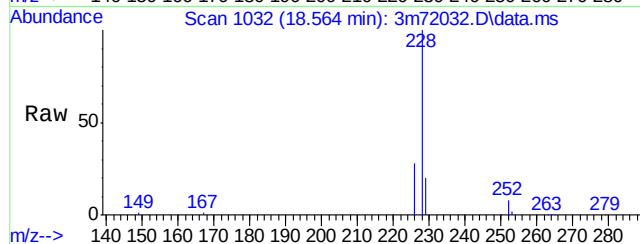
RT: 18.564 min Scan# 1032

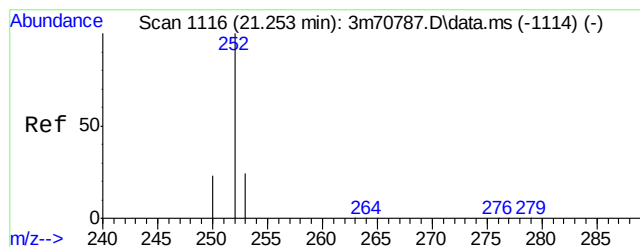
Delta R.T. 0.008 min

Lab File: 3m72032.D

Acq: 20 Oct 2017 8:57 pm

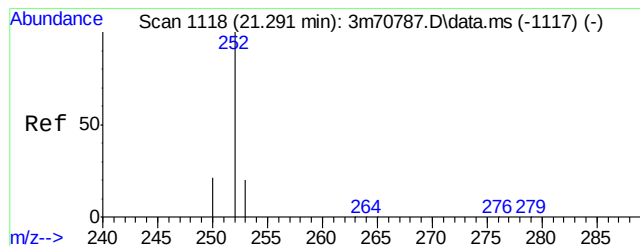
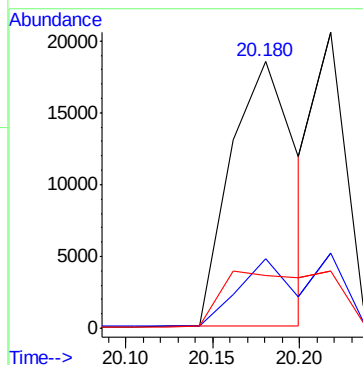
Tgt	Ion:228	Resp:	49757
Ion	Ratio	Lower	Upper
228	100		
226	27.7	0.0	57.0
229	20.0	0.0	50.7





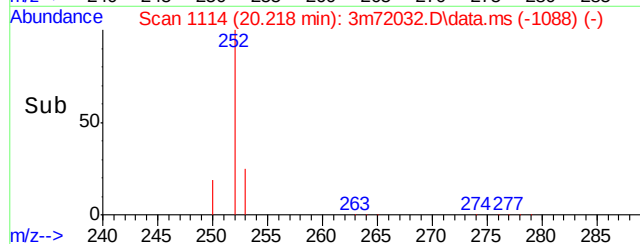
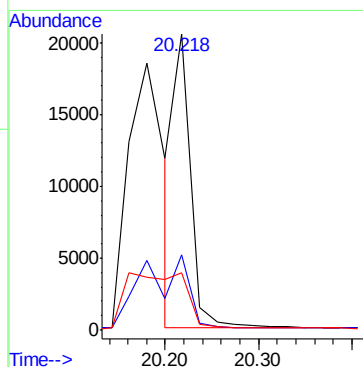
#32
Benzo[b]fluoranthene
Concen: 0.77 ppm
RT: 20.180 min Scan# 1112
Delta R.T. 0.000 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

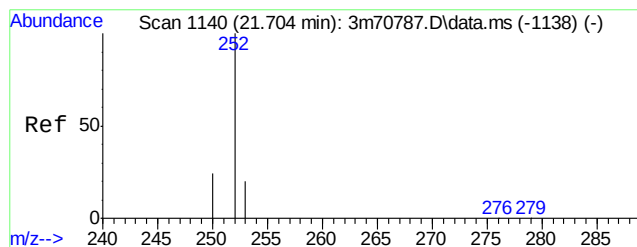
Tgt	Ion:252	Resp:	48887
Ion	Ratio	Lower	Upper
252	100		
253	29.1	0.0	54.9
250	14.9	0.0	49.8



#33
Benzo[k]fluoranthene
Concen: 0.52 ppm
RT: 20.218 min Scan# 1114
Delta R.T. 0.000 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

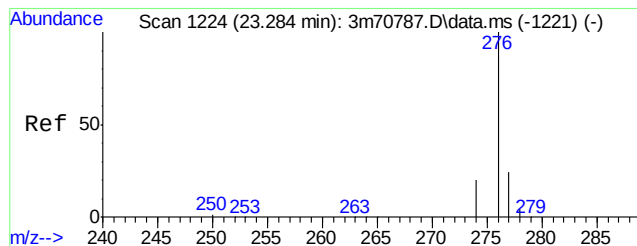
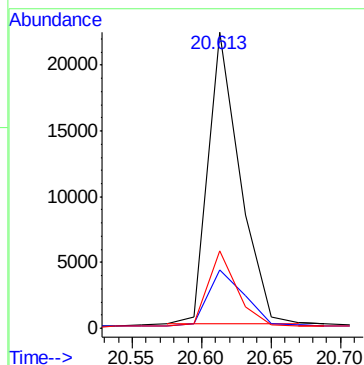
Tgt	Ion:252	Resp:	25665
Ion	Ratio	Lower	Upper
252	100		
253	25.3	0.0	54.1
250	19.5	0.0	50.0





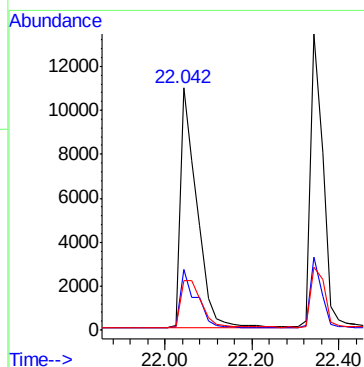
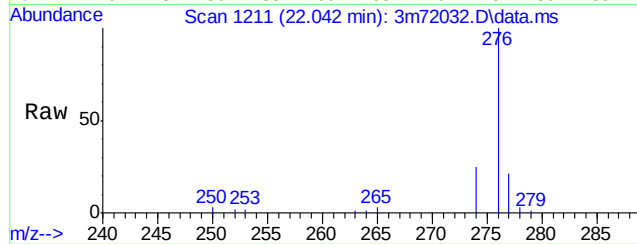
#34
Benzo[a]pyrene
Concen: 0.72 ppm
RT: 20.613 min Scan# 1135
Delta R.T. 0.017 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

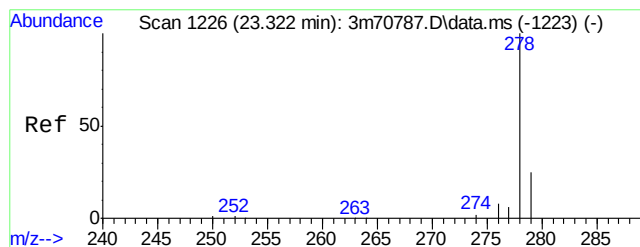
Tgt	Ion:252	Resp:	35492
Ion	Ratio	Lower	Upper
252	100		
253	19.2	0.0	50.3
250	25.9	0.0	53.5



#35
Indeno[1,2,3-cd]pyrene
Concen: 0.54 ppm
RT: 22.042 min Scan# 1211
Delta R.T. 0.003 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

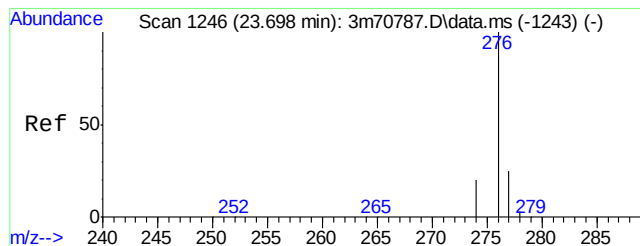
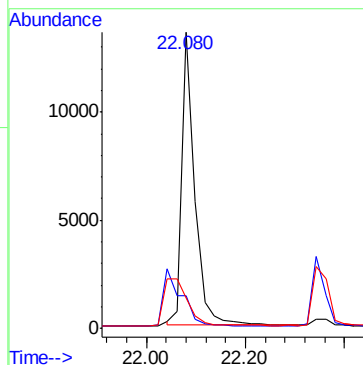
Tgt	Ion:276	Resp:	29435
Ion	Ratio	Lower	Upper
276	100		
274	24.1	0.0	49.9
277	19.7	0.0	54.1





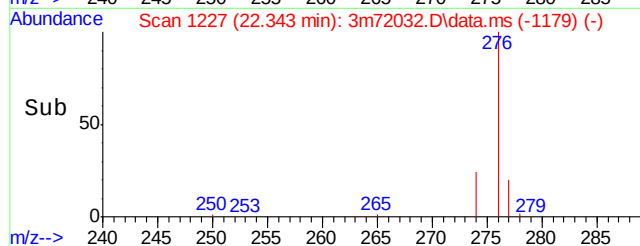
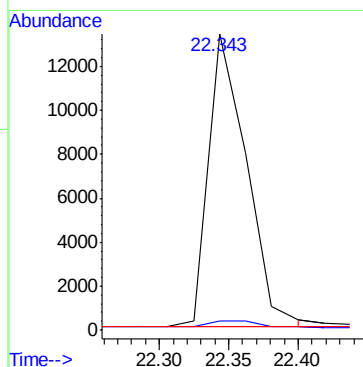
#36
Dibenz[a,h]anthracene
Concen: 0.64 ppm
RT: 22.080 min Scan# 1213
Delta R.T. 0.022 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

Tgt Ion:	278	Resp:	24826
Ion Ratio	Lower	Upper	
278	100		
274	0.4	0.0	31.8
277	1.7	0.0	36.1



#37
Benzo[g,h,i]perylene
Concen: 0.52 ppm
RT: 22.343 min Scan# 1227
Delta R.T. 0.004 min
Lab File: 3m72032.D
Acq: 20 Oct 2017 8:57 pm

Tgt Ion:	276	Resp:	25730
Ion Ratio	Lower	Upper	
276	100		
278	1.9	0.0	32.9
279	0.1	0.0	30.2



Manual Integration Approval Summary

Sample Number:

OP6819A-MSD

Lab FileID:

3M72032.D

Injection Time:

10/20/17 20:57

Method:

SW846 8270D BY SIM

Analyst approved:

10/23/17 12:13 Kevin Moyle

Supervisor approved:

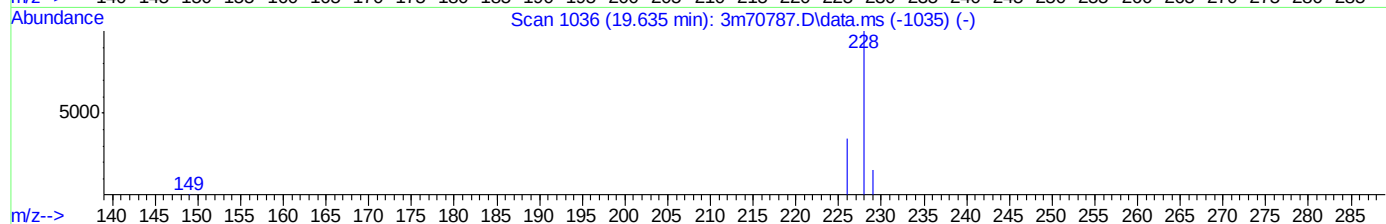
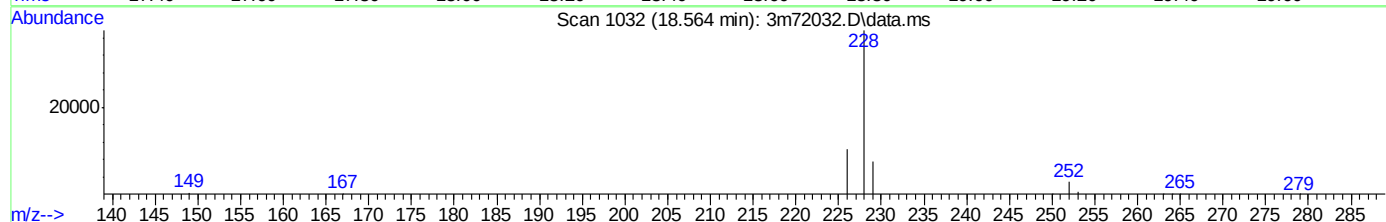
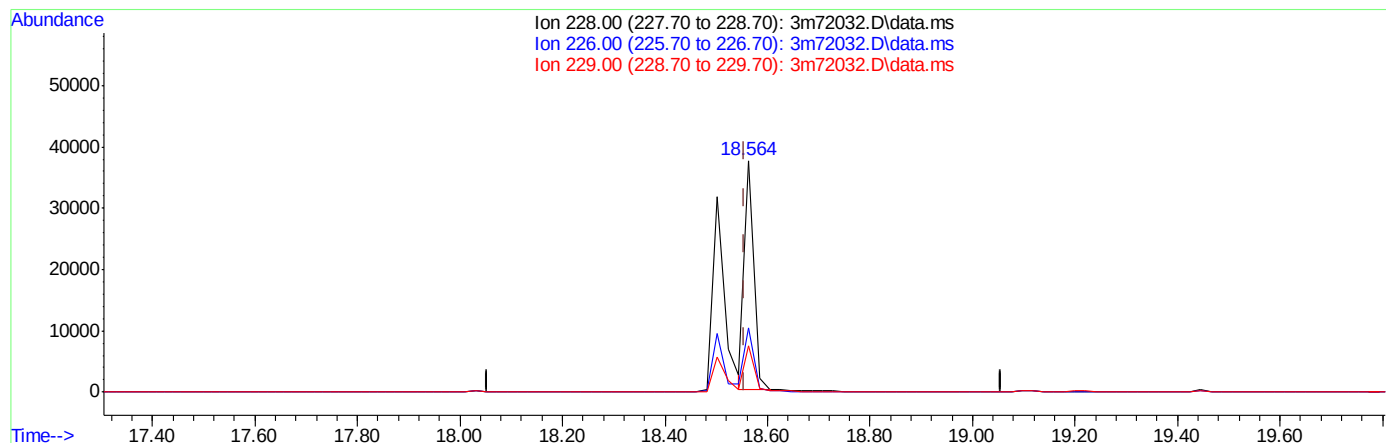
10/23/17 17:36 Nancy Ma

Parameter	CAS	Sig#	R.T. (min.)	Reason
Chrysene	218-01-9		18.56	Poorly defined baseline
Benzo(k)fluoranthene	207-08-9		20.22	Poorly defined baseline

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72032.D
Acq On : 20 Oct 2017 8:57 pm
Operator : kevinm2
Sample : op6819a-msd
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 23 11:59:04 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72032.D\data.ms

(30) Chrysene (t)

18.564min (+0.008) 0.81ppm

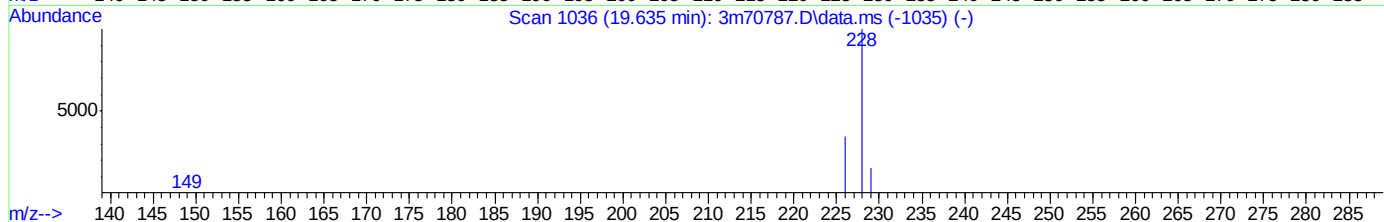
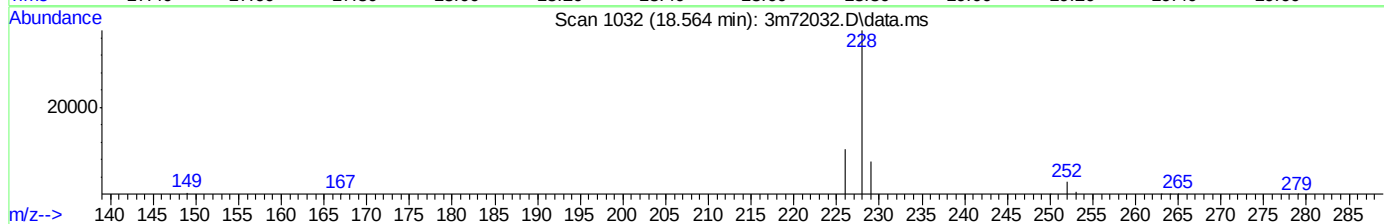
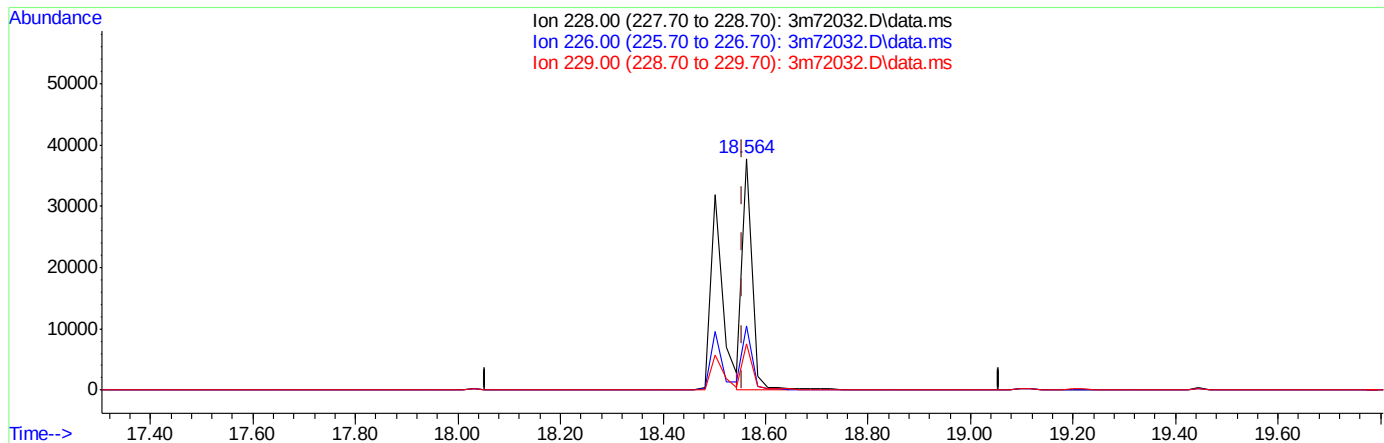
response 48393

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	26.79
229.00	20.70	19.92
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72032.D
Acq On : 20 Oct 2017 8:57 pm
Operator : kevinm2
Sample : op6819a-msd
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 23 11:59:04 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72032.D\data.ms

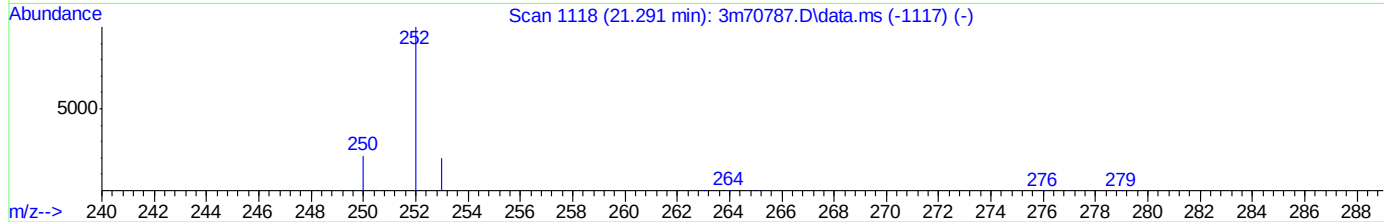
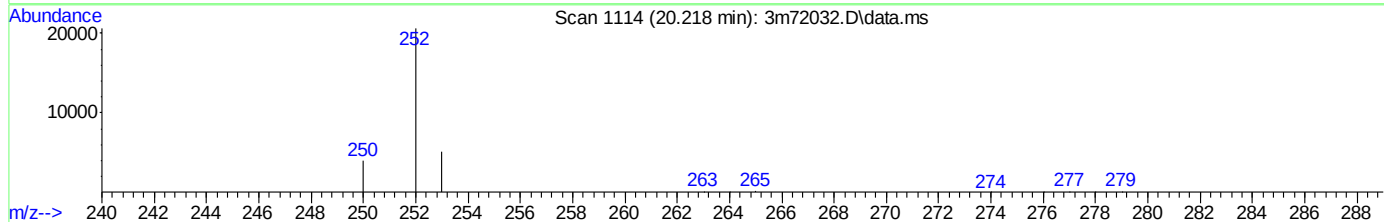
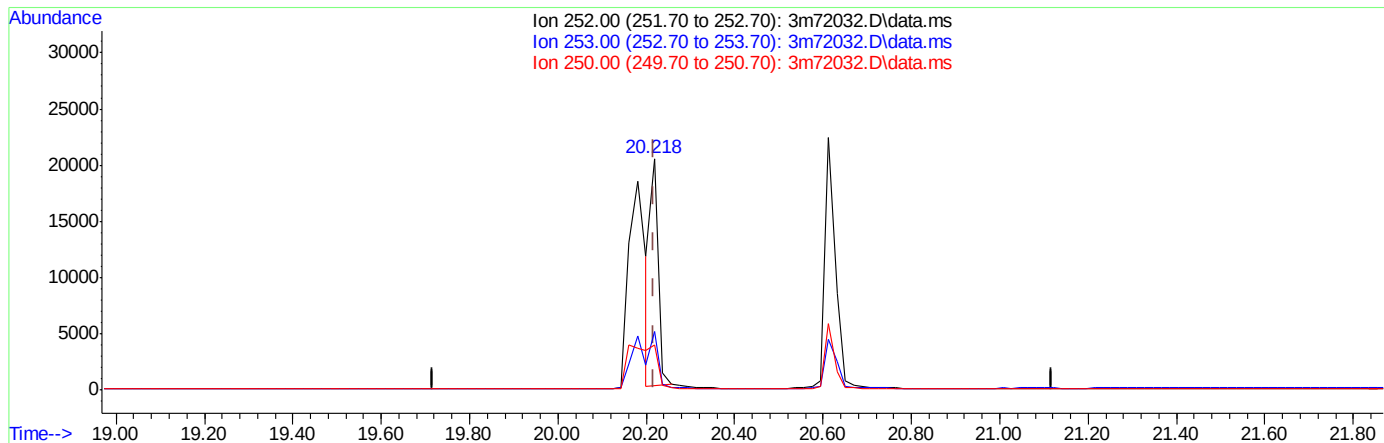
(30) Chrysene (t)
18.564min (+0.008) 0.83ppm m
response 49757

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	27.70
229.00	20.70	20.03
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72032.D
Acq On : 20 Oct 2017 8:57 pm
Operator : kevinm2
Sample : op6819a-msd
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 23 11:59:04 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72032.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.218min (+0.000) 0.49ppm

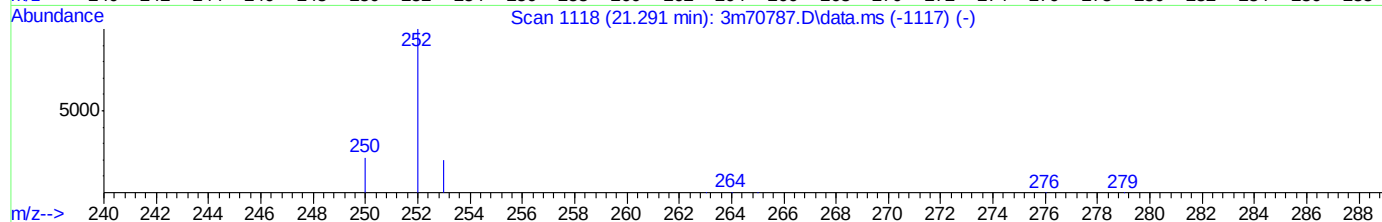
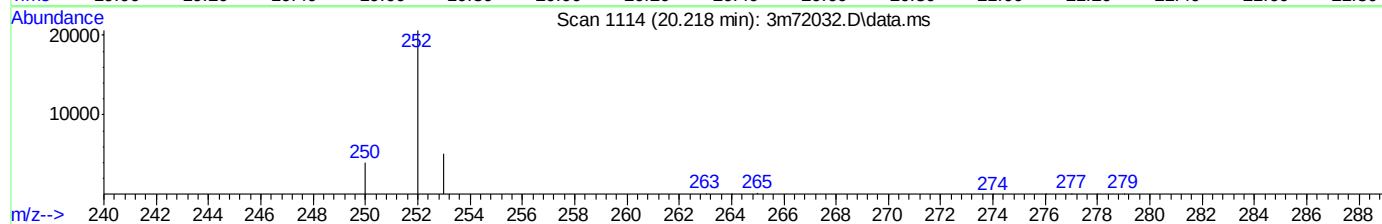
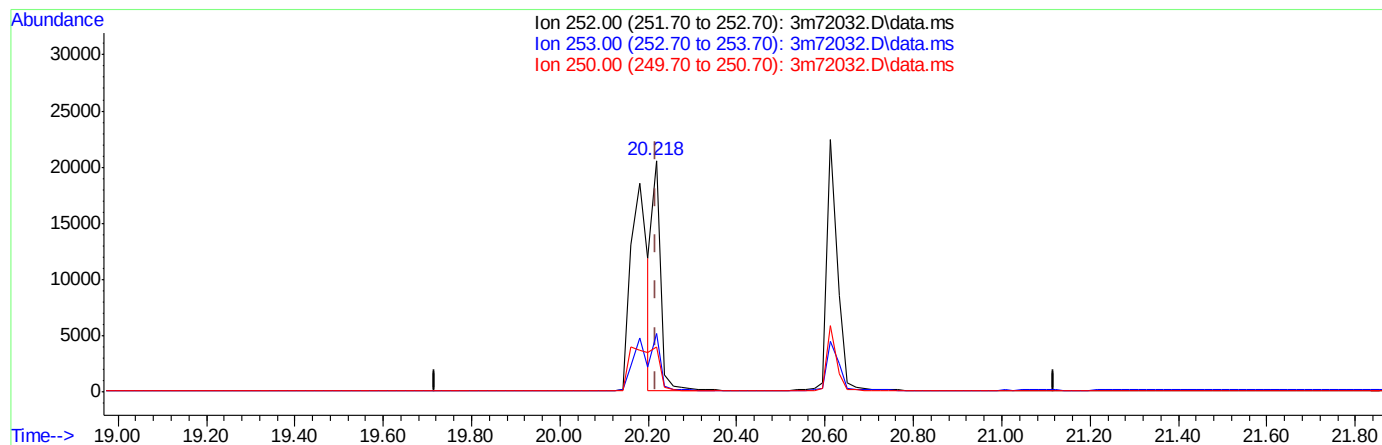
response 24016

Ion	Exp%	Act%
252.00	100	100
253.00	24.10	27.77
250.00	20.00	15.02
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72032.D
Acq On : 20 Oct 2017 8:57 pm
Operator : kevinm2
Sample : op6819a-msd
Misc : op6819a,e3m3454,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 23 11:59:04 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Mon Oct 23 11:38:47 2017
Response via : Initial Calibration



TIC: 3m72032.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.218min (+0.000) 0.52ppm m

response 25665

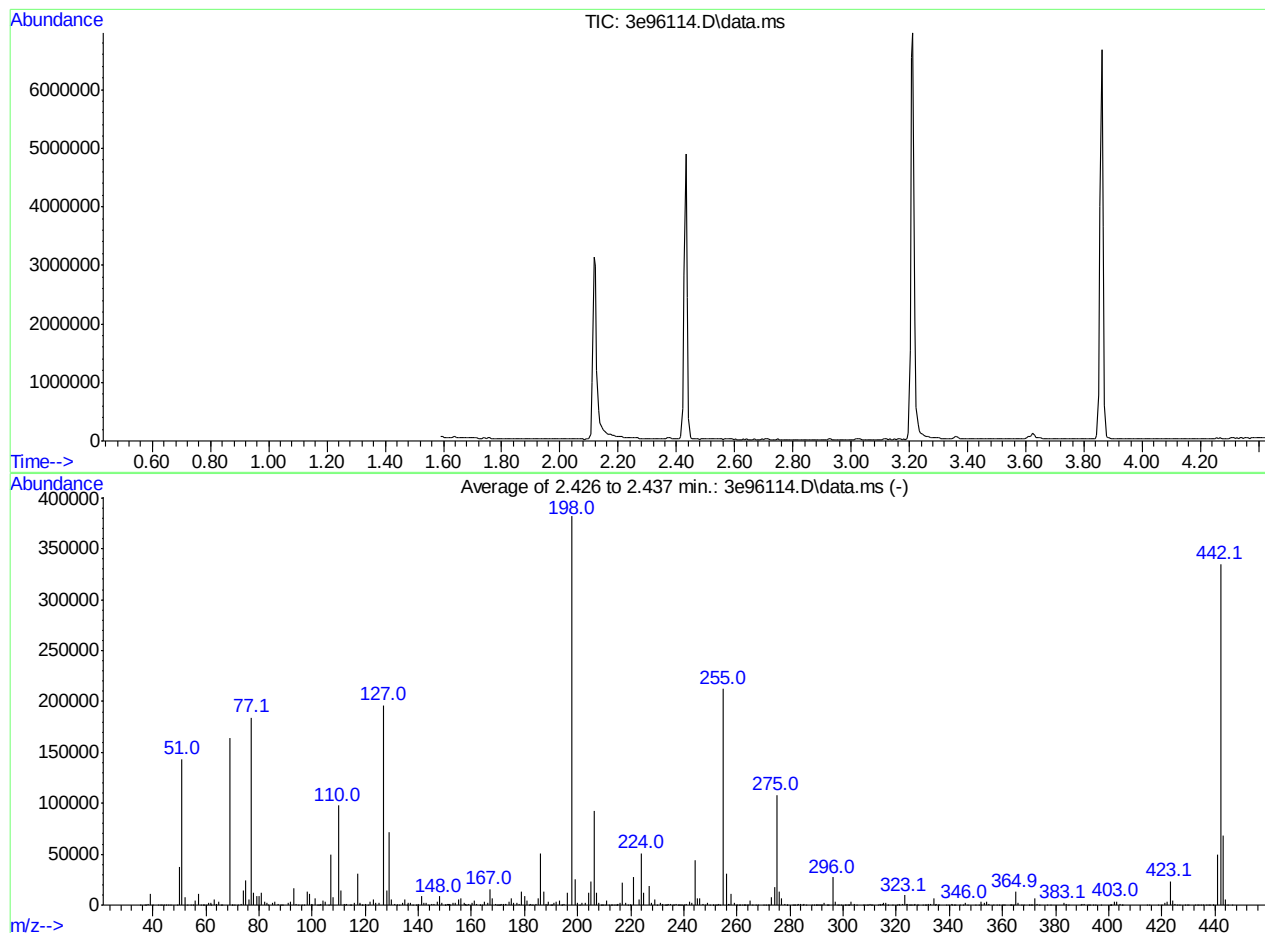
Ion	Exp%	Act%
252.00	100	100
253.00	24.10	25.27
250.00	20.00	19.52
0.00	0.00	0.00

DFTPP

Data File : C:\msdchem\1\DATA\E3E4280\3e96114.D
Acq On : 15 Aug 2017 10:21 pm
Sample : dftpp
Misc : op4655,e3e4280,1000,,,1,1
MS Integration Params: RTEINT.P

Vial: 1
Operator: chriss2
Inst : SVOAMS3E
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Sun Jul 16 12:35:00 2017



AutoFind: Scans 157, 158, 159; Background Corrected with Scan 152

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	37.6	143464	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	43.0	164278	PASS
70	69	0.00	2	0.2	325	PASS
127	198	40	60	51.5	196600	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	381781	PASS
199	198	5	9	6.7	25544	PASS
275	198	10	30	28.3	107941	PASS
365	198	1	100	3.4	12925	PASS
441	443	0.10	100	73.6	49960	PASS
442	198	40	100	87.8	335189	PASS
443	442	17	23	20.3	67904	PASS

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
35.10	69	45.70	20	58.00	476	66.20	35
36.95	271	46.85	155	58.90	71	69.00	164278
37.20	243	49.00	133	59.35	68	69.90	325
38.05	1139	50.05	37268	60.15	288	70.00	275
39.10	10802	51.05	143464	61.00	1706	70.70	76
39.90	69	52.00	7891	61.80	189	72.05	92
41.90	101	52.95	348	62.05	1988	73.10	630
42.80	147	54.10	87	63.00	5874	74.00	14390
43.20	421	55.10	360	64.05	915	75.00	23926
43.95	224	55.95	4734	65.00	2952	76.10	5810
45.05	368	57.05	10599	65.85	160	77.10	183962

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
78.05	12172	88.50	26	99.80	194	107.95	7543
79.05	9341	89.00	420	100.00	864	110.00	97917
80.00	8415	91.00	2553	100.95	6434	111.05	14506
80.95	12264	92.00	2982	102.05	262	112.00	1659
82.05	2981	93.00	16414	102.25	63	112.70	64
82.95	1884	94.05	1394	102.80	538	113.00	594
83.20	498	95.00	455	103.05	1384	114.10	156
84.95	2272	96.05	509	103.95	3989	114.60	31
85.90	2925	97.00	252	105.00	3614	115.95	2758
87.05	1006	98.05	12999	106.00	422	117.00	30529
87.90	470	99.00	11231	107.00	49406	117.90	616

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
118.05	1861	129.00	71305	137.85	500	149.00	1863
118.70	293	129.95	5241	139.05	332	150.10	545
119.00	393	131.05	694	139.80	643	150.30	142
120.10	886	131.80	129	141.05	8331	150.85	633
121.05	374	132.10	398	142.00	2551	151.20	899
121.95	3470	133.00	542	142.90	2095	151.40	386
123.00	4996	134.15	1876	143.85	545	151.75	847
123.95	1718	134.95	5417	145.05	807	151.95	65
125.05	2090	135.90	548	146.00	1461	153.00	2549
127.00	196600	136.05	1928	147.00	3547	154.00	1704
128.00	14293	137.05	2699	148.00	8536	155.10	4992

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
156.10	7014	163.90	546	171.85	1453	181.70	77
157.10	2139	164.95	3677	172.90	968	182.05	763
157.60	330	166.05	2332	173.10	932	182.70	521
157.90	1315	167.00	15861	174.05	3683	183.10	168
158.20	86	168.00	6901	175.05	6603	184.10	1523
159.00	1282	169.00	1574	176.05	2334	185.10	6271
160.05	2606	169.70	149	176.95	2451	186.00	50624
161.00	4339	170.10	580	178.00	1235	187.05	13542
161.90	1521	170.40	144	179.00	12762	188.00	1210
163.00	274	170.80	359	180.00	9119	188.40	445
163.20	140	171.15	631	181.05	4009	189.05	3078

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
189.60	108	199.00	25544	209.20	207	216.10	1903
190.00	481	199.90	2010	209.80	248	216.95	22428
190.20	144	200.90	201	210.30	449	218.00	2675
191.00	1972	201.50	2452	211.00	4013	218.80	376

192.05	3677	202.95	1901	211.70	308	219.60	162
193.00	4796	203.95	11983	212.60	25	219.90	300
193.85	314	205.05	22637	213.00	168	221.05	27368
194.10	442	206.05	93024	213.95	108	222.95	5821
194.90	855	207.05	12098	214.60	113	224.00	51149
196.05	12641	208.05	2620	214.80	376	225.00	12139
198.00	381781	208.90	451	215.05	704	227.00	19023

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
227.95	2448	236.10	168	244.05	43973	252.75	355
229.00	5039	237.00	1479	245.05	6742	253.10	731
229.85	545	237.80	151	246.05	6876	253.60	450
231.10	2132	238.05	327	247.00	1363	255.00	212096
231.95	660	238.40	60	247.90	369	256.00	30389
232.70	424	238.65	518	248.95	1786	256.85	1194
233.25	91	239.05	446	249.90	338	257.10	1065
233.80	285	239.90	556	250.80	403	257.95	11503
234.00	901	240.90	1000	251.10	187	259.05	1807
235.05	1411	242.00	2931	251.80	34	259.80	291
235.85	590	243.05	2234	252.10	179	260.00	160

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
260.70	111	268.00	352	278.80	124	288.10	43
261.05	424	270.10	280	279.05	126	288.90	204
262.00	102	271.00	479	281.00	106	289.75	151
262.65	168	271.65	473	281.20	119	290.00	274
262.80	74	272.00	456	281.80	242	290.20	124
263.00	172	273.05	7711	282.50	92	290.90	207
263.65	403	274.05	17848	283.00	1138	291.30	37
264.15	486	275.00	107941	284.00	683	291.70	39
264.95	4706	276.00	13357	284.90	456	292.10	289
265.85	459	276.95	6431	285.15	865	293.00	1976
266.85	235	278.10	1193	286.10	217	293.90	303

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
294.10	439	302.25	430	312.95	325	322.15	895
294.70	220	302.95	3610	313.85	970	323.05	9583
296.00	27520	304.10	1009	314.10	429	323.90	595
297.00	3653	305.00	34	314.80	842	324.05	1558
297.85	129	307.55	229	315.00	2081	325.00	128
298.20	275	308.00	349	316.00	2039	325.20	81
298.95	57	308.90	270	317.00	237	325.90	215
300.80	28	309.10	86	318.60	99	326.70	353
300.95	296	310.00	626	320.20	81	326.95	1170
301.80	251	310.70	39	320.90	150	327.85	353
302.00	188	311.00	69	321.15	727	328.10	467

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
329.90	125	339.70	52	351.70	369	363.00	72
330.80	69	340.80	287	352.05	2942	363.20	30
331.10	94	341.05	966	353.05	2623	363.50	178
331.95	967	341.90	117	354.05	2832	364.00	207
332.90	1290	342.30	183	354.90	720	364.95	12925
334.05	6787	343.75	53	356.60	44	366.00	1991
334.80	492	345.30	108	357.80	172	367.10	24
335.00	1130	346.00	2182	358.85	226	368.05	49
335.80	132	347.00	277	360.00	55	369.90	211
336.00	196	349.90	102	360.20	61	370.10	161
338.95	232	350.90	133	360.90	80	370.70	40

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
370.95	507	390.95	820	403.00	3767	424.05	4527
372.05	6291	391.95	433	404.05	1532	424.85	763
373.00	1316	392.60	40	404.90	264	425.95	92
373.90	191	392.95	141	405.30	19	426.75	75
376.90	220	394.30	33	414.60	73	428.90	50
378.00	50	395.10	82	415.30	229	429.40	136
383.05	1980	397.05	91	418.70	59	430.20	23
383.95	685	400.30	35	419.90	116	432.65	93
385.00	170	400.70	65	421.05	2378	433.60	75
389.40	40	401.05	326	422.00	3097	434.00	42
389.95	756	402.00	2932	423.05	23257	434.65	69

Average of 2.426 to 2.437 min.: 3e96114.D\data.ms

dftpp

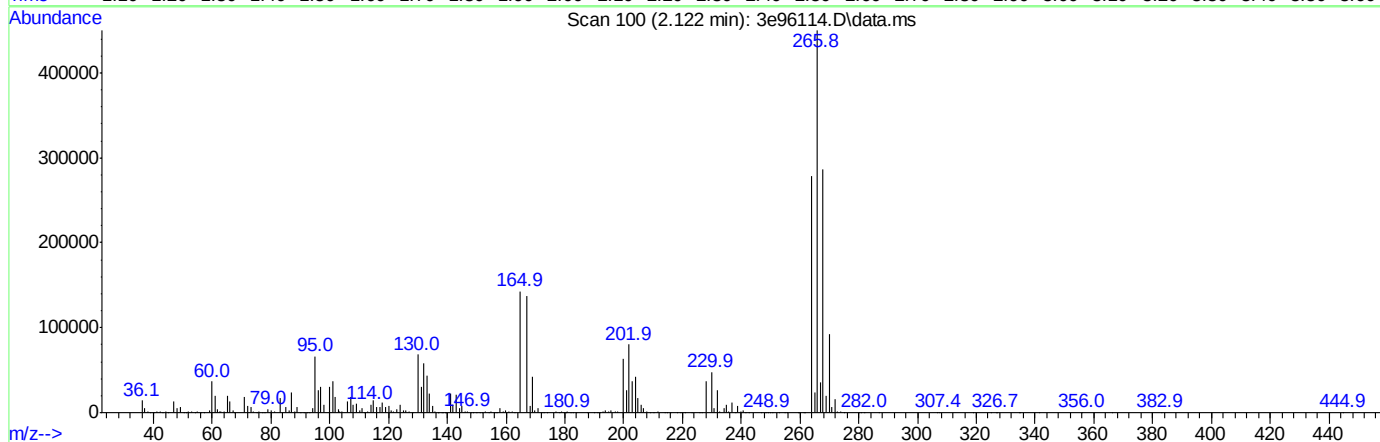
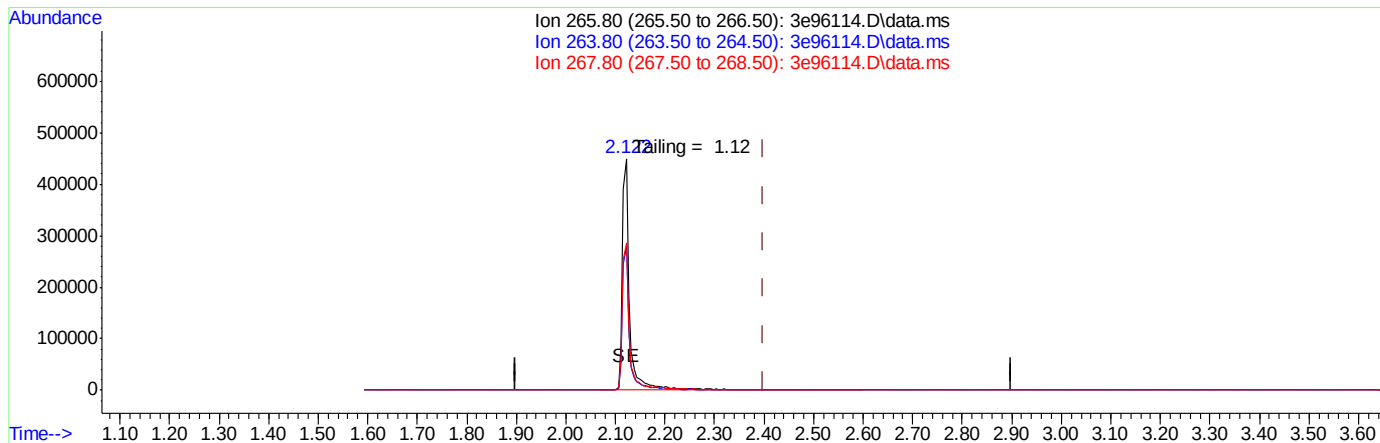
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
435.70	103	446.30	38				
436.75	233						
437.40	30						
437.85	149						
439.20	26						
439.40	203						
441.10	49960						
442.10	335189						
443.10	67904						
444.10	5558						
444.95	286						

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96114.D
Acq On : 15 Aug 2017 10:21 pm
Operator : chriss2
Sample : dftpp
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 15 22:27:22 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Sun Jul 16 12:35:00 2017
QLast Update : Sun Jul 16 12:35:00 2017
Response via : Initial Calibration



TIC: 3e96114.D\data.ms

(1) Pentachlorophenol (t)

2.122min (-0.278) 296.56ppb m

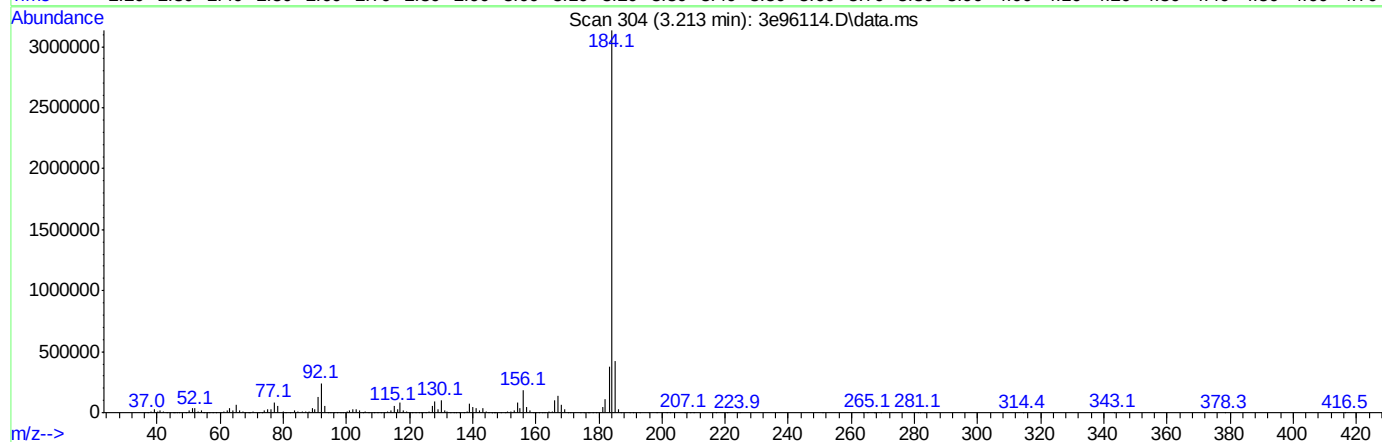
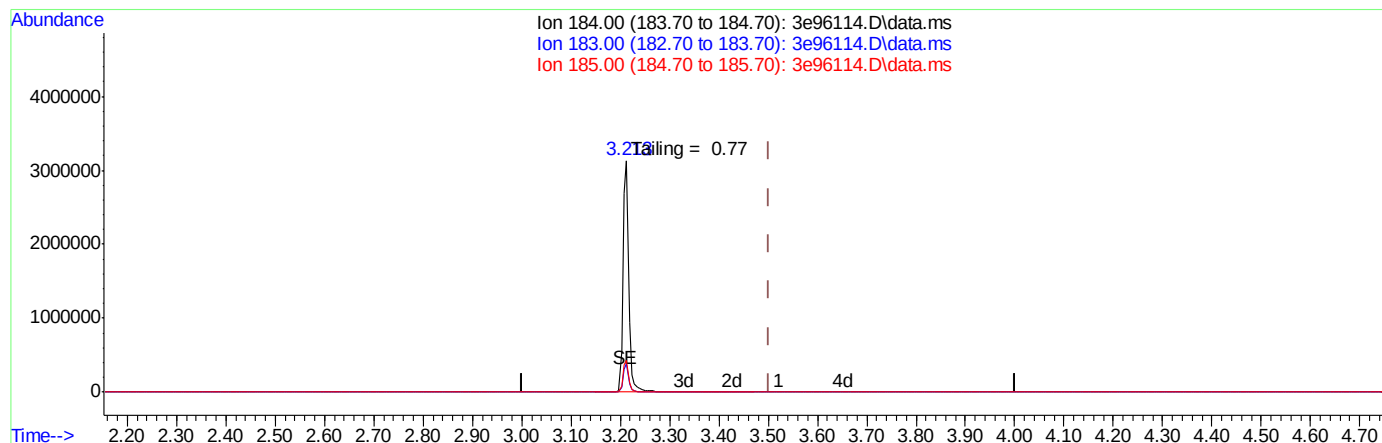
response 463470

Ion	Exp%	Act%
265.80	100	100
263.80	62.20	61.99
267.80	64.70	63.71
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96114.D
Acq On : 15 Aug 2017 10:21 pm
Operator : chriss2
Sample : dftpp
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 15 22:27:22 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Sun Jul 16 12:35:00 2017
QLast Update : Sun Jul 16 12:35:00 2017
Response via : Initial Calibration



TIC: 3e96114.D\data.ms

(2) Benzidine (t)

3.213min (-0.289) 247.05ppb m

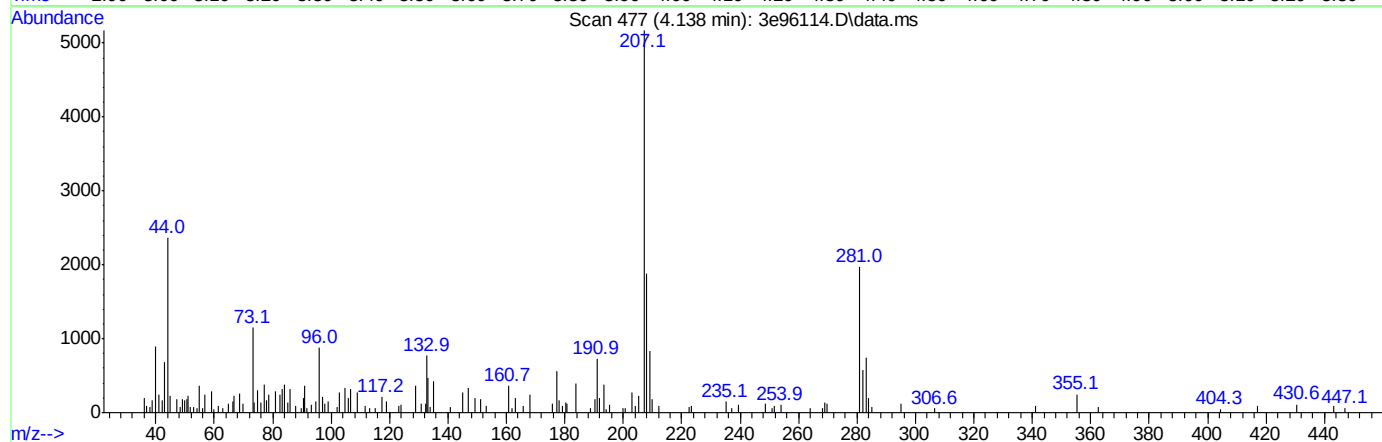
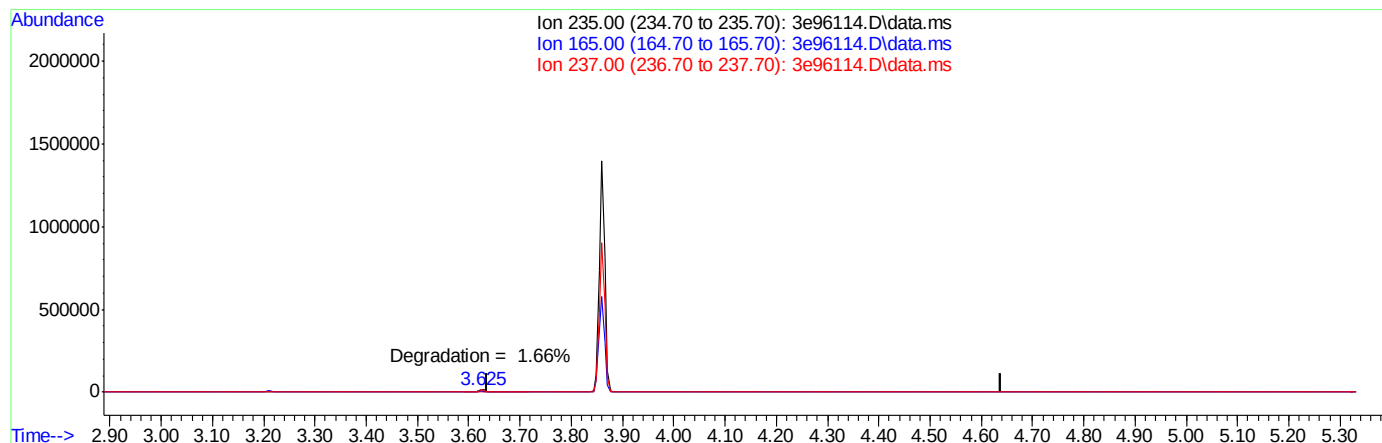
response 2594257

Ion	Exp%	Act%
184.00	100	100
183.00	13.20	12.07
185.00	15.40	13.62
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96114.D
Acq On : 15 Aug 2017 10:21 pm
Operator : chriss2
Sample : dftpp
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Aug 15 22:27:22 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Sun Jul 16 12:35:00 2017
QLast Update : Sun Jul 16 12:35:00 2017
Response via : Initial Calibration



TIC: 3e96114.D\data.ms

(3) PP-DDT (t)

4.138min (-4.138) 0.00ppb

response 0

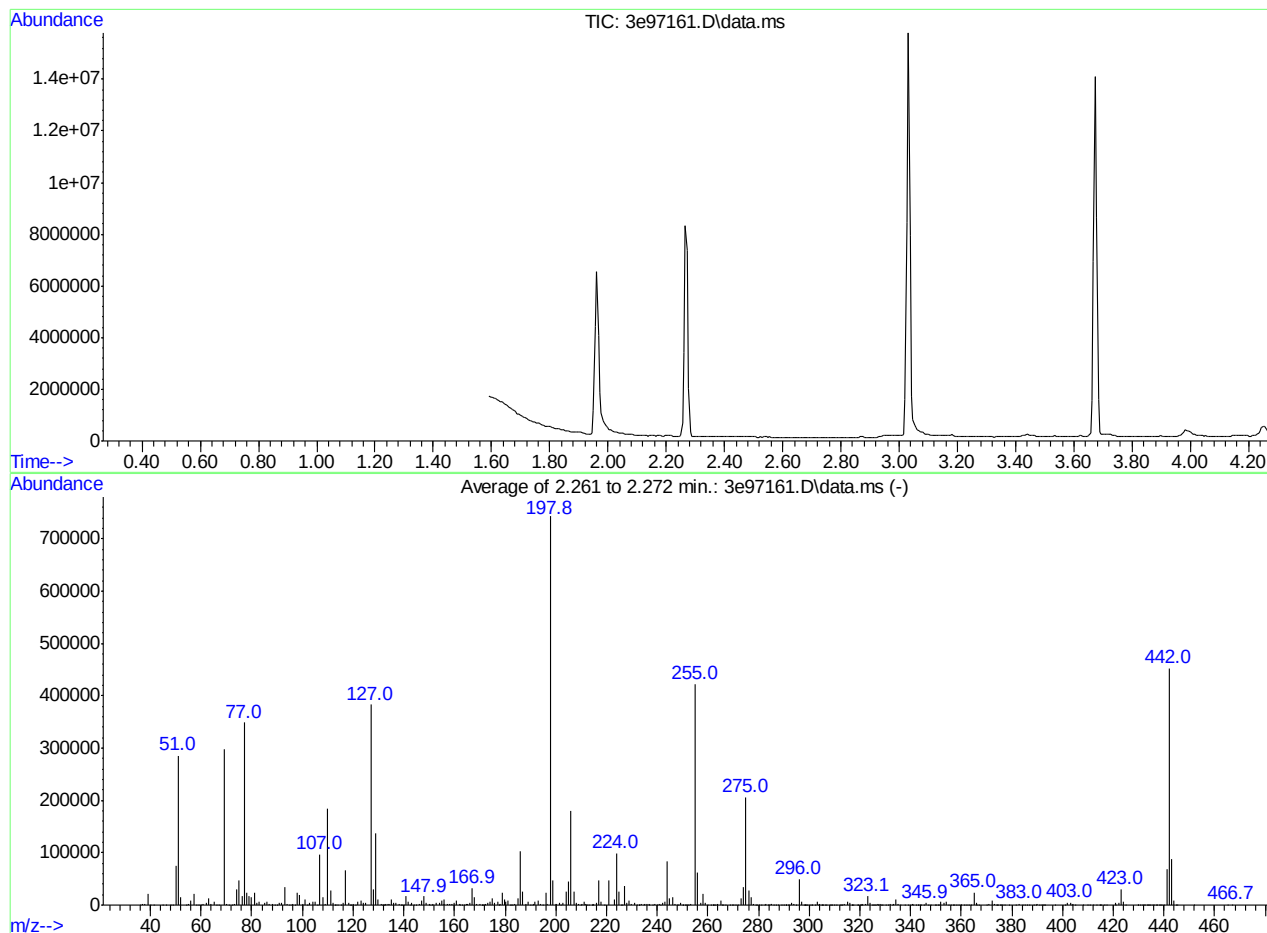
Ion	Exp%	Act%
235.00	100	0.00
165.00	0.10	0.00#
237.00	0.10	0.00#
0.00	0.00	0.00

DFTPP

Data File : C:\msdchem\1\DATA\E3E4310\3e97161.D
 Acq On : 13 Sep 2017 9:17 am
 Sample : dftpp
 Misc : op4655,e3e4310,1000,,,1,1
 MS Integration Params: RTEINT.P

Vial: 1
 Operator: kristis
 Inst : SVOAMS3E
 Multiplr: 1.00

Method : C:\msdchem\1\METHODS\dftpp3e.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25mm Mon Aug 28 10:53:46 2017



AutoFind: Scans 126, 127, 128; Background Corrected with Scan 120

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	38.4	285550	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	40.2	298825	PASS
70	69	0.00	2	0.5	1510	PASS
127	198	40	60	51.5	382808	PASS
197	198	0.00	1	0.2	1153	PASS
198	198	100	100	100.0	742764	PASS
199	198	5	9	6.4	47813	PASS
275	198	10	30	27.8	206742	PASS
365	198	1	100	3.2	23702	PASS
441	443	0.10	100	78.3	68216	PASS
442	198	40	100	60.9	452296	PASS
443	442	17	23	19.3	87138	PASS

3e97161.D dftpp3e.M Wed Sep 13 14:04:33 2017

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
35.80	435	51.00	285550	63.00	12255	75.00	47151
36.95	1194	52.05	14030	64.05	1482	76.05	18240
37.95	2527	54.05	671	65.00	6525	76.95	349197
39.10	21711	55.00	1447	66.05	616	78.00	22600
39.95	797	56.00	8722	67.05	219	79.00	17695
41.10	131	57.00	20908	69.00	298825	79.95	14545
45.00	427	57.90	1063	70.05	1510	81.00	22851
46.05	159	58.80	104	71.00	372	81.95	4948
47.95	74	60.00	723	72.05	683	83.00	5684
49.00	354	60.85	2802	73.05	1521	85.00	3495
50.00	74234	61.95	4786	73.95	29182	85.95	6781

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
87.00	2983	97.00	769	107.95	15883	118.05	5341
88.00	1359	98.00	23514	108.95	1253	118.70	63
88.95	487	99.00	19954	110.00	184003	118.95	982
90.05	572	100.00	1635	111.00	27200	119.95	1156
90.90	4910	101.00	11125	112.00	3355	121.00	786
91.90	5317	101.90	620	112.80	450	121.95	6075
93.00	34685	102.95	4497	113.05	283	123.00	9088
94.05	2668	103.95	7510	113.85	137	124.05	3863
95.00	967	105.05	7155	115.00	303	125.00	4417
95.85	76	106.05	351	116.00	5233	127.00	382808
96.10	1665	106.95	96619	116.95	67509	127.95	29258

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
129.00	136945	136.00	3944	144.95	1068	154.95	9109
129.95	11158	137.05	4806	145.95	3259	155.90	2399
130.90	2824	138.00	1523	146.95	8684	156.05	11346
131.70	339	138.90	583	147.95	16357	157.10	2911
132.00	197	139.10	455	148.95	4377	157.95	2630
132.20	892	139.95	1120	150.00	1263	158.90	1851
132.50	338	140.95	16918	150.30	142	159.95	4568
133.05	1161	141.90	5666	150.90	136	160.95	8062
133.90	1759	142.80	454	151.45	3236	161.85	1786
134.10	1744	143.00	3913	152.90	4335	162.05	294
134.95	10726	143.90	945	153.95	3847	162.90	904

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
164.05	589	171.85	118	180.10	6138	189.95	859
164.80	2771	172.05	2296	181.00	8291	190.85	72
165.00	2921	173.00	4404	182.00	1034	191.05	1778
166.00	5153	174.00	6944	182.50	275	191.90	6995
166.95	32418	174.90	12088	183.00	453	192.95	7884
168.00	15609	175.90	4470	183.95	1538	193.95	1729
168.90	3105	176.90	5582	185.00	12489	194.90	925
169.95	1414	177.70	458	186.00	102591	195.95	24575
170.70	737	178.05	2406	187.00	26866	196.70	1153
171.00	451	178.90	23494	188.05	3191	197.85	742764
171.20	670	179.90	10922	188.95	5640	198.90	47813

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
199.90	1356	209.70	348	216.90	46729	228.95	8752
200.10	1720	210.30	1464	217.95	5663	229.95	1522
201.35	4528	211.00	7410	218.95	722	231.05	3620
202.05	400	211.70	1289	221.00	46578	231.95	536

202.90	4368	211.90	670	223.00	10137	232.65	405
204.05	25496	212.20	94	224.00	99048	233.05	106
204.95	44580	213.05	730	225.00	25482	233.95	2346
205.95	180793	214.05	182	225.80	431	234.80	609
207.00	24896	214.60	190	226.05	819	235.00	2544
208.00	5083	214.90	1899	226.95	36326	235.90	1797
208.95	2020	216.00	3897	227.95	4493	236.80	428

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
237.00	2868	247.05	2219	255.00	422178	263.90	1634
238.10	666	247.90	483	256.00	61604	264.95	8816
238.90	1672	248.30	159	257.00	4902	265.80	896
240.10	1124	249.00	3653	258.00	20734	266.10	522
241.00	2592	249.90	387	259.00	3776	267.10	229
241.40	565	250.10	432	259.95	325	268.60	73
242.05	5096	250.80	982	260.95	727	269.70	193
243.15	6319	251.60	35	261.95	74	269.90	605
244.00	83126	251.85	807	262.20	59	270.90	901
245.00	12041	252.15	586	262.60	93	271.60	195
245.95	15080	253.15	1698	262.85	175	273.00	12895

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
274.00	35249	283.90	259	291.70	142	299.25	107
275.00	206742	284.10	783	292.05	865	300.05	101
276.00	28453	284.90	1662	292.95	4371	300.80	546
277.00	14642	285.10	1377	294.05	1207	301.10	461
277.95	2500	285.95	688	295.00	249	302.10	1015
278.90	576	287.00	57	296.00	49754	303.00	6056
279.30	92	287.80	65	297.00	6981	303.80	111
280.20	26	288.90	616	297.90	218	303.95	1815
280.90	552	290.00	706	298.20	45	304.80	136
282.30	85	290.80	46	298.50	30	305.10	185
282.95	2038	290.90	347	298.80	43	305.30	47

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
306.15	167	315.00	5544	322.05	1325	329.00	412
306.85	240	316.00	3727	323.05	17364	330.25	129
308.00	1040	316.80	52	323.95	3638	331.05	14
308.50	149	317.00	819	325.00	334	331.95	1336
308.90	643	317.30	55	325.40	30	332.70	212
309.85	854	319.00	90	325.90	101	333.10	1413
310.85	171	319.30	31	326.20	167	334.05	10973
312.00	134	320.00	281	327.00	2261	335.05	3245
312.30	36	320.40	133	327.30	166	336.00	490
312.90	381	320.90	263	328.00	2034	337.90	20
314.00	2842	321.05	1888	328.60	45	339.05	270

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
340.05	207	347.85	123	357.20	185	366.00	4100
340.60	178	349.80	114	358.10	35	366.95	241
341.00	1581	350.15	204	358.95	661	369.90	346
342.00	336	350.80	86	359.80	137	370.90	1381
342.90	118	351.00	269	360.00	102	372.00	9570
343.05	144	352.00	5628	360.95	226	373.10	2091
343.70	36	353.00	3770	362.00	24	373.85	149
343.90	26	354.05	5599	362.90	56	374.10	193
345.00	138	355.05	904	363.60	86	374.30	35
345.95	3606	356.05	83	365.00	23702	375.10	41
346.95	921	356.65	97	365.80	295	375.90	41

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
376.40	107	390.00	1538	404.05	1569	417.20	19
376.95	503	391.00	735	404.95	399	420.70	265
379.00	68	391.70	214	408.25	57	421.00	3515
381.65	68	392.00	532	409.95	90	422.05	3922
383.00	2802	392.60	28	410.80	104	423.00	30360
384.05	706	393.15	169	412.00	175	424.05	6039
384.95	154	397.00	254	413.35	54	425.00	847
385.90	42	400.95	554	414.60	39	429.50	70
387.00	78	402.00	3624	414.80	100	429.80	31
388.70	35	403.00	5190	415.20	106	430.70	74
389.30	47	403.70	186	416.25	109	431.30	90

Average of 2.261 to 2.272 min.: 3e97161.D\data.ms

dftpp

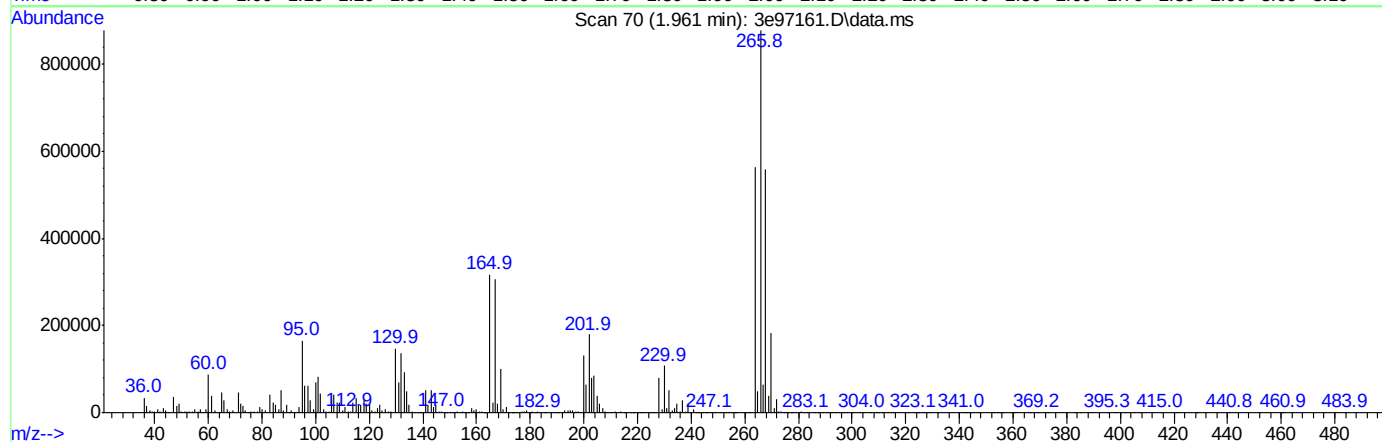
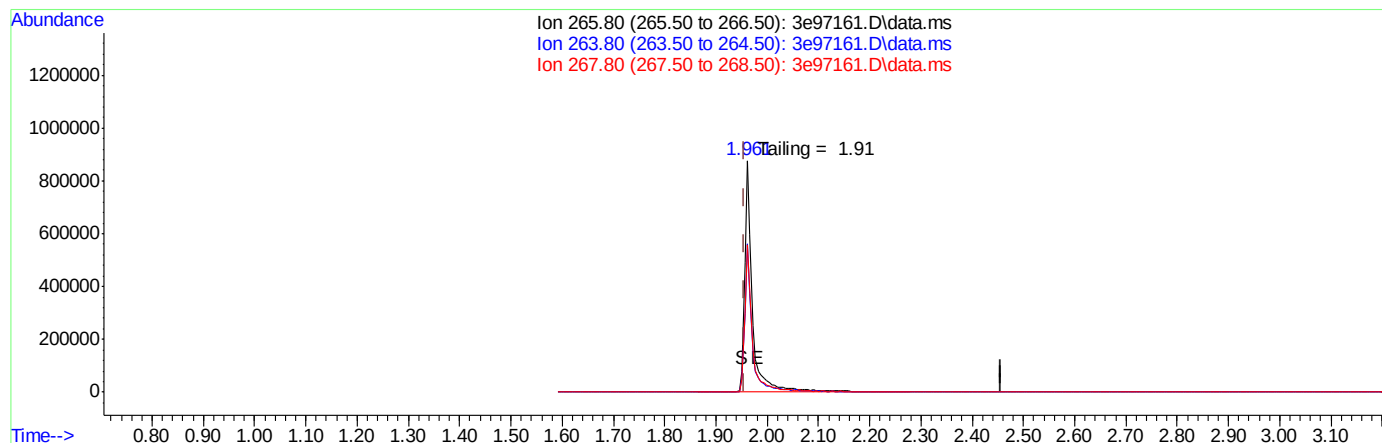
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
432.10	154	438.45	137	466.70	84		
432.55	249	438.80	265				
433.05	149	439.70	203				
433.60	43	441.10	68216				
434.10	36	442.00	452296				
434.55	188	443.05	87138				
435.25	261	444.00	8149				
435.90	193	444.90	32				
436.70	174	445.10	647				
437.40	502	451.70	32				
437.95	221	465.10	20				

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97161.D
Acq On : 13 Sep 2017 9:17 am
Operator : kristis
Sample : dftpp
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 13 09:22:40 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Mon Aug 28 10:53:46 2017
QLast Update : Mon Aug 28 10:53:46 2017
Response via : Initial Calibration



TIC: 3e97161.D\data.ms

(1) Pentachlorophenol (t)

1.961min (+0.005) 98.35ppb

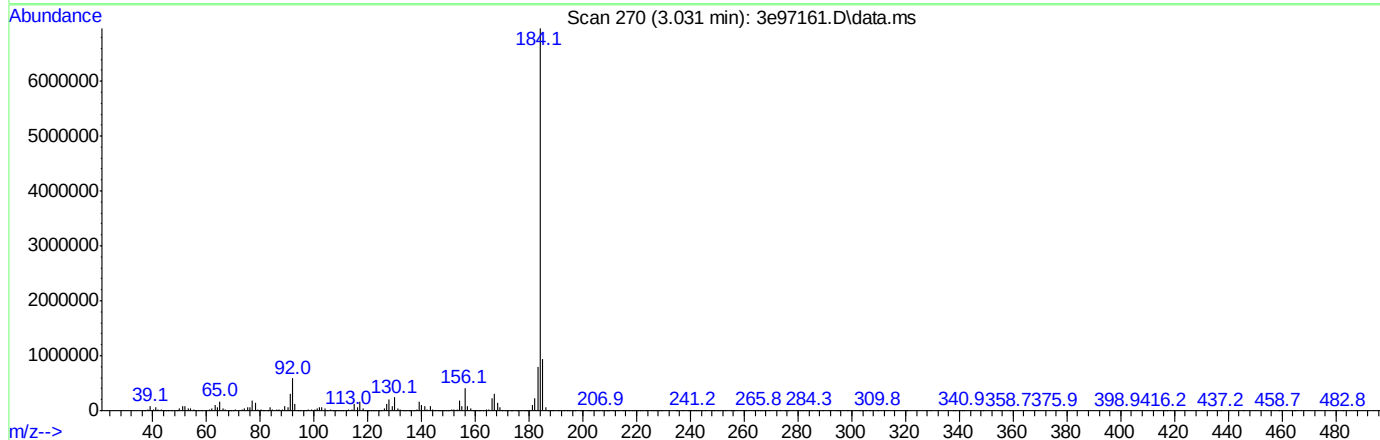
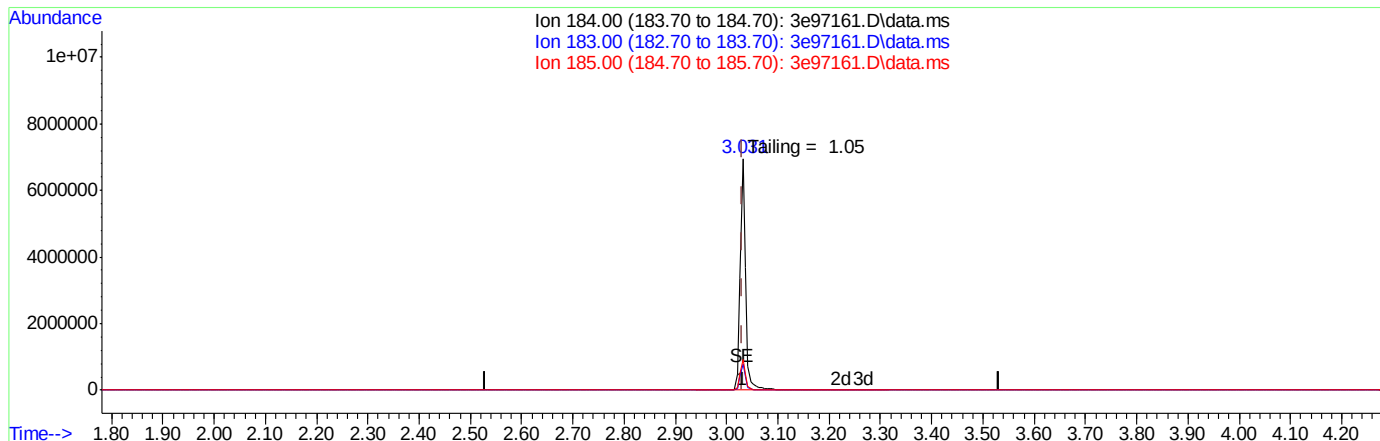
response 944884

Ion	Exp%	Act%
265.80	100	100
263.80	62.20	64.08
267.80	64.70	63.68
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97161.D
Acq On : 13 Sep 2017 9:17 am
Operator : kristis
Sample : dftpp
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 13 09:22:40 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Mon Aug 28 10:53:46 2017
QLast Update : Mon Aug 28 10:53:46 2017
Response via : Initial Calibration



TIC: 3e97161.D\data.ms

(2) Benzidine (t)

3.031min (+0.000) 110.91ppb

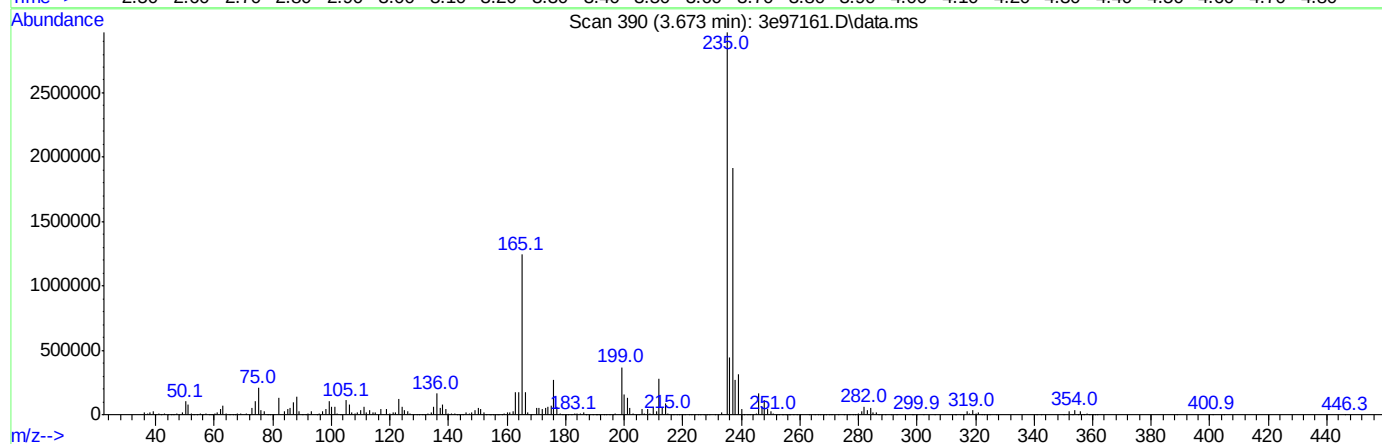
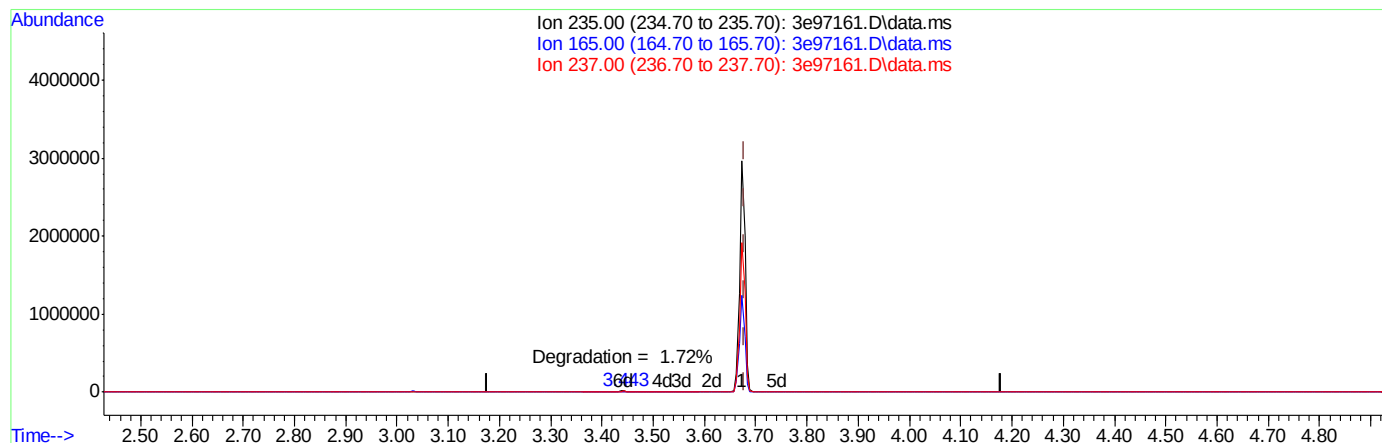
response 5230490

Ion	Exp%	Act%
184.00	100	100
183.00	13.20	11.50
185.00	15.40	13.41
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97161.D
Acq On : 13 Sep 2017 9:17 am
Operator : kristis
Sample : dftpp
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 13 09:22:40 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Mon Aug 28 10:53:46 2017
QLast Update : Mon Aug 28 10:53:46 2017
Response via : Initial Calibration



TIC: 3e97161.D\data.ms

(3) PP-DDT (t)

3.673min (-0.005) 114.47ppb

response 2208564

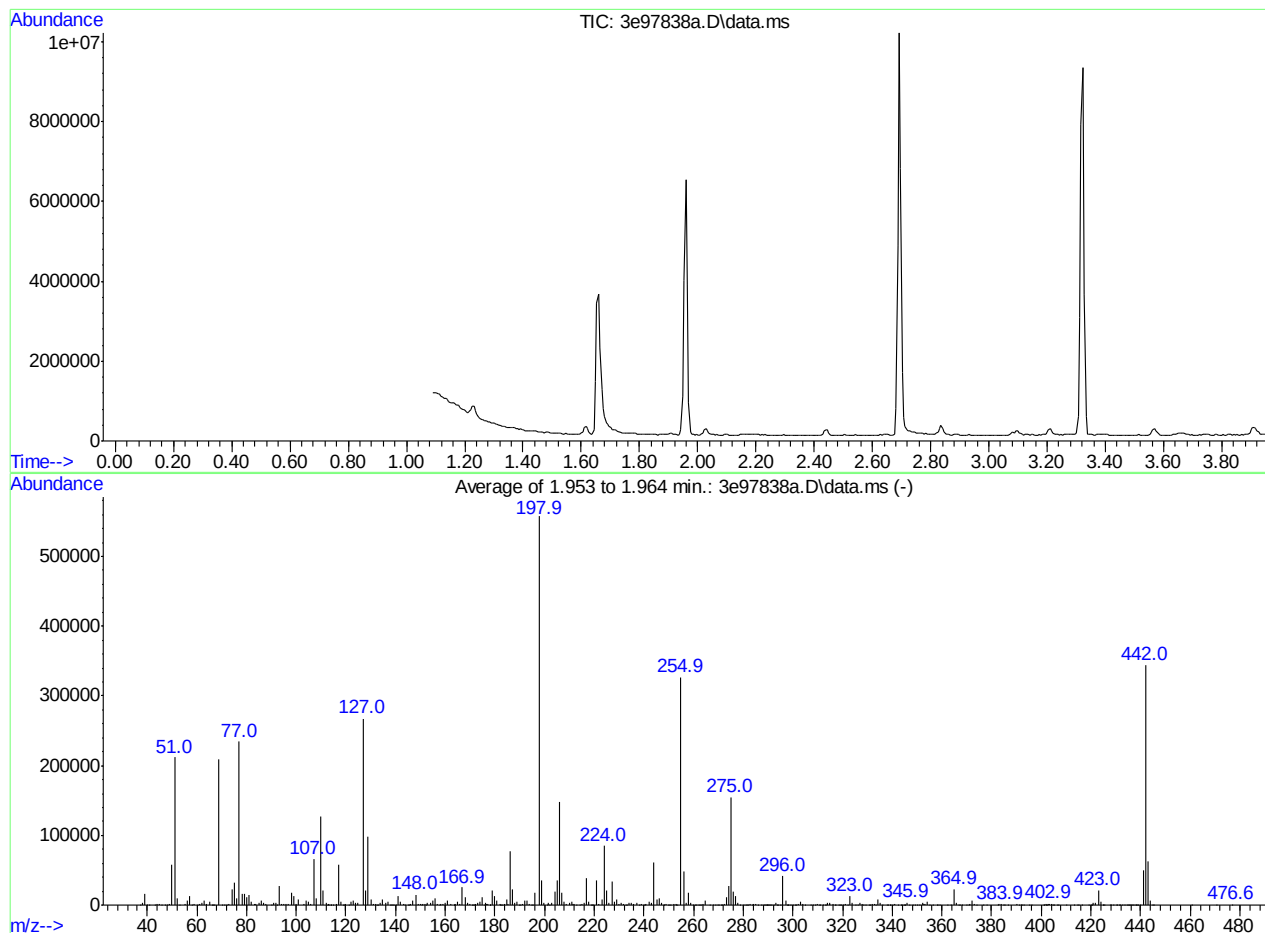
Ion	Exp%	Act%
235.00	100	100
165.00	0.10	41.34#
237.00	0.10	64.15#
0.00	0.00	0.00

DFTPP

Data File : C:\msdchem\1\DATA\E3E4350\3e97838a.D
Acq On : 23 Oct 2017 2:45 pm
Sample : dftpp
Misc : op7023,e3e4350,1000,,,1,1
MS Integration Params: RTEINT.P

Vial: 1
Operator: vivekp
Inst : SVOAMS3E
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25mm Mon Oct 02 15:46:22 2017



AutoFind: Scans 162, 163, 164; Background Corrected with Scan 157

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	38.0	211643	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.6	209354	PASS
70	69	0.00	2	0.1	215	PASS
127	198	40	60	48.0	267719	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	557397	PASS
199	198	5	9	6.4	35616	PASS
275	198	10	30	27.8	154681	PASS
365	198	1	100	4.0	22565	PASS
441	443	0.10	100	80.2	50376	PASS
442	198	40	100	61.8	344533	PASS
443	442	17	23	18.2	62816	PASS

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
37.00	786	49.00	2204	61.00	1486	71.95	5
37.95	3417	49.95	57682	62.05	3178	73.00	1918
39.05	16036	51.05	211643	63.00	6681	74.00	21804
39.95	663	52.00	10354	63.95	1662	75.00	32582
41.00	655	52.95	507	65.00	4535	76.00	9139
43.10	134	55.05	1197	65.85	450	77.05	234709
44.05	1784	56.05	6277	66.40	252	78.05	16273
45.05	1719	57.00	12997	67.10	111	78.95	15988
45.60	37	57.95	445	69.00	209354	79.95	11636
46.95	242	58.95	930	70.10	215	81.00	14215
47.85	87	60.05	674	70.95	518	81.95	4436

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
83.05	2034	93.95	2435	105.90	1105	115.00	246
83.90	2117	95.05	1859	107.00	66598	116.00	1512
85.00	2591	95.95	985	107.95	9836	117.00	57418
86.00	6034	96.90	1369	109.95	127252	118.00	4438
87.05	2601	97.95	17832	110.95	20469	119.00	283
87.95	1029	99.00	13295	112.00	2484	119.20	395
89.85	128	100.05	1739	112.60	125	120.00	1316
91.00	3957	100.95	7298	112.90	65	121.30	458
91.90	3025	103.00	2367	113.10	897	121.95	5149
92.10	448	104.05	6360	113.80	44	123.00	6340
93.00	27572	105.00	5415	114.10	151	124.00	3023

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
124.90	2546	135.95	3215	145.00	711	152.95	3673
126.95	267719	137.00	4293	145.60	468	153.95	3679
128.05	21640	137.95	552	145.80	1592	155.00	5980
129.00	98457	138.40	367	147.00	6679	156.00	10209
129.95	7542	138.70	329	148.00	14622	156.95	2297
130.90	1790	139.05	271	149.00	2076	157.70	749
131.90	1119	140.00	386	150.00	952	158.00	1716
132.30	351	140.95	13180	150.30	375	159.05	1829
132.70	366	142.10	4481	151.05	1758	160.00	3763
133.95	3452	143.05	2462	151.65	919	161.00	5848
134.90	7963	143.90	809	152.20	729	162.00	2101

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
163.35	752	171.60	389	178.90	20167	187.00	22282
163.60	166	172.05	2339	179.95	13367	188.05	2637
163.95	904	172.95	2905	180.95	6024	188.95	5041
164.90	4248	174.00	5331	181.90	106	189.70	449
165.90	2143	174.95	10832	182.15	925	190.00	636
166.95	25605	175.80	546	182.75	640	191.00	2006
167.90	11830	176.05	2546	183.10	261	191.95	6712
168.90	2801	176.80	1694	183.95	1345	192.95	6704
169.90	1095	176.95	2367	185.00	7318	193.85	2106
171.00	741	177.90	822	185.20	2339	194.70	138
171.20	289	178.20	854	185.95	76768	195.00	683

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
196.00	18363	206.95	18415	216.95	39189	227.00	34050
197.95	557397	208.00	4754	217.95	5246	228.00	5358
198.95	35616	208.90	1597	218.85	788	229.00	8177
199.90	3061	210.00	2643	219.20	269	229.90	1008

201.00	353	210.90	5454	219.75	709	231.00	3205
201.45	2612	211.30	1111	220.95	35148	231.75	874
202.00	457	211.95	1209	222.00	1424	232.85	264
203.05	4001	213.00	640	223.05	7852	233.15	472
204.00	20133	214.00	399	224.00	84549	233.85	2729
205.00	35765	214.95	1547	225.00	21351	234.95	2900
206.00	147568	216.05	3873	225.95	2580	235.95	2036

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
236.95	2768	246.00	10127	253.30	652	262.80	278
237.90	475	246.95	2582	254.95	327110	263.90	1877
238.95	1640	247.80	411	256.00	48577	264.90	6371
239.90	765	248.05	581	256.90	3910	266.70	109
240.20	293	248.90	1975	257.95	17360	267.85	599
240.90	1859	249.85	847	258.95	3098	268.70	109
241.95	4106	250.35	447	259.85	323	269.85	654
243.00	3939	250.85	422	260.70	329	270.10	326
243.20	2033	251.85	962	261.05	198	270.85	306
244.00	61782	252.80	251	262.20	42	271.25	421
245.05	8001	253.00	1481	262.40	82	272.15	1104

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
273.05	11592	282.90	1063	289.95	506	297.80	375
274.00	27413	283.70	284	290.60	75	298.10	313
275.00	154681	284.00	977	290.90	282	298.30	17
276.00	19974	285.05	2257	291.40	44	299.05	157
277.00	12796	286.05	231	292.00	821	300.05	167
277.95	2587	287.20	42	292.95	2872	300.90	232
278.90	175	287.95	137	293.80	568	301.05	442
279.90	179	288.50	142	294.10	167	302.00	926
281.05	141	289.05	439	295.00	453	302.95	4684
281.50	140	289.30	156	296.00	41114	304.05	1572
281.90	597	289.70	150	297.05	5738	304.95	70

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
307.10	197	315.00	3101	323.95	2543	333.20	701
307.95	694	316.05	2260	325.10	401	334.05	8777
309.05	686	316.90	599	325.95	643	335.00	2539
309.85	974	317.20	243	326.95	3121	336.05	358
310.70	176	318.50	73	327.95	1674	338.00	67
310.95	95	318.85	151	328.50	92	338.20	28
311.90	308	319.50	19	329.05	524	339.00	49
313.05	466	320.10	277	330.60	42	339.30	115
313.30	384	320.95	1397	330.90	74	339.90	348
314.05	2503	322.20	480	332.05	965	340.90	1957
314.80	1241	323.00	13205	332.80	925	342.15	338

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
343.60	58	352.05	4080	364.95	22565	376.85	171
343.80	26	352.85	1675	365.95	2872	377.90	84
344.50	111	353.10	1212	366.85	224	382.30	128
345.00	19	354.05	4606	367.20	35	383.05	1686
345.25	312	354.95	615	368.00	18	383.85	952
345.95	3638	356.20	86	370.05	375	384.70	79
346.95	549	357.90	12	370.65	484	385.10	138
348.30	21	358.10	20	371.00	1136	386.60	30
349.00	83	358.85	342	372.00	6259	389.95	1035
349.90	93	362.35	87	373.00	2451	391.00	771
350.90	315	363.60	62	373.90	671	392.00	349

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
392.20	159	404.00	1383	420.10	152	428.95	282
392.75	93	404.80	82	420.60	178	430.30	391
395.30	107	405.10	282	421.05	2486	430.50	189
396.05	154	406.35	48	421.95	3337	431.20	319
400.80	71	406.70	22	423.00	21336	431.70	25
400.95	696	409.85	68	423.95	4234	432.60	325
401.80	415	413.20	33	424.85	384	433.60	113
402.00	2243	414.50	22	425.10	273	434.30	281
402.40	273	414.90	356	425.50	288	434.80	73
402.85	2290	416.20	33	427.85	135	435.20	275
403.10	1809	419.10	107	428.30	47	435.90	332

Average of 1.953 to 1.964 min.: 3e97838a.D\data.ms

dftpp

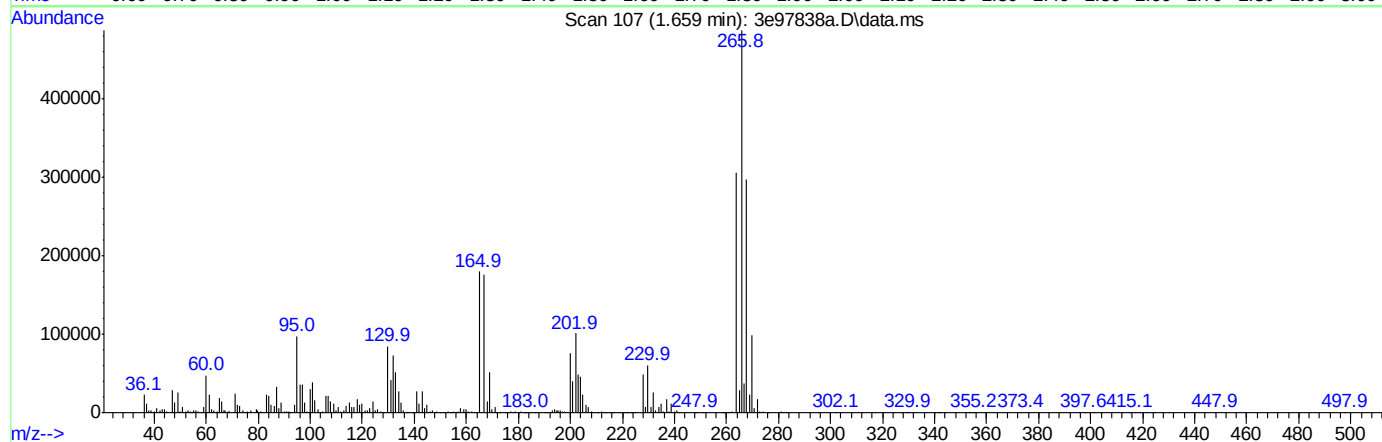
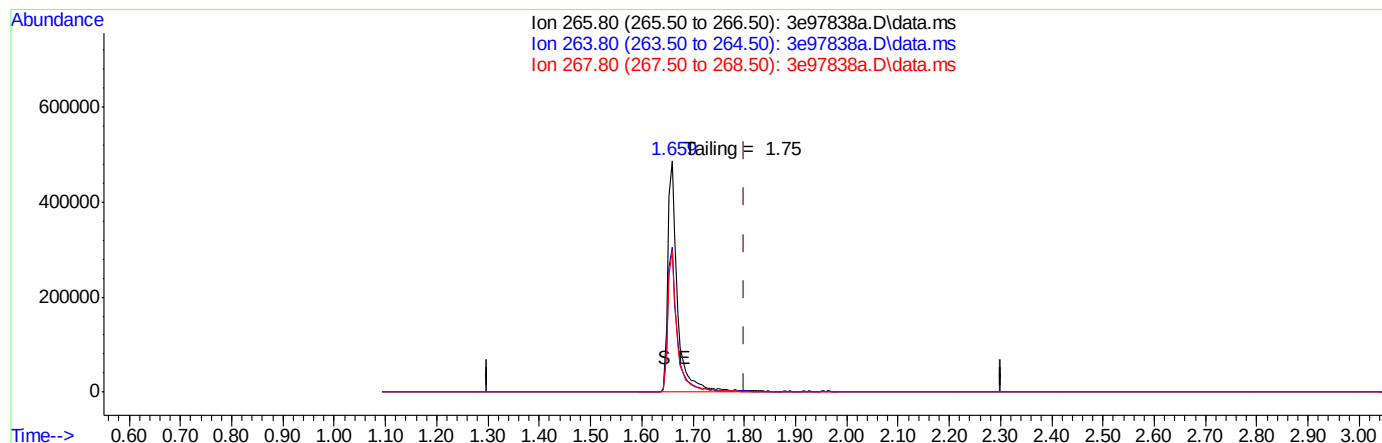
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
436.40	288	444.00	5875				
436.60	329	444.90	192				
437.20	640	445.30	44				
437.80	250	460.80	27				
438.20	149	470.50	20				
438.65	482	476.65	109				
439.05	432						
439.80	234						
441.05	50376						
442.00	344533						
443.00	62816						

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4350\
Data File : 3e97838a.D
Acq On : 23 Oct 2017 2:45 pm
Operator : vivekp
Sample : dftpp
Misc : op7023,e3e4350,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 23 14:50:54 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Mon Oct 02 15:46:22 2017
QLast Update : Mon Oct 02 15:46:22 2017
Response via : Initial Calibration



TIC: 3e97838a.D\data.ms

(1) Pentachlorophenol (t)

1.659min (-0.141) 64.74ppb

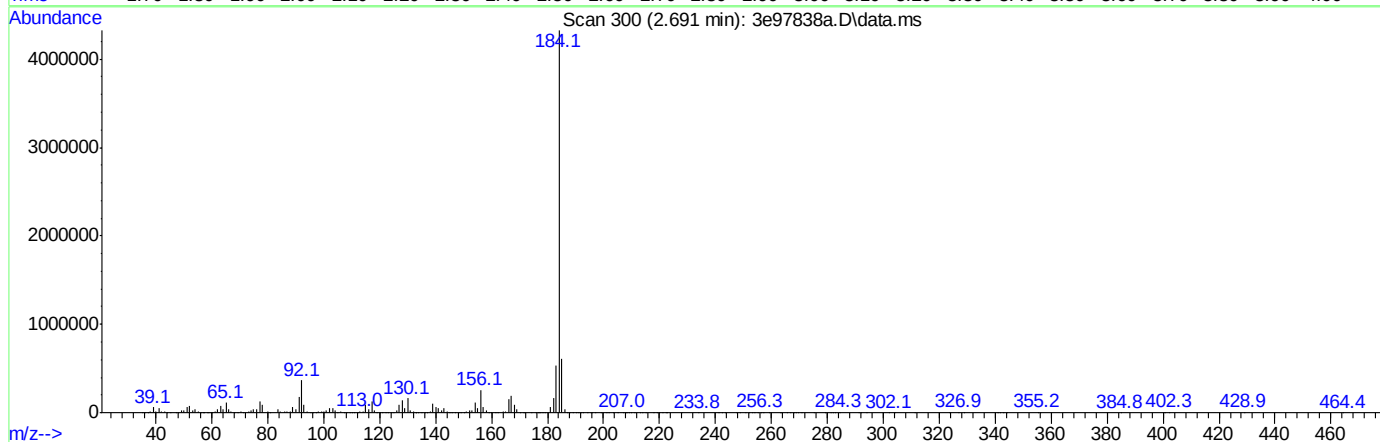
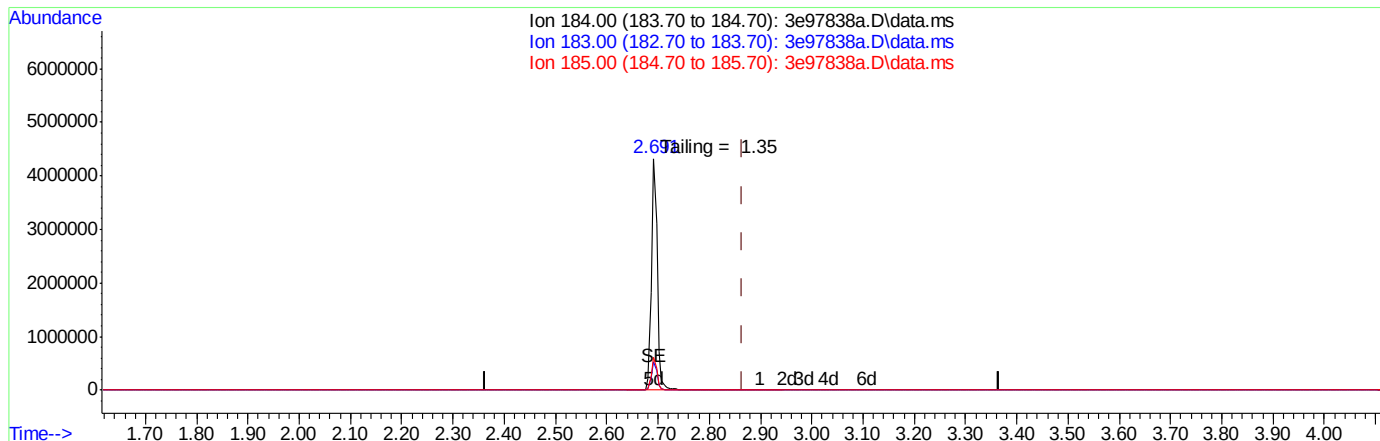
response 621943

Ion	Exp%	Act%
265.80	100	100
263.80	62.20	62.51
267.80	64.70	61.01
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4350\
Data File : 3e97838a.D
Acq On : 23 Oct 2017 2:45 pm
Operator : vivekp
Sample : dftpp
Misc : op7023,e3e4350,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 23 14:50:54 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Mon Oct 02 15:46:22 2017
QLast Update : Mon Oct 02 15:46:22 2017
Response via : Initial Calibration



TIC: 3e97838a.D\data.ms

(2) Benzidine (t)

2.691min (-0.174) 73.33ppb m

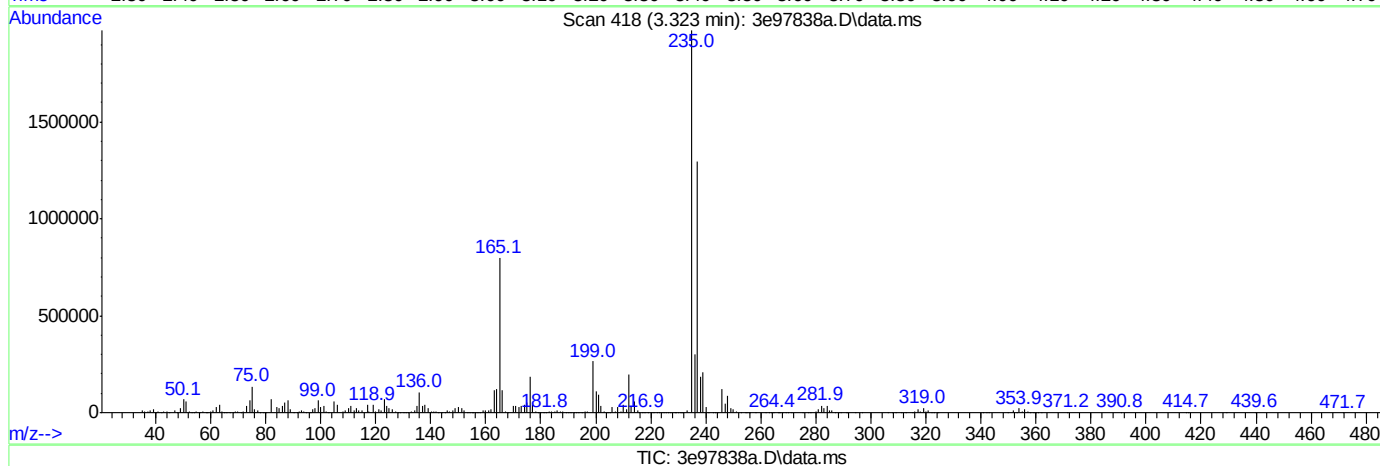
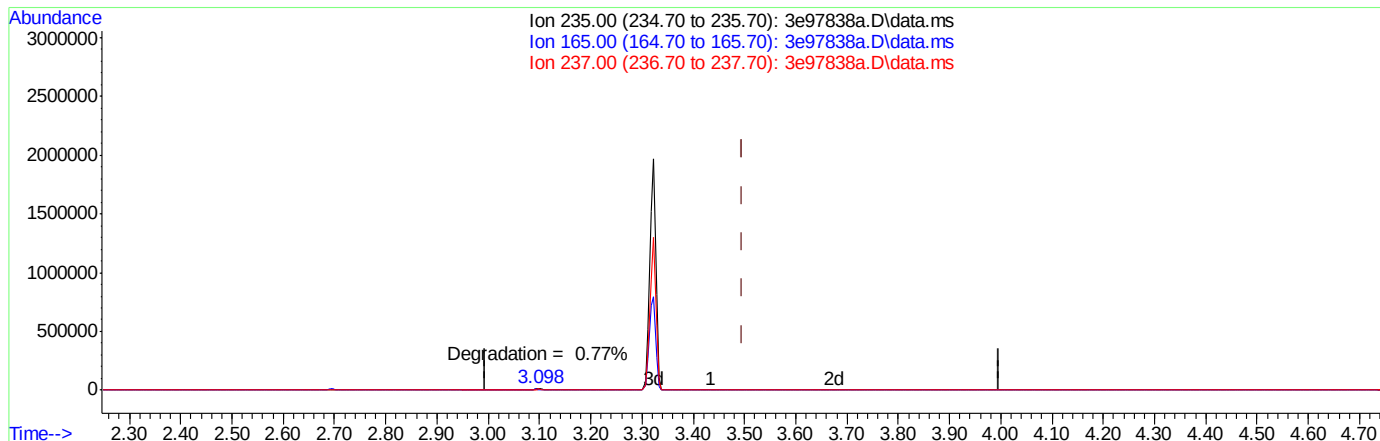
response 3458478

Ion	Exp%	Act%
184.00	100	100
183.00	13.20	12.29
185.00	15.40	14.04
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4350\
Data File : 3e97838a.D
Acq On : 23 Oct 2017 2:45 pm
Operator : vivekp
Sample : dftpp
Misc : op7023,e3e4350,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 23 14:50:54 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3E.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25Mon Oct 02 15:46:22 2017
QLast Update : Mon Oct 02 15:46:22 2017
Response via : Initial Calibration



(3) PP-DDT (t)

3.323min (-0.174) 83.72ppb m

response 1615402

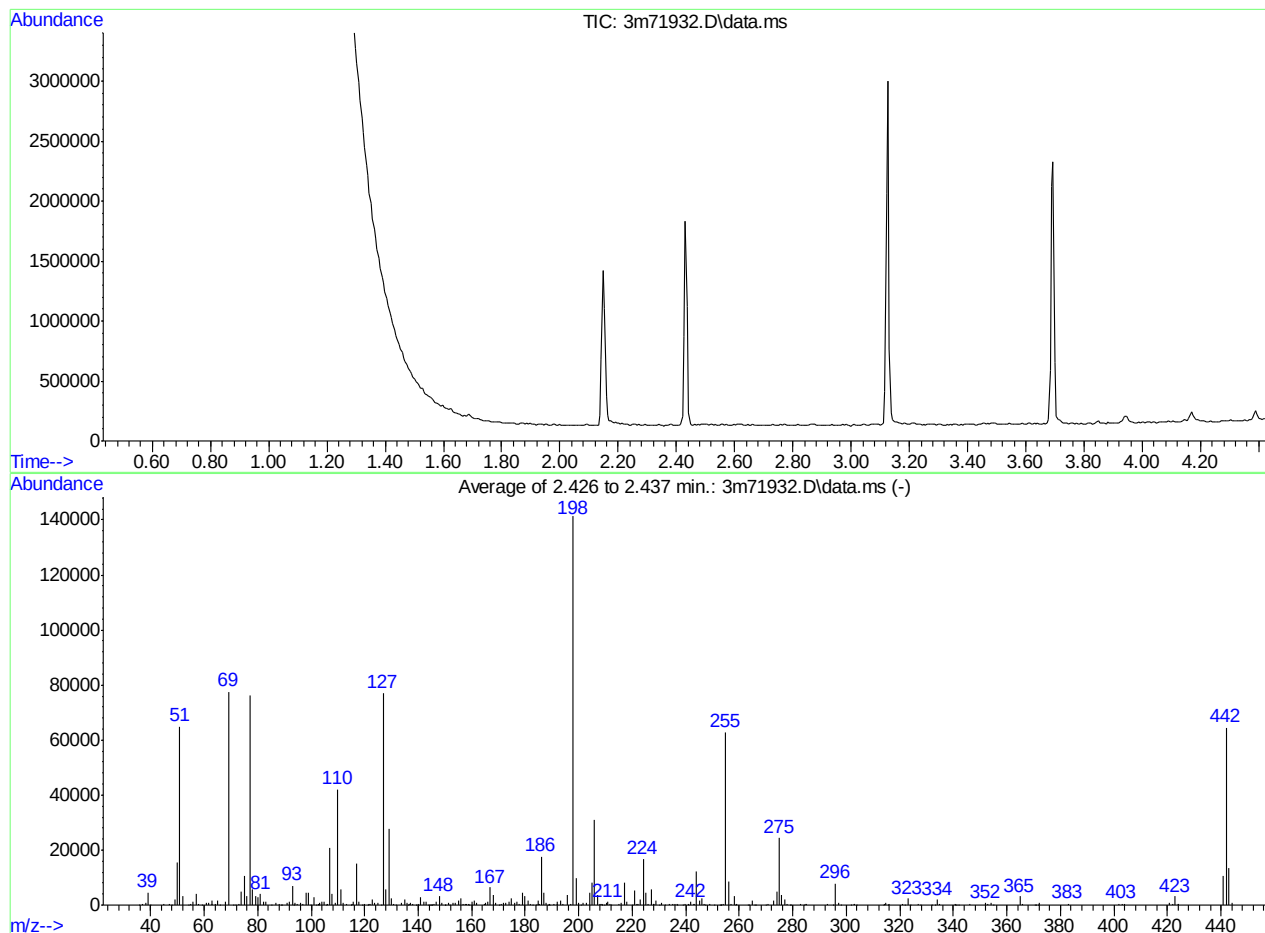
Ion	Exp%	Act%
235.00	100	100
165.00	0.10	0.07
237.00	0.10	0.08
0.00	0.00	0.00

DFTPP

Data File : C:\msdchem\1\DATA\E3M3448\3m71932.D
Acq On : 17 Oct 2017 1:39 pm
Sample : dftpp
Misc : op6171a,e3m3448,1000,,,1,1
MS Integration Params: RTEINT.P

Vial: 1
Operator: kevinm2
Inst : MS3M
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\DFTPP3M.M (RTE Integrator)
Title : DFTPP, RXI-5MS 30m x .25mm x .25um



AutoFind: Scans 213, 214, 215; Background Corrected with Scan 209

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	46.0	65015	PASS
68	69	0.00	2	1.4	1108	PASS
69	198	0.00	100	54.9	77590	PASS
70	69	0.00	2	0.0	0	PASS
127	198	40	60	54.6	77165	PASS
197	198	0.00	1	0.4	510	PASS
198	198	100	100	100.0	141272	PASS
199	198	5	9	7.0	9853	PASS
275	198	10	30	17.3	24431	PASS
365	198	1	100	2.3	3248	PASS
441	443	0.10	100	80.4	10694	PASS
442	198	40	100	45.7	64585	PASS
443	442	17	23	20.6	13307	PASS

Average of 2.426 to 2.437 min.: 3m71932.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
35.90	119	52.00	3179	64.00	408	77.00	76365
37.00	614	54.20	115	65.05	1724	78.00	5818
38.05	724	54.95	477	66.00	209	79.10	3379
39.05	4610	55.90	1269	68.00	1108	80.05	3035
39.95	104	57.00	4196	69.00	77590	81.00	4027
44.80	266	57.90	316	71.05	31	82.00	1299
47.00	358	59.10	106	71.90	184	82.95	1043
48.00	56	61.00	813	72.95	491	84.95	84
49.00	2221	61.80	800	74.00	4958	86.95	771
50.00	15426	62.90	570	75.00	10500	87.90	528
50.95	65015	63.05	1656	76.10	3318	88.70	73

Average of 2.426 to 2.437 min.: 3m71932.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
88.95	192	99.95	216	107.95	3962	119.00	77
90.85	881	100.95	2880	108.95	820	120.00	352
92.00	1043	101.85	174	110.00	42100	121.20	198
93.00	6985	102.80	204	110.95	5879	121.70	357
93.70	83	102.90	353	111.95	763	122.00	567
94.00	643	103.05	701	113.00	552	122.95	1958
94.95	398	104.05	1362	114.80	199	123.85	889
95.95	683	104.90	1279	115.10	227	124.85	981
96.85	401	105.80	169	115.90	1095	126.10	189
98.00	4611	106.00	586	116.95	15117	127.00	77165
98.95	4627	107.00	20881	117.95	1347	128.00	5846

Average of 2.426 to 2.437 min.: 3m71932.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
128.95	27875	139.00	129	145.95	519	156.00	2555
129.90	2656	139.80	100	146.85	1338	156.95	478
130.95	393	140.05	334	147.95	3275	157.80	250
131.75	82	140.95	3042	148.90	747	158.05	346
133.85	701	141.95	1080	149.85	211	158.80	85
134.95	1869	142.95	1103	150.10	84	158.95	276
135.90	650	143.80	93	151.15	644	160.00	1032
136.10	175	144.00	90	151.80	78	160.95	1711
136.80	434	144.70	120	152.85	754	161.85	636
137.05	781	144.90	147	153.90	807	164.80	346
138.05	235	145.20	93	155.00	1521	165.00	696

Average of 2.426 to 2.437 min.: 3m71932.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
165.95	1084	176.95	1219	185.95	17675	195.90	3662
166.95	6520	177.90	468	186.95	4700	196.95	510
167.95	3816	178.95	4393	187.95	744	197.90	141272
168.75	700	179.90	3283	188.65	189	198.90	9853
170.10	157	180.90	1619	189.00	383	199.90	693
170.90	257	182.00	278	189.20	124	200.70	155
171.95	718	182.90	83	190.85	450	201.45	751
172.85	762	183.90	104	191.80	305	202.85	807
173.85	1312	184.70	270	192.00	1222	203.95	4535
174.95	2455	184.90	1655	193.00	1484	204.95	8141
176.00	821	185.20	369	193.95	623	205.95	30824

Average of 2.426 to 2.437 min.: 3m71932.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
206.95	3493	215.95	899	226.95	5844	236.70	195
207.90	556	216.90	8331	227.80	362	236.95	555
208.10	379	217.85	1095	227.90	259	238.70	126
208.50	75	220.10	118	228.05	568	239.75	226

208.90	251	220.95	5374	228.85	1442	240.80	113
209.70	80	221.80	583	229.90	182	240.95	294
210.25	642	222.10	452	230.95	810	241.95	1086
210.95	1218	223.00	2034	232.00	122	242.90	608
211.60	229	224.00	16808	233.85	482	243.10	609
212.00	78	224.95	4435	235.00	606	244.00	12066
214.95	372	225.95	388	235.90	376	244.95	1576

Average of 2.426 to 2.437 min.: 3m71932.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
245.85	2329	256.90	594	272.90	1815	285.05	380
246.90	369	257.95	3471	273.95	4819	292.95	558
247.10	139	258.70	208	274.95	24431	294.80	73
248.90	449	259.00	400	275.90	3650	296.00	7781
250.80	107	263.10	81	277.00	2223	296.90	954
252.70	146	263.75	178	278.00	476	297.90	99
252.95	214	265.00	1835	279.00	83	301.90	174
253.20	102	265.65	116	279.20	130	302.80	479
253.85	408	266.00	138	282.95	330	303.00	593
254.95	62859	270.00	74	283.95	207	304.00	84
256.00	8405	270.85	236	284.80	303	313.70	88

Average of 2.426 to 2.437 min.: 3m71932.D\data.ms
dftpp

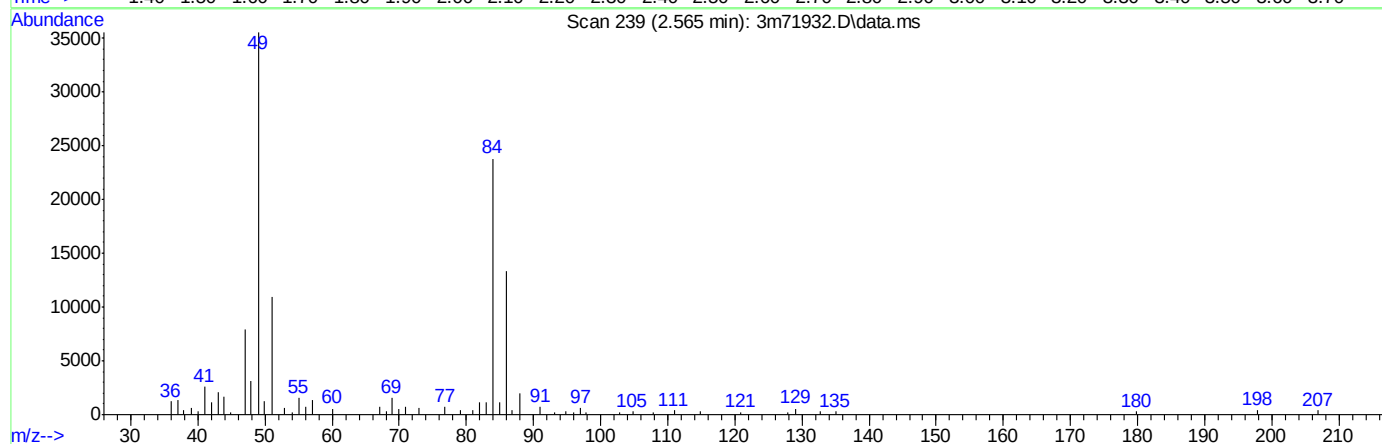
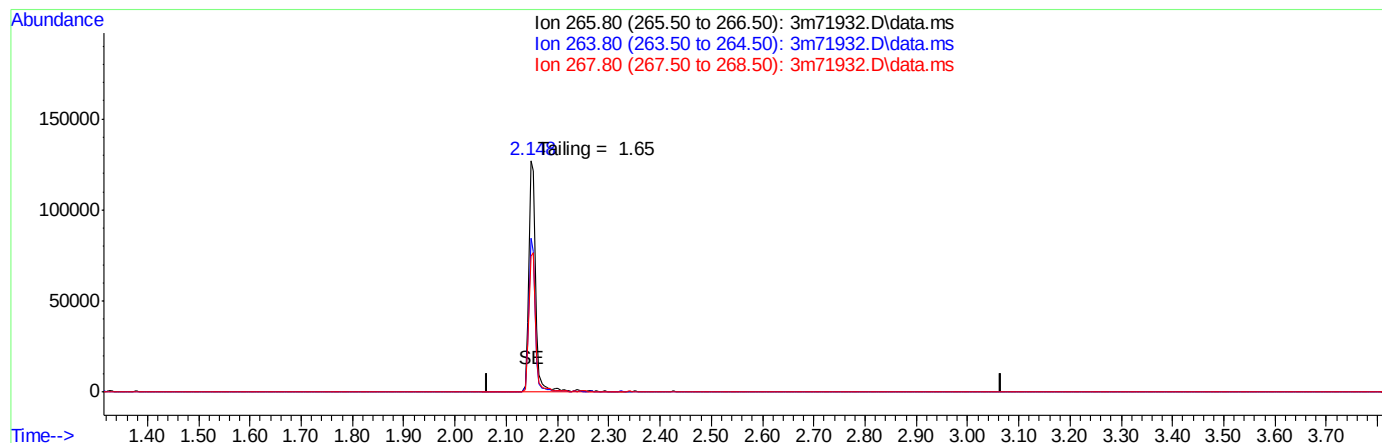
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
314.10	275	332.95	173	353.95	804	403.95	299
314.85	906	334.00	1943	355.00	172	420.85	689
315.70	89	334.95	572	364.90	3248	421.90	390
316.00	266	340.70	73	365.95	434	422.95	3115
320.95	257	340.85	233	370.60	115	423.90	465
322.00	86	341.10	129	371.00	119	424.10	395
322.95	2393	341.90	112	371.70	92	440.95	10694
323.90	147	346.00	627	371.95	954	441.90	64585
326.90	574	351.80	227	382.90	546	443.00	13307
327.70	90	352.00	669	402.00	484	443.95	1028
331.85	196	352.85	453	402.90	611		

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71932.D
Acq On : 17 Oct 2017 1:39 pm
Operator : kevinm2
Sample : dftpp
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 17 13:43:36 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3M.M
Quant Title : DFTPP, RXI-5MS 30m x .25mm x .25um
QLast Update : Fri Jun 09 17:28:23 2017
Response via : Initial Calibration



TIC: 3m71932.D\data.ms

(1) Pentachlorophenol (t)

2.565min (-2.565) 0.00ppb

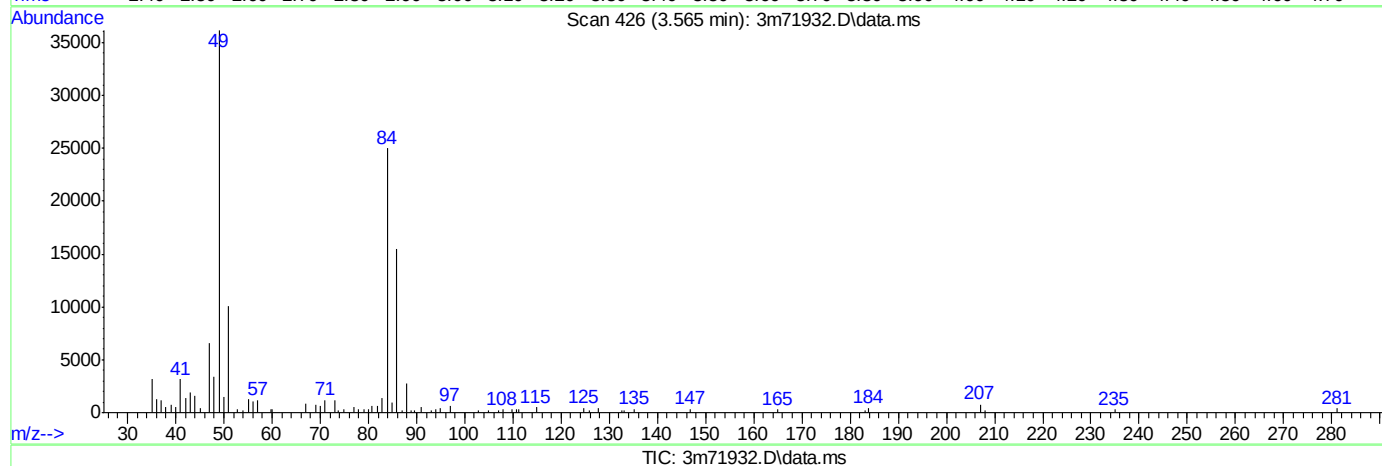
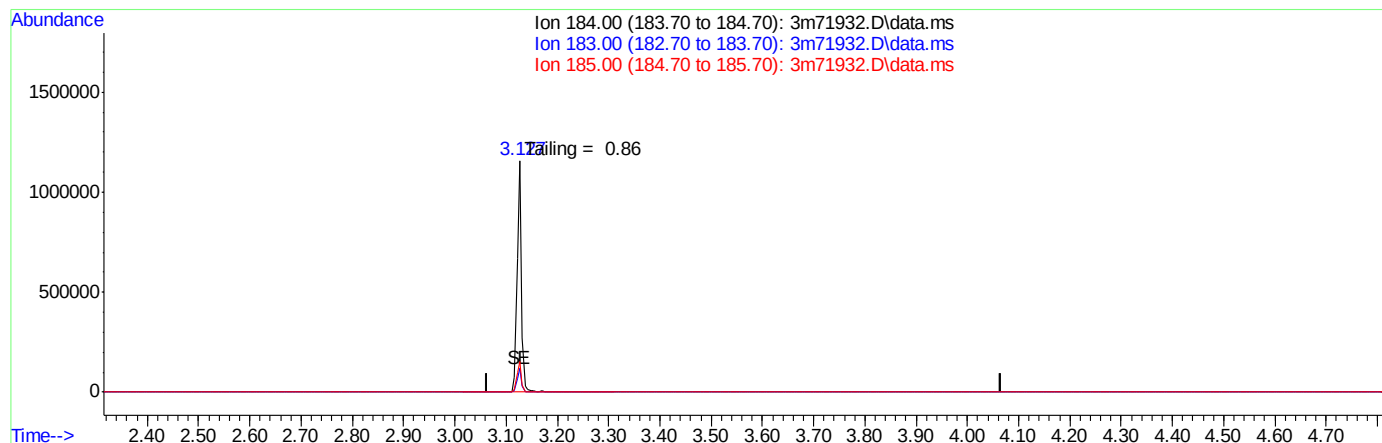
response 0

Ion	Exp%	Act%
265.80	100	0.00
263.80	67.60	0.00#
267.80	65.10	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71932.D
Acq On : 17 Oct 2017 1:39 pm
Operator : kevinm2
Sample : dftpp
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 17 13:43:36 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3M.M
Quant Title : DFTPP, RXI-5MS 30m x .25mm x .25um
QLast Update : Fri Jun 09 17:28:23 2017
Response via : Initial Calibration



(2) Benzidine (t)

3.565min 0.00ppb d

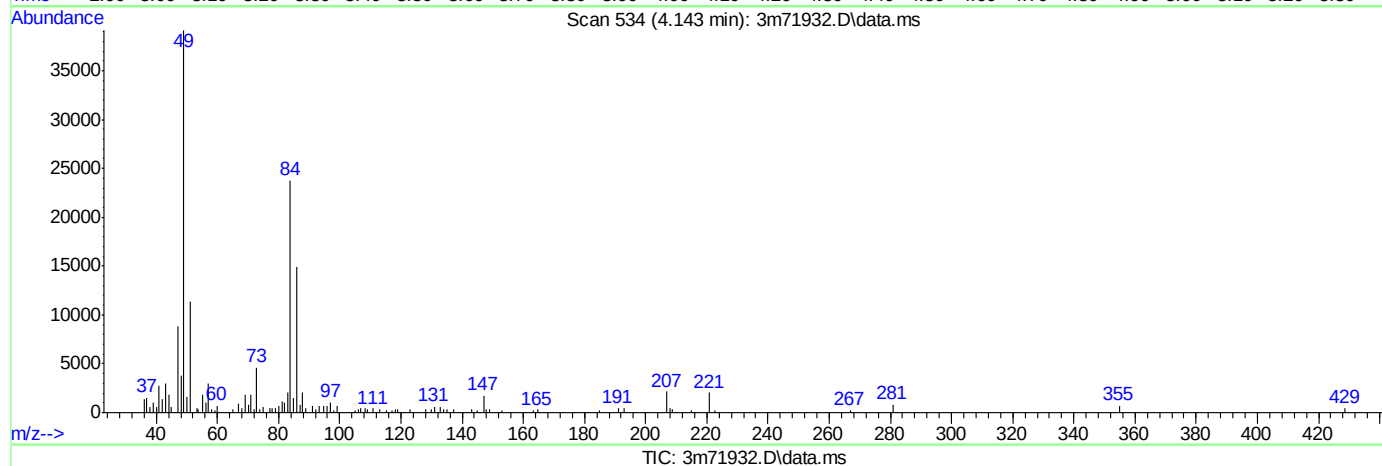
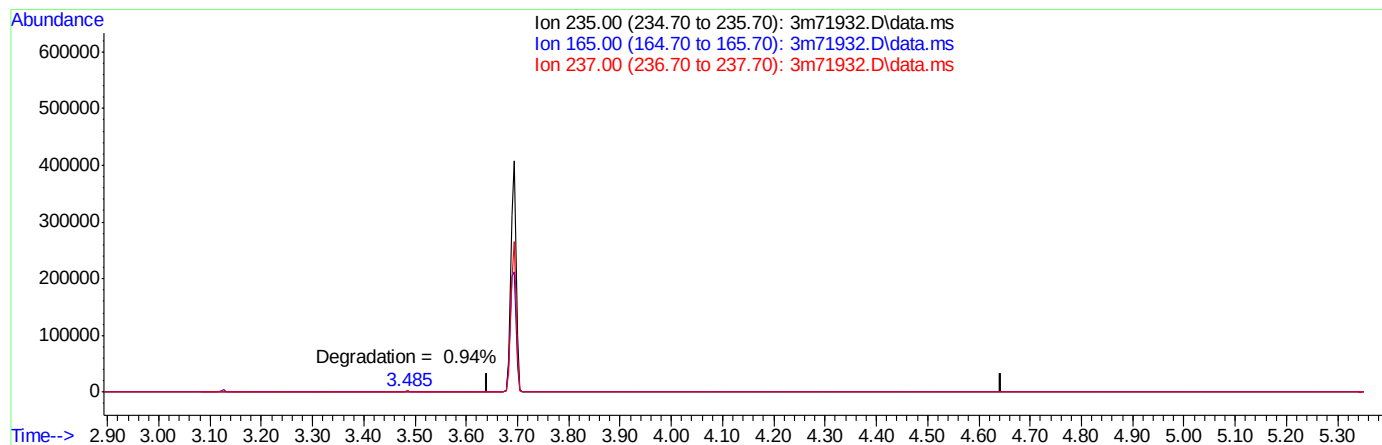
response 0

Ion	Exp%	Act%
184.00	100	0.00
183.00	12.80	0.00
185.00	13.80	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71932.D
Acq On : 17 Oct 2017 1:39 pm
Operator : kevinm2
Sample : dftpp
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 17 13:43:36 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3M.M
Quant Title : DFPP, RXI-5MS 30m x .25mm x .25um
QLast Update : Fri Jun 09 17:28:23 2017
Response via : Initial Calibration



(3) PP-DDT (t)

4.143min (-4.143) 0.00ppb

response 0

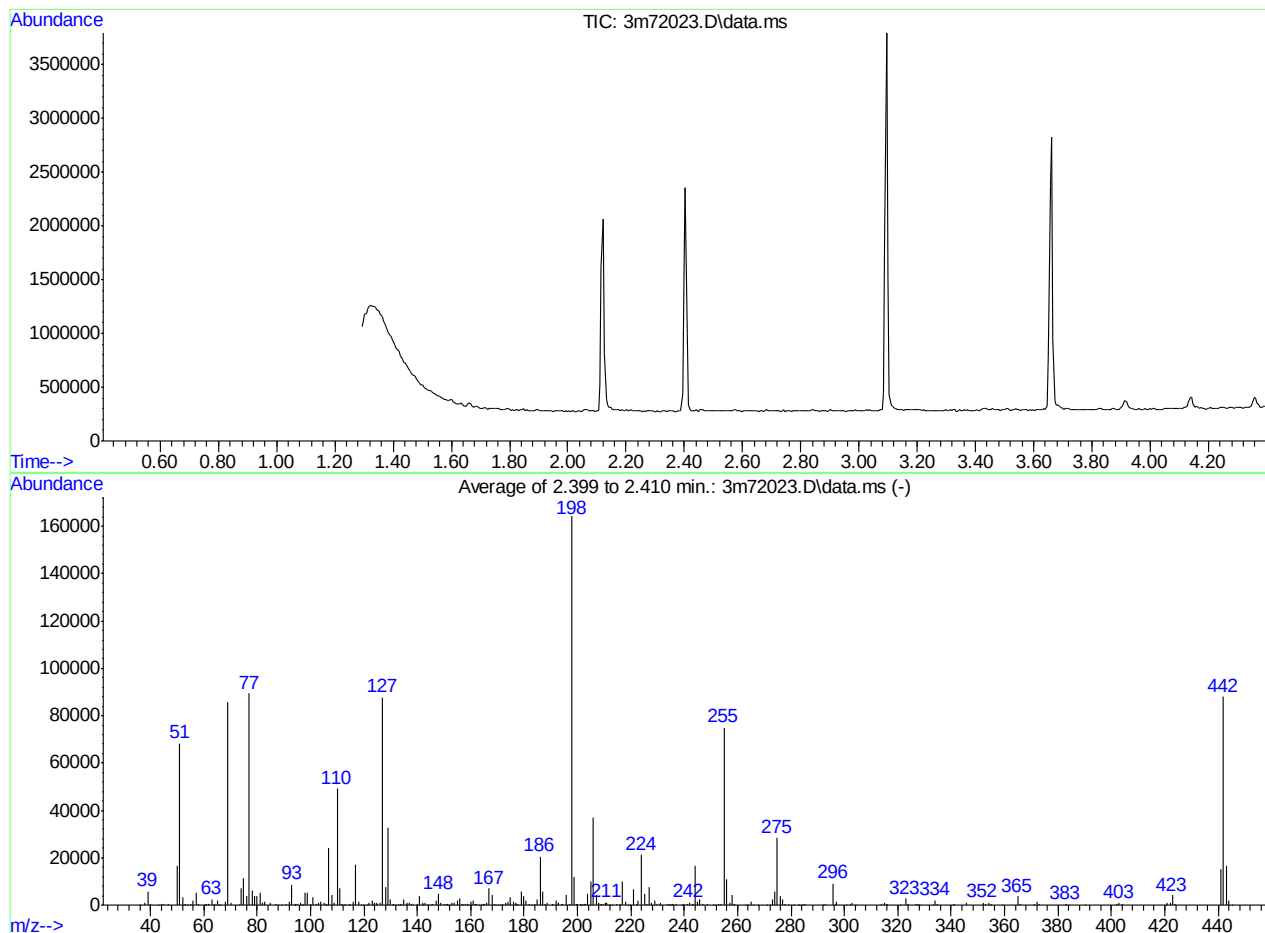
Ion	Exp%	Act%
235.00	100	0.00
165.00	45.20	0.00#
237.00	64.80	0.00#
0.00	0.00	0.00

DFTPP

Data File : C:\msdchem\1\DATA\E3M3454\3m72023.D
 Acq On : 20 Oct 2017 4:14 pm
 Sample : dftpp
 Misc : op6171a,e3m3454,1000,,,1,1
 MS Integration Params: RTEINT.P

Vial: 1
 Operator: kevinm2
 Inst : MS3M
 Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\DFTPP3M.M (RTE Integrator)
 Title : DFTPP, RXI-5MS 30m x .25mm x .25um



AutoFind: Scans 208, 209, 210; Background Corrected with Scan 203

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	41.6	68211	PASS
68	69	0.00	2	1.6	1370	PASS
69	198	0.00	100	52.2	85625	PASS
70	69	0.00	2	1.2	1055	PASS
127	198	40	60	53.4	87680	PASS
197	198	0.00	1	0.4	650	PASS
198	198	100	100	100.0	164157	PASS
199	198	5	9	7.1	11629	PASS
275	198	10	30	17.3	28339	PASS
365	198	1	100	2.3	3754	PASS
441	443	0.10	100	90.7	14969	PASS
442	198	40	100	53.6	88061	PASS
443	442	17	23	18.7	16500	PASS

Average of 2.399 to 2.410 min.: 3m72023.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.00	121	52.85	338	62.00	485	74.00	7048
38.00	770	53.20	174	63.05	2531	75.00	11484
38.95	5782	53.95	188	63.80	315	76.00	3834
40.00	374	54.95	382	64.30	116	76.95	89298
43.00	182	56.00	2136	65.00	1896	78.00	5946
44.10	385	57.00	5353	65.75	191	79.00	3897
45.00	374	57.85	346	66.05	251	79.90	3795
46.90	507	59.95	69	67.90	1370	80.95	5366
49.95	16712	60.70	93	68.90	85625	81.90	1003
51.00	68211	61.00	727	70.00	1055	82.85	1550
52.00	3276	61.80	548	73.00	157	84.90	1017

Average of 2.399 to 2.410 min.: 3m72023.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
86.90	604	97.15	90	106.95	24403	115.90	1222
87.85	220	98.00	5374	107.95	4421	116.95	17116
88.90	171	98.95	5157	108.95	1074	117.95	1332
90.95	709	99.95	586	110.00	49134	118.85	110
91.90	1203	101.00	3305	110.95	7357	119.90	214
92.90	8624	101.95	346	111.80	384	120.95	217
94.00	667	102.95	1034	111.95	536	121.90	1175
94.20	115	103.90	1660	112.70	98	122.95	1902
94.95	533	104.95	1126	112.90	135	123.60	115
96.05	849	105.90	453	114.50	110	124.00	824
96.70	145	106.10	107	114.85	301	124.80	771

Average of 2.399 to 2.410 min.: 3m72023.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
125.00	606	134.20	93	142.90	989	151.60	121
126.10	944	134.90	2396	143.80	99	152.95	1045
126.95	87680	135.80	93	144.05	238	153.90	881
128.00	7624	136.05	772	144.80	163	155.00	1912
128.90	32866	136.95	1055	145.85	475	155.95	2763
130.00	2242	137.85	421	146.95	1696	156.80	577
130.80	97	138.20	104	147.95	4603	157.00	101
131.05	599	139.90	399	148.90	948	157.95	599
131.95	190	140.90	3584	149.95	343	158.70	118
132.90	12	141.95	975	150.80	471	158.90	350
133.75	683	142.20	178	151.35	421	159.90	1212

Average of 2.399 to 2.410 min.: 3m72023.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
160.95	1774	169.10	113	177.80	572	188.80	976
161.60	278	170.15	192	178.90	5526	190.50	91
162.10	576	170.90	195	179.90	3630	190.90	479
162.95	162	171.80	236	180.85	1889	191.85	2092
163.95	215	171.95	403	181.85	277	192.80	919
164.75	587	172.95	781	182.75	174	193.00	1069
165.00	557	173.90	1425	183.80	588	193.95	582
165.90	974	174.90	3109	185.00	2427	194.70	333
166.95	6954	175.90	1272	185.90	20395	195.90	4100
167.90	4175	176.70	183	186.95	5586	197.00	650
168.90	583	177.00	975	187.85	513	197.90	164157

Average of 2.399 to 2.410 min.: 3m72023.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
198.90	11629	206.90	4263	214.85	278	225.85	459
199.75	315	208.05	1162	215.95	635	226.95	7636
200.05	566	208.70	83	216.85	9965	227.85	1021
201.10	94	208.90	342	217.85	1202	228.90	1783

201.35	663	209.80	513	219.00	109	229.85	319
201.70	125	210.35	927	219.90	84	230.70	111
202.65	321	210.80	517	220.85	6766	230.95	988
203.00	710	211.00	1109	222.10	459	233.75	564
203.95	4682	211.80	88	222.85	1759	234.10	81
205.00	10089	212.00	117	223.95	21119	234.80	178
206.00	37088	212.85	226	225.00	4875	235.00	502

Average of 2.399 to 2.410 min.: 3m72023.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
235.50	78	245.90	2351	258.70	99	274.90	28339
235.75	443	246.90	507	258.90	570	275.95	3789
236.90	464	248.75	514	263.00	80	276.90	2608
239.00	178	250.80	119	264.00	145	277.85	401
239.95	304	251.80	100	264.85	1621	278.80	142
240.95	665	252.95	381	265.70	172	280.90	101
241.90	1104	253.85	621	267.70	92	282.75	255
242.90	214	254.90	75064	270.80	85	283.30	76
243.05	621	255.90	10898	272.00	86	283.90	245
243.95	16382	256.90	841	272.90	2623	284.20	77
244.95	1638	257.90	4247	273.85	5672	285.05	388

Average of 2.399 to 2.410 min.: 3m72023.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
291.85	182	314.90	839	334.00	2074	364.85	3754
292.95	595	315.80	109	334.95	376	365.90	621
295.90	9036	315.95	484	340.60	95	370.80	103
296.70	231	320.80	252	341.00	528	371.00	161
297.00	1505	322.90	2689	345.80	859	371.95	1651
300.70	81	323.90	588	351.95	997	373.05	392
302.10	90	326.80	493	352.85	668	382.50	77
302.85	1120	327.10	89	353.90	819	382.95	348
303.95	233	327.80	117	354.70	111	384.10	103
313.95	361	328.10	216	355.10	77	390.00	74
314.50	140	332.90	134	359.00	87	401.80	644

Average of 2.399 to 2.410 min.: 3m72023.D\data.ms
dftpp

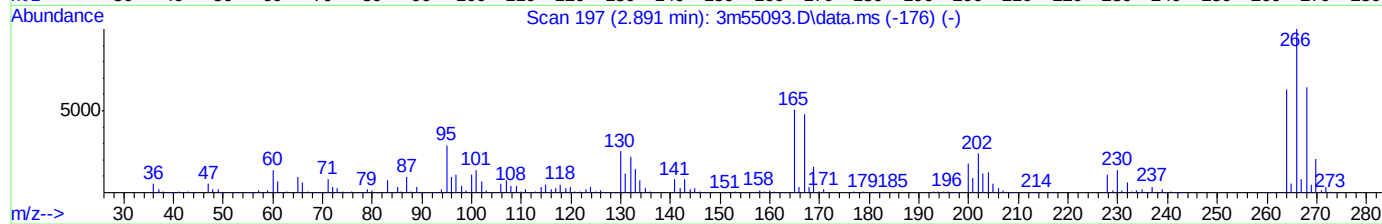
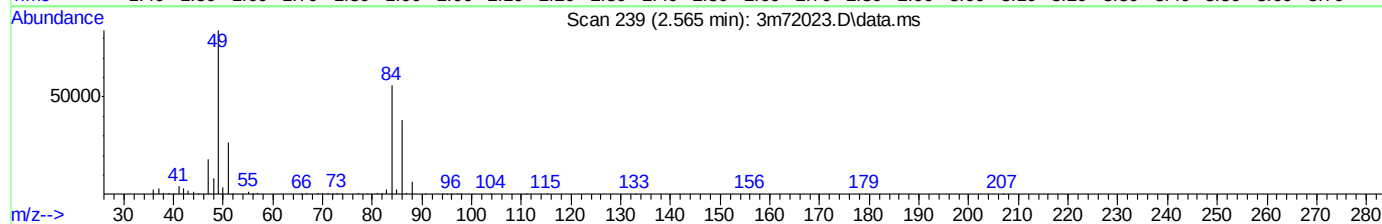
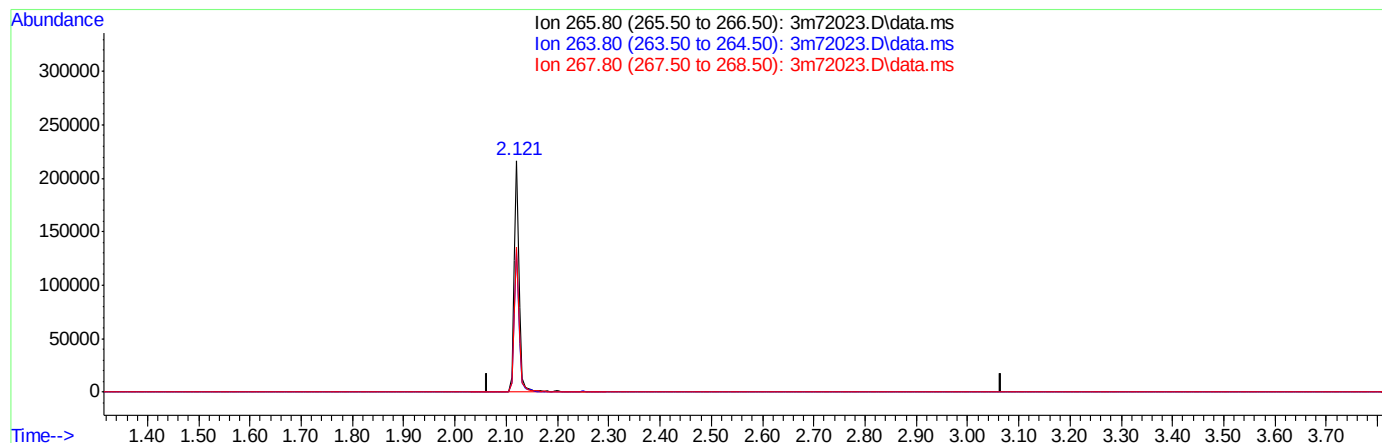
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
402.90	886	445.00	139				
404.00	371						
420.60	77						
420.95	807						
421.95	890						
422.95	4057						
423.80	615						
440.95	14969						
441.90	88061						
442.90	16500						
443.95	1764						

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72023.D
Acq On : 20 Oct 2017 4:14 pm
Operator : kevinm2
Sample : dftpp
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 20 16:18:31 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3M.M
Quant Title : DFTPP, RXI-5MS 30m x .25mm x .25um
QLast Update : Fri Jun 09 17:28:23 2017
Response via : Initial Calibration



TIC: 3m72023.D\data.ms

(1) Pentachlorophenol (t)

2.565min (-2.565) 0.00ppb

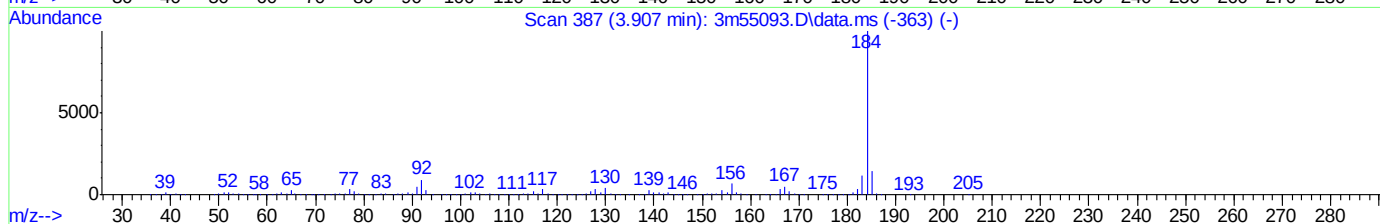
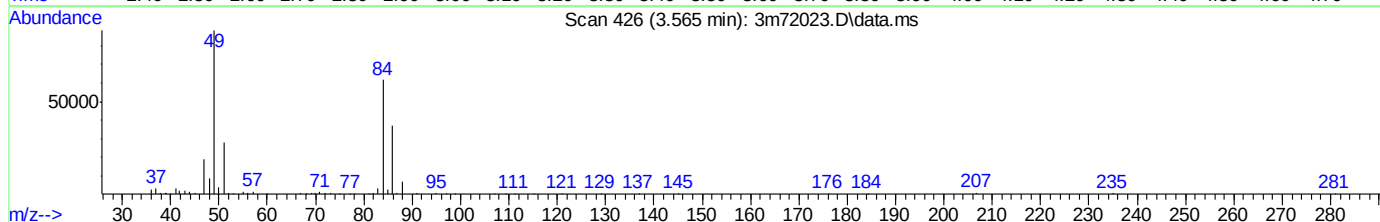
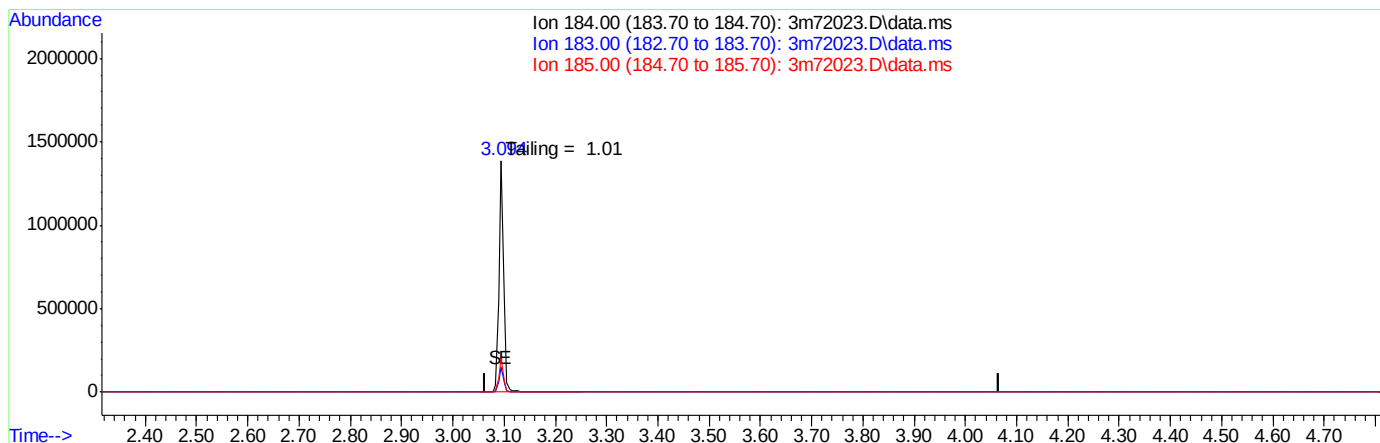
response 0

Ion	Exp%	Act%
265.80	100	0.00
263.80	67.60	0.00#
267.80	65.10	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72023.D
Acq On : 20 Oct 2017 4:14 pm
Operator : kevinm2
Sample : dftpp
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 20 16:18:31 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3M.M
Quant Title : DFTPP, RXI-5MS 30m x .25mm x .25um
QLast Update : Fri Jun 09 17:28:23 2017
Response via : Initial Calibration



TIC: 3m72023.D\data.ms

(2) Benzidine (t)

3.565min 0.00ppb d

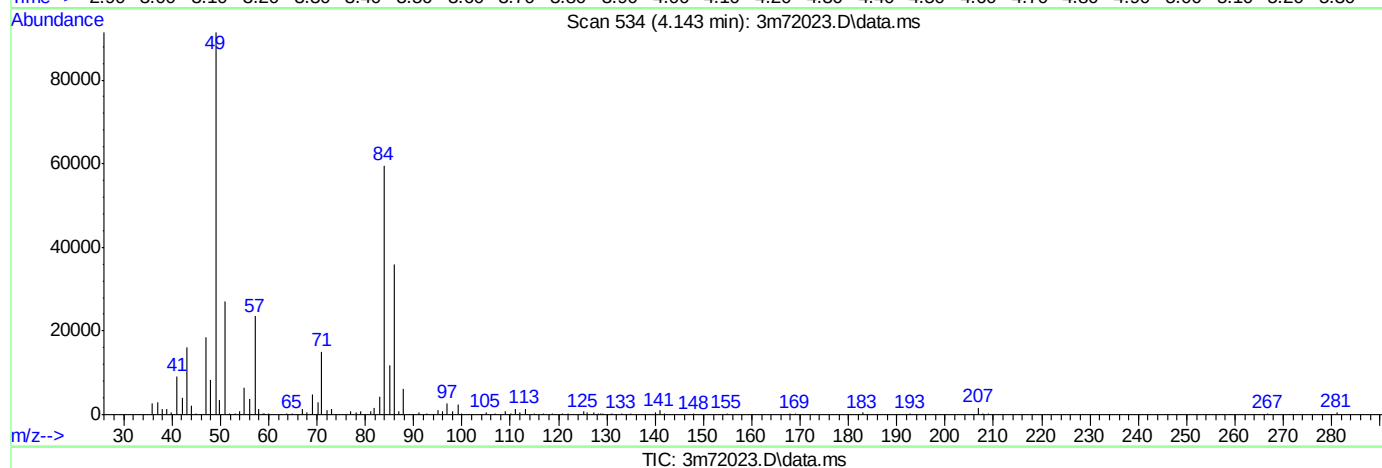
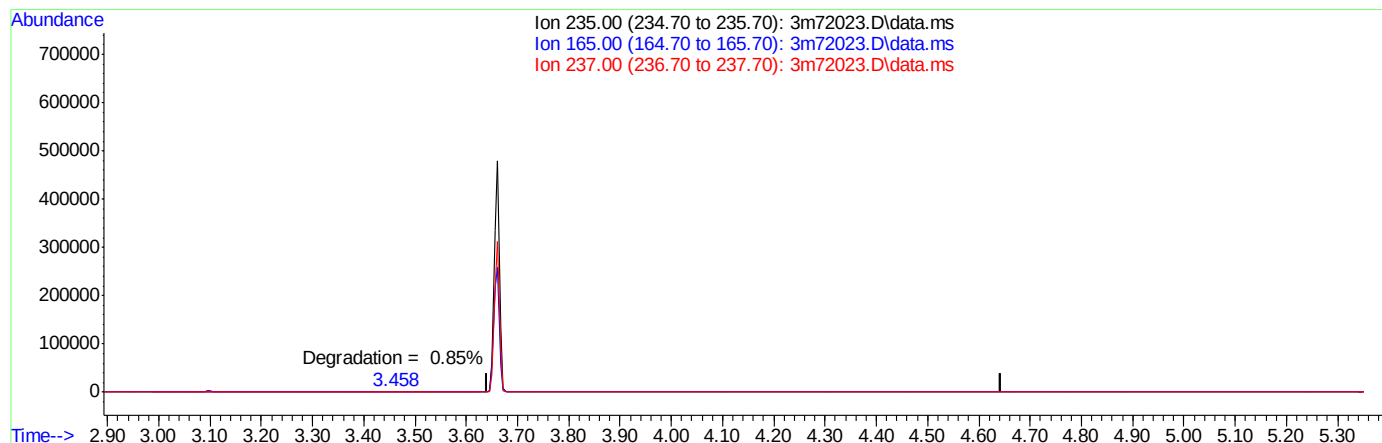
response 0

Ion	Exp%	Act%
184.00	100	0.00
183.00	12.80	0.00
185.00	13.80	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72023.D
Acq On : 20 Oct 2017 4:14 pm
Operator : kevinm2
Sample : dftpp
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 20 16:18:31 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP3M.M
Quant Title : DFPP, RXI-5MS 30m x .25mm x .25um
QLast Update : Fri Jun 09 17:28:23 2017
Response via : Initial Calibration



(3) PP-DDT (t)

4.143min (-4.143) 0.00ppb

response 0

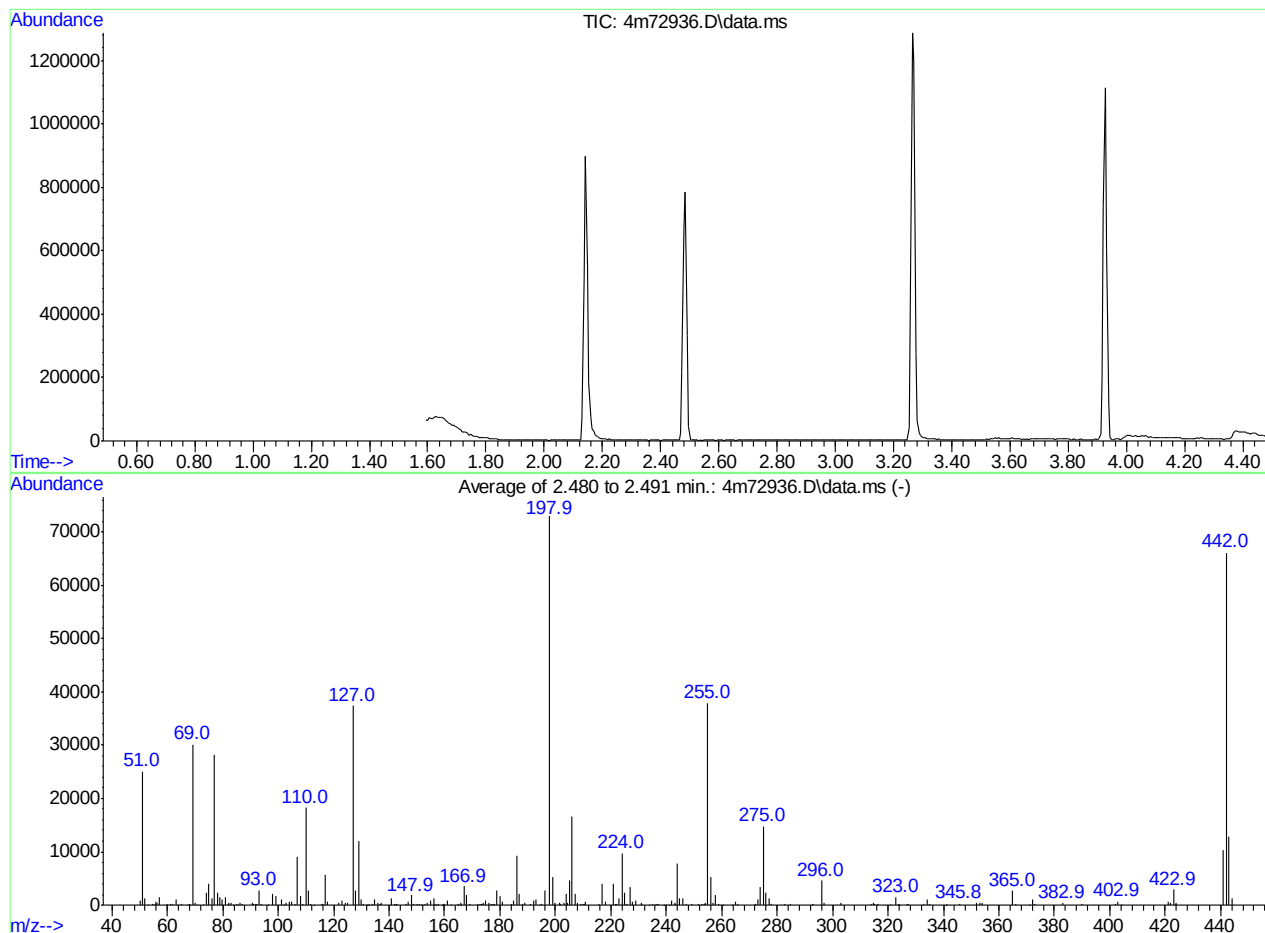
Ion	Exp%	Act%
235.00	100	0.00
165.00	45.20	0.00#
237.00	64.80	0.00#
0.00	0.00	0.00

DFTPP

Data File : C:\msdchem\1\DATA\E4M3405\4m72936.D
 Acq On : 6 Sep 2017 12:22 pm
 Sample : dftpp
 Misc : op5441a,e4m3405,1000,,,1,1
 MS Integration Params: rteint.p

Vial: 1
 Operator: kristis
 Inst : GCMS4M
 Multipl: 1.00

Method : C:\MSDCHEM\1\METHODS\DFTPP4M.M (RTE Integrator)
 Title : Semi Volatile GC/MS,zb-5 30m x .25mm x .50um



AutoFind: Scans 156, 157, 158; Background Corrected with Scan 151

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	34.4	25057	PASS
68	69	0.00	2	0.8	244	PASS
69	198	0.00	100	41.3	30161	PASS
70	69	0.00	2	1.3	378	PASS
127	198	40	60	51.2	37368	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	72941	PASS
199	198	5	9	7.3	5321	PASS
275	198	10	30	20.2	14758	PASS
365	198	1	100	3.7	2727	PASS
441	443	0.01	100	80.3	10345	PASS
442	198	40	100	90.7	66173	PASS
443	442	17	23	19.5	12877	PASS

Average of 2.480 to 2.491 min.: 4m72936.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
50.00	812	62.00	272	74.00	2399	83.80	105
51.00	25057	62.95	962	75.00	3982	84.90	308
52.00	1298	63.80	76	76.05	1261	85.30	79
53.00	96	65.00	241	77.00	28173	86.00	535
54.80	159	67.10	93	78.00	2314	86.95	189
55.00	43	67.80	93	79.00	1474	90.80	418
55.90	593	68.10	244	79.90	984	91.00	130
56.10	324	69.00	30161	80.95	1377	91.90	212
56.95	1436	70.00	378	81.70	67	92.10	187
59.95	269	71.00	74	82.00	353	92.95	2790
61.00	299	72.90	74	82.95	428	93.90	203

Average of 2.480 to 2.491 min.: 4m72936.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
96.10	92	109.00	150	124.05	400	134.90	999
98.00	2174	110.00	18218	125.00	365	136.00	453
99.00	1752	110.95	2655	127.00	37368	136.80	228
100.95	1051	111.85	245	127.95	2654	137.00	392
102.00	80	112.90	75	129.00	11968	140.95	1294
102.85	395	115.90	183	129.90	1048	141.90	233
103.95	539	116.10	203	130.85	184	142.10	239
104.95	593	116.95	5713	131.90	87	142.60	78
106.10	168	117.90	561	132.10	99	142.95	211
107.00	9131	121.95	413	132.90	103	146.00	124
107.95	1630	122.90	863	134.00	141	147.00	578

Average of 2.480 to 2.491 min.: 4m72936.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
147.90	1843	157.00	76	166.95	3483	177.00	323
148.85	288	157.85	251	167.95	1804	177.70	87
150.05	162	159.00	91	168.95	247	178.10	155
151.10	171	159.70	144	171.90	223	179.00	2753
151.60	74	159.90	247	172.80	154	179.95	1671
151.90	107	160.95	883	173.00	127	180.95	733
152.75	309	162.10	107	173.70	190	183.90	130
153.90	329	164.70	110	174.05	360	184.80	146
155.00	879	165.05	300	174.95	950	185.05	946
156.00	1357	165.70	102	175.85	426	185.95	9240
156.75	160	166.00	478	176.70	159	187.05	2212

Average of 2.480 to 2.491 min.: 4m72936.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
188.00	229	201.40	480	210.00	144	225.00	2322
188.95	468	202.00	119	210.50	132	225.90	131
190.95	243	203.00	389	210.90	557	226.95	3431
192.00	837	203.90	2059	215.70	150	227.95	596
192.90	1051	204.10	452	216.90	3955	228.90	930
194.00	81	204.95	4599	217.90	633	230.90	362
195.00	197	206.00	16717	221.00	4040	231.10	83
196.00	2773	206.95	2084	221.80	257	233.90	69
197.90	72941	207.85	341	222.00	190	235.05	221
198.95	5321	208.10	265	222.95	1270	236.00	101
199.95	494	208.95	224	224.00	9788	236.80	115

Average of 2.480 to 2.491 min.: 4m72936.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
237.00	289	249.00	295	263.80	97	282.95	237
239.00	75	251.75	193	264.95	705	284.95	170
239.90	80	252.70	181	265.90	229	292.75	196
241.00	89	253.60	196	271.80	84	293.00	125

242.00	769	253.90	481	272.20	112	296.00	4541
243.00	199	255.00	37960	273.00	1159	296.95	527
243.15	513	255.95	5189	273.95	3323	302.95	532
244.00	7692	256.95	498	275.00	14758	313.80	280
244.90	1176	257.85	1812	275.95	2286	314.85	432
245.95	1248	258.85	274	276.95	1331	315.10	212
247.00	214	260.60	80	277.85	309	315.90	73

Average of 2.480 to 2.491 min.: 4m72936.D\data.ms
dftpp

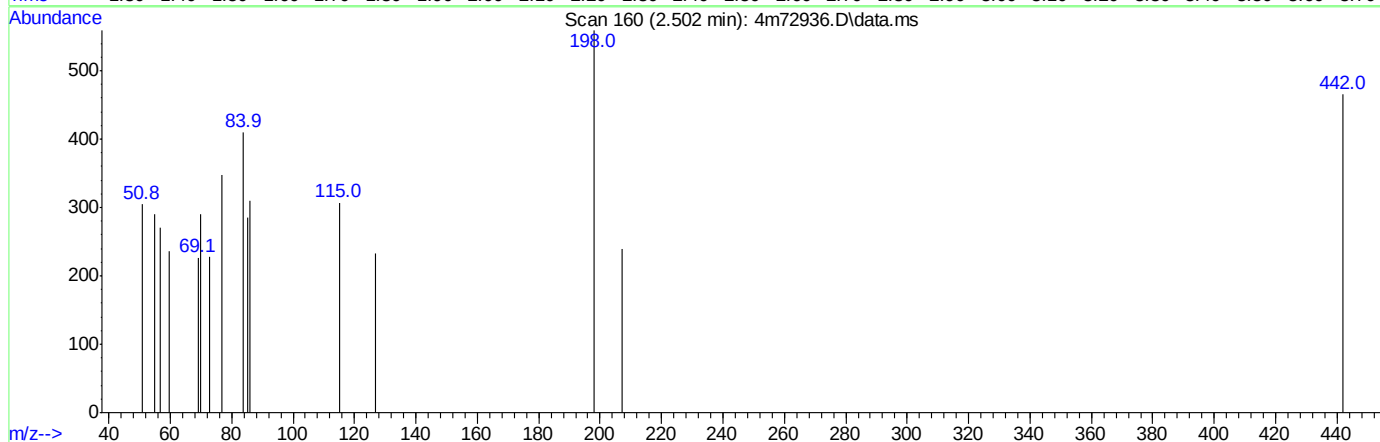
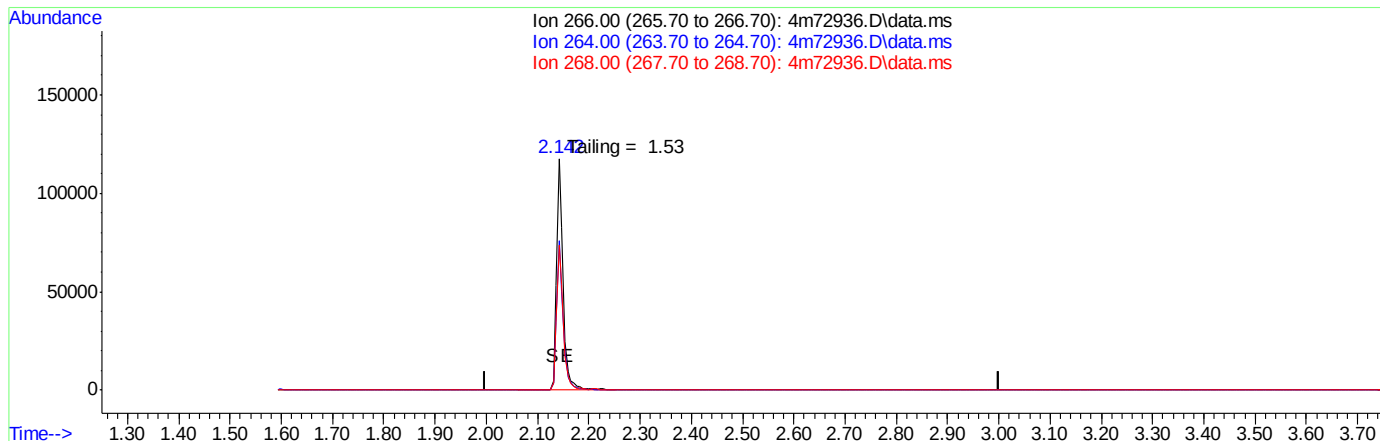
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
316.20	137	341.20	91	390.05	191	443.00	12877
320.90	99	345.80	287	401.90	275	443.95	1375
323.00	1523	352.05	474	402.90	717		
323.80	101	353.00	443	403.90	70		
324.10	193	353.95	512	420.95	587		
326.85	284	365.00	2727	421.95	387		
327.10	140	365.90	275	422.95	2933		
333.00	152	371.00	99	423.80	244		
334.00	1001	371.95	1161	424.05	519		
334.95	295	372.95	272	441.00	10345		
340.90	96	382.95	339	442.00	66173		

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72936.D
Acq On : 6 Sep 2017 12:22 pm
Operator : kristis
Sample : dftpp
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 06 12:28:01 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP4M.M
Quant Title : Semi Volatile GC/MS,zb-5 30m x .25mm x .50um
QLast Update : Mon Jul 29 12:02:51 2013
Response via : Initial Calibration



TIC: 4m72936.D\data.ms

(1) pentachlorophenol (t)

2.500min (-2.500) 0.00ppb

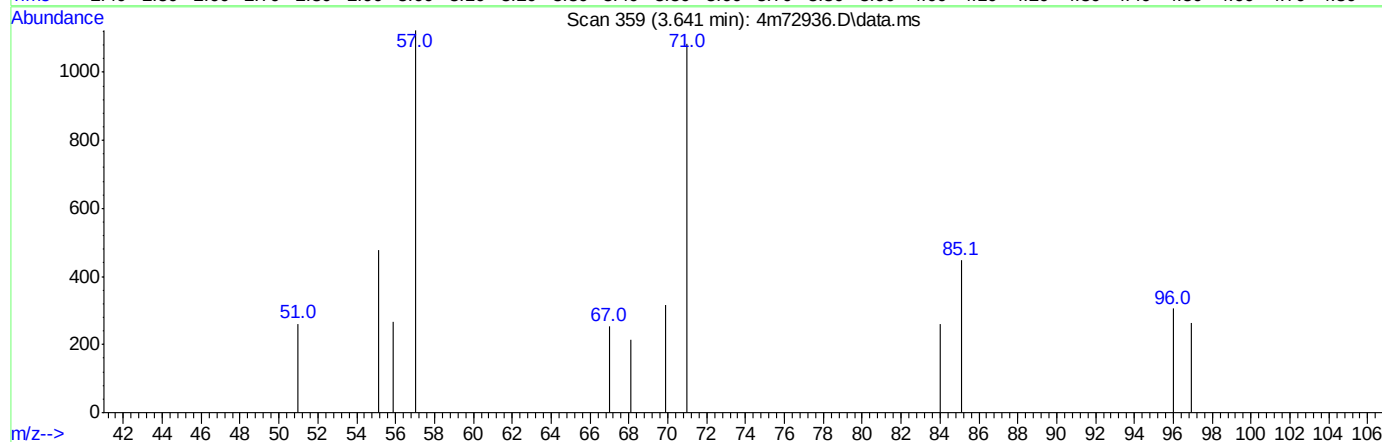
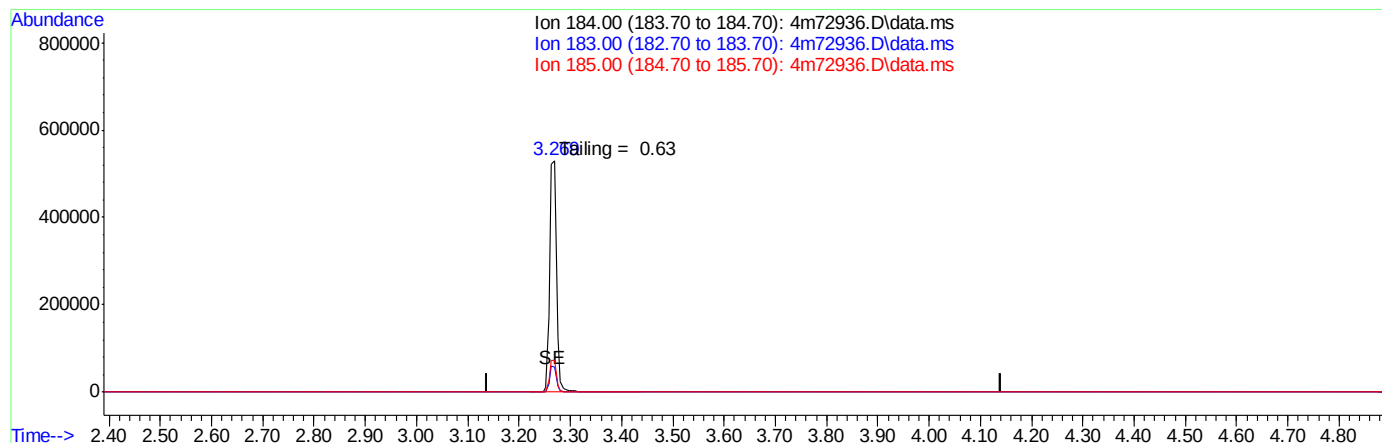
response 0

Ion	Exp%	Act%
266.00	100	0.00
264.00	58.00	0.00#
268.00	62.00	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72936.D
Acq On : 6 Sep 2017 12:22 pm
Operator : kristis
Sample : dftpp
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 06 12:28:01 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP4M.M
Quant Title : Semi Volatile GC/MS,zb-5 30m x .25mm x .50um
QLast Update : Mon Jul 29 12:02:51 2013
Response via : Initial Calibration



TIC: 4m72936.D\data.ms

(2) benzidine (t)

3.640min (-3.640) 0.00ppb

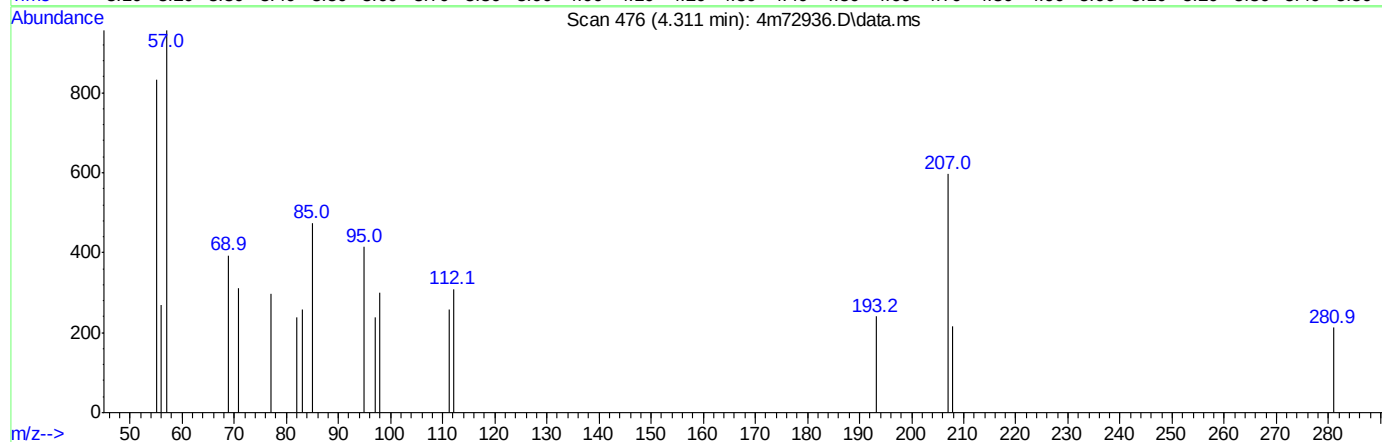
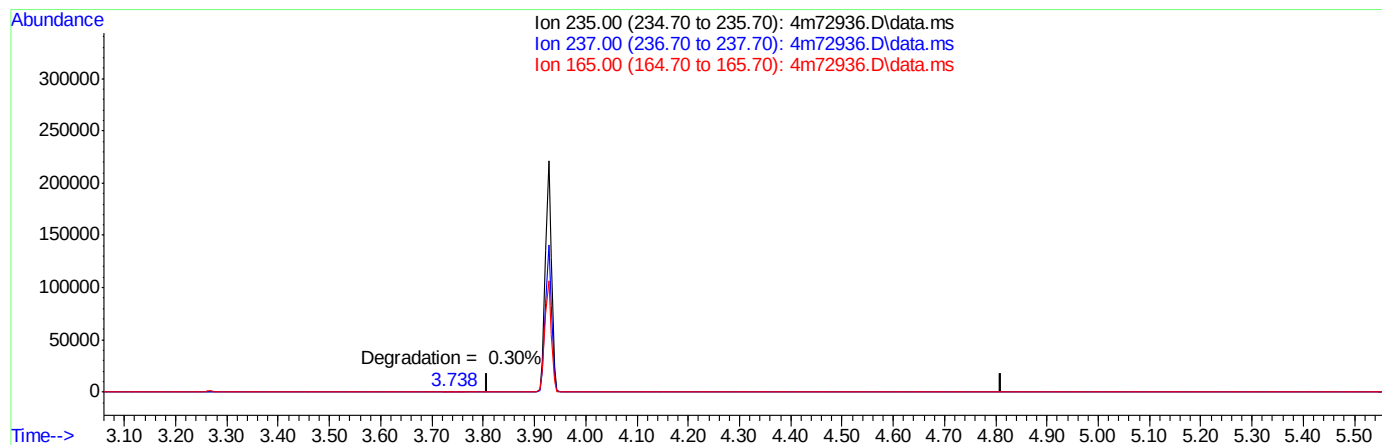
response 0

Ion	Exp%	Act%
184.00	100	0.00
183.00	10.60	0.00#
185.00	13.40	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72936.D
Acq On : 6 Sep 2017 12:22 pm
Operator : kristis
Sample : dftpp
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Sep 06 12:28:01 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP4M.M
Quant Title : Semi Volatile GC/MS,zb-5 30m x .25mm x .50um
QLast Update : Mon Jul 29 12:02:51 2013
Response via : Initial Calibration



TIC: 4m72936.D\data.ms

(3) ddt (t)

4.310min (-4.310) 0.00ppb

response 0

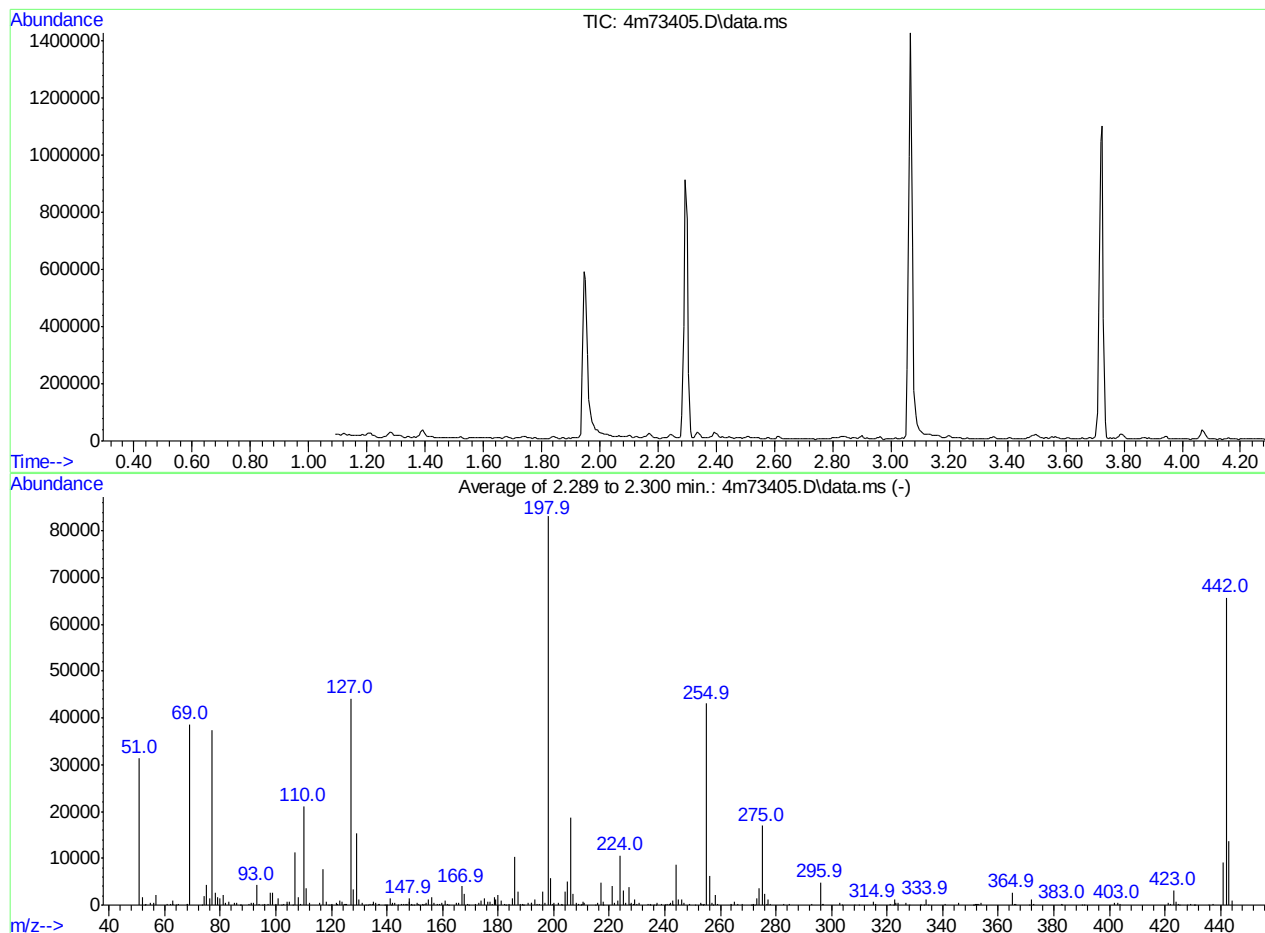
Ion	Exp%	Act%
235.00	100	0.00
237.00	63.70	0.00#
165.00	48.70	0.00#
0.00	0.00	0.00

DFTPP

Data File : C:\msdchem\1\DATA\E4M3433\4m73405.D
Acq On : 12 Oct 2017 10:55 am
Sample : dftpp
Misc : op6171a,e4m3433,1000,,,1,1
MS Integration Params: rteint.p

Vial: 1
Operator: kevinm2
Inst : GCMS4M
Multiplr: 1.00

Method : C:\MSDCHEM\1\METHODS\DFTPP4M.M (RTE Integrator)
Title : Semi Volatile GC/MS,zb-5 30m x .25mm x .50um



AutoFind: Scans 210, 211, 212; Background Corrected with Scan 205

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	37.9	31448	PASS
68	69	0.00	2	0.8	294	PASS
69	198	0.00	100	46.6	38708	PASS
70	69	0.00	2	0.0	0	PASS
127	198	40	60	53.1	44120	PASS
197	198	0.00	1	0.5	412	PASS
198	198	100	100	100.0	83083	PASS
199	198	5	9	6.8	5676	PASS
275	198	10	30	20.4	16941	PASS
365	198	1	100	3.3	2719	PASS
441	443	0.01	100	66.2	9017	PASS
442	198	40	100	79.1	65701	PASS
443	442	17	23	20.7	13628	PASS

Average of 2.289 to 2.300 min.: 4m73405.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
50.95	31448	64.00	72	79.00	1622	92.00	584
51.95	1659	64.90	334	80.00	1437	93.00	4307
52.70	71	67.90	174	80.95	2201	93.95	302
53.00	135	68.10	294	81.95	546	95.00	119
54.95	408	68.95	38708	82.95	749	95.95	314
56.00	542	73.20	119	85.00	493	97.00	238
56.90	2133	74.00	1823	85.85	426	97.95	2728
61.00	187	74.95	4248	86.95	30	98.95	2610
62.05	357	76.05	1565	87.40	74	99.90	157
62.80	237	76.95	37325	90.35	144	100.90	1429
63.00	941	78.00	2671	91.00	535	102.00	80

Average of 2.289 to 2.300 min.: 4m73405.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
103.00	196	115.90	471	125.05	364	135.00	654
103.90	128	116.90	7636	125.60	141	135.85	529
104.05	631	117.95	712	127.00	44120	136.90	339
104.85	845	119.00	98	128.00	3402	137.10	300
105.90	83	119.90	80	128.95	15411	139.20	69
107.00	11167	120.20	133	129.90	1283	139.70	93
108.00	1695	121.90	373	131.00	378	140.10	76
108.75	282	122.20	337	132.20	81	141.05	1510
109.95	21144	122.85	862	132.90	67	141.70	105
110.95	3590	123.90	608	133.85	299	142.00	499
111.95	403	124.70	159	134.80	233	142.95	370

Average of 2.289 to 2.300 min.: 4m73405.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
143.80	96	151.30	132	159.90	483	172.95	430
145.00	298	151.60	80	161.00	982	173.85	848
146.10	156	152.70	116	161.90	258	174.95	1502
146.80	205	153.00	243	162.10	100	176.05	613
147.00	167	153.80	271	165.00	537	176.90	656
147.90	1447	154.05	529	165.95	512	177.90	262
148.10	759	154.95	1102	166.95	4052	178.80	1639
148.80	160	156.00	1582	167.95	2348	179.00	1235
149.00	118	156.95	492	168.85	284	179.95	2132
149.80	69	157.90	184	169.20	121	180.90	1058
150.95	401	159.00	250	171.90	178	182.10	363

Average of 2.289 to 2.300 min.: 4m73405.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
182.90	99	192.00	429	202.80	122	210.55	661
183.85	254	193.00	1279	203.05	289	211.10	606
184.95	1433	194.05	315	204.00	2958	214.80	78
186.00	10416	194.85	302	205.00	4944	215.70	431
186.95	2790	195.95	2995	206.00	18763	216.95	4781
187.85	248	196.90	412	207.00	2429	217.70	115
188.60	116	197.90	83083	207.95	585	218.00	635
188.90	353	198.95	5676	208.80	156	221.00	4100
189.10	88	199.80	173	209.00	187	221.90	576
190.90	469	200.15	399	209.80	117	222.95	1068
191.80	489	201.50	476	210.00	133	224.00	10549

Average of 2.289 to 2.300 min.: 4m73405.D\data.ms

dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
225.00	3032	234.95	224	242.95	881	254.95	43112
226.00	427	235.80	84	244.00	8546	256.00	6210
226.90	3908	236.80	81	244.95	1166	256.95	536
227.60	287	237.00	415	245.95	1219	257.40	87

227.95	496	238.80	200	246.80	491	258.00	2151
228.60	204	239.80	72	249.05	209	258.85	315
228.95	1122	240.00	87	250.90	98	263.80	126
230.00	301	240.85	192	253.00	464	263.95	185
230.85	380	241.60	210	253.50	284	264.85	678
233.95	231	242.05	501	253.80	116	266.10	185
234.80	86	242.70	83	254.00	313	267.70	130

Average of 2.289 to 2.300 min.: 4m73405.D\data.ms
dftpp

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
270.90	77	282.95	169	315.80	193	333.90	1326
271.50	86	284.95	201	321.00	162	334.80	125
272.00	249	292.95	301	322.20	124	341.00	129
272.30	126	295.95	4797	322.90	1169	345.85	394
273.00	1462	296.80	271	323.10	607	350.80	67
274.00	3705	297.00	253	324.05	472	351.50	95
275.00	16941	302.90	600	326.95	380	351.80	245
275.95	2317	303.80	67	328.10	67	352.00	210
276.80	262	308.00	100	332.00	79	352.70	232
277.05	1178	310.00	88	332.20	80	353.00	171
277.90	200	314.90	709	333.10	74	353.95	587

Average of 2.289 to 2.300 min.: 4m73405.D\data.ms
dftpp

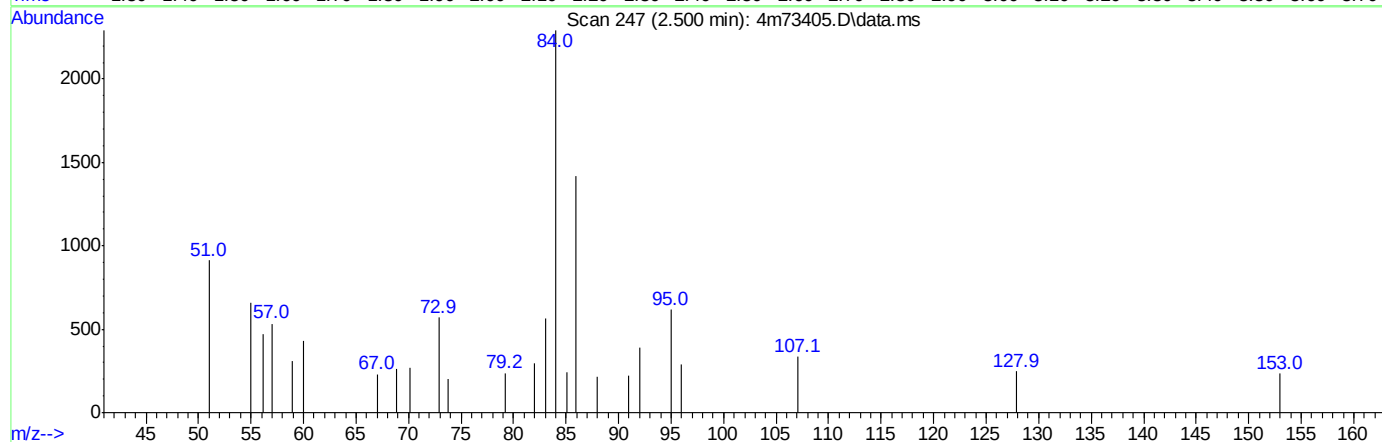
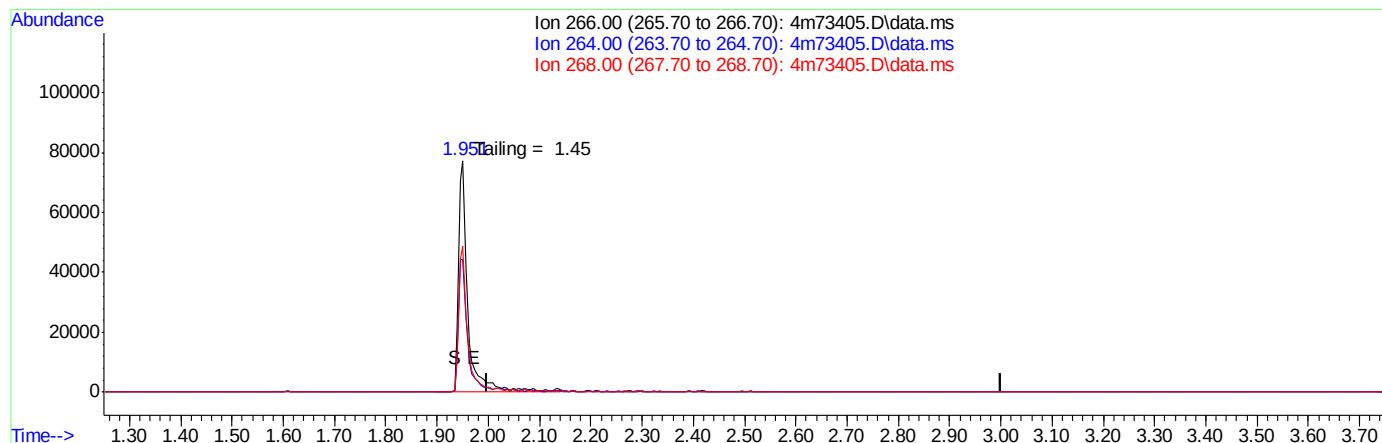
Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
364.95	2719	403.00	413	430.70	120		
365.80	246	403.80	222	435.90	80		
366.10	231	421.00	589	437.20	131		
371.00	92	421.95	316	441.00	9017		
371.95	1173	423.00	3152	442.00	65701		
372.90	206	423.95	649	443.00	13628		
382.80	80	424.85	188	444.00	974		
383.00	268	425.40	78				
390.00	89	427.90	88				
390.80	74	429.10	209				
401.85	370	430.30	69				

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3433\
Data File : 4m73405.D
Acq On : 12 Oct 2017 10:55 am
Operator : kevinm2
Sample : dftpp
Misc : op6171a,e4m3433,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 12 11:02:58 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP4M.M
Quant Title : Semi Volatile GC/MS,zb-5 30m x .25mm x .50um
QLast Update : Mon Jul 29 12:02:51 2013
Response via : Initial Calibration



TIC: 4m73405.D\data.ms

(1) pentachlorophenol (t)

2.500min (-2.500) 0.00ppb

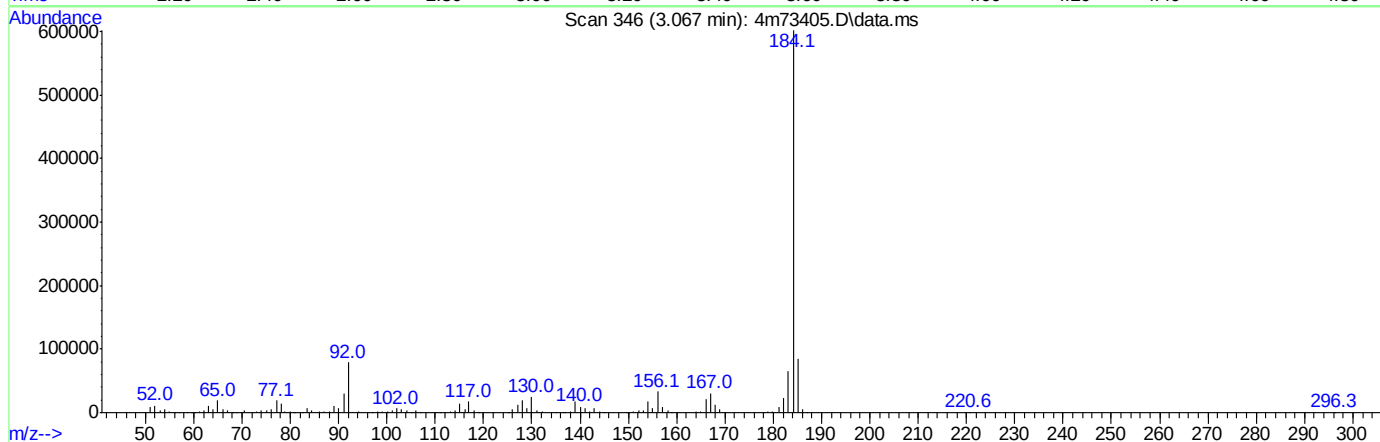
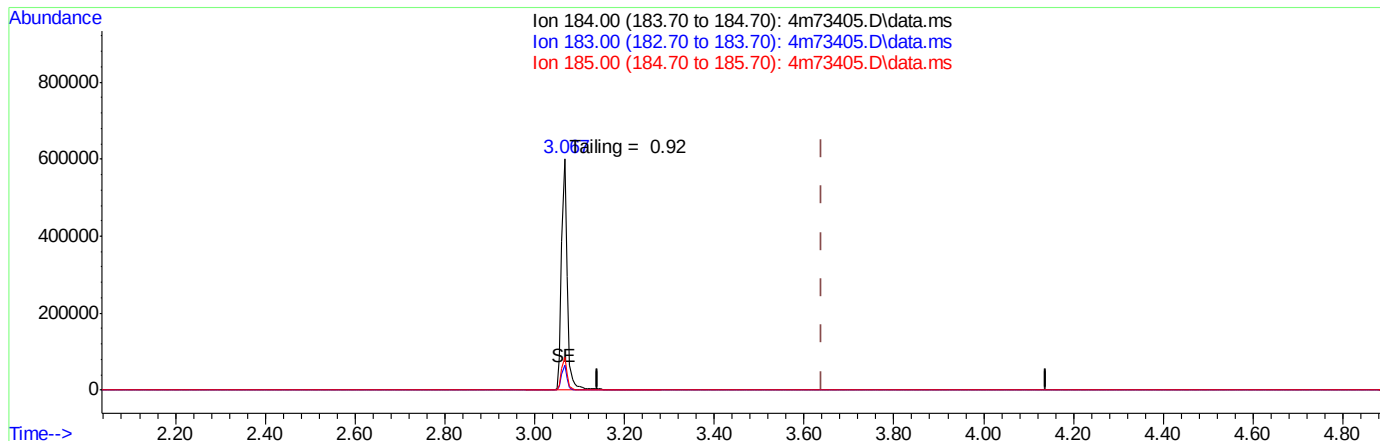
response 0

Ion	Exp%	Act%
266.00	100	0.00
264.00	58.00	0.00#
268.00	62.00	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3433\
Data File : 4m73405.D
Acq On : 12 Oct 2017 10:55 am
Operator : kevinm2
Sample : dftpp
Misc : op6171a,e4m3433,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 12 11:02:58 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP4M.M
Quant Title : Semi Volatile GC/MS,zb-5 30m x .25mm x .50um
QLast Update : Mon Jul 29 12:02:51 2013
Response via : Initial Calibration



TIC: 4m73405.D\data.ms

(2) benzidine (t)

3.067min (-0.573) 8.97ppb m

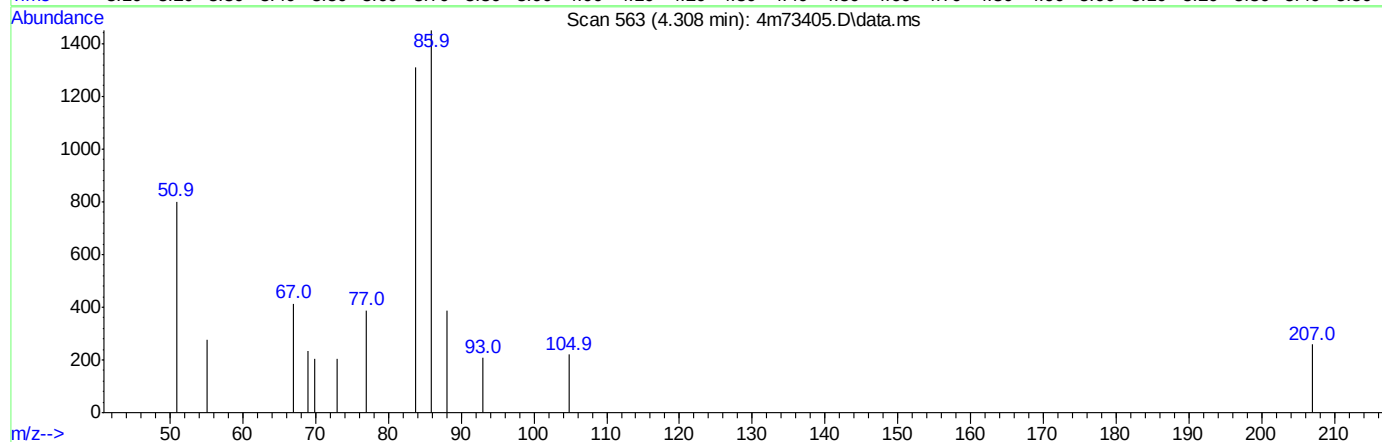
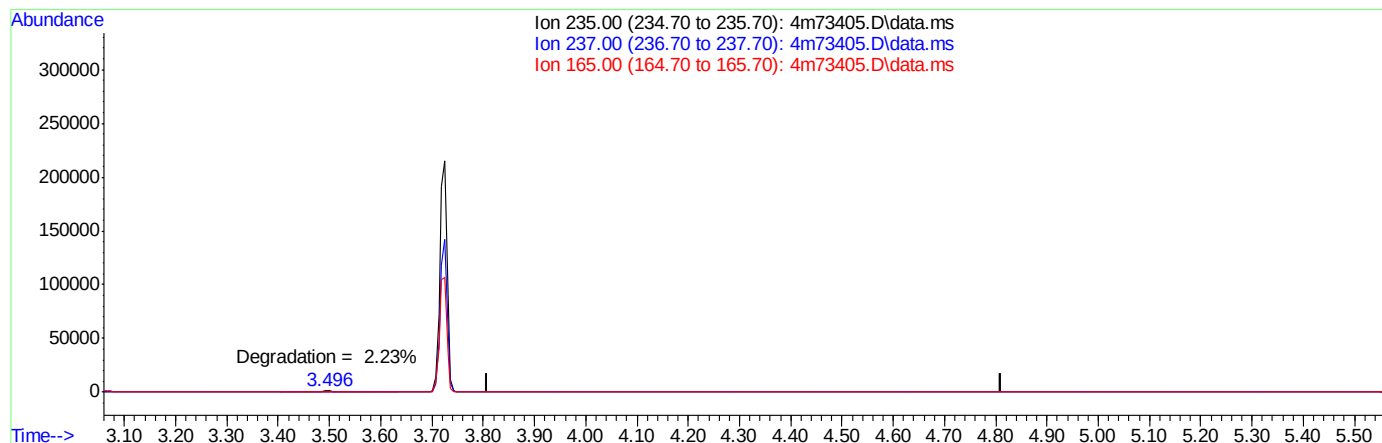
response 535304

Ion	Exp%	Act%
184.00	100	100
183.00	10.60	0.00#
185.00	13.40	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3433\
Data File : 4m73405.D
Acq On : 12 Oct 2017 10:55 am
Operator : kevinm2
Sample : dftpp
Misc : op6171a,e4m3433,1000,,,1,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Oct 12 11:02:58 2017
Quant Method : C:\MSDCHEM\1\METHODS\DFTPP4M.M
Quant Title : Semi Volatile GC/MS,zb-5 30m x .25mm x .50um
QLast Update : Mon Jul 29 12:02:51 2013
Response via : Initial Calibration



TIC: 4m73405.D\data.ms

(3) ddt (t)

4.310min (-4.310) 0.00ppb

response 0

Ion	Exp%	Act%
235.00	100	0.00
237.00	63.70	0.00#
165.00	48.70	0.00#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96115.D
 Acq On : 15 Aug 2017 10:43 pm
 Operator : chriss2
 Sample : ic4280-100
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 16 09:41:54 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:36:53 2017

QLast Update : Wed Aug 16 09:41:03 2017

Response via : Initial Calibration

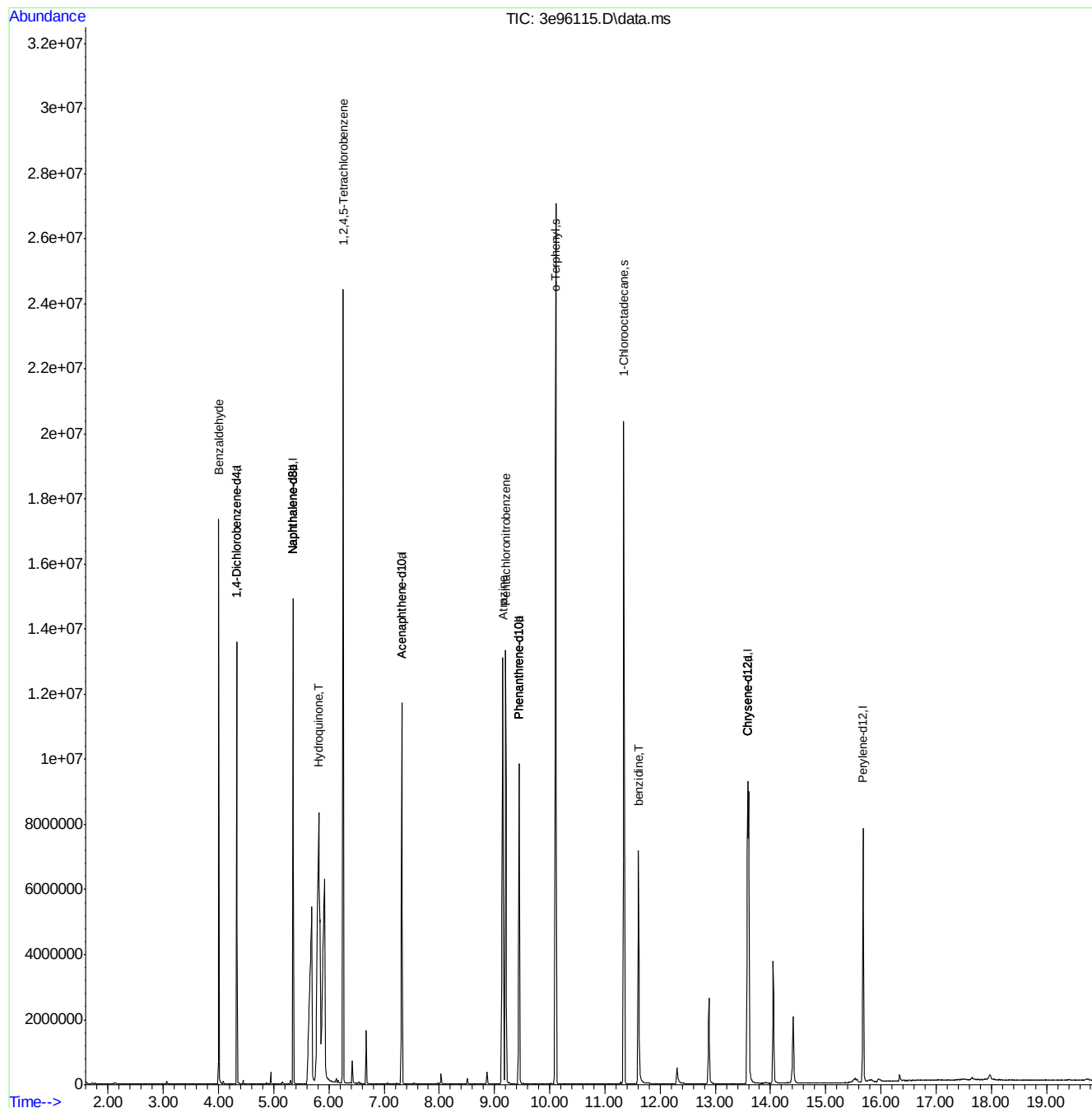
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	1471842	40.00	ppm	0.00
24) Naphthalene-d8	5.352	136	5453561	40.00	ppm	0.00
47) Acenaphthene-d10	7.321	164	2915601	40.00	ppm	0.00
69) Phenanthrene-d10	9.444	188	4595787	40.00	ppm	-0.01
83) Chrysene-d12	13.584	240	3958938	40.00	ppm	-0.02
91) Perylene-d12	15.681	264	3612646	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	4.331	152	1471842	40.00	ppm	0.00
103) Acenaphthene-d10a	7.321	164	2915601	40.00	ppm	0.00
105) Phenanthrene-d10a	9.444	188	4595787	40.00	ppm	0.00
109) Chrysene-d12a	13.584	240	3958938	40.00	ppm	0.00
111) Naphthalene-d8a	5.352	136	5453561	40.00	ppm	0.00
113) Phenanthrene-d10b	9.444	188	4595787	40.00	ppm	0.00
115) Chrysene-d12c	13.584	240	3958938	40.00	ppm	0.00
117) Naphthalene-d8b	5.352	136	5453561	40.00	ppm	0.00
120) Naphthalene-d8c	5.352	136	5453561	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	10.113	230	7157865	99.95	ppm	0.00
Spiked Amount 50.000			Recovery	=	199.90%	
108) 1-Chlorooctadecane	11.343	57	3295344	100.00	ppm	0.00
Spiked Amount 50.000			Recovery	=	200.00%	
Target Compounds						
102) Benzaldehyde	4.004	105	2379992	100.00	ppm	Qvalue 96
104) 1,2,4,5-Tetrachloroben...	6.256	216	4465183	100.00	ppm	99
106) Atrazine	9.155	215	1443654	100.00	ppm	# 70
110) benzidine	11.610	184	3924765	98.35	ppm	98
112) Hydroquinone	5.812	110	4389093	100.00	ppm	92
114) Pentachloronitrobenzene	9.203	295	593366	200.00	ppm	94

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96115.D
Acq On : 15 Aug 2017 10:43 pm
Operator : chriss2
Sample : ic4280-100
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 16 09:41:54 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:36:53 2017
QLast Update : Wed Aug 16 09:41:03 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96116.D
 Acq On : 15 Aug 2017 11:09 pm
 Operator : chriss2
 Sample : ic4280-80
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:42:50 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017

QLast Update : Wed Aug 16 09:41:03 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

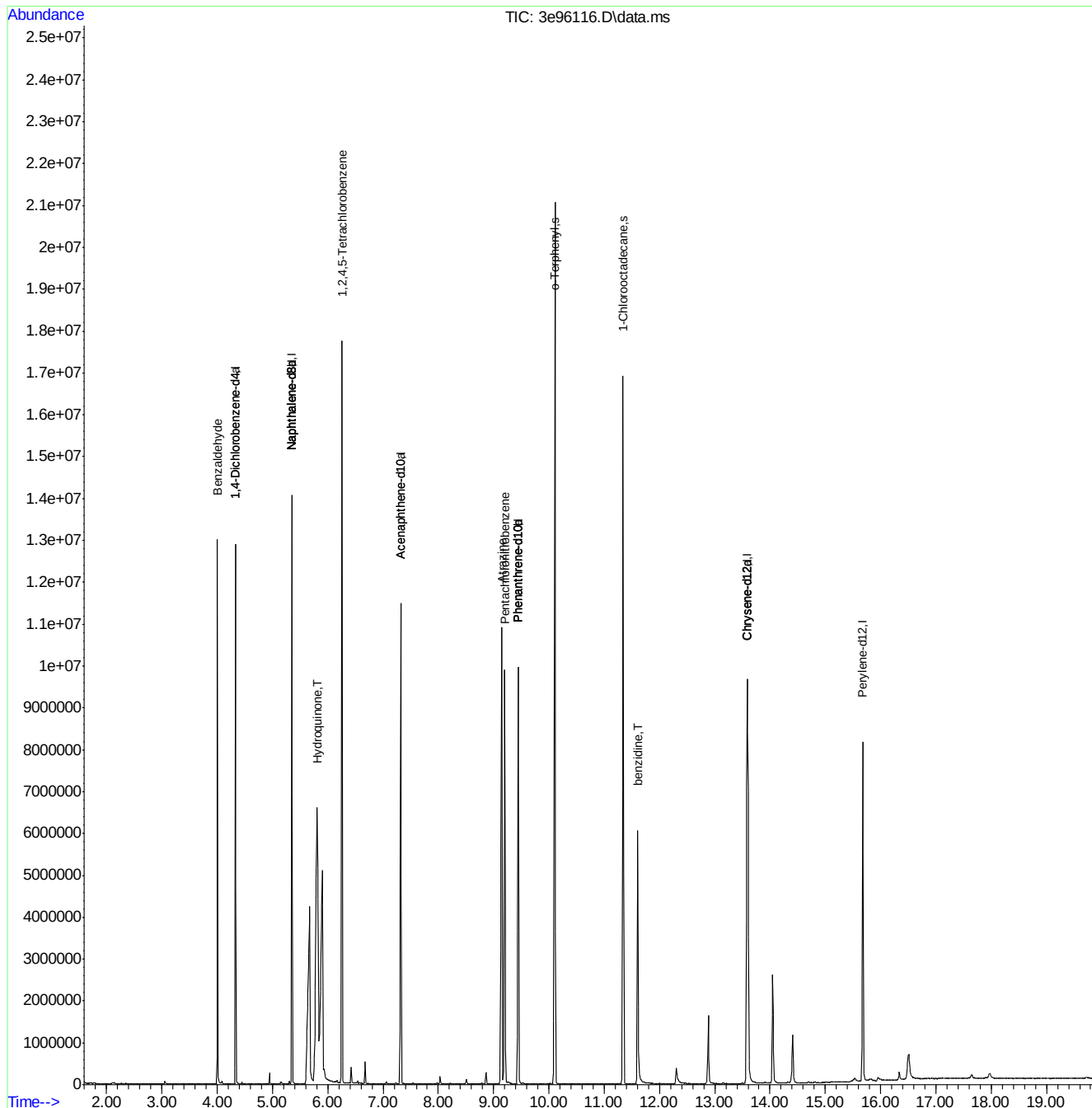
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	1395781	40.00	ppm	0.00
24) Naphthalene-d8	5.352	136	5090499	40.00	ppm	0.00
47) Acenaphthene-d10	7.321	164	2818695	40.00	ppm	0.00
69) Phenanthrene-d10	9.444	188	4496493	40.00	ppm	-0.01
83) Chrysene-d12	13.584	240	4014466	40.00	ppm	-0.02
91) Perylene-d12	15.681	264	3784899	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	4.331	152	1395781	40.00	ppm	0.00
103) Acenaphthene-d10a	7.321	164	2818695	40.00	ppm	0.00
105) Phenanthrene-d10a	9.444	188	4496493	40.00	ppm	0.00
109) Chrysene-d12a	13.584	240	4014466	40.00	ppm	0.00
111) Naphthalene-d8a	5.352	136	5090499	40.00	ppm	0.00
113) Phenanthrene-d10b	9.444	188	4496493	40.00	ppm	0.00
115) Chrysene-d12c	13.584	240	4014466	40.00	ppm	0.00
117) Naphthalene-d8b	5.352	136	5090499	40.00	ppm	0.00
120) Naphthalene-d8c	5.352	136	5090499	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	10.107	230	5265763	75.15	ppm	0.00
Spiked Amount 50.000			Recovery	=	150.30%	
108) 1-Chlorooctadecane	11.343	57	2524875	78.31	ppm	0.00
Spiked Amount 50.000			Recovery	=	156.62%	
Target Compounds						Qvalue
102) Benzaldehyde	4.005	105	1716990	76.07	ppm	98
104) 1,2,4,5-Tetrachloroben...	6.256	216	3180576	73.68	ppm	98
106) Atrazine	9.150	215	1069440	75.72	ppm	# 73
110) benzidine	11.605	184	3001579	74.17	ppm	97
112) Hydroquinone	5.807	110	3251125	79.36	ppm	93
114) Pentachloronitrobenzene	9.203	295	427656	147.33	ppm	92

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96116.D
Acq On : 15 Aug 2017 11:09 pm
Operator : chriss2
Sample : ic4280-80
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:42:50 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017
QLast Update : Wed Aug 16 09:41:03 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96117.D
 Acq On : 15 Aug 2017 11:35 pm
 Operator : chriss2
 Sample : icc4280-50
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:43:47 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017

QLast Update : Wed Aug 16 09:41:03 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	1543964	40.00	ppm	0.00
24) Naphthalene-d8	5.352	136	5703705	40.00	ppm	0.00
47) Acenaphthene-d10	7.320	164	3228145	40.00	ppm	0.00
69) Phenanthrene-d10	9.444	188	5357989	40.00	ppm	-0.01
83) Chrysene-d12	13.584	240	4964250	40.00	ppm	-0.02
91) Perylene-d12	15.680	264	4745076	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	4.331	152	1543964	40.00	ppm	0.00
103) Acenaphthene-d10a	7.320	164	3228145	40.00	ppm	0.00
105) Phenanthrene-d10a	9.444	188	5357989	40.00	ppm	0.00
109) Chrysene-d12a	13.584	240	4964250	40.00	ppm	0.00
111) Naphthalene-d8a	5.352	136	5703705	40.00	ppm	0.00
113) Phenanthrene-d10b	9.444	188	5357989	40.00	ppm	0.00
115) Chrysene-d12c	13.584	240	4964250	40.00	ppm	0.00
117) Naphthalene-d8b	5.352	136	5703705	40.00	ppm	0.00
120) Naphthalene-d8c	5.352	136	5703705	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	10.102	230	3710272	44.44	ppm	-0.01
Spiked Amount 50.000			Recovery	=	88.88%	
108) 1-Chlorooctadecane	11.343	57	1780697	46.35	ppm	0.00
Spiked Amount 50.000			Recovery	=	92.70%	
Target Compounds						
102) Benzaldehyde	4.004	105	1212774	48.58	ppm	Qvalue 94
104) 1,2,4,5-Tetrachloroben...	6.251	216	2176395	44.02	ppm	98
106) Atrazine	9.144	215	765514	45.48	ppm	# 75
110) benzydine	11.605	184	2638437	52.73	ppm	98
112) Hydroquinone	5.801	110	2252010	49.06	ppm	94
114) Pentachloronitrobenzene	9.198	295	298923	86.42	ppm	98

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96117.D
Acq On : 15 Aug 2017 11:35 pm
Operator : chriss2
Sample : icc4280-50
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

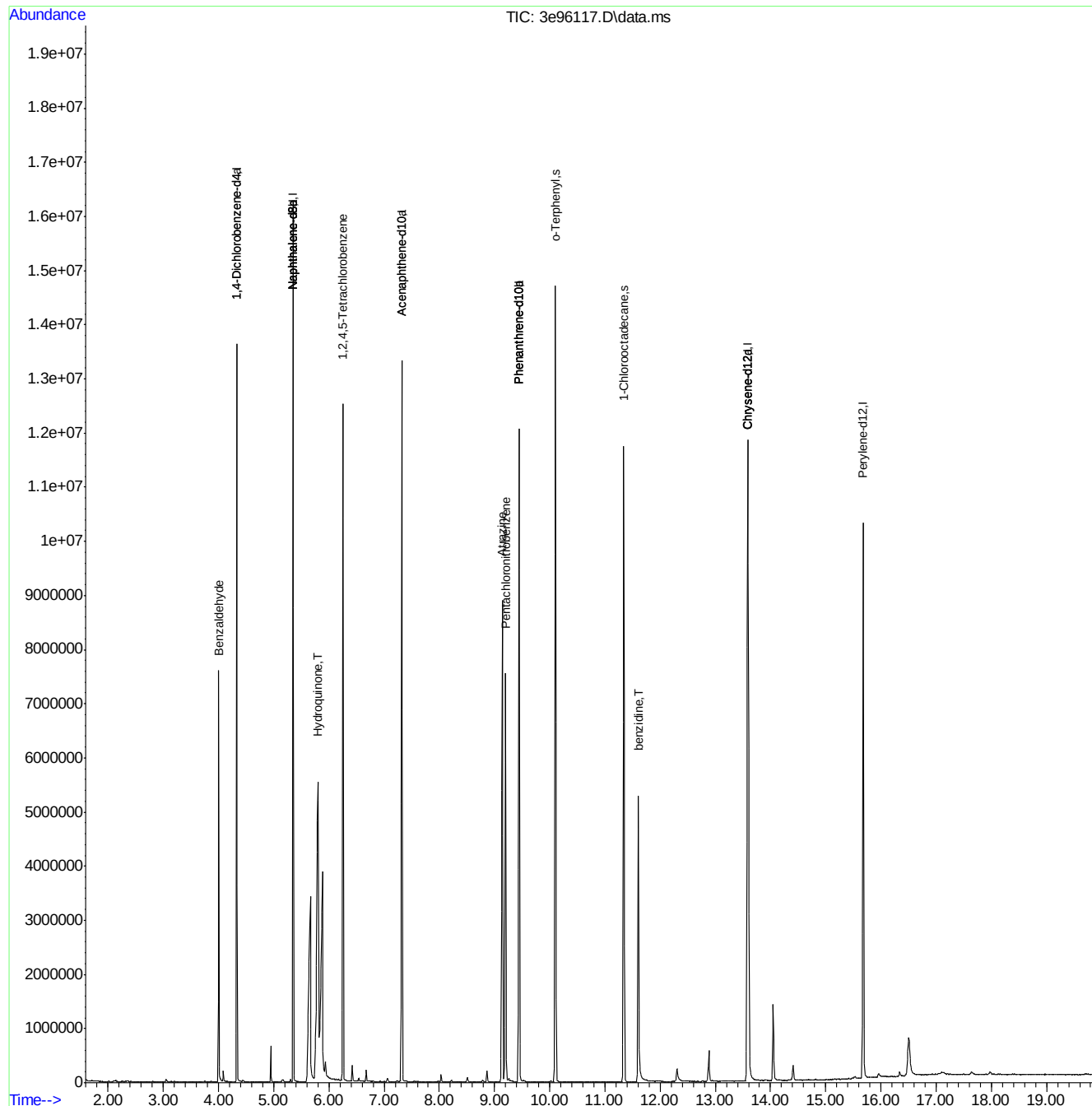
Quant Time: Aug 16 09:43:47 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25M Wed Aug 16 09:41:03 2017

QLast Update : Wed Aug 16 09:41:03 2017

Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96118.D
 Acq On : 16 Aug 2017 12:01 am
 Operator : chriss2
 Sample : ic4280-25
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 16 09:44:39 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017

QLast Update : Wed Aug 16 09:41:03 2017

Response via : Initial Calibration

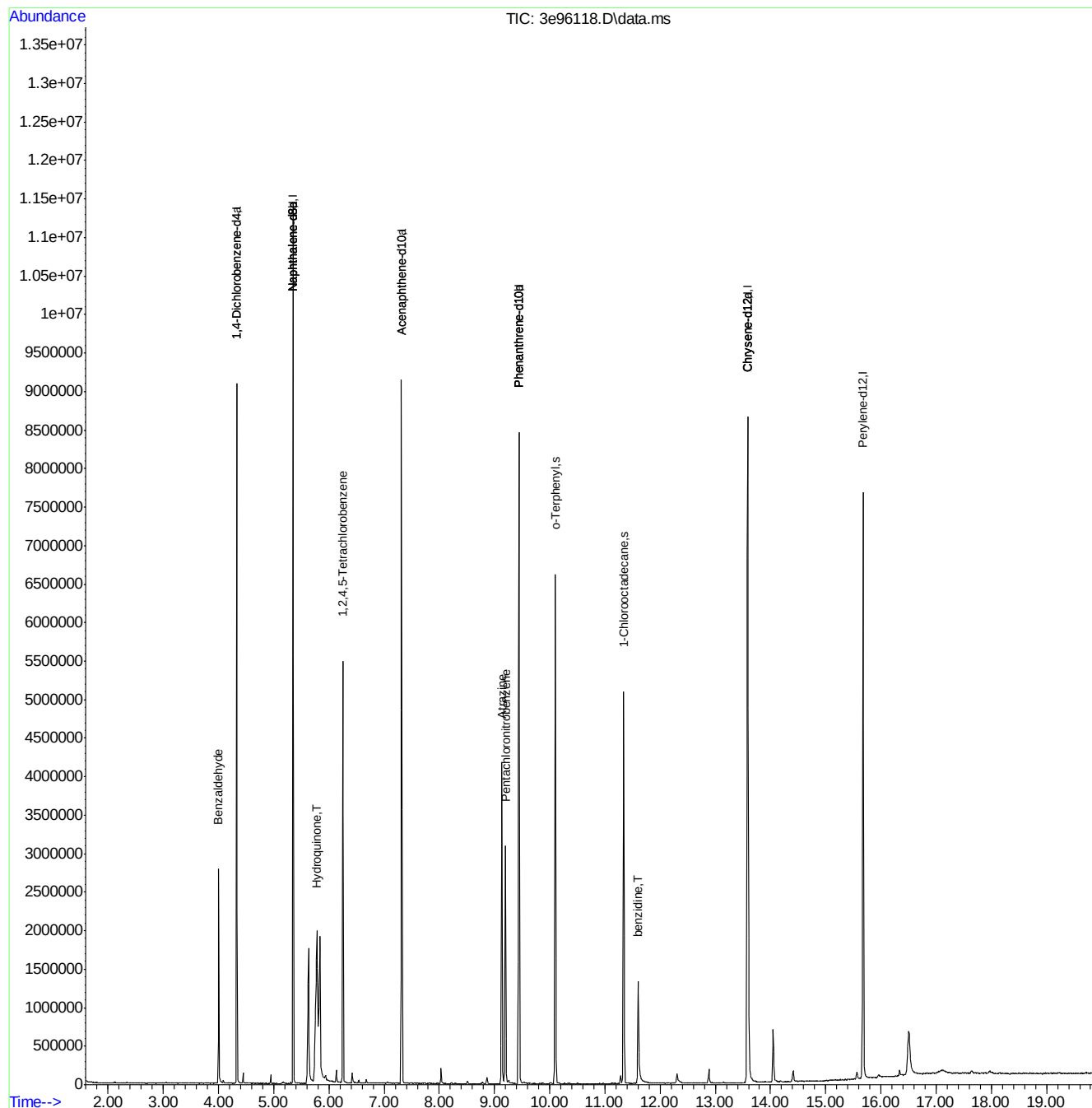
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	1113967	40.00	ppm	0.00
24) Naphthalene-d8	5.352	136	4119037	40.00	ppm	0.00
47) Acenaphthene-d10	7.315	164	2371575	40.00	ppm	-0.01
69) Phenanthrene-d10	9.444	188	3968661	40.00	ppm	-0.01
83) Chrysene-d12	13.584	240	3732121	40.00	ppm	-0.02
91) Perylene-d12	15.680	264	3643781	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	4.331	152	1113967	40.00	ppm	0.00
103) Acenaphthene-d10a	7.315	164	2371575	40.00	ppm	0.00
105) Phenanthrene-d10a	9.444	188	3968661	40.00	ppm	0.00
109) Chrysene-d12a	13.584	240	3732121	40.00	ppm	0.00
111) Naphthalene-d8a	5.352	136	4119037	40.00	ppm	0.00
113) Phenanthrene-d10b	9.444	188	3968661	40.00	ppm	0.00
115) Chrysene-d12c	13.584	240	3732121	40.00	ppm	0.00
117) Naphthalene-d8b	5.352	136	4119037	40.00	ppm	0.00
120) Naphthalene-d8c	5.352	136	4119037	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	10.102	230	1541675	24.93	ppm	-0.01
Spiked Amount 50.000			Recovery	=	49.86%	
108) 1-Chlorooctadecane	11.337	57	730653	25.68	ppm	0.00
Spiked Amount 50.000			Recovery	=	51.36%	
Target Compounds						
102) Benzaldehyde	3.999	105	414751	23.03	ppm	Qvalue 98
104) 1,2,4,5-Tetrachloroben...	6.251	216	890675	24.52	ppm	96
106) Atrazine	9.134	215	316404	25.38	ppm	# 79
110) benzydine	11.599	184	812894	21.61	ppm	97
112) Hydroquinone	5.785	110	874365	26.38	ppm	92
114) Pentachloronitrobenzene	9.198	295	119769	46.75	ppm	94

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96118.D
Acq On : 16 Aug 2017 12:01 am
Operator : chriss2
Sample : ic4280-25
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 16 09:44:39 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017
QLast Update : Wed Aug 16 09:41:03 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96119.D
 Acq On : 16 Aug 2017 12:27 am
 Operator : chriss2
 Sample : ic4280-10
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 16 09:45:30 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017

QLast Update : Wed Aug 16 09:41:03 2017

Response via : Initial Calibration

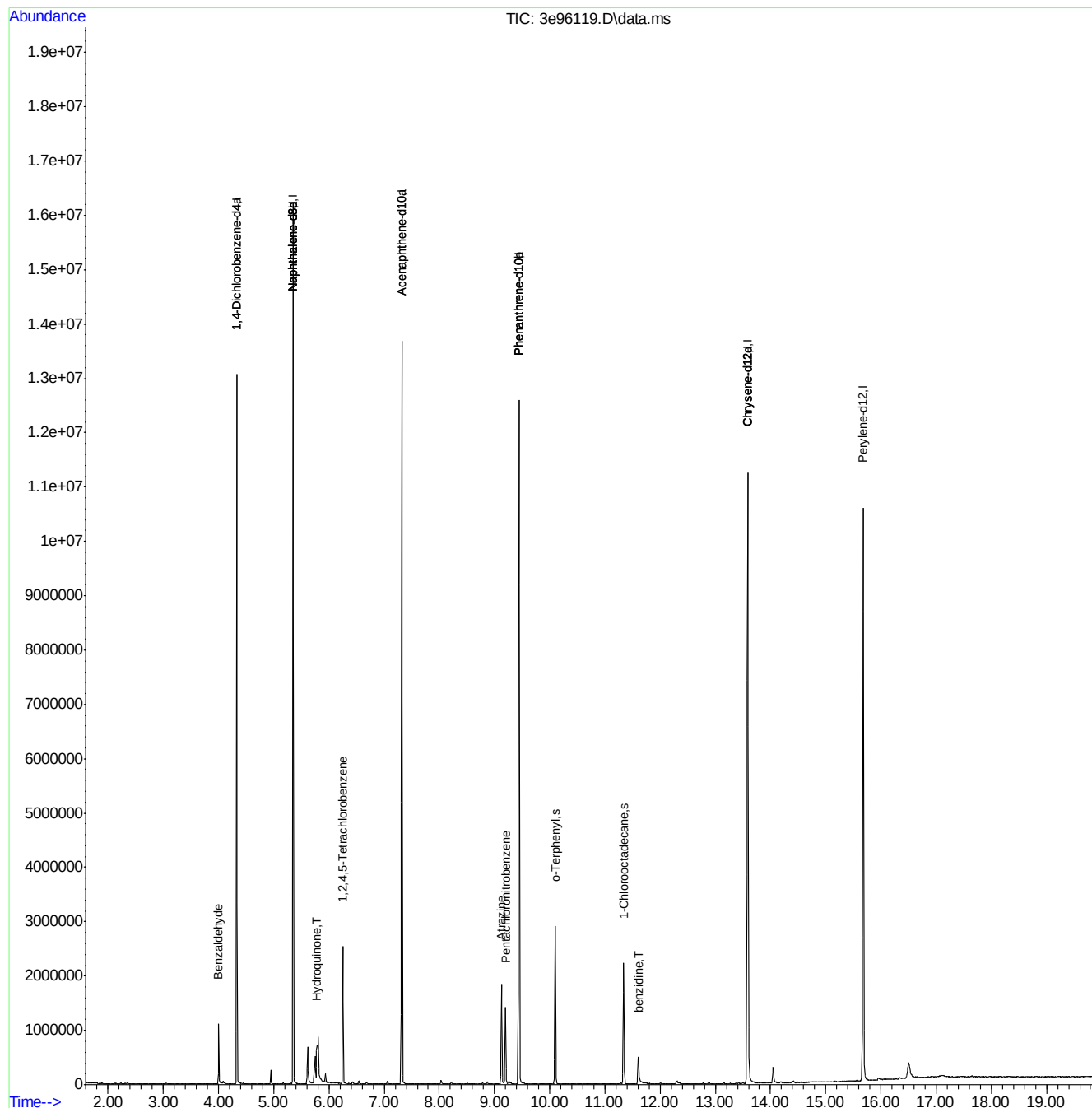
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	1558216	40.00	ppm	0.00
24) Naphthalene-d8	5.352	136	5716642	40.00	ppm	0.00
47) Acenaphthene-d10	7.321	164	3299059	40.00	ppm	0.00
69) Phenanthrene-d10	9.444	188	5672742	40.00	ppm	-0.01
83) Chrysene-d12	13.589	240	5209058	40.00	ppm	-0.02
91) Perylene-d12	15.680	264	4967856	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	4.331	152	1558216	40.00	ppm	0.00
103) Acenaphthene-d10a	7.321	164	3299059	40.00	ppm	0.00
105) Phenanthrene-d10a	9.444	188	5672742	40.00	ppm	0.00
109) Chrysene-d12a	13.589	240	5209058	40.00	ppm	0.00
111) Naphthalene-d8a	5.352	136	5716642	40.00	ppm	0.00
113) Phenanthrene-d10b	9.444	188	5672742	40.00	ppm	0.00
115) Chrysene-d12c	13.589	240	5209058	40.00	ppm	0.00
117) Naphthalene-d8b	5.352	136	5716642	40.00	ppm	0.00
120) Naphthalene-d8c	5.352	136	5716642	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	10.102	230	702140	7.94	ppm	-0.01
Spiked Amount 50.000			Recovery	=	15.88%	
108) 1-Chlorooctadecane	11.337	57	317560	7.81	ppm	0.00
Spiked Amount 50.000			Recovery	=	15.62%	
Target Compounds						
102) Benzaldehyde	3.999	105	191572	7.60	ppm	Qvalue 97
104) 1,2,4,5-Tetrachloroben...	6.251	216	429877	8.51	ppm	99
106) Atrazine	9.128	215	141396	7.93	ppm	# 80
110) benmidine	11.605	184	343133	6.53	ppm	98
112) Hydroquinone	5.780	110	335229	7.29	ppm	96
114) Pentachloronitrobenzene	9.198	295	53301	14.55	ppm	92

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96119.D
Acq On : 16 Aug 2017 12:27 am
Operator : chriss2
Sample : ic4280-10
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 16 09:45:30 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017
QLast Update : Wed Aug 16 09:41:03 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96120.D
 Acq On : 16 Aug 2017 12:53 am
 Operator : chriss2
 Sample : ic4280-5
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:46:21 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017

QLast Update : Wed Aug 16 09:41:03 2017

Response via : Initial Calibration

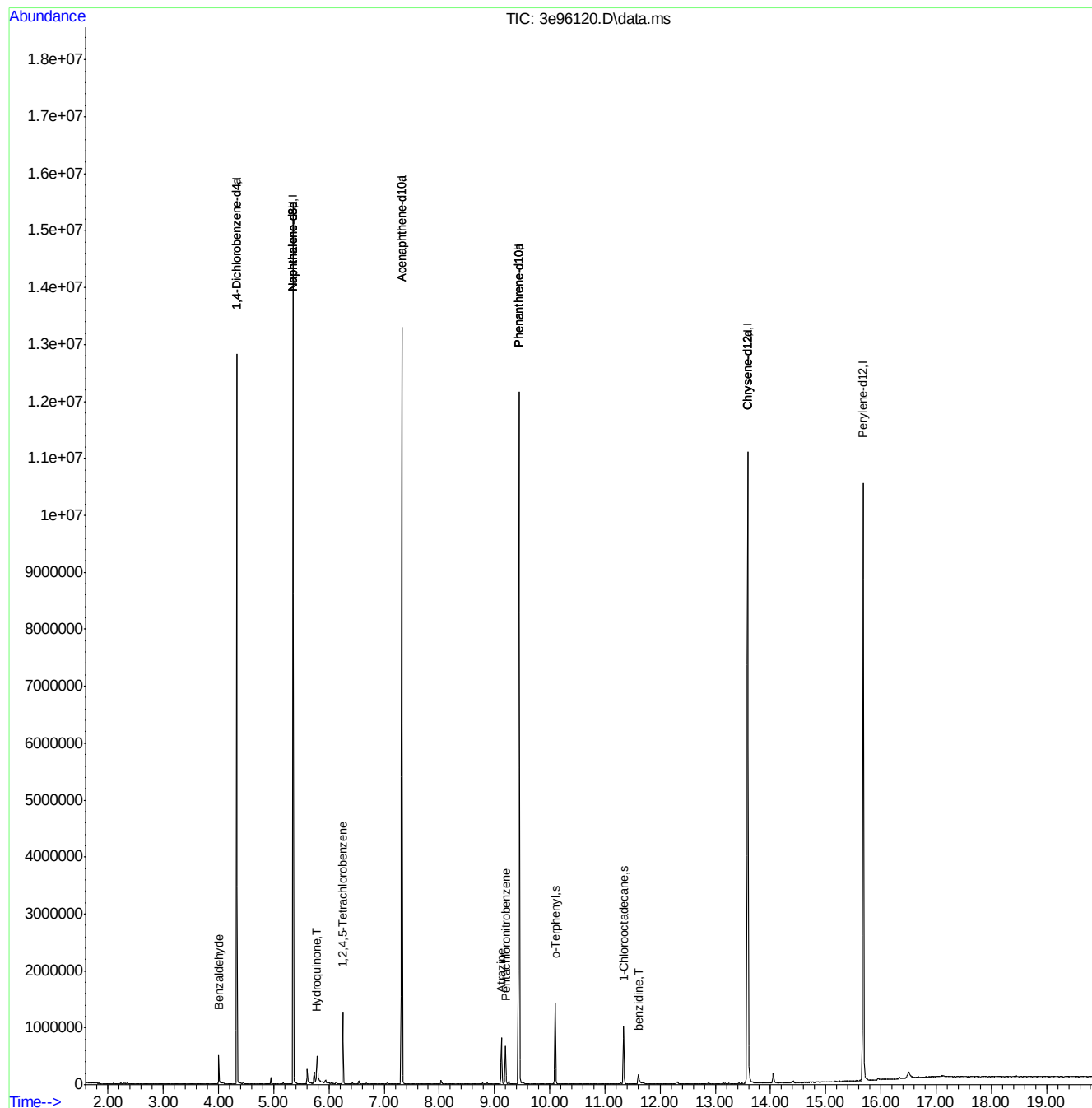
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	1503703	40.00	ppm	0.00
24) Naphthalene-d8	5.352	136	5584854	40.00	ppm	0.00
47) Acenaphthene-d10	7.320	164	3248075	40.00	ppm	0.00
69) Phenanthrene-d10	9.444	188	5598832	40.00	ppm	-0.01
83) Chrysene-d12	13.589	240	5283249	40.00	ppm	-0.02
91) Perylene-d12	15.680	264	5018111	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	4.331	152	1503703	40.00	ppm	0.00
103) Acenaphthene-d10a	7.320	164	3248075	40.00	ppm	0.00
105) Phenanthrene-d10a	9.444	188	5598832	40.00	ppm	0.00
109) Chrysene-d12a	13.589	240	5283249	40.00	ppm	0.00
111) Naphthalene-d8a	5.352	136	5584854	40.00	ppm	0.00
113) Phenanthrene-d10b	9.444	188	5598832	40.00	ppm	0.00
115) Chrysene-d12c	13.589	240	5283249	40.00	ppm	0.00
117) Naphthalene-d8b	5.352	136	5584854	40.00	ppm	0.00
120) Naphthalene-d8c	5.352	136	5584854	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	10.102	230	341779	3.92	ppm	-0.01
Spiked Amount 50.000			Recovery	=	7.84%	
108) 1-Chlorooctadecane	11.337	57	148649	3.70	ppm	0.00
Spiked Amount 50.000			Recovery	=	7.40%	
Target Compounds						
						Qvalue
102) Benzaldehyde	4.004	105	94360	3.88	ppm	93
104) 1,2,4,5-Tetrachloroben...	6.251	216	214974	4.32	ppm	97
106) Atrazine	9.128	215	66911	3.80	ppm	# 76
110) benmidine	11.605	184	120691	2.27	ppm	96
112) Hydroquinone	5.785	110	140669	3.13	ppm	92
114) Pentachloronitrobenzene	9.198	295	24613	6.81	ppm	89

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96120.D
Acq On : 16 Aug 2017 12:53 am
Operator : chriss2
Sample : ic4280-5
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:46:21 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017
QLast Update : Wed Aug 16 09:41:03 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96121.D
 Acq On : 16 Aug 2017 1:20 am
 Operator : chriss2
 Sample : ic4280-2
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:46:59 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017

QLast Update : Wed Aug 16 09:41:03 2017

Response via : Initial Calibration

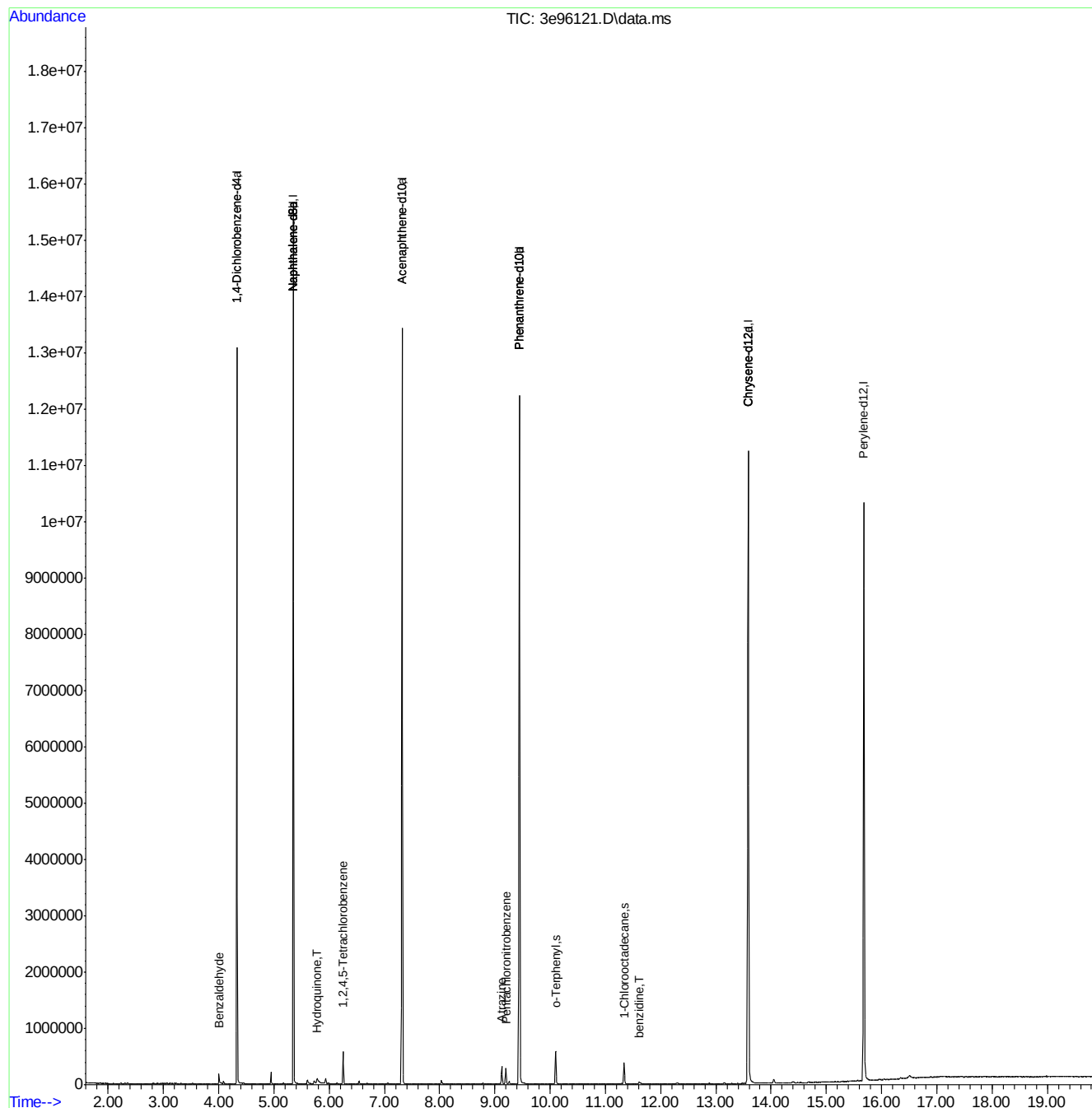
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	1531226	40.00	ppm	0.00
24) Naphthalene-d8	5.352	136	5625096	40.00	ppm	0.00
47) Acenaphthene-d10	7.320	164	3265714	40.00	ppm	0.00
69) Phenanthrene-d10	9.444	188	5638149	40.00	ppm	-0.01
83) Chrysene-d12	13.584	240	5312882	40.00	ppm	-0.02
91) Perylene-d12	15.680	264	5093509	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	4.331	152	1531226	40.00	ppm	0.00
103) Acenaphthene-d10a	7.320	164	3265714	40.00	ppm	0.00
105) Phenanthrene-d10a	9.444	188	5638149	40.00	ppm	0.00
109) Chrysene-d12a	13.584	240	5312882	40.00	ppm	0.00
111) Naphthalene-d8a	5.352	136	5625096	40.00	ppm	0.00
113) Phenanthrene-d10b	9.444	188	5638149	40.00	ppm	0.00
115) Chrysene-d12c	13.584	240	5312882	40.00	ppm	0.00
117) Naphthalene-d8b	5.352	136	5625096	40.00	ppm	0.00
120) Naphthalene-d8c	5.352	136	5625096	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	10.102	230	144046	1.64	ppm	-0.01
Spiked Amount 50.000			Recovery	=	3.28%	
108) 1-Chlorooctadecane	11.337	57	55554	1.37	ppm	0.00
Spiked Amount 50.000			Recovery	=	2.74%	
Target Compounds						
102) Benzaldehyde	4.004	105	39056	1.58	ppm	Qvalue 95
104) 1,2,4,5-Tetrachloroben...	6.251	216	94164	1.88	ppm	97
106) Atrazine	9.123	215	25761	1.45	ppm	# 73
110) benzydine	11.610	184	23825	0.44	ppm	88
112) Hydroquinone	5.785	110	39011	0.86	ppm	89
114) Pentachloronitrobenzene	9.198	295	9055	2.49	ppm	99

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96121.D
Acq On : 16 Aug 2017 1:20 am
Operator : chriss2
Sample : ic4280-2
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:46:59 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017
QLast Update : Wed Aug 16 09:41:03 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96122.D
 Acq On : 16 Aug 2017 1:46 am
 Operator : chriss2
 Sample : ic4280-1
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 16 09:47:54 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017

QLast Update : Wed Aug 16 09:41:03 2017

Response via : Initial Calibration

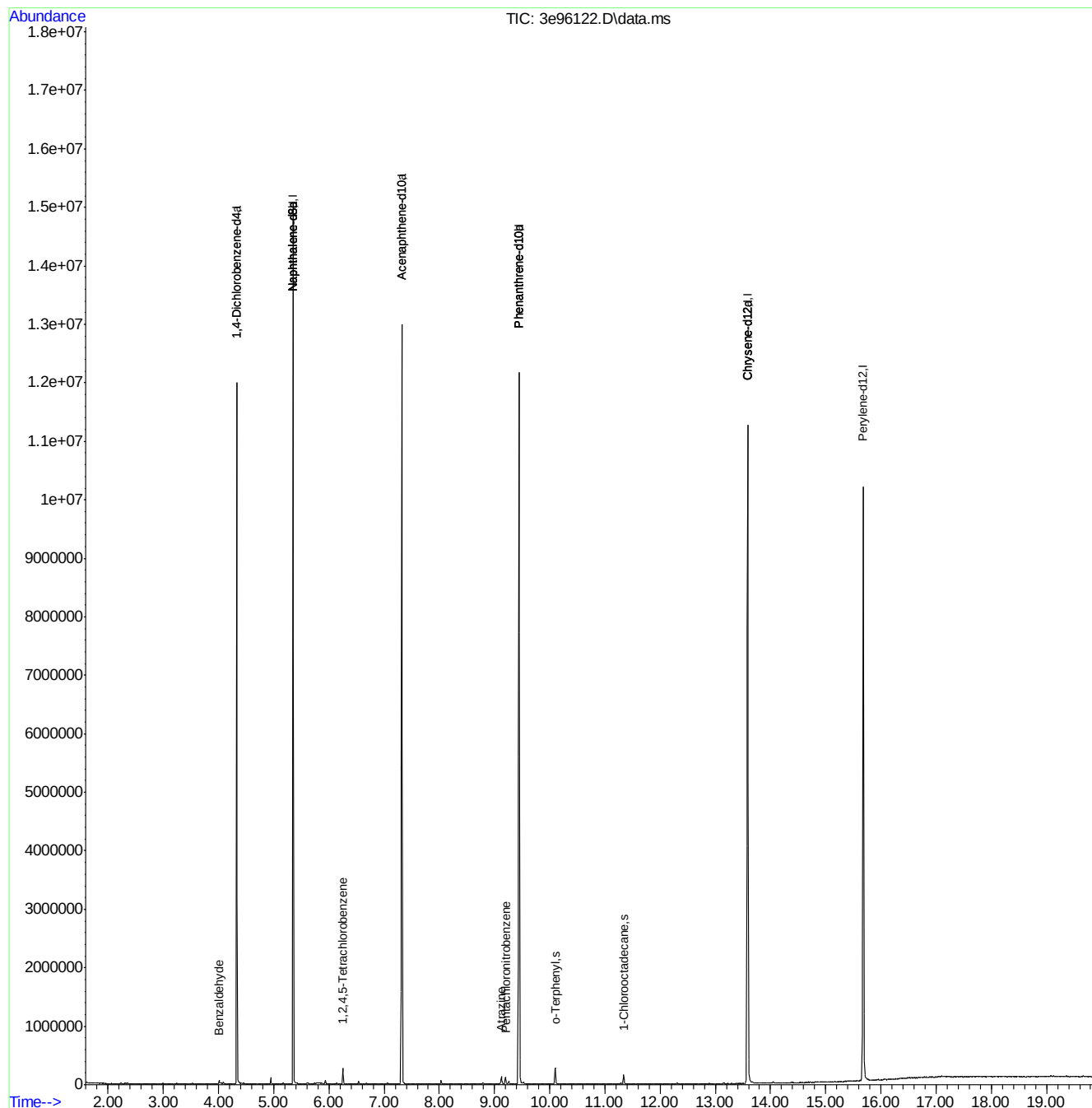
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	1428609	40.00	ppm	0.00
24) Naphthalene-d8	5.352	136	5340893	40.00	ppm	0.00
47) Acenaphthene-d10	7.321	164	3187718	40.00	ppm	0.00
69) Phenanthrene-d10	9.444	188	5545508	40.00	ppm	-0.01
83) Chrysene-d12	13.584	240	5251727	40.00	ppm	-0.02
91) Perylene-d12	15.680	264	5017158	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	4.331	152	1428609	40.00	ppm	0.00
103) Acenaphthene-d10a	7.321	164	3187718	40.00	ppm	0.00
105) Phenanthrene-d10a	9.444	188	5545508	40.00	ppm	0.00
109) Chrysene-d12a	13.584	240	5251727	40.00	ppm	0.00
111) Naphthalene-d8a	5.352	136	5340893	40.00	ppm	0.00
113) Phenanthrene-d10b	9.444	188	5545508	40.00	ppm	0.00
115) Chrysene-d12c	13.584	240	5251727	40.00	ppm	0.00
117) Naphthalene-d8b	5.352	136	5340893	40.00	ppm	0.00
120) Naphthalene-d8c	5.352	136	5340893	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	10.102	230	63072	0.73	ppm	-0.01
Spiked Amount 50.000			Recovery	=	1.46%	
108) 1-Chlorooctadecane	11.337	57	21898	0.55	ppm	0.00
Spiked Amount 50.000			Recovery	=	1.10%	
Target Compounds						
102) Benzaldehyde	4.010	105	16180	0.70	ppm	Qvalue 85
104) 1,2,4,5-Tetrachloroben...	6.251	216	46079	0.94	ppm	99
106) Atrazine	9.128	215	10255	0.59	ppm	# 77
114) Pentachloronitrobenzene	9.198	295	3913	1.09	ppm	84

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96122.D
Acq On : 16 Aug 2017 1:46 am
Operator : chriss2
Sample : ic4280-1
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 16 09:47:54 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:41:03 2017
QLast Update : Wed Aug 16 09:41:03 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96123a.D
 Acq On : 16 Aug 2017 2:12 am
 Operator : chriss2
 Sample : icv4280-50
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 15:50:28 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:53:08 2017

QLast Update : Wed Aug 16 09:53:08 2017

Response via : Initial Calibration

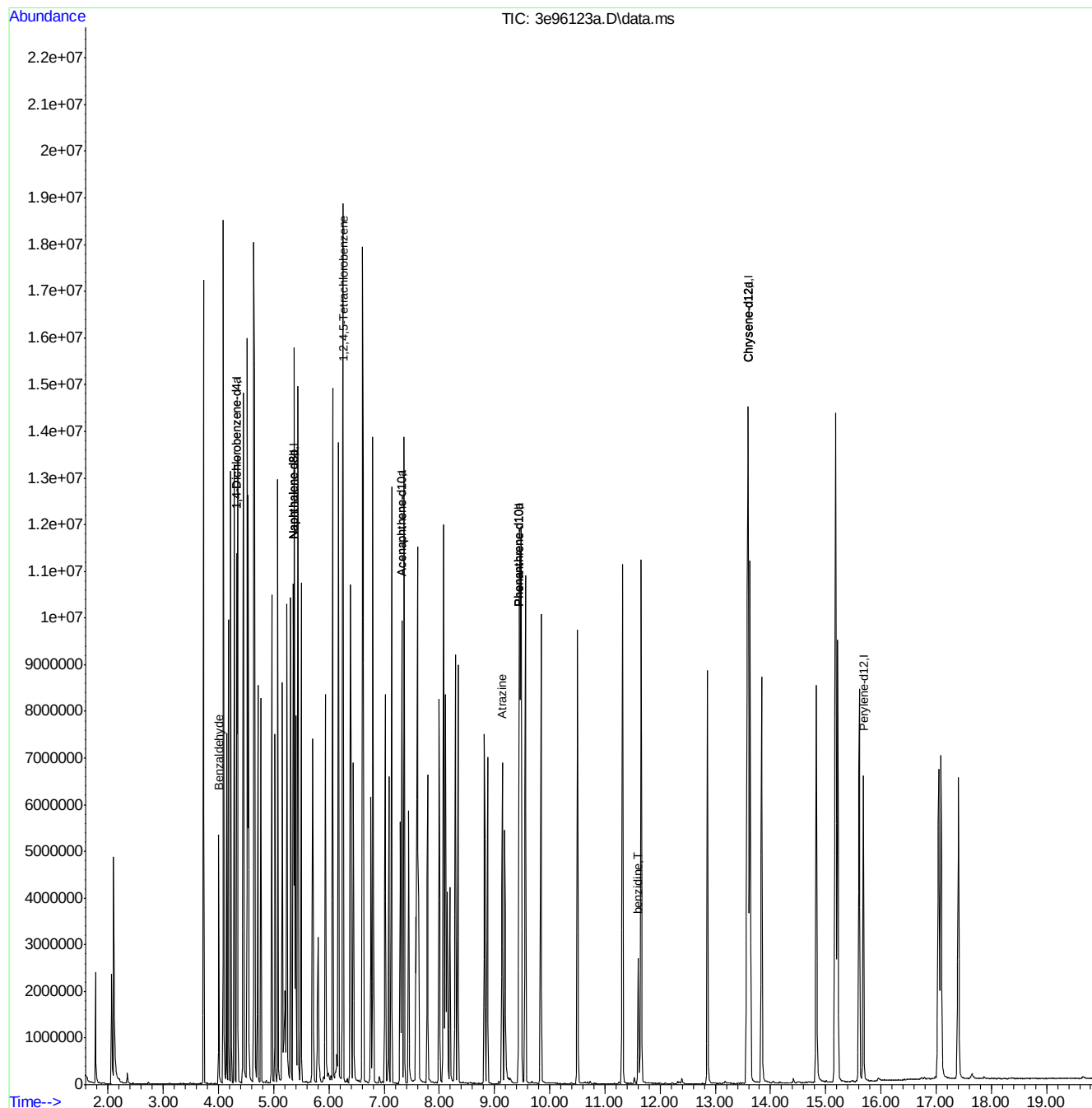
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	1221235	40.00	ppm	0.00
24) Naphthalene-d8	5.358	136	4334348	40.00	ppm	0.00
47) Acenaphthene-d10	7.321	164	2464117	40.00	ppm	0.00
69) Phenanthrene-d10	9.444	188	4145564	40.00	ppm	-0.01
83) Chrysene-d12	13.594	240	3846654	40.00	ppm	-0.01
91) Perylene-d12	15.686	264	3129582	40.00	ppm	-0.01
101) 1,4-Dichlorobenzene-d4a	4.331	152	1221235	40.00	ppm	0.00
103) Acenaphthene-d10a	7.321	164	2464117	40.00	ppm	0.00
105) Phenanthrene-d10a	9.444	188	4145564	40.00	ppm	0.00
109) Chrysene-d12a	13.594	240	3846654	40.00	ppm	0.01
111) Naphthalene-d8a	5.358	136	4334348	40.00	ppm	0.00
113) Phenanthrene-d10b	9.444	188	4145564	40.00	ppm	0.00
115) Chrysene-d12c	13.594	240	3846654	40.00	ppm	0.01
117) Naphthalene-d8b	5.358	136	4334348	40.00	ppm	0.00
120) Naphthalene-d8c	5.358	136	4334348	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
102) Benzaldehyde	4.004	105	870117	51.32	ppm	Qvalue 94
104) 1,2,4,5-Tetrachloroben...	6.256	216	1850083	53.12	ppm	99
106) Atrazine	9.144	215	531778	48.46	ppm	94
110) benzidine	11.599	184	1394075	37.36	ppm	98

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96123a.D
Acq On : 16 Aug 2017 2:12 am
Operator : chriss2
Sample : icv4280-50
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 15:50:28 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:53:08 2017
QLast Update : Wed Aug 16 09:53:08 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
 Data File : 3e96125a.D
 Acq On : 16 Aug 2017 4:06 am
 Operator : chriss2
 Sample : icv4280-50
 Misc : op4655,e3e4280,1000,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 16 09:57:23 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:53:08 2017

QLast Update : Wed Aug 16 09:53:08 2017

Response via : Initial Calibration

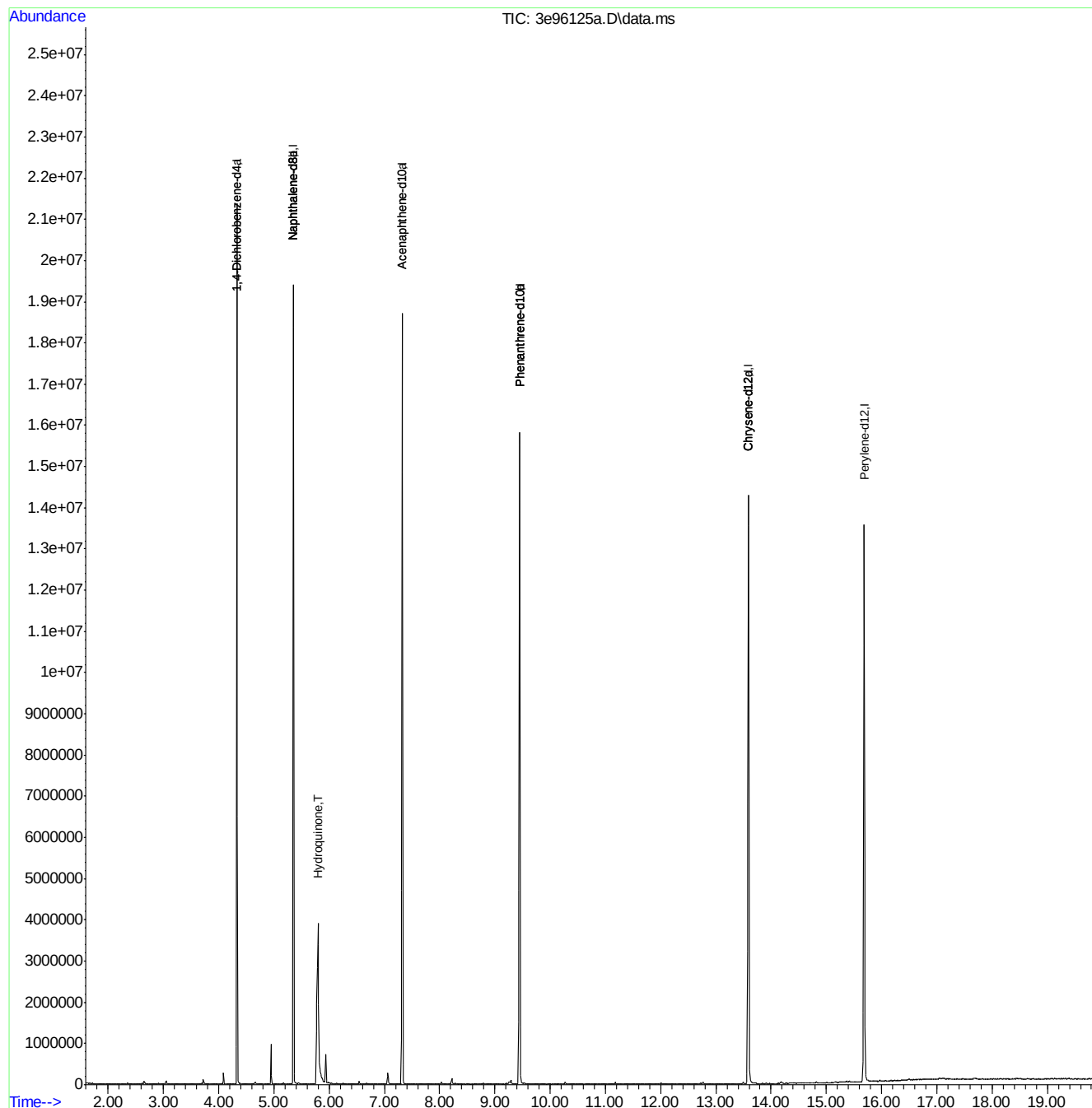
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.331	152	2310329	40.00	ppm	0.00
24) Naphthalene-d8	5.352	136	7284906	40.00	ppm	0.00
47) Acenaphthene-d10	7.321	164	4634072	40.00	ppm	0.00
69) Phenanthrene-d10	9.449	188	7786134	40.00	ppm	0.00
83) Chrysene-d12	13.589	240	7169146	40.00	ppm	-0.02
91) Perylene-d12	15.686	264	6897699	40.00	ppm	-0.01
101) 1,4-Dichlorobenzene-d4a	4.331	152	2310329	40.00	ppm	0.00
103) Acenaphthene-d10a	7.321	164	4634072	40.00	ppm	0.00
105) Phenanthrene-d10a	9.449	188	7786134	40.00	ppm	0.00
109) Chrysene-d12a	13.589	240	7169146	40.00	ppm	0.00
111) Naphthalene-d8a	5.352	136	7284906	40.00	ppm	0.00
113) Phenanthrene-d10b	9.449	188	7786134	40.00	ppm	0.00
115) Chrysene-d12c	13.589	240	7169146	40.00	ppm	0.00
117) Naphthalene-d8b	5.352	136	7284906	40.00	ppm	0.00
120) Naphthalene-d8c	5.352	136	7284906	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
112) Hydroquinone	5.796	110	3104014	59.01	ppm	Qvalue 98

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4280\
Data File : 3e96125a.D
Acq On : 16 Aug 2017 4:06 am
Operator : chriss2
Sample : icv4280-50
Misc : op4655,e3e4280,1000,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 16 09:57:23 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4279.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Aug 16 09:53:08 2017
QLast Update : Wed Aug 16 09:53:08 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97162.D
 Acq On : 13 Sep 2017 9:37 am
 Operator : kristis
 Sample : ic4310-100
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 13 12:43:16 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 09:31:51 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.981	152	1497846	40.00	ppm	0.00
24) Naphthalene-d8	4.944	136	4755619	40.00	ppm	-0.01
47) Acenaphthene-d10	6.778	164	2275984	40.00	ppm	-0.02
69) Phenanthrene-d10	8.837	188	3349187	40.00	ppm	-0.02
83) Chrysene-d12	12.945	240	2909855	40.00	ppm	-0.01
91) Perylene-d12	15.020	264	2191003	40.00	ppm	-0.01
101) 1,4-Dichlorobenzene-d4a	3.981	152	1497846	40.00	ppm	0.00
103) Acenaphthene-d10a	6.778	164	2275984	40.00	ppm	-0.02
105) Phenanthrene-d10a	8.837	188	3349187	40.00	ppm	-0.02
109) Chrysene-d12a	12.945	240	2909855	40.00	ppm	-0.01
111) Naphthalene-d8a	4.944	136	4755619	40.00	ppm	-0.01
113) Phenanthrene-d10b	8.837	188	3349187	40.00	ppm	-0.02
115) Chrysene-d12c	12.945	240	2909855	40.00	ppm	-0.01
117) Naphthalene-d8b	4.944	136	4755619	40.00	ppm	-0.01
120) Naphthalene-d8c	4.944	136	4755619	40.00	ppb	-0.01
System Monitoring Compounds						
5) 2-Fluorophenol	2.959	112	5328951	120.13	ppm	0.00
Spiked Amount 50.000			Recovery	=	240.26%	
8) Phenol-d5	3.756	99	6510477	112.99	ppm	0.01
Spiked Amount 50.000			Recovery	=	225.98%	
25) Nitrobenzene-d5	4.398	82	4859866	106.17	ppm	0.00
Spiked Amount 50.000			Recovery	=	212.34%	
51) 2-Fluorobiphenyl	6.013	172	7389665	106.01	ppm	0.00
Spiked Amount 50.000			Recovery	=	212.02%	
73) 2,4,6-Tribromophenol	7.853	330	904986	120.00	ppm	-0.01
Spiked Amount 50.000			Recovery	=	240.00%	
85) Terphenyl-d14	11.383	244	6195946	107.18	ppm	-0.02
Spiked Amount 50.000			Recovery	=	214.36%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
					Qvalue	
2) 1,4-Dioxane	1.360	88	2003732	96.16	ppm	93
3) Pyridine	1.617	79	5197091	111.73	ppm	92
4) N-Nitrosodimethylamine	1.590	74	2935570	108.12	ppm	89
6) Indene	4.168	116	6814267	86.93	ppm	96
7) Cumene	3.350	105	10192614	92.25	ppm	97
9) Phenol	3.767	94	5754886	96.04	ppm	92
10) Aniline	3.735	93	7557296	105.97	ppm	96
11) bis(2-Chloroethyl)ether	3.810	93	4607011	105.00	ppm	96
12) 2-Chlorophenol	3.831	128	5335112	113.18	ppm	87
13) Decane	3.885	43	4981283	90.56	ppm	95
14) 1,3-Dichlorobenzene	3.933	146	5775175	108.27	ppm	97
15) 1,4-Dichlorobenzene	3.991	146	5688009	104.69	ppm	95
16) Benzyl alcohol	4.109	108	3063837	109.18	ppm	97
17) 1,2-Dichlorobenzene	4.104	146	5293023	106.66	ppm	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97162.D
 Acq On : 13 Sep 2017 9:37 am
 Operator : kristis
 Sample : ic4310-100
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 13 12:43:16 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 09:31:51 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.296	105	6215708	95.85	ppm	99
19) 2-Methylphenol	4.211	108	4292833	103.74	ppm	96
20) 2,2'-oxybis(1-Chloropr...	4.205	121	1522960	98.57	ppm #	81
21) 3&4-Methylphenol	4.328	108	4651535	52.91	ppm	89
22) n-Nitroso-di-n-propyla...	4.312	70	3170109	97.50	ppm	95
23) Hexachloroethane	4.344	201	1692748	111.11	ppm	99
26) Nitrobenzene	4.414	77	4677227	102.43	ppm	97
27) Quinoline	5.280	129	7697448	94.16	ppm	96
28) Isophorone	4.601	82	7966424	105.75	ppm	99
29) 2-Nitrophenol	4.649	139	2641356	119.69	ppm	81
30) 2,4-Dimethylphenol	4.714	107	4148896	108.94	ppm	99
31) Benzoic acid	4.890	105	3422240m	124.84	ppm	
32) bis(2-Chloroethoxy)met...	4.778	93	4628275	103.45	ppm	99
33) 2,4-Dichlorophenol	4.853	162	3536008	115.63	ppm	98
34) 2,6-Dichlorophenol	5.034	162	3338399	104.74	ppm	98
35) 1,3,5-Trichlorobenzene	4.655	180	4082484	104.90	ppm	94
36) 1,2,4-Trichlorobenzene	4.906	180	3639156	103.44	ppm	96
37) 1,2,3-Trichlorobenzene	5.093	180	3257940	94.25	ppm	98
38) Naphthalene	4.960	128	8566258	73.18	ppm	97
39) 4-Chloroaniline	5.034	127	5398800	104.53	ppm	97
40) 2,3-Dichloroaniline	5.906	161	3542902	89.42	ppm	97
41) Caprolactam	5.409	55	1864099m	100.47	ppm	
42) Hexachlorobutadiene	5.083	225	1756253	108.55	ppm	98
43) 4-Chloro-3-methylphenol	5.516	107	3460048	106.21	ppm #	30
44) 2-Methylnaphthalene	5.607	141	6919246	99.45	ppm	89
45) 1-Methylnaphthalene	5.703	141	6886314	90.73	ppm	91
46) Dimethylnaphthalene	6.297	156	6331364	87.24	ppm	98
48) Hexachlorocyclopentadiene	5.773	237	3591151	276.04	ppm	99
49) 2,4,6-Trichlorophenol	5.928	196	1964405	117.84	ppm	97
50) 2,4,5-Trichlorophenol	5.976	196	2083190	110.12	ppm	99
52) 2-Chloronaphthalene	6.126	162	6213166	108.66	ppm	96
53) Biphenyl	6.115	154	7881994	97.11	ppm	99
54) 2-Nitroaniline	6.275	65	2524160	122.29	ppm	98
55) Dimethylphthalate	6.521	163	6869330	109.33	ppm	100
56) Acenaphthylene	6.602	152	9639953	100.39	ppm	89
57) 2,6-Dinitrotoluene	6.580	165	1606760	118.90	ppm	97
58) 3-Nitroaniline	6.783	138	2062620	121.42	ppm	97
59) Acenaphthene	6.826	153	6970702	108.07	ppm	99
60) 2,4-Dinitrophenol	6.933	184	2074601	324.34	ppm	94
61) 4-Nitrophenol	7.083	109	985865	128.36	ppm	93
62) Dibenzofuran	7.056	168	8671011	106.85	ppm	83
63) 2,4-Dinitrotoluene	7.099	165	2103792	116.02	ppm	82
64) 2,3,4,6-Tetrachlorophenol	7.243	232	1463842	111.29	ppm	98
65) Diethylphthalate	7.468	149	6947737	109.24	ppm	99
66) Fluorene	7.516	166	7103748	107.18	ppm	99
67) 4-Chlorophenyl-phenyle...	7.554	204	2827683	98.86	ppm	98
68) 4-Nitroaniline	7.612	138	1889347	115.52	ppm	95
70) 4,6-Dinitro-2-methylph...	7.661	198	1253814	132.40	ppm	87
71) n-Nitrosodiphenylamine	7.736	169	4849118	112.68	ppm	100
72) 1,2-Diphenylhydrazine	7.773	77	7655520	118.38	ppm	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97162.D
 Acq On : 13 Sep 2017 9:37 am
 Operator : kristis
 Sample : ic4310-100
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 13 12:43:16 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 09:31:51 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

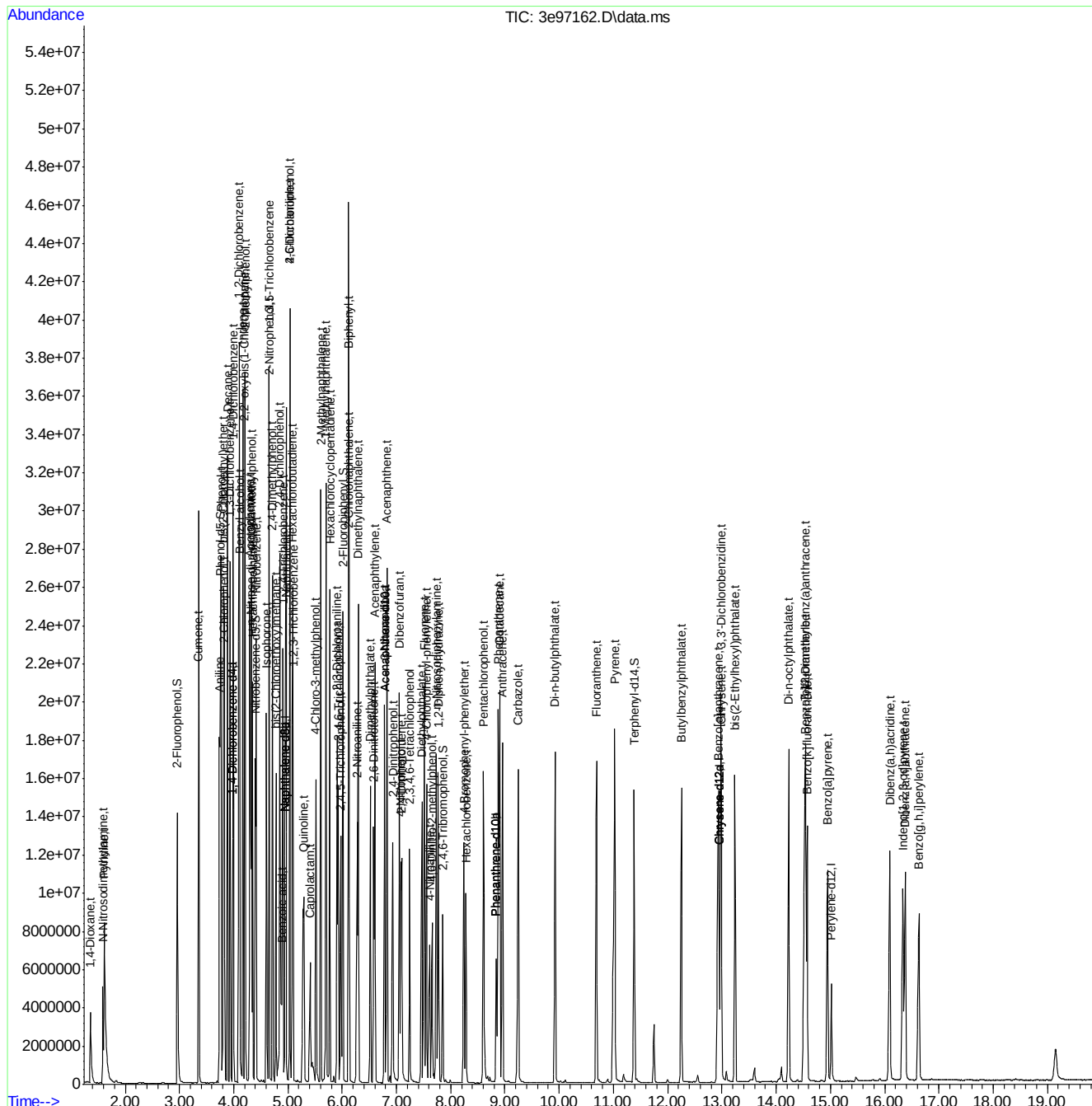
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
74) 4-Bromophenyl-phenylether	8.244	248	1576437	110.05	ppm	95
75) Hexachlorobenzene	8.286	284	1629133	102.39	ppm	94
76) Pentachlorophenol	8.607	266	2270359	244.87	ppm	97
77) Phenanthrene	8.880	178	9257945	112.47	ppm	97
78) Anthracene	8.955	178	8875103	108.50	ppm	99
79) Carbazole	9.244	167	8739019	109.15	ppm	98
80) Di-n-butylphthalate	9.923	149	11340975	123.64	ppm	97
81) Fluoranthene	10.688	202	9978205	120.59	ppm	99
82) Octadecane	8.902	57	4828683	114.10	ppm	98
84) Pyrene	11.025	202	9939053	115.07	ppm	98
86) Butylbenzylphthalate	12.255	149	5088222	123.98	ppm	99
87) Benzo[a]anthracene	12.929	228	8687037	115.74	ppm	98
88) 3,3'-Dichlorobenzidine	12.977	252	2885728	121.16	ppm	97
89) Chrysene	12.988	228	7401539	107.26	ppm	98
90) bis(2-Ethylhexyl)phtha...	13.239	149	6216593	119.65	ppm	99
92) Di-n-octylphthalate	14.229	149	11472560	145.49	ppm	100
93) Benzo[b]fluoranthene	14.528	252	8170889	125.69	ppm	94
94) Benzo[k]fluoranthene	14.576	252	6140000	111.26	ppm	97
95) Benzo[a]pyrene	14.945	252	6388969	123.15	ppm	99
96) Indeno[1,2,3-cd]pyrene	16.341	276	6360940	132.70	ppm	92
97) Dibenz(a,h)acridine	16.095	279	6037771	123.90	ppm	99
98) Dibenz[a,h]anthracene	16.379	278	5816431	118.38	ppm	97
99) 7,12-Dimethylbenz(a)an...	14.539	256	3630421	120.23	ppm	97
100) Benzo[g,h,i]perylene	16.636	276	5709368	113.22	ppm	97

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97162.D
Acq On : 13 Sep 2017 9:37 am
Operator : kristis
Sample : ic4310-100
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 13 12:43:16 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 09:31:51 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3E4310-IC4310

Lab FileID:

3E97162.D

Injection Time:

09/13/17 09:37

Method:

EPA 625

Analyst approved:

09/13/17 17:20 Kristi Schollenberger

Supervisor approved:

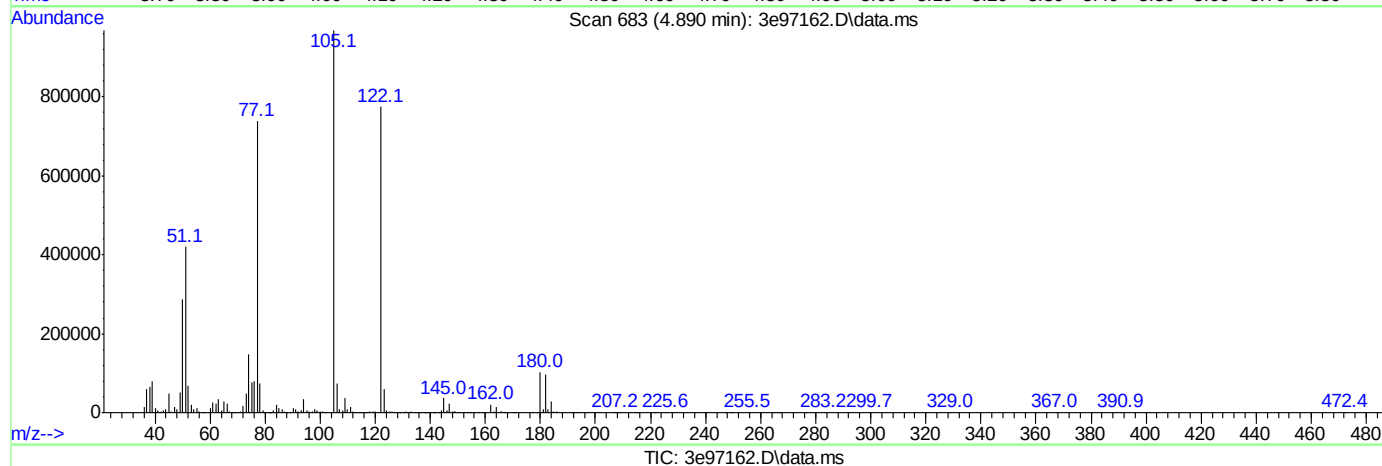
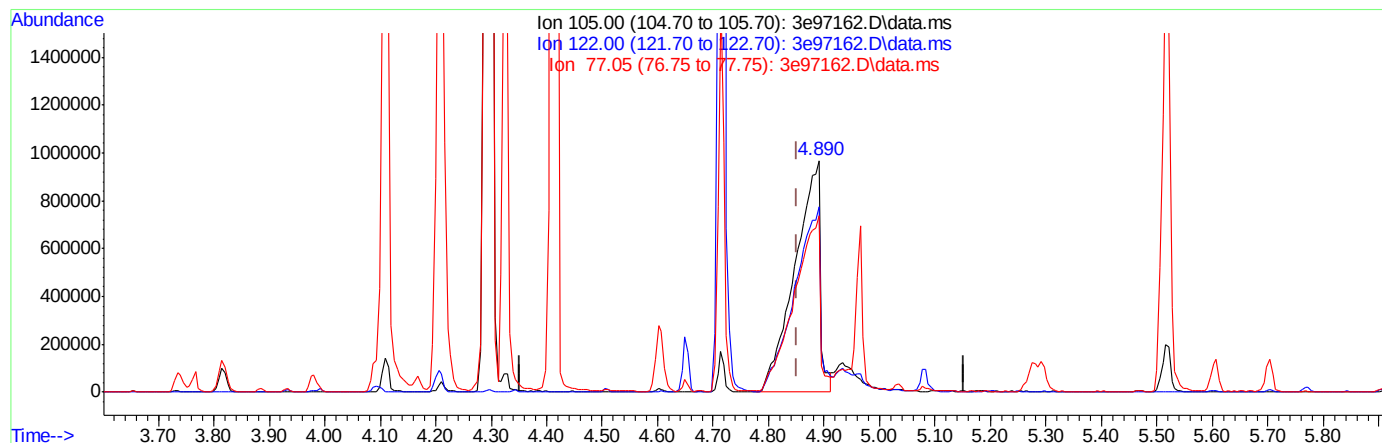
09/14/17 17:21 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Benzoic Acid	65-85-0		4.89	Split peak
Caprolactam	105-60-2		5.41	Split peak

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97162.D
Acq On : 13 Sep 2017 9:37 am
Operator : kristis
Sample : ic4310-100
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 13 12:41:50 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 09:31:51 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



(31) Benzoic acid (t)

4.890min (+0.038) 111.81ppm

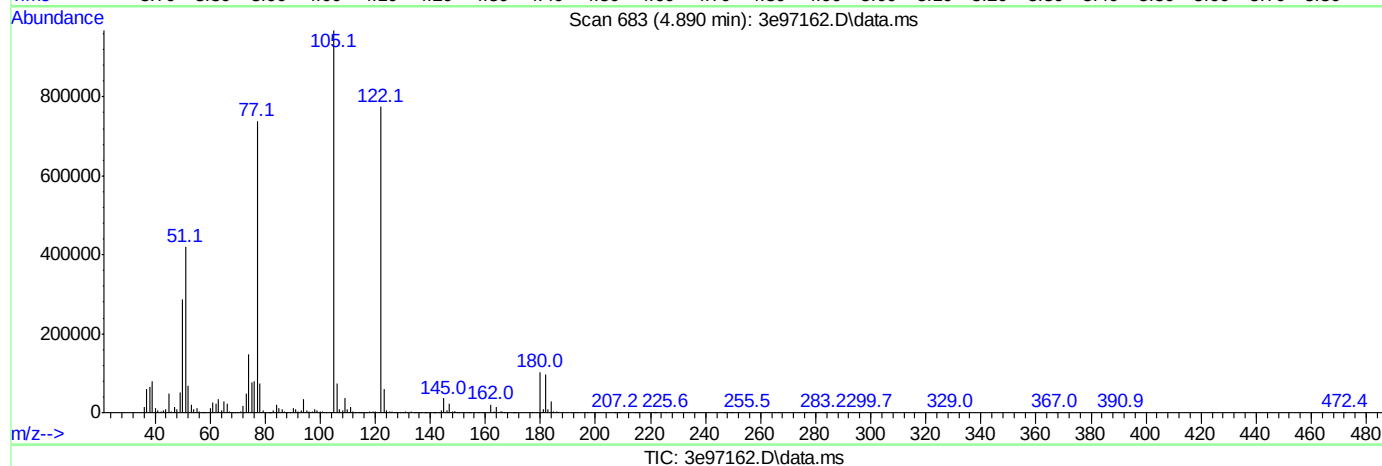
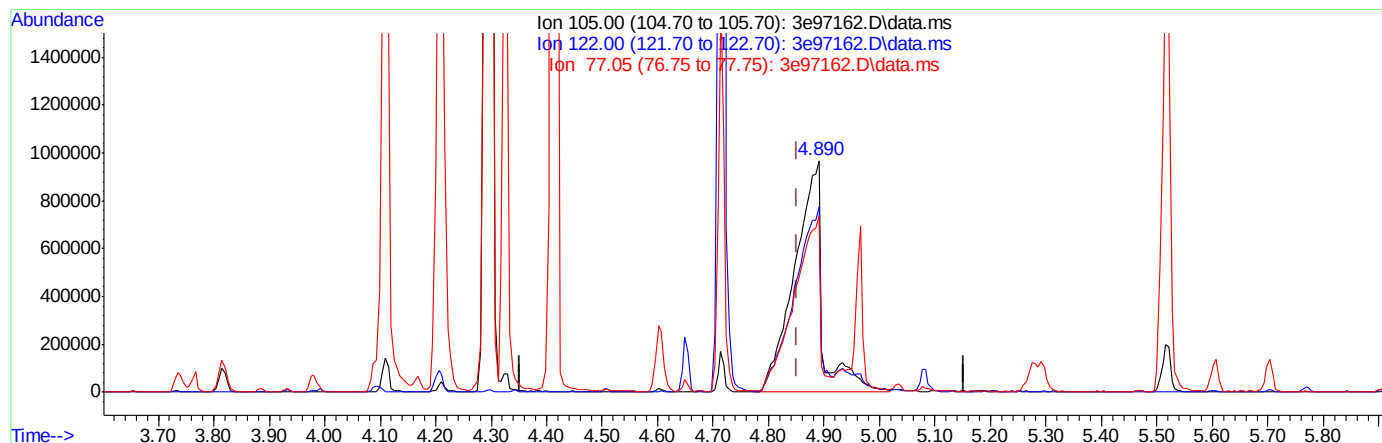
response 3064847

Ion	Exp%	Act%
105.00	100	100
122.00	74.70	79.84
77.05	79.40	75.79
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97162.D
Acq On : 13 Sep 2017 9:37 am
Operator : kristis
Sample : ic4310-100
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 13 12:41:50 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 09:31:51 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



(31) Benzoic acid (t)

4.890min (+0.038) 124.84ppm m

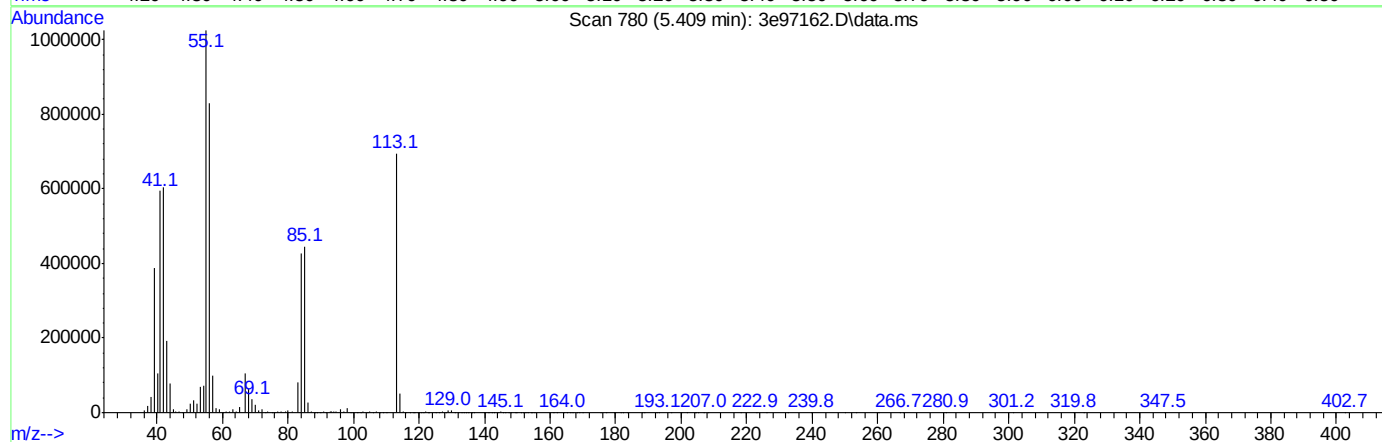
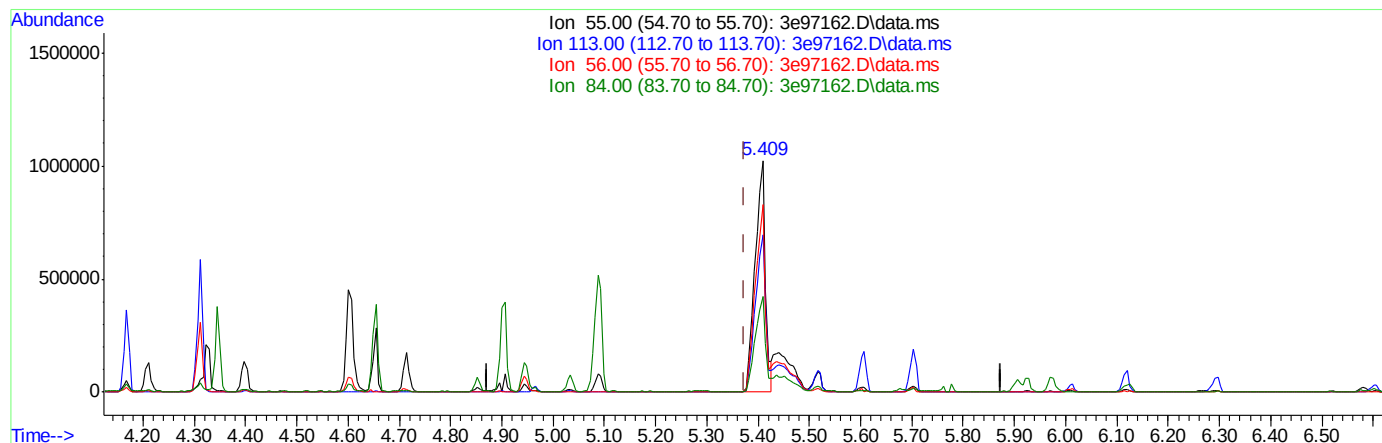
response 3422240

Ion	Exp%	Act%
105.00	100	100
122.00	74.70	80.00
77.05	79.40	76.26
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97162.D
Acq On : 13 Sep 2017 9:37 am
Operator : kristis
Sample : ic4310-100
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 13 12:41:50 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 09:31:51 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



(41) Caprolactam (t)

5.409min (+0.035) 75.42ppm

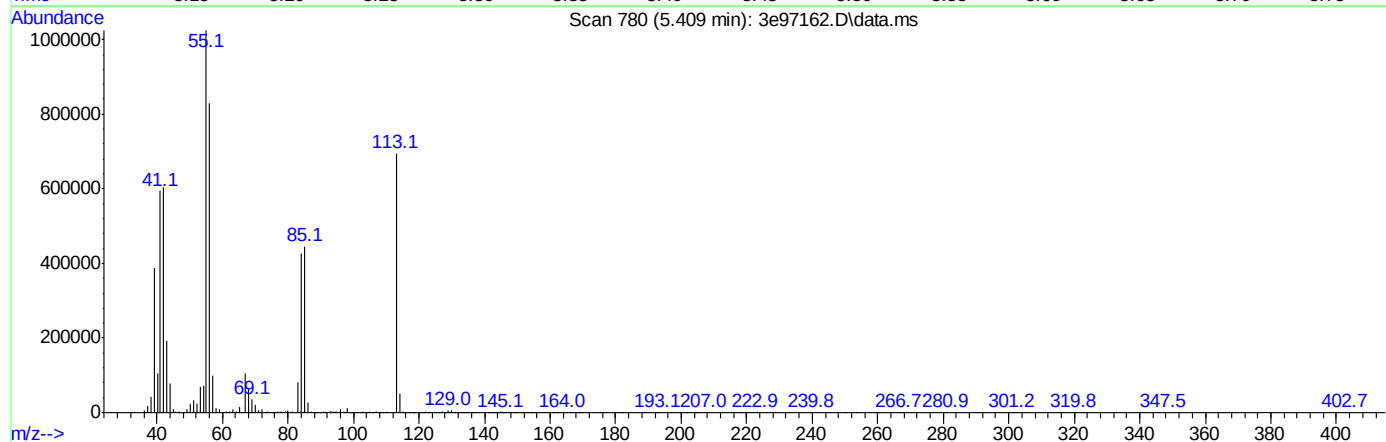
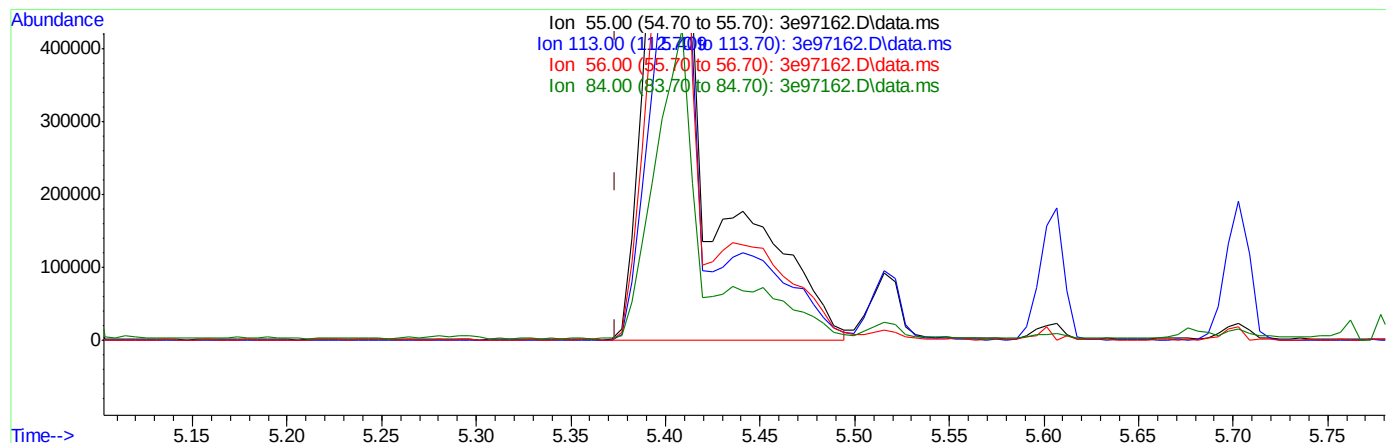
response 1399237

Ion	Exp%	Act%
55.00	100	100
113.00	65.70	67.73
56.00	78.60	81.11
84.00	39.90	41.22

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97162.D
Acq On : 13 Sep 2017 9:37 am
Operator : kristis
Sample : ic4310-100
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 13 12:41:50 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 09:31:51 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



(41) Caprolactam (t)

5.409min (+0.035) 100.47ppm m

response 1864099

Ion	Exp%	Act%
55.00	100	100
113.00	65.70	67.80
56.00	78.60	81.06
84.00	39.90	41.52

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97163.D
 Acq On : 13 Sep 2017 10:03 am
 Operator : kristis
 Sample : ic4310-1
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 13 12:45:39 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.975	152	1273233	40.00	ppm	0.00
24) Naphthalene-d8	4.938	136	4995014	40.00	ppm	-0.02
47) Acenaphthene-d10	6.778	164	2777888	40.00	ppm	-0.02
69) Phenanthrene-d10	8.832	188	4532118	40.00	ppm	-0.02
83) Chrysene-d12	12.929	240	4153530	40.00	ppm	-0.03
91) Perylene-d12	15.009	264	3945257	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	3.975	152	1273233	40.00	ppm	0.00
103) Acenaphthene-d10a	6.778	164	2777888	40.00	ppm	-0.02
105) Phenanthrene-d10a	8.832	188	4532118	40.00	ppm	-0.02
109) Chrysene-d12a	12.929	240	4153530	40.00	ppm	-0.03
111) Naphthalene-d8a	4.938	136	4995014	40.00	ppm	-0.02
113) Phenanthrene-d10b	8.832	188	4532118	40.00	ppm	-0.02
115) Chrysene-d12c	12.929	240	4153530	40.00	ppm	-0.03
117) Naphthalene-d8b	4.938	136	4995014	40.00	ppm	-0.02
120) Naphthalene-d8c	4.938	136	4995014	40.00	ppb	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	2.964	112	36516	0.97	ppm	0.00
Spiked Amount 50.000			Recovery	=	1.94%	
8) Phenol-d5	3.756	99	53755	1.10	ppm	0.01
Spiked Amount 50.000			Recovery	=	2.20%	
25) Nitrobenzene-d5	4.392	82	44225	0.92	ppm	-0.01
Spiked Amount 50.000			Recovery	=	1.84%	
51) 2-Fluorobiphenyl	6.002	172	94124	1.11	ppm	-0.02
Spiked Amount 50.000			Recovery	=	2.22%	
73) 2,4,6-Tribromophenol	7.842	330	12595	1.23	ppm	-0.02
Spiked Amount 50.000			Recovery	=	2.46%	
85) Terphenyl-d14	11.372	244	82536	1.00	ppm	-0.03
Spiked Amount 50.000			Recovery	=	2.00%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
2) 1,4-Dioxane	1.365	88	19631	1.11	ppm	Qvalue 94
3) Pyridine	1.659	79	29882	0.76	ppm	88
4) N-Nitrosodimethylamine	1.611	74	21900	0.95	ppm	88
6) Indene	4.168	116	73888	1.11	ppm	97
7) Cumene	3.355	105	114270	1.22	ppm	97
9) Phenol	3.767	94	44849	0.88	ppm	81
10) Aniline	3.740	93	64685	1.07	ppm	89
11) bis(2-Chloroethyl)ether	3.799	93	42205	1.13	ppm	98
12) 2-Chlorophenol	3.831	128	48096	1.20	ppm	88
13) Decane	3.879	43	54331	1.16	ppm	98
14) 1,3-Dichlorobenzene	3.932	146	52447	1.16	ppm	94
15) 1,4-Dichlorobenzene	3.991	146	52838	1.14	ppm	91
16) Benzyl alcohol	4.109	108	25198	1.06	ppm	# 79
17) 1,2-Dichlorobenzene	4.098	146	48317	1.15	ppm	100

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97163.D
 Acq On : 13 Sep 2017 10:03 am
 Operator : kristis
 Sample : ic4310-1
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 13 12:45:39 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.285	105	55263	1.00	ppm	95
19) 2-Methylphenol	4.205	108	38912	1.11	ppm	96
20) 2,2'-oxybis(1-Chloropr...	4.205	121	15386	1.17	ppm #	75
21) 3&4-Methylphenol	4.328	108	37867	0.51	ppm	76
22) n-Nitroso-di-n-propyla...	4.296	70	35175	1.27	ppm	90
23) Hexachloroethane	4.344	201	16941	1.31	ppm	92
26) Nitrobenzene	4.409	77	46409	0.97	ppm	98
27) Quinoline	5.259	129	79031	0.92	ppm	96
28) Isophorone	4.585	82	80457	1.02	ppm	94
29) 2-Nitrophenol	4.649	139	20296	0.88	ppm #	43
30) 2,4-Dimethylphenol	4.708	107	42824	1.07	ppm	98
31) Benzoic acid	4.820	105	15161	0.53	ppm #	55
32) bis(2-Chloroethoxy)met...	4.772	93	47025	1.00	ppm	86
33) 2,4-Dichlorophenol	4.863	162	28352	0.88	ppm	97
34) 2,6-Dichlorophenol	5.029	162	32174	0.96	ppm	96
35) 1,3,5-Trichlorobenzene	4.649	180	42355	1.04	ppm	98
36) 1,2,4-Trichlorobenzene	4.901	180	37603	1.02	ppm	94
37) 1,2,3-Trichlorobenzene	5.088	180	35049	0.97	ppm	88
38) Naphthalene	4.954	128	138828	1.13	ppm	90
39) 4-Chloroaniline	5.024	127	47997	0.88	ppm	93
40) 2,3-Dichloroaniline	5.901	161	41336	0.99	ppm	93
41) Caprolactam	5.318	55	16059	0.82	ppm	90
42) Hexachlorobutadiene	5.077	225	19283	1.13	ppm	96
43) 4-Chloro-3-methylphenol	5.505	107	35676	1.04	ppm	96
44) 2-Methylnaphthalene	5.601	141	76254	1.04	ppm	95
45) 1-Methylnaphthalene	5.698	141	82581	1.04	ppm	93
46) Dimethylnaphthalene	6.286	156	77564	1.02	ppm	96
48) Hexachlorocyclopentadiene	5.767	237	14797	0.93	ppm	92
49) 2,4,6-Trichlorophenol	5.917	196	23628	1.16	ppm	98
50) 2,4,5-Trichlorophenol	5.976	196	22465	0.97	ppm	87
52) 2-Chloronaphthalene	6.115	162	77200	1.11	ppm	98
53) Biphenyl	6.109	154	102073	1.03	ppm	98
54) 2-Nitroaniline	6.259	65	24271	0.96	ppm	98
55) Dimethylphthalate	6.505	163	85611	1.12	ppm	92
56) Acenaphthylene	6.591	152	134780	1.15	ppm	96
57) 2,6-Dinitrotoluene	6.564	165	17892	1.08	ppm	83
58) 3-Nitroaniline	6.773	138	18529	0.89	ppm #	1
59) Acenaphthene	6.815	153	86151	1.09	ppm	90
62) Dibenzofuran	7.045	168	107921	1.09	ppm	81
63) 2,4-Dinitrotoluene	7.083	165	19083	0.86	ppm	89
64) 2,3,4,6-Tetrachlorophenol	7.238	232	16172	1.01	ppm	84
65) Diethylphthalate	7.441	149	85598	1.10	ppm	95
66) Fluorene	7.500	166	86955	1.07	ppm	95
67) 4-Chlorophenyl-phenyle...	7.543	204	43071	1.23	ppm	95
68) 4-Nitroaniline	7.586	138	17289	0.87	ppm	80
70) 4,6-Dinitro-2-methylph...	7.644	198	5900	0.46	ppm	95
71) n-Nitrosodiphenylamine	7.719	169	64358	1.11	ppm	96
72) 1,2-Diphenylhydrazine	7.757	77	86945	0.99	ppm	96
74) 4-Bromophenyl-phenylether	8.233	248	20270	1.05	ppm	94
75) Hexachlorobenzene	8.270	284	25051	1.16	ppm	90

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97163.D
Acq On : 13 Sep 2017 10:03 am
Operator : kristis
Sample : ic4310-1
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 13 12:45:39 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
76) Pentachlorophenol	8.602	266	18497	1.47	ppm	72
77) Phenanthrene	8.864	178	128282	1.15	ppm	95
78) Anthracene	8.944	178	118879	1.07	ppm	96
79) Carbazole	9.233	167	99627	0.92	ppm	96
80) Di-n-butylphthalate	9.912	149	131235	1.06	ppm	99
81) Fluoranthene	10.672	202	118180	1.06	ppm	94
82) Octadecane	8.891	57	50992	0.89	ppm	90
84) Pyrene	11.003	202	130364	1.06	ppm	97
86) Butylbenzylphthalate	12.239	149	54848	0.94	ppm	95
87) Benzo[a]anthracene	12.913	228	125949	1.18	ppm	97
88) 3,3'-Dichlorobenzidine	12.966	252	37397	1.10	ppm	88
89) Chrysene	12.966	228	113621	1.15	ppm	99
90) bis(2-Ethylhexyl)phtha...	13.234	149	71945	0.97	ppm	90
92) Di-n-octylphthalate	14.213	149	116316	0.82	ppm	95
93) Benzo[b]fluoranthene	14.496	252	109583	0.94	ppm	83
94) Benzo[k]fluoranthene	14.533	252	116264	1.17	ppm	98
95) Benzo[a]pyrene	14.924	252	101659	1.09	ppm	93
96) Indeno[1,2,3-cd]pyrene	16.315	276	81909	0.95	ppm	65
97) Dibenz(a,h)acridine	16.079	279	75513	0.86	ppm	91
98) Dibenz[a,h]anthracene	16.357	278	93483	1.06	ppm	97
99) 7,12-Dimethylbenz(a)an...	14.501	256	54836	1.01	ppm	84
100) Benzo[g,h,i]perylene	16.598	276	95820	1.06	ppm	88

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97163.D
Acq On : 13 Sep 2017 10:03 am
Operator : kristis
Sample : ic4310-1
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

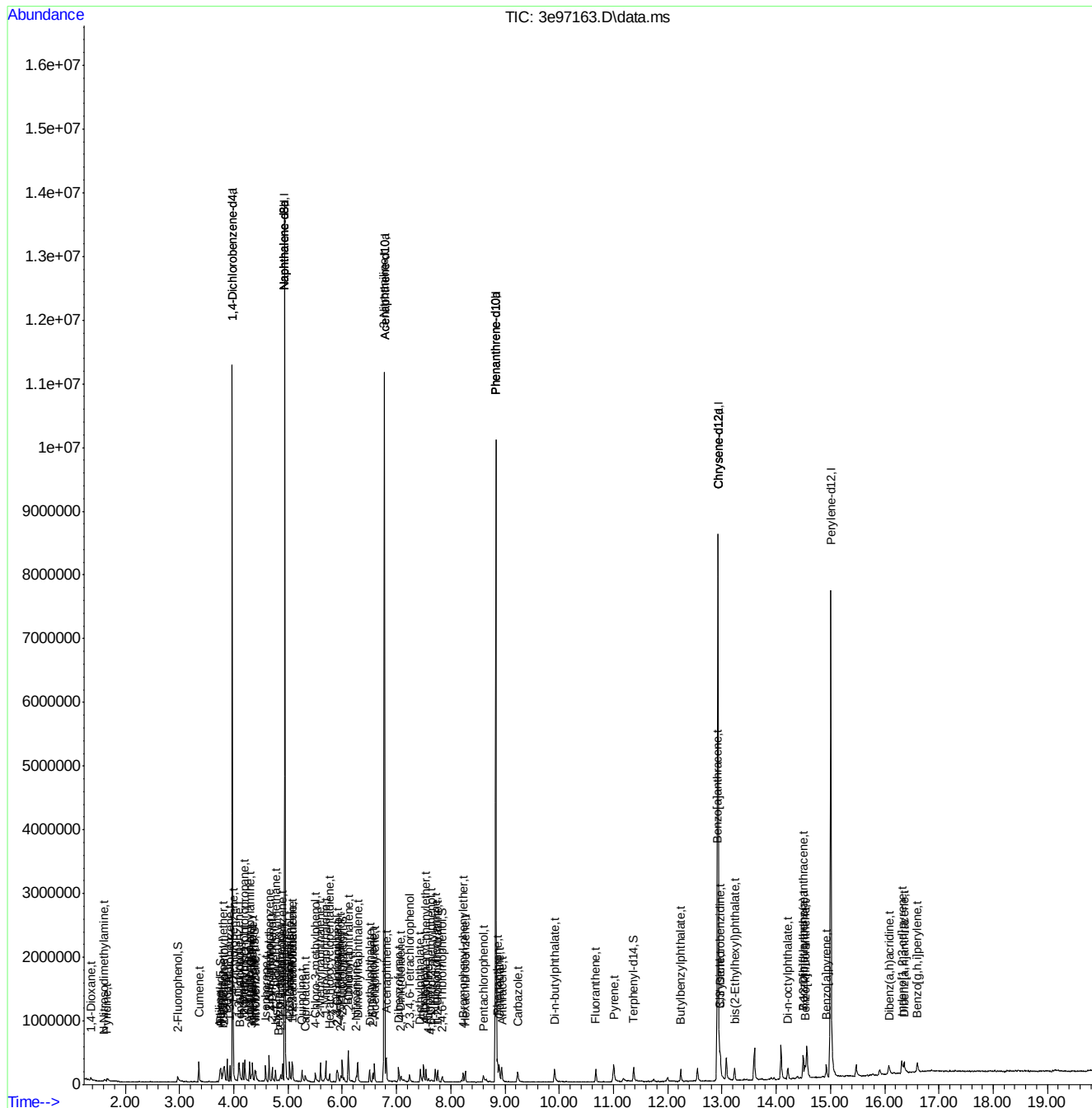
Quant Time: Sep 13 12:45:39 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97164.D
 Acq On : 13 Sep 2017 10:29 am
 Operator : kristis
 Sample : ic4310-80
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 12:47:12 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.981	152	1215289	40.00	ppm	0.00
24) Naphthalene-d8	4.943	136	4162642	40.00	ppm	-0.01
47) Acenaphthene-d10	6.778	164	2050247	40.00	ppm	-0.02
69) Phenanthrene-d10	8.837	188	3199549	40.00	ppm	-0.02
83) Chrysene-d12	12.940	240	2898399	40.00	ppm	-0.02
91) Perylene-d12	15.015	264	2224934	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	3.981	152	1215289	40.00	ppm	0.00
103) Acenaphthene-d10a	6.778	164	2050247	40.00	ppm	-0.02
105) Phenanthrene-d10a	8.837	188	3199549	40.00	ppm	-0.02
109) Chrysene-d12a	12.940	240	2898399	40.00	ppm	-0.02
111) Naphthalene-d8a	4.943	136	4162642	40.00	ppm	-0.01
113) Phenanthrene-d10b	8.837	188	3199549	40.00	ppm	-0.02
115) Chrysene-d12c	12.940	240	2898399	40.00	ppm	-0.02
117) Naphthalene-d8b	4.943	136	4162642	40.00	ppm	-0.01
120) Naphthalene-d8c	4.943	136	4162642	40.00	ppb	-0.01
System Monitoring Compounds						
5) 2-Fluorophenol	2.959	112	3448785	95.82	ppm	0.00
Spiked Amount 50.000			Recovery	=	191.64%	
8) Phenol-d5	3.751	99	4402437	94.17	ppm	0.00
Spiked Amount 50.000			Recovery	=	188.34%	
25) Nitrobenzene-d5	4.398	82	3461895	86.40	ppm	0.00
Spiked Amount 50.000			Recovery	=	172.80%	
51) 2-Fluorobiphenyl	6.008	172	5542946	88.27	ppm	-0.01
Spiked Amount 50.000			Recovery	=	176.54%	
73) 2,4,6-Tribromophenol	7.853	330	632318	87.76	ppm	-0.01
Spiked Amount 50.000			Recovery	=	175.52%	
85) Terphenyl-d14	11.383	244	4810695	83.54	ppm	-0.02
Spiked Amount 50.000			Recovery	=	167.08%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
					Qvalue	
2) 1,4-Dioxane	1.360	88	1346149	79.62	ppm	95
3) Pyridine	1.616	79	3427366	90.81	ppm	97
4) N-Nitrosodimethylamine	1.590	74	1947196	88.39	ppm	96
6) Indene	4.168	116	5449012	85.67	ppm	97
7) Cumene	3.355	105	8029059	89.56	ppm	97
9) Phenol	3.761	94	4181478	86.01	ppm	92
10) Aniline	3.735	93	5159237	89.17	ppm	83
11) bis(2-Chloroethyl)ether	3.804	93	3128204	87.87	ppm	97
12) 2-Chlorophenol	3.825	128	3453573	90.30	ppm	97
13) Decane	3.884	43	3738224	83.76	ppm	99
14) 1,3-Dichlorobenzene	3.932	146	3843969	88.82	ppm	99
15) 1,4-Dichlorobenzene	3.991	146	3838214	87.07	ppm	96
16) Benzyl alcohol	4.109	108	2127400	93.44	ppm	99
17) 1,2-Dichlorobenzene	4.104	146	3527991	87.62	ppm	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97164.D
 Acq On : 13 Sep 2017 10:29 am
 Operator : kristis
 Sample : ic4310-80
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 12:47:12 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.296	105	4337120	82.43	ppm	99
19) 2-Methylphenol	4.211	108	2973423	88.56	ppm	98
20) 2,2'-oxybis(1-Chloropr...	4.205	121	1038493	82.84	ppm #	86
21) 3&4-Methylphenol	4.323	108	3115705	43.68	ppm	85
22) n-Nitroso-di-n-propyla...	4.307	70	2296178	87.04	ppm	97
23) Hexachloroethane	4.344	201	1071633	86.70	ppm	91
26) Nitrobenzene	4.414	77	3467463	86.75	ppm	94
27) Quinoline	5.275	129	5416790	75.70	ppm	99
28) Isophorone	4.601	82	5777586	87.62	ppm	99
29) 2-Nitrophenol	4.649	139	1816445	94.04	ppm	94
30) 2,4-Dimethylphenol	4.713	107	2990895	89.72	ppm	99
31) Benzoic acid	4.879	105	2490631m	103.80	ppm	
32) bis(2-Chloroethoxy)met...	4.778	93	3329822	85.03	ppm	100
33) 2,4-Dichlorophenol	4.852	162	2365032	88.36	ppm	99
34) 2,6-Dichlorophenol	5.034	162	2280943	81.76	ppm	97
35) 1,3,5-Trichlorobenzene	4.655	180	2738620	80.39	ppm	96
36) 1,2,4-Trichlorobenzene	4.906	180	2501785	81.24	ppm	99
37) 1,2,3-Trichlorobenzene	5.088	180	2258016	74.63	ppm	99
38) Naphthalene	4.959	128	7205967	70.33	ppm	93
39) 4-Chloroaniline	5.029	127	3923967	86.79	ppm	98
40) 2,3-Dichloroaniline	5.906	161	2619739	75.54	ppm	97
41) Caprolactam	5.398	55	1385801m	85.33	ppm	
42) Hexachlorobutadiene	5.077	225	1159472	81.87	ppm	99
43) 4-Chloro-3-methylphenol	5.516	107	2476827	86.86	ppm	94
44) 2-Methylnaphthalene	5.607	141	5125954	84.17	ppm	100
45) 1-Methylnaphthalene	5.703	141	5140267	77.38	ppm	98
46) Dimethylnaphthalene	6.291	156	4740462	74.62	ppm	100
48) Hexachlorocyclopentadiene	5.772	237	2289630	195.37	ppm	98
49) 2,4,6-Trichlorophenol	5.922	196	1395876	92.95	ppm	100
50) 2,4,5-Trichlorophenol	5.970	196	1435846	84.26	ppm	97
52) 2-Chloronaphthalene	6.120	162	4585067	89.01	ppm	99
53) Biphenyl	6.115	154	6581608	90.02	ppm	98
54) 2-Nitroaniline	6.270	65	1903165	102.36	ppm	94
55) Dimethylphthalate	6.516	163	4980998	88.01	ppm	99
56) Acenaphthylene	6.601	152	8079000	93.40	ppm	98
57) 2,6-Dinitrotoluene	6.580	165	1197672	98.38	ppm	95
58) 3-Nitroaniline	6.778	138	1555444	101.65	ppm	95
59) Acenaphthene	6.826	153	5296763	91.16	ppm	99
60) 2,4-Dinitrophenol	6.928	184	1497633	259.92	ppm	93
61) 4-Nitrophenol	7.077	109	785553	113.54	ppm	85
62) Dibenzofuran	7.051	168	6563057	89.78	ppm	83
63) 2,4-Dinitrotoluene	7.093	165	1574678	96.40	ppm	67
64) 2,3,4,6-Tetrachlorophenol	7.243	232	1063546	89.76	ppm	95
65) Diethylphthalate	7.463	149	5257670	91.77	ppm	99
66) Fluorene	7.511	166	5452375	91.32	ppm	97
67) 4-Chlorophenyl-phenyle...	7.553	204	2173058	84.34	ppm	97
68) 4-Nitroaniline	7.607	138	1425891	96.78	ppm	95
70) 4,6-Dinitro-2-methylph...	7.650	198	931707	102.99	ppm	96
71) n-Nitrosodiphenylamine	7.735	169	3677687	89.45	ppm	99
72) 1,2-Diphenylhydrazine	7.773	77	5889633	95.34	ppm	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97164.D
 Acq On : 13 Sep 2017 10:29 am
 Operator : kristis
 Sample : ic4310-80
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 12:47:12 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

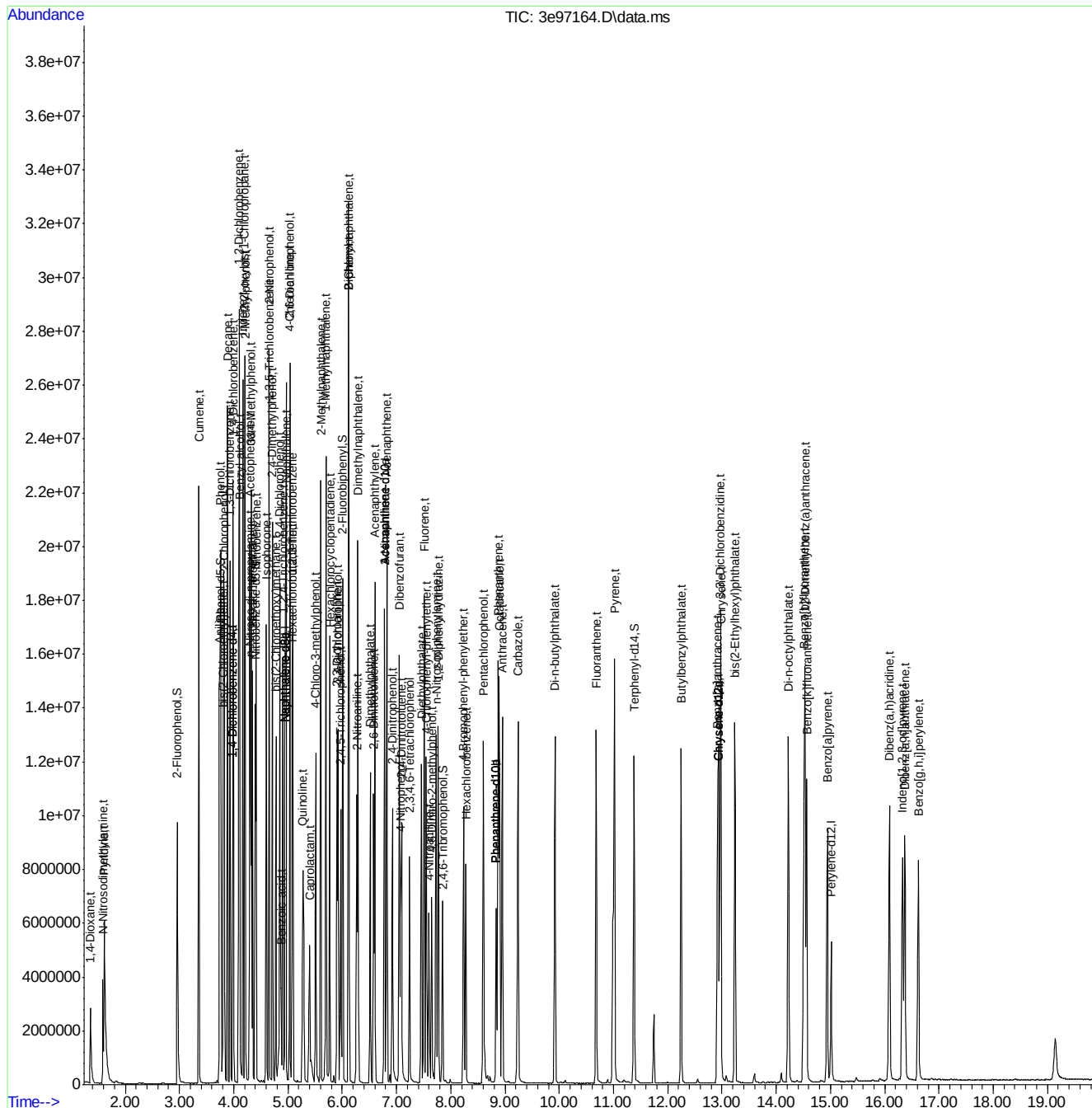
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
74) 4-Bromophenyl-phenylether	8.238	248	1154156	84.34	ppm	93
75) Hexachlorobenzene	8.281	284	1205710	79.32	ppm	98
76) Pentachlorophenol	8.602	266	1628427	183.85	ppm	99
77) Phenanthrene	8.875	178	7133097	90.71	ppm	98
78) Anthracene	8.949	178	7041600	90.11	ppm	99
79) Carbazole	9.244	167	6752825	88.29	ppm	99
80) Di-n-butylphthalate	9.923	149	8960886	102.26	ppm	99
81) Fluoranthene	10.688	202	7732517	97.82	ppm	97
82) Octadecane	8.896	57	3716455	91.92	ppm	97
84) Pyrene	11.019	202	7656011	88.99	ppm	100
86) Butylbenzylphthalate	12.250	149	4030315	98.59	ppm	99
87) Benzo[a]anthracene	12.924	228	6757510	90.39	ppm	99
88) 3,3'-Dichlorobenzidine	12.972	252	2296046	96.78	ppm	99
89) Chrysene	12.982	228	6039550	87.87	ppm	98
90) bis(2-Ethylhexyl)phtha...	13.239	149	4970105	96.04	ppm	99
92) Di-n-octylphthalate	14.223	149	9037161	112.86	ppm	100
93) Benzo[b]fluoranthene	14.523	252	6789825	102.86	ppm	97
94) Benzo[k]fluoranthene	14.566	252	4975308	88.78	ppm	98
95) Benzo[a]pyrene	14.945	252	5233265	99.33	ppm	98
96) Indeno[1,2,3-cd]pyrene	16.331	276	5070218	104.16	ppm	94
97) Dibenz(a,h)acridine	16.090	279	4836472	97.74	ppm	100
98) Dibenz[a,h]anthracene	16.373	278	4891089	98.03	ppm	98
99) 7,12-Dimethylbenz(a)an...	14.528	256	2942668	95.97	ppm	99
100) Benzo[g,h,i]perylene	16.625	276	4791352	93.57	ppm	96

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97164.D
Acq On : 13 Sep 2017 10:29 am
Operator : kristis
Sample : ic4310-80
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 12:47:12 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3E4310-IC4310

Lab FileID:

3E97164.D

Injection Time:

09/13/17 10:29

Method:

EPA 625

Analyst approved:

09/13/17 17:20 Kristi Schollenberger

Supervisor approved:

09/14/17 17:21 Nina Pandya

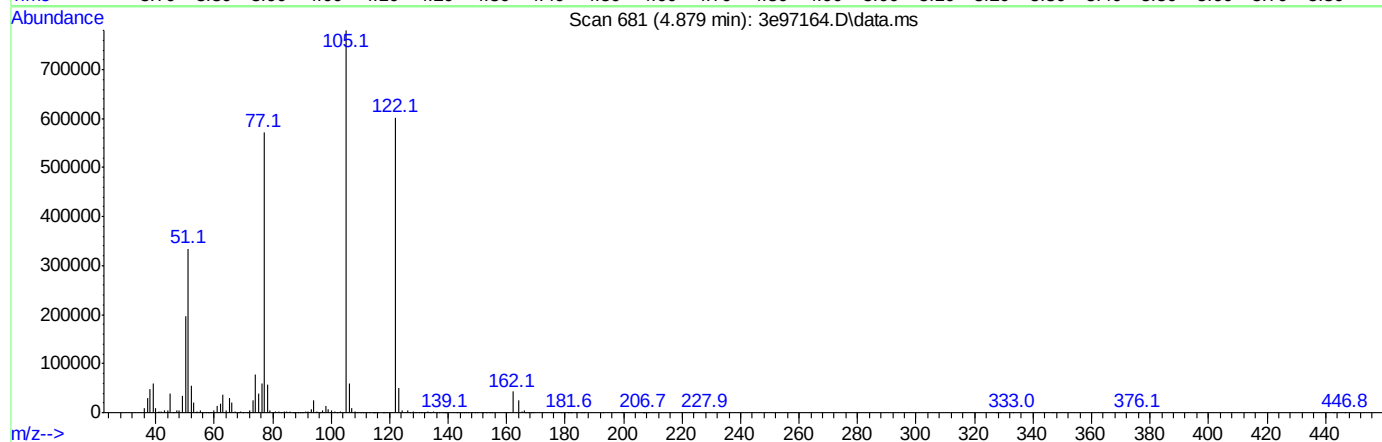
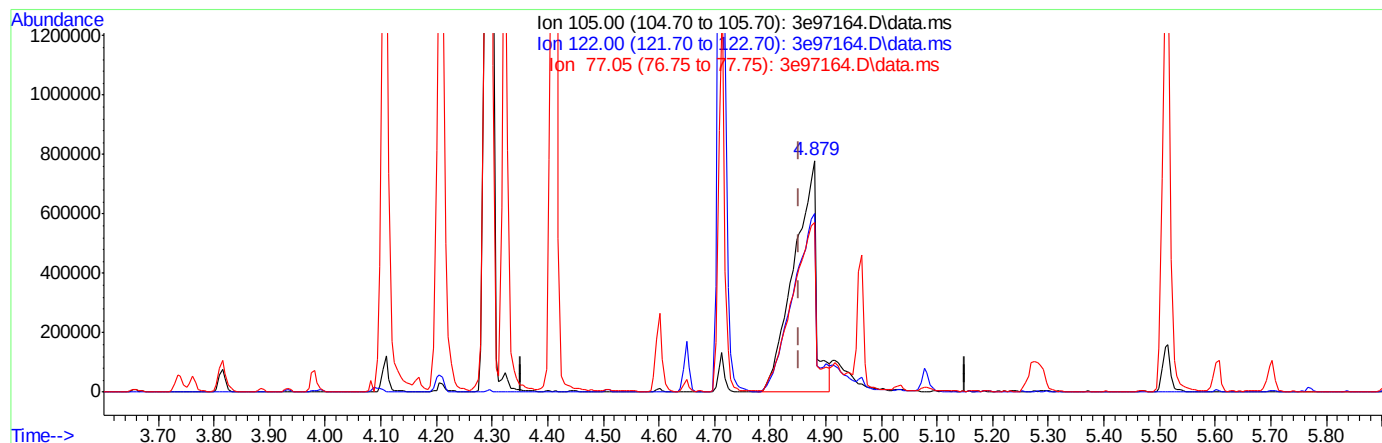
Parameter	CAS	Sig#	R.T. (min.)	Reason
Benzoic Acid	65-85-0		4.88	Split peak
Caprolactam	105-60-2		5.40	Split peak

9.6.13.1
9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97164.D
Acq On : 13 Sep 2017 10:29 am
Operator : kristis
Sample : ic4310-80
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 12:45:50 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



(31) Benzoic acid (t)

4.879min (+0.027) 92.00ppm

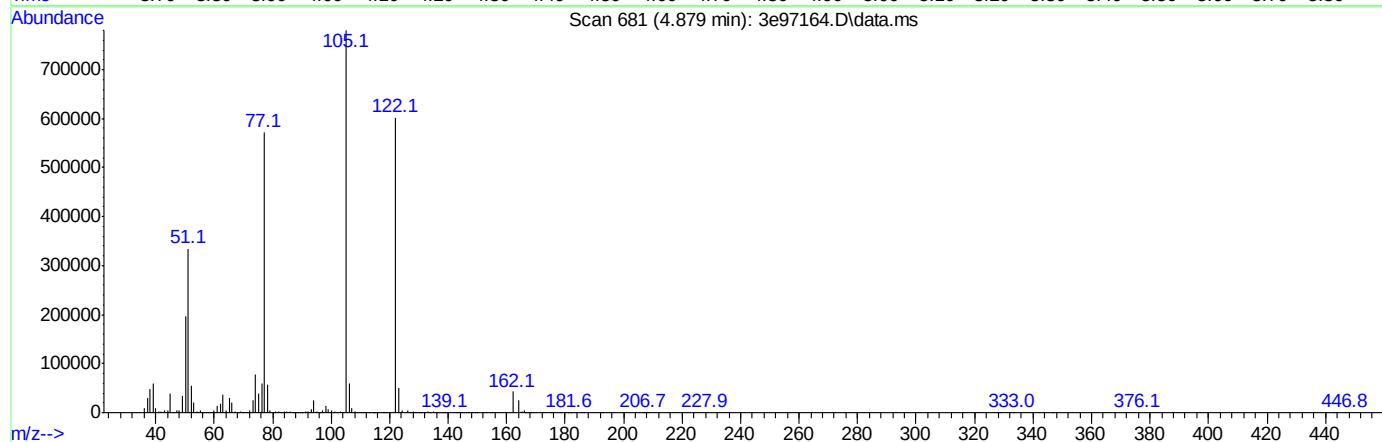
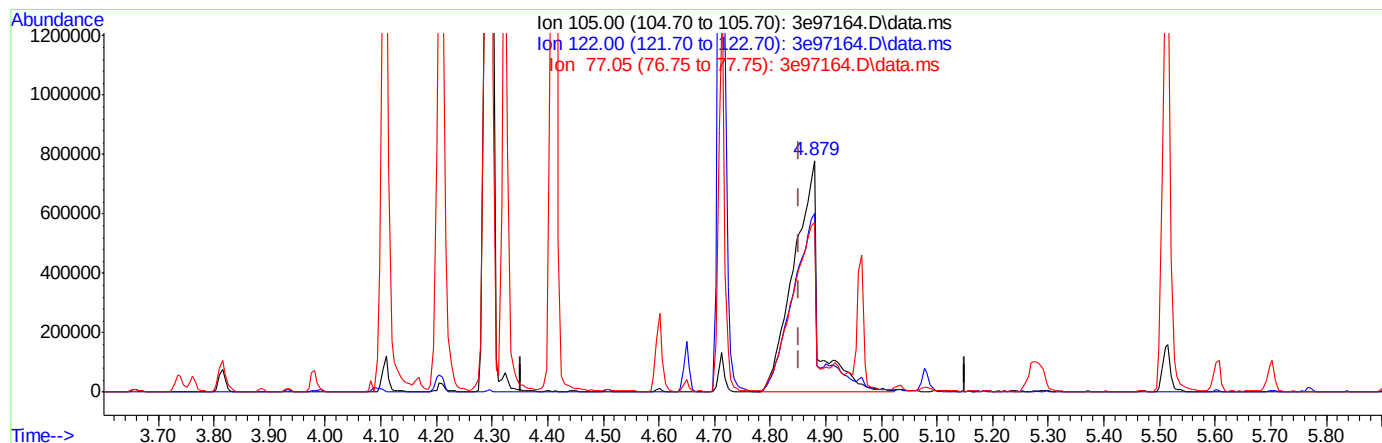
response 2207475

Ion	Exp%	Act%
105.00	100	100
122.00	74.70	76.03
77.05	79.40	72.43
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97164.D
Acq On : 13 Sep 2017 10:29 am
Operator : kristis
Sample : ic4310-80
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 12:45:50 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



(31) Benzoic acid (t)

4.879min (+0.027) 103.80ppm m

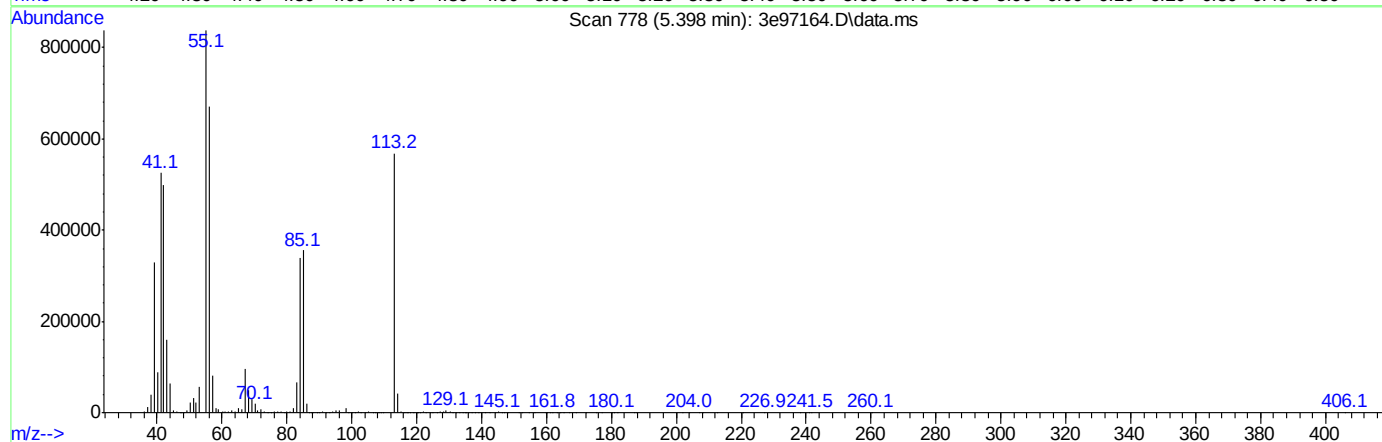
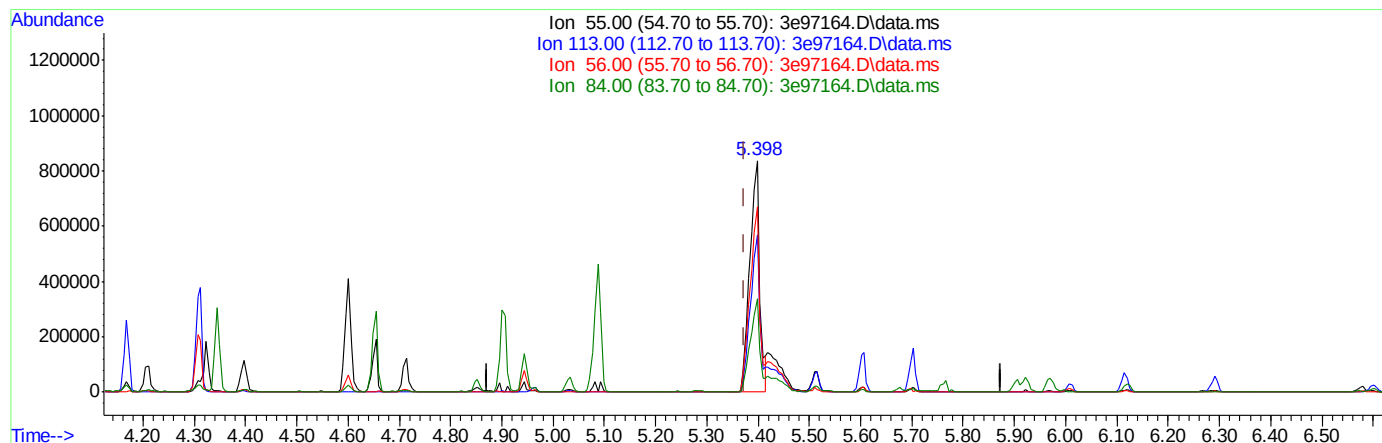
response 2490631

Ion	Exp%	Act%
105.00	100	100
122.00	74.70	77.13
77.05	79.40	73.45
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97164.D
Acq On : 13 Sep 2017 10:29 am
Operator : kristis
Sample : ic4310-80
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 12:45:50 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



TIC: 3e97164.D\data.ms

(41) Caprolactam (t)

5.398min (+0.024) 68.18ppm

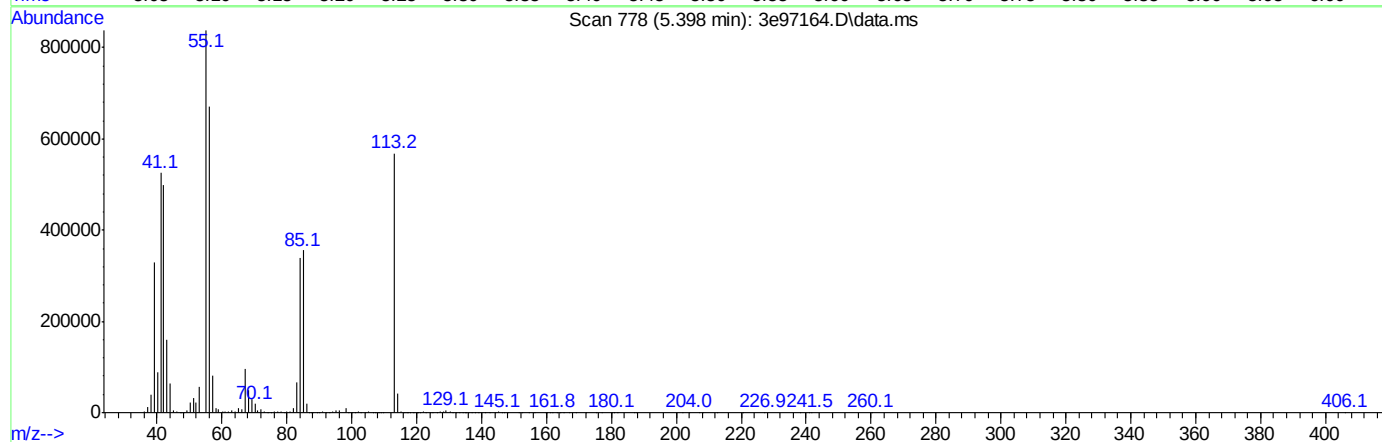
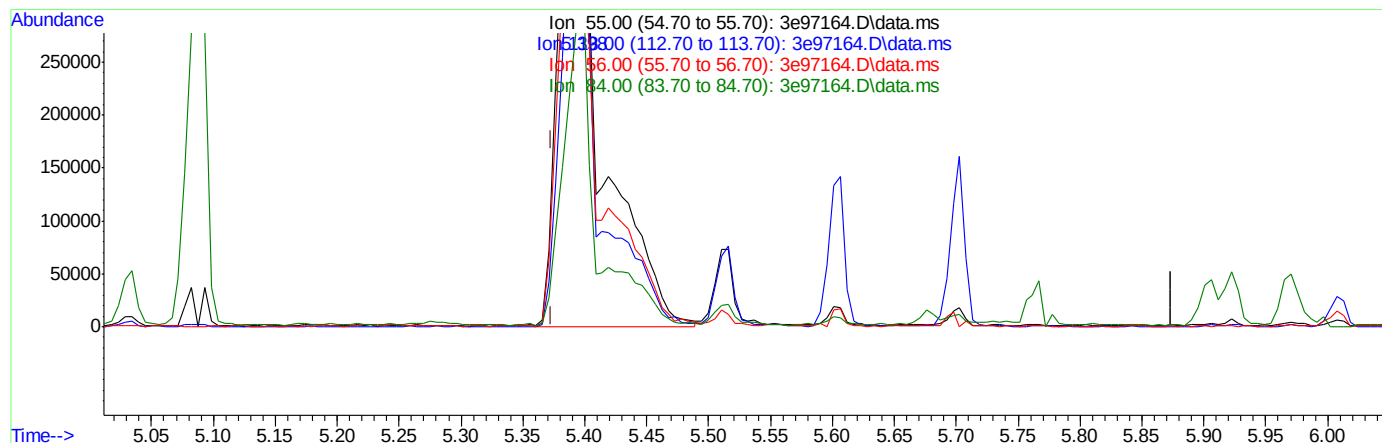
response 1107201

Ion	Exp%	Act%
55.00	100	100
113.00	65.70	67.81
56.00	78.60	80.23
84.00	39.90	40.65

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97164.D
Acq On : 13 Sep 2017 10:29 am
Operator : kristis
Sample : ic4310-80
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 13 12:45:50 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



TIC: 3e97164.D\data.ms

(41) Caprolactam (t)

5.398min (+0.024) 85.33ppm m

response 1385801

Ion	Exp%	Act%
55.00	100	100
113.00	65.70	67.88
56.00	78.60	79.99
84.00	39.90	40.58

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97165.D
 Acq On : 13 Sep 2017 10:55 am
 Operator : kristis
 Sample : ic4310-2
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 13 12:48:48 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.975	152	1243310	40.00	ppm	0.00
24) Naphthalene-d8	4.938	136	4764907	40.00	ppm	-0.02
47) Acenaphthene-d10	6.773	164	2658399	40.00	ppm	-0.02
69) Phenanthrene-d10	8.832	188	4345450	40.00	ppm	-0.02
83) Chrysene-d12	12.929	240	3948948	40.00	ppm	-0.03
91) Perylene-d12	15.004	264	3806737	40.00	ppm	-0.03
101) 1,4-Dichlorobenzene-d4a	3.975	152	1243310	40.00	ppm	0.00
103) Acenaphthene-d10a	6.773	164	2658399	40.00	ppm	-0.02
105) Phenanthrene-d10a	8.832	188	4345450	40.00	ppm	-0.02
109) Chrysene-d12a	12.929	240	3948948	40.00	ppm	-0.03
111) Naphthalene-d8a	4.938	136	4764907	40.00	ppm	-0.02
113) Phenanthrene-d10b	8.832	188	4345450	40.00	ppm	-0.02
115) Chrysene-d12c	12.929	240	3948948	40.00	ppm	-0.03
117) Naphthalene-d8b	4.938	136	4764907	40.00	ppm	-0.02
120) Naphthalene-d8c	4.938	136	4764907	40.00	ppb	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	2.964	112	73683	2.00	ppm	0.00
Spiked Amount 50.000			Recovery	=	4.00%	
8) Phenol-d5	3.751	99	100070	2.09	ppm	0.00
Spiked Amount 50.000			Recovery	=	4.18%	
25) Nitrobenzene-d5	4.392	82	92136	2.01	ppm	-0.01
Spiked Amount 50.000			Recovery	=	4.02%	
51) 2-Fluorobiphenyl	6.002	172	179458	2.20	ppm	-0.02
Spiked Amount 50.000			Recovery	=	4.40%	
73) 2,4,6-Tribromophenol	7.842	330	24208	2.47	ppm	-0.02
Spiked Amount 50.000			Recovery	=	4.94%	
85) Terphenyl-d14	11.372	244	159728	2.04	ppm	-0.03
Spiked Amount 50.000			Recovery	=	4.08%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
2) 1,4-Dioxane	1.365	88	36675	2.12	ppm	94
3) Pyridine	1.643	79	75777	1.96	ppm	99
4) N-Nitrosodimethylamine	1.606	74	42758	1.90	ppm	93
6) Indene	4.168	116	139493	2.14	ppm	97
7) Cumene	3.355	105	206976	2.26	ppm	98
9) Phenol	3.761	94	104466	2.10	ppm	92
10) Aniline	3.735	93	124198	2.10	ppm	96
11) bis(2-Chloroethyl)ether	3.799	93	83612	2.30	ppm	97
12) 2-Chlorophenol	3.825	128	84616	2.16	ppm	97
13) Decane	3.879	43	104438	2.29	ppm	95
14) 1,3-Dichlorobenzene	3.932	146	98005	2.21	ppm	95
15) 1,4-Dichlorobenzene	3.991	146	102971	2.28	ppm	95
16) Benzyl alcohol	4.109	108	47810	2.05	ppm	94
17) 1,2-Dichlorobenzene	4.098	146	94343	2.29	ppm	98

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97165.D
 Acq On : 13 Sep 2017 10:55 am
 Operator : kristis
 Sample : ic4310-2
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 13 12:48:48 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.285	105	109696	2.04	ppm	89
19) 2-Methylphenol	4.205	108	76257	2.22	ppm	99
20) 2,2'-oxybis(1-Chloropr...	4.205	121	28343	2.21	ppm #	78
21) 3&4-Methylphenol	4.323	108	75902	1.04	ppm	79
22) n-Nitroso-di-n-propyla...	4.296	70	59813	2.22	ppm	99
23) Hexachloroethane	4.344	201	31121	2.46	ppm	96
26) Nitrobenzene	4.403	77	94226	2.06	ppm	94
27) Quinoline	5.259	129	155452	1.90	ppm	97
28) Isophorone	4.585	82	150774	2.00	ppm	96
29) 2-Nitrophenol	4.644	139	42129	1.91	ppm #	76
30) 2,4-Dimethylphenol	4.708	107	79264	2.08	ppm	98
31) Benzoic acid	4.815	105	30756	1.12	ppm	72
32) bis(2-Chloroethoxy)met...	4.772	93	92247	2.06	ppm	98
33) 2,4-Dichlorophenol	4.858	162	60644	1.98	ppm	94
34) 2,6-Dichlorophenol	5.029	162	62765	1.97	ppm	98
35) 1,3,5-Trichlorobenzene	4.649	180	77723	1.99	ppm	96
36) 1,2,4-Trichlorobenzene	4.901	180	73451	2.08	ppm	95
37) 1,2,3-Trichlorobenzene	5.082	180	73087	2.11	ppm	94
38) Naphthalene	4.959	128	260388	2.22	ppm	89
39) 4-Chloroaniline	5.024	127	102045	1.97	ppm	89
40) 2,3-Dichloroaniline	5.901	161	77903	1.96	ppm	97
41) Caprolactam	5.323	55	34640	1.86	ppm	95
42) Hexachlorobutadiene	5.072	225	36286	2.24	ppm	98
43) 4-Chloro-3-methylphenol	5.505	107	64160	1.97	ppm #	66
44) 2-Methylnaphthalene	5.601	141	148086	2.12	ppm	98
45) 1-Methylnaphthalene	5.697	141	155498	2.04	ppm	92
46) Dimethylnaphthalene	6.281	156	146500	2.01	ppm	98
48) Hexachlorocyclopentadiene	5.767	237	37025	2.44	ppm	99
49) 2,4,6-Trichlorophenol	5.917	196	39973	2.05	ppm	92
50) 2,4,5-Trichlorophenol	5.970	196	45808	2.07	ppm	95
52) 2-Chloronaphthalene	6.115	162	147257	2.20	ppm	99
53) Biphenyl	6.109	154	203891	2.15	ppm	96
54) 2-Nitroaniline	6.259	65	48957	2.03	ppm	91
55) Dimethylphthalate	6.500	163	161751	2.20	ppm	99
56) Acenaphthylene	6.591	152	245845	2.19	ppm	98
57) 2,6-Dinitrotoluene	6.564	165	34915	2.21	ppm	90
58) 3-Nitroaniline	6.767	138	38601	1.95	ppm #	20
59) Acenaphthene	6.815	153	163663	2.17	ppm	96
60) 2,4-Dinitrophenol	6.938	184	9802	1.31	ppm	67
61) 4-Nitrophenol	7.110	109	12333m	1.37	ppm	
62) Dibenzofuran	7.045	168	214686	2.26	ppm	79
63) 2,4-Dinitrotoluene	7.083	165	43236	2.04	ppm	70
64) 2,3,4,6-Tetrachlorophenol	7.238	232	35394	2.30	ppm	90
65) Diethylphthalate	7.441	149	162738	2.19	ppm	98
66) Fluorene	7.500	166	169360	2.19	ppm	95
67) 4-Chlorophenyl-phenyle...	7.543	204	74378	2.23	ppm	90
68) 4-Nitroaniline	7.580	138	34690	1.82	ppm	93
70) 4,6-Dinitro-2-methylph...	7.639	198	14270	1.16	ppm	79
71) n-Nitrosodiphenylamine	7.719	169	111981	2.01	ppm	97
72) 1,2-Diphenylhydrazine	7.757	77	168086	2.00	ppm	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97165.D
 Acq On : 13 Sep 2017 10:55 am
 Operator : kristis
 Sample : ic4310-2
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 13 12:48:48 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

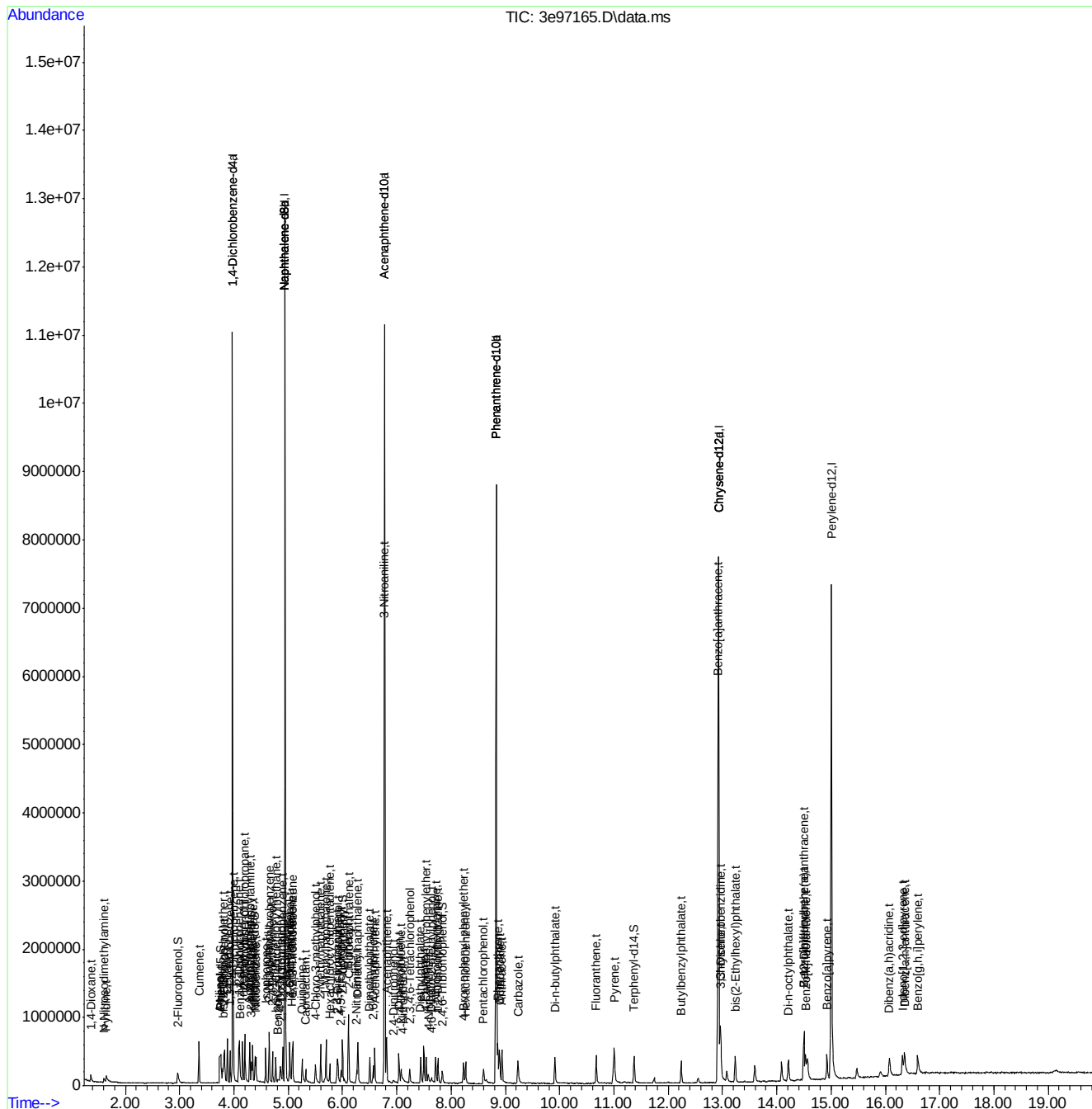
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
74) 4-Bromophenyl-phenylether	8.233	248	41565	2.24	ppm	92
75) Hexachlorobenzene	8.270	284	50238	2.43	ppm	91
76) Pentachlorophenol	8.596	266	38428	3.19	ppm	93
77) Phenanthrene	8.864	178	241880	2.26	ppm	99
78) Anthracene	8.939	178	238385	2.25	ppm	98
79) Carbazole	9.233	167	208720	2.01	ppm	95
80) Di-n-butylphthalate	9.912	149	248170	2.09	ppm	97
81) Fluoranthene	10.677	202	225870	2.10	ppm	92
82) Octadecane	8.891	57	107173	1.95	ppm	90
84) Pyrene	11.003	202	246428	2.10	ppm	96
86) Butylbenzylphthalate	12.239	149	103404	1.86	ppm	99
87) Benzo[a]anthracene	12.918	228	224268	2.20	ppm	95
88) 3,3'-Dichlorobenzidine	12.966	252	71276	2.21	ppm	92
89) Chrysene	12.961	228	217943	2.33	ppm	99
90) bis(2-Ethylhexyl)phtha...	13.234	149	135965	1.93	ppm	96
92) Di-n-octylphthalate	14.213	149	221117	1.61	ppm	97
93) Benzo[b]fluoranthene	14.496	252	211736	1.87	ppm	99
94) Benzo[k]fluoranthene	14.539	252	227200	2.37	ppm	95
95) Benzo[a]pyrene	14.924	252	193799	2.15	ppm	92
96) Indeno[1,2,3-cd]pyrene	16.315	276	161561	1.94	ppm	74
97) Dibenz(a,h)acridine	16.074	279	159518	1.88	ppm	93
98) Dibenz[a,h]anthracene	16.352	278	184958	2.17	ppm	91
99) 7,12-Dimethylbenz(a)an...	14.501	256	101749	1.94	ppm	97
100) Benzo[g,h,i]perylene	16.598	276	191208	2.18	ppm	88

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97165.D
Acq On : 13 Sep 2017 10:55 am
Operator : kristis
Sample : ic4310-2
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 13 12:48:48 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3E4310-IC4310

Lab FileID:

3E97165.D

Injection Time:

09/13/17 10:55

Method:

EPA 625

Analyst approved:

09/13/17 17:20 Kristi Schollenberger

Supervisor approved:

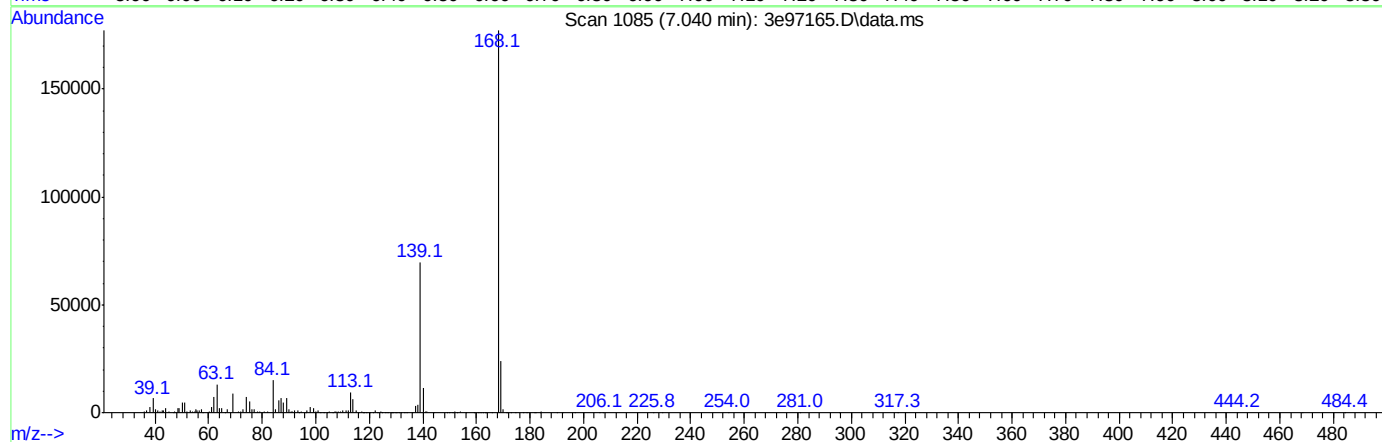
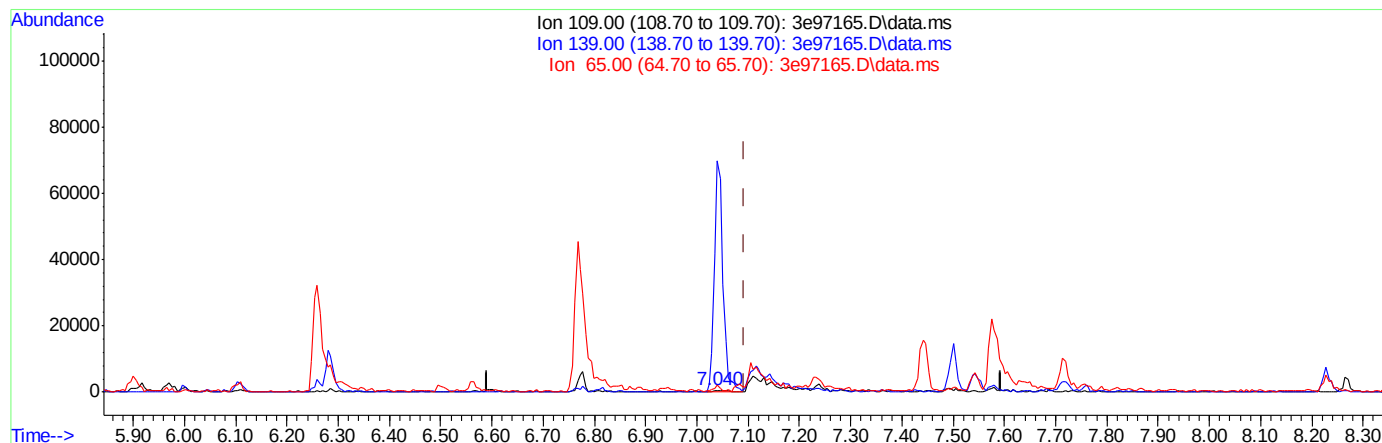
09/14/17 17:21 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
4-Nitrophenol	100-02-7		7.11	Split peak

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97165.D
Acq On : 13 Sep 2017 10:55 am
Operator : kristis
Sample : ic4310-2
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 13 12:47:28 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



TIC: 3e97165.D\data.ms

(61) 4-Nitrophenol (t)

7.040min (-0.053) 0.13ppm

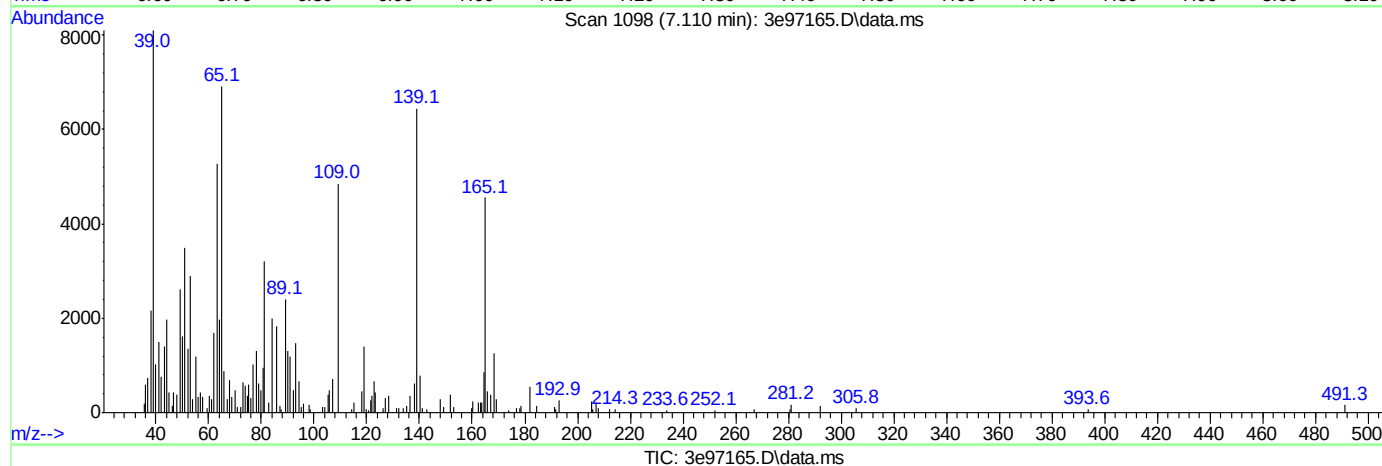
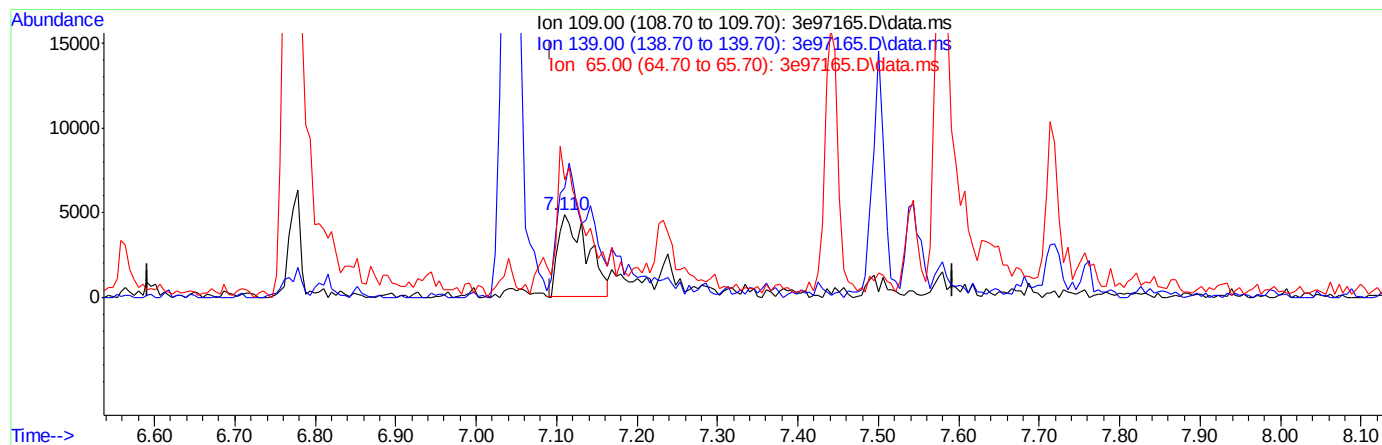
response 1184

Ion	Exp%	Act%
109.00	100	100
139.00	178.40	15786.73#
65.00	179.10	274.94#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97165.D
Acq On : 13 Sep 2017 10:55 am
Operator : kristis
Sample : ic4310-2
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 13 12:47:28 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



(61) 4-Nitrophenol (t)

7.110min (+0.017) 1.37ppm m

response 12333

Ion	Exp%	Act%
109.00	100	100
139.00	178.40	132.89#
65.00	179.10	142.85#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97166.D
 Acq On : 13 Sep 2017 11:21 am
 Operator : kristis
 Sample : icc4310-50
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 13 12:50:14 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.975	152	1292201	40.00	ppm	0.00
24) Naphthalene-d8	4.944	136	4545497	40.00	ppm	-0.01
47) Acenaphthene-d10	6.778	164	2262690	40.00	ppm	-0.02
69) Phenanthrene-d10	8.837	188	3520567	40.00	ppm	-0.02
83) Chrysene-d12	12.934	240	3232624	40.00	ppm	-0.02
91) Perylene-d12	15.010	264	2574567	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	3.975	152	1292201	40.00	ppm	0.00
103) Acenaphthene-d10a	6.778	164	2262690	40.00	ppm	-0.02
105) Phenanthrene-d10a	8.837	188	3520567	40.00	ppm	-0.02
109) Chrysene-d12a	12.934	240	3232624	40.00	ppm	-0.02
111) Naphthalene-d8a	4.944	136	4545497	40.00	ppm	-0.01
113) Phenanthrene-d10b	8.837	188	3520567	40.00	ppm	-0.02
115) Chrysene-d12c	12.934	240	3232624	40.00	ppm	-0.02
117) Naphthalene-d8b	4.944	136	4545497	40.00	ppm	-0.01
120) Naphthalene-d8c	4.944	136	4545497	40.00	ppb	-0.01
System Monitoring Compounds						
5) 2-Fluorophenol	2.954	112	2186226	57.13	ppm	0.00
Spiked Amount 50.000			Recovery	=	114.26%	
8) Phenol-d5	3.751	99	2817386	56.68	ppm	0.00
Spiked Amount 50.000			Recovery	=	113.36%	
25) Nitrobenzene-d5	4.393	82	2305096	52.68	ppm	-0.01
Spiked Amount 50.000			Recovery	=	105.36%	
51) 2-Fluorobiphenyl	6.008	172	3790293	54.69	ppm	-0.01
Spiked Amount 50.000			Recovery	=	109.38%	
73) 2,4,6-Tribromophenol	7.842	330	483416	60.98	ppm	-0.02
Spiked Amount 50.000			Recovery	=	121.96%	
85) Terphenyl-d14	11.378	244	3370341	52.48	ppm	-0.02
Spiked Amount 50.000			Recovery	=	104.96%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
2) 1,4-Dioxane	1.360	88	862293	47.97	ppm	99
3) Pyridine	1.617	79	2214207	55.18	ppm	98
4) N-Nitrosodimethylamine	1.590	74	1275041	54.44	ppm	97
6) Indene	4.168	116	3591111	53.10	ppm	99
7) Cumene	3.355	105	5320757	55.82	ppm	97
9) Phenol	3.756	94	2870395	55.53	ppm	96
10) Aniline	3.735	93	3254568	52.90	ppm	85
11) bis(2-Chloroethyl)ether	3.804	93	2000796	52.86	ppm	97
12) 2-Chlorophenol	3.826	128	2225862	54.73	ppm	93
13) Decane	3.885	43	2383397	50.23	ppm	98
14) 1,3-Dichlorobenzene	3.933	146	2442951	53.09	ppm	97
15) 1,4-Dichlorobenzene	3.991	146	2463583	52.56	ppm	96
16) Benzyl alcohol	4.104	108	1381241	57.06	ppm	98
17) 1,2-Dichlorobenzene	4.098	146	2318060	54.14	ppm	98

9.6.15

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97166.D
 Acq On : 13 Sep 2017 11:21 am
 Operator : kristis
 Sample : icc4310-50
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 13 12:50:14 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.291	105	2842266	50.80	ppm	96
19) 2-Methylphenol	4.205	108	1884202	52.78	ppm	99
20) 2,2'-oxybis(1-Chloropr...	4.205	121	679610	50.99	ppm #	75
21) 3&4-Methylphenol	4.323	108	2006072	26.45	ppm	83
22) n-Nitroso-di-n-propyla...	4.302	70	1495838	53.33	ppm	97
23) Hexachloroethane	4.344	201	704165	53.58	ppm	96
26) Nitrobenzene	4.409	77	2260644	51.80	ppm	99
27) Quinoline	5.270	129	3616325	46.28	ppm	98
28) Isophorone	4.596	82	3776603	52.45	ppm	98
29) 2-Nitrophenol	4.649	139	1186279	56.24	ppm	65
30) 2,4-Dimethylphenol	4.708	107	1945680	53.45	ppm	99
31) Benzoic acid	4.853	105	1568030	59.85	ppm	96
32) bis(2-Chloroethoxy)met...	4.778	93	2143134	50.12	ppm	97
33) 2,4-Dichlorophenol	4.847	162	1576274	53.93	ppm	96
34) 2,6-Dichlorophenol	5.029	162	1531943	50.29	ppm	99
35) 1,3,5-Trichlorobenzene	4.655	180	1823180	49.01	ppm	95
36) 1,2,4-Trichlorobenzene	4.901	180	1717236	51.07	ppm	98
37) 1,2,3-Trichlorobenzene	5.088	180	1540384	46.62	ppm	99
38) Naphthalene	4.960	128	5907329	52.80	ppm	90
39) 4-Chloroaniline	5.024	127	2584998	52.36	ppm	97
40) 2,3-Dichloroaniline	5.901	161	1754649	46.33	ppm	97
41) Caprolactam	5.377	55	921263	51.95	ppm	99
42) Hexachlorobutadiene	5.077	225	796018	51.47	ppm	99
43) 4-Chloro-3-methylphenol	5.505	107	1664516	53.45	ppm	99
44) 2-Methylnaphthalene	5.601	141	3385692	50.91	ppm	99
45) 1-Methylnaphthalene	5.698	141	3427332	47.25	ppm	99
46) Dimethylnaphthalene	6.286	156	3186592	45.94	ppm	99
48) Hexachlorocyclopentadiene	5.767	237	1543612	119.35	ppm	99
49) 2,4,6-Trichlorophenol	5.917	196	955693	57.66	ppm	99
50) 2,4,5-Trichlorophenol	5.965	196	1009556	53.68	ppm	99
52) 2-Chloronaphthalene	6.120	162	3193496	56.18	ppm	97
53) Biphenyl	6.110	154	4486278	55.60	ppm	99
54) 2-Nitroaniline	6.265	65	1262090	61.51	ppm	99
55) Dimethylphthalate	6.511	163	3446985	55.18	ppm	99
56) Acenaphthylene	6.596	152	5450390	57.10	ppm	98
57) 2,6-Dinitrotoluene	6.575	165	803343	59.79	ppm	91
58) 3-Nitroaniline	6.773	138	1041966	61.70	ppm	95
59) Acenaphthene	6.821	153	3503468	54.63	ppm	96
60) 2,4-Dinitrophenol	6.917	184	974036	153.18	ppm	94
61) 4-Nitrophenol	7.067	109	510000	66.79	ppm	84
62) Dibenzofuran	7.051	168	4481933	55.55	ppm	81
63) 2,4-Dinitrotoluene	7.088	165	1079302	59.87	ppm	97
64) 2,3,4,6-Tetrachlorophenol	7.238	232	729426	55.78	ppm	98
65) Diethylphthalate	7.452	149	3576108	56.56	ppm	99
66) Fluorene	7.506	166	3655313	55.48	ppm	99
67) 4-Chlorophenyl-phenyle...	7.548	204	1498750	52.71	ppm	97
68) 4-Nitroaniline	7.591	138	974765	59.95	ppm	95
70) 4,6-Dinitro-2-methylph...	7.645	198	617545	62.04	ppm	96
71) n-Nitrosodiphenylamine	7.725	169	2535032	56.04	ppm	100
72) 1,2-Diphenylhydrazine	7.768	77	3929610	57.81	ppm	97

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97166.D
Acq On : 13 Sep 2017 11:21 am
Operator : kristis
Sample : icc4310-50
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 13 12:50:14 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

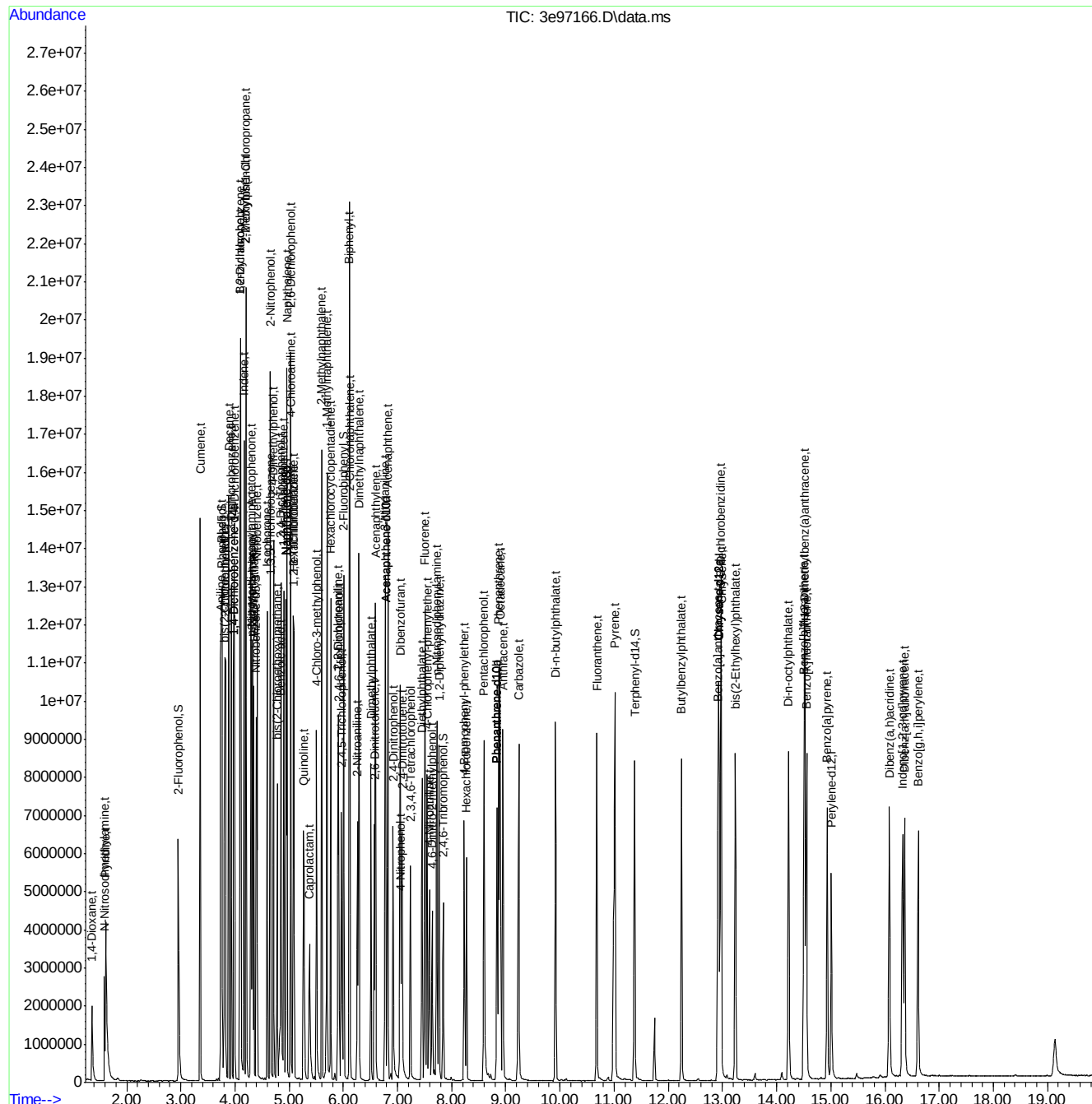
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
74) 4-Bromophenyl-phenylether	8.233	248	825525	54.83	ppm	98
75) Hexachlorobenzene	8.276	284	874215	52.27	ppm	97
76) Pentachlorophenol	8.597	266	1129135	115.86	ppm	99
77) Phenanthrene	8.869	178	4821958	55.73	ppm	100
78) Anthracene	8.950	178	4839004	56.28	ppm	99
79) Carbazole	9.238	167	4500858	53.48	ppm	99
80) Di-n-butylphthalate	9.918	149	6002919	62.26	ppm	100
81) Fluoranthene	10.683	202	5158926	59.31	ppm	96
82) Octadecane	8.896	57	2460079	55.30	ppm	98
84) Pyrene	11.014	202	5253236	54.75	ppm	99
86) Butylbenzylphthalate	12.244	149	2609540	57.24	ppm	96
87) Benzo[a]anthracene	12.918	228	4612291	55.32	ppm	99
88) 3,3'-Dichlorobenzidine	12.966	252	1633677	61.74	ppm	100
89) Chrysene	12.977	228	4272391	55.73	ppm	97
90) bis(2-Ethylhexyl)phtha...	13.239	149	3345438	57.96	ppm	99
92) Di-n-octylphthalate	14.218	149	5961233	64.34	ppm	99
93) Benzo[b]fluoranthene	14.507	252	4647012	60.84	ppm	99
94) Benzo[k]fluoranthene	14.555	252	3816848	58.86	ppm	99
95) Benzo[a]pyrene	14.935	252	3781965	62.04	ppm	97
96) Indeno[1,2,3-cd]pyrene	16.325	276	3604915	64.00	ppm	90
97) Dibenz(a,h)acridine	16.085	279	3359690	58.67	ppm	96
98) Dibenz[a,h]anthracene	16.363	278	3543383	61.38	ppm	97
99) 7,12-Dimethylbenz(a)an...	14.523	256	2078425	58.58	ppm	97
100) Benzo[g,h,i]perylene	16.614	276	3502459	59.11	ppm	98

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

(QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97166.D
Acq On : 13 Sep 2017 11:21 am
Operator : kristis
Sample : icc4310-50
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 13 12:50:14 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97167.D
 Acq On : 13 Sep 2017 11:47 am
 Operator : kristis
 Sample : ic4310-5
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 13 12:51:31 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.975	152	1254162	40.00	ppm	0.00
24) Naphthalene-d8	4.938	136	4698101	40.00	ppm	-0.02
47) Acenaphthene-d10	6.773	164	2641183	40.00	ppm	-0.02
69) Phenanthrene-d10	8.832	188	4307299	40.00	ppm	-0.02
83) Chrysene-d12	12.929	240	3913228	40.00	ppm	-0.03
91) Perylene-d12	15.004	264	3686822	40.00	ppm	-0.03
101) 1,4-Dichlorobenzene-d4a	3.975	152	1254162	40.00	ppm	0.00
103) Acenaphthene-d10a	6.773	164	2641183	40.00	ppm	-0.02
105) Phenanthrene-d10a	8.832	188	4307299	40.00	ppm	-0.02
109) Chrysene-d12a	12.929	240	3913228	40.00	ppm	-0.03
111) Naphthalene-d8a	4.938	136	4698101	40.00	ppm	-0.02
113) Phenanthrene-d10b	8.832	188	4307299	40.00	ppm	-0.02
115) Chrysene-d12c	12.929	240	3913228	40.00	ppm	-0.03
117) Naphthalene-d8b	4.938	136	4698101	40.00	ppm	-0.02
120) Naphthalene-d8c	4.938	136	4698101	40.00	ppb	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	2.959	112	196500	5.29	ppm	0.00
Spiked Amount 50.000			Recovery	=	10.58%	
8) Phenol-d5	3.745	99	258265	5.35	ppm	0.00
Spiked Amount 50.000			Recovery	=	10.70%	
25) Nitrobenzene-d5	4.392	82	230702	5.10	ppm	-0.01
Spiked Amount 50.000			Recovery	=	10.20%	
51) 2-Fluorobiphenyl	6.002	172	449904	5.56	ppm	-0.02
Spiked Amount 50.000			Recovery	=	11.12%	
73) 2,4,6-Tribromophenol	7.842	330	63887	6.59	ppm	-0.02
Spiked Amount 50.000			Recovery	=	13.18%	
85) Terphenyl-d14	11.372	244	402460	5.18	ppm	-0.03
Spiked Amount 50.000			Recovery	=	10.36%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
2) 1,4-Dioxane	1.365	88	91497	5.24	ppm	Qvalue 93
3) Pyridine	1.633	79	203466	5.22	ppm	96
4) N-Nitrosodimethylamine	1.595	74	114765	5.05	ppm	98
6) Indene	4.162	116	360775	5.50	ppm	97
7) Cumene	3.355	105	520880	5.63	ppm	98
9) Phenol	3.756	94	287202	5.72	ppm	90
10) Aniline	3.735	93	326213	5.46	ppm	93
11) bis(2-Chloroethyl)ether	3.799	93	195999	5.34	ppm	96
12) 2-Chlorophenol	3.825	128	215896	5.47	ppm	89
13) Decane	3.879	43	253274	5.50	ppm	91
14) 1,3-Dichlorobenzene	3.932	146	247278	5.54	ppm	98
15) 1,4-Dichlorobenzene	3.986	146	250607	5.51	ppm	97
16) Benzyl alcohol	4.104	108	129513	5.51	ppm	97
17) 1,2-Dichlorobenzene	4.098	146	236401	5.69	ppm	96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97167.D
 Acq On : 13 Sep 2017 11:47 am
 Operator : kristis
 Sample : ic4310-5
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 13 12:51:31 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.285	105	285004	5.25	ppm	93
19) 2-Methylphenol	4.200	108	184550	5.33	ppm	99
20) 2,2'-oxybis(1-Chloropr...	4.205	121	68385	5.29	ppm	# 82
21) 3&4-Methylphenol	4.318	108	195872	2.66	ppm	84
22) n-Nitroso-di-n-propyla...	4.296	70	152696	5.61	ppm	98
23) Hexachloroethane	4.344	201	71178	5.58	ppm	98
26) Nitrobenzene	4.403	77	226488	5.02	ppm	99
27) Quinoline	5.254	129	401868	4.98	ppm	98
28) Isophorone	4.585	82	378009	5.08	ppm	94
29) 2-Nitrophenol	4.644	139	110542	5.07	ppm	88
30) 2,4-Dimethylphenol	4.708	107	205882	5.47	ppm	99
31) Benzoic acid	4.815	105	103890	3.84	ppm	86
32) bis(2-Chloroethoxy)met...	4.772	93	223686	5.06	ppm	98
33) 2,4-Dichlorophenol	4.852	162	164505	5.45	ppm	99
34) 2,6-Dichlorophenol	5.029	162	162194	5.15	ppm	97
35) 1,3,5-Trichlorobenzene	4.649	180	189281	4.92	ppm	96
36) 1,2,4-Trichlorobenzene	4.901	180	181929	5.23	ppm	98
37) 1,2,3-Trichlorobenzene	5.082	180	175608	5.14	ppm	97
38) Naphthalene	4.959	128	652251	5.64	ppm	89
39) 4-Chloroaniline	5.024	127	270861	5.31	ppm	98
40) 2,3-Dichloroaniline	5.901	161	202835	5.18	ppm	99
41) Caprolactam	5.328	55	93585	5.11	ppm	94
42) Hexachlorobutadiene	5.077	225	92208	5.77	ppm	97
43) 4-Chloro-3-methylphenol	5.500	107	176892	5.50	ppm	98
44) 2-Methylnaphthalene	5.601	141	374936	5.45	ppm	96
45) 1-Methylnaphthalene	5.692	141	378121	5.04	ppm	94
46) Dimethylnaphthalene	6.281	156	366815	5.12	ppm	98
48) Hexachlorocyclopentadiene	5.767	237	116998	7.75	ppm	97
49) 2,4,6-Trichlorophenol	5.917	196	108744	5.62	ppm	97
50) 2,4,5-Trichlorophenol	5.965	196	111895	5.10	ppm	94
52) 2-Chloronaphthalene	6.115	162	358690	5.41	ppm	98
53) Biphenyl	6.104	154	494751	5.25	ppm	99
54) 2-Nitroaniline	6.254	65	128463	5.36	ppm	95
55) Dimethylphthalate	6.500	163	404367	5.55	ppm	99
56) Acenaphthylene	6.591	152	629653	5.65	ppm	97
57) 2,6-Dinitrotoluene	6.564	165	89842	5.73	ppm	92
58) 3-Nitroaniline	6.762	138	108927	5.53	ppm	95
59) Acenaphthene	6.815	153	413117	5.52	ppm	97
60) 2,4-Dinitrophenol	6.928	184	49824	6.71	ppm	89
61) 4-Nitrophenol	7.088	109	39158	4.39	ppm	# 86
62) Dibenzofuran	7.040	168	518151	5.50	ppm	83
63) 2,4-Dinitrotoluene	7.077	165	117923	5.60	ppm	76
64) 2,3,4,6-Tetrachlorophenol	7.238	232	84458	5.53	ppm	91
65) Diethylphthalate	7.441	149	415182	5.63	ppm	98
66) Fluorene	7.500	166	427202	5.55	ppm	97
67) 4-Chlorophenyl-phenyle...	7.543	204	185116	5.58	ppm	97
68) 4-Nitroaniline	7.570	138	97410	5.13	ppm	94
70) 4,6-Dinitro-2-methylph...	7.634	198	54842	4.50	ppm	79
71) n-Nitrosodiphenylamine	7.714	169	294234	5.32	ppm	96
72) 1,2-Diphenylhydrazine	7.757	77	430046	5.17	ppm	96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97167.D
 Acq On : 13 Sep 2017 11:47 am
 Operator : kristis
 Sample : ic4310-5
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 13 12:51:31 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

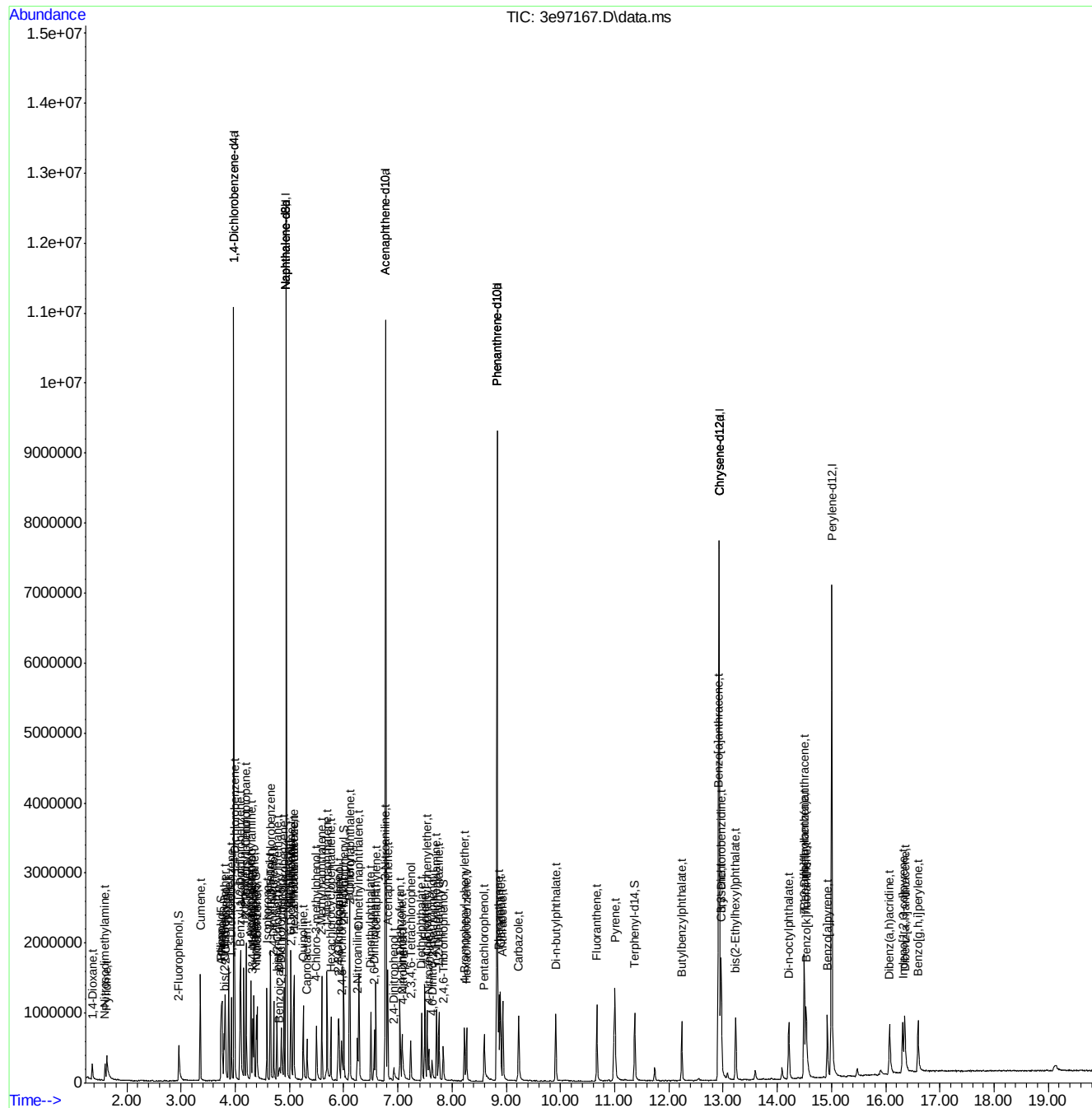
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
74) 4-Bromophenyl-phenylether	8.227	248	102558	5.57	ppm	92
75) Hexachlorobenzene	8.270	284	124977	6.11	ppm	84
76) Pentachlorophenol	8.596	266	113574	9.52	ppm	94
77) Phenanthrene	8.864	178	577699	5.46	ppm	98
78) Anthracene	8.939	178	598443	5.69	ppm	100
79) Carbazole	9.228	167	523965	5.09	ppm	98
80) Di-n-butylphthalate	9.912	149	635881	5.39	ppm	100
81) Fluoranthene	10.672	202	570791	5.36	ppm	97
82) Octadecane	8.891	57	268521	4.93	ppm	95
84) Pyrene	11.003	202	630825	5.43	ppm	98
86) Butylbenzylphthalate	12.239	149	265062	4.80	ppm	92
87) Benzo[a]anthracene	12.913	228	542317	5.37	ppm	99
88) 3,3'-Dichlorobenzidine	12.961	252	189275	5.91	ppm	97
89) Chrysene	12.966	228	536417	5.78	ppm	98
90) bis(2-Ethylhexyl)phtha...	13.228	149	360048	5.15	ppm	99
92) Di-n-octylphthalate	14.218	149	597887	4.51	ppm	99
93) Benzo[b]fluoranthene	14.496	252	524766	4.80	ppm	96
94) Benzo[k]fluoranthene	14.533	252	579679	6.24	ppm	95
95) Benzo[a]pyrene	14.924	252	471304	5.40	ppm	97
96) Indeno[1,2,3-cd]pyrene	16.315	276	411850	5.11	ppm	85
97) Dibenz(a,h)acridine	16.074	279	390260	4.76	ppm	98
98) Dibenz[a,h]anthracene	16.352	278	460713	5.57	ppm	93
99) 7,12-Dimethylbenz(a)an...	14.501	256	250142	4.92	ppm	97
100) Benzo[g,h,i]perylene	16.598	276	473361	5.58	ppm	91

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

(QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97167.D
Acq On : 13 Sep 2017 11:47 am
Operator : kristis
Sample : ic4310-5
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 13 12:51:31 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97168.D
 Acq On : 13 Sep 2017 12:13 pm
 Operator : kristis
 Sample : ic4310-25
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 13 12:52:51 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.975	152	1265644	40.00	ppm	0.00
24) Naphthalene-d8	4.943	136	4593907	40.00	ppm	-0.01
47) Acenaphthene-d10	6.778	164	2452492	40.00	ppm	-0.02
69) Phenanthrene-d10	8.832	188	3880513	40.00	ppm	-0.02
83) Chrysene-d12	12.929	240	3517791	40.00	ppm	-0.03
91) Perylene-d12	15.010	264	2963517	40.00	ppm	-0.02
101) 1,4-Dichlorobenzene-d4a	3.975	152	1265644	40.00	ppm	0.00
103) Acenaphthene-d10a	6.778	164	2452492	40.00	ppm	-0.02
105) Phenanthrene-d10a	8.832	188	3880513	40.00	ppm	-0.02
109) Chrysene-d12a	12.929	240	3517791	40.00	ppm	-0.03
111) Naphthalene-d8a	4.943	136	4593907	40.00	ppm	-0.01
113) Phenanthrene-d10b	8.832	188	3880513	40.00	ppm	-0.02
115) Chrysene-d12c	12.929	240	3517791	40.00	ppm	-0.03
117) Naphthalene-d8b	4.943	136	4593907	40.00	ppm	-0.01
120) Naphthalene-d8c	4.943	136	4593907	40.00	ppb	-0.01
System Monitoring Compounds						
5) 2-Fluorophenol	2.954	112	1066622	28.46	ppm	0.00
Spiked Amount 50.000			Recovery	=	56.92%	
8) Phenol-d5	3.745	99	1364823	28.03	ppm	0.00
Spiked Amount 50.000			Recovery	=	56.06%	
25) Nitrobenzene-d5	4.393	82	1140018	25.78	ppm	-0.01
Spiked Amount 50.000			Recovery	=	51.56%	
51) 2-Fluorobiphenyl	6.003	172	2044634	27.22	ppm	-0.02
Spiked Amount 50.000			Recovery	=	54.44%	
73) 2,4,6-Tribromophenol	7.842	330	290272	33.22	ppm	-0.02
Spiked Amount 50.000			Recovery	=	66.44%	
85) Terphenyl-d14	11.373	244	1788509	25.59	ppm	-0.03
Spiked Amount 50.000			Recovery	=	51.18%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
2) 1,4-Dioxane	1.360	88	429220	24.38	ppm	Qvalue 100
3) Pyridine	1.617	79	1054720	26.83	ppm	99
4) N-Nitrosodimethylamine	1.590	74	610543	26.61	ppm	99
6) Indene	4.163	116	1780834	26.89	ppm	98
7) Cumene	3.355	105	2614433	28.00	ppm	98
9) Phenol	3.756	94	1390327	27.46	ppm	98
10) Aniline	3.735	93	1610320	26.72	ppm	95
11) bis(2-Chloroethyl)ether	3.799	93	988484	26.66	ppm	96
12) 2-Chlorophenol	3.820	128	1095980	27.52	ppm	98
13) Decane	3.879	43	1196011	25.73	ppm	95
14) 1,3-Dichlorobenzene	3.933	146	1210893	26.87	ppm	96
15) 1,4-Dichlorobenzene	3.991	146	1246026	27.14	ppm	99
16) Benzyl alcohol	4.104	108	667013	28.13	ppm	98
17) 1,2-Dichlorobenzene	4.098	146	1160072	27.66	ppm	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97168.D
 Acq On : 13 Sep 2017 12:13 pm
 Operator : kristis
 Sample : ic4310-25
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 13 12:52:51 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.286	105	1414946	25.82	ppm	94
19) 2-Methylphenol	4.200	108	971617	27.79	ppm	98
20) 2,2'-oxybis(1-Chloropr...	4.205	121	340870	26.11	ppm #	78
21) 3&4-Methylphenol	4.318	108	1007797	13.57	ppm	86
22) n-Nitroso-di-n-propyla...	4.296	70	746819	27.18	ppm	96
23) Hexachloroethane	4.344	201	362548	28.16	ppm	99
26) Nitrobenzene	4.403	77	1114808	25.27	ppm	99
27) Quinoline	5.259	129	1874512	23.74	ppm	99
28) Isophorone	4.590	82	1899529	26.10	ppm	97
29) 2-Nitrophenol	4.644	139	588319	27.60	ppm	93
30) 2,4-Dimethylphenol	4.708	107	982142	26.70	ppm	98
31) Benzoic acid	4.826	105	732460	27.66	ppm	94
32) bis(2-Chloroethoxy)met...	4.772	93	1093382	25.30	ppm	99
33) 2,4-Dichlorophenol	4.847	162	805080	27.25	ppm	97
34) 2,6-Dichlorophenol	5.029	162	792757	25.75	ppm	98
35) 1,3,5-Trichlorobenzene	4.649	180	932104	24.79	ppm	97
36) 1,2,4-Trichlorobenzene	4.901	180	859134	25.28	ppm	98
37) 1,2,3-Trichlorobenzene	5.083	180	830113	24.86	ppm	97
38) Naphthalene	4.960	128	3083350	27.27	ppm	88
39) 4-Chloroaniline	5.024	127	1301143	26.08	ppm	99
40) 2,3-Dichloroaniline	5.901	161	908507	23.74	ppm	97
41) Caprolactam	5.355	55	462797	25.82	ppm	97
42) Hexachlorobutadiene	5.077	225	426392	27.28	ppm	97
43) 4-Chloro-3-methylphenol	5.500	107	848322	26.96	ppm	97
44) 2-Methylnaphthalene	5.601	141	1750695	26.05	ppm	99
45) 1-Methylnaphthalene	5.698	141	1781185	24.29	ppm	97
46) Dimethylnaphthalene	6.286	156	1673252	23.87	ppm	98
48) Hexachlorocyclopentadiene	5.767	237	763594	54.47	ppm	99
49) 2,4,6-Trichlorophenol	5.917	196	513896	28.61	ppm	99
50) 2,4,5-Trichlorophenol	5.965	196	547768	26.87	ppm	98
52) 2-Chloronaphthalene	6.115	162	1665795	27.04	ppm	99
53) Biphenyl	6.109	154	2328908	26.63	ppm	98
54) 2-Nitroaniline	6.259	65	629147	28.29	ppm	93
55) Dimethylphthalate	6.505	163	1862009	27.50	ppm	99
56) Acenaphthylene	6.596	152	2928123	28.30	ppm	99
57) 2,6-Dinitrotoluene	6.569	165	426147	29.26	ppm	91
58) 3-Nitroaniline	6.762	138	543770	29.71	ppm	99
59) Acenaphthene	6.816	153	1847255	26.58	ppm	97
60) 2,4-Dinitrophenol	6.912	184	437383	63.46	ppm	93
61) 4-Nitrophenol	7.067	109	251342	30.37	ppm	87
62) Dibenzofuran	7.045	168	2373732	27.15	ppm	83
63) 2,4-Dinitrotoluene	7.083	165	562107	28.77	ppm	78
64) 2,3,4,6-Tetrachlorophenol	7.233	232	396894	28.00	ppm	98
65) Diethylphthalate	7.447	149	1901693	27.75	ppm	99
66) Fluorene	7.500	166	1925739	26.96	ppm	99
67) 4-Chlorophenyl-phenyle...	7.543	204	827740	26.86	ppm	98
68) 4-Nitroaniline	7.580	138	497151	28.21	ppm	92
70) 4,6-Dinitro-2-methylph...	7.634	198	321279	29.28	ppm	95
71) n-Nitrosodiphenylamine	7.719	169	1324934	26.57	ppm	99
72) 1,2-Diphenylhydrazine	7.762	77	2038355	27.21	ppm	96

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97168.D
Acq On : 13 Sep 2017 12:13 pm
Operator : kristis
Sample : ic4310-25
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 13 12:52:51 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017

QLast Update : Wed Sep 13 12:41:46 2017

Response via : Initial Calibration

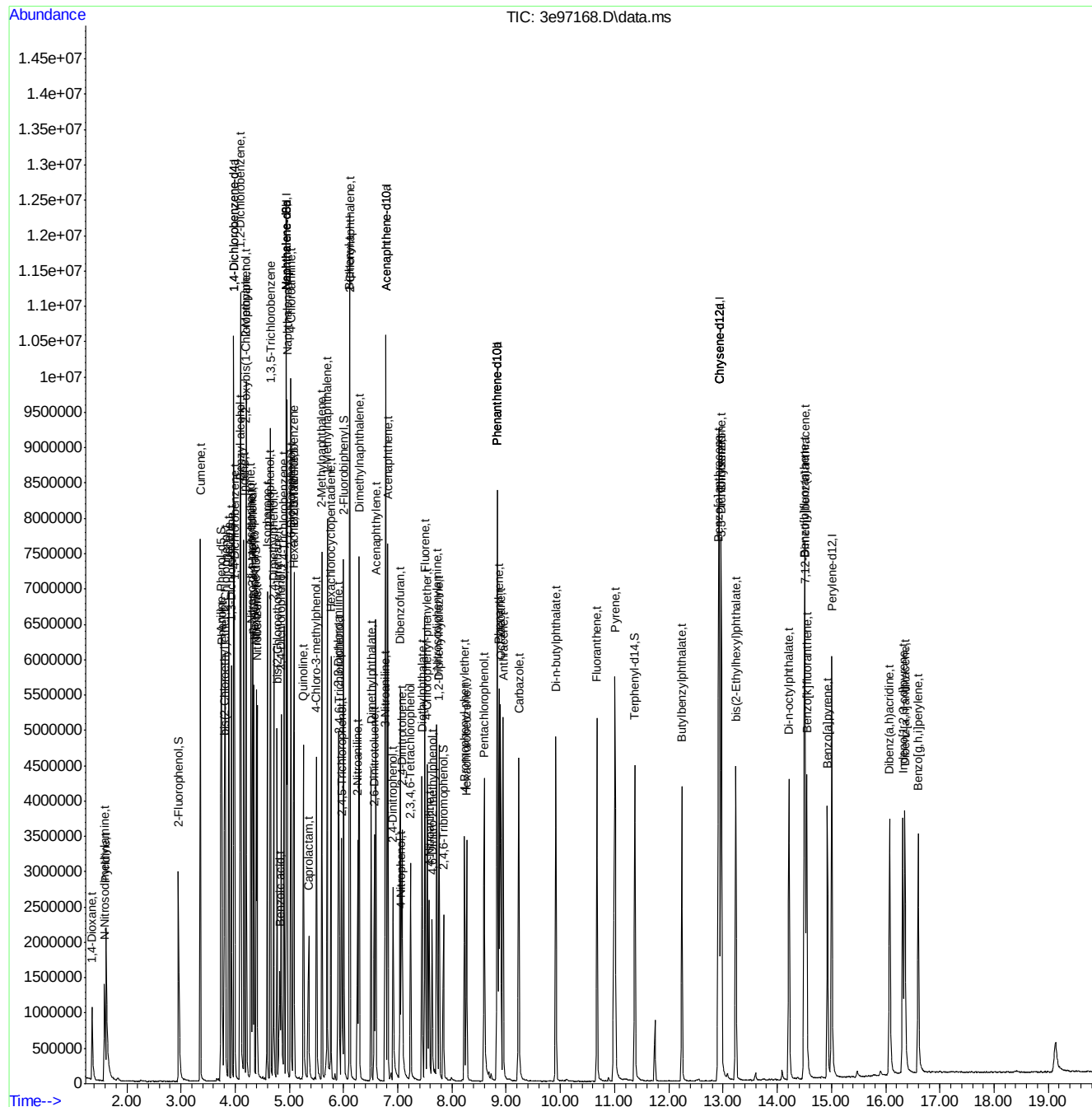
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
74) 4-Bromophenyl-phenylether	8.233	248	454222	27.37	ppm	96
75) Hexachlorobenzene	8.270	284	517398	28.07	ppm	93
76) Pentachlorophenol	8.597	266	613179	57.08	ppm	97
77) Phenanthrene	8.864	178	2529132	26.52	ppm	99
78) Anthracene	8.944	178	2602973	27.47	ppm	99
79) Carbazole	9.233	167	2345883	25.29	ppm	99
80) Di-n-butylphthalate	9.912	149	3084478	29.02	ppm	99
81) Fluoranthene	10.677	202	2703505	28.20	ppm	96
82) Octadecane	8.896	57	1256332	25.62	ppm	98
84) Pyrene	11.009	202	2801818	26.83	ppm	99
86) Butylbenzylphthalate	12.239	149	1338539	26.98	ppm	99
87) Benzo[a]anthracene	12.918	228	2464622	27.16	ppm	99
88) 3,3'-Dichlorobenzidine	12.961	252	884634	30.72	ppm	99
89) Chrysene	12.966	228	2340358	28.05	ppm	97
90) bis(2-Ethylhexyl)phtha...	13.234	149	1720876	27.40	ppm	99
92) Di-n-octylphthalate	14.218	149	2968267	27.83	ppm	99
93) Benzo[b]fluoranthene	14.501	252	2484705	28.26	ppm	98
94) Benzo[k]fluoranthene	14.544	252	2228141	29.85	ppm	97
95) Benzo[a]pyrene	14.929	252	2124842	30.28	ppm	95
96) Indeno[1,2,3-cd]pyrene	16.315	276	1900003	29.30	ppm	88
97) Dibenz(a,h)acridine	16.074	279	1831049	27.78	ppm	100
98) Dibenz[a,h]anthracene	16.352	278	2063973	31.06	ppm	96
99) 7,12-Dimethylbenz(a)an...	14.512	256	1155213	28.29	ppm	98
100) Benzo[g,h,i]perylene	16.604	276	2019606	29.61	ppm	92

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

(QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97168.D
Acq On : 13 Sep 2017 12:13 pm
Operator : kristis
Sample : ic4310-25
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 13 12:52:51 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:41:46 2017
QLast Update : Wed Sep 13 12:41:46 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97169.D
 Acq On : 13 Sep 2017 12:39 pm
 Operator : kristis
 Sample : ic4310-10
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 13 13:02:35 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:54:57 2017

QLast Update : Wed Sep 13 12:54:57 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.975	152	1308250	40.00	ppm	0.00
24) Naphthalene-d8	4.938	136	4838171	40.00	ppm	0.00
47) Acenaphthene-d10	6.778	164	2653141	40.00	ppm	0.00
69) Phenanthrene-d10	8.832	188	4337245	40.00	ppm	0.00
83) Chrysene-d12	12.929	240	3970694	40.00	ppm	0.00
91) Perylene-d12	15.010	264	3608146	40.00	ppm	0.00
101) 1,4-Dichlorobenzene-d4a	3.975	152	1308250	40.00	ppm	0.00
103) Acenaphthene-d10a	6.778	164	2653141	40.00	ppm	0.00
105) Phenanthrene-d10a	8.832	188	4337245	40.00	ppm	0.00
109) Chrysene-d12a	12.929	240	3970694	40.00	ppm	0.00
111) Naphthalene-d8a	4.938	136	4838171	40.00	ppm	0.00
113) Phenanthrene-d10b	8.832	188	4337245	40.00	ppm	0.00
115) Chrysene-d12c	12.929	240	3970694	40.00	ppm	0.00
117) Naphthalene-d8b	4.938	136	4838171	40.00	ppm	0.00
120) Naphthalene-d8c	4.938	136	4838171	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.959	112	407206	9.55	ppm	0.00
Spiked Amount 50.000			Recovery	=	19.10%	
8) Phenol-d5	3.745	99	553151	9.89	ppm	0.00
Spiked Amount 50.000			Recovery	=	19.78%	
25) Nitrobenzene-d5	4.392	82	474278	9.94	ppm	0.00
Spiked Amount 50.000			Recovery	=	19.88%	
51) 2-Fluorobiphenyl	6.002	172	894004	10.04	ppm	0.00
Spiked Amount 50.000			Recovery	=	20.08%	
73) 2,4,6-Tribromophenol	7.842	330	132602	11.01	ppm	0.00
Spiked Amount 50.000			Recovery	=	22.02%	
85) Terphenyl-d14	11.372	244	806053	9.88	ppm	0.00
Spiked Amount 50.000			Recovery	=	19.76%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
2) 1,4-Dioxane	1.365	88	181349	9.81	ppm	Qvalue 96
3) Pyridine	1.622	79	429697	10.27	ppm	94
4) N-Nitrosodimethylamine	1.595	74	250866	10.22	ppm	99
6) Indene	4.162	116	743897	10.34	ppm	100
7) Cumene	3.355	105	1084413	10.15	ppm	99
9) Phenol	3.756	94	555563	10.15	ppm	99
10) Aniline	3.735	93	671835	10.05	ppm	89
11) bis(2-Chloroethyl)ether	3.799	93	414600	9.94	ppm	99
12) 2-Chlorophenol	3.820	128	461863	10.03	ppm	99
13) Decane	3.879	43	516549	10.18	ppm	99
14) 1,3-Dichlorobenzene	3.933	146	510173	9.95	ppm	99
15) 1,4-Dichlorobenzene	3.991	146	520259	10.02	ppm	96
16) Benzyl alcohol	4.104	108	275614	10.21	ppm	97
17) 1,2-Dichlorobenzene	4.098	146	484845	10.06	ppm	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97169.D
 Acq On : 13 Sep 2017 12:39 pm
 Operator : kristis
 Sample : ic4310-10
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 13 13:02:35 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:54:57 2017

QLast Update : Wed Sep 13 12:54:57 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.285	105	586073	10.19	ppm	98
19) 2-Methylphenol	4.200	108	406817	10.38	ppm	99
20) 2,2'-oxybis(1-Chloropr...	4.200	121	147898	10.34	ppm	# 90
21) 3&4-Methylphenol	4.318	108	408961	10.06	ppm	99
22) n-Nitroso-di-n-propyla...	4.296	70	318492	10.17	ppm	95
23) Hexachloroethane	4.344	201	154937	10.13	ppm	96
26) Nitrobenzene	4.403	77	469826	9.89	ppm	98
27) Quinoline	5.254	129	815277	10.35	ppm	99
28) Isophorone	4.585	82	774936	9.73	ppm	97
29) 2-Nitrophenol	4.644	139	234985	9.84	ppm	86
30) 2,4-Dimethylphenol	4.703	107	417941	10.00	ppm	91
31) Benzoic acid	4.799	105	263312m	9.86	ppm	
32) bis(2-Chloroethoxy)met...	4.772	93	459276	9.87	ppm	98
33) 2,4-Dichlorophenol	4.847	162	333718	10.16	ppm	99
34) 2,6-Dichlorophenol	5.024	162	335442	10.23	ppm	96
35) 1,3,5-Trichlorobenzene	4.649	180	389263	9.77	ppm	99
36) 1,2,4-Trichlorobenzene	4.901	180	369079	10.04	ppm	99
37) 1,2,3-Trichlorobenzene	5.082	180	354377	10.30	ppm	98
38) Naphthalene	4.959	128	1291924	10.66	ppm	99
39) 4-Chloroaniline	5.024	127	549650	10.24	ppm	99
40) 2,3-Dichloroaniline	5.901	161	397513	10.26	ppm	98
41) Caprolactam	5.334	55	192218	10.30	ppm	97
42) Hexachlorobutadiene	5.077	225	185366	10.32	ppm	99
43) 4-Chloro-3-methylphenol	5.500	107	352140	10.02	ppm	88
44) 2-Methylnaphthalene	5.596	141	753406	10.20	ppm	97
45) 1-Methylnaphthalene	5.698	141	770877	10.19	ppm	96
46) Dimethylnaphthalene	6.281	156	729805	10.29	ppm	98
48) Hexachlorocyclopentadiene	5.767	237	287553	19.71	ppm	99
49) 2,4,6-Trichlorophenol	5.911	196	220288	9.98	ppm	97
50) 2,4,5-Trichlorophenol	5.960	196	245904	10.65	ppm	96
52) 2-Chloronaphthalene	6.115	162	728585	9.94	ppm	98
53) Biphenyl	6.109	154	1002845	9.99	ppm	97
54) 2-Nitroaniline	6.254	65	256176	9.42	ppm	95
55) Dimethylphthalate	6.505	163	813435	10.06	ppm	99
56) Acenaphthylene	6.591	152	1299440	10.39	ppm	100
57) 2,6-Dinitrotoluene	6.564	165	181565	9.93	ppm	95
58) 3-Nitroaniline	6.762	138	233367	10.47	ppm	90
59) Acenaphthene	6.815	153	816258	9.92	ppm	98
60) 2,4-Dinitrophenol	6.917	184	144918	16.55	ppm	94
61) 4-Nitrophenol	7.072	109	92638	9.10	ppm	# 67
62) Dibenzofuran	7.040	168	1045652	10.04	ppm	98
63) 2,4-Dinitrotoluene	7.077	165	245639	10.54	ppm	96
64) 2,3,4,6-Tetrachlorophenol	7.233	232	176931	10.44	ppm	96
65) Diethylphthalate	7.447	149	819216	9.91	ppm	98
66) Fluorene	7.500	166	853147	10.06	ppm	96
67) 4-Chlorophenyl-phenyle...	7.543	204	375912	10.34	ppm	97
68) 4-Nitroaniline	7.570	138	212046	10.39	ppm	97
70) 4,6-Dinitro-2-methylph...	7.634	198	123289	10.10	ppm	92
71) n-Nitrosodiphenylamine	7.719	169	588367	9.72	ppm	99
72) 1,2-Diphenylhydrazine	7.757	77	874779	9.56	ppm	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97169.D
 Acq On : 13 Sep 2017 12:39 pm
 Operator : kristis
 Sample : ic4310-10
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 13 13:02:35 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:54:57 2017

QLast Update : Wed Sep 13 12:54:57 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
74) 4-Bromophenyl-phenylether	8.227	248	206846	10.24	ppm	93
75) Hexachlorobenzene	8.270	284	251982	11.00	ppm	96
76) Pentachlorophenol	8.591	266	251884	20.50	ppm	97
77) Phenanthrene	8.864	178	1138471	9.57	ppm	99
78) Anthracene	8.939	178	1173657	9.98	ppm	99
79) Carbazole	9.228	167	1054553	9.86	ppm	98
80) Di-n-butylphthalate	9.912	149	1313878	9.56	ppm	100
81) Fluoranthene	10.672	202	1190887	9.82	ppm	99
82) Octadecane	8.891	57	539393	9.47	ppm	97
84) Pyrene	11.003	202	1264346	9.85	ppm	99
86) Butylbenzylphthalate	12.239	149	554246	9.21	ppm	98
87) Benzo[a]anthracene	12.913	228	1091999	9.53	ppm	98
88) 3,3'-Dichlorobenzidine	12.961	252	382107	9.95	ppm	100
89) Chrysene	12.966	228	1068629	10.08	ppm	99
90) bis(2-Ethylhexyl)phtha...	13.234	149	721291	9.35	ppm	98
92) Di-n-octylphthalate	14.218	149	1219913	8.44	ppm	99
93) Benzo[b]fluoranthene	14.496	252	1077885	9.13	ppm	98
94) Benzo[k]fluoranthene	14.539	252	1067318	10.03	ppm	99
95) Benzo[a]pyrene	14.924	252	947238	9.50	ppm	98
96) Indeno[1,2,3-cd]pyrene	16.315	276	836555	9.25	ppm	94
97) Dibenz(a,h)acridine	16.074	279	803445	9.34	ppm	96
98) Dibenz[a,h]anthracene	16.352	278	947016	10.07	ppm	98
99) 7,12-Dimethylbenz(a)an...	14.507	256	518023	9.51	ppm	99
100) Benzo[g,h,i]perylene	16.598	276	916119	9.74	ppm	99

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

9.6.18
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97169.D
 Acq On : 13 Sep 2017 12:39 pm
 Operator : kristis
 Sample : ic4310-10
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

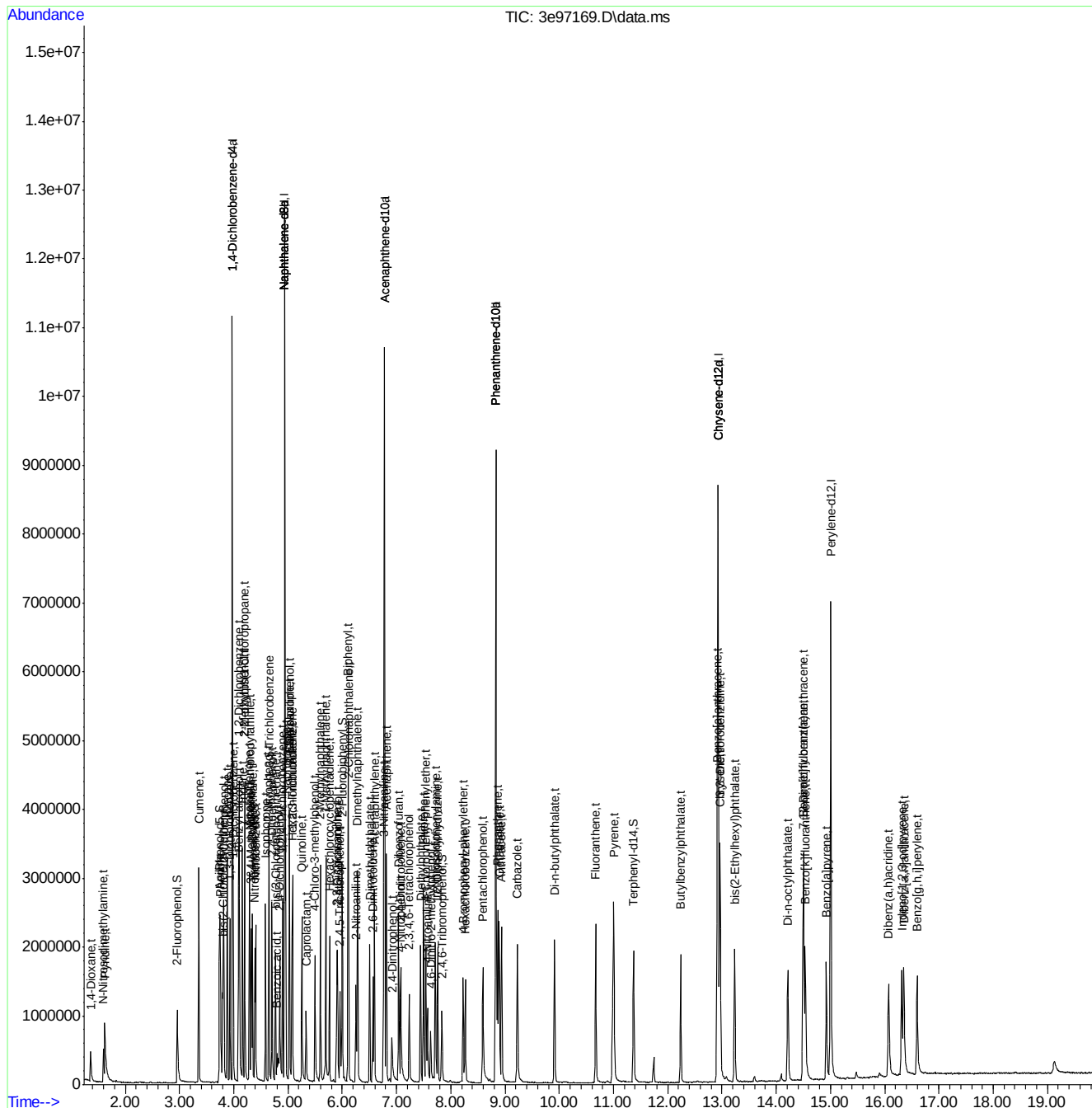
Quant Time: Sep 13 13:02:35 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:54:57 2017

QLast Update : Wed Sep 13 12:54:57 2017

Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3E4310-IC4310

Lab FileID:

3E97169.D

Injection Time:

09/13/17 12:39

Method:

EPA 625

Analyst approved:

09/13/17 17:20 Kristi Schollenberger

Supervisor approved:

09/14/17 17:21 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Benzoic Acid	65-85-0		4.80	Split peak

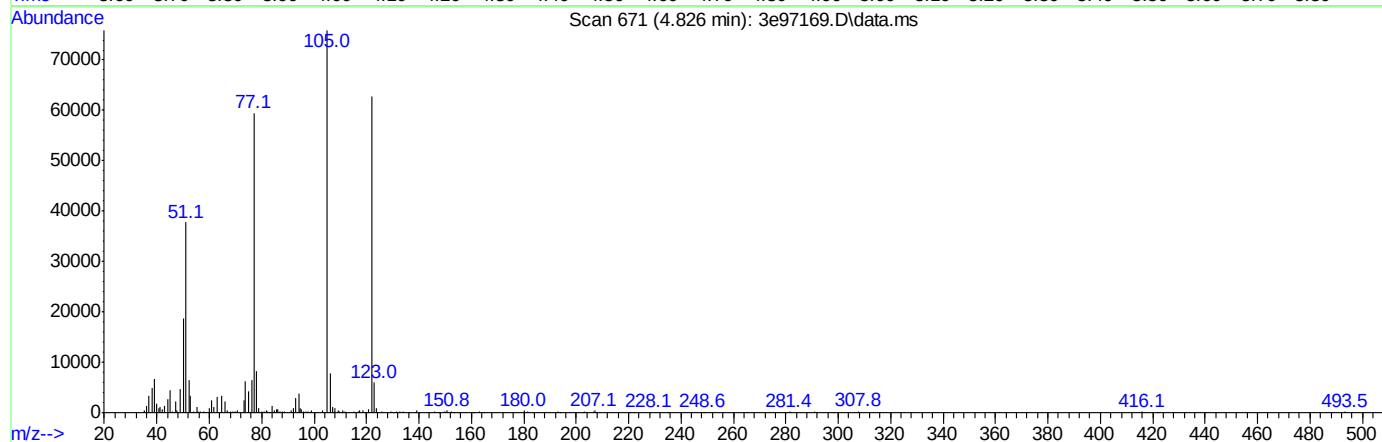
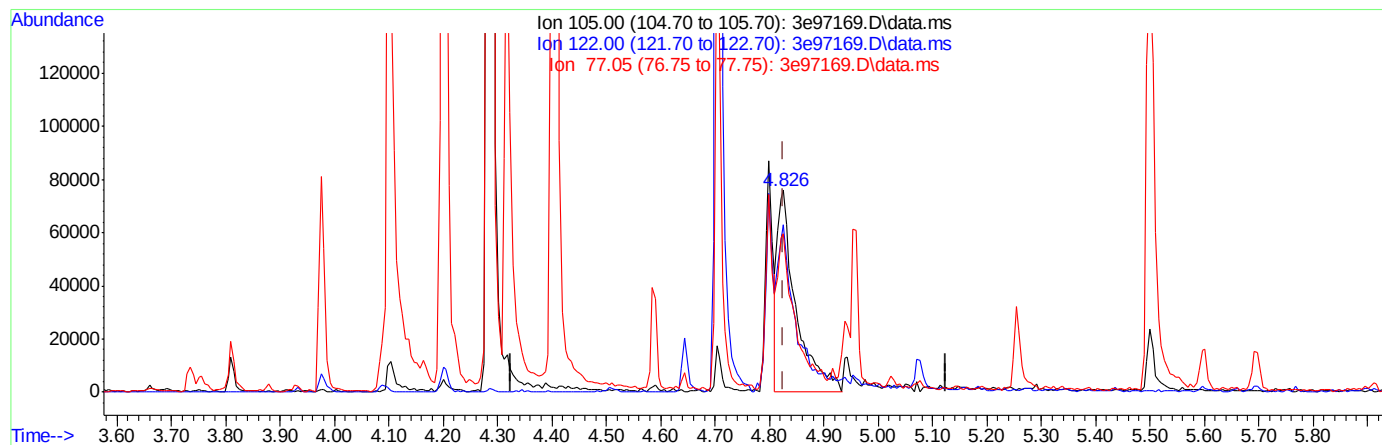
9.6.18.1

9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97169.D
Acq On : 13 Sep 2017 12:39 pm
Operator : kristis
Sample : ic4310-10
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 13 12:59:17 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:54:57 2017
QLast Update : Wed Sep 13 12:54:57 2017
Response via : Initial Calibration



(31) Benzoic acid (t)

4.826min (-0.000) 6.71ppm

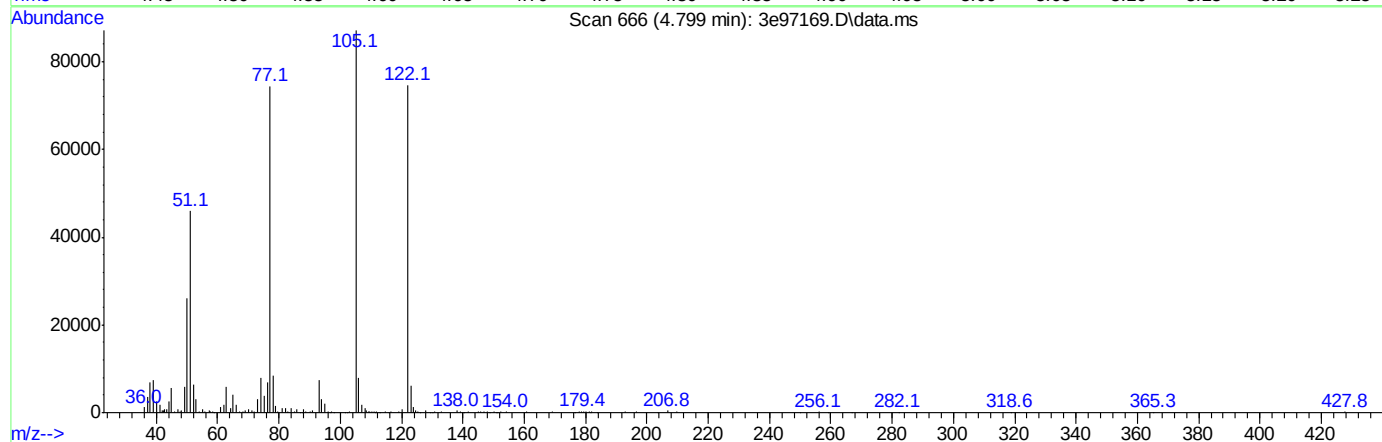
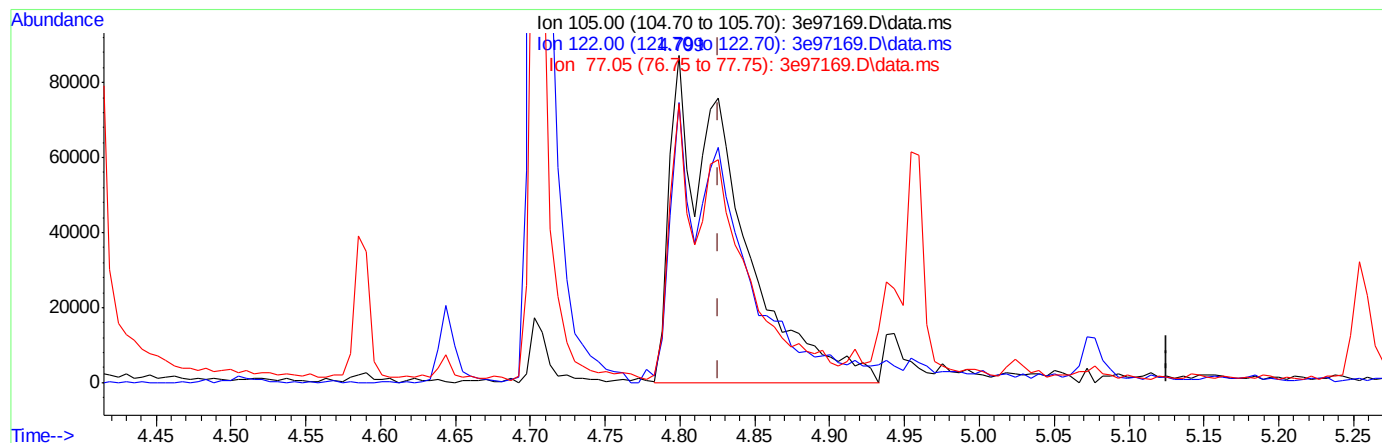
response 179067

Ion	Exp%	Act%
105.00	100	100
122.00	76.60	77.76
77.05	71.40	63.48
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97169.D
Acq On : 13 Sep 2017 12:39 pm
Operator : kristis
Sample : ic4310-10
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 13 12:59:17 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 12:54:57 2017
QLast Update : Wed Sep 13 12:54:57 2017
Response via : Initial Calibration



TIC: 3e97169.D\data.ms

(31) Benzoic acid (t)

4.799min (-0.027) 9.86ppm m

response 263312

Ion	Exp%	Act%
105.00	100	100
122.00	76.60	85.72
77.05	71.40	85.34
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97170.D
 Acq On : 13 Sep 2017 1:05 pm
 Operator : kristis
 Sample : icv4310-50
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 13 14:06:49 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 13:26:04 2017

QLast Update : Wed Sep 13 13:26:04 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.975	152	1146157	40.00	ppm	0.00
24) Naphthalene-d8	4.943	136	4252877	40.00	ppm	0.00
47) Acenaphthene-d10	6.778	164	2230416	40.00	ppm	0.00
69) Phenanthrene-d10	8.837	188	3606617	40.00	ppm	0.00
83) Chrysene-d12	12.934	240	3254024	40.00	ppm	0.00
91) Perylene-d12	15.009	264	2665762	40.00	ppm	0.00
101) 1,4-Dichlorobenzene-d4a	3.975	152	1146157	40.00	ppm	0.00
103) Acenaphthene-d10a	6.778	164	2230416	40.00	ppm	0.00
105) Phenanthrene-d10a	8.837	188	3606617	40.00	ppm	0.00
109) Chrysene-d12a	12.934	240	3254024	40.00	ppm	0.00
111) Naphthalene-d8a	4.943	136	4252877	40.00	ppm	0.00
113) Phenanthrene-d10b	8.837	188	3606617	40.00	ppm	0.00
115) Chrysene-d12c	12.934	240	3254024	40.00	ppm	0.00
117) Naphthalene-d8b	4.943	136	4252877	40.00	ppm	0.00
120) Naphthalene-d8c	4.943	136	4252877	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
2) 1,4-Dioxane	1.365	88	771639	47.77	ppm	Qvalue 100
3) Pyridine	1.616	79	2112240	57.41	ppm	98
4) N-Nitrosodimethylamine	1.595	74	1011301	46.89	ppm	98
6) Indene	4.168	116	3613556	57.07	ppm	97
7) Cumene	3.355	105	4771392	50.88	ppm	99
9) Phenol	3.756	94	2698962	56.18	ppm	94
10) Aniline	3.735	93	2999375	51.20	ppm	99
11) bis(2-Chloroethyl)ether	3.799	93	2012037	55.10	ppm	98
12) 2-Chlorophenol	3.825	128	1926278	47.72	ppm	95
13) Decane	3.884	43	2285088	51.29	ppm	96
14) 1,3-Dichlorobenzene	3.932	146	2220409	49.48	ppm	98
15) 1,4-Dichlorobenzene	3.991	146	2204205	48.44	ppm	95
16) Benzyl alcohol	4.104	108	1335918	56.33	ppm	95
17) 1,2-Dichlorobenzene	4.098	146	2111120	49.98	ppm	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97170.D
 Acq On : 13 Sep 2017 1:05 pm
 Operator : kristis
 Sample : icv4310-50
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 13 14:06:49 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 13:26:04 2017

QLast Update : Wed Sep 13 13:26:04 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.291	105	2645126	52.36	ppm	99
19) 2-Methylphenol	4.205	108	1854335	53.73	ppm	99
20) 2,2'-oxybis(1-Chloropr...	4.205	121	641401	50.97	ppm #	87
21) 3&4-Methylphenol	4.317	108	1948657	54.68	ppm	98
22) n-Nitroso-di-n-propyla...	4.301	70	1374881	50.00	ppm	98
23) Hexachloroethane	4.344	201	646514	48.16	ppm	92
26) Nitrobenzene	4.408	77	2058993	49.38	ppm	93
27) Quinoline	5.264	129	3577845	51.46	ppm	99
28) Isophorone	4.596	82	3640523	52.16	ppm	99
29) 2-Nitrophenol	4.644	139	1098702	52.46	ppm	81
30) 2,4-Dimethylphenol	4.708	107	1959995	53.35	ppm	96
31) Benzoic acid	4.858	105	1775386	58.91	ppm	96
32) bis(2-Chloroethoxy)met...	4.777	93	2190800	53.67	ppm	97
33) 2,4-Dichlorophenol	4.847	162	1508556	52.14	ppm	96
34) 2,6-Dichlorophenol	5.034	162	1496786	51.78	ppm	97
36) 1,2,4-Trichlorobenzene	4.901	180	1573034	48.66	ppm	98
38) Naphthalene	4.959	128	5693756	53.00	ppm	99
39) 4-Chloroaniline	5.029	127	2307049	48.74	ppm	98
40) 2,3-Dichloroaniline	5.901	161	1641579	48.06	ppm	98
41) Caprolactam	5.377	55	902089	54.79	ppm	95
42) Hexachlorobutadiene	5.077	225	757626	47.80	ppm	98
43) 4-Chloro-3-methylphenol	5.505	107	1664867	53.90	ppm	89
44) 2-Methylnaphthalene	5.601	141	3172936	48.75	ppm	98
45) 1-Methylnaphthalene	5.697	141	3122380	46.84	ppm	99
46) Dimethylnaphthalene	6.286	156	3145261	50.25	ppm	99
48) Hexachlorocyclopentadiene	5.772	237	1431996	97.92	ppm	98
49) 2,4,6-Trichlorophenol	5.917	196	916967	49.43	ppm	98
50) 2,4,5-Trichlorophenol	5.965	196	938478	47.94	ppm	97
52) 2-Chloronaphthalene	6.115	162	3095759	50.30	ppm	98
53) Biphenyl	6.109	154	4398466	52.11	ppm	97
54) 2-Nitroaniline	6.259	65	1168680	51.47	ppm	85
55) Dimethylphthalate	6.510	163	3324786	48.89	ppm	100
56) Acenaphthylene	6.596	152	5180987	49.04	ppm	99
57) 2,6-Dinitrotoluene	6.575	165	765497	49.86	ppm	99
58) 3-Nitroaniline	6.767	138	947325	50.26	ppm	100
59) Acenaphthene	6.821	153	3498849	50.63	ppm	97
60) 2,4-Dinitrophenol	6.917	184	997415	104.55	ppm	98
61) 4-Nitrophenol	7.067	109	503446	48.90	ppm	94
62) Dibenzofuran	7.045	168	4211040	48.05	ppm	99
63) 2,4-Dinitrotoluene	7.088	165	1025141	51.98	ppm	95
64) 2,3,4,6-Tetrachlorophenol	7.238	232	651689	45.49	ppm	99
65) Diethylphthalate	7.452	149	3495283	50.36	ppm	98
66) Fluorene	7.505	166	3545089	49.70	ppm	99
67) 4-Chlorophenyl-phenyle...	7.548	204	1477144	48.12	ppm	99
68) 4-Nitroaniline	7.586	138	883991	51.28	ppm	93
70) 4,6-Dinitro-2-methylph...	7.639	198	615820	52.29	ppm	79
71) n-Nitrosodiphenylamine	7.725	169	2410481	48.07	ppm	97
72) 1,2-Diphenylhydrazine	7.767	77	3912459	51.70	ppm	100
74) 4-Bromophenyl-phenylether	8.233	248	822638	48.82	ppm	96
75) Hexachlorobenzene	8.275	284	867960	44.99	ppm	95

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97170.D
 Acq On : 13 Sep 2017 1:05 pm
 Operator : kristis
 Sample : icv4310-50
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 13 14:06:49 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 13:26:04 2017

QLast Update : Wed Sep 13 13:26:04 2017

Response via : Initial Calibration

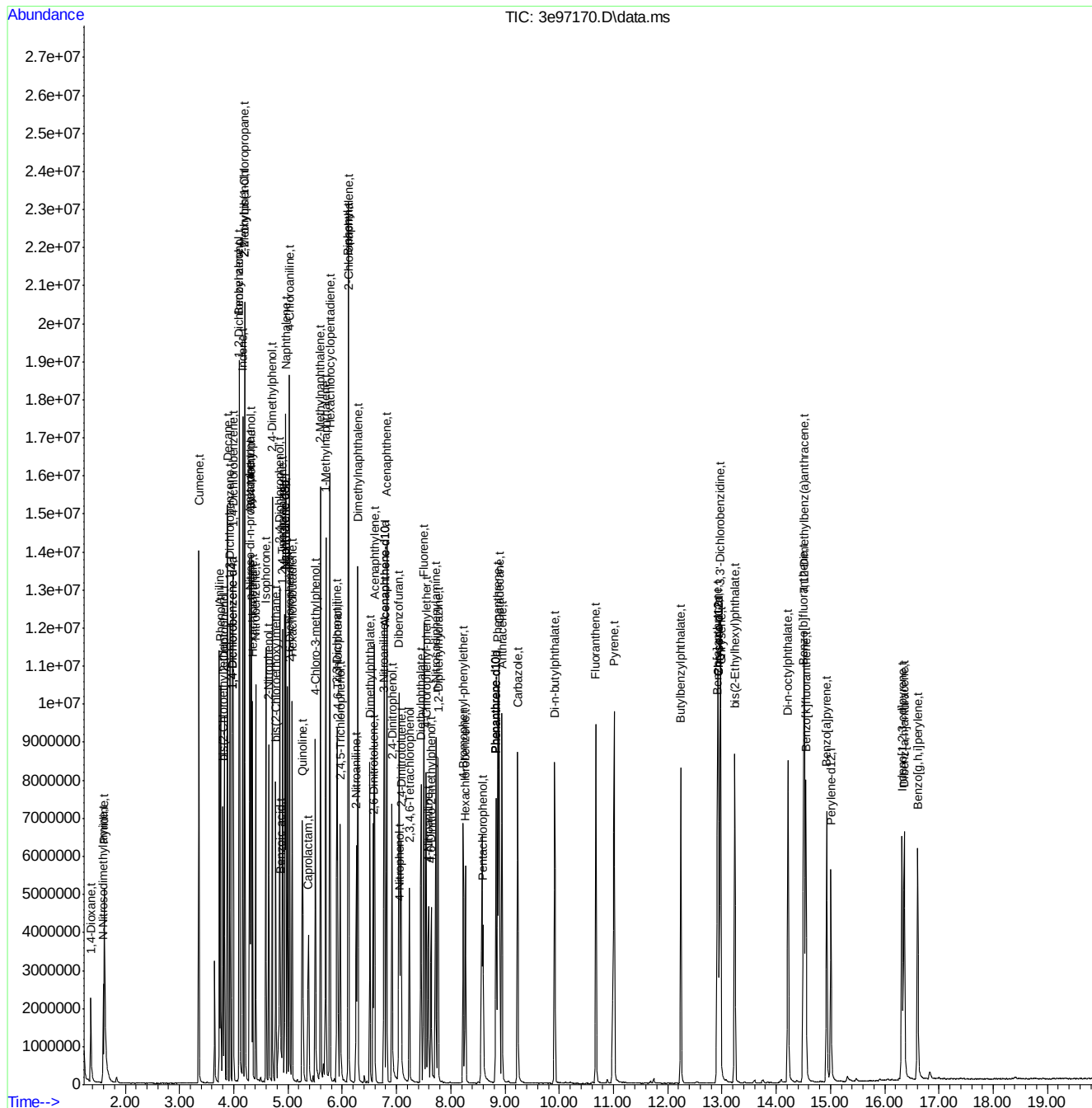
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
76) Pentachlorophenol	8.596	266	546283	51.25	ppm	97
77) Phenanthrene	8.869	178	4701732	47.80	ppm	99
78) Anthracene	8.944	178	4720378	48.29	ppm	99
79) Carbazole	9.233	167	4466190	50.32	ppm	98
80) Di-n-butylphthalate	9.918	149	5800838	51.04	ppm	99
81) Fluoranthene	10.677	202	4896693	48.66	ppm	98
82) Octadecane	8.896	57	2378233	50.55	ppm	98
84) Pyrene	11.014	202	4999280	47.60	ppm	99
86) Butylbenzylphthalate	12.244	149	2589598	53.04	ppm	98
87) Benzo[a]anthracene	12.918	228	4446273	47.63	ppm	98
88) 3,3'-Dichlorobenzidine	12.966	252	1473202	46.85	ppm	98
89) Chrysene	12.977	228	4091044	47.04	ppm	99
90) bis(2-Ethylhexyl)phtha...	13.234	149	3275864	52.24	ppm	98
92) Di-n-octylphthalate	14.218	149	5728102	47.10	ppm	99
93) Benzo[b]fluoranthene	14.507	252	4533117	52.52	ppm	98
94) Benzo[k]fluoranthene	14.555	252	3682610	46.82	ppm	99
95) Benzo[a]pyrene	14.935	252	3727390	50.92	ppm	99
96) Indeno[1,2,3-cd]pyrene	16.320	276	3439187	51.95	ppm	96
98) Dibenz[a,h]anthracene	16.363	278	3610619	51.93	ppm	99
99) 7,12-Dimethylbenz(a)an...	14.517	256	2048100	51.21	ppm	99
100) Benzo[g,h,i]perylene	16.614	276	3562652	51.42	ppm	98

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97170.D
Acq On : 13 Sep 2017 1:05 pm
Operator : kristis
Sample : icv4310-50
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 13 14:06:49 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 13:26:04 2017
QLast Update : Wed Sep 13 13:26:04 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
 Data File : 3e97171.D
 Acq On : 13 Sep 2017 1:31 pm
 Operator : kristis
 Sample : icv4310-50
 Misc : op4655,e3e4310,1000,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 13 14:08:41 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 13:26:04 2017

QLast Update : Wed Sep 13 13:26:04 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.975	152	1290616	40.00	ppm	0.00
24) Naphthalene-d8	4.938	136	4929878	40.00	ppm	0.00
47) Acenaphthene-d10	6.773	164	2631354	40.00	ppm	0.00
69) Phenanthrene-d10	8.832	188	4058848	40.00	ppm	0.00
83) Chrysene-d12	12.924	240	3444815	40.00	ppm	0.00
91) Perylene-d12	15.004	264	3347097	40.00	ppm	0.00
101) 1,4-Dichlorobenzene-d4a	3.975	152	1290616	40.00	ppm	0.00
103) Acenaphthene-d10a	6.773	164	2631354	40.00	ppm	0.00
105) Phenanthrene-d10a	8.832	188	4058848	40.00	ppm	0.00
109) Chrysene-d12a	12.924	240	3444815	40.00	ppm	0.00
111) Naphthalene-d8a	4.938	136	4929878	40.00	ppm	0.00
113) Phenanthrene-d10b	8.832	188	4058848	40.00	ppm	0.00
115) Chrysene-d12c	12.924	240	3444815	40.00	ppm	0.00
117) Naphthalene-d8b	4.938	136	4929878	40.00	ppm	0.00
120) Naphthalene-d8c	4.938	136	4929878	40.00	ppb	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	2.959	112	2206230	52.73	ppm	0.00
Spiked Amount 50.000			Recovery	=	105.46%	
8) Phenol-d5	3.745	99	2760746	50.12	ppm	0.00
Spiked Amount 50.000			Recovery	=	100.24%	
25) Nitrobenzene-d5	4.393	82	2514752	51.77	ppm	0.00
Spiked Amount 50.000			Recovery	=	103.54%	
51) 2-Fluorobiphenyl	6.003	172	4630209	52.43	ppm	0.00
Spiked Amount 50.000			Recovery	=	104.86%	
73) 2,4,6-Tribromophenol	7.837	330	597812	52.37	ppm	0.00
Spiked Amount 50.000			Recovery	=	104.74%	
85) Terphenyl-d14	11.373	244	4279454	60.53	ppm	0.00
Spiked Amount 50.000			Recovery	=	121.06%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	

Target Compounds Qvalue

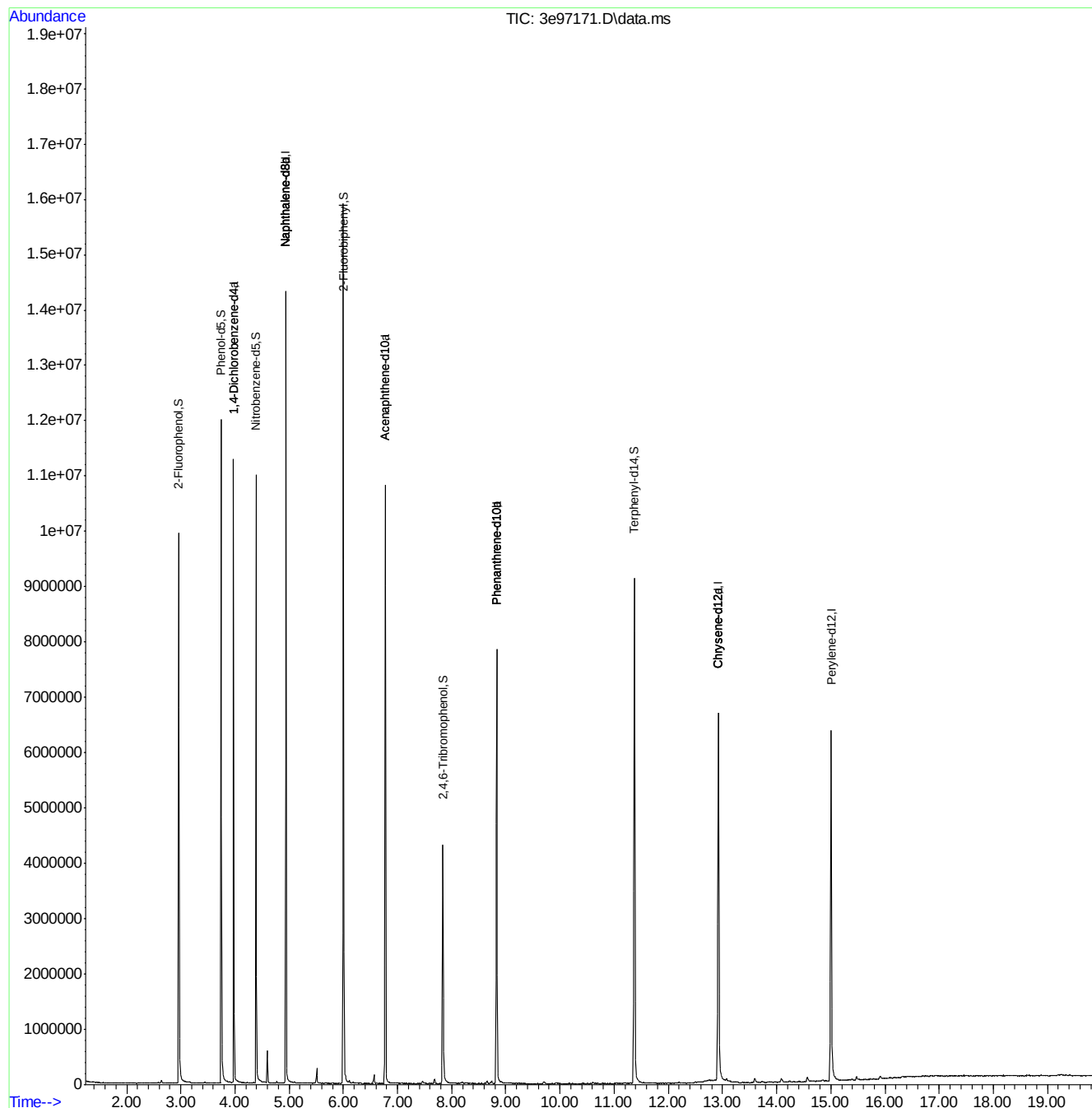
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.6.20
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4310\
Data File : 3e97171.D
Acq On : 13 Sep 2017 1:31 pm
Operator : kristis
Sample : icv4310-50
Misc : op4655,e3e4310,1000,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 13 14:08:41 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MWed Sep 13 13:26:04 2017
QLast Update : Wed Sep 13 13:26:04 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4350\
 Data File : 3e97839.D
 Acq On : 23 Oct 2017 2:57 pm
 Operator : vivekp
 Sample : cc4310-25
 Misc : op7023,e3e4350,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 24 10:01:41 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017

QLast Update : Sun Oct 22 16:39:09 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.783	152	838433	40.00	ppm	-0.02
24) Naphthalene-d8	4.729	136	3071543	40.00	ppm	-0.02
47) Acenaphthene-d10	6.478	164	1772685	40.00	ppm	-0.03
69) Phenanthrene-d10	8.495	188	2918915	40.00	ppm	-0.04
83) Chrysene-d12	12.565	240	2932331	40.00	ppm	-0.04
91) Perylene-d12	14.635	264	2185490	40.00	ppm	-0.04
101) 1,4-Dichlorobenzene-d4a	3.783	152	838433	40.00	ppm	-0.02
103) Acenaphthene-d10a	6.478	164	1772685	40.00	ppm	-0.03
105) Phenanthrene-d10a	8.495	188	2918915	40.00	ppm	-0.04
109) Chrysene-d12a	12.565	240	2932331	40.00	ppm	-0.04
111) Naphthalene-d8a	4.729	136	3071543	40.00	ppm	-0.02
113) Phenanthrene-d10b	8.495	188	2918915	40.00	ppm	-0.04
115) Chrysene-d12c	12.565	240	2932331	40.00	ppm	-0.04
117) Naphthalene-d8b	4.729	136	3071543	40.00	ppm	-0.02
120) Naphthalene-d8c	4.729	136	3071543	40.00	ppb	-0.02
System Monitoring Compounds						
5) 2-Fluorophenol	2.740	112	620790	22.84	ppm	-0.03
Spiked Amount 50.000			Recovery	=	45.68%	
8) Phenol-d5	3.569	99	764631	21.37	ppm	-0.03
Spiked Amount 50.000			Recovery	=	42.74%	
25) Nitrobenzene-d5	4.205	82	724923	23.95	ppm	-0.02
Spiked Amount 50.000			Recovery	=	47.90%	
51) 2-Fluorobiphenyl	5.740	172	1663281	27.95	ppm	-0.03
Spiked Amount 50.000			Recovery	=	55.90%	
73) 2,4,6-Tribromophenol	7.527	330	232260	28.29	ppm	-0.04
Spiked Amount 50.000			Recovery	=	56.58%	
85) Terphenyl-d14	11.019	244	1456312	24.20	ppm	-0.04
Spiked Amount 50.000			Recovery	=	48.40%	
107) o-Terphenyl	0.000	230	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
108) 1-Chlorooctadecane	0.000	57	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
2) 1,4-Dioxane	1.151	88	227079	19.22	ppm	Qvalue 98
3) Pyridine	1.376	79	488919	18.17	ppm	87
4) N-Nitrosodimethylamine	1.349	74	307384	19.48	ppm	# 48
6) Indene	3.970	116	1087402	23.48	ppm	96
7) Cumene	3.135	105	1668428	24.32	ppm	97
9) Phenol	3.585	94	773478	22.01	ppm	91
10) Aniline	3.542	93	673958	15.73	ppm	84
11) bis(2-Chloroethyl)ether	3.606	93	584321	21.88	ppm	98
12) 2-Chlorophenol	3.633	128	699666	23.69	ppm	92
13) Decane	3.686	43	738512	22.66	ppm	96
14) 1,3-Dichlorobenzene	3.734	146	835858	25.46	ppm	97
15) 1,4-Dichlorobenzene	3.793	146	865244	25.99	ppm	100
16) Benzyl alcohol	3.922	108	319220	18.40	ppm	94
17) 1,2-Dichlorobenzene	3.900	146	795230	25.74	ppm	97

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4350\
 Data File : 3e97839.D
 Acq On : 23 Oct 2017 2:57 pm
 Operator : vivekp
 Sample : cc4310-25
 Misc : op7023,e3e4350,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 24 10:01:41 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017

QLast Update : Sun Oct 22 16:39:09 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
18) Acetophenone	4.103	105	873257	23.63	ppm	98
19) 2-Methylphenol	4.034	108	567244	22.47	ppm	99
20) 2,2'-oxybis(1-Chloropr...	4.018	121	217047	23.58	ppm #	64
21) 3&4-Methylphenol	4.152	108	565656	21.70	ppm	97
22) n-Nitroso-di-n-propyla...	4.120	70	460022	22.87	ppm	88
23) Hexachloroethane	4.146	201	334853	34.10	ppm	86
26) Nitrobenzene	4.221	77	704882	23.41	ppm	96
27) Quinoline	5.040	129	1141555	22.73	ppm	99
28) Isophorone	4.403	82	1135699	22.53	ppm	91
29) 2-Nitrophenol	4.457	139	434390	28.72	ppm #	69
30) 2,4-Dimethylphenol	4.526	107	560113	21.11	ppm	94
31) Benzoic acid	4.670	105	463006	22.68	ppm	95
32) bis(2-Chloroethoxy)met...	4.580	93	627908	21.30	ppm	99
33) 2,4-Dichlorophenol	4.660	162	592362	28.35	ppm	92
34) 2,6-Dichlorophenol	4.820	162	612483	29.34	ppm	97
35) 1,3,5-Trichlorobenzene	4.457	180	784498	31.11	ppm	97
36) 1,2,4-Trichlorobenzene	4.692	180	694121	29.73	ppm	97
37) 1,2,3-Trichlorobenzene	4.863	180	670702	30.58	ppm	97
38) Naphthalene	4.745	128	1993682	25.70	ppm	98
39) 4-Chloroaniline	4.815	127	737281	21.56	ppm	97
40) 2,3-Dichloroaniline	5.644	161	704454	28.56	ppm	96
41) Caprolactam	5.157	55	276434	23.25	ppm	95
42) Hexachlorobutadiene	4.858	225	445289	38.90	ppm	96
43) 4-Chloro-3-methylphenol	5.291	107	529263	23.72	ppm	93
44) 2-Methylnaphthalene	5.350	141	1189210	25.30	ppm	94
45) 1-Methylnaphthalene	5.446	141	1225519	25.46	ppm	95
46) Dimethylnaphthalene	6.008	156	1258724	27.84	ppm	98
48) Hexachlorocyclopentadiene	5.510	237	761947	69.27	ppm	97
49) 2,4,6-Trichlorophenol	5.665	196	439022	29.78	ppm	99
50) 2,4,5-Trichlorophenol	5.729	196	471861	30.33	ppm	99
52) 2-Chloronaphthalene	5.842	162	1397048	28.56	ppm	98
53) Biphenyl	5.842	154	1802408	26.87	ppm	97
54) 2-Nitroaniline	5.997	65	429496	23.80	ppm	91
55) Dimethylphthalate	6.238	163	1461150	27.04	ppm	99
56) Acenaphthylene	6.307	152	2130785	25.37	ppm	99
57) 2,6-Dinitrotoluene	6.296	165	352980	28.93	ppm	97
58) 3-Nitroaniline	6.494	138	340983	22.76	ppm	89
59) Acenaphthene	6.521	153	1294781	23.57	ppm	95
60) 2,4-Dinitrophenol	6.649	184	326084	47.64	ppm	88
61) 4-Nitrophenol	6.847	109	181690	22.92	ppm #	64
62) Dibenzofuran	6.740	168	1801876	25.87	ppm	98
63) 2,4-Dinitrotoluene	6.805	165	427413	27.27	ppm	95
64) 2,3,4,6-Tetrachlorophenol	6.944	232	363981	31.97	ppm	94
65) Diethylphthalate	7.152	149	1447749	26.25	ppm	99
66) Fluorene	7.190	166	1471429	25.96	ppm	98
67) 4-Chlorophenyl-phenyle...	7.232	204	716557	29.37	ppm	93
68) 4-Nitroaniline	7.291	138	305780	22.32	ppm #	73
70) 4,6-Dinitro-2-methylph...	7.350	198	263541	27.65	ppm	89
71) n-Nitrosodiphenylamine	7.414	169	991517	24.43	ppm	95
72) 1,2-Diphenylhydrazine	7.446	77	1309835	21.39	ppm	94

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4350\
 Data File : 3e97839.D
 Acq On : 23 Oct 2017 2:57 pm
 Operator : vivekp
 Sample : cc4310-25
 Misc : op7023,e3e4350,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 24 10:01:41 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017

QLast Update : Sun Oct 22 16:39:09 2017

Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
74) 4-Bromophenyl-phenylether	7.906	248	424257	31.11	ppm	96
75) Hexachlorobenzene	7.949	284	467484	29.94	ppm	93
76) Pentachlorophenol	8.281	266	554576	64.28	ppm	95
77) Phenanthrene	8.527	178	2024860	25.44	ppm	98
78) Anthracene	8.607	178	1919163	24.26	ppm	100
79) Carbazole	8.907	167	1718167	23.92	ppm	96
80) Di-n-butylphthalate	9.586	149	2239034	24.34	ppm	98
81) Fluoranthene	10.324	202	2214645	27.19	ppm	94
82) Octadecane	8.575	57	725525	19.06	ppm	90
84) Pyrene	10.650	202	2288870	24.18	ppm	100
86) Butylbenzylphthalate	11.896	149	955252	21.71	ppm	96
87) Benzo[a]anthracene	12.554	228	2137101	25.41	ppm	99
88) 3,3'-Dichlorobenzidine	12.613	252	684394	24.15	ppm	97
89) Chrysene	12.602	228	1946348	24.84	ppm	99
90) bis(2-Ethylhexyl)phtha...	12.891	149	1192382	21.10	ppm	98
92) Di-n-octylphthalate	13.870	149	1989583	21.98	ppm	97
93) Benzo[b]fluoranthene	14.138	252	1974869	27.91	ppm	93
94) Benzo[k]fluoranthene	14.175	252	1628569	25.26	ppm	93
95) Benzo[a]pyrene	14.555	252	1516455	25.27	ppm	93
96) Indeno[1,2,3-cd]pyrene	15.945	276	1435495	26.45	ppm	83
97) Dibenz(a,h)acridine	15.705	279	1319485	25.55	ppm	98
98) Dibenz[a,h]anthracene	15.983	278	1460034	25.62	ppm	90
99) 7,12-Dimethylbenz(a)an...	14.143	256	886627	27.04	ppm	97
100) Benzo[g,h,i]perylene	16.229	276	1432221	25.22	ppm	88

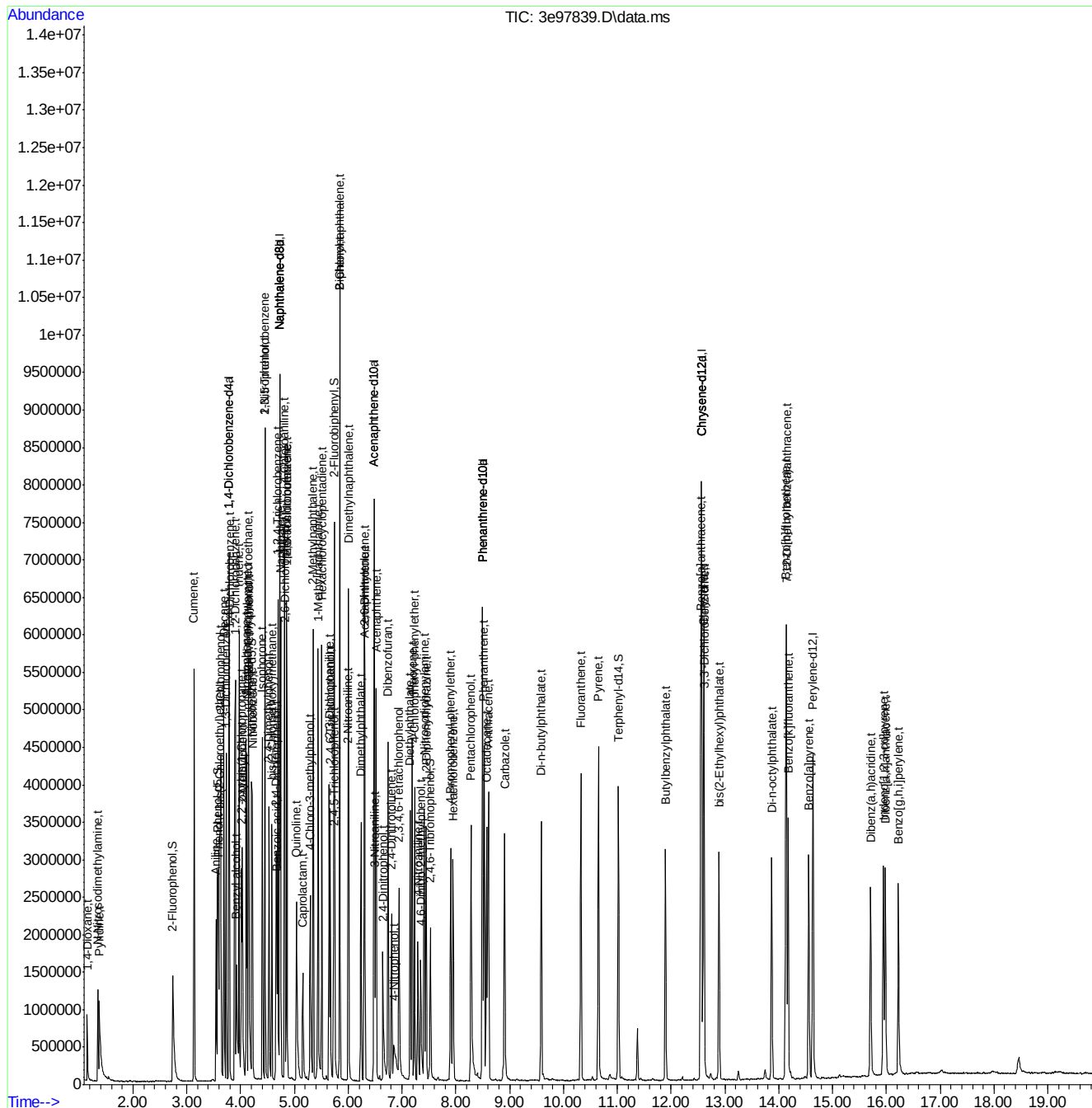
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.6.21
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4350\
Data File : 3e97839.D
Acq On : 23 Oct 2017 2:57 pm
Operator : vivekp
Sample : cc4310-25
Misc : op7023,e3e4350,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 24 10:01:41 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017
QLast Update : Sun Oct 22 16:39:09 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4350\
 Data File : 3e97840a.D
 Acq On : 23 Oct 2017 3:24 pm
 Operator : vivekp
 Sample : cc4280-25
 Misc : op7023,e3e4350,1000,,,1,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 11:07:14 2017

Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M

Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017

QLast Update : Sun Oct 22 16:39:09 2017

Response via : Initial Calibration

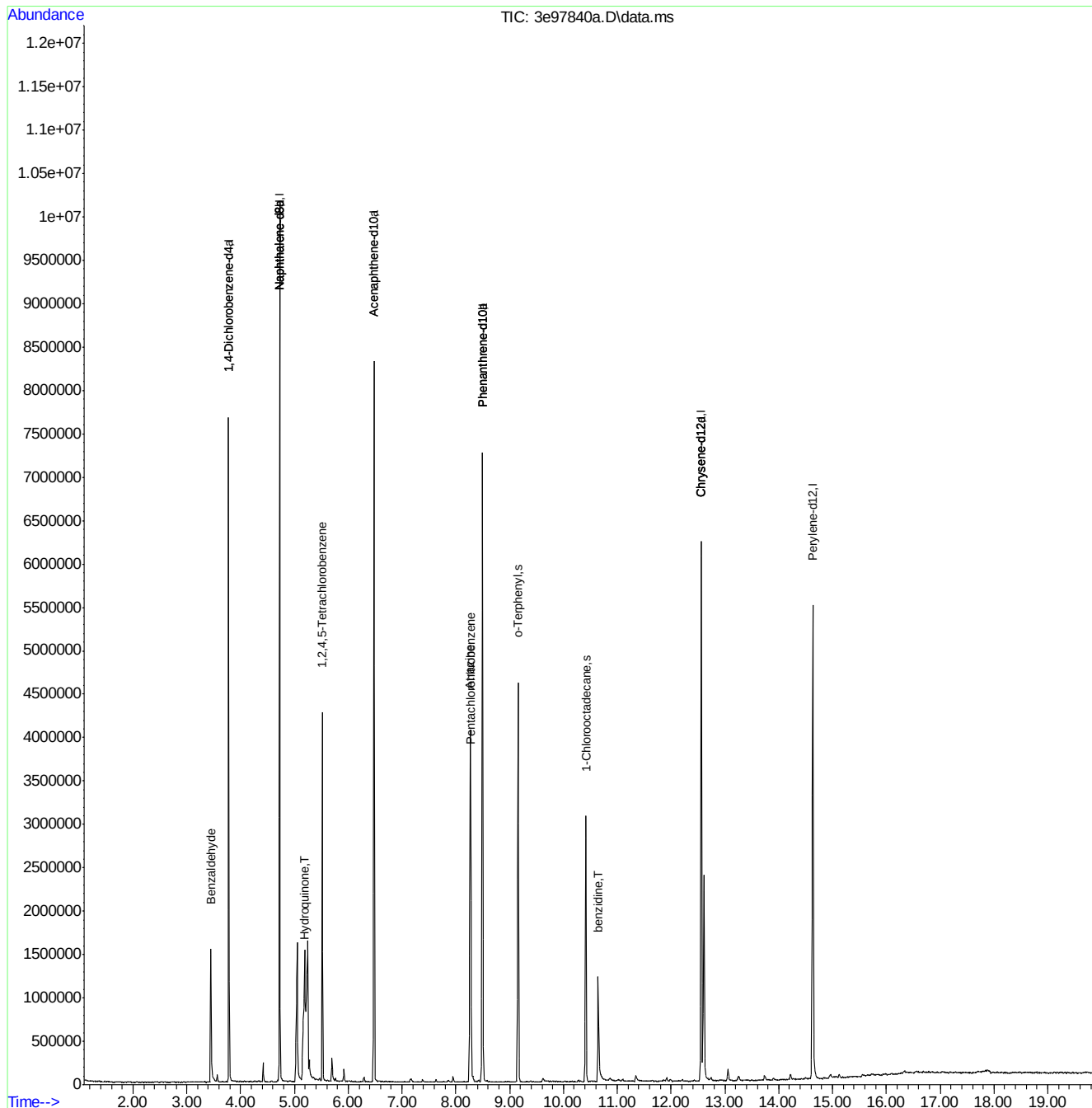
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	3.777	152	819244	40.00	ppm	-0.02
24) Naphthalene-d8	4.724	136	3062134	40.00	ppm	-0.03
47) Acenaphthene-d10	6.478	164	1794610	40.00	ppm	-0.03
69) Phenanthrene-d10	8.495	188	3037062	40.00	ppm	-0.04
83) Chrysene-d12	12.560	240	2996896	40.00	ppm	-0.05
91) Perylene-d12	14.635	264	2727200	40.00	ppm	-0.04
101) 1,4-Dichlorobenzene-d4a	3.777	152	819244	40.00	ppm	-0.02
103) Acenaphthene-d10a	6.478	164	1794610	40.00	ppm	-0.03
105) Phenanthrene-d10a	8.495	188	3037062	40.00	ppm	-0.04
109) Chrysene-d12a	12.560	240	2996896	40.00	ppm	-0.05
111) Naphthalene-d8a	4.724	136	3062134	40.00	ppm	-0.03
113) Phenanthrene-d10b	8.495	188	3037062	40.00	ppm	-0.04
115) Chrysene-d12c	12.560	240	2996896	40.00	ppm	-0.05
117) Naphthalene-d8b	4.724	136	3062134	40.00	ppm	-0.03
120) Naphthalene-d8c	4.724	136	3062134	40.00	ppb	-0.03
System Monitoring Compounds						
5) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
8) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Nitrobenzene-d5	0.000	82	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
51) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
73) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
85) Terphenyl-d14	0.000	244	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
107) o-Terphenyl	9.158	230	1094907	26.62	ppm	-0.16
Spiked Amount 50.000			Recovery	=	53.24%	
108) 1-Chlorooctadecane	10.415	57	478777	25.06	ppm	-0.15
Spiked Amount 50.000			Recovery	=	50.12%	
Target Compounds						
102) Benzaldehyde	3.446	105	275115	24.19	ppm	Qvalue 92
104) 1,2,4,5-Tetrachloroben...	5.521	216	649285	25.60	ppm	98
106) Atrazine	8.265	215	221668	27.57	ppm	# 84
110) benzdine	10.645	184	660281	23.59	ppm	97
112) Hydroquinone	5.195	110	436187m	19.73	ppm	
114) Pentachloronitrobenzene	8.275	295	82046	50.94	ppm	# 77

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3E4350\
Data File : 3e97840a.D
Acq On : 23 Oct 2017 3:24 pm
Operator : vivekp
Sample : cc4280-25
Misc : op7023,e3e4350,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 11:07:14 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017
QLast Update : Sun Oct 22 16:39:09 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3E4350-CC4280

Method:

SW846 8270D

Lab FileID:

3E97840A.D

Analyst approved:

10/24/17 12:29 Kristi Schollenberger

Injection Time:

10/23/17 15:24

Supervisor approved:

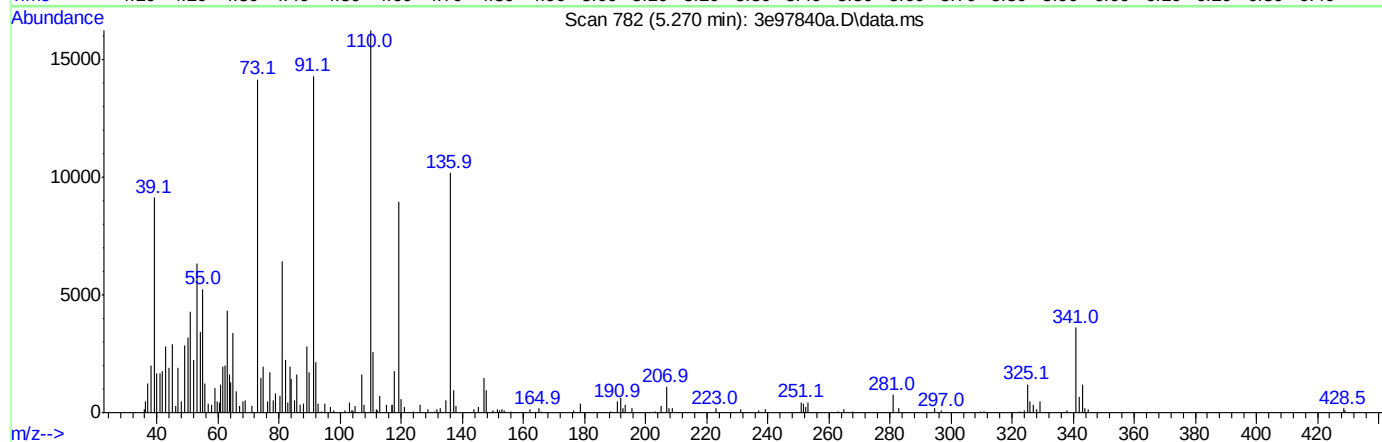
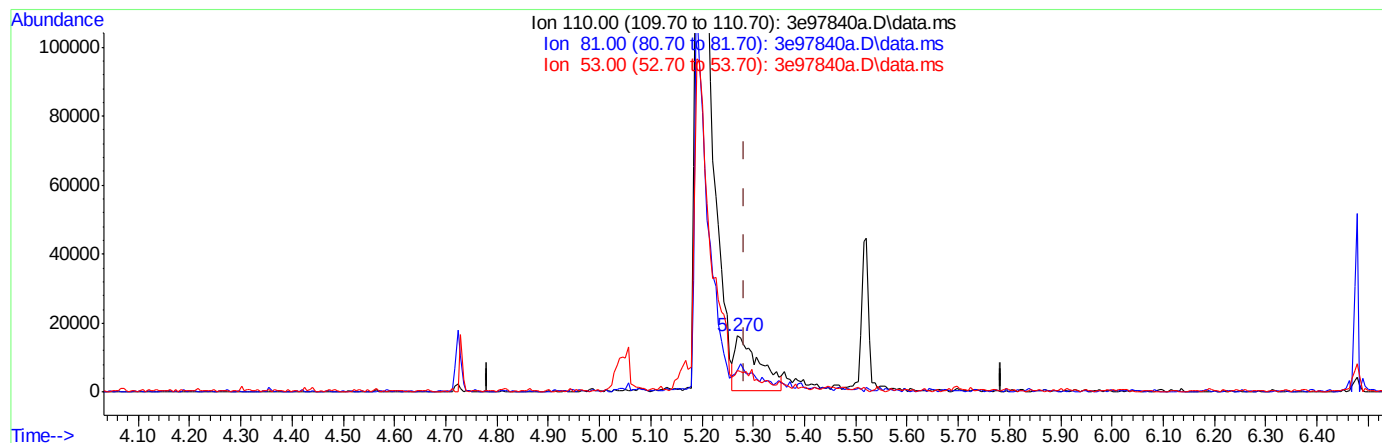
10/24/17 15:54 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Hydroquinone	123-31-9		5.19	Split peak

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4350\
Data File : 3e97840a.D
Acq On : 23 Oct 2017 3:24 pm
Operator : vivekp
Sample : cc4280-25
Misc : op7023,e3e4350,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 11:06:10 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017
QLast Update : Sun Oct 22 16:39:09 2017
Response via : Initial Calibration



(112) Hydroquinone (T)

5.270min (-0.013) 2.36ppm

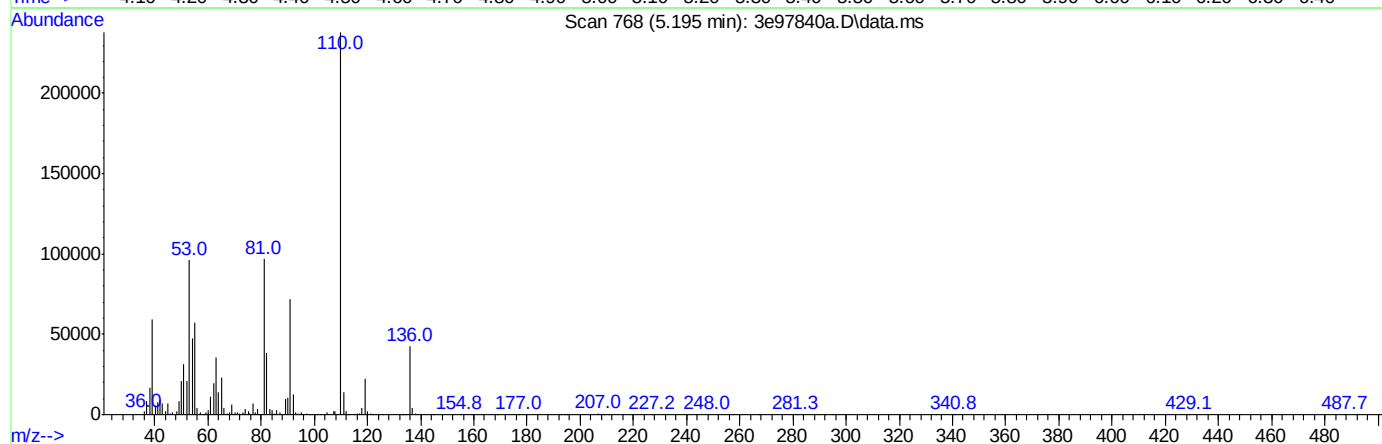
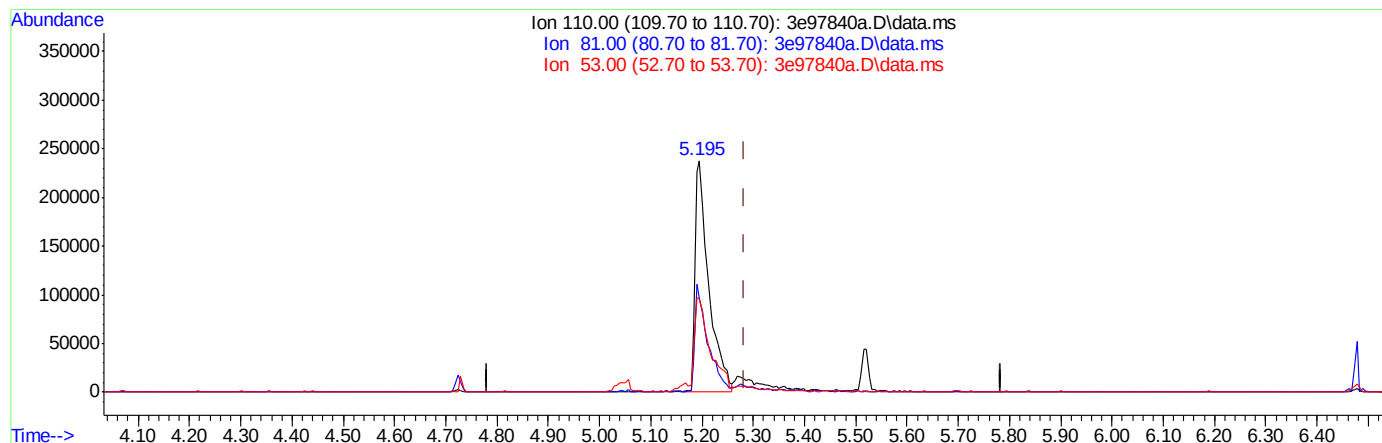
response 52137

Ion	Exp%	Act%
110.00	100	100
81.00	32.10	28.00
53.00	27.90	27.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3E4350\
Data File : 3e97840a.D
Acq On : 23 Oct 2017 3:24 pm
Operator : vivekp
Sample : cc4280-25
Misc : op7023,e3e4350,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 24 11:06:10 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3E4310.M
Quant Title : Semi Volatile GC/MS,zb-5msplus 30m x .25mm x .25MSun Oct 22 16:39:09 2017
QLast Update : Sun Oct 22 16:39:09 2017
Response via : Initial Calibration



(112) Hydroquinone (T)

5.195min (-0.088) 19.73ppm m

response 436187

Ion	Exp%	Act%
110.00	100	100
81.00	32.10	40.63
53.00	27.90	40.35
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71933.D
 Acq On : 17 Oct 2017 2:34 pm
 Operator : kevinm2
 Sample : icc3448-1
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 18 08:34:23 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 08:29:52 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	8.854	150	133403	4.00	ppm	-0.02
14) Fluorene-d10	11.807	176	174654	4.00	ppm	-0.02
21) Fluoranthene-d10	16.034	212	247788	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	155726	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.337	112	547348	23.19	ppm	-0.11
Spiked Amount 50.000			Recovery =	46.38%		
4) Phenol-d5	4.705	99	836525	25.11	ppm	-0.07
Spiked Amount 50.000			Recovery =	50.22%		
7) Nitrobenzene-d5	6.087	82	755612	27.54	ppm	-0.06
Spiked Amount 50.000			Recovery =	55.08%		
15) 2-Fluorobiphenyl	9.527	172	1261845	22.65	ppm	-0.04
Spiked Amount 50.000			Recovery =	45.30%		
20) 2,4,6-Tribromophenol	12.373	330	139180	21.99	ppm	0.01
Spiked Amount 50.000			Recovery =	43.98%		
28) Terphenyl-d14	16.868	244	974042	21.19	ppm	0.03
Spiked Amount 50.000			Recovery =	42.38%		
Target Compounds						Qvalue
2) 1,4-dioxane	1.700	88	11678	1.23	ppm	88
5) Phenol	4.717	94	226018	6.32	ppm	# 72
6) bis(2-Chloroethyl)ether	4.765	93	35386	1.26	ppm	# 39
8) Nitrobenzene	6.106	77	36263	1.17	ppm	# 45
9) Naphthalene	7.405	128	96553	1.28	ppm	94
10) Hexachlorobutadiene	7.706	225	11719	1.13	ppm	67
11) 2-Methylnaphthalene	8.752	141	47291	1.20	ppm	93
12) 1-Methylnaphthalene	8.936	141	48486	1.08	ppm	# 68
13) Hexachlorocyclopentadiene	9.101	237	9822	1.71	ppm	# 66
16) Acenaphthylene	10.486	152	77431	1.08	ppm	96
17) Acenaphthene	10.841	153	51079	1.11	ppm	80
18) 4,6-dinitro-2-methylph...	12.071	198	19286	4.27	ppm	# 87
19) Fluorene	11.864	166	55284	1.09	ppm	93
22) Hexachlorobenzene	12.973	284	13053	0.93	ppm	99
23) Pentachlorophenol	13.437	266	29014	5.55	ppm	79
24) Phenanthrene	13.746	178	75413	1.03	ppm	98
25) Anthracene	13.854	178	69517	1.02	ppm	87
26) Fluoranthene	16.065	202	73746	0.99	ppm	95
27) Pyrene	16.451	202	72516	0.95	ppm	95
29) Benzo[a]anthracene	18.565	228	58223	0.98	ppm	97
30) Chrysene	18.627	228	50728	0.91	ppm	97
32) Benzo[b]fluoranthene	20.235	252	53539	0.92	ppm	100
33) Benzo[k]fluoranthene	20.273	252	42021m	1.09	ppm	
34) Benzo[a]pyrene	20.668	252	41430	0.91	ppm	92
35) Indeno[1,2,3-cd]pyrene	22.116	276	45706	0.90	ppm	95
36) Dibenz[a,h]anthracene	22.135	278	34736	0.84	ppm	97
37) Benzo[g,h,i]perylene	22.417	276	41232	0.98	ppm	100

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71933.D
Acq On : 17 Oct 2017 2:34 pm
Operator : kevinm2
Sample : icc3448-1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 18 08:34:23 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

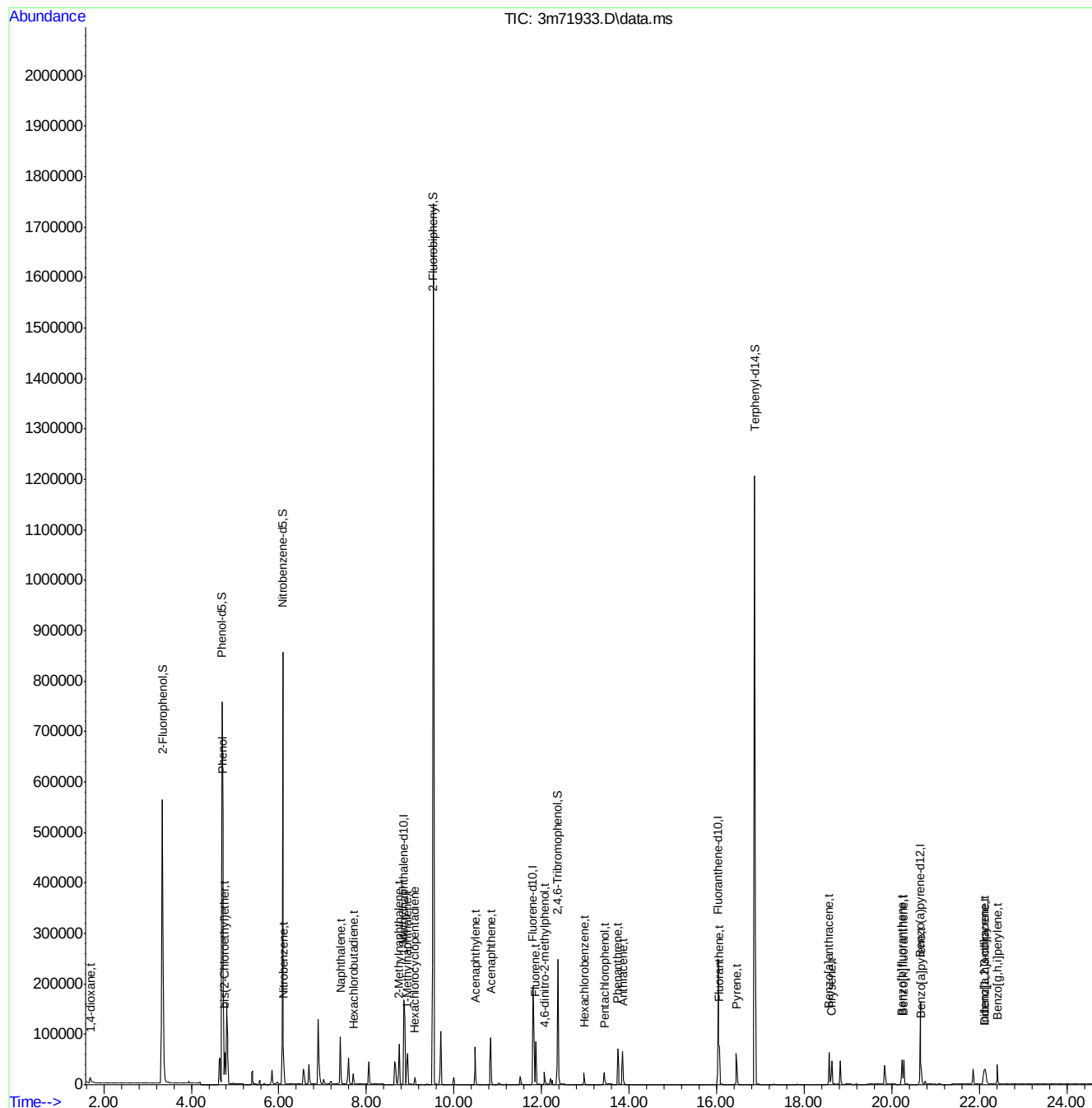
9.6.23

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71933.D
Acq On : 17 Oct 2017 2:34 pm
Operator : kevinm2
Sample : icc3448-1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 18 08:34:23 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3448-ICC3448

Lab FileID:

3M71933.D

Injection Time:

10/17/17 14:34

Method:

SW846 8270D BY SIM

Analyst approved:

10/18/17 10:25 Kevin Moyle

Supervisor approved:

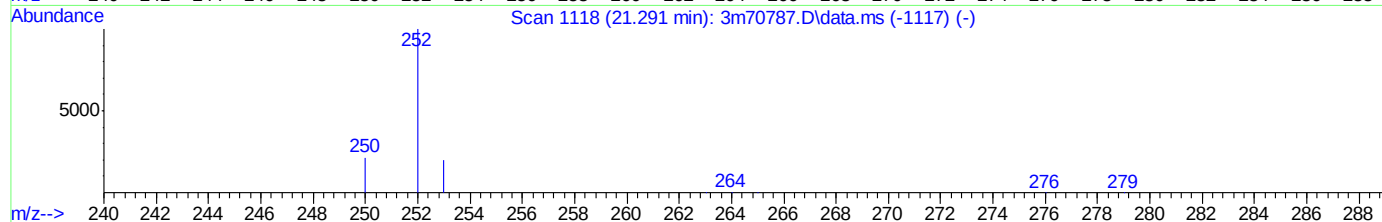
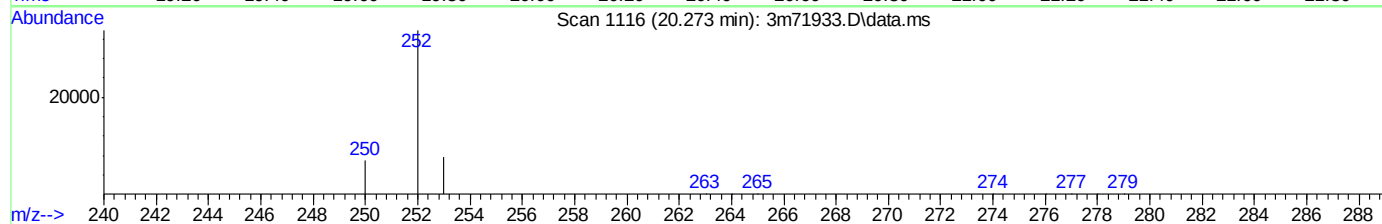
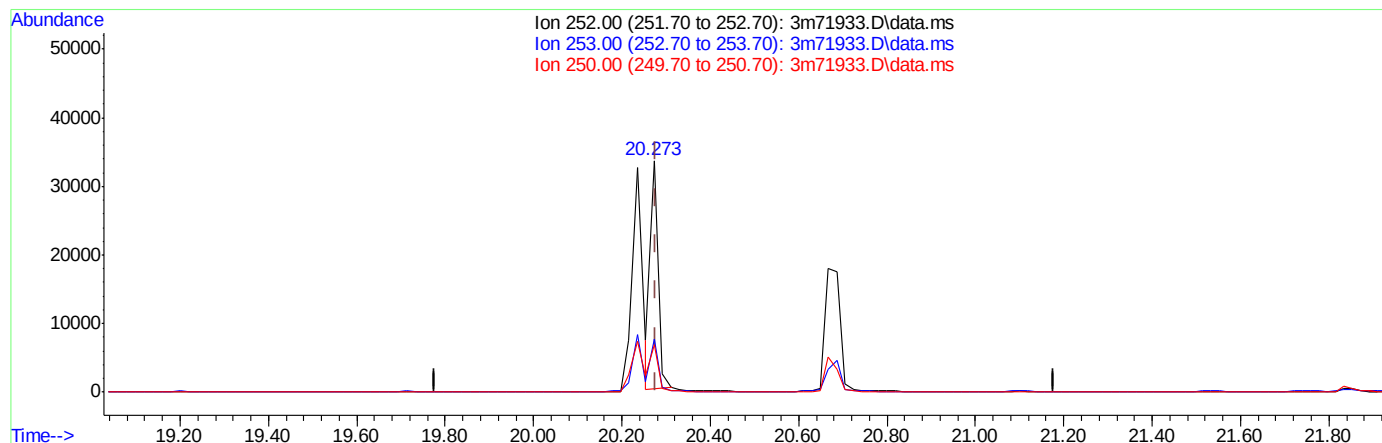
10/18/17 12:29 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Benzo(k)fluoranthene	207-08-9		20.27	Poorly defined baseline

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71933.D
Acq On : 17 Oct 2017 2:34 pm
Operator : kevinm2
Sample : icc3448-1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 18 08:33:40 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71933.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.273min (-0.005) 1.04ppm

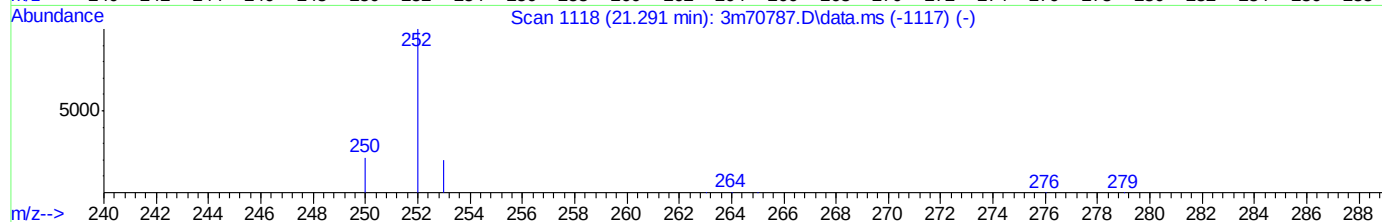
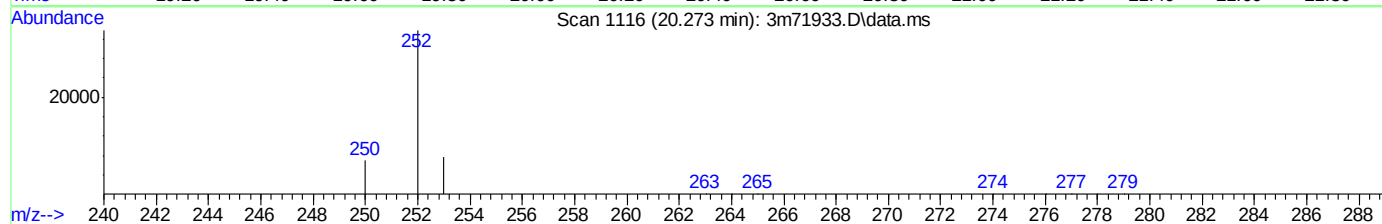
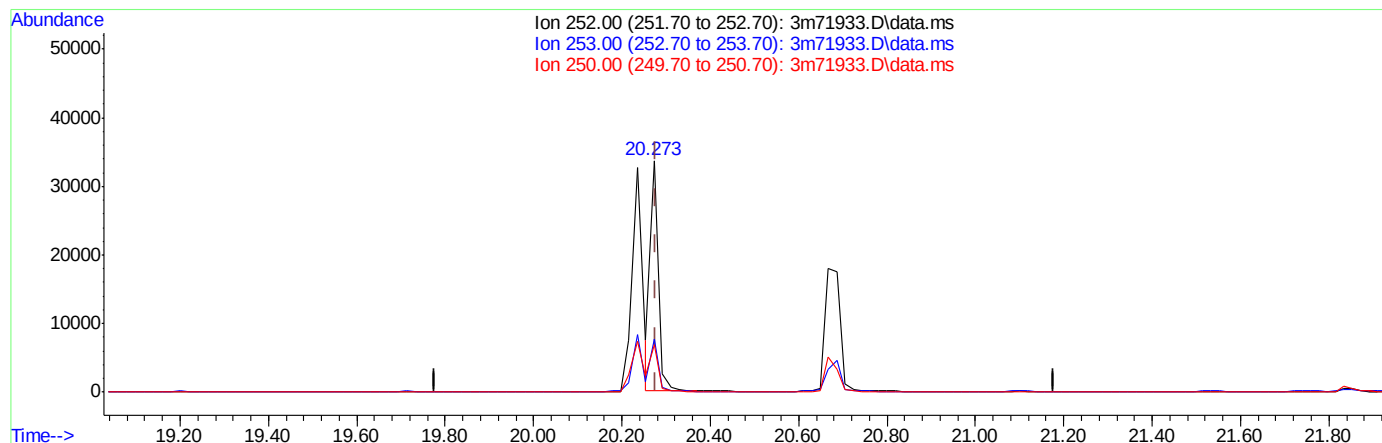
response 40044

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	22.82
250.00	20.00	19.39
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71933.D
Acq On : 17 Oct 2017 2:34 pm
Operator : kevinm2
Sample : icc3448-1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 18 08:33:40 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71933.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.273min (-0.005) 1.09ppm m

response 42021

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	22.70
250.00	20.00	20.74
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71934.D
 Acq On : 17 Oct 2017 3:26 pm
 Operator : kevinm2
 Sample : ic3448-.5
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 18 08:33:09 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 08:29:52 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	8.875	150	148396	4.00	ppm	0.00
14) Fluorene-d10	11.826	176	195929	4.00	ppm	0.00
21) Fluoranthene-d10	16.034	212	274159	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	181595	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.337	112	307369	11.71	ppm	-0.11
Spiked Amount 50.000			Recovery =	23.42%		
4) Phenol-d5	4.704	99	489667	13.21	ppm	-0.07
Spiked Amount 50.000			Recovery =	26.42%		
7) Nitrobenzene-d5	6.087	82	449339	14.72	ppm	-0.06
Spiked Amount 50.000			Recovery =	29.44%		
15) 2-Fluorobiphenyl	9.527	172	722768	11.57	ppm	-0.04
Spiked Amount 50.000			Recovery =	23.14%		
20) 2,4,6-Tribromophenol	12.373	330	74711	10.52	ppm	0.01
Spiked Amount 50.000			Recovery =	21.04%		
28) Terphenyl-d14	16.868	244	538632	10.59	ppm	0.03
Spiked Amount 50.000			Recovery =	21.18%		
Target Compounds						
2) 1,4-dioxane	1.700	88	6893	0.65	ppm	91
5) Phenol	4.729	94	131764	3.31	ppm	# 92
6) bis(2-Chloroethyl)ether	4.777	93	20483	0.65	ppm	83
8) Nitrobenzene	6.125	77	22217	0.65	ppm	93
9) Naphthalene	7.405	128	56070	0.67	ppm	96
10) Hexachlorobutadiene	7.706	225	6822	0.59	ppm	# 65
11) 2-Methylnaphthalene	8.752	141	29110	0.66	ppm	97
12) 1-Methylnaphthalene	8.936	141	29945	0.60	ppm	74
13) Hexachlorocyclopentadiene	9.100	237	3331	0.52	ppm	# 68
16) Acenaphthylene	10.486	152	45458	0.57	ppm	98
17) Acenaphthene	10.841	153	29596	0.57	ppm	85
18) 4,6-dinitro-2-methylph...	12.090	198	8497	1.68	ppm	# 18
19) Fluorene	11.864	166	31800	0.56	ppm	97
22) Hexachlorobenzene	12.973	284	7590	0.49	ppm	97
23) Pentachlorophenol	13.437	266	14537	2.51	ppm	83
24) Phenanthrene	13.746	178	43361	0.53	ppm	99
25) Anthracene	13.854	178	39556	0.52	ppm	87
26) Fluoranthene	16.065	202	45914	0.56	ppm	94
27) Pyrene	16.451	202	44318	0.52	ppm	93
29) Benzo[a]anthracene	18.565	228	32551	0.50	ppm	99
30) Chrysene	18.627	228	34770m	0.57	ppm	
32) Benzo[b]fluoranthene	20.235	252	34062	0.50	ppm	98
33) Benzo[k]fluoranthene	20.272	252	26968m	0.60	ppm	
34) Benzo[a]pyrene	20.686	252	27262	0.51	ppm	91
35) Indeno[1,2,3-cd]pyrene	22.116	276	28576	0.48	ppm	96
36) Dibenz[a,h]anthracene	22.153	278	22714	0.47	ppm	91
37) Benzo[g,h,i]perylene	22.417	276	26562	0.54	ppm	99

9.6.24

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71934.D
Acq On : 17 Oct 2017 3:26 pm
Operator : kevinm2
Sample : ic3448-.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 18 08:33:09 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration

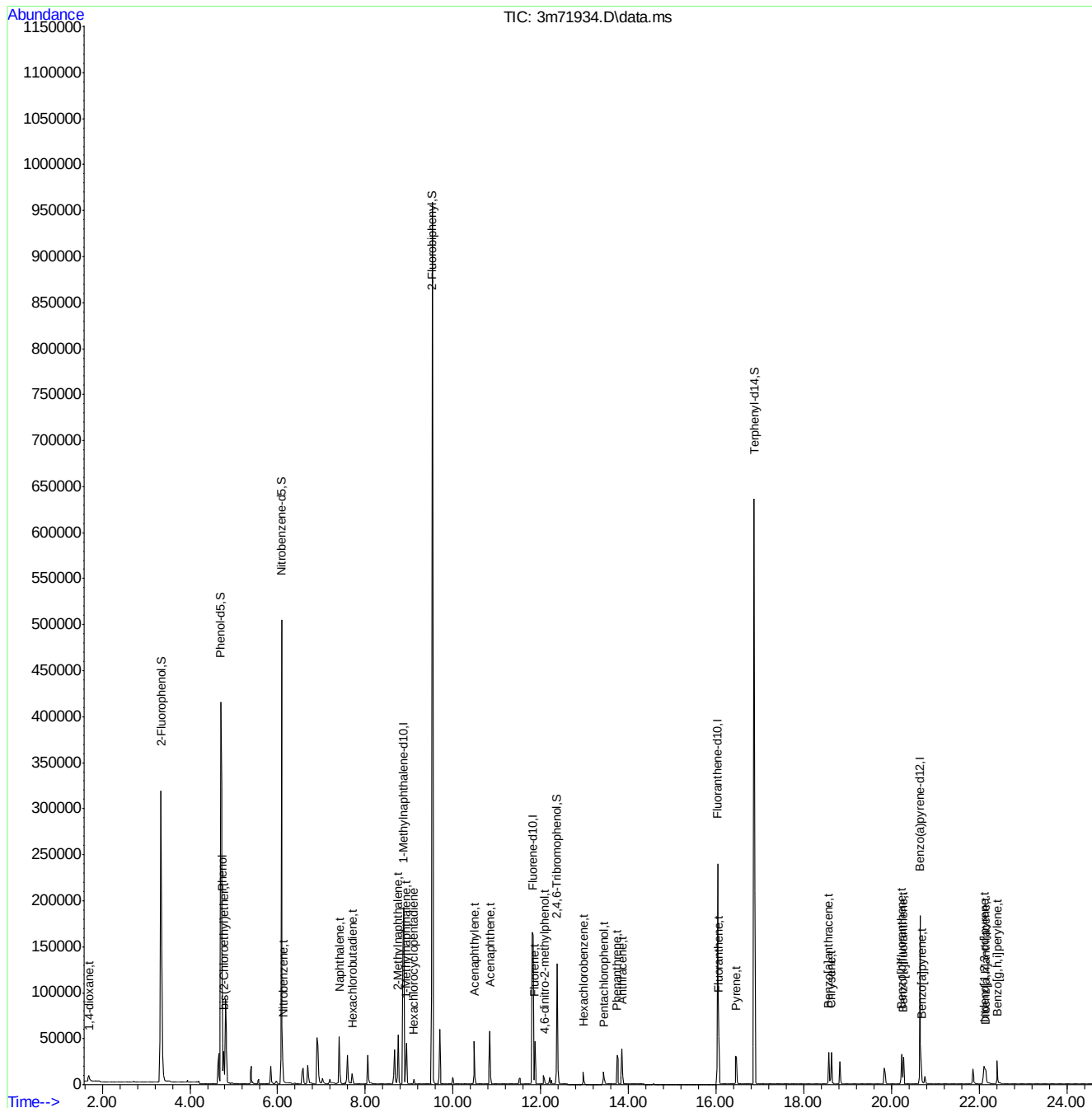
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71934.D
Acq On : 17 Oct 2017 3:26 pm
Operator : kevinm2
Sample : ic3448-.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 18 08:33:09 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



M3M3448SIM.M Wed Oct 18 08:33:24 2017 RPT1

Page: 3

Manual Integration Approval Summary

Sample Number: E3M3448-IC3448

Method: SW846 8270D BY SIM

Lab FileID: 3M71934.D

Analyst approved: 10/18/17 10:25 Kevin Moyle

Injection Time: 10/17/17 15:26

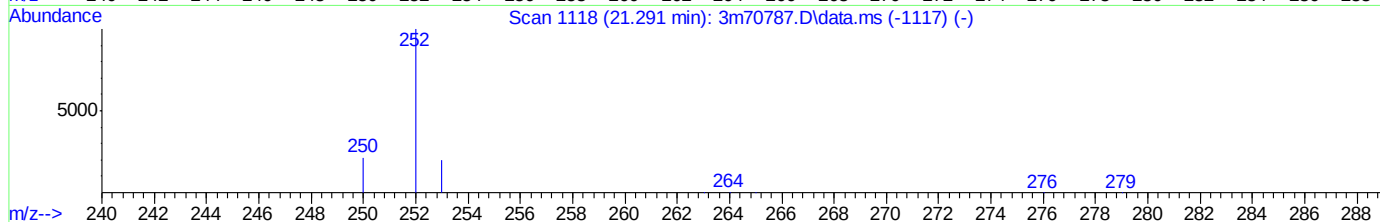
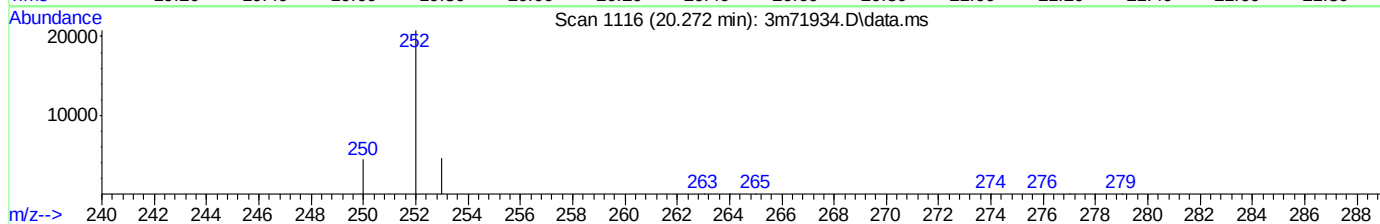
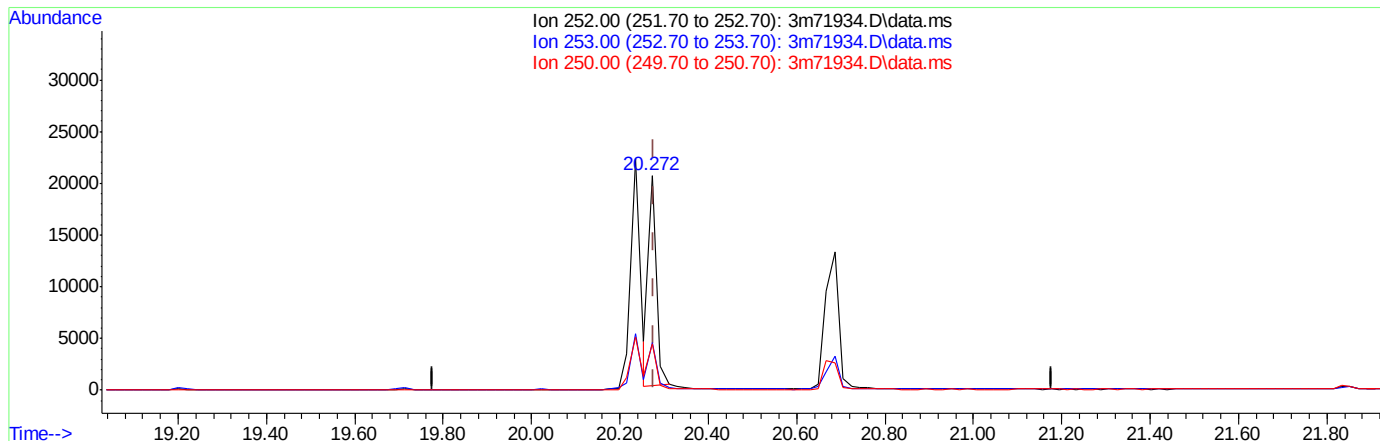
Supervisor approved: 10/18/17 12:29 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Chrysene	218-01-9		18.63	Poorly defined baseline
Benzo(k)fluoranthene	207-08-9		20.27	Poorly defined baseline

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71934.D
Acq On : 17 Oct 2017 3:26 pm
Operator : kevinm2
Sample : ic3448-.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 18 08:29:57 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71934.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.272min (-0.005) 0.56ppm

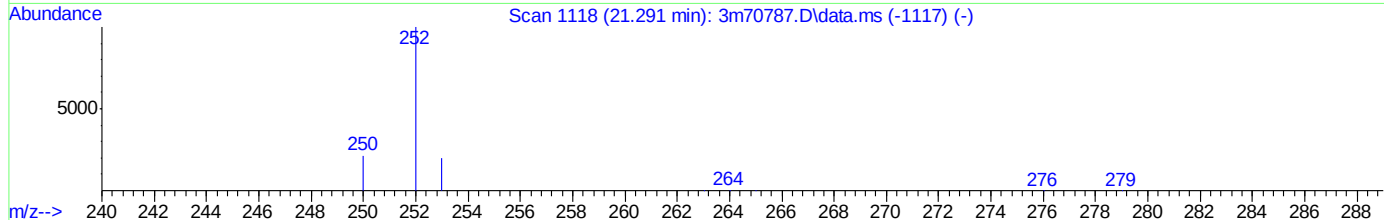
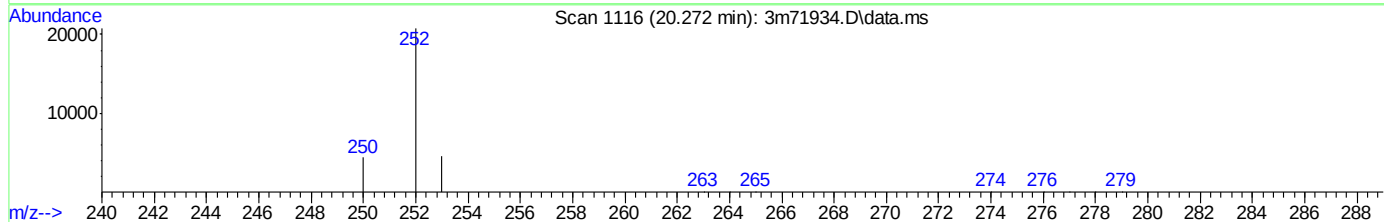
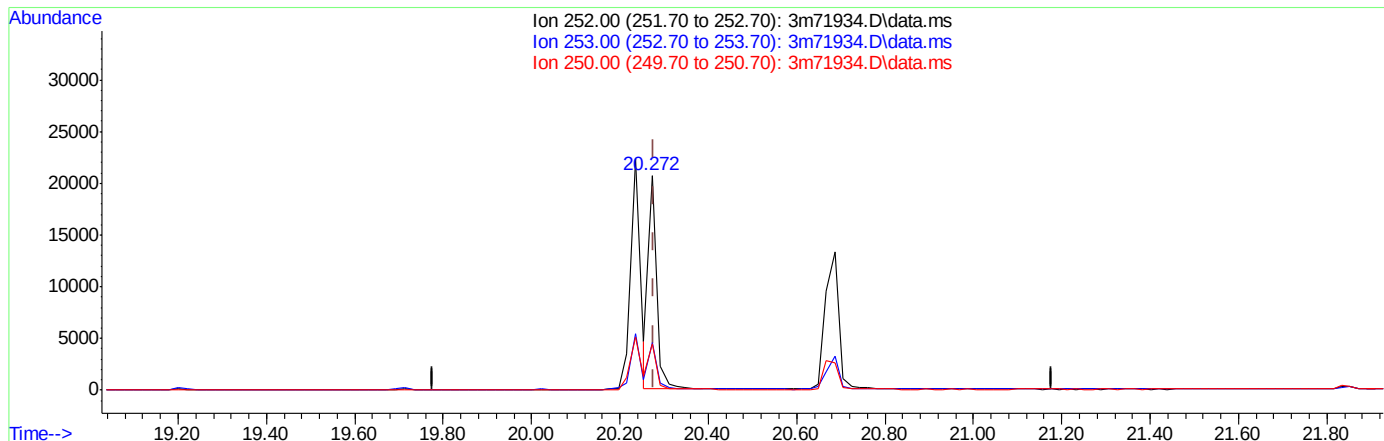
response 25103

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	22.05
250.00	20.00	20.25
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71934.D
Acq On : 17 Oct 2017 3:26 pm
Operator : kevinm2
Sample : ic3448-.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 18 08:29:57 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71934.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.272min (-0.005) 0.60ppm m

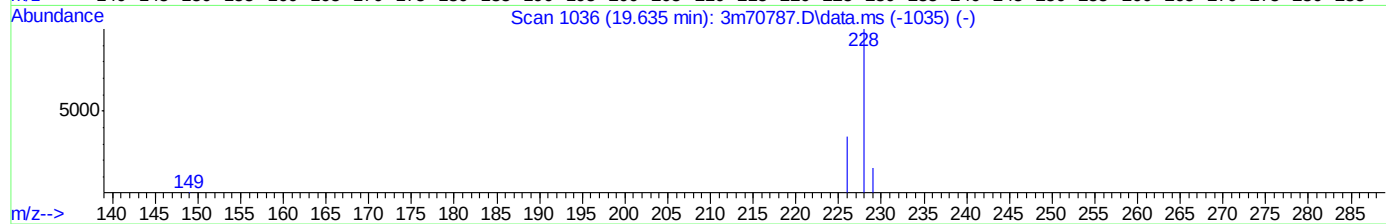
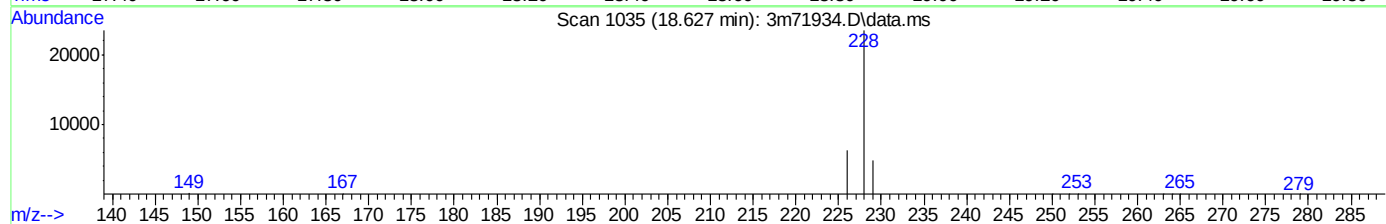
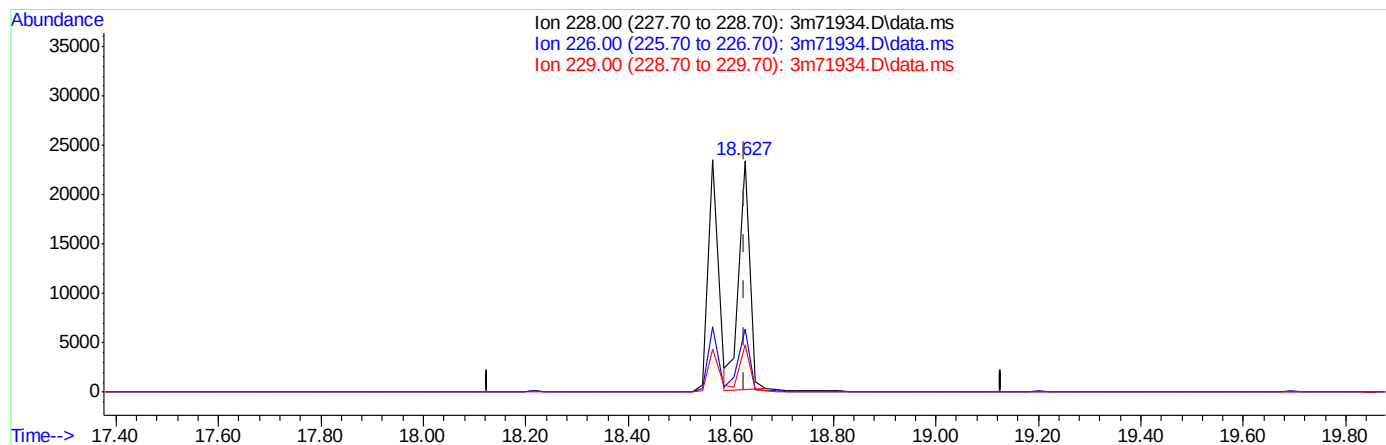
response 26968

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	22.29
250.00	20.00	21.40
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71934.D
Acq On : 17 Oct 2017 3:26 pm
Operator : kevinm2
Sample : ic3448-.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 18 08:29:57 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71934.D\data.ms

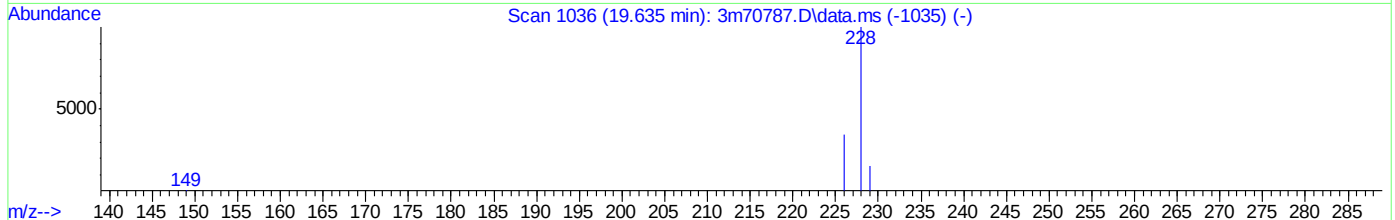
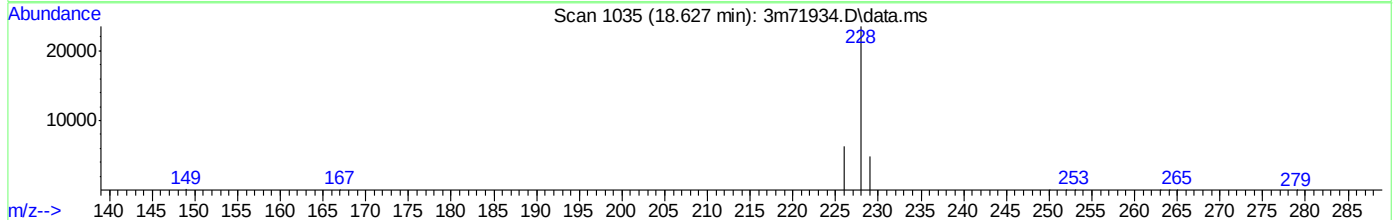
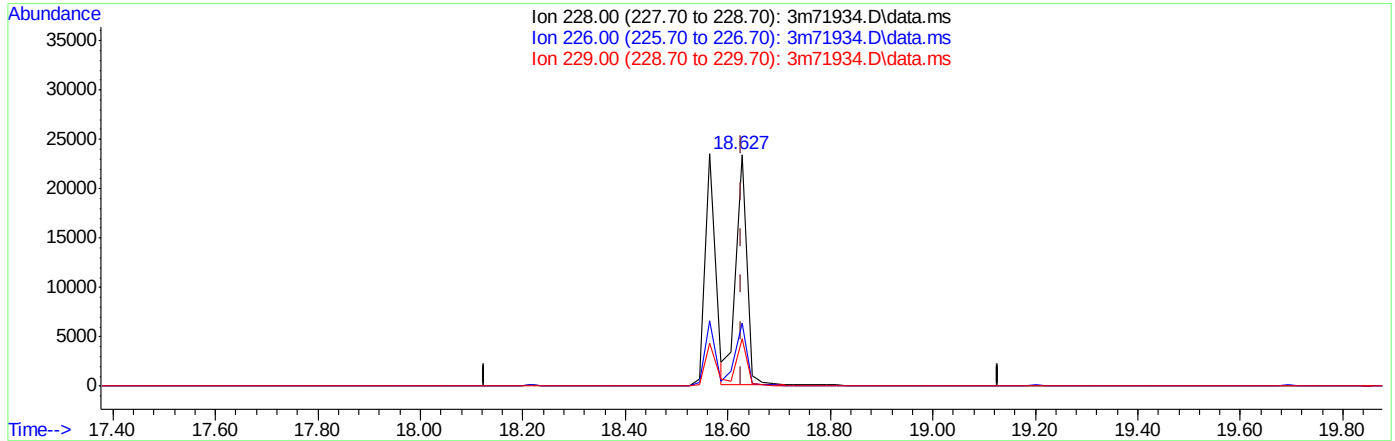
(30) Chrysene (t)
18.627min (0.000) 0.54ppm
response 33503

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	27.19
229.00	20.70	20.19
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71934.D
Acq On : 17 Oct 2017 3:26 pm
Operator : kevinm2
Sample : ic3448-.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 18 08:29:57 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71934.D\data.ms

(30) Chrysene (t)

18.627min (0.000) 0.57ppm m

response 34770

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	27.05
229.00	20.70	20.72
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71935.D
 Acq On : 17 Oct 2017 4:08 pm
 Operator : kevinm2
 Sample : ic3448-2.5
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 18 08:36:39 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 08:29:52 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.873	150	129642	4.00	ppm	0.00
14) Fluorene-d10	11.824	176	180703	4.00	ppm	0.00
21) Fluoranthene-d10	16.032	212	222206	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	152566	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.336	112	1146592	49.98	ppm	-0.11
Spiked Amount 50.000			Recovery	=	99.96%	
4) Phenol-d5	4.704	99	1762234	54.43	ppm	-0.07
Spiked Amount 50.000			Recovery	=	108.86%	
7) Nitrobenzene-d5	6.087	82	1734512	65.04	ppm	-0.06
Spiked Amount 50.000			Recovery	=	130.08%	
15) 2-Fluorobiphenyl	9.541	172	2736568	47.48	ppm	-0.03
Spiked Amount 50.000			Recovery	=	94.96%	
20) 2,4,6-Tribromophenol	12.371	330	328601	50.19	ppm	0.01
Spiked Amount 50.000			Recovery	=	100.38%	
28) Terphenyl-d14	16.882	244	2326930	56.46	ppm	0.04
Spiked Amount 50.000			Recovery	=	112.92%	
Target Compounds						
2) 1,4-dioxane	1.700	88	23616	2.56	ppm	# 56
5) Phenol	4.716	94	483107	13.90	ppm	# 72
6) bis(2-Chloroethyl)ether	4.777	93	76256	2.78	ppm	86
8) Nitrobenzene	6.125	77	83060	2.76	ppm	97
9) Naphthalene	7.405	128	202456	2.75	ppm	96
10) Hexachlorobutadiene	7.706	225	24557	2.44	ppm	63
11) 2-Methylnaphthalene	8.750	141	116602	3.04	ppm	95
12) 1-Methylnaphthalene	8.935	141	116899	2.69	ppm	79
13) Hexachlorocyclopentadiene	9.099	237	24178	4.33	ppm	# 70
16) Acenaphthylene	10.484	152	181023	2.45	ppm	99
17) Acenaphthene	10.839	153	116515	2.45	ppm	89
18) 4,6-dinitro-2-methylph...	12.088	198	70847	15.15	ppm	# 12
19) Fluorene	11.862	166	117651	2.25	ppm	98
22) Hexachlorobenzene	12.971	284	28553	2.26	ppm	90
23) Pentachlorophenol	13.435	266	66530	14.18	ppm	77
24) Phenanthrene	13.760	178	164127	2.49	ppm	88
25) Anthracene	13.853	178	160208	2.61	ppm	87
26) Fluoranthene	16.063	202	159434	2.39	ppm	92
27) Pyrene	16.465	202	162432	2.37	ppm	94
29) Benzo[a]anthracene	18.563	228	133699	2.52	ppm	99
30) Chrysene	18.625	228	127652m	2.56	ppm	
32) Benzo[b]fluoranthene	20.235	252	128749	2.26	ppm	97
33) Benzo[k]fluoranthene	20.272	252	112290m	2.97	ppm	
34) Benzo[a]pyrene	20.686	252	101381	2.28	ppm	91
35) Indeno[1,2,3-cd]pyrene	22.116	276	111597	2.25	ppm	96
36) Dibenz[a,h]anthracene	22.153	278	85050	2.10	ppm	93
37) Benzo[g,h,i]perylene	22.417	276	101782	2.48	ppm	99

9.6.25

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71935.D
Acq On : 17 Oct 2017 4:08 pm
Operator : kevinm2
Sample : ic3448-2.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 18 08:36:39 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration

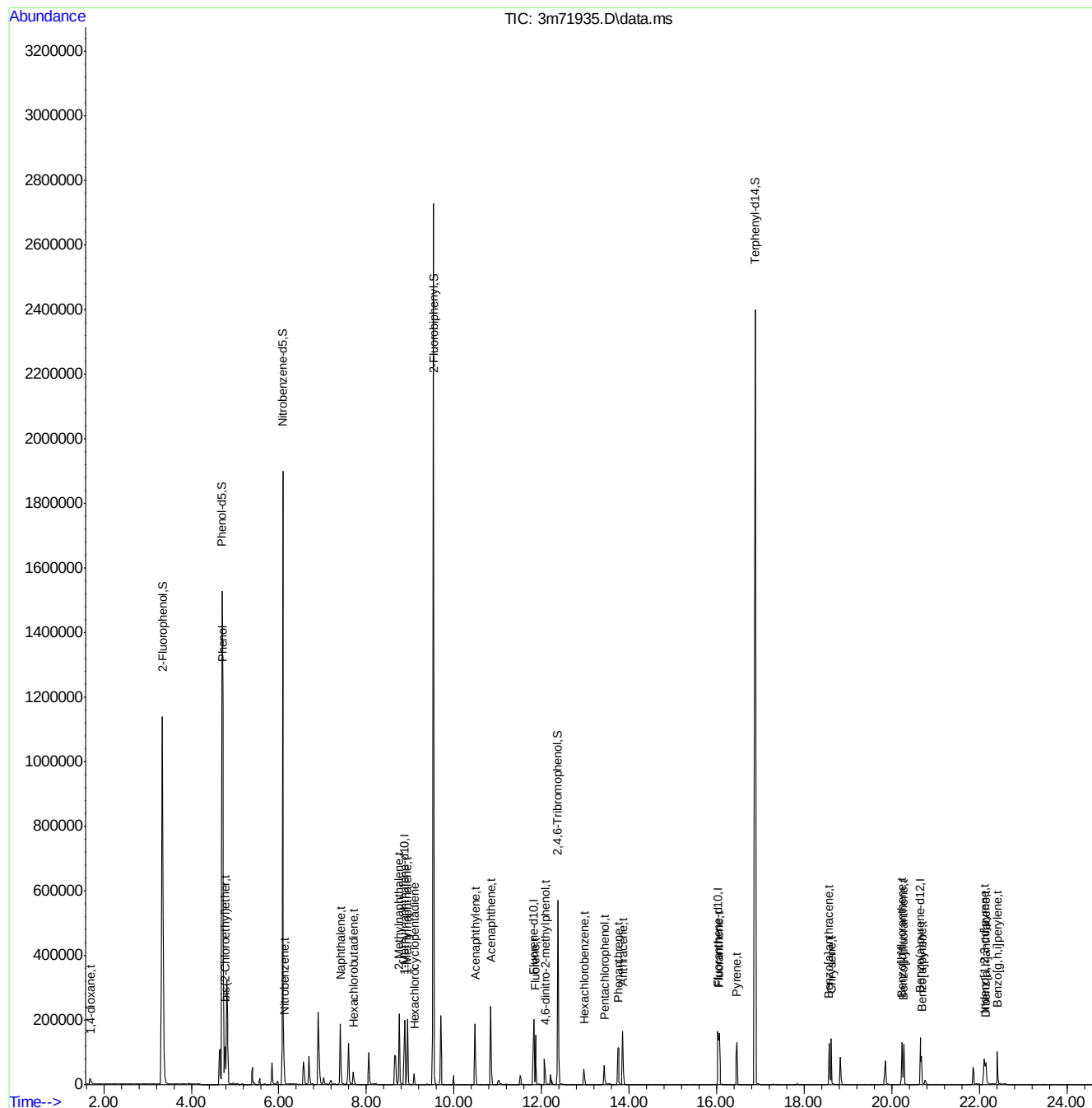
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71935.D
Acq On : 17 Oct 2017 4:08 pm
Operator : kevinm2
Sample : ic3448-2.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 18 08:36:39 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3448-IC3448

Lab FileID:

3M71935.D

Injection Time:

10/17/17 16:08

Method:

SW846 8270D BY SIM

Analyst approved:

10/18/17 10:25 Kevin Moyle

Supervisor approved:

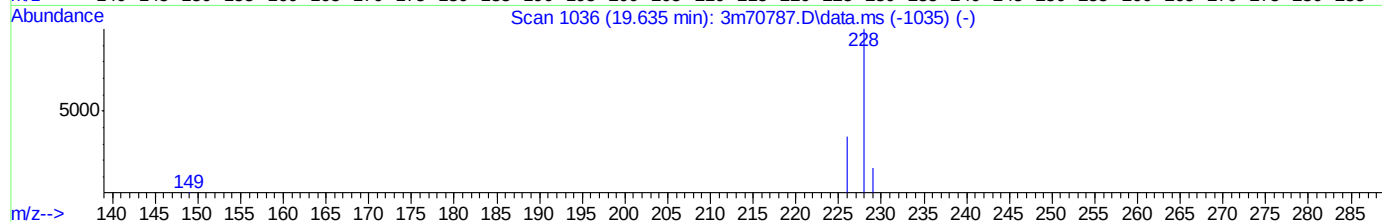
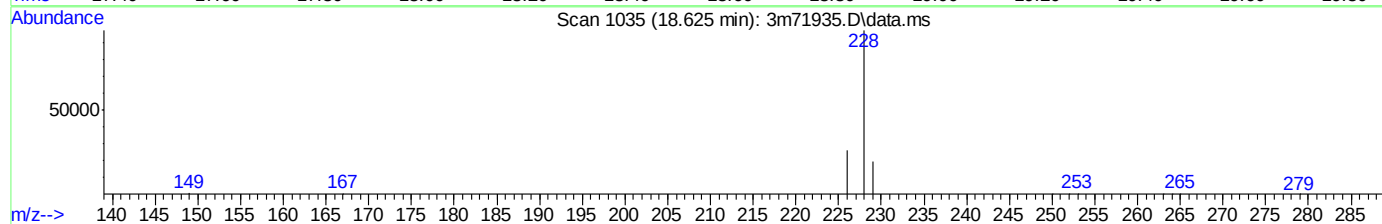
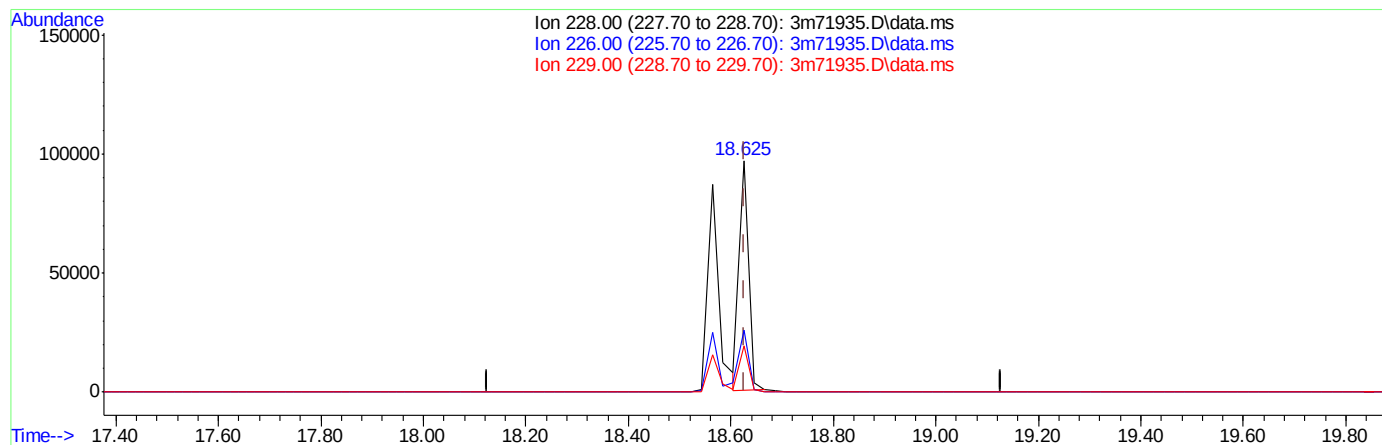
10/18/17 12:29 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Chrysene	218-01-9		18.62	Poorly defined baseline
Benzo(k)fluoranthene	207-08-9		20.27	Poorly defined baseline

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71935.D
Acq On : 17 Oct 2017 4:08 pm
Operator : kevinm2
Sample : ic3448-2.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 18 08:35:30 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71935.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 2.47ppm

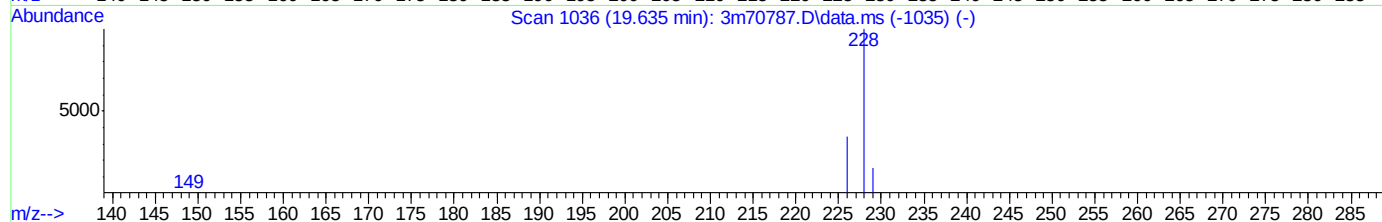
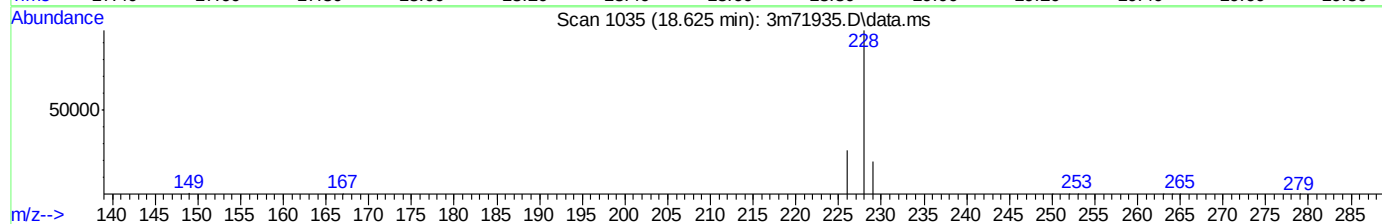
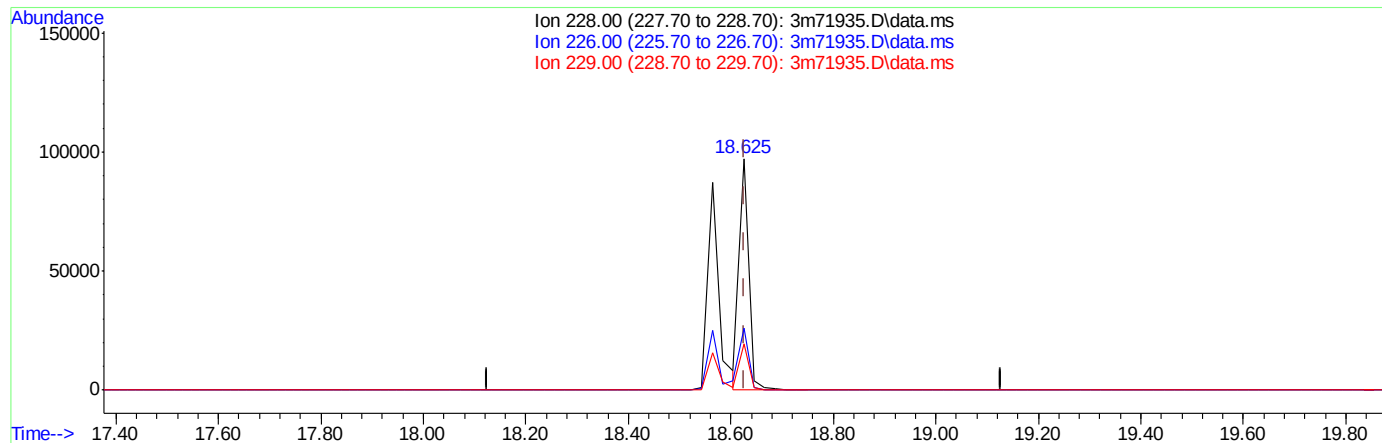
response 123221

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	25.87
229.00	20.70	20.39
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71935.D
Acq On : 17 Oct 2017 4:08 pm
Operator : kevinm2
Sample : ic3448-2.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 18 08:35:30 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71935.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 2.56ppm m

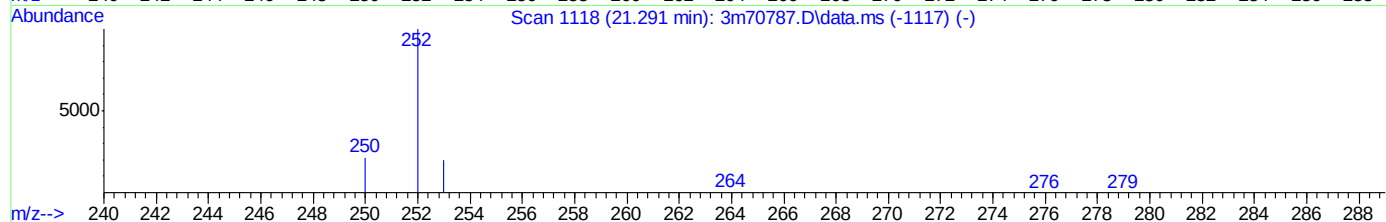
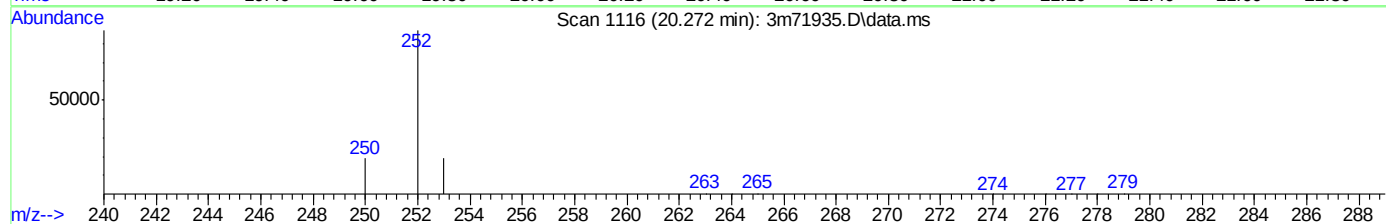
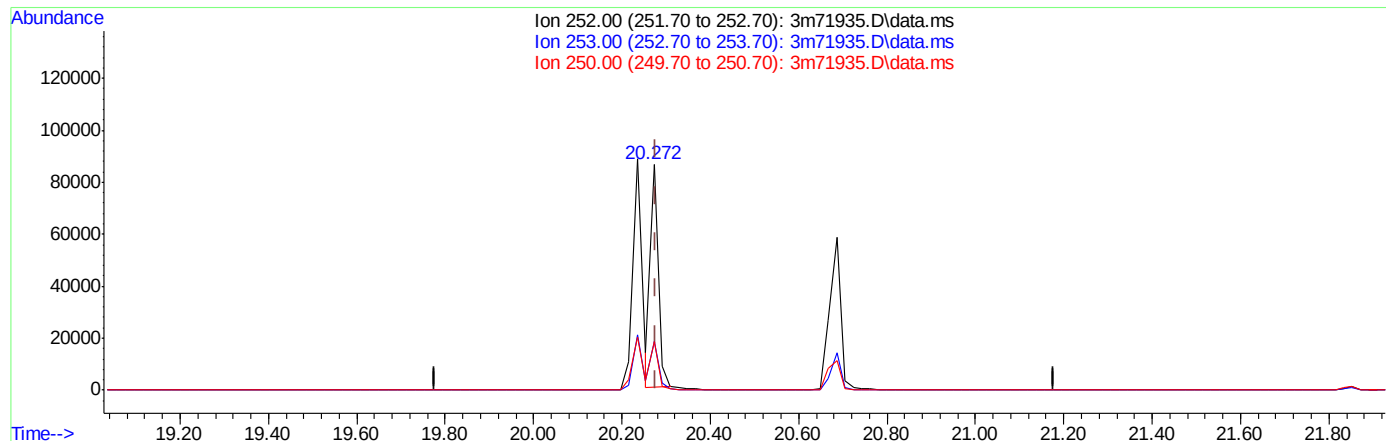
response 127652

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	26.72
229.00	20.70	20.14
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71935.D
Acq On : 17 Oct 2017 4:08 pm
Operator : kevinm2
Sample : ic3448-2.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 18 08:35:30 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71935.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.272min (-0.005) 2.81ppm

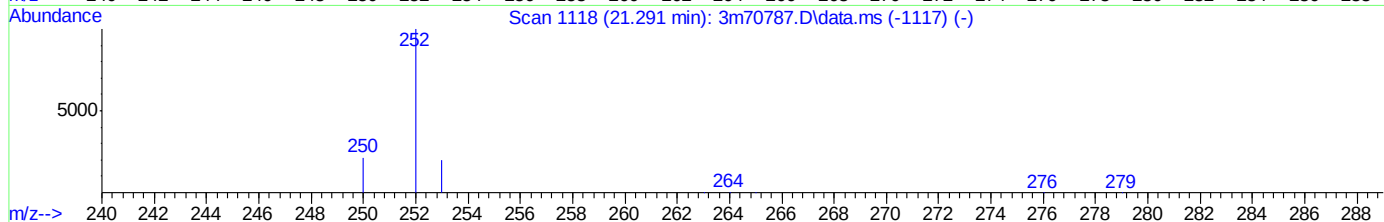
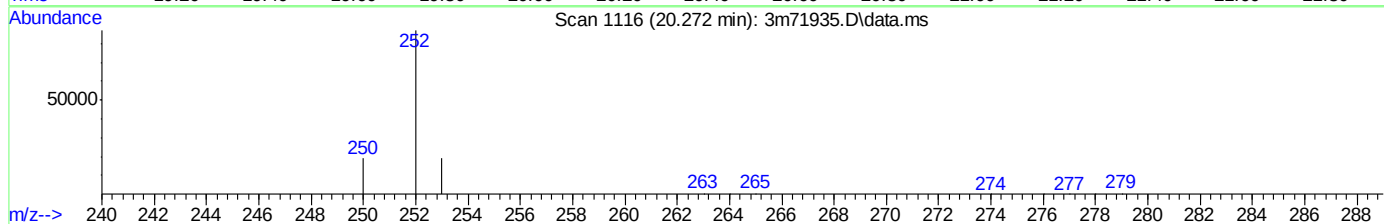
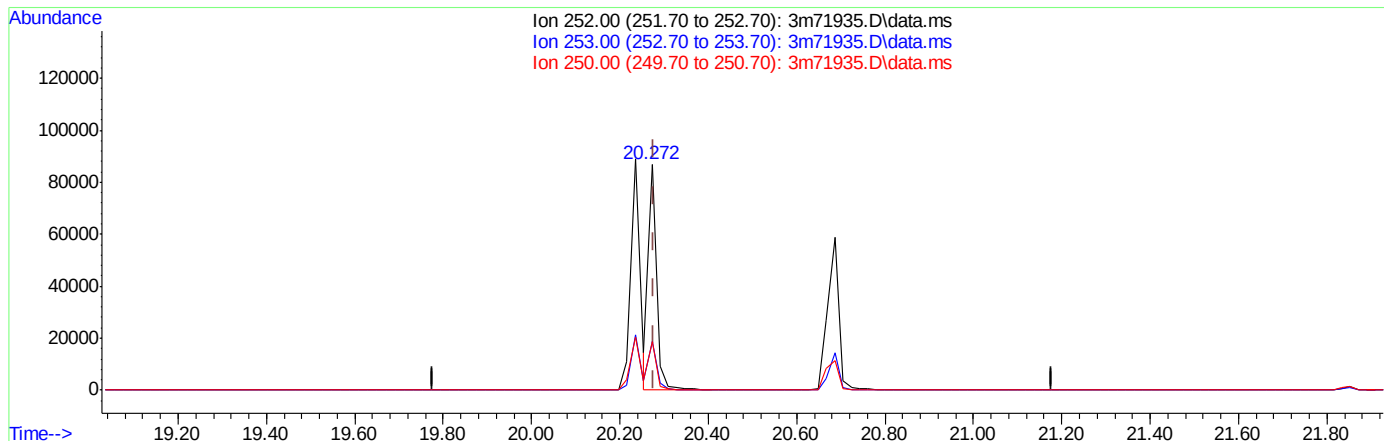
response 106077

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	21.47
250.00	20.00	21.25
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71935.D
Acq On : 17 Oct 2017 4:08 pm
Operator : kevinm2
Sample : ic3448-2.5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 18 08:35:30 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71935.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.272min (-0.005) 2.97ppm m

response 112290

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	21.74
250.00	20.00	21.72
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71936.D
 Acq On : 17 Oct 2017 4:39 pm
 Operator : kevinm2
 Sample : ic3448-.2
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 08:40:02 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 08:29:52 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.873	150	141224	4.00	ppm	0.00
14) Fluorene-d10	11.824	176	184222	4.00	ppm	0.00
21) Fluoranthene-d10	16.032	212	268069	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	182250	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.355	112	92117	3.69	ppm	-0.09
Spiked Amount 50.000			Recovery	=	7.38%	
4) Phenol-d5	4.704	99	149251	4.23	ppm	-0.07
Spiked Amount 50.000			Recovery	=	8.46%	
7) Nitrobenzene-d5	6.087	82	134171	4.62	ppm	-0.06
Spiked Amount 50.000			Recovery	=	9.24%	
15) 2-Fluorobiphenyl	9.525	172	225237	3.83	ppm	-0.04
Spiked Amount 50.000			Recovery	=	7.66%	
20) 2,4,6-Tribromophenol	12.371	330	20239	3.03	ppm	0.01
Spiked Amount 50.000			Recovery	=	6.06%	
28) Terphenyl-d14	16.866	244	155840	3.13	ppm	0.03
Spiked Amount 50.000			Recovery	=	6.26%	
Target Compounds						
2) 1,4-dioxane	1.700	88	1981	0.20	ppm	Qvalue # 53
5) Phenol	4.728	94	40099	1.06	ppm	# 70
6) bis(2-Chloroethyl)ether	4.777	93	5791	0.19	ppm	85
8) Nitrobenzene	6.125	77	6564	0.20	ppm	85
9) Naphthalene	7.405	128	17112	0.21	ppm	95
10) Hexachlorobutadiene	7.706	225	2089	0.19	ppm	# 64
11) 2-Methylnaphthalene	8.750	141	9082	0.22	ppm	96
12) 1-Methylnaphthalene	8.935	141	9573	0.20	ppm	77
13) Hexachlorocyclopentadiene	9.099	237	201m	0.03	ppm	
16) Acenaphthylene	10.484	152	13912	0.18	ppm	98
17) Acenaphthene	10.839	153	9157	0.19	ppm	85
18) 4,6-dinitro-2-methylph...	12.088	198	2359	0.49	ppm	# 30
19) Fluorene	11.862	166	9987	0.19	ppm	99
22) Hexachlorobenzene	12.971	284	2422	0.16	ppm	96
23) Pentachlorophenol	13.451	266	2458	0.43	ppm	88
24) Phenanthrene	13.744	178	13515	0.17	ppm	99
25) Anthracene	13.853	178	11556	0.16	ppm	87
26) Fluoranthene	16.063	202	14710	0.18	ppm	94
27) Pyrene	16.449	202	13437	0.16	ppm	94
29) Benzo[a]anthracene	18.563	228	9983	0.16	ppm	99
30) Chrysene	18.625	228	11210m	0.19	ppm	
32) Benzo[b]fluoranthene	20.235	252	10716m	0.16	ppm	
33) Benzo[k]fluoranthene	20.272	252	8319m	0.18	ppm	
34) Benzo[a]pyrene	20.686	252	8898	0.17	ppm	90
35) Indeno[1,2,3-cd]pyrene	22.116	276	9527	0.16	ppm	96
36) Dibenz[a,h]anthracene	22.153	278	7663	0.16	ppm	90
37) Benzo[g,h,i]perylene	22.417	276	8594	0.18	ppm	100

9.6.26

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71936.D
Acq On : 17 Oct 2017 4:39 pm
Operator : kevinm2
Sample : ic3448-.2
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

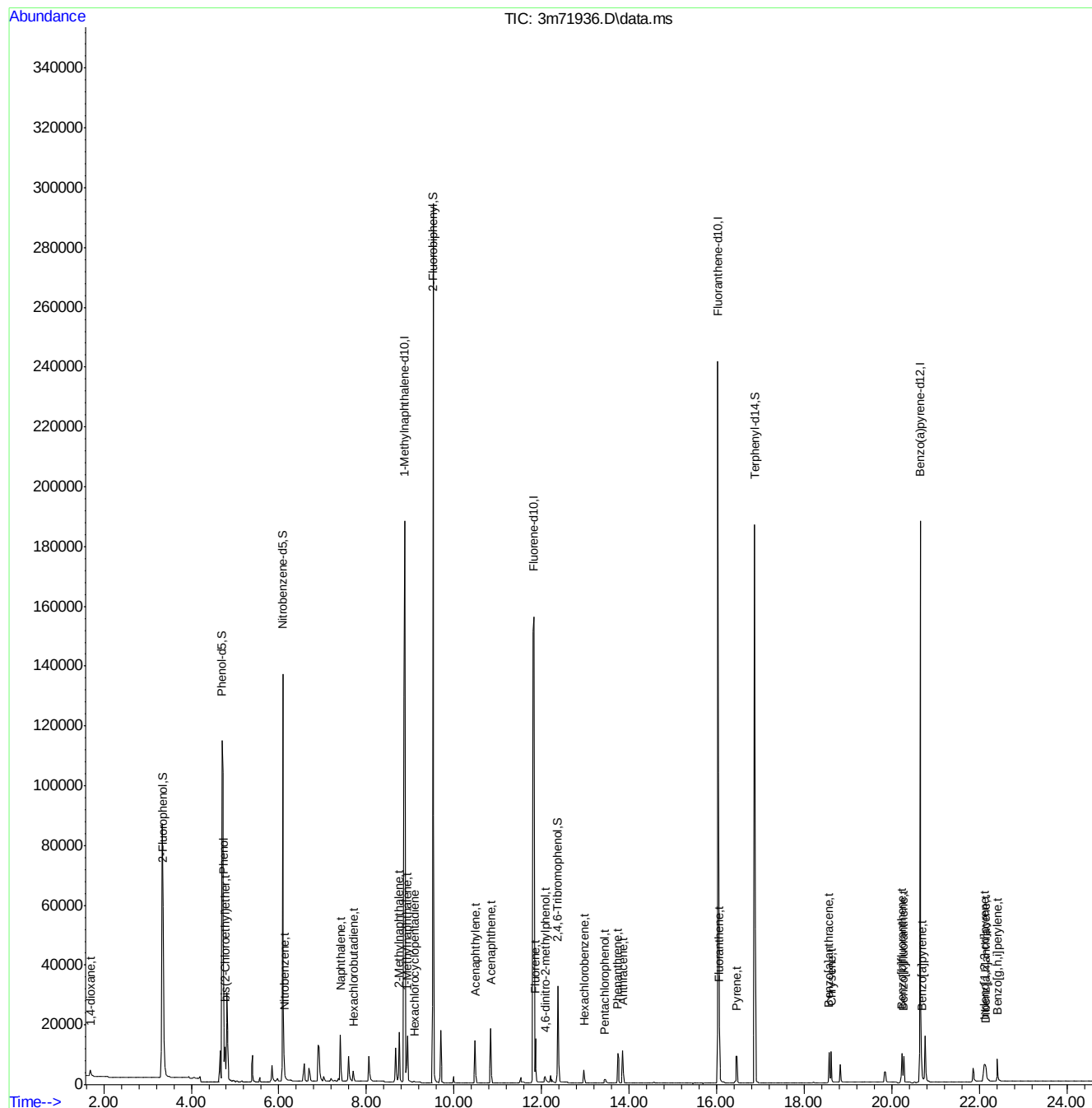
Quant Time: Oct 18 08:40:02 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

(QT Reviewed)

Quant Time: Oct 18 08:40:02 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3448-IC3448

Lab FileID:

3M71936.D

Injection Time:

10/17/17 16:39

Method:

SW846 8270D BY SIM

Analyst approved:

10/18/17 10:25 Kevin Moyle

Supervisor approved:

10/18/17 12:29 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Hexachlorocyclopentadiene	77-47-4		9.10	Missed peak
Chrysene	218-01-9		18.62	Poorly defined baseline
Benzo(b)fluoranthene	205-99-2		20.23	Poorly defined baseline
Benzo(k)fluoranthene	207-08-9		20.27	Poorly defined baseline

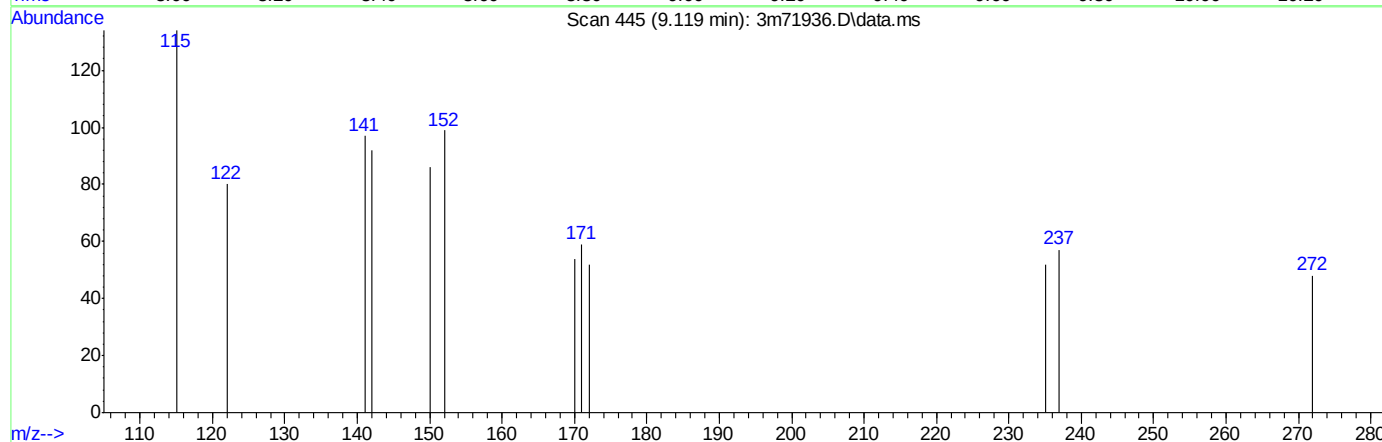
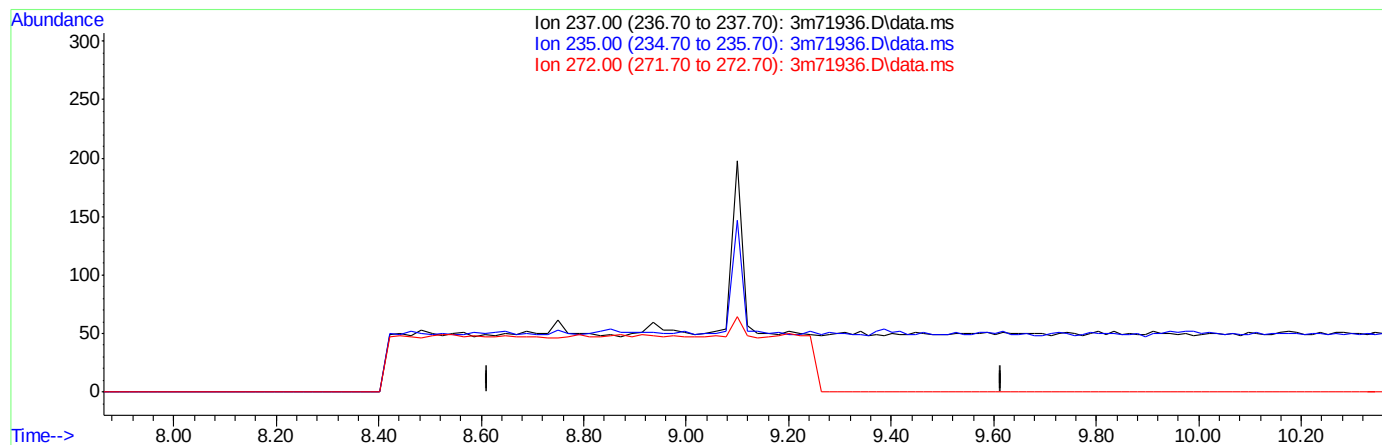
9.6.26.1

9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71936.D
Acq On : 17 Oct 2017 4:39 pm
Operator : kevinm2
Sample : ic3448-.2
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 08:37:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71936.D\data.ms

(13) Hexachlorocyclopentadiene

9.114min (-9.114) 0.00ppm

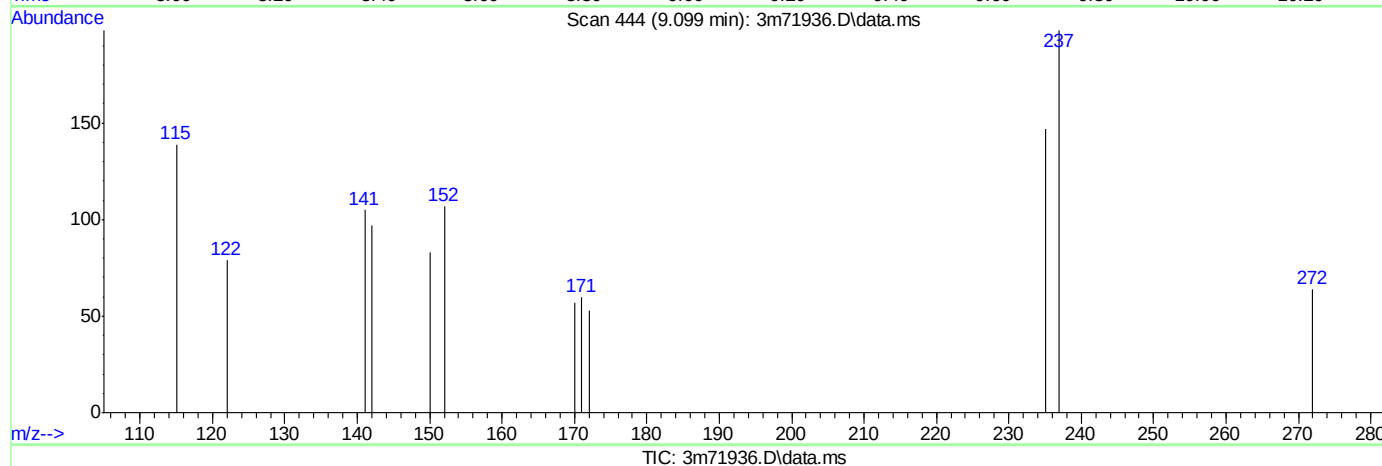
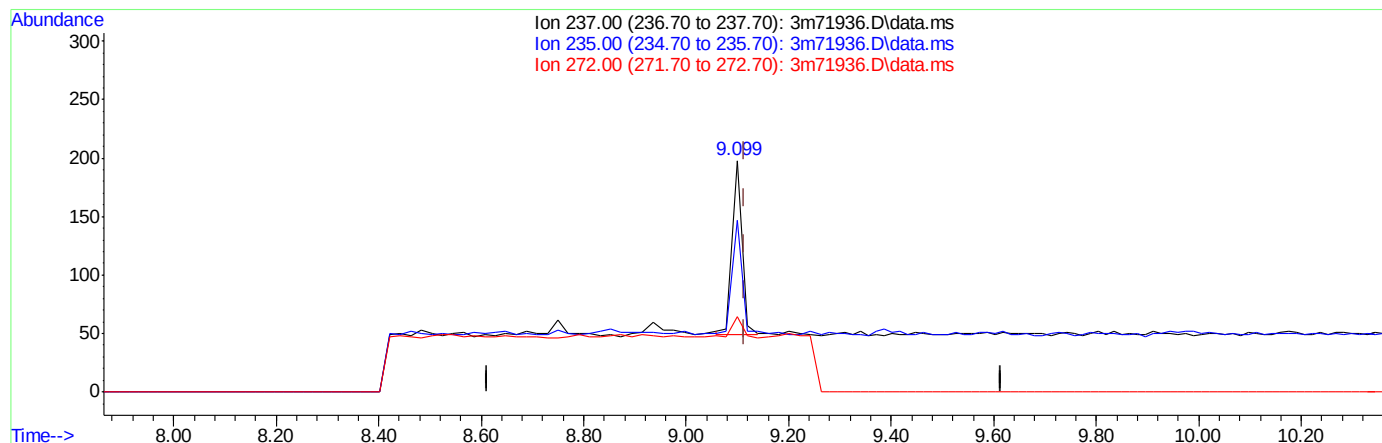
response 0

Ion	Exp%	Act%
237.00	100	0.00
235.00	69.20	0.00#
272.00	56.10	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71936.D
Acq On : 17 Oct 2017 4:39 pm
Operator : kevinm2
Sample : ic3448-.2
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 08:37:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



(13) Hexachlorocyclopentadiene

9.099min (-0.015) 0.03ppm m

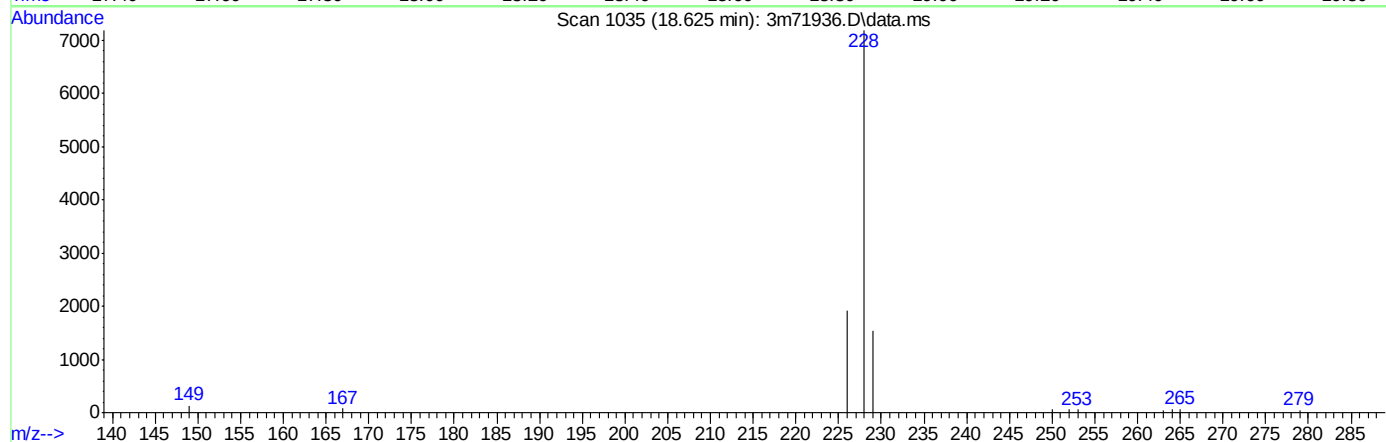
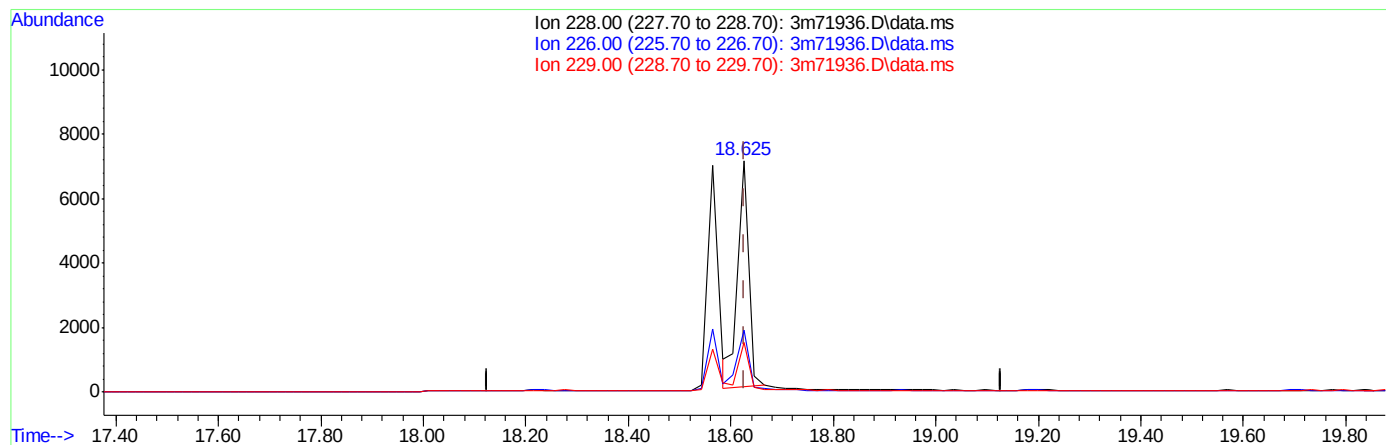
response 201

Ion	Exp%	Act%
237.00	100	100
235.00	69.20	74.24
272.00	56.10	32.32#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71936.D
Acq On : 17 Oct 2017 4:39 pm
Operator : kevinm2
Sample : ic3448-.2
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 08:37:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71936.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 0.17ppm

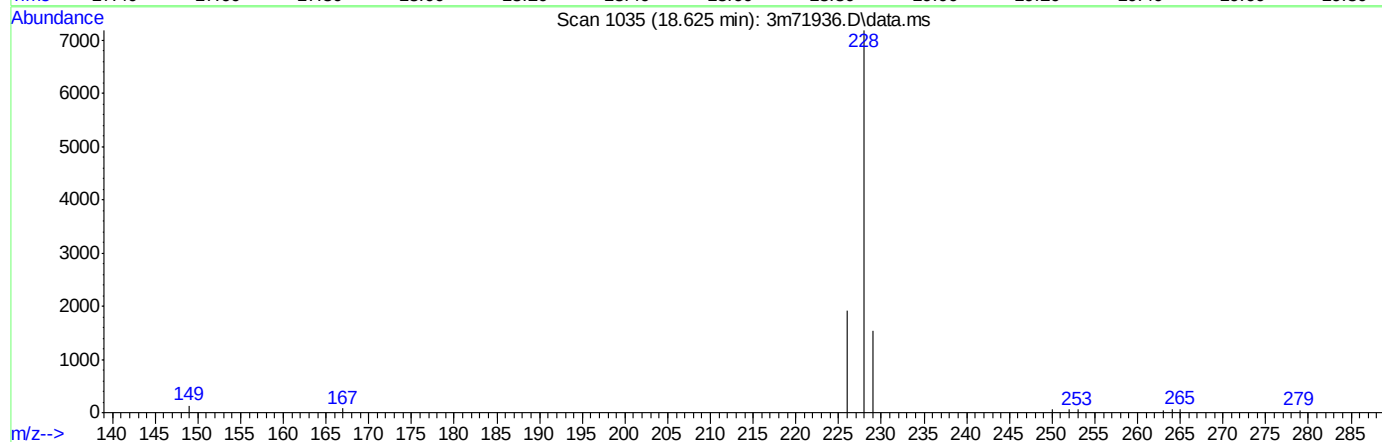
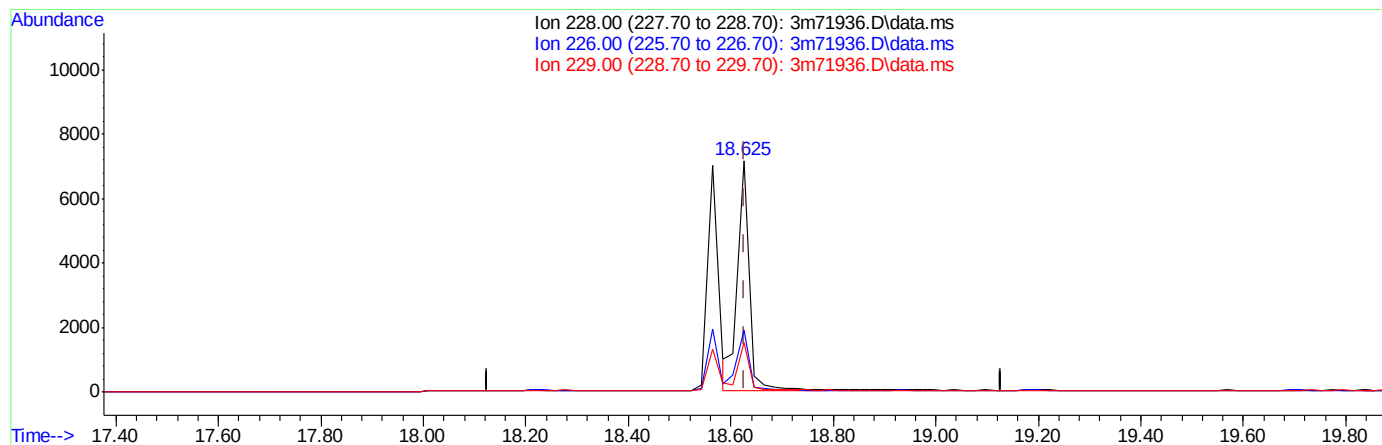
response 10364

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	26.43
229.00	20.70	20.40
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71936.D
Acq On : 17 Oct 2017 4:39 pm
Operator : kevinm2
Sample : ic3448-.2
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 08:37:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71936.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 0.19ppm m

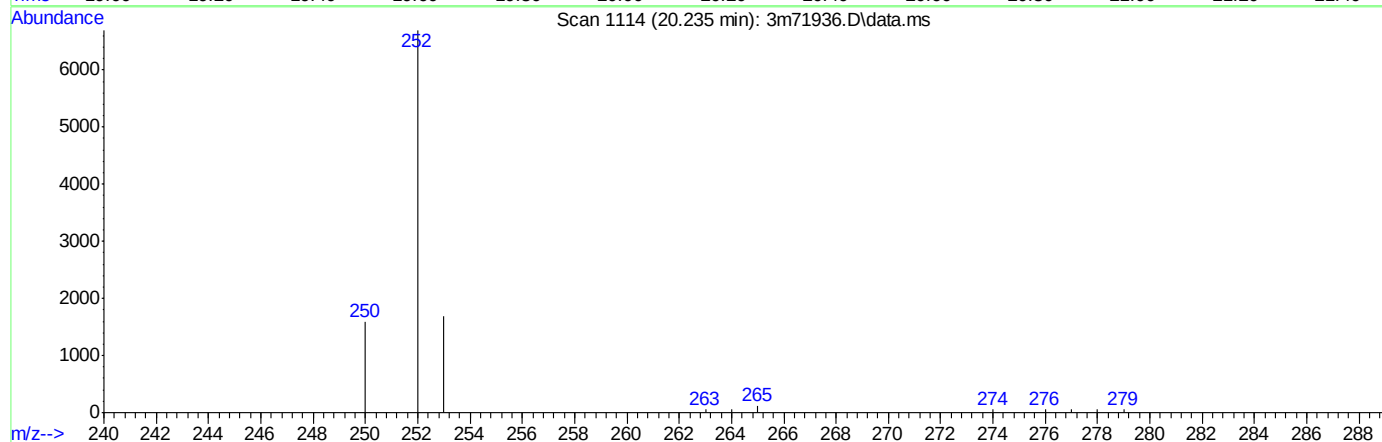
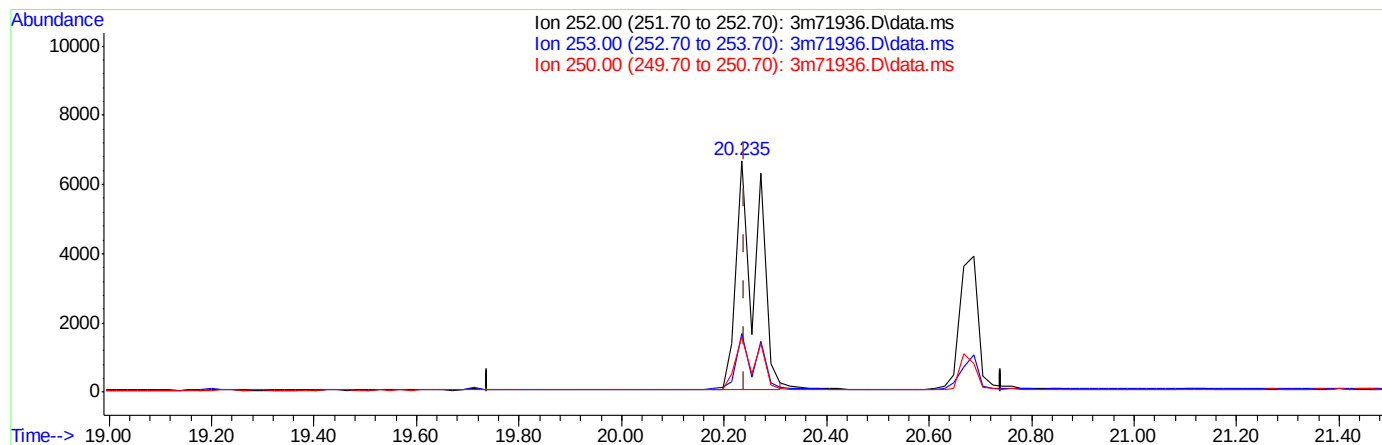
response 11210

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	26.64
229.00	20.70	21.30
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71936.D
Acq On : 17 Oct 2017 4:39 pm
Operator : kevinm2
Sample : ic3448-.2
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 08:37:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71936.D\data.ms

(32) Benzo[b]fluoranthene (t)

20.235min (-0.005) 0.28ppm

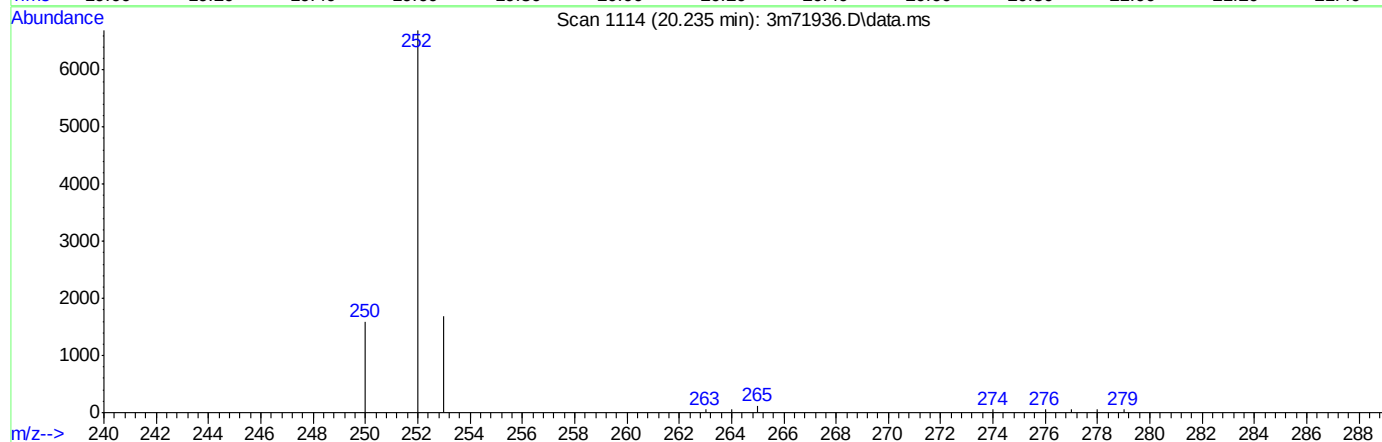
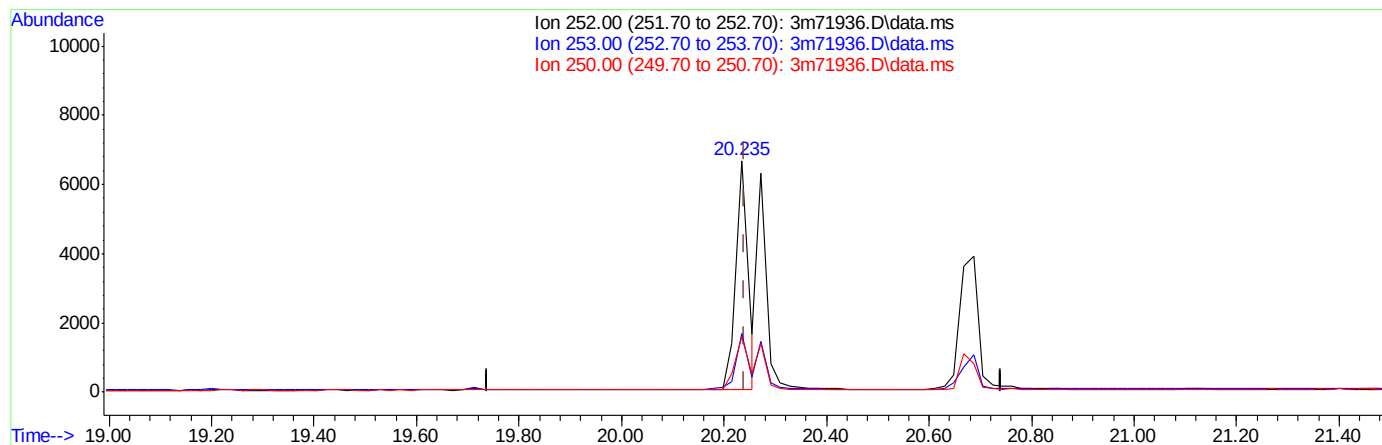
response 18764

Ion	Exp%	Act%
252.00	100	100
253.00	25.90	24.21
250.00	21.80	22.90
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71936.D
Acq On : 17 Oct 2017 4:39 pm
Operator : kevinm2
Sample : ic3448-.2
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 08:37:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71936.D\data.ms

(32) Benzo[b]fluoranthene (t)

20.235min (-0.005) 0.16ppm m

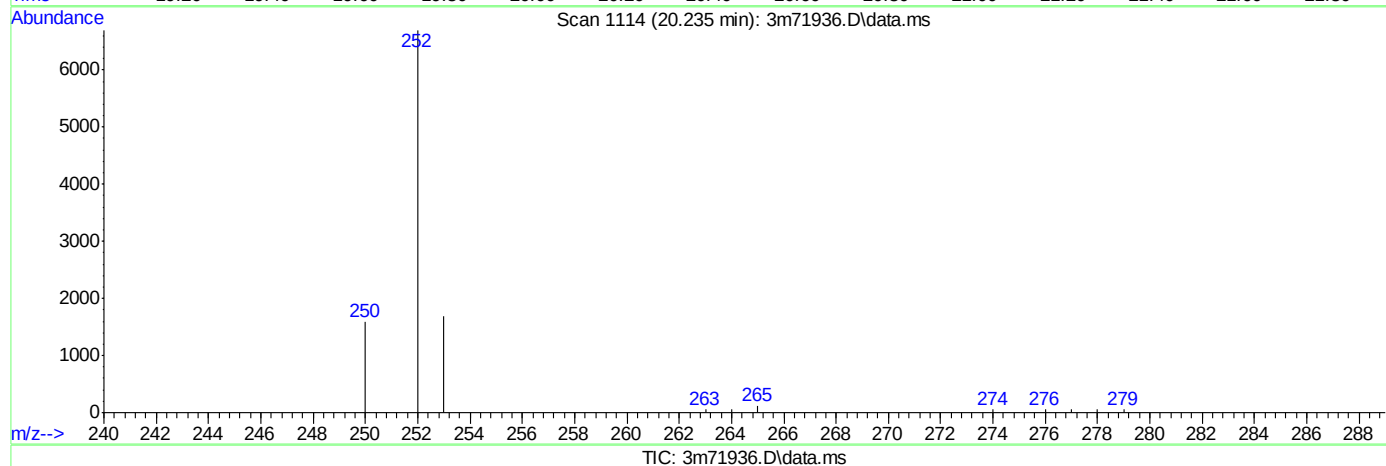
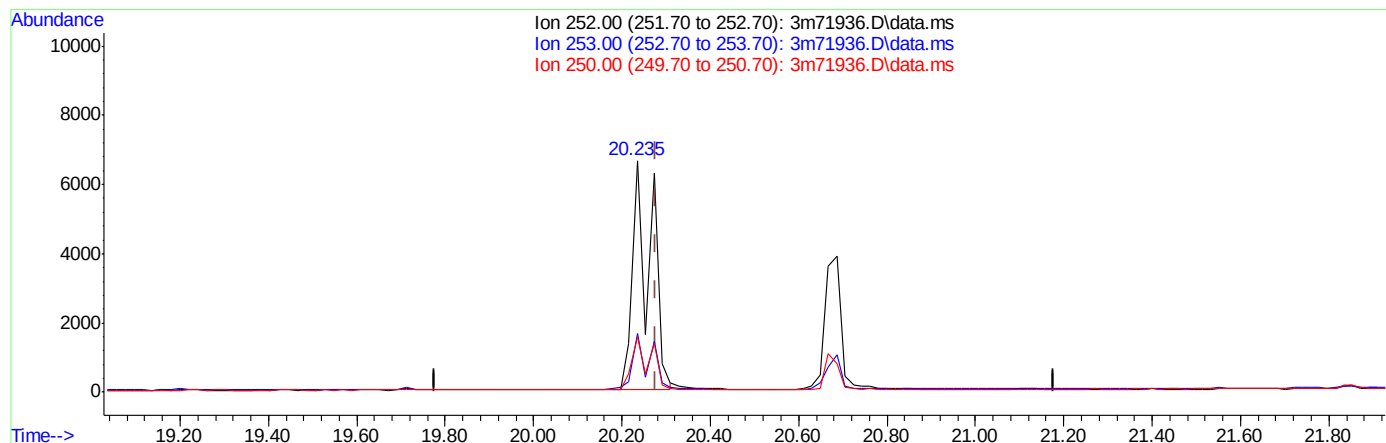
response 10716

Ion	Exp%	Act%
252.00	100	100
253.00	25.90	25.22
250.00	21.80	23.67
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71936.D
Acq On : 17 Oct 2017 4:39 pm
Operator : kevinm2
Sample : ic3448-.2
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 08:37:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



(33) Benzo[k]fluoranthene (t)

20.235min (-0.043) 0.42ppm

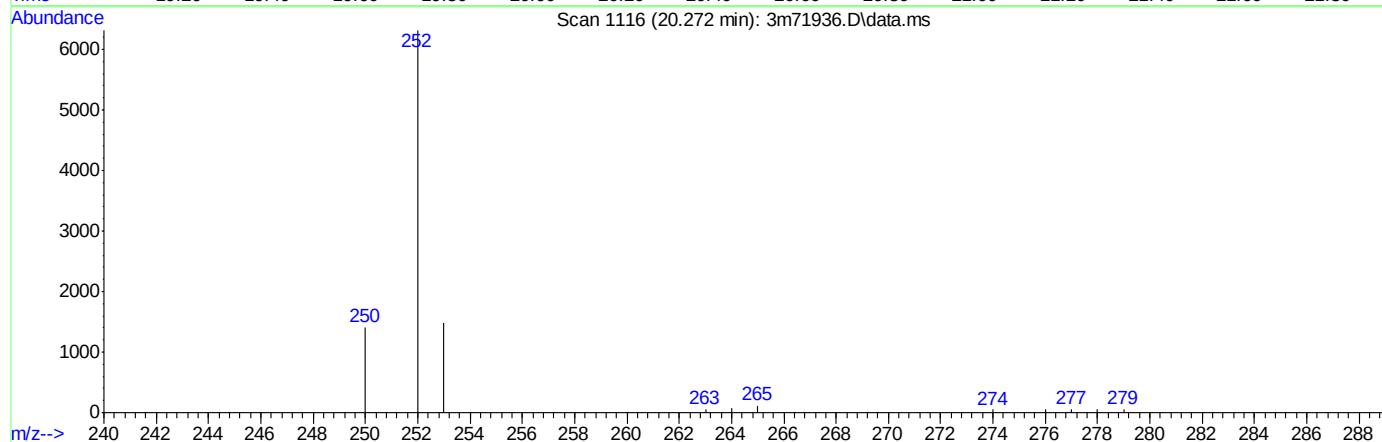
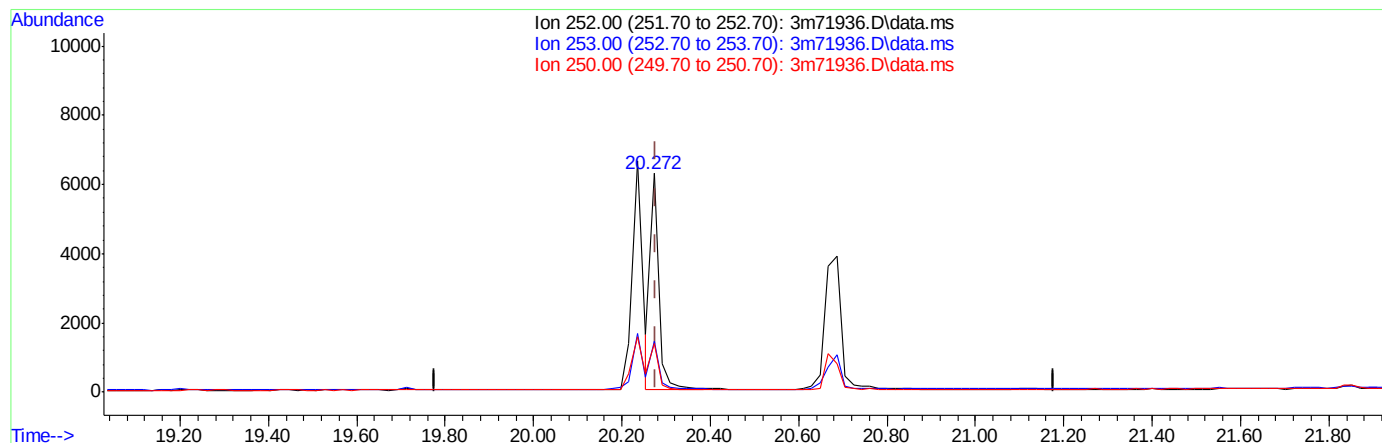
response 18764

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	24.21
250.00	20.00	22.90
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71936.D
Acq On : 17 Oct 2017 4:39 pm
Operator : kevinm2
Sample : ic3448-.2
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 18 08:37:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



(33) Benzo[k]fluoranthene (t)

20.272min (-0.005) 0.18ppm m

response 8319

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	23.37
250.00	20.00	22.31
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71937.D
 Acq On : 17 Oct 2017 5:10 pm
 Operator : kevinm2
 Sample : ic3448-.1
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 18 08:42:29 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 08:29:52 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.873	150	210397	4.00	ppm	0.00
14) Fluorene-d10	11.824	176	266624	4.00	ppm	0.00
21) Fluoranthene-d10	16.032	212	376265	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	273169	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.355	112	73757	1.98	ppm	-0.09
Spiked Amount 50.000			Recovery =			3.96%
4) Phenol-d5	4.704	99	124588	2.37	ppm	-0.07
Spiked Amount 50.000			Recovery =			4.74%
7) Nitrobenzene-d5	6.087	82	112148	2.59	ppm	-0.06
Spiked Amount 50.000			Recovery =			5.18%
15) 2-Fluorobiphenyl	9.526	172	181941	2.14	ppm	-0.04
Spiked Amount 50.000			Recovery =			4.28%
20) 2,4,6-Tribromophenol	12.371	330	14801	1.53	ppm	0.01
Spiked Amount 50.000			Recovery =			3.06%
28) Terphenyl-d14	16.866	244	123301	1.77	ppm	0.03
Spiked Amount 50.000			Recovery =			3.54%
Target Compounds						
2) 1,4-dioxane	1.700	88	1946	0.13	ppm	Qvalue 85
5) Phenol	4.729	94	33188	0.59	ppm	# 69
6) bis(2-Chloroethyl)ether	4.777	93	4847	0.11	ppm	88
8) Nitrobenzene	6.125	77	5520	0.11	ppm	79
9) Naphthalene	7.405	128	13874	0.12	ppm	96
10) Hexachlorobutadiene	7.706	225	1752	0.11	ppm	# 64
11) 2-Methylnaphthalene	8.750	141	7586	0.12	ppm	94
12) 1-Methylnaphthalene	8.935	141	7921	0.11	ppm	77
13) Hexachlorocyclopentadiene	9.099	237	103m	0.01	ppm	
16) Acenaphthylene	10.484	152	11032	0.10	ppm	99
17) Acenaphthene	10.839	153	7414	0.11	ppm	87
18) 4,6-dinitro-2-methylph...	12.088	198	1346	0.20	ppm	# 62
19) Fluorene	11.862	166	7811	0.10	ppm	98
22) Hexachlorobenzene	12.971	284	1881	0.09	ppm	93
23) Pentachlorophenol	13.451	266	1404	0.18	ppm	88
24) Phenanthrene	13.744	178	10769	0.10	ppm	99
25) Anthracene	13.853	178	8895	0.09	ppm	87
26) Fluoranthene	16.063	202	12423	0.11	ppm	93
27) Pyrene	16.465	202	10661	0.09	ppm	95
29) Benzo[a]anthracene	18.564	228	8947	0.10	ppm	100
30) Chrysene	18.625	228	8509m	0.10	ppm	
32) Benzo[b]fluoranthene	20.235	252	8449	0.08	ppm	98
33) Benzo[k]fluoranthene	20.272	252	7168	0.11	ppm	98
34) Benzo[a]pyrene	20.686	252	8051	0.10	ppm	90
35) Indeno[1,2,3-cd]pyrene	22.116	276	7552	0.09	ppm	98
36) Dibenz[a,h]anthracene	22.153	278	5933	0.08	ppm	96
37) Benzo[g,h,i]perylene	22.417	276	7027	0.10	ppm	99

9.6.27

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71937.D
Acq On : 17 Oct 2017 5:10 pm
Operator : kevinm2
Sample : ic3448-.1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 18 08:42:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

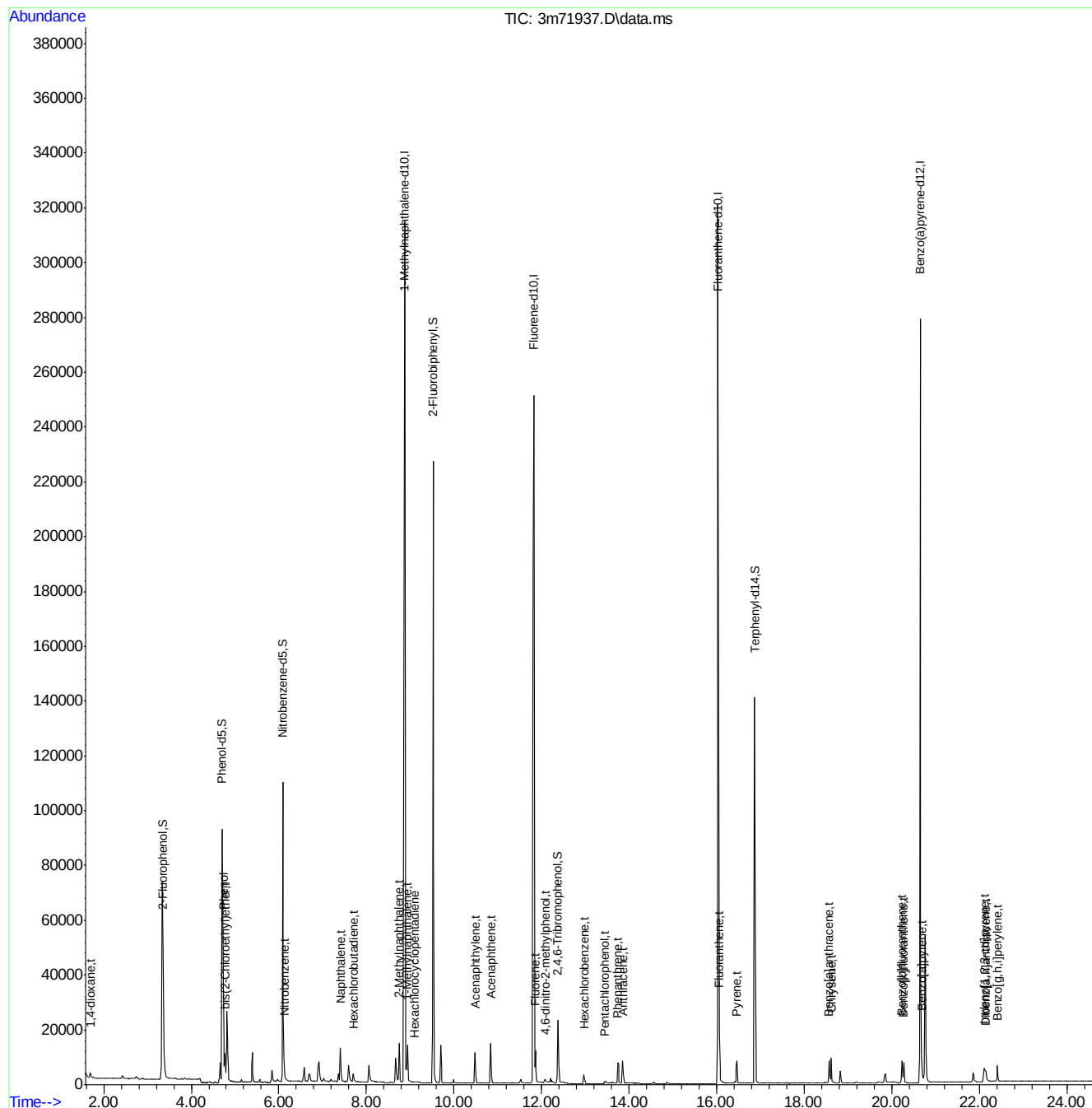
9.6.27

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71937.D
Acq On : 17 Oct 2017 5:10 pm
Operator : kevinm2
Sample : ic3448-.1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 18 08:42:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3448-IC3448

Lab FileID:

3M71937.D

Injection Time:

10/17/17 17:10

Method:

SW846 8270D BY SIM

Analyst approved:

10/18/17 10:25 Kevin Moyle

Supervisor approved:

10/18/17 12:29 Nina Pandya

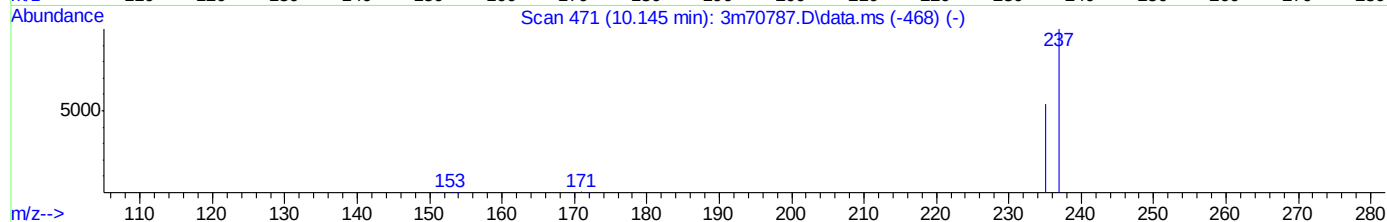
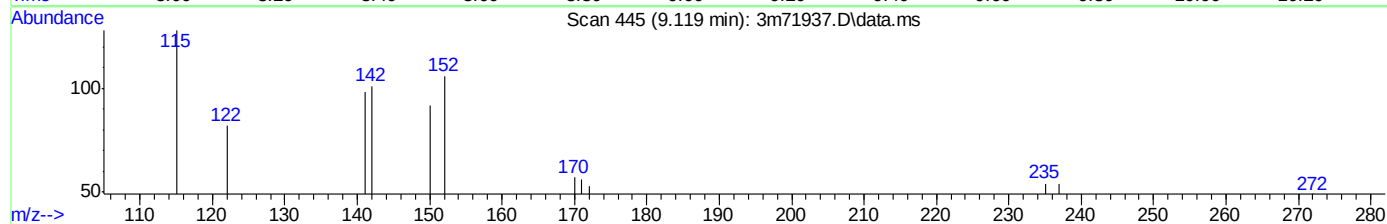
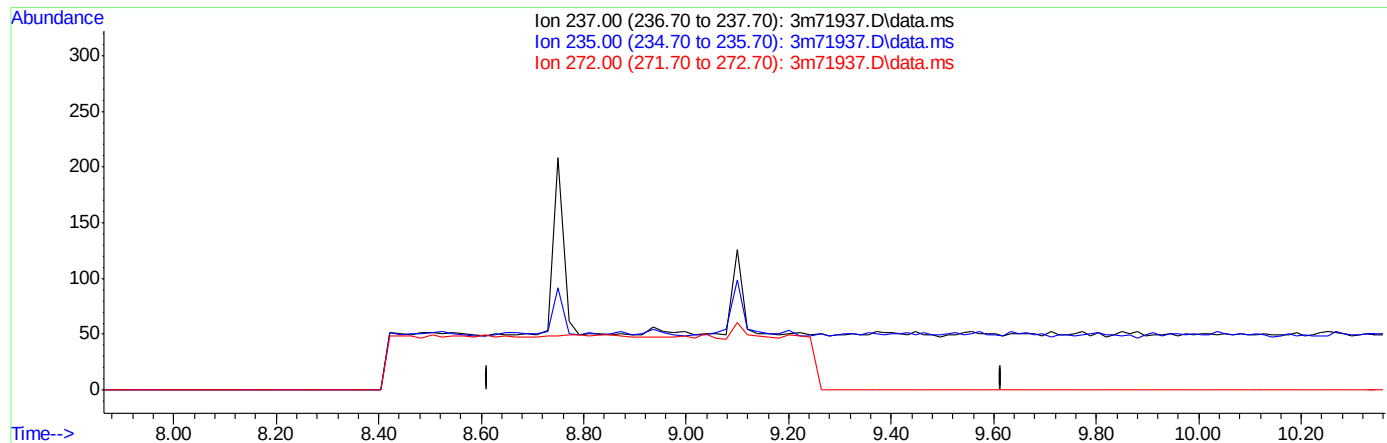
Parameter	CAS	Sig#	R.T. (min.)	Reason
Hexachlorocyclopentadiene	77-47-4		9.10	Missed peak
Chrysene	218-01-9		18.63	Poorly defined baseline

9.6.27.1
9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71937.D
Acq On : 17 Oct 2017 5:10 pm
Operator : kevinm2
Sample : ic3448-.1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 18 08:40:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71937.D\data.ms

(13) Hexachlorocyclopentadiene

9.114min (-9.114) 0.00ppm

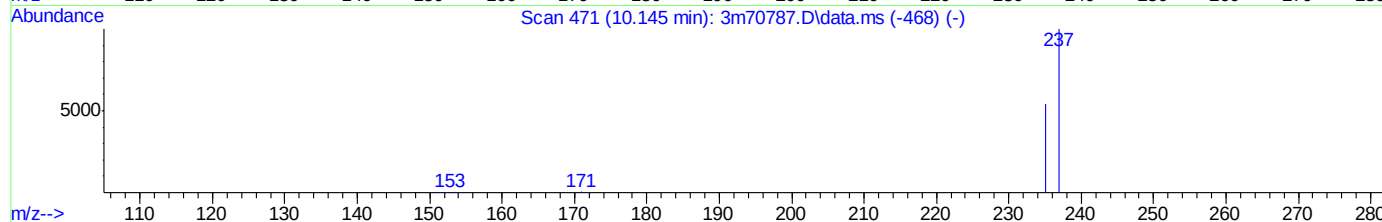
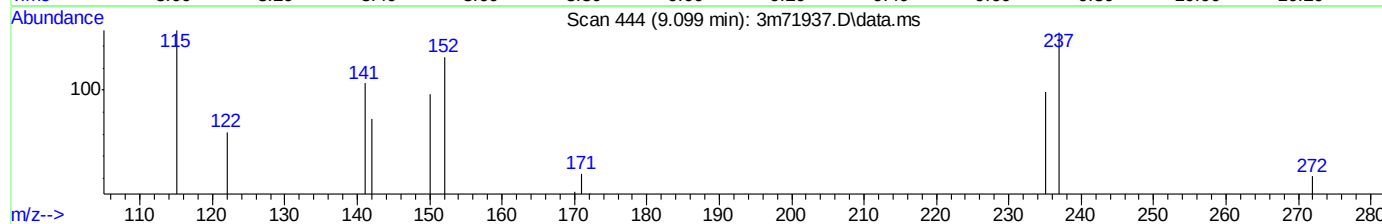
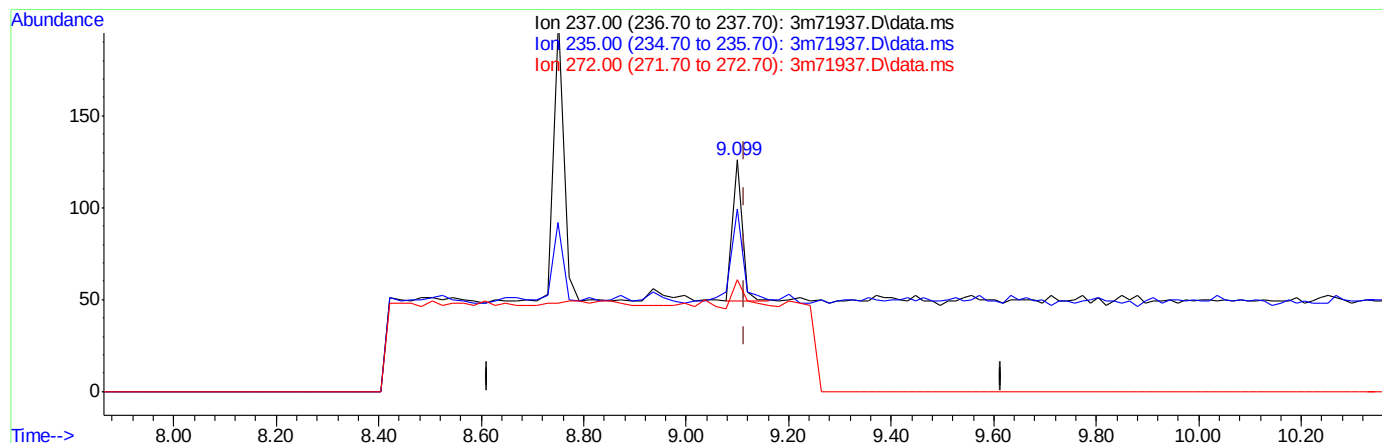
response 0

Ion	Exp%	Act%
237.00	100	0.00
235.00	69.20	0.00#
272.00	56.10	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71937.D
Acq On : 17 Oct 2017 5:10 pm
Operator : kevinm2
Sample : ic3448-.1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 18 08:40:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71937.D\data.ms

(13) Hexachlorocyclopentadiene

9.099min (-0.015) 0.01ppm m

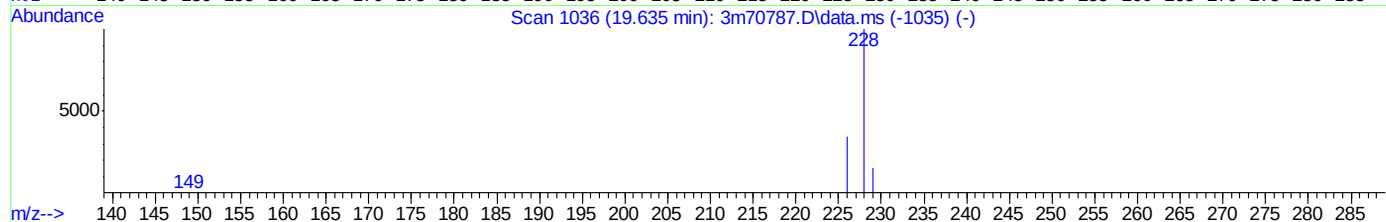
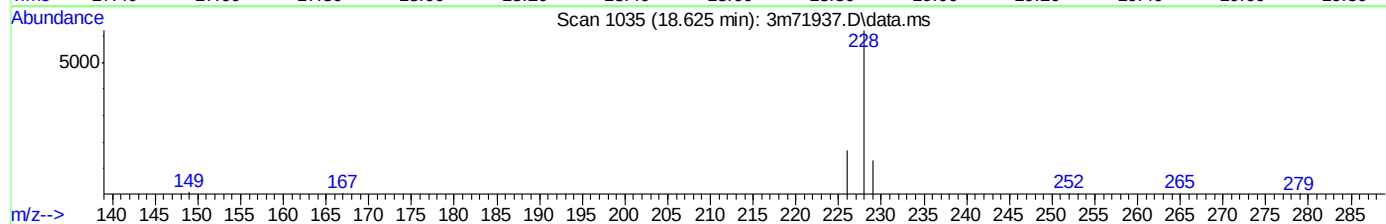
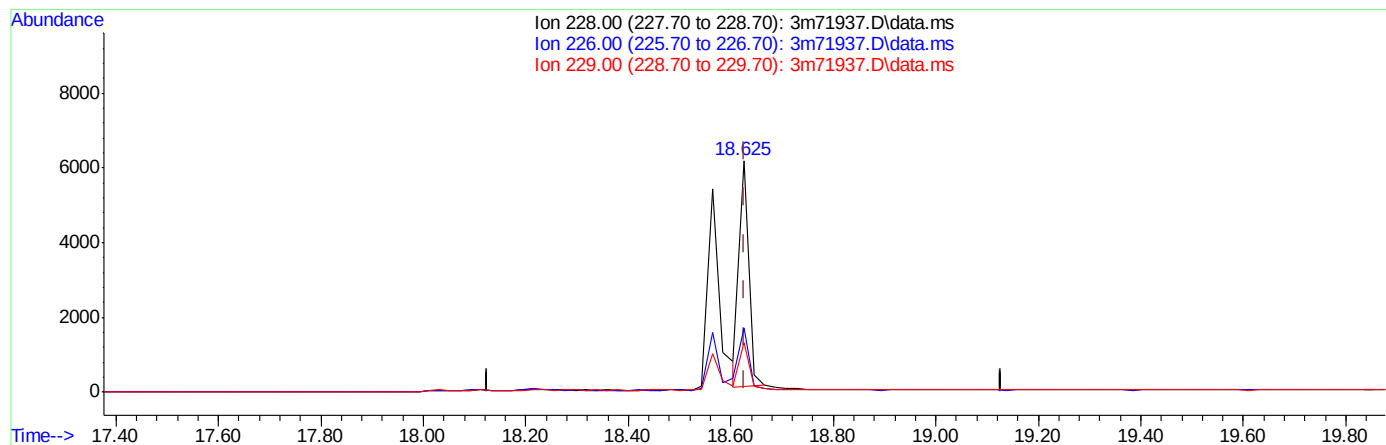
response 103

Ion	Exp%	Act%
237.00	100	100
235.00	69.20	78.57
272.00	56.10	48.41
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71937.D
Acq On : 17 Oct 2017 5:10 pm
Operator : kevinm2
Sample : ic3448-.1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 18 08:40:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71937.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 0.09ppm

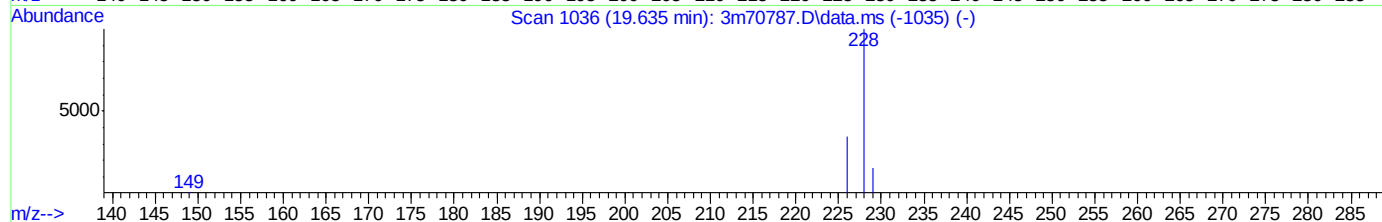
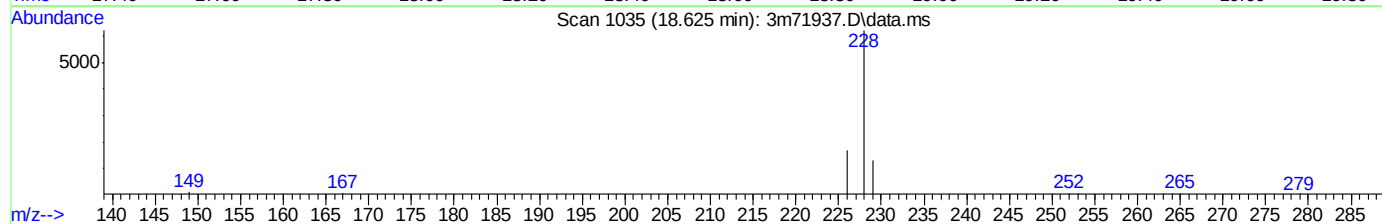
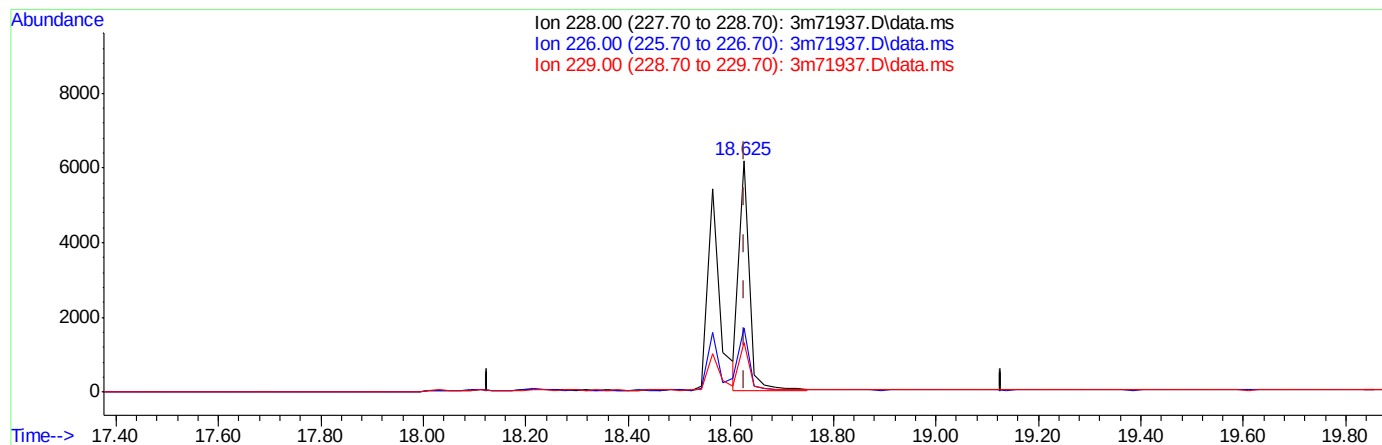
response 7840

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	25.87
229.00	20.70	20.84
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71937.D
Acq On : 17 Oct 2017 5:10 pm
Operator : kevinm2
Sample : ic3448-.1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 18 08:40:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71937.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 0.10ppm m

response 8509

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	27.65
229.00	20.70	21.25
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71938.D
 Acq On : 17 Oct 2017 5:42 pm
 Operator : kevinm2
 Sample : ic3448-.05
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 18 08:46:47 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 08:29:52 2017
 Response via : Initial Calibration

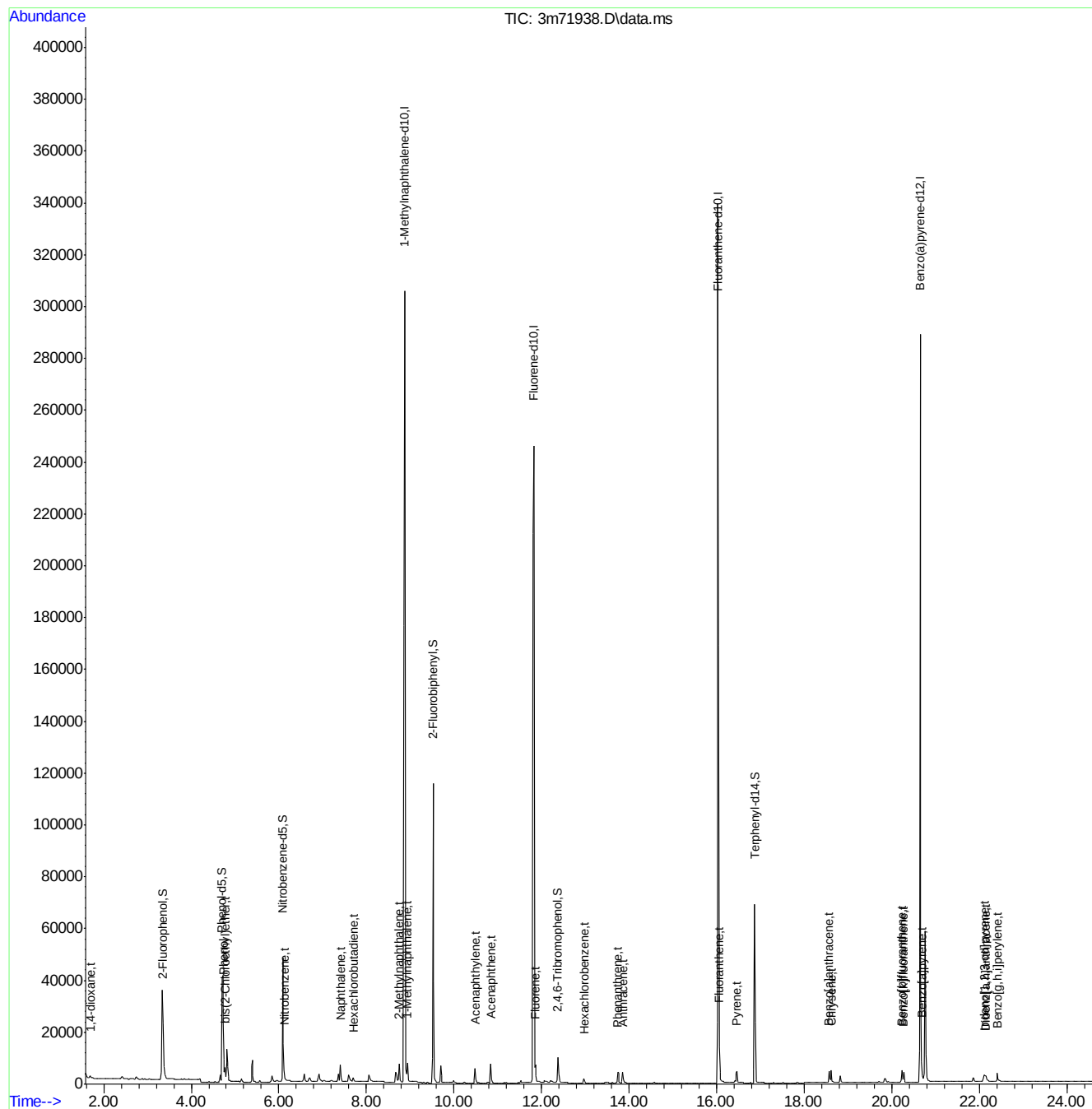
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.873	150	214734	4.00	ppm	0.00
14) Fluorene-d10	11.824	176	277712	4.00	ppm	0.00
21) Fluoranthene-d10	16.032	212	395101	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	280361	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.355	112	37102	0.98	ppm	-0.09
Spiked Amount 50.000			Recovery	=	1.96%	
4) Phenol-d5	4.704	99	59683	1.11	ppm	-0.07
Spiked Amount 50.000			Recovery	=	2.22%	
7) Nitrobenzene-d5	6.087	82	52474	1.19	ppm	-0.06
Spiked Amount 50.000			Recovery	=	2.38%	
15) 2-Fluorobiphenyl	9.526	172	91103	1.03	ppm	-0.04
Spiked Amount 50.000			Recovery	=	2.06%	
20) 2,4,6-Tribromophenol	12.371	330	6721	0.67	ppm	0.01
Spiked Amount 50.000			Recovery	=	1.34%	
28) Terphenyl-d14	16.866	244	60118	0.82	ppm	0.03
Spiked Amount 50.000			Recovery	=	1.64%	
Target Compounds						
					Qvalue	
2) 1,4-dioxane	1.700	88	890m	0.06	ppm	
5) Phenol	4.729	94	16011	0.28	ppm	# 68
6) bis(2-Chloroethyl)ether	4.777	93	2366	0.05	ppm	88
8) Nitrobenzene	6.125	77	2723	0.05	ppm	76
9) Naphthalene	7.405	128	7089	0.06	ppm	96
10) Hexachlorobutadiene	7.706	225	863	0.05	ppm	65
11) 2-Methylnaphthalene	8.750	141	3637	0.06	ppm	94
12) 1-Methylnaphthalene	8.935	141	4010	0.06	ppm	76
16) Acenaphthylene	10.484	152	5510	0.05	ppm	98
17) Acenaphthene	10.839	153	3789	0.05	ppm	86
19) Fluorene	11.862	166	4046	0.05	ppm	97
22) Hexachlorobenzene	12.971	284	1001	0.04	ppm	91
24) Phenanthrene	13.744	178	5729	0.05	ppm	98
25) Anthracene	13.853	178	4550	0.04	ppm	87
26) Fluoranthene	16.063	202	7486	0.06	ppm	94
27) Pyrene	16.465	202	6174	0.05	ppm	94
29) Benzo[a]anthracene	18.564	228	5188	0.05	ppm	99
30) Chrysene	18.625	228	4374m	0.05	ppm	
32) Benzo[b]fluoranthene	20.235	252	4697	0.04	ppm	97
33) Benzo[k]fluoranthene	20.272	252	3877	0.06	ppm	97
34) Benzo[a]pyrene	20.686	252	5000	0.06	ppm	90
35) Indeno[1,2,3-cd]pyrene	22.116	276	4218	0.05	ppm	96
36) Dibenz[a,h]anthracene	22.153	278	3282	0.04	ppm	95
37) Benzo[g,h,i]perylene	22.417	276	3822	0.05	ppm	99

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71938.D
Acq On : 17 Oct 2017 5:42 pm
Operator : kevinm2
Sample : ic3448-.05
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 18 08:46:47 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3448-IC3448

Lab FileID:

3M71938.D

Injection Time:

10/17/17 17:42

Method:

SW846 8270D BY SIM

Analyst approved:

10/18/17 10:25 Kevin Moyle

Supervisor approved:

10/18/17 12:29 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		1.70	Poorly defined baseline
Chrysene	218-01-9		18.63	Poorly defined baseline

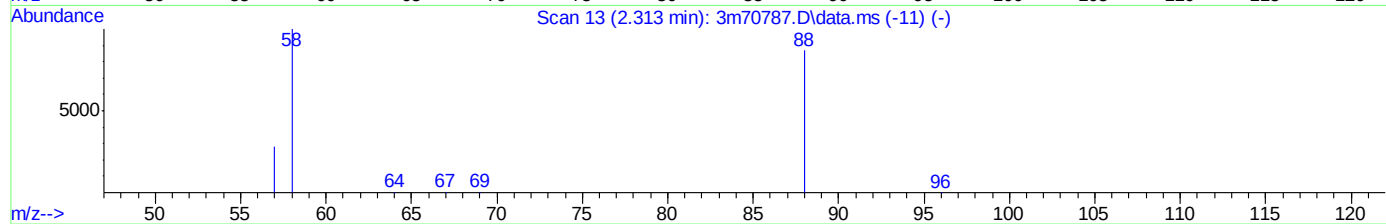
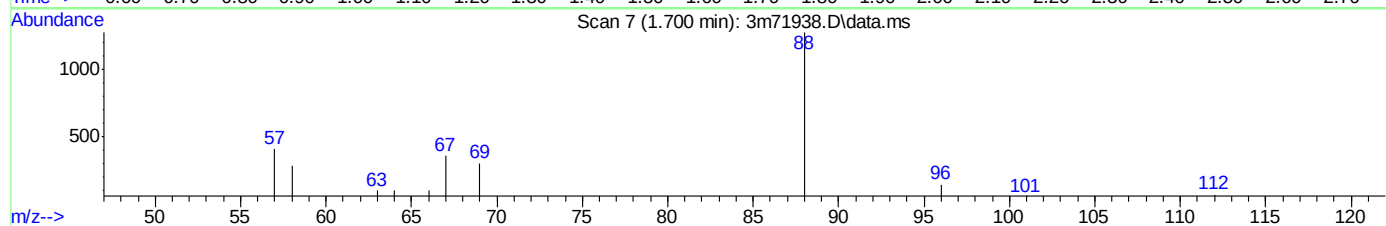
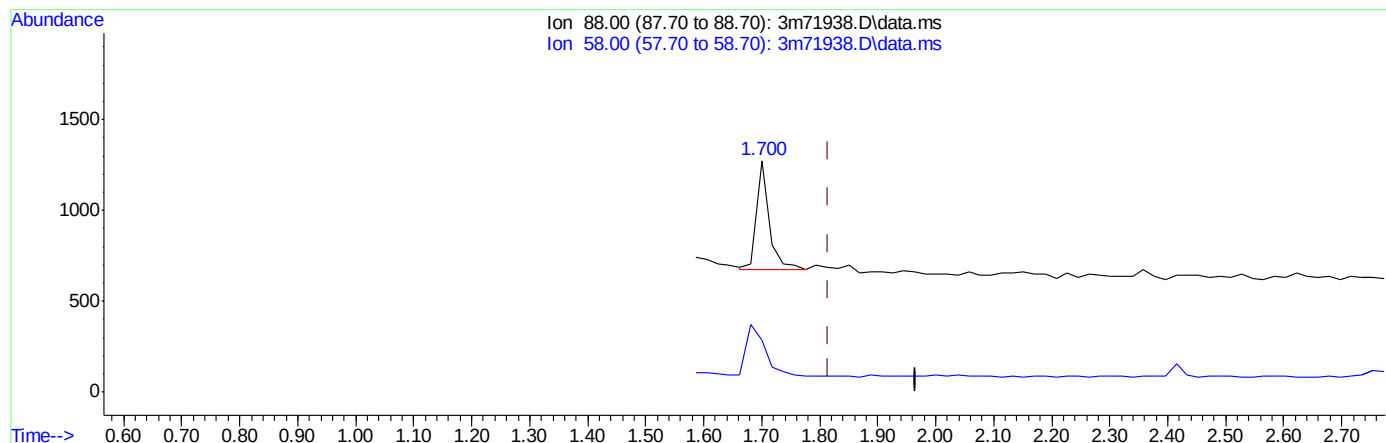
9.6.28.1

9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71938.D
Acq On : 17 Oct 2017 5:42 pm
Operator : kevinm2
Sample : ic3448-.05
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 18 08:43:44 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71938.D\data.ms

(2) 1,4-dioxane (t)

1.700min (-0.116) 0.06ppm

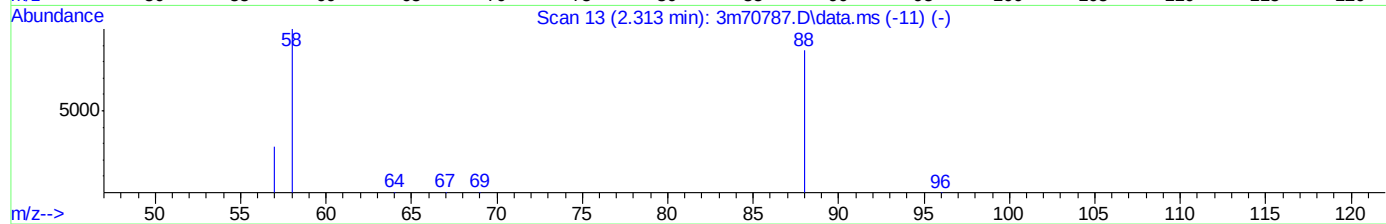
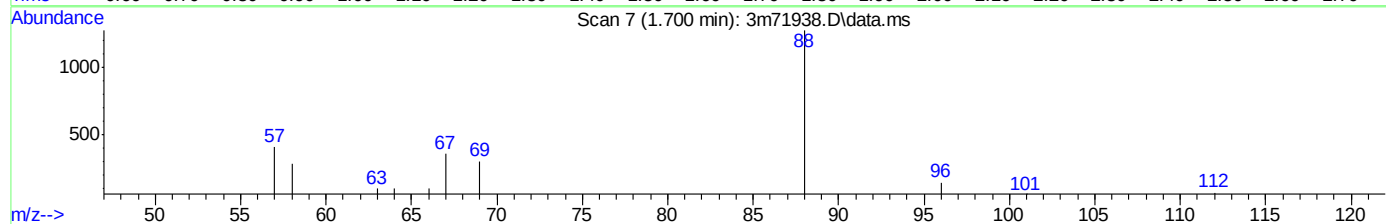
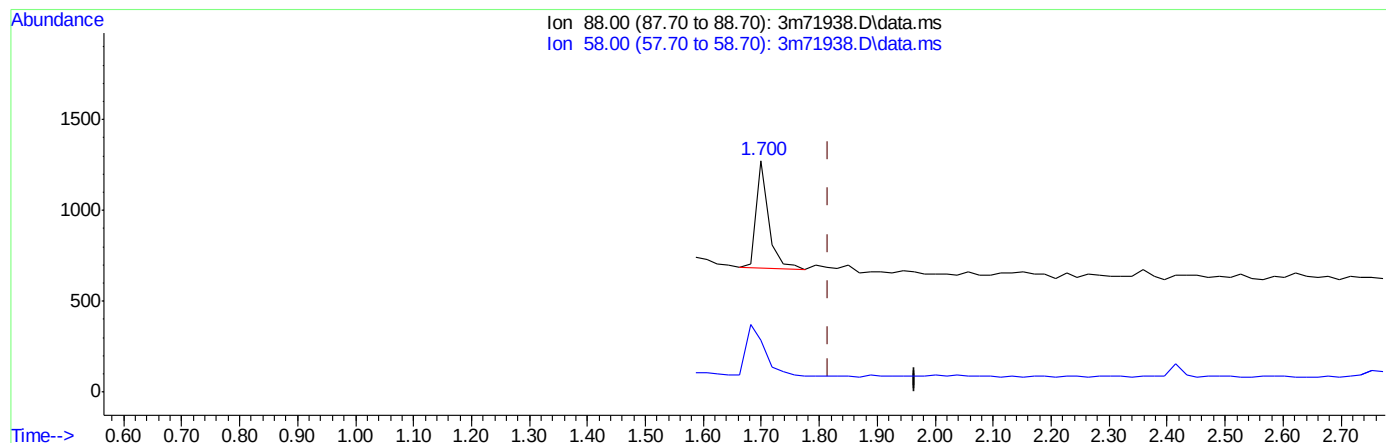
response 937

Ion	Exp%	Act%
88.00	100	100
58.00	26.90	31.93
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71938.D
Acq On : 17 Oct 2017 5:42 pm
Operator : kevinm2
Sample : ic3448-.05
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 18 08:43:44 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71938.D\data.ms

(2) 1,4-dioxane (t)

1.700min (-0.116) 0.06ppm m

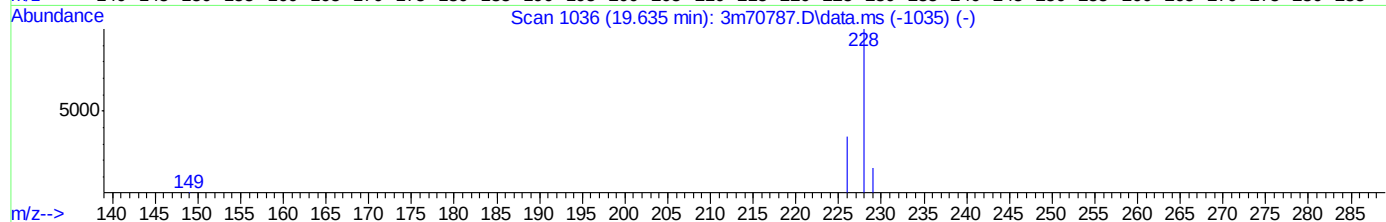
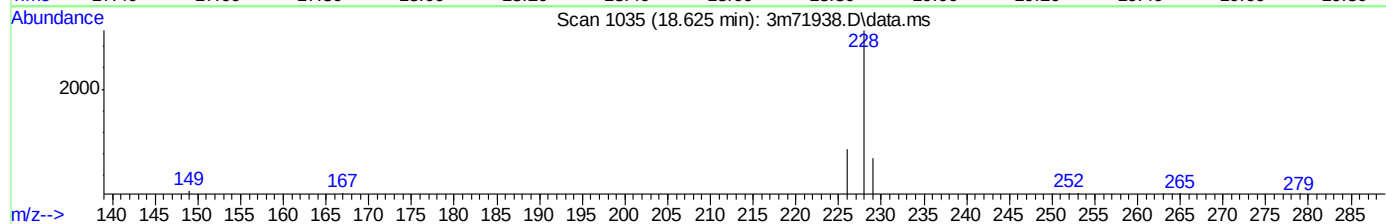
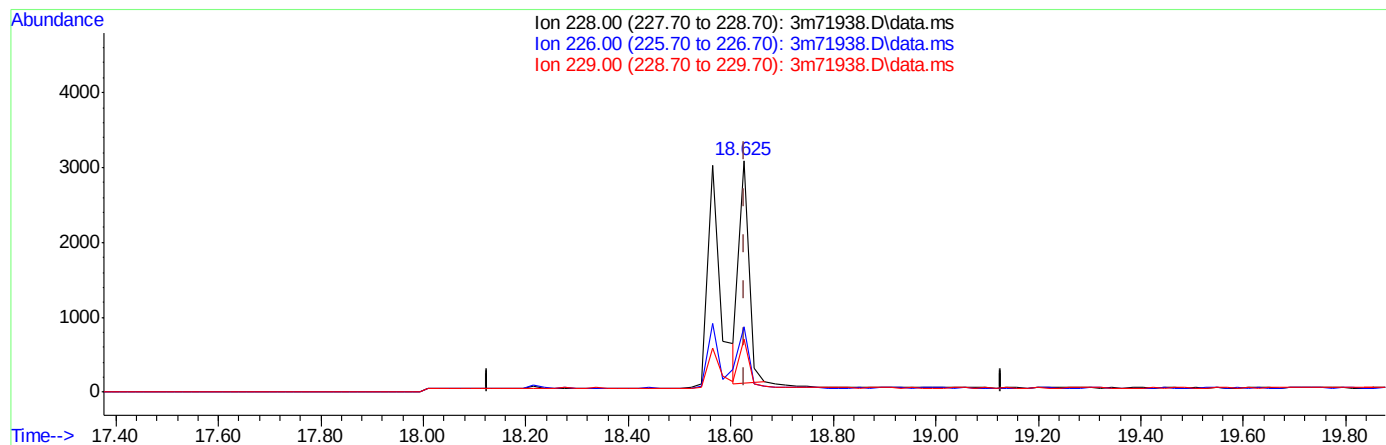
response 890

Ion	Exp%	Act%
88.00	100	100
58.00	26.90	22.20
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71938.D
Acq On : 17 Oct 2017 5:42 pm
Operator : kevinm2
Sample : ic3448-.05
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 18 08:43:44 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71938.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 0.04ppm

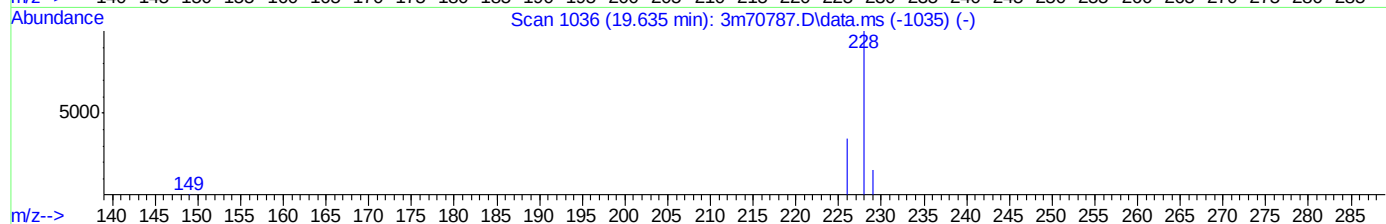
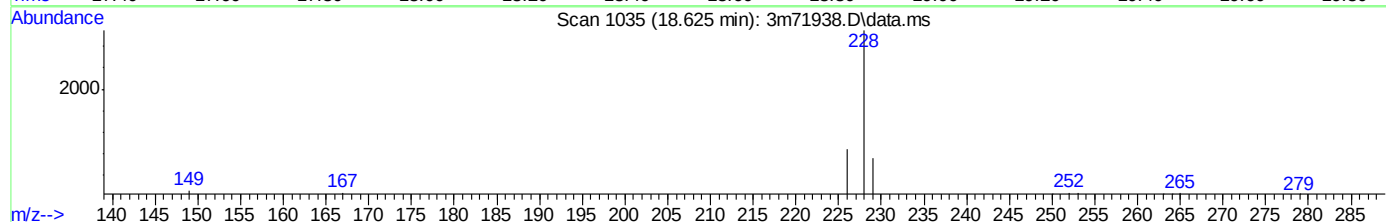
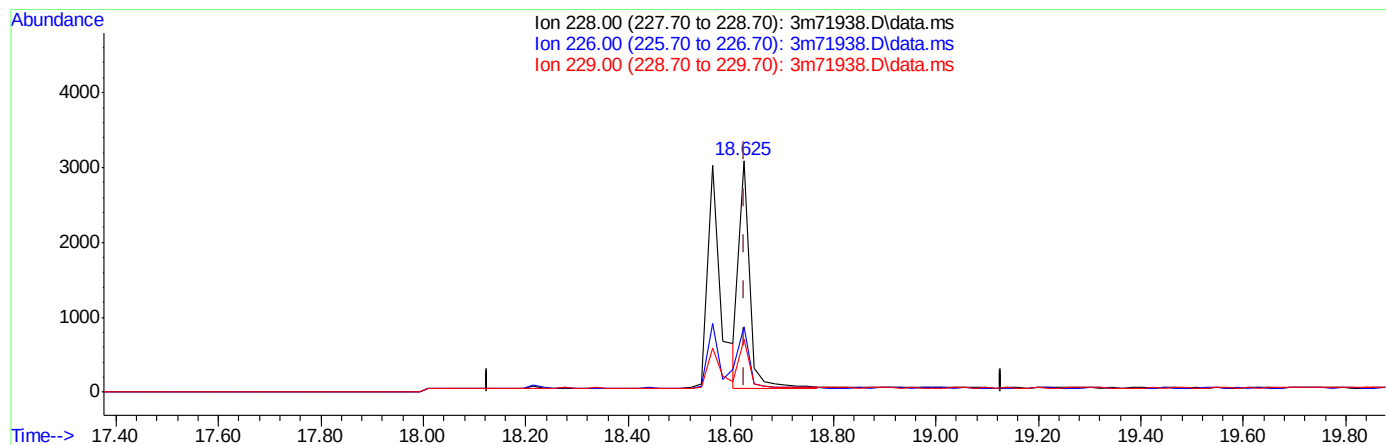
response 3908

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	25.32
229.00	20.70	22.14
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71938.D
Acq On : 17 Oct 2017 5:42 pm
Operator : kevinm2
Sample : ic3448-.05
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 18 08:43:44 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71938.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 0.05ppm m

response 4374

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	28.28
229.00	20.70	22.95
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71939.D
 Acq On : 17 Oct 2017 6:13 pm
 Operator : kevinm2
 Sample : ic3448-.02
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 18 12:08:06 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 08:29:52 2017
 Response via : Initial Calibration

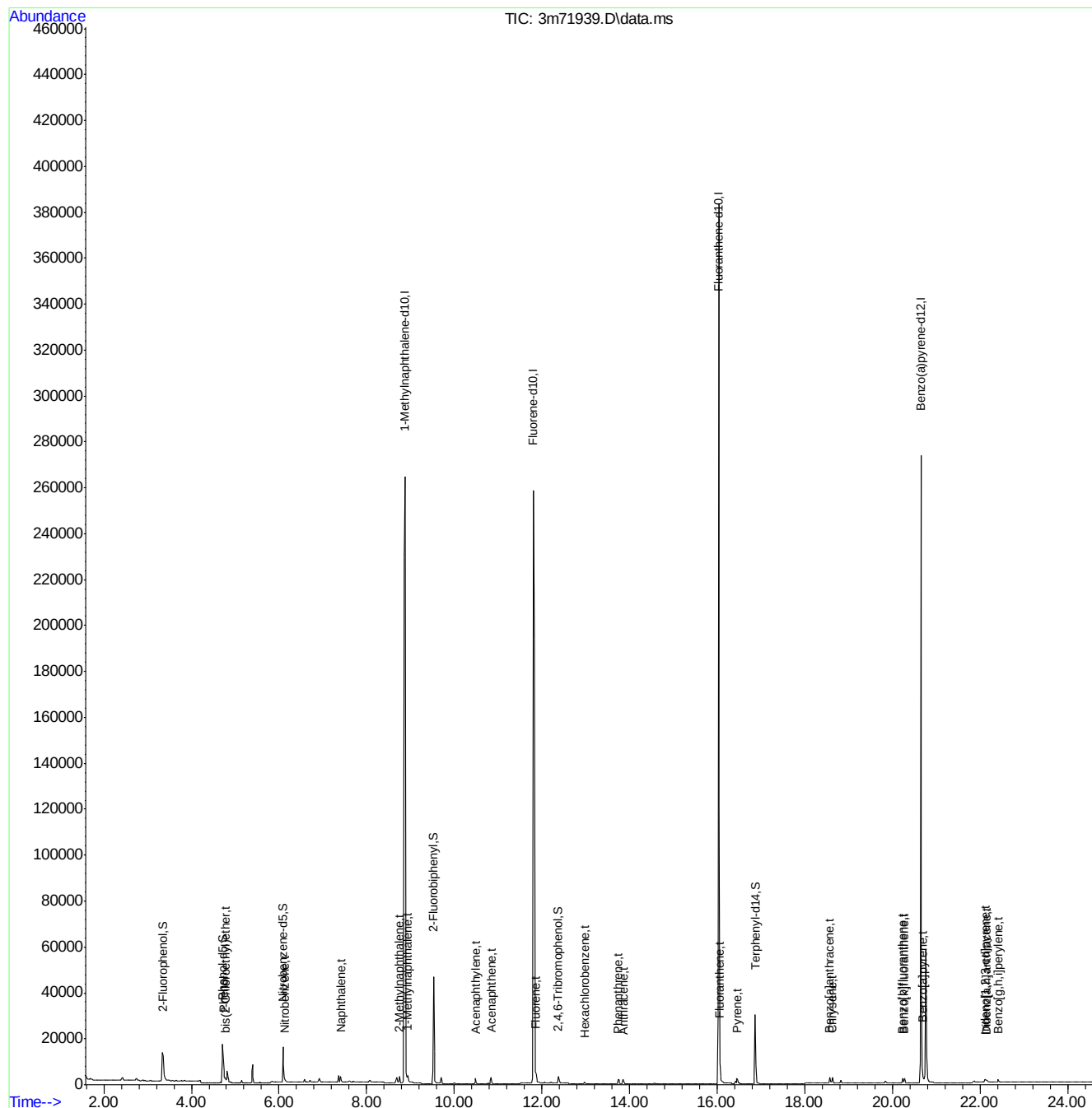
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.875	150	219822	4.00	ppm	0.00
14) Fluorene-d10	11.807	176	271594	4.00	ppm	-0.02
21) Fluoranthene-d10	16.034	212	394752	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	275128	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.355	112	14758	0.38	ppm	-0.09
Spiked Amount 50.000			Recovery	=	0.76%	
4) Phenol-d5	4.717	99	23515	0.43	ppm	-0.05
Spiked Amount 50.000			Recovery	=	0.86%	
7) Nitrobenzene-d5	6.087	82	21336	0.47	ppm	-0.06
Spiked Amount 50.000			Recovery	=	0.94%	
15) 2-Fluorobiphenyl	9.527	172	36514	0.42	ppm	-0.04
Spiked Amount 50.000			Recovery	=	0.84%	
20) 2,4,6-Tribromophenol	12.373	330	2495	0.25	ppm	0.01
Spiked Amount 50.000			Recovery	=	0.50%	
28) Terphenyl-d14	16.868	244	25468	0.35	ppm	0.03
Spiked Amount 50.000			Recovery	=	0.70%	
Target Compounds						
						Qvalue
5) Phenol	4.729	94	6531	0.11	ppm	# 74
6) bis(2-Chloroethyl)ether	4.777	93	937	0.02	ppm	69
8) Nitrobenzene	6.125	77	1184m	0.02	ppm	
9) Naphthalene	7.405	128	2982	0.02	ppm	96
11) 2-Methylnaphthalene	8.752	141	1488	0.02	ppm	93
12) 1-Methylnaphthalene	8.936	141	1696	0.02	ppm	79
16) Acenaphthylene	10.486	152	2231	0.02	ppm	98
17) Acenaphthene	10.841	153	1507	0.02	ppm	84
19) Fluorene	11.864	166	1758	0.02	ppm	93
22) Hexachlorobenzene	12.973	284	449	0.02	ppm	95
24) Phenanthrene	13.746	178	2615	0.02	ppm	98
25) Anthracene	13.854	178	1953	0.02	ppm	87
26) Fluoranthene	16.065	202	4420	0.04	ppm	94
27) Pyrene	16.451	202	3405	0.03	ppm	94
29) Benzo[a]anthracene	18.565	228	2399	0.03	ppm	97
30) Chrysene	18.627	228	2737m	0.03	ppm	
32) Benzo[b]fluoranthene	20.235	252	2348	0.02	ppm	96
33) Benzo[k]fluoranthene	20.273	252	2005	0.03	ppm	93
34) Benzo[a]pyrene	20.686	252	2883	0.04	ppm	92
35) Indeno[1,2,3-cd]pyrene	22.116	276	2077	0.02	ppm	96
36) Dibenz[a,h]anthracene	22.154	278	1610	0.02	ppm	99
37) Benzo[g,h,i]perylene	22.417	276	1865	0.03	ppm	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71939.D
Acq On : 17 Oct 2017 6:13 pm
Operator : kevinm2
Sample : ic3448-.02
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 18 12:08:06 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3448-IC3448

Lab FileID:

3M71939.D

Injection Time:

10/17/17 18:13

Method:

SW846 8270D BY SIM

Analyst approved:

10/18/17 10:25 Kevin Moyle

Supervisor approved:

10/18/17 12:29 Nina Pandya

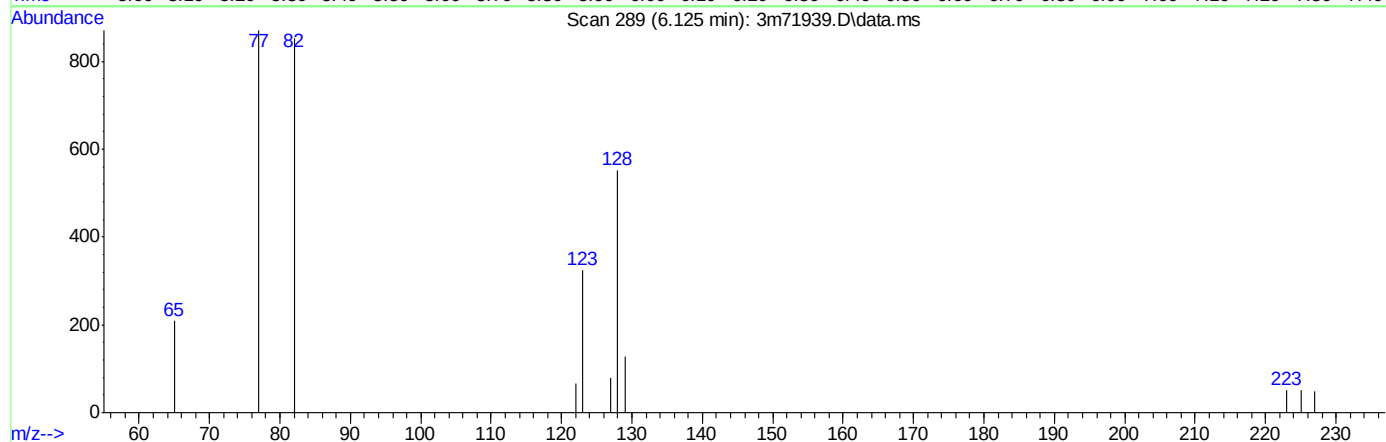
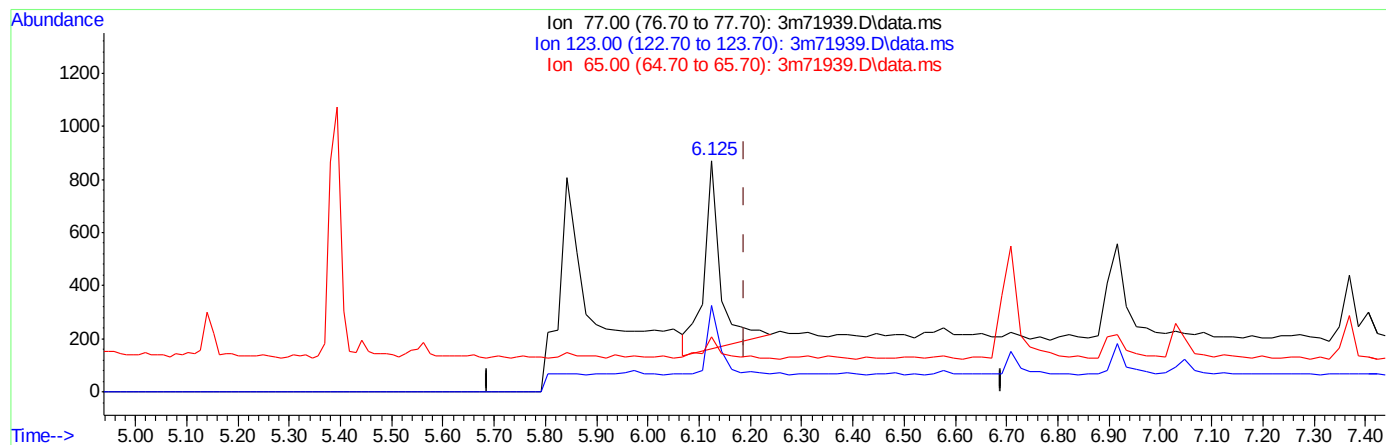
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		1.70	Poorly defined baseline
Nitrobenzene	98-95-3		6.12	Poorly defined baseline
Chrysene	218-01-9		18.63	Poorly defined baseline

9.6.29.1
9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71939.D
Acq On : 17 Oct 2017 6:13 pm
Operator : kevinm2
Sample : ic3448-.02
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 18 08:48:18 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71939.D\data.ms

(8) Nitrobenzene (t)

6.125min (-0.064) 0.03ppm

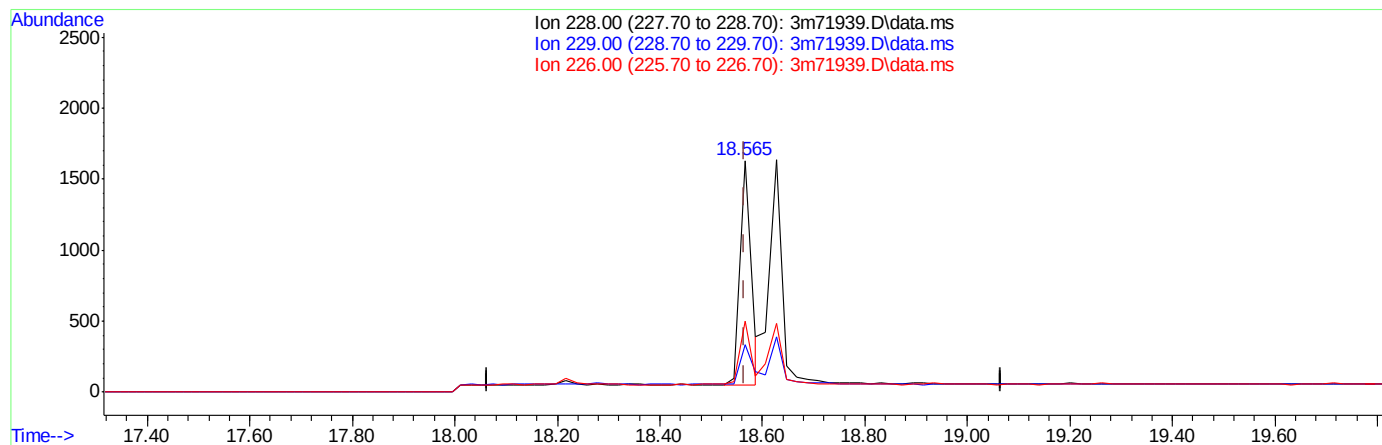
response 1571

Ion	Exp%	Act%
77.00	100	100
123.00	68.10	39.13
65.00	11.60	12.02
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71939.D
Acq On : 17 Oct 2017 6:13 pm
Operator : kevinm2
Sample : ic3448-.02
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 18 08:48:18 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



(29) Benzo[a]anthracene (t)

18.565min (+0.000) 0.03ppm

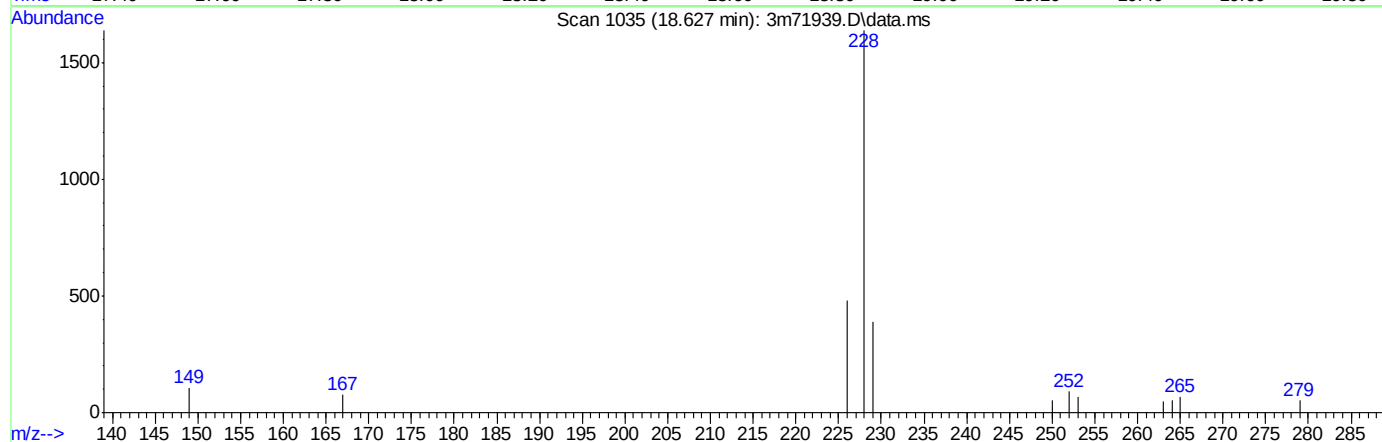
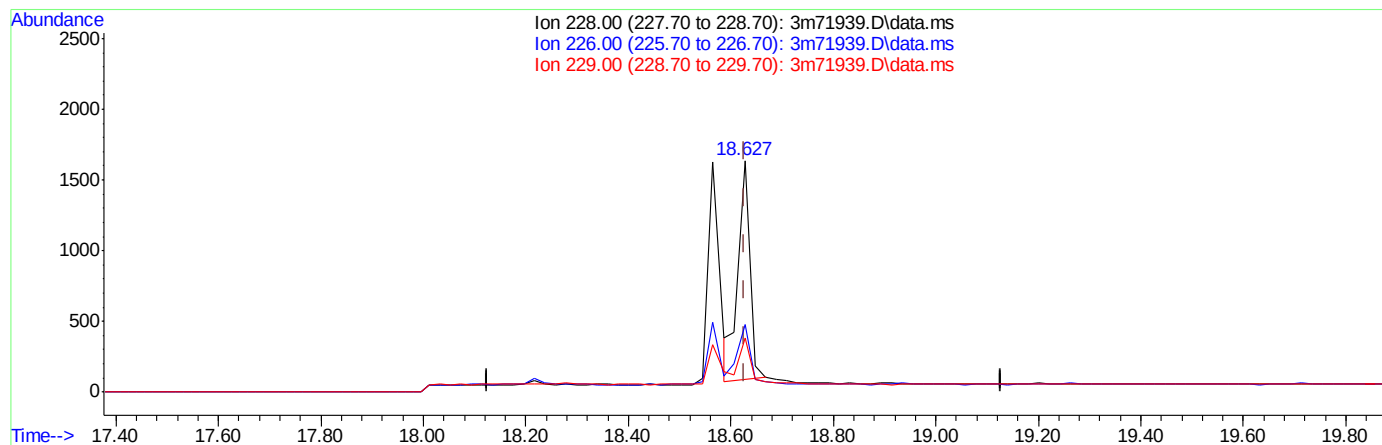
response 2399

Ion	Exp%	Act%
228.00	100	100
229.00	18.30	16.58
226.00	28.10	29.34
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71939.D
Acq On : 17 Oct 2017 6:13 pm
Operator : kevinm2
Sample : ic3448-.02
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 18 08:48:18 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71939.D\data.ms

(30) Chrysene (t)

18.627min (+0.000) 0.03ppm

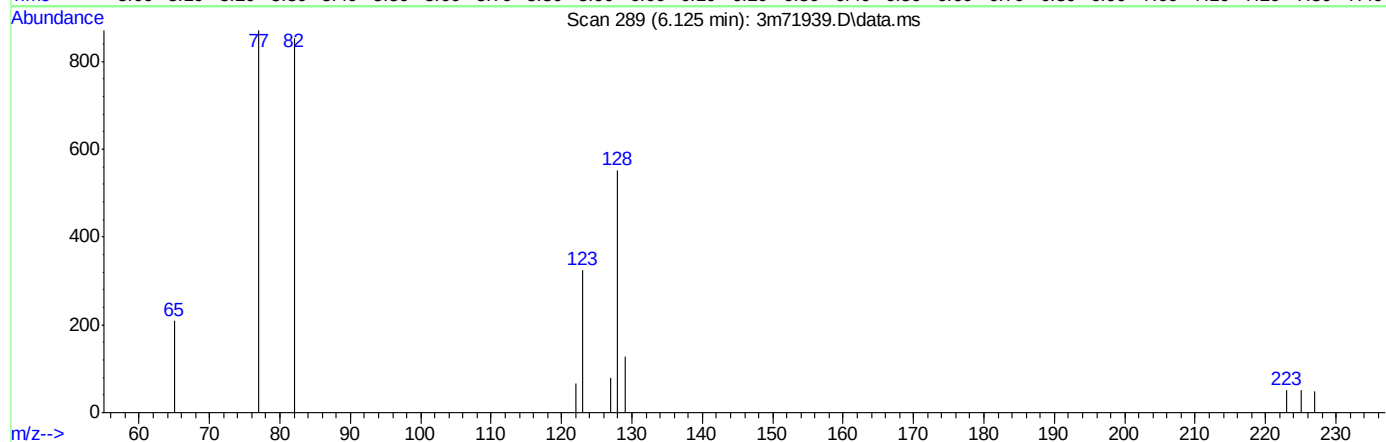
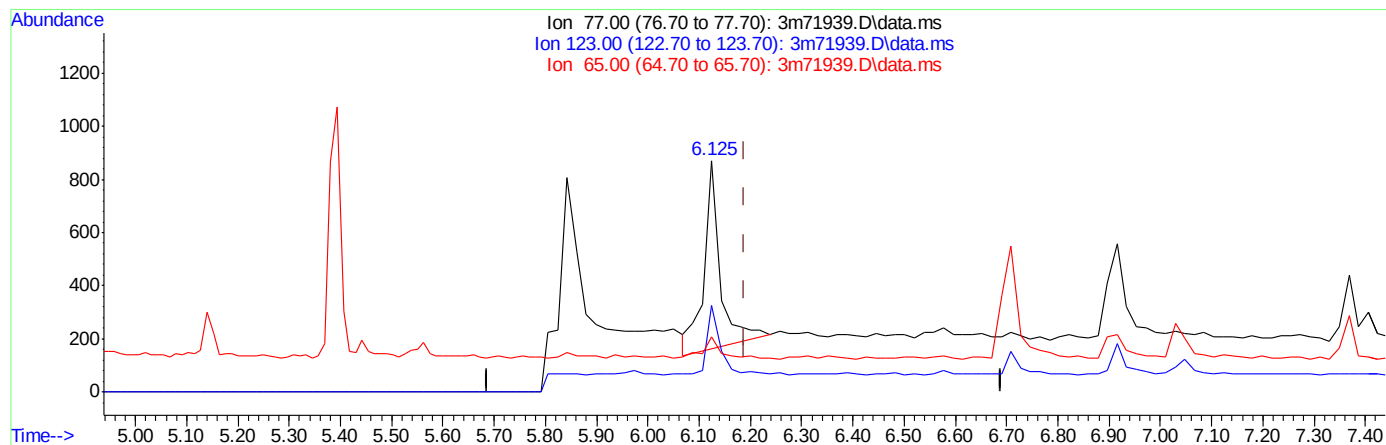
response 2441

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	27.87
229.00	20.70	20.03
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71939.D
Acq On : 17 Oct 2017 6:13 pm
Operator : kevinm2
Sample : ic3448-.02
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 18 10:11:54 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71939.D\data.ms

(8) Nitrobenzene (t)

6.125min (-0.064) 0.03ppm

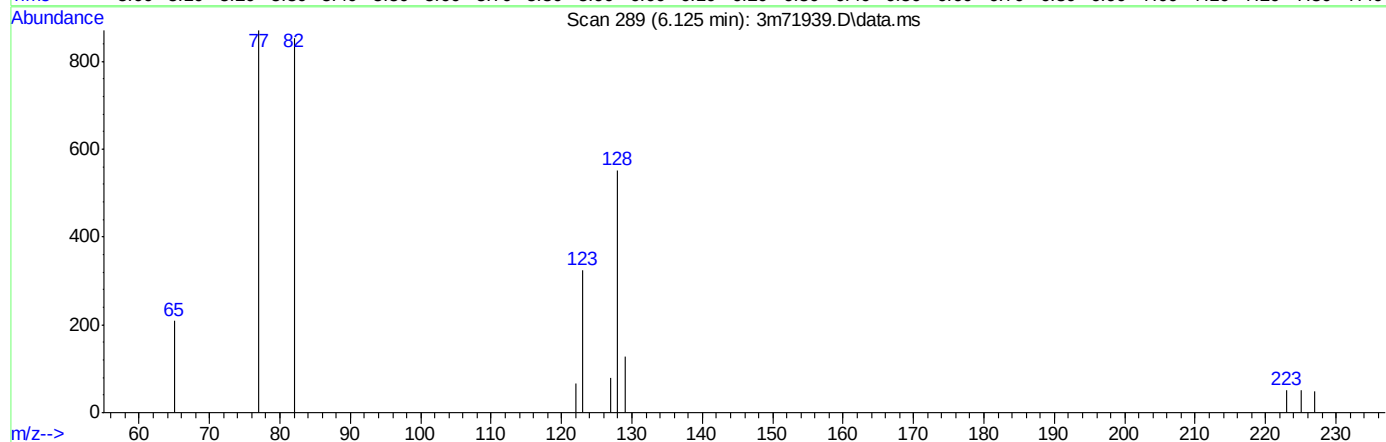
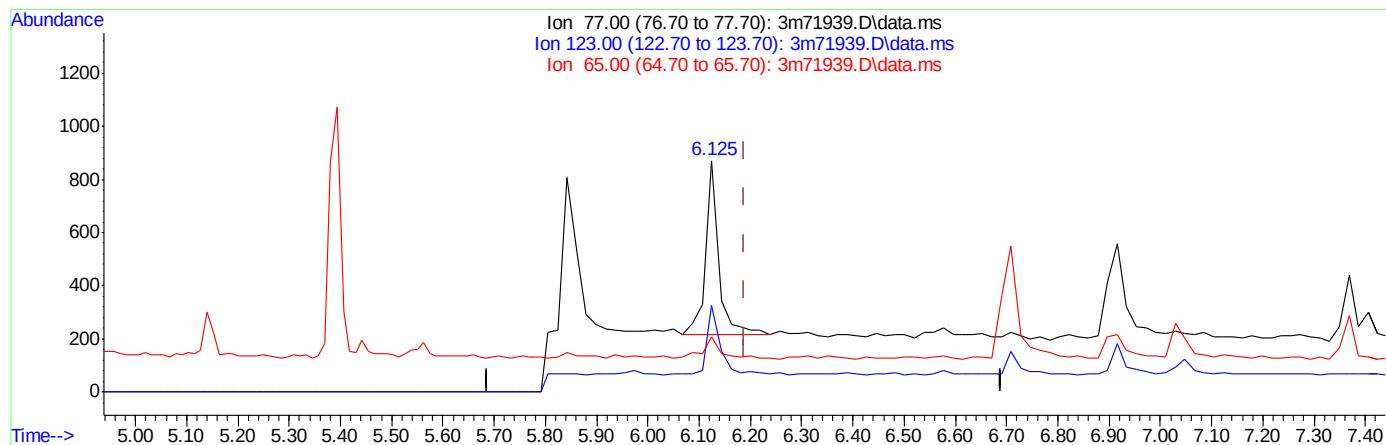
response 1571

Ion	Exp%	Act%
77.00	100	100
123.00	68.10	39.13
65.00	11.60	12.02
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71939.D
Acq On : 17 Oct 2017 6:13 pm
Operator : kevinm2
Sample : ic3448-.02
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 18 10:11:54 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



(8) Nitrobenzene (t)

6.125min (-0.064) 0.02ppm m

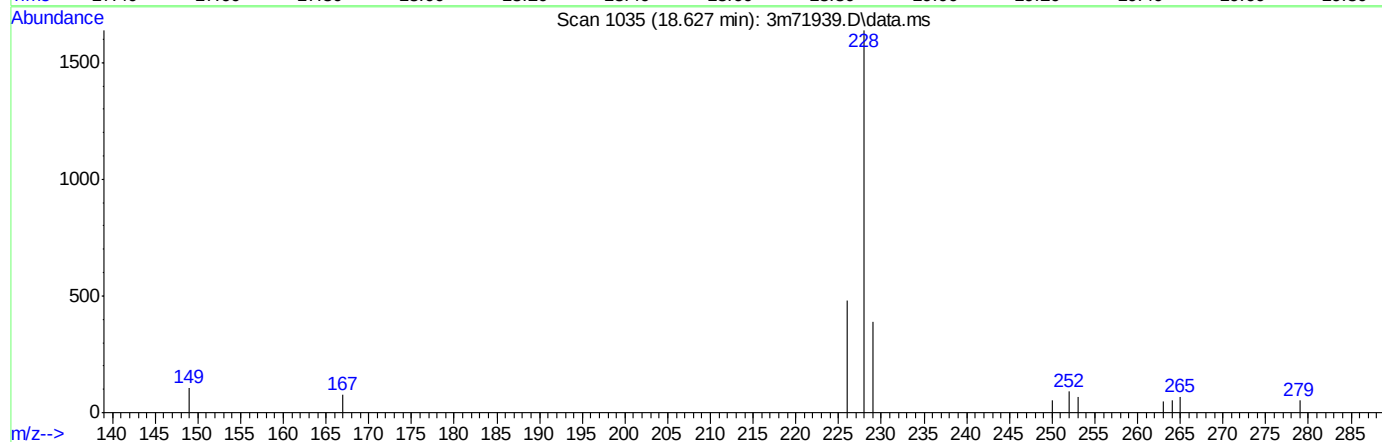
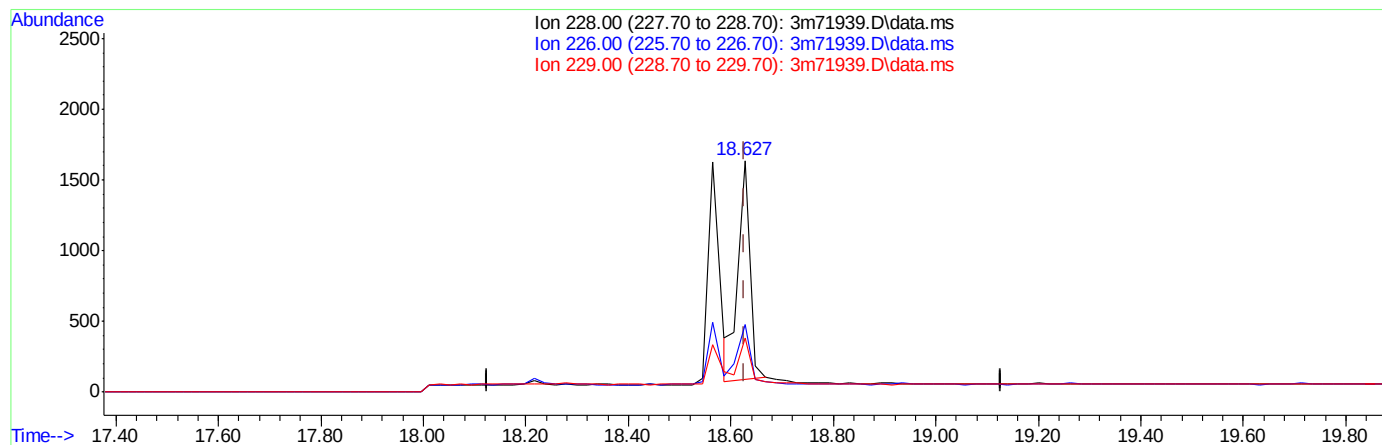
response 1184

Ion	Exp%	Act%
77.00	100	100
123.00	68.10	37.31#
65.00	11.60	24.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71939.D
Acq On : 17 Oct 2017 6:13 pm
Operator : kevinm2
Sample : ic3448-.02
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 18 10:11:54 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71939.D\data.ms

(30) Chrysene (t)

18.627min (+0.000) 0.03ppm

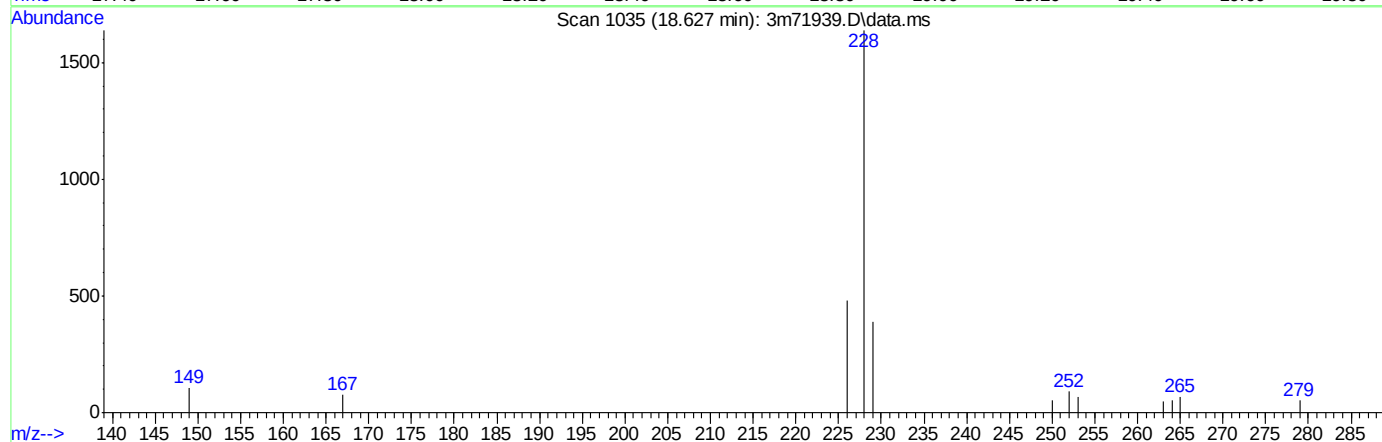
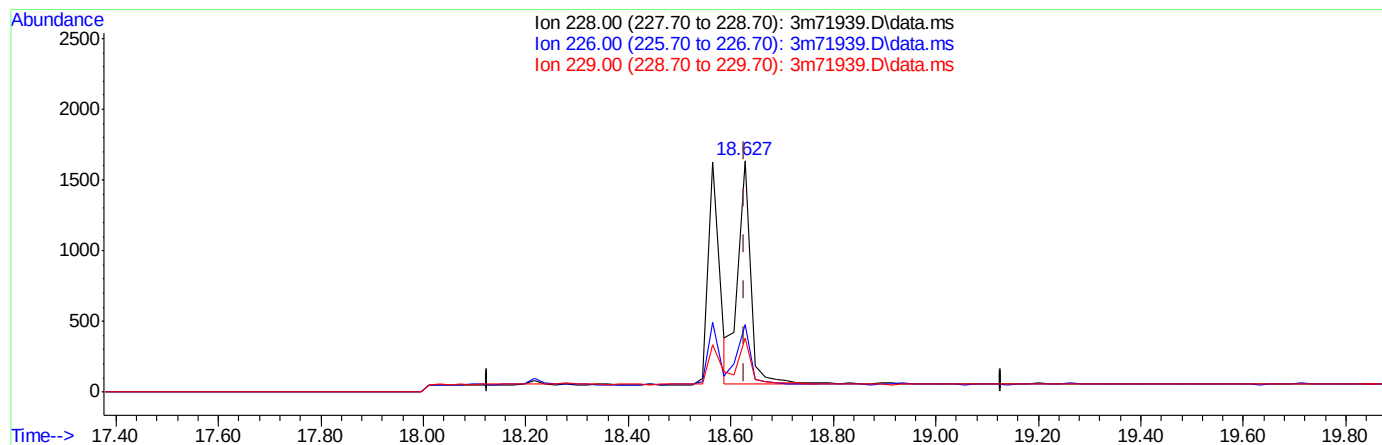
response 2441

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	27.87
229.00	20.70	20.03
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71939.D
Acq On : 17 Oct 2017 6:13 pm
Operator : kevinm2
Sample : ic3448-.02
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 18 10:11:54 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71939.D\data.ms

(30) Chrysene (t)

18.627min (+0.000) 0.03ppm m

response 2737

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	29.43
229.00	20.70	23.63
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71940.D
 Acq On : 17 Oct 2017 6:44 pm
 Operator : kevinm2
 Sample : ic3448-.01
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 18 09:12:13 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 08:29:52 2017
 Response via : Initial Calibration

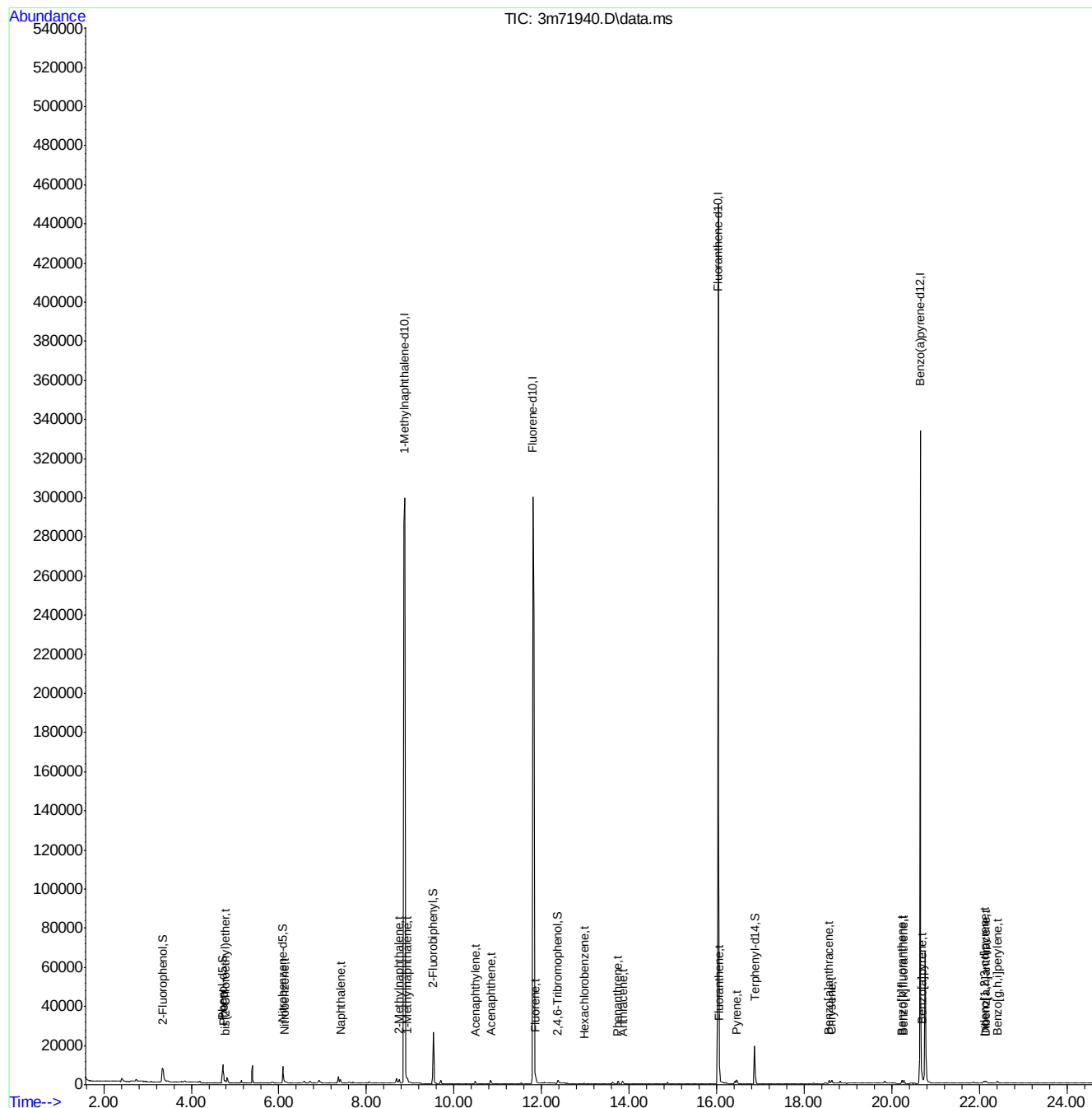
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.875	150	258860	4.00	ppm	0.00
14) Fluorene-d10	11.807	176	326186	4.00	ppm	-0.02
21) Fluoranthene-d10	16.034	212	473606	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	330359	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.355	112	8780	0.19	ppm	-0.09
Spiked Amount 50.000			Recovery	=	0.38%	
4) Phenol-d5	4.717	99	13580	0.21	ppm	-0.05
Spiked Amount 50.000			Recovery	=	0.42%	
7) Nitrobenzene-d5	6.087	82	12481	0.23	ppm	-0.06
Spiked Amount 50.000			Recovery	=	0.46%	
15) 2-Fluorobiphenyl	9.527	172	21566	0.21	ppm	-0.04
Spiked Amount 50.000			Recovery	=	0.42%	
20) 2,4,6-Tribromophenol	12.373	330	1421	0.12	ppm	0.01
Spiked Amount 50.000			Recovery	=	0.24%	
28) Terphenyl-d14	16.868	244	16145	0.18	ppm	0.03
Spiked Amount 50.000			Recovery	=	0.36%	
Target Compounds						
5) Phenol	4.729	94	3822	0.06	ppm	Qvalue # 70
6) bis(2-Chloroethyl)ether	4.777	93	567	0.01	ppm	75
8) Nitrobenzene	6.125	77	717m	0.01	ppm	
9) Naphthalene	7.405	128	1805	0.01	ppm	97
11) 2-Methylnaphthalene	8.752	141	963	0.01	ppm	94
12) 1-Methylnaphthalene	8.936	141	1010	0.01	ppm	75
16) Acenaphthylene	10.486	152	1332	0.01	ppm	98
17) Acenaphthene	10.841	153	962	0.01	ppm	88
19) Fluorene	11.864	166	1126	0.01	ppm	92
22) Hexachlorobenzene	12.973	284	283m	0.01	ppm	
24) Phenanthrene	13.746	178	1871	0.01	ppm	98
25) Anthracene	13.854	178	1418	0.01	ppm	88
26) Fluoranthene	16.065	202	3893	0.03	ppm	95
27) Pyrene	16.451	202	2806	0.02	ppm	93
29) Benzo[a]anthracene	18.565	228	1989	0.02	ppm	99
30) Chrysene	18.627	228	1954	0.02	ppm	99
32) Benzo[b]fluoranthene	20.235	252	1732	0.01	ppm	96
33) Benzo[k]fluoranthene	20.272	252	1458	0.02	ppm	98
34) Benzo[a]pyrene	20.686	252	2729	0.03	ppm	90
35) Indeno[1,2,3-cd]pyrene	22.116	276	1477	0.01	ppm	100
36) Dibenz[a,h]anthracene	22.153	278	1222	0.01	ppm	99
37) Benzo[g,h,i]perylene	22.417	276	1336	0.02	ppm	99

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71940.D
Acq On : 17 Oct 2017 6:44 pm
Operator : kevinm2
Sample : ic3448-.01
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 18 09:12:13 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3448-IC3448

Method:

SW846 8270D BY SIM

Lab FileID:

3M71940.D

Analyst approved:

10/18/17 10:25 Kevin Moyle

Injection Time:

10/17/17 18:44

Supervisor approved:

10/18/17 12:29 Nina Pandya

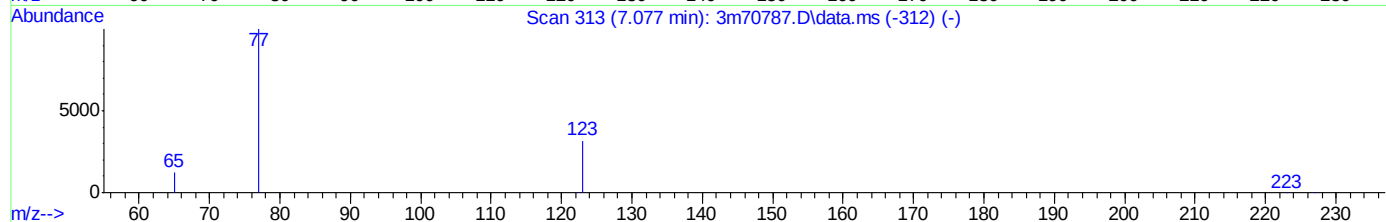
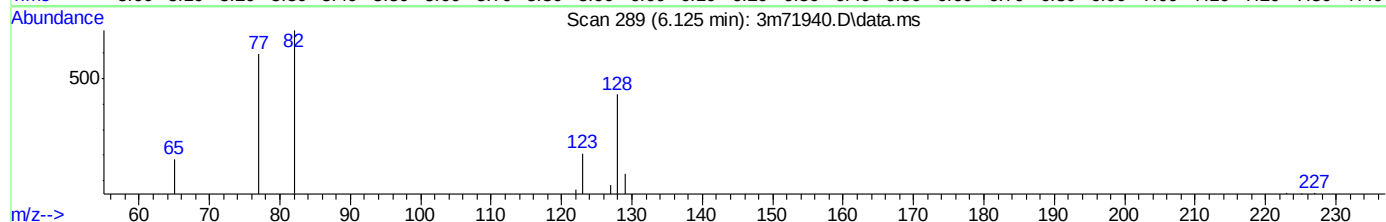
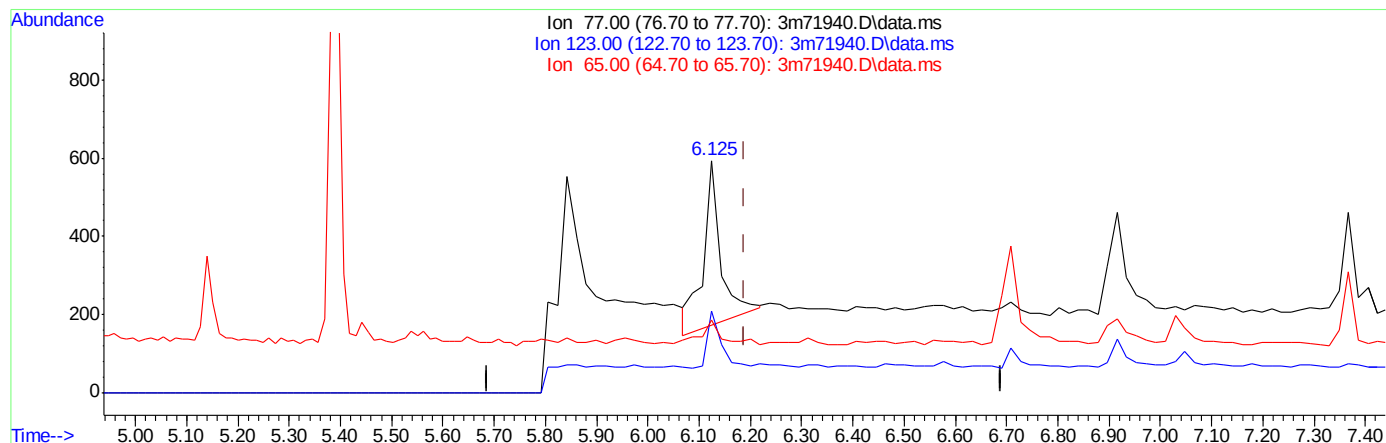
Parameter	CAS	Sig#	R.T. (min.)	Reason
Nitrobenzene	98-95-3		6.12	Poorly defined baseline
Hexachlorobenzene	118-74-1		12.97	Poorly defined baseline

9.6.30.1
9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71940.D
Acq On : 17 Oct 2017 6:44 pm
Operator : kevinm2
Sample : ic3448-.01
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 18 09:10:07 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71940.D\data.ms

(8) Nitrobenzene (t)

6.125min (-0.064) 0.02ppm

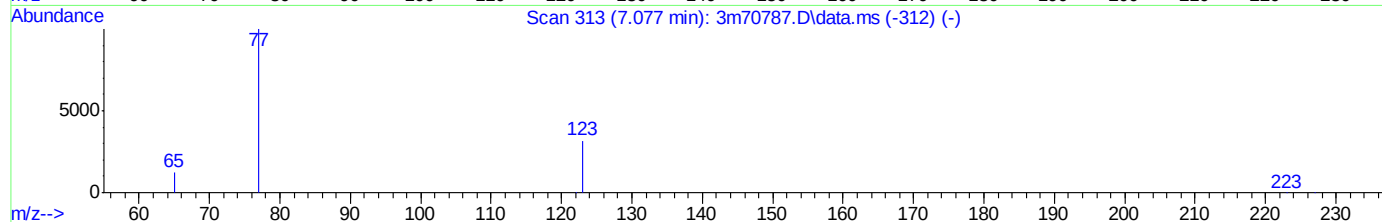
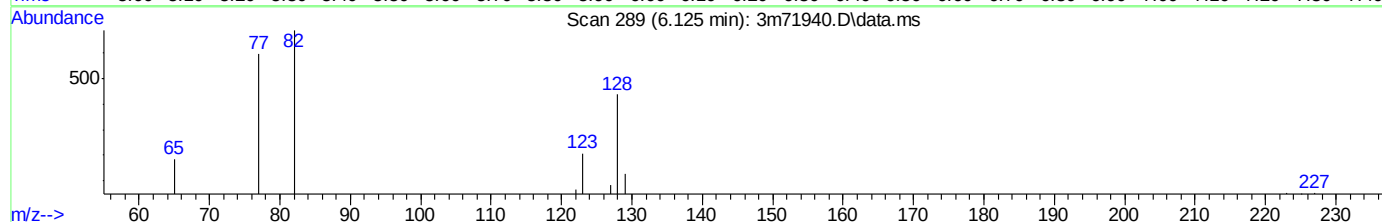
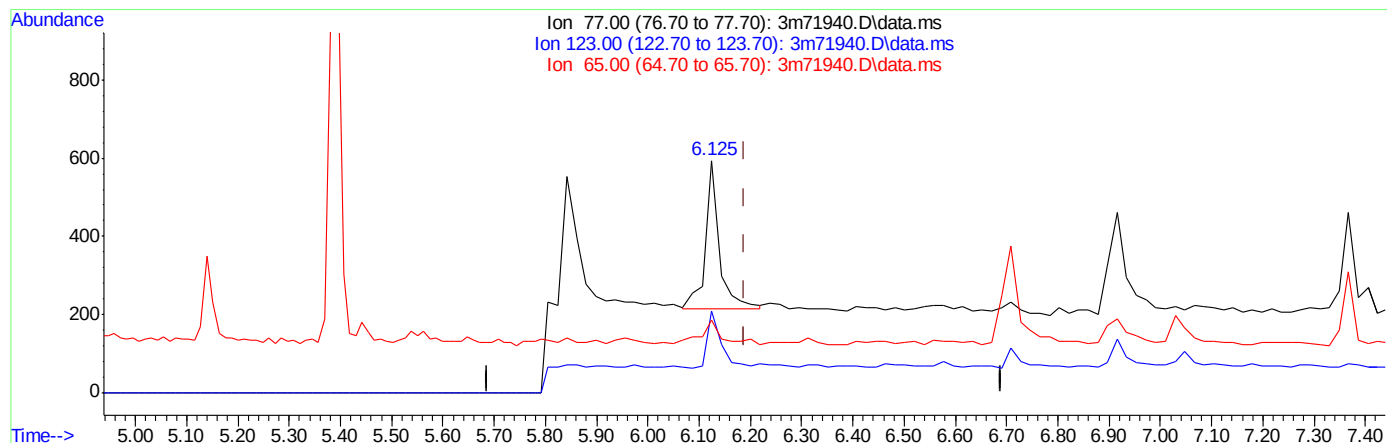
response 1020

Ion	Exp%	Act%
77.00	100	100
123.00	68.10	36.67#
65.00	11.60	15.33
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71940.D
Acq On : 17 Oct 2017 6:44 pm
Operator : kevinm2
Sample : ic3448-.01
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 18 09:10:07 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71940.D\data.ms

(8) Nitrobenzene (t)

6.125min (-0.064) 0.01ppm m

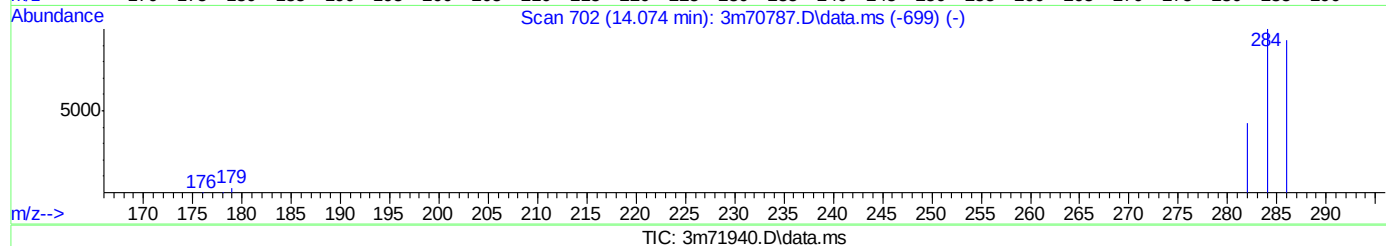
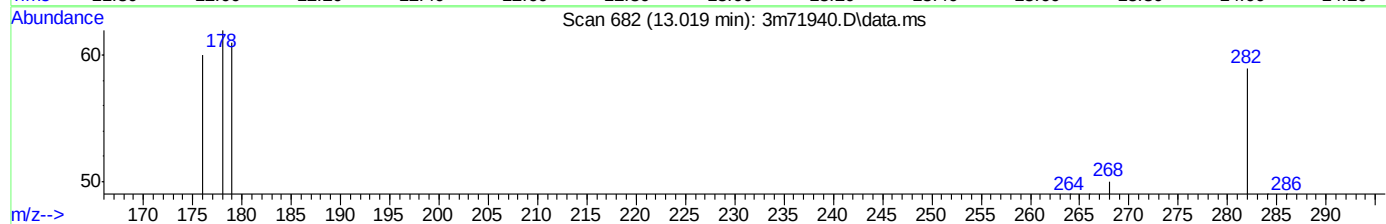
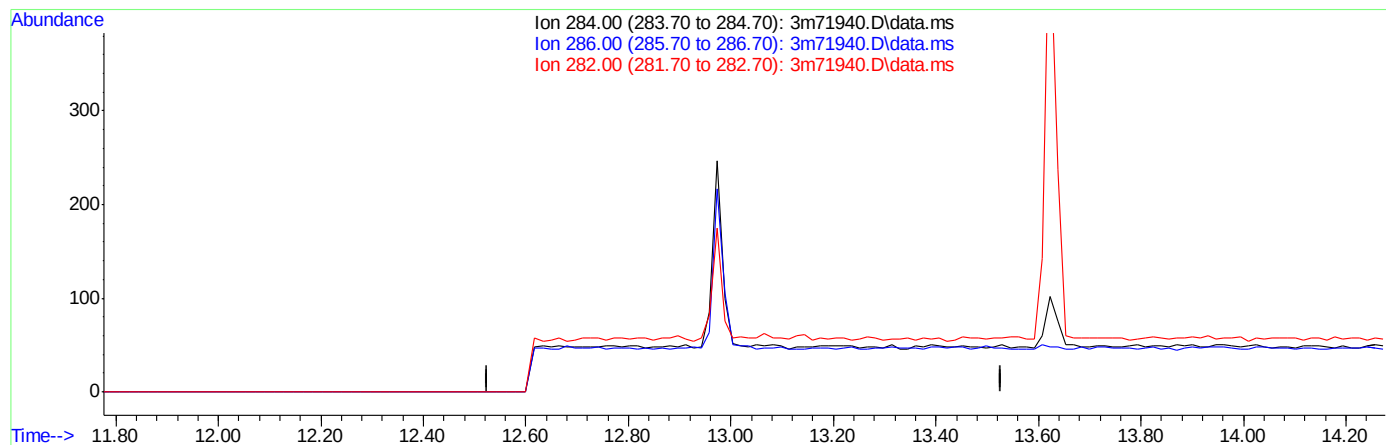
response 717

Ion	Exp%	Act%
77.00	100	100
123.00	68.10	34.85#
65.00	11.60	31.14
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71940.D
Acq On : 17 Oct 2017 6:44 pm
Operator : kevinm2
Sample : ic3448-.01
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 18 09:10:07 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71940.D\data.ms

(22) Hexachlorobenzene (t)

13.027min (-13.027) 0.00ppm

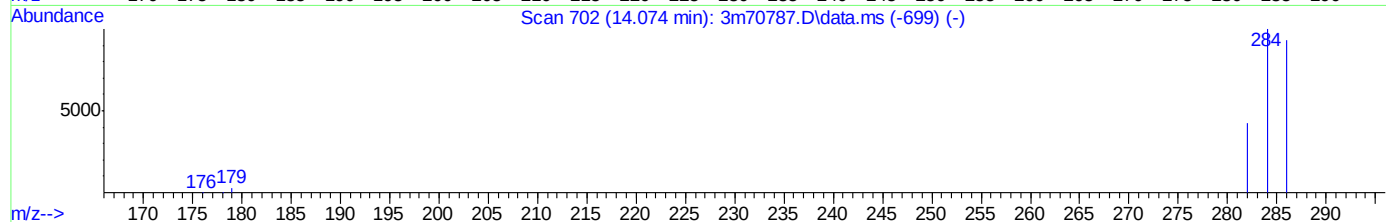
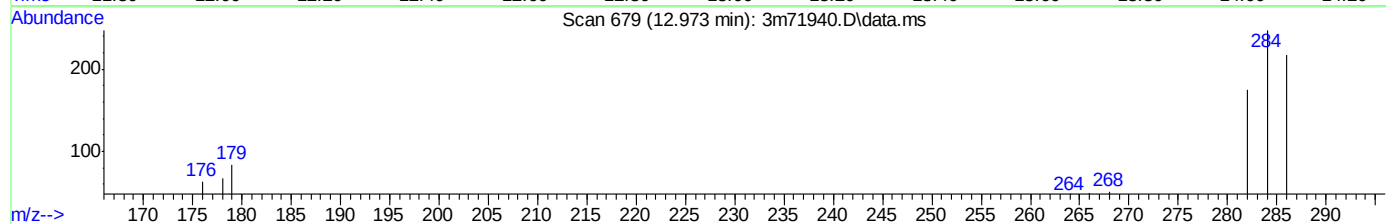
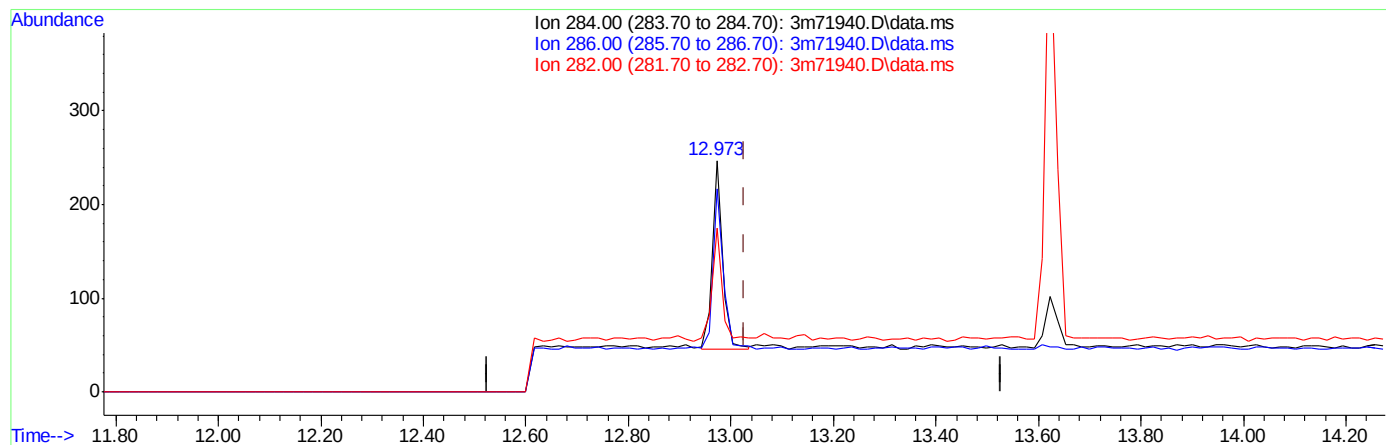
response 0

Ion	Exp%	Act%
284.00	100	0.00
286.00	78.90	0.00#
282.00	50.80	0.00#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71940.D
Acq On : 17 Oct 2017 6:44 pm
Operator : kevinm2
Sample : ic3448-.01
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 18 09:10:07 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 08:29:52 2017
Response via : Initial Calibration



TIC: 3m71940.D\data.ms

(22) Hexachlorobenzene (t)

12.973min (-0.054) 0.01ppm m

response 283

Ion	Exp%	Act%
284.00	100	100
286.00	78.90	87.85
282.00	50.80	70.85
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71941.D
 Acq On : 17 Oct 2017 7:15 pm
 Operator : kevinm2
 Sample : ic3448-5
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 18 10:16:33 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 10:14:57 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	8.854	150	165971	4.00	ppm	0.00
14) Fluorene-d10	11.826	176	245796	4.00	ppm	0.00
21) Fluoranthene-d10	16.034	212	306450	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	214703	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.337	112	3138724	106.88	ppm	-0.10
Spiked Amount 50.000			Recovery =	213.76%		
4) Phenol-d5	4.704	99	4511908	108.85	ppm	-0.05
Spiked Amount 50.000			Recovery =	217.70%		
7) Nitrobenzene-d5	6.087	82	4072393	119.29	ppm	-0.05
Spiked Amount 50.000			Recovery =	238.58%		
15) 2-Fluorobiphenyl	9.543	172	8117491	103.55	ppm	-0.03
Spiked Amount 50.000			Recovery =	207.10%		
20) 2,4,6-Tribromophenol	12.373	330	951246	106.81	ppm	0.01
Spiked Amount 50.000			Recovery =	213.62%		
28) Terphenyl-d14	16.884	244	7167048	126.10	ppm	0.04
Spiked Amount 50.000			Recovery =	252.20%		
Target Compounds						Qvalue
2) 1,4-dioxane	1.681	88	62077	5.26	ppm	# 1
5) Phenol	4.717	94	1213434	27.26	ppm	# 60
6) bis(2-Chloroethyl)ether	4.777	93	189529	5.41	ppm	88
8) Nitrobenzene	6.125	77	195993	5.09	ppm	97
9) Naphthalene	7.405	128	526985	5.59	ppm	95
10) Hexachlorobutadiene	7.706	225	64279	4.99	ppm	66
11) 2-Methylnaphthalene	8.752	141	271854	5.54	ppm	93
12) 1-Methylnaphthalene	8.936	141	274086	4.93	ppm	70
13) Hexachlorocyclopentadiene	9.100	237	80265	11.23	ppm	# 67
16) Acenaphthylene	10.486	152	477796	4.75	ppm	96
17) Acenaphthene	10.841	153	295892	4.57	ppm	82
18) 4,6-dinitro-2-methylph...	12.090	198	230477	36.22	ppm	# 8
19) Fluorene	11.864	166	314586	4.41	ppm	95
22) Hexachlorobenzene	12.973	284	77482	4.45	ppm	97
23) Pentachlorophenol	13.421	266	206033	31.84	ppm	87
24) Phenanthrene	13.746	178	424442	4.67	ppm	99
25) Anthracene	13.854	178	413571	4.89	ppm	87
26) Fluoranthene	16.065	202	422309	4.59	ppm	95
27) Pyrene	16.451	202	426437	4.50	ppm	95
29) Benzo[a]anthracene	18.565	228	374039	5.11	ppm	98
30) Chrysene	18.627	228	343520m	5.00	ppm	
32) Benzo[b]fluoranthene	20.235	252	387068	4.82	ppm	99
33) Benzo[k]fluoranthene	20.272	252	307534m	5.78	ppm	
34) Benzo[a]pyrene	20.686	252	281148	4.49	ppm	90
35) Indeno[1,2,3-cd]pyrene	22.116	276	318248	4.56	ppm	95
36) Dibenz[a,h]anthracene	22.153	278	238814	4.20	ppm	89
37) Benzo[g,h,i]perylene	22.417	276	286344	4.95	ppm	99

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71941.D
Acq On : 17 Oct 2017 7:15 pm
Operator : kevinm2
Sample : ic3448-5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 18 10:16:33 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:14:57 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

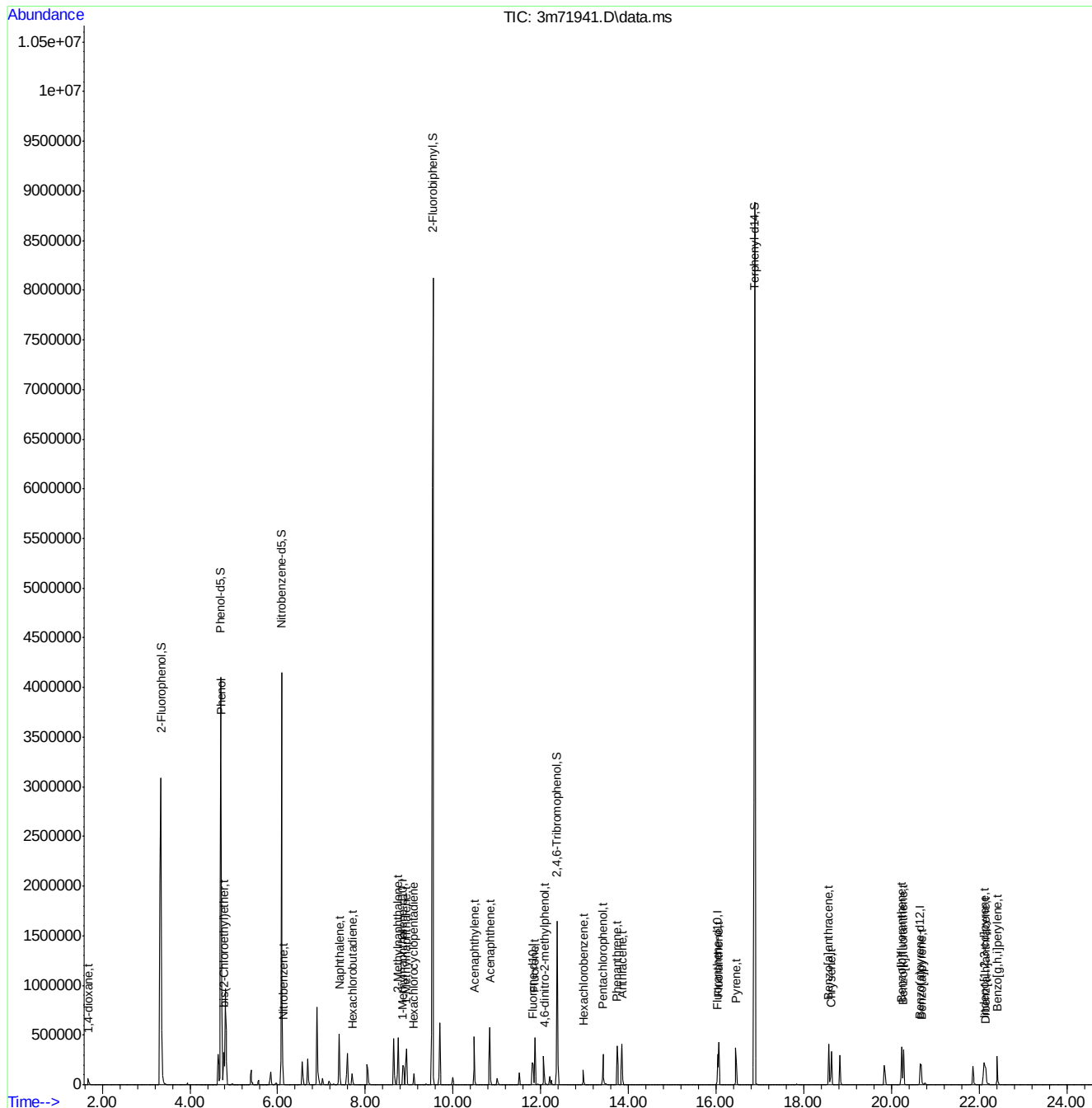
9.6.31

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71941.D
Acq On : 17 Oct 2017 7:15 pm
Operator : kevinm2
Sample : ic3448-5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 18 10:16:33 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:14:57 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3448-IC3448

Lab FileID:

3M71941.D

Injection Time:

10/17/17 19:15

Method:

SW846 8270D BY SIM

Analyst approved:

10/18/17 10:25 Kevin Moyle

Supervisor approved:

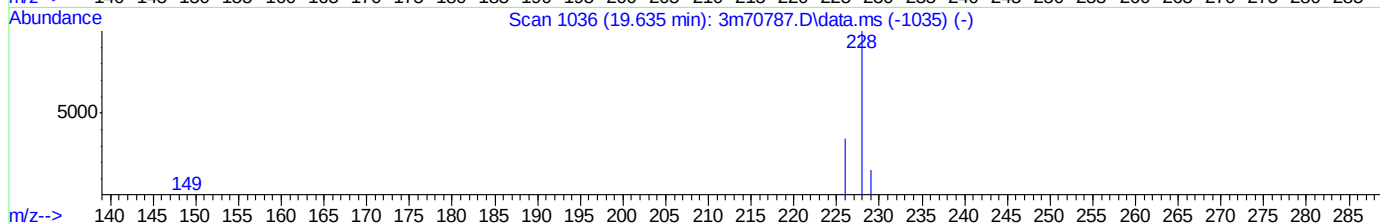
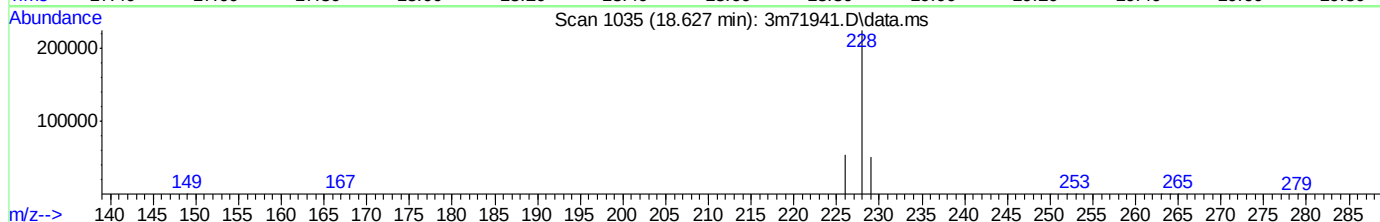
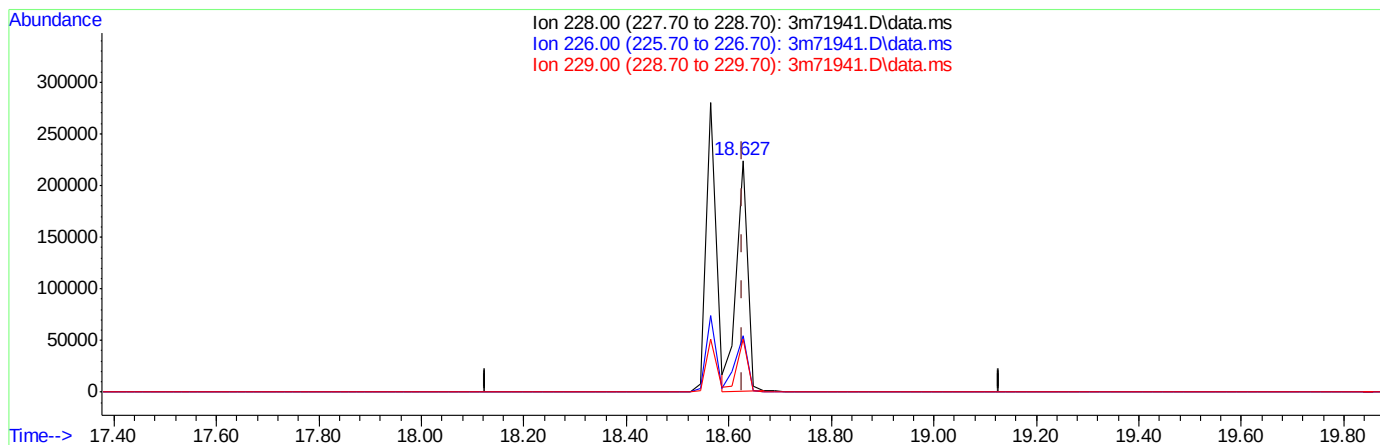
10/18/17 12:29 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Chrysene	218-01-9		18.63	Poorly defined baseline
Benzo(k)fluoranthene	207-08-9		20.27	Poorly defined baseline

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71941.D
Acq On : 17 Oct 2017 7:15 pm
Operator : kevinm2
Sample : ic3448-5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 18 10:15:25 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:14:57 2017
Response via : Initial Calibration



TIC: 3m71941.D\data.ms

(30) Chrysene (t)

18.627min (0.000) 4.86ppm

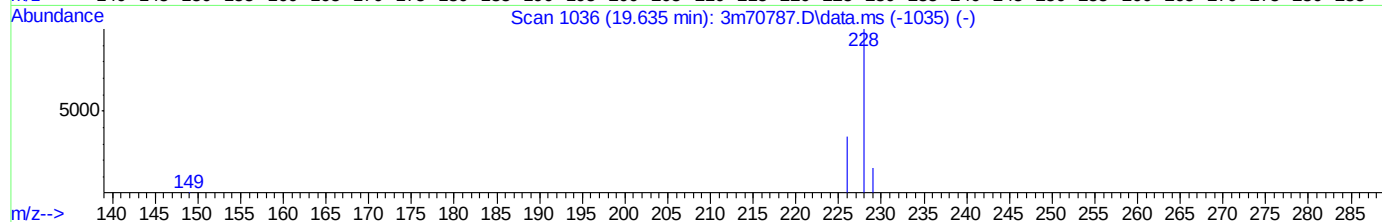
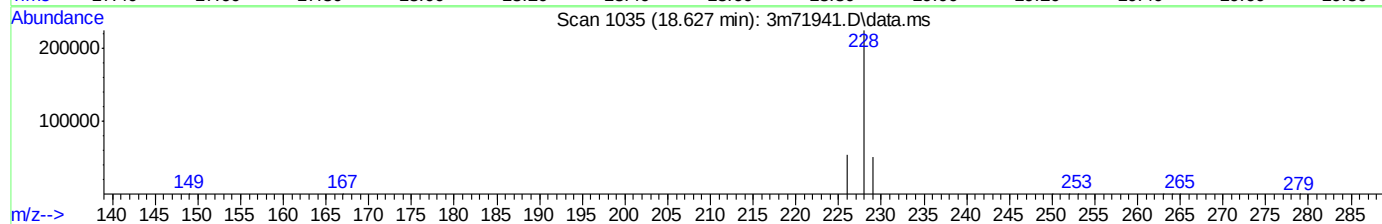
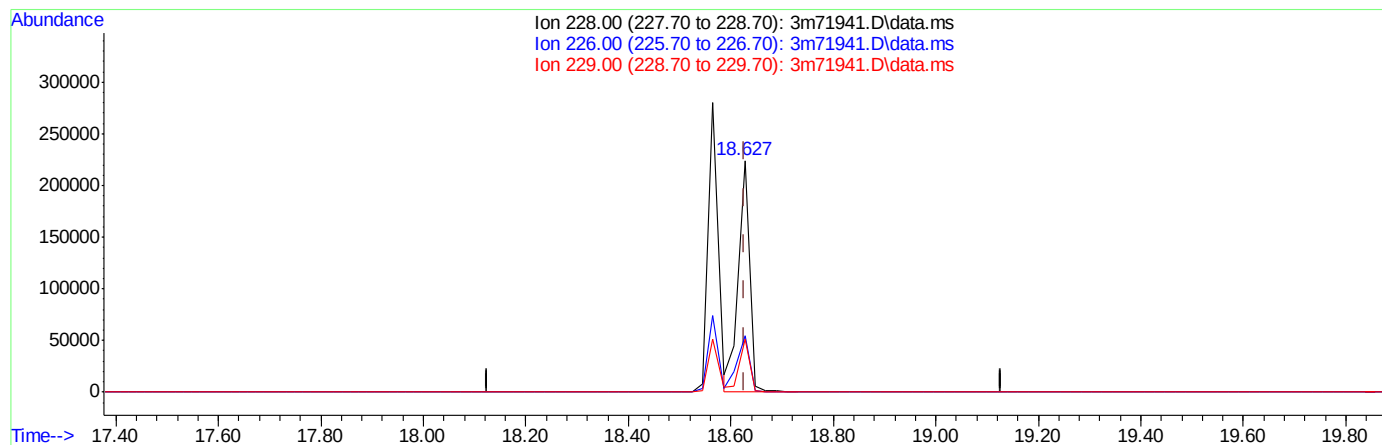
response 334005

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	24.27
229.00	20.70	22.81
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71941.D
Acq On : 17 Oct 2017 7:15 pm
Operator : kevinm2
Sample : ic3448-5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 18 10:15:25 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:14:57 2017
Response via : Initial Calibration



TIC: 3m71941.D\data.ms

(30) Chrysene (t)

18.627min (0.000) 5.00ppm m

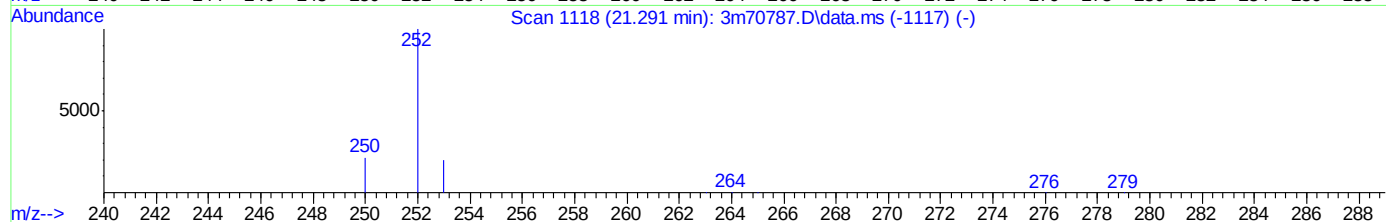
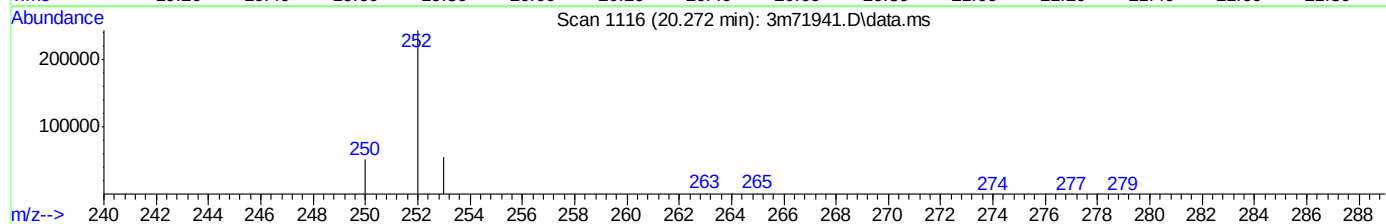
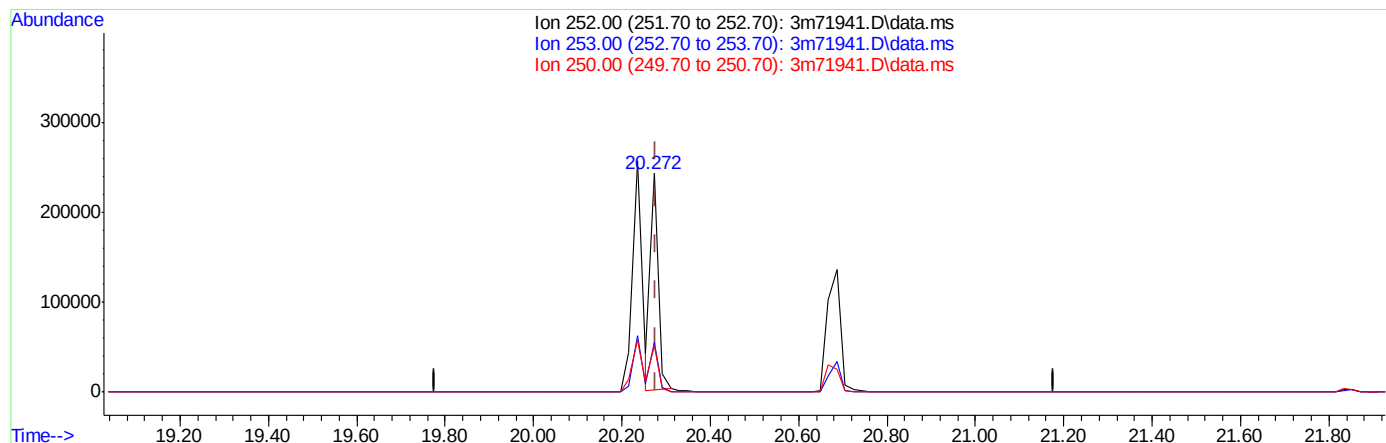
response 343520

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	24.14
229.00	20.70	22.95
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71941.D
Acq On : 17 Oct 2017 7:15 pm
Operator : kevinm2
Sample : ic3448-5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 18 10:15:25 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:14:57 2017
Response via : Initial Calibration



TIC: 3m71941.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.272min (-0.005) 5.47ppm

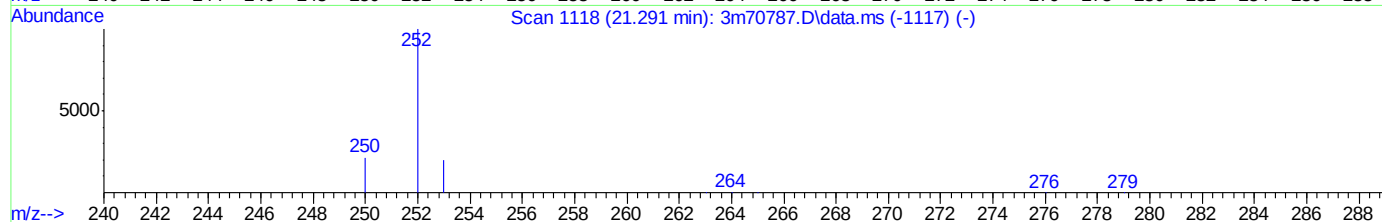
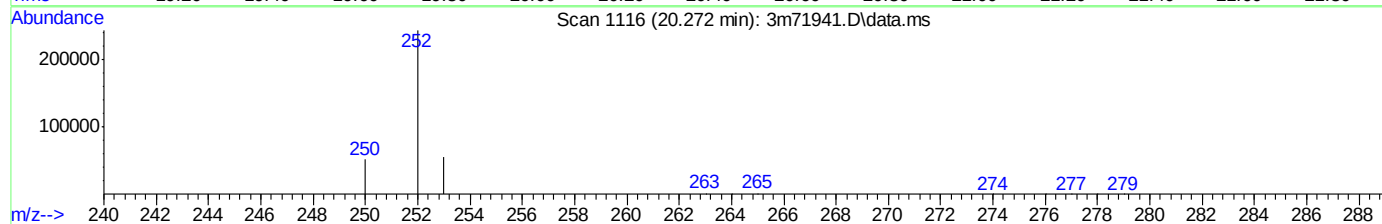
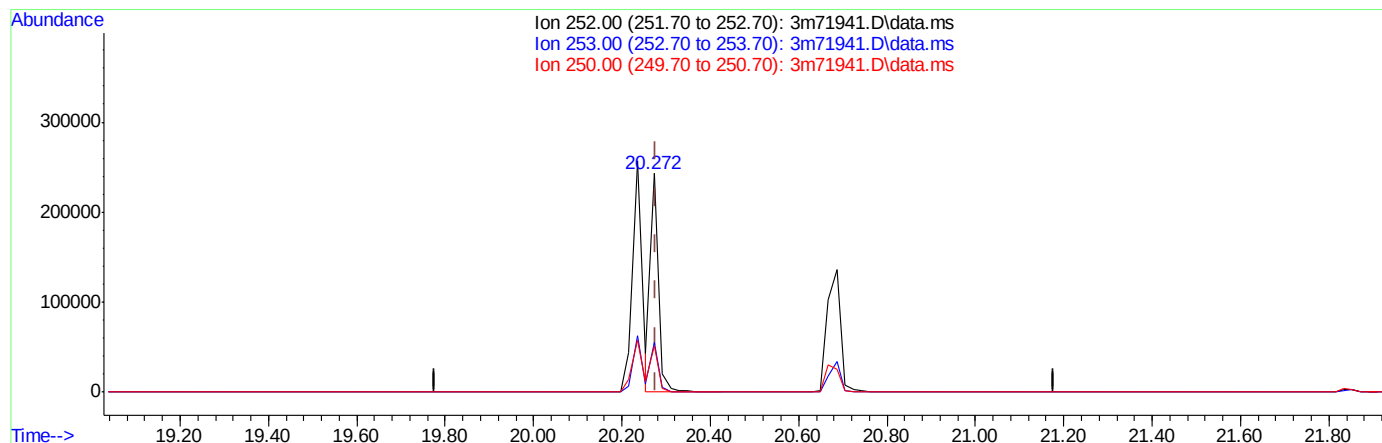
response 290932

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	22.69
250.00	20.00	20.49
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71941.D
Acq On : 17 Oct 2017 7:15 pm
Operator : kevinm2
Sample : ic3448-5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 18 10:15:25 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:14:57 2017
Response via : Initial Calibration



TIC: 3m71941.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.272min (-0.005) 5.78ppm m

response 307534

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	22.62
250.00	20.00	21.17
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71942.D
 Acq On : 17 Oct 2017 7:46 pm
 Operator : kevinm2
 Sample : icv3448-5
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 18 10:52:17 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 10:30:04 2017
 Response via : Initial Calibration

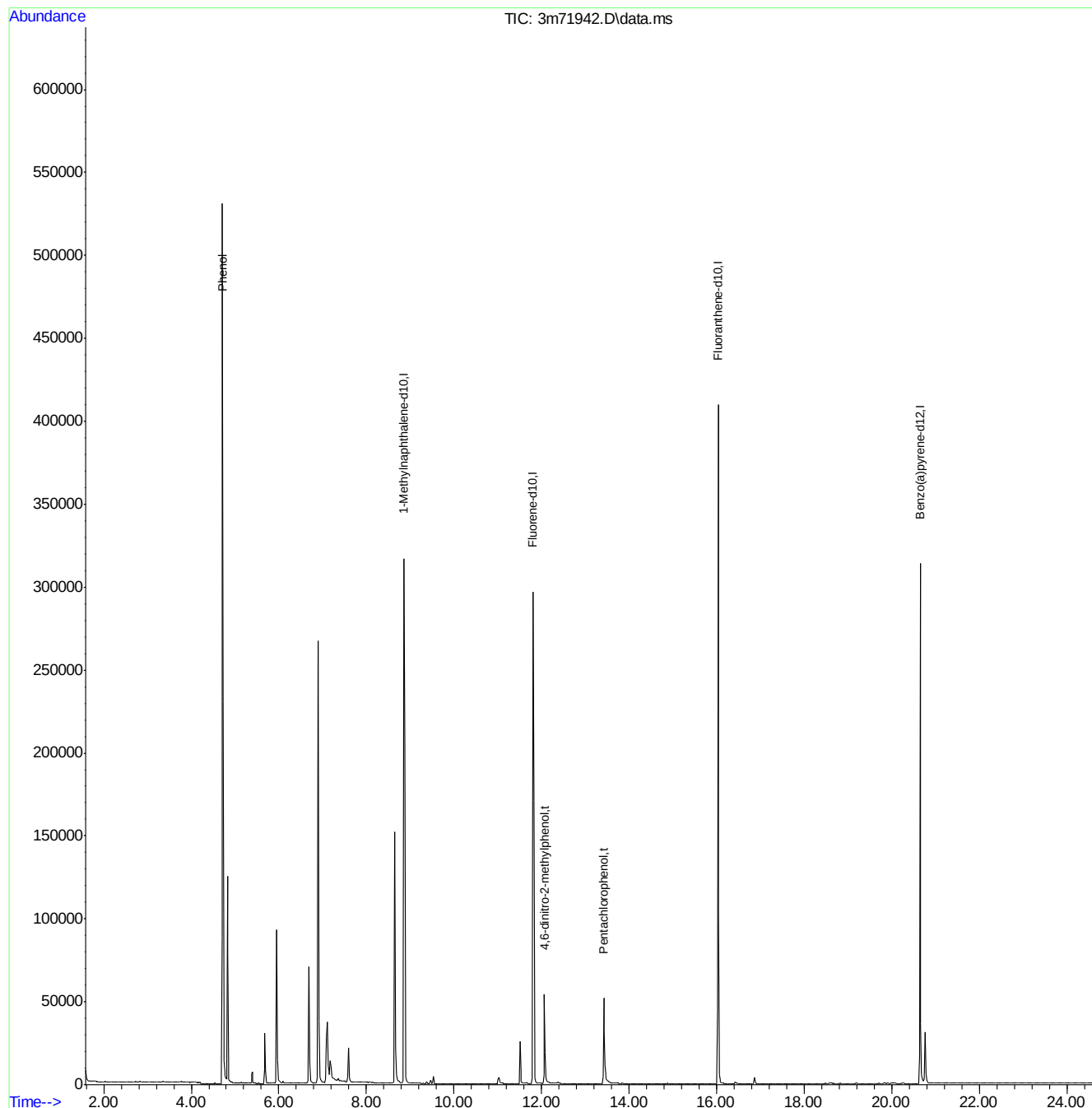
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.854	150	233608	4.00	ppm	0.00
14) Fluorene-d10	11.807	176	277735	4.00	ppm	0.00
21) Fluoranthene-d10	16.034	212	412376	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	301545	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
4) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
7) Nitrobenzene-d5	0.000	82	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
15) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
20) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
28) Terphenyl-d14	0.000	244	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
5) Phenol	4.717	94	375322	5.21	ppm	Qvalue # 66
18) 4,6-dinitro-2-methylph...	12.071	198	42928	5.97	ppm	# 85
23) Pentachlorophenol	13.422	266	50406	5.47	ppm	95

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71942.D
Acq On : 17 Oct 2017 7:46 pm
Operator : kevinm2
Sample : icv3448-5
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 18 10:52:17 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:30:04 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
 Data File : 3m71943.D
 Acq On : 17 Oct 2017 8:17 pm
 Operator : kevinm2
 Sample : icv3448-1
 Misc : op6171a,e3m3448,1000,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 18 12:10:35 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Wed Oct 18 10:30:04 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.873	150	210201	4.00	ppm	0.02
14) Fluorene-d10	11.824	176	275085	4.00	ppm	0.02
21) Fluoranthene-d10	16.032	212	360067	4.00	ppm	0.00
31) Benzo(a)pyrene-d12	20.649	264	213663	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
4) Phenol-d5	0.000	99	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
7) Nitrobenzene-d5	0.000	82	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
15) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
20) 2,4,6-Tribromophenol	0.000	330	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
28) Terphenyl-d14	0.000	244	0	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
2) 1,4-dioxane	1.700	88	12367	0.72	ppm	Qvalue # 1
6) bis(2-Chloroethyl)ether	4.777	93	51633	1.06	ppm	95
8) Nitrobenzene	6.125	77	42267	0.77	ppm	94
9) Naphthalene	7.405	128	151010	1.07	ppm	95
10) Hexachlorobutadiene	7.706	225	18367	1.07	ppm	69
11) 2-Methylnaphthalene	8.750	141	70958	0.96	ppm	96
13) Hexachlorocyclopentadiene	9.099	237	1179	0.22	ppm	# 68
16) Acenaphthylene	10.484	152	107803	0.95	ppm	98
17) Acenaphthene	10.839	153	76108	1.01	ppm	87
19) Fluorene	11.862	166	77564	0.95	ppm	96
22) Hexachlorobenzene	12.971	284	16840	0.89	ppm	97
24) Phenanthrene	13.744	178	101121	0.92	ppm	98
25) Anthracene	13.853	178	89913	0.95	ppm	86
26) Fluoranthene	16.063	202	99604	0.89	ppm	94
27) Pyrene	16.449	202	94899	0.91	ppm	94
29) Benzo[a]anthracene	18.584	228	102905	1.22	ppm	85
30) Chrysene	18.625	228	80788m	1.00	ppm	
32) Benzo[b]fluoranthene	20.235	252	66954	0.85	ppm	96
33) Benzo[k]fluoranthene	20.272	252	53187m	0.87	ppm	
34) Benzo[a]pyrene	20.686	252	56037	0.92	ppm	90
35) Indeno[1,2,3-cd]pyrene	22.116	276	54302	0.80	ppm	95
36) Dibenz[a,h]anthracene	22.135	278	45375	0.94	ppm	94
37) Benzo[g,h,i]perylene	22.417	276	52967	0.86	ppm	100

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

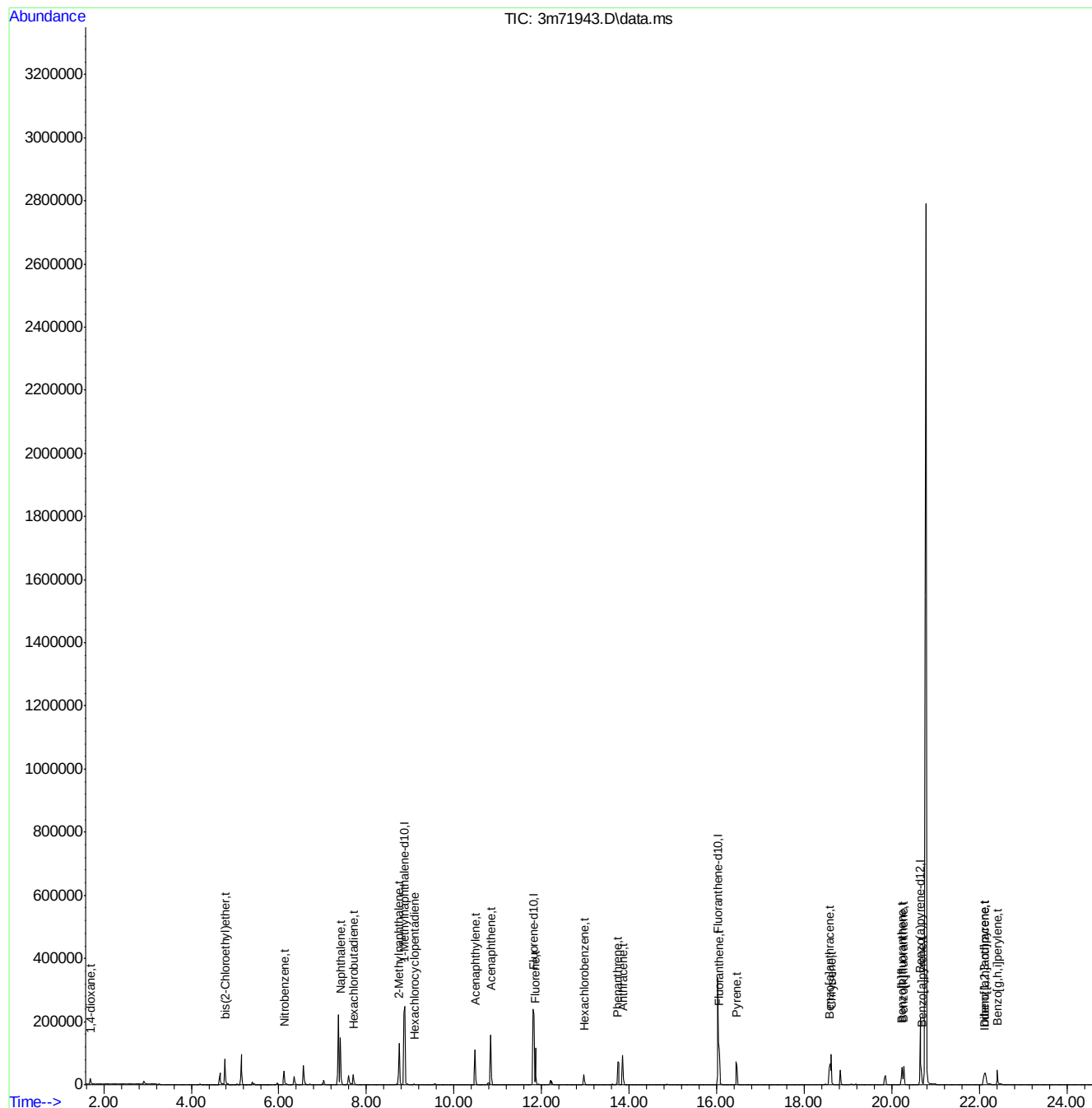
9.6.33

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71943.D
Acq On : 17 Oct 2017 8:17 pm
Operator : kevinm2
Sample : icv3448-1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 18 12:10:35 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:30:04 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3448-ICV3448

Method:

SW846 8270D BY SIM

Lab FileID:

3M71943.D

Analyst approved:

10/18/17 12:15 Kevin Moyle

Injection Time:

10/17/17 20:17

Supervisor approved:

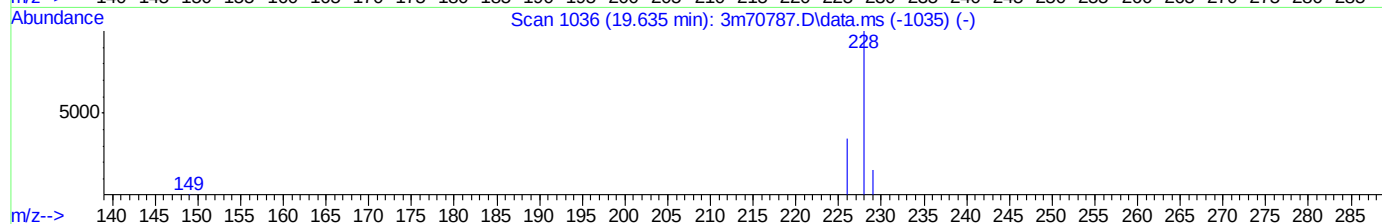
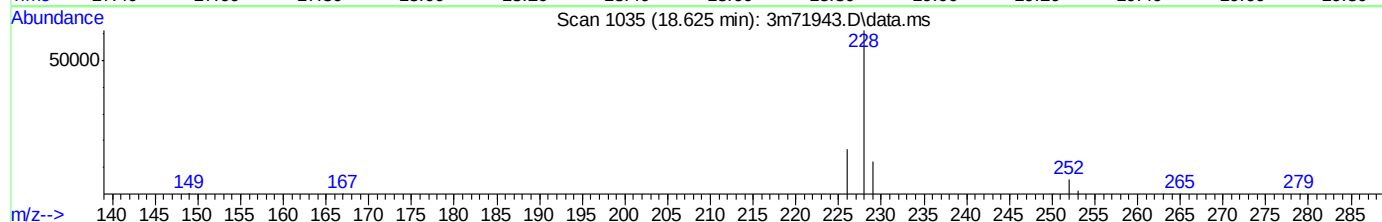
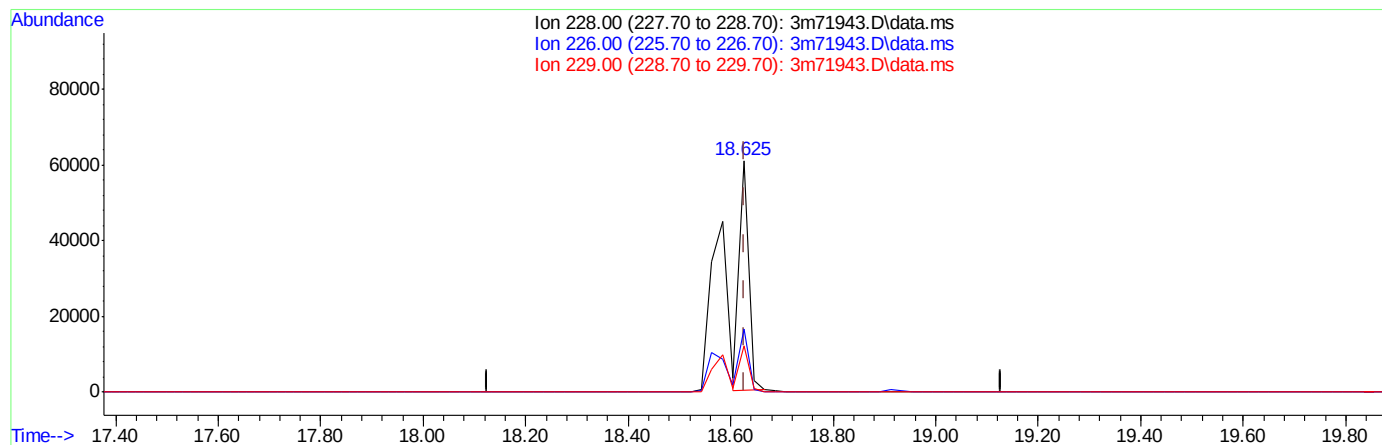
10/18/17 12:29 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
Chrysene	218-01-9		18.62	Poorly defined baseline
Benzo(k)fluoranthene	207-08-9		20.27	Poorly defined baseline

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71943.D
Acq On : 17 Oct 2017 8:17 pm
Operator : kevinm2
Sample : icv3448-1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 18 10:52:37 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:30:04 2017
Response via : Initial Calibration



TIC: 3m71943.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 0.97ppm

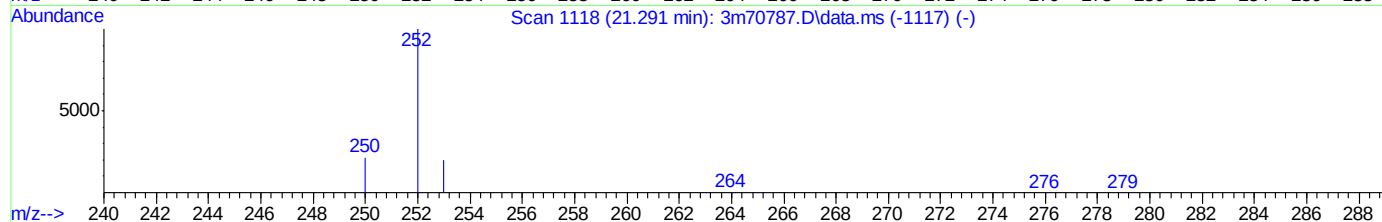
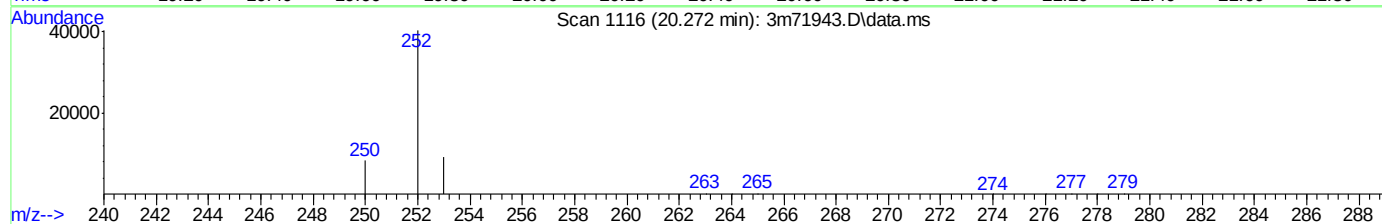
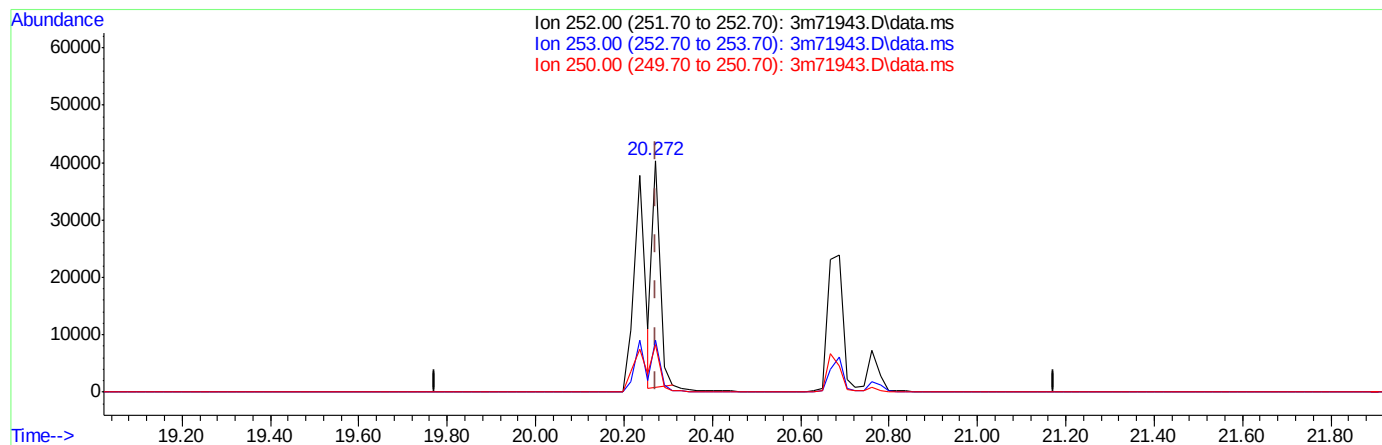
response 77955

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	26.66
229.00	20.70	20.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71943.D
Acq On : 17 Oct 2017 8:17 pm
Operator : kevinm2
Sample : icv3448-1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 18 10:52:37 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:30:04 2017
Response via : Initial Calibration



TIC: 3m71943.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.272min (-0.001) 0.80ppm

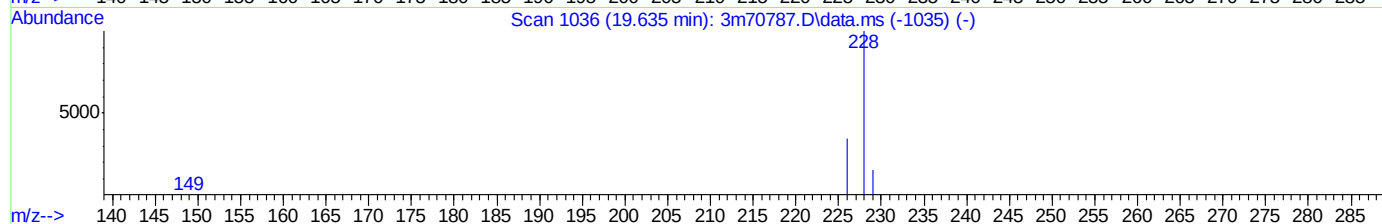
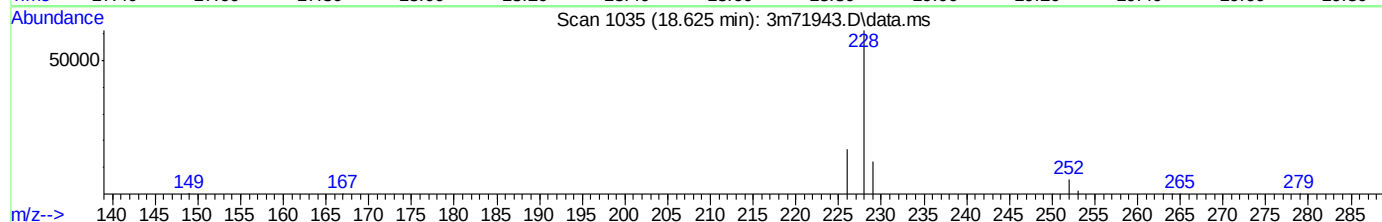
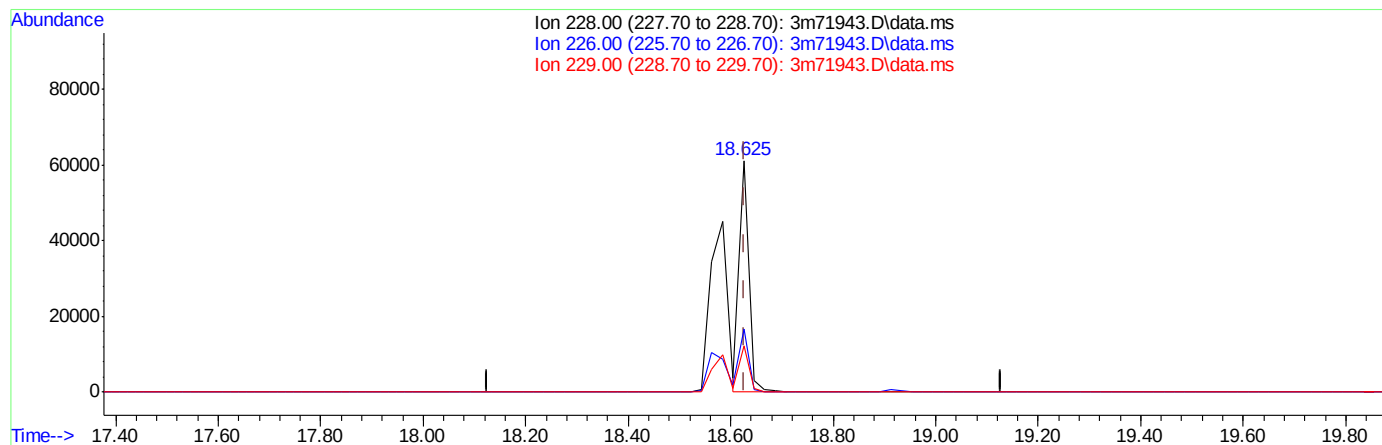
response 48681

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	23.22
250.00	20.00	19.10
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71943.D
Acq On : 17 Oct 2017 8:17 pm
Operator : kevinm2
Sample : icv3448-1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 18 11:03:22 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:30:04 2017
Response via : Initial Calibration



TIC: 3m71943.D\data.ms

(30) Chrysene (t)

18.625min (-0.002) 1.00ppm m

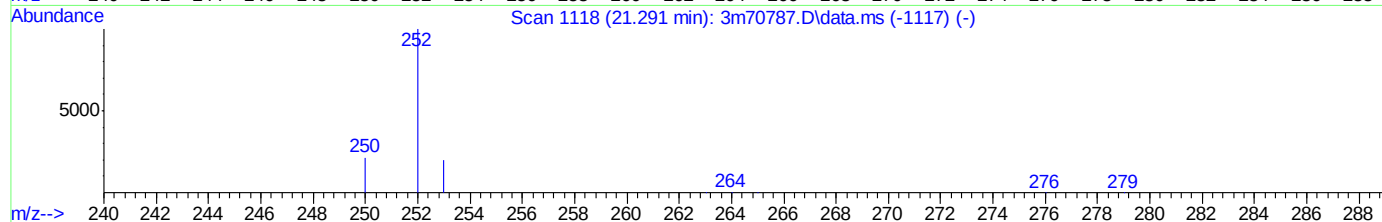
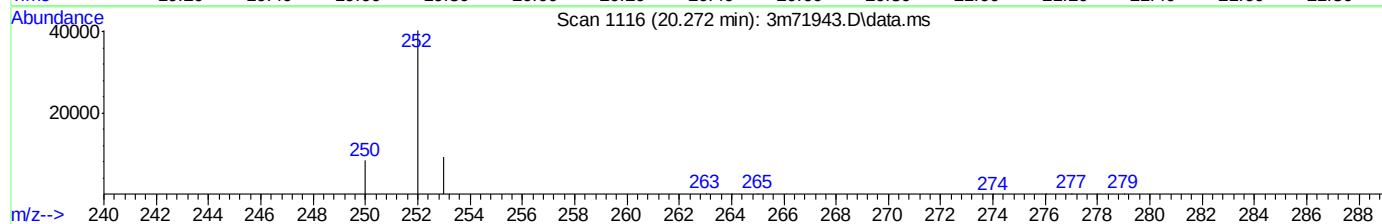
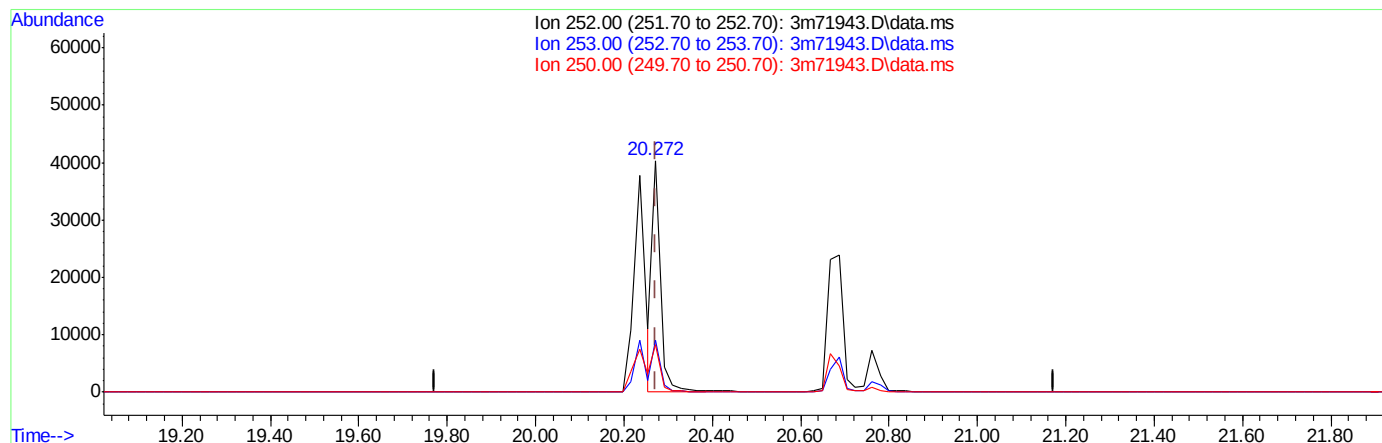
response 80788

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	27.44
229.00	20.70	20.15
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3448\
Data File : 3m71943.D
Acq On : 17 Oct 2017 8:17 pm
Operator : kevinm2
Sample : icv3448-1
Misc : op6171a,e3m3448,1000,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 18 11:03:22 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Wed Oct 18 10:30:04 2017
Response via : Initial Calibration



TIC: 3m71943.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.272min (-0.001) 0.87ppm m

response 53187

Ion	Exp%	Act%
252.00	100	100
253.00	23.70	22.66
250.00	20.00	20.48
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
 Data File : 3m72024.D
 Acq On : 20 Oct 2017 4:33 pm
 Operator : kevinm2
 Sample : cc3448-.5
 Misc : op6171a,e3m3454,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 17:00:51 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
 Quant Title : Semi Volatile Extractables by GC/MS
 QLast Update : Fri Oct 20 12:10:27 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	8.812	150	184504	4.00	ppm	0.00
14) Fluorene-d10	11.749	176	225128	4.00	ppm	-0.02
21) Fluoranthene-d10	15.970	212	313307	4.00	ppm	-0.02
31) Benzo(a)pyrene-d12	20.594	264	188172	4.00	ppm	0.00
System Monitoring Compounds						
3) 2-Fluorophenol	3.299	112	346176	10.38	ppm	-0.02
Spiked Amount 50.000			Recovery =	20.76%		
4) Phenol-d5	4.656	99	543555	10.38	ppm	-0.03
Spiked Amount 50.000			Recovery =	20.76%		
7) Nitrobenzene-d5	6.030	82	512321	10.72	ppm	-0.03
Spiked Amount 50.000			Recovery =	21.44%		
15) 2-Fluorobiphenyl	9.464	172	818264	10.89	ppm	-0.03
Spiked Amount 50.000			Recovery =	21.78%		
20) 2,4,6-Tribromophenol	12.314	330	76041	10.17	ppm	-0.02
Spiked Amount 50.000			Recovery =	20.34%		
28) Terphenyl-d14	16.820	244	605940	10.68	ppm	0.00
Spiked Amount 50.000			Recovery =	21.36%		
Target Compounds						
2) 1,4-dioxane	1.662	88	6592m	0.44	ppm	Qvalue
5) Phenol	4.668	94	144495	2.54	ppm	# 83
6) bis(2-Chloroethyl)ether	4.716	93	22597	0.53	ppm	# 49
8) Nitrobenzene	6.068	77	24791	0.51	ppm	87
9) Naphthalene	7.349	128	64011	0.52	ppm	94
10) Hexachlorobutadiene	7.650	225	7964	0.53	ppm	69
11) 2-Methylnaphthalene	8.688	141	35793	0.55	ppm	92
12) 1-Methylnaphthalene	8.873	141	35860	0.53	ppm	79
13) Hexachlorocyclopentadiene	9.037	237	5484	1.17	ppm	# 72
16) Acenaphthylene	10.422	152	52546	0.57	ppm	99
17) Acenaphthene	10.778	153	33574	0.54	ppm	88
18) 4,6-dinitro-2-methylph...	12.013	198	8610	1.93	ppm	91
19) Fluorene	11.806	166	38314	0.57	ppm	89
22) Hexachlorobenzene	12.909	284	8683	0.53	ppm	95
23) Pentachlorophenol	13.358	266	19004	2.87	ppm	92
24) Phenanthrene	13.683	178	49287	0.52	ppm	99
25) Anthracene	13.791	178	48560	0.59	ppm	87
26) Fluoranthene	16.001	202	47051	0.48	ppm	92
27) Pyrene	16.403	202	47419	0.52	ppm	95
29) Benzo[a]anthracene	18.502	228	34982	0.48	ppm	96
30) Chrysene	18.563	228	37589m	0.54	ppm	
32) Benzo[b]fluoranthene	20.180	252	37937m	0.55	ppm	
33) Benzo[k]fluoranthene	20.218	252	22667m	0.42	ppm	
34) Benzo[a]pyrene	20.613	252	28189	0.53	ppm	94
35) Indeno[1,2,3-cd]pyrene	22.061	276	29055	0.49	ppm	94
36) Dibenz[a,h]anthracene	22.080	278	22010	0.52	ppm	92
37) Benzo[g,h,i]perylene	22.343	276	25079	0.46	ppm	96

9.6.34
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 17:00:51 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

9.6.34

9

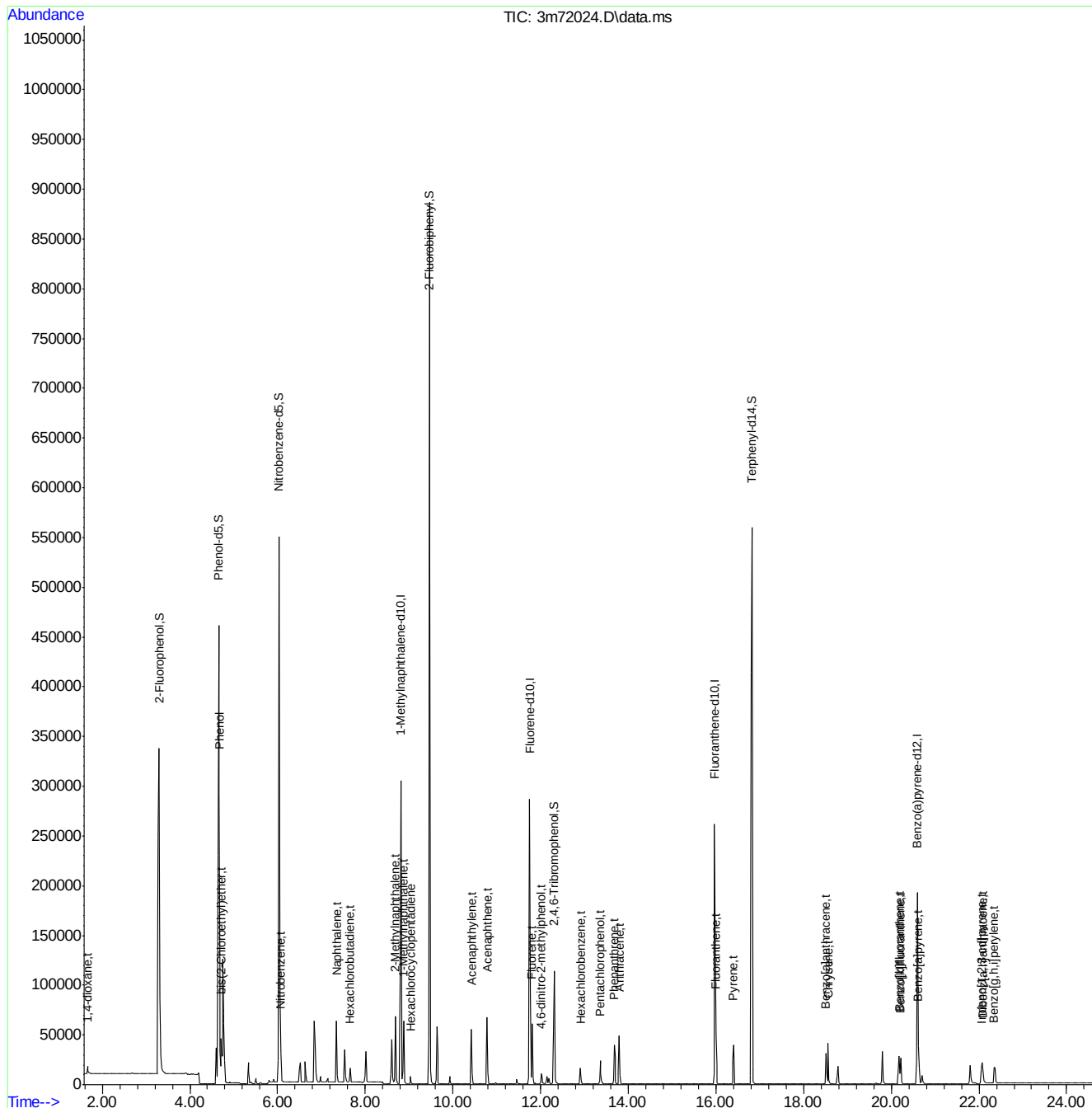
Quantitation Report (QT Reviewed)

```

Data Path   : C:\msdchem\1\DATA\E3M3454\
Data File   : 3m72024.D
Acq On      : 20 Oct 2017    4:33 pm
Operator    : kevinm2
Sample      : cc3448-.5
Misc        : op6171a,e3m3454,1000,,,1,1
ALS Vial    : 2      Sample Multiplier: 1

```

Quant Time: Oct 20 17:00:51 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E3M3454-CC3448

Method:

SW846 8270D BY SIM

Lab FileID:

3M72024.D

Analyst approved:

10/23/17 11:36 Kevin Moyle

Injection Time:

10/20/17 16:33

Supervisor approved:

10/23/17 17:27 Nancy Ma

Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		1.66	Poorly defined baseline
Chrysene	218-01-9		18.56	Poorly defined baseline
Benzo(b)fluoranthene	205-99-2		20.18	Split peak
Benzo(k)fluoranthene	207-08-9		20.22	Split peak

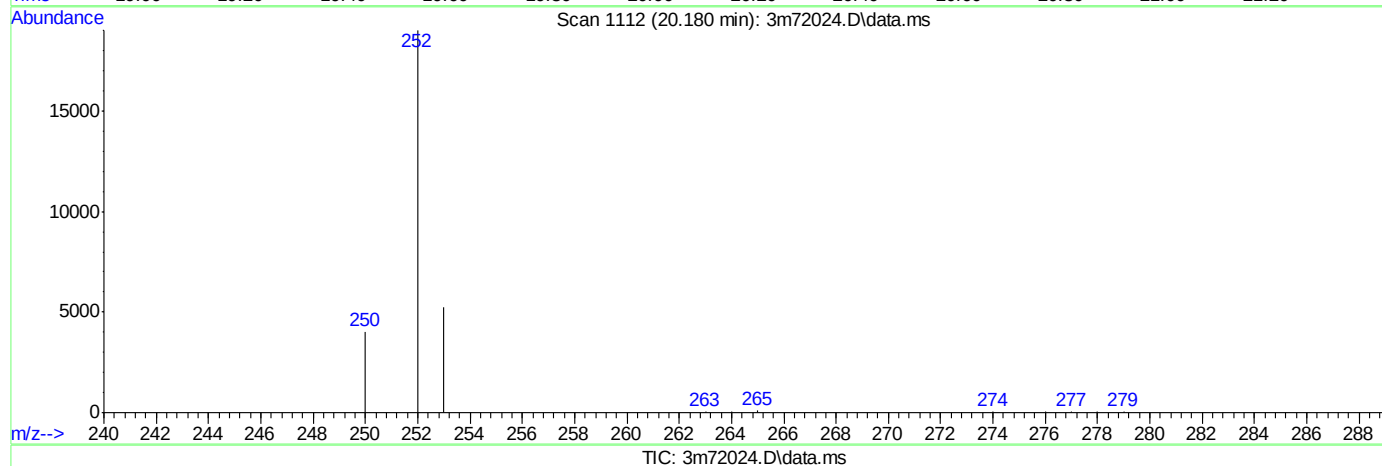
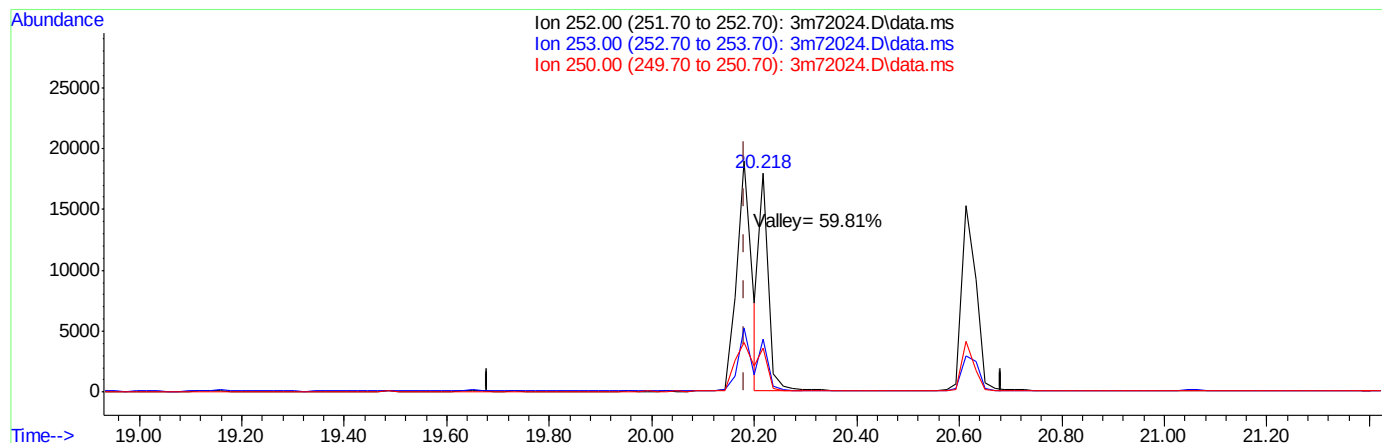
9.6.34.1

9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 16:56:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



(32) Benzo[b]fluoranthene (t)

20.180min (-0.001) 0.87ppm

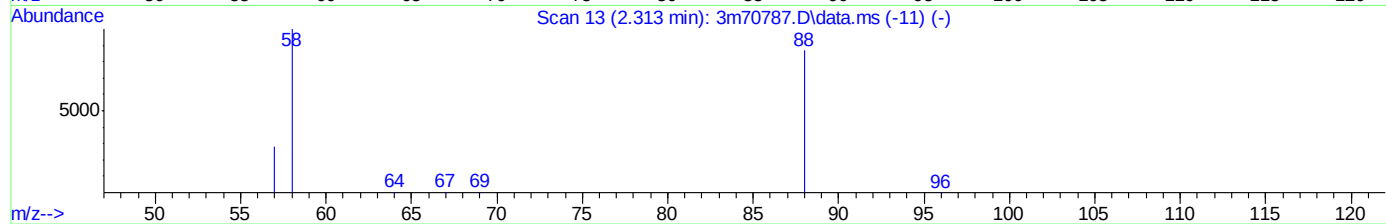
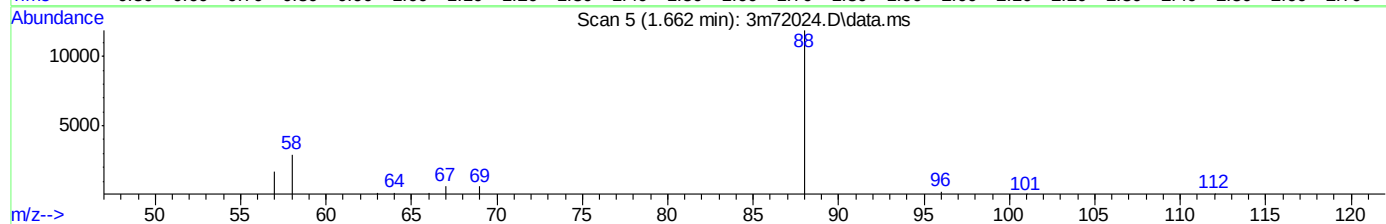
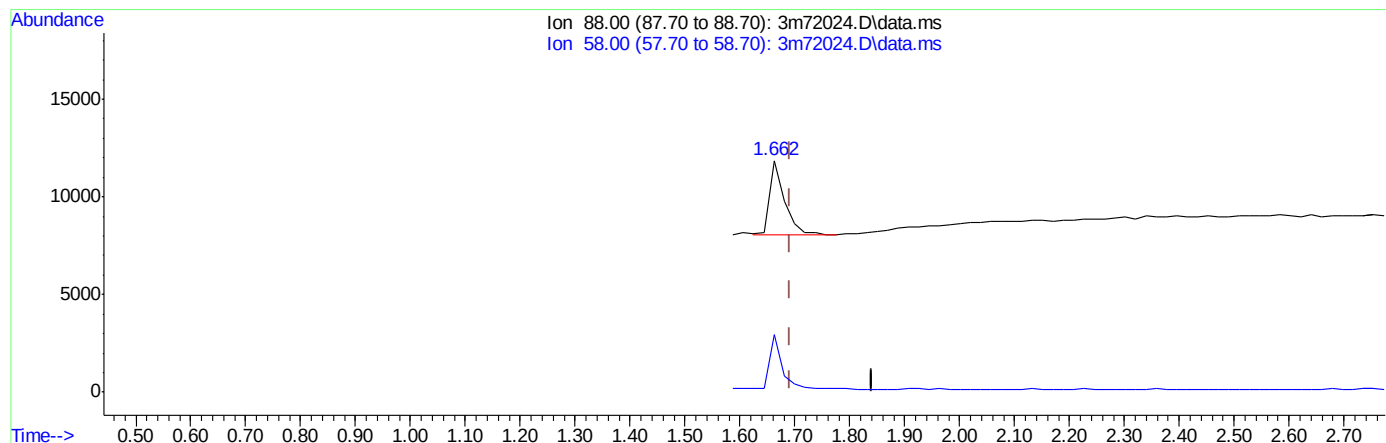
response 60130

Ion	Exp%	Act%
252.00	100	100
253.00	26.40	27.12
250.00	21.60	20.91
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 16:56:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



TIC: 3m72024.D\data.ms

(2) 1,4-dioxane (t)

1.662min (-0.030) 0.48ppm

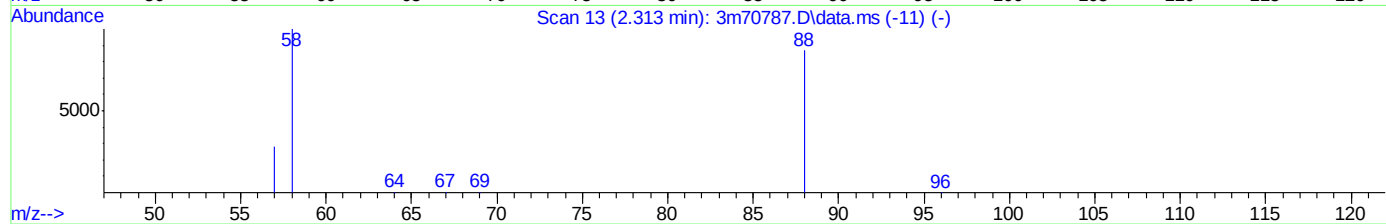
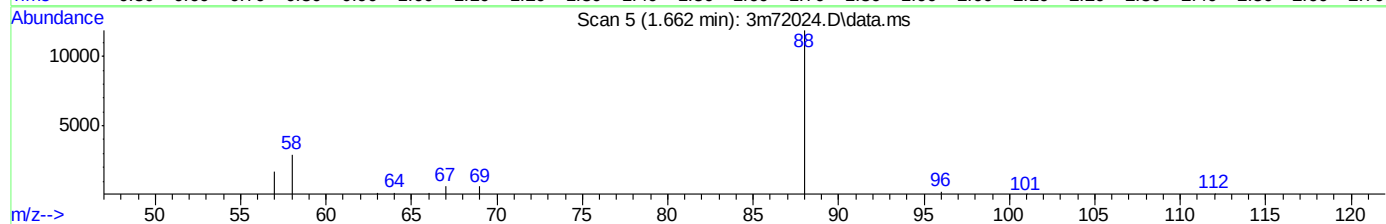
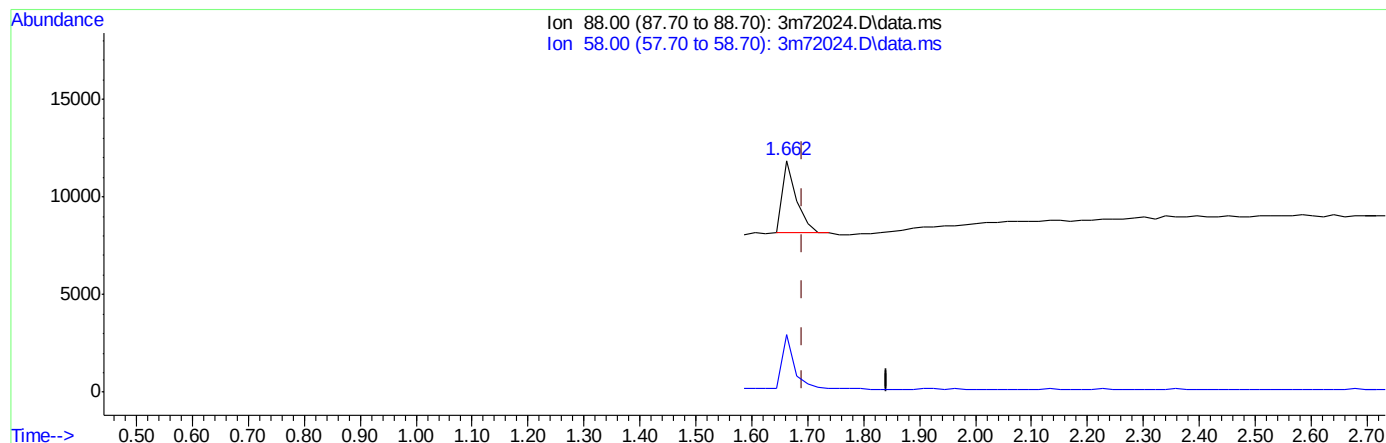
response 7277

Ion	Exp%	Act%
88.00	100	100
58.00	26.90	72.90#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 16:56:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



TIC: 3m72024.D\data.ms

(2) 1,4-dioxane (t)

1.662min (-0.030) 0.44ppm m

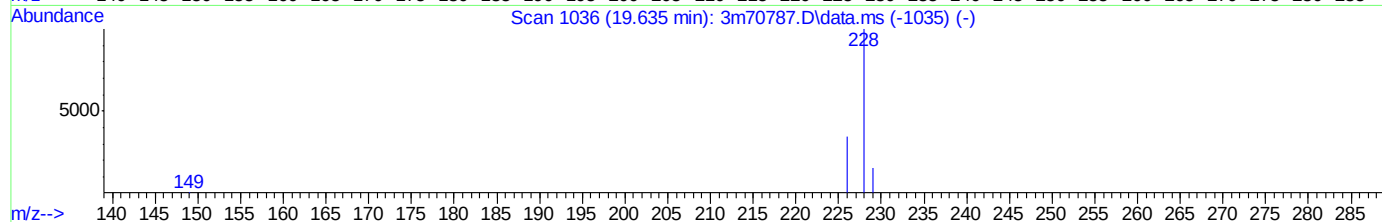
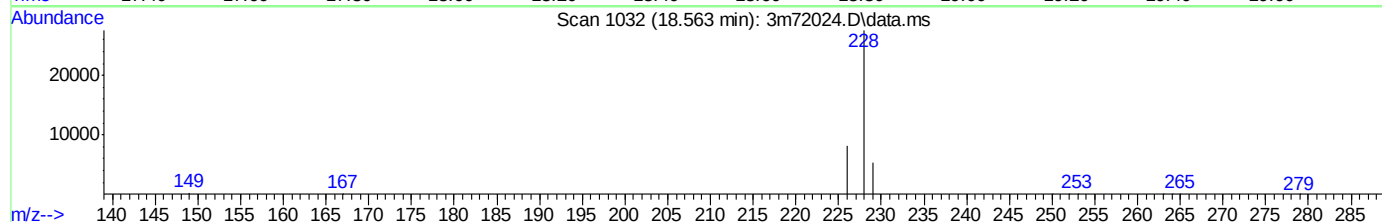
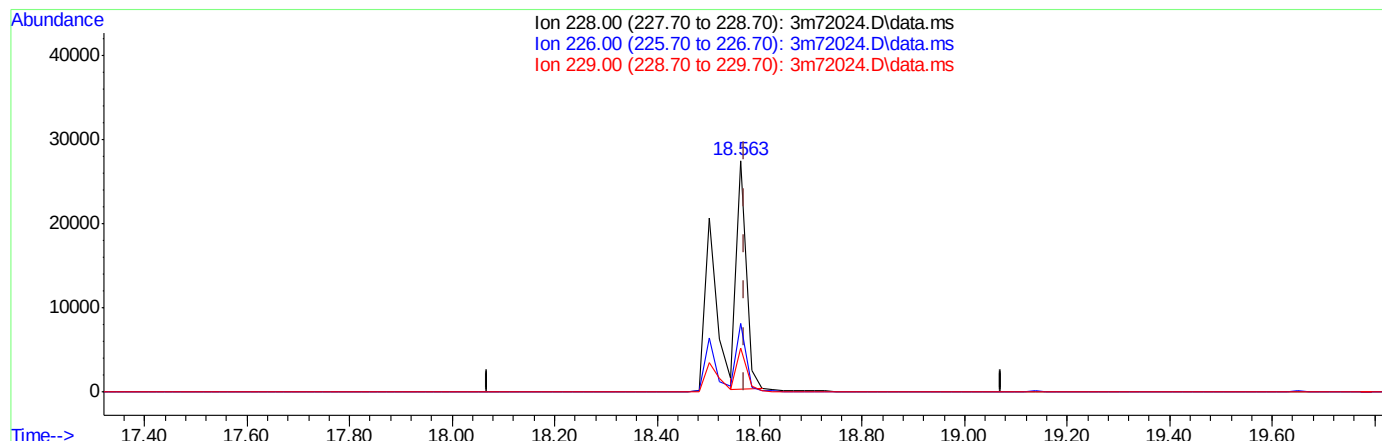
response 6592

Ion	Exp%	Act%
88.00	100	100
58.00	26.90	24.77
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 16:56:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



TIC: 3m72024.D\data.ms

(30) Chrysene (t)

18.563min (-0.007) 0.52ppm

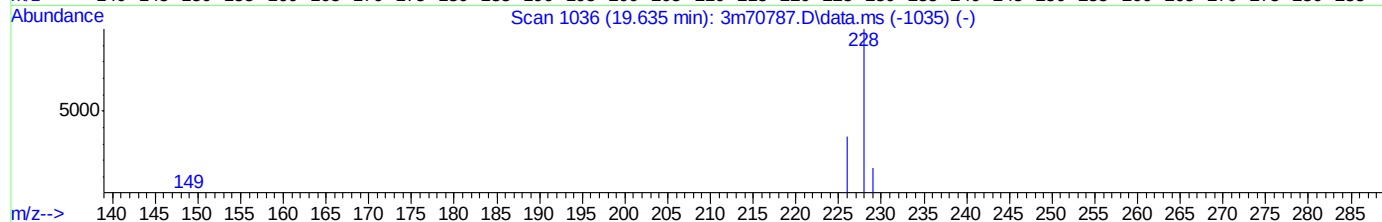
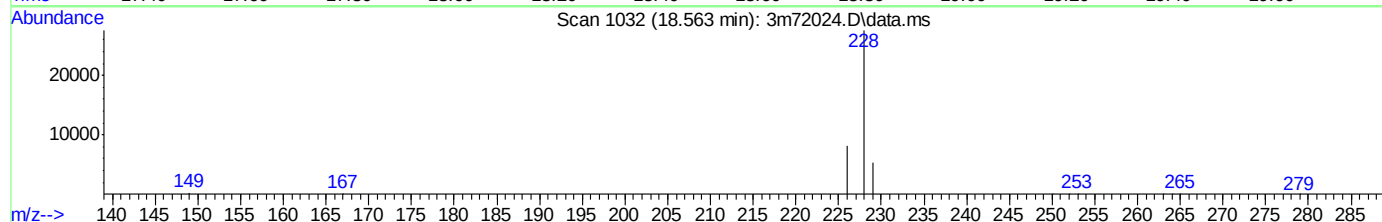
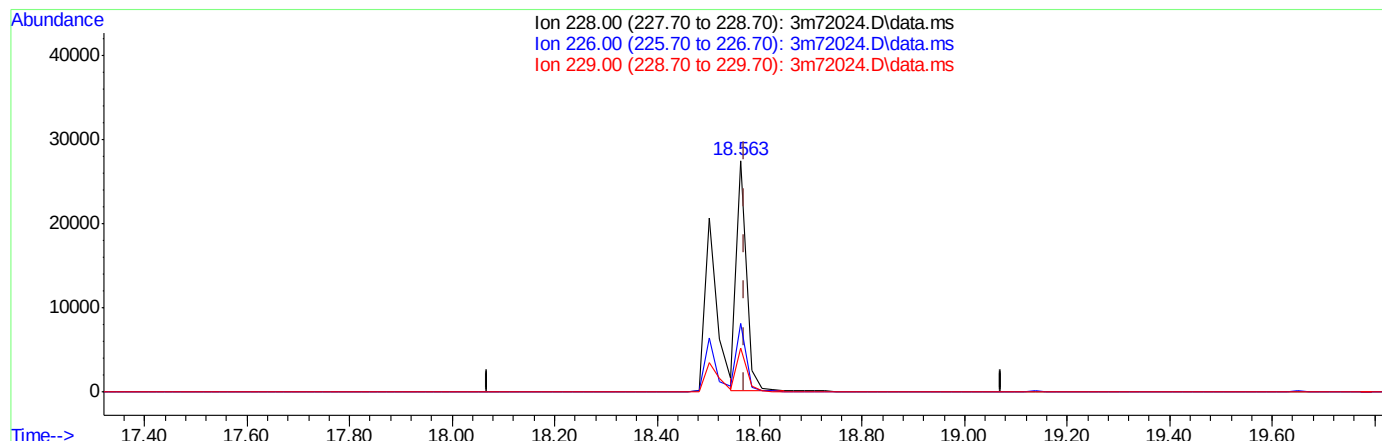
response 36297

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	28.88
229.00	20.70	19.13
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 16:56:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



TIC: 3m72024.D\data.ms

(30) Chrysene (t)

18.563min (-0.007) 0.54ppm m

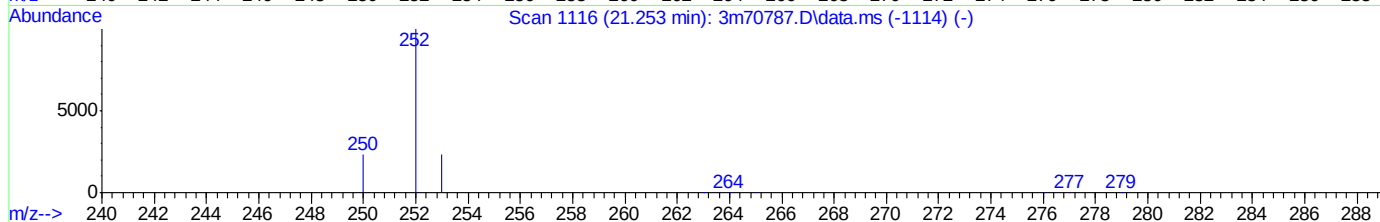
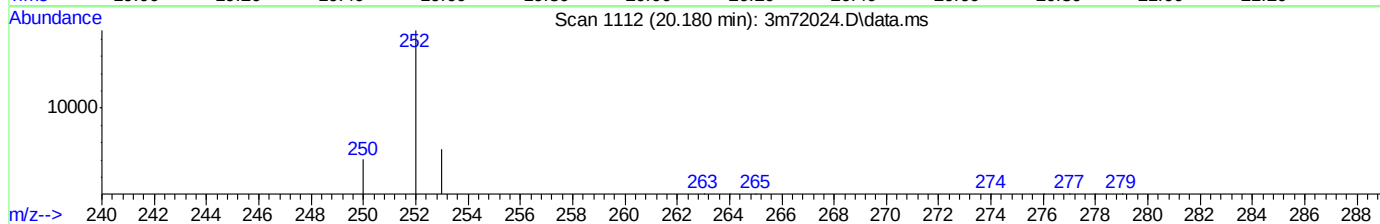
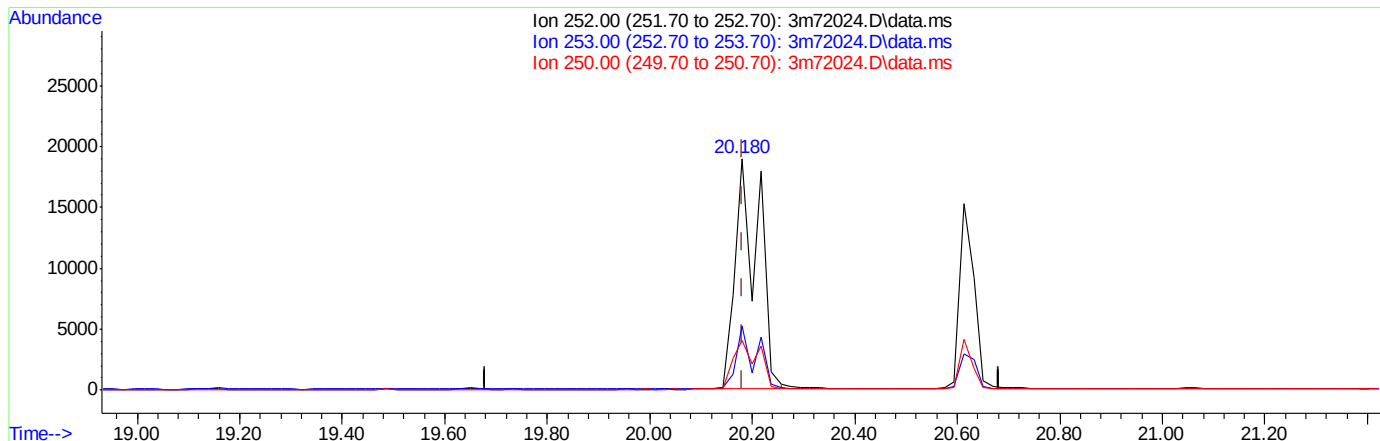
response 37589

Ion	Exp%	Act%
228.00	100	100
226.00	27.00	29.48
229.00	20.70	19.17
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 16:56:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



TIC: 3m72024.D\data.ms

(32) Benzo[b]fluoranthene (t)

20.180min (-0.001) 0.87ppm

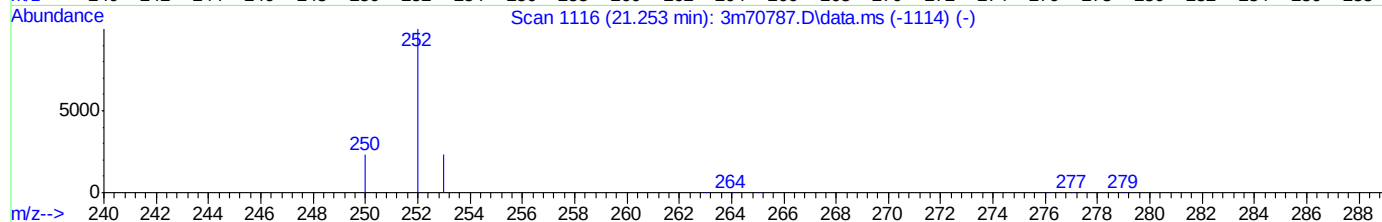
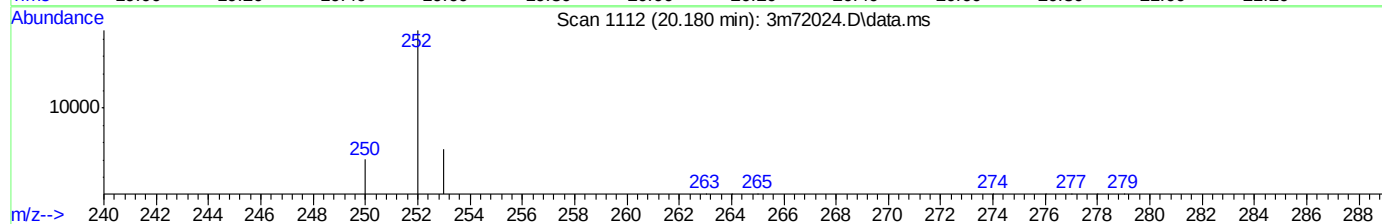
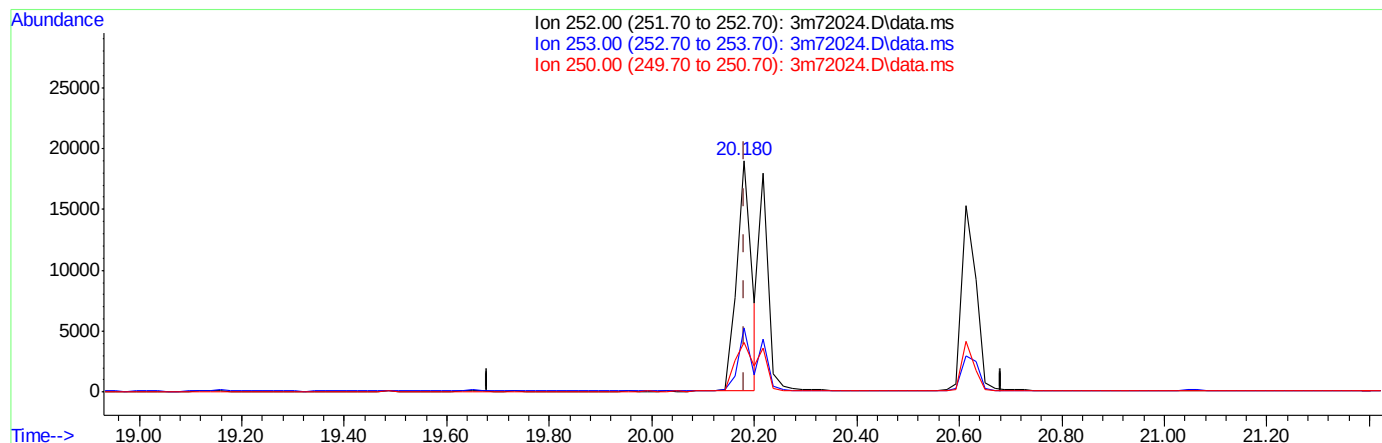
response 60130

Ion	Exp%	Act%
252.00	100	100
253.00	26.40	27.12
250.00	21.60	20.91
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 16:56:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



TIC: 3m72024.D\data.ms

(32) Benzo[b]fluoranthene (t)

20.180min (-0.001) 0.55ppm m

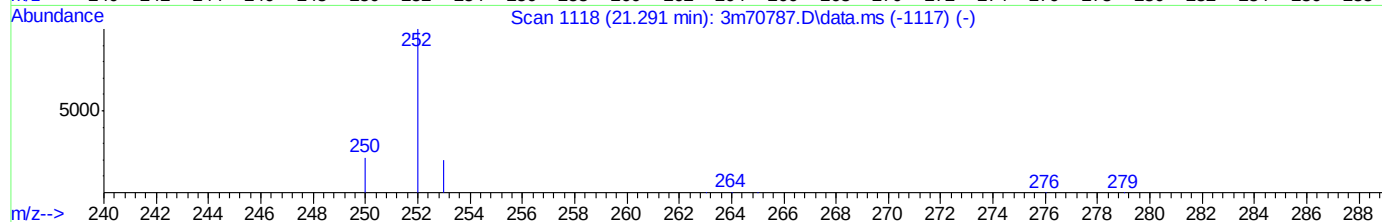
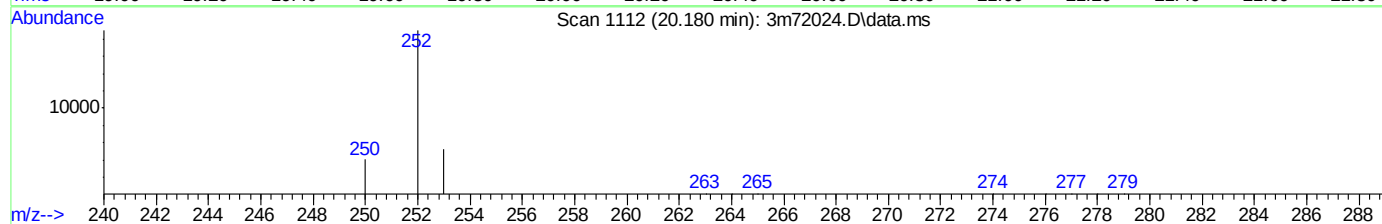
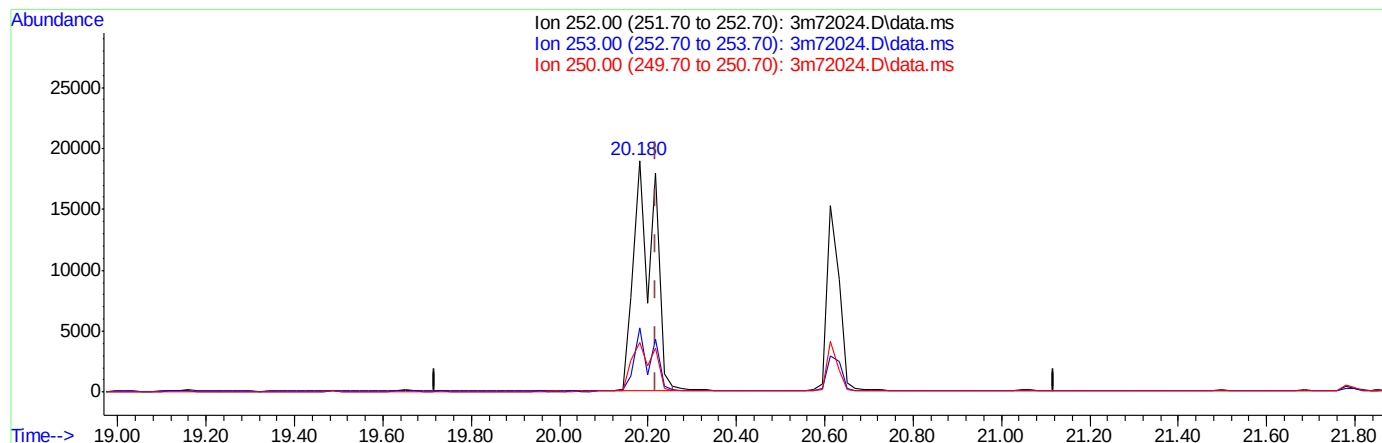
response 37937

Ion	Exp%	Act%
252.00	100	100
253.00	26.40	27.61
250.00	21.60	21.23
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 16:56:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



TIC: 3m72024.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.180min (-0.038) 1.12ppm

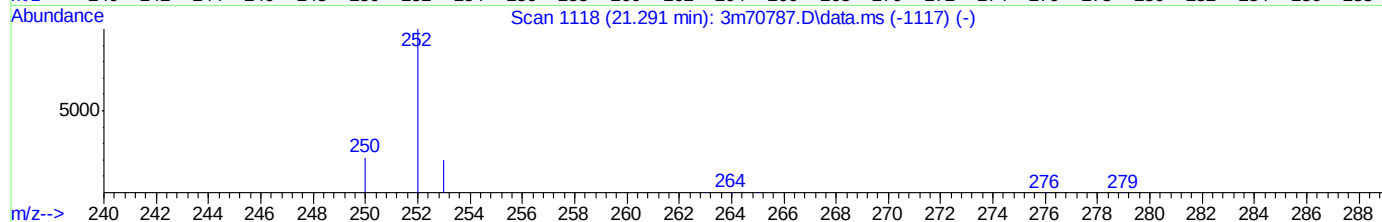
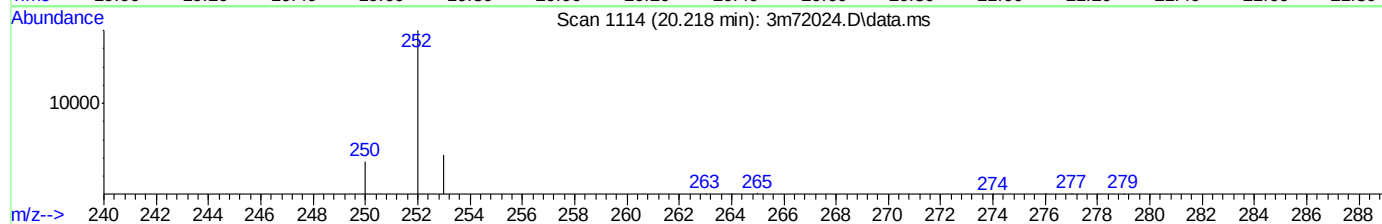
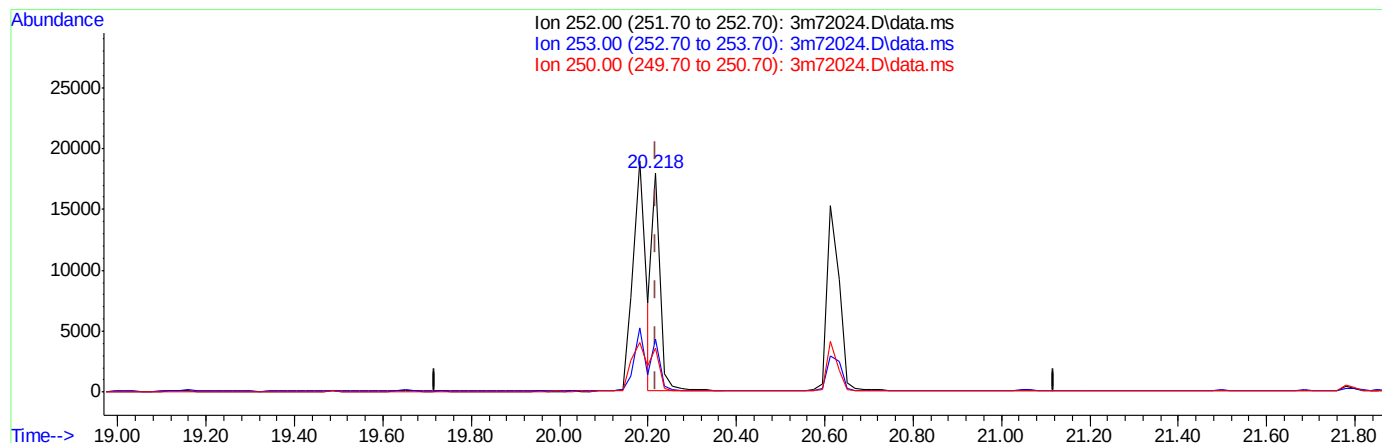
response 60130

Ion	Exp%	Act%
252.00	100	100
253.00	23.80	27.12
250.00	19.80	20.91
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E3M3454\
Data File : 3m72024.D
Acq On : 20 Oct 2017 4:33 pm
Operator : kevinm2
Sample : cc3448-.5
Misc : op6171a,e3m3454,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 20 16:56:20 2017
Quant Method : C:\MSDCHEM\1\METHODS\M3M3448SIM.M
Quant Title : Semi Volatile Extractables by GC/MS
QLast Update : Fri Oct 20 12:10:27 2017
Response via : Initial Calibration



TIC: 3m72024.D\data.ms

(33) Benzo[k]fluoranthene (t)

20.218min (-0.001) 0.42ppm m

response 22667

Ion	Exp%	Act%
252.00	100	100
253.00	23.80	24.09
250.00	19.80	20.27
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72937.D
 Acq On : 6 Sep 2017 12:45 pm
 Operator : kristis
 Sample : ic3405-5
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 06 17:54:09 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 12:30:35 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	222815	4.00	ppm	# 0.00
12) Fluorene-d10	12.539	176	386588	4.00	ppm	-0.02
22) Fluoranthene-d10	16.722	212	522497	4.00	ppm	-0.02
28) Benzo(a)pyrene-d12	21.308	264	440081	4.00	ppm	-0.03
35) 1-Methylnaphthalene-d10a	9.586	152	222815	4.00	ppm	0.00
38) Fluorene-d10a	12.539	176	386588	4.00	ppm	-0.02
System Monitoring Compounds						
2) 2-Fluorophenol	4.032	112	4716427	112.39	ppm	-0.05
Spiked Amount 50.000	Range 11 - 58		Recovery =	224.78%	#	
3) Phenol-d5	5.438	99	7122582	108.90	ppm	-0.06
Spiked Amount 50.000			Recovery =	217.80%		
6) Nitrobenzene-d5	6.794	82	6554505	121.84	ppm	-0.01
Spiked Amount 50.000			Recovery =	243.68%		
11) 2-Fluorobiphenyl	10.242	172	8893182	105.50	ppm	0.00
Spiked Amount 50.000			Recovery =	211.00%		
17) 2,4,6-Tribromophenol	13.096	330	1864400	133.79	ppm	-0.03
Spiked Amount 50.000			Recovery =	267.58%		
25) Terphenyl-d14	17.513	244	9136006	92.98	ppm	0.00
Spiked Amount 50.000			Recovery =	185.96%		
Target Compounds						
4) Phenol	5.465	94	2026374	28.91	ppm	Qvalue 90
5) bis(2-Chloroethyl)ether	5.438	93	329414	5.63	ppm	86
7) Naphthalene	8.112	128	860345	5.22	ppm	96
8) Hexachlorobutadiene	8.414	225	123715	5.22	ppm	98
10) Hexachlorocyclopentadiene	9.812	237	162540	20.70	ppm	83
13) Acenaphthylene	11.206	152	572093	5.54	ppm	99
14) Acenaphthene	11.555	153	402542	5.39	ppm	95
15) Dibenzofuran	11.924	168	512596	4.93	ppm	92
16) Fluorene	12.585	166	556369	4.95	ppm	# 74
18) Hexachlorobenzene	13.684	284	153127	4.49	ppm	80
19) Pentachlorophenol	14.161	266	420266	53.27	ppm	88
20) Phenanthrene	14.469	178	768017	4.96	ppm	90
21) Anthracene	14.571	178	734799	5.74	ppm	91
23) Fluoranthene	16.741	202	834436	4.65	ppm	98
24) Pyrene	17.136	202	889258	5.17	ppm	92
26) Benzo[a]anthracene	19.226	228	860773	7.28	ppm	# 93
27) Chrysene	19.283	228	803979	5.06	ppm	94
29) Benzo[b]fluoranthene	20.895	252	828790	5.78	ppm	93
30) Benzo[k]fluoranthene	20.922	252	763599	4.76	ppm	94
31) Benzo[a]pyrene	21.335	252	711380	4.67	ppm	94
32) Indeno[1,2,3-cd]pyrene	22.836	276	869936	5.07	ppm	85
33) Dibenzo[a,h]anthracene	22.864	278	727641	5.10	ppm	# 69
34) Benzo[g,h,i]perylene	23.208	276	745924	4.82	ppm	100
36) 1,4-Dioxane	2.170	88	104676m	5.70	ppm	
37) 1-Methylnaphthalene	9.648	142	434522	4.03	ppm	100
39) 4,6-dinitro-2-methylph...	12.789	198	353517	29.06	ppm	# 60

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72937.D
Acq On : 6 Sep 2017 12:45 pm
Operator : kristis
Sample : ic3405-5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 06 17:54:09 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

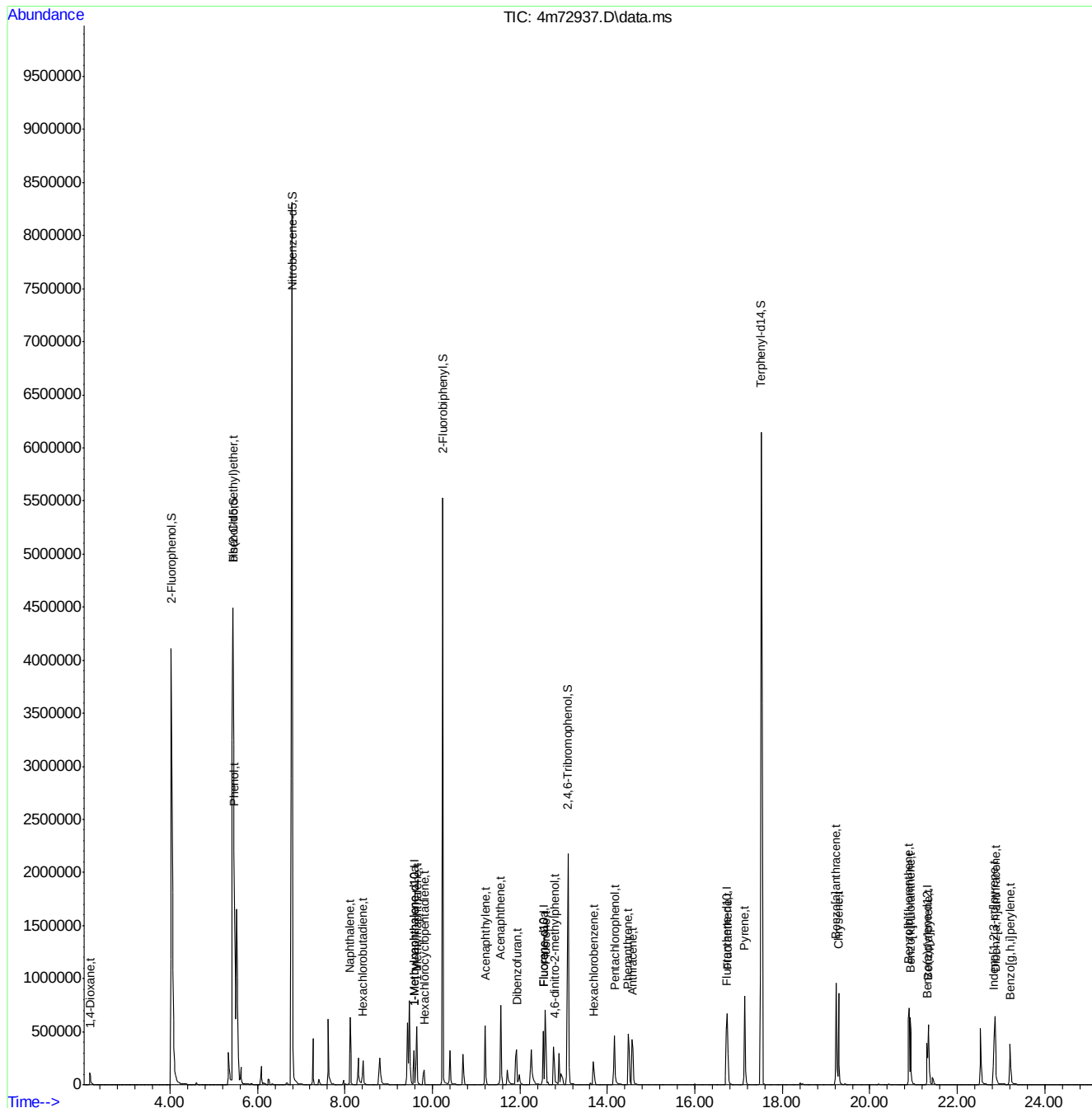
9.6.35

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72937.D
Acq On : 6 Sep 2017 12:45 pm
Operator : kristis
Sample : ic3405-5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 06 17:54:09 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E4M3405-IC3405

Method:

SW846 8270D BY SIM

Lab FileID:

4M72937.D

Analyst approved:

09/06/17 18:46 Kristi Schollenberger

Injection Time:

09/06/17 12:45

Supervisor approved:

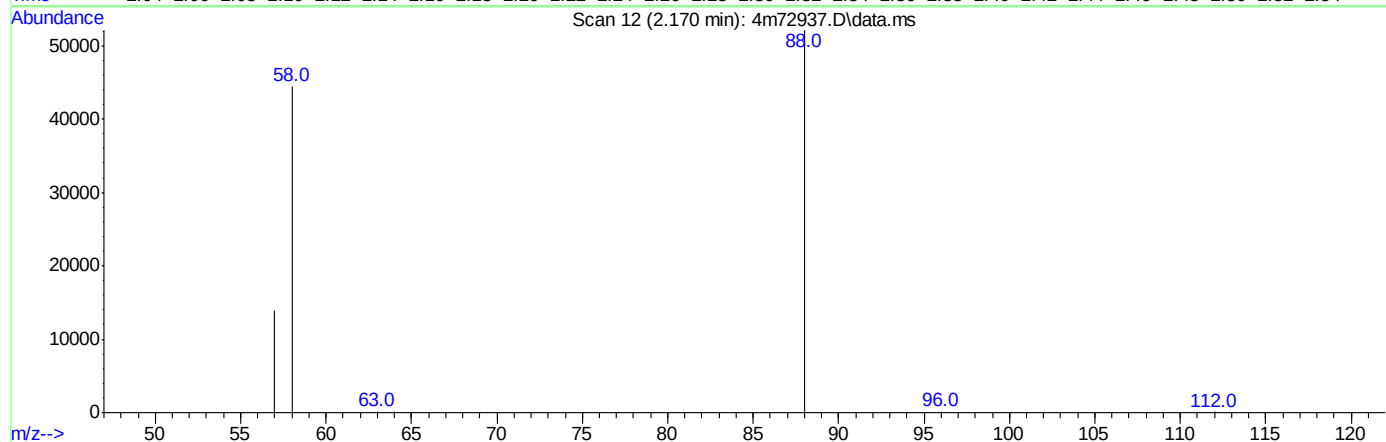
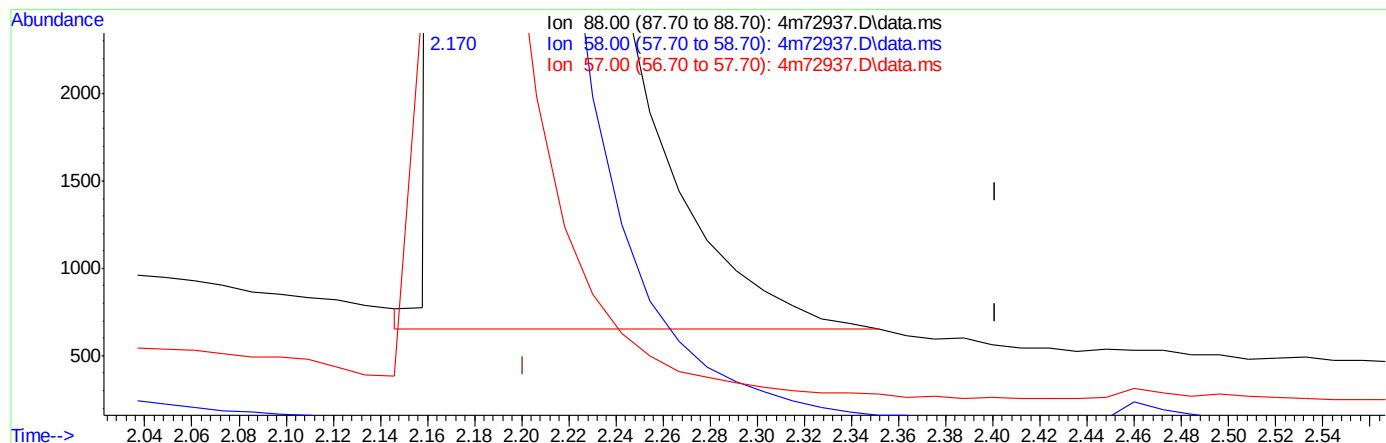
09/07/17 11:31 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.17	Poor instrument integration

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72937.D
Acq On : 6 Sep 2017 12:45 pm
Operator : kristis
Sample : ic3405-5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 06 15:19:08 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



(36) 1,4-Dioxane (t)

2.170min (-0.031) 5.74ppm

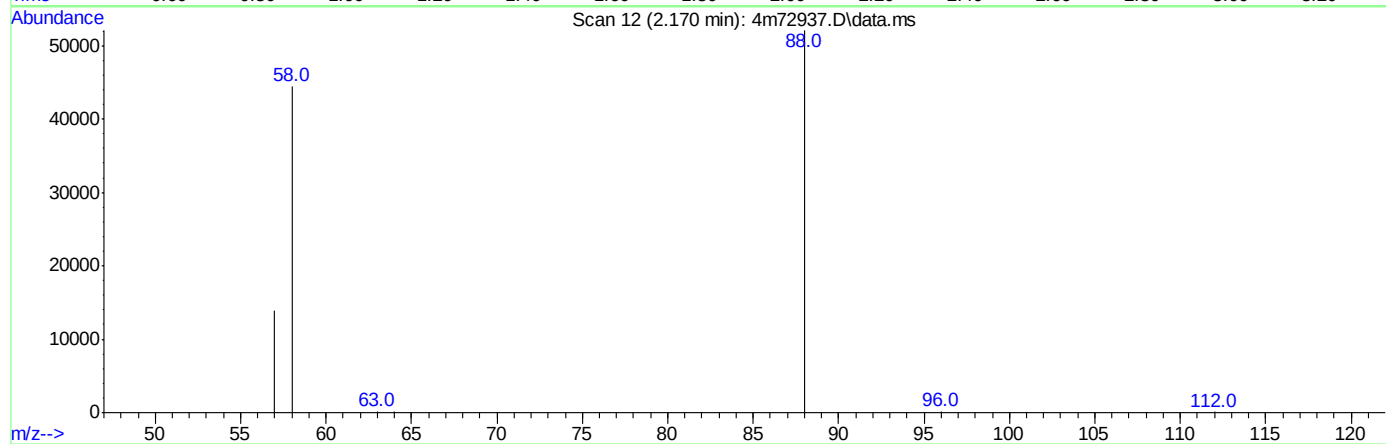
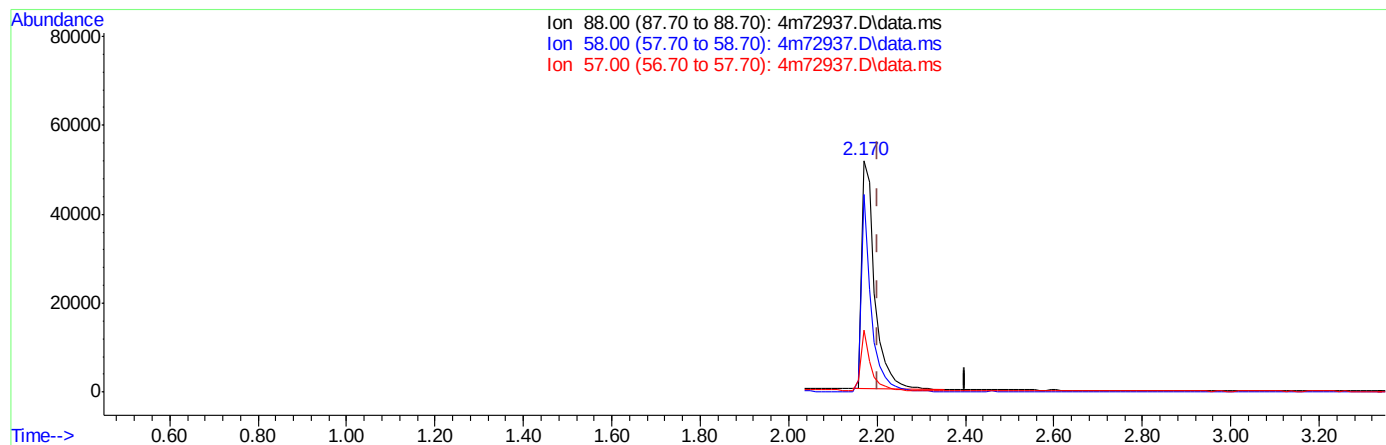
response 105336

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	86.23#
57.00	14.40	26.34
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72937.D
Acq On : 6 Sep 2017 12:45 pm
Operator : kristis
Sample : ic3405-5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Sep 06 15:19:08 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



TIC: 4m72937.D\data.ms

(36) 1,4-Dioxane (t)

2.170min (-0.031) 5.70ppm m

response 104676

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	85.35#
57.00	14.40	26.61
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72938.D
 Acq On : 6 Sep 2017 1:17 pm
 Operator : kristis
 Sample : ic3405-2.5
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 06 17:54:18 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 12:30:35 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	215833	4.00	ppm	0.00
12) Fluorene-d10	12.539	176	313467	4.00	ppm	-0.02
22) Fluoranthene-d10	16.722	212	498274	4.00	ppm	-0.02
28) Benzo(a)pyrene-d12	21.308	264	390988	4.00	ppm	-0.03
35) 1-Methylnaphthalene-d10a	9.586	152	215833	4.00	ppm	0.00
38) Fluorene-d10a	12.539	176	313467	4.00	ppm	-0.02
System Monitoring Compounds						
2) 2-Fluorophenol	4.056	112	2145466	52.78	ppm	-0.03
Spiked Amount 50.000	Range 11 - 58		Recovery =	105.56%		
3) Phenol-d5	5.452	99	3281570	51.80	ppm	-0.04
Spiked Amount 50.000			Recovery =	103.60%		
6) Nitrobenzene-d5	6.775	82	2545287	48.85	ppm	-0.03
Spiked Amount 50.000			Recovery =	97.70%		
11) 2-Fluorobiphenyl	10.222	172	3801959	46.56	ppm	-0.02
Spiked Amount 50.000			Recovery =	93.12%		
17) 2,4,6-Tribromophenol	13.096	330	901336	79.77	ppm	-0.03
Spiked Amount 50.000			Recovery =	159.54%		
25) Terphenyl-d14	17.513	244	4562786	48.70	ppm	0.00
Spiked Amount 50.000			Recovery =	97.40%		
Target Compounds						
4) Phenol	5.479	94	897927	13.23	ppm	97
5) bis(2-Chloroethyl)ether	5.452	93	141150	2.49	ppm	# 54
7) Naphthalene	8.112	128	382870	2.40	ppm	94
8) Hexachlorobutadiene	8.414	225	56823	2.47	ppm	97
10) Hexachlorocyclopentadiene	9.812	237	54762	7.20	ppm	84
13) Acenaphthylene	11.206	152	286447	3.42	ppm	98
14) Acenaphthene	11.555	153	186213	3.08	ppm	90
15) Dibenzofuran	11.924	168	240664	2.86	ppm	100
16) Fluorene	12.585	166	264244	2.90	ppm	77
18) Hexachlorobenzene	13.684	284	69532	2.51	ppm	78
19) Pentachlorophenol	14.161	266	163214	25.51	ppm	98
20) Phenanthrene	14.489	178	339789	2.71	ppm	98
21) Anthracene	14.592	178	318513	3.07	ppm	96
23) Fluoranthene	16.741	202	369143	2.16	ppm	96
24) Pyrene	17.136	202	403413	2.46	ppm	96
26) Benzo[a]anthracene	19.226	228	339108	3.01	ppm	97
27) Chrysene	19.283	228	345165	2.28	ppm	98
29) Benzo[b]fluoranthene	20.895	252	340879	2.68	ppm	96
30) Benzo[k]fluoranthene	20.936	252	335665	2.35	ppm	96
31) Benzo[a]pyrene	21.349	252	308933	2.28	ppm	97
32) Indeno[1,2,3-cd]pyrene	22.850	276	369412	2.42	ppm	93
33) Dibenzo[a,h]anthracene	22.864	278	307145	2.42	ppm	76
34) Benzo[g,h,i]perylene	23.208	276	318758	2.32	ppm	99
36) 1,4-Dioxane	2.182	88	45397m	2.55	ppm	
37) 1-Methylnaphthalene	9.648	142	213088	2.04	ppm	93
39) 4,6-dinitro-2-methylph...	12.789	198	141502	14.82	ppm	70

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72938.D
Acq On : 6 Sep 2017 1:17 pm
Operator : kristis
Sample : ic3405-2.5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 06 17:54:18 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration

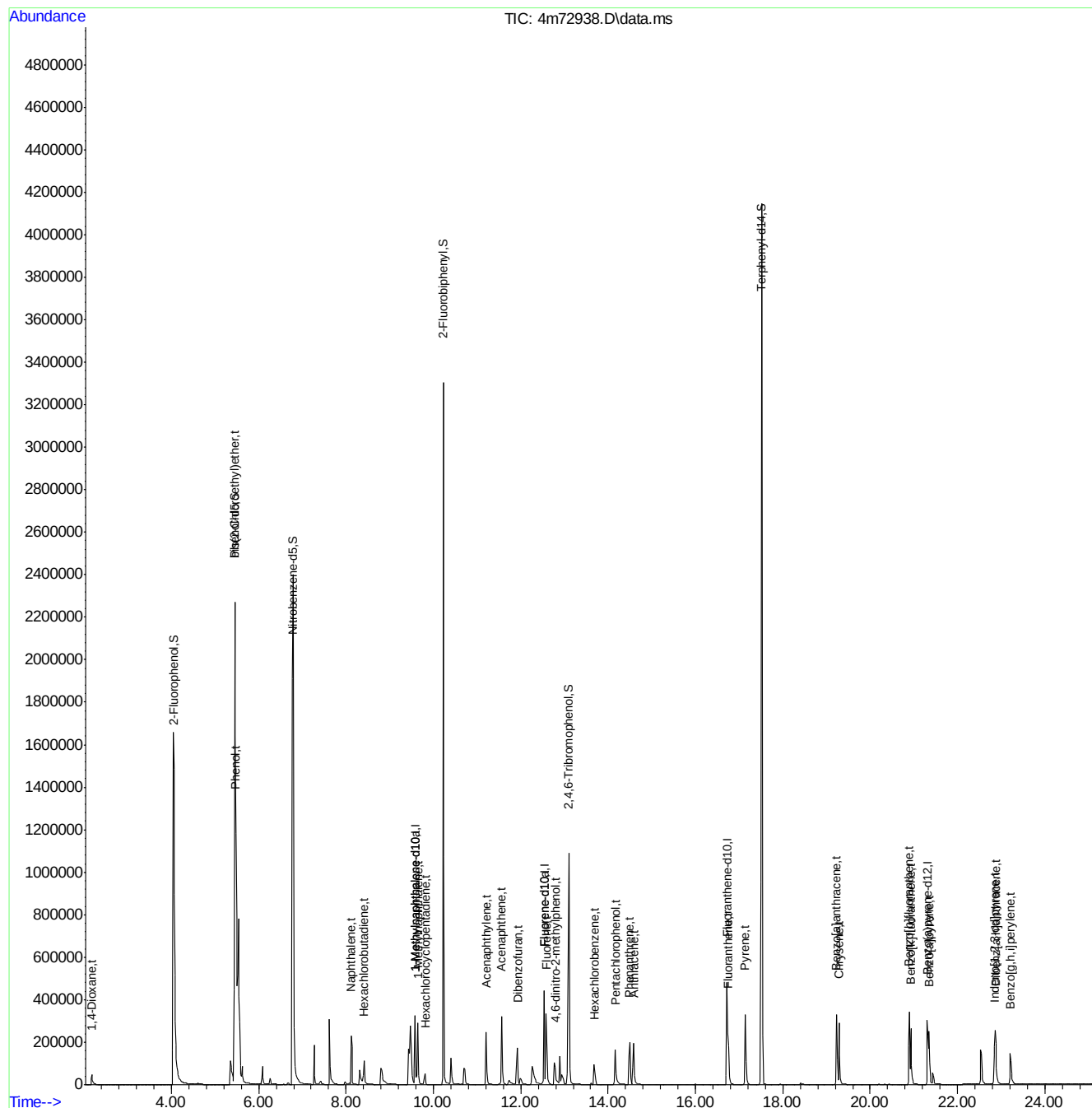
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72938.D
Acq On : 6 Sep 2017 1:17 pm
Operator : kristis
Sample : ic3405-2.5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 06 17:54:18 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E4M3405-IC3405

Method:

SW846 8270D BY SIM

Lab FileID:

4M72938.D

Analyst approved:

09/06/17 18:46 Kristi Schollenberger

Injection Time:

09/06/17 13:17

Supervisor approved:

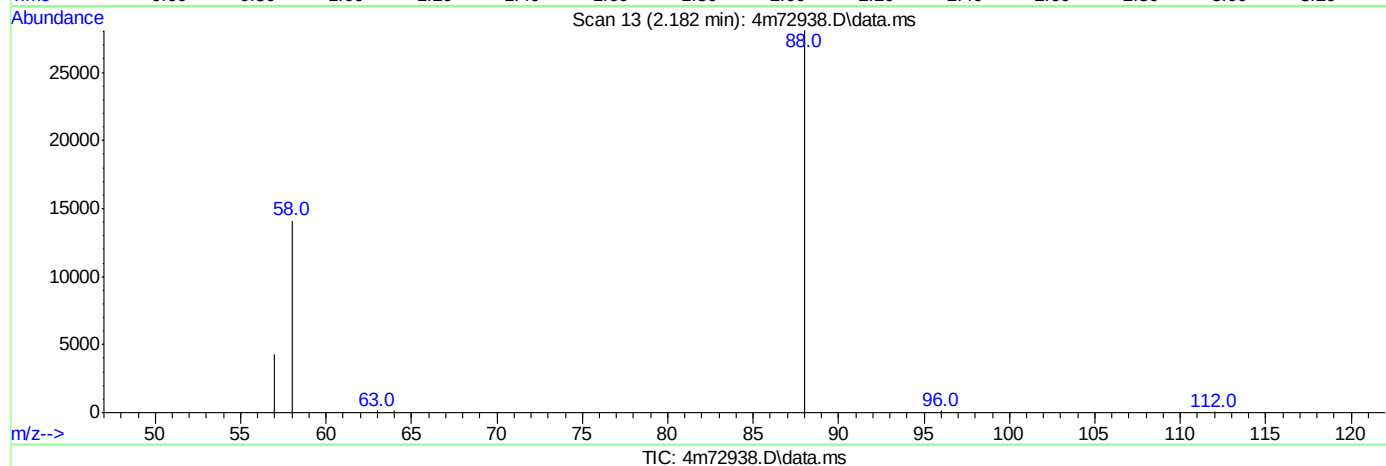
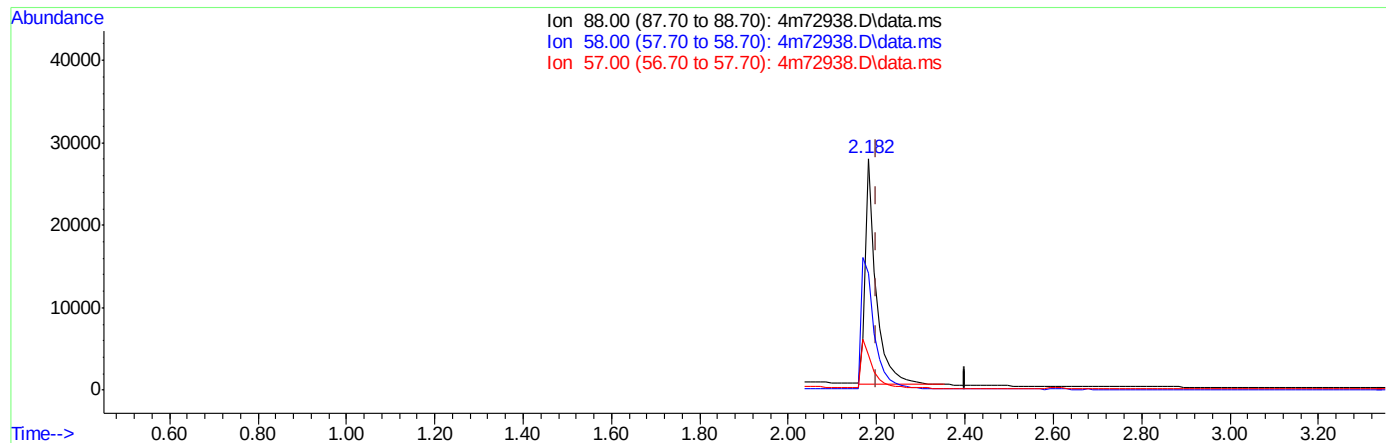
09/07/17 11:31 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.18	Poor instrument integration

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72938.D
Acq On : 6 Sep 2017 1:17 pm
Operator : kristis
Sample : ic3405-2.5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 06 15:20:08 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



(36) 1,4-Dioxane (t)

2.182min (-0.019) 2.60ppm

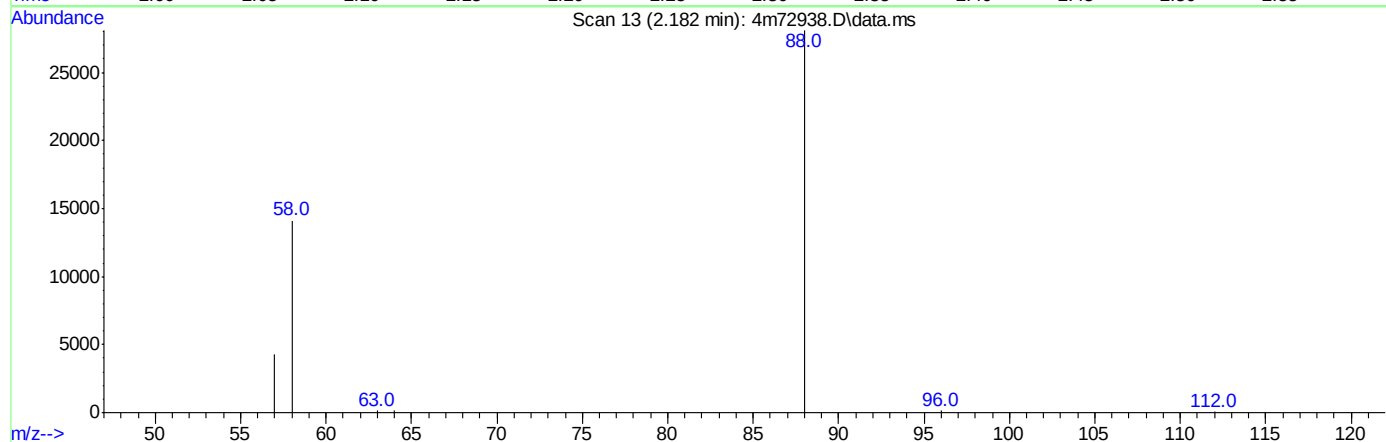
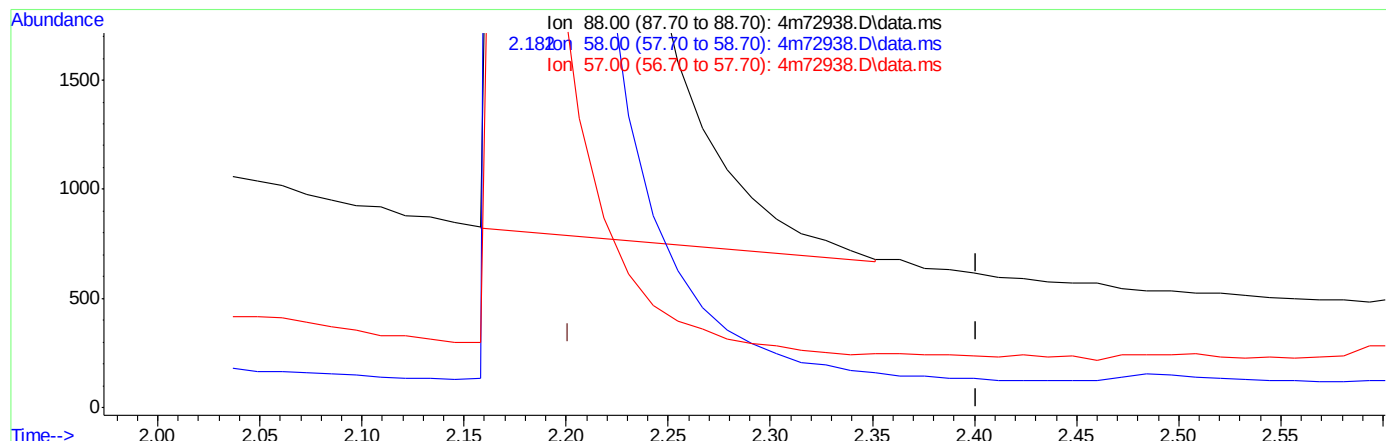
response 46192

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	51.15
57.00	14.40	14.79
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72938.D
Acq On : 6 Sep 2017 1:17 pm
Operator : kristis
Sample : ic3405-2.5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 06 15:20:08 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



TIC: 4m72938.D\data.ms

(36) 1,4-Dioxane (t)

2.182min (-0.019) 2.55ppm m

response 45397

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	50.30
57.00	14.40	15.37
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72939.D
 Acq On : 6 Sep 2017 1:49 pm
 Operator : kristis
 Sample : icc3405-1
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 06 17:54:27 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 12:30:35 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	221250	4.00	ppm	0.00
12) Fluorene-d10	12.539	176	265536	4.00	ppm	-0.02
22) Fluoranthene-d10	16.722	212	505366	4.00	ppm	-0.02
28) Benzo(a)pyrene-d12	21.308	264	372228	4.00	ppm	-0.03
35) 1-Methylnaphthalene-d10a	9.586	152	220765	4.00	ppm	0.00
38) Fluorene-d10a	12.539	176	265536	4.00	ppm	-0.02
System Monitoring Compounds						
2) 2-Fluorophenol	4.068	112	865878	20.78	ppm	-0.02
Spiked Amount 50.000	Range 11 - 58		Recovery =	41.56%		
3) Phenol-d5	5.479	99	1311426	20.19	ppm	-0.02
Spiked Amount 50.000			Recovery =	40.38%		
6) Nitrobenzene-d5	6.794	82	1063434	19.91	ppm	-0.01
Spiked Amount 50.000			Recovery =	39.82%		
11) 2-Fluorobiphenyl	10.222	172	1656317	19.79	ppm	-0.02
Spiked Amount 50.000			Recovery =	39.58%		
17) 2,4,6-Tribromophenol	13.096	330	322919	33.74	ppm	-0.03
Spiked Amount 50.000			Recovery =	67.48%		
25) Terphenyl-d14	17.513	244	2144431	22.57	ppm	0.00
Spiked Amount 50.000			Recovery =	45.14%		
Target Compounds						
4) Phenol	5.506	94	369670	5.31	ppm	93
5) bis(2-Chloroethyl)ether	5.451	93	54722	0.94	ppm	99
7) Naphthalene	8.131	128	161407	0.99	ppm	100
8) Hexachlorobutadiene	8.414	225	23591	1.00	ppm	95
10) Hexachlorocyclopentadiene	9.812	237	16226	2.08	ppm	89
13) Acenaphthylene	11.206	152	105138	1.48	ppm	92
14) Acenaphthene	11.555	153	69266	1.35	ppm	80
15) Dibenzofuran	11.924	168	103651	1.45	ppm	52
16) Fluorene	12.585	166	109136	1.41	ppm	88
18) Hexachlorobenzene	13.684	284	22744	0.97	ppm	69
19) Pentachlorophenol	14.181	266	45446	8.39	ppm	95
20) Phenanthrene	14.489	178	146289	1.38	ppm	98
21) Anthracene	14.591	178	138182	1.57	ppm	97
23) Fluoranthene	16.760	202	147255	0.85	ppm	94
24) Pyrene	17.155	202	144370	0.87	ppm	88
26) Benzo[a]anthracene	19.245	228	111569	0.98	ppm	# 85
27) Chrysene	19.301	228	133168	0.87	ppm	89
29) Benzo[b]fluoranthene	20.895	252	133899	1.10	ppm	95
30) Benzo[k]fluoranthene	20.936	252	126319	0.93	ppm	96
31) Benzo[a]pyrene	21.349	252	111993	0.87	ppm	99
32) Indeno[1,2,3-cd]pyrene	22.864	276	140620	0.97	ppm	63
33) Dibenz[a,h]anthracene	22.877	278	117057	0.97	ppm	88
34) Benzo[g,h,i]perylene	23.222	276	123493	0.94	ppm	99
36) 1,4-Dioxane	2.182	88	19429m	1.07	ppm	
37) 1-Methylnaphthalene	9.648	142	92378	0.86	ppm	80
39) 4,6-dinitro-2-methylph...	12.789	198	51241	6.87	ppm	89

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72939.D
Acq On : 6 Sep 2017 1:49 pm
Operator : kristis
Sample : icc3405-1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 06 17:54:27 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

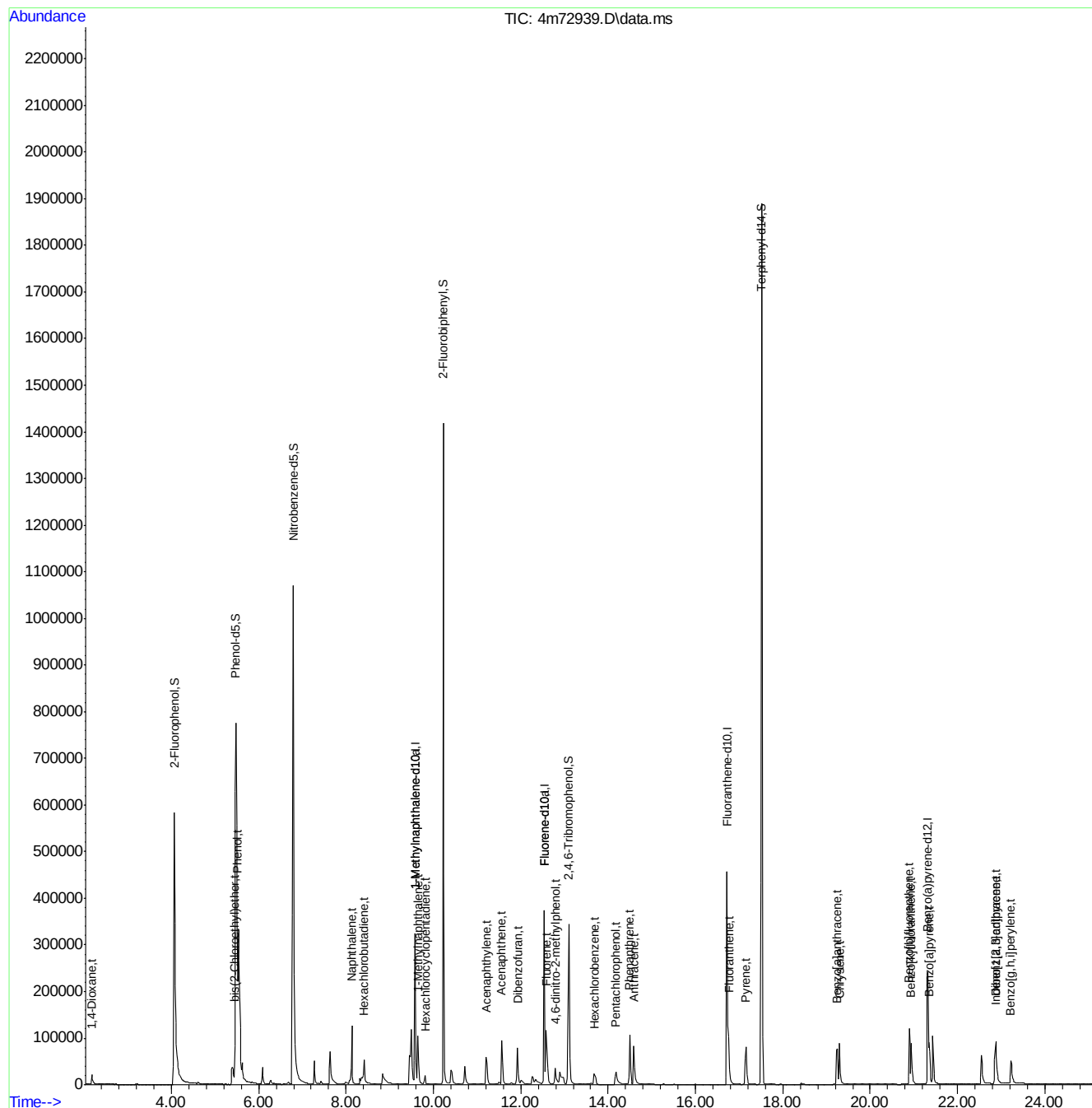
9.6.37

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72939.D
Acq On : 6 Sep 2017 1:49 pm
Operator : kristis
Sample : icc3405-1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 06 17:54:27 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E4M3405-ICC3405

Method:

SW846 8270D BY SIM

Lab FileID:

4M72939.D

Analyst approved:

09/06/17 18:46 Kristi Schollenberger

Injection Time:

09/06/17 13:49

Supervisor approved:

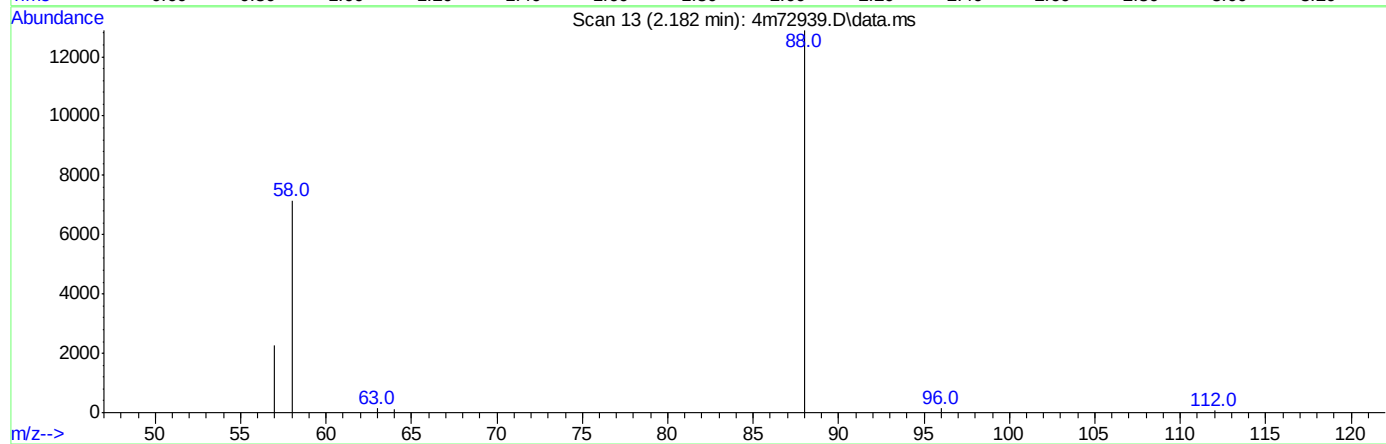
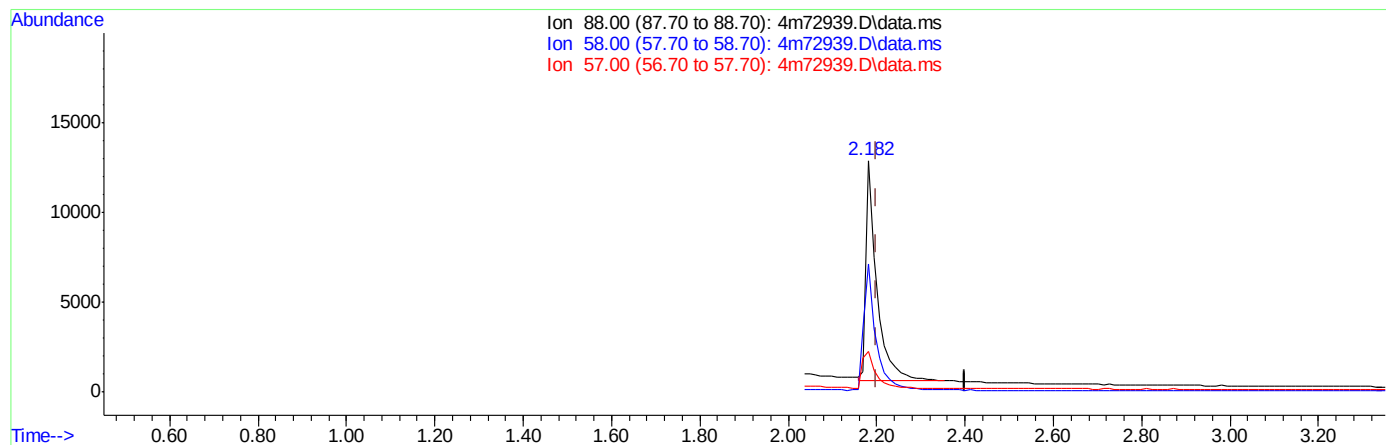
09/07/17 11:31 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.18	Poor instrument integration

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72939.D
Acq On : 6 Sep 2017 1:49 pm
Operator : kristis
Sample : icc3405-1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 06 15:21:15 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



TIC: 4m72939.D\data.ms

(36) 1,4-Dioxane (t)

2.182min (-0.019) 1.13ppm

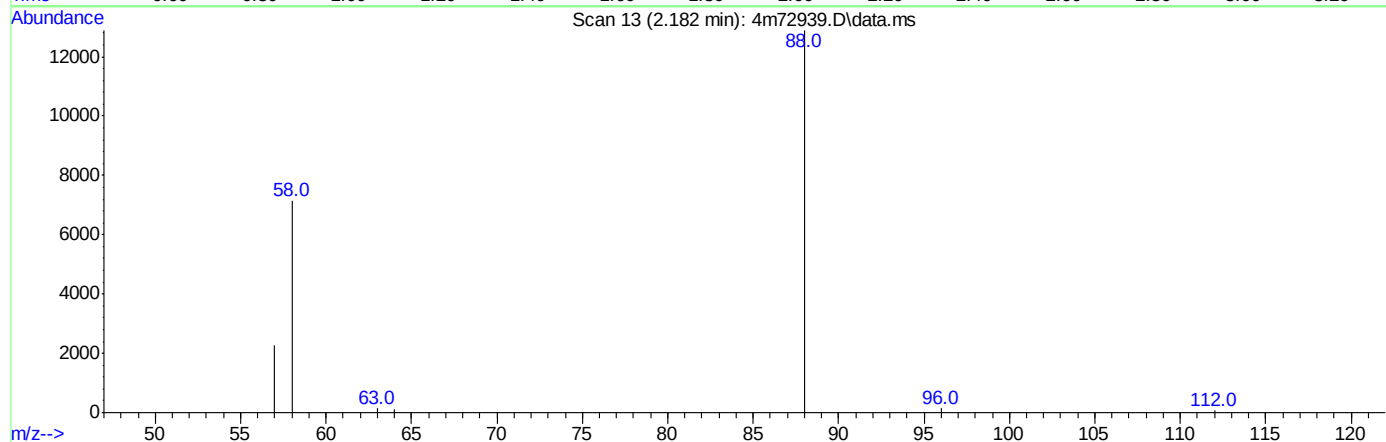
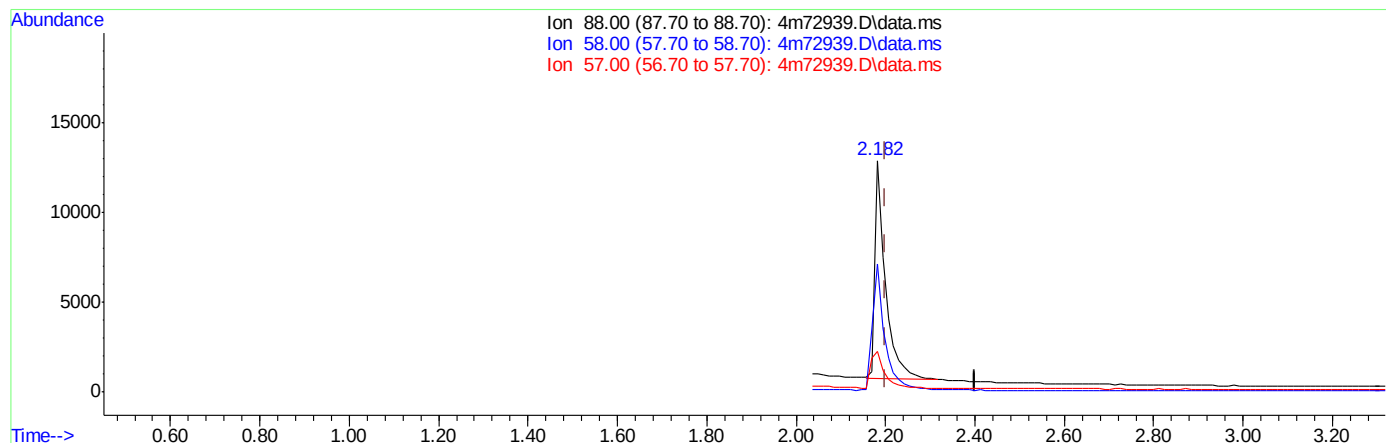
response 20583

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	57.53
57.00	14.40	16.69
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72939.D
Acq On : 6 Sep 2017 1:49 pm
Operator : kristis
Sample : icc3405-1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 06 15:21:15 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



TIC: 4m72939.D\data.ms

(36) 1,4-Dioxane (t)

2.182min (-0.019) 1.07ppm m

response 19429

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	55.29
57.00	14.40	17.46
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72940.D
 Acq On : 6 Sep 2017 2:21 pm
 Operator : kristis
 Sample : ic3405-0.5
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 06 17:54:36 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Tue Sep 05 10:26:47 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	216391	4.00	ppm	0.00
12) Fluorene-d10	12.539	176	258927	4.00	ppm	-0.02
22) Fluoranthene-d10	16.722	212	493499	4.00	ppm	-0.02
28) Benzo(a)pyrene-d12	21.322	264	357889	4.00	ppm	-0.01
35) 1-Methylnaphthalene-d10a	9.586	152	216391	4.00	ppm	0.00
38) Fluorene-d10a	12.539	176	258927	4.00	ppm	-0.02
System Monitoring Compounds						
2) 2-Fluorophenol	4.080	112	421069	10.33	ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery =	20.66%		
3) Phenol-d5	5.493	99	661865	10.42	ppm	0.00
Spiked Amount 50.000			Recovery =	20.84%		
6) Nitrobenzene-d5	6.794	82	568565	10.88	ppm	-0.01
Spiked Amount 50.000			Recovery =	21.76%		
11) 2-Fluorobiphenyl	10.222	172	806008	9.85	ppm	-0.02
Spiked Amount 50.000			Recovery =	19.70%		
17) 2,4,6-Tribromophenol	13.096	330	132514	14.20	ppm	-0.03
Spiked Amount 50.000			Recovery =	28.40%		
25) Terphenyl-d14	17.513	244	1002210	10.80	ppm	0.00
Spiked Amount 50.000			Recovery =	21.60%		
Target Compounds						
4) Phenol	5.520	94	177249	2.60	ppm	93
5) bis(2-Chloroethyl)ether	5.465	93	24979	0.44	ppm	# 41
7) Naphthalene	8.131	128	84647	0.53	ppm	95
8) Hexachlorobutadiene	8.414	225	11842	0.51	ppm	92
10) Hexachlorocyclopentadiene	9.812	237	5188	0.68	ppm	91
13) Acenaphthylene	11.227	152	48326	0.70	ppm	100
14) Acenaphthene	11.575	153	32686	0.65	ppm	98
15) Dibenzofuran	11.944	168	48977	0.70	ppm	66
16) Fluorene	12.585	166	49200	0.65	ppm	96
18) Hexachlorobenzene	13.710	284	11185	0.49	ppm	93
19) Pentachlorophenol	14.181	266	18035	3.41	ppm	95
20) Phenanthrene	14.489	178	70174	0.68	ppm	93
21) Anthracene	14.612	178	60010	0.70	ppm	99
23) Fluoranthene	16.760	202	73016	0.43	ppm	97
24) Pyrene	17.155	202	72478	0.45	ppm	92
26) Benzo[a]anthracene	19.245	228	57713	0.52	ppm	# 90
27) Chrysene	19.302	228	66430	0.44	ppm	94
29) Benzo[b]fluoranthene	20.909	252	67365	0.58	ppm	97
30) Benzo[k]fluoranthene	20.950	252	55789	0.43	ppm	98
31) Benzo[a]pyrene	21.363	252	58996	0.48	ppm	97
32) Indeno[1,2,3-cd]pyrene	22.877	276	68303	0.49	ppm	# 24
33) Dibenzo[a,h]anthracene	22.891	278	55350	0.48	ppm	93
34) Benzo[g,h,i]perylene	23.235	276	60143	0.48	ppm	99
36) 1,4-Dioxane	2.182	88	9416m	0.53	ppm	
37) 1-Methylnaphthalene	9.668	142	47111	0.45	ppm	97
39) 4,6-dinitro-2-methylph...	12.815	198	14439	2.65	ppm	92

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72940.D
Acq On : 6 Sep 2017 2:21 pm
Operator : kristis
Sample : ic3405-0.5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 06 17:54:36 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Tue Sep 05 10:26:47 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

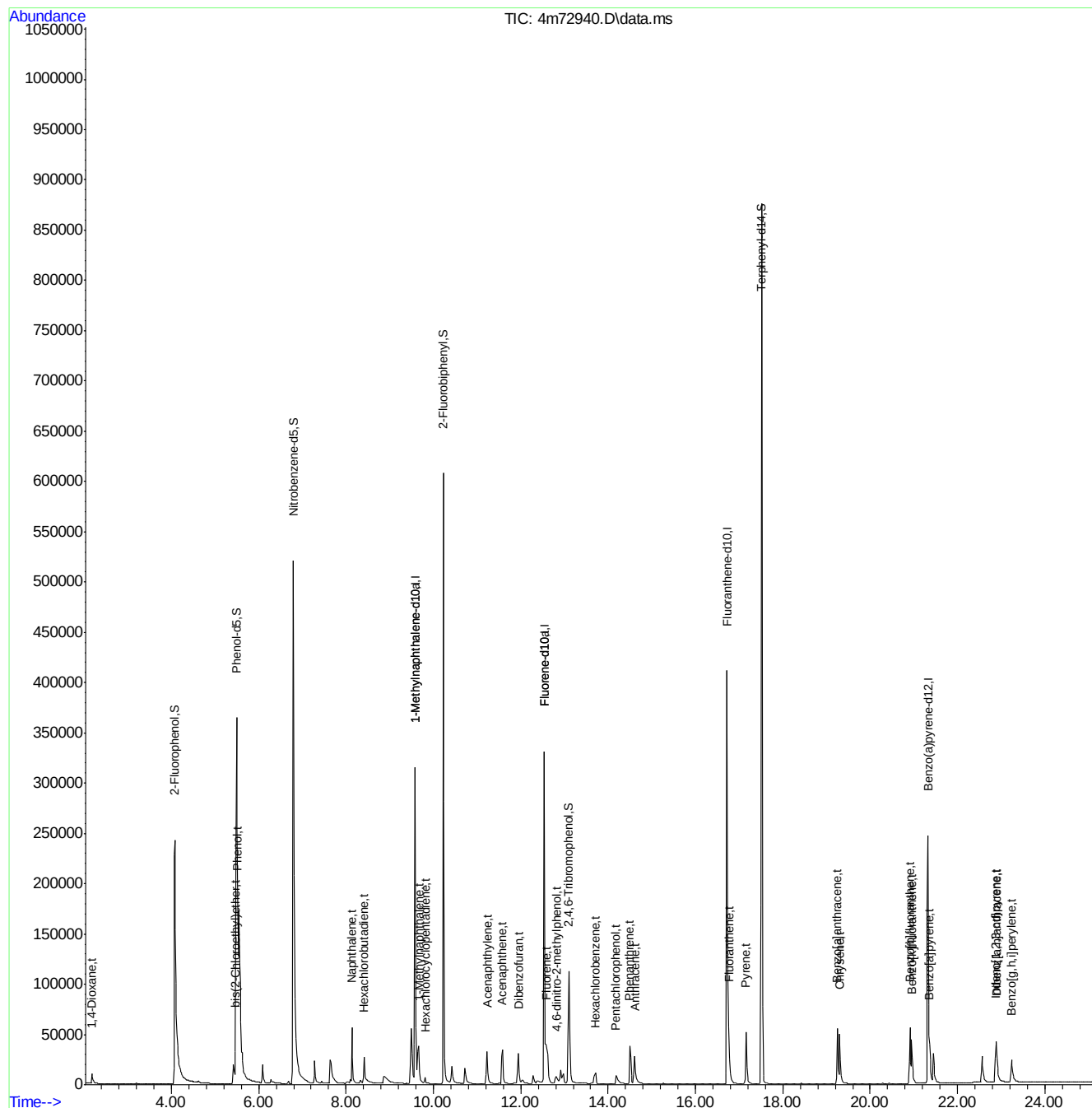
9.6.38

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72940.D
Acq On : 6 Sep 2017 2:21 pm
Operator : kristis
Sample : ic3405-0.5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 06 17:54:36 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Tue Sep 05 10:26:47 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E4M3405-IC3405

Lab FileID:

4M72940.D

Injection Time:

09/06/17 14:21

Method:

SW846 8270D BY SIM

Analyst approved:

09/06/17 18:48 Kristi Schollenberger

Supervisor approved:

09/07/17 11:31 Nina Pandya

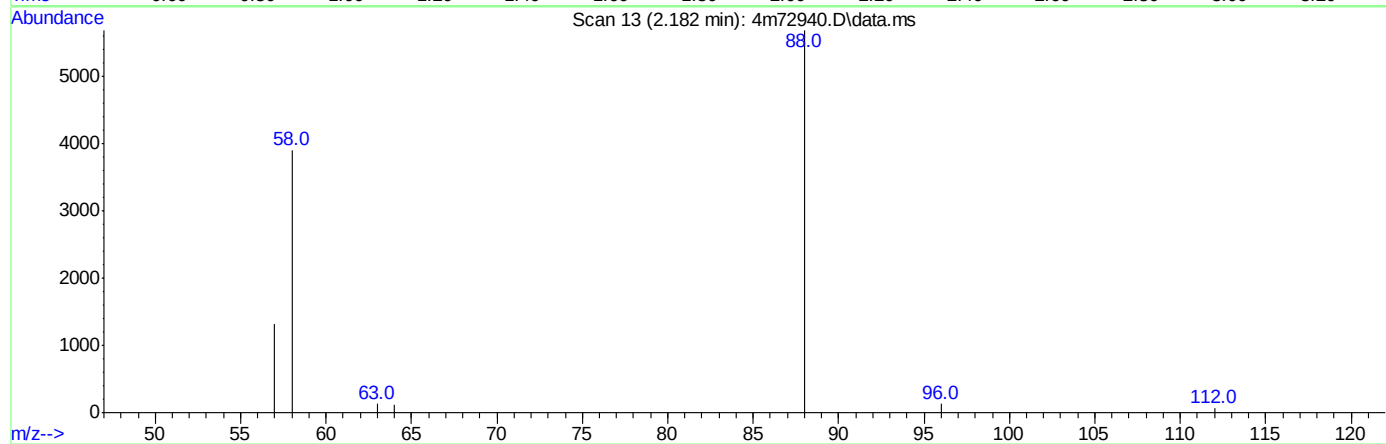
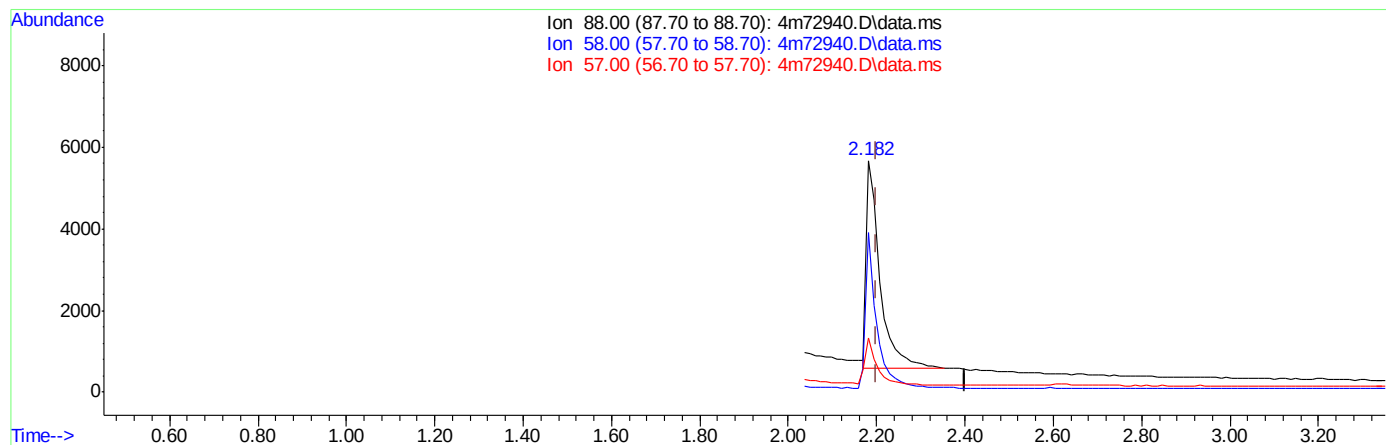
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.18	Poor instrument integration

9.6.38.1
9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72940.D
Acq On : 6 Sep 2017 2:21 pm
Operator : kristis
Sample : ic3405-0.5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 06 14:46:58 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Tue Sep 05 10:26:47 2017
Response via : Initial Calibration



TIC: 4m72940.D\data.ms

(36) 1,4-Dioxane (t)

2.182min (-0.019) 0.60ppm

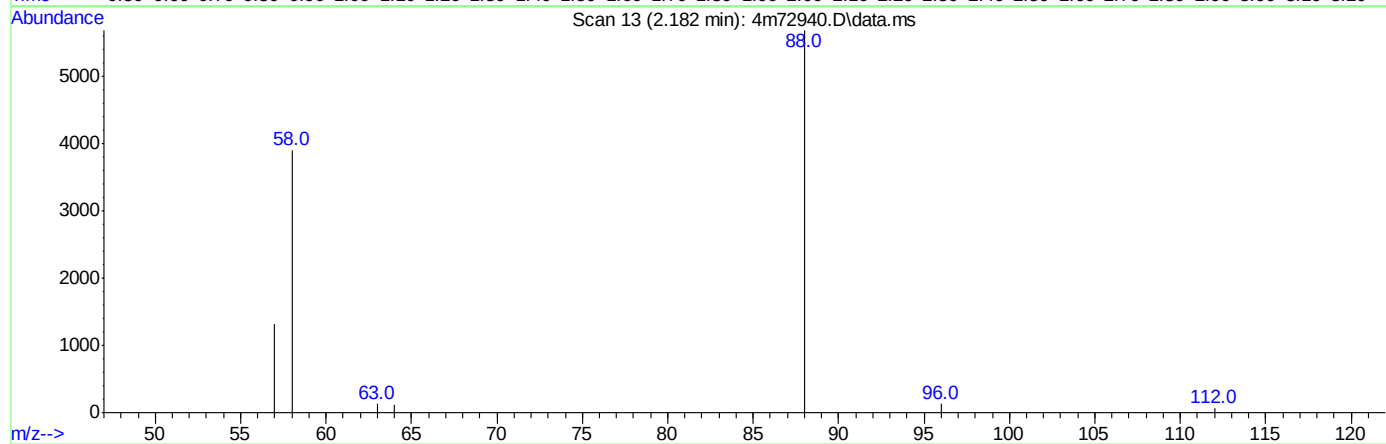
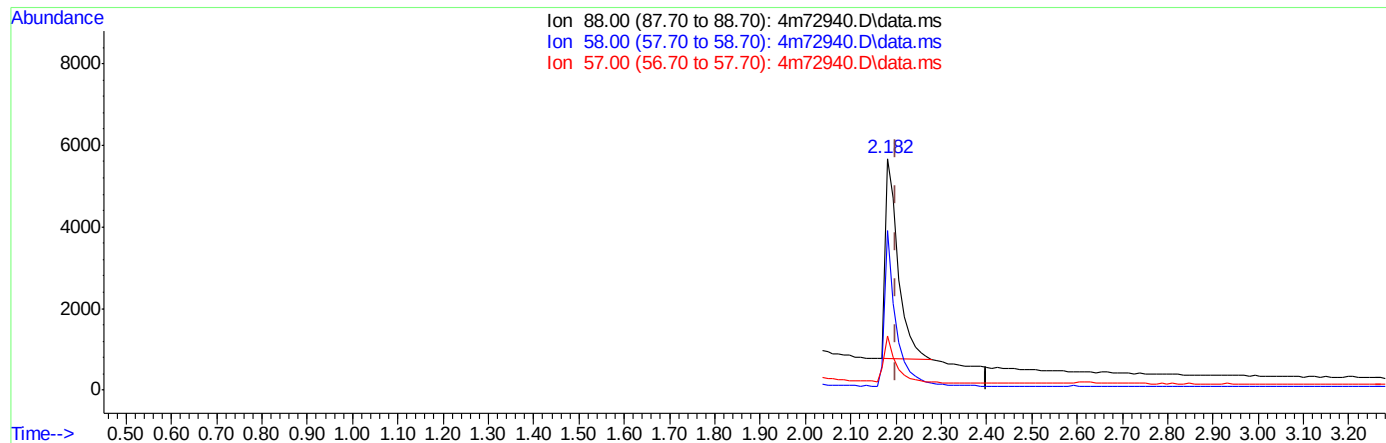
response 10742

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	71.03#
57.00	14.40	19.37
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72940.D
Acq On : 6 Sep 2017 2:21 pm
Operator : kristis
Sample : ic3405-0.5
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 06 14:46:58 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Tue Sep 05 10:26:47 2017
Response via : Initial Calibration



TIC: 4m72940.D\data.ms

(36) 1,4-Dioxane (t)

2.182min (-0.019) 0.53ppm m

response 9416

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	68.68#
57.00	14.40	23.24
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72941.D
 Acq On : 6 Sep 2017 2:54 pm
 Operator : kristis
 Sample : ic3405-0.2
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 06 17:54:45 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 12:30:35 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	215396	4.00	ppm	0.00
12) Fluorene-d10	12.539	176	238218	4.00	ppm	-0.02
22) Fluoranthene-d10	16.722	212	488130	4.00	ppm	-0.02
28) Benzo(a)pyrene-d12	21.321	264	351938	4.00	ppm	-0.01
35) 1-Methylnaphthalene-d10a	9.586	152	215396	4.00	ppm	0.00
38) Fluorene-d10a	12.539	176	238218	4.00	ppm	#-0.02
System Monitoring Compounds						
2) 2-Fluorophenol	4.092	112	185295	4.57	ppm	0.00
Spiked Amount 50.000	Range 11 - 58		Recovery	=	9.14%#	
3) Phenol-d5	5.506	99	295635	4.68	ppm	0.01
Spiked Amount 50.000			Recovery	=	9.36%	
6) Nitrobenzene-d5	6.813	82	228072	4.39	ppm	0.00
Spiked Amount 50.000			Recovery	=	8.78%	
11) 2-Fluorobiphenyl	10.242	172	347994	4.27	ppm	0.00
Spiked Amount 50.000			Recovery	=	8.54%	
17) 2,4,6-Tribromophenol	13.122	330	44056	5.13	ppm	0.00
Spiked Amount 50.000			Recovery	=	10.26%	
25) Terphenyl-d14	17.513	244	442374	4.82	ppm	0.00
Spiked Amount 50.000			Recovery	=	9.64%	
Target Compounds						
4) Phenol	5.534	94	77778	1.15	ppm	85
5) bis(2-Chloroethyl)ether	5.493	93	14745m	0.26	ppm	
7) Naphthalene	8.150	128	38353	0.24	ppm	98
8) Hexachlorobutadiene	8.414	225	5568	0.24	ppm	89
10) Hexachlorocyclopentadiene	9.812	237	1175	0.15	ppm	98
13) Acenaphthylene	11.227	152	22400	0.35	ppm	96
14) Acenaphthene	11.575	153	15361	0.33	ppm	97
15) Dibenzofuran	11.965	168	22549	0.35	ppm	63
16) Fluorene	12.610	166	22356	0.32	ppm	78
18) Hexachlorobenzene	13.710	284	5626	0.27	ppm	98
19) Pentachlorophenol	14.222	266	5170	1.06	ppm	98
20) Phenanthrene	14.509	178	31378	0.33	ppm	97
21) Anthracene	14.632	178	26593	0.34	ppm	99
23) Fluoranthene	16.760	202	34046	0.20	ppm	97
24) Pyrene	17.174	202	32054	0.20	ppm	89
26) Benzo[a]anthracene	19.245	228	24385	0.22	ppm	# 93
27) Chrysene	19.320	228	30173m	0.20	ppm	
29) Benzo[b]fluoranthene	20.922	252	23075	0.20	ppm	98
30) Benzo[k]fluoranthene	20.963	252	29027	0.23	ppm	100
31) Benzo[a]pyrene	21.363	252	27251	0.22	ppm	99
32) Indeno[1,2,3-cd]pyrene	22.891	276	30949	0.23	ppm	# 15
33) Dibenzo[a,h]anthracene	22.905	278	24893	0.22	ppm	80
34) Benzo[g,h,i]perylene	23.249	276	28049	0.23	ppm	99
36) 1,4-Dioxane	2.194	88	4270m	0.24	ppm	
37) 1-Methylnaphthalene	9.668	142	24893	0.24	ppm	91
39) 4,6-dinitro-2-methylph...	12.840	198	4127	1.47	ppm	95

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72941.D
Acq On : 6 Sep 2017 2:54 pm
Operator : kristis
Sample : ic3405-0.2
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 06 17:54:45 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

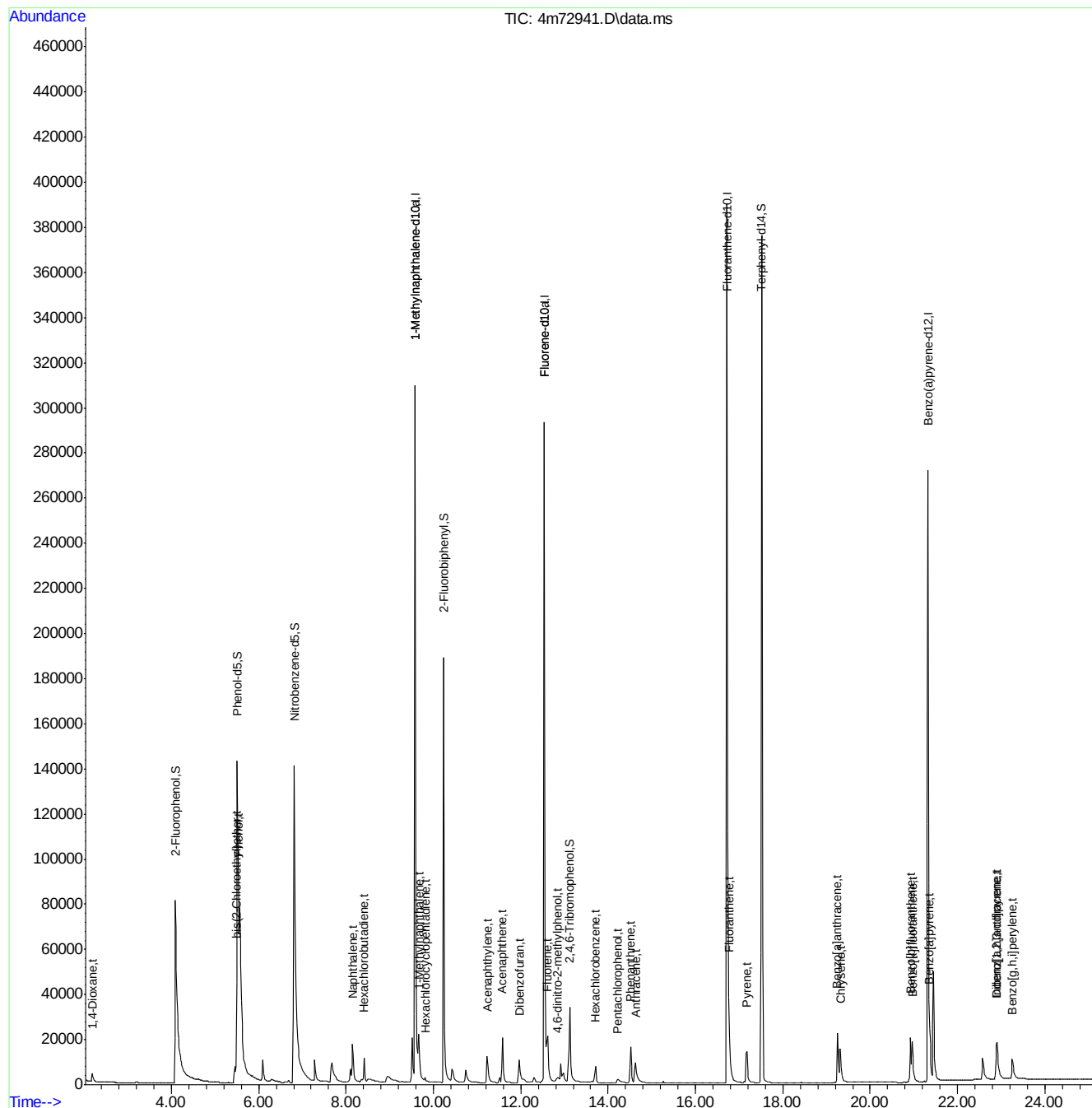
9.6.39

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72941.D
Acq On : 6 Sep 2017 2:54 pm
Operator : kristis
Sample : ic3405-0.2
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 06 17:54:45 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E4M3405-IC3405

Lab FileID:

4M72941.D

Injection Time:

09/06/17 14:54

Method:

SW846 8270D BY SIM

Analyst approved:

09/06/17 18:48 Kristi Schollenberger

Supervisor approved:

09/07/17 11:31 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.19	Poor instrument integration
bis(2-Chloroethyl)ether	111-44-4		5.49	Poor instrument integration
Chrysene	218-01-9		19.32	Poor instrument integration

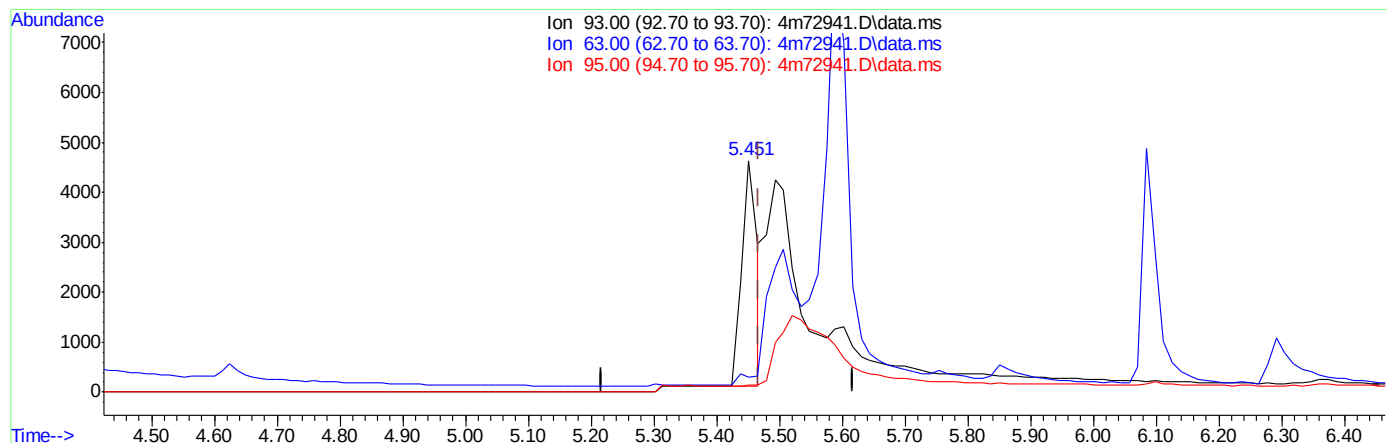
9.6.39.1

9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72941.D
Acq On : 6 Sep 2017 2:54 pm
Operator : kristis
Sample : ic3405-0.2
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 06 15:22:45 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



(5) bis(2-Chloroethyl)ether (t)

5.451min (-0.016) 0.14ppm

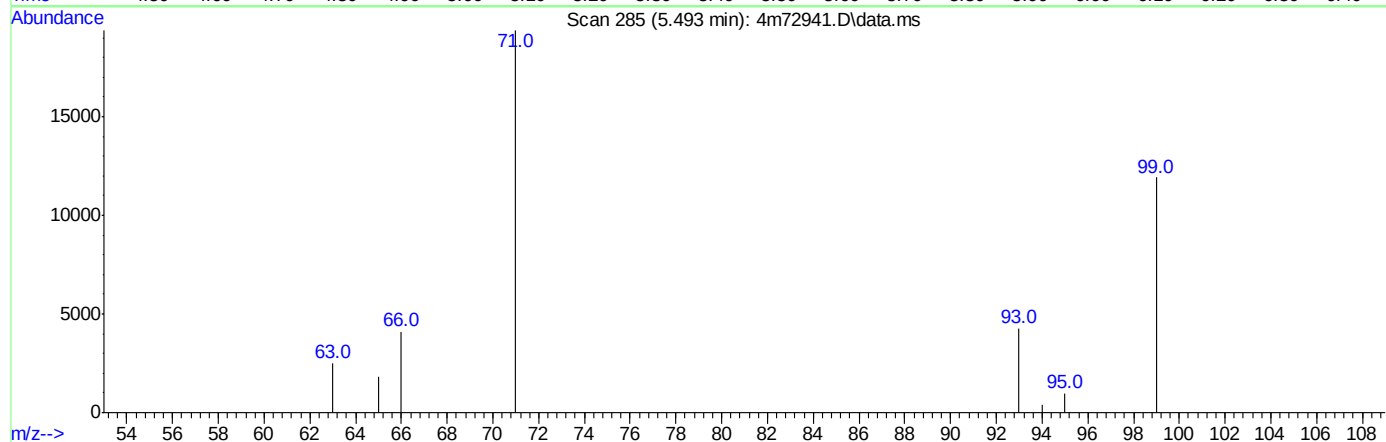
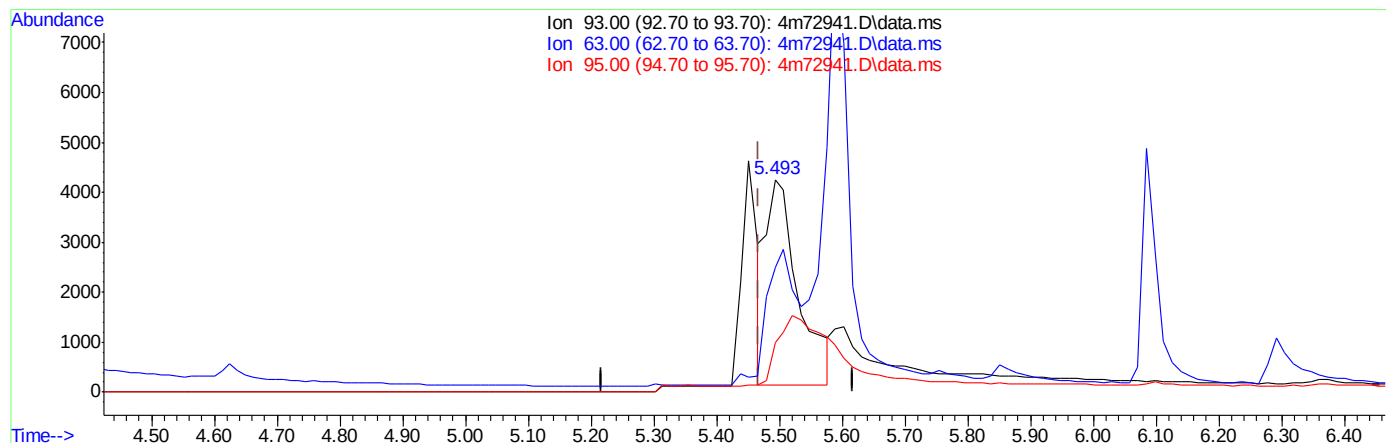
response 7807

Ion	Exp%	Act%
93.00	100	100
63.00	73.50	2.47#
95.00	9.50	0.13
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72941.D
Acq On : 6 Sep 2017 2:54 pm
Operator : kristis
Sample : ic3405-0.2
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 06 15:22:45 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



(5) bis(2-Chloroethyl)ether (t)

5.493min (+0.026) 0.26ppm m

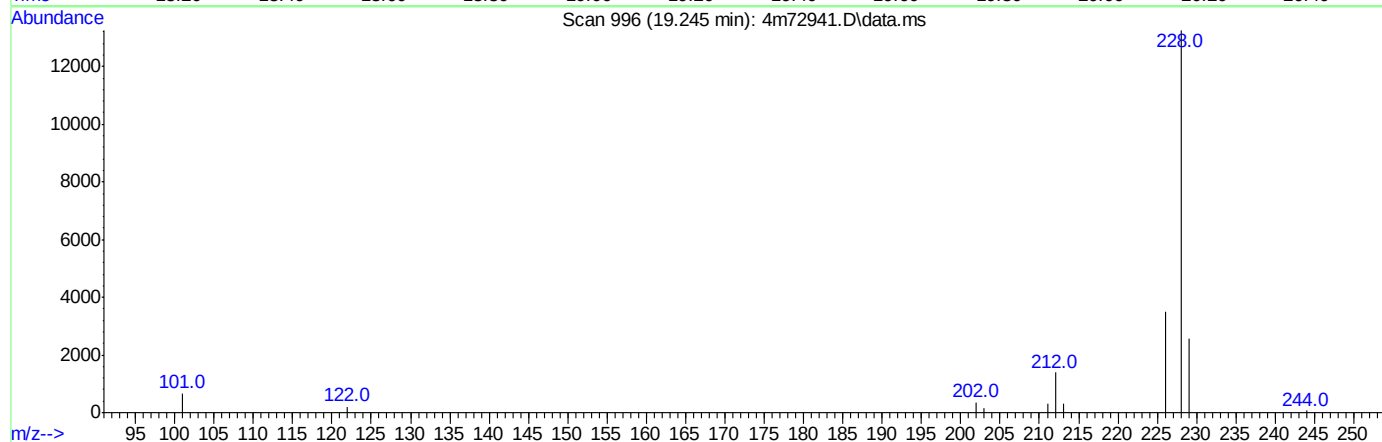
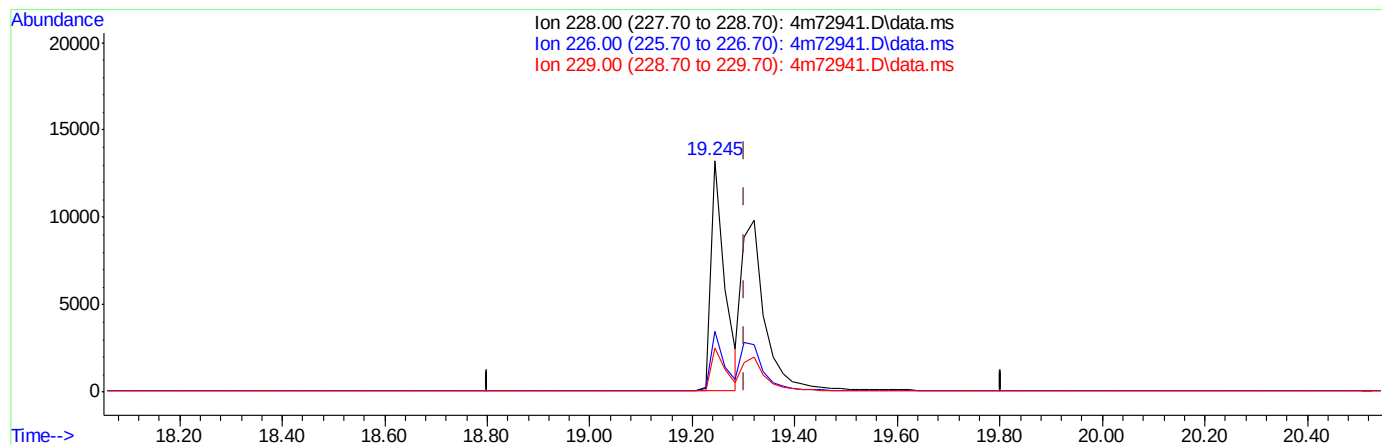
response 14745

Ion	Exp%	Act%
93.00	100	100
63.00	73.50	58.92
95.00	9.50	23.17
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72941.D
Acq On : 6 Sep 2017 2:54 pm
Operator : kristis
Sample : ic3405-0.2
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 06 15:22:45 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



TIC: 4m72941.D\data.ms

(27) Chrysene (t)

19.245min (-0.057) 0.16ppm

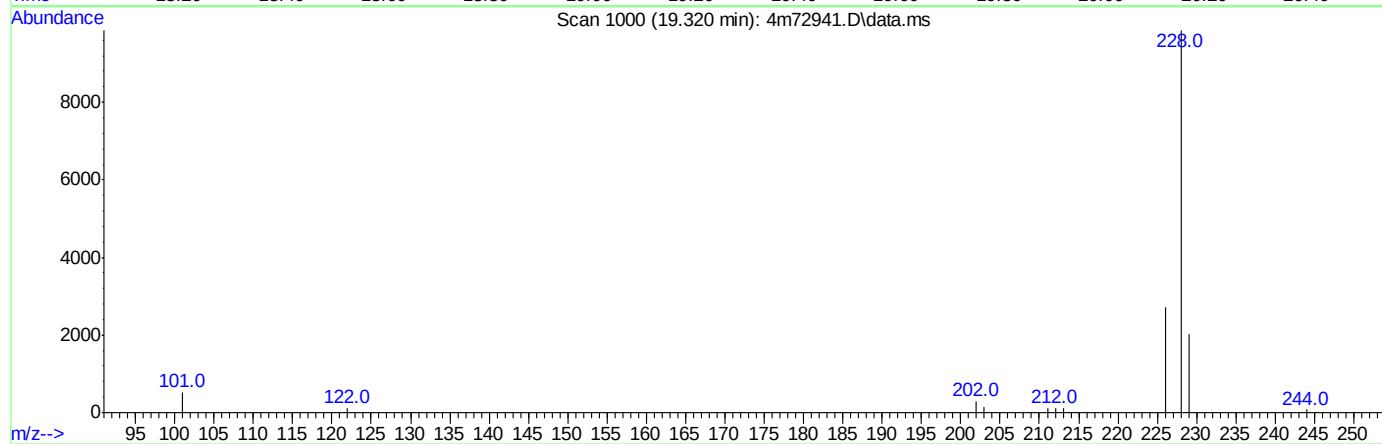
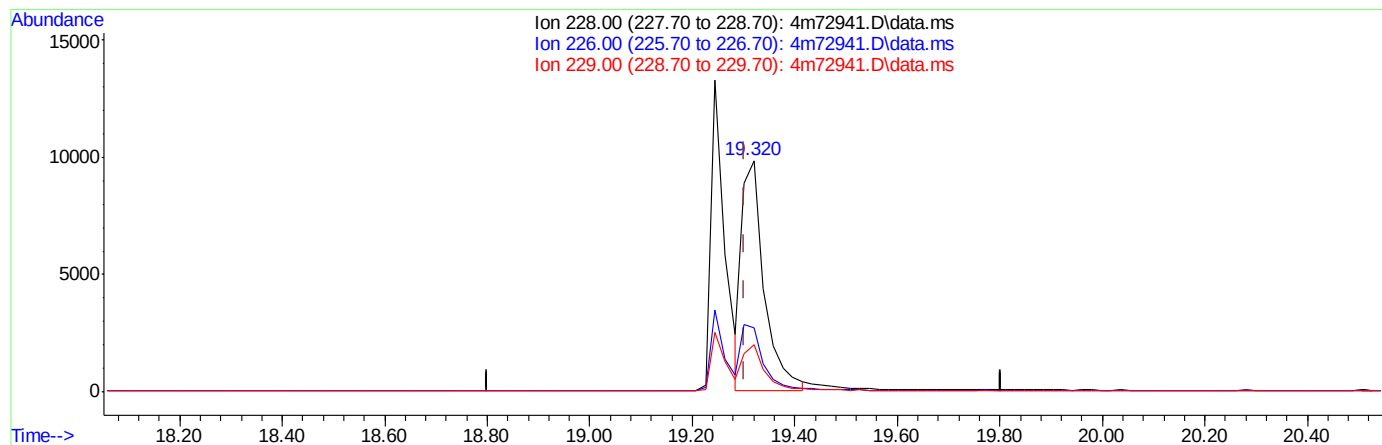
response 24385

Ion	Exp%	Act%
228.00	100	100
226.00	32.50	25.84
229.00	17.10	18.74
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72941.D
Acq On : 6 Sep 2017 2:54 pm
Operator : kristis
Sample : ic3405-0.2
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 06 15:22:45 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



TIC: 4m72941.D\data.ms

(27) Chrysene (t)

19.320min (+0.018) 0.20ppm m

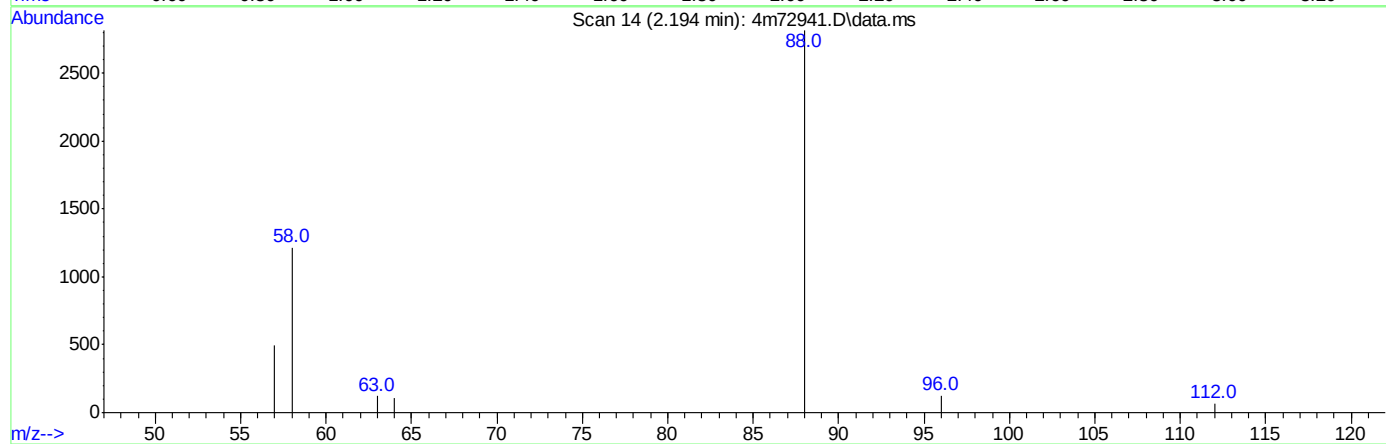
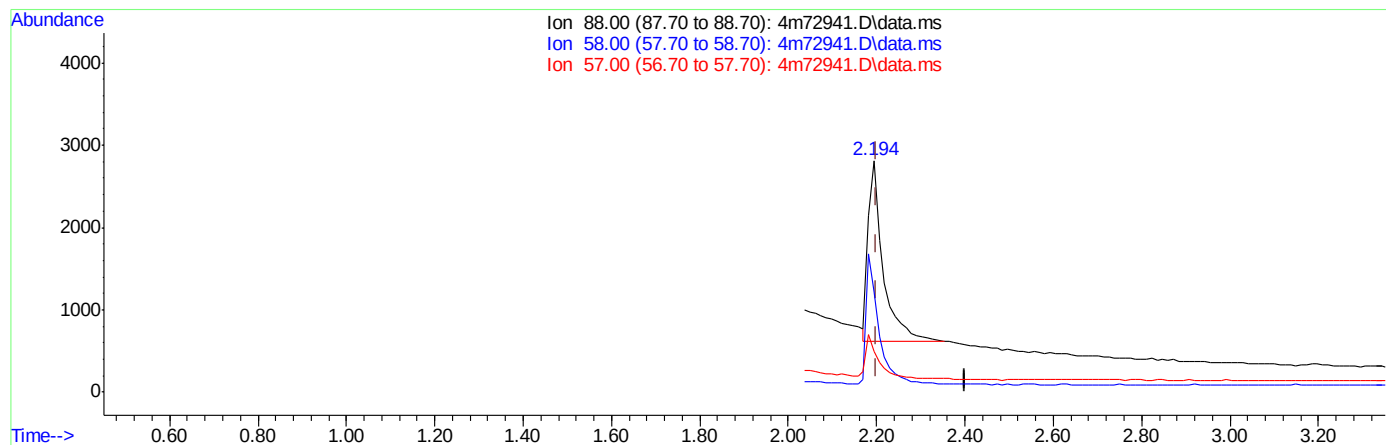
response 30173

Ion	Exp%	Act%
228.00	100	100
226.00	32.50	27.62
229.00	17.10	20.62
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72941.D
Acq On : 6 Sep 2017 2:54 pm
Operator : kristis
Sample : ic3405-0.2
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 06 15:22:45 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



TIC: 4m72941.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (-0.007) 0.29ppm

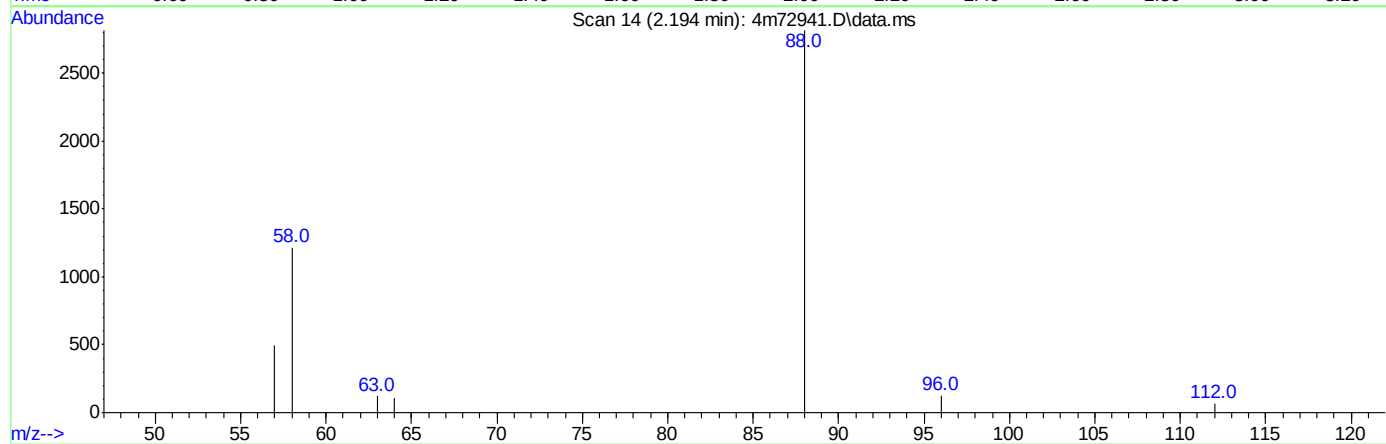
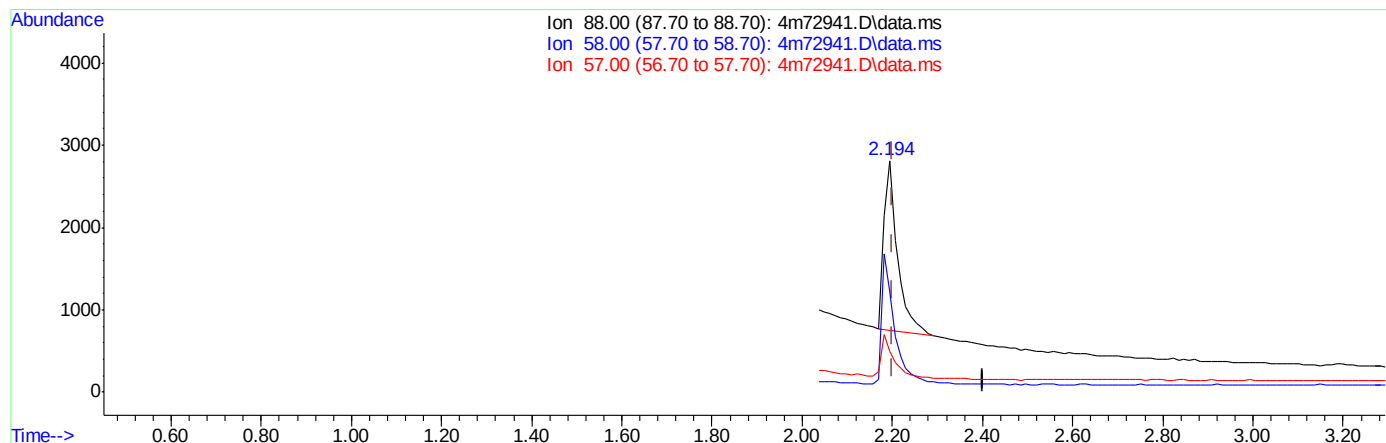
response 5193

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	50.89
57.00	14.40	13.78
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72941.D
Acq On : 6 Sep 2017 2:54 pm
Operator : kristis
Sample : ic3405-0.2
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 06 15:22:45 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 12:30:35 2017
Response via : Initial Calibration



TIC: 4m72941.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (-0.007) 0.24ppm m

response 4270

Ion	Exp%	Act%
88.00	100	100
58.00	42.80	43.13
57.00	14.40	17.66
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72942.D
 Acq On : 6 Sep 2017 3:26 pm
 Operator : kristis
 Sample : ic3405-0.1
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 17:55:52 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 15:25:21 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	227380	4.00	ppm	0.00
12) Fluorene-d10	12.539	176	277207	4.00	ppm	0.00
22) Fluoranthene-d10	16.722	212	524269	4.00	ppm	0.00
28) Benzo(a)pyrene-d12	21.322	264	371667	4.00	ppm	0.01
35) 1-Methylnaphthalene-d10a	9.586	152	227380	4.00	ppm	0.00
38) Fluorene-d10a	12.539	176	277207	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol	4.141	112	73198	1.58	ppm	0.07
Spiked Amount	50.000	Range	11 - 58	Recovery	=	3.16%#
3) Phenol-d5	5.534	99	111028	1.56	ppm	0.06
Spiked Amount	50.000			Recovery	=	3.12%
6) Nitrobenzene-d5	6.832	82	90774	1.54	ppm	0.04
Spiked Amount	50.000			Recovery	=	3.08%
11) 2-Fluorobiphenyl	10.243	172	161272	1.86	ppm	0.02
Spiked Amount	50.000			Recovery	=	3.72%
17) 2,4,6-Tribromophenol	13.122	330	18967	1.30	ppm	0.03
Spiked Amount	50.000			Recovery	=	2.60%
25) Terphenyl-d14	17.513	244	179979	1.72	ppm	0.00
Spiked Amount	50.000			Recovery	=	3.44%
Target Compounds						
						Qvalue
4) Phenol	5.562	94	30658	0.39	ppm	78
5) bis(2-Chloroethyl)ether	5.534	93	4180m	0.07	ppm	
7) Naphthalene	8.150	128	16447	0.09	ppm	97
8) Hexachlorobutadiene	8.414	225	2329	0.09	ppm	91
10) Hexachlorocyclopentadiene	9.812	237	119	0.01	ppm	83
13) Acenaphthylene	11.247	152	8796	0.08	ppm	93
14) Acenaphthene	11.575	153	6754	0.10	ppm	90
15) Dibenzofuran	12.006	168	9439	0.09	ppm	91
16) Fluorene	12.611	166	9791	0.09	ppm	94
18) Hexachlorobenzene	13.710	284	2717	0.11	ppm	72
19) Pentachlorophenol	14.264	266	1404	0.15	ppm	87
20) Phenanthrene	14.510	178	13342	0.09	ppm	98
21) Anthracene	14.653	178	10612	0.08	ppm	97
23) Fluoranthene	16.760	202	15166	0.09	ppm	96
24) Pyrene	17.174	202	13126	0.08	ppm	95
26) Benzo[a]anthracene	19.245	228	9054	0.07	ppm	# 88
27) Chrysene	19.320	228	13570	0.09	ppm	96
29) Benzo[b]fluoranthene	20.936	252	9706m	0.07	ppm	
30) Benzo[k]fluoranthene	20.977	252	12323m	0.09	ppm	
31) Benzo[a]pyrene	21.363	252	11793	0.10	ppm	98
32) Indeno[1,2,3-cd]pyrene	22.905	276	12410	0.08	ppm	75
33) Dibenzo[a,h]anthracene	22.919	278	10287	0.09	ppm	# 63
34) Benzo[g,h,i]perylene	23.277	276	11584	0.09	ppm	99
36) 1,4-Dioxane	2.194	88	1733m	0.08	ppm	
37) 1-Methylnaphthalene	9.668	142	12621	0.13	ppm	93
39) 4,6-dinitro-2-methylph...	12.917	198	1081	0.59	ppm	84

9.6.40

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 17:55:52 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

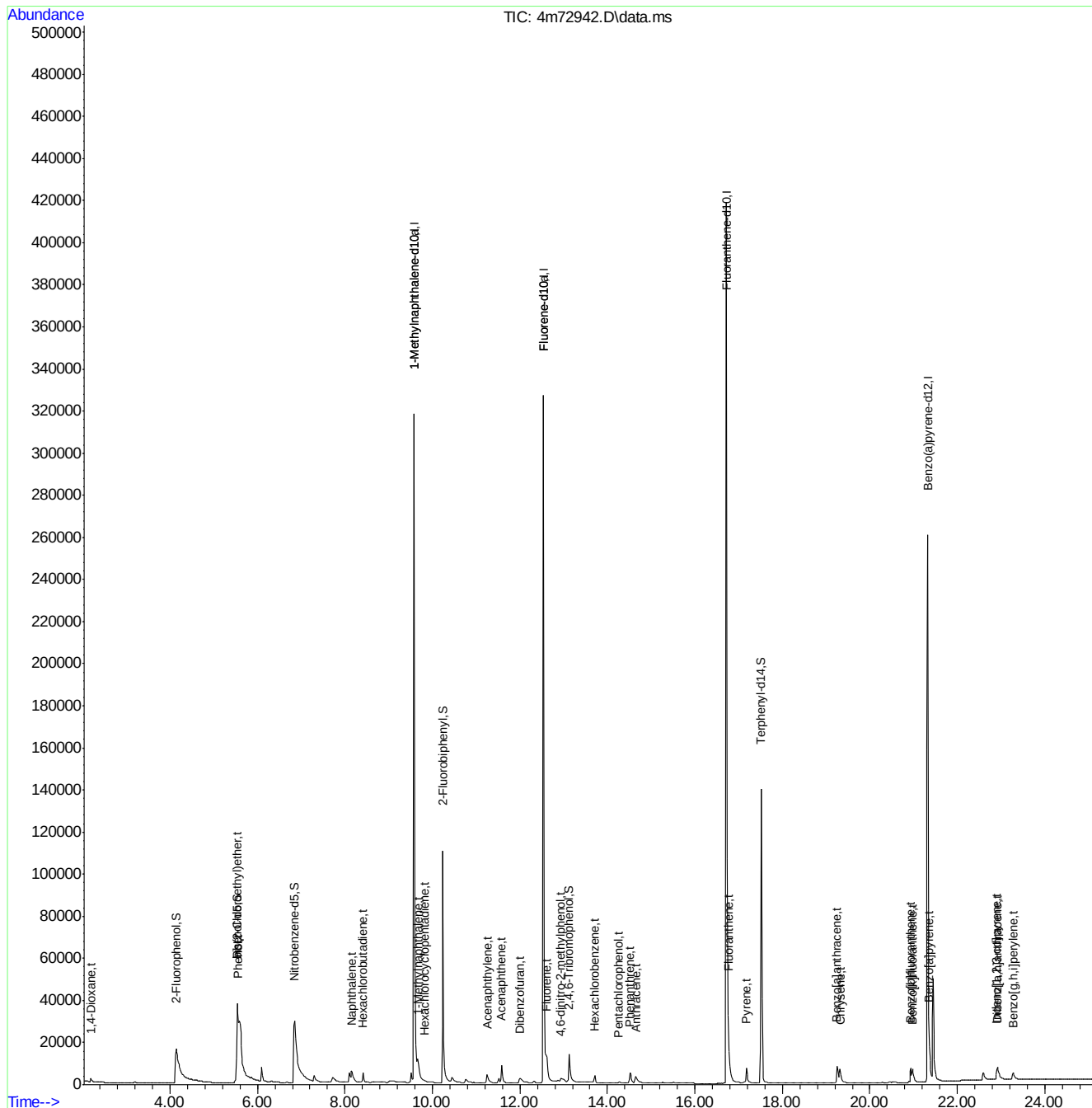
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.6.40

9


```
Data Path   : C:\msdchem\1\DATA\E4M3405\
Data File   : 4m72942.D
Acq On      : 6 Sep 2017    3:26 pm
Operator    : kristis
Sample      : ic3405-0.1
Misc        : op5441a,e4m3405,1000,,,1,1
ALS Vial    : 7      Sample Multiplier: 1
```

Quant Time: Sep 06 17:55:52 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E4M3405-IC3405

Lab FileID:

4M72942.D

Injection Time:

09/06/17 15:26

Method:

SW846 8270D BY SIM

Analyst approved:

09/06/17 18:48 Kristi Schollenberger

Supervisor approved:

09/07/17 11:31 Nina Pandya

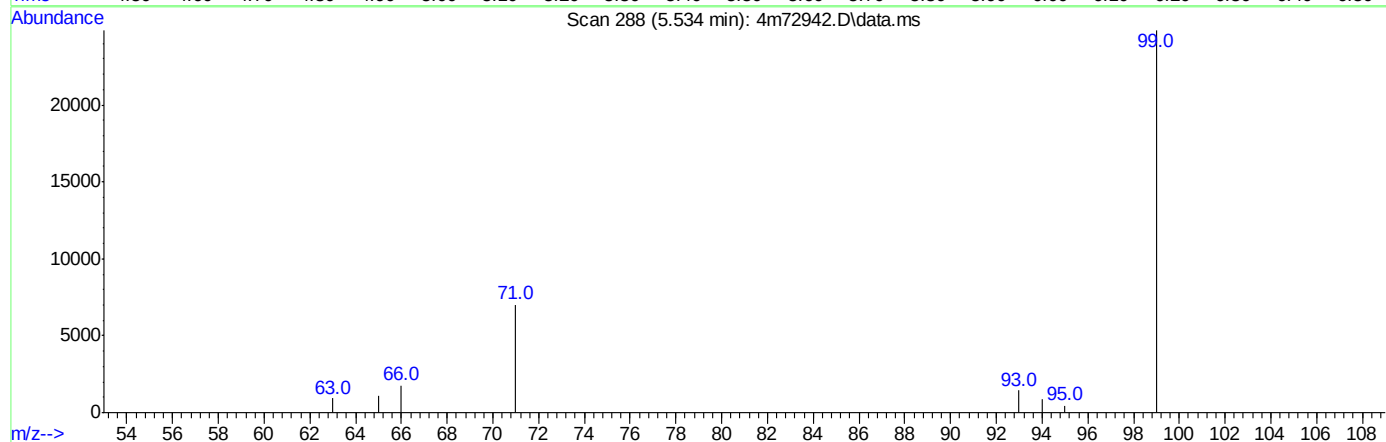
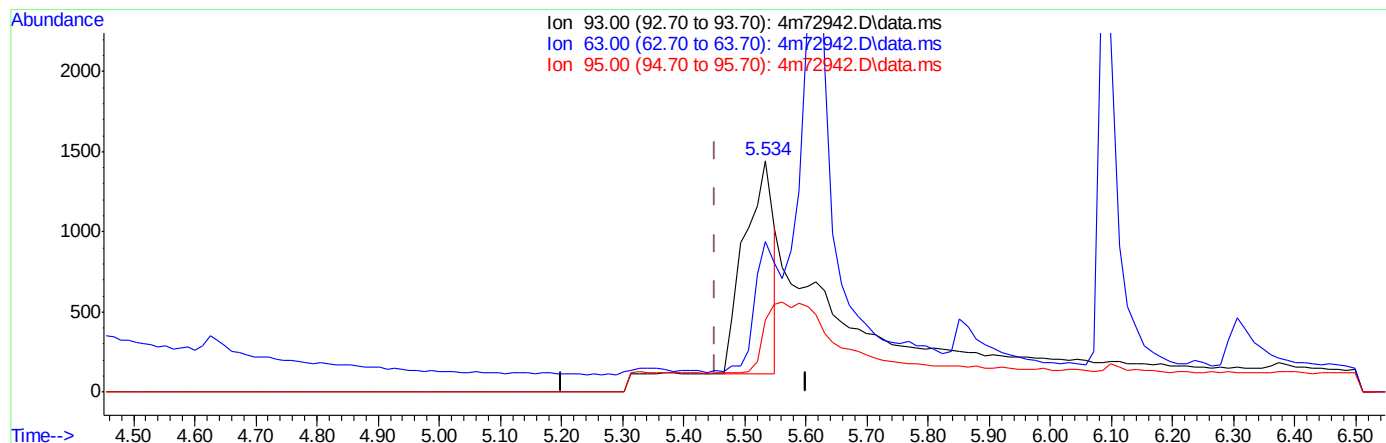
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.19	Poor instrument integration
bis(2-Chloroethyl)ether	111-44-4		5.53	Poor instrument integration
Benzo(b)fluoranthene	205-99-2		20.94	Poor instrument integration
Benzo(k)fluoranthene	207-08-9		20.98	Poor instrument integration

9.6.40.1
9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 15:51:35 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(5) bis(2-Chloroethyl)ether (t)

5.534min (+0.083) 0.07ppm

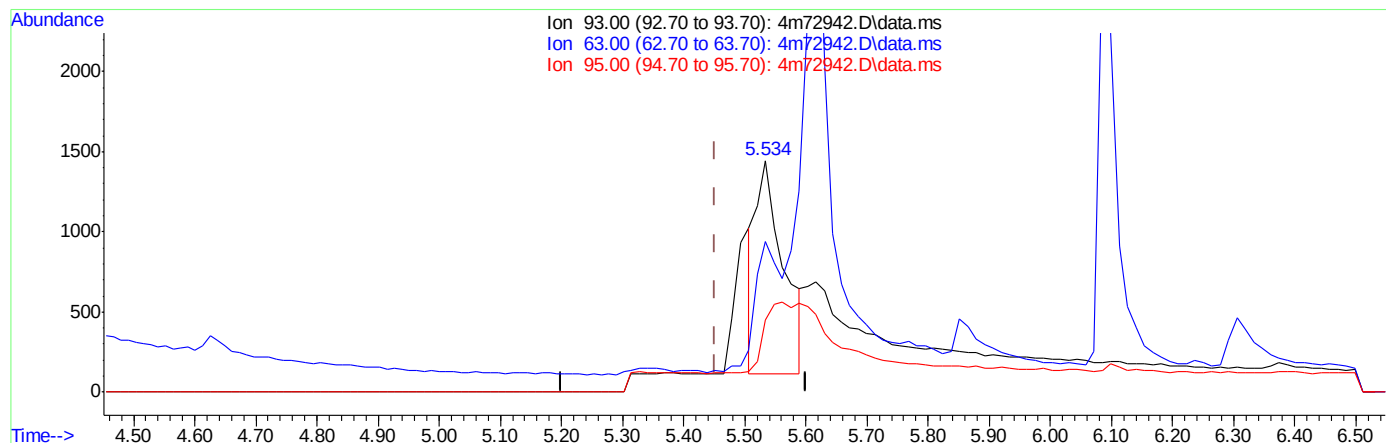
response 4441

Ion	Exp%	Act%
93.00	100	100
63.00	73.40	54.24
95.00	11.70	12.75
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 15:51:35 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(5) bis(2-Chloroethyl)ether (t)

5.534min (+0.083) 0.07ppm m

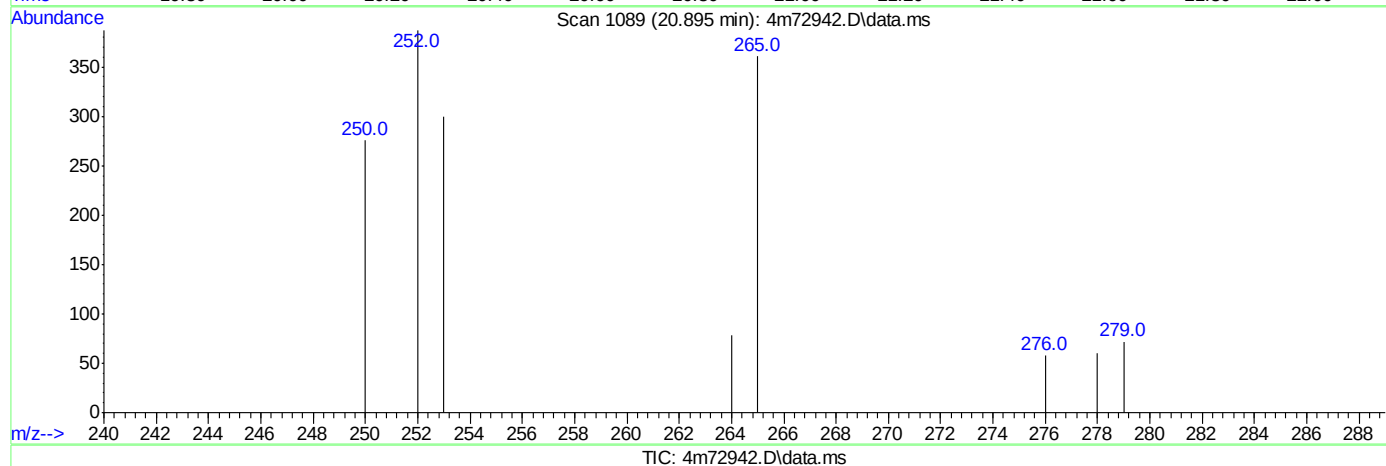
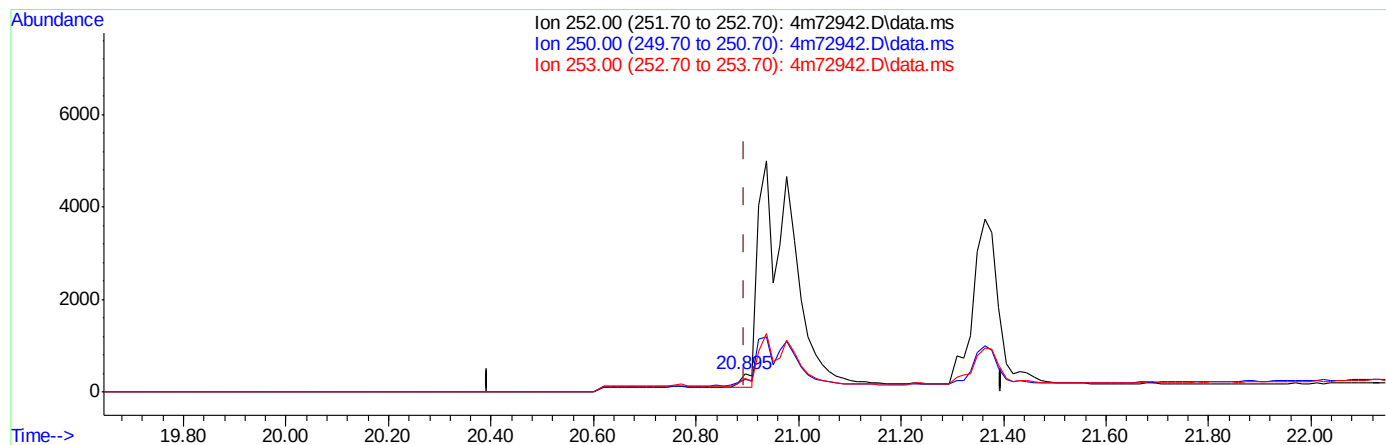
response 4180

Ion	Exp%	Act%
93.00	100	100
63.00	73.40	65.19
95.00	11.70	30.93
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 17:53:59 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(29) Benzo[b]fluoranthene (t)

20.895min (+0.000) 0.00ppm

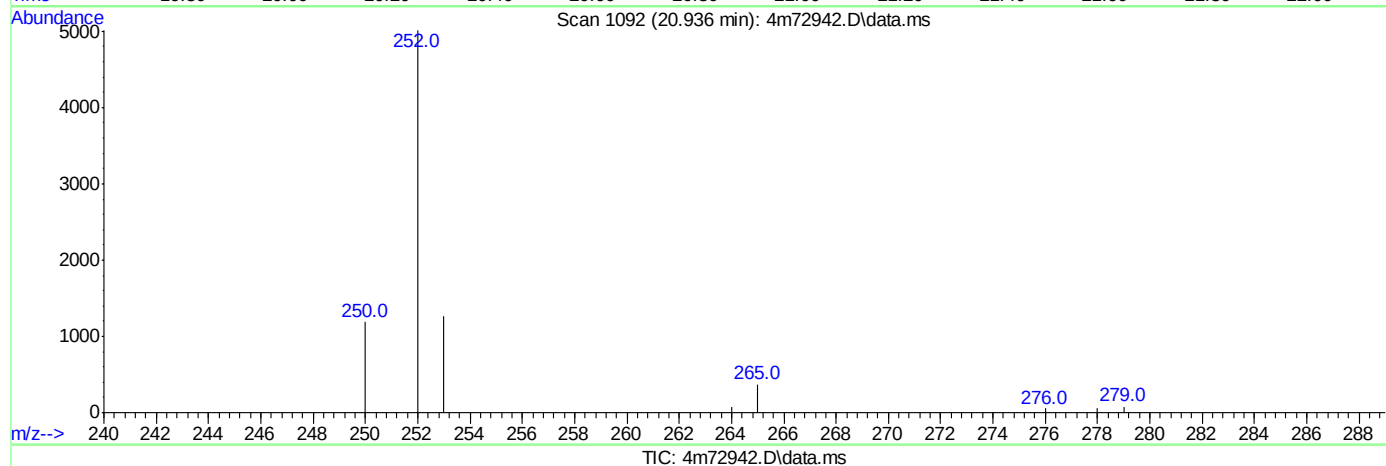
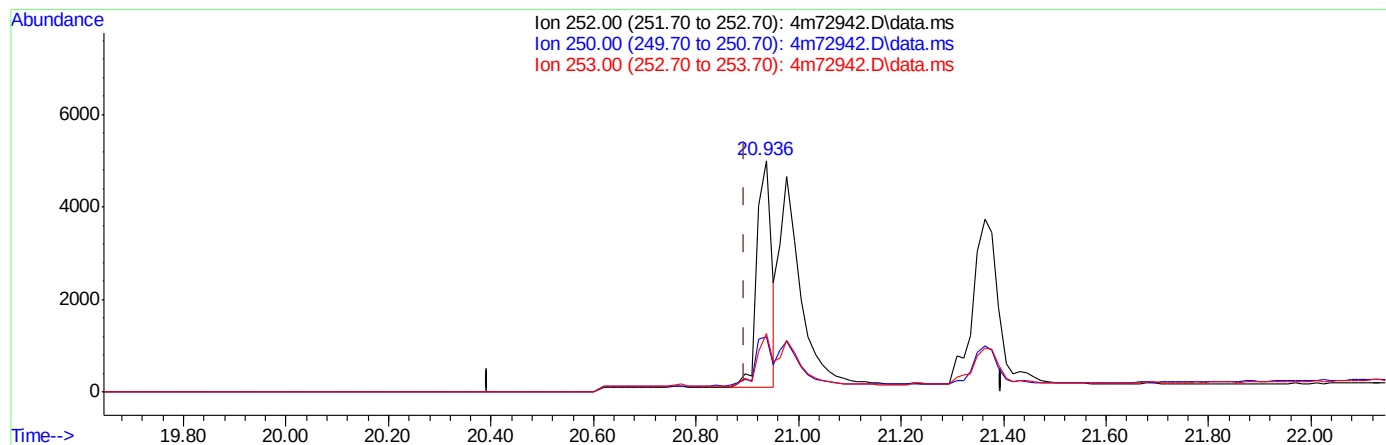
response 500

Ion	Exp%	Act%
252.00	100	100
250.00	24.20	53.27
253.00	20.00	77.26#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 17:53:59 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(29) Benzo[b]fluoranthene (t)

20.936min (+0.042) 0.07ppm m

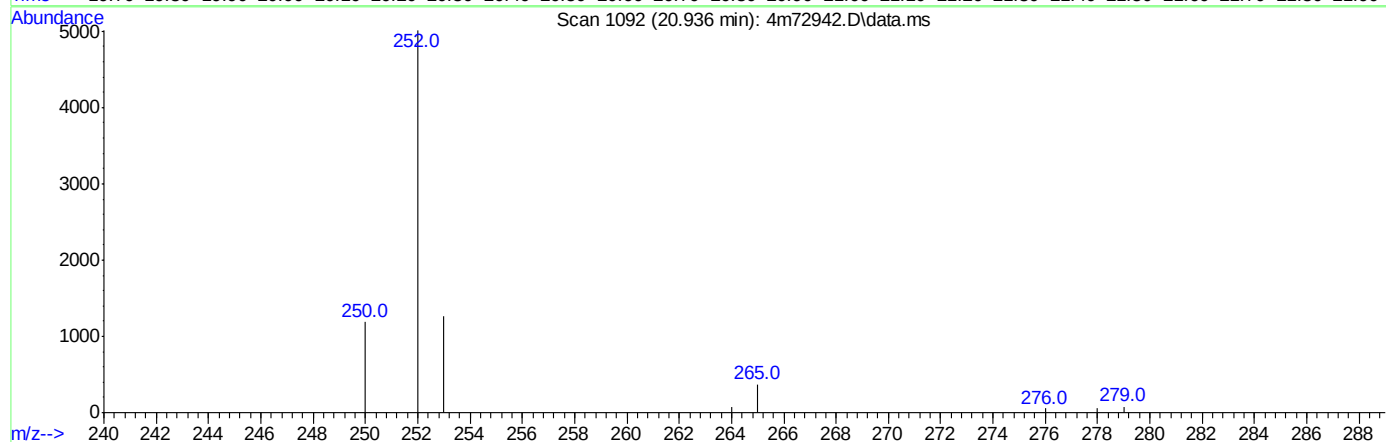
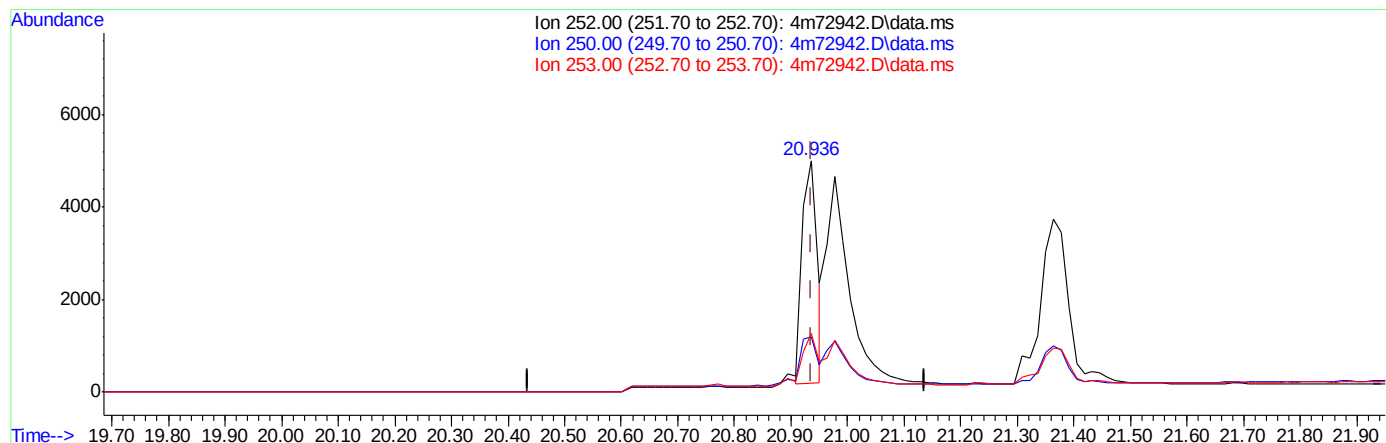
response 9706

Ion	Exp%	Act%
252.00	100	100
250.00	24.20	23.66
253.00	20.00	25.16
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 17:53:59 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(30) Benzo[k]fluoranthene (t)

20.936min (+0.000) 0.07ppm

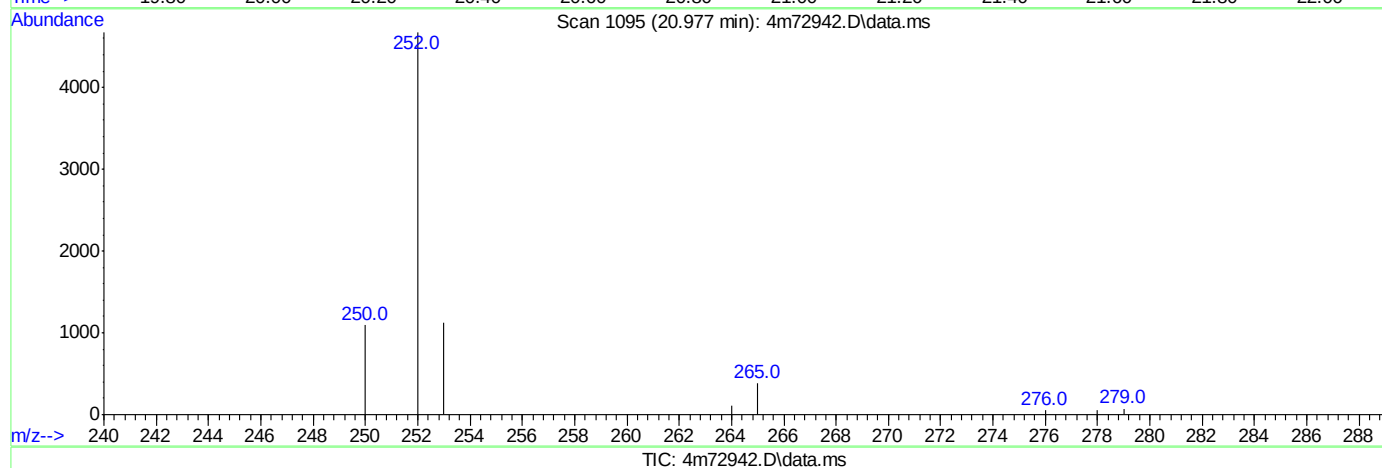
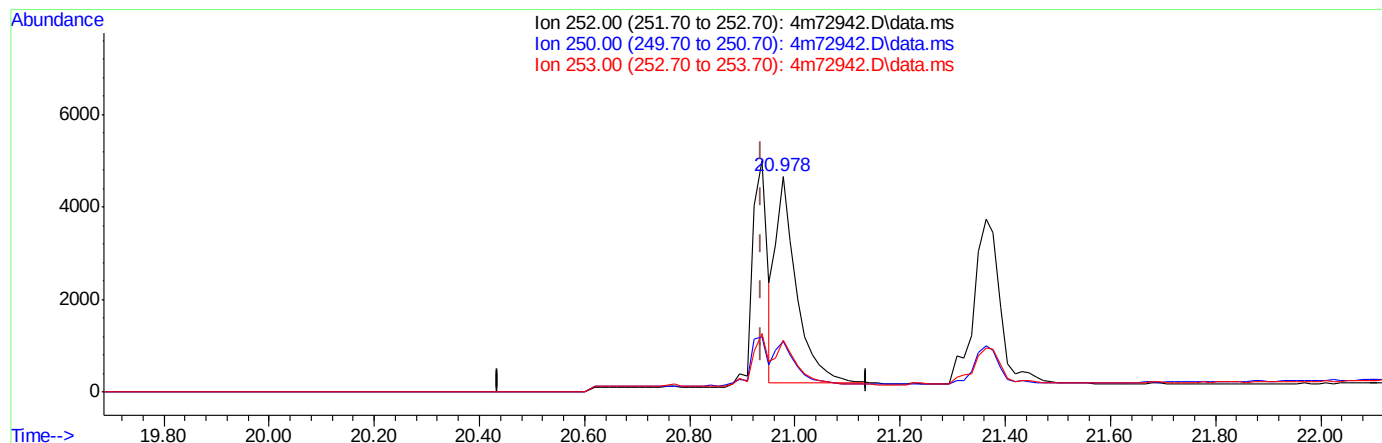
response 8985

Ion	Exp%	Act%
252.00	100	100
250.00	23.60	20.88
253.00	19.10	22.42
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 17:53:59 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(30) Benzo[k]fluoranthene (t)

20.977min (+0.042) 0.09ppm m

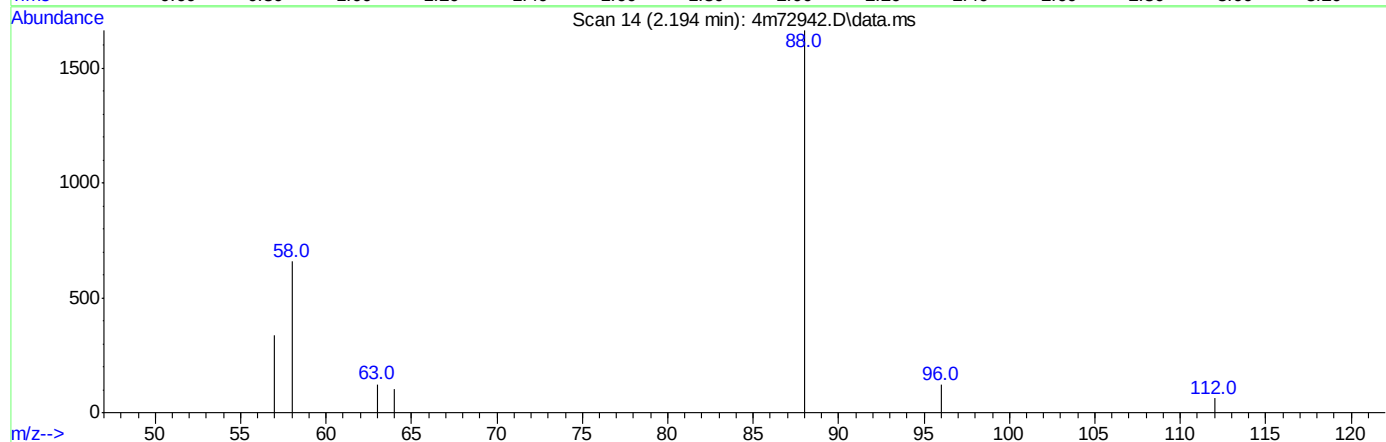
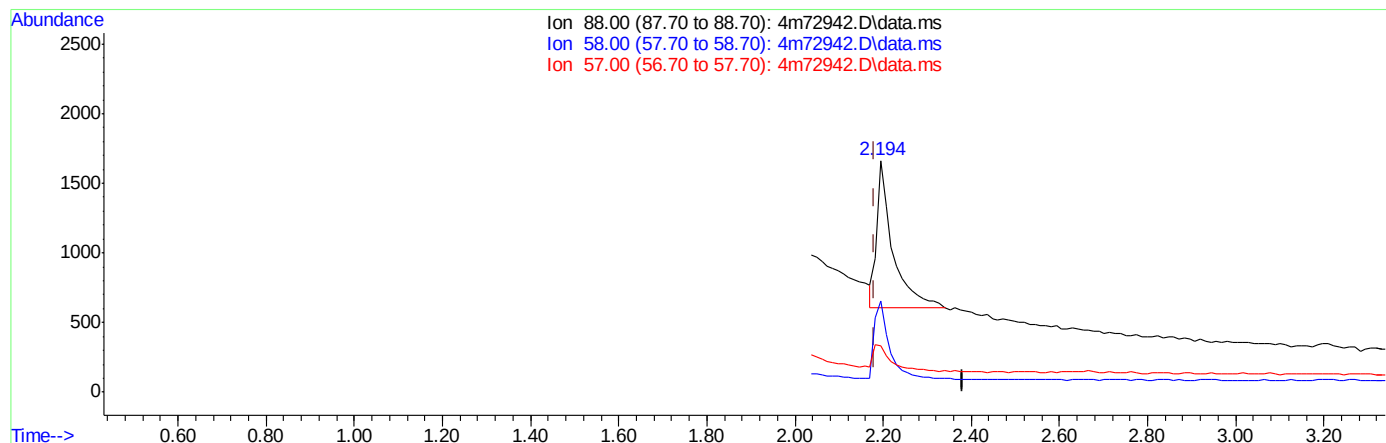
response 12323

Ion	Exp%	Act%
252.00	100	100
250.00	23.60	23.36
253.00	19.10	24.15
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 17:53:59 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



TIC: 4m72942.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (+0.012) 0.12ppm

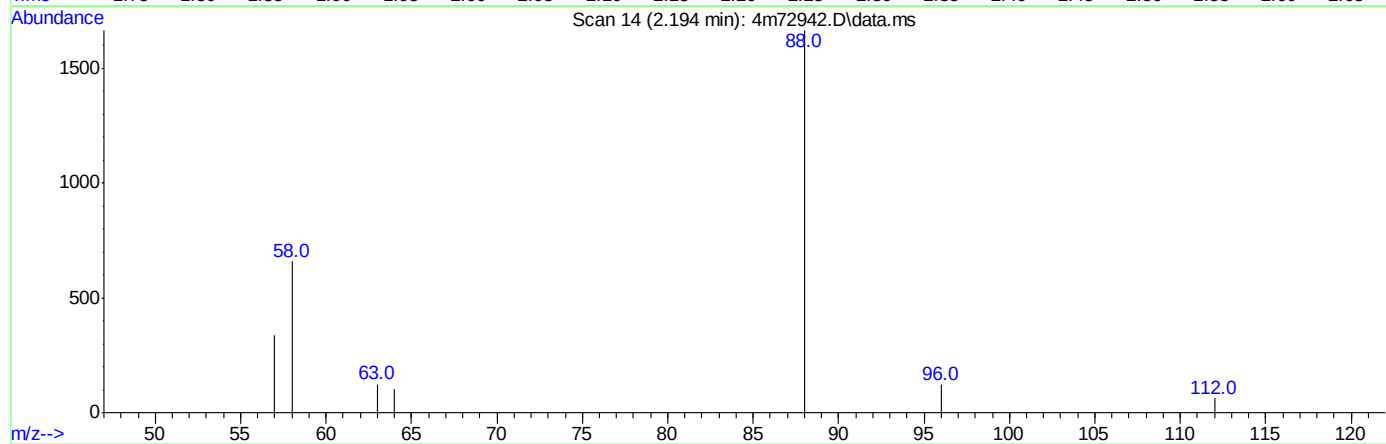
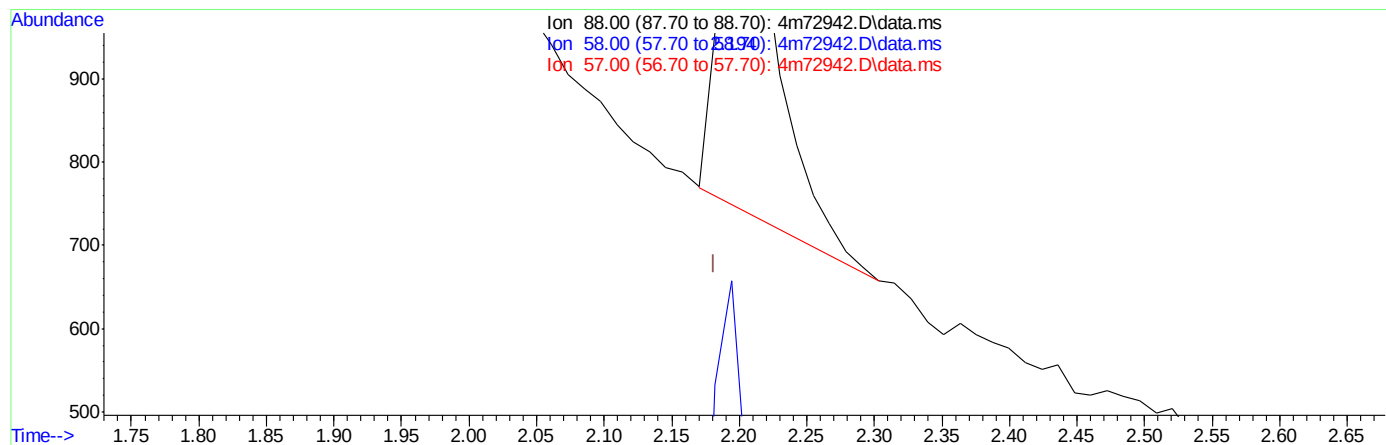
response 2626

Ion	Exp%	Act%
88.00	100	100
58.00	55.30	57.13
57.00	17.50	17.54
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 17:53:59 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



TIC: 4m72942.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (+0.012) 0.08ppm m

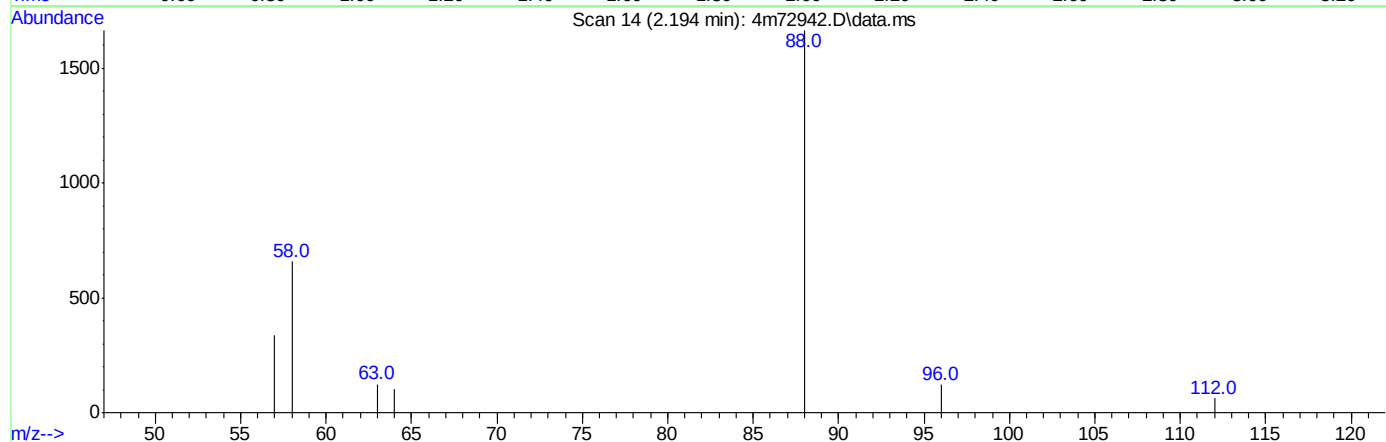
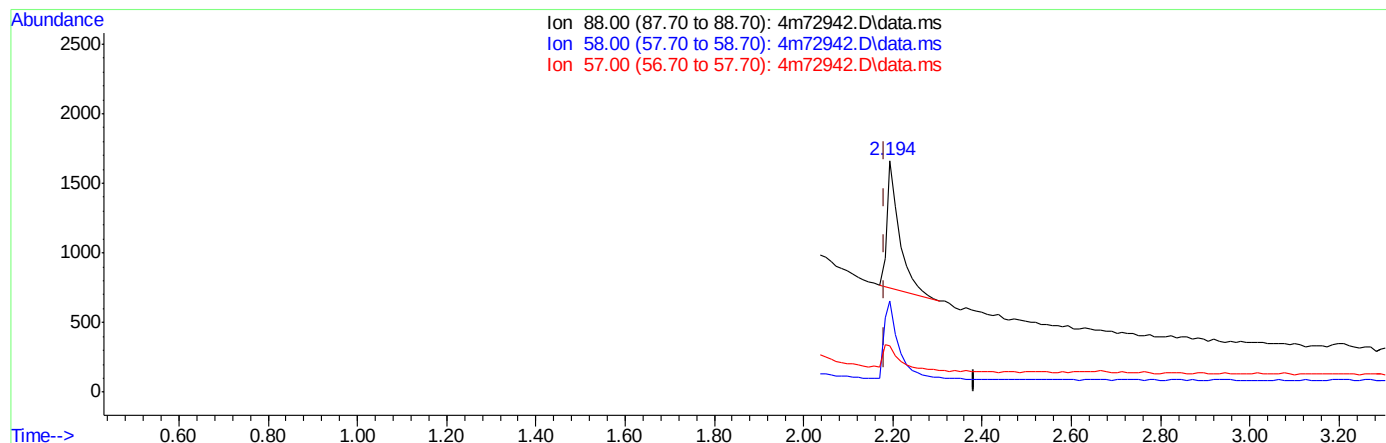
response 1733

Ion	Exp%	Act%
88.00	100	100
58.00	55.30	39.48
57.00	17.50	20.25
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72942.D
Acq On : 6 Sep 2017 3:26 pm
Operator : kristis
Sample : ic3405-0.1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 06 17:55:52 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



TIC: 4m72942.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (+0.012) 0.08ppm m

response 1733

Ion	Exp%	Act%
88.00	100	100
58.00	55.30	39.48
57.00	17.50	20.25
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72943.D
 Acq On : 6 Sep 2017 3:57 pm
 Operator : kristis
 Sample : ic3405-0.05
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 17:57:44 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 15:25:21 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

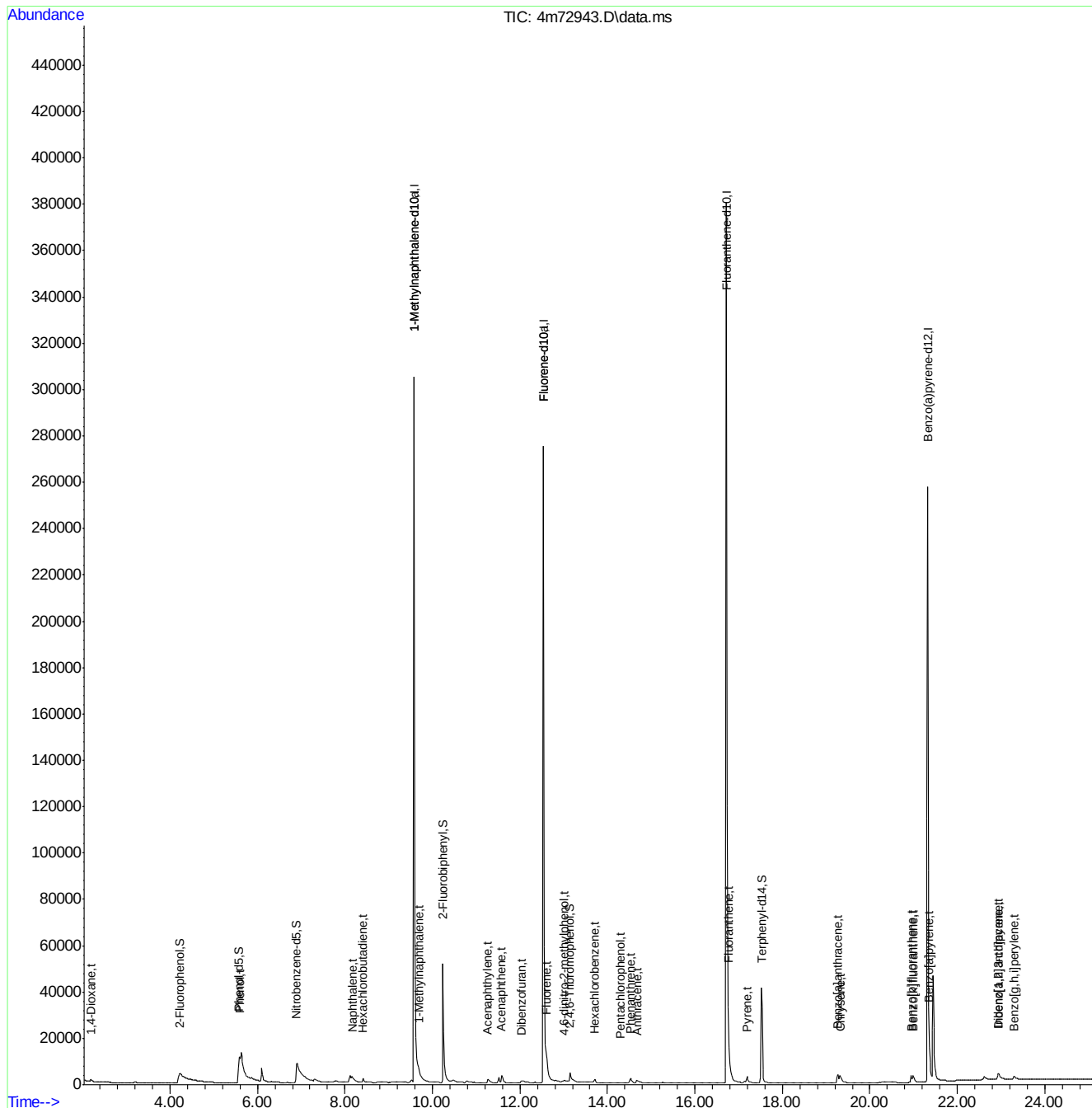
Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	221928	4.00	ppm	0.00
12) Fluorene-d10	12.539	176	246248	4.00	ppm	0.00
22) Fluoranthene-d10	16.722	212	506301	4.00	ppm	0.00
28) Benzo(a)pyrene-d12	21.321	264	351857	4.00	ppm	0.01
35) 1-Methylnaphthalene-d10a	9.586	152	221928	4.00	ppm	0.00
38) Fluorene-d10a	12.539	176	246248	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol	4.213	112	32255	0.72	ppm	0.14
Spiked Amount 50.000	Range 11 - 58		Recovery	=	1.44%#	
3) Phenol-d5	5.575	99	46167	0.66	ppm	0.10
Spiked Amount 50.000			Recovery	=	1.32%	
6) Nitrobenzene-d5	6.888	82	34867	0.61	ppm	0.09
Spiked Amount 50.000			Recovery	=	1.22%	
11) 2-Fluorobiphenyl	10.242	172	87280	1.03	ppm	0.02
Spiked Amount 50.000			Recovery	=	2.06%	
17) 2,4,6-Tribromophenol	13.147	330	6977	0.54	ppm	0.05
Spiked Amount 50.000			Recovery	=	1.08%	
25) Terphenyl-d14	17.531	244	74543	0.74	ppm	0.02
Spiked Amount 50.000			Recovery	=	1.48%	
Target Compounds						
4) Phenol	5.603	94	13656	0.18	ppm	Qvalue # 51
7) Naphthalene	8.169	128	7920	0.05	ppm	99
8) Hexachlorobutadiene	8.413	225	1144	0.05	ppm	87
13) Acenaphthylene	11.267	152	4023	0.04	ppm	94
14) Acenaphthene	11.575	153	3278	0.05	ppm	96
15) Dibenzofuran	12.046	168	4384	0.05	ppm	85
16) Fluorene	12.610	166	4978	0.05	ppm	99
18) Hexachlorobenzene	13.709	284	1499	0.07	ppm	79
19) Pentachlorophenol	14.304	266	287	0.03	ppm	92
20) Phenanthrene	14.530	178	6362	0.05	ppm	98
21) Anthracene	14.673	178	5015m	0.04	ppm	
23) Fluoranthene	16.759	202	8018	0.05	ppm	94
24) Pyrene	17.193	202	6503	0.04	ppm	97
26) Benzo[a]anthracene	19.264	228	3792	0.03	ppm	97
27) Chrysene	19.320	228	7425	0.05	ppm	93
29) Benzo[b]fluoranthene	20.950	252	4454m	0.04	ppm	
30) Benzo[k]fluoranthene	20.991	252	5966m	0.05	ppm	
31) Benzo[a]pyrene	21.363	252	5023	0.04	ppm	98
32) Indeno[1,2,3-cd]pyrene	22.932	276	5981	0.04	ppm	# 18
33) Dibenz[a,h]anthracene	22.946	278	4996	0.04	ppm	# 64
34) Benzo[g,h,i]perylene	23.290	276	5581	0.05	ppm	99
36) 1,4-Dioxane	2.194	88	761m	0.04	ppm	
37) 1-Methylnaphthalene	9.688	142	9078	0.09	ppm	# 72
39) 4,6-dinitro-2-methylph...	13.019	198	431m	0.53	ppm	

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 17:57:44 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E4M3405-IC3405

Lab FileID:

4M72943.D

Injection Time:

09/06/17 15:57

Method:

SW846 8270D BY SIM

Analyst approved:

09/06/17 18:48 Kristi Schollenberger

Supervisor approved:

09/07/17 11:31 Nina Pandya

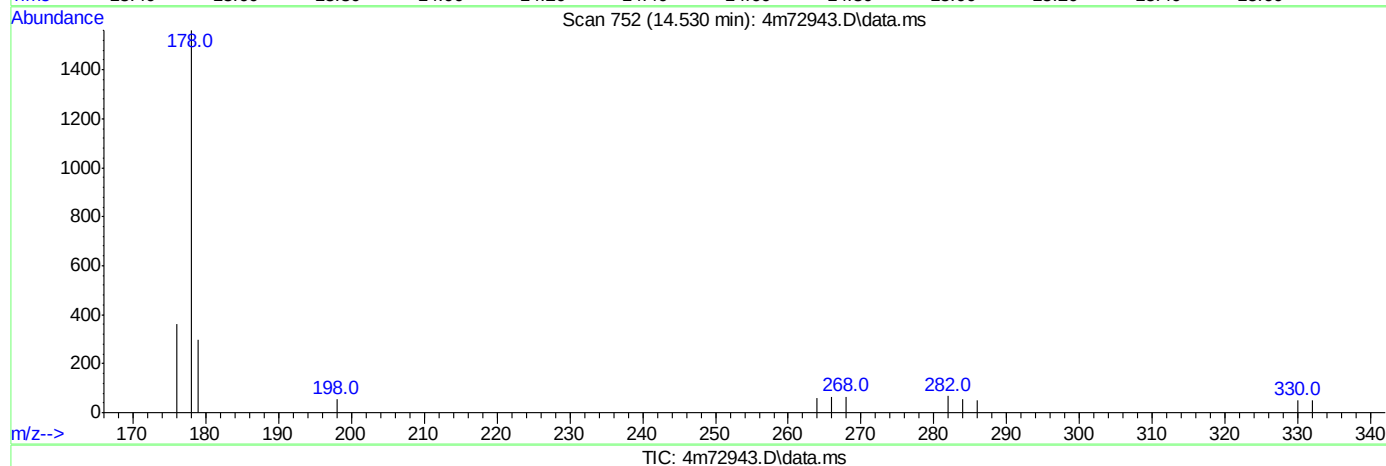
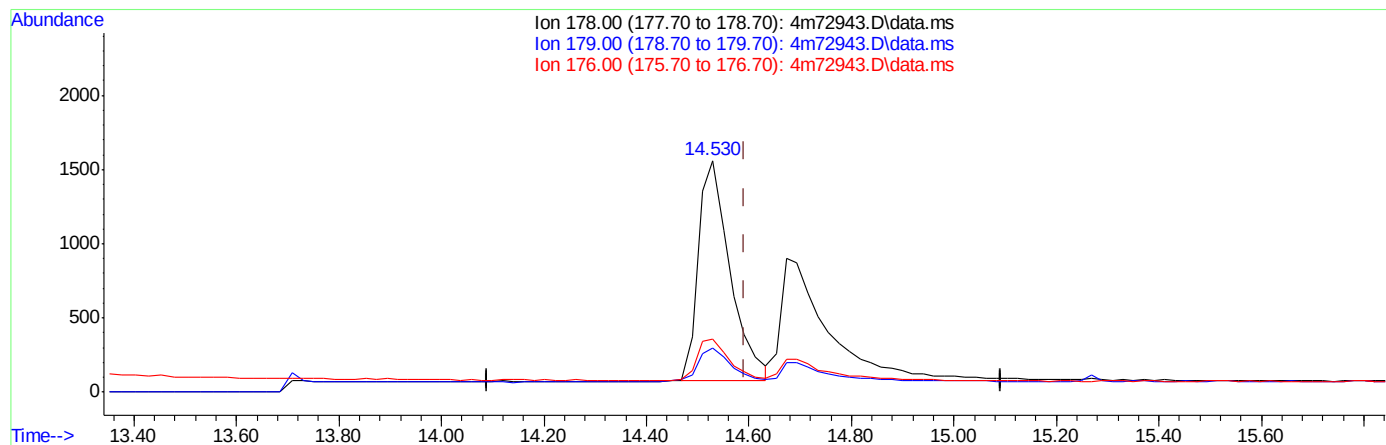
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.19	Poor instrument integration
4,6-Dinitro-o-cresol	534-52-1		13.02	Poor instrument integration
Anthracene	120-12-7		14.67	Poor instrument integration
Benzo(b)fluoranthene	205-99-2		20.95	Poor instrument integration
Benzo(k)fluoranthene	207-08-9		20.99	Poor instrument integration

9.6.41.1
9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(21) Anthracene (t)

14.530min (-0.062) 0.06ppm

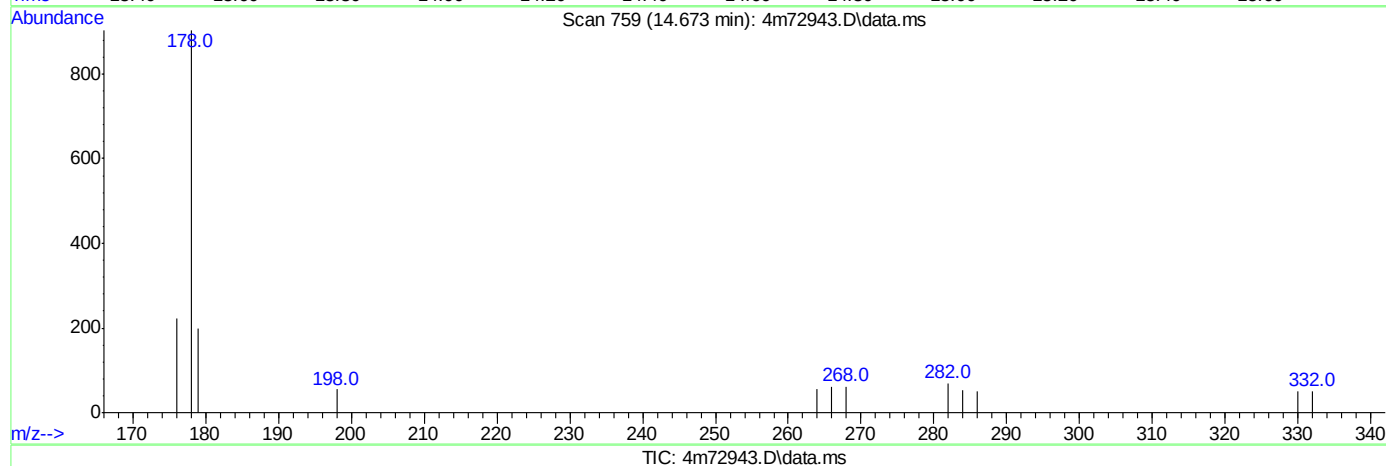
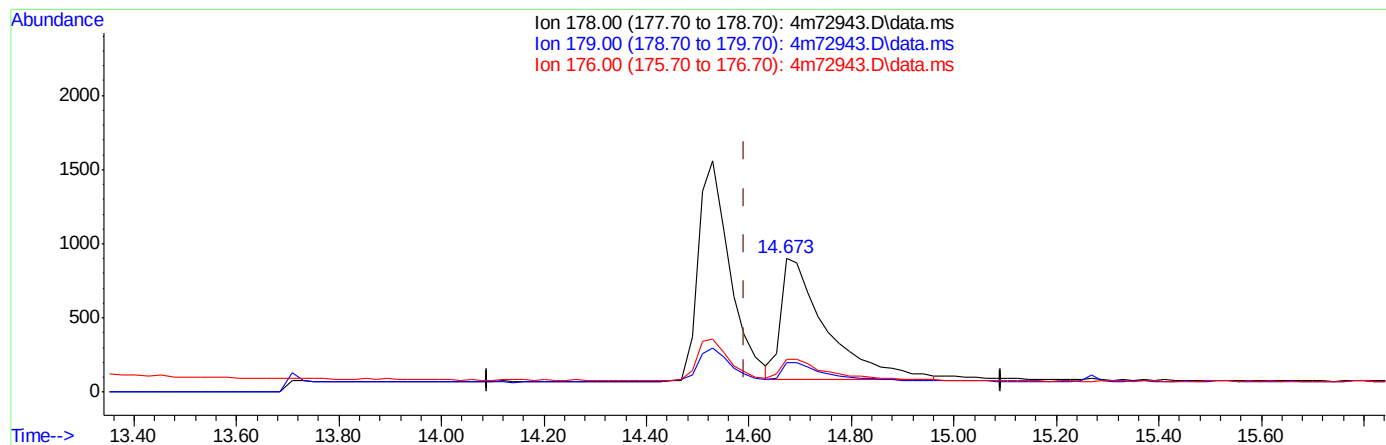
response 6362

Ion	Exp%	Act%
178.00	100	100
179.00	14.10	14.69
176.00	18.80	18.88
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(21) Anthracene (t)

14.673min (+0.082) 0.04ppm m

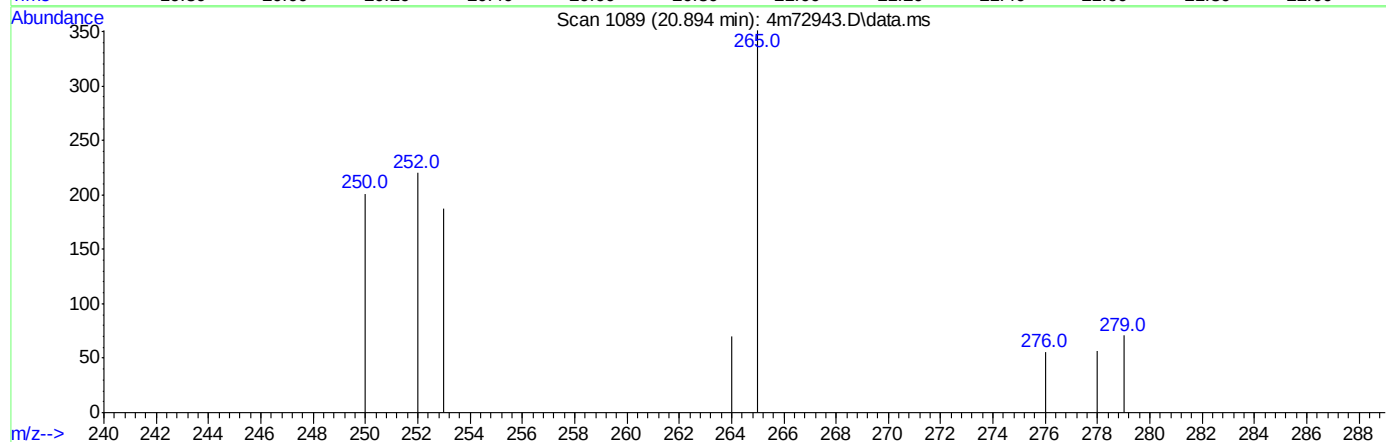
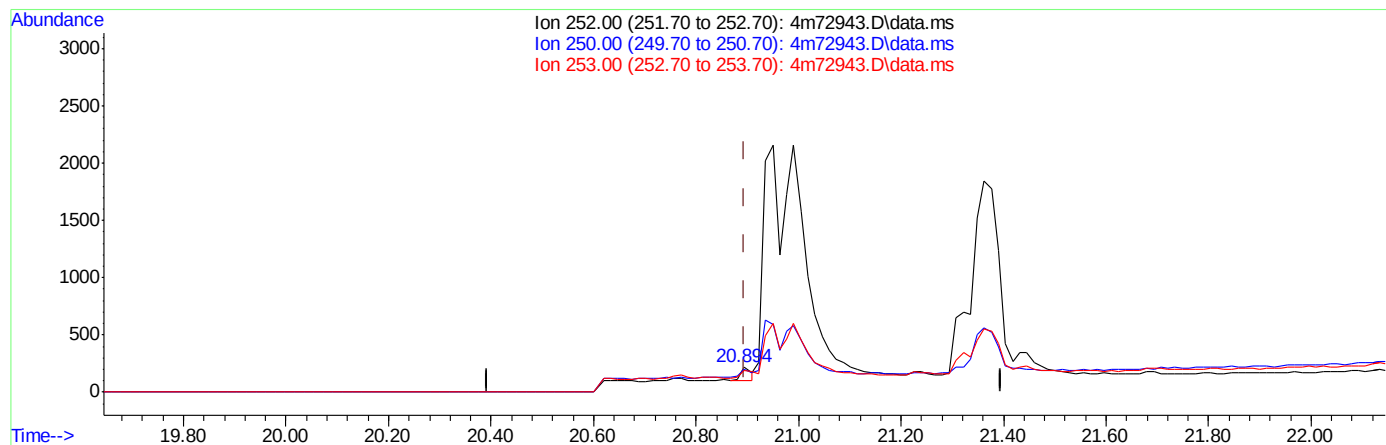
response 5015

Ion	Exp%	Act%
178.00	100	100
179.00	14.10	22.15
176.00	18.80	24.70
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



TIC: 4m72943.D\data.ms

(29) Benzo[b]fluoranthene (t)

20.894min (-0.000) 0.00ppm

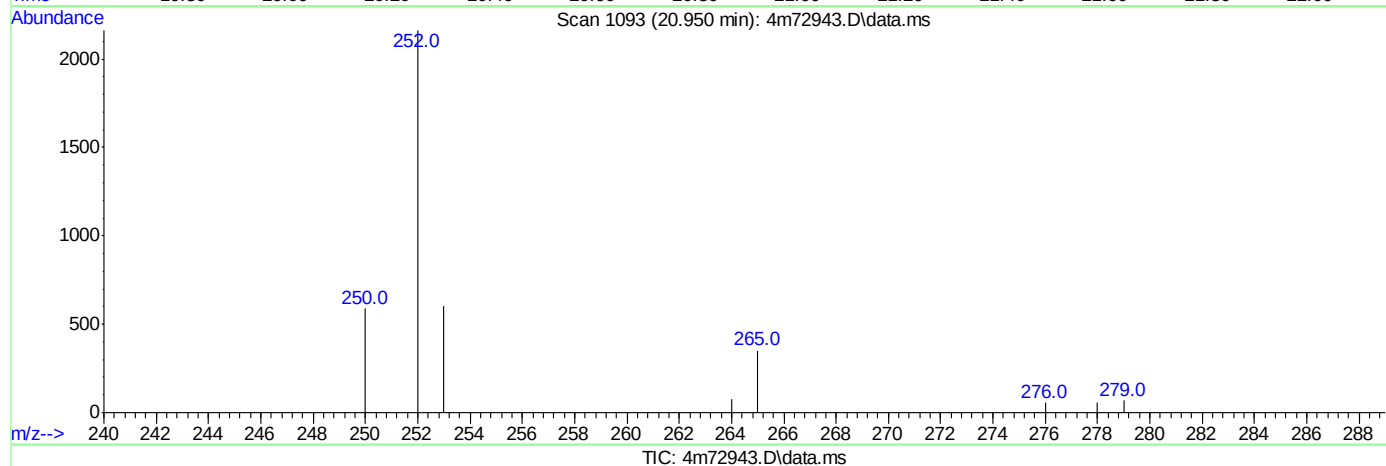
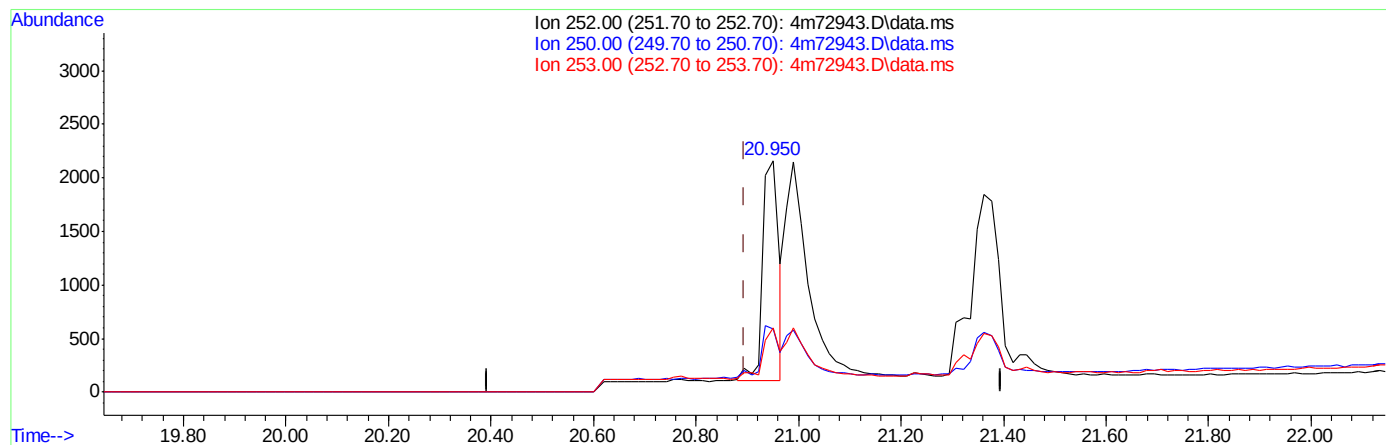
response 162

Ion	Exp%	Act%
252.00	100	100
250.00	24.20	65.64#
253.00	20.00	42.94
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(29) Benzo[b]fluoranthene (t)

20.950min (+0.055) 0.04ppm m

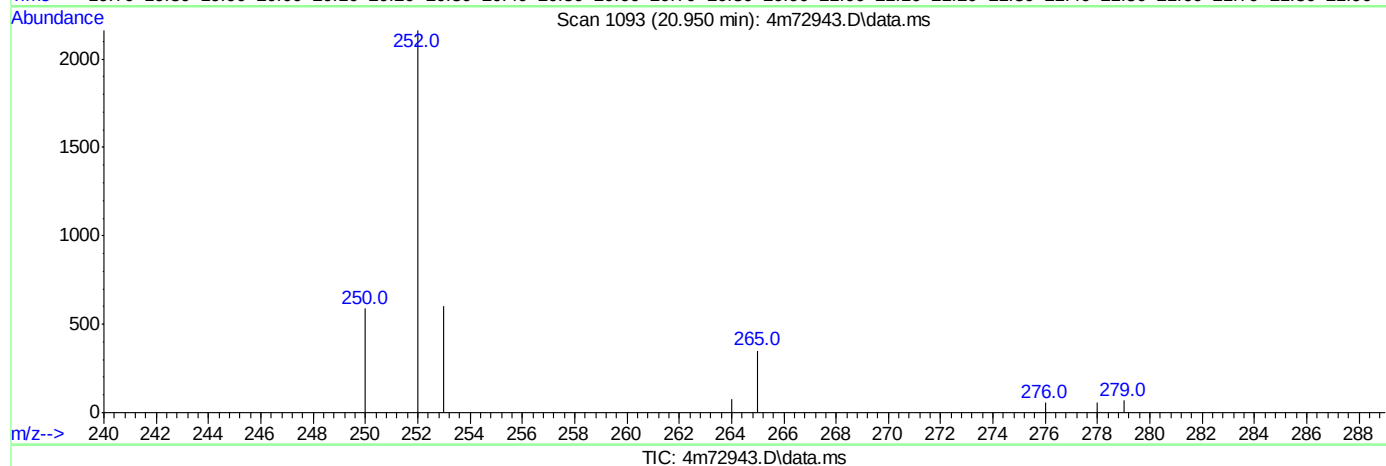
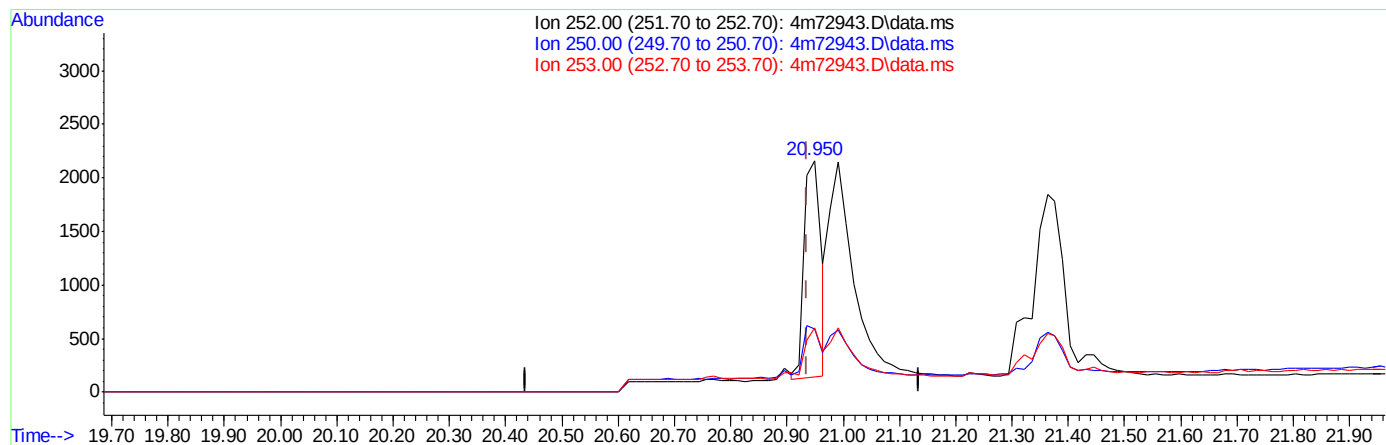
response 4454

Ion	Exp%	Act%
252.00	100	100
250.00	24.20	27.15
253.00	20.00	27.98
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(30) Benzo[k]fluoranthene (t)

20.950min (+0.014) 0.03ppm

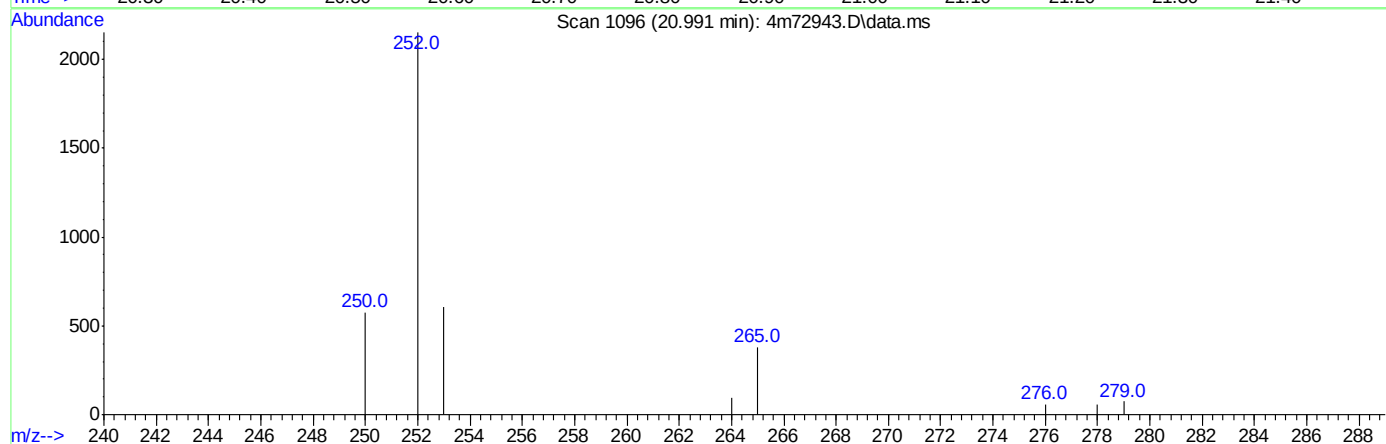
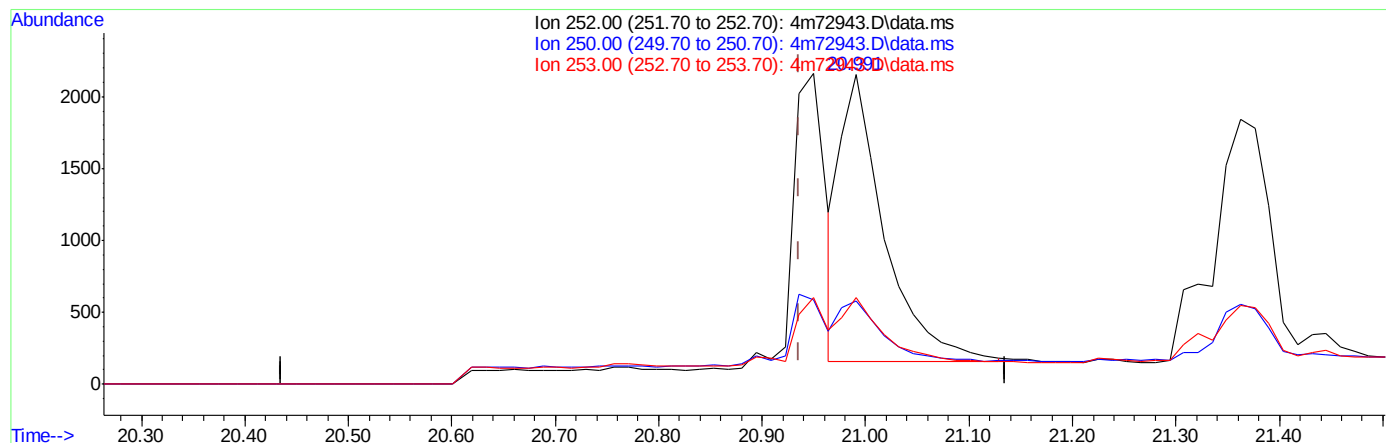
response 4204

Ion	Exp%	Act%
252.00	100	100
250.00	23.60	21.65
253.00	19.10	21.99
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



(30) Benzo[k]fluoranthene (t)

20.991min (+0.055) 0.05ppm m

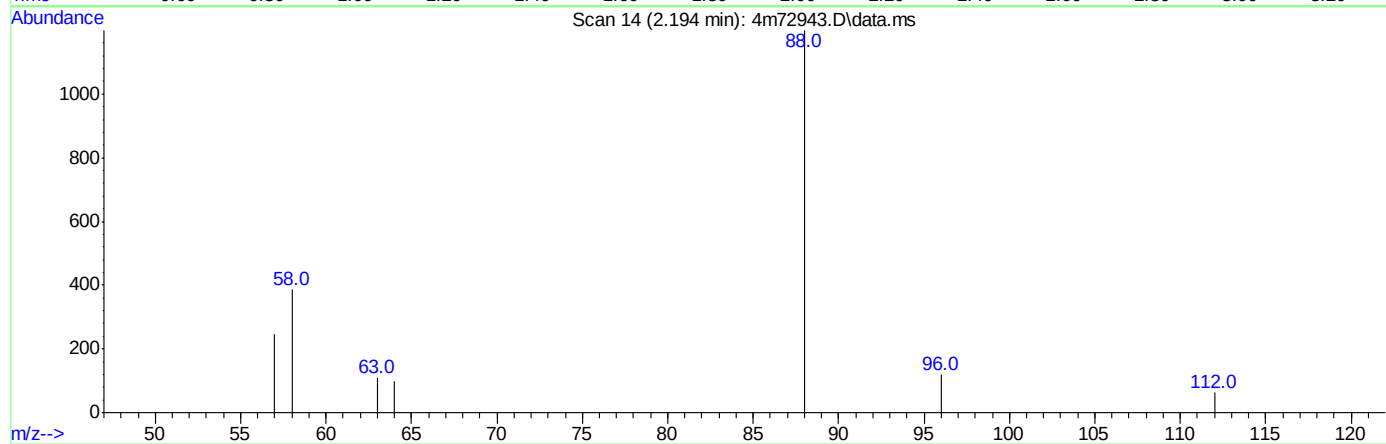
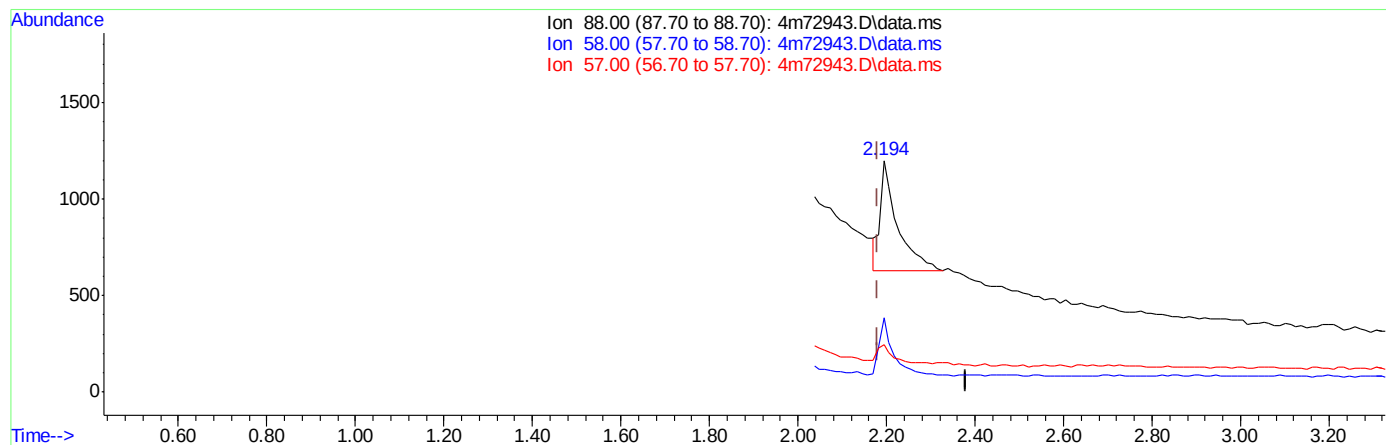
response 5966

Ion	Exp%	Act%
252.00	100	100
250.00	23.60	26.80
253.00	19.10	28.05
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



TIC: 4m72943.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (+0.012) 0.07ppm

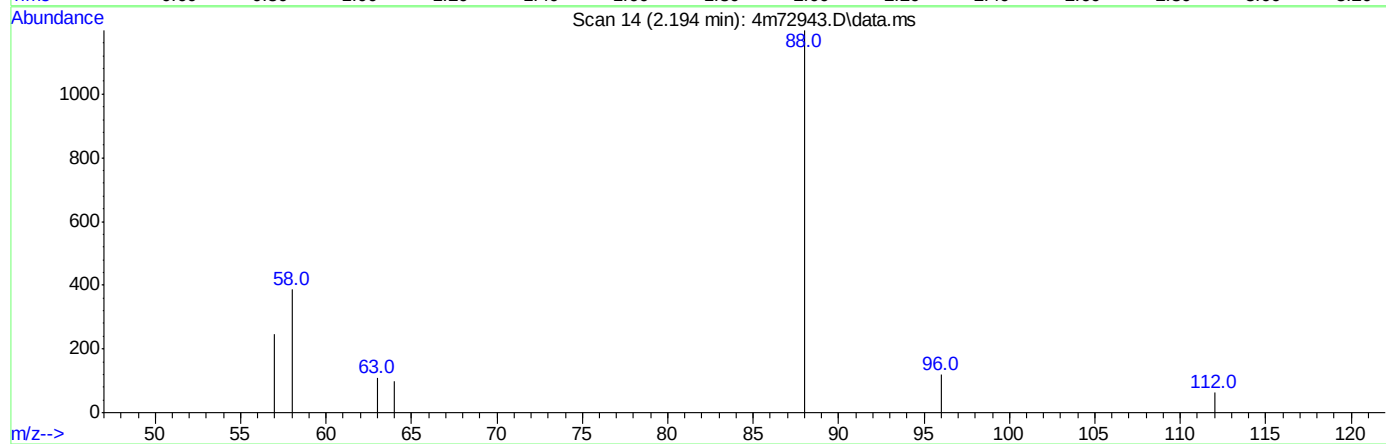
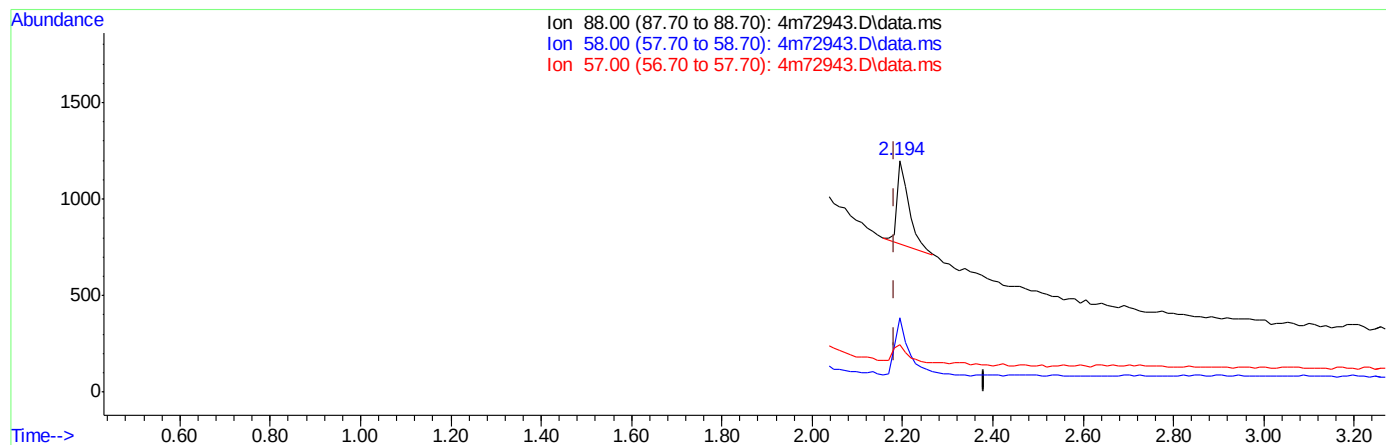
response 1537

Ion	Exp%	Act%
88.00	100	100
58.00	55.30	60.62
57.00	17.50	18.25
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



TIC: 4m72943.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (+0.012) 0.04ppm m

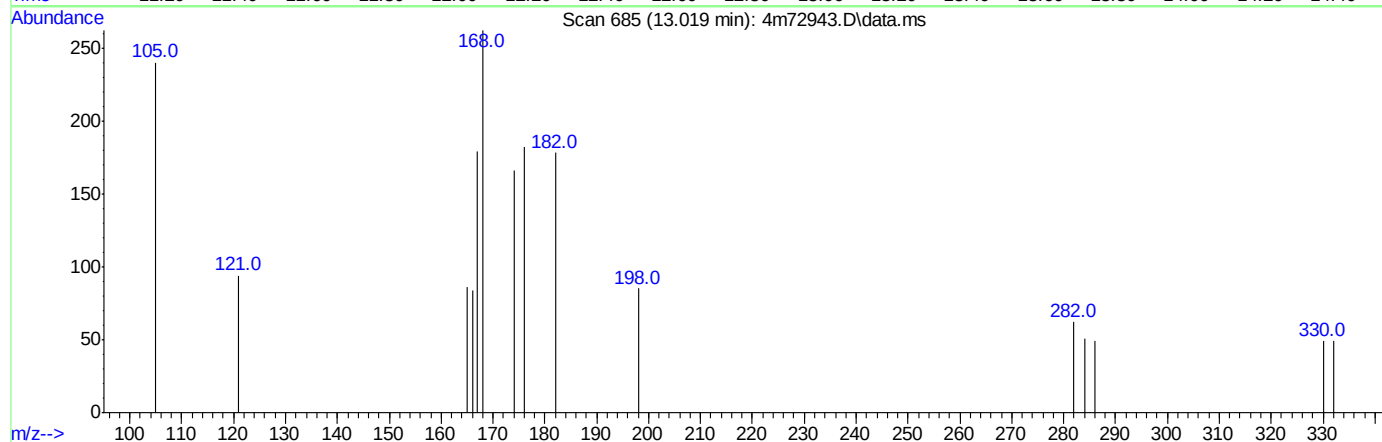
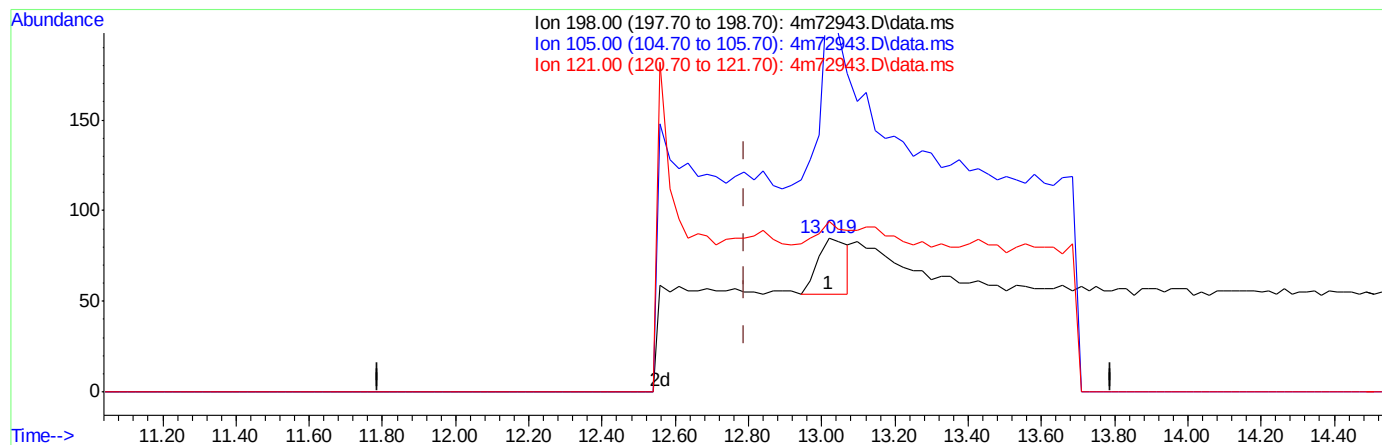
response 761

Ion	Exp%	Act%
88.00	100	100
58.00	55.30	32.25#
57.00	17.50	20.50
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



TIC: 4m72943.D\data.ms

(39) 4,6-dinitro-2-methylphenol (t)

13.019min (+0.230) 0.50ppm

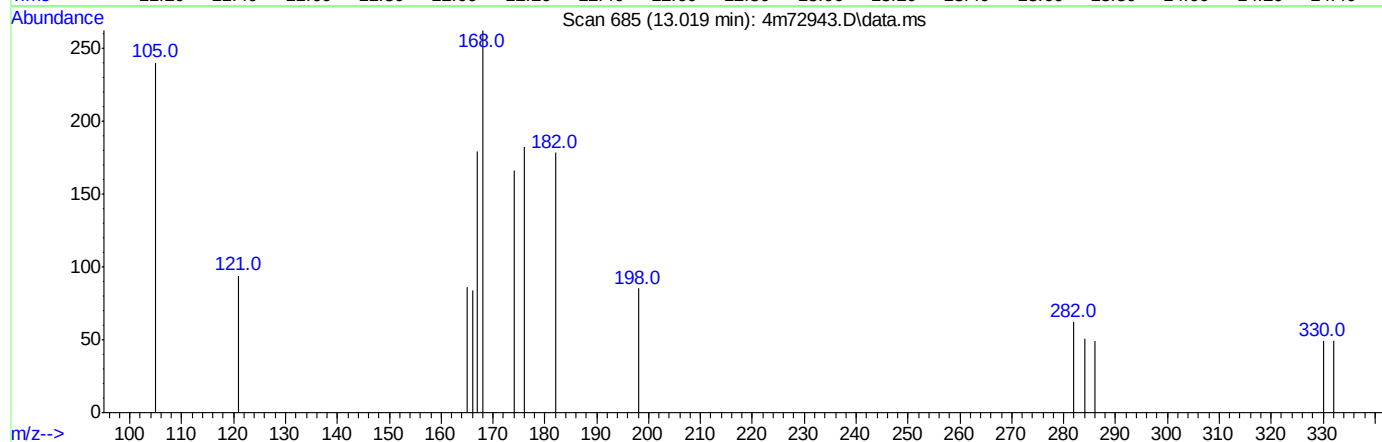
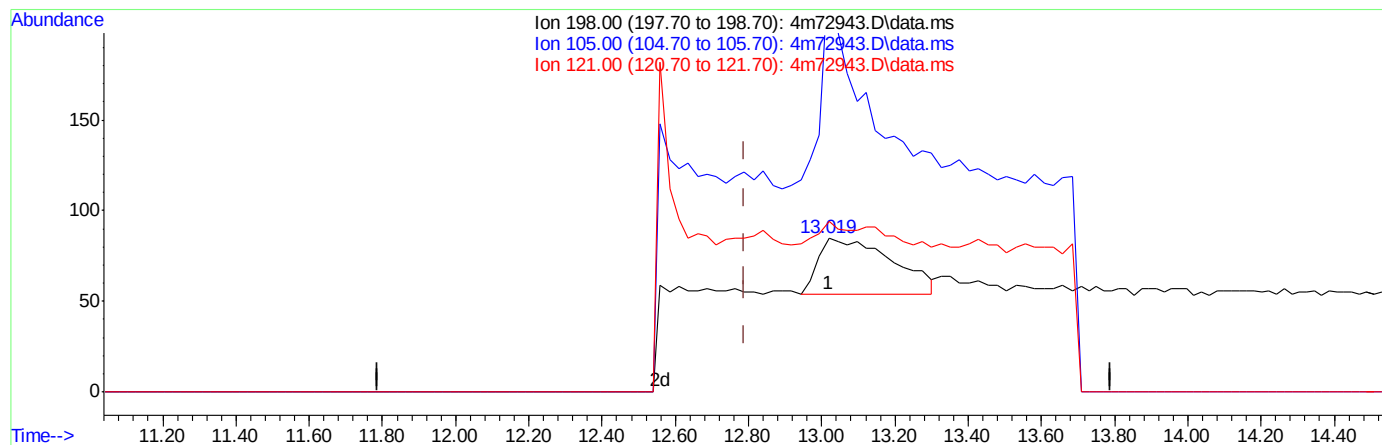
response 176

Ion	Exp%	Act%
198.00	100	100
105.00	26.60	534.29#
121.00	23.90	48.57#
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72943.D
Acq On : 6 Sep 2017 3:57 pm
Operator : kristis
Sample : ic3405-0.05
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 06 16:22:29 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 15:25:21 2017
Response via : Initial Calibration



TIC: 4m72943.D\data.ms

(39) 4,6-dinitro-2-methylphenol (t)

13.019min (+0.230) 0.53ppm m

response 431

Ion	Exp%	Act%
198.00	100	100
105.00	26.60	282.35#
121.00	23.90	110.59#
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72944.D
 Acq On : 6 Sep 2017 4:29 pm
 Operator : kristis
 Sample : ic3405-0.02
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 06 17:59:14 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 17:58:02 2017
 Response via : Initial Calibration

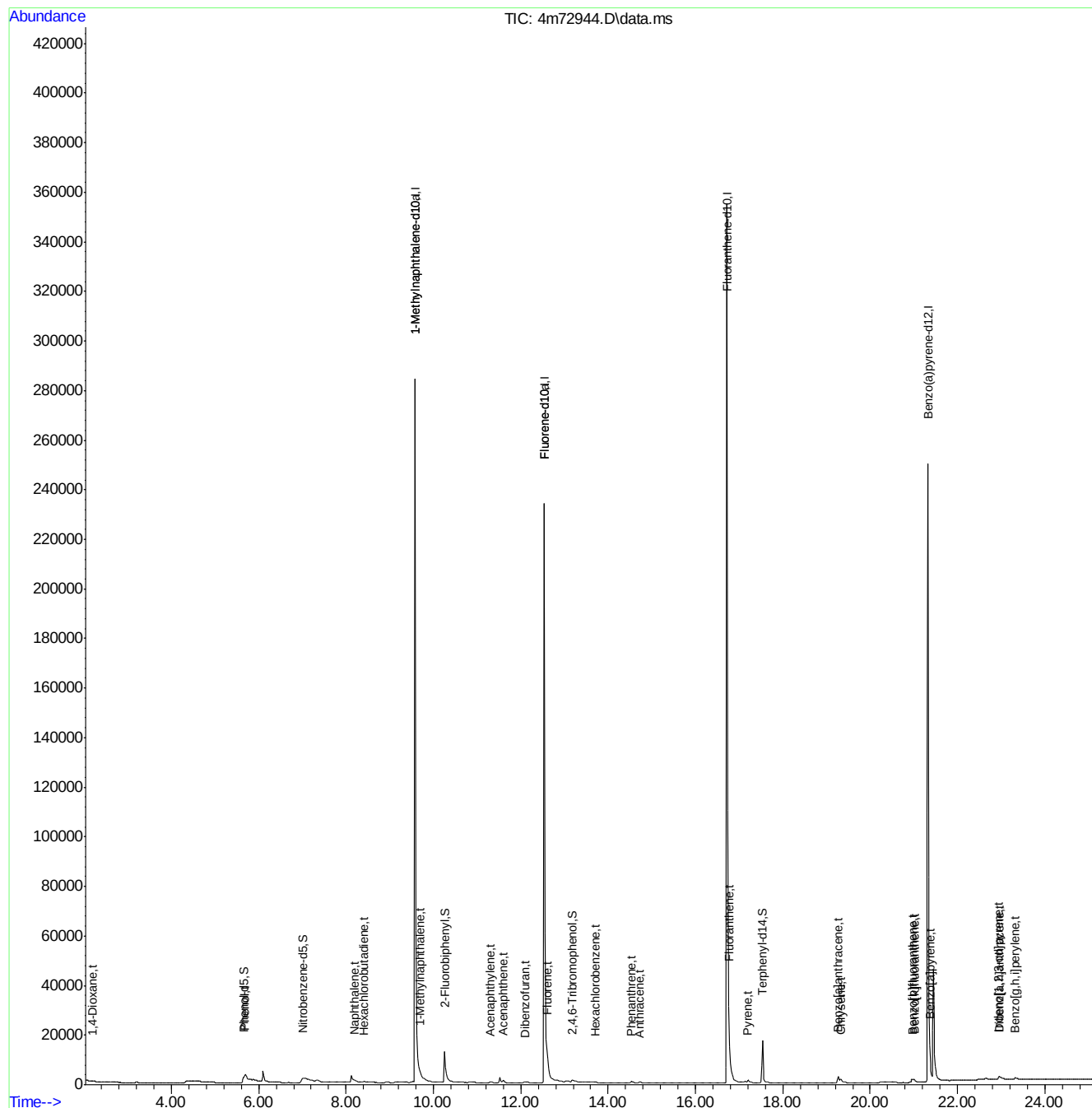
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	211585	4.00	ppm	0.00
12) Fluorene-d10	12.538	176	221975	4.00	ppm	0.00
22) Fluoranthene-d10	16.722	212	477030	4.00	ppm	0.00
28) Benzo(a)pyrene-d12	21.321	264	339558	4.00	ppm	0.00
35) 1-Methylnaphthalene-d10a	9.586	152	211585	4.00	ppm	0.00
38) Fluorene-d10a	12.538	176	221975	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0d	0.00	ppm	
Spiked Amount	50.000	Range	11 - 58	Recovery	=	0.00%#
3) Phenol-d5	5.658	99	11627	0.18	ppm	0.08
Spiked Amount	50.000			Recovery	=	0.36%
6) Nitrobenzene-d5	7.020	82	10640	0.19	ppm	0.13
Spiked Amount	50.000			Recovery	=	0.38%
11) 2-Fluorobiphenyl	10.263	172	29678	0.37	ppm	0.02
Spiked Amount	50.000			Recovery	=	0.74%
17) 2,4,6-Tribromophenol	13.172	330	2348	0.20	ppm	0.03
Spiked Amount	50.000			Recovery	=	0.40%
25) Terphenyl-d14	17.531	244	28605	0.30	ppm	0.00
Spiked Amount	50.000			Recovery	=	0.60%
Target Compounds						
					Qvalue	
4) Phenol	5.685	94	2412	0.03	ppm	# 1
7) Naphthalene	8.187	128	2804	0.02	ppm	99
8) Hexachlorobutadiene	8.413	225	435	0.02	ppm	84
13) Acenaphthylene	11.308	152	1381	0.02	ppm	92
14) Acenaphthene	11.595	153	1199	0.02	ppm	85
15) Dibenzofuran	12.108	168	1647	0.02	ppm	87
16) Fluorene	12.610	166	2020	0.02	ppm	99
18) Hexachlorobenzene	13.709	284	626	0.03	ppm	90
20) Phenanthrene	14.530	178	2648	0.02	ppm	96
21) Anthracene	14.714	178	1779	0.02	ppm	99
23) Fluoranthene	16.759	202	3830	0.03	ppm	95
24) Pyrene	17.192	202	2920	0.02	ppm	92
26) Benzo[a]anthracene	19.263	228	1645	0.01	ppm	# 96
27) Chrysene	19.320	228	3598	0.03	ppm	96
29) Benzo[b]fluoranthene	20.963	252	1930	0.02	ppm	94
30) Benzo[k]fluoranthene	21.005	252	2724	0.02	ppm	92
31) Benzo[a]pyrene	21.376	252	2464	0.02	ppm	96
32) Indeno[1,2,3-cd]pyrene	22.946	276	2790	0.02	ppm	51
33) Dibenz[a,h]anthracene	22.960	278	2294	0.02	ppm	# 36
34) Benzo[g,h,i]perylene	23.318	276	2554	0.02	ppm	97
36) 1,4-Dioxane	2.194	88	215m	0.01	ppm	
37) 1-Methylnaphthalene	9.688	142	3039	0.03	ppm	86

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

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72944.D
Acq On : 6 Sep 2017 4:29 pm
Operator : kristis
Sample : ic3405-0.02
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 06 17:59:14 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 17:58:02 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E4M3405-IC3405

Lab FileID:

4M72944.D

Injection Time:

09/06/17 16:29

Method:

SW846 8270D BY SIM

Analyst approved:

09/06/17 18:48 Kristi Schollenberger

Supervisor approved:

09/07/17 11:31 Nina Pandya

Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.19	Poor instrument integration

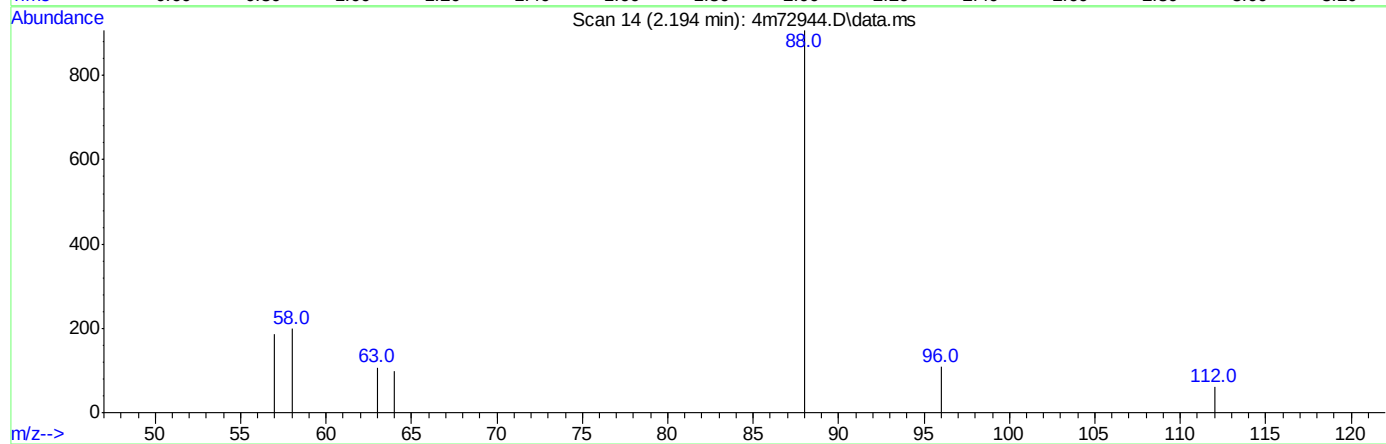
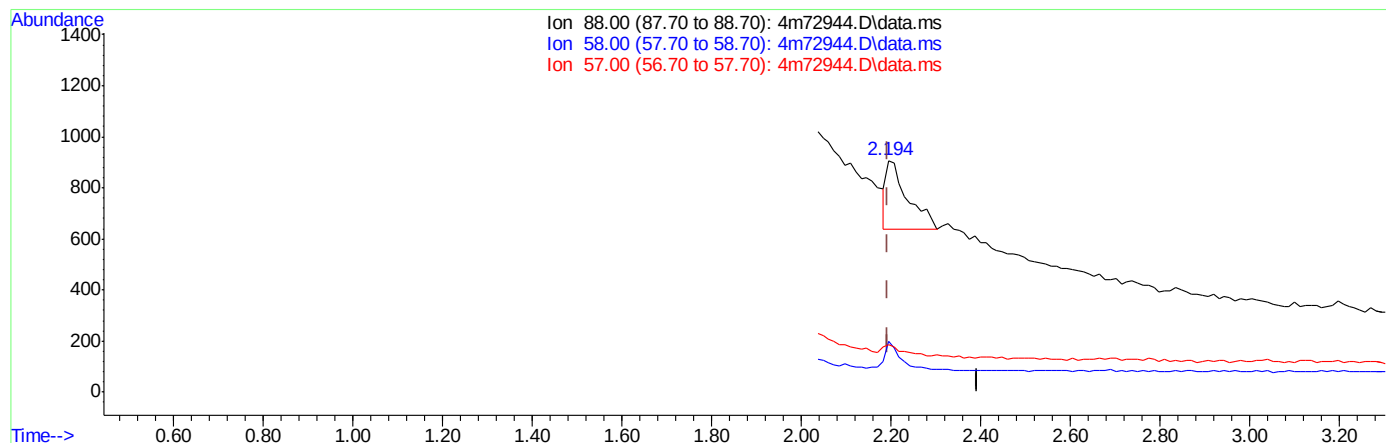
9.6.42.1

9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72944.D
Acq On : 6 Sep 2017 4:29 pm
Operator : kristis
Sample : ic3405-0.02
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 06 17:58:11 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 17:58:02 2017
Response via : Initial Calibration



TIC: 4m72944.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (-0.000) 0.05ppm

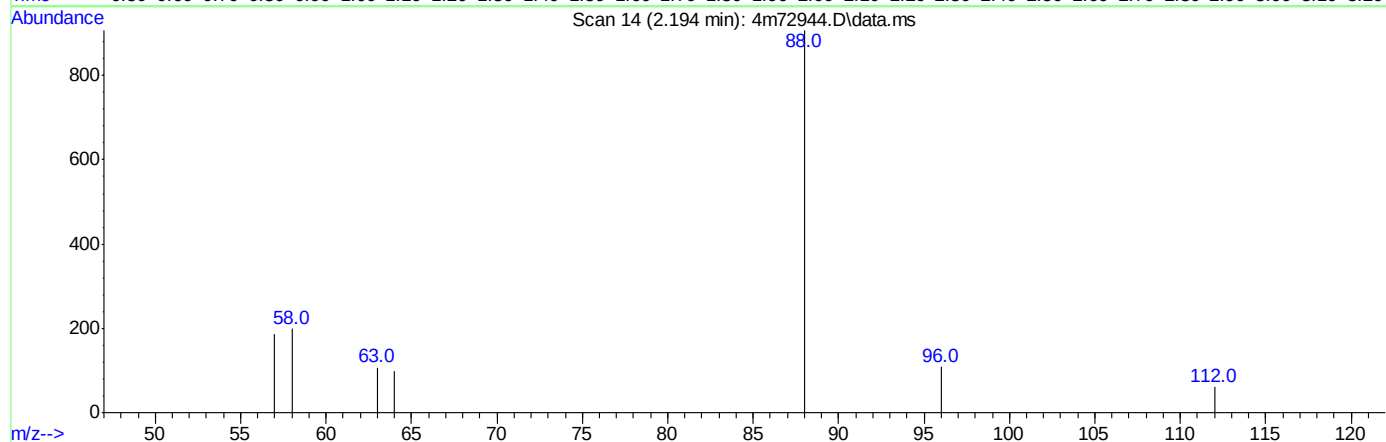
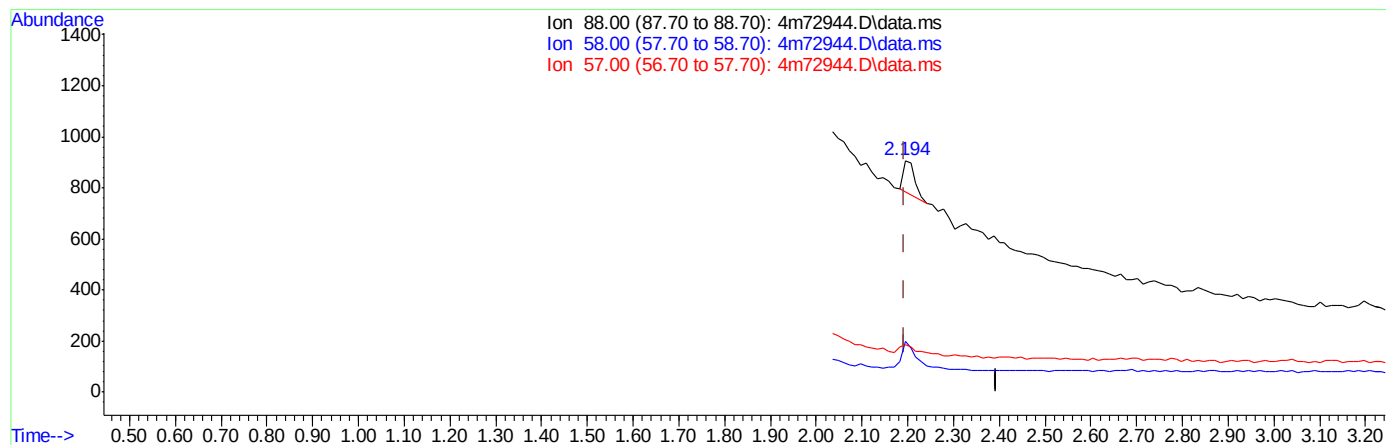
response 900

Ion	Exp%	Act%
88.00	100	100
58.00	55.30	49.08
57.00	17.50	12.86
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72944.D
Acq On : 6 Sep 2017 4:29 pm
Operator : kristis
Sample : ic3405-0.02
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Sep 06 17:58:11 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 17:58:02 2017
Response via : Initial Calibration



TIC: 4m72944.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (-0.000) 0.01ppm m

response 215

Ion	Exp%	Act%
88.00	100	100
58.00	55.30	21.94#
57.00	17.50	20.51
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72945.D
 Acq On : 6 Sep 2017 5:00 pm
 Operator : kristis
 Sample : ic3405-0.01
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 06 18:00:12 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 17:58:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	231483	4.00	ppm	0.00
12) Fluorene-d10	12.538	176	278405	4.00	ppm	0.00
22) Fluoranthene-d10	16.722	212	529318	4.00	ppm	0.00
28) Benzo(a)pyrene-d12	21.321	264	371614	4.00	ppm	0.00
35) 1-Methylnaphthalene-d10a	9.586	152	231483	4.00	ppm	0.00
38) Fluorene-d10a	12.538	176	278405	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount	50.000	Range	11 - 58	Recovery	=	0.00%#
3) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount	50.000			Recovery	=	0.00%
6) Nitrobenzene-d5	0.000	82	0d	0.00	ppm	
Spiked Amount	50.000			Recovery	=	0.00%
11) 2-Fluorobiphenyl	10.283	172	16379	0.19	ppm	0.04
Spiked Amount	50.000			Recovery	=	0.38%
17) 2,4,6-Tribromophenol	13.224	330	1201	0.08	ppm	0.08
Spiked Amount	50.000			Recovery	=	0.16%
25) Terphenyl-d14	17.531	244	17222	0.16	ppm	0.00
Spiked Amount	50.000			Recovery	=	0.32%
Target Compounds						
7) Naphthalene	8.187	128	1626	0.01	ppm	96
8) Hexachlorobutadiene	8.413	225	244	0.01	ppm	85
13) Acenaphthylene	11.308	152	733	0.01	ppm	94
14) Acenaphthene	11.595	153	699	0.01	ppm	88
15) Dibenzofuran	12.149	168	963	0.01	ppm	93
16) Fluorene	12.610	166	1156	0.01	ppm	92
18) Hexachlorobenzene	13.730	284	370	0.01	ppm	70
20) Phenanthrene	14.530	178	1762	0.01	ppm	96
21) Anthracene	14.735	178	1160	0.01	ppm	98
23) Fluoranthene	16.759	202	2940	0.02	ppm	96
24) Pyrene	17.211	202	2018	0.01	ppm	95
26) Benzo[a]anthracene	19.263	228	1197	0.01	ppm	99
27) Chrysene	19.320	228	2610	0.02	ppm	93
29) Benzo[b]fluoranthene	20.963	252	1234	0.01	ppm	97
30) Benzo[k]fluoranthene	21.005	252	2094	0.02	ppm	97
31) Benzo[a]pyrene	21.363	252	1791	0.01	ppm	97
32) Indeno[1,2,3-cd]pyrene	22.960	276	1813	0.01	ppm	# 39
33) Dibenz[a,h]anthracene	22.973	278	1572	0.01	ppm	# 40
34) Benzo[g,h,i]perylene	23.331	276	1776	0.01	ppm	98
36) 1,4-Dioxane	2.194	88	135m	0.01	ppm	

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

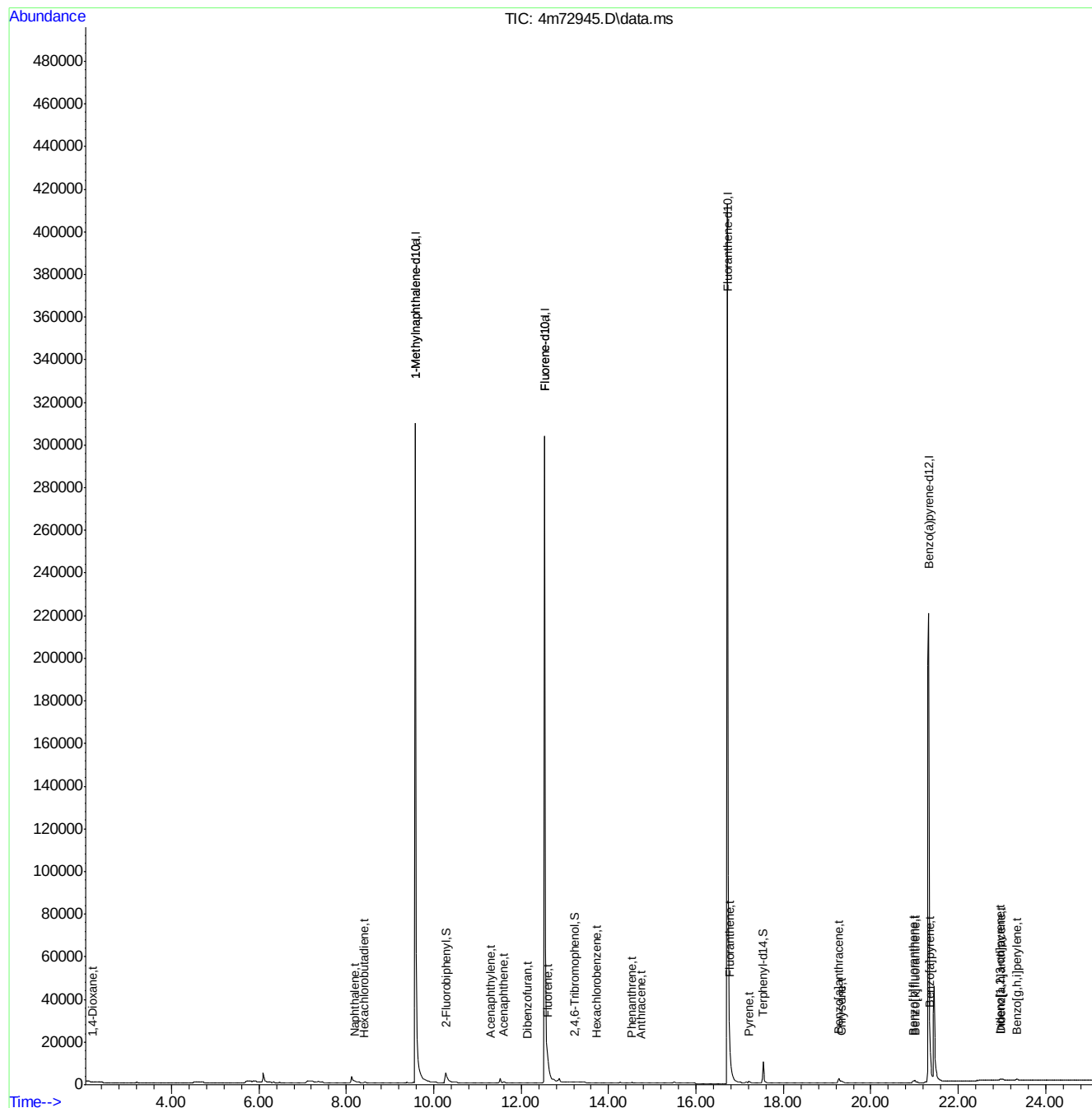
9.6.43

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72945.D
Acq On : 6 Sep 2017 5:00 pm
Operator : kristis
Sample : ic3405-0.01
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 06 18:00:12 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 17:58:02 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number:

E4M3405-IC3405

Lab FileID:

4M72945.D

Injection Time:

09/06/17 17:00

Method:

SW846 8270D BY SIM

Analyst approved:

09/06/17 18:48 Kristi Schollenberger

Supervisor approved:

09/07/17 11:31 Nina Pandya

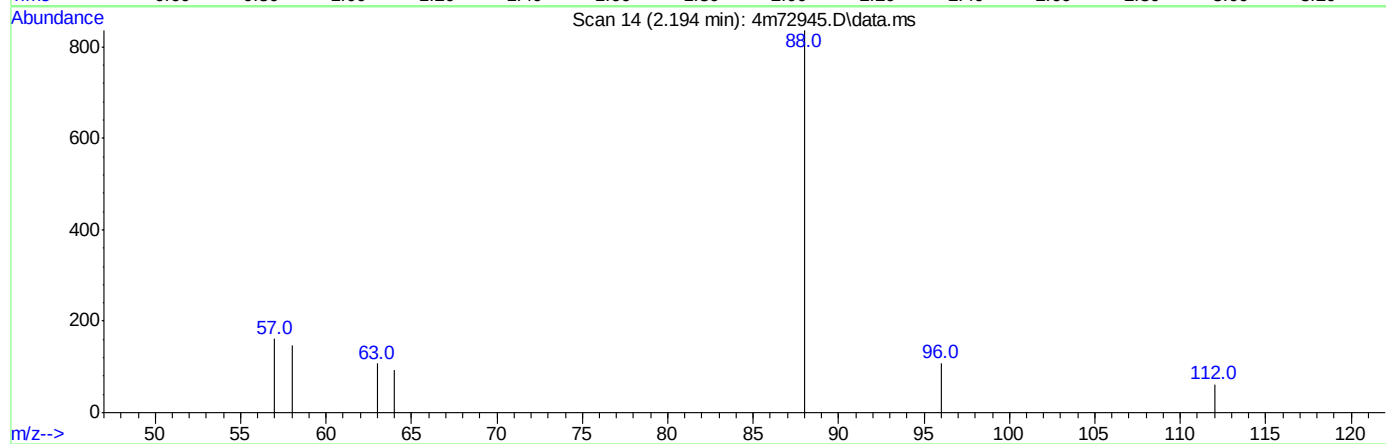
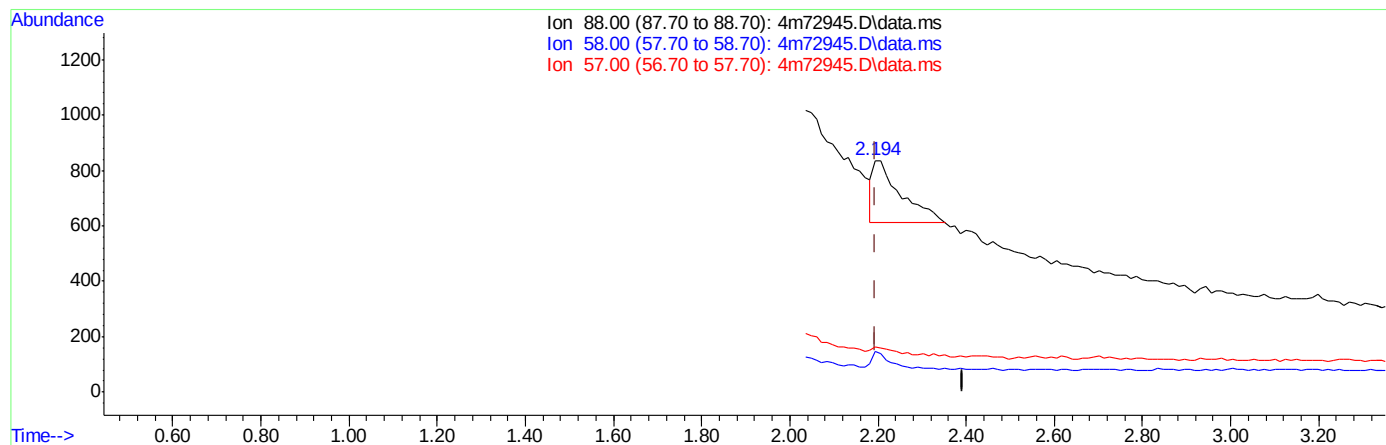
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.19	Poor instrument integration

9.6.43.1
9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72945.D
Acq On : 6 Sep 2017 5:00 pm
Operator : kristis
Sample : ic3405-0.01
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 06 17:59:21 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 17:58:02 2017
Response via : Initial Calibration



TIC: 4m72945.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (-0.000) 0.04ppm

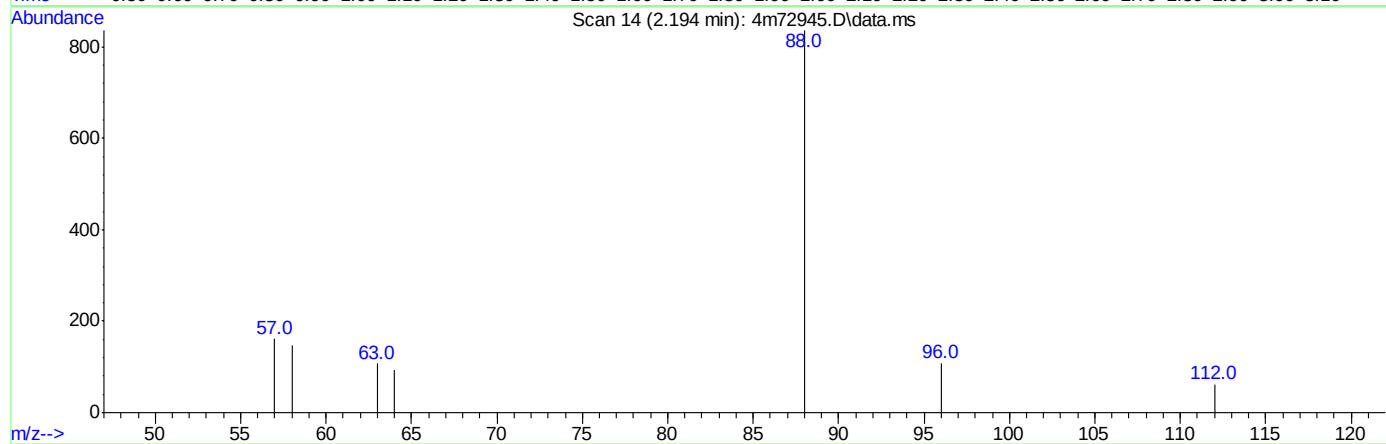
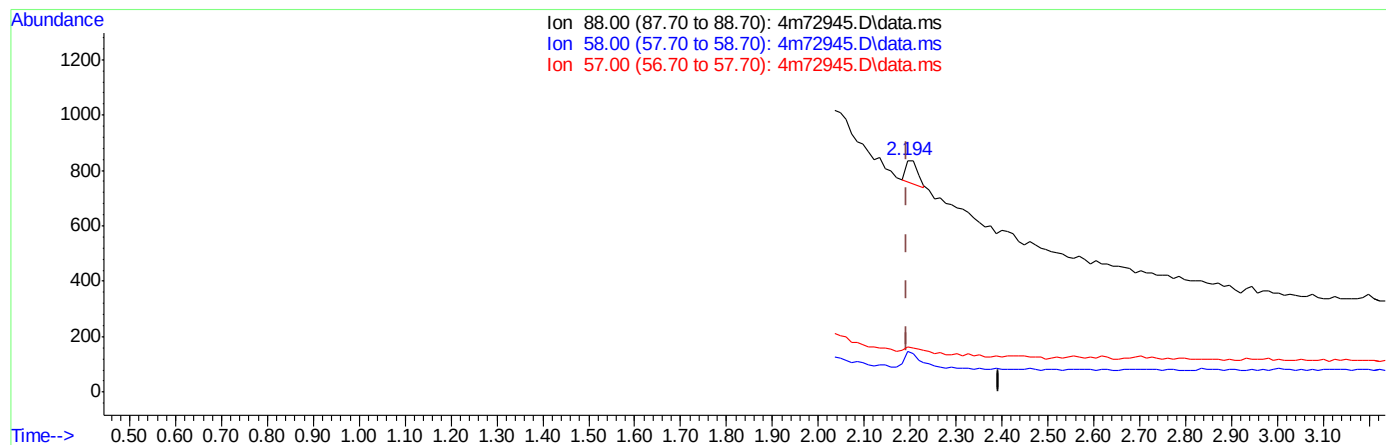
response 964

Ion	Exp%	Act%
88.00	100	100
58.00	55.30	35.27#
57.00	17.50	13.01
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72945.D
Acq On : 6 Sep 2017 5:00 pm
Operator : kristis
Sample : ic3405-0.01
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 06 17:59:21 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 17:58:02 2017
Response via : Initial Calibration



TIC: 4m72945.D\data.ms

(36) 1,4-Dioxane (t)

2.194min (-0.000) 0.01ppm m

response 135

Ion	Exp%	Act%
88.00	100	100
58.00	55.30	17.46#
57.00	17.50	19.26
0.00	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72946.D
 Acq On : 6 Sep 2017 5:30 pm
 Operator : kristis
 Sample : icv3405-1
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 06 18:38:55 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 18:35:40 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	234666	4.00	ppm	0.00
12) Fluorene-d10	12.539	176	281611	4.00	ppm	0.00
22) Fluoranthene-d10	16.722	212	495017	4.00	ppm	0.00
28) Benzo(a)pyrene-d12	21.321	264	356490	4.00	ppm	0.01
35) 1-Methylnaphthalene-d10a	9.586	152	234666	4.00	ppm	0.00
38) Fluorene-d10a	12.539	176	281611	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount 50.000	Range 11 - 58		Recovery	=	0.00%#	
3) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
6) Nitrobenzene-d5	0.000	82	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
11) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
25) Terphenyl-d14	0.000	244	0d	0.00	ppm	
Spiked Amount 50.000			Recovery	=	0.00%	
Target Compounds						
4) Phenol	5.534	94	353139	4.71	ppm	94
19) Pentachlorophenol	14.181	266	47840	4.63	ppm	100
39) 4,6-dinitro-2-methylph...	12.789	198	41527	4.36	ppm	83

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

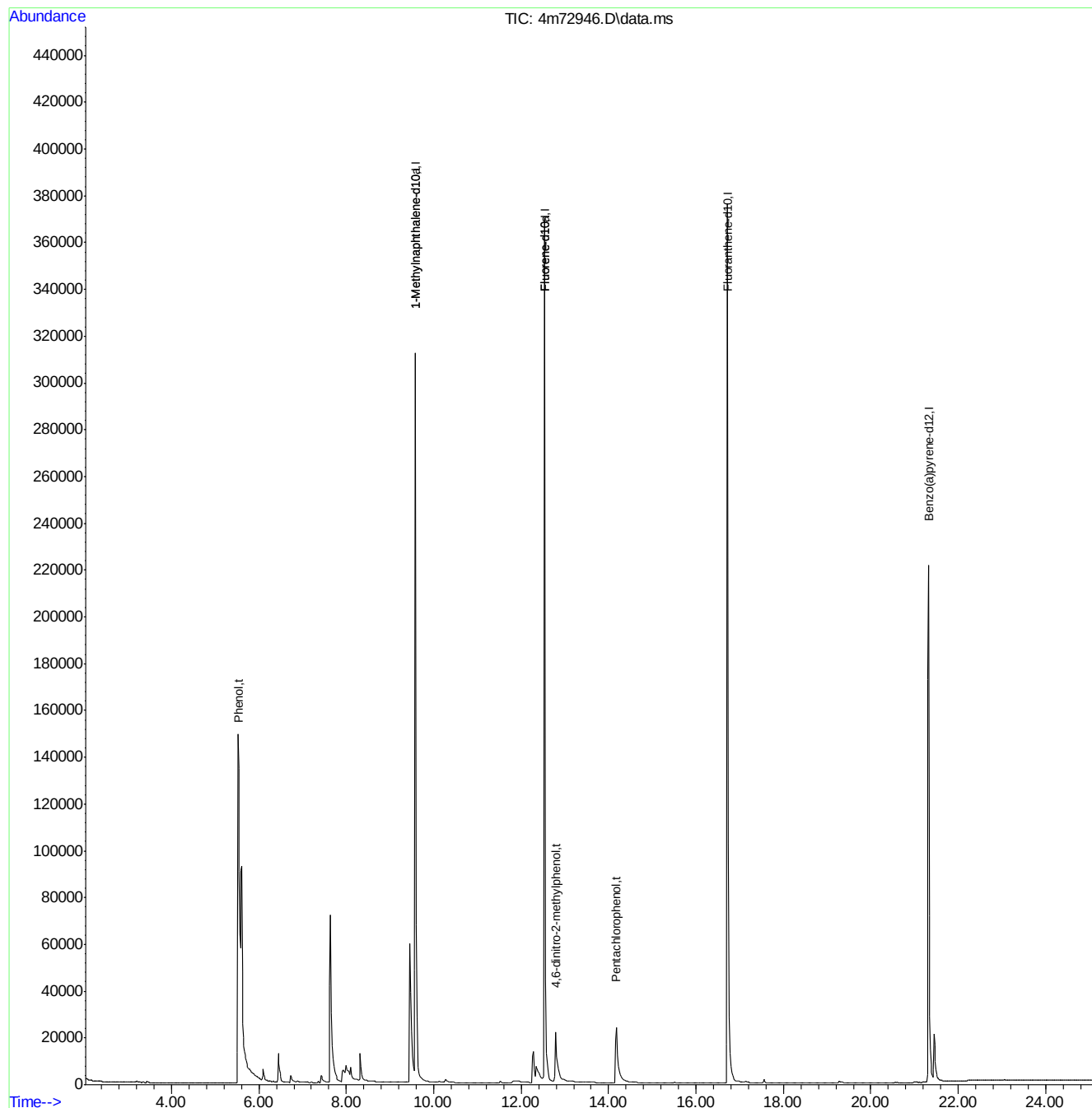
9.6.44

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72946.D
Acq On : 6 Sep 2017 5:30 pm
Operator : kristis
Sample : icv3405-1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Sep 06 18:38:55 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 18:35:40 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
 Data File : 4m72947.D
 Acq On : 6 Sep 2017 6:01 pm
 Operator : kristis
 Sample : icv3405-1
 Misc : op5441a,e4m3405,1000,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 06 18:40:00 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Wed Sep 06 18:35:40 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1-Methylnaphthalene-d10	9.586	152	210358	4.00	ppm	0.00
12) Fluorene-d10	12.539	176	239635	4.00	ppm	0.00
22) Fluoranthene-d10	16.722	212	453861	4.00	ppm	0.00
28) Benzo(a)pyrene-d12	21.321	264	286524	4.00	ppm	0.01
35) 1-Methylnaphthalene-d10a	9.586	152	210358	4.00	ppm	0.00
38) Fluorene-d10a	12.539	176	239635	4.00	ppm	0.00
System Monitoring Compounds						
2) 2-Fluorophenol	0.000	112	0	0.00	ppm	
Spiked Amount	50.000	Range	11 - 58	Recovery	=	0.00%#
3) Phenol-d5	0.000	99	0d	0.00	ppm	
Spiked Amount	50.000			Recovery	=	0.00%
6) Nitrobenzene-d5	0.000	82	0d	0.00	ppm	
Spiked Amount	50.000			Recovery	=	0.00%
11) 2-Fluorobiphenyl	0.000	172	0d	0.00	ppm	
Spiked Amount	50.000			Recovery	=	0.00%
17) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ppm	
Spiked Amount	50.000			Recovery	=	0.00%
25) Terphenyl-d14	0.000	244	0d	0.00	ppm	
Spiked Amount	50.000			Recovery	=	0.00%
Target Compounds						
						Qvalue
7) Naphthalene	8.131	128	150571	0.96	ppm	99
8) Hexachlorobutadiene	8.413	225	21520	0.94	ppm	92
13) Acenaphthylene	11.226	152	82435	0.99	ppm	91
14) Acenaphthene	11.554	153	62957	1.02	ppm	98
15) Dibenzofuran	11.944	168	79344	0.92	ppm	84
16) Fluorene	12.610	166	81822	0.87	ppm	86
18) Hexachlorobenzene	13.709	284	17416	0.79	ppm	# 62
20) Phenanthrene	14.489	178	122039	0.95	ppm	98
21) Anthracene	14.612	178	97534	0.93	ppm	97
23) Fluoranthene	16.759	202	116646	0.80	ppm	98
24) Pyrene	17.155	202	109646	0.79	ppm	95
26) Benzo[a]anthracene	19.226	228	119840	1.12	ppm	# 87
27) Chrysene	19.301	228	103957	0.78	ppm	98
29) Benzo[b]fluoranthene	20.908	252	88436	0.95	ppm	93
30) Benzo[k]fluoranthene	20.950	252	77836	0.77	ppm	92
31) Benzo[a]pyrene	21.363	252	77438	0.78	ppm	93
32) Indeno[1,2,3-cd]pyrene	22.863	276	88297	0.78	ppm	64
33) Dibenz[a,h]anthracene	22.891	278	75592	0.81	ppm	97
34) Benzo[g,h,i]perylene	23.235	276	82067	0.80	ppm	100
36) 1,4-Dioxane	2.194	88	16327	0.96	ppm	87

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

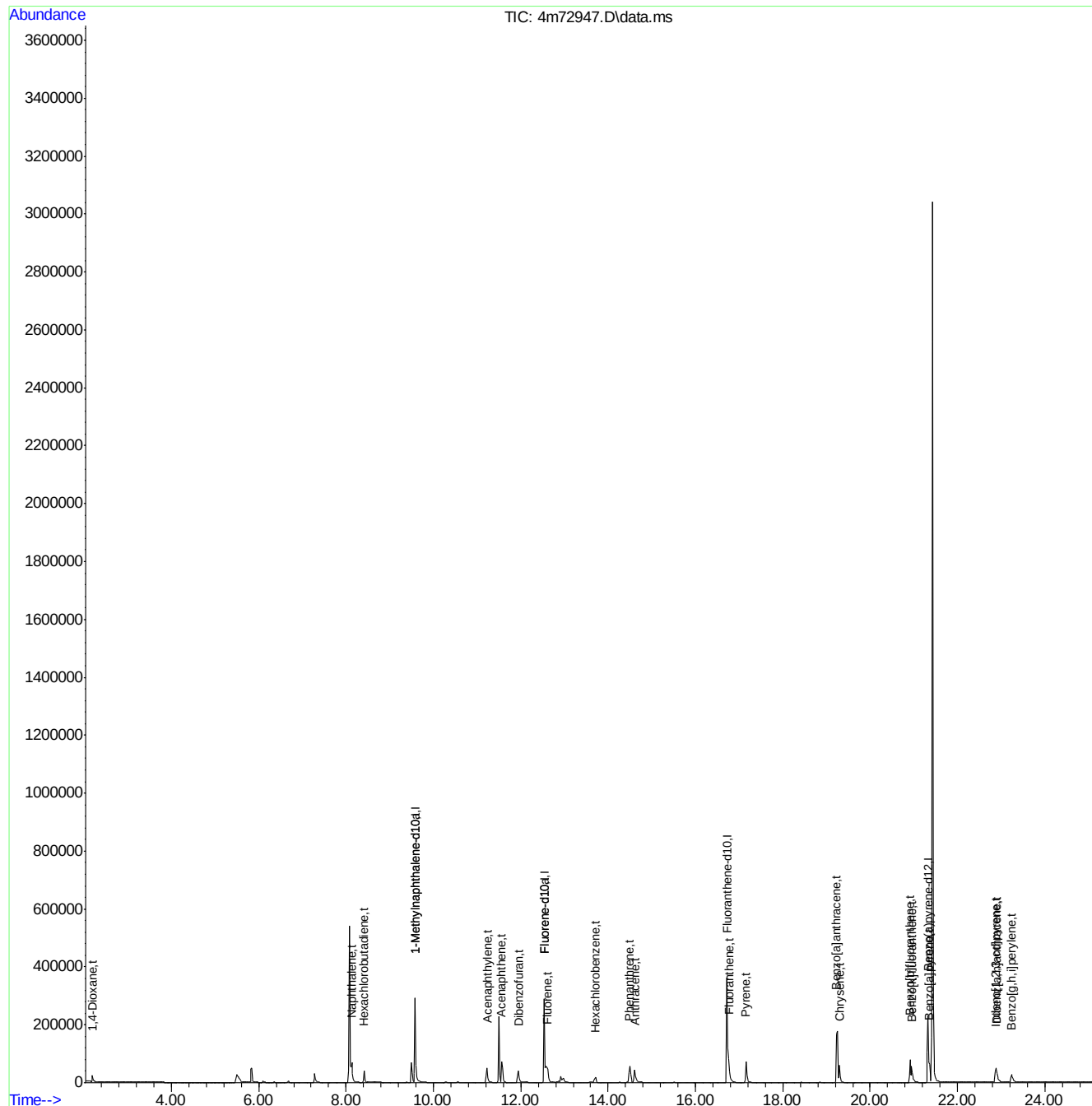
9.6.45

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3405\
Data File : 4m72947.D
Acq On : 6 Sep 2017 6:01 pm
Operator : kristis
Sample : icv3405-1
Misc : op5441a,e4m3405,1000,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Sep 06 18:40:00 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Wed Sep 06 18:35:40 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3433\
 Data File : 4m73406.D
 Acq On : 12 Oct 2017 11:10 am
 Operator : kevinm2
 Sample : cc3405-1
 Misc : op6171a,e4m3433,1000,,,1,1
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 12 14:41:27 2017
 Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
 Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
 QLast Update : Mon Oct 02 11:48:14 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1-Methylnaphthalene-d10	9.340	152	142562	4.00	ppm	-0.06
12) Fluorene-d10	12.283	176	256086	4.00	ppm	-0.07
22) Fluoranthene-d10	16.493	212	303472	4.00	ppm	-0.06
28) Benzo(a)pyrene-d12	21.097	264	271120	4.00	ppm	-0.07
35) 1-Methylnaphthalene-d10a	9.340	152	142081	4.00	ppm	#-0.06
38) Fluorene-d10a	12.283	176	256086	4.00	ppm	-0.07
System Monitoring Compounds						
2) 2-Fluorophenol	3.818	112	458602	17.03	ppm	-0.14
Spiked Amount 50.000	Range 11 - 58		Recovery =	34.06%		
3) Phenol-d5	5.200	99	765950	18.61	ppm	-0.14
Spiked Amount 50.000			Recovery =	37.22%		
6) Nitrobenzene-d5	6.566	82	698783	20.74	ppm	-0.05
Spiked Amount 50.000			Recovery =	41.48%		
11) 2-Fluorobiphenyl	9.976	172	1030191	19.39	ppm	0.02
Spiked Amount 50.000			Recovery =	38.78%		
17) 2,4,6-Tribromophenol	12.845	330	189746	14.91	ppm	-0.06
Spiked Amount 50.000			Recovery =	29.82%		
25) Terphenyl-d14	17.283	244	1587559	28.86	ppm	-0.05
Spiked Amount 50.000			Recovery =	57.72%		
Target Compounds						
					Qvalue	
4) Phenol	5.214	94	208266	4.57	ppm	85
5) bis(2-Chloroethyl)ether	5.241	93	30397	0.82	ppm	# 35
7) Naphthalene	7.884	128	98442	0.93	ppm	96
8) Hexachlorobutadiene	8.167	225	13575	0.88	ppm	94
10) Hexachlorocyclopentadiene	9.566	237	4072	0.85	ppm	95
13) Acenaphthylene	10.981	152	65867	0.74	ppm	90
14) Acenaphthene	11.309	153	44954	0.68	ppm	91
15) Dibenzofuran	11.698	168	62259	0.68	ppm	80
16) Fluorene	12.334	166	67903	0.68	ppm	100
18) Hexachlorobenzene	13.433	284	15465	0.65	ppm	99
19) Pentachlorophenol	13.930	266	17672	2.19	ppm	99
20) Phenanthrene	14.237	178	88288	0.65	ppm	97
21) Anthracene	14.340	178	89410	0.80	ppm	97
23) Fluoranthene	16.511	202	96624	1.00	ppm	92
24) Pyrene	16.907	202	98898	1.06	ppm	87
26) Benzo[a]anthracene	19.015	228	88191	1.21	ppm	# 97
27) Chrysene	19.072	228	88780	0.99	ppm	99
29) Benzo[b]fluoranthene	20.684	252	81025	0.92	ppm	97
30) Benzo[k]fluoranthene	20.725	252	91120	0.95	ppm	97
31) Benzo[a]pyrene	21.138	252	83067	0.89	ppm	96
32) Indeno[1,2,3-cd]pyrene	22.612	276	92674	0.87	ppm	98
33) Dibenzo[a,h]anthracene	22.625	278	76182	0.86	ppm	80
34) Benzo[g,h,i]perylene	22.956	276	81249	0.84	ppm	100
36) 1,4-Dioxane	2.004	88	9778m	0.85	ppm	
37) 1-Methylnaphthalene	9.402	142	57711	0.88	ppm	97

9.6.46

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3433\
Data File : 4m73406.D
Acq On : 12 Oct 2017 11:10 am
Operator : kevinm2
Sample : cc3405-1
Misc : op6171a,e4m3433,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 12 14:41:27 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Mon Oct 02 11:48:14 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

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

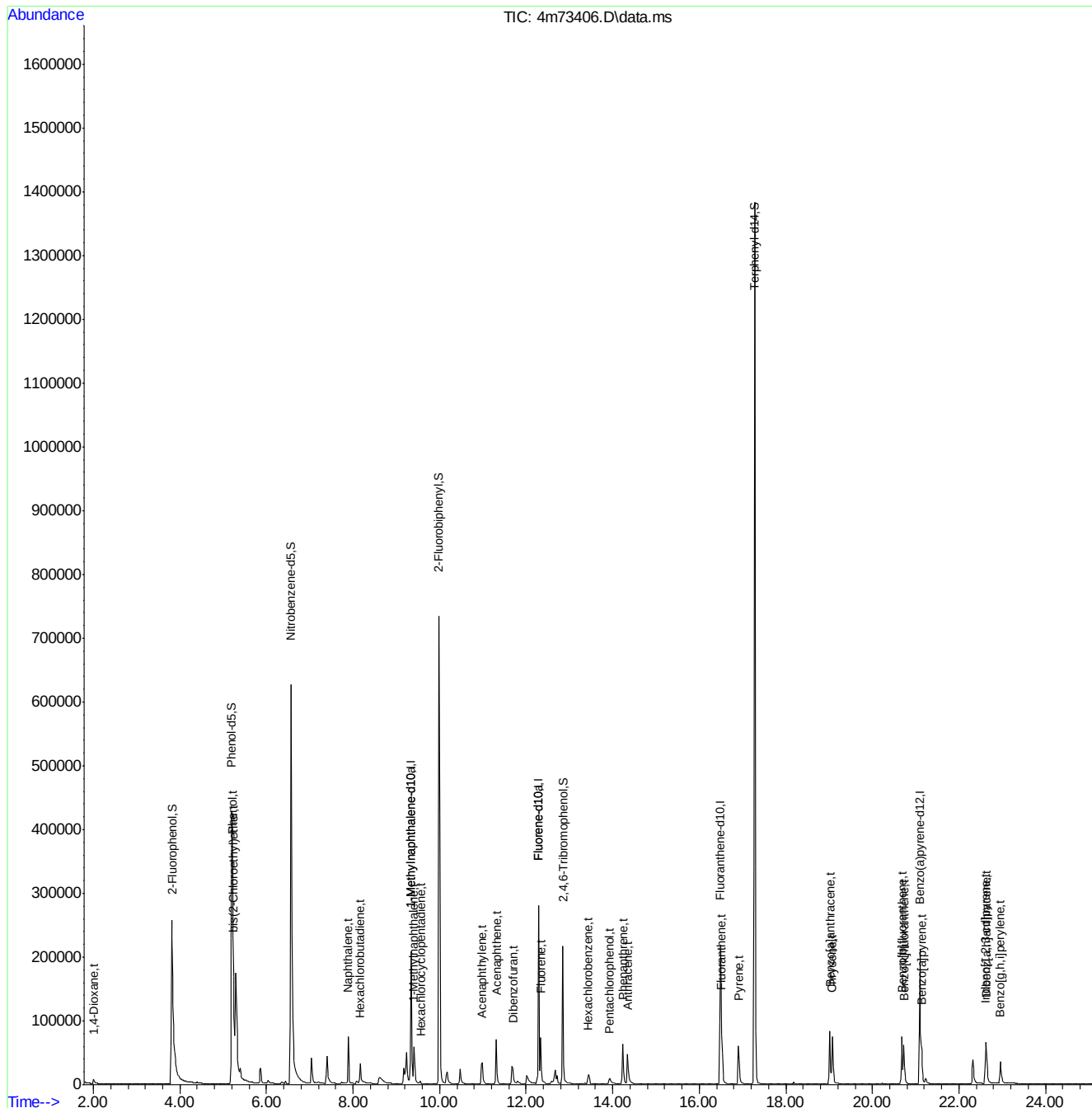
9.6.46

9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E4M3433\
Data File : 4m73406.D
Acq On : 12 Oct 2017 11:10 am
Operator : kevinm2
Sample : cc3405-1
Misc : op6171a,e4m3433,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 12 14:41:27 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Mon Oct 02 11:48:14 2017
Response via : Initial Calibration



Manual Integration Approval Summary

Sample Number: E4M3433-CC3405

Method: SW846 8270D BY SIM

Lab FileID: 4M73406.D

Analyst approved: 10/12/17 14:49 Kristi Schollenberger

Injection Time: 10/12/17 11:10

Supervisor approved: 10/16/17 13:41 Nina Pandya

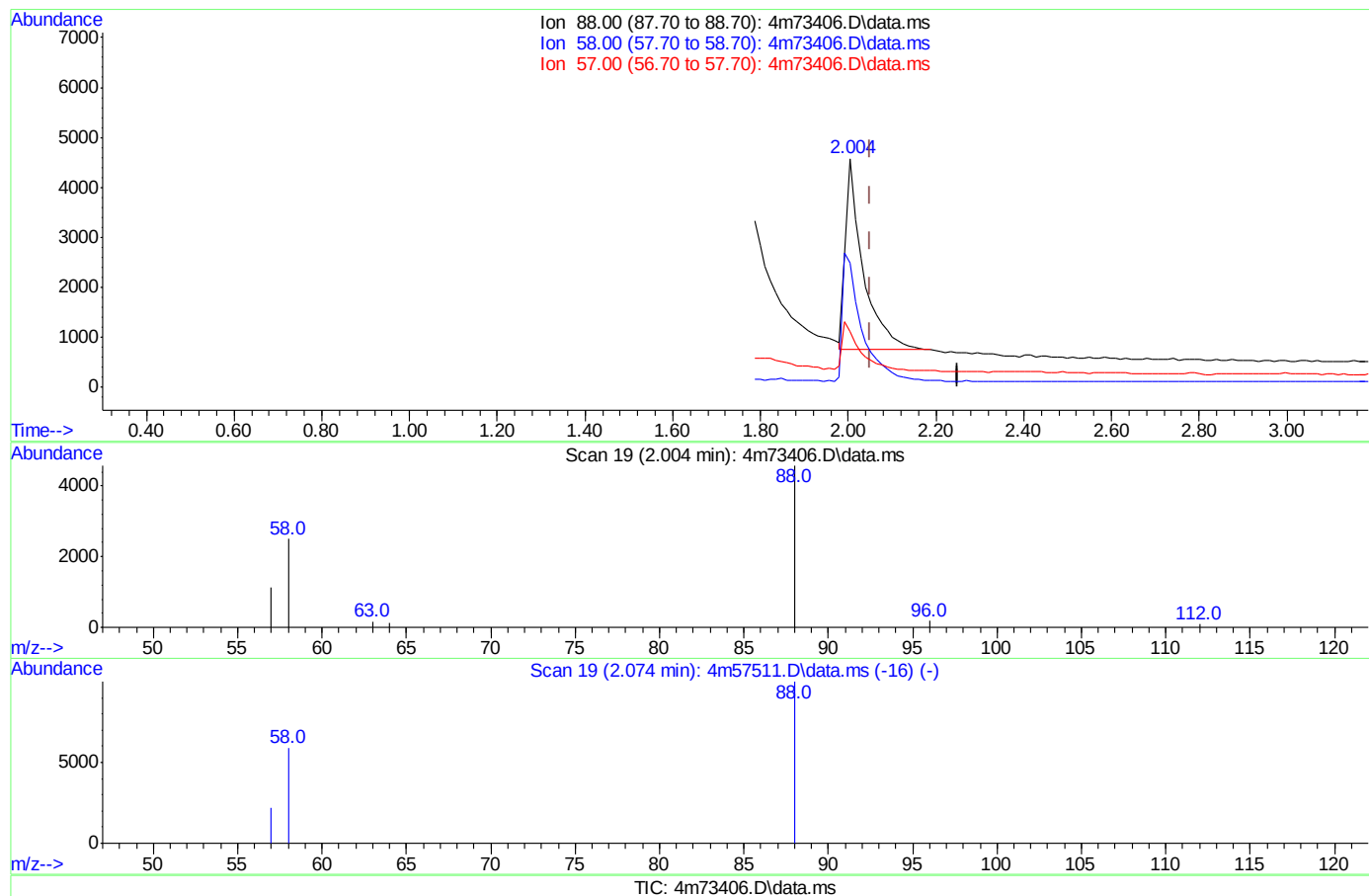
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,4-Dioxane	123-91-1		2.00	Poor instrument integration

9.6.46.1
9

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3433\
Data File : 4m73406.D
Acq On : 12 Oct 2017 11:10 am
Operator : kevinm2
Sample : cc3405-1
Misc : op6171a,e4m3433,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 12 12:08:42 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Mon Oct 02 11:48:14 2017
Response via : Initial Calibration



(36) 1,4-Dioxane (t)

2.004min (-0.046) 0.92ppm

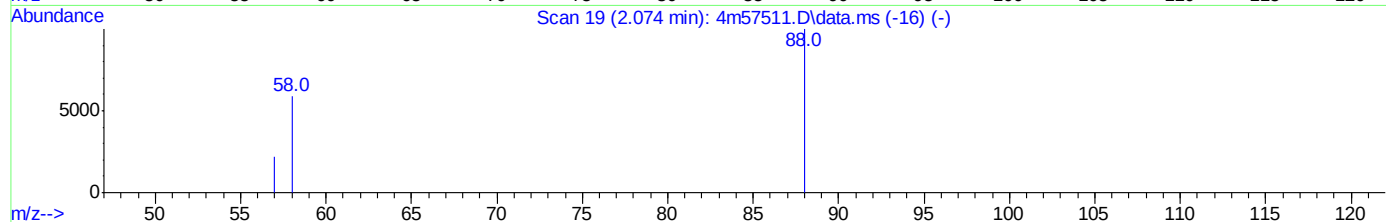
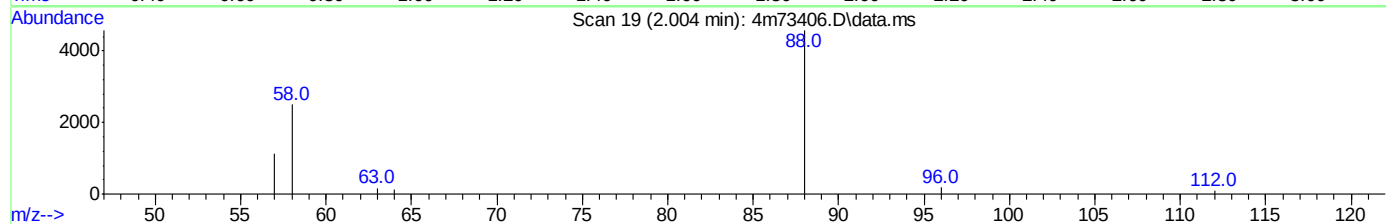
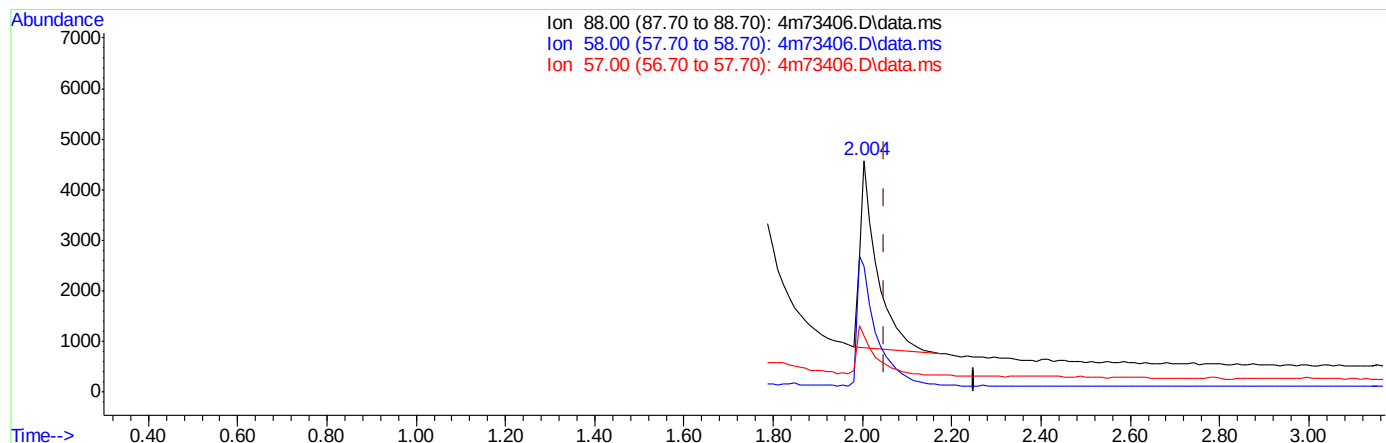
response 10562

Ion	Exp%	Act%
88.00	100	100
58.00	58.70	62.00
57.00	23.50	19.89
0.00	0.00	0.00

Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\E4M3433\
Data File : 4m73406.D
Acq On : 12 Oct 2017 11:10 am
Operator : kevinm2
Sample : cc3405-1
Misc : op6171a,e4m3433,1000,,,1,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 12 12:08:42 2017
Quant Method : C:\MSDCHEM\1\METHODS\M4M3405SIM.M
Quant Title : Semi Volatile GC/MS,zb-5 15m x .25mm x .50um
QLast Update : Mon Oct 02 11:48:14 2017
Response via : Initial Calibration



TIC: 4m73406.D\data.ms

(36) 1,4-Dioxane (t)

2.004min (-0.046) 0.85ppm m

response 9778

Ion	Exp%	Act%
88.00	100	100
58.00	58.70	54.50
57.00	23.50	24.55
0.00	0.00	0.00

SGS

Batch ID: E3E 4280Print Analyst Name: Chris StephenAnalyst Signature: [Signature]Date: 8/15/17

Standard Data

Lot #	Description	Conc.

Standard Data

Lot #	Description	Conc.
50172122-40	AP 40	5000
675815	ISTD	4000
120430	Num C-Fish	

Columns: 20.5 min + 30 min 250 - 0.250Method: 82700/625Initial Cal. Method: M3E 4279Injection Volume: 10

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: [Signature]Date: 8/16/17

R	Data File	Sample ID	Ext. Batch	Test	M T X	ALS #	Dilution n.	L +	I S	S U	Status (Data)	Comments
	3E 96113	d4pp				1					Net	
	96114	d4pp				1					Net	partially dirty separation
	96115	IC 4280-100		T242		2					Net	10.21pm
	96116	-80				3					Net	50172122-24A
	96117	IC 4280-50				4					Net	-940
	96118	IC 4280-25				5					Net	-940
	96119	-10				6					Net	-940
	96120	-5				7					Net	-940
	96121	-2				8					Net	-940
	96122	-1				9					Net	-940
	96123	IC 4280-50		BNA 2nd		10					Net	-940
	96124	-50		ABN 5th		11					Net	091413510.27 high ligand
	96125	IC 4280-50		HQ 2nd		12					Net	Bad inject run as 2.460th
	96126	-50		AP 2nd		13					Net	50172122-108 30 9000
												50172122-33K 25 high

X = Matrix. Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

Strikeouts must be initialed, dated, and reason applied if not transcription error.
Sample volume/weight used and final volumes refer to extraction log.

Form: OR015-08

Date: 5/25/17

143

Batch ID: E3E4310

Print Analyst Name: Kristi Schellenberger

Analyst Signature: *[Signature]*

Date: 9/13/17

Standard Data

Standard Data

Lot #	Description	Conc.
517-228517A	BUA	10 ppm
517-228517B		50 ppm
517-228517C		50 ppm
517-228517D		20 ppm
517-228517E		10 ppm
517-228517F		5 ppm

Lot #	Description	Conc.
517-2578	DEIMP	50 ppm
517-228517H	BUA	2 ppm
517-228517I	*	1 ppm
517-228517J	BUA 2nd Surrogate	50 ppm
517-228517K	BUA sample 2nd Surrogate	50 ppm
517-228517L	PHM 1st Surrogate	50 ppm

Columns: 22515 3mm 260K-20

Method: 62704/1625

Initial Cal. Method: 16254310

Injection Volume: 1 µL

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: *[Signature]*

Date: 9-29-17

R	Data File	Sample ID	Ext. Batch	Test	MTX	ALS #	Dilution	L	I	S	SU	Status (Data)	Comments
57161	DEIMP				W1							ok	
57162	1C4310-100				W2							ok	
57163	1C4310-1				W3							ok	
57164	1C4310-20				W4							ok	
57165	1C4310-2				W5							ok	
57166	1C4310-50				W6							ok	
57167	1C4310-5				W7							ok	
57168	1C4310-25				W8							ok	
57169	1C4310-10				W9							ok	
57170	1C4310-50				W10							ok	
57171	1C4310-50				W11							ok	
57172	1C4305-50				W12							ok	
57173	1C4305-50				W13	2						ok	concentration = 100 ppm

MTX = Matrix. Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

All strikeouts must be initialed, dated, and reason applied if not transcription error.
Sample volume/weight used and final volumes refer to extraction log.

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SGS

Batch ID: E3E4350

Print Analyst Name: Vivek Patel

Analyst Signature: 

Date: 10/23/17

Standard Data

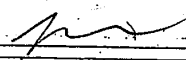
Lot #	Description	Conc.

Standard Data

Lot #	Description	Conc.
SV172192-49	DFTPP	50 ppm
SV172192-676	BNA	25 ppm
SV172192-118D	TCL42	25 ppm
CP5815	Int. Std.	4000 ppm
E76740	DCM - Fisher	

Columns: Rx 25mm 30mm 25mm 25mmMethod: 8270 D1625Initial Cal. Method: M3E4310Injection Volume: 100

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: 

Date: 10/20/17

Data File	Sample ID	Ext. Batch	Test	M T X	ALS #	Dilution n.	L +	I S	S U	Status (Data)	Comments
3E97838A	DFTPP				1					<i>d</i>	2:45 PM
97839A	CC4310-25				2					<i>d</i>	25 35 37.42 46.50 69.74 76.5
97840A	CC4280-25				3					<i>d</i>	25.4 46.16 50.5
97841A	bna 1 ppm vref				4					<i>d</i>	112.4
97842A	op7146-mbl	7146	AB8270+	S	5		X	/	/	<i>d</i>	SV172289-19L
97843A	-bs1	↓	↓	↓	6			/	/	<i>d</i>	
97844A	jc53007-47	7023	AB500	W	7			/	/	<i>d</i>	
97845A	jc52695-7	6819	BSIMPAH	↓	8			/	/	<i>d</i>	
97846A	jc52983-3	6944	ABTCL20Ⓢ	S	9		X	/	/	<i>d</i>	
97847A	-4	↓	↓	↓	10		X	/	/	<i>d</i>	
97848A	-5	↓	↓	↓	11		X	/	/	<i>d</i>	
97849A	-6	↓	↓	↓	12		X	/	/	<i>d</i>	
97850A	jc52863-1	7054	B625PPL	W	13			/	/	<i>d</i>	
97851A	jc52870-1		AB625 PPL		14			/	/	<i>d</i>	
97852A	jc52891-1		↓		15			/	/	<i>d</i>	
97853A	jc52898-2		B625B152E		16			/	/	<i>d</i>	
97854A	jc53033-1	↓	AB625PPL		17					<i>Not using B625 due to not</i>	

MTX = Matrix. Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

All strikeouts must be initialed, dated, and reason applied if not transcription error
Sample volume/weight used and final volumes refer to extraction log.

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Rev. Date: 5/25/17

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SGS

DATA VOLATILE BY GC/MS ANALYSIS

Batch ID: E3E 4350

Print Analyst Name: Vivek Patel

Analyst Signature: VP

Date: 10/23/17

Standard Data

Standard Data

Lot #	Description	Conc.

Lot #	Description	Conc.
	See pg. 155	

Columns: Rt 8.125 min, 25 min, 27 min, 28 min, 29 minMethod: 82700/625Initial Cal. Method: M3E4310Injection Volume: 1 ul

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: [Signature]Date: 10/23/17

Data File	Sample ID	Ext. Batch	Test	M T X	ALS #	Dilution n.	L +	I S	S U	Status (Data)	Comments
3E9785A	jc53166-1	7094	AB625 PPL	W	18			5	1	OK	RR: 1.2 NAP
97856A	-2	↓	↓	↓	19			1	1	OK	
97857A	jc53478-1	7146	ABTCL200	S	20		X	1	1	OK	
97858A	Op7146 ms		AB8270 +		21			1	1	OK	
97859A	-msd		↓		22			1	1	OK	
97860A	jc53083-4		ABTCL200		23		X	1	1	OK	RR: 1.4 1.100
97861A	-2	↓	↓		24		X	1	1	OK	
97862A	jc53067-1	6988	ABTCL42		25	2		1	1	OK	RR: 1.4
97863A	jc53072-1		ABTCL200		26	2	X	1	1	OK	RR: 1.4
97864A	-2	↓	↓	↓	27	2	X	1	1	OK	2.1000 RR: 1.4

TX = Matrix. Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

Strikeouts must be initialed, dated, and reason applied if not transcription error.

Sample volume/weight used and final volumes refer to extraction log.

Form: OR015-08

Rev. Date: 5/25/17

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SGS

SEMI-VOLATILE by GCMS ANALYSIS

Batch ID: E3M3448Print Analyst Name: Kevin MoyleAnalyst Signature: KMDate: 10/17/17

Standard Data

Lot #	Description	Conc.
172289-42B	Sim Std	2.5 ppm
-42C		.2
172142-46B		.1
-66E		.05
-66F		.02
-66G		.1

Standard Data

Lot #	Description	Conc.
172142-44	DFTPP	50 ppm
172245-46	Sim Std	1 ppm
-69D		.5 ppm
-42A		.5 ppm
176201	DCM (Fisher)	
	DCM (F)	

Columns: Rx: 5silms 30mx.25mmMethod: 827001/625Initial Cal. Method: W3M347M3M3448Injection Volume: 1.0 uL

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: [Signature]Date: 10/28/17

R	Data File	Sample ID	Ext. Batch	Test	MTX	ALS #	Dilution n.	L +	I S	S U	Status (Data)	Comments
1	3M719302	DFTPP				1					OK	1:34 pm
2	719363	IC3448-1				2					OK	
3	71934	IC3448-5				3					OK	
4	71935	IC3448-25				4					OK	
5	71936	IC3448-2				5					OK	
6	71937	IC3448-1				6					OK	
7	71938	-.05				7					OK	
8	71939	-.02				8					OK	
9	71940	-.01				9					OK	
10	71941	IC3448-5				10					OK	
11	71942	ICV3448-5		Add 2nd Source		11					OK	SV172192-42 @ 5 ppm
12	71943	-1		BSFM		12					OK	OP171944-8 @ 1 ppm 8:17 pm

MTX = Matrix. Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

All strikeouts must be initialed, dated, and reason applied if not transcription error
Sample volume/weight used and final volumes refer to extraction log.

Form: OR015-08

Rev. Date: 5/25/17

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SGS

SEMI-VOLATILE by GCMS ANALYSIS

Batch ID: E3M3454Print Analyst Name: Kevin MoyleAnalyst Signature: KMDate: 10/20/17

Standard Data

Lot #	Description	Conc.

Standard Data

Lot #	Description	Conc.
172474	DFPP	50 ppm
172474	Sim Std	5 ppm
-68	Sim Internal	400 ppm
176740	DCM (Fisher)	—

Columns: Rx: SSilms 30mx.25mm
x.25 µmMethod 82700/675Initial Cal. Method M3M34485imInjection Volume: 1.0 µL

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: [Signature]Date: 10/20/17

R	Data File	Sample ID	Ext. Batch	Test	MTX	ALS #	Dilution n.	L	I	S	SU	Status (Data)	Comments
	3M72023	DFPP				1						OK	41140m
	72024	CC 3448-5		DIASim		2						OK	184
	72025	OP6819-BS12	6819-1	BS270	W	3						OK	
	72026	-MB1				4						OK	
	72027	-BS12				5						OK	
	72028	JC52677-1		BS1MNS +1.4Diox		6						OK	
	72029	JC52620-4				7						OK	
	72030	JC526955		BS1MPAH		8						OK	
	72031	OP6819-M5		BS270		9						OK	
	72032	-MSD				10						OK	
	72033	JC52695-2		BS1MPAH		11						OK	
	72034	-7				12						OK	PR 8270
	72035	-6				13						OK	
	72036	-3				14						OK	
	72037	-1				15						OK	
	72038	-4				16						OK	
	72039	JC52620-2		BS1MNS +1.4Diox		17						OK	

MTX = Matrix. Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

All strikeouts must be initialed, dated, and reason applied if not transcription error
Sample volume/weight used and final volumes refer to extraction log.

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Print Analyst Name: Levin Moya

Analyst Signature: KW

Date: 10/20/77

Standard Data

[illegible]

Standard Data

[illegible]

Columns: Rxi5silms 30m x 25mm
 ① 0.1mm
 ② 2.25mm

Method 8270b, 8270d/1625

Initial Cal. Method M3m34485:m

Injection Volume: 1.0 ml

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature:

Date: 12/6/77

R	Data File	Sample ID	Ext. Batch	Test	M T X	ALS #	Dilution n.	L +	I S U	Status (Data)	Comments
	3M 72040	JC52620-3	6819	AST MMS + LILICHOX	W	18				ok	
	72041	JC52725-3	6817	AST MPAH + 2m NAP	W	19				ok	11:44 AM

All strikeouts must be initialed, dated, and reason applied if not transcription error
Sample volume/weight used and final volumes refer to extraction log.

Form: OR015-08

Rev. Date: 5/25/17

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SEMI-VOLATILE by GCMS ANALYSIS

SGS

Batch ID: E4M3405

Print Analyst Name: Krista Shellenberg

Analyst Signature: *[Signature]*

Date: 5-6-17

Standard Data

Lot #	Description	Conc.
51725246	BNA-Sim	500pm
51725246		250pm
51725246		100pm
51725246		250pm
51725246		250pm
51725246		250pm
51725246		250pm

Standard Data

Lot #	Description	Conc.
51725246	DF1MP	250pm
51725246	BNA-Sim	250pm
51725246		250pm
51725246		250pm

Columns: 2x1 50/15 3um x 250m x 250m

Method: 82201/1605 5M

Initial Cal. Method: 141/3405

Injection Volume: 1ul

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: *[Signature]*

Date: 5-6-17

R	Data File	Sample ID	Ext. Batch	Test	M T X	ALS #	Dilution n.	L +	I S	S U	Status (Data)	Comments
41	72536	DF1MP				W1					OK	12:22pm
	72537	KC3405-5				W2					OK	
	72538	KC3405-25				W3					OK	
	72539	KC3405-1				W4					OK	
	72540	KC3405-05				W5					OK	
	72541	KC3405-02				W6					OK	
	72542	KC3405-01				W7					OK	
	72543	KC3405-05				W8					OK	
	72544	KC3405-002				W9					OK	
	72545	KC3405-001				W10					OK	
	72546	KC3405-5-1				W11					OK	517-25242 OPD-1554-5 5-6-17
	72547	KC3405-5-1				W12					OK	517-25242 OPD-1554-5 5-6-17

MTX = Matrix. Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

All strikeouts must be initialed, dated, and reason applied if not transcription error
Sample volume/weight used and final volumes refer to extraction log.

Form: OR015-08
Rev. Date: 5/25/17

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SEMI-VOLATILE by GCMS ANALYSIS

SGS

Batch ID: E4M3433Print Analyst Name: Kevin MoxleyAnalyst Signature: KMDate: 10/12/17

Standard Data

Lot #	Description	Conc.

Standard Data

Lot #	Description	Conc.
SV172102-41	DFTPP	50 ppm
SV172102-41	Sim Std	1 ppm
176201	DCM(Fish)	

Columns: RxiSSilms 30m x 25mm x 2.5umMethod: 8270D1625Initial Cal. Method: M4M34055mInjection Volume: 1.0 uL

Manually integrated chromatographic peaks in the following reportable files have been reviewed and verified to comply with the criteria of Accutest SOP EQA044.

Supervisor Signature: [Signature]Date: 10/30/17

R	Data File	Sample ID	Ext. Batch	Test	M T X	ALS #	Dilution n.	L +	I S	S U	Status (Data)	Comments
	4M73402	DFTPP				1					Not Run	PCP Tailings Rejected
	73403	DFTPP				1					Not Run	PCP Tailings Rejected
	73404	DFTPP				1					Not Run	PCP n
	73405	DFTPP				1					Not Run	10.5um
	73406	CC3405-1				2					Not Run	25.26um
	73407	OP6524-B512	6524-1	ABSIM	W	3					Not Run	10, 13-21k, 39k
	73408	OP6524-B512				4					Not Run	
	73409	OP6524-mel				5					Not Run	
	73410	-2		1,4diox		6					Not Run	
	73411	-3				7					Not Run	
	73412	-4				8					Not Run	
	73413	-5				9					Not Run	
	73414	-6				10					Not Run	
	73415	-7				11					Not Run	
	73416	-8				12					Not Run	Run by 8/20
	73417	-9				13					Not Run	Run by 8/20
	73418	-10				14					Not Run	
	73419	OP6814-mB	6814-1	B8270	W	14					Not Run	RRCCV

Matrix. Designate W for water, S for soil, O for oil. L+ = Library Search. IS = Internal Standard Area. SU = Surrogate.

Results must be initiated, dated, and reason applied if not transcription error
 Volume/weight used and final volumes refer to extraction log.

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10/25/17

Analyst Signature: KW

Date: 01/11/12

Standard Data

Standard Data

[illegible]

Standard Data		
Lot #	Description	Conc.
	See page 89	

Columns: Rx15silms 30m x .25mm
 x .25mm

Method 82700/625

Initial Cal. Method M4 M34055im

Injection Volume: 1.0 μ L

Supervisor Signature:

Date: 10/3/07

R	Data File	Sample ID	Ext. Batch	Test	M T X	ALS #	Dilutio n.	L +	I S	S U	Status (Data)	Comments
H	M73420	OP6819-BS12	6819-1	BSPM 1,4 Direct	N	15		/	/	/	OK	PA-CCV target
	73421	JCS262A-1				16		/	/	/	OK	
	73422	-2				17		/	/	/	OK	
	73423	-4				18		/	/	/	OK	
	73424	-3				19		/	/	/	OK	
R	73425	JCSFD-1	6525-1	1, index	W B			/	/	/	OK	Don't know ~~8:30pm~~ 8:32pm

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General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries
- Instrument Runlogs/QC

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Cyanide	GP8534/GN71151	0.010	0.0	mg/l	0.0833	0.0882	105.9	90-110%
Cyanide	GP9059/GN72215	0.010	0.0	mg/l	0.0833	0.0912	109.5	90-110%

Associated Samples:
Batch GP8534: JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7
Batch GP9059: JC52695-1R, JC52695-2R, JC52695-3R, JC52695-4R, JC52695-5R, JC52695-6R, JC52695-7R
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Cyanide	GP8534/GN71151	JC52695-5	mg/l	0.0	0.0	0.0	0-32%
Cyanide	GP9059/GN72215	JC52695-5R	mg/l	0.0	0.0	0.0	0-32%

Associated Samples:

Batch GP8534: JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7

Batch GP9059: JC52695-1R, JC52695-2R, JC52695-3R, JC52695-4R, JC52695-5R, JC52695-6R, JC52695-7R

(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Cyanide	GP8534/GN71151	JC52695-5	mg/l	0.0	0.0833	0.054	64.8N(a)	90-110%
Cyanide	GP8534/GN71151	JC52695-6	mg/l	0.0	0.0833	0.062	74.4N(a)	90-110%
Cyanide	GP9059/GN72215	JC52695-5R	mg/l	0.0	0.0833	0.070	84.0N(a)	90-110%

Associated Samples:

Batch GP8534: JC52695-1, JC52695-2, JC52695-3, JC52695-4, JC52695-5, JC52695-6, JC52695-7

Batch GP9059: JC52695-1R, JC52695-2R, JC52695-3R, JC52695-4R, JC52695-5R, JC52695-6R, JC52695-7R

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(a) Spike recovery indicates possible matrix interference.

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E101717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 10/17/17
Run ID: GN71151

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT, SW846 CHAP

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:00	GN71151-STD1	1		STDA
11:01	GN71151-STD2	1		STDB
11:03	GN71151-STD3	1		STDC
11:04	GN71151-STD4	1		STDD
11:05	GN71151-STD5	1		STDE
11:07	GN71151-STD6	1		STDF
11:08	GN71151-STD7	1		STDG
11:10	GN71151-ICV1	1		ICV failed, see rerun.
11:11	GN71151-ICB1	1		ICV failed, see rerun.
11:12	GN71151-CCV1	1		ICV failed, see rerun.
11:16	GN71151-ICV2	1		
11:17	GN71151-ICB2	1		
11:19	GN71151-CCV2	1		
11:20	GN71151-CCB1	1		
11:21	GP8352-MB3	1		
11:23	GP8352-B3	1		
11:24	ZZZZZZ	1		
11:25	ZZZZZZ	1		
11:27	ZZZZZZ	1		
11:28	ZZZZZZ	1		
11:29	ZZZZZZ	1		
11:31	ZZZZZZ	1		
11:32	GP8532-MB1	1		
11:34	GP8532-B1	1		
11:35	GN71151-CCV3	1		
11:36	GN71151-CCB2	1		
11:38	GP8532-S1	1		
11:39	GP8532-D1	1		
11:40	JC52752-1	1		(sample used for QC only; not part of login JC52695)
11:42	ZZZZZZ	1		
11:43	ZZZZZZ	1		
11:44	ZZZZZZ	1		
11:46	ZZZZZZ	1		

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E101717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 10/17/17
Run ID: GN71151

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT, SW846 CHAP

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:47	ZZZZZZ	1		
11:49	ZZZZZZ	1		
11:50	ZZZZZZ	1		
11:51	GN71151-CCV4	1		
11:53	GN71151-CCB3	1		
11:54	ZZZZZZ	1		
11:55	ZZZZZZ	1		
11:57	GP8534-MB1	1		
11:58	GP8534-B1	1		
11:59	GP8534-S1	1		
12:01	GP8534-S2	1		
12:02	GP8534-D1	1		
12:04	ZZZZZZ	1		
12:05	ZZZZZZ	1		
12:06	ZZZZZZ	1		
12:08	GN71151-CCV5	1		
12:09	GN71151-CCB4	1		
12:10	ZZZZZZ	1		
12:12	JC52695-1	1		
12:13	JC52695-2	1		
12:14	JC52695-3	1		
12:16	JC52695-4	1		
12:17	JC52695-5	1		
12:18	JC52695-6	1		
12:20	JC52695-7	1		
12:21	ZZZZZZ	1		
12:23	ZZZZZZ	1		
12:24	GN71151-CCV6	1		
12:25	GN71151-CCB5	1		
12:27	GP8533-MB1	1		
12:28	GP8533-B1	1		BSP failed high, see rerun.
12:29	GP8533-S1	1		
12:31	GP8533-S2	1		

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E101717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 10/17/17
Run ID: GN71151

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT, SW846 CHAP

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:32	GP8533-D1	1		
12:33	JC52988-2	1		(sample used for QC only; not part of login JC52695)
12:35	JC52988-1	1		(sample used for QC only; not part of login JC52695)
12:36	ZZZZZZ	1		see rerun.
12:38	ZZZZZZ	1		see rerun.
12:39	ZZZZZZ	1		
12:40	GN71151-CCV7	1		
12:42	GN71151-CCB6	1		
12:43	GP8533-B1	1		
12:44	ZZZZZZ	1		
12:46	ZZZZZZ	1		
12:47	ZZZZZZ	1		
12:48	ZZZZZZ	1		
12:50	ZZZZZZ	1		
12:51	ZZZZZZ	1		
12:52	ZZZZZZ	1		
12:54	ZZZZZZ	1		
12:55	ZZZZZZ	1		
12:57	GN71151-CCV8	1		
12:58	GN71151-CCB7	1		
12:59	ZZZZZZ	1		
13:01	ZZZZZZ	1		
13:02	ZZZZZZ	1		
13:03	ZZZZZZ	1		
13:05	ZZZZZZ	1		
13:06	ZZZZZZ	1		
13:07	JC52988-2	1		(sample used for QC only; not part of login JC52695)
13:09	JC52988-1	1		(sample used for QC only; not part of login JC52695)
13:10	ZZZZZZ	1		
13:11	ZZZZZZ	1		
13:13	GN71151-CCV9	1		
13:14	GN71151-CCB8	1		
13:16	ZZZZZZ	1		

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E101717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 10/17/17
Run ID: GN71151

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT, SW846 CHAP

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:17	GP8545-MB1	1		
13:18	GP8545-B1	1		
13:20	GP8545-D1	1		
13:21	JC52573-7A	1		(sample used for QC only; not part of login JC52695)
13:22	ZZZZZZ	1		
13:24	ZZZZZZ	1		
13:25	ZZZZZZ	1		
13:26	ZZZZZZ	1		
13:28	ZZZZZZ	1		
13:29	GN71151-CCV10	1		
13:31	GN71151-CCB9	1		
13:32	ZZZZZZ	1		
13:33	ZZZZZZ	1		
13:35	ZZZZZZ	1		
13:36	ZZZZZZ	1		
13:37	ZZZZZZ	1		
13:39	ZZZZZZ	1		
13:40	ZZZZZZ	1		
13:41	ZZZZZZ	1		
13:43	ZZZZZZ	1		
13:44	ZZZZZZ	1		
13:46	GN71151-CCV11	1		
13:47	GN71151-CCB10	1		
13:48	ZZZZZZ	1		
13:50	ZZZZZZ	1		
13:51	ZZZZZZ	1		
13:52	ZZZZZZ	1		
13:55	GN71151-CCV12	1		
13:57	GN71151-CCB11	1		

Refer to raw data for calibration curve and standards.

10.4
10

Instrument QC Summary
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E101717W1.CN

Date Analyzed: 10/17/17
Run ID: GN71151

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT, SW846 CHAP
Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN71151-ICV1	Cyanide	0.34	0.010	0.0058	.3	113.3!(a)	90-110
GN71151-ICB1	Cyanide	0.0058 U	0.010	0.0058			
GN71151-CCV1	Cyanide	0.43	0.010	0.0058	.4	107.5	90-110
GN71151-ICV2	Cyanide	0.32	0.010	0.0058	.3	106.7	90-110
GN71151-ICB2	Cyanide	-0.0058	0.010	0.0058			
GN71151-CCV2	Cyanide	0.43	0.010	0.0058	.4	107.5	90-110
GN71151-CCB1	Cyanide	0.0058 U	0.010	0.0058			
GN71151-CCV3	Cyanide	0.43	0.010	0.0058	.4	107.5	90-110
GN71151-CCB2	Cyanide	0.0058 U	0.010	0.0058			
GN71151-CCV4	Cyanide	0.43	0.010	0.0058	.4	107.5	90-110
GN71151-CCB3	Cyanide	-0.0065	0.010	0.0058			
GN71151-CCV5	Cyanide	0.43	0.010	0.0058	.4	107.5	90-110
GN71151-CCB4	Cyanide	-0.0068	0.010	0.0058			
GN71151-CCV6	Cyanide	0.43	0.010	0.0058	.4	107.5	90-110
GN71151-CCB5	Cyanide	-0.0064	0.010	0.0058			
GN71151-CCV7	Cyanide	0.43	0.010	0.0058	.4	107.5	90-110
GN71151-CCB6	Cyanide	-0.0065	0.010	0.0058			
GN71151-CCV8	Cyanide	0.43	0.010	0.0058	.4	107.5	90-110
GN71151-CCB7	Cyanide	-0.0067	0.010	0.0058			
GN71151-CCV9	Cyanide	0.43	0.010	0.0058	.4	107.5	90-110
GN71151-CCB8	Cyanide	-0.0077	0.010	0.0058			
GN71151-CCV10	Cyanide	0.44	0.010	0.0058	.4	110.0	90-110
GN71151-CCB9	Cyanide	-0.0058	0.010	0.0058			
GN71151-CCV11	Cyanide	0.44	0.010	0.0058	.4	110.0	90-110
GN71151-CCB10	Cyanide	-0.0080	0.010	0.0058			
GN71151-CCV12	Cyanide	0.44	0.010	0.0058	.4	110.0	90-110
GN71151-CCB11	Cyanide	-0.0066	0.010	0.0058			

(!) Outside of QC limits

(a) No sample reported from this bracket.

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E110717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 11/07/17
Run ID: GN72215

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:55	GN72215-STD1	1		STDA
10:57	GN72215-STD2	1		STDB
10:58	GN72215-STD3	1		STDC
11:00	GN72215-STD4	1		STDD
11:01	GN72215-STD5	1		STDE
11:02	GN72215-STD6	1		STDF
11:04	GN72215-STD7	1		STDG
11:05	GN72215-ICV1	1		
11:06	GN72215-ICB1	1		
11:08	GN72215-CCV1	1		
11:09	GN72215-CCB1	1		
11:10	GP9023-MB1	1		
11:12	GP9023-B1	1		BSP high recovery
11:13	GP9023-S1	1		
11:15	GP9023-S2	1		
11:16	GP9023-D1	1		
11:17	GP9023-B1	1		for confirmation only
11:19	ZZZZZZ	1		
11:20	JC53941-15F	1		(sample used for QC only; not part of login JC52695)
11:21	JC53941-16F	1		(sample used for QC only; not part of login JC52695)
11:23	ZZZZZZ	1		
11:24	GN72215-CCV2	1		
11:25	GN72215-CCB2	1		
11:27	ZZZZZZ	1		
11:28	ZZZZZZ	1		
11:30	ZZZZZZ	1		
11:31	ZZZZZZ	1		
11:32	ZZZZZZ	1		
11:34	ZZZZZZ	1		
11:35	ZZZZZZ	1		
11:36	ZZZZZZ	1		
11:38	ZZZZZZ	1		
11:39	GP9071-MB1	1		

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E110717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 11/07/17 Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT
Run ID: GN72215

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:40	GN72215-CCV3	1		
11:42	GN72215-CCB3	1		
11:43	GP9071-B1	1		
11:44	GP9071-S1	1		
11:46	GP9071-S2	1		
11:47	GP9071-D1	1		
11:49	ZZZZZZ	1		
11:50	ZZZZZZ	1		
11:51	JC54362-3	1		(sample used for QC only; not part of login JC52695)
11:53	JC54362-4	1		(sample used for QC only; not part of login JC52695)
11:54	ZZZZZZ	1		
11:55	ZZZZZZ	1		
11:57	GN72215-CCV4	1		
11:58	GN72215-CCB4	1		
11:59	ZZZZZZ	1		
12:01	ZZZZZZ	1		
12:02	ZZZZZZ	1		
12:04	ZZZZZZ	1		
12:05	ZZZZZZ	1		
12:06	ZZZZZZ	1		
12:08	ZZZZZZ	1		
12:09	ZZZZZZ	1		
12:10	ZZZZZZ	1		
12:12	ZZZZZZ	1		
12:13	GN72215-CCV5	1		
12:14	GN72215-CCB5	1		
12:16	ZZZZZZ	1		
12:17	ZZZZZZ	1		
12:18	GP9070-MB1	1		BSP failed, back to need.
12:20	GP9070-B1	1		BSP failed, back to need.
12:21	GP9070-S1	1		BSP failed, back to need.
12:23	GP9070-S2	1		BSP failed, back to need.
12:24	GP9070-D1	1		BSP failed, back to need.

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E110717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 11/07/17 Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT
Run ID: GN72215

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:25	ZZZZZZ	1		
12:27	ZZZZZZ	1		
12:28	ZZZZZZ	1		
12:29	GN72215-CCV6	1		
12:31	GN72215-CCB6	1		
12:32	ZZZZZZ	1		
12:33	ZZZZZZ	1		
12:35	JC53941-29	1		(sample used for QC only; not part of login JC52695)
12:36	ZZZZZZ	1		
12:38	ZZZZZZ	1		
12:39	ZZZZZZ	1		
12:40	ZZZZZZ	1		
12:42	ZZZZZZ	1		
12:43	ZZZZZZ	1		
12:44	ZZZZZZ	1		
12:46	GN72215-CCV7	1		
12:47	GN72215-CCB7	1		
12:48	JC53941-29F	1		(sample used for QC only; not part of login JC52695)
12:50	ZZZZZZ	1		
12:51	ZZZZZZ	1		
12:53	ZZZZZZ	1		
12:54	ZZZZZZ	1		
12:55	ZZZZZZ	1		
12:57	ZZZZZZ	1		
12:58	GP9070-D2	1		BSP failed, back to need.
12:59	GP9069-MB1	1		
13:01	GP9069-B1	1		
13:02	GN72215-CCV8	1		
13:03	GN72215-CCB8	1		
13:05	GP9069-S1	1		
13:06	GP9069-S2	1		
13:08	GP9069-D1	1		
13:09	JC54456-1	1		(sample used for QC only; not part of login JC52695)

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E110717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 11/07/17 Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT
Run ID: GN72215

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:10	JC54456-2	1		(sample used for QC only; not part of login JC52695)
13:12	ZZZZZZ	1		
13:13	ZZZZZZ	1		
13:14	ZZZZZZ	1		
13:16	ZZZZZZ	1		
13:17	ZZZZZZ	1		
13:18	GN72215-CCV9	1		
13:20	GN72215-CCB9	1		
13:21	ZZZZZZ	1		
13:22	ZZZZZZ	1		
13:24	ZZZZZZ	1		
13:25	ZZZZZZ	1		
13:27	ZZZZZZ	1		
13:28	GP9060-MB1	1		
13:29	GP9060-B1	1		
13:31	GP9060-S1	1		
13:32	GP9060-S2	1		
13:33	GP9060-D1	1		
13:35	GN72215-CCV10	1		
13:36	GN72215-CCB10	1		
13:37	JC54688-1A	1		(sample used for QC only; not part of login JC52695)
13:39	JC54512-1	1		(sample used for QC only; not part of login JC52695)
13:40	ZZZZZZ	1		
13:42	ZZZZZZ	1		
13:43	ZZZZZZ	1		
13:44	ZZZZZZ	1		
13:46	ZZZZZZ	1		
13:47	ZZZZZZ	1		
13:48	ZZZZZZ	1		
13:50	ZZZZZZ	1		
13:51	GN72215-CCV11	1		
13:52	GN72215-CCB11	1		
13:54	ZZZZZZ	1		

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E110717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 11/07/17 Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT
Run ID: GN72215

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:55	ZZZZZZ	1		
13:57	ZZZZZZ	1		
13:58	ZZZZZZ	1		
13:59	ZZZZZZ	1		
14:01	ZZZZZZ	1		
14:02	GP9059-MB1	1		
14:03	GP9059-B1	1		
14:05	GP9059-S1	1		
14:06	GP9059-D1	1		
14:07	GN72215-CCV12	1		
14:09	GN72215-CCB12	1		
14:10	JC52695-1R	1		
14:11	JC52695-2R	1		
14:13	JC52695-3R	1		
14:14	JC52695-4R	1		
14:16	JC52695-5R	1		
14:17	JC52695-6R	1		
14:18	JC52695-7R	1		
14:20	GP9098-MB1	1		
14:21	GP9098-B1	1		
14:22	GP9098-S1	1		
14:24	GN72215-CCV13	1		
14:25	GN72215-CCB13	1		
14:27	GP9098-D1	1		looks spiked
14:28	JC54449-1R	1		(sample used for QC only; not part of login JC52695)
14:29	ZZZZZZ	1		
14:31	ZZZZZZ	1		
14:32	ZZZZZZ	1		
14:33	ZZZZZZ	1		
14:35	ZZZZZZ	1		
14:36	ZZZZZZ	1		
14:37	ZZZZZZ	1		
14:39	ZZZZZZ	1		

SGS Accutest Instrument Runlog
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E110717W1.CN
Analyst: BM
Parameters: Cyanide

Date Analyzed: 11/07/17
Run ID: GN72215

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:40	GN72215-CCV14	1		
14:42	GN72215-CCB14	1		
14:43	ZZZZZZ	1		
14:46	GN72215-CCV15	1		
14:47	GN72215-CCB15	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary
Inorganics Analyses

Login Number: JC52695
Account: BBLNYS - Arcadis
Project: National Grid, Ilion, NY

File ID: E110717W1.CN

Date Analyzed: 11/07/17
Run ID: GN72215

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT
Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN72215-ICV1	Cyanide	0.32	0.010	0.0058	.3	106.7	90-110
GN72215-ICB1	Cyanide	-0.0058	0.010	0.0058			
GN72215-CCV1	Cyanide	0.41	0.010	0.0058	.4	102.5	90-110
GN72215-CCB1	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV2	Cyanide	0.41	0.010	0.0058	.4	102.5	90-110
GN72215-CCB2	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV3	Cyanide	0.41	0.010	0.0058	.4	102.5	90-110
GN72215-CCB3	Cyanide	-0.0081	0.010	0.0058			
GN72215-CCV4	Cyanide	0.41	0.010	0.0058	.4	102.5	90-110
GN72215-CCB4	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV5	Cyanide	0.40	0.010	0.0058	.4	100.0	90-110
GN72215-CCB5	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV6	Cyanide	0.40	0.010	0.0058	.4	100.0	90-110
GN72215-CCB6	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV7	Cyanide	0.40	0.010	0.0058	.4	100.0	90-110
GN72215-CCB7	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV8	Cyanide	0.41	0.010	0.0058	.4	102.5	90-110
GN72215-CCB8	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV9	Cyanide	0.41	0.010	0.0058	.4	102.5	90-110
GN72215-CCB9	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV10	Cyanide	0.41	0.010	0.0058	.4	102.5	90-110
GN72215-CCB10	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV11	Cyanide	0.40	0.010	0.0058	.4	100.0	90-110
GN72215-CCB11	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV12	Cyanide	0.40	0.010	0.0058	.4	100.0	90-110
GN72215-CCB12	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV13	Cyanide	0.41	0.010	0.0058	.4	102.5	90-110
GN72215-CCB13	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV14	Cyanide	0.40	0.010	0.0058	.4	100.0	90-110
GN72215-CCB14	Cyanide	0.0058 U	0.010	0.0058			
GN72215-CCV15	Cyanide	0.40	0.010	0.0058	.4	100.0	90-110
GN72215-CCB15	Cyanide	-0.0058	0.010	0.0058			

(!) Outside of QC limits

General Chemistry

Raw Data

LABORATORY REVIEW SIGNATURE FORM
(To be stored with the raw data)File ID: E101717W1.CN
Analyst: BMDate Analyzed: 10/17/17
Run ID: GN71151

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT, SW846

The following analyst(s) have reviewed this run and attest that, to the best of their knowledge, this documentation is complete and correct:

Analyst: BM Date 10/17/17

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

The following supervisor or their designee has reviewed this run and attests that, to the best of their knowledge, this documentation is complete and correct:

Supervisor (or designee): Be Date 10/17/1711.1
11

GN71151

Author: chemistry

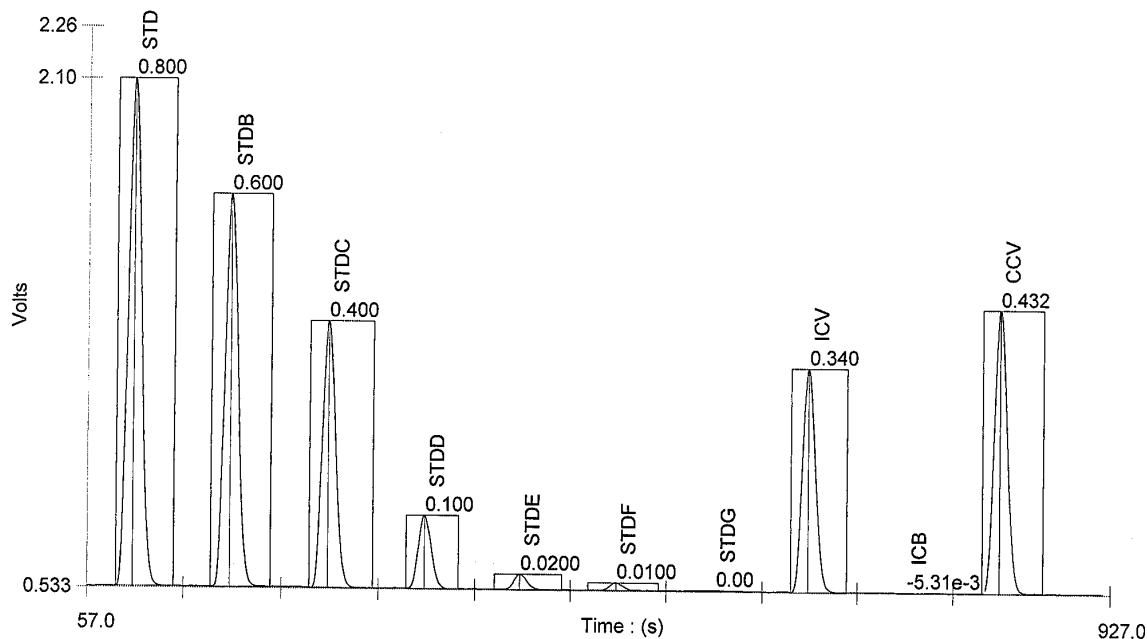
2/10/17/17W1. CN
Date : 10/17/2017

Original Run Filename: OM_10-17-2017_10-59-19AM.OMN Created: 10/17/2017 10:59:19 AM
 Original Run Author's Signature: [chemistry]
 Current Run Filename: OM_10-17-2017_10-59-19AM.OMN Last Modified: 10/17/2017 11:14:56 AM
 Current Run Author's Signature: [chemistry]
 Description: Default new Run

Sample	Rep.	Cup No.	Channel 1 CN	Detection Time	MDF
STDA	1	1	0.800	10/17/2017@11:00:29 AM	
STDB	1	2	0.600	10/17/2017@11:01:51 AM	
STDC	1	3	0.400	10/17/2017@11:03:13 AM	
STDD	1	4	0.100	10/17/2017@11:04:35 AM	
STDE	1	5	0.0200	10/17/2017@11:05:57 AM	
STDF	1	6	0.0100	10/17/2017@11:07:19 AM	
STDG	1	7	0.00	10/17/2017@11:08:41 AM	
ICV	②	8	0.340	10/17/2017@11:10:03 AM	
Known Conc:			0.300		
Calibration:			Table/Fig. : 1		
ICB	1	9	-5.31e-3	10/17/2017@11:11:24 AM	
Known Conc:			0.00		
CCV	1	S9	0.432	10/17/2017@11:12:46 AM	
Known Conc:			0.400		

ICV failed, See rerun.

Channel 1 - Set: 1 / 1



- 1 -

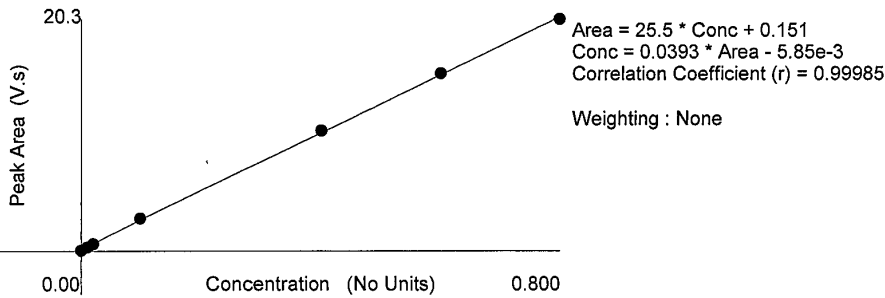
Author: chemistry

Date : 10/17/2017

Table : 1 (CN)

	Known Conc. ()	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc ()	Detection Date	Detection Time
1	0.800	1	20.3	1.57	0.0	1.0	0.792	10/17/2017	11:00:29 AM
2	0.600	1	15.5	1.21	0.0	-0.8	0.605	10/17/2017	11:01:51 AM
3	0.400	1	10.5	0.823	0.0	-1.7	0.407	10/17/2017	11:03:13 AM
4	0.100	1	2.83	0.224	0.0	-5.0	0.105	10/17/2017	11:04:35 AM
5	0.0200	1	0.622	0.0468	0.0	5.8	0.0186	10/17/2017	11:05:57 AM
6	0.0100	1	0.310	0.0230	0.0	23.6	6.32e-3	10/17/2017	11:07:19 AM
7	0.00	1	0.0447	2.75e-3			-4.09e-3	10/17/2017	11:08:41 AM

Figure : 1 (CN)



Author: chemistry

e1017W2.CN
Date: 10/17/2017

Original Run Filename: OM_10-17-2017_11-15-14AM.OMN Created: 10/17/2017 11:15:14 AM

Original Run Author's Signature: [chemistry]

Current Run Filename: OM_10-17-2017_11-15-14AM.OMN Last Modified: 10/17/2017 1:59:25 PM

Current Run Author's Signature: [chemistry]

Description: Default new Run

Sample	Rep.	Cup No.	Channel 1 CN	Detection Time	MDF
ICV	1	8	0.315	10/17/2017@11:16:22 AM	
Known Conc:			0.300		
ICB	1	9	-5.84e-3	10/17/2017@11:17:44 AM	
Known Conc:			0.00		
Calibration:			Table/Fig.: 1		
CCV	1	S9	0.431	10/17/2017@11:19:06 AM	
Known Conc:			0.400		
CCB	1	S10	-5.04e-3	10/17/2017@11:20:27 AM	
Known Conc:			0.00		
GP8352-MB3	1	10	-3.10e-3	10/17/2017@11:21:49 AM	
GP8352-B3	1	11	0.0870	10/17/2017@11:23:10 AM	
JC52380-5	1	12	0.0753	10/17/2017@11:24:31 AM	
JC52380-6	1	13	0.114	10/17/2017@11:25:52 AM	
JC52380-8	1	14	0.0781	10/17/2017@11:27:13 AM	
JC53056-2	1	15	0.0825	10/17/2017@11:28:34 AM	
JC53056-4	1	16	0.0206	10/17/2017@11:29:57 AM	
JC53056-6	1	17	0.0248	10/17/2017@11:31:19 AM	
GP8532-MB1	1	18	-2.20e-3	10/17/2017@11:32:41 AM	
GP8532-B1	1	19	0.0855	10/17/2017@11:34:03 AM	
CCV	1	S9	0.433	10/17/2017@11:35:25 AM	
Known Conc:			0.400		
CCB	1	S10	-4.51e-3	10/17/2017@11:36:47 AM	
Known Conc:			0.00		
GP8532-S1	1	20	0.0884	10/17/2017@11:38:09 AM	
GP8532-D1	1	21	7.10e-4	10/17/2017@11:39:31 AM	
JC52752-1	1	22	3.25e-3	10/17/2017@11:40:53 AM	
JC52752-2	1	23	0.0836	10/17/2017@11:42:14 AM	
JC52752-3	1	24	-2.10e-3	10/17/2017@11:43:36 AM	
JC52752-4	1	25	-3.06e-3	10/17/2017@11:44:57 AM	
JC52752-5	1	26	0.0201	10/17/2017@11:46:18 AM	
JC52752-6	1	27	8.18e-3	10/17/2017@11:47:40 AM	
JC52752-7	1	28	-1.19e-3	10/17/2017@11:49:01 AM	
JC52752-8	1	29	2.21e-3	10/17/2017@11:50:22 AM	
CCV	1	S9	0.432	10/17/2017@11:51:43 AM	
Known Conc:			0.400		
CCB	1	S10	-6.46e-3	10/17/2017@11:53:05 AM	
Known Conc:			0.00		
JC52752-9	1	30	-3.22e-3	10/17/2017@11:54:26 AM	
JC52752-10	1	31	-2.43e-3	10/17/2017@11:55:49 AM	
GP8534-MB1	1	32	-4.92e-4	10/17/2017@11:57:11 AM	
GP8534-B1	1	33	0.0882	10/17/2017@11:58:33 AM	
GP8534-S1	1	34	0.0540	10/17/2017@11:59:55 AM	
GP8534-S2	1	35	0.0621	10/17/2017@12:01:17 PM	
GP8534-D1	1	36	1.69e-3	10/17/2017@12:02:39 PM	
JC52885-1	1	37	1.90e-3	10/17/2017@12:04:01 PM	
JC52885-2	1	38	0.0186	10/17/2017@12:05:23 PM	
JC52946-1	1	39	-2.21e-3	10/17/2017@12:06:44 PM	
CCV	1	S9	0.432	10/17/2017@12:08:06 PM	
Known Conc:			0.400		
CCB	1	S10	-6.80e-3	10/17/2017@12:09:28 PM	
Known Conc:			0.00		
JC52692-8	1	40	-1.70e-3	10/17/2017@12:10:49 PM	
JC52695-1	1	41	-4.05e-4	10/17/2017@12:12:10 PM	
JC52695-2	1	42	-1.74e-3	10/17/2017@12:13:32 PM	
JC52695-3	1	43	0.293	10/17/2017@12:14:52 PM	
JC52695-4	1	44	0.152	10/17/2017@12:16:14 PM	
JC52695-5	1	45	-1.89e-3	10/17/2017@12:17:34 PM	
JC52695-6	1	46	1.32e-3	10/17/2017@12:18:57 PM	
JC52695-7	1	47	0.426	10/17/2017@12:20:19 PM	
JC52762-7	1	48	4.32e-3	10/17/2017@12:21:41 PM	

1.05e

105.1

107.71

104.44

107.61

108.21

108.1

105.84

108.1

11.1
11

Author: chemistry

Date : 10/17/2017

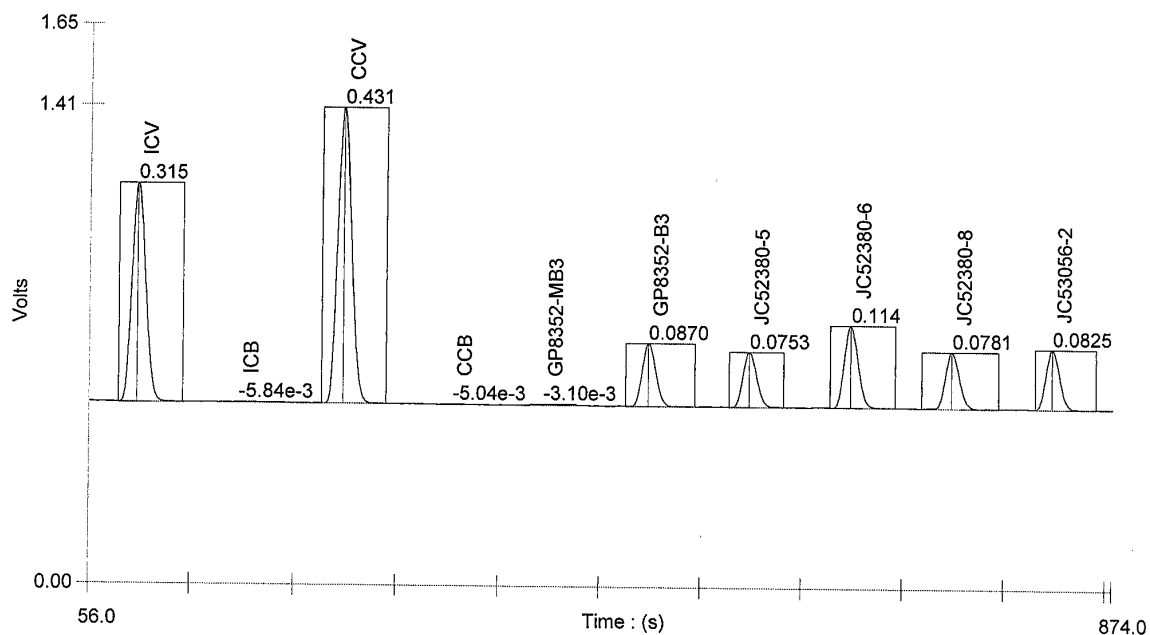
JC52762-1	1	49	4.56e-3	10/17/2017@12:23:03 PM	
CCV	1	S9	0.434	10/17/2017@12:24:25 PM	108.5%
Known Conc:			0.400		
CCB	1	S10	-6.37e-3	10/17/2017@12:25:47 PM	
Known Conc:			0.00		
GP8533-MB1	1	50	-4.47e-3	10/17/2017@12:27:09 PM	
GP8533-B1	1	51	0.0918	10/17/2017@12:28:31 PM	110.2%
GP8533-S1	1	52	0.0819	10/17/2017@12:29:52 PM	
GP8533-S2	1	53	0.0865	10/17/2017@12:31:14 PM	
GP8533-D1	1	54	-2.53e-3	10/17/2017@12:32:36 PM	
JC52988-2	1	55	-1.27e-3	10/17/2017@12:33:57 PM	
JC52988-1	1	56	-1.47e-3	10/17/2017@12:35:18 PM	
JC53130-1	1	57	4.27e-3	10/17/2017@12:36:39 PM	See next row.
JC53130-6	1	58	5.62e-3	10/17/2017@12:38:00 PM	
JC52681-6	1	59	0.0118	10/17/2017@12:39:21 PM	
CCV	1	S9	0.434	10/17/2017@12:40:43 PM	108.5%
Known Conc:			0.400		
CCB	1	S10	-6.51e-3	10/17/2017@12:42:04 PM	
Known Conc:			0.00		
GP8533-B1	1	51	0.0912	10/17/2017@12:43:26 PM	109.4%
JC52681-7	1	60	0.0647	10/17/2017@12:44:47 PM	
JC52681-8	1	61	0.0495	10/17/2017@12:46:09 PM	
JC52681-9	1	62	0.0498	10/17/2017@12:47:31 PM	
JC52681-10	1	63	0.0411	10/17/2017@12:48:53 PM	
JC52692-2	1	64	-9.04e-4	10/17/2017@12:50:15 PM	
JC52692-3	1	65	-3.30e-3	10/17/2017@12:51:37 PM	
JC52692-4	1	66	3.62e-3	10/17/2017@12:52:59 PM	
JC52692-5	1	67	8.24e-3	10/17/2017@12:54:21 PM	
JC52692-6	1	68	-3.29e-3	10/17/2017@12:55:42 PM	
CCV	1	S9	0.433	10/17/2017@12:57:04 PM	108.2%
Known Conc:			0.400		
CCB	1	S10	-6.73e-3	10/17/2017@12:58:26 PM	
Known Conc:			0.00		
JC52692-7	1	69	7.90e-4	10/17/2017@12:59:47 PM	
JC52726-4	1	70	0.0567	10/17/2017@1:01:09 PM	
JC52726-5	1	71	0.0608	10/17/2017@1:02:30 PM	
JC52726-6	1	72	0.0344	10/17/2017@1:03:51 PM	
JC52739-1	1	73	6.30e-3	10/17/2017@1:05:13 PM	
JC53162-2	1	74	0.0100	10/17/2017@1:06:34 PM	
JC52988-2	1	55	-5.03e-4	10/17/2017@1:07:55 PM	
JC52988-1	1	56	-1.91e-3	10/17/2017@1:09:17 PM	
JC53130-1	1	57	2.94e-3	10/17/2017@1:10:38 PM	
JC53130-6	1	58	4.67e-3	10/17/2017@1:11:59 PM	
CCV	1	S9	0.434	10/17/2017@1:13:21 PM	108.5%
Known Conc:			0.400		
CCB	1	S10	-7.72e-3	10/17/2017@1:14:43 PM	
Known Conc:			0.00		
JC52681-6	1	59	0.0118	10/17/2017@1:16:04 PM	
GP8545-MB1	1	75	-6.50e-3	10/17/2017@1:17:25 PM	
GP8545-B1	1	76	0.146	10/17/2017@1:18:47 PM	7.3%
GP8545-D1	1	77	-7.83e-3	10/17/2017@1:20:09 PM	
JC52573-7A	1	78	-7.25e-3	10/17/2017@1:21:31 PM	
JC52573-8A	1	79	-7.89e-3	10/17/2017@1:22:53 PM	
JC52573-9A	1	80	-5.93e-3	10/17/2017@1:24:15 PM	
JC52573-10A	1	81	-6.80e-3	10/17/2017@1:25:37 PM	
JC52573-11A	1	82	-6.35e-3	10/17/2017@1:26:59 PM	
JC52573-12A	1	83	-6.03e-3	10/17/2017@1:28:21 PM	
CCV	1	S9	0.435	10/17/2017@1:29:42 PM	108.7%
Known Conc:			0.400		
CCB	1	S10	-5.81e-3	10/17/2017@1:31:04 PM	
Known Conc:			0.00		
JC52957-1	1	84	-6.20e-3	10/17/2017@1:32:26 PM	
JC52720-2	1	85	-7.25e-3	10/17/2017@1:33:47 PM	
JC52726-4A	1	86	-5.74e-3	10/17/2017@1:35:08 PM	
JC52726-5A	1	87	-6.31e-3	10/17/2017@1:36:30 PM	
JC52726-6A	1	88	-7.70e-3	10/17/2017@1:37:51 PM	
JC52878-1	1	89	-6.64e-3	10/17/2017@1:39:12 PM	
JC52821-3A	1	90	-7.20e-3	10/17/2017@1:40:33 PM	

Author: chemistry

Date : 10/17/2017

JC52821-4A	1	1	-6.76e-3	10/17/2017@1:41:56 PM	
JC53027-1	1	2	-6.77e-3	10/17/2017@1:43:18 PM	
JC52937-2	1	3	-6.48e-3	10/17/2017@1:44:40 PM	
CCV	1	S9	0.435	10/17/2017@1:46:02 PM	108.74
Known Conc:			0.400		
CCB	1	S10	-7.97e-3	10/17/2017@1:47:24 PM	
Known Conc:			0.00		
JC52986-1	1	4	-7.16e-3	10/17/2017@1:48:46 PM	
JC53100-2	1	5	0.0160	10/17/2017@1:50:08 PM	
JC53055-2	1	6	-7.57e-3	10/17/2017@1:51:30 PM	
JC53067-1A	1	7	-7.17e-3	10/17/2017@1:52:52 PM	
CCV	1	S9	0.436	10/17/2017@1:55:56 PM	109.6
Known Conc:			0.400		
CCB	1	S10	-6.64e-3	10/17/2017@1:57:18 PM	
Known Conc:			0.00		

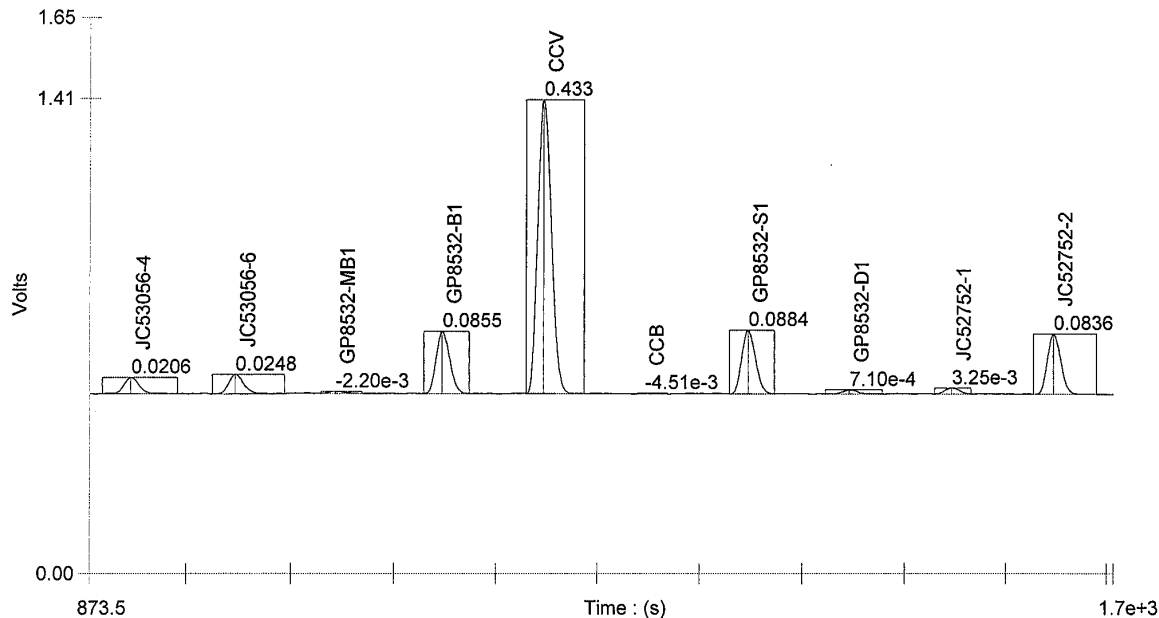
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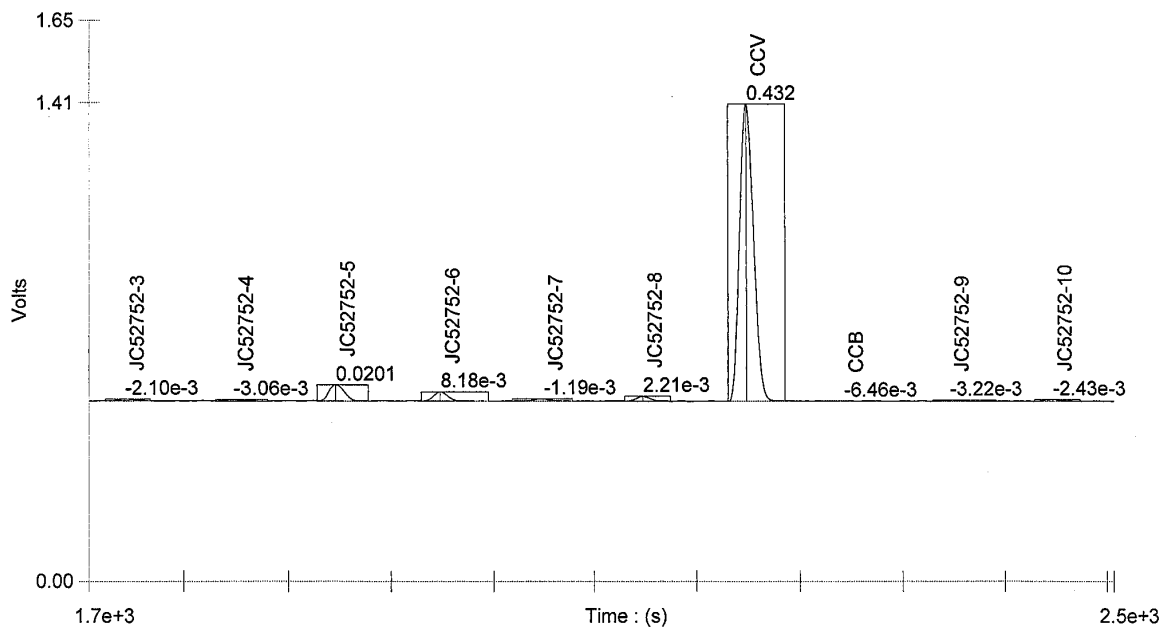
Author: chemistry

Date : 10/17/2017

Channel 1 - Set: 2 / 12



Channel 1 - Set: 3 / 12



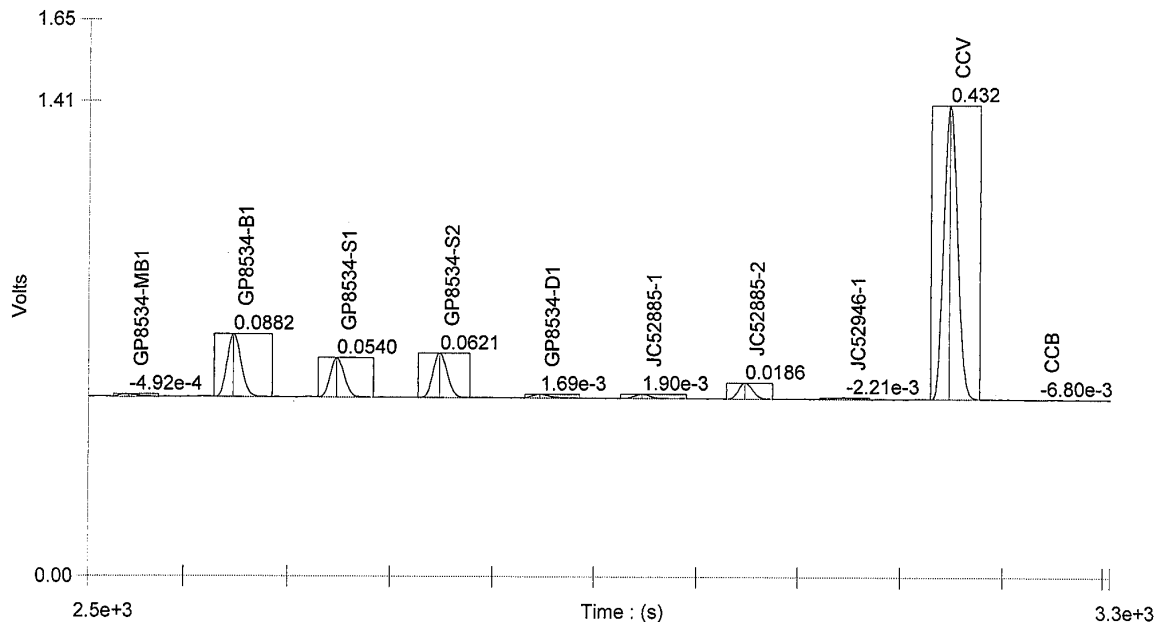
- 4 -

11.1
11

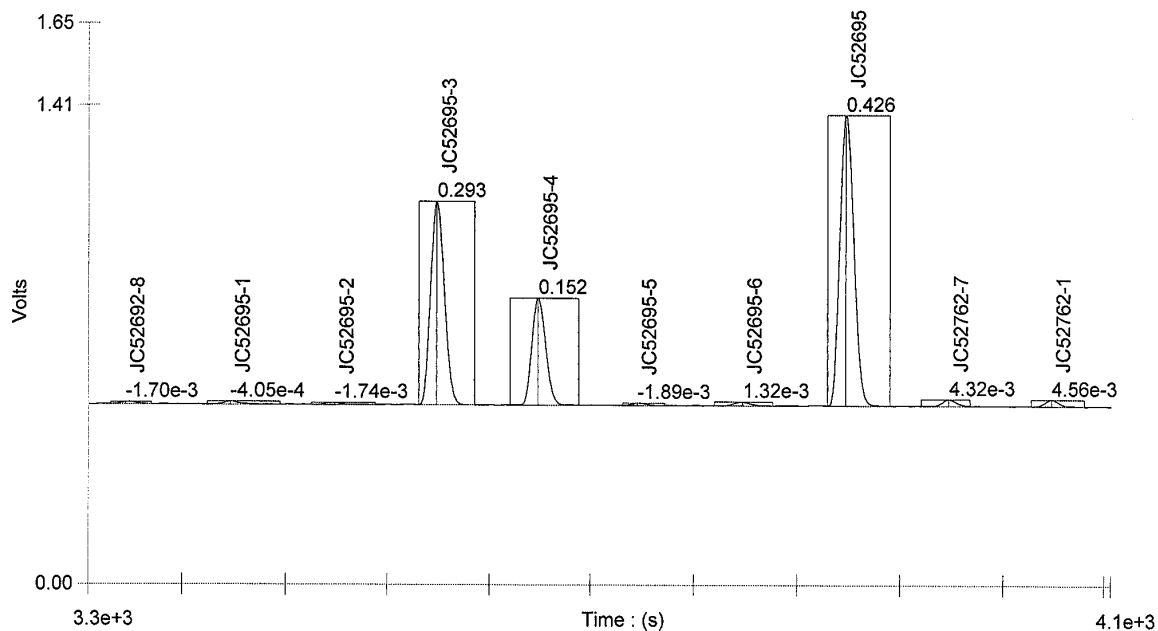
Author: chemistry

Date : 10/17/2017

Channel 1 - Set: 4 / 12



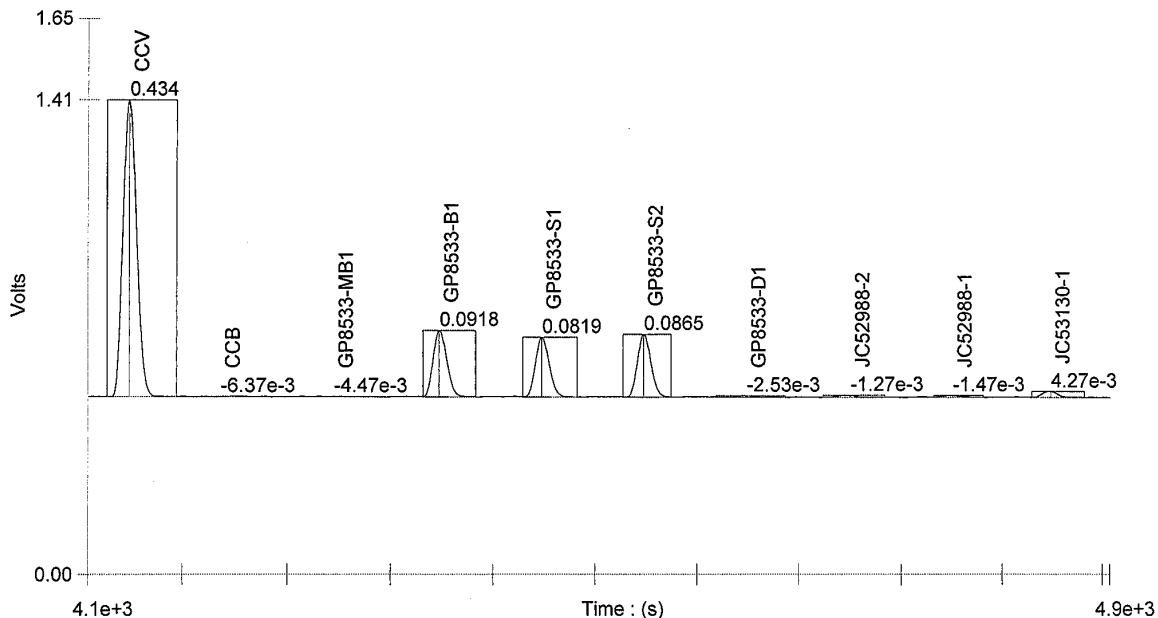
Channel 1 - Set: 5 / 12



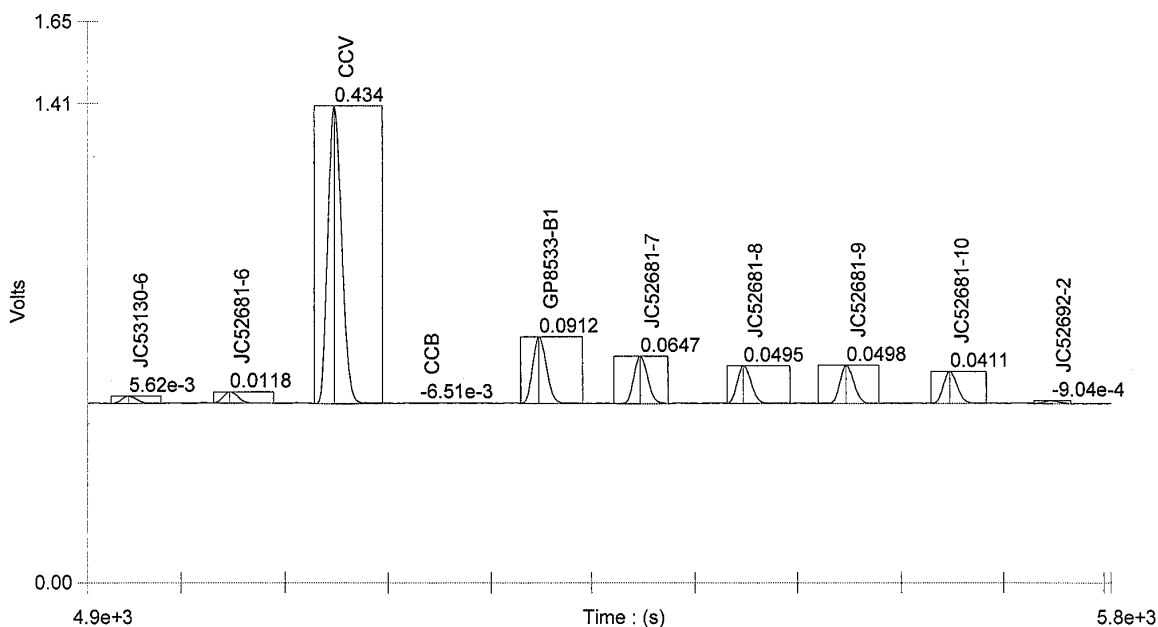
Author: chemistry

Date : 10/17/2017

Channel 1 - Set: 6 / 12



Channel 1 - Set: 7 / 12



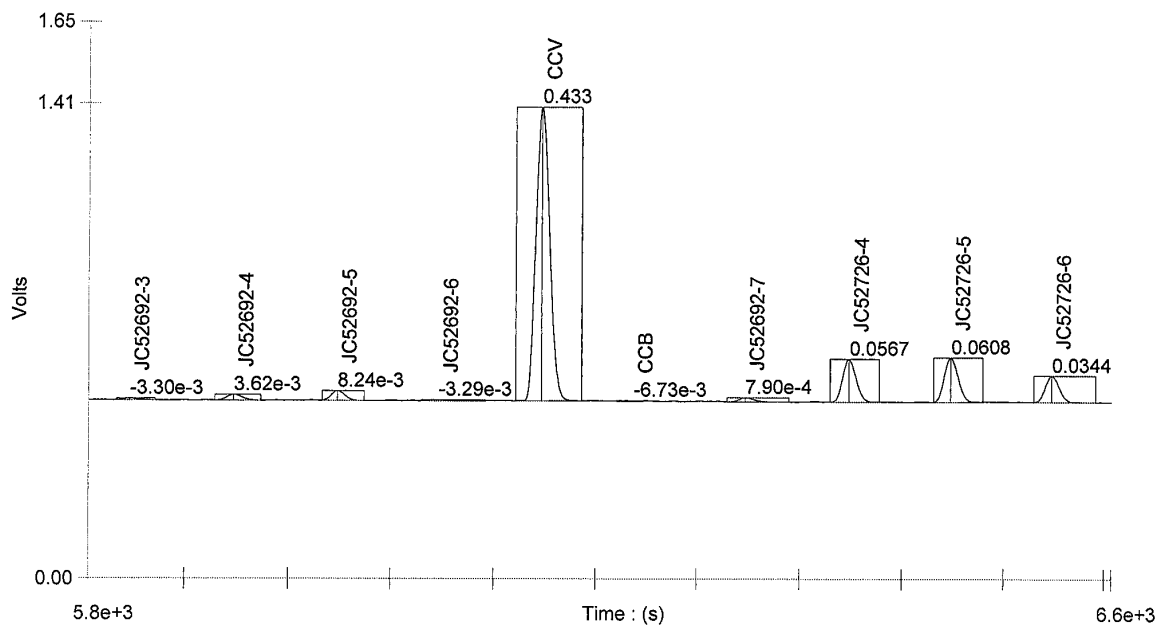
- 6 -

11.1
11

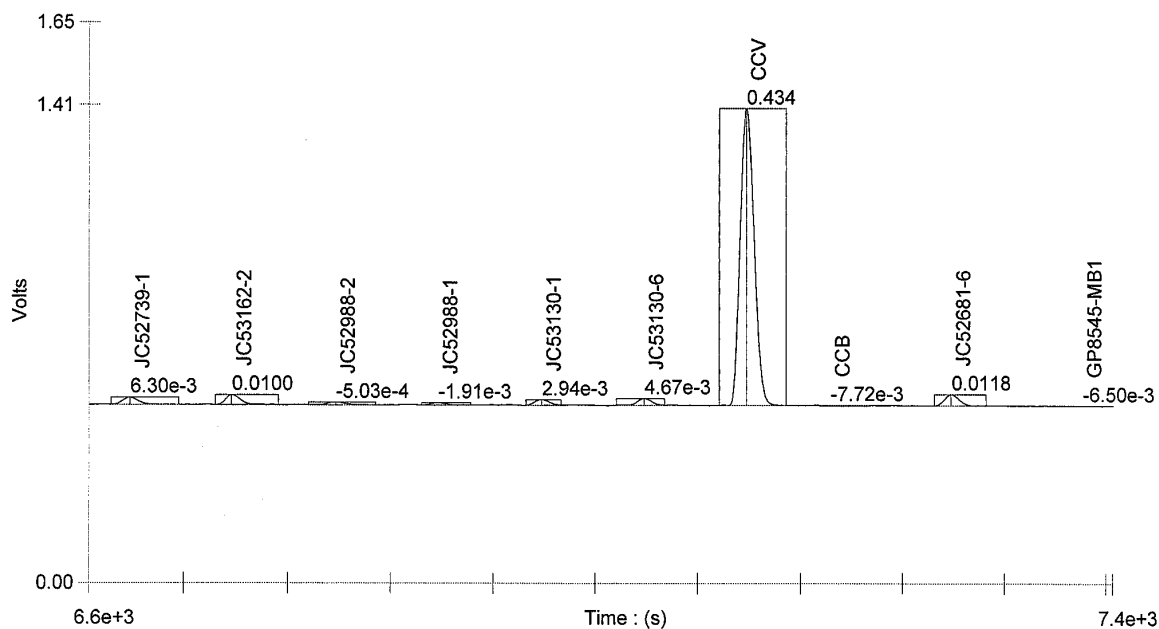
Author: chemistry

Date : 10/17/2017

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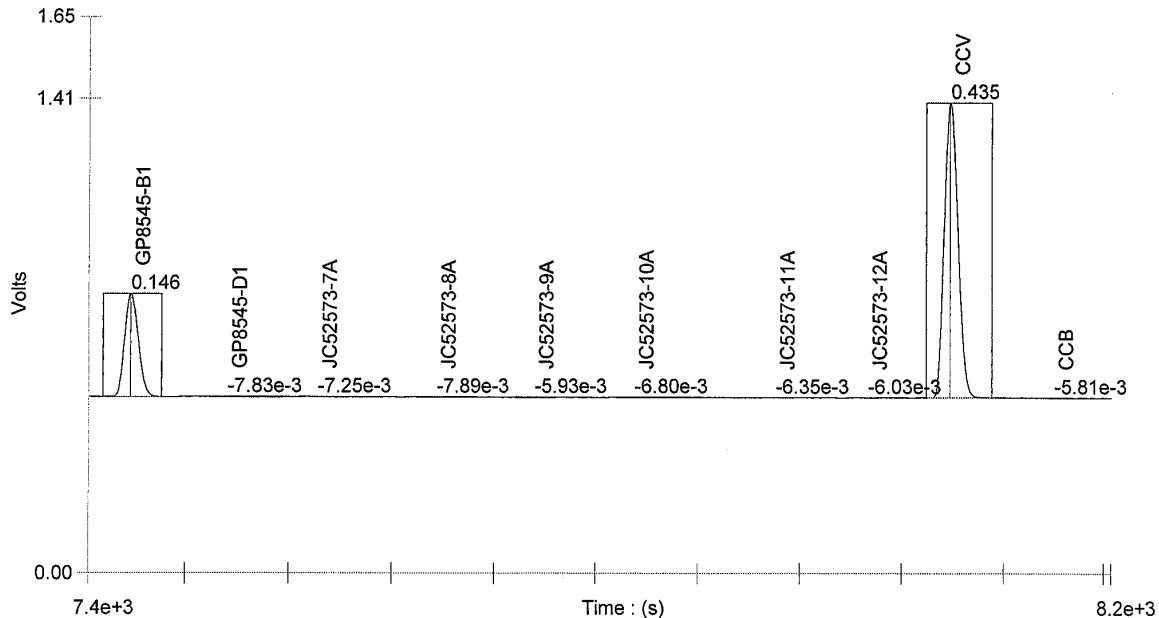
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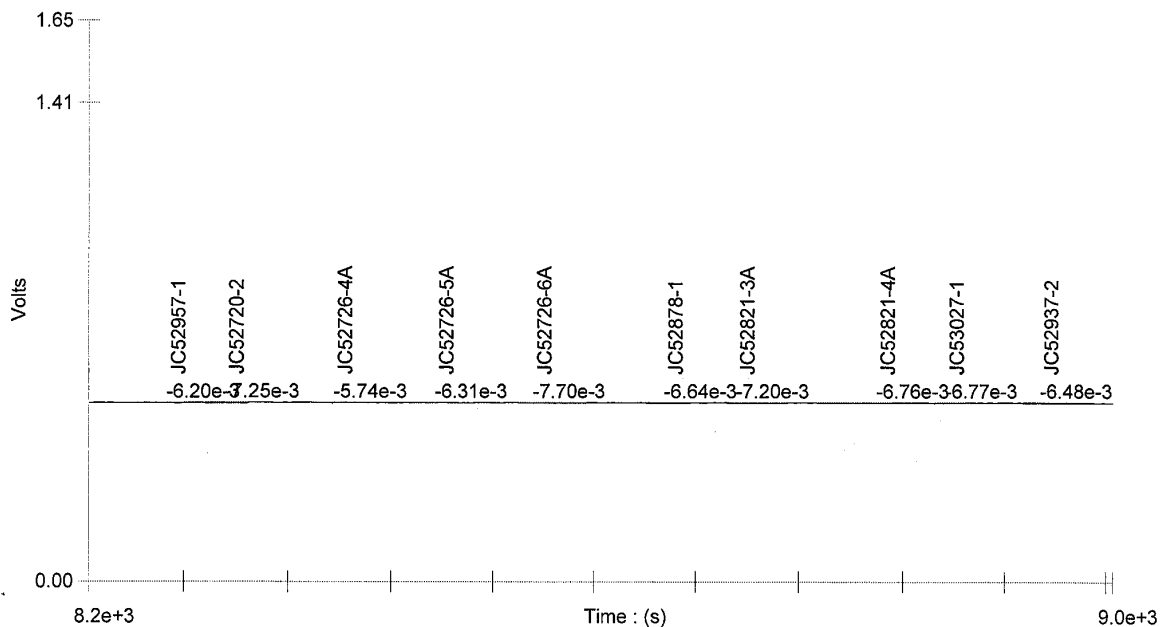
Author: chemistry

Date : 10/17/2017

Channel 1 - Set: 10 / 12



Channel 1 - Set: 11 / 12



Author: chemistry

Date: 10/17/2017

Channel 1 - Set: 12 / 12

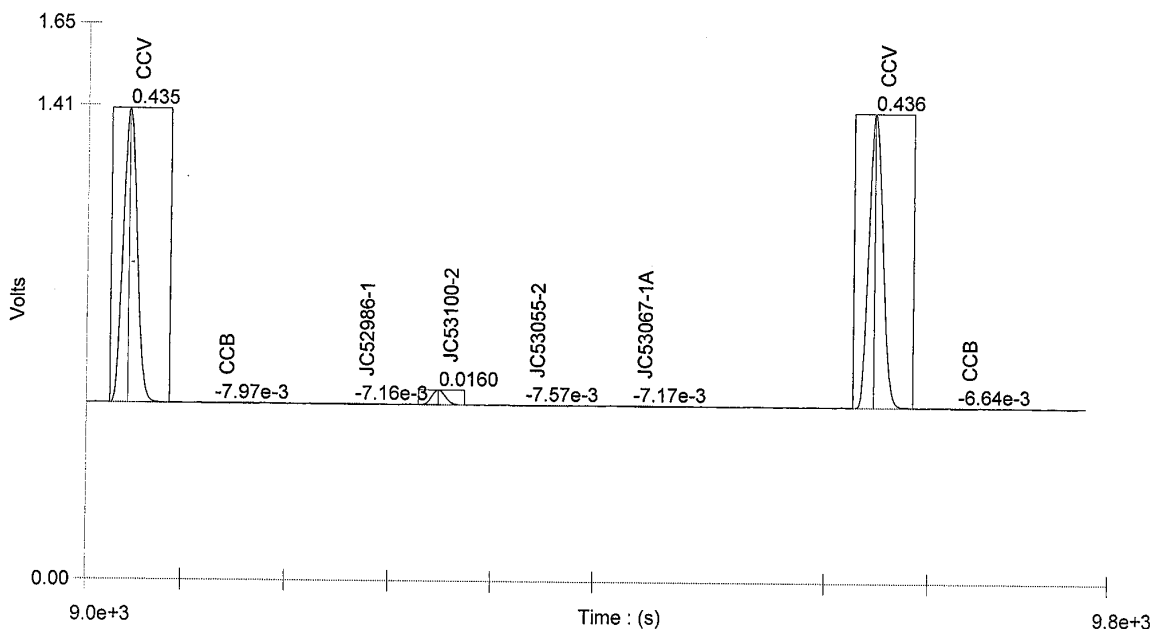
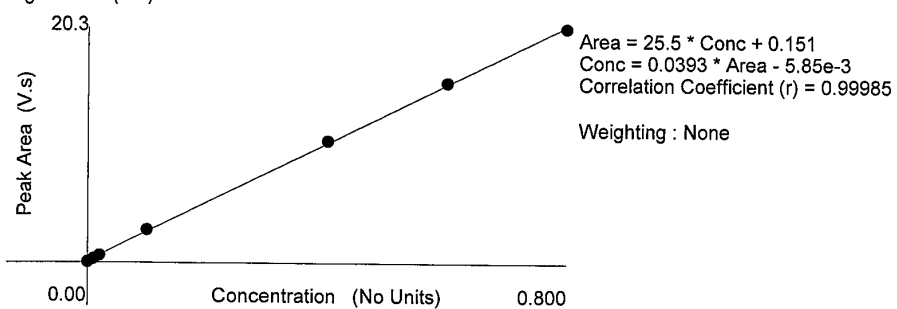
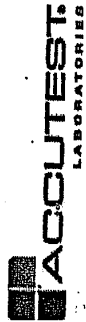


Table: 1 (CN)

	Known Conc. ()	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc ()	Detection Date	Detection Time
1	0.800	1	20.3	1.57	0.0	1.0	0.792	10/17/2017	11:00:29 AM
2	0.600	1	15.5	1.21	0.0	-0.8	0.605	10/17/2017	11:01:51 AM
3	0.400	1	10.5	0.823	0.0	-1.7	0.407	10/17/2017	11:03:13 AM
4	0.100	1	2.83	0.224	0.0	-5.0	0.105	10/17/2017	11:04:35 AM
5	0.0200	1	0.622	0.0468	0.0	5.8	0.0186	10/17/2017	11:05:57 AM
6	0.0100	1	0.310	0.0230	0.0	23.6	6.32e-3	10/17/2017	11:07:19 AM
7	0.00	1	0.0447	2.75e-3			-4.09e-3	10/17/2017	11:08:41 AM

Figure: 1 (CN)





CYANIDE DISTILLATION LOG (SOILS- MICRO DISTILLATION)

Method: SW846 9012B M

Batch ID: _____
Autopipette ID: 41
Balance ID: B29

GN71151

68352

Bottle #	Block #	Sample ID	pH	S2	Add (a)	Initial Weight (g)	Final Volume (ml)	Temp. In Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments	Spike Lot	Analyst
1		MB3 Z12	7.12		✓	0.225	6	20	0920	0950	16/17/17	GP -MB1	0.10 ml of 5.0 mg/l (c)		TRG
1		B3				0.225						GP -B1	0.10 ml of 5.0 mg/l		
1		5C52380-5				0.288						GP -S1	0.10 ml of 5.0 mg/l		
1		5C52380-6				0.30						GP -S2	0.10 ml of 5.0 mg/l		
2		5C52380-8				0.374						GP -D1			
2		5C53056-2				0.45									
2		5C53056-4				0.32									
2		5C53056-6			✓	0.47									

a) Check if sulfamic acid was added.

b) Record temp. from the LED readout on the distillation block. Temperatures verified with an external thermometer a min. of once per quarter.

c) If the calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

QC Reviewer: _____

Form: GN0012-04A

Rev. Date: 03/09/13

Date: _____



Reagent Information Log - CN - Distillation

GP Numbers:

6P8352

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes	jun 24 2016	N/A
.95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot: 12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrhodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction: 2s

Form: GN087A-28

Rev. Date: 03/19/13

ACCUTEST®

Product: CN

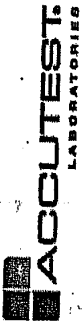
[illegible]

Expiration Date: SEE ATTACHED

*If Class A glass pipets are used, enter an A. For balances or autopipets, then enter the appropriate Accutest ID number.

Form: GN193-02

Rev. Date: 1/6/2014



CYANIDE DISTILLATION LOG (SOILS- MICRO DISTILLATION)

Method: SW846 9012B M

Batch ID: _____
Autopipette ID: 41
Balance ID: 029

68532

Bottle #	Block #	Sample ID	pH	S2-	Add (g)	Initial Weight (g)	Final Volume (ml)	Temp. In Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments	Spike Lot	Analyst
1	1	MB1	7.2		0.25	0.25	6	12.6	1530	1620	12/16/17	GP -MB1	0.10 ml of 5.0 mg/l (c)		JTG
2	1	B1			0.31	0.31						GP -B1	0.10 ml of 5.0 mg/l (c)		
3	1	S1										GP -S1	0.10 ml of 5.0 mg/l		
4	1	S2										GP -S2	0.10 ml of 5.0 mg/l		
5	1	D1			0.27	0.27						GP -D1			
6	1	DC52752-(16L)			0.30	0.30									
7	1	-2			0.34	0.34									
8	1	-3			0.41	0.41									
9	1	-4			0.46	0.46									
10	1	-5			0.49	0.49									
11	1	-6			0.26	0.26									
12	1	-7			0.25	0.25									
13	1	-8			0.28	0.28									
14	1	-9			0.30	0.30									
15	1	-10			0.44	0.44									

a) Check if sulfamic acid was added.

b) Record temp. from the LED readout on the distillation block. Temperatures verified with an external thermometer a min. of once per quarter.

c) If the calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

QC Reviewer: _____

Form: GN0012-04A
Rev. Date: 03/09/13

Date: _____


ACCUTEST®

Reagent Information Log - CN - Distillation

GP Numbers:

618532

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes	jun 24 2016	N/A
.95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot: 12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrthodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction: 2s

Form: GN087A-28
Rev. Date: 03/19/13



SREAC/CREAC
GP 8544 / GP 8545

Batch ID: _____
Autopipette ID: _____
Balance ID: B-27

REACTIVITY DISTILLATION LOG (SOILS)

Method: SW846 Chapter 7

Bottle #	Sample ID	Initial Volume (ml)	Final Volume (ml)	Start Time	End Time	Date	QC ID	Product (SREAC, CREAC, or both)	Check when spike added	Spike Amounts and Comments including Spike Lots	Analyst
MB1		10	500	21:30	21:50	10/16/17	GP -MB	BOTH			CB
B1 CREAC		10					GP -B	CREAC	✓	10ml of 100ppm	
B1 SREAC		10					GP -B	SREAC	✓	10ml of 537ppm	
2 JC52573-7A S1		10					GP -S	SREAC	✓	10ml of 537 ppm	
2 JC52573-7A D1		10.23					GP -D	BOTH			
2 JC52573-7A QC		10.58									
2 JC52573-8A		10.39									
2 JC52573-9A		10.77									
2 JC52573-10A		10.36									
2 JC52573-11A		10.37									
2 JC52573-12A		10.97									
1 JC52957-1		10.02		22:20	22:50						
1 JC52720-2		10.47									
1 JC52726-4A		10.34									
1 JC52726-5A		10.84									
1 JC52726-6A		10.96									
1 JC52878-1		10.14									
1 JC52821-3A		10.42									
1 JC52821-4A		10.00									
1 JC53027-1		10.00									
2 JC52937-2		10.34									
1 JC52986-1		10.28									
1 JC53100-2		10.01		23:20	23:50						
2 JC53055-2		10.61									
1 JC53067-1A		10.48									

Comments: Creac Spike: 20 ml of 1000ppm cyanide stock diluted up to 200ml w/ 0.25N NaOH

Sreac Spike: 2.0g of Sodium Sulfide Nonahydrate diluted up to 500ml w/ DI H2O

QC Reviewer: _____

Date: _____

Form: GN282-01b
Rev. Date: 02/28/13



Reagent Information Log - CREAC and SREAC Distillations

GP Numbers:

Reagent	Reagent # or Manufacturer/Lot	Expiration date	Standardization Date
Cyanide Spike Solution	GNE9-52240-CN	3/18/2018	10/2/2017
Sulfide Spike Solution	FISHER # 161566	1/11/2022	NA
Sulfuric Acid, 0.010 N	GNE10-52507-REAC	4/12/2018	NA
Sodium Hydroxide, 0.25 N	GNE10-52506-REAC	4/12/2018	NA
Sodium Hydroxide, 0.25 N	GNE10-52506-REAC	4/12/2018	NA

Form: GN087A-64

Rev. Date: 3/12/04



CYANIDE DISTILLATION LOG (WATERS-MICRO DISTILLATION)

Method: EPA 335.4 or SW-846 9012 M (Circle Method)

Batch ID: _____

Autopipette ID: 41

Balance ID: AA

Bottle #	Block #	Sample ID	pH	Sz	Add (a)	Initial Volume (ml)	Final Volume (ml)	Temp. in Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments	Spike Lot	Analyte
2		1181	7.2	✓	✓	6	6	20	1330	1620	10/16/17	GP	-MB1		172 S
9		1 (0.1)	8.1	✓	✓							GP	-B1	0.10 ml of 5.0 mg/l (c)	
3		2 (0.2)	8.2	✓	✓							GP	-S1	0.10 ml of 5.0 mg/l	
9		3 (0.3)	8.1	✓	✓							GP	-S2	0.10 ml of 5.0 mg/l	
15		JC52885-1		✓	✓							GP	-D1		
15		JC52885-2		✓	✓										
9		JC52946-1		✓	✓										
9		JC52692-8		✓	✓										
3		JC52695-1		✓	✓										
3		-2		✓	✓										
3		-3		✓	✓										
3		-4		✓	✓										
9		-5 (0.1)		✓	✓										
3		-6 (0.2)		✓	✓										
3		-7		✓	✓										
1		JC52762-7		✓	✓										
1		JC52762-1		✓	✓										

(a) Check if sulfamic acid was added.

(b) Record temp. from the LED readout on the distillation block. Temperatures verified with an external thermometer a min. of once per quarter.

(c) If the calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

Comments:

QC Reviewer: _____

Form: GN0012-04

Rev. Date: 03/09/13

Date: _____



Reagent Information Log - CN - Distillation

GP Numbers:

G18534

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes	jun 24 2016	N/A
.95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot: 12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrhodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction: 2 s

Form: GN087A-28

Rev. Date: 03/19/13



CYANIDE DISTILLATION LOG (SOILS- MICRO DISTILLATION)

Method: SW846 9012B M

Batch ID: _____
Autopipette ID: 41
Balance ID: B29

685533

Bottle #	Block #	Sample ID	pH	S2	Add (g)	Initial Weight (g)	Final Volume (ml)	Temp. in Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments	Spike Lot	Analyst
1		MB1	7.2	✓	0.25	0.25	6	120	1550	1620	10/16/17	GP -MB1			TRC
1		(BL) 31			0.37	0.37						GP -B1	0.10 ml of 5.0 mg/l (c)		
1		(BL) 32			0.37	0.37						GP -S1	0.10 ml of 5.0 mg/l		
1		(BL) D1			0.41	0.41						GP -S2	0.10 ml of 5.0 mg/l		
1		JC52988-2 (BL)			0.40	0.40						GP -D1			
1		JC52988-1 (BL)			0.39	0.39									
2		JC53130-1			0.49	0.49									
2		JC52691-6			0.25	0.25									
2		-7			0.26	0.26									
2		-8			0.37	0.37									
2		-9			0.30	0.30									
2		-10			0.35	0.35									
2		JC52692-2			0.49	0.49									
2		-3			0.25	0.25									
2		-4			0.30	0.30									
2		-5			0.26	0.26									
2		-6			0.25	0.25									
2		-7			0.37	0.37									
2		JC52726-4			0.39	0.39									
2		-5			0.29	0.29									
2		-6			0.49	0.49									
2		JC62739-1			0.25	0.25									
2		JC53162-2			0.27	0.27									

a) Check if sulfamic acid was added.

b) Record temp. from the TED readout on the distillation block. Temperatures verified with an external thermometer a min. of once per quarter.

c) If the calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

Comments:

QC Reviewer:

Form: GN0012-04A

Rev. Date: 03/09/13

Date:



Reagent Information Log - CN - Distillation

GP Numbers:

6P8533

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes	jun 24 2016	N/A
.95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot:12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrhodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction: 2s

Form: GN087A-28
Rev. Date: 03/19/13



GENERAL CHEMISTRY STANDARD PREPARATION LOG

Product: CN
GN or GP Number: 678533

[illegible]

(a) Concentration will change with standardization concentration.

(b) Diluent reagent reference number:

SEE ATTACHED

Expiration Date:

SEE ATTACHED

(c) Standards must be made fresh (daily) before distillation. After distillation, they may be held under refrigeration for a maximum of 28 days before analysis. If Class A glass pipets are used, enter an A. For balances or autopipets, then enter the appropriate Accutest ID number.

Reason codes for data corrections: 1-reviewer error correction; 2-transcription error; 3-computer error; 4-analyst error

Form: GN193-02

Rev. Date: 1/6/2014



GN71151

Reagent Information Log - CN Lachat Autoanalyzer

GN Number: _____

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Pyridine-Bartitric Acid Reagent	GNE8-51877-CN	2/14/2018
Chloramine-T	GNE10-52538-CN	10/24/2017
Phosphate Buffer Solution, 1.0 M	GNE8-51949-CN	2/18/2018
	GNE9-52233-CN	3/18/2018
0.25 N Sodium Hydroxide Carrier Solution	GNE8-52018-CN	2/23/2018
	GNE10-52467-CN	4/9/2017

Reason codes for data corrections: 1-reviewer error correction; 2-transcription error; 3-computer error; 4-analyst error

Form: GN087A-27

Rev. Date: 7/19/06

LABORATORY REVIEW SIGNATURE FORM
(To be stored with the raw data)File ID: E110717W1.CN
Analyst: BMDate Analyzed: 11/07/17
Run ID: GN72215

Methods: EPA 335.4/LACHAT, SW846 9012B/LACHAT

The following analyst(s) have reviewed this run and attest that, to the best of their knowledge, this documentation is complete and correct:

Analyst: BM Date 11/7/17

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

Analyst: _____ Date _____

The following supervisor or their designee has reviewed this run and attests that, to the best of their knowledge, this documentation is complete and correct:

Supervisor (or designee): [Signature] Date 11/7/17

Author: chemistry

GN72215

0110717 W1. CN
Date : 11/7/2017

Original Run Filename: OM_11-7-2017_10-54-48AM.OMN Created: 11/7/2017 10:54:48 AM
Original Run Author's Signature: [chemistry]
Current Run Filename: OM_11-7-2017_10-54-48AM.OMN Last Modified: 11/7/2017 3:10:01 PM
Current Run Author's Signature: [chemistry]
Description: Default new Run

Sample	Rep.	Cup No.	Channel 1 CN	Detection Time	MDF
STDA	1	1	0.800	11/7/2017@10:55:58 AM	
STDB	1	2	0.600	11/7/2017@10:57:20 AM	
STDC	1	3	0.400	11/7/2017@10:58:42 AM	
STDD	1	4	0.100	11/7/2017@11:00:04 AM	
STDE	1	5	0.0200	11/7/2017@11:01:26 AM	
STDF	1	6	0.0100	11/7/2017@11:02:48 AM	
STDG	1	7	0.00	11/7/2017@11:04:09 AM	
ICV	1	8	0.321	11/7/2017@11:05:31 AM	
Known Conc:			0.300		
ICB	1	9	-5.76e-3	11/7/2017@11:06:52 AM	
Known Conc:			0.00		
CCV	1	S9	0.406	11/7/2017@11:08:14 AM	
Known Conc:			0.400		
CCB	1	S10	-4.02e-3	11/7/2017@11:09:36 AM	
Known Conc:			0.00		
GP9023-MB1	1	10	-3.39e-3	11/7/2017@11:10:57 AM	
GP9023-B1	1	11	0.0982	11/7/2017@11:12:19 AM	
GP9023-S1	1	12	0.100	11/7/2017@11:13:40 AM	
GP9023-S2	1	13	0.0929	11/7/2017@11:15:01 AM	
GP9023-D1	1	14	-1.96e-3	11/7/2017@11:16:22 AM	
GP9023-B1	1	11	0.101	11/7/2017@11:17:43 AM	
JC53941-14F	1	15	-2.20e-3	11/7/2017@11:19:04 AM	
JC53941-15F	1	16	8.00e-4	11/7/2017@11:20:26 AM	
JC53941-16F	1	17	-2.36e-3	11/7/2017@11:21:48 AM	
JC53941-17F	1	18	-2.90e-3	11/7/2017@11:23:10 AM	
CCV	1	S9	0.406	11/7/2017@11:24:31 AM	
Known Conc:			0.400		
CCB	1	S10	-5.51e-3	11/7/2017@11:25:53 AM	
Known Conc:			0.00		
JC53941-18F	1	19	-5.55e-3	11/7/2017@11:27:16 AM	
JC53941-19F	1	20	-4.52e-3	11/7/2017@11:28:38 AM	
JC53941-20F	1	21	-2.25e-3	11/7/2017@11:30:00 AM	
JC53941-21F	1	22	9.98e-4	11/7/2017@11:31:21 AM	
JC53941-22F	1	23	-1.29e-3	11/7/2017@11:32:43 AM	
JC53941-23F	1	24	-3.64e-3	11/7/2017@11:34:04 AM	
JC53941-24F	1	25	-2.83e-3	11/7/2017@11:35:26 AM	
JC54321-1	1	26	0.0141	11/7/2017@11:36:47 AM	
JC54362-2	1	27	-2.50e-3	11/7/2017@11:38:08 AM	
GP9071-MB1	1	28	2.67e-4	11/7/2017@11:39:29 AM	
CCV	1	S9	0.405	11/7/2017@11:40:51 AM	
Known Conc:			0.400		
CCB	1	S10	-8.11e-3	11/7/2017@11:42:13 AM	
Known Conc:			0.00		
GP9071-B1	1	29	0.0871	11/7/2017@11:43:34 AM	
GP9071-S1	1	30	0.0918	11/7/2017@11:44:55 AM	
GP9071-S2	1	31	0.0929	11/7/2017@11:46:17 AM	
GP9071-D1	1	32	-4.32e-4	11/7/2017@11:47:39 AM	
JC54326-1	1	33	0.0106	11/7/2017@11:49:01 AM	
JC54326-2	1	34	2.01e-3	11/7/2017@11:50:24 AM	
JC54362-3	1	35	-8.80e-4	11/7/2017@11:51:46 AM	
JC54362-4	1	36	1.42e-3	11/7/2017@11:53:08 AM	
JC54416-3	1	37	2.62e-3	11/7/2017@11:54:30 AM	
JC54416-4	1	38	-5.27e-3	11/7/2017@11:55:51 AM	
CCV	1	S9	0.406	11/7/2017@11:57:13 AM	
Known Conc:			0.400		
CCB	1	S10	-3.28e-3	11/7/2017@11:58:34 AM	
Known Conc:			0.00		
JC54416-5	1	39	1.03e-3	11/7/2017@11:59:56 AM	
JC54420-1	1	40	2.68e-3	11/7/2017@12:01:17 PM	
JC54427-1	1	41	0.0276	11/7/2017@12:02:39 PM	

1. PEC

107.1

101.51

117.1

for confirmation only.

101.51

over AL, back to recd.

101.21

104.51

101.51

Author: chemistry

Date : 11/7/2017

JC54427-2	1	42	0.0227	11/7/2017@12:04:00 PM	
JC54427-3	1	43	1.95e-3	11/7/2017@12:05:21 PM	
JC54427-4	1	44	0.0286	11/7/2017@12:06:42 PM	
JC54427-5	1	45	0.0136	11/7/2017@12:08:03 PM	
JC54427-6	1	46	0.0180	11/7/2017@12:09:25 PM	
JC54499-1	1	47	1.37e-3	11/7/2017@12:10:48 PM	
JC54502-2	1	48	-1.99e-3	11/7/2017@12:12:10 PM	
CCV	1	S9	0.403	11/7/2017@12:13:31 PM	
Known Conc:			0.400		
CCB	1	S10	-4.81e-3	11/7/2017@12:14:53 PM	
Known Conc:			0.00		
JC54502-4	1	49	3.46e-3	11/7/2017@12:16:15 PM	
JC54502-8	1	50	1.88e-3	11/7/2017@12:17:37 PM	
GP9070-MB1	1	51	1.76e-4	11/7/2017@12:18:59 PM	
GP9070-B1	1	52	0.0717	11/7/2017@12:20:21 PM	
GP9070-S1	1	53	0.0860	11/7/2017@12:21:43 PM	
GP9070-S2	1	54	0.0904	11/7/2017@12:23:04 PM	
Calibration: Table/Fig. : 1					
GP9070-D1	1	55	-1.17e-3	11/7/2017@12:24:25 PM	
JC54416-2	1	56	-9.35e-4	11/7/2017@12:25:47 PM	
JC54456-6	1	57	6.78e-4	11/7/2017@12:27:08 PM	
JC53941-26	1	58	-3.66e-4	11/7/2017@12:28:29 PM	
CCV	1	S9	0.404	11/7/2017@12:29:50 PM	
Known Conc:			0.400		
CCB	1	S10	-5.44e-3	11/7/2017@12:31:12 PM	
Known Conc:			0.00		
JC53941-27	1	59	-9.27e-4	11/7/2017@12:32:34 PM	
JC53941-28	1	60	7.62e-5	11/7/2017@12:33:55 PM	
JC53941-29	1	61	-3.03e-4	11/7/2017@12:35:17 PM	
JC53941-30	1	62	-1.30e-3	11/7/2017@12:36:39 PM	
JC53941-31	1	63	6.67e-4	11/7/2017@12:38:01 PM	
JC53941-32	1	64	-1.63e-4	11/7/2017@12:39:23 PM	
JC53941-33	1	65	-2.05e-3	11/7/2017@12:40:45 PM	
JC53941-26F	1	66	2.85e-4	11/7/2017@12:42:07 PM	
JC53941-27F	1	67	-1.30e-3	11/7/2017@12:43:29 PM	
JC53941-28F	1	68	-1.34e-3	11/7/2017@12:44:51 PM	
CCV	1	S9	0.403	11/7/2017@12:46:12 PM	
Known Conc:			0.400		
CCB	1	S10	-2.30e-3	11/7/2017@12:47:34 PM	
Known Conc:			0.00		
JC53941-29F	1	69	-4.54e-3	11/7/2017@12:48:56 PM	
JC53941-30F	1	70	-5.30e-3	11/7/2017@12:50:17 PM	
JC53941-31F	1	71	-1.62e-3	11/7/2017@12:51:39 PM	
JC53941-32F	1	72	-6.70e-4	11/7/2017@12:53:00 PM	
JC53941-33F	1	73	-3.83e-3	11/7/2017@12:54:21 PM	
JC54505-1	1	74	4.08e-3	11/7/2017@12:55:42 PM	
JC54505-2	1	75	3.59e-3	11/7/2017@12:57:03 PM	
GP9070-D2	1	76	-2.90e-3	11/7/2017@12:58:26 PM	
GP9069-MB1	1	77	-2.05e-3	11/7/2017@12:59:48 PM	
GP9069-B1	1	78	0.0910	11/7/2017@1:01:10 PM	
CCV	1	S9	0.405	11/7/2017@1:02:32 PM	
Known Conc:			0.400		
CCB	1	S10	-3.46e-3	11/7/2017@1:03:54 PM	
Known Conc:			0.00		
GP9069-S1	1	79	0.183	11/7/2017@1:05:16 PM	
GP9069-S2	1	80	0.123	11/7/2017@1:06:38 PM	
GP9069-D1	1	81	0.142	11/7/2017@1:08:00 PM	
JC54456-1	1	82	0.0995	11/7/2017@1:09:21 PM	
JC54456-2	1	83	0.0255	11/7/2017@1:10:43 PM	
JC54456-3	1	84	0.0941	11/7/2017@1:12:04 PM	
JC54456-5	1	85	3.68e-3	11/7/2017@1:13:25 PM	
JC54456-7A	1	86	0.0792	11/7/2017@1:14:47 PM	
JC54526-1	1	87	-2.51e-3	11/7/2017@1:16:08 PM	
JC54526-2	1	88	-2.35e-3	11/7/2017@1:17:29 PM	
CCV	1	S9	0.405	11/7/2017@1:18:51 PM	
Known Conc:			0.400		
CCB	1	S10	-2.52e-3	11/7/2017@1:20:13 PM	
Known Conc:			0.00		

160.71

BSP failed, back to need.

BSP failed, back to need.

161.1

BSP failed, back to need

BSP failed, back to need.

109.27

101.27

161.24

Author: chemistry

Date : 11/7/2017

JC54580-1	1	89	-2.36e-3	11/7/2017@1:21:34 PM	
JC54580-2	1	90	-1.65e-3	11/7/2017@1:22:55 PM	
JC54580-3	1	91	-2.74e-3	11/7/2017@1:24:17 PM	
JC54580-4	1	92	-3.41e-3	11/7/2017@1:25:40 PM	
JC54580-5	1	93	9.77e-4	11/7/2017@1:27:02 PM	
GP9060-MB1	1	94	-8.99e-5	11/7/2017@1:28:24 PM	
GP9060-B1	1	95	0.0896	11/7/2017@1:29:46 PM	107.5%
GP9060-S1	1	96	0.0870	11/7/2017@1:31:08 PM	
GP9060-S2	1	97	0.0900	11/7/2017@1:32:29 PM	
GP9060-D1	1	98	3.83e-3	11/7/2017@1:33:51 PM	
CCV	1	S9	0.405	11/7/2017@1:35:13 PM	101.2%
Known Conc:			0.400		
CCB	1	S10	-3.68e-3	11/7/2017@1:36:35 PM	
Known Conc:			0.00		
JC54688-1A	1	99	7.21e-4	11/7/2017@1:37:56 PM	
JC54512-1	1	100	3.58e-3	11/7/2017@1:39:18 PM	
JC54512-2	1	101	-1.48e-3	11/7/2017@1:40:39 PM	
JC54687-1	1	102	9.81e-5	11/7/2017@1:42:00 PM	
JC54687-2	1	103	1.75e-3	11/7/2017@1:43:22 PM	
JC54262-1	1	104	0.0118	11/7/2017@1:44:43 PM	
JC54287-1	1	105	-2.11e-3	11/7/2017@1:46:05 PM	
JC53875-4	1	106	0.0295	11/7/2017@1:47:27 PM	
JC53875-8	1	107	8.02e-4	11/7/2017@1:48:50 PM	
JC53875-10	1	108	0.0314	11/7/2017@1:50:12 PM	
CCV	1	S9	0.404	11/7/2017@1:51:34 PM	101%
Known Conc:			0.400		
CCB	1	S10	-2.78e-3	11/7/2017@1:52:55 PM	
Known Conc:			0.00		
JC54102-5	1	109	5.48e-3	11/7/2017@1:54:17 PM	
JC54102-9	1	110	0.0195	11/7/2017@1:55:39 PM	
JC54102-11	1	111	5.42e-4	11/7/2017@1:57:01 PM	
JC54102-14	1	112	0.0123	11/7/2017@1:58:23 PM	
JC54102-16	1	113	7.03e-3	11/7/2017@1:59:44 PM	
JC54102-19	1	114	0.0112	11/7/2017@2:01:06 PM	
GP9059-MB1	1	115	-2.32e-3	11/7/2017@2:02:28 PM	
GP9059-B1	1	116	0.0912	11/7/2017@2:03:49 PM	109.4%
GP9059-S1	1	117	0.0697	11/7/2017@2:05:11 PM	
GP9059-D1	1	118	-2.55e-3	11/7/2017@2:06:32 PM	
CCV	1	S9	0.404	11/7/2017@2:07:54 PM	101%
Known Conc:			0.400		
CCB	1	S10	-3.46e-3	11/7/2017@2:09:16 PM	
Known Conc:			0.00		
JC52965-1R	1	119	-2.31e-3	11/7/2017@2:10:38 PM	
JC52965-2R	1	120	-3.70e-4	11/7/2017@2:11:59 PM	
JC52965-3R	1	121	0.291	11/7/2017@2:13:22 PM	
JC52965-4R	1	122	0.136	11/7/2017@2:14:44 PM	
JC52965-5F	1	123	-2.45e-3	11/7/2017@2:16:06 PM	
JC52965-6R	1	124	-1.43e-3	11/7/2017@2:17:28 PM	
JC52965-7R	1	125	0.467	11/7/2017@2:18:50 PM	
GP9098-MB1	1	126	3.49e-4	11/7/2017@2:20:12 PM	
GP9098-B1	1	127	0.0900	11/7/2017@2:21:34 PM	108%
GP9898-S1	1	128	0.0705	11/7/2017@2:22:56 PM	
CCV	1	S9	0.405	11/7/2017@2:24:17 PM	101.2%
Known Conc:			0.400		
CCB	1	S10	-3.16e-3	11/7/2017@2:25:39 PM	
Known Conc:			0.00		
GP9098-D1	1	129	0.0659	11/7/2017@2:27:01 PM	
JC54449-1R	1	130	1.03e-4	11/7/2017@2:28:23 PM	
JC54526-3	1	131	5.24e-4	11/7/2017@2:29:44 PM	
JC54551-1	1	132	1.79e-3	11/7/2017@2:31:06 PM	
JC54551-2	1	133	4.61e-3	11/7/2017@2:32:28 PM	
JC54551-3	1	134	1.30e-3	11/7/2017@2:33:50 PM	
JC54551-4	1	135	0.0615	11/7/2017@2:35:11 PM	
JC54551-5	1	136	0.110	11/7/2017@2:36:34 PM	
JC54551-6	1	137	3.03e-3	11/7/2017@2:37:56 PM	
JC54551-7	1	138	5.70e-4	11/7/2017@2:39:18 PM	
CCV	1	S9	0.403	11/7/2017@2:40:40 PM	100.7%
Known Conc:			0.400		

JC52695

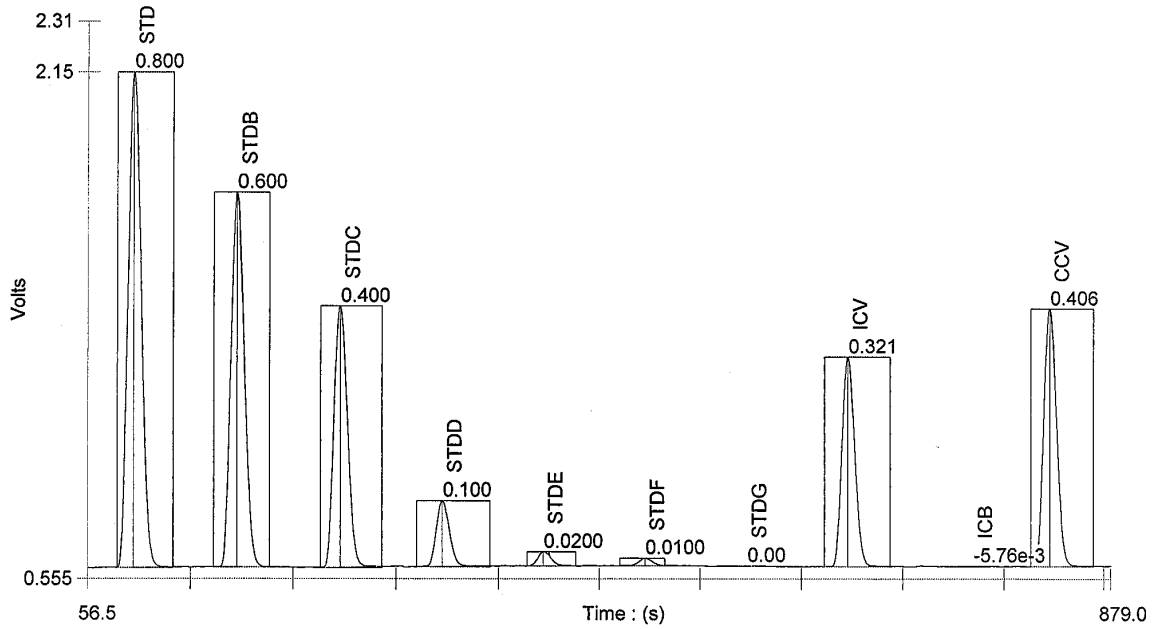
#1188

Author: chemistry

Date : 11/7/2017

CCB	1	S10	-3.94e-3	11/7/2017@2:42:02 PM	
Known Conc:			0.00		
JC54557-1	1	139	-6.19e-4	11/7/2017@2:43:24 PM	
CCV	1	S9	0.404	11/7/2017@2:46:27 PM	101.6
Known Conc:			0.400		
CCB	1	S10	-5.83e-3	11/7/2017@2:47:49 PM	
Known Conc:			0.00		

Channel 1 - Set: 1 / 17

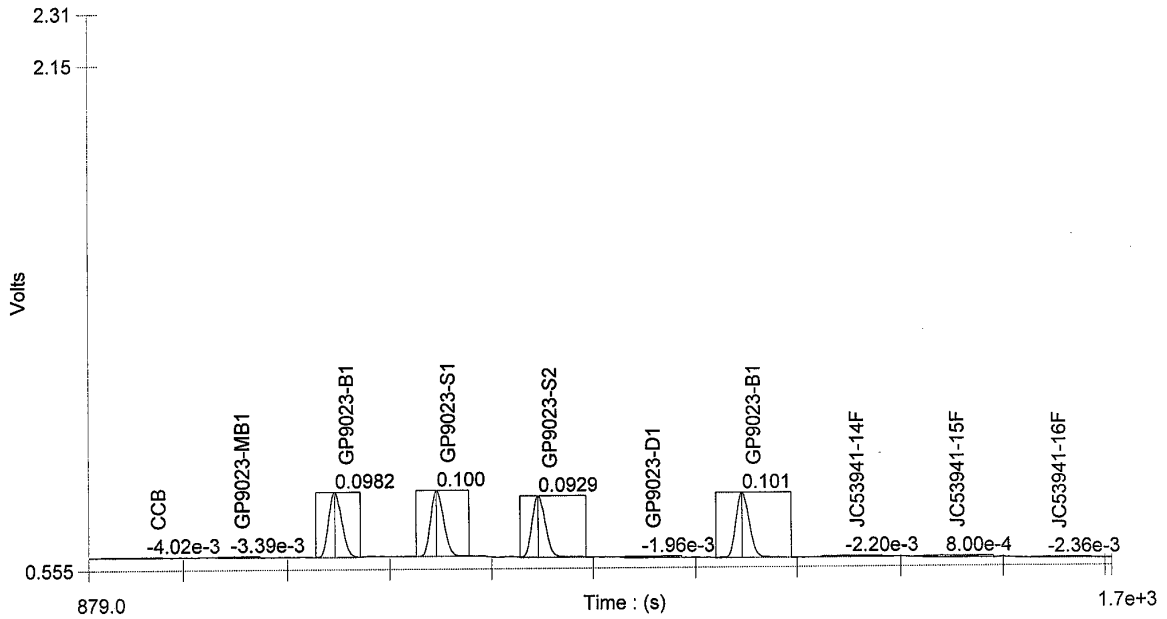


- 4 -

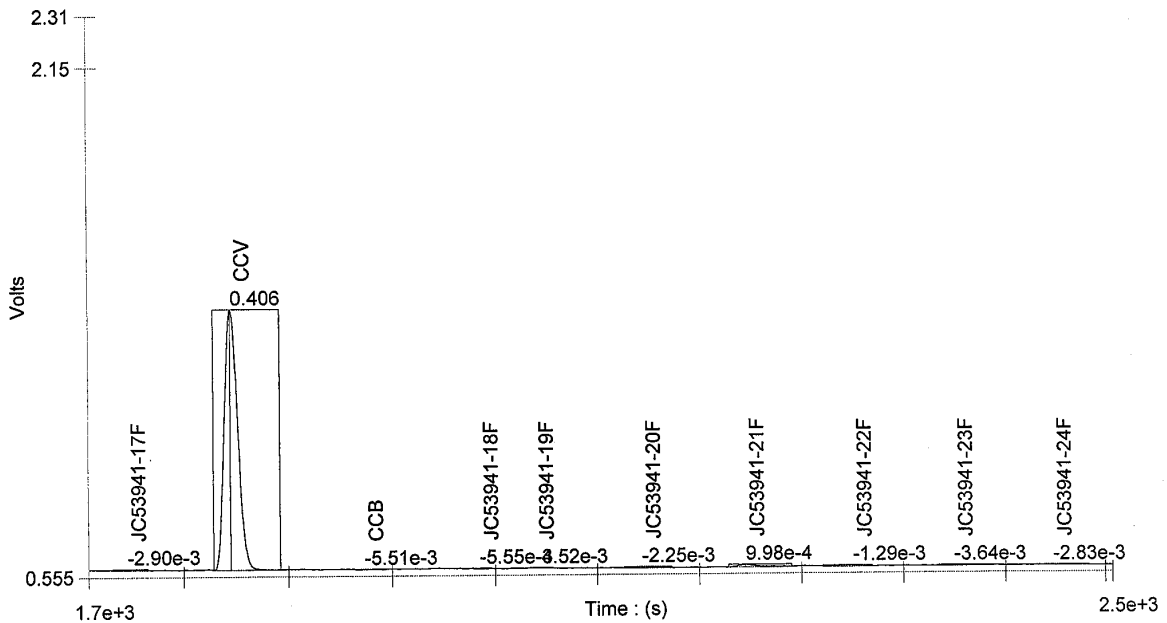
Author: chemistry

Date : 11/7/2017

Channel 1 - Set: 2 / 17



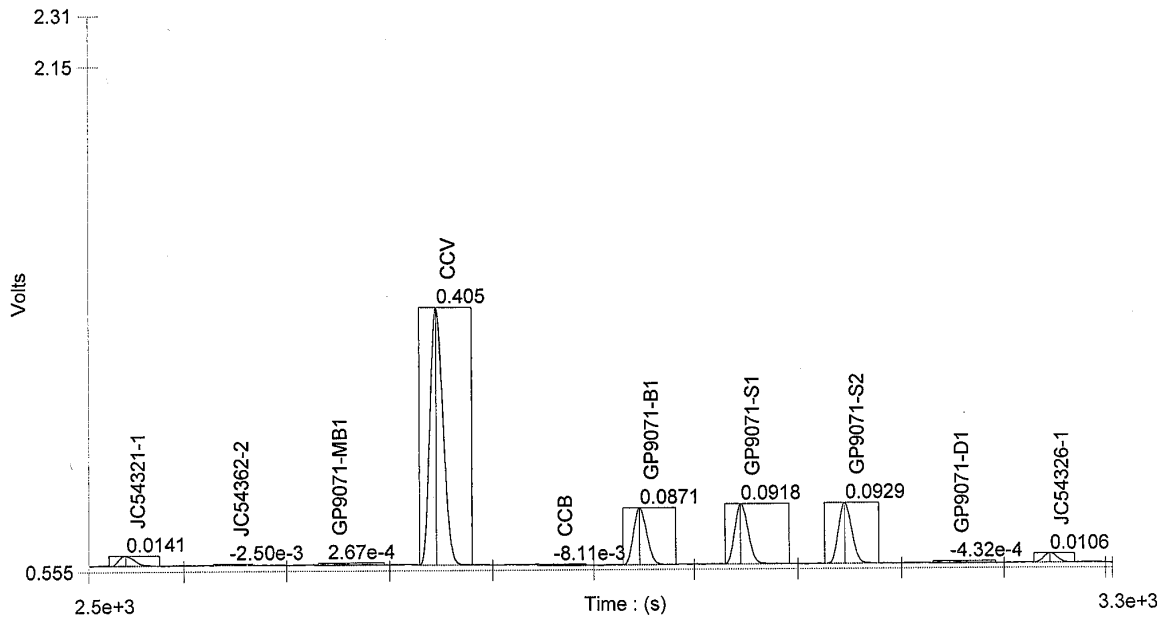
Channel 1 - Set: 3 / 17



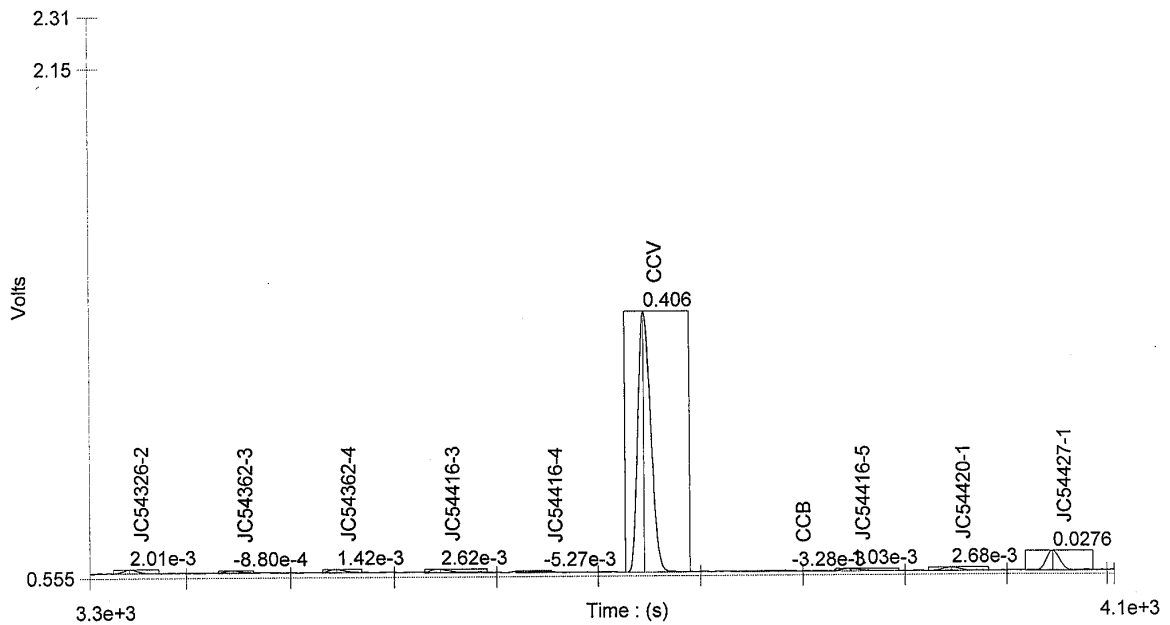
Author: chemistry

Date : 11/7/2017

Channel 1 - Set: 4 / 17



Channel 1 - Set: 5 / 17



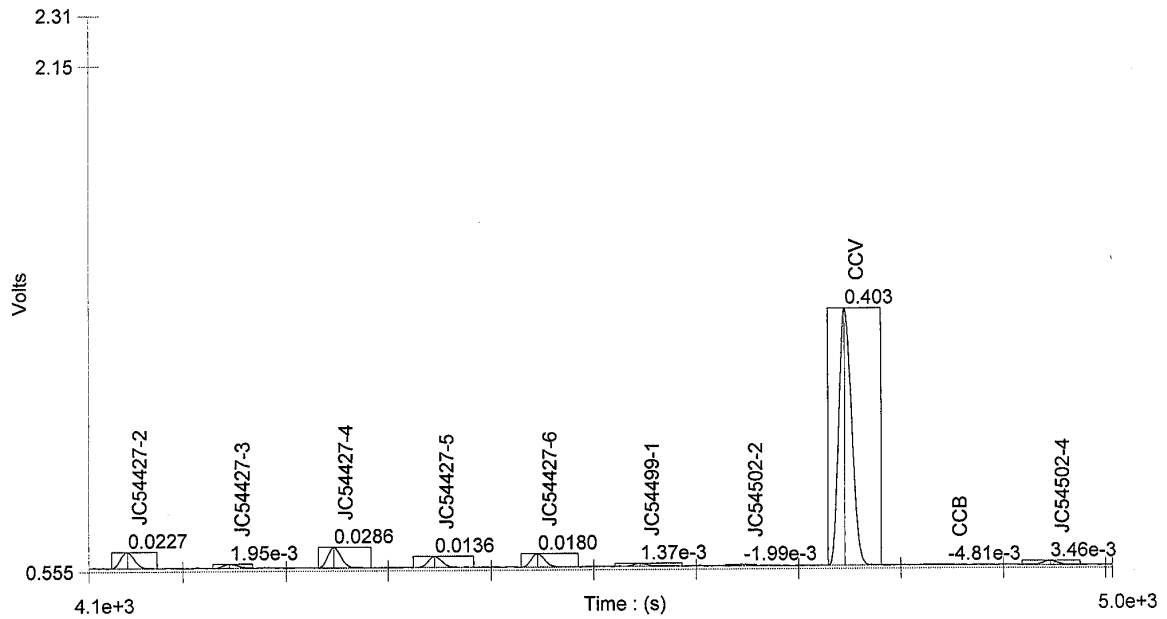
- 6 -

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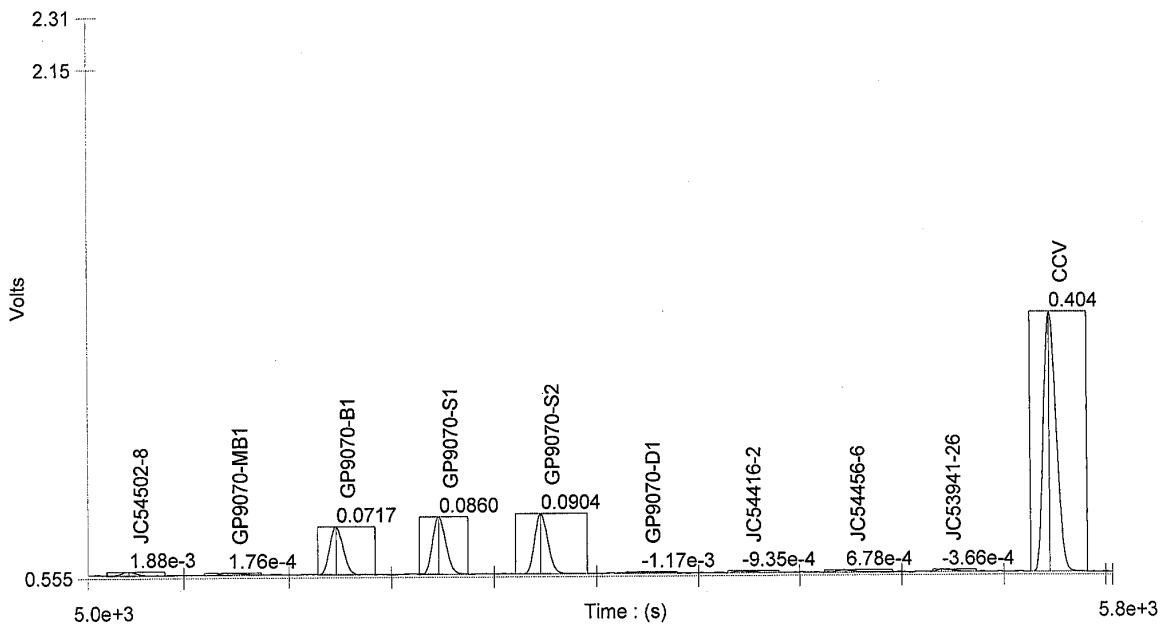
Author: chemistry

Date : 11/7/2017

Channel 1 - Set: 6 / 17



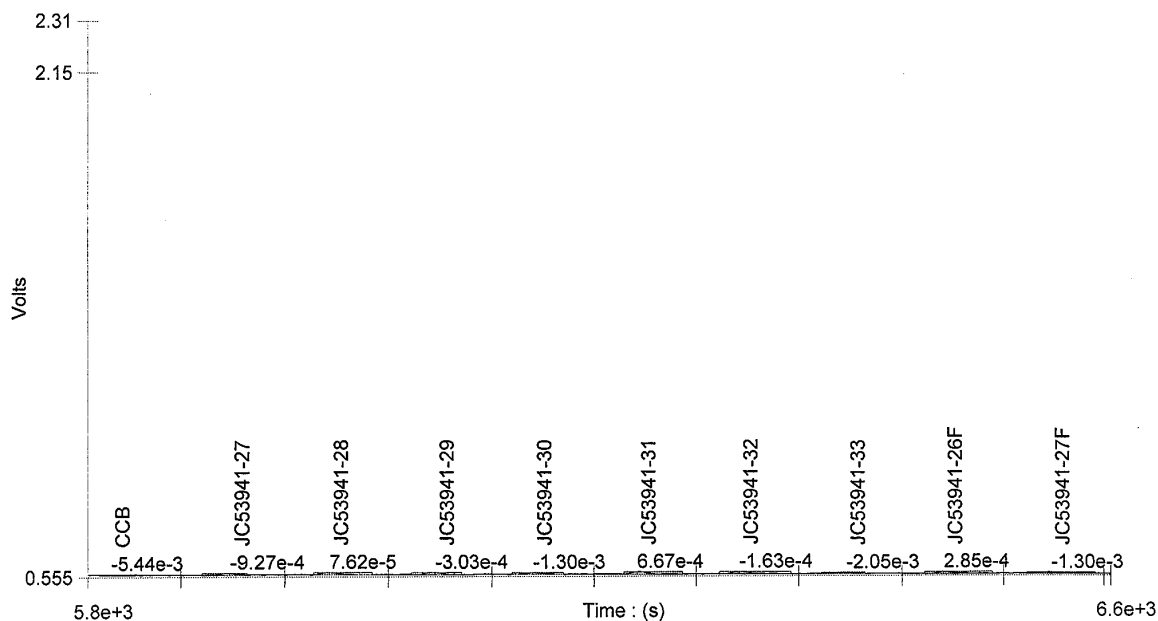
Channel 1 - Set: 7 / 17



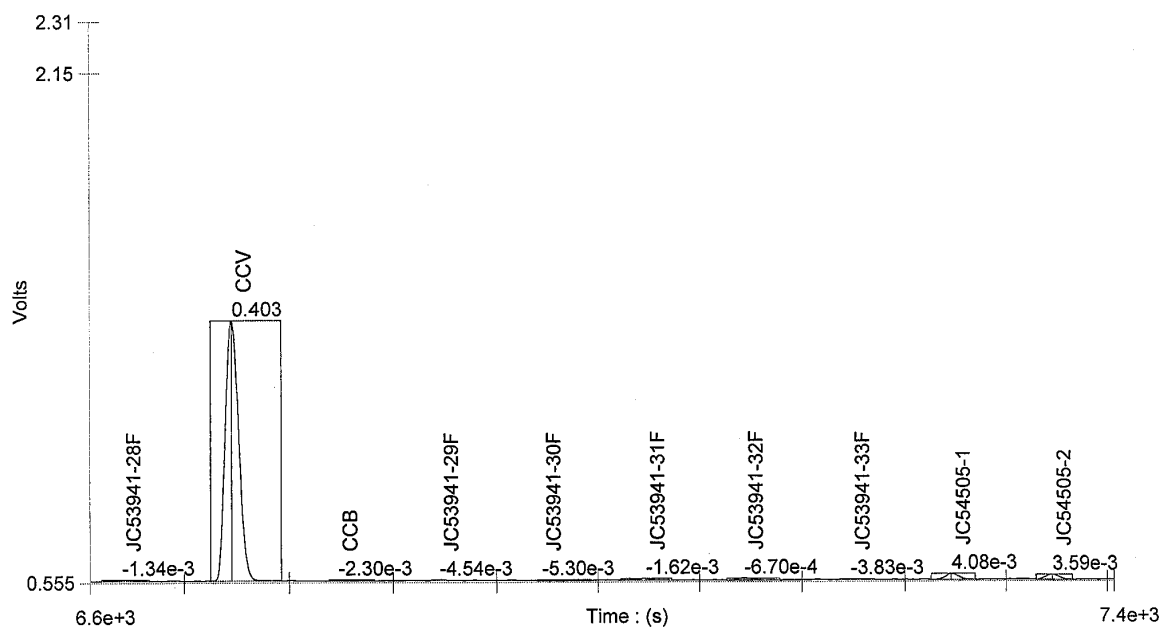
Author: chemistry

Date : 11/7/2017

Channel 1 - Set: 8 / 17



Channel 1 - Set: 9 / 17

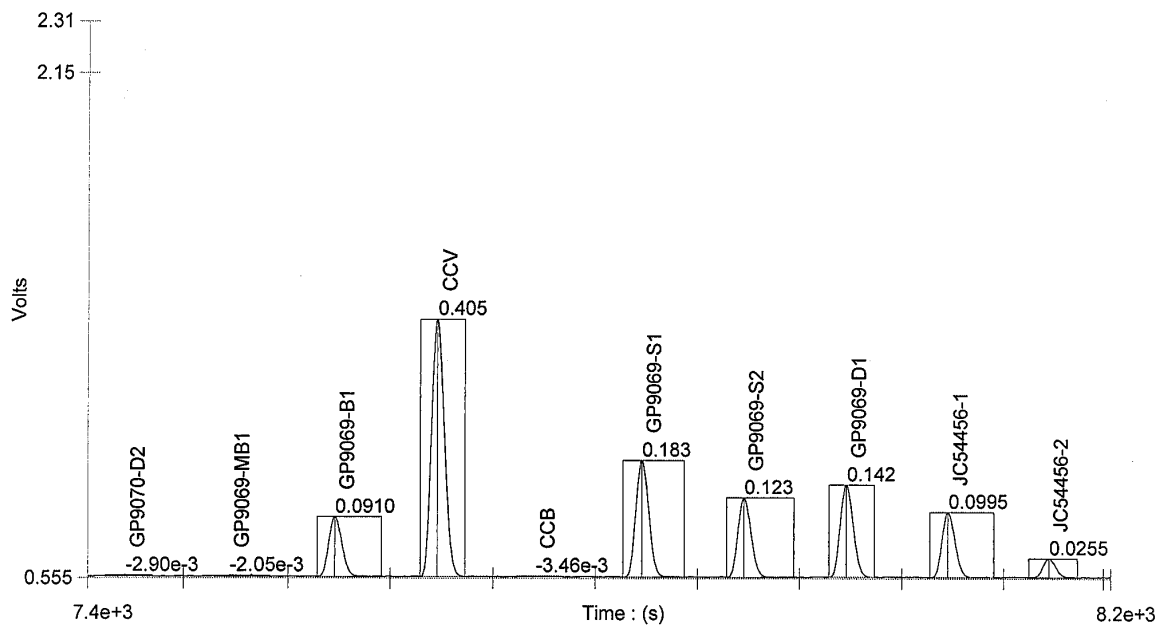


- 8 -

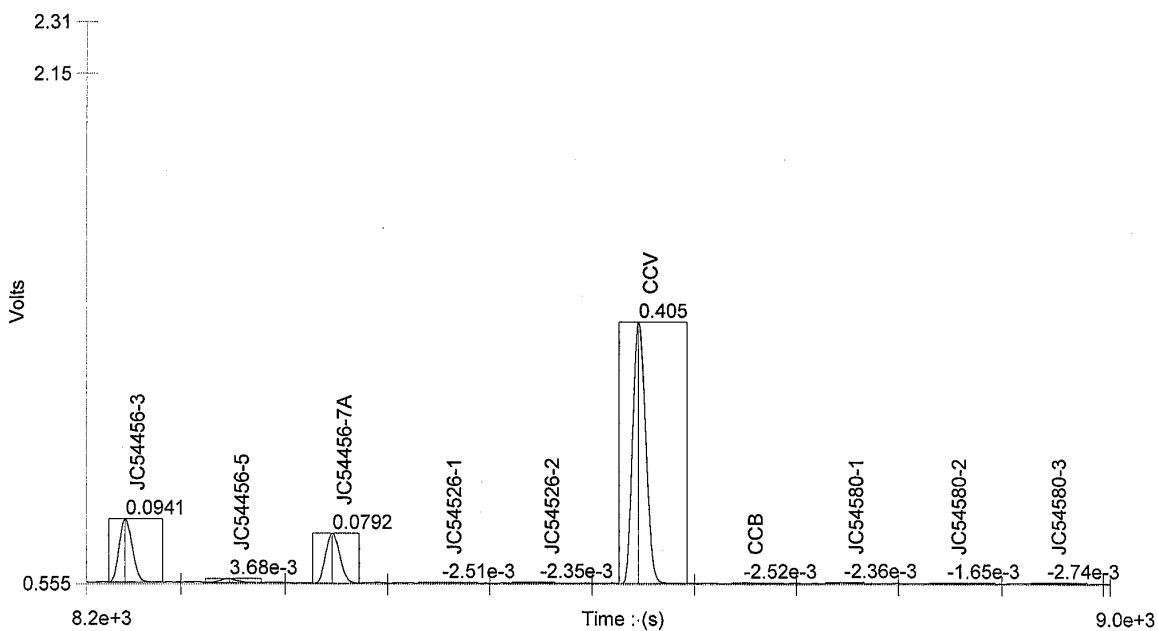
Author: chemistry

Date : 11/7/2017

Channel 1 - Set: 10 / 17



Channel 1 - Set: 11 / 17



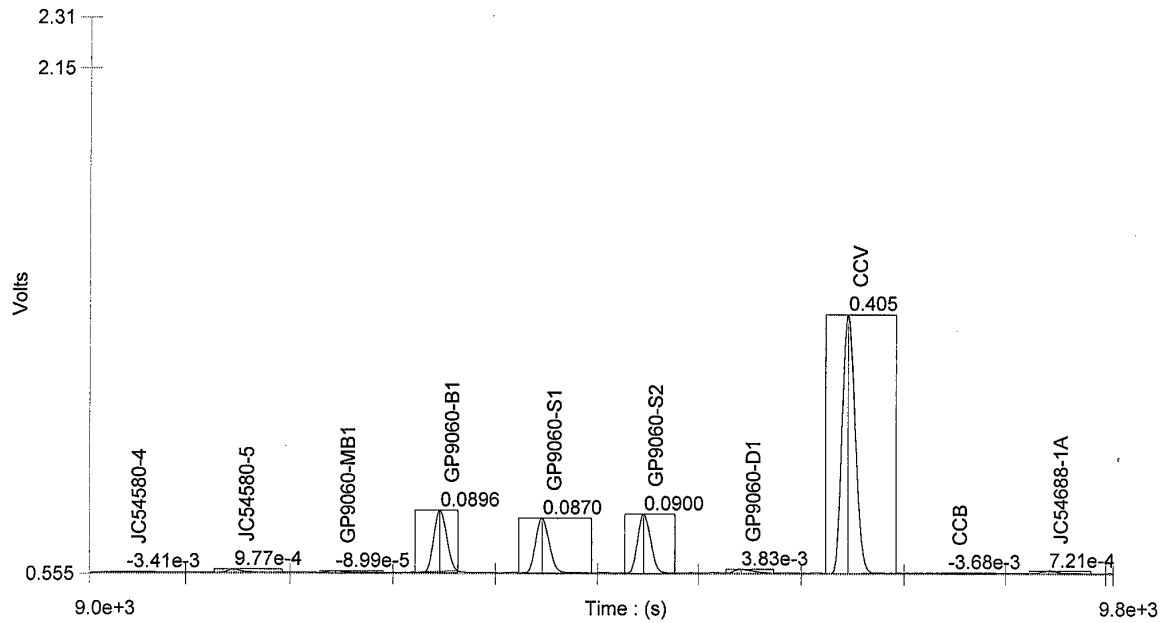
- 9 -

11.2
11

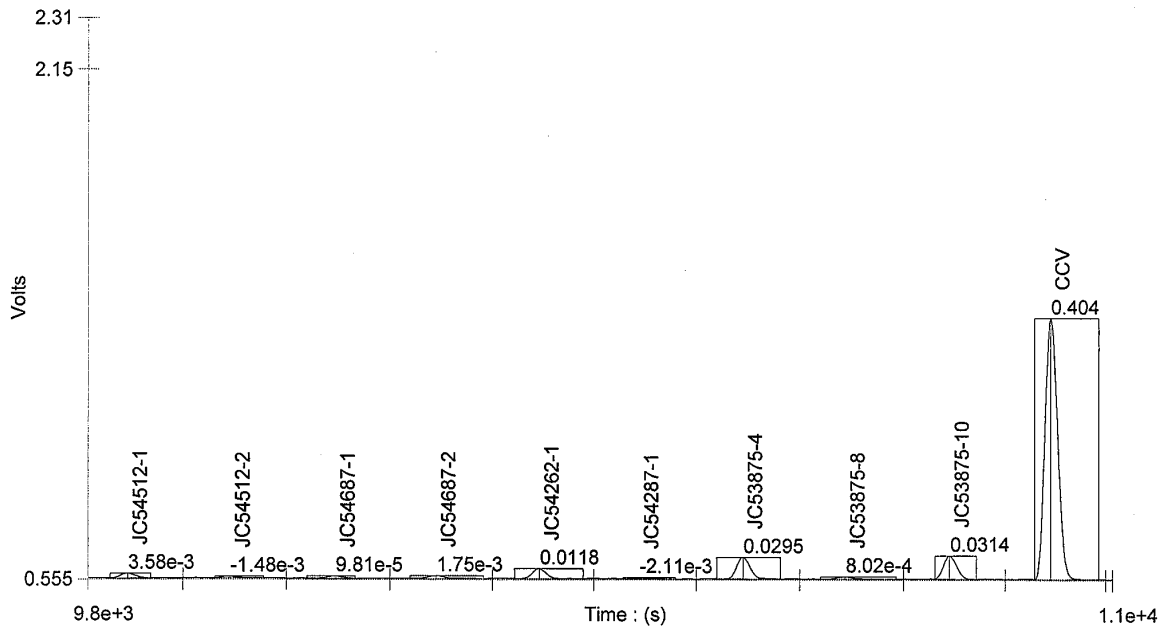
Author: chemistry

Date : 11/7/2017

Channel 1 - Set: 12 / 17



Channel 1 - Set: 13 / 17

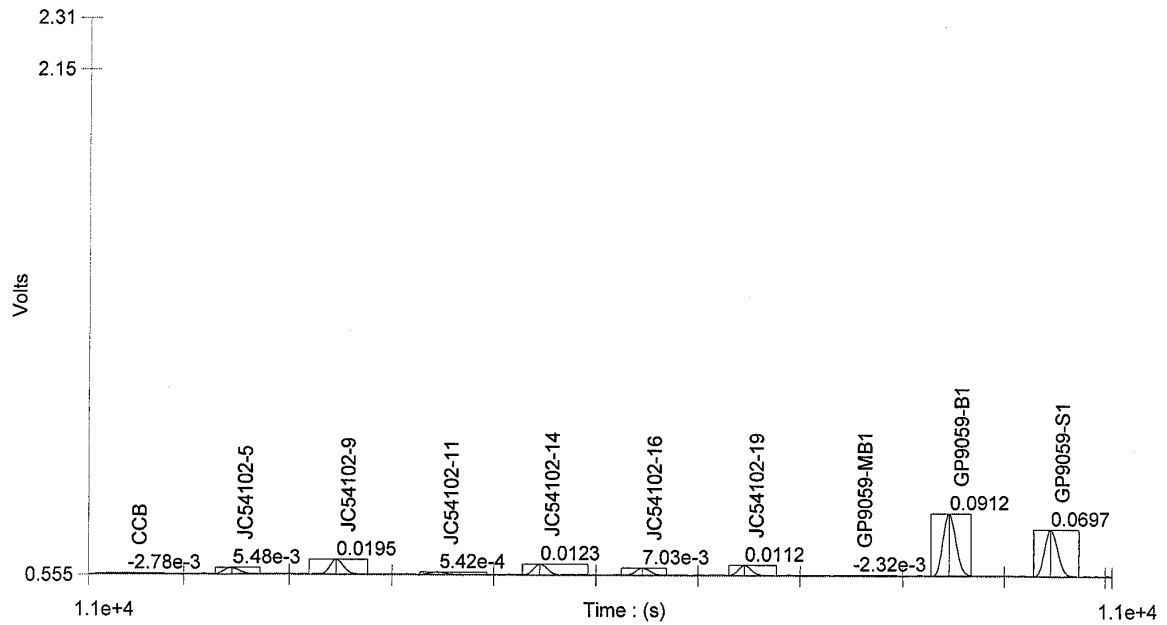


- 10 -

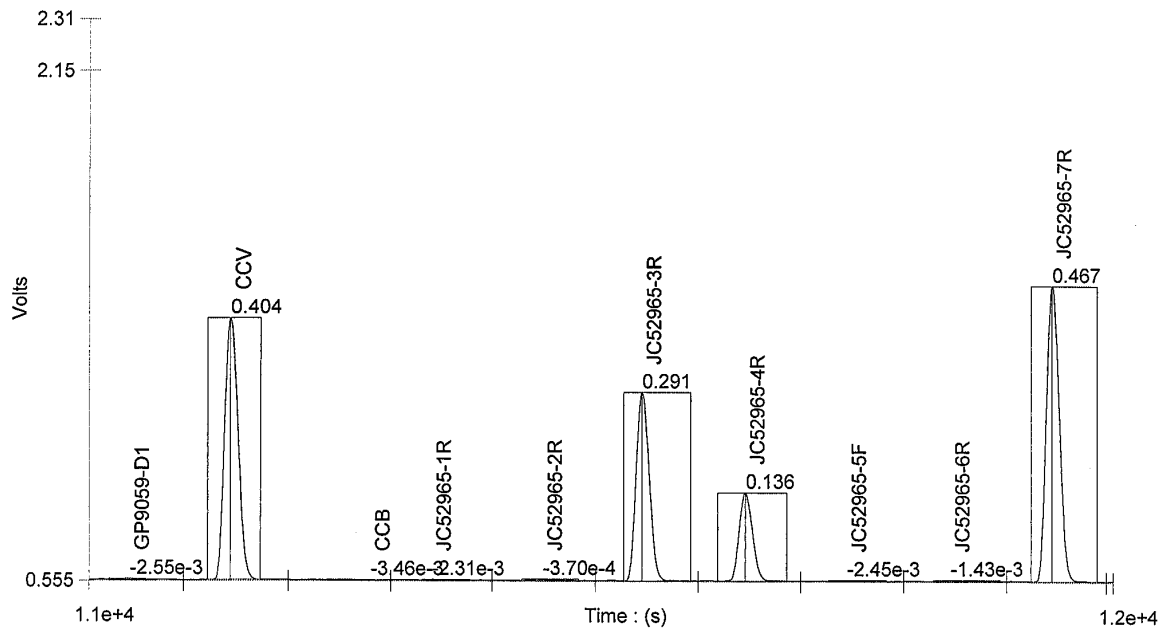
Author: chemistry

Date : 11/7/2017

Channel 1 - Set: 14 / 17



Channel 1 - Set: 15 / 17

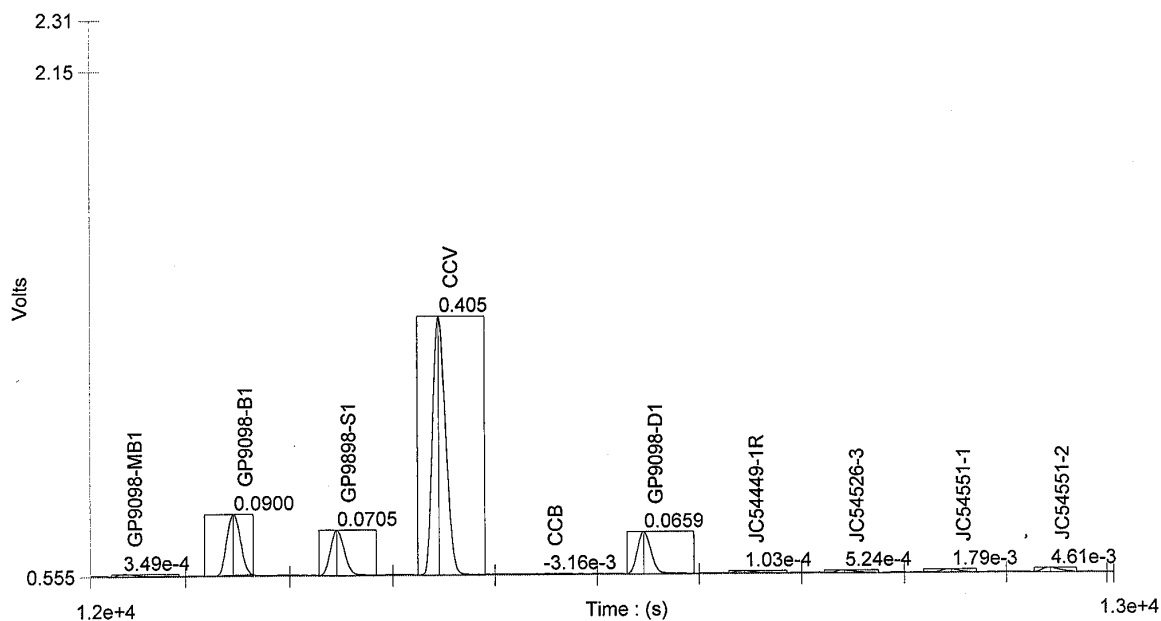


- 11 -

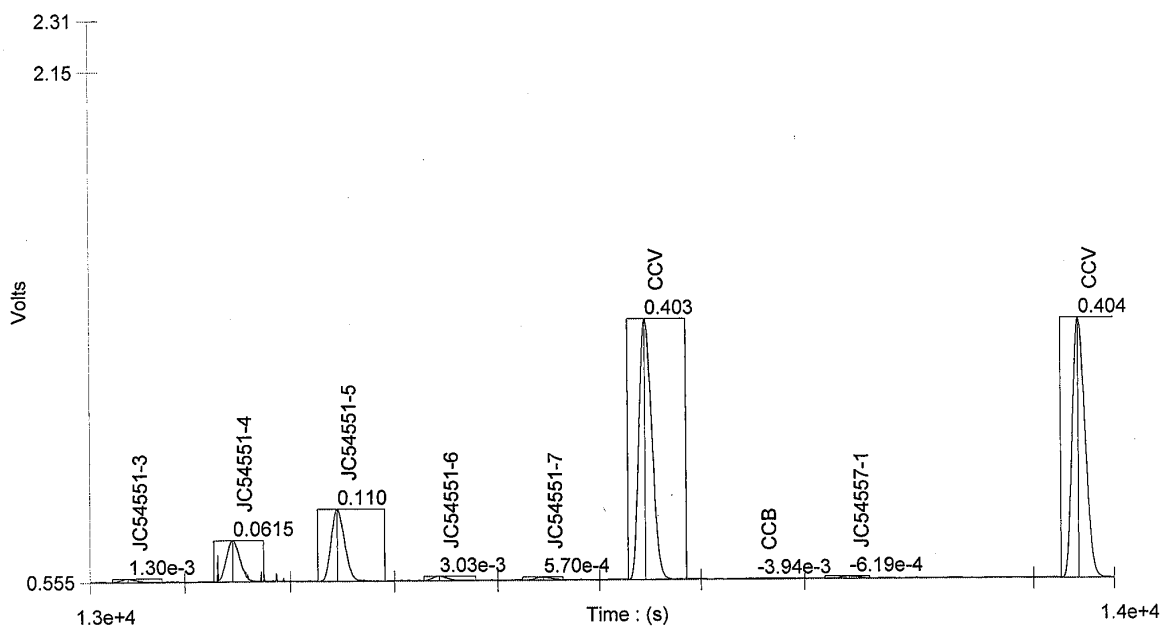
Author: chemistry

Date : 11/7/2017

Channel 1 - Set: 16 / 17



Channel 1 - Set: 17 / 17



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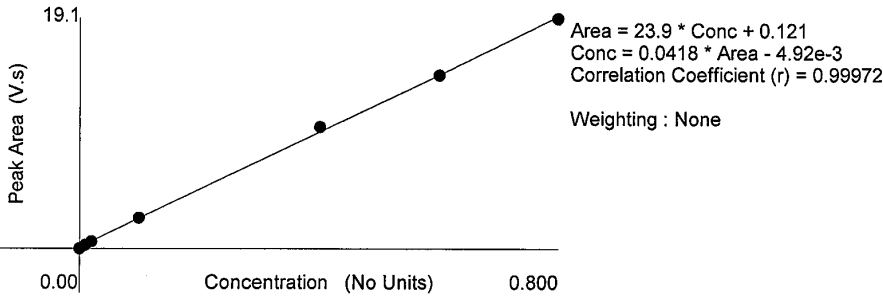
Author: chemistry

Date : 11/7/2017

Table : 1 (CN)

	Known Conc. ()	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc ()	Detection Date	Detection Time
1	0.800	1	19.1	1.66	0.0	0.9	0.792	11/7/2017	10:55:58 AM
2	0.600	1	14.4	1.18	0.0	0.2	0.598	11/7/2017	10:57:20 AM
3	0.400	1	10.1	0.827	0.0	-4.1	0.416	11/7/2017	10:58:42 AM
4	0.100	1	2.53	0.207	0.0	-0.7	0.101	11/7/2017	11:00:04 AM
5	0.0200	1	0.579	0.0452	0.0	3.5	0.0193	11/7/2017	11:01:26 AM
6	0.0100	1	0.302	0.0243	0.0	16.2	7.71e-3	11/7/2017	11:02:48 AM
7	0.00	1	-3.98e-3	6.80e-4			-5.09e-3	11/7/2017	11:04:09 AM

Figure : 1 (CN)





ANIDE DISTILLATION LOG (SOILS- MICRO DISTILLATION)

Method: SW846 9012B M

Batch ID: _____
Autopipette ID: 41
Balance ID: B29

689071

#	Block #	Sample ID	pH	S2	Add (g)	Initial Weight (g)	Final Volume (ml)	Temp. In Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments	Spike Lot	Analyst
1		MB1	7.2	✓	✓	0.25	6	120	11/4/17	15/17	11/6/17	GP	0.10 ml of 5.0 mg/l (c)		RB
2		B1		✓		0.25						GP	0.10 ml of 5.0 mg/l (c)		
3		B1		✓		0.58						GP	0.10 ml of 5.0 mg/l (c)		
4		SA		✓		0.49						GP	0.10 ml of 5.0 mg/l (c)		
5		D1		✓		0.47						GP	0.10 ml of 5.0 mg/l (c)		
6		SC5428										GP			
7		SC54326-1				0.48									
8		-2				0.36									
9		SC5432-3 (0.1)				0.44									
10		-4 (0.2)				0.46									
11		SC54416-3				0.12									
12		-4				0.39									
13		-5				0.23									
14		SC54420-1				0.29									
15		SC54427-1				0.41									
16		-2				0.31									
17		-3				0.95									
18		-4				0.31									
19		-5				0.37									
20		-6				0.36									
21		SC54499-1				0.32									
22		SC54502-2				0.53									
23		-4				0.43									
24		-8				0.31									

Check if sulfamic acid was added.

Record temp from the LED readout on the distillation block. Temperatures verified with an external thermometer a min. of once per quarter.

If calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

Reviewer:

Form: GN0012-04A

Rev. Date: 03/09/13

Date:


ACCUTEST®

Reagent Information Log - CN - Distillation

GP Numbers:

GP9071

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes		N/A
.95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot:12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrhodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction: 2s

Form: GN087A-28

Rev. Date: 03/19/13

11.2
11


ACCUTEST
CYANIDE DISTILLATION LOG (WATERS- MICRO DISTILLATION)

Method: EPA 335.4 or SW-846 9012 M (Circle Method)

Batch ID: _____

Autopipette ID: 41Balance ID: LA

Bottle #	Block #	Sample ID	pH	S2	Add (a)	Initial Volume (ml)	Final Volume (ml)	Temp. in Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments	Spike Lot	Analyt
21		MB1	7.2	✓	✓	6	6	120	1538	1608	11/6/17	GP	-MB1		TRC
22		(Q1) S1										GP	-B1	0.10 ml of 5.0 mg/l (c)	
23		(Q2) S2										GP	-S1	0.10 ml of 5.0 mg/l	
24		(Q1) D1										GP	-S2	0.10 ml of 5.0 mg/l	
25		JC54911-2										GP	-D1		
26		JC54911-6													
27		JC53941-26													
28		-27													
29		-28													
30		-29 (Q1)													
31		-30													
32		-31													
33		-32													
34		-33													
35		JC53941-26 F													
36		-27 F													
37		-28 F													
38		-29 (Q2)													
39		-30 F													
40		-31 F													
41		-32 F													
42		-33 F													
43		JC54505-1													
44		-2													
45		(Q2) D2													

(a) Check if sulfamic acid was added.

(b) Record temp. from the LED readout on the distillation block. Temperatures verified with an external thermometer a min. of once per quarter.

(c) If the calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

QC Reviewer: _____

Form: GN0012-04

Rev. Date: 03/09/13

Date: _____



Reagent Information Log - CN - Distillation

GP Numbers:

684070

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes		N/A
.95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot:12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrthodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction: 2s

Form: GN087A-28

Rev. Date: 03/19/13



CYANIDE DISTILLATION LOG (SOILS- MICRO DISTILLATION)

Method: SW846 9012B M

Batch ID:
Autopipette ID: 41
Balance ID: 829

699069

Block #	Sample ID	pH	S2	Add (a)	Initial Weight (g)	Final Volume (ml)	Temp. In Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments	Spike Lot	Analyst
1	MB1 In	7	✓	✓	0.25	6	20	1427	1507	11/6/17	GP -MB1	0.10 ml of 5.0 mg/l (c)		TRB
2	MB1 In	7	✓	✓	0.28						GP -B1	0.10 ml of 5.0 mg/l		
3	S1				0.44						GP -S1	0.10 ml of 5.0 mg/l		
4	S2				0.28						GP -S2	0.10 ml of 5.0 mg/l		
5	D1				0.25						GP -D1			
6	JC5456-1A				0.30									
7	-3				0.16									
8	-5				0.19									
9	-7				0.32									
10	JC5456-7A				0.16									
11	JC5456-1				0.85									
12	-2				0.37									
13	JC54580-1				0.48									
14	-3				0.27									
15	-4				0.31									
16	-5				0.32									

ok if sulfamic acid was added.

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and temp. from the LED readout on the distillation block. Temperatures verified with an external thermometer a min. of once per quarter.

calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

viewer:

Form: GN0012-04A

Rev. Date: 03/09/13

Date:



Reagent Information Log - CN - Distillation

GP Numbers:

689069

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes		N/A
.95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot: 12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrhodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction: 2s

Form: GN087A-28
Rev. Date: 03/19/13



ANIDE DISTILLATION LOG (SOILS- MICRO DISTILLATION)

Method: SW846 9012B M

Batch ID:

Autopipette ID: 41

Balance ID: B29

CP9060

a#	Block #	Sample ID	pH	S2	Add (a)	Initial Weight (g)	Final Volume (ml)	Temp. in Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments	Spike Lot	Analyst
1		MB1	8.0	✓	0.25	0.25	0	120	11:12	11:40	11/6/17	GP	0.10 ml of 5.0 mg/l (c)		TRG
2		MB1			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
3		S1			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
4		S2			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
5		D1			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
6		JC54688-1A(A)			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
7		JC54512-1(A)			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
8		JC54687-1			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
9		JC54262-1			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
10		JC54287-1			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
11		JC53875-4			0.42	0.42	1					GP	0.10 ml of 5.0 mg/l		
12		JC53875-4			0.46	0.46	1					GP	0.10 ml of 5.0 mg/l		
13		JC54102-5			0.45	0.45	1					GP	0.10 ml of 5.0 mg/l		
14		JC54102-5			0.37	0.37	1					GP	0.10 ml of 5.0 mg/l		
15		JC54102-5			0.35	0.35	1					GP	0.10 ml of 5.0 mg/l		
16		JC54102-5			0.40	0.40	1					GP	0.10 ml of 5.0 mg/l		
17		JC54102-5			0.39	0.39	1					GP	0.10 ml of 5.0 mg/l		
18		JC54102-5			0.40	0.40	1					GP	0.10 ml of 5.0 mg/l		
19		JC54102-5			0.40	0.40	1					GP	0.10 ml of 5.0 mg/l		
20		JC54102-5			0.45	0.45	1					GP	0.10 ml of 5.0 mg/l		

ack if sulfamic acid was added.

ord temp. from the LED readout on the distillation block.

Temperatures verified with an external thermometer a min. of once per quarter.

e calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

erents:

viewer:

Form: GN0012-04A

Rev. Date: 03/09/13

Date:



Reagent Information Log - CN - Distillation

GP Numbers:

GP9060

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes	10/16/17	N/A
.95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot:12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrthodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction: 2s

Form: GN087A-28

Rev. Date: 03/19/13



ACCUTEST.

CYANIDE DISTILLATION LOG (WATERS- MICRO DISTILLATION)

Method: EPA 335.4 or SW-846 9012 M (Circle Method)

Batch ID:

Autopipette ID:

Balance ID: ACX

Bottle #	Block #	Sample ID	pH	SZ	Add (a)	Initial Volume (ml)	Final Volume (ml)	Temp. in Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments.	Spike Lot	Analyt.
7		MB1	7.2		✓	6	6	120	11:13	11:12	11/6/17	GP -MB1			MS
8		B1										GP -B1	0.10 ml of 5.0 mg/l (c)		
		S1										GP -S1	0.10 ml of 5.0 mg/l		
		D1										GP -S2	0.10 ml of 5.0 mg/l		
		DS2695-1R										GP -D1			
		-2R													
		-3R													
		-4R													
		-5R (AC)													
		-6R													
		-7R													

(a) Check if sulfamic acid was added:

(b) Record temp. from the LED readout on the distillation block. Temperatures verified with an external thermometer a min. of once per quarter.

c) If the calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

Comments:

QC Reviewer:

Form: GN0012-04

Date:


ACCUTEST.

GENERAL CHEMISTRY STANDARD PREPARATION LOG

Product: CN

 GN or GP Number: 689059

Intermediate Standard Description	Stock used to prepare standard	Standardization Date	Stock concentration in mg/l	Stock volume used in ml (a)	Autopipet ID	Diluent (b)	Final Volume in ml	Final Conc. of Intermediate (mg/l)	Expiration Date (c)	Analyst	Date
Standards Stock	gne9-52240-cn	11/6/17	1000	1.000	34	.25 N NaOH	200	5.00	3/18/18	trg	11/6/17
Undistilled ICV Int.	GN E8-51786-CN	9/18/17	1000	2.00	34	.25 N NaOH	100	20.00	2/3/18	BM	10/16/17
Undistilled CCV Int.	GN E7-51646-CN	9/18/17	1000	2.00	34	.25 N NaOH	100	20.00	1/20/18	BM	10/16/17
Standard Description	Intermediate or Stock used to prepare standard		Intermediate or Stock concentration in mg/l	Intermediate or Stock volume used in ml	Autopipet ID	Diluent (b)	Final Volume in ml	Final Conc. Of Standard (mg/l)	Expiration Date	Analyst	Date
A	5.0 ppm CN STD		5.0	16.00	A	.25 N NaOH	100	0.80	11/13/17	trg	11/6/17
B	5.0 ppm CN STD		5.0	12.00	A	.25 N NaOH	100	0.60	11/13/17	trg	11/6/17
C	5.0 ppm CN STD		5.0	8.00	A	.25 N NaOH	100	0.40	11/13/17	trg	11/6/17
D	5.0 ppm CN STD		5.0	2.00	34	.25 N NaOH	100	0.10	11/13/17	trg	11/6/17
E	5.0 ppm CN STD		5.0	0.40	34	.25 N NaOH	100	0.02	11/13/17	trg	11/6/17
F	5.0 ppm CN STD		5.0	0.20	34	.25 N NaOH	100	0.01	11/13/17	trg	11/6/17
Undistilled ICV	ICV Int.										
Undistilled CCV	CCV Int.		20.0	1.50	41	.25 N NaOH	100	0.30	11/13/17	trg	11/6/17
			20.0	2.00	41	.25 N NaOH	100	0.40	11/13/17	trg	11/6/17

(a) Concentration will change with standardization concentration.

(b) Diluent reagent reference number: SEE ATTACHED

Expiration Date: SEE ATTACHED

(c) Standards must be made fresh (daily) before distillation. After distillation, they may be held under refrigeration for a maximum of 28 days before analysis.

*If Class A glass pipets are used, enter an A. For balances or autopipets, then enter the appropriate Accutest ID number.

Reason codes for data corrections: 1-reviewer error correction; 2-transcription error; 3-computer error; 4-analyst error

Form: GN193-02

Rev. Date: 1/6/2014



Reagent Information Log - CN - Distillation

GP Numbers:

689059

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes	10/16/17	N/A
.95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot: 12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrhodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction; 2s

Form: GN087A-28

Rev. Date: 03/19/13



CYANIDE DISTILLATION LOG (WATERS- MICRO DISTILLATION)

Method: EPA 335.4 or SW-846 9012 M (Circle Method)

Batch ID: 41
Autopipette ID: 41
Balance ID: 444

Bottle #	Block #	Sample ID	pH	S2-	Add (a)	Initial Volume (ml)	Final Volume (ml)	Temp. in Deg. C (b)	Start Time	End Time	Date	QC ID	Spike Amounts and Comments	Spike Lot	Analyte
8	1	MB1	8.1		✓	6	6	130	0921	0951	11/7/17	GP -MB1	0.10 ml of 5.0 mg/l (c)		726
8	1	(a)	8.1		✓							GP -B1	0.10 ml of 5.0 mg/l		
8	1	(a)										GP -S1	0.10 ml of 5.0 mg/l		
7	1	3C5449-1 (K) (a)										GP -S2	0.10 ml of 5.0 mg/l		
13	1	3C54526-3										GP -D1			
13	1	3C54551-1													
13	1	-2													
13	1	-3													
13	1	-4													
13	1	-5													
13	1	-6													
13	1	-7													
13	1	3C54557-1			✓										

(a) Check if sulfamic acid was added.

(b) Record temp. from the LED readout on the distillation block. Temperatures verified with an external thermometer a min. of once per quarter.

(c) If the calibration curve is not distilled, then in addition to the blank spike, the analyst must also prepare two distilled standards using 0.12 ml of 1.0 mg/l for one and 0.15 ml of 20.0 mg/l for the other.

QC Reviewer:

Form: GN0012-04
Rev. Date: 03/09/13

Date:



Reagent Information Log - CN - Distillation

GP Numbers:

GP9098

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Silver Nitrate Solution 0.0192 N	GNE8-51856-CN	2/10/2018
Magnesium Chloride Solution	GNE7-51484-CN	1/6/2018
Sulfamic Acid	LOT # A0369642	7/27/2019
Sulfuric Acid	Lot: 172416	8/18/2022
Sodium Hydroxide 1.25N/0.25N	GNE8-52024-CN	2/23/2018
Cadmium Carbonate, Powder	ALDRICH MKBF5367V	3/12/2018
Micro Distillation tubes	10/13/17	N/A
95 NaOH	GNE8-51968-CN	2/21/2018
Cyanide Stock Solution A - spiking/standards	gne9-52240-cn	3/18/2018
Cyanide Stock Solution B- externals	GNE8-51786-CN	2/3/2018
Lead Acetate Test Paper	FISHER Lot: 12/8/16	12/8/2021
pH paper - range 12.5 to 14	HYDRON 210114B	4/15/2019
pH paper - range 1 to 12	HYDRION 223016	9/15/2019
Benzalrhodanine	GNE7-51647-CN	1/20/2018

Reason codes for data corrections: 1-reviewer error correction: 2s

Form: GN087A-28

Rev. Date: 03/19/13



GN72215

Reagent Information Log - CN Lachat Autoanalyzer

GN Number: _____

Reagent	Reagent # or Manufacturer/Lot	Expiration date
Pyridine-Bartitric Acid Reagent	GNE10-52650-CN	4/26/2018
Chloramine-T	GNE11-52759-CN	11/13/2017
Phosphate Buffer Solution, 1.0 M	GNE11-52760-CN	5/6/2018
0.25 N Sodium Hydroxide Carrier Solution	GNE11-52761-CN	5/6/2018

Reason codes for data corrections: 1-reviewer error correction; 2-transcription error; 3-computer error; 4-analyst error

11.2
11

National Grid – Ilion

DATA USABILITY SUMMARY REPORT

Ilion, New York

Volatile, Semivolatile, and General Chemistry Analyses

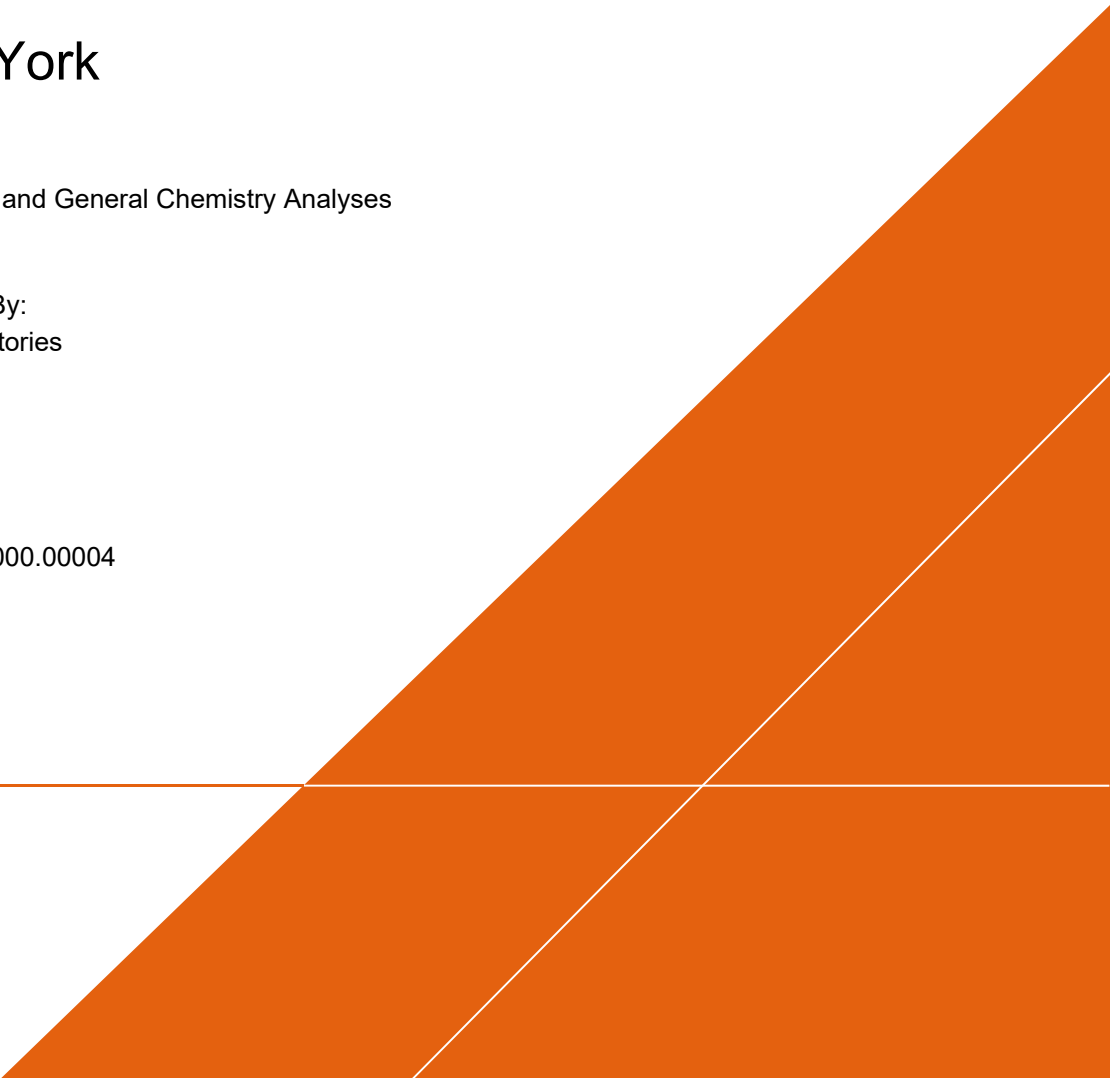
SDG #JC52695

Analyses Performed By:
SGS/Accutest Laboratories
Amherst, New York

Report #28883R

Review Level: Tier III

Project: B0036713.0000.00004

A large, solid orange geometric shape, resembling a stylized triangle or a section of a larger triangle, is positioned in the bottom right corner of the page. It is composed of two overlapping triangles, creating a complex, angular form that extends from the bottom edge towards the top right corner.

DATA REVIEW REPORT

SUMMARY

This data usability summary report (DUSR) summarizes the review of Sample Delivery Group (SDG) #JC52695 for samples collected in association with the National Grid – Ilion, New York. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	MISC
MW-13	JC52695-1	WG	10/5/2017		X	X			X
MW-13	JC52695-1R	WG	10/5/2017			X			
MW-3	JC52695-2	WG	10/5/2017		X	X			X
MW-3	JC52695-2R	WG	10/5/2017			X			
MW-7	JC52695-3	WG	10/5/2017		X	X			X
MW-7	JC52695-3R	WG	10/5/2017			X			
MW-2R	JC52695-4	WG	10/5/2017		X	X			X
MW-2R	JC52695-4R	WG	10/5/2017			X			
MW-6	JC52695-5	WG	10/5/2017		X	X			X
MW-6	JC52695-5R	WG	10/5/2017			X			
DUP-100517	JC52695-6	WG	10/5/2017	MW-3	X	X			X
DUP-100517	JC52695-6R	WG	10/5/2017	MW-3		X			
MW-8R	JC52695-7	WG	10/6/2017		X	X			X
MW-8R	JC52695-7R	WG	10/6/2017			X			
TRIP BLANK	JC52695-8	Water	10/6/2017		X				

Note:

1. Miscellaneous analysis includes total cyanide.
2. The matrix spike/matrix spike duplicate analysis was performed on sample location MW-6.

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X	X		
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:

QA - Quality Assurance

Note:

- The method for cyanide was requested on the chain of custody for Method SW846 9012. However, the laboratory performed EPA Method 335.4. The laboratory noted the following: "*The QC criteria for SW846 9012b was met*".

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C and 8270D. Data were reviewed in accordance with USEPA National Functional Guidelines (October 1999) and applicable Region II SOPs. USEPA NFGs and Region II SOPs were followed for qualification purposes.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

DATA REVIEW REPORT

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

DATA REVIEW REPORT

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-3/ DUP-100517	All compounds	U	U	AC

Notes:

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required	
	No	Yes	No	Yes		
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)						
Tier II Validation						
Holding times		X		X		
Reporting limits (units)		X		X		
Blanks						
A. Method blanks		X		X		
B. Equipment blanks	X				X	
C. Trip blanks		X		X		
Laboratory Control Sample (LCS)		X		X		
Laboratory Control Sample Duplicate(LCSD)	X				X	
LCS/LCSD Precision (RPD)	X				X	
Matrix Spike (MS)		X		X		
Matrix Spike Duplicate(MSD)		X		X		
MS/MSD Precision (RPD)		X		X		
Field/Lab Duplicate (RPD)		X		X		
Surrogate Spike Recoveries		X		X		
Dilution Factor		X		X		
Moisture Content	X				X	
Tier III Validation						
System performance and column resolution		X		X		
Initial calibration %RSDs		X		X		
Continuing calibration RRFs		X		X		
Continuing calibration %Ds		X		X		
Instrument tune and performance check		X		X		
Ion abundance criteria for each instrument used		X		X		
Internal standard		X		X		
Compound identification and quantitation						
A. Reconstructed ion chromatograms		X		X		
B. Quantitation Reports		X		X		
C. RT of sample compounds within the established RT		X		X		

DATA REVIEW REPORT

VOCs: SW-846 8260C	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
windows					
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation
 %R Percent recovery
 RPD Relative percent difference
 %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

DATA REVIEW REPORT

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-3/ DUP-100517	All compounds	U	U	AC

Notes:

AC = Acceptable

DATA REVIEW REPORT

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270D	Reported		Performance Acceptable		Not Required	
	No	Yes	No	Yes		
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)						
Tier II Validation						
Holding times		X		X		
Reporting limits (units)		X		X		
Blanks						
A. Method blanks		X		X		
B. Equipment blanks	X				X	
Laboratory Control Sample (LCS) %R		X		X		
Laboratory Control Sample Duplicate(LCSD) %R		X		X		
LCS/LCSD Precision (RPD)		X		X		
Matrix Spike (MS) %R		X		X		
Matrix Spike Duplicate(MSD) %R		X		X		
MS/MSD Precision (RPD)		X		X		
Field/Lab Duplicate (RPD)		X		X		
Surrogate Spike Recoveries		X		X		
Dilution Factor		X		X		
Moisture Content	X				X	
Tier III Validation						
System performance and column resolution		X		X		
Initial calibration %RSDs		X		X		
Continuing calibration RRFs		X		X		
Continuing calibration %Ds		X		X		
Instrument tune and performance check		X		X		
Ion abundance criteria for each instrument used		X		X		
Internal standard		X		X		
Compound identification and quantitation						
F. Reconstructed ion chromatograms		X		X		
G. Quantitation Reports		X		X		
H. RT of sample compounds within the established RT windows		X		X		

DATA REVIEW REPORT

SVOCs: SW-846 8270D		Reported		Performance Acceptable		Not Required
		No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)						
I.	Quantitation transcriptions/calculations		X		X	
J.	Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method 335.4. Data were reviewed in accordance with USEPA National Functional Guidelines of October 2004.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Cyanide by EPA 335.4	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

DATA REVIEW REPORT

All analytes associated with MS recoveries were within control limits with the exception of the following analytes present in the table below.

Sample Location	Analytes	MS Recovery
MW-6	Cyanide	64.8%

The criteria used to evaluate MS recoveries are presented in the following table. In the case of an MS deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS percent recovery <30%	Non-detect	R
	Detect	J
MS percent recovery >125%	Non-detect	No Action
	Detect	J

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited an acceptable percent difference.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-3/ DUP-100517	Cyanide	0.010 U	0.010 U	AC

Notes:

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 335.4	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X
Tier III Validation					
Initial calibration %RSD or correlation coefficient		X		X	
Continuing calibration %R		X		X	
Raw Data					
Transcription/calculation errors present		X		X	
Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference,

%D – difference

DATA USABILITY SUMMARY REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliance ¹					Noncompliance
					VOC	SVOC	PCB	MET	MISC	
JC52695	10/5/2017	USEPA/SW846	MW-13	Water	Yes	Yes	--	--	no	MISC – MS percent recovery
	10/5/2017	USEPA/SW846	MW-3	Water	Yes	Yes	--	--	no	MISC – MS percent recovery
	10/5/2017	USEPA/SW846	MW-7	Water	Yes	Yes	--	--	no	MISC – MS percent recovery
	10/5/2017	USEPA/SW846	MW-2R	Water	Yes	Yes	--	--	no	MISC – MS percent recovery
	10/5/2017	USEPA/SW846	MW-6	Water	Yes	Yes	--	--	no	MISC – MS percent recovery
	10/5/2017	USEPA/SW846	DUP-100517	Water	Yes	Yes	--	--	no	MISC – MS percent recovery
	10/6/2017	USEPA/SW846	MW-8R	Water	Yes	Yes	--	--	no	MISC – MS percent recovery
	10/6/2017	USEPA/SW846	TRIP BLANK	Water	Yes	--	--	--	--	

Note:

- 1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

DATA USABILITY SUMMARY REPORT

VALIDATION PERFORMED BY: Todd Church

SIGNATURE:



DATE: December 21, 2017

PEER REVIEW: Dennis Capria

DATE: December 22, 2017

**CHAIN OF CUSTODY
CORRECTED SAMPLE ANALYSIS DATA
SHEETS**





ACCUTEST

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

PAGE 1 OF 1

FED-EX Tracking # 4077 3091 7339
Bottle Order Control #
SGS Accutest Quote # JC52695
SGS Accutest Job #

Client / Reporting Information			Project Information			Requested Analysis (see TEST CODE sheet)										Matrix Codes			
Company Name Arcadis			Project Name: Ilion (East Street) Former MGP Site																
Street Address 110 W Fayette St Suite 300			Street East Street																
City State Zip Syracuse NY 13202			City State Ilion NY																
Project Contact Doug Nadine douglas.nadine@arcadis.com			Project # R0036713.00000004																
Phone # 315 671 9377			Client Purchase Order #																
Fax #			Street Address																
Sampler(s) Name(s) A. George, L. Mikochuk			Project Manager Mike Benoit																
Phone # 315 671 9556			Attention:																
Field ID / Point of Collection			MECH/DI Val #																
Date			Time																
Sampled by			Matrix																
# of bottles			HCl																
NaOH			HNO3																
H2SO4			NONE																
DI Water			MECH																
ENGINE																			
1 MW-13			10/5/17 1115			APG GW 6			3 1			2			3 1 2				
2 MW-3			10/5/17 1315			APG GW 6			3 1			2			3 1 2				
3 MW-7			10/5/17 1540			APG GW 6			3 1			2			3 1 2				
4 MW-2R			10/5/17 1245			LMM GW 6			3 1			2			3 1 2				
5 MW-6			10/5/17 1455			LMM GW 6			3 1			2			3 1 2				
6 MW-6-MS			10/5/17 1455			LMM GW 6			3 1			2			3 1 2				
7 MW-6-MSD			10/5/17 1455			LMM GW 6			3 1			2			3 1 2				
8 DWP-100S17			10/5/17 /			GW 6			3 1			2			3 1 2				
9 MW-8R			10/6/17 0835			APG GW 6			3 1			2			3 1 2			INITIAL ASSESSMENT 2/9/08	
10 Trip blank			/			W 2			2						2			LABEL VERIFICATION MHA	
Turnaround Time (Business days)			Data Deliverable Information			Comments / Special Instructions													
☒ Std. 10 Business Days ☐ 5 Day RUSH ☐ 3 Day RUSH ☐ 2 Day RUSH ☐ 1 Day RUSH ☐ other			Approved By (SGS Accutest PM) / Date:			☐ Commercial "A" (Level 1) ☐ Commercial "B" (Level 2) ☐ FULLT1 (Level 3+4) ☐ NJ Reduced ☐ Commercial "C" ☐ NJ Data of Known Quality Protocol Reporting Commercial "A" = Results Only, Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data										☐ NYASP Category A ☒ NYASP Category B ☐ State Forms ☒ EDD Format CDE ☐ Other			
Emergency & Rush T/A data available VIA Lablink			Sample Custody must be documented below each time samples change possession, including courier delivery.			Sample inventory is verified upon receipt in the Laboratory													
Relinquished by Sampler: 1 Austin George			Date Time: 10/6/17 1041			Relinquished By: 2 C. Massman			Date Time: 10-06-17 10:43			Received By: 3 10/6/17 12:30							
Relinquished by Sampler: 3 jeff			Date Time: 10/3/17 1017			Relinquished By: 4			Date Time:			Received By: 4							
Relinquished by: 5			Date Time:			Relinquished By: 5			Date Time:			Received By:							
Custody Seal # 764			☐ Intact ☐ Not Intact			Preserved when applicable			☒			On Ice ☒			Cooler Temp. 1.9°C 2.3°F				

Form SM088-01 Rev. Date: 9/13/16

JC52695: Chain of Custody

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ACCUTEST
JC52695

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-13	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-1	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83147.D	1	10/13/17 01:19	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	100%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-13	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-1	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72037.D	1	10/20/17 23:37	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		29-124%
321-60-8	2-Fluorobiphenyl	70%		23-122%
1718-51-0	Terphenyl-d14	98%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-13	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-1	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010 UJ	0.010	mg/l	1	10/17/17 12:12	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-13						
Lab Sample ID:	JC52695-1R					Date Sampled:	10/05/17
Matrix:	AQ - Ground Water					Date Received:	10/07/17
Method:	SW846 8270D BY SIM	SW846 3510C				Percent Solids:	n/a
Project:	National Grid, Ilion, NY						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72037.D	1	10/20/17 23:37	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		29-124%
321-60-8	2-Fluorobiphenyl	70%		23-122%
1718-51-0	Terphenyl-d14	98%		22-130%

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

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

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-3	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-2	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83148.D	1	10/13/17 01:46	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	101%		81-124%
2037-26-5	Toluene-D8	94%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-3	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-2	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72033.D	1	10/20/17 21:29	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		29-124%
321-60-8	2-Fluorobiphenyl	65%		23-122%
1718-51-0	Terphenyl-d14	87%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-2	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010 UJ	0.010	mg/l	1	10/17/17 12:13	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

4.3
4

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-3		
Lab Sample ID:	JC52695-2R	Date Sampled:	10/05/17
Matrix:	AQ - Ground Water	Date Received:	10/07/17
Method:	SW846 8270D BY SIM SW846 3510C	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72033.D	1	10/20/17 21:29	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		29-124%
321-60-8	2-Fluorobiphenyl	65%		23-122%
1718-51-0	Terphenyl-d14	87%		22-130%

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

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

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-7	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-3	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83149.D	1	10/13/17 02:13	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	3.1	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	2.2	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		80-120%
17060-07-0	1,2-Dichloroethane-D4	102%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	92%		80-120%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Client Sample ID:	MW-7	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-3	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72036.D	1	10/20/17 23:05	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	0.498	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	3.23	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		29-124%
321-60-8	2-Fluorobiphenyl	61%		23-122%
1718-51-0	Terphenyl-d14	70%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-7	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-3	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	0.29 J	0.010	mg/l	1	10/17/17 12:14	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

SGS Accutest

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Client Sample ID:	MW-7	
Lab Sample ID:	JC52695-3R	Date Sampled: 10/05/17
Matrix:	AQ - Ground Water	Date Received: 10/07/17
Method:	SW846 8270D BY SIM SW846 3510C	Percent Solids: n/a
Project:	National Grid, Ilion, NY	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72036.D	1	10/20/17 23:05	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		29-124%
321-60-8	2-Fluorobiphenyl	61%		23-122%
1718-51-0	Terphenyl-d14	70%		22-130%

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

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

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Client Sample ID:	MW-2R						
Lab Sample ID:	JC52695-4					Date Sampled:	10/05/17
Matrix:	AQ - Ground Water					Date Received:	10/07/17
Method:	SW846 8260C					Percent Solids:	n/a
Project:	National Grid, Ilion, NY						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83150.D	1	10/13/17 02:41	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1.3	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		80-120%
17060-07-0	1,2-Dichloroethane-D4	103%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Client Sample ID:	MW-2R	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-4	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72038.D	1	10/21/17 00:08	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	2.40	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	1.50	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	0.0982	0.10	0.022	ug/l	J
86-73-7	Fluorene	1.08	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	0.285	0.10	0.029	ug/l	
85-01-8	Phenanthrene	0.554	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		29-124%
321-60-8	2-Fluorobiphenyl	64%		23-122%
1718-51-0	Terphenyl-d14	66%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2R	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-4	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	0.15 J	0.010	mg/l	1	10/17/17 12:16	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

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Client Sample ID:	MW-2R		
Lab Sample ID:	JC52695-4R	Date Sampled:	10/05/17
Matrix:	AQ - Ground Water	Date Received:	10/07/17
Method:	SW846 8270D BY SIM SW846 3510C	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72038.D	1	10/21/17 00:08	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		29-124%
321-60-8	2-Fluorobiphenyl	64%		23-122%
1718-51-0	Terphenyl-d14	66%		22-130%

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

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

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Client Sample ID:	MW-6	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-5	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83146.D	1	10/13/17 00:51	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	100%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	94%		80-120%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Client Sample ID:	MW-6	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-5	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72030.D	1	10/20/17 19:54	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	76%		29-124%
321-60-8	2-Fluorobiphenyl	68%		23-122%
1718-51-0	Terphenyl-d14	86%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-6	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-5	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010 UJ	0.010	mg/l	1	10/17/17 12:17	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-6	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-5R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72030.D	1	10/20/17 19:54	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	76%		29-124%
321-60-8	2-Fluorobiphenyl	68%		23-122%
1718-51-0	Terphenyl-d14	86%		22-130%

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

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

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Client Sample ID:	DUP-100517	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-6	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83151.D	1	10/13/17 03:08	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-120%
17060-07-0	1,2-Dichloroethane-D4	103%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Client Sample ID:	DUP-100517	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-6	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72035.D	1	10/20/17 22:33	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.021	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	ND	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.022	ug/l	
86-73-7	Fluorene	ND	0.10	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	ND	0.10	0.029	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.023	ug/l	
129-00-0	Pyrene	ND	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		29-124%
321-60-8	2-Fluorobiphenyl	63%		23-122%
1718-51-0	Terphenyl-d14	103%		22-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-100517	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-6	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Ilion, NY		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	< 0.010 UJ	0.010	mg/l	1	10/17/17 12:18	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

4.11
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SGS Accutest

Report of Analysis

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Client Sample ID:	DUP-100517	Date Sampled:	10/05/17
Lab Sample ID:	JC52695-6R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72035.D	1	10/20/17 22:33	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		29-124%
321-60-8	2-Fluorobiphenyl	63%		23-122%
1718-51-0	Terphenyl-d14	103%		22-130%

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

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

SGS Accutest

Report of Analysis

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Client Sample ID:	MW-8R	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-7	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83152.D	1	10/13/17 03:36	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	4.1	0.50	0.17	ug/l	
108-88-3	Toluene	0.38	1.0	0.25	ug/l	J
100-41-4	Ethylbenzene	3.6	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	1.5	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-8R	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-7	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72034.D	1	10/20/17 22:01	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2	3E97845A.D	1	10/23/17 17:39	VP	10/11/17 17:35	OP6819A	E3E4350

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	2.46	0.10	0.025	ug/l	
208-96-8	Acenaphthylene	9.24 ^a	1.0	0.021	ug/l	
120-12-7	Anthracene	0.214	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	0.167	0.050	0.023	ug/l	
50-32-8	Benzo(a)pyrene	0.180	0.050	0.033	ug/l	
205-99-2	Benzo(b)fluoranthene	0.180	0.10	0.043	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.033	ug/l	
218-01-9	Chrysene	0.155	0.10	0.026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.036	ug/l	
206-44-0	Fluoranthene	0.514	0.10	0.022	ug/l	
86-73-7	Fluorene	4.65 ^a	1.0	0.025	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.038	ug/l	
91-20-3	Naphthalene	0.845	0.10	0.029	ug/l	
85-01-8	Phenanthrene	2.26	0.10	0.023	ug/l	
129-00-0	Pyrene	0.421	0.10	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	73%	67%	29-124%
321-60-8	2-Fluorobiphenyl	62%	70%	23-122%
1718-51-0	Terphenyl-d14	83%	70%	22-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-8R
Lab Sample ID: JC52695-7
Matrix: AQ - Ground Water
Project: National Grid, Ilion, NY

Date Sampled: 10/06/17
Date Received: 10/07/17
Percent Solids: n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide ^a	0.43	0.010	mg/l	1	10/17/17 12:20	BM	EPA 335.4/LACHAT

(a) The QC criteria for SW846 9012b was met.

RL = Reporting Limit

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SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-8R	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-7R	Date Received:	10/07/17
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D BY SIM SW846 3510C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3M72034.D	1	10/20/17 22:01	KM	10/11/17 17:35	OP6819A	E3M3454
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	73%		29-124%
321-60-8	2-Fluorobiphenyl	62%		23-122%
1718-51-0	Terphenyl-d14	83%		22-130%

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

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

SGS Accutest

Report of Analysis

Page 1 of 1

Client Sample ID:	TRIP BLANK	Date Sampled:	10/06/17
Lab Sample ID:	JC52695-8	Date Received:	10/07/17
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Ilion, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D83145.D	1	10/13/17 00:23	JP	n/a	n/a	V4D3589
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.17	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		80-120%
17060-07-0	1,2-Dichloroethane-D4	99%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	94%		80-120%

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

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APPENDIX F

Generic Community Air Monitoring Plan



Appendix 1A

New York State Department of Health Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.
4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \text{ mcg}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than $150 \text{ mcg}/\text{m}^3$ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ mcg}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

APPENDIX G

Generic Field Sampling Plan for Site Investigations at Manufactured Gas Plants



**GENERIC
FIELD SAMPLING PLAN

FOR

SITE INVESTIGATIONS

AT

MANUFACTURED GAS PLANTS**

Prepared for:

**Niagara Mohawk
300 Erie Boulevard West
Syracuse, New York**

Prepared by:

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Syracuse, New York

NOVEMBER 2002

Site Specific

Revisions Attached: Supplement No. ____ Date

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1.0 INTRODUCTION

This generic Field Sampling Plan (GFSP) has been prepared for Niagara Mohawk, a National Grid Company (NM) in response to the Voluntary Cleanup Order (VCO) (Index No. DO 0001 0011) between NM and the New York State Department of Environmental Conservation (NYSDEC). This document is intended to provide guidance for implementation of various types of environmental sampling activities that may be utilized during Site Investigation and/or Remedial Investigations, Interim Remedial Measures, Feasibility Studies, Remedial Designs, and/or Remedial Actions at MGP sites. The numbers and types of environmental samples to be collected are identified in the detailed respective Site-Specific Work Plans, to which this document is appended. If any discrepancy occurs between the Site Specific Work Plan and the Generic Work Plan/Field Sampling Plan then the Site Specific Work Plan will govern.

During the performance of any investigation, references in all work products to dense nonaqueous phase liquids (DNAPL) and/or other MGP impacted media (i.e. soil, water, sediments, etc.) will be made using the terminology and descriptions presented in the USEPA documents entitled ***Ground Water Issue - Dense Nonaqueous Phase Liquids*** (Huling and Weaver; March 1991) and included as Attachment B.

2.0 GENERAL FIELD GUIDELINES

2.1 Underground Utilities

All underground utilities, including electric, telephone, cable TV, sewers, water, natural gas, etc., will be identified prior to any drilling and subsurface sampling. Underground Facilities Protective Organization (UFPO) will be contacted by phone at least 72 hours prior to field activities so their underground utilities can be marked at the Site. Other potential on-site hazards such as sharp objects, known subsurface structures, overhead power lines, and building hazards will be identified during the Site reconnaissance visit.

2.2 Sample Identification

Each sample will be given a unique identification as shown in Table 1. With this type of identification, no two samples will have the same label. Labels or tags identified as shown in Table 1 will be attached to each sample container. Labels or tags will be rendered waterproof by either covering the label with clear plastic wrapping tape or utilizing waterproof material for the tag or label.

2.3 Sampling Equipment

The following is a general list of equipment, which may be necessary for sample collection:

- Stainless steel spoons and bowls for mixing soil and sediment samples;
- Appropriate sample containers (and coolers) provided by the laboratory;
- Sample bottles (kept closed and in the laboratory-shipped coolers until the samples are collected);
- Reagent-grade preservatives and pH paper or meter (or pre-preserved sample containers) for aqueous samples;
- Chain-of-Custody labels, tags, seals, and record forms;
- Logbook, field sampling records, and indelible ink markers;
- Laboratory grade decontamination detergents (such as Alconox, Liquinox, etc.), reagent-grade solvents, and deionized, organic-free water to be used for decontaminating equipment between sampling stations;
- Squirt Bottles;
- Ruler and measuring tape;
- Garbage bags;
- Paper towels and/or baby wipes;
- Buckets, wash basins, and scrub brushes to be used for decontaminating equipment;
- Digital camera or camera and film to document sampling procedures and sample locations;
- Stakes and flagging tape and/or spray paint to identify sampling locations;

- Shipping labels and forms;
- Knife;
- Vermiculite or other packing/shipping material for sample bottles;
- Strapping tape;
- Clear plastic tape;
- Duct tape;
- Aluminum Foil;
- Reclosable plastic bags;
- Ice;
- Portable field instruments, which may include but not be limited to a pH meter, conductivity meter, turbidity meter, dissolved oxygen (DO) meter or multi-parameter flow through cell, photoionization detector (PID), and water level indicator;
- Combustible gas indicator (CGI);
- Poly-sheeting;
- Driller's jars (for archiving samples);
- Polypropylene or stainless steel bailers;
- Poly propylene rope and/or Teflon line; and
- Submersible, peristaltic and/or centrifugal pump and associated tubing.

Other sampling materials and equipment may be utilized as warranted by field conditions encountered at time of sampling and media to be samples. Appropriate health and safety equipment and PPE, as per the Generic Environmental Health and Safety (EHS) Plan (Volume II) will be used.

2.4 Field Records

The Project Manager will control all field logbooks. Each field logbook will receive a serialized number and be issued to the field operations leader (FOL). Field logbooks will be maintained by the FOL and other team members while in the field to provide a daily record of significant events, observations, and measurements during the field investigation. All entries will be signed and dated at the bottom of each page.

Information pertinent to the field investigation and/or sampling activities will be recorded in the logbooks. The logbooks will be bound with consecutively numbered pages. Entries in the logbook will include, at a minimum, the following information:

- Name and title of author, date and time of entry, and physical/environmental/weather conditions during field activity;
- Purpose of sampling activity;
- Location of sampling activity;
- Name and address of field contact;
- Name and title of field crew members;

- Name and title of any Site visitors;
- Sample media (soil, sediment, groundwater, etc.);
- Sample collection method;
- Number and volume of sample(s) collected;
- Description of sampling point(s);
- Volume of groundwater removed before sampling;
- Preservatives used;
- Date and time of collection;
- Sample identification number(s);
- Sample distribution (e.g., laboratory);
- Field observations;
- Any field measurements made, such as pH, temperature, turbidity, conductivity, water level, etc.;
- References for all maps and photographs of the sampling site(s);
- Information pertaining to sample documentation such as:
 - Bottle lot numbers
 - Dates and method of sample shipments
 - Chain-of-Custody Record numbers
 - Overnight Shipping Air Bill Number

All original data recorded in Field Logbooks, Sample Tags, and Chain-of-Custody records will be written with waterproof ink. None of these accountable, serialized documents will be destroyed.

If an error is made on an accountable document assigned to one individual, that individual will make all corrections simply by crossing a single line through the error, placing the initials of the individual making the correction and date next to the crossed out information and entering the correct information. The erroneous information will not be erased. All field personnel will be instructed as to the proper field logging techniques for maintaining the integrity of the documentation.

3.0 EQUIPMENT DECONTAMINATION

3.1 Drill Rig and Backhoe Decontamination

A decontamination pad will be constructed of high-density polyethylene sheeting, no less than 10-millimeters thick, on a prepared surface sloped to a sump. The sump must also be lined and of sufficient volume to contain at least 20 gallons of decontamination water. The size of the pad shall be of sufficient size to contain the fluids generated during the decontamination of on-site equipment. The decontamination pad will be no larger than the back of the drill rig, since the back of the drill rig will be the largest piece of equipment anticipated on-site. Sides of the pad will be bermed so that all decontamination water is contained. Upon completion of all field activities, the decontamination pad will be properly decommissioned. To accomplish decommissioning, all free liquids will be removed from the surface of the High Density Polyethylene (HDPE) sheeting, including the sump area, and allowed to air dry. The HDPE sheeting will then be cut to manageable size, folded or rolled, and placed in the waste container (usually a roll-off container or 55-gallon drum). The earthen material or wood timbers used to construct the containment berm will be inspected to ascertain if the material has come in contact with decontamination liquids during use. If they have, the materials will be disposed in the waste container for subsequent disposal at an appropriate facility. If the materials have not been in contact with decontamination liquids, they may be reused.

All equipment used in intrusive work including backhoe, drilling rig, augers, bits, tools, split-spoon samplers and tremie pipe will be cleaned with a high-pressure hot water or steam cleaning unit and scrubbed with a wire brush to remove dirt, grease, and oil before beginning field work and before leaving the project Site upon completion of the last sampling activity. All tools, drill rods, and augers will be placed on sawhorses or polyethylene plastic sheets following steam cleaning. Direct contact with the ground will be avoided. The back of the drill rig and all augers, rods, and tools will be decontaminated between each drilling location according to the above procedures. The backhoe bucket, arm, and any other part of the equipment, which may have contacted excavated soil, will be decontaminated between each test pit location. Tools, augers, and rods will be decontaminated between drilling monitoring wells.

Decontamination water collected in the sump of the decontamination pad will be at a minimum removed from the sump at intervals less than 90% of its capacity and prior to rain events. The liquids will be pumped to a 55-gallon drum and stored in an appropriate satellite storage area. All waste handling will be performed in accordance with waste handling regulations.

Unless sealed in manufacturers packaging, monitoring well casing and screens will be steam cleaned immediately before installation. The screen and casing shall then be wrapped in polyethylene plastic and transported from the designated decontamination area to the well location.

3.2 Sampling Equipment Decontamination

Prior to sampling, all non-dedicated/non-disposable equipment (i.e., bowls, spoons, and bailers) will be washed with potable water and a laboratory grade detergent (such as Alconox). Decontamination may take place at the sampling location as long as all liquids are contained in pails, buckets, 55-

gallon drums, etc. The sampling equipment will then be rinsed with potable water followed by a reagent-grade isopropanol rinse and finally a deionized water rinse. Additionally, all equipment used to collect samples for metals analysis will receive a nitric acid rinse followed by a deionized water rinse. Between rinses, equipment will be placed on polyethylene sheeting. At no time will decontaminated equipment be placed directly on the ground. Equipment will be wrapped in polyethylene plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location, where appropriate.

4.0 SITE RECONNAISSANCE AND SCREENING

The following practices, procedures and methods will be utilized in carrying out all field activities if specified in the Site-Specific Work Plan.

4.1 Site Reconnaissance

Following the contact with UFPO and markout of subsurface utilities at the Site, Site reconnaissance will be performed. The Site reconnaissance will be attended by the NM Project Manager, the Consultant Project Manager and/or the FOL, and representatives of the NYSDEC and/or the NYSDOH. During this task, the NYSDEC-approved sampling locations, as outlined in the Site-Specific Work Plan, will be marked in the field with a wooden stake and/or spray paint. Conflicts with the NYSDEC-approved sampling locations, based on the utility markout, will be modified during this visit.

Prior to this Site visit, the property owner and/or company representative will be contacted by the NM Project Manager to meet at the Site. The property owner and/or company representative will be asked if subsurface structures exist on the property and will be asked to identify their locations. Subsurface structures will consist, but are not limited to the following: septic tanks, cesspools, underground irrigation lines, water supply wells, vaults, leaching fields, propane, oil, and/or fuel tanks, underground utilities installed by the owner, drainage lines, etc.

4.2 Metal Detector Survey

A metal detector survey may be conducted using the magnetic cable locator model MAC-51B (or equivalent); to locate unidentified underground utilities and possible buried drums or tanks. The area around each proposed subsurface investigation point may be checked with the MAC-51B (or equivalent) prior to any subsurface investigation. Initially, the locator will be tested on known locations of underground utilities to verify that it is functioning properly.

If there is no indication of buried utilities, drums, or tanks, then subsurface sampling will proceed. However, if the locator indicates the presence of a buried object, activities will not proceed in that location until the type of buried object is determined. If the object cannot be identified from surface or shallow digging, a test pit may be required to determine the identity of the buried object. If a test pit is required, the procedure and scope will be reviewed with the NM Project Manager prior to conducting the work.

The NM Project Manager will keep the property owner or company representative informed of planned Site activities.

4.3 PAH Field Screening

PAH screening of soil samples may be used to determine the extent of PAHs in soil and to optimize the location of samples for confirmatory laboratory analysis.

If PAH field screening is conducted at any Site, then adequate facilities will be provided for proper use of the PAH-specific immunoassay test. The individual responsible for conducting the immunoassay test in the field shall receive instruction in the proper use and storage of the test kit. The instructions for the PAH Field Screening Kit are provided as Attachment A of the Generic

Quality Assurance Project Plan (QAPP) (Volume II). The test is a simple procedure designed to test any type of soil sample for PAHs. The test uses a semi-quantitative, colorimetric method that incorporates immunoassay technology. The test is performed using tubes, which are coated with a chemical that specifically reacts with PAHs. To perform the test, the standards, samples and reagents are added in a step-wise manner to the coated tubes. The procedure results in a color change within each tube inversely proportional to the concentration of PAHs. The color in the tubes is read by inserting the tubes in a standardized color photometer. The test consists of the following three steps:

1. **Sample Preparation:** First, PAHs are extracted from the soil using a solvent. The extract is clarified using a disposable 0.45-micron filter tip.
2. **Testing:** After sample preparation, the PAH standards and the sample and the enzyme are added to the coated tubes. After 10 minutes incubation, the tubes are rinsed and color-developing reagents are added. Within a few minutes, color development occurs in the tubes.
3. **Results Interpretation:** The color of the sample tube is compared against the color of the standard tube using a photometer to determine if PAHs are present in the sample. The result will indicate concentrations in three ranges; less than 1 ppm, between 1 and 100 ppm, and over 100 ppm.

4.4 PCB Field Screening

Polychlorinated biphenyls (PCBs) screening of soil samples may be used to determine the extent of possible PCBs in soil and to optimize the location of samples for confirmatory laboratory analysis. The field screening may be conducted using a PCB-specific immunoassay test. The individual responsible for conducting the immunoassay test in the field shall receive instruction in the proper use and storage of the test kit. The instructions for the PCB Field Screening Kit are provided as Attachment A of the Generic Quality Assurance Project Plan (QAPP) (Volume II). The test is a simple procedure designed to test any type of soil sample for PCBs. The test uses a semi-quantitative, colorimetric method that incorporates immunoassay technology. The test is performed using tubes, which are coated with a chemical that specifically reacts with PCBs. To perform the test, the standards, samples and reagents are added in a step-wise manner to the coated tubes. The procedure results in a color change within each tube proportional to the concentration of PCB. The color in the tubes is read by inserting the tubes in a comparative photometer. The test consists of the following three steps:

1. **Sample Preparation:** First, PCBs are extracted from the soil using a solvent. The extract is clarified using a disposable 0.45-micron filter tip.
2. **Testing:** After sample preparation, the PCB standards and the sample are added to the coated tubes using dropper bottles. After 10 minutes incubation, the tubes are rinsed and color-developing reagents are added. Within a few minutes, color development occurs in the tubes.
3. **Results Interpretation:** The color of the sample tube is compared against the color of the standard tube using a photometer to determine the concentration of the sample. The result will indicate concentrations in 3 ranges; less than 5 ppm, between 5 and 50

ppm, and over 50 ppm. Also, with a dilution samples can be tested for over 500 ppm.

PCB specific screening with the eminas test kits will be utilized on-sites, which have historically been associated with either electrical equipment from a certain time period that employed the use of PCB oils or when records may reflect the use of PCBs at that facility. The test kits will be used as part of an overall analytical program, which will include laboratory analysis of on-site soils.

4.5 Private Water Supply Inventory

If off-site groundwater impacts are detected through the sampling program, or if specifically requested by the NYSDEC, than an inventory of private water supply sources within a one-half mile radius around the project Site will be researched. The research will be conducted by contacting the municipal Water Department (if one exists), the municipal engineer, the NYS Department of Health and consulting the *Atlas of Community Water System Sources*, and/or the United States Geologic Society (USGS).

5.0 SUBSURFACE BORING PROTOCOL

5.1 Drilling Methods and Sample Collection

Overburden

Soil borings, in general, will be drilled with hollow-stem augers or flush-joint casing. When advancing a soil boring, re-entry of the split-spoon sampler into the previously sampled interval shall not be permitted. Hollow-stem augers with center plug will be advanced at two-foot intervals, consistent with the split-spoon sampling pace. Alternative methods may be used at the geologist's discretion with the authorization of NM and NYSDEC. Split-spoon sampling will be conducted in accordance with ASTM Specification D-1586-84 for standard penetration test and split barrel sampling, unless otherwise authorized by the field geologist. Split-spoons will be decontaminated after each sample is collected.

A plywood sheet or other suitable basin (during mud or water rotary drilling) will be placed around the augers during drilling to contain soil cuttings/mud drilling and prevent them from contacting the ground surface. Soil cuttings will be placed in a 55-gallon steel drum or a roll-off container for subsequent sampling and disposal. Decontamination water and drilling mud/water will be placed in tanks and/or 55-gallon steel drums for proper disposal.

Boring Completion Methods

All soil borings will be completed by adding cement/bentonite grout, via tremie pipe, from the bottom of the borehole up to the ground surface as the augers are withdrawn. The grout will be mixed in the following relative proportions: 30 gallons of water to three 94-pound bags of cement to 25 pounds granular bentonite.

Geoprobe® Coring

If prescribed in the Site-Specific Work Plan, Geoprobe® coring will be performed in accordance with the manufacturer's specifications. An assembled Geoprobe Macro-Core® open-tube soil sampler, with a one use dedicated liner, will be driven one sampling interval (approximately 4 feet) into the subsurface then retrieved using a Geoprobe® soil probing machine. The collected soil core will be removed from the sampler along with the liner. The field geologist will classify and sample the soil located within the liner. Upon completion, the excess soil will be placed into a 55-gallon drum for disposal and the inner liner properly disposed. After decontamination, the Macro-Core sampler will be reassembled using a new liner. The clean sampler will then be advanced back down the same borehole to collect the next soil core interval.

Upon completion of sampling, the borehole will be grouted from the base of the borehole to ground surface. As the Geoprobe® piping is removed from the borehole, grout will be placed in the Geoprobe® piping and allowed to flow out, via gravity, into the void left by the piping.

Procedures for geologic logging and field classification will be as presented in Section 5.2.

Shelby Tube Sampling

Shelby tube samples will be collected in accordance with the latest revision of ASTM D/587. When the desired sampling depth is reached, the hollow-stem auger or casing will be cleaned out using whatever method is preferred so as not to disturb the material to be sampled. The Shelby tube will be lowered to the bottom of the borehole, then advanced (pushed) via pressure without rotation by a continuous relatively rapid motion until 24 inches of penetration is achieved. At the discretion of the field geologist, a period of approximately 10 minutes, measured from the time of insertion, will be allowed to provide for sample adhesion to the tube walls. Prior to removal, the tube may be rotated two complete revolutions to shear the bottom of the sample from the native material.

Upon removal, the field geologist will log the tops and bottoms of the sample for soil classification. Samples recovered via Shelby tube will be preserved in conformance with the latest revision of ASTM D 4220. To preserve the natural moisture content of the samples, the tube ends will be sealed with a minimum of 0.50 inch of paraffin wax. Plastic slip caps will be applied at the ends of the sample tube, taped, then dipped and sealed in wax.

Rock Coring

Conventional or wire-line HX or NX coring will be used if rock drilling is specified in the Site-Specific Work Plan. Prior to drilling at such locations, a minimum 4-inch diameter, temporary steel casing or equivalent will be placed or locked into the top of bedrock. Rock coring will be conducted in accordance with the latest version of ASTM D2113. Upon retrieval, the core will be placed in a core box labeled as follows:

Outer Core Box and/or End Panels

- 1) Project/Site name
- 2) Site location
- 3) Boring/well number
- 4) Box number
- 5) Core run number and footage interval
- 6) Date

Inside Core Box Cover (in columns)

- 1) Boring/well number
- 2) Run number
- 3) Depth interval
- 4) Actual recovery
- 5) Rock quality degree (RQD) in percent
- 6) PID screening results where applicable
- 7) Comments

In addition, a geologist will be on-site during the drilling operations to fully describe each core,

including:

- 1) Color
- 2) Thickness of bedding
- 3) Rock type
- 4) Additional petrographic information
- 5) Texture
- 6) Weathering state
- 7) Structure
- 8) Detailed description of discontinuities and fillings
- 9) Formation name
- 10) Detailed description of visible impacts
- 11) Miscellaneous observations

Sample descriptions, PID readings, and drilling locations will be recorded in the field logbook.

5.2 Geologic Logging, Soil Classification and Documentation

The field geologist will log borehole geology in the field logbook and on field forms. All samples collected from the borehole will be classified in accordance with ASTM standards D2487 Standard Method for Classification of Soils for Engineering Purposes and D2488 Standard Practice for Description and Identification of Soils or using the Burmeister Method and classifying the soils using the Unified Soil Classification System. The field geologist will be on-site during the drilling operations to classify/log each sample in the field logbook and/or field forms including:

- Site;
- Boring number;
- Interval sampled;
- Date;
- Initials of sampling personnel;
- Drilling Company's Name;
- Soil type;
- Color;
- Feet of recovery;
- Moisture content;
- Texture;
- Grain size and shape;
- Relative density;
- Consistency;
- Visible evidence of residues; and

- Miscellaneous observations (including organic vapor readings).

If no recovery, or limited recovery, is observed in the sample, then a description regarding the lack of sample recovery should be provided on the log of boring, if evidence of an obstruction or equivalent can be identified. If no observable evidence is identified then no opinion or guess should be entered on the log of boring.

Figure 1 presents an example of a log of boring form to be completed. If this form is not utilized, the form used should be approved by the Consultant's Project Manager as well as NM's project manger.

Photo documentation

Photo documentation of the Site activities will be conducted consistently throughout the implementation of the field program. A photographic log will be created and maintained as part of the overall field program. Visually impact materials and/or distinct stratigraphic changes in the soil column will be included in the photographic documentation for the individual Sites.

6.0 MONITORING WELL INSTALLATION AND DEVELOPMENT

Monitoring wells will be installed at the locations identified in the Site-Specific Work Plan. After the completion of drilling and monitoring well installation, all wells will be developed prior to the collection of groundwater samples. The following procedures will be used to install and develop all monitoring wells.

6.1 Monitoring Well Specifications

Monitoring wells installed in unconsolidated deposits that do not penetrate a presumed confining layer will be constructed according to the following specifications:

- PVC or stainless steel 2-inch diameter threaded, flush-joint casing and screens with O-rings will be installed.
- Wells will be screened in the unconsolidated deposits. Screens will be approximately 10 feet in length, and slot openings will be 0.020 inch. Alternatives may be used at the discretion of the field geologist, based on Site-specific geologic conditions.
- A sump, up to 2 feet in length, may be attached to the bottom of the screen to collect dense nonaqueous phase liquids (DNAPLs), if appropriate. A sump will not be installed if DNAPL is not observed in the boring.
- The top of the casing will extend to approximately 2 to 3 feet above ground surface where possible, given Site-specific considerations. Otherwise, flush-mount casings will be used.
- Where appropriate, the annulus around the screens will be backfilled with silica sand (#1 Morie or equivalent), based on Site-specific geologic conditions and screen slot size, to a minimum height of 2 feet above the top of the screen.
- A bentonite pellet/chip seal or slurry (30 gallons water to 25 to 30 lbs. bentonite, or relative proportions) will be placed above the sand pack. The bentonite pellet/chip seal will be installed via gravity and allowed to hydrate for at least 1 hour before placement of grout above the seal. If the bentonite slurry method is used for installation of the seal, then a side discharging tremie pipe will be utilized for the installation of the bentonite seal. Where possible, the bentonite seal will be a minimum of 24-inches in depth, except in those instances where the top of the well screen is in close proximity to the ground surface. In these instances, the well will be completed in accordance with specifications provided by the field geologist, which will incorporate an adequate surface seal into the well design.
- A fine sand pack (Morie 00 or equivalent) approximately 1 foot thick will be placed above and below the bentonite seal to isolate it and to prevent mixing of components.
- The remainder of the annular space will be filled with a cement-bentonite grout up to the ground surface. The grout will be pumped from the bottom up. The grout will be mixed in the following relative proportions: 30 gallons of water to three 94-pound bags of cement to 25 pounds granular bentonite. The grout will be allowed to set for a minimum of 48 hours before wells are developed.

- Each monitoring well will have an expansion plug or plumbers plug and a 4-inch diameter, steel casing with a hinged, locking cap placed over the monitoring well. The protective casing will extend approximately 2 feet below ground surface and be cemented in place. In some areas, it may be necessary to provide flush mounted casings. All wells will have keyed-alike locks and the keys will be maintained by the NM project manager.
- A concrete surface pad (2 ft x 2 ft x 6-inch) will be sloped to channel water away from the well casing.
- A weep hole will be drilled at the base of the protective standpipe casing to allow any water between the inner and outer casing to drain. If a flush mounted protective casing is installed then a small diameter drainage tube will be installed in the side of the casing discharging to the surrounding subsurface soils.
- The flush mounted monitoring well protective casing will be a minimum 8-inch diameter box or equivalent. All flush mounted well risers will be capped with an expansion plug or plumbers plug.
- The top of the PVC well casing will be permanently marked/notched and surveyed to 0.01 foot, and elevations will be determined relative to a fixed benchmark or datum. The measuring point on all wells, the permanent mark/notch will be on the innermost PVC casing.
- Each outer casing will be permanently labeled using a steel hand stamp or equivalent (i.e. MW-4).

Modification of the above installation procedure will be subject to changes in the field. All field-executed changes will be communicated to the NYSDEC for their discussion and approval, if appropriate.

Based on field conditions and evaluation of the best methodology to ensure the integrity of the seal, the field geologist will select the best method (i.e. bentonite pellet via gravity or bentonite slurry via tremie) to install the bentonite seal above the sand pack.

Figure 3 shows details of an overburden monitoring well construction diagram for wells installed in unconsolidated material. Figure 2 shows details of a monitoring well installed with a flush mounted protective casing.

Figure 4 shows details of a typical double-cased monitoring well construction diagram for wells installed in unconsolidated soils that do penetrate a presumed confining layer. The decision to install double-cased wells will be made on a boring-specific basis by the field geologist. Double-cased wells will be installed when the boring for the monitoring well penetrates a presumed confining layer. The confining layer shall be defined as a minimum five (5) foot thick, predominantly clay unit which has been shown to be laterally continuous across the Site. In the event the field geologist and NM and NYSDEC Project Managers decide a reasonable possibility exists for contamination to be deposited in deeper, clean zones during the drilling and installation of a monitoring well, the well will be double-cased. The purpose of the steel protective casing will be to minimize the possibility that residual contamination is deposited at the depth of the screened interval during the drilling

process.

Monitoring wells that penetrate confining layers will be installed according to the following specifications:

- 6-inch inside diameter (ID) steel outer casings will be installed to a depth of at least 2 feet below the lower limit of observed or measured contamination and/or the confining layer. This casing will be grouted in place with cement to inhibit downward migration of contamination.
- The 6-inch casing will be installed through 6.25-inch ID hollow-stem augers. The augers will be filled with grout prior to their removal to ensure the integrity of the borehole and the grout seal. Then, the 6-inch casing will be installed into the grout and hydraulically pushed approximately 1-foot beyond the bottom of the boring. A 3-foot thick grout plug will be installed at the base of the 6-inch diameter pipe through which the borehole will be advanced. Potable water will be tremied to the bottom of the inside of the casing to dilute the grout, thereby allowing the grout to be more easily pumped out of the casing. The grout, pumped out of the casing, will be drummed and staged with other investigation-derived waste (IDW).
- The cement-bentonite grout remaining in the annulus between the casing and the formation will be allowed to set for at least 24 hours before drilling is continued. The drilling will then continue using 4-inch diameter flush-joint spin casing and potable water. All lubricant water will be containerized.
- The well will be constructed of 2-inch diameter PVC or stainless steel riser pipe and screen, sand pack, bentonite seal, grout, and surface casing as specified for single cased monitoring wells discussed above and in accordance with NYSDEC requirements. The bentonite seal may consist of pellets or a bentonite slurry mixture in proportions relative to 30 gallons of water to 25-30 pounds of bentonite. The grout mix will consist of 30 gallons water to three 94-pound bags of cement and 25 pounds of granular bentonite.

Monitoring wells to be installed as open holes in bedrock will be installed according to the following specifications:

- Advance each boring to the top of the bedrock surface. Borehole advancement will be conducted using 6¼-inch inner diameter (ID) continuous flight hollow-stem augers in 2-foot intervals, to permit the continuous collection of subsurface soil samples with carbon steel split-spoon samplers in accordance with Section 5.1. Confirmation of the bedrock surface depth will be based upon split-spoon and hollow stem auger refusal.
- Overbore the borehole to a 12-inch diameter borehole, in which to install a temporary 10-inch carbon steel overburden casing to bedrock, utilizing an appropriately sized tri-cone roller bit or thin wall bit. A 3-foot thick grout plug will be installed at the base of the 10-inch diameter pipe through which the borehole will be advanced, if appropriate.

- Subsequent to temporary casing installation, continue borehole advancement into the bedrock to a depth of 5 feet below the bedrock surface, first using the rock coring method for logging (see Section 5.1) and then overboring with a 9-inch outer diameter (OD) tri-cone roller bit via the water rotary method.
- Set a permanent 6-inch carbon steel casing 5-feet into the competent bedrock by the spin casing method.
- Backfill the annular space around the well casing with bentonite/cement slurry to the surface. The ratio of cement to bentonite for grouting will be approximately 30 gallons of water to three 94-pound bags of cement to every 25 pounds of granular bentonite.
- Remove the 10-inch temporary casing during pressure grouting. Allow grout to cure for at least 24 hours.
- Continue coring and then drilling in the borehole to the maximum anticipated total depth (i.e. 10 feet below the point where groundwater was encountered) and/or the depth where fracture zones indicate sufficient yield, first using the rock coring method and then overboring utilizing the water rotary method and a 5-inch OD tri-cone roller bit or equivalent.
- Complete the open hole monitoring well with a protective locking stick-up or flushmount box installed in a concrete pad as per Section 6.1.
- If the borehole extends to a depth greater than 25 feet below the bottom of the surface casing (due to depth and/or yield of groundwater), construct the monitoring well using 10 feet of 2-inch diameter Schedule 40 PVC or Schedule 5 stainless steel wire wound screen (0.010-inch slot or a slot size appropriate to the formation) and 2-inch diameter Schedule 40 PVC or Schedule 5 stainless steel riser pipe. For non-flushmounted wells, at least 2 to 3 feet of riser pipe must extend above the ground surface. Flushmounted wells will only be installed in high traffic areas, such as roadways, sidewalks, etc.
- Backfill the annular space to a minimum height of 2 feet above the top of screen with a sand pack. The sand pack shall be Morie #1 silica sand or equivalent (based on Site-specific geologic conditions and screen slot size). The remaining annular space will be filled with bentonite/cement grout up to the ground surface. The ratio of cement to bentonite for grouting will be approximately 30 gallons of water to three 94-pound bags of cement to every 25 pounds of granular bentonite.
- Complete the constructed monitoring well as described with a protective locking stickup or flushmount box installed in a concrete pad as per Section 6.1.

Modification of the above installation procedure will be subject to changes in the field. All field-executed changes will be communicated to the NYSDEC for their discussion and approval, if appropriate.

Characteristics of each newly installed well will be recorded on the appropriate well construction diagram. Each well will be identified with a well number placed on the inside of the well cap and on the outside of the protective casing or outside flush-mount cover. Each separate source of potable

water used for the drilling process will be sampled once for TCL/TAL compounds.

6.2 Monitoring Well Development

After a minimum of 24 hours after completion, the monitoring wells will be developed by one or a combination of the following techniques:

- Surging;
- Bailing;
- Using a centrifugal pump and dedicated polyethylene tubing;
- Positive displacement pumps and dedicated polyethylene tubing, and/or
- Other methods recommended by the field geologist and approved by the NM and NYSDEC Project Managers.

Development water will initially be monitored for organic vapors with a PID. In addition, the development water will be observed for the presence of non-aqueous phase liquids (NAPLs) or sheens. The development water will be contained in a tank and/or 55-gallon steel drums on-site. The purge water will be disposed of in accordance with NYSDEC requirements. The wells will be developed until the water in the well is reasonably free of visible sediment (<50 NTU if possible) or until pH, temperature and specific conductivity stabilize, assuming a minimum of 10 well volumes of water has been removed from the monitoring well during development. In no case will well development exceed 8 hours per well. Following development, wells will be allowed to recover for at least one week before groundwater is purged and sampled. All monitoring well development will be overseen by a field geologist and recorded in the field logbook.

6.3 In-Situ Hydraulic Conductivity Testing

In-situ hydraulic conductivity testing may be performed on selected monitoring wells as indicated in the Site-Specific Work Plan to obtain estimates of groundwater velocities and potential groundwater recovery rates for the aquifer. The objective of the hydrogeologic testing is to determine the hydraulic properties of the aquifer in the vicinity of the Site.

Slug tests may be conducted in selected monitoring wells utilizing the rising or falling head slug test technique. Rising head tests can be performed in unconfined and confined aquifers. Falling head tests should only be performed in confined aquifers. The slug tests will be performed by subjecting water-bearing units in the screened interval to a stress caused by the sudden displacement of the water level within the well. The rising head tests will be conducted as follows:

- Slugs and other downhole equipment will be decontaminated before and after each test by methods described in Section 3.2.
- Prior to conducting each slug test, the static water level in the well will be measured to the nearest 0.01 foot. Water levels will be measured during the test with an electric sounder (water level indicator) and with pressure transducers attached to a data logger, thereby providing water level measurements by two independent devices.
- A weighted slug of known volume will be inserted gently into the well below the water table. The water level will be measured until the water level returns to static

conditions.

- The slug will be suddenly withdrawn from the well and the water level recovery will be monitored at appropriate intervals until recovery is complete and stabilized.
- Wells, which were bailed dry during development, may not be able to provide meaningful data through slug tests. Tests will be terminated in wells which do not recover significantly (>80% of static level) within a certain amount time, at the discretion of the field geologist. These wells will be bailed dry and their recovery measured with an electronic water level indicator.

The falling head tests will be conducted as follows:

- Slugs and other downhole equipment will be decontaminated before and after each test by methods described in Section 3.2.
- Prior to conducting each slug test, the static water level in the well will be measured to the nearest 0.01 foot. Water levels will be measured during the test with an electronic sounder (water level indicator) and with pressure transducers attached to a data logger, thereby providing water level measurements by two independent devices.
- A weighted slug of known volume will be quickly inserted into the well below the water table. The water level will be measured until the water level returns to static conditions.
- The test will be terminated in wells which do not recover significantly (>80% of static level) within an unspecified time, at the discretion of the field geologist.

The slug test data will be analyzed using the Cooper, Bredehoeft, and Papadopoulos (1967) type curve method or the Bouwer and Rice (1976, 1989) method. The Cooper et al. analysis assumes that the well penetrates a confined aquifer, and the Bouwer and Rice method applies where unconfined conditions are prevalent.

6.4 Well Abandonment

Unconsolidated monitoring wells will be abandoned in the following manner:

- Remove the protective casing and concrete pad.
- Over drill the well casing using hollow-stem augers or casing to at least one foot below the depth of the boring/well as indicated in the soil boring log.
- Remove the well casing from the hole. If the casing cannot be removed while the augers are in place, cutoff the casing at least two feet, and if possible five feet, below the ground surface.
- Add cement/bentonite grout via tremie pipe from the bottom of the augers as the augers are withdrawn.
- If the well casing cannot be overdrilled and removed, the well casing will be filled with cement/bentonite grout from the bottom up using a tremie pipe. The grout mixture will be as specified for the well installation (see Section 6.1).

- Add grout to the point where the casing was cut off. From that point up to ground surface, backfill with native soil material surrounding the boring/well.

Consolidated (bedrock) monitoring wells or open holes will be abandoned in the following manner:

- Remove the protective casing and concrete pad.
- Add cement/bentonite grout via tremie pipe from the bottom of the well up to the ground surface. The grout mixture will be as specified for the well installation (see Section 6.1).□
- Add grout to the point where the casing was cut off. From that point up to ground surface, backfill with native soil material surrounding the boring/well.

6.5 Packer Testing

Attachment A presents the packer test procedures to be used in the event the hydraulic conductivity of a discrete bedrock zone is required for the purpose of determining the well screen interval of bedrock wells. Down-hole packer equipment will be decontaminated following the procedures in the FSP (see Section 3.1) prior to use at each location and prior to demobilization.

7.0 TEST PIT EXCAVATIONS

When specified in the Site-Specific Work Plan, test pits will be excavated using a rubber-tired or track backhoe. In the event deep excavations are anticipated, a track hoe will be utilized. Locations of test pits, if proposed in the Site-Specific Work Plan, will be finalized in the field, based on the location of potential source areas and existing underground utilities. If the prospective test pit location is covered by asphalt or concrete, the area will be saw cut prior to excavation. During excavation activities, personnel will stand upwind of the excavation area to the extent possible. Air monitoring will be conducted in accordance with the Generic EHS Plan (Volume II). Test pit materials will be logged, as well as photographed for future reference. Material removed from the test pit will be placed on polyethylene sheeting. Should sampling of excavated material be performed, samples will be collected with a decontaminated or a new disposable sampling tool, or equivalent, from the center of the backhoe bucket. Upon completion, the materials from the test pit will be placed back in the excavation in the reverse order in which it was excavated. The location and size of the test pit will be measured and described in the field logbook.

Visually clean soils, such as surface soils, will be segregated from soils that may be impacted. The visually clean soils will be used to cover the impacted soils/source materials when placed back in the excavation. At a minimum, the top two feet of back filled soil will be visually clean. If the original (top) two feet of soil is impacted or some portion of it is impacted then the soil will be replaced and/or supplemented with certified clean fill. Test pits will be backfilled as soon as possible after completion and in general prior to the cessation of activities at the end of the day. The closure of individual test pits, prior to work cessation at the end of the day, will be performed on a case by case basis utilizing criteria for the maintenance of safe working and overall Site conditions. For gravel roadways and parking areas, the backfill will be tamped down in 18-inch lifts. A 6-inch layer of clean run-of-crush gravel will be tamped in-placed as the final lift. For test pits located in asphalt-covered areas, the surface will be replaced with cold or hot asphalt mix, compacted by rolling, and trimmed flush with the adjoining surface. Test pits located in grass covered areas will be returned to original grade and reseeded. Following restoration of the excavation, the test pit will be staked/marked to facilitate subsequent location by surveying crews.

7.1 Underground Utilities

Potential for encountering underground utilities is part of any subsurface investigation, where test pitting will be utilized as part of the investigation. When performing test pitting in areas of suspected live underground utilities the test pits will be advanced by hand digging to a depth of five (5) feet below ground surface to confirm the location of the live utility. If investigation of abandoned underground utilities is required, then the parameters of the investigation will be specified in the Site Specific Work Plan.

If an abandoned under ground pipe/structure, associated historically with the former MGP operations, is encountered during the test pitting operation, then excavation activity will cease until the pipe or underground structure can be adequately investigated. The investigation of the piping will include the description of the pipe/structure construction, material, condition, orientation, dimension, and contents of the pipe/structure, if possible. If the piping/structure interior can not be readily

accessed then penetration of the underground utility may be necessary. Penetration of any underground utility should be conducted with the utmost care and consideration given for the utilization of proper tools (spark proof, beryllium coated, etc) for the task at hand. Once the interior of the pipe is accessible then a sample will be taken of the pipe contents, and sent to a laboratory for analysis.

If prior to initiation of test pitting activities, a live underground utility is identified in the area of anticipated test pitting, then the live underground line, if feasible, will be shut down. Consideration must be given to impacts to the facility operations prior to shutting down any active utility. (See the lockout tag out procedure section of the Generic HSP).

If during test pitting activities an unexpected live underground utility is encountered, excavation will cease, the orientation and dimensions of the underground utility will be recorded, and if possible, the live utility will be shielded from damage and test pitting will continue. If shielding is not possible then the test pit will be back filled and a new test pit attempted in the general vicinity of the initial location. When performing excavation activities next to a live underground utility, care will be taken not to undermine or impact the operation of the live underground utility. If a pipe or underground utility is accidentally severed, the owner of the utility, then NM, will immediately be notified. Liquid flows or electricity will be shut off immediately and appropriate repairs initiated as soon as possible. If a release of liquid occurs, the Consultant PM will notify NM who will then notify NYSDEC. All appropriate response actions will be implemented.

8.0 GROUNDWATER SAMPLING

The following is a step-by-step sampling procedure to be used to collect groundwater samples from the monitoring wells. Well sampling procedures will be recorded on the form shown in Figure 5. Sample management is detailed in the Generic QAPP (Volume II).

- Groundwater samples will not be collected until at minimum, one week following well development.
- Prior to sampling, measure the static water level from the surveyed well elevation mark on the top of the PVC or stainless steel casing with a decontaminated water level probe. The elevation of nearby surface water bodies will also be recorded using bulkheads, culverts, or other convenient structures as reference points in which the elevation is known. These relative measurements will be used to aid with interpreting the relationship between observed surface water and groundwater fluctuations. Record time, date, and measurement to nearest 0.01 foot and record in the field logbook.
- Decontaminate all field test equipment and meter probes prior to use on-site.
- Prior to collecting a round of groundwater elevations an oil/water interface probe will be used to determine the presence of LNAPL and DNAPL in the well.
- A round of groundwater elevations will be collected prior to the start of sample collection. The measurement at each well location will be made from the top of the PVC or stainless steel casing with a water level probe. The measurements will be made in as short a time frame as practical to minimize temporal fluctuations in hydraulic conditions.
- Place a plastic sheet on the ground to prevent contamination of the bailer rope and/or the tubing associated with the purging (pump) equipment.
- Purge the well by removing a minimum of 3 well volumes or at least one volume of saturated sand pack, whichever is greater or use the low flow sampling procedures below. Purging will be conducted with a teflon, stainless steel or disposable polyethylene bailer, or a centrifugal, submersible, peristaltic, or whale pump and dedicated polyethylene tubing, or other methods at the discretion of the field geologist, and with the prior approval of NM and NYSDEC. Purging of the well to stabilized parameters may be performed at between 100 to 500ml/min. If the well goes dry before the required volumes are removed, the well may be sampled when it recovers sufficiently.
- Collect volatile organic analyte (VOA) or BTEX samples with Teflon, stainless steel or dedicated polyethylene bailers lowered by a dedicated polypropylene and/or Teflon line or other methods as indicated. TCL SVOCs, PAHs, pesticide/PCBs, TAL metals, natural attenuation parameters, and other non-conventional parameters may be collected with Teflon, stainless steel, or dedicated polyethylene bailer or a submersible, or peristaltic pump using the low-flow sampling technique. Low flow well sampling will be at a rate less than or equal to 100ml/min.

Low-flow sampling procedures may be utilized to collect samples for metals analysis if sample turbidity is excessive. Low flow sampling will be performed according to USEPA (1998) guidance. The pump should be capable of throttling to a low flow rate suitable for sampling.

- Measure temperature, pH, turbidity, DO, and conductivity, at 5 to 10 minute intervals. When the parameters stabilize over 3 consecutive readings, sampling may commence. Record results in the field logbook prior to sample collection.
- Fill sample containers for VOCs or BTEX first. Sample containers for SVOCs and other analytes are then filled.
- After all samples are collected, dispose of polypropylene line and bailer, or other dedicated disposable sampling equipment.

9.0 SURFACE WATER SAMPLING

Surface water samples will be collected at the locations indicated in the Site-Specific Work Plan. Sample management is detailed in the Generic QAPP (Volume II). A decontaminated stainless steel or glass cup may be used to collect the water for these samples or the sample bottles may be directly dipped into the water. At no time will a sample jar, which contains preservative, be submerged in the sampling media. The sample should be collected from mid-depth by submersing the sampling device or sample container to a mid-depth position and opening the container and allowing it to fill. If this methodology does not work effectively then an alternative sampling device (i.e. bacon bomb etc) can be utilized. The stainless steel or glass cup will be decontaminated following the procedures outlined in Section 3.2. Surface water samples will be collected downstream first, and then progressing in an upstream direction. If sediment sampling is to be performed in conjunction with surface water sampling at corresponding locations, the surface water sample will be collected prior to the sediment sample.

Surface water flow measuring techniques will vary greatly based upon the existing field conditions. A discussion regarding the investigative techniques for collection of surface water flow measurements will be discussed in detail in the Site Specific Work Plan.

All Field data will be recorded in the logbook and on the sample log sheet (Figure 6).

10.0 SURFACE SOIL SAMPLING

Surface soil samples will be collected at the locations indicated in the Site-Specific Work Plan. Sample management is detailed in the Generic QAPP (Volume II). Samples will be collected using decontaminated stainless steel equipment or disposable sampling equipment. If the selected sampling location is in a vegetated area, the vegetation will be removed over a one square foot area prior to sample collection. The sample will be collected from within the top 2-inches of the exposed ground surface. Samples will be collected by hand digging into the soil with a pre-cleaned stainless steel trowel or a disposable sampling tool. All samples selected for laboratory analysis will be placed in the appropriate containers provided by the laboratory. Sample containers for volatile organic analysis will be filled first. Next, a sufficient amount of the remaining soil will be homogenized by mixing the sample in a decontaminated stainless steel bowl with a decontaminated steel trowel or disposable scoop. This composite sample will be analyzed for all remaining parameters identified in the Site-Specific Work Plan.

All samples collected for analysis will be placed immediately into laboratory sample jars and properly stored in a cooler with ice to 4°C before transport to the laboratory.

Duplicate samples will be collected at the frequency detailed in the Generic QAPP by alternately filling two sets of sample containers. Composite samples may be required to obtain a sufficient soil volume.

In addition, surface soil samples will be described by including:

- Site;
- Location number;
- Interval sampled;
- Date;
- Initials of sampling personnel;
- Soil type;
- Color;
- Moisture content;
- Texture;
- Grain size and shape;
- Relative density;
- Consistency;
- Visible evidence of residues; and
- Miscellaneous observations (including organic vapor readings).

11.0 SUBSURFACE SOIL SAMPLING

11.1 Samples for Laboratory Analysis

Subsurface soil samples selected for laboratory analysis will be obtained from a standard 2-foot split-spoon or Geoprobe® samplers and placed in the appropriate containers provided by the laboratory. The soil samples will be collected from the 2-foot sampling interval (assuming full recovery) of the split-spoon. Additionally, the Geoprobe® methodology will utilize the standard 2-foot sampling interval. Sample containers for volatile organic analysis will be filled first. Samples for volatile analysis will be collected or biased toward the collection of that portion of the sample that exhibits the highest PID reading or as otherwise detailed in the Site-Specific Work Plan. Next, a sufficient amount of the remaining soil will be homogenized by mixing the sample in a decontaminated stainless steel bowl with a decontaminated stainless steel trowel or disposable scoop.

All samples collected for analysis will be placed immediately into sampling containers provided by the laboratory and properly stored on ice to 4°C before transport to the laboratory. Sample management is detailed in the Generic QAPP (Volume II). In addition, a geologist will be on-site during the drilling operations to fully describe each sample including:

- Soil type and sorting;
- Color;
- Feet of recovery;
- Moisture content;
- Texture;
- Grain size and shape;
- Relative density;
- Consistency;
- Visible evidence of residues; and
- Miscellaneous observations.

Duplicate samples will be collected at the frequency detailed in the Generic QAPP by alternately filling two sets of sample containers.

11.2 Geotechnical Testing

When identified in the Site-Specific Work Plan, laboratory geotechnical testing will be performed on selected soil samples in accordance with appropriate ASTM standards. Geotechnical analysis will be performed on soil samples collected in Shelby tubes or in glass sampling containers including, but not limited to, the following tests: grain size and sieve analysis, total organic carbon, permeability, specific gravity, Atterberg Limits, porosity, moisture content, and bulk density.

12.0 SEDIMENT SAMPLING

Proposed sediment sampling locations are identified in the Site-Specific Work Plan. Sample management is detailed in the Generic QAPP (Volume II). Sample locations in surface waterways will be marked along the bank prior to sampling. For all sample locations, the distance from the waterline to the sample location will be measured and recorded in the field logbook. Sediment samples will be collected from the furthest downstream point, progressing toward the furthest upstream sampling location. Following the completion of sampling the sediment locations will be marked along the shoreline for subsequent location by a survey crew.

12.1 Shallow Sediment Samples

Shallow sediment samples collected in shallow water will be collected with a Wildco core sampler, clam shell, lexane tubes, hand auger, vibracore or split-spoon sampler. Where possible, rocks and vegetative material will be discarded, and care will be taken to retain fine materials, which tend to disperse when disturbed. Sampling personnel will stand downstream of the sampling point to minimize disturbance of the bottom sediments during collection. Equipment will be decontaminated between samples following procedures outlined in Section 3.2. Field data will be recorded on the field sampling records. Surface sediment samples will be collected from a depth interval of 0 to 6 inches (0 to 15 cm) using these same procedures as outlined above. Sediments, which are located near shore and are not submerged, will be collected with a decontaminated trowel or disposable sampling tool.

12.2 Deep Water Sediment Samples

Sediment sampling in deeper water and samples requiring retrieval from deeper depths will be obtained using a barge-mounted drilling system or similar watercraft. Either a tripod and cat-head assembly or a Vibracore system will be used on the barge to advance the sampling apparatus into the bottom sediments. The tripod and cat-head assembly will be equipped either with a five-foot long "California" split-spoon sampler or a standard 2-foot long split-spoon sampler for sample collection. Split spoon samplers can be fitted with a sediment sampling head or shoe to ensure adequate recovery of the sample. To keep the hole open for subsequent samples and to minimize cross-contamination, 3-inch spin casing will be advanced, with plug, into the sediment. The spin casing will be advanced in 2-foot increments prior to sampling. The sediment sampler will then be pushed ahead or below the base of the 3-inch spin casing. The spin casing will be pumped free of sediment after each sample is collected. When the casing is free of sediment, it will be advanced 2 additional feet in preparation for the next sample collection.

The Vibracore uses a vibrating motion to advance a barrel and flexible plastic liner to achieve sample collection. A "core catcher" retains the sediment sample upon retrieval. Samples will be obtained by cutting the plastic liner longitudinally using a knife, then the sediment samples will be placed in sampling jars, based on sampling interval compensating for compression.

Sediment samples will be visually classified for texture and screened for the evolution of organic vapors with a PID. Samples will be collected or biased toward the collection of that portion of the sample that exhibits the highest PID reading or as otherwise detailed in the Site-Specific Work Plan.

The sediment samples will be collected from the 2-foot sampling interval (assuming full recovery) of the split-spoon. Visible staining or contamination will be noted in the field logbook.

12.3 Sediment Probing

When identified in the Site Specific Work Plan, sediment probing will be utilized to evaluate the presence of NAPL in the stream bedding. The near-shore sediment probing will be performed on a Site by Site basis. In keeping with NYSDEC standard protocols requiring the observance of sheens on the adjacent water bodies during site investigations, with out disturbance by probing, will not be changed as a result of the implementation of a sediment probing investigation.

Implementation of a sediment probing investigation will involve the use of multiple sections of 3/8-inch to 1/2-inch threaded rod and associated threaded female couplings. The threaded rod will be pushed into the sediment at multiple locations in an attempt to disturb the near surface sediments as well as deeper sediments. Upon detection of any sheen a stake will be located along the shoreline to provide a marker for the subsequent location by a survey crew, if require by the Site specific Work Plan. Sediment probing can also be used to provide information on the depth of competent material below the soft surface sediments.

Personnel will stand downstream of the sampling point to minimize disturbance of the bottom sediments prior to utilizing the probe. Equipment will be decontaminated prior to use in the stream and post use, following procedures outlined in Section 3.2. Field data regarding the location, depth, odor, and description of the sheen will be recorded on the field logbook.

Sediment probing in deeper water and samples requiring retrieval from deeper depths will be obtained by utilizing a rowboat or similar watercraft.

13.0 AIR MONITORING

13.1 Ambient Air Monitoring

Air monitoring will be conducted with a photoionization detector (PID) and combustible gas indicator (CGI) during all drilling and intrusive activities. The PID will be used to monitor for organic vapors in the breathing zone, borehole, and along the Site's perimeter and to screen samples for analysis. The CGI measures the concentration of combustible gas or vapor in air, indicating the results as a percentage of the lower explosive limit (LEL) of the calibration gas. Action levels are identified in the Generic EHS Plan (Volume II).

PID and CGI readings will be recorded in the field logbook and on the soil-boring log during drilling activities. The PID and CGI are calibrated at least once each day and more frequently if needed with the manufacturer specified calibration gas. The detailed procedures for the PID and CGI operation and calibration are included in the Generic EHS Plan (Volume II).

13.2 Perimeter Air Sampling

Perimeter air sampling may be required during field activities at the Site. Air sampling may be required during test pit excavation and/or during soil excavation/removal associated with an IRM. The basis for such sampling will be outlined in the Site-Specific Work Plan.

Prior to the collection of air samples, air-sampling stations, commonly one (1) upgradient and two (2) downgradient will be set up at the Site perimeter. The location of these stations is based on daily wind direction during the field activities. A sample station would be setup so that the sample media (Summa canister, high volume sampler, whole air sampler or absorbent tube, etc.) would draw in air from approximately 2 to 4 feet above the ground surface. The sampling media would remain in place a maximum 24-hour period before it is shipped overnight to a laboratory for testing. Air samples are commonly analyzed for BTEX via Method TO-15 (summa canister using a whole air sampler) or TO-17 (using an absorbent tube) and PAHs via Method TO-13 (using a high volume sampler).

13.3 Building Interior Air Sampling for Volatile Organic Compounds (VOC)

When identified in the Site Specific Work Plan, building air sampling will be performed in the on-site buildings during follow up investigations. Interior air sample collection will be performed in the basement and on the first floor of buildings potentially impacted by on-site contaminants. Various collection techniques will be used based on the type of contamination anticipated and the requirements set forth in the USEPA ERT SOP # 1704, #2121, and #2119. Interior air sampling will conform to NYSDOH indoor air sampling regulations and the off-site Laboratory will have the New York State Environmental Laboratory Approval Program (ELAP) certification.

The following procedure will be used for air sampling of VOCs, based on USEPA ERT SOP #1704:

I. Subatmospheric Pressure Sampling Using a Fixed Orifice, Capillary, or Adjustable Micrometering Valve

- Complete the appropriate information on the Canister Sampling Data Field Sheet.
- A canister, which is evacuated to 0.05 mm Hg and fitted with a flow restricting device, is opened to the atmosphere which contains the VOCs for sampling. The pressure differential causes the sample to flow into the canister.
- This technique can be used to collect grab samples having a duration of 10 to 30 seconds or time-integrated samples having a duration of 12 to 24 hours. The sampling duration is depends on the degree to which the flow is restricted.
- As the pressure approaches atmospheric pressure, a critical orifice flow regulator will cause a decrease in the flow rate.
- Record data on an appropriate data sheet and/or in the field logbook.

The following procedure will be used for air sampling of VOCs, and is based on USEPA ERT SOP #1704:

II. Subatmospheric Pressure Sampling or Pressurized Sampling Using a Mass Flow Controller/Vacuum Pump Arrangement (Andersen Sampler Model 87-100)

- Complete the appropriate information on the Canister Sampling Data Field Sheet.
- Open a canister, which is evacuated to 0.05 mm Hg and connected in line with the sampler, to the atmosphere, which contains the VOCs for sampling.
- A whole air sample will be drawn into the system through a stainless steel inlet tube by a direct drive blower motor assembly. A small portion of this whole air sample is drawn from the inlet tube by a specially modified inert vacuum pump in conjunction with a mass flow controller.
- The initially evacuated canister is filled by the action of the flow controlled pump to near atmospheric pressure (subatmospheric pressure sampling) or a positive pressure not to exceed 25 psig (pressurized sampling).
- A digital time program is used to pre-select sample duration and start and stop times.
- Record data on an appropriate data sheet and/or in the field logbook.

The following procedure will be used for air sampling of SVOCs and/or pesticides/PCBs, and is based on USEPA ERT SOP #2121:

- Using a calibrated sampler, place the sampler in the desired location. The polyurethane foam (PUF) sampler should be in the breathing zone in order to prevent elevated results. It should be located in an unobstructed area, at a distance of twice the height of any obstruction to air flow but no closer than two meters to the obstacle.

- Assemble the sampling system by attaching the legs and magnehelic panel to the platform. Connect the motor to the platform, making sure that the gasket is placed between the motor and the platform. Plug the motor into the timer located on the magnehelic panel. Connect the magnehelic to the venturi with tubing. Adjust the exhaust hose to face downwind of the sampler.
- Put on clean surgical gloves.
- Place the loaded sampling module into the quick release fitting and engage by locking the two levers down securely. Remove the metal cover.
- Record the pump number, location, sample start time, time/counter at the start, and other pertinent information on an appropriate data sheet and/or in the field logbook.
- Plug in the unit. If necessary, adjust the magnehelic gauge by turning the ball valve in order to achieve the reading required to reach the target flow rate. Wait approximately two minutes for the magnehelic reading to stabilize.
- Allow the sampling system to operate for the predetermined duration. If the sampling system is in use for more than 24 hours, the initial calibration should be audited every 24 hours. If the resultant value for the check is +/- 7 percent of the initial calibration, the sampling system must be recalibrated.

The following procedure will be used for air sampling of metals, and is based on USEPA ERT SOP #2119:

- Record the actual flow rate. Insert Assemble the sampling trains with clean filter cassettes. Verify the pump calibration by removing the inlet plug from the cassette, attaching a rotameter with Tygon tubing and turning on the sampling pump. Check to make sure all the connections are tight.
- Record the actual flow rate on an appropriate data sheet and/or in the field logbook. Replace the inlet plug until ready to sample.
- Set the sampling pump timer (low volume pumps) for the predetermined sampling time, or record the elapsed timer on the data sheet/logbook. This will be determined based on the type of pump being used.
- Deploy sampling pumps at sampling locations. Remove the cassette cap or inlet plug from the cassette. Sampling for elements can be conducted with the cassettes open-faced (cassette cap removed) or closed-faced (only inlet port plug removed). Open-faced is preferred because it allows even loading of the filter cassette and should be used whenever high particulate concentrations are expected in order to allow greater particulate loading of the filter. Closed-faced sampling is performed when there is a possibility that the sample may be shaken and particulates may be lost.
- Turn on the sampling pump and let it run for the predetermined sampling period.
- After the sampling period is over, verify the sampling period by reading the sample run time (low volume pumps) or by checking the elapsed time on the counter

- (medium volume pumps). Record the length of sampling time on the data sheet and/or in the field logbook. Turn off the pump.
- Verify the pump calibration by attaching a rotameter with Tygon tubing and turning on the sampling the inlet plug.
 - Remove the sampling cassette from the sampling train and insert the outlet plug. Calculate sample volume.

14.0 GEOPHYSICAL AND SOIL GAS SURVEYS

When specified in the Site Specific Work Plan, geophysical and soil gas surveys will be carried out at the site with the primary objective being to delineate areas of possible subsurface impacts from former MGP operations. Delineation of impacted areas will allow for a more focused and efficient sampling program during subsequent phases. Sampling locations may be located downgradient of potential historical MGP operations areas to determine if these areas act as contaminant sources. Also, boring locations can be adjusted to avoid large subsurface metallic bodies, thereby minimizing the potential for release of hazardous material from buried containers, and avoiding the expense associated with multiple boring attempts due to subsurface refusal. Furthermore, additional valuable subsurface information may be derived from this study, including:

- Delineation of underground structures(i.e. holder, and tar well);
- Mapping of existing site utilities and former MGP utilities; and,
- Detection of underground storage tanks (USTs) and/or other potential contaminant source areas.

If potential historical MGP operations areas prove to act as contaminant sources, the results of the geophysical investigation may also provide important information necessary for an Interim Removal action.

14.1 Geophysical Survey GPR and TDEMI

Two geophysical methods can be used for the geophysical survey: Time-domain Electromagnetic Induction (TDEMI) and ground penetrating radar (GPR). TDEMI can detect ferrous and non-ferrous metallic objects, such as a single 55-gallon drum, at a depth of up to 3 m (10 ft) bgs; GPR can detect both metallic and non-metallic subsurface targets at depths varying from several centimeters up to 20 m (65 ft bgs) or more, dependent upon frequency of induced waves, soil conductivity, and presence of extremely reflective interfaces. GPR can also be utilized to locate void spaces, detect disturbed soil or differential fill, and map Site Stratigraphy.

The TDEMI system utilized at the site will be the Geonics EM61 High Sensitivity Metal Detector or similar equipment. The EM61 is a one-person portable system designed primarily for industrial site assessment. The EM61 is relatively insensitive to nearby surface cultural interferences such as buildings, powerlines, and fences, and has the ability to record digital data at 0.17 second intervals, which translates to a spatial sample density of approximately 0.17 m (0.55 ft) along the ground surface.

The GPR system utilized at the site will be the Geophysical Survey Systems, Inc. (GSSI) SIR-2, or equivalent and will be equipped with both 200 and 500 MHZ antennas. The GSSI SIR-2 is a monostatic GPR system, in which a single antenna is used as the transmitter and receiver. The antennas are shielded to ensure a high proportion of the energy produced is focused into the

subsurface, decreasing noise from surrounding fences, buildings, and other features. The GPR reflection section is displayed in real time as data is acquired, and an analog record is output by an in-the-field printer. Data is also digitally logged to a high-capacity drive at a rate of 32 scans/second, which translates to a spatial sample density of approximately 0.03 m (0.1 ft) along the ground surface.

Geophysical Survey Ground Penetrating Radar (GPR) and Time-Domain Electromagnetic Induction (TDEMI)

The geophysical investigation will encompass all areas suspected of former MGP operations. The survey area will be run over both paved and vegetative cover and will be divided into four (4) subplots ranging in size from 0.2 to 0.5 acres. The EM61 data will be acquired using a Leica system 530 Global Positioning System (GPS), or equivalent equipment, for navigational control. GPS data will be captured in one second intervals, utilizing the real-time kinematic (RTK) mode, which provides centimeter-grade positional accuracy. GPR data will be acquired along a pre-established orthogonal grid system, with line and station spacing appropriate for detection of targets of interest.

Concurrent with geophysical data acquisition, cultural features maps will be developed which will detail the location of potential interferences such as buildings, fences, utilities, etc. These maps will be utilized in the interpretation stage to more accurately assess the significance of geophysical anomalies observed in the data.

TDEMI data will be processed and interpreted using manufacturer-supplied software. TDEMI data will be interpolated to accurate State Name Planar coordinates with appropriate shifts and filters applied, and data extrapolated to a regularly spaced grid system using accepted mathematical methods. These data will then be displayed as high-resolution color maps. Proprietary software will then be utilized to isolate and characterize subsurface anomalies potentially related to steel structures or buried drums.

GPR data will be processed and interpreted using WINRAD and/or GRADIX software packages or equivalent. Processing may include “rubber sheeting” of data to appropriate coordinates, application of appropriate gains and filters, display of color-coded GPR sections, and advanced processing techniques, such as migration and deconvolution. Diffraction hyperbolas or other discrete anomalies will be identified and characterized and compared with locations of EM61 anomalies. GPR anomalies, which occur in areas free of EM61 anomalies can be attributed to non-metallic targets, and may be associated with plastic barrels.

A final report including description of data collected, maps of the geophysical data, and interpretation of these data will be included in the Final Report.

Geophysical Survey [Ground Penetrating Radar (GPR) and Time-Domain Electromagnetic Induction (TDEMI) Procedure]

The geophysical survey will be conducted using the following procedure:

1. Clear the surface of the area to be surveyed (performed by clearing and grubbing subcontractor). This may include cutting underbrush to a height less than 0.3m (1 foot), removing trees less than 7.5 cm (3 inches) in diameter, removing brush, and mowing grasses greater than 0.6m (2 feet) in height. A sweep for metal objects on the ground surface will be conducted, and surficial metal identified will be noted and removed from the area of investigation.
2. Establish survey control within the investigation area. Survey markers will be installed both within and around the boundary of the survey area, and these points will be utilized to establish and calibrate the GPS base station.
3. Acquire data from each instrument from a test line prior to commencement of each day's activities. This test line will be performed over a known subsurface object or over a pre-placed object (such as a steel pipe).
4. Obtain GPS reading at a known survey point.
5. Begin survey at the southwest corner of the investigation area (or a subdivision of the investigation area) and progress northward (or eastward) until the area boundary or a major obstruction is encountered. TDEMI data will be acquired at a sampling rate of approximately 6 samples per second, which translates to a sample density of 1 sample every 0.17 meters (0.55 feet) based on an average walking pace. GPS data will be acquired concurrently with TDEMI data, at a rate of [1 sample] per second. GPR readings will be acquired at a sampling rate of approximately 32 scans per second, which translates to a sample density of 1 sample every 0.03 meters (0.1 feet) based on an average walking pace.
6. After reaching the grid boundary or obstruction, reverse direction, and acquire survey data in the opposite direction along a parallel line at the following line spacing: 1 meter (3 ft) for TDEMI readings and 2-meters (6 ft) for GPR readings.
7. Continue acquiring data in opposing directions, until the entire investigation area has been covered.
8. Acquire several lines of TDEMI data over a known linear metallic object placed upon the ground surface. This procedure will allow for accurate time shifting of geophysical data necessary for merging the geophysical and GPS data.

9. Acquire data from the test line subsequent to each day's activities, for quality assurance comparison.
10. Obtain GPS reading at known survey point for QA comparison.

14.2 Geophysical Survey Magnetometer and FDEMI

A geophysical investigation to delineate areas of possible subsurface impacts can be performed by utilizing two geophysical methods: magnetometry and frequency-domain electromagnetic induction (FDEMI).

Geophysical data will be collected using two instruments: a Geometrics G-858G magnetometer (configured as a vertical gradiometer and including a continuous-recording base station) and a Geonics EM31-MK2 ground conductivity meter or equivalent equipment. Positional data will be verified by utilizing a Leica System 530 GPS system, or equivalent, for navigational control. GPS data will be captured at one second intervals, utilizing the real-time kinematic (RTK) mode, which provides centimeter-grad positional accuracy.

Geophysical Survey Magnetometry and Frequency-Domain Electromagnetic Induction (FDEMI) Procedure

The geophysical survey will be conducted using the following data collection procedure:

1. Clear the surface of the area to be surveyed (performed by clearing and grubbing subcontractor). This may include cutting underbrush to a height less than 1 foot, removing trees less than 3 inches in diameter, removing brush, and mowing grasses greater than 2 feet in height. A sweep for metal objects on the ground surface will be conducted, and surficial metal identified will be noted and removed from the area of investigation.
2. Establish survey control within the investigation area. Survey markers will be installed both within and around the boundary of the survey area, and these points will be utilized to establish positional control, as well as calibrate the GPS base station.
3. Acquire data from a test line prior to commencement of each day's activities. This test line will be performed over a known subsurface object or over a pre-placed object (such as a steel pipe).
4. Set up magnetometer base station.

5. Begin survey at the southwest corner of the investigation area (or a subdivision of the investigation area) and progress northward (or eastward) until the area boundary or a major obstruction is encountered. Magnetometry data will be acquired at a sampling rate of approximately 10 samples per second, which translates to a sample density of 1 sample every 0.1 meters (0.33 feet) based on an average walking pace. FDEMI conductivity readings will be acquired at a sampling rate of approximately 2.5 samples per second, which translates to a sample density of 1 sample every 0.4 meters (1.3 feet) based on an average walking pace. GPS data will be acquired concurrently with geophysical data, at a rate of 1 sample per second.
6. After reaching the boundary or obstruction, reverse direction, and acquire survey data in the opposite direction along a parallel line at the following line spacing: 1 meter for magnetometer readings and 2 meters for conductivity readings.
7. Continue acquiring data in opposing directions, until the entire investigation area has been covered.
8. Acquire several lines of geophysical data for a known linear metallic object placed upon the ground surface. This procedure will allow for accurate time shifting of geophysical data necessary for merging the geophysical and GPS data.
9. Repeatedly (at least 3 times per day) revisit a calibration station and collect data with the EM31, in order to provide for an instrument drift correction.
10. Acquire data from the test line subsequent to each day's activities, for quality assurance comparison.

The geophysical data will be processed and interpreted using manufacturer-supplied software. Data will be interpolated to NYS State Plane coordinates, filtered as appropriate, extrapolated to a grid system, and displayed on maps of the Site.

14.3 Downhole Geophysics

Downhole gamma-ray geophysical logging, if required in the Site Specific Work Plan, will be conducted by utilizing existing wells or soil borings as they are completed. Gamma-ray logging may be conducted in cased as well as uncased boreholes, and, because clays typically contain a higher percentage of gamma emitting minerals, can be useful for identification and correlation of clayey zones. The gamma-ray log can provide information on stratigraphic changes in the subsurface soils.

1. Be certain that the well has ample clearance for the gamma probe to pass without obstruction or binding. A dummy cylinder with the same diameter as the gamma log tool may be lowered downhole as a test for obstructions. Downhole may be performed if significant uncertainty exists. Wear appropriate health and safety equipment.
2. Set the tripod over the wellhead and park the mobile unit at a convenient location.
3. Slowly and carefully lower the probe to the bottom of the well with the logger recording the counts per second (cps) of gamma radiation. The descent is a “dry” run until the well bottom is attained.
4. Set the plotter so the gamma-ray logging is recorded on a graph. Set the upward speed at a constant rate. Bring the probe to the surface.
5. If the graph is successfully plotted, perform appropriate decontamination on the probe and the line and proceed to the next logging location.

14.4 Soil Gas Survey

A soil gas survey, if required by the Site Specific Work Plan, will be performed around the Site to delineate areas of possible subsurface impacts and potential source areas. A sampling grid of approximately 100 feet by 100 feet or depending on the size of the investigation area, will be utilized across a majority of the Site, with soil gas samples collected at the grid nodes. Additional soil gas samples will be collected at 25 foot by 25 foot grid nodes in the vicinity of the potential test pit locations, at 50 foot by 50 foot grid nodes around the east-northeast Site buildings, and at any other additional areas determined during the field investigation (e.g., elevated levels present during real-time sampling, etc.). Actual sampling locations will be adjusted in the field to ensure sample targeting of all suspected areas of subsurface impacts. A field gas chromatograph (GC) will be used to determine sample screening concentrations of volatile organic compounds (VOCs). Water table, barometric, and temperature changes can vary the results.

The FOL or his designee, will be present on-site during active soil gas collection activities. The following soil gas survey activities will occur:

- Location of the soil gas survey locations;
- Comparison of the field GC data with applicable quality assurance data to determine acceptability of results;
- Determination of the need for additional or a reduction in the number of soil gas survey points;
- Supervision of the topographic surveying to locate the sampling points;
- Review of the data analysis and evaluation from the soil gas survey report; and

- Recommendation for movement of the proposed field investigation sampling locations based on the soil gas survey results.

Soil Gas Survey Procedure

1. Record ambient air temperature and barometric pressure.
2. Drill a hole into the soil either by hand auger, rotary hammer, or driven rod (as conditions dictate), to roughly 4 to 5 feet in depth. The depth may be reduced based upon conditions at the Site at the time of sampling; all changes will be noted on Field Change Requests (see Section 13.0 of the QAPP).
3. Insert a probe, slightly smaller in diameter than the borehole, into the hole, and the hole will be sealed by packing soil around the expansion bulb at the probe top. The probe assembly will be selected by the soil gas crew and FOL, to provide the best probe assembly for the Site conditions. A typical assembly would consist of a 1/4-inch O.D. stainless steel probe, approximately 5-feet in length, and Teflon tubing, with a reducing tee and cap attached to the fitting.
4. Ensure/test vacuum with a gauge attached to the probe.
5. Extract soil gas through the probe via a vacuum pump connected to the tubing. Purge approximately 3 to 5 sample volumes prior to sampling to remove any introduced ambient contamination.
6. Remove the soil gas sample with a 500 uL gas-tight syringe or equivalent device, inserted into the tubing in front of the pump. This volume is adequate for achieving the required detection limit of 25 ug/L. If necessary, due to field conditions, the sample can be stored in a pressurized container.
7. Immediately inject the sample into the calibrated GC (see Step 8), and plot the chromatogram. Identify and quantify, based on standard peaks, any contaminants present in the soil gas sample.
8. Calibrate the GC prior to sample analysis. Initial instrument calibration should consist of a minimum of 3 concentration points (5 points are preferred), to demonstrate the working range and linearity. Linearity will be assumed if the ratio of the area response to the amount injected is constant over the working range (i.e., less than 20 percent Relative Standard Deviation). In addition, an initial verification of a less than 25 ug/L detection limit shall be run.

9. Check the sample probe for contamination between each sample location, by drawing ambient air through the probe via the pump, and checking that the response is not greater than background levels. If necessary, decontaminate the probes using methanol and deionized water, and then air drying.

Calibration standards will be run at the beginning and end of each sampling day, and a method blank shall be analyzed every 12 hours and after any highly contaminated samples to check for carry-over. In addition, an environmental field duplicate will be chosen and analyzed every 20 samples.

15.0 FIELD INSTRUMENTS

All field analytical equipment will be calibrated immediately prior to each day's use and more frequently if required. A calibration log will be created on which all equipment calibration will be recorded. Further details on calibration, precision, accuracy, etc. are provided in the Generic QAPP (Volume II). The calibration procedures will conform to manufacturer's standard instructions. This calibration will ensure that the equipment is functioning within the allowable tolerances established by the manufacturer and required by the project. If an equipment malfunction is identified during calibration then the malfunctioning equipment will be within 24-hours or applicable fieldwork will be terminated as necessary until the malfunctioning equipment is repaired or replaced. Records of all instrument calibration will be maintained by the Field Operations Leader (FOL) and will be subject to audit by the Project Quality Assurance Manager (PQAM). Copies of all of the instrument manuals will be maintained on-site by the FOL.

15.1 Portable Photoionization Detector

The photoionization detector (PID) will be equipped with a minimum 10.6 eV lamp. The PID should be capable of ionizing and detecting compounds with an ionization potential of less than 10.6 eV. This accounts for up to 73% of the volatile organic compounds on the NYSDEC ASP Target Compound List. Calibration will be performed at the beginning and end of each day of use with a standard calibration gas specified by the manufacturer. If the unit experiences abnormal perturbation or erratic readings, additional calibration will be required. All calibration data will be recorded in field logbooks and on calibration log sheets to be maintained on-site by the FOL.

A battery check will be completed at the beginning and end of each working day. If erratic readings are experienced, the battery will be checked for proper voltage. This information will also be recorded in field logbooks and on the calibration log sheets.

15.2 pH Meter

Calibration of the pH meter will be performed at the start of each day of use, and after very high or very low readings. National Institute of Standards and Technology - traceable standard buffer solutions, which bracket the expected pH range, will be used. The standards will most likely be pH of 7.0 and 10.0 standard units. The use of the pH calibration and slope knobs will be used to set the meter to display the value of the standard being checked. The pH meter readings during calibration must be within 0.1 of the reference solution. The calibration data will be recorded on calibration sheets maintained on-site by the FOL.

15.3 Specific Conductivity Meter

Calibration checks using the conductivity standard will be performed at the start of each day of use, after five to ten readings or after very high or low readings. The portable conductivity meter will be calibrated on a daily basis using a reference solution specified by the manufacturer. Readings must be within 5 percent to be acceptable. The thermometer of the meter will be calibrated against the

field laboratory thermometer on a weekly basis.

15.4 Turbidity Meter

Calibration using a turbidity standard will be performed at the start of each day of use and after very high or low readings. The portable turbidity meter will be calibrated using a reference solution specified by the manufacturer. The turbidity reading must be within ± 2 NTU of the standard to be acceptable.

15.5 DO Meter

Calibration using a DO standard will be performed at the start of each day of use. The portable DO meter will be calibrated using a calibration solution specified by the manufacturer. The DO reading must be within 5% of the standard to be acceptable.

15.6 Combustible Gas Indicator

Calibration of the CGI will conform to the procedures prescribed in the Generic Environmental Health and Safety Plan (Volume II). Calibration will occur at the start of each day of use. The CGI

16.0 MANAGEMENT OF INVESTIGATION DERIVED WASTE

During the implementation of field activities, investigation derived wastes (IDW) will be generated at the Site. These IDWs will include the following: soil drilling mud/water, development and purge water, decontamination wash water, PPE, polysheeting, spent decontamination fluids, etc. Following the generation of these IDWs, they will be properly containerized in 55-gallon drums, frac tanks, agricultural poly tanks, and/or roll-off containers. PPE will be bagged and placed in 55-gallon drums. The containers will be properly labeled with the date of generation, the Site name, client name and address, contents of the containers, etc. Upon generation the IDW will be immediately containerized. The containers will be secured at the end of each day at the Site. The containers will be segregated on-site in a temporary fenced area and signs stating “Do Not Enter” will be posted on the fencing. Upon completion of the field activities, the containers will be sampled for disposal characteristics. IDW materials will be removed from the Site within 90 days of generation. Waste handling procedures and regulations will be strictly adhered to during all phases of waste handling.

17.0 REFERENCES:

Atlas of Community Water System Sources

Bouwer and Rice, 1976: A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells, *Water Resources Research*, v. 12, pp. 423-428.

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Haling and Weaver, 1991: Dense Nonaqueous Phase Liquids, *EPA Groundwater Issue*. March, 1991.

Leupold & Stevens, Inc. 1978: *Stevens Water Resources Data Book*, 3rd Edition.

USEPA, 1998: Low-Flow (Minimal Drawdown) Ground Water Sampling Procedures. 540/5-95/504.

TABLES

Table 1
METHOD FOR IDENTIFYING AND LABELING SAMPLES

LLLL *	LL *	NN *	NN/NNNN *
Site	Sample Type	Sample Location	Depth/Time

Site :

Sample Type: Monitoring Well (MW), Surface Soil (SS),
Subsurface Soil (SB), Sediment (SD),
Surface Water (SW), Waste Water (WW), Solid Waste (WA)

Sample Number: Number referenced to a sample location map illustrated in the Site-Specific Work Plan.

- * L = Letter
- * N = Number

FIGURES

Figure 1

						LOG OF BORING			
						(Page 1 of 1)			
PROJECT: PROJECT NO.: LOCATION:				DATE STARTED: DATE COMPLETED: GEOLOGIST: DRILLER: DRILLING METHOD:		GW DEPTH: ELEVATION:			
Depth in feet	RECOVERY	USCS	GRAPHIC	DESCRIPTION	TIME	DATE	PID (ppm)	Sample I.D.	COMMENTS
0									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
Notes:									

Figure 2

UNCONSOLIDATED MONITORING WELL CONSTRUCTION DIAGRAM		WELL NO. _____
PROJECT _____ PROJECT NO. _____ DATE _____ BORING NO.: _____ ELEVATION _____ LOGGED BY: _____	DRILLER _____ DRILLING _____ METHOD _____ DEVELOPMENT _____ METHOD _____	

GROUND
SURFACE

ELEVATION OF TOP OF SURFACE CASING: _____

TYPE OF SURFACE SEAL: _____

GROUND SURFACE ELEVATION: _____

ELEVATION OF TOP OF RISER: _____

I.D. OF SURFACE CASING: _____

TYPE OF SURFACE CASING: _____

RISER PIPE I.D. _____

TYPE OF RISER PIPE: _____

BOREHOLE DIAMETER: _____

TYPE OF BACKFILL: _____

ELEVATION/DEPTH TOP OF SEAL: _____

TYPE OF SEAL: _____

ELEVATION/DEPTH TOP OF SAND PACK: _____

ELEVATION/DEPTH TOP OF SCREEN: _____

TYPE OF SCREEN: _____

SLOT SIZE X LENGTH: _____

TYPE OF SAND PACK: _____

ELEVATION/DEPTH BOTTOM OF SCREEN: _____

ELEVATION/DEPTH BOTTOM OF SAND PACK: _____

TYPE OF BACKFILL BELOW OBSERVATION WELL: _____

ELEVATION/DEPTH OF HOLE: _____

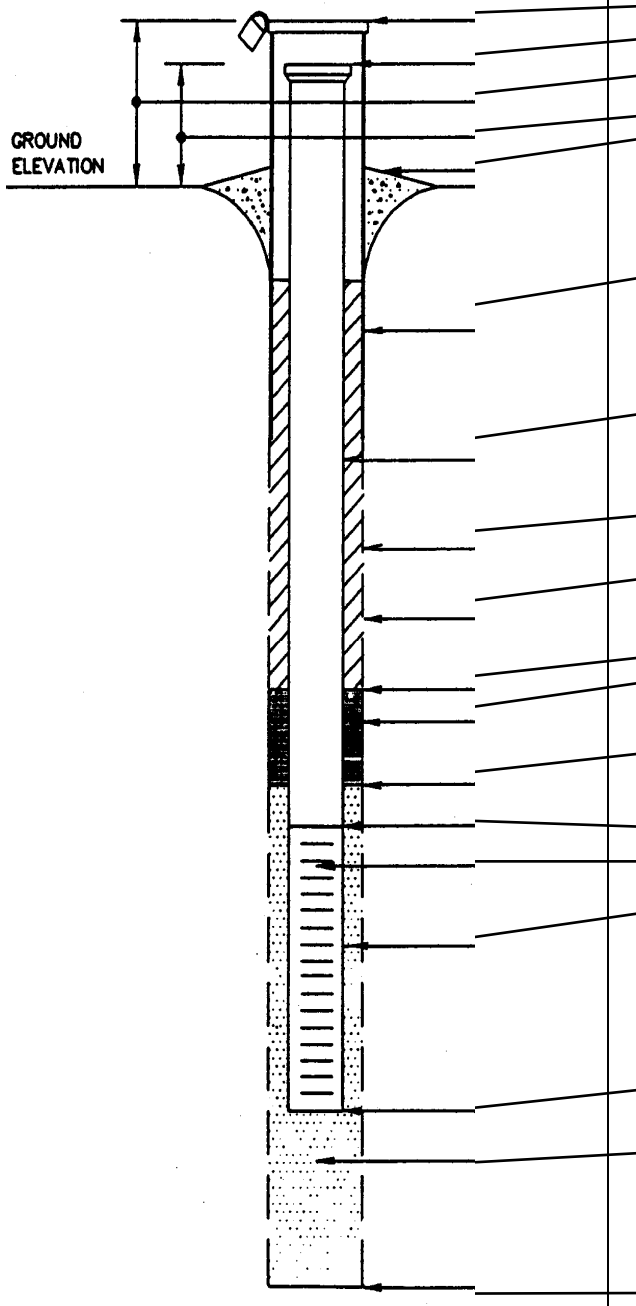
Figure 3

OVERBURDEN
MONITORING WELL
CONSTRUCTION DIAGRAM

WELL NO. _____

PROJECT _____
PROJECT NO. _____
DATE _____ BORING NO.: _____
ELEVATION _____
FIELD _____
GEOLOGIST _____

DRILLER _____
DRILLING _____
METHO _____
D _____
DEVELOPMENT _____
METHO _____
D _____



ELEVATION OF TOP OF SURFACE CASING: _____
ELEVATION OF TOP OF RISER PIPE: _____
STICK-UP TOP OF SURFACE CASING: _____
STICK-UP RISER PIPE: _____
TYPE OF SURFACE SEAL: _____
I.D. OF SURFACE CASING: _____
TYPE OF SURFACE CASING: _____
RISER PIPE I.D. _____
TYPE OF RISER PIPE: _____
BOREHOLE DIAMETER: _____
TYPE OF BACKFILL: _____
ELEVATION/DEPTH TOP OF SEAL: _____
TYPE OF SEAL: _____
DEPTH TOP OF SAND PACK: _____
ELEVATION/DEPTH TOP OF SCREEN: _____
TYPE OF SCREEN: _____
SLOT SIZE X LENGTH: _____
TYPE OF SAND PACK: _____
ELEVATION/DEPTH BOTTOM OF SCREEN: _____
ELEVATION/DEPTH BOTTOM OF SAND PACK: _____
TYPE OF BACKFILL BELOW OBSERVATION WELL: _____
ELEVATION/DEPTH OF HOLE: _____

NOT TO SCALE

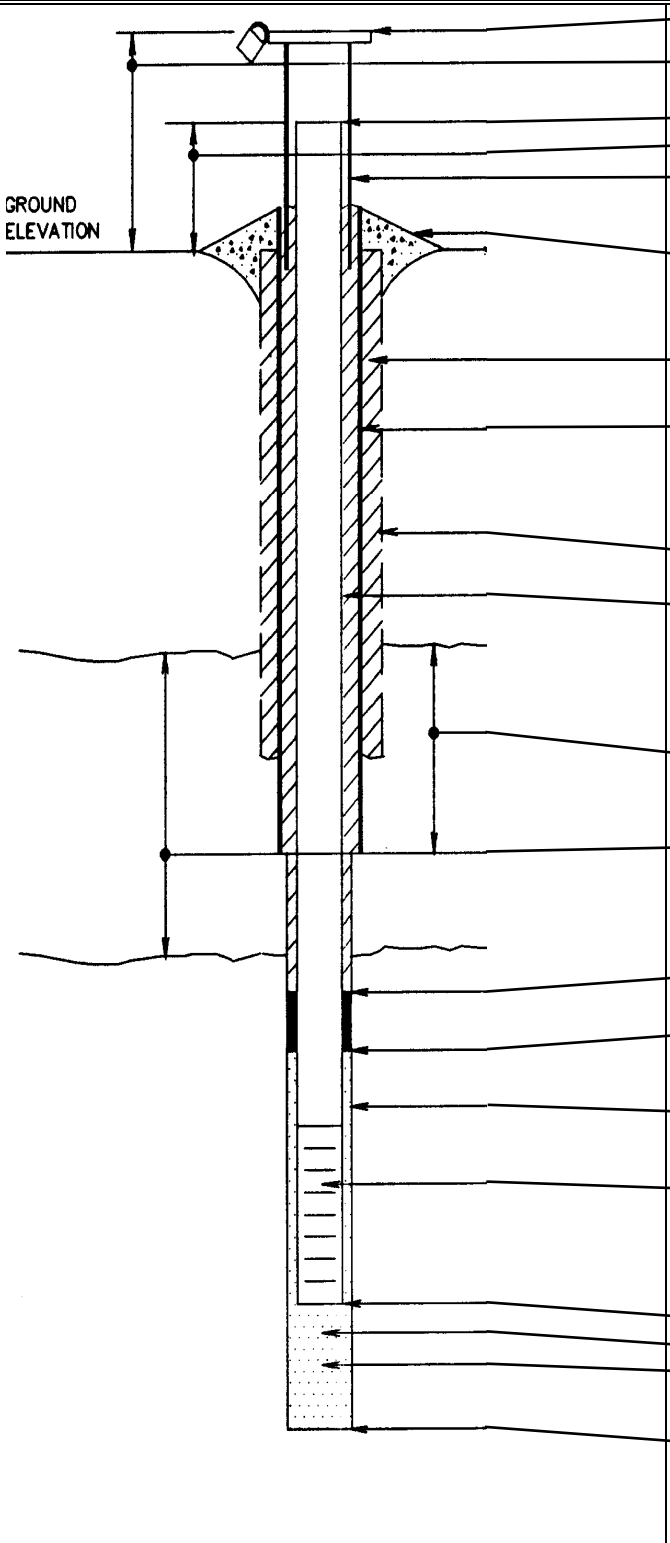
Figure 4

DOUBLE CASED
MONITORING WELL
CONSTRUCTION DIAGRAM

WELL NO. _____

PROJECT _____
 PROJECT NO. _____
 DATE _____ BORING NO.: _____
 ELEVATION _____
 FIELD _____
 GEOLOGIST _____

DRILLER _____
 DRILLING _____
 METHOD _____
 DEVELOPMENT _____
 METHOD _____



GROUND ELEVATION

ELEVATION OF TOP OF CASING: _____
 STICK-UP OF CASING ABOVE GROUND SURFACE _____
 ELEVATION OF TOP OF RISER PIPE: _____
 STICK-UP RISER PIPE: _____
 I.D. OF SURFACE CASING: _____
 TYPE OF SURFACE CASING: _____
 TYPE OF SURFACE SEAL: _____

 TYPE OF BACKFILL: _____
 I.D. OF UPPER AQUIFER CASING: _____
 TYPE OF UPPER AQUIFER CASING: _____
 BOREHOLE DIAMETER/DEPTH: _____
 I.D. OF RISER: _____
 TYPE OF RISER: _____
 DEPTH CASING IS SET IN CONFINING LAYER: _____
 APPROXIMATE THICKNESS OF CONFINING LAYER: _____
 ELEVATION/DEPTH TOP OF SEAL: _____
 TYPE OF SEAL: _____
 DEPTH TOP OF SAND PACK: _____
 TYPE OF SAND PACK: _____
 BOREHOLE DIAMETER: _____
 TYPE OF SCREEN: _____
 SLOT SIZE X LENGTH: _____
 I.D. OF SCREEN: _____
 ELEVATION/DEPTH BOTTOM OF SCREEN: _____
 ELEVATION/DEPTH BOTTOM OF SAND PACK: _____
 TYPE OF BACKFILL BELOW OBSERVATION WELL: _____
 ELEVATION/DEPTH OF HOLE: _____

NOT TO SCALE

WELL PURGE DATA SHEET

DATE: _____

Well I.D.: _____

Filter Pack Volume

Borehole Diameter (d_b) = _____ ft

Borehole Radius (r_b) = ftDepth to Top of Filter Pack (D_f) = ft

P = estimated porosity of filter pack

Height of Water in Filter Pack (T_F)

$$T_F = TD - WL^1(\text{or } TFP^2)$$

T_F = _____ - _____

$$\overline{T_F} = \overline{\text{ft}}$$

Gallons of Water per Filter Pack Volume

$$V_F = (0.163 \times r_b^2 - 0.163 \times r_w^2) \times T_F \times P$$

$V_C =$ _____ gallons

$$V_T = V_C + V_F$$

Total Volume Purged: Design = _____ gallons
 Actual = _____ gallons

D.O. (ml/L)

Purge Method:	Suction Pump	Submersible Pump	Bailer	Other

Notes/Observations:

Sampler(s) Present:

1. From Top of Inner Casing
2. Top of Filter Pack - used if entire filter pack saturated

SAMPLE LOG SHEET

Sampled By: _____

_____ Well	_____ Outfall	_____ Leachate
_____ Drum	_____ Boring	_____ River/Stream
_____ Bldg/Structures	_____ Tank	_____ Impoundment
_____ Test Pit/Trench	_____ Other (Specify)	

Source Description

Appearance/Color: _____

Volatile Organic Analysis (VOA): _____ HNU _____ OVA _____ Other _____

VOA Readings: Off Sample _____ Respiratory Zone _____

LEL/O₂/H₂S Readings: LEL _____ O₂ _____ H₂S _____

Radioactivity (mR/hr): _____

pH: _____ Conductivity: _____ Temperature: _____

Salinity: _____ Other: _____

Observations: _____

Preservation: _____
 Laboratory Name: _____
 Laboratory Location: _____ On-Site _____ Off-Site _____
 Forwarded to Laboratory: _____ Date: _____ Time: _____ Hrs
 Laboratory Sample No.: _____
 Chain of Custody No.: _____ Airbill No.: _____

V. ADDITIONAL REMARKS

ATTACHMENTS

ATTACHMENT A

ATTACHMENT B

PACKER TEST PROCEDURES

I. Introduction

Packer testing is a method used to estimate the hydraulic conductivity of discrete bedrock zones within an open-bedrock corehole or open-bedrock well/piezometer. A packer test involves tightly sealing off a selected interval in the bedrock hole, pumping clean water into the test interval under a specified head for a specified duration, and recording the volume of water pumped into the formation during the test duration. To allow interpretation of the flow characteristics (e.g., laminar or turbulent), the rock fracture response (e.g., dilation, washout, or void filling) and the representative conductivity value for the tested bedrock interval, five test increments are performed at three different head conditions. The hydraulic conductivity is calculated based on the observed test pumping rates, the total applied head values, the geometry of the tested interval, and the pattern of pumping rates achieved during each of the five test increments.

The following presents methods for both single and double packer testing.

II. Materials

The equipment used for packer testing consists of two assemblies:

- (1) A packer apparatus consisting of inflatable rubber packer(s) and a length of perforated pipe; and
- (2) A water system, including a water meter, pressure gauge and valves to adjust and maintain the water pressure and flow.

The following list of equipment to be used for packer testing is meant to serve only as a guide because actual site and borehole conditions may require modifications. The driller may provide much of the equipment. Typical equipment and materials used to perform packer testing include:

- Drill rig to install and remove the packer and water pipe;
- Packer (pneumatic or hydraulically actuated);
- Water pipe, ranging from 1 to 2 inches in diameter, depending on the permeability and surface area of the test section;
- Flow meter of the same diameter as the water pipe above;
- Pump, capacity to approximately 50 gpm;
- Storage tanks of appropriate volume for holding clean water for injection into test interval;
- Two pressure transducers, sized in accordance with the depth of the test interval and the excess injection pressure to be applied during the test;
- Compressed gas cylinders, regulators, and tubing for inflating pneumatic packers or alternative pressure source if hydraulically-actuated packers are used;
- Water swivel or elbow;
- Hose or piping of the same diameter as the water pipe;
- Electronic data logger for recording transducer output;
- Water level indicator or equivalent oil/water interface meter with 0.01 foot

- increments;
- Stopwatch;
- Constant-head injection data sheets (an example is provided in Figure 1);
- Personal Protective Equipment (PPE) as required by the Site-specific EHS Plan;
- Decontamination supplies (as needed); and
- Field logbook.

III. Packer Apparatus Configurations

Either single-packer or double-packer configurations may be used to perform the packer test. The single-packer test typically is performed after each core run during the drilling of corehole. The packer is seated at the top of the interval of rock core just removed, and the newly exposed section of bedrock is tested. To remove sediment from the corehole wall, the corehole may be bailed, surged or swabbed prior to packer testing. The test should not be initiated, however, until the water level in the drill casing returns to the static level.

Single-packer tests may provide more reliable results than double-packer tests because if water leaks past a single, upper packer, the leak may be discerned by the recognition of a rising water level in the corehole or drill casing above the packer or by the appearance of water in the casing at the ground surface. In contrast, if a double-packer configuration is used, leakage past the lower packer may enter a permeable corehole section below the lower packer without being recognized as leakage.

The double-packer configuration is used if discrete rock intervals are to be tested in a previously-drilled long open corehole. Two packers are placed in the corehole and inflated with the perforated portion of the pipe between the packers. The spacing between the packers, corresponding to the test interval length, typically is 5 to 0 feet. Specified bedrock intervals are tested starting from the bottom of the hole and working upwards at intervals selected by the supervising geologist/engineer.

IV. Water System

The water system typically is assembled with a bypass valve and line connected to the main water line before the water meter valve. The purposes of the bypass valve are (1) to dampen the surge of water produced by the action of the pump, thus providing a relatively constant flow rate and water pressure; and (2) to allow a pressure bypass so that relatively low pressures may be applied to the tested rock interval, if appropriate. A surge suppression tank may also be plumbed into the water system before the bypass line to help dampen pump surge affects.

A water meter valve and the water meter follow the bypass valve and line. Flow to the tested rock interval passes through the water meter valve and is recorded by the water meter. The bypass and water meter valves are used simultaneously to maintain the water in the line at the desired pressure. The maximum water pressure for a particular pumping rate is achieved with the meter valve fully opened and the bypass valve fully closed. The bypass valve should be used as much as possible, however, to utilize its surge damping effect.

The remainder of the water system apparatus consists of a check valve, a relief valve and line, a water pressure gauge, and finally a length of riser pipe connecting the perforated pipe and packer

assembly to the water supply apparatus. The pressure gauge indicates the water pressure in the apparatus at that location, rather than the pressure applied to the tested rock interval. The total head applied during a test consists of the gauge pressure plus the elevation head (the vertical distance between the pressure gauge and the static water level in the corehole), minus the frictional head loss between the pressure gauge and the perforated pipe where the water exits the apparatus and enters the tested rock interval. The magnitude of frictional head loss depends on the length of riser pipe used and the pumping rate, and is best determined empirically by calibrating the test assembly in the field. Alternately, frictional losses may be estimated based on hydraulics equation such as the Hazen-Williams equation (Meritt, 1983), which relates head loss to pipe geometry and flow rate.

V. Packer Test Apparatus Calibration

The frictional head loss in the riser pipe assembly should be determined in the field by a calibration process to obtain a reliable estimate of the total head applied to the test interval. The calibration is performed by pumping water through the apparatus at a constant pressure and flow rate for a specified duration, typically a few minutes. The gauge pressure, total flow volume, pumping duration, and riser pipe length are recorded, and the procedure is repeated at a different flow rate. The process is repeated at several flow rates that span the representative range of flow rates achievable by the pump.

The calibration is performed with the water system and packer apparatus laid out horizontally along the ground surface. The packer(s) remain deflated during the calibration procedure to avoid rupturing. The perforated section of pipe is supported slightly above the ground surface so that water may drain freely during pumping through the test assembly. The perforated pipe section and the pressure gauge are situated at approximately equal elevation during the calibration to eliminate the elevation head between the pressure gauge and the perforated pipe section. Because the elevation head is zero, the pressure gauge measurements obtained during calibration indicate only the frictional head loss in the pipe assembly.

The calibration process should be repeated and a separate set of gauge pressure versus pumping rate data generated for each total length of riser pipe used during actual packer testing. The calibration procedure may be performed after the appropriate riser-pipe lengths are identified by the performance of packer tests. The data of gauge pressure versus pumping rate are later plotted on a X-Y axis. A best-fit power-law regression curve is calculated for each data set to determine the mathematical relationship between pumping rate and frictional loss. During hydraulic conductivity calculation, frictional head loss for each observed flow rate is estimated from the plot of calibration data corresponding to the length of riser pipe used during the test.

VI. Test Gauge Pressure Calculation

Appropriate test pressures to be used during each of the five test increments are calculated as follows:

- (1) Calculate the maximum gauge pressure, to be used during test increment #3 as:

$$P_3 \text{ (psi)} = 0.75 \times \text{Depth of Test Section Midpoint (feet)}$$

- (2) Calculate the gauge pressures to be used during the other test increments as:

$$P_1 = P_5 = 0.4 \times P_3 \text{ and}$$

$$P_2 = P_4 = 0.7 \times P_3.$$

VII. Packer Test Procedures

Prior to testing a given bedrock interval, the corehole identification number, the depth of the test interval, the static depth to water in the corehole, the gauge height above ground surface, and the length of riser pipe used in the apparatus are recorded on a packer test data log. After the packer(s) have been seated at the desired interval, the remainder of the test is performed as follows:

1. Open the bypass valve completely with the water meter valve closed.
2. Start the pump or open other water supply.
3. Open the meter valve slowly to allow water to flow and pressure to build. If this valve is completely opened and additional pressure is still needed, it may be obtained by slowly closing off the bypass valve, thus forcing more water through the water meter valve.
4. After the desired pressure for a desired given test increment has been achieved, record the time and volume from the totalizing water meter.
5. To perform a test increment, record the water meter reading at one minute intervals for 5 to 10 minutes of continuous pumping. Check the gauge to ensure the pressure remains constant throughout the test increment, and adjust the flow valves as needed to maintain constant pressure.
6. Adjust the valves in the water system to achieve the calculated appropriate pressure for the next test increment, and repeat steps #4 and #5 above.
7. If the appropriate test interval gauge pressure cannot be achieved due to a highly-permeable tested bedrock interval, the maximum achieved gauge pressure and the pumping rate data for the five minute test increment should be recorded.
8. The packer test for a given bedrock interval is complete after all five test increments have been performed.
9. Record the test data on the packer test data log.

VIII. Packer Test Data Reduction

Packer test data are reduced to develop estimates of hydraulic conductivity for each tested interval based on standard data reduction procedures (United States Bureau of Reclamation, 1974; Houlsby,

1976). Data are entered into an automatic packer-test data reduction spreadsheet program. The spreadsheet calculates the hydraulic conductivity from each of the five test increments for each tested bedrock interval as:

$$K = C_p Q/H$$

where:

K = hydraulic conductivity (feet per year);
Q = flow rate (gallons per minute);
H = total head applied during test (feet); and
C_p = packer coefficient.

Based on equations published in the Earth Manual (United States Bureau of Reclamation 1974), the packer coefficient can be calculated from:

$$C_p = [70267 \ln (L/r)] / 2\pi L$$

where:

L = length of the tested bedrock interval (feet); and
r = radius of tested bedrock corehole (feet).

In addition to the hydraulic conductivity value, the packer test reduction spreadsheet calculates a Lugeon value (Houlsby, 1976) for each of the five test increments. The five Lugeon values are evaluated to interpret the type of flow and bedrock formation response and most representative calculated hydraulic conductivity value for the tested bedrock interval from the following list:

(1) Laminar Flow

Indication: Lugeon values are approximately equal.
Conductivity: Average of values from five test increments.

(2) Turbulent Flow

Indication: Lugeon value from increment #3 is less than those from the lower pressure increments, which are approximately equal in value.
Conductivity: Value from increment #3.

(3) Dilation of Bedrock Fractures

Indication: Lugeon value from increment #3 is greater than those from the lower pressure increments which are approximately equal in value.
Conductivity: Average value from increments #1 and #5.

(4) Wash-out of Fracture Filling Materials

Indication: Progressive increase in five Lugeon values without any return to lower values during increments #4 and #5.
Conductivity: Value from increment #1.

(5) Void Filling

Indication: Progressive decrease in five Lugeon values without any return to values during increments #4 and #5.

Conductivity: Value from increment #5.

REFERENCES

Houlsby, A.C., 1976, Routine Interpretation of the Ludgon Water-Test, Q. Jl. Engng. Geol. Vol. 9, pp. 303-313.

Meritt, F.S., 1983, Standard Handbook for Civil Engineers, McGraw-Hill, New York.

United States Bureau of Reclamation, 1974, Earth Manual, 2nd Edition, Department of the Interior, Denver, Colorado, pp. 573-578.

[illegible][illegible]

APPENDIX H

Generic Quality Assurance Project Plan for Site Investigations at Non-Owned Former MGP Sites



**GENERIC
QUALITY ASSURANCE PROJECT PLAN
FOR
SITE INVESTIGATIONS
AT NON-OWNED FORMER MGP SITES**

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NOVEMBER 2002

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1.0 GENERAL

This Generic Quality Assurance Project Plan (QAPP) has been prepared to specify procedures that will provide data of known, documented quality, and which will be legally defensible, should the need exist. This document specifically supplements the Generic Field Sampling Plan (FSP), also attached as an appendix to a Site-Specific Work Plan. To the extent discrepancies exist between this Generic QAPP and the Site-Specific Work Plan, the Site-Specific Work Plan shall control.

2.0 PROJECT DESCRIPTION

The project sites are Former Non-owned Manufactured Gas Plant (MGP) sites. The purpose of the investigations is to gather sufficient data to enable the New York State Department of Environmental Conservation (NYSDEC) and Niagara Mohawk, a National Grid Company (NM) to characterize chemical substances which are or may be present at the Sites and to enable the NYSDEC and NM to determine whether such substances pose a significant threat to public health or the environment. **This document can also be used to support a Site Management Plan (SMP).**

The data collected as a result of these investigations will be used to support the Site Characterizations and Remedial Investigation/Feasibility Studies (RI/FS) as described in the Site-Specific Work Plans. The types, numbers, and locations of environmental samples to be collected are also described in the Site-Specific Work Plans. Field procedures for all environmental sampling activities are detailed in the FSP **or SMP**.

3.0 PROJECT ORGANIZATION

The project organization is described in detail in the Site-Specific Work Plan. The project organization describes the relationship between the NM Project Manager, NYSDEC Project Manager, NM's Engineering Consultant, and subcontractors (e.g. laboratories, data validators, drillers, etc.).

For the purpose of quality control, the Engineering Consultant's Project Quality Assurance Manager (PQAM) will be responsible for review of data upon receipt from the analytical laboratory. The PQAM will assure that data validation screening is performed by trained and experienced data validators using the applicable criteria specified in the **most current** NYSDEC ~~2001~~-Analytical Services Protocol (ASP). For the purposes of this document, all references to ASP indicate the **most current** ~~2001~~-NYSDEC Analytical Services Protocol. The specific requirements for data validation screening are given in Section 9.3. The PQAM will be responsible for ensuring that all analytical data are in conformance with requirements of this QAPP.

4.0 QA/QC OBJECTIVES FOR MEASUREMENT OF DATA

The overall quality assurance (QA) objective for the project is to develop and implement procedures which will provide data of known, documented quality. Field and laboratory quality assurance/quality control (QA/QC) requirements defined in the NYSDEC ASP and other applicable guidelines ensure acceptable levels of data quality will be maintained throughout the sampling and analysis program.

The QA/QC objectives for all measurement data include precision, accuracy, representativeness, completeness, and comparability. The data reduction, validation, and reporting scheme is presented in Figure 1. The quality assurance samples to be collected (type and frequency of collection) are specified in the Site-Specific Work Plans.

4.1 Precision

Precision is an expression of the reproducibility of measurements of the same parameter under a given set of conditions. Specifically, it is a quantitative measurement of the variability of a group of measurements compared to their average value (USEPA, 1987). Precision is usually stated in terms of standard deviation, but other estimates such as the coefficient of variation (relative standard deviation), range (maximum value minus minimum value), and relative range are common. For this project, precision will be evaluated by recording duplicate measurements of the same parameter on similar sample aliquots under the same conditions and calculating the relative percent difference (RPD) between the values. The formula for calculating RPD is presented in Section 13.2.

RPDs can only be calculated when the duplicate samples both contain detectable concentrations of the analyte. If an analyte is considered not detected at the detection limit, then RPD cannot be calculated. Instead, the results of the analysis of the two-spiked laboratory samples will be used to determine precision.

Measurement data for this project will include field data as well as laboratory analytical data. Laboratory precision will be performed according to the requirements described in the associated analytical methods. The field measurement data may include immunoassay polycyclic aromatic hydrocarbon (PAH) and/or polychlorinated biphenyl (PCB) screening, pH, conductivity, temperature, turbidity, organic vapor readings, and water level measurements. The objective for precision of field data collection methods is to take replicate (minimum of two for every 20 samples) measurements for field parameters to determine the reproducibility of the measurements.

Precision of the immunoassay screening will be evaluated by the field analysis of replicate samples as equivalent levels of PAHs/PCBs. As the screening is not quantitative (i.e., the screening determines if the constituents are present above or below standard values and does not provide a numeric result), RPDs cannot be calculated on the field-analyzed samples. Therefore, measurement of equivalent levels of constituent (i.e., detected below the same standard or within the same range of two standards) will be considered as denoted precision of the screening test.

For the pH meter, precision will be tested by multiple readings in the medium of concern. Consecutive readings should agree within 0.1 pH units after the instrument has been field calibrated

with standard buffers before each use. The thermometer will be visually inspected prior to each use to ensure its condition is satisfactory. Consecutive measurements of a given sample should agree to within 1°Celsius. After calibration, the conductivity meter will be tested for precision at $\pm 1\%$ of full-scale, depending on the meter/scale. The organic vapors will be measured using a Photovac Microtip (or equivalent) photoionization detector (PID). Daily background and upwind readings of drilling and sampling activities will be measured prior to commencing work and at periodic intervals throughout each day's activities. The natural variation/fluctuation in measurements at background or upwind locations will be used for baseline background values, and the variability will be noted. Water level indicator readings will be precise within 0.01 feet for duplicate measurements or additional water level measurements will be collected to determine whether the difference is due to operator or instrument error. Turbidity measurements will be calibrated to a precision of $\pm 2\%$ nephelometric turbidity units (NTUs).

4.2 Accuracy

Accuracy is a measure of the difference between a measured value and the "true" or accepted reference value. The accuracy of an analytical procedure is best determined by the analysis of a sample containing a known quantity of material and is expressed as the percent of the known quantity, which is recovered, or measured. The recovery of a given analyte is dependent upon the sample matrix, method of analysis, and the specific compound or element being determined. The concentration of the analyte relative to the detection limit of the analytical method is also a major factor in determining the accuracy of the measurement. Concentrations of analytes that are close to the detection limits are less accurate because they are affected by such factors as instrument "noise". Higher concentrations will not be as affected by instrument or other variables and thus will be more accurate.

The accuracy of laboratory-measured data will be evaluated by determining the percent recovery of both matrix and blank spike samples as described in Section 13.1. For the measurement of organics by gas chromatography (GC) or GC/mass spectroscopy (MS), the recovery of a surrogate spiked into each sample, blank, and standard will also be used to assess accuracy.

Accuracy between the immunoassay screening and the laboratory analytical results will be evaluated by the confirmatory testing of 10 percent (i.e., one in ten) of the environmental samples at the off-site laboratory. The rate of potential false positives and negatives should be less than 15 percent. Screening samples will not be spiked in the field by the addition of known parameter concentrations. However, the confirmatory samples sent to the off-site laboratory will undergo surrogate spiking and recovery evaluation and, to the extent possible, may be chosen as the site-specific matrix spike sample(s) for additional accuracy determination.

The objective for accuracy of the other field measurements is to achieve and maintain factory equipment specifications for the field equipment. Field measurements cannot be assessed for accuracy by spiking the medium with the analytical parameter and measuring the increase in response; therefore, these instruments can only be assessed for accuracy by the response to a known sample (such as a calibration standard) used to standardize them. The pH meter, conductivity meter,

and turbidity meter are calibrated with solutions traceable to the National Institute of Standards and Technology (NIST, formerly the National Bureau of Standards).

All volatile organic detectors (such as the PID) will be calibrated to an appropriate standard daily prior to use.

4.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter that is most concerned with the proper design of the sampling program. Samples must be representative of the environmental media being sampled. Selection of sample locations and sampling procedures will incorporate consideration of obtaining the most representative sample possible.

Field and laboratory procedures will be performed in such a manner as to ensure, to the degree that is technically possible, that the data derived represents the in-place quality of the material sampled. Every effort will be made to ensure chemical compounds will not be introduced into the sample via sample containers, handling, or analysis. Decontamination of sampling devices and digging equipment will be performed between samples as outlined in the FSP. Laboratory sample containers will be thoroughly cleaned in accordance with procedures outlined in Section 5.2. Analysis of field blanks, trip blanks, and method blanks will also be performed to monitor for potential sample contamination from field and laboratory procedures.

The assessment of representativeness also must consider the degree of heterogeneity in the material from which the samples are collected. Sampling heterogeneity will be evaluated through the analysis of field duplicate samples, coded to ensure the samples are treated and analyzed as separate samples. The analytical laboratory will make every reasonable effort to assure the samples are adequately homogenized prior to taking aliquots for analysis, so the reported results are representative of the sample received. Many means of homogenization expose the sample to significant risk of contamination or loss through volatilization, and these should be avoided if possible.

Chain-of-custody procedures will be followed to document that contamination of samples has not occurred during container preparation, shipment, and sampling. Details of blank/duplicate and chain-of-custody procedures are presented in Sections 5.3 and 6.1.

4.4 Completeness

Completeness is defined as the percentage of measurements made which are judged to be valid. The QC objective for completeness is generation of valid data for 100 percent of the analysis requested. Any data deficiencies and their impact on project goals will be evaluated during data validation and discussed in the Data Usability Summary Report (DUSR) (see Section 9.3.2).

4.5 Comparability

Comparability expresses the degree of confidence with which one data set can be compared to another. The comparability of all data collected for this project will be ensured by:

- Using identified standard methods for both sampling and analysis phases of this project;
- Ensuring traceability of all analytical standards and/or source materials to USEPA or NIST;
- Verifying all calibrations with an independently prepared standard from a source other than that used for calibration;
- Using standard reporting units and reporting formats including the reporting of QC data;
- The validation of all analytical results, including the use of data qualifiers in all cases where appropriate; and
- The requirement that all validated flags be used any time an analytical result is used for any purpose whatsoever.

These steps will ensure all future users of either the data or the conclusions drawn from them will be able to judge the comparability of these data and conclusions.

5.0 SAMPLING PROCEDURES

5.1 Sampling Program

The objective of the sampling program is to provide current data concerning the presence and nature and extent of **MGP-related impacts in contamination of** groundwater, surface water, soils (surface and subsurface), and/or sediment. Sampling and analysis may include as identified in the Site-Specific Work Plan:

- groundwater samples
- surface water samples
- sediment samples
- surface and/or subsurface soil samples
- air samples

5.2 Sampling Procedures and Handling

Sample Container Preparation

Sample containers will be properly washed and decontaminated by the factory or laboratory prior to use. All preservatives will be added to containers prior to shipment by the laboratory. The types of containers and preservation techniques are shown in Table 1. Records of the sources of bottles and preservatives will be kept by the analytical laboratory.

Methods of Sampling

As a minimum, sampling procedures will be in accordance with the most recent NYSDEC or USEPA guidelines and/or regulations, as appropriate. Alternate techniques will be utilized when such guidelines and/or regulations are inappropriate or non-existent. Alternate techniques will be implemented only after consultation with NYSDEC, whenever possible.

Referenced sampling procedures are listed below. All procedures will be the latest in effect as of the date of this Generic QAPP; **however, must be verified/updated by the party performing the sampling.**

- USEPA - 600-4-79-020, "Methods for Chemical Analysis of Water and Wastes"
- National Water Well Association - "Manual of Ground-water Sampling Procedures"
- USEPA - 600-4-83-040, "Characterization of Hazardous Waste Sites - a Methods Manual: Volume II. Available Sampling Methods"
- USEPA - OSWER - 9950.1 "RCRA Ground-water Monitoring Technical Enforcement Guidance Document"
- USEPA - 540/S-95/504, "Low-Flow (Minimal Drawdown) Ground Water Sampling Procedures"
- NYSDEC – "Technical and Administrative Guidance Memoranda" (TAGMs)

All sampling methods are explained in detail in the FSP.

5.3 Quality Assurance Samples

Field Quality Control Samples

To assess field sampling and decontamination performance, two types of "blanks" will be collected and submitted to the laboratory for analyses. The blanks will include:

Trip Blank - A trip blank will be prepared by the laboratory, and will consist of 40-ml volatile organic analysis (VOA) vials containing distilled, deionized water which accompanies the other sample bottles into the field and back to the laboratory. A trip blank will be included with each shipment of water samples for which analysis for Target Compound List (TCL) volatiles or benzene, toluene, ethylbenzene and total xylenes (BTEX) is planned. The trip blank will be analyzed for TCL volatile organic compounds or BTEX to assess any contamination introduced as a result of sampling and transport, handling and storage.

Equipment Blank - Equipment blanks will be taken at a minimum frequency of one per 20 field samples per sample matrix as specified in the Site-Specific Work Plan. Equipment blanks are used to determine the effectiveness of the decontamination procedures for sampling equipment. It is a sample of deionized, distilled water provided by the laboratory, which has passed through or over the sampling apparatus. It is usually collected as a last step in the decontamination procedure, prior to collecting a sample. The equipment blanks will be analyzed for the same parameters as the matrix being sampled.

In addition, the precision of field sampling procedures will be assessed by collecting coded field duplicates and matrix spike (MS)/matrix spike duplicates (MSD)/matrix duplicates (MD).

The duplicates will consist of:

Field Duplicate - To determine the reproducibility and homogeneity of samples, coded field duplicates will be collected. The samples are termed "coded" because they will be labeled in such a manner that the laboratory will not be able to determine that they are a duplicate sample. This will eliminate any possible bias that could arise. The frequency of collection of these samples is one per 20 field samples as specified in the Site-Specific Work Plans. The criteria for assessing coded field duplicates are given in Section 6.0.

Matrix Spike/Matrix Spike Duplicate/Matrix Duplicate (MS/MSD/MD) - MS/MSD/MD samples (MSD for organics; MD for inorganics) will be collected at a frequency of one pair per 20 field samples per seven day sample delivery group (SDG). The reproducibility and homogeneity of the samples can be assessed by determining the RPD for both spike and non-spike compounds as described in Section 13.0. The MS, MSD, and MD samples should be Site-Specific, unless otherwise authorized by the

Engineering Consultant's Project Manager and/or PQAM after consultation with NM and NYSDEC personnel whenever possible.

6.0 SAMPLE TRACKING AND CUSTODY

Sample chain-of-custody (COC) will be initiated by the laboratory with selection and preparation of the sample containers. To reduce the chance for error, the number of personnel handling the samples will be minimized.

In-situ or on-site monitoring data will be controlled and entered in permanent logbooks. Personnel involved in the COC and transfer of samples will be trained on the purpose and procedures prior to implementation.

Evidence of sample traceability and integrity will be provided by COC procedures. These procedures document the sample traceability from the selection and preparation of the sample containers by the laboratory, to sample collection, to sample shipment, to laboratory receipt and analysis. The sample custody flowchart is shown in Figure 2. A sample will be considered to be in a person's custody if the sample is:

- In a person's possession;
- Maintained in view after possession is accepted and documented;
- Locked and tagged with custody seals so that no one can tamper with it after having been in physical custody; or
- In a secured area which is restricted to authorized personnel.

6.1 Field Sample Custody

A COC record will accompany the sample from time of collection to receipt by the analytical laboratory. If samples are split and sent to different laboratories, COC records will be sent with each sample. The "remarks" column on the COC will be used to record specific considerations associated with sample acquisition such as: sample type, container type, sample preservation methods, and analyses to be performed. Two copies of this record will accompany the samples to the laboratory. The laboratory will maintain one file copy, and the completed original will be returned to the Engineering Consultant's Project Manager.

Individual sample containers, provided by the laboratory, will be used for shipping/couriering samples. The shipping containers are insulated, and ice will be used to maintain samples at approximately four degrees Celsius until samples are returned and in the custody of the laboratory. All sample bottles within each shipping container will be individually labeled and controlled.

Each sample shipping container will be assigned a unique identification number by the laboratory, and will be marked with indelible ink on the outside of the shipping container. This number will be recorded on the COC record. The field sampler will indicate each individual sample designation/location number in the space provided on the appropriate COC form for each sample collected. The shipping container will then be closed, and a seal provided by the laboratory affixed to the latch. This seal must be broken to open the container. Tampering may be indicated if the seal is broken before receipt at the laboratory. The laboratory will contact the FOL or Engineering

Consultant's Project Manager, and the associated samples will not be analyzed if tampering is apparent.

6.2 Laboratory Sample Custody

The FOL will notify the laboratory of upcoming field sampling activities and the subsequent transfer of samples to the laboratory. This notification will include information concerning the number and type of samples to be shipped as well as the anticipated date of arrival.

The laboratory sample program will meet the following criteria:

- The laboratory will designate a sample custodian who is responsible for maintaining custody of the samples and for maintaining all associated records documenting that custody.
- Upon receipt of the samples, the custodian will check the original chain-of-custody documents and compare them with the labeled contents of each sample container for correctness and traceability. The sample custodian will sign the COC record and record the date and time received.
- Care will be exercised to annotate any labeling or descriptive errors. In the event of any discrepancy in documentation, the laboratory will immediately contact the Engineering Consultant's Project Manager and/or PQAM as part of the corrective action process. A qualitative assessment of each sample container will be performed to note any anomalies, such as broken or leaking bottles. That assessment will be recorded as part of the incoming COC procedure.
- The samples will be stored in a secured area at a temperature of approximately four degrees Celsius until analyses are to commence.
- A laboratory tracking record will accompany the sample or sample fraction through final analysis for control.
- A copy of the tracking form will accompany the laboratory report and will become a permanent part of the project records.

6.3 Sample Tracking System

A sample tracking system will be implemented to monitor the status of sampling events and laboratory analysis of samples. Sample numbers, types, analytical parameters, sampling dates, and sample delivery group (SDG) designations for samples, and required due dates for receipt of analytical results will be entered into the system. The Engineering Consultant's Project Manager will use the tracking system to monitor the project sampling schedules and the status of analytical reports, and to implement any penalty clauses for late delivery per standard laboratory subcontracts when necessary.

A description of the sample tracking system follows:

1. For each day that samples are collected, the Field Operations Lead (FOL) or designee will complete a COC form listing all appropriate samples.
2. The FOL or designee will retain the client copy of the COC, and forward the laboratory copy of the COC with the sample shipment.
3. The FOL or designee will fax copies of the completed COC form and Daily Status and Monitoring Report to the Engineering Consultant's PM. The Engineering Consultant's PM or a designated employee will confirm sample shipment with the laboratory and resolve any sample transfer issues.
4. The status of analytical results will be tracked by the Engineering Consultant's PM or designee using the information provided on the completed COC form and Daily Status and Monitoring Report. The information shall be summarized in a computerized database, as warranted.

Upon receipt of the analytical results from the laboratory, the Engineering Consultant's PM or designee will review the data package for completeness and contract compliance. The Engineering Consultant's PM will then forward the result package to the data validator for validation. The data validator shall be required to submit a complete set of validated data to the Engineering Consultant's PM within 60 days of receipt of the data package report.

The Engineering Consultant's Project Manager or a designated representative will maintain day-to-day contact with the laboratory concerning specific samples and analyses directly or by assignment.

7.0 CALIBRATION PROCEDURES AND FREQUENCY

7.1 Field Instrumentation Calibration

The FOL will be responsible for ensuring that instrumentation are of the proper range, type and accuracy for the test being performed, and that all of the equipment are calibrated at their required frequencies, according to their specific calibration protocols/procedures.

All field measurement instruments must be calibrated according to the manufacturer's instructions prior to the commencement of the day's activities. Exceptions to this requirement shall be permitted only for instruments that have fixed calibrations pre-set by the equipment manufacturer. Calibration information shall be documented on instrument calibration and maintenance log sheets or in a designated field logbook. The calibration information (log sheet or logbook) shall be maintained at the site during the on-site investigation and, once the field work is completed, shall be placed in the Engineering Consultant's project files. Information to be recorded includes the date, the operator, and the calibration standards (concentration, manufacturer, lot number, expiration date, etc.). All project personnel using measuring equipment or instruments in the field shall be trained in the calibration and usage of the equipment, and are personally responsible for ensuring that the equipment has been properly calibrated prior to its use.

In addition, all field instruments must undergo response verification checks at the end of the day's activities and at any other time that the user suspects or detects anomalies in the data being generated. Verification checks may also be performed at the request of NM or NYSDEC representatives. The checks consist of exposing the instrument to a known source of analyte (e.g., the calibration solution), and verifying a response. If an unacceptable instrument response is obtained during the check (i.e., not within specifications), the data shall be labeled suspect, the problem documented in the site logbook, and appropriate corrective action taken.

Any equipment found to be out of calibration shall be re-calibrated. When instrumentation is found to be out of calibration or damaged, an evaluation shall be made to ascertain the validity of previous test results since the last calibration check. If it is necessary to ensure the acceptability of suspect items, the originally required tests shall be repeated (if possible), using properly calibrated equipment, to acquire replacement data for the measurement in question.

Any instrument consistently found to be out of calibration shall be repaired or replaced within 24 hours or field work will be terminated until the malfunctioning equipment is repaired/replaced.

7.2 Laboratory Instrumentation Calibration

Personnel at the laboratory will be responsible for ensuring that analytical instrumentation are of the proper range, type and accuracy for the test being performed, and that all of the equipment are calibrated at their required frequencies, according to specific protocols/procedures.

Off-site laboratory equipment shall be calibrated using certified/nationally recognized standards and according to the applicable methodologies and the laboratory Standard Operating Procedures (SOPs). In addition, these methods/procedures specify the appropriate operations to follow during calibration or when any instrument is found to be out of calibration.

8.0 ANALYTICAL PROCEDURES

All off-site laboratory samples will be analyzed according to the methods provided in Exhibit D of the NYSDEC ASP. QA/QC procedures given in Exhibit E and I of the ASP will be followed. Regardless of the method used, all analytical and extraction holding times must meet the NYSDEC ASP requirements for that analytical group (i.e., volatile analyses, including BTEX, have a holding time of seven days, if unpreserved). Holding times will be calculated from verified time of sample receipt at the laboratory. For NYSDEC ASP, samples must be received at the laboratory within 48 hours of sample collection. The analytical laboratory chosen for the project will be certified, and must maintain certification, under the New York State Department of Health's Environmental Laboratory Approval Program for analyses of solid and hazardous waste. The breakdown of investigative samples is detailed in the Site-Specific Work Plan. Laboratory analytical methods and quantitation limits are presented in Tables 2 and 3 of this Generic QAPP. The method detection limits (MDLs) for the analytes will be specified by the laboratory selected for the project based on its most recent MDL studies, and subject to approval by the NYSDEC.

Field screening samples will be analyzed according to the NYSDEC ASP and the manufacturer's instructions. Unless site-specific requirements dictate a change in concentration limits (which would be explained within the Site-Specific Work Plan), the standard levels for the PAH and PCB screening will be 1 ppm and 10 ppm. The test system user shall be technically qualified individual who has received training in the immunoassay analysis requirements, procedures and potential risks prior to field screening of samples. Use of the field screening test kits will only occur in a controlled environment, following the storage and handling procedures outlined in the NYSDEC ASP and the manufacturer's instructions. Additional technical information on the field screening testing are presented in Attachments 1 and 2.

9.0 DATA REDUCTION, VALIDATION, AND REPORTING

The criteria used to identify and quantify the analytes will be those specified for the applicable methods in the ASP.

The data package provided by the laboratory will contain all items specified in the ASP, as appropriate to the analyses performed. Category B reporting will be used.

9.1 Chain-of-Custody Records

Completed copies of the COC records accompanying each sample from time of initial bottle preparation to completion of analysis shall be attached to the report of analytical testing.

9.2 Data Handling

One complete copy and one additional copy of the analytical data summary report will be provided by the laboratory. One set of the analytical data will be forwarded directly to the data validator by the laboratory. The Engineering Consultant's Project Manager will immediately arrange for filing of the complete package, after the QA/QC reviewer checks the package to ensure all deliverables have been provided. The second data summary report will be used to generate summary tables. These tables will form the foundation of a working database for assessment of the site contamination condition.

The Engineering Consultant's Project Manager will maintain close contact with the QA/QC reviewer to ensure all non-conformance issues are acted upon prior to data manipulation and assessment routines. Once the QA/QC review has been completed, the Engineering Consultant's Project Manager may direct the team leaders or others to initiate and finalize the analytical data assessment.

9.3 Data Validation

9.3.1 Full Data Validation

Data validation is a basic step in the control and processing of the project data generated by the laboratory. The data validation process will consist of a systematic review of the analytical results and QC documentation, and will be performed in accordance with the guidelines identified in Section 9.3.1. All off-site laboratory data will undergo full validation, unless otherwise stated in the Site-Specific Work Plan. On the basis of this review, the data validator will make judgments and express concerns and comments on the quality and limitations of specific data, as well as on the validity of the overall data package. The data validator will prepare documentation of his or her review and conclusions in a Data Usability Summary Report (DUSR; see Section 9.3.2).

The data validator will inform the Engineering Consultant's Project Manager of data quality and limitations, and assist the Project Manager in interacting with the laboratory to correct data omissions and deficiencies. The laboratory may be required to rerun or resubmit data depending on the extent of the deficiencies, and their importance in meeting the data quality objectives within the overall context of the project. The validated laboratory data will be reduced into a computerized tabulation which will be suitable for inclusion in the Site Characterization and RI Reports and will

be designed to facilitate comparison and evaluation of the data. The data tabulations will be sorted by classes of constituents and by sample matrix. Each individual table will present the following information:

- Sample matrix, designations, and locations;
- Sample dates;
- Constituents for which positive results were obtained;
- Reported constituent concentrations in the field and/or trip blanks associated with the samples;
- Constituent concentration units;
- Name and location of laboratory which performed the analyses;
- Data qualifiers provided by the laboratory; and
- Data qualifiers and comments provided by the data validator, if any.

9.3.2 Data Usability Summary Report (DUSR)

A Data Usability Summary Report (DUSR) will be prepared after reviewing and evaluating the analytical data. The parameters to be evaluated in reference to compliance with the analytical method protocols includes all sample chain-of-custody forms, holding times, raw data (instrument print out data and chromatograms), calibrations, blanks, spikes, controls, surrogate recoveries, duplicates and sample data. If available, the field sampling notes should also be reviewed and any quality control problems should be evaluated as to their effect on the usability of the sample data.

The DUSR will describe the samples and analysis parameters reviewed. Data deficiencies, analytical method protocol deviations and quality control problems will be described and their effect on the data will be discussed in the DUSR.

Resampling/reanalysis recommendations, if applicable, will be made. Data qualifications are documented for each sample analyte following the NYSDEC ASP guidelines.

This work will be performed by trained and experienced data validators who meet the NYSDEC approval criteria. The Environmental Scientist preparing the DUSR must submit a resume to the NYSDEC Quality Assurance Unit documenting relevant experience in environmental sampling and analysis methods and data review and documentation of a Bachelors Degree in Natural Science or Engineering. The results of the data validation screening (i.e. missed holding times or data rejected due to blank contamination) will be incorporated into the data summary tables used in the final investigative report. The DUSR identifies data gaps caused by non-compliant or rejected data, and will indicate what steps have been or will be taken to fill these gaps.

10.0 INTERNAL QUALITY CONTROL CHECKS AND FREQUENCY

10.1 Quality Assurance Batching

Each set of samples will be analyzed concurrently with calibration standards, method blanks, MS, MSD or MD, and QC check samples (if required by the protocol). The MS/MSD/MD samples will be designated by the field personnel. If no MS/MSD/MD samples have been designated, then the laboratory must contact the Project Quality Assurance Officer (PQAO) or Engineering Consultant's Project Manager for corrective action.

10.2 Organic Standards and Surrogates

All standard and surrogate compounds are checked by the method of mass spectrometry for correct identification and gas chromatography for degree of purity and concentration. When the compounds pass the identity and purity tests, they are certified for use in standard and surrogate solutions. Concentrations of the solutions are checked for accuracy before release for laboratory use. Standard solutions are replaced monthly or earlier based upon data indicating deterioration.

10.3 Laboratory Quality Control Samples

The quality control samples included are detailed below.

Method Blanks/Preparation Blanks: Analyses for organic compounds (method blank) and inorganics (preparation blank) include a blank analysis of the laboratory reagent water. The blank is analyzed with each set of samples or more often as required to verify that contamination has not occurred during the analytical process. The concentration of target compounds in the blanks must be less than or equal to the method detection limits specified in the ASP for the selected method of analysis.

Matrix Spike/Matrix Spike Duplicate Analysis - This analysis is used to determine the effects of matrix interference on analytical results. Spikes of analytes are added to aliquots of sample matrix in the manner specified in the ASP. Selected samples are spiked to determine accuracy as a percentage recovery of the analyte from the sample matrix and precision as RPD between the MS and MSD samples. A matrix duplicate is prepared in the same manner as the matrix spike sample.

Analytical Duplicate Samples - Replicate samples are aliquots of a single sample that are split on arrival at the laboratory, or upon analysis. Significant differences between two replicates, split in a controlled laboratory environment, will result in flagging the affected analytical results.

Surrogate Spike Analyses - Surrogate spike analyses are used to determine the efficiency of recovery of organic analytes in the sample preparations and analyses. Calculated percentage recovery of the spike is used as a measure of the accuracy of the total analytical method.

Laboratory Control Sample/ (Spike Blank) - For each method which requires a laboratory control sample (LCS) or spike blank, a LCS spike blank will be prepared with each quality control batch and analyzed according to criteria specified in the ASP. These samples support an assessment of the ability of the analytical procedure to generate a correct result without matrix effects or interference affecting the analysis.

11.0 QUALITY ASSURANCE PERFORMANCE AUDITS AND SYSTEM AUDITS

Quality assurance audits may be performed by the Project Quality Assurance Manager (PQAM) or personnel designated by the PQAM. The PQAM and his or her designees function as an independent body and report directly to Engineering Consultant's quality assurance management. The PQAM may plan, schedule, and approve system and performance audits based upon the Engineering Consultant's procedure customized to the project requirements. These audits may be implemented to evaluate the capability and performance of project and subcontractor personnel, items, activities, and documentation of the measurement system(s). At times, the PQAM may request additional personnel with specific expertise from company and/or project groups to assist in conducting performance audits.

Formal audits encompass documented activities performed by qualified lead auditors to a written procedure or checklists to objectively verify that quality assurance requirements have been developed, documented, and instituted in accordance with contractual and project criteria. Formal audits may be performed on project and subcontractor work at various locations.

Audit reports will be written by lead auditors after gathering and evaluating all resultant data. Items, activities, and documents determined by lead auditors to be in noncompliance will be identified at exit interviews conducted with the involved management. Noncompliances will be logged, documented, and controlled through audit findings which are attached to and are a part of the integral audit report. These audit finding forms will then be directed to management to satisfactorily resolve the noncompliance in a specified and timely manner. All audit checklists, audit reports, audit findings, and acceptable resolutions must be approved by the PQAM prior to issue. QA verification of acceptable resolutions will be determined by re-audit or documented surveillance of the item or activity. Upon verification acceptance, the PQAM will close out the audit report and findings.

It is the Engineering Consultant's Project Manager's overall responsibility to verify that all corrective actions necessary to resolve audit findings are acted upon promptly and satisfactorily. Audit reports must be submitted to the Engineering Consultant's Project Manager within 15 days of completion of the audit. Serious deficiencies must be reported to the Engineering Consultant's Project Manager within 24 hours.

Serious deficiencies identified during an audit will be reported to NM and NYSDEC as part of the DUSR or Site investigation and/or RI Reports.

11.1 System Audits

System audits, performed by the PQAM or designated auditors, may encompass evaluation of measurement system components to ascertain their appropriate selection and application. In addition, field and laboratory quality control procedures and associated documentation may be audited. These audits may be performed once during the performance of the project. However, if conditions adverse to quality are detected or if the Engineering Consultant's Project Manager requests the PQAM to perform unscheduled audits, these activities will be instituted.

11.2 Performance Audits

In accordance with the requirements for NYSDOH ELAP CLP certification, the laboratory will participate in all performance evaluation testing.

Also, one field audit may be performed by the PQAM or designated auditor during collection of the field samples to verify that field samplers are following established sampling procedures. Performance of a field audit will be based on the type of investigation activities being performed, the length of the field project, and any available information concerning prior inspections of the project or sampling team. The Site-Specific Work Plan will provide details on the performance of a field audit.

12.0 PREVENTIVE MAINTENANCE PROCEDURES AND SCHEDULES

12.1 Preventive Maintenance Procedures

Equipment, instruments, tools, gauges, and other items requiring preventive maintenance will be serviced in accordance with the manufacturer's specified recommendations and written procedure developed by the operators. Analytical instruments will be serviced at intervals recommended by the manufacturer. An instrument repair/maintenance log book will be kept for each instrument, and this log will be available on-site during field activities and, at the completion of the investigation, be placed in the project files. Entries include the date of service, type of problem encountered, corrective action taken, and initials and affiliation of the person providing the service.

The instrument use log book will be monitored by the analysts to detect any degradation of instrument performance. Changes in response factors or sensitivity are used as indications of potential problems. These are brought to the attention of the laboratory supervisor and preventive maintenance or service is scheduled to minimize down time. Back-up instrumentation and an inventory of critical spare parts are maintained to minimize delays in completion of analyses.

Use of equipment in need of repair will not be allowed, and field work will be terminated until the malfunction is repaired or the instrument replaced.

12.2 Schedules

Written procedures, where applicable, will identify the schedule for servicing critical items in order to minimize the downtime of the measurement system. It will be the responsibility of the operator to adhere to this maintenance schedule and to arrange any necessary and prompt service as required. Service to the equipment, instruments, tools, gauges, etc. shall be performed by qualified personnel.

12.3 Records

Logs shall be established to record and control maintenance and service procedures and schedules. All maintenance records will be documented and traceable to the specific equipment, instruments, tools, and gauges. Records produced shall be reviewed, maintained, and filed by the operators at the laboratories and by the data and sample control personnel when and if equipment, instruments, tools, and gauges are used at the sites. The Engineering Consultant's Project Manager or the PQAM may audit these records to verify complete adherence to these procedures.

12.4 Spare Parts

Where appropriate, a list of critical spare parts will be identified by the operator in consultation with the equipment manufacturer. These spare parts will be stored for availability and use in order to reduce the downtime. In lieu of maintaining an inventory of spare parts, a service contract for rapid instrument repair or backup instruments will be available.

13.0 ASSESSMENT PROCEDURES FOR DATA ACCEPTABILITY

Procedures used to assess data precision and accuracy will be in accordance with the appropriate laboratory method, and as periodically updated.

13.1 Accuracy

The percent recovery is calculated as below:

$$\% = \frac{S_s - S_o}{S} \times 100$$

S_o = The background value, i.e.; the value obtained by analyzing the sample

S = Concentration of the spike added to the sample

S_s = Value obtained by analyzing the sample with the spike added

% = Percent Recovery

13.2 Precision

The relative percent difference (RPD) is calculated as below:

$$RPD = \frac{|V_1 - V_2|}{0.5 (V_1 + V_2)} \times 100$$

V_1, V_2 = The two values obtained by analyzing the duplicate samples

13.3 Completeness

Completeness is the measure of the amount of valid data obtained from a measurement system compared to the total amount expected to be obtained under ideal conditions. A target of 100 percent completeness, calculated for each analysis method, has been established as the overall project objective.

$$PC = \frac{NA}{NI} \times 100$$

where:

PC = Percent completeness

NA = Actual number of valid analytical results obtained

NI = Theoretical number of results obtainable under ideal conditions

14.0 CORRECTIVE ACTION

The following procedures have been established to assure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, and errors, are promptly investigated, documented, evaluated, and corrected.

When a significant condition adverse to quality is noted on-site, at the laboratory, or at a subcontractor location, the cause of the condition will be determined and corrective action taken to preclude repetition. Condition identification, cause, reference documents, and corrective action planned to be taken will be documented and reported to the FOL, Engineering Consultant's Project Manager, and involved subcontractor management, at a minimum. Implementation of corrective action is verified by documented follow-up action. All project personnel have the responsibility, as part of the normal work duties, to promptly identify, solicit approved correction, and report conditions adverse to quality.

At a minimum, corrective actions may be initiated:

- When predetermined acceptance standards are not attained
- When procedure or data compiled are determined deficient
- When equipment or instrumentation is found faulty
- When samples and test results are questionably traceable
- When quality assurance requirements have been violated
- When designated approvals have been circumvented
- As a result of system and performance audits
- As a result of a management assessment
- As a result of laboratory/inter-field comparison studies
- As required by NM
- As required by NYSDEC ASP, 2001

Procedure Description

Project management and staff, such as field investigation teams, remedial response planning personnel, and laboratory groups, monitor on-going work performance in the normal course of daily responsibilities.

Work may be audited at Engineering Consultant's office, Site, laboratory, and subcontractor locations by the PQAM and/or designated auditor. Items, activities, or documents ascertained to be in noncompliance with quality assurance requirements will be documented and corrective actions mandated through audit finding sheets attached to the audit report. Audit findings are logged, maintained, and controlled by the PQAM (Section 11.0).

Technicians assigned quality assurance functions will also control noncompliance corrective actions by having the responsibility of issuing and controlling an appropriate Corrective Action Request Form. All project personnel may identify a noncompliance; however, the technician is responsible for documenting, numbering, logging, and verifying the closeout action. It is the Engineering Consultant's Project Manager's responsibility to verify that all recommended corrective actions are produced, accepted, and received in a timely manner.

The Corrective Action Request (CAR) identifies the adverse condition, reference document(s), and recommended corrective action(s) to be administered. The issued CAR is directed to the responsible manager in charge of the item or activity for action. The individual to whom the CAR is addressed returns the requested response promptly to the technician in charge, affixing his signature and date to the corrective action block, after stating the cause of the conditions and corrective action to be taken. The technician maintains the log for status control of CARs and responses, confirms the adequacy of the intended corrective action, and verifies its implementation. The technician will issue and distribute CARs to specified personnel, including the originator, responsible project management involved with the condition, the Engineering Consultant's Project Manager, involved subcontractor, and the FOL, at a minimum. CARs are transmitted to the project file for the records.

15.0 QUALITY ASSURANCE REPORTS

Quality assurance reports to management may consist of the reports on audits, reports on correction of deficiencies found in audits, a final QA report on field sampling activities, and the data validation report.

At the end of the project, the PQAM may submit a lessons learned report to the Engineering Consultant's Project Manager which will discuss the QA activities. That report may include discussions of any conditions adverse or potentially adverse to quality, such as responses to the findings of any field or laboratory audits; any field, laboratory, or sample conditions which necessitated a departure from the methods or procedures specified in this QAPP; field sampling errors; and any missed holding times or problems with laboratory QC acceptance criteria; and the associated corrective actions undertaken. This report shall not preclude immediate notification to project management of such problems when timely notice can reduce the loss or potential loss of quality, time, effort, or expense.

These reports, if prepared, shall be reviewed by the Engineering Consultant's Project Manager for completeness and the appropriateness of any corrective actions, and they shall be retained in the project files.

In the final investigative report, laboratory and field QC data will be presented, including a summary of QA activities and any problems and/or comments associated with the analytical and sampling effort. Any corrective actions taken in the field, results of any audits, and any modifications to laboratory protocols will be discussed.

Attachment 1

NYSDEC ASP Methods 4035 (PAHs) and 4020 (PCBs)

Attachment 2

Field PAH and PCB Soil Test Technical Guides and Test Kit Instructions

TABLE 3
TARGET ANALYTES AND CONTRACT REQUIRED QUANTITATION (CRQ)
LIMITS¹

	Contract Required Quantitation Limit Water Samples (ug/L)	Contract Required Quantitation Limit Soil Samples (ug/kg)
NYSDEC ASP TCL Volatile Organic Compounds (by 2001-1)		
Acetone	10	10
Benzene	10	10
Bromodichloromethane	10	10
Bromoform	10	10
Bromomethane	10	10
2-Butanone	10	10
Carbon disulfide	10	10
Carbon tetrachloride	10	10
Chlorobenzene	10	10
Chloroethane	10	10
Chloroform	10	10
Chloromethane	10	10
Dibromochloromethane	10	10
1,1-Dichloroethane	10	10
1,2-Dichloroethane	10	10
1,1-Dichloroethene	10	10
1,2-Dichloroethene (cis and trans)	10	10
1,2-Dichloropropane	10	10
cis-1,3-Dichloropropene	10	10
trans-1,3-Dichloropropene	10	10
Ethylbenzene	10	10
2-Hexanone	10	10
4-Methyl-2-pentanone	10	10
Methylene chloride	10	10
Styrene	10	10
1,1,2,2-Tetrachloroethane	10	10
Tetrachloroethene	10	10
Toluene	10	10
1,1,1-Trichloroethane	10	10
1,1,2-Trichloroethane	10	10
Trichloroethene	10	10
Vinyl chloride	10	10
Total Xylenes	10	10

NOTES

1. Specific detection limits are highly matrix dependent. The detection limits listed herein are provided for guidance and may not always be achievable. Quantitation limits listed for soil are based on wet weight.
2. If the information provided in this table differs from the most recent version of the ASP (2001), the ASP requirements will take precedence. In addition, if site-specific requirements dictate a change in quantitation limits, the Site-Specific Work Plan (which will include this information) will take precedence.

TABLE 3 (Cont'd)
TARGET ANALYTES AND CRQ LIMITS¹

	Contract Required Quantitation Limit Water Samples(ug/L)	Contract Required Quantitation Limit Soil Samples(ug/kg)
NYSDEC ASP TCL - Semivolatile Organic Compounds (by 2001-2)		
Base/Neutral Extractables		
Acenaphthene	10	330
Acenaphthylene	10	330
Anthracene	10	330
Benzo(a)anthracene	10	330
Benzo(b)fluoranthene	10	330
Benzo(k)fluoranthene	10	330
Benzo(g,h,i)perylene	10	330
Benzo(a)pyrene	10	330
bis(2-Chloroethoxy)methane	10	330
bis(2-Chloroethyl)ether	10	330
bis(2-ethylhexyl)phthalate	10	330
4-Bromophenyl phenyl ether	10	330
Butyl benzyl phthalate	10	330
Carbazole	10	330
4-Chloroaniline	10	330
2-Chloronaphthalene	10	330
4-Chlorophenyl phenyl ether	10	330
Chrysene	10	330
Dibenz(a,h)anthracene	10	330
Dibenzofuran	10	330
Di-n-butylphthalate	10	330
1,2-Dichlorobenzene	10	330
1,3-Dichlorobenzene	10	330
1,4-Dichlorobenzene	10	330
3,3'-Dichlorobenzidine	10	330
Diethyl phthalate	10	330
Dimethyl phthalate	10	330
2,4-Dinitrotoluene	10	330

NOTES

1. Specific detection limits are highly matrix dependent. The detection limits listed herein are provided for guidance and may not always be achievable. Quantitation limits listed for soil are based on wet weight.
2. If the information provided in this table differs from the most recent version of the ASP (2001), the ASP requirements will take precedence. In addition, if site-specific requirements dictate a change in quantitation limits, the Site-Specific Work Plan (which will include this information) will take precedence.

TABLE 3 (Cont'd)
TARGET ANALYTES AND CRQ LIMITS¹

	Contract Required Quantitation Limit Water Samples(ug/L)	Contract Required Quantitation Limit Soil Samples(ug/kg)
NYSDEC ASP TCL - Semivolatile Organic Compounds (by 2001-2, Cont.)		
2,6-Dinitrotoluene	10	330
Di-n-octylphthalate	10	330
Fluoranthene	10	330
Fluorene	10	330
Hexachlorobenzene	10	330
Hexachlorobutadiene	10	330
Hexachlorocyclopentadiene	10	330
Hexachloroethane	10	330
Indeno(1,2,3-cd)pyrene	10	330
Isophorone	10	330
2-methyl Naphthalene	10	330
Naphthalene	10	330
2-Nitroaniline	25	800
3-Nitroaniline	25	800
4-Nitroaniline	25	800
Nitrobenzene	10	330
N-Nitroso-diphenylamine	10	330
N-Nitroso-dipropylamine	10	330
2,2' Oxybis(1-chloropropane)	10	330
Phenanthrene	10	330
Pyrene	10	330
1,2,4-Trichlorobenzene	10	330

NOTES

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2. If the information provided in this table differs from the most recent version of the ASP (2001), the ASP requirements will take precedence. In addition, if site-specific requirements dictate a change in quantitation limits, the Site-Specific Work Plan (which will include this information) will take precedence.

TABLE 3 (Cont'd)
TARGET ANALYTES AND CRQ LIMITS¹

	Contract Required Quantitation Limit Water Samples(ug/L)	Contract Required Quantitation Limit Soil Samples(ug/kg)
NYSDEC ASP TCL - Semivolatile Organic Compounds (by 2001-2, Cont.)		
Acid Extractables (cont.)		
4-Chloro-3-methylphenol	10	330
2-Chlorophenol	10	330
2,4-Dichlorophenol	10	330
2,4-Dimethylphenol	10	330
4,6-Dinitro-2-methylphenol	25	800
2,4-Dinitrophenol	25	800
2-Methylphenol	10	330
4-Methylphenol	10	330
2-Nitrophenol	10	330
4-Nitrophenol	25	800
Pentachlorophenol	25	800
Phenol	10	330
2,4,5-Trichlorophenol	25	800
2,4,6-Trichlorophenol	10	330
NYSDEC ASP TCL Pesticides and PCBs (by 2001-3)		
Aldrin	0.05	1.7
alpha-BHC	0.05	1.7
beta-BHC	0.05	1.7
delta-BHC	0.05	1.7
gamma-BHC (Lindane)	0.05	1.7
Chlordane (alpha &/or gamma)	0.05	1.7
4,4'-DDD	0.10	3.3
4,4'-DDE	0.10	3.3
4,4'-DDT	0.10	3.3
Dieldrin	0.10	3.3
Endosulfan I	0.05	1.7
Endosulfan II	0.10	3.3
Endosulfan sulfate	0.10	3.3

NOTES

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2. If the information provided in this table differs from the most recent version of the ASP (2001), the ASP requirements will take precedence. In addition, if site-specific requirements dictate a change in quantitation limits, the Site-Specific Work Plan (which will include this information) will take precedence.

TABLE 3 (Cont'd)
TARGET ANALYTES AND CRQ LIMITS¹

	Contract Required Quantitation Limit Water Samples(ug/L)	Contract Required Quantitation Limit Soil Samples(ug/kg)
NYSDEC ASP TCL - Pesticides and PCBs (by 2001-3, Cont.)		
Endrin	0.10	3.3
Endrin Aldehyde	0.10	3.3
Endrin Ketone	0.10	3.3
Heptachlor	0.05	1.7
Heptachlor Epoxide	0.05	1.7
Methoxychlor	0.50	17.0
Toxaphene	5.0	170.0
Aroclor-1016	1.0	33.0
Aroclor-1221	2.0	67.0
Aroclor-1232	1.0	33.0
Aroclor-1242	1.0	33.0
Aroclor-1248	1.0	33.0
Aroclor-1254	1.0	33.0
Aroclor-1260	1.0	33.0
NYSDEC ASP TAL Metals and Cyanide (by CLP-M)		
Aluminum	200	
Antimony	60	
Arsenic	10	
Barium	200	
Beryllium	5	
Cadmium	5	
Calcium	5000	
Chromium	10	
Cobalt	50	
Copper	25	
Iron	100	
Lead	3	
Magnesium	5000	

NOTES

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2. If the information provided in this table differs from the most recent version of the ASP (2001), the ASP requirements will take precedence. In addition, if site-specific requirements dictate a change in quantitation limits, the Site-Specific Work Plan (which will include this information) will take precedence.

**TABLE 3 (Cont'd.)
TARGET ANALYTES AND CRQ LIMITS¹**

	Contract Required Quantitation Limit Water Samples(ug/L)	Contract Required Quantitation Limit Soil Samples(ug/kg)
NYSDEC ASP TAL Metals and Cyanide (by CLP-M) (Cont.)		
Manganese	15	
Mercury	0.2	
Nickel	40	
Potassium	5000	
Selenium	5	
Silver	10	
Sodium	5000	
Thallium	10	
Vanadium	50	
Zinc	20	
Cyanide	10	

NOTES

1. Specific detection limits are highly matrix dependent. The detection limits listed herein are provided for guidance and may not always be achievable. Quantitation limits listed for soil are based on wet weight.
2. If the information provided in this table differs from the most recent version of the ASP (2001), the ASP requirements will take precedence. In addition, if site-specific requirements dictate a change in quantitation limits, the Site-Specific Work Plan (which will include this information) will take precedence.

These CRQLs are the instrument detection limits obtained in pure water that must be met using the procedure in Exhibit E. The quantitation limits for samples may be considerably higher depending on the sample matrix.

TABLE 1
SAMPLE CONTAINERIZATION

Analysis	Bottle Type	Preservation ¹	Holding Time ²
Aqueous Samples			
Volatile Organics (BTEX)	40 ml glass vial with Teflon-lined septa	Cool to 4°C	7 days
PCBs/Pesticides	1000 ml amber glass	Cool to 4°C	5 days*
Semivolatile Organics (PAHs)	1000 ml amber glass	Cool to 4°C	5 days*
Metals	1000 ml polyethene	HNO ₃ to pH <2	6 months (Mercury 26 days)
Cyanide	1000 ml polyethene	NaOH to pH >12	12 days
Soil & Sediment Samples			
Volatile Organics (BTEX)	Wide-mouth glass w/ teflon-lined septa ³	Cool to 4°C	7 days
Semivolatile Organics (PAHs)	Wide-mouth glass w/ teflon cap ³	Cool to 4°C	5 days*
Pesticide/PCBs	Wide-mouth glass w/ teflon cap ³	Cool to 4°C	5 days*
Metals, Cyanide	Wide mouth glass w/ teflon cap ³	Cool to 4°C	Metals - 6 months Mercury - 26 days Cyanide - 12 days

NOTES

1. All samples to be preserved in ice at 4°C during collection and transport.
2. Days from verified time of sample receipt (VTSR) by the laboratory.
3. Sized appropriately for the analytical method.
4. If the information provided in this table differs from the most recent version of the ASP (2001), the ASP requirements will take precedence. In addition, if site-specific requirements dictate a change in containerization requirements, the Site-Specific Work Plan (which will include this information) will take precedence.

* Extraction of water samples for pesticides/PCB analysis by separating funnel must be completed within five days of VTSR. Continuous liquid-liquid extraction is the required extraction for water samples for semivolatiles. Continuous liquid-liquid extraction of water samples, or sonication or soxhlet procedures for semivolatile and pesticides/PCB analyses, shall be started within five days. If a re-extraction and reanalysis must be performed, the extraction must start within 10 days and completed within 12 days of VTSR. Extracts of either water or soil/sediment samples must be analyzed within 40 days of VTSR.

TABLE 2
LABORATORY ANALYSIS PROGRAM

Matrix	Parameter ¹	Analytical Method ²
Water	BTEX	Method 8260B*
	VOC	2001-1
	SVOC	2001-2
	PAHs	Method 8270C*
	PCBs and Pesticides	2001-3
	Metals	CLP-M (various for individual metals)
	Cyanide	CLP-M
Soil & Sediments	BTEX	Method 8260B*
	VOC	2001-1
	SVOC	2001-2
	PAHs	Method 8270C*
	Pesticides and PCBs	2001-3
	Metals	CLP-M (various for individual metals)
	Cyanide	CLP-M
Waste Characteristics	TCLP	Method 1311; Method Series 7000, 8000
		Methods 1010/1020A; 9040B/9041A; Section 7.3

NOTES

- Abbreviations: BTEX = Benzene, Toluene, Ethylbenzene, Xylene; VOCs = Volatile organic compounds; SVOCs = Semivolatile organic compounds; PAHs = Polycyclic aromatic Hydrocarbons; TCLP = Toxicity Characteristic Leaching Procedure; PCBs = Polychlorinated Biphenyls; CLP = Contract Laboratory Program.
 - NYSDEC Analytical Services Protocol, 2001, Category B deliverables.
Analyses must meet NYSDEC ASP holding time specified for Methods in Exhibit I Part II.
 - If the information provided in this table differs from the most recent version of the ASP (2001), the ASP requirements will take precedence. In addition, if site-specific requirements dictate a change in analytical requirements, the Site-Specific Work Plan (which will include this information) will take precedence
- * BTEX and PAH analyses must meet NYSDEC ASP holding time specified for Methods 2001-1 and 2001-2, respectively.

Figure 1 Data Reduction, Validation and Reporting

Figure 2 Sample Custody

APPENDIX I

Site-Wide Inspection Form



SITE-WIDE INSPECTION FORM

**NATIONAL GRID
ILION (EAST STREET) FORMER MANUFACTURED GAS PLANT SITE
VILLAGE OF ILION, HERKIMER COUNTY, NEW YORK
NYSDEC SITE NO. 6-22-019**

Date and Time of Inspection: _____

Inspector (Name, Title, and Affiliation): _____

Weather Conditions: _____

Describe repairs, maintenance, or corrective actions implemented since previous inspection: _____

ATTACH PHOTOGRAPHS OF AREAS OR ITEMS INSTALLED, REPAIRED, OR REPLACED

General Site Conditions:

	<u>Acceptable</u>	<u>Unacceptable</u>
Pavement and Sidewalks	_____	_____
Lawns	_____	_____
Trees	_____	_____
Perimeter Fencing and Gates	_____	_____

Monitoring Wells:

	<u>Acceptable</u>	<u>Unacceptable</u>
Outer Casing/Cover	_____	_____
Cement/Concrete Surface Seal	_____	_____
Well Lock	_____	_____
Well Plug	_____	_____

Soil Cover System:

Any signs/evidence of ground-intrusive activities (e.g., excavating, trenching, etc.), soil disturbance regardless of quantity/extent, erosion, settlement, bare or sparsely-vegetated areas, or other conditions affecting the thickness or integrity of the soil cover system?

☐ No ☐ Yes; describe: _____

ATTACH PHOTOGRAPHS OF AREAS OF DISTURBANCE

Any signs/evidence of use of the Site in a manner inconsistent with the environmental easement?

☐ No ☐ Yes; describe: _____

ATTACH PHOTOGRAPHS OF AREAS OF NON-COMPLIANCE

Describe any repairs, maintenance, or corrective actions required to correct observed deficiencies: _____

ATTACH PHOTOGRAPHS OF DEFICIENT AREAS OR ITEMS OBSERVED DURING THE INSPECTION

Inspector's Signature: _____

Signature: _____ Date: _____

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A decorative graphic consisting of three thin orange lines. One line is horizontal, extending from the left edge of the page towards the right. Two other lines are diagonal, starting from the bottom left and extending towards the top right, intersecting the horizontal line.